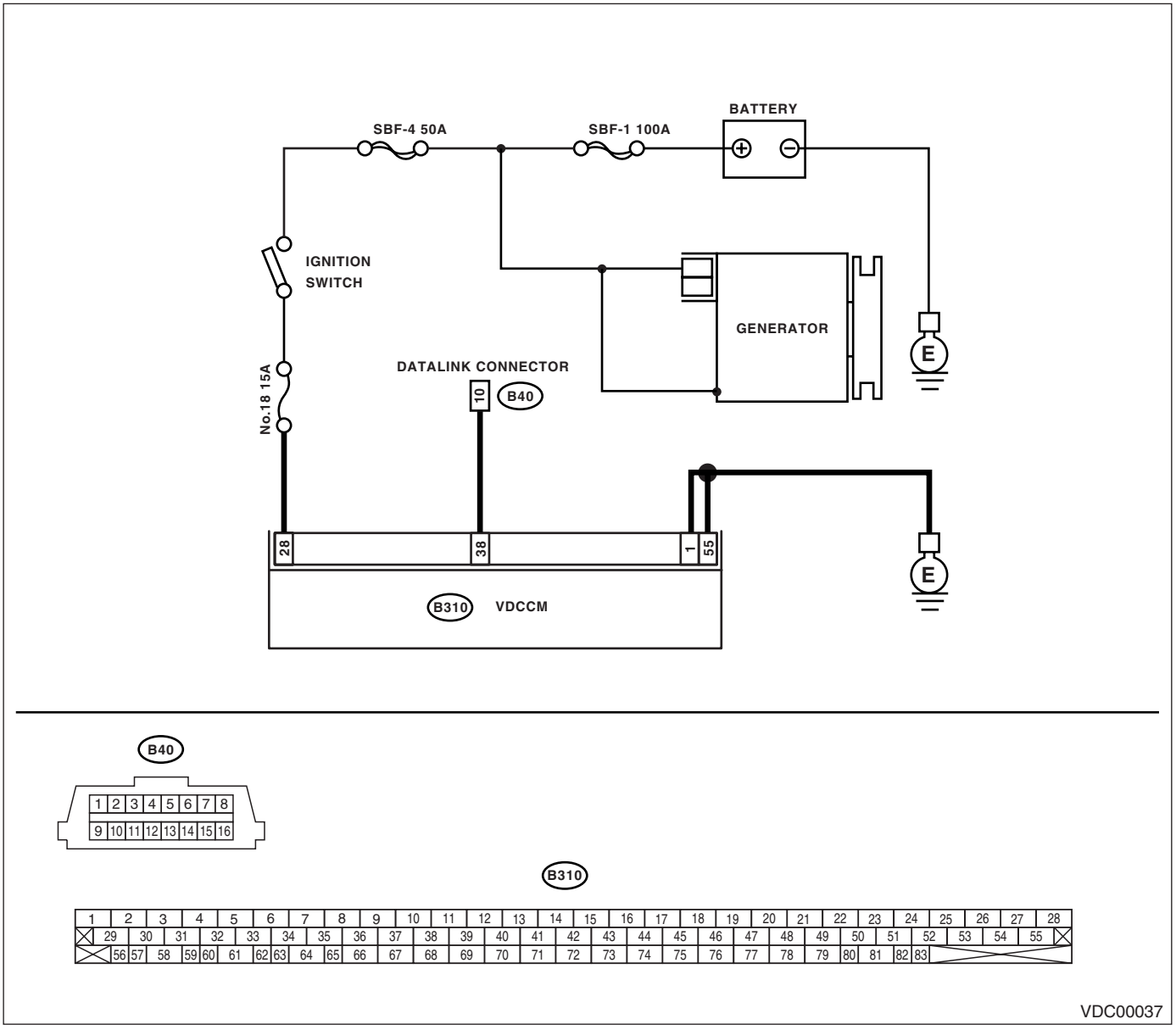
13.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: COMMUNICATION FOR INITIALIZING IMPOSSIBLE (SUBARU SELECT MONITOR COMMUNICATION MALFUNCTION)

DTC DETECTING CONDITION:
Defective harness connector
TROUBLE SYMPTOM:
The ABS warning light is kept on.
WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK IGNITION SWITCH.**	Is the ignition switch turned ON?	Go to step **2**.	Turn the ignition switch ON, and select VDCCM mode using Subaru Select Monitor.
2	**CHECK BATTERY.** 1) Turn the ignition switch OFF. 2) Measure the battery voltage.	Is the voltage more than 11 V?	Go to step **3**.	Charge or replace the battery.

	Step	Check	Yes	No
3	**CHECK BATTERY TERMINAL.**	Is there poor contact at battery terminal?	Repair or tighten the battery terminal.	Go to step **4**.
4	**CHECK SUBARU SELECT MONITOR COMMUNICATION.** 1) Turn the ignition switch ON. 2) Using the Subaru Select Monitor, check whether communication to other systems can be executed normally.	Are the system name and year displayed on Subaru Select Monitor?	Go to step **8**.	Go to step **5**.
5	**CHECK SUBARU SELECT MONITOR COMMUNICATION.** 1) Turn the ignition switch OFF. 2) Disconnect the VDCCM connector. 3) Check whether communication to other systems can be executed normally.	Are the system name and model year displayed on Subaru Select Monitor?	Go to step **9**.	Go to step **6**.
6	**CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND DATA LINK CONNECTOR.** 1) Turn the ignition switch OFF. 2) Disconnect the VDCCM connector. 3) Measure the resistance between data link connector and chassis ground. ***Connector & terminal*** ***(B40) No. 10 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **7**.	Repair the harness and connector between each control module and data link connector.
7	**CHECK OUTPUT SIGNAL FOR VDCCM.** 1) Turn the ignition switch ON. 2) Measure the voltage between data link connector and chassis ground. ***Connector & terminal*** ***(B40) No. 10 (+) — Chassis ground (–):***	Is the voltage more than 1 V?	Repair the harness and connector between each control module and data link connector.	Go to step **8**.
8	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND DATA LINK CONNECTOR.** Measure the resistance between VDCCM connector and data link connector. ***Connector & terminal*** ***(B310) No. 38 — (B40) No. 10:***	Is the resistance less than 0.5 Ω?	Repair the harness and connector between VDCCM and data link connector.	Go to step **9**.
9	**CHECK INSTALLATION OF VDCCM CONNECTOR.** Turn the ignition switch OFF.	Is the VDCCM connector inserted into the VDCCM until the clamp is secured?	Go to step **10**.	Insert the VDCCM connector into the VDCCM until the clamp is secured.
10	**CHECK POWER SUPPLY CIRCUIT.** 1) Turn the ignition switch ON (engine is OFF). 2) Measure the ignition power supply voltage between the VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 28 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **11**.	Repair open circuit of harness between VDCCM and battery.
11	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND CHASSIS GROUND.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from VDCCM and transmission. 3) Measure the resistance of the harness between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 1 — Chassis ground:*** ***(B310) No. 55 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **12**.	Repair the open circuit of the harness between the VDCCM and inhibitor switch connector, and the poor contact of connector.

Step		Check	Yes	No
12	**CHECK FOR POOR CONTACT IN THE CONNECTOR.**	Is there poor contact in control module power supply, ground line and in the data link connector?	Repair the connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

B: ABS WARNING LIGHT, VDC WARNING LIGHT/VDC OFF INDICATOR LIGHT, BRAKE WARNING LIGHT (EBD WARNING LIGHT) OR VDC OPERATION INDICATOR LIGHT DO NOT COME ON

DTC DETECTING CONDITION:

- ABS warning light circuit is open or shorted.
- VDC warning light/VDC OFF indicator light circuit is open or shorted.
- VDC operation indicator light circuit is open or shorted.
- Brake warning light (EBD warning light) circuit is open or shorted.

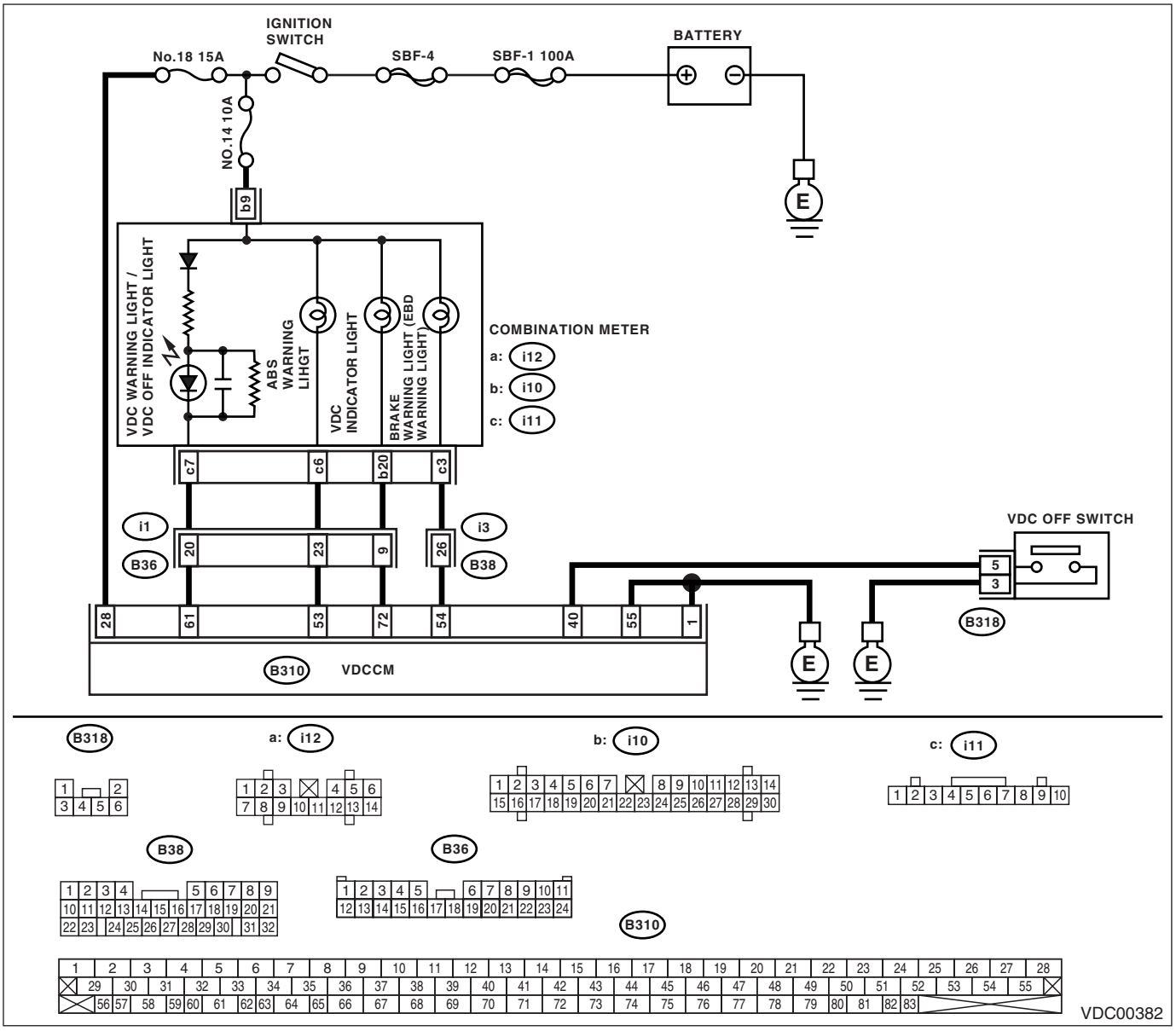
TROUBLE SYMPTOM:

When the ignition switch is ON (engine OFF), ABS warning light, VDC warning light/VDC OFF indicator light, VDC operation indicator light or brake warning light (EBD warning light) does not come on.

NOTE:

When the VDC OFF switch is held down for more than 10 seconds while the engine is running, the VDC warning light/VDC OFF indicator light will turn off and any following switch operations will be ignored. To recover VDC operation, turn the ignition switch from OFF to ON again.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK ILLUMINATION OF OTHER WARNING LIGHT.** Turn the ignition switch ON (engine is OFF).	Do other warning lights illuminate?	Go to step **2**.	Repair the combination meter. <Ref. to IDI-10, Combination Meter.>
2	**CHECK BULBS.** 1) Turn the ignition switch OFF. 2) Remove the combination meter. 3) Check the ABS warning light bulb, VDC warning light bulb, VDC operation indicator light bulb or the brake warning light bulb, and the VDC OFF indicator light bulb.	Is the bulb OK?	Go to step **3**.	Replace the defective bulbs. <Ref. to IDI-11, DISASSEMBLY, Combination Meter.>
3	**CHECK BATTERY SHORT OF LIGHT HARNESS.** 1) Disconnect the VDCCM connector from the VDCCM. 2) Fit one sheet of paper (thickness 1.5 mm (0.059 in) into the switch of the VDCCM connector. 3) Turn the ignition switch ON. 4) Measure the voltage between VDC connector and chassis ground. ***Connector & terminal*** ***ABS warning light*** ***(B310) No. 53 (+) — Chassis ground (–):*** ***VDC warning light/VDC OFF indicator light*** ***(B310) No. 61 (+) — Chassis ground (–):*** ***Brake warning light*** ***(B310) No. 54 (+) — Chassis ground (–):*** ***VDC indicator light*** ***(B310) No. 72 (+) — Chassis ground (–):***	Is the voltage less than 3 V?	Go to step **4**.	Repair the light harness.
4	**CHECK WIRING HARNESS.** 1) Turn the ignition switch OFF. 2) Install the ABS warning light bulb to the combination meter. 3) Install the combination meter. 4) Fit one sheet of paper (thickness 1.5 mm (0.059 in) into the switch of the VDCCM connector. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***ABS warning light*** ***(B310) No. 53 (+) — Chassis ground (–):*** ***VDC warning light/VDC OFF indicator light*** ***(B310) No. 61 (+) — Chassis ground (–):*** ***Brake warning light*** ***(B310) No. 54 (+) — Chassis ground (–):*** ***VDC indicator light*** ***(B310) No. 72 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **5**.	Repair the wiring harness.
5	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connectors between combination meter and the VDCCM?	Repair the connector.	Go to step **6**.
6	**CHECK WARNING LIGHT AND INDICATOR LIGHT.** 1) Connect the connector to the VDCCM. 2) Turn the ignition switch ON.	Do the ABS warning light, VDC warning light, brake warning light, VDC operation indicator light and VDC OFF indicator light come on?	Temporary poor contact occurs.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

C: ABS WARNING LIGHT, VDC WARNING LIGHT/VDC OFF INDICATOR LIGHT, BRAKE WARNING LIGHT (EBD WARNING LIGHT) DOES NOT GO OFF.

DTC DETECTING CONDITION:

- ABS warning light circuit is open or shorted.
- VDC control warning light/VDC OFF indicator light circuit is open or shorted.
- Brake warning light (EBD warning light) circuit is open or shorted.
- Diagnosis circuit is open.
- VDC OFF switch is shorted.

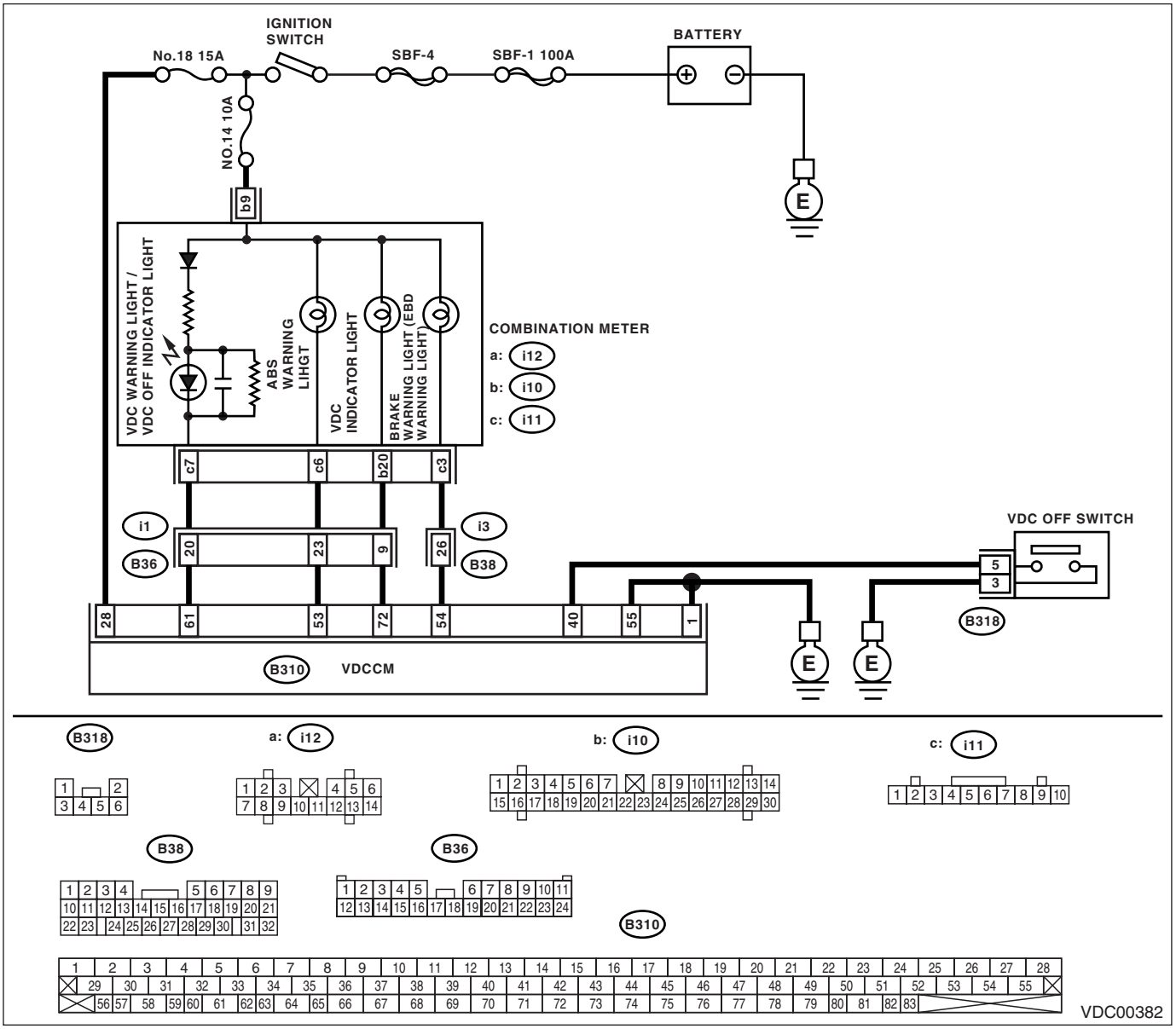
TROUBLE SYMPTOM:

- When starting the engine, the ABS warning light and VDC warning light/VDC OFF indicator light are kept ON.
- After starting the engine, the brake warning light (EBD warning light) is kept on even though the parking brake is released.

NOTE:

- When the VDC OFF switch is held down for more than 10 seconds while the engine is running, the VDC warning light/VDC OFF indicator light will turn off and any following switch operations will be ignored. To recover VDC operation, turn the ignition switch from OFF ON again.
- When the engine coolant temperature is too low, the VDC warning light/VDC OFF indicator light illuminates. The lamp will turn off when the engine is warmed up.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK INSTALLATION OF VDCCM CONNECTOR.** Turn the ignition switch OFF.	Is the VDCCM connector inserted into the VDCCM until the clamp is secured?	Go to step **2**.	Insert the VDCCM connector into the VDCCM until the clamp is secured.
2	**CHECK THE FAILURE LIGHT.** Check the lights that do not extinguish.	Are the VDC warning light/ VDC OFF indicator lights the ones that do not turn OFF?	Go to step **7**.	Go to step **3**.
3	**CHECK WIRING HARNESS.** 1) Fit one sheet of paper (thickness 1.5 mm (0.059 in) into the switch of the VDCCM connector. 2) Turn the ignition switch ON.	Are the ABS warning light and brake warning light (EBD warning light) still off?	Go to step **4**.	Repair the front wiring harness.
4	**CHECK PROTRUSION OF THE VDCCM.** 1) Turn the ignition switch OFF. 2) Check the damage to the VDCCM terminal protrusion.	Is the protrusion damaged?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **5**.

	Step	Check	Yes	No
5	**CHECK VDCCM POWER SUPPLY.** 1) Disconnect the connectors from VDCCM. 2) Start the engine. 3) Run the engine at idle. 4) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 28 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **6**.	Repair the power supply circuit of the VDCCM.
6	**CHECK POOR CONTACT OF VDCCM CONNECTOR.**	Is there poor contact in the VDCCM connector?	Repair the connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
7	**OPERATION OF VDC OFF SWITCH.** 1) Operate the VDC OFF switch. 2) Turn the ignition switch OFF once and turn ON again.	Do the VDC warning light/VDC OFF indicator light extinguish?	VDC is normal.	Go to step **8**.
8	**CHECK ENGINE COOLANT.**	Warm up the engine. Is there a change in the VDC warning light/VDC OFF indicator light illumination conditions?	VDC is normal.	Go to step **9**.
9	**CHECK VDC OFF SWITCH.** Remove and check VDC OFF switch. <Ref. to VDC-32, VDC OFF Switch.>	Is the VDC OFF switch normal?	Go to step **10**.	Replace the VDC OFF switch.
10	**CHECK WIRING HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the VDCCM connector from the VDCCM. 3) Turn the ignition switch ON.	Do the VDC warning light/VDC OFF indicator light remain off?	Go to step **11**.	Repair the wiring harness.
11	**CHECK VDC OFF SWITCH HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the ECM connector. 3) Check the insulation between ECM connector terminal and chassis ground. ***Connector & terminal*** ***(B310) No. 40 — Chassis ground:***	Is the resistance more than 1 MΩ?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Repair the VDC OFF switch circuit.

D: VDC INDICATOR LIGHT DOES NOT GO OFF

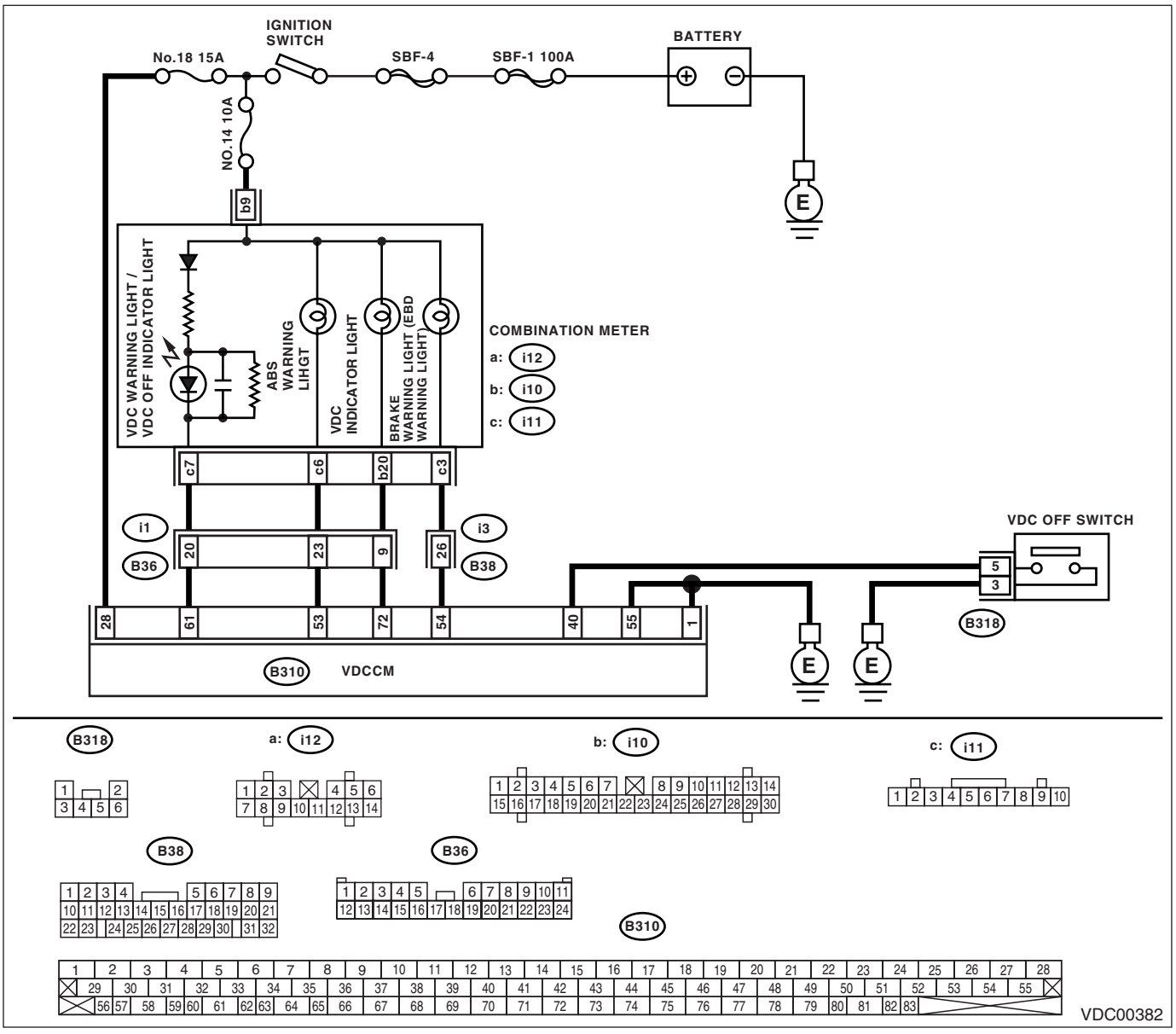
DTC DETECTING CONDITION:

VDC operation indicator light circuit is open or shorted.

TROUBLE SYMPTOM:

When starting the engine, the VDC indicator light remains ON.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK WIRING HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the VDCCM connector from the VDCCM. 3) Turn the ignition switch ON.	Is the VDC operation indicator light off?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Repair the wiring harness.

E: DTC 21 FRONT RIGHT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY

NOTE:
Refer to DTC 27 for diagnostic procedure. <Ref. to VDC(diag)-42, DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

F: DTC 23 FRONT LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY

NOTE:
Refer to DTC 27 for diagnostic procedure. <Ref. to VDC(diag)-42, DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

G: DTC 25 REAR RIGHT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY

NOTE:
Refer to DTC 27 for diagnostic procedure. <Ref. to VDC(diag)-42, DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

H: DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY

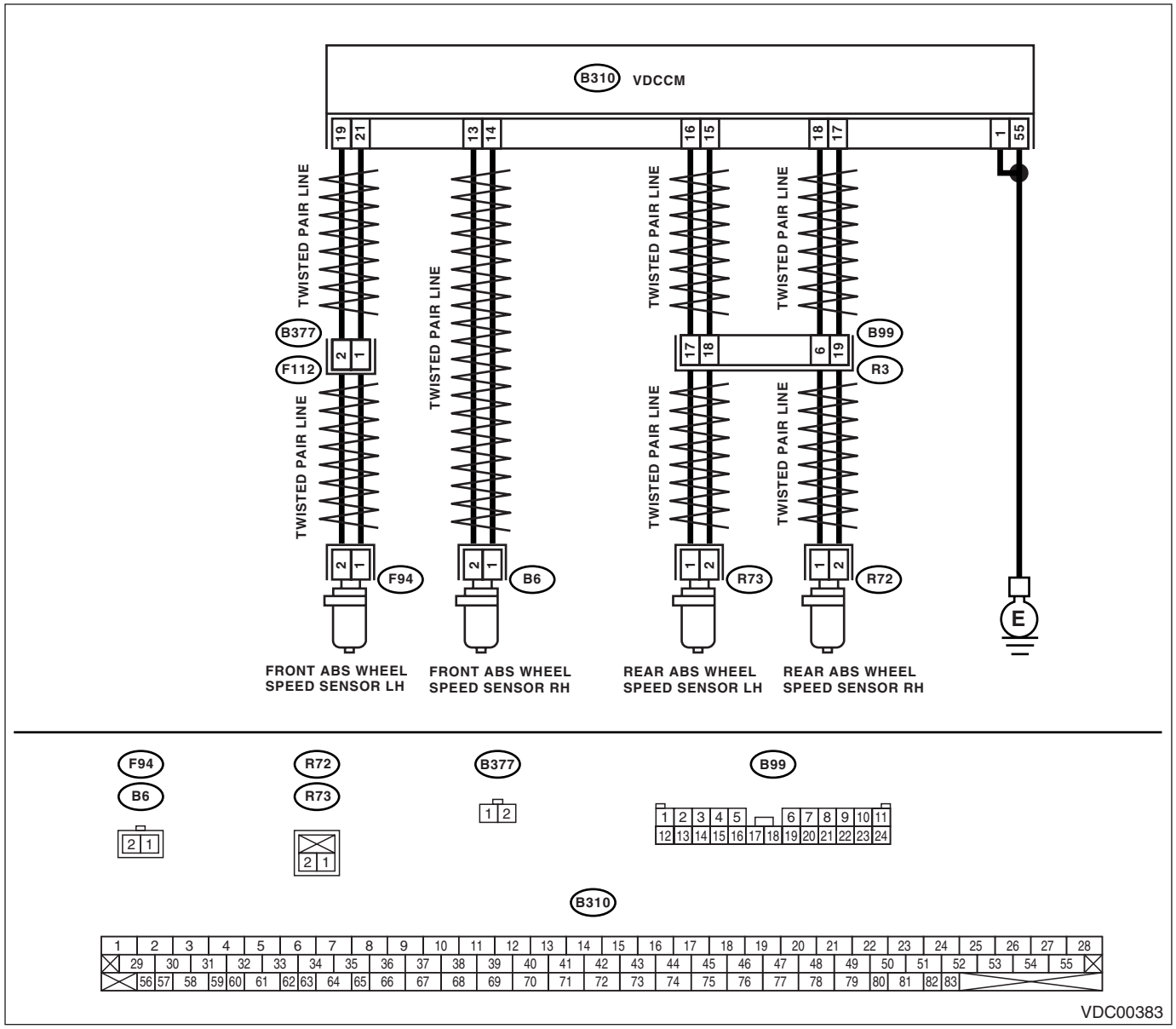
DTC DETECTING CONDITION:

- Defective ABS wheel speed sensor (broken wire, input voltage too high)
- Defective harness connector

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK OUTPUT OF ABS WHEEL SPEED SENSOR USING SUBARU SELECT MONITOR.** 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the ABS wheel speed sensor output corresponding to the faulty area in the Subaru 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**.

	Step	Check	Yes	No
2	**CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.**	Is the ABS wheel speed sensor installation bolt tightened to 33±10 N·m (3.4±1.0 kgf-m, 24.6±7.2 ft-lb)?	Go to step **3**.	Tighten the ABS wheel speed sensor installation bolts.
3	**CHECK CLEARANCE OF ABS WHEEL SPEED SENSOR.** Measure the clearance between the tone wheel and protrusion around the entire area around the wheel.	Is the clearance within the following? Front wheel: 0.3 — 0.8 mm (0.012 — 0.031 in); Rear wheel: 0.7 — 1.2 mm (0.0276 — 0.0472 in)	Go to step **4**.	Adjust the clearance. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace the worn sensor or worn tone wheel.
4	**CHECK TONE WHEEL RUNOUT.** Measure the tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step **5**.	Repair the tone wheel. Front: <Ref. to VDC-30, Front Tone Wheel.> Rear: <Ref. to VDC-31, Rear Tone Wheel.>
5	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connectors between VDCCM and ABS wheel speed sensor?	Repair the connector.	Go to step **6**.
6	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **7**.
7	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs. NOTE: Check the harness and connector between VDCCM and ABS wheel speed sensor.
8	**CHECK ABS WHEEL SPEED SENSOR.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from the ABS wheel speed sensor. 3) Measure the resistance between ABS wheel speed sensor connector terminals. ***Terminals*** ***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 resistance as shown below? Front: 1.0 — 1.5 kΩ, Rear: 1.025 — 1.265 kΩ	Go to step **9**.	Replace the ABS wheel speed sensor. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.> Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.>
9	**CHECK BATTERY SHORT OF ABS WHEEL SPEED SENSOR.** 1) Disconnect the connectors from VDCCM. 2) Measure the voltage between ABS wheel speed sensor and chassis ground. ***Terminals*** ***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 voltage less than 1 V?	Go to step **10**.	Replace the ABS wheel speed sensor. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.> Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.>

	Step	Check	Yes	No
10	**CHECK BATTERY SHORT OF ABS WHEEL SPEED SENSOR.** 1) Turn the ignition switch ON. 2) Measure the voltage between ABS wheel speed sensor and chassis ground. ***Terminals*** ***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 voltage less than 1 V?	Go to step **11**.	Replace the ABS wheel speed sensor. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.> Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.>
11	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND ABS WHEEL SPEED SENSOR.** 1) Turn the ignition switch OFF. 2) Connect the connector to ABS wheel speed sensor. 3) Measure the resistance between VDCCM connectors. ***Connector & terminal*** ***DTC 21; (B310) No. 14 — No. 13:*** ***DTC 23; (B310) No. 21 — No. 19:*** ***DTC 25; (B310) No. 18 — No. 17:*** ***DTC 27; (B310) No. 16 — No. 15:***	Is the resistance as shown below? Front: 1.0 — 1.5 kΩ, Rear: 1.025 — 1.265 kΩ	Go to step **12**.	Repair the harness connector between VDCCM and ABS wheel speed sensor.
12	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 21; (B310) No. 14 (+) — Chassis ground (–):*** ***DTC 23; (B310) No. 21 (+) — Chassis ground (–):*** ***DTC 25; (B310) No. 18 (+) — Chassis ground (–):*** ***DTC 27; (B310) No. 16 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **13**.	Repair the harness between VDCCM and ABS wheel speed sensor.
13	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 21; (B310) No. 14 (+) — Chassis ground (–):*** ***DTC 23; (B310) No. 21 (+) — Chassis ground (–):*** ***DTC 25; (B310) No. 18 (+) — Chassis ground (–):*** ***DTC 27; (B310) No. 16 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **14**.	Repair the harness between VDCCM and ABS wheel speed sensor.
14	**CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.**	Is the ABS wheel speed sensor installation bolt tightened to 33±10 N·m (3.4±1.0 kgf-m, 24.6±7.2 ft-lb)?	Go to step **15**.	Tighten the ABS wheel speed sensor installation bolts.

	Step	Check	Yes	No
15	**CHECK ABS WHEEL SPEED SENSOR CLEARANCE.** Measure the clearance between the tone wheel and protrusion around the entire area around the wheel.	Is the clearance within the following? Front wheel: 0.3 — 0.8 (0.012 — 0.787 in); Rear wheel: 0.7 — 1.2 (0.0276 — 0.0472 in)	Go to step **16**.	Adjust the clearance. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace the worn sensor or worn tone wheel.
16	**CHECK FOR RUNOUT OF THE HUB AND TONE WHEEL.** Measure the runout of the hub and tone wheel.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step **17**.	Repair the hub and tone wheel. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.> Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.>
17	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connectors between VDCCM and ABS wheel speed sensor?	Go to step **18**.	Repair the connector.
18	**CHECK THE VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **19**.
19	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs. NOTE: Check the harness and connector between VDCCM and ABS wheel speed sensor.

I: DTC 22 FR WHEEL SPEED SENSOR SIGNAL MALFUNCTION

NOTE:
Refer to DTC 28 for diagnostic procedure. <Ref. to VDC(diag)-46, DTC 28 RL WHEEL SPEED SENSOR SIGNAL MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

J: DTC 24 FL WHEEL SPEED SENSOR SIGNAL MALFUNCTION

NOTE:
Refer to DTC 28 for diagnostic procedure. <Ref. to VDC(diag)-46, DTC 28 RL WHEEL SPEED SENSOR SIGNAL MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC 26 RR WHEEL SPEED SENSOR SIGNAL MALFUNCTION

NOTE:
Refer to DTC 28 for diagnostic procedure. <Ref. to VDC(diag)-46, DTC 28 RL WHEEL SPEED SENSOR SIGNAL MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

L: DTC 28 RL WHEEL SPEED SENSOR SIGNAL MALFUNCTION

DTC DETECTING CONDITION:

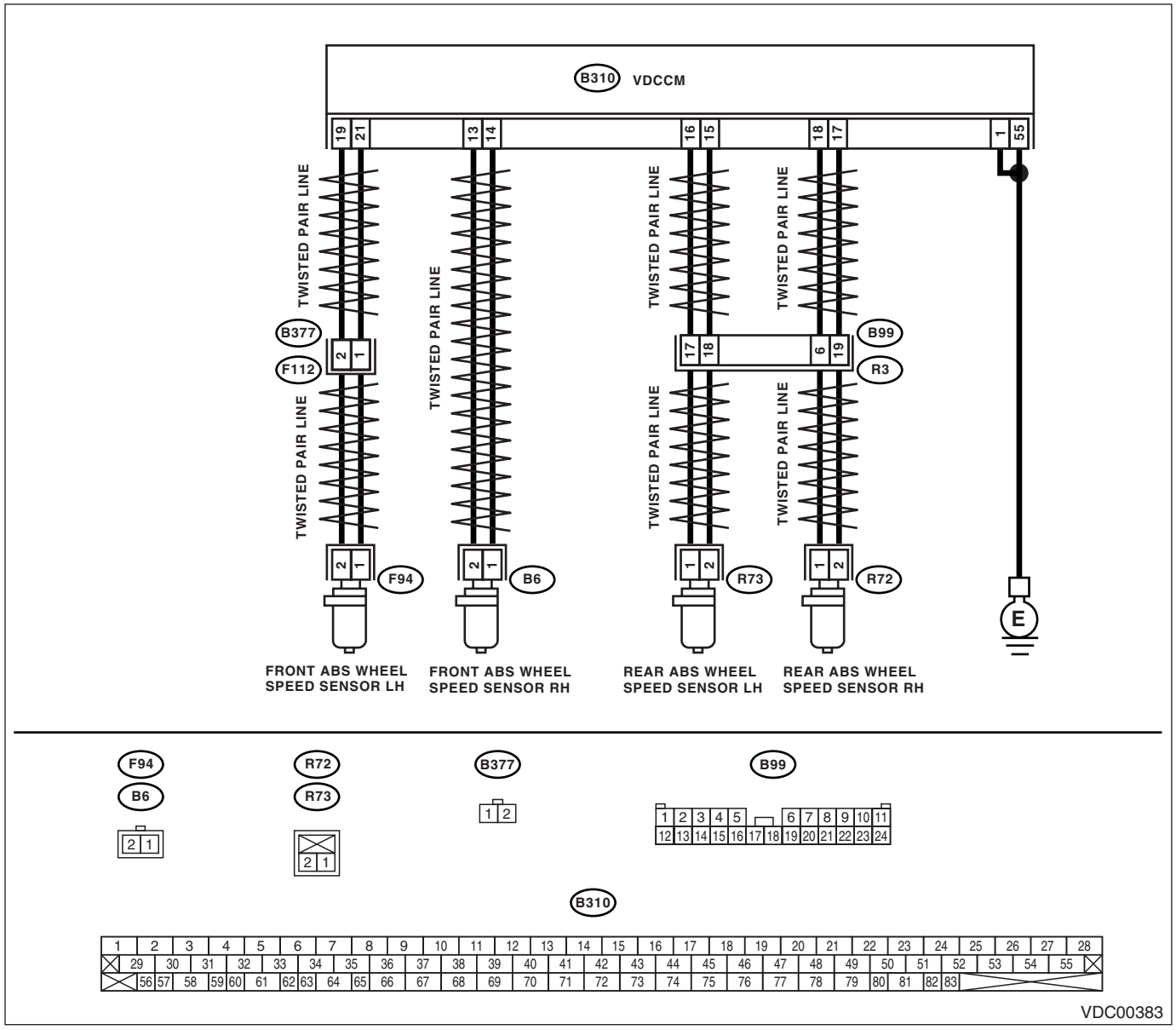
- Defective ABS wheel speed sensor signal (noise, irregular signal, etc.)
- Defective harness connector

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.
- EBD does not operate.

NOTE:
At this time, the brake warning light comes on as well as the VDC and ABS warning light.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK OUTPUT OF ABS WHEEL SPEED SENSOR USING SUBARU SELECT MONITOR.** 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the ABS wheel speed sensor output corresponding to the faulty area in the Subaru Select Monitor data display mode.	Does the speed indicated on the display change in response to the speedometer reading during acceleration or deceleration when the steering wheel is in the straight-ahead position?	Go to step **2**.	Go to step **8**.
2	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connectors between VDCCM and ABS wheel speed sensor?	Repair the connector.	Go to step **3**.
3	**CHECK CAUSE OF SIGNAL NOISE.**	Are the radio wave devices and electric components installed correctly?	Go to step **4**.	Install the radio wave devices and electric components properly.
4	**CHECK CAUSE OF SIGNAL NOISE.**	Are causes of the noise (such as an antenna) installed near the sensor harness?	Install the noise sources away from the sensor harness.	Go to step **5**.
5	**CHECK SHIELD CIRCUIT.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Measure the resistance between shield connector and chassis ground. ***Connector & terminal*** ***DTC 24; (F112) No. 3 — Chassis ground:*** NOTE: For DTC 22, 26 and 28 Go to step **6**.	Is the resistance less than 0.5 Ω?	Go to step **6**.	Repair the shield harness.
6	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **7**.
7	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Temporary noise interference occurs.	Go to the diagnosis corresponding to the DTC.
8	**CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.**	Is the ABS wheel speed sensor installation bolt tightened to 33±10 N·m (3.4±1.0 kgf-m, 24.6±7.2 ft-lb)?	Go to step **9**.	Tighten the ABS wheel speed sensor installation bolts.
9	**CHECK ABS WHEEL SPEED SENSOR CLEARANCE.** Measure the clearance between the tone wheel and protrusion around the wheel.	Is the clearance within the following? Front wheel: 0.3 — 0.8 (0.012 — 0.787 in); Rear wheel: 0.7 — 1.2 (0.0276 — 0.0472 in)	Go to step **10**.	Adjust the clearance. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace the worn sensor or worn tone wheel.
10	**CHECK USING OSCILLOSCOPE.**	Is an oscilloscope available?	Go to step **11**.	Go to step **12**.

	Step	Check	Yes	No
11	**CHECK ABS WHEEL SPEED SENSOR SIGNAL.** 1) Jack up the vehicle until all four wheels are off the ground. 2) Turn the ignition switch OFF. 3) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, VDCCM Connector Cover.> 4) Connect the oscilloscope to the connector. 5) Turn the ignition switch ON. 6) Start the wheel, and measure the voltage at the specified frequency. NOTE: When this inspection is completed, VDCCM may record DTC 29. ***Connector & terminal*** ***DTC 22; (B310) No. 14 (+) — No. 13 (–):*** ***DTC 24; (B310) No. 21 (+) — No. 19 (–):*** ***DTC 26; (B310) No. 18 (+) — No. 17 (–):*** ***DTC 28; (B310) No. 16 (+) — No. 15 (–):***	Is the oscilloscope pattern the same waveform as shown in the figure?	Go to step **15**.	Go to step **12**.
12	**CHECK CONTAMINATION OF ABS WHEEL SPEED SENSOR OR TONE WHEEL.** Remove the disc rotor from the hub according to the DTC.	Is the ABS wheel speed sensor piece or the tone wheel contaminated by dirt or other foreign matter?	Thoroughly remove dirt or other foreign matter.	Go to step **13**.
13	**CHECK DAMAGE OF ABS WHEEL SPEED SENSOR OR TONE WHEEL.**	Is there breakage or damage in the protrusion of the ABS wheel speed sensor or the tone wheel?	Replace the ABS wheel speed sensor or tone wheel. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.> <Ref. to VDC-30, Front Tone Wheel.> Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.> <Ref. to VDC-31, Rear Tone Wheel.>	Go to step **14**.
14	**CHECK TONE WHEEL RUNOUT.** Measure the tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step **15**.	Repair the tone wheel. Front: <Ref. to VDC-30, Front Tone Wheel.> Rear: <Ref. to VDC-31, Rear Tone Wheel.>
15	**CHECK RESISTANCE OF ABS WHEEL SPEED SENSOR.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from the ABS wheel speed sensor. 3) Measure the resistance between ABS wheel speed sensor connector terminals. ***Terminals*** ***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 resistance as shown below? Front: 1.0 — 1.5 kΩ, Rear: 1.025 — 1.265 kΩ	Go to step **16**.	Replace the ABS wheel speed sensor. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.> Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.>

	Step	Check	Yes	No
16	**CHECK GROUND SHORT OF ABS WHEEL SPEED SENSOR.** Measure the resistance between ABS wheel speed sensor and chassis ground. ***Terminals*** ***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 resistance more than 1 MΩ?	Go to step **17**.	Replace the ABS wheel speed sensor. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.> Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.>
17	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND ABS WHEEL SPEED SENSOR.** 1) Connect the connector to ABS wheel speed sensor. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between the VDCCM connector terminals. ***Connector & terminal*** ***DTC 22; (B310) No. 14 — No. 13:*** ***DTC 24; (B310) No. 21 — No. 19:*** ***DTC 26; (B310) No. 18 — No. 17:*** ***DTC 28; (B310) No. 16 — No. 15:***	Is the resistance as shown below? Front: 1.0 — 1.5 kΩ, Rear: 1.025 — 1.265 kΩ	Go to step **18**.	Repair the harness connector between VDCCM and ABS wheel speed sensor.
18	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 22; (B310) No. 14 — Chassis ground:*** ***DTC 24; (B310) No. 21 — Chassis ground:*** ***DTC 26; (B310) No. 18 — Chassis ground:*** ***DTC 28; (B310) No. 16 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **19**.	Repair the harness connector between VDCCM and ABS wheel speed sensor.
19	**CHECK GROUND CIRCUIT OF VDCCM.** Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 1 — Chassis ground:*** ***(B310) No. 55 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **20**.	Repair the VDCCM ground harness.
20	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connectors between VDCCM and ABS wheel speed sensor?	Repair the connector.	Go to step **21**.
21	**CHECK CAUSE OF SIGNAL NOISE.**	Are the radio wave devices and electric components installed correctly?	Go to step **22**.	Install the radio wave devices and electric components properly.
22	**CHECK CAUSE OF SIGNAL NOISE.**	Are causes of the noise (such as an antenna) installed near the sensor harness?	Install the noise sources away from the sensor harness.	Go to step **23**.
23	**CHECK SHIELD CIRCUIT.** 1) Connect all the connectors. 2) Measure the resistance between shield connector and chassis ground. ***Connector & terminal*** ***DTC 24; (F112) No. 3 — Chassis ground:*** NOTE: For DTC 22, 26 and 28 Go to step **25**.	Is the resistance less than 0.5 Ω?	Go to step **24**.	Repair the shield harness.

	Step	Check	Yes	No
24	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **25**.
25	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary noise interference occurs. NOTE: The ABS warning light will remain lit until the vehicle reaches approximately 12 km/h (7.46 MPH) even when the memory is cleared. This is normal.

M: DTC 29 ANY ONE OF FOUR ABS SENSORS SIGNAL

DTC DETECTING CONDITION:

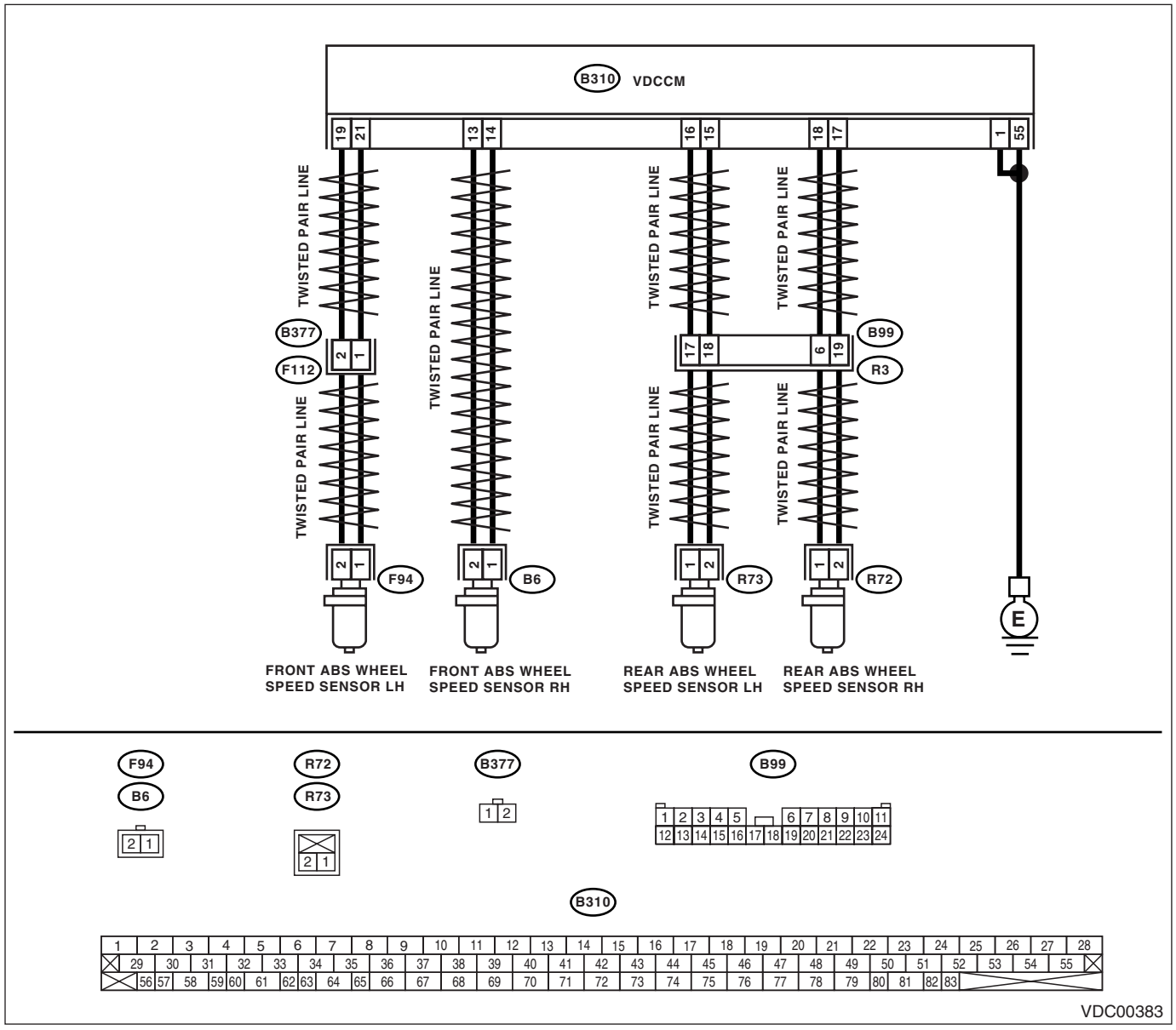
- Defective ABS wheel speed sensor signal (noise, irregular signal, etc.)
- Faulty tone wheel
- When a wheel is turned freely for a long time

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.
- EBD does not operate. (Depends on the content of the malfunction.)

NOTE:
At this time, the brake warning light comes on as well as the VDC and ABS warning light.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK WHETHER A WHEEL TURNED FREELY OR NOT.**	Did the wheels turn freely for more than one minute, such as when the vehicle is jacked-up, under full-lock cornering or when the tires are not in contact with road surface?	VDC is normal. Delete the DTC. NOTE: There are cases in which the DTC is displayed when the wheel is freely rotated for a long period of time, such as when the vehicle is towed, jacked up, or held where the steering wheel is turned completely One direction.	Go to step **2**.
2	**CHECK TIRE SPECIFICATIONS.**	Is the tire specification appropriate?	Go to step **3**.	Replace the tire.
3	**CHECK WEAR OF TIRE.**	Is the tire worn excessively?	Replace the tire.	Go to step **4**.
4	**CHECK TIRE AIR PRESSURE.**	Is the tire pressure correct?	Go to step **5**.	Adjust the tire pressure.
5	**CHECK INSTALLATION OF ABS WHEEL SPEED SENSOR.**	Is the ABS wheel speed sensor installation bolt tightened to 33±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)?	Go to step **6**.	Tighten the ABS wheel speed sensor installation bolts.
6	**CHECK ABS WHEEL SPEED SENSOR CLEARANCE.** Measure the clearance between the tone wheel and protrusion around the wheel.	Is the clearance within the following? Front wheel: 0.3 — 0.8 (0.012 — 0.787 in); Rear wheel: 0.7 — 1.2 (0.0276 — 0.0472 in)	Go to step **7**.	Adjust the clearance. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace the worn sensor or worn tone wheel.
7	**CHECK WITH AN OSCILLOSCOPE.**	Is an oscilloscope available?	Go to step **8**.	Go to step **9**.
8	**CHECK ABS WHEEL SPEED SENSOR SIGNAL.** 1) Jack up the vehicle until all four wheels are off the ground. 2) Turn the ignition switch OFF. 3) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 4) Connect the oscilloscope to the connector. 5) Turn the ignition switch ON. 6) Start the wheel, and measure the voltage at the specified frequency. NOTE: When this inspection is completed, VDCCM may record DTC 29. ***Connector & terminal*** ***(B310) No. 14 (+) — No. 13 (–) (Front RH):*** ***(B310) No. 21 (+) — No. 19 (–) (Front LH):*** ***(B310) No. 18 (+) — No. 17 (–) (Rear RH):*** ***(B310) No. 16 (+) — No. 15 (–) (Rear LH):***	Is the oscilloscope pattern the same waveform as shown in the figure?	Go to step **12**.	Go to step **9**.

	Step	Check	Yes	No
9	**CHECK CONTAMINATION OF ABS WHEEL SPEED SENSOR OR TONE WHEEL.** Remove the disc rotor from hub.	Is the ABS wheel speed sensor piece or the tone wheel contaminated by dirt or other foreign matter?	Thoroughly remove dirt or other foreign matter.	Go to step **10**.
10	**CHECK DAMAGE OF ABS WHEEL SPEED SENSOR OR TONE WHEEL.**	Is there breakage or damage in the protrusion of the ABS wheel speed sensor or the tone wheel?	Replace the ABS wheel speed sensor or tone wheel. Front: <Ref. to VDC-28, Front ABS Wheel Speed Sensor.>and <Ref. to VDC-30, Front Tone Wheel.>Rear: <Ref. to VDC-29, Rear ABS Wheel Speed Sensor.> and <Ref. to VDC-31, Rear Tone Wheel.>	Go to step **11**.
11	**CHECK TONE WHEEL RUNOUT.** Measure the tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step **12**.	Repair the tone wheel. Front: <Ref. to VDC-30, Front Tone Wheel.> Rear: <Ref. to VDC-31, Rear Tone Wheel.>
12	**CHECK VDCCM.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	Is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **13**.
13	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs. NOTE: The ABS warning light will remain lit until the vehicle reaches approximately 12 km/h (7.46 MPH) even when the memory is cleared. This is normal.

N: DTC 31 FRONT RIGHT INLET VALVE MALFUNCTION

NOTE:
Refer to DTC 62 for diagnostic procedure. <Ref. to VDC(diag)-55, DTC 62 PRIMARY CUT SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

O: DTC 33 FRONT LEFT INLET VALVE MALFUNCTION

NOTE:
Refer to DTC 62 for diagnostic procedure. <Ref. to VDC(diag)-55, DTC 62 PRIMARY CUT SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

P: DTC 35 REAR RIGHT INLET VALVE MALFUNCTION

NOTE:
Refer to DTC 62 for diagnostic procedure. <Ref. to VDC(diag)-55, DTC 62 PRIMARY CUT SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Q: DTC 37 REAR LEFT INLET VALVE MALFUNCTION

NOTE:
Refer to DTC 62 for diagnostic procedure. <Ref. to VDC(diag)-55, DTC 62 PRIMARY CUT SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

R: DTC 61 SECONDARY CUT SOLENOID VALVE MALFUNCTION

NOTE:
Refer to DTC 62 for diagnostic procedure. <Ref. to VDC(diag)-55, DTC 62 PRIMARY CUT SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

S: DTC 62 PRIMARY CUT SOLENOID VALVE MALFUNCTION

DTC DETECTING CONDITION:

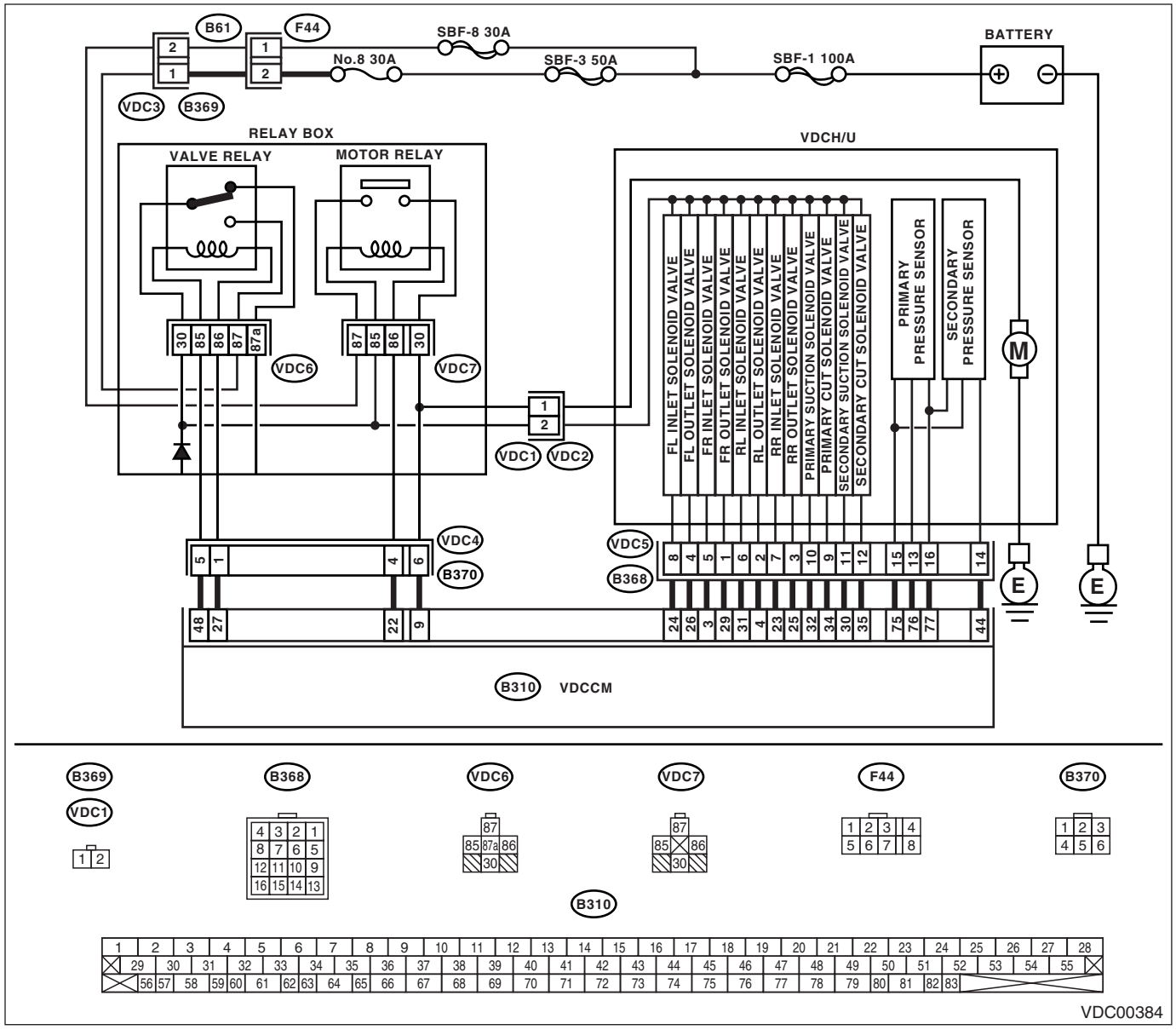
- Defective harness connector
- Defective VDCH/M solenoid valve

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.
- EBD does not operate.

NOTE:
At this time, the brake warning light comes on as well as the VDC and ABS warning light.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK RESISTANCE OF SOLENOID VALVE.** 1) Turn the ignition switch OFF. 2) Disconnect the two connectors (VDC1, F91) from VDCH/M. 3) Measure the resistance between VDCH/M connector terminals. ***Connector & terminal*** ***DTC 31; (VDC5) No. 5 — (VDC2) No. 2:*** ***DTC 33; (VDC5) No. 8 — (VDC2) No. 2:*** ***DTC 35; (VDC5) No. 7 — (VDC2) No. 2:*** ***DTC 37; (VDC5) No. 6 — (VDC2) No. 2:*** ***DTC 61; (VDC5) No. 9 — (VDC2) No. 2:*** ***DTC 62; (VDC5) No. 12 — (VDC2) No. 2:***	Is the resistance between 8.04 and 9.04 Ω?	Go to step **2**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
2	**CHECK SOLENOID VALVE GROUND SHORT.** Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***DTC 31; (VDC5) No. 5 — Chassis ground:*** ***DTC 33; (VDC5) No. 8 — Chassis ground:*** ***DTC 35; (VDC5) No. 7 — Chassis ground:*** ***DTC 37; (VDC5) No. 6 — Chassis ground:*** ***DTC 61; (VDC5) No. 9 — Chassis ground:*** ***DTC 62; (VDC5) No. 12 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
3	**CHECK SOLENOID VALVE BATTERY SHORT.** 1) Disconnect the connector from VDCCM. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***DTC 31; (VDC5) No. 5 (+) — Chassis ground (–):*** ***DTC 33; (VDC5) No. 8 (+) — Chassis ground (–):*** ***DTC 35; (VDC5) No. 7 (+) — Chassis ground (–):*** ***DTC 37; (VDC5) No. 6 (+) — Chassis ground (–):*** ***DTC 61; (VDC5) No. 9 (+) — Chassis ground (–):*** ***DTC 62; (VDC5) No. 12 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **4**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>

	Step	Check	Yes	No
4	**CHECK SOLENOID VALVE BATTERY SHORT.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***DTC 31; (VDC5) No. 5 (+) — Chassis ground (–):*** ***DTC 33; (VDC5) No. 8 (+) — Chassis ground (–):*** ***DTC 35; (VDC5) No. 7 (+) — Chassis ground (–):*** ***DTC 37; (VDC5) No. 6 (+) — Chassis ground (–):*** ***DTC 61; (VDC5) No. 9 (+) — Chassis ground (–):*** ***DTC 62; (VDC5) No. 12 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **5**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
5	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 31; (B310) No. 3 (+) — Chassis ground (–):*** ***DTC 33; (B310) No. 24 (+) — Chassis ground (–):*** ***DTC 35; (B310) No. 23 (+) — Chassis ground (–):*** ***DTC 37; (B310) No. 31 (+) — Chassis ground (–):*** ***DTC 61; (B310) No. 34 (+) — Chassis ground (–):*** ***DTC 62; (B310) No. 35 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **6**.	Repair the harness between VDCCM and VDCH/M.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 31; (B310) No. 3 (+) — Chassis ground (–):*** ***DTC 33; (B310) No. 24 (+) — Chassis ground (–):*** ***DTC 35; (B310) No. 23 (+) — Chassis ground (–):*** ***DTC 37; (B310) No. 31 (+) — Chassis ground (–):*** ***DTC 61; (B310) No. 34 (+) — Chassis ground (–):*** ***DTC 62; (B310) No. 35 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **7**.	Repair the harness between VDCCM and VDCH/M.

	Step	Check	Yes	No
7	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 31; (B310) No. 3 — Chassis ground:*** ***DTC 33; (B310) No. 24 — Chassis ground:*** ***DTC 35; (B310) No. 23 — Chassis ground:*** ***DTC 37; (B310) No. 31 — Chassis ground:*** ***DTC 61; (B310) No. 34 — Chassis ground:*** ***DTC 62; (B310) No. 35 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **8**.	Repair the harness between VDCCM and VDCH/M.
8	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND VDCH/M.** 1) Connect the connector (F91) to VDCH/M. 2) Measure the resistance between the VDCCM connector and VDCH/M connector. ***Connector & terminal*** ***DTC 31; (B310) No. 3 — (VDC2) No. 2:*** ***DTC 33; (B310) No. 24 — (VDC2) No. 2:*** ***DTC 35; (B310) No. 23 — (VDC2) No. 2:*** ***DTC 37; (B310) No. 31 — (VDC2) No. 2:*** ***DTC 61; (B310) No. 34 — (VDC2) No. 2:*** ***DTC 62; (B310) No. 35 — (VDC2) No. 2:***	Is the resistance between 7 and 10 Ω?	Go to step **9**.	Repair the connector between VDCCM and VDCH/M.
9	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connector between the VDCCM and VDCH/M?	Repair the connector.	Go to step **10**.
10	**CHECK THE VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Repair the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **11**.
11	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

T: DTC 32 FRONT RIGHT OUTLET VALVE MALFUNCTION

NOTE:
Refer to DTC 64 for diagnostic procedure. <Ref. to VDC(diag)-60, DTC 64 PRIMARY SUCTION SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

U: DTC 34 FRONT LEFT OUTLET VALVE MALFUNCTION

NOTE:
Refer to DTC 64 for diagnostic procedure. <Ref. to VDC(diag)-60, DTC 64 PRIMARY SUCTION SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

V: DTC 36 REAR RIGHT OUTLET VALVE MALFUNCTION

NOTE:
Refer to DTC 64 for diagnostic procedure. <Ref. to VDC(diag)-60, DTC 64 PRIMARY SUCTION SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

W: DTC 38 REAR LEFT OUTLET VALVE MALFUNCTION

NOTE:
Refer to DTC 64 for diagnostic procedure. <Ref. to VDC(diag)-60, DTC 64 PRIMARY SUCTION SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

X: DTC 63 SECONDARY SUCTION SOLENOID VALVE MALFUNCTION

NOTE:
Refer to DTC 64 for diagnostic procedure. <Ref. to VDC(diag)-60, DTC 64 PRIMARY SUCTION SOLENOID VALVE MALFUNCTION, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Y: DTC 64 PRIMARY SUCTION SOLENOID VALVE MALFUNCTION

DTC DETECTING CONDITION:

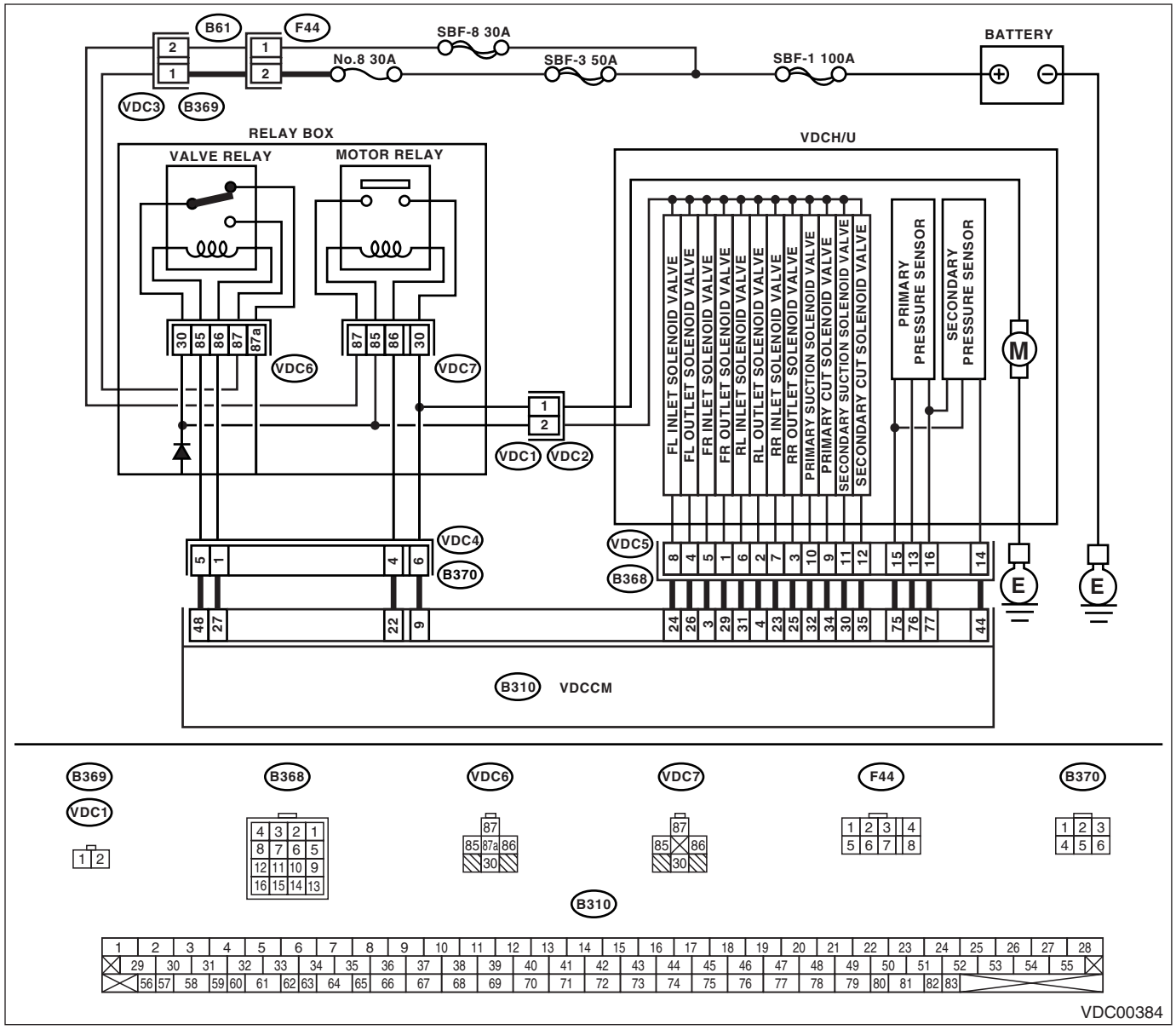
- Defective harness connector
- Defective VDCH/M solenoid valve

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.
- EBD does not operate.

NOTE:
At this time, the brake warning light comes on as well as the VDC and ABS warning light.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK RESISTANCE OF SOLENOID VALVE.** 1) Turn the ignition switch OFF. 2) Disconnect the two connectors (VDC1, F91) from VDCH/M. 3) Measure the resistance between VDCH/M connector terminals. ***Connector & terminal*** ***DTC 32; (VDC5) No. 1 — (VDC2) No. 2:*** ***DTC 34; (VDC5) No. 4 — (VDC2) No. 2:*** ***DTC 36; (VDC5) No. 3 — (VDC2) No. 2:*** ***DTC 38; (VDC5) No. 2 — (VDC2) No. 2:*** ***DTC 63; (VDC5) No. 10 — (VDC2) No. 2:*** ***DTC 64; (VDC5) No. 11 — (VDC2) No. 2:***	Is the resistance between 3.8 and 4.8 Ω?	Go to step **2**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
2	**CHECK SOLENOID VALVE GROUND SHORT.** Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***DTC 32; (VDC5) No. 1 — Chassis ground:*** ***DTC 34; (VDC5) No. 4 — Chassis ground:*** ***DTC 36; (VDC5) No. 3 — Chassis ground:*** ***DTC 38; (VDC5) No. 2 — Chassis ground:*** ***DTC 63; (VDC5) No. 10 — Chassis ground:*** ***DTC 64; (VDC5) No. 11 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
3	**CHECK SOLENOID VALVE BATTERY SHORT.** 1) Disconnect the connectors from VDCCM. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***DTC 32; (VDC5) No. 1 (+) — Chassis ground (–):*** ***DTC 34; (VDC5) No. 4 (+) — Chassis ground (–):*** ***DTC 36; (VDC5) No. 3 (+) — Chassis ground (–):*** ***DTC 38; (VDC5) No. 2 (+) — Chassis ground (–):*** ***DTC 63; (VDC5) No. 10 (+) — Chassis ground (–):*** ***DTC 64; (VDC5) No. 11 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **4**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>

Step		Check	Yes	No
4	**CHECK SOLENOID VALVE BATTERY SHORT.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***DTC 32; (VDC5) No. 1 (+) — Chassis ground (–):*** ***DTC 34; (VDC5) No. 4 (+) — Chassis ground (–):*** ***DTC 36; (VDC5) No. 3 (+) — Chassis ground (–):*** ***DTC 38; (VDC5) No. 2 (+) — Chassis ground (–):*** ***DTC 63; (VDC5) No. 10 (+) — Chassis ground (–):*** ***DTC 64; (VDC5) No. 11 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **5**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
5	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 32; (B310) No. 29 (+) — Chassis ground (–):*** ***DTC 34; (B310) No. 26 (+) — Chassis ground (–):*** ***DTC 36; (B310) No. 25 (+) — Chassis ground (–):*** ***DTC 38; (B310) No. 4 (+) — Chassis ground (–):*** ***DTC 63; (B310) No. 32 (+) — Chassis ground (–):*** ***DTC 64; (B310) No. 30 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **6**.	Repair the harness between VDCCM and VDCH/M.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 32; (B310) No. 29 (+) — Chassis ground (–):*** ***DTC 34; (B310) No. 26 (+) — Chassis ground (–):*** ***DTC 36; (B310) No. 25 (+) — Chassis ground (–):*** ***DTC 38; (B310) No. 4 (+) — Chassis ground (–):*** ***DTC 63; (B310) No. 32 (+) — Chassis ground (–):*** ***DTC 64; (B310) No. 30 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **7**.	Repair the harness between VDCCM and VDCH/M.

	Step	Check	Yes	No
7	**CHECK GROUND SHORT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 32; (B310) No. 29 — Chassis ground:*** ***DTC 34; (B310) No. 26 — Chassis ground:*** ***DTC 36; (B310) No. 25 — Chassis ground:*** ***DTC 38; (B310) No. 4 — Chassis ground:*** ***DTC 63; (B310) No. 32 — Chassis ground:*** ***DTC 64; (B310) No. 30 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **8**.	Repair the harness between VDCCM and VDCH/M.
8	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND VDCH/M.** 1) Connect the connector (F91) to VDCH/M. 2) Measure the resistance between the VDCCM connector and VDCH/M connector. ***Connector & terminal*** ***DTC 32; (B310) No. 29 — (VDC2) No. 1:*** ***DTC 34; (B310) No. 26 — (VDC2) No. 1:*** ***DTC 36; (B310) No. 25 — (VDC2) No. 1:*** ***DTC 38; (B310) No. 4 — (VDC2) No. 1:*** ***DTC 63; (B310) No. 32 — (VDC2) No. 1:*** ***DTC 64; (B310) No. 30 — (VDC2) No. 1:***	Is the resistance between 4 and 6 Ω?	Go to step **9**.	Repair the harness connector between VDCCM and VDCH/M.
9	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connector between the VDCCM and VDCH/M?	Repair the connector.	Go to step **10**.
10	**CHECK THE VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **11**.
11	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

Z: DTC 41 ECM

DTC DETECTING CONDITION:

VDCCM malfunctioning

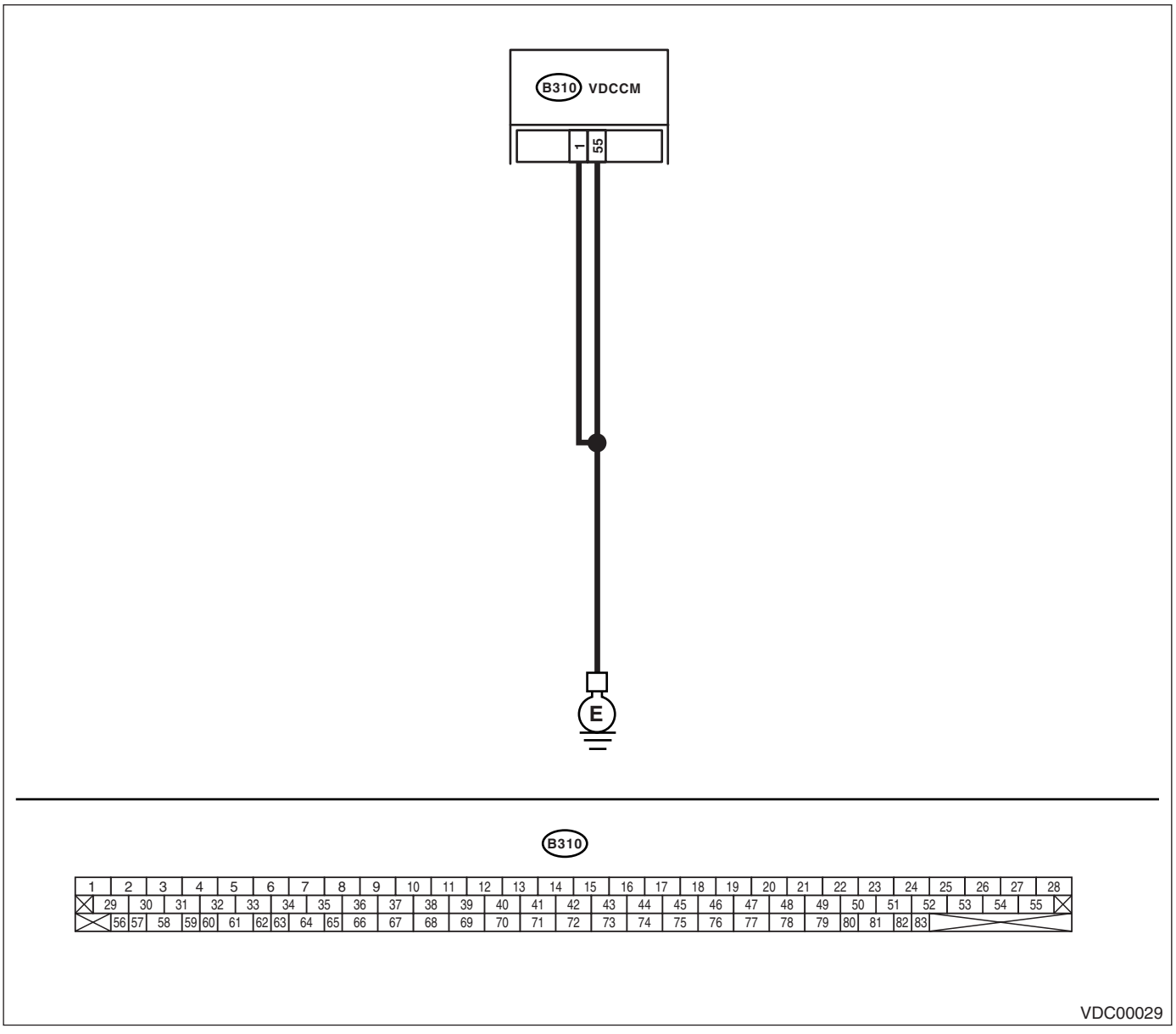
TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.
- EBD does not operate.

NOTE:

At this time, the brake warning light comes on as well as the VDC and ABS warning light.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 1 — Chassis ground:*** ***(B310) No. 55 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	Repair the VDCCM ground harness.
2	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact of the connectors between the battery, ignition switch and VDCCM?	Repair the connector.	Go to step **3**.
3	**CHECK CAUSE OF SIGNAL NOISE.**	Are the radio wave devices and electric components installed correctly?	Go to step **4**.	Install the radio wave devices and electric components properly.
4	**CHECK CAUSE OF SIGNAL NOISE.**	Are causes of the noise (such as an antenna) installed near the sensor harness?	Install the noise sources away from the sensor harness.	Go to step **5**.
5	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **6**.
6	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AA:DTC 42 POWER VOLTAGE MALFUNCTION

DTC DETECTING CONDITION:

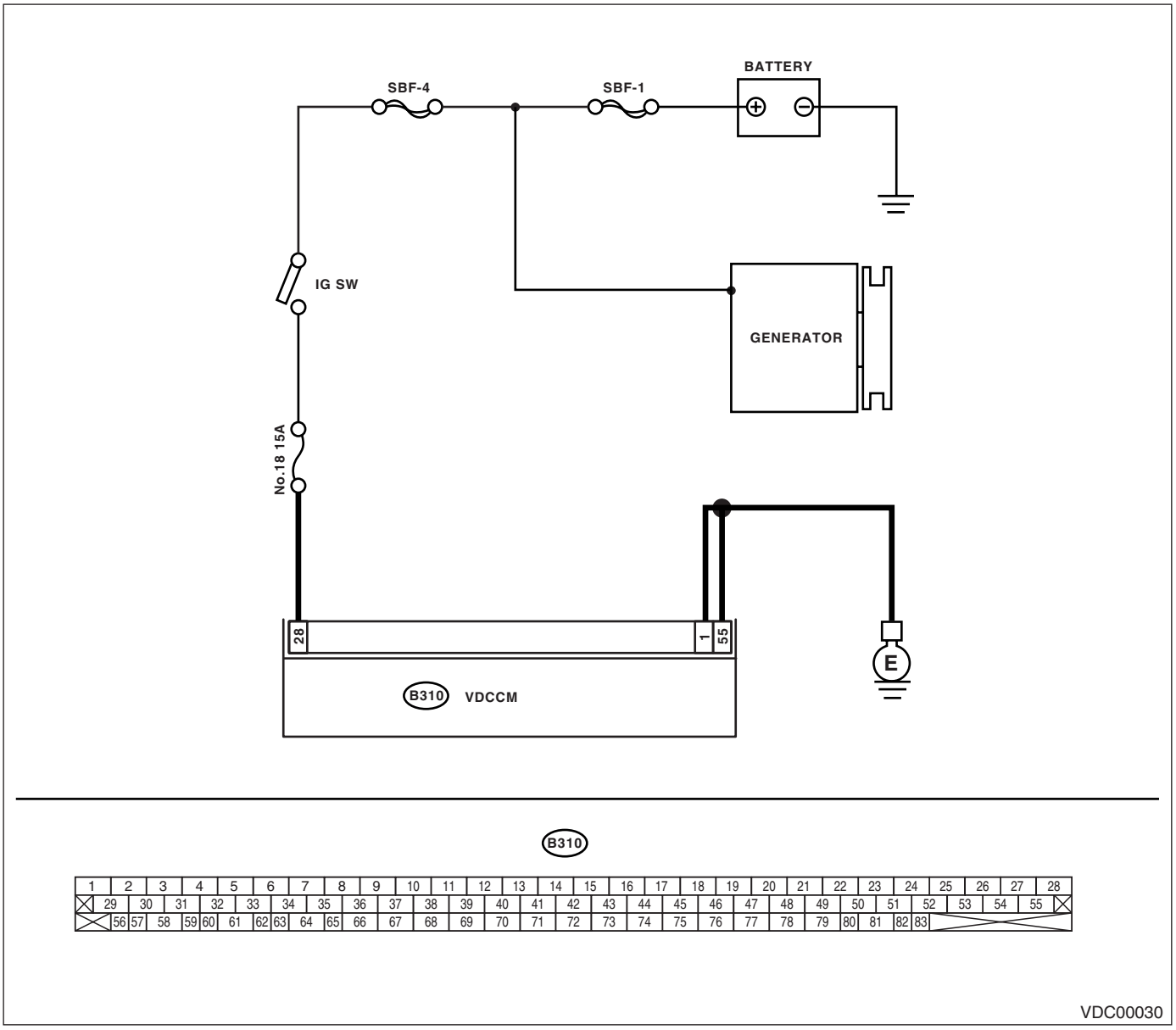
- Power voltage for VDCCM is low.
- VDCCM voltage is too high. (Warning lights go off if voltage returns.)

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.
- EBD does not operate. (When the voltage is excessively low or high)

NOTE:
At this time, the brake warning light comes on as well as the VDC and ABS warning light.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK GENERATOR.** 1) Start the engine. 2) Run the engine at idle after warming up. 3) Measure the voltage between generator terminal B and chassis ground. ***Terminals*** ***Generator B terminal — Chassis ground:***	Is the voltage 10 — 15 V?	Go to step **2**.	Repair the generator.
2	**CHECK BATTERY TERMINAL.** Turn the ignition switch OFF.	Are the positive and negative battery terminals clamped tightly?	Go to step **3**.	Tighten the clamp of terminal.
3	**CHECK VDCCM INPUT VOLTAGE.** 1) Disconnect the connectors from VDCCM. 2) Run the engine at idle. 3) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 28 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **4**.	Repair the harness connectors between the battery, ignition switch and VDCCM.
4	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Turn the ignition switch OFF. 2) Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 1 — Chassis ground:*** ***(B310) No. 55 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Repair the VDCCM ground harness.
5	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connectors between generator, battery and VDCCM?	Repair the connector.	Go to step **6**.
6	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **7**.
7	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AB:DTC 44 AT COMMUNICATION

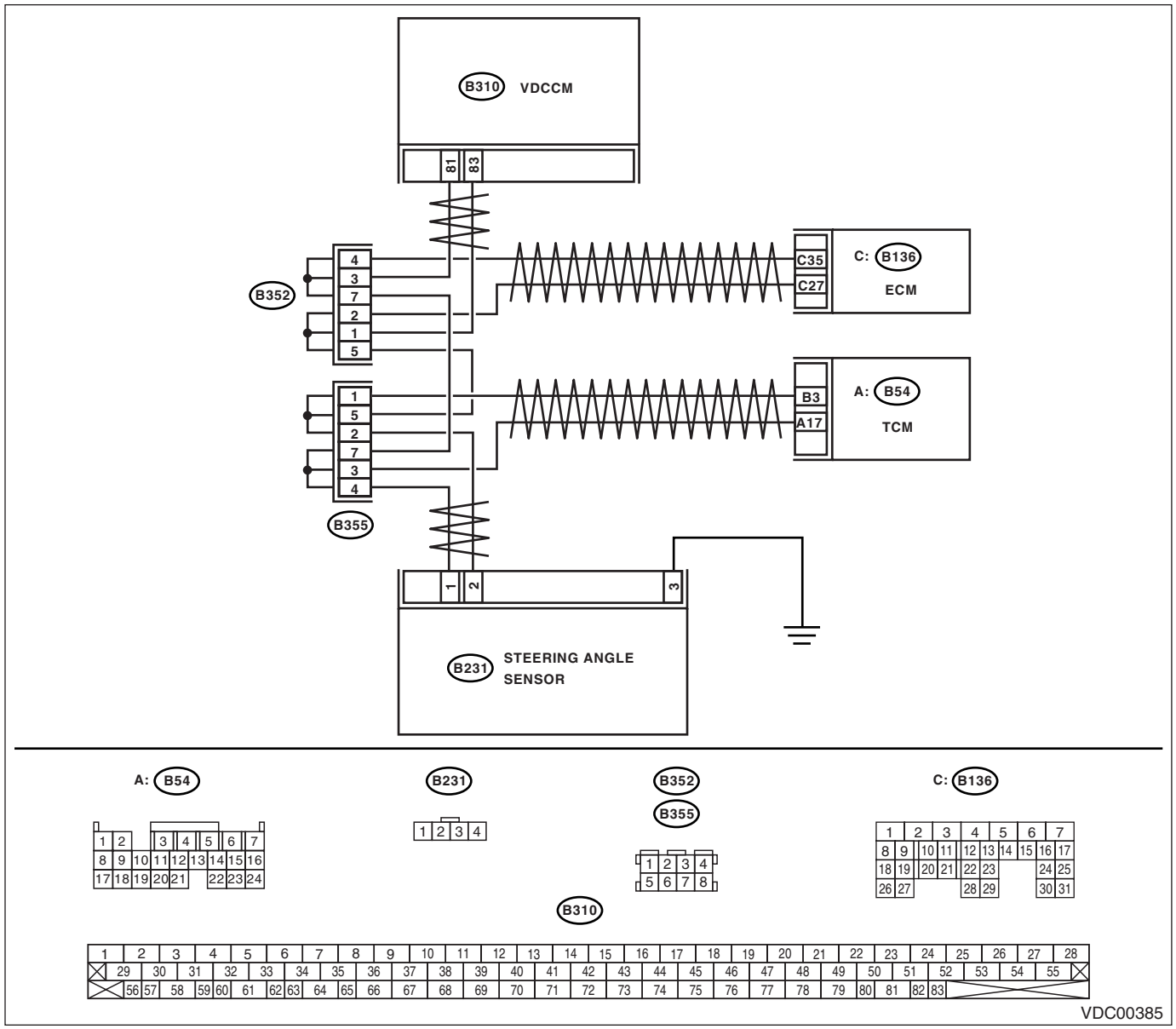
DTC DETECTING CONDITION:

TCM communication malfunction

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK HARNESS RESISTANCE.** 1) Turn the ignition switch OFF. 2) Disconnect the two connectors from the TCM. 3) Measure the resistance between TCM connector terminals. ***Connector & terminal (B55) No. 3 — No. 12:***	Is the resistance 60±3 Ω?	Go to step **2**.	Repair the harness between TCM and VDCCM.
2	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact of the TCM connector?	Repair the connector.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK TCM.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	Is the same DTC displayed again?	Replace the TCM. <Ref. to 4AT-64, Transmission Control Module (TCM).>	Go to step **4**.
4	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AC:DTC 45 INCORRECT VDC CONTROL MODULE SPECIFICATIONS

DTC DETECTING CONDITION:

Different control module specification

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

	Step	Check	Yes	No
1	**CHECK THE VDCCM SPECIFICATION.** Check the VDCCM identification mark.	Do the VDCCM identification mark and vehicle specification match?	Go to step **2**.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
2	**CHECK TCM SPECIFICATION.** Check the TCM identification mark.	Do the TCM identification mark and vehicle specification match?	Go to step **3**.	Replace the TCM. <Ref. to 4AT-64, Transmission Control Module (TCM).>
3	**CHECK TCM.** 1) Replace the TCM. <Ref. to 4AT-64, Transmission Control Module (TCM).> 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed again?	Go to step **4**.	Defect exists in original TCM.
4	**CHECK TCM.**	In the current diagnosis, is the same DTC displayed again?	Go to the diagnosis corresponding to the DTC.	Go to step **5**.
5	**CHECK VDCCM.** 1) Install the original TCM. 2) Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).> 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	Is the same DTC displayed again?	Go to step **6**.	Defect exists in original VDCCM.
6	**CHECK VDCCM.**	Is the same DTC as current diagnosis still displayed?	Replace the TCM. <Ref. to 4AT-64, Transmission Control Module (TCM).>	Proceed with the diagnosis corresponding to the DTC.

AD:DTC 45 AT ECM

DTC DETECTING CONDITION:

TCM or VDCCM malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

	Step	Check	Yes	No
1	**CHECK AT SYSTEM.** 1) Start the engine. 2) Check the DTC in AT system.	Is the DTC of AT system stored in memory?	Repair the AT system.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

AE:DTC 46 5 V POWER SUPPLY

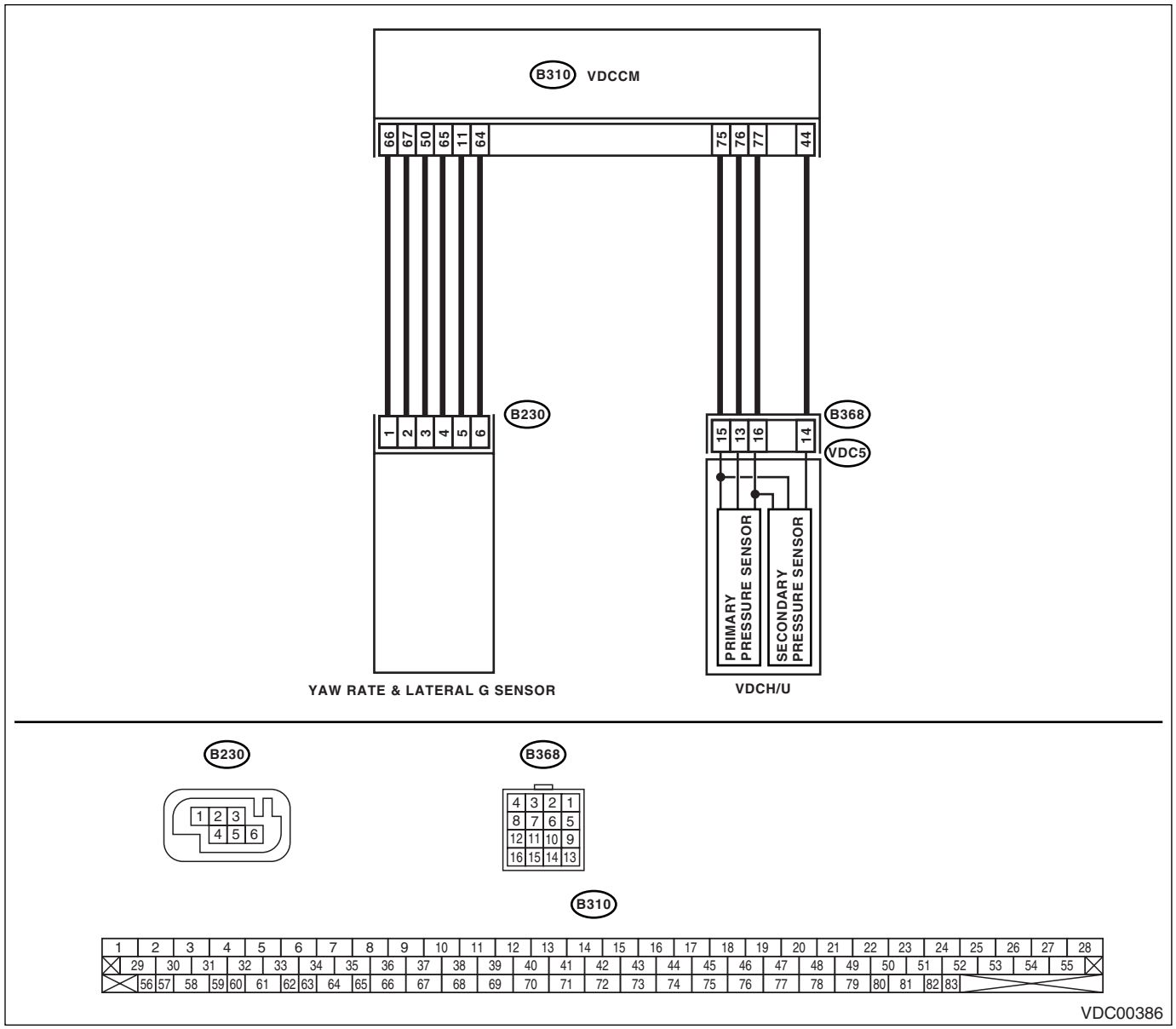
DTC DETECTING CONDITION:

5 V power supply voltage malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK GROUND SHORT IN SENSOR AND HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 50 — Chassis ground (lateral G sensor):*** ***(B310) No. 77 — Chassis ground (pressure sensor):***	Is the resistance more than 1 MΩ?	Go to step **3**.	Go to step **2**.
2	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** 1) Disconnect the connector from the defective sensor. 2) Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 50 — Chassis ground (lateral G sensor):*** ***(B310) No. 77 — Chassis ground (pressure sensor):***	Is the resistance more than 1 MΩ?	Replace the defective sensor.	Repair or replace the harness connector between VDCCM and the defective sensor.
3	**CHECK BATTERY SHORT IN SENSOR AND HARNESS.** Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 50 (+) — Chassis ground (–) (lateral G sensor):*** ***(B310) No. 77 (+) — Chassis ground (–) (pressure sensor):***	Is the voltage less than 0.5 V?	Go to step **4**.	Go to step **5**.
4	**CHECK BATTERY SHORT IN SENSOR AND HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 50 (+) — Chassis ground (–) (lateral G sensor):*** ***(B310) No. 77 (+) — Chassis ground (–) (pressure sensor):***	Is the voltage less than 0.5 V?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **5**.
5	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from the defective sensor. 3) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 50 (+) — Chassis ground (–) (lateral G sensor):*** ***(B310) No. 77 (+) — Chassis ground (–) (pressure sensor):***	Is the voltage less than 0.5 V?	Go to step **6**.	Repair or replace the harness connector between VDCCM and the defective sensor.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 50 (+) — Chassis ground (–) (lateral G sensor):*** ***(B310) No. 77 (+) — Chassis ground (–) (pressure sensor):***	Is the voltage less than 0.5 V?	Replace the defective sensor.	Repair or replace the harness connector between VDCCM and the defective sensor.

AF:DTC 47 CAN COMMUNICATION

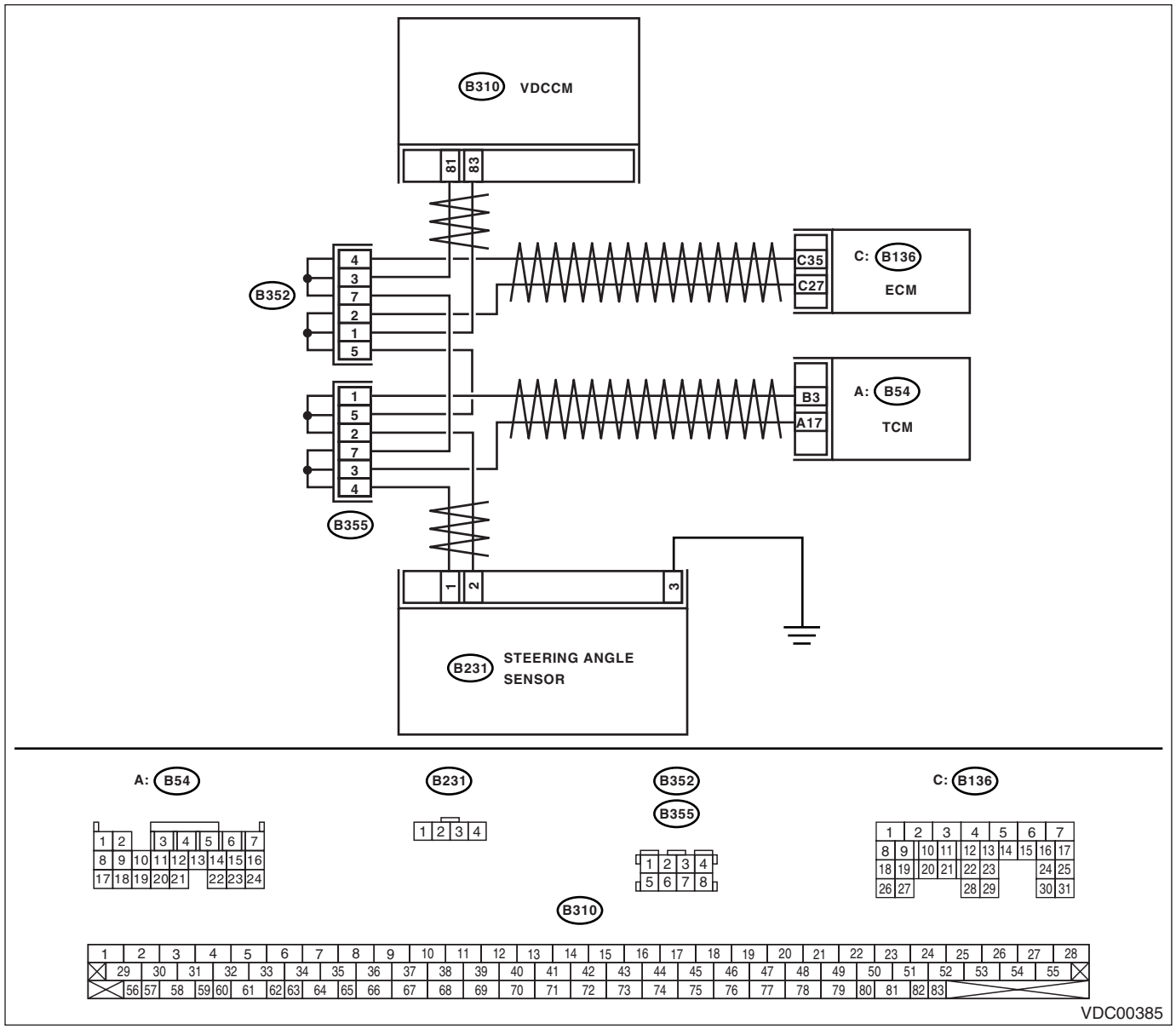
DTC DETECTING CONDITION:

CAN communication line is damaged or circuit is shorted.

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN VDCCM, STEERING ANGLE SENSOR AND TCM.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from the VDCCM, TCM, ECM and the steering angle sensor. 3) Measure the resistance between the VDCCM, TCM, ECM and the steering angle sensor. ***Connector & terminal*** ***(B310) No. 83 — (B55) No. 3:*** ***(B310) No. 81 — (B55) No. 12:*** ***(B310) No. 83 — (B231) No. 2:*** ***(B310) No. 81 — (B231) No. 1:*** ***(B310) No. 83 — (B137) No. 18:*** ***(B310) No. 81 — (B137) No. 26:***	Is the resistance less than 0.5 Ω?	Go to step **4**.	Go to step **2**.
2	**CHECK HARNESS BETWEEN STEERING ANGLE SENSOR AND TCM.** Measure the resistance between TCM and the steering angle sensor. ***Connector & terminal*** ***(B55) No. 3 — (B231) No. 2:*** ***(B55) No. 12 — (B231) No. 1:***	Is the resistance less than 0.5 Ω?	Go to step **3**.	Repair or replace the harness connector between the TCM and the steering angle sensor.
3	**CHECK HARNESS BETWEEN STEERING ANGLE SENSOR AND ECM.** Measure the resistance between ECM and the steering angle sensor. ***Connector & terminal*** ***(B231) No. 2 — (B137) No. 18:*** ***(B231) No. 1 — (B137) No. 26:***	Is the resistance less than 0.5 Ω?	Repair or replace the harness connector between the VDCCM and ECM.	Repair or replace the harness connector between the steering angle sensor and ECM.
4	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 83 — Chassis ground:*** ***(B310) No. 81 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **5**.	Repair or replace the harness connectors between the VDCCM, TCM, ECM and the steering angle sensor.
5	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 83 (+) — Chassis ground (–):*** ***(B310) No. 81 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **6**.	Repair or replace the harness connectors between the VDCCM, TCM, ECM and the steering angle sensor.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 83 (+) — Chassis ground (–):*** ***(B310) No. 81 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **7**.	Repair or replace the harness connectors between the VDCCM, TCM, ECM and the steering angle sensor.
7	**CHECK STEERING ANGLE SENSOR.** 1) Turn the ignition switch OFF. 2) Connect the connector to the steering angle sensor. 3) Measure the resistance between the VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 83 — No. 81:***	Is the resistance 120±6 Ω?	Go to step **9**.	Go to step **8**.

	Step	Check	Yes	No
8	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in steering angle sensor?	Repair or replace the steering angle sensor connector.	Replace the steering angle sensor.
9	**CHECK VDCCM.** 1) Connect the connector to VDCCM. 2) Disconnect the connector from steering angle sensor. 3) Measure the resistance between connector terminals of the steering angle sensor. ***Connector & terminal*** ***(B231) No. 1 — No. 2:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Go to step **10**.
10	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the VDCCM?	Repair or replace the VDCCM connector.	Replace the VDCCM.
11	**CHECK TCM.** 1) Connect the connector to TCM. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between the steering angle sensor terminals. ***Connector & terminal*** ***(B231) No. 1 — No. 2:***	Is the resistance more than 1 MΩ?	Go to step **15**.	Go to step **12**.
12	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the TCM?	Repair or replace the TCM connector.	Replace the TCM.
13	**CHECK ECM.** 1) Connect the connector to the ECM. 2) Disconnect the connector from TCM. 3) Measure the resistance between the steering angle sensor terminals. ***Connector & terminal*** ***(B231) No. 1 — No. 2:***	Is the resistance 120±6 Ω?	Go to step **12**.	Go to step **11**.
14	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in ECM?	Repair or replace the ECM connector.	Replace the ECM.
15	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Are other DTCs displayed?	Go to step **16**.	Temporary poor contact occurs.
16	**CHECK ANY OTHER DTC ON DISPLAY.**	Is the same DTC displayed again?	Go to step **17**.	Go to the diagnosis corresponding to the DTC.
17	**CHECK AT SYSTEM DTC DISPLAY.**	Is the DTC P1718 of the AT system displayed?	Replace the steering angle sensor.	Replace the VDCCM.

AG:DTC 51 VALVE RELAY OFF MALFUNCTION/VALVE RELAY TEST MALFUNCTION

DTC DETECTING CONDITION:

Defective valve relay

NOTE:

When the DTC 74 check is executed, DTC 51 is stored, but this does not indicate an error in the valve relay.

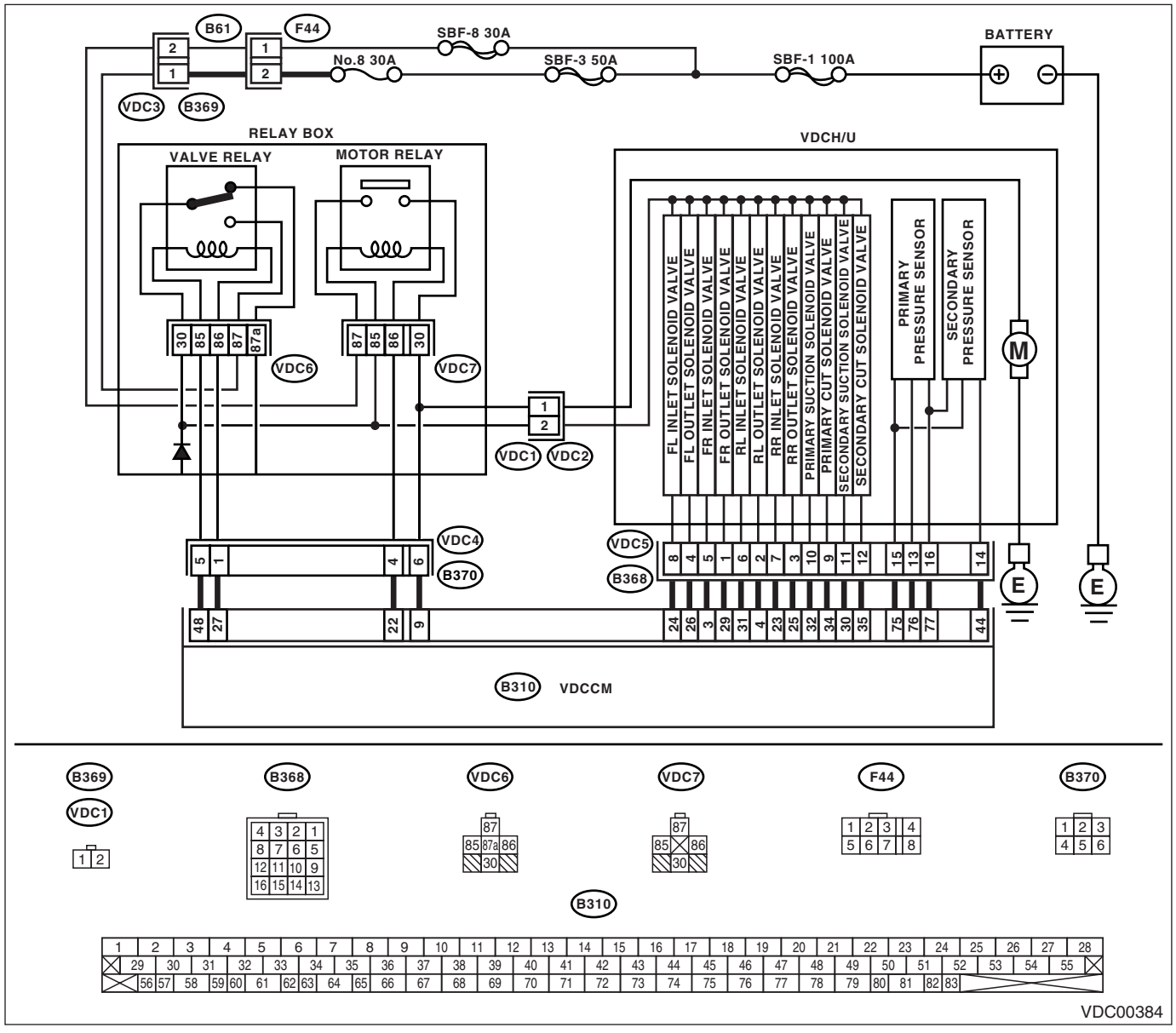
TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.
- EBD does not operate. (Depends on the content of the malfunction.)

NOTE:

At this time, the brake warning light comes on as well as the VDC and ABS warning light.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK RESISTANCE OF VALVE RELAY.** 1) Turn the ignition switch OFF. 2) Remove the valve relay from the relay box. 3) Measure the resistance between valve relay terminals. ***Terminals*** ***No. 85 — No. 86:***	Is the resistance between 93 and 113 Ω?	Go to step **2**.	Replace the valve relay.
2	**CHECK CONTACT POINT OF VALVE RELAY.** 1) Connect the battery to the valve relay terminals No. 85 and No. 86. 2) Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance less than 0.5 Ω?	Go to step **3**.	Replace the valve relay.
3	**CHECK CONTACT POINT OF VALVE RELAY.** Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87a:***	Is the resistance more than 1 MΩ?	Go to step **4**.	Replace the valve relay.
4	**CHECK CONTACT POINT OF VALVE RELAY.** 1) Disconnect the battery from the valve relay terminals. 2) Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **5**.	Replace the valve relay.
5	**CHECK CONTACT POINT OF VALVE RELAY.** Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87a:***	Is the resistance less than 0.5 Ω?	Go to step **6**.	Replace the valve relay.
6	**CHECK VALVE RELAY SHORT.** Measure the resistance between valve relay terminals. ***Terminals*** ***No. 86 — No. 87:*** ***No. 86 — No. 87a:***	Is the resistance more than 1 MΩ?	Go to step **7**.	Replace the valve relay.
7	**CHECK POWER SUPPLY FOR VALVE RELAY.** 1) Disconnect the connector (F89) from the relay box. 2) Turn the ignition switch ON. 3) Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(B369) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **8**.	Repair the harness between battery and relay box connector. Check fuse No. 8.

	Step	Check	Yes	No
8	**CHECK GROUND SHORT AND OPEN CIRCUIT ON POWER SUPPLY CIRCUIT OF RELAY BOX.** 1) Disconnect the connector (VDC1) from VDCH/M. 2) Connect the connector (F89) to the relay box. 3) Turn the ignition switch ON. 4) Measure the relay box voltage. ***Connector & terminal*** ***Valve relay installation point No. 87 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **9**.	Replace the relay box and check fuse No. 8.
9	**CHECK OPEN CIRCUIT OF RELAY BOX CONTROL CIRCUIT.** 1) Turn the ignition switch OFF. 2) Disconnect the connector (F90) from the relay box. 3) Measure the resistance between the relay box connector and valve relay installation point. ***Connector & terminal*** ***(VDC4) No. 5 — Valve relay installation point No. 85:*** ***(VDC4) No. 1 — Valve relay installation point No. 86:***	Is the resistance less than 0.5 Ω?	Go to step **10**.	Replace the relay box.
10	**CHECK GROUND SHORT CIRCUIT OF THE RELAY BOX CONTACT POINT CIRCUIT.** Measure the resistance between the relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 5 — Chassis ground:*** ***(VDC4) No. 1 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Replace the relay box and check fuse SBF6.
11	**CHECK OPEN CIRCUIT OF VALVE RELAY CONTROL SYSTEM HARNESS CIRCUIT.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between VDCCM connector and relay box connector. ***Connector & terminal*** ***(B310) No. 48 — (B370) No. 5:*** ***(B310) No. 27 — (B370) No. 1:***	Is the resistance less than 0.5 Ω?	Go to step **12**.	Repair the harness between VDCCM and relay box.
12	**CHECK GROUND SHORT OF THE VALVE RELAY CONTROL SYSTEM HARNESS.** Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 48 — Chassis ground:*** ***(B310) No. 27 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **13**.	Repair the harness between VDCCM and relay box.
13	**CHECK OPEN CIRCUIT OF THE RELAY BOX CONTACT POINT CIRCUIT.** Measure the resistance between the VDCH/M connector and valve relay installation point. ***Connector & terminal*** ***(VDC1) No. 2 — Valve relay installation point No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **14**.	Replace the relay box.

	Step	Check	Yes	No
14	**CHECK GROUND SHORT CIRCUIT IN THE RELAY BOX CONTACT POINT CIRCUIT.** Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(VDC1) No. 2 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **15**.	Replace the relay box and check fuse No. 8.
15	**CHECK RESISTANCE OF HOLD VALVE AND CUT SOLENOID VALVE.** 1) Disconnect the connector from VDCH/M. 2) Measure the resistance between VDCH/M connector terminals. ***Connector & terminal*** ***(VDC5) No. 8 — (VDC2) No. 2:*** ***(VDC5) No. 5 — (VDC2) No. 2:*** ***(VDC5) No. 6 — (VDC2) No. 2:*** ***(VDC5) No. 7 — (VDC2) No. 2:*** ***(VDC5) No. 9 — (VDC2) No. 2:*** ***(VDC5) No. 12 — (VDC2) No. 2:***	Is the resistance between 8.04 and 9.04 Ω?	Go to step **16**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
16	**CHECK RESISTANCE OF DECOMPRESSION VALVE.** Measure the resistance between VDCH/M connector terminals. ***Connector & terminal*** ***(VDC5) No. 4 — (VDC2) No. 2:*** ***(VDC5) No. 1 — (VDC2) No. 2:*** ***(VDC5) No. 2 — (VDC2) No. 2:*** ***(VDC5) No. 3 — (VDC2) No. 2:*** ***(VDC5) No. 10 — (VDC2) No. 2:*** ***(VDC5) No. 11 — (VDC2) No. 2:***	Is the resistance between 4.04 and 4.54 Ω?	Go to step **17**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
17	**CHECK SOLENOID VALVE GROUND SHORT.** Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **18**.	Replace the VDCH/M and check all of the fuses. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
18	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 3 — Chassis ground:*** ***(B310) No. 24 — Chassis ground:*** ***(B310) No. 23 — Chassis ground:*** ***(B310) No. 31 — Chassis ground:*** ***(B310) No. 35 — Chassis ground:*** ***(B310) No. 34 — Chassis ground:*** ***(B310) No. 29 — Chassis ground:*** ***(B310) No. 26 — Chassis ground:*** ***(B310) No. 25 — Chassis ground:*** ***(B310) No. 4 — Chassis ground:*** ***(B310) No. 30 — Chassis ground:*** ***(B310) No. 32 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **19**.	Repair the harness between VDCH/M and VDCCM.

	Step	Check	Yes	No
19	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND VDCH/M.** 1) Connect the connector (F91) to VDCH/M. 2) Measure the resistance between the VDCCM connector and VDCH/M. ***Connector & terminal*** ***(B310) No. 3 — (VDC2) No. 2:*** ***(B310) No. 24 — (VDC2) No. 2:*** ***(B310) No. 23 — (VDC2) No. 2:*** ***(B310) No. 31 — (VDC2) No. 2:*** ***(B310) No. 35 — (VDC2) No. 2:*** ***(B310) No. 34 — (VDC2) No. 2:***	Is the resistance between 8.0 and 10.0 Ω?	Go to step **20**.	Repair the harness and connector between the VDCH/M and the VDCCM.
20	**CHECK HARNESS CONNECTOR BETWEEN VDCCM AND VDCH/M.** Measure the resistance between the VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 29 — (VDC2) No. 2:*** ***(B310) No. 26 — (VDC2) No. 2:*** ***(B310) No. 25 — (VDC2) No. 2:*** ***(B310) No. 4 — (VDC2) No. 2:*** ***(B310) No. 30 — (VDC2) No. 2:*** ***(B310) No. 32 — (VDC2) No. 2:***	Is the resistance between 4.0 and 6.0 Ω?	Go to step **21**.	Repair the harness connector between the VDCH/M and the VDCCM.
21	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connector between the VDCCM and VDCH/M?	Repair the connector.	Go to step **22**.
22	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **23**.
23	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AH:DTC 51 VALVE RELAY ON MALFUNCTION

DTC DETECTING CONDITION:

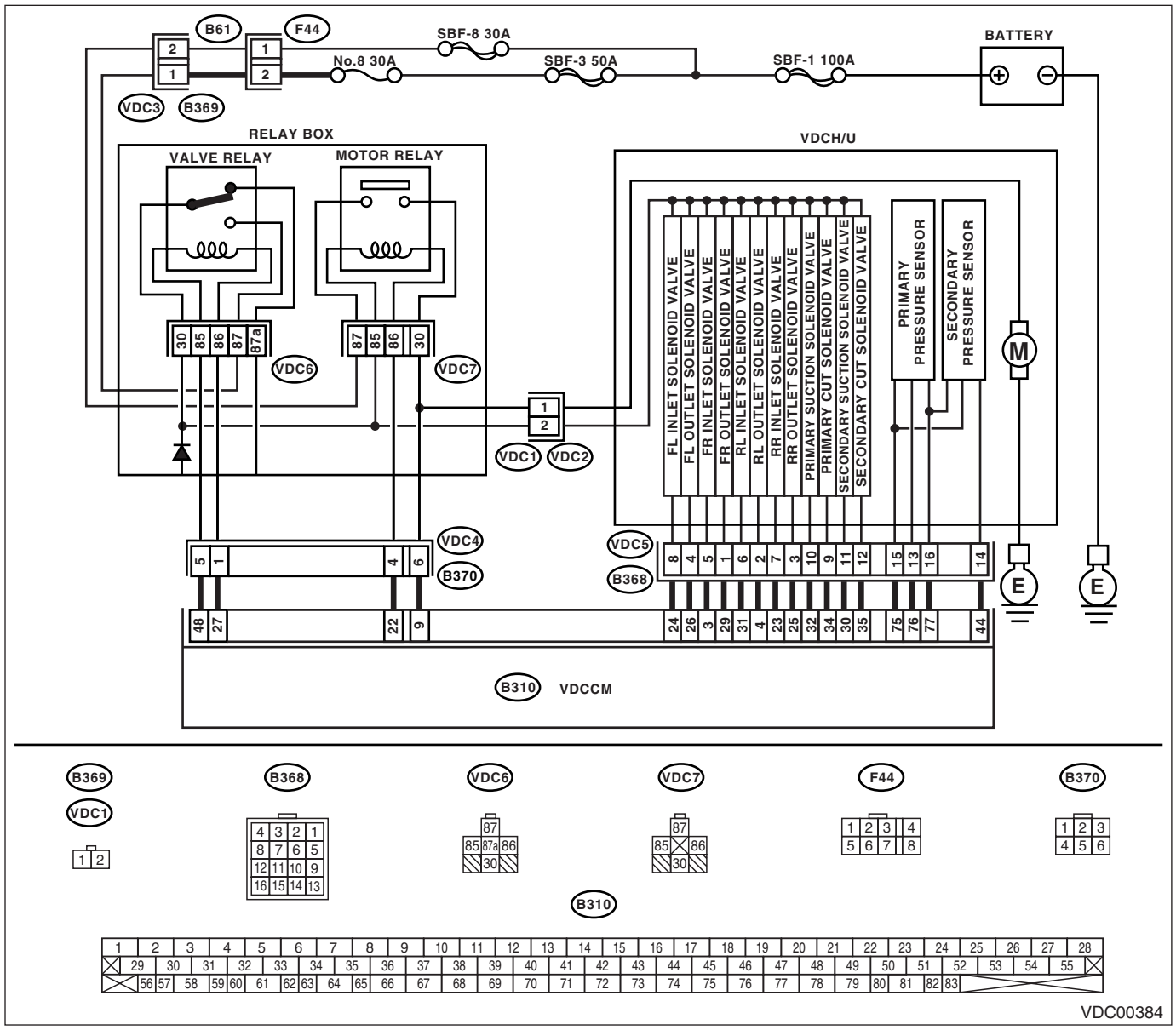
Defective valve relay

NOTE:
When the DTC 74 check is executed, DTC 51 is stored, but this does not indicate an error in the valve relay.

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK CONTACT POINT OF VALVE RELAY.** 1) Turn the ignition switch OFF. 2) Remove the valve relay from the relay box. 3) Connect the battery to the valve relay terminals No. 85 and No. 86. 4) Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	Replace the valve relay.
2	**CHECK CONTACT POINT OF VALVE RELAY.** Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87a:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace the valve relay.
3	**CHECK CONTACT POINT OF VALVE RELAY.** 1) Disconnect the battery from the valve relay terminals. 2) Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **4**.	Replace the valve relay.
4	**CHECK CONTACT POINT OF VALVE RELAY.** Measure the resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87a:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Replace the valve relay.
5	**CHECK VALVE RELAY SHORT.** Measure the resistance between valve relay terminals. ***Terminals*** ***No. 86 — No. 87:*** ***No. 86 — No. 87a:***	Is the resistance more than 1 MΩ?	Go to step **6**.	Replace the valve relay.
6	**CHECK BATTERY SHORT CIRCUIT IN THE RELAY BOX CONTACT POINT CIRCUIT.** 1) Disconnect the connector (F90) from the relay box. 2) Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 5 (+) — Chassis ground (–):*** ***(VDC4) No. 1 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **7**.	Replace the relay box. Check fuse No. 8 and SBF3.
7	**CHECK BATTERY SHORT CIRCUIT IN THE RELAY BOX CONTACT POINT CIRCUIT.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 5 (+) — Chassis ground (–):*** ***(VDC4) No. 1 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **8**.	Replace the relay box. Check fuse No. 8 and SBF3.

	Step	Check	Yes	No
8	**CHECK BATTERY SHORT OF THE VALVE RELAY CONTROL SYSTEM HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Disconnect the connector from VDCH/M. 4) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 27 (+) — Chassis ground (–):*** ***(B310) No. 48 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **9**.	Repair the harness between VDCCM and relay box and check all of the fuses.
9	**CHECK BATTERY SHORT OF THE VALVE RELAY CONTROL SYSTEM HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 27 (+) — Chassis ground (–):*** ***(B310) No. 48 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **10**.	Repair the harness between VDCCM and relay box and check all of the fuses.
10	**CHECK BATTERY SHORT CIRCUIT IN THE RELAY BOX CONTACT POINT CIRCUIT.** 1) Disconnect the (VDC1) connector from the relay box. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(VDC1) No. 2 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **11**.	Replace the relay box.
11	**CHECK BATTERY SHORT CIRCUIT IN THE RELAY BOX CONTACT POINT CIRCUIT.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(VDC1) No. 2 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **12**.	Replace the relay box.
12	**CHECK SOLENOID VALVE BATTERY SHORT.** 1) Turn the ignition switch OFF. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **13**.	Replace the VDCH/M and check all of the fuses. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
13	**CHECK SOLENOID VALVE BATTERY SHORT.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **14**.	Replace the VDCH/M and check all of the fuses. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>

	Step	Check	Yes	No
14	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 3 (+) — Chassis ground (–):*** ***(B310) No. 24 (+) — Chassis ground (–):*** ***(B310) No. 23 (+) — Chassis ground (–):*** ***(B310) No. 31 (+) — Chassis ground (–):*** ***(B310) No. 35 (+) — Chassis ground (–):*** ***(B310) No. 34 (+) — Chassis ground (–):*** ***(B310) No. 29 (+) — Chassis ground (–):*** ***(B310) No. 26 (+) — Chassis ground (–):*** ***(B310) No. 25 (+) — Chassis ground (–):*** ***(B310) No. 4 (+) — Chassis ground (–):*** ***(B310) No. 30 (+) — Chassis ground (–):*** ***(B310) No. 32 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **15**.	Repair the harness between VDCH/M and VDCCM and check all of the fuses.
15	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 3 (+) — Chassis ground (–):*** ***(B310) No. 24 (+) — Chassis ground (–):*** ***(B310) No. 23 (+) — Chassis ground (–):*** ***(B310) No. 31 (+) — Chassis ground (–):*** ***(B310) No. 35 (+) — Chassis ground (–):*** ***(B310) No. 34 (+) — Chassis ground (–):*** ***(B310) No. 29 (+) — Chassis ground (–):*** ***(B310) No. 26 (+) — Chassis ground (–):*** ***(B310) No. 25 (+) — Chassis ground (–):*** ***(B310) No. 4 (+) — Chassis ground (–):*** ***(B310) No. 30 (+) — Chassis ground (–):*** ***(B310) No. 32 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **16**.	Repair the harness between VDCH/M and VDCCM and check all of the fuses.
16	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connector between the VDCCM and VDCH/M?	Repair the connector.	Go to step **17**.
17	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **18**.
18	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AI: DTC 52 MOTOR/MOTOR RELAY OFF MALFUNCTION

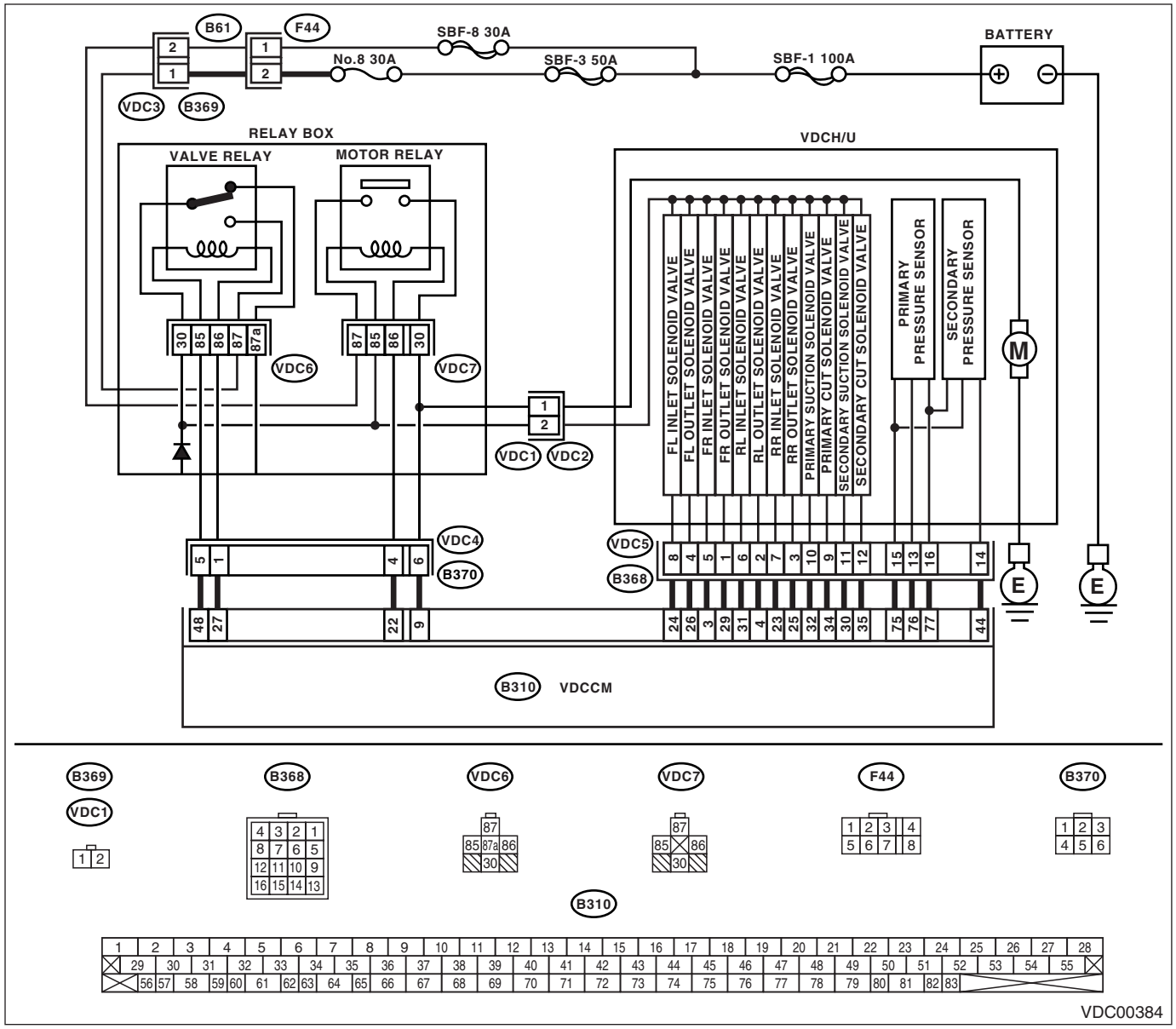
DTC DETECTING CONDITION:

- Defective motor relay
- Defective harness connector

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK MOTOR GROUND STATUS.**	Is the motor ground terminal tightened to 33±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)?	Go to step **2**.	Tighten the motor ground terminal clamp.

	Step	Check	Yes	No
2	**CHECK CONTACT POINT OF MOTOR RELAY.** 1) Turn the ignition switch OFF. 2) Remove the motor relay from the relay box. 3) Measure the resistance between motor relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace the motor relay.
3	**CHECK MOTOR RELAY SHORT.** Measure the resistance between motor relay terminals. ***Terminals*** ***No. 85 — No. 30:*** ***No. 85 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **4**.	Replace the motor relay.
4	**CHECK GROUND SHORT CIRCUIT IN RELAY BOX CIRCUIT.** 1) Disconnect the connector (F90) from the relay box. 2) Measure the resistance between the relay box connector unit and chassis ground. ***Connector & terminal*** ***(VDC4) No. 4 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **5**.	Replace the relay box.
5	**CHECK BATTERY SHORT CIRCUIT IN RELAY BOX CIRCUIT.** Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **6**.	Replace the relay box.
6	**CHECK BATTERY SHORT CIRCUIT IN RELAY BOX CIRCUIT.** 1) Turn the ignition switch ON. 2) Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **7**.	Replace the relay box.
7	**CHECK HARNESS GROUND SHORT BETWEEN RELAY BOX AND VDCCM.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 22 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **8**.	Repair the harness between VDCCM and relay box. Check the fuse SBF holder.
8	**CHECK HARNESS BATTERY SHORT BETWEEN RELAY BOX AND VDCCM.** Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 9 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **9**.	Repair the harness between VDCCM and relay box.
9	**CHECK HARNESS BATTERY SHORT BETWEEN RELAY BOX AND VDCCM.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 9 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **10**.	Repair the harness between VDCCM and relay box.
10	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connectors between the VDCH/M, relay box and VDCCM?	Repair the connector.	Go to step **11**.

Step		Check	Yes	No
11	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **12**.
12	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs. NOTE: The ABS warning light will remain lit until the vehicle reaches approximately 12 km/h (7.46 MPH) even when the memory is cleared. This is normal.

AJ:DTC 52 MOTOR/MOTOR RELAY ON MALFUNCTION

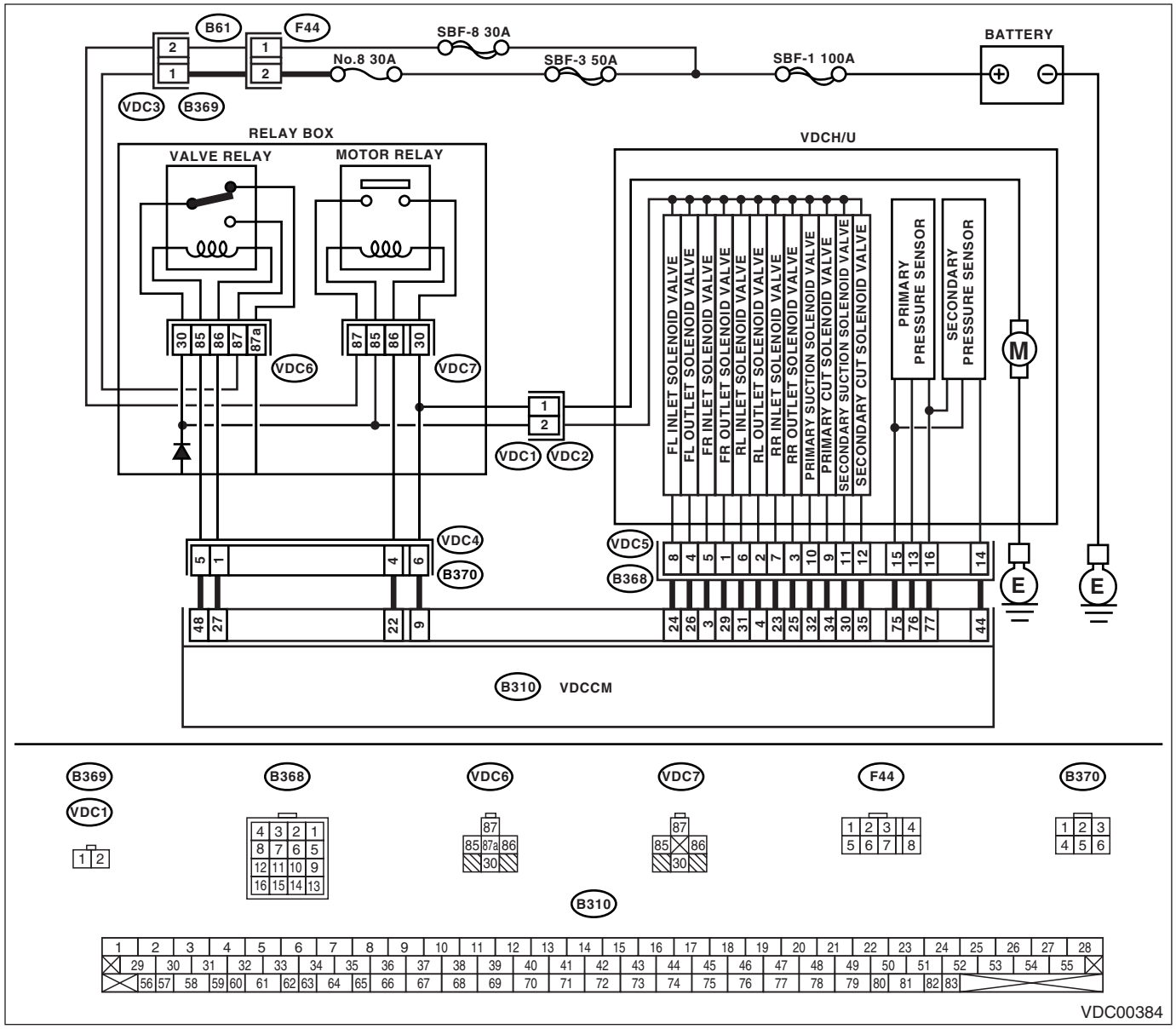
DTC DETECTING CONDITION:

- Defective motor relay
- Defective harness connector

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK RESISTANCE OF MOTOR RELAY.** 1) Turn the ignition switch OFF. 2) Remove the motor relay from the relay box. 3) Measure the resistance between motor relay terminals. ***Terminals*** ***No. 85 — No. 86:***	Is the resistance between 70 and 90 Ω?	Go to step **2**.	Replace the motor relay.

	Step	Check	Yes	No
2	**CHECK CONTACT POINT OF MOTOR RELAY.** 1) Connect the battery to motor relay terminals No. 85 and No. 86. 2) Measure the resistance between motor relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance less than 0.5 Ω?	Go to step **3**.	Replace the motor relay.
3	**CHECK MOTOR RELAY SHORT.** Measure the resistance between motor relay terminals. ***Terminals*** ***No. 85 — No. 30:*** ***No. 85 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **4**.	Replace the motor relay.
4	**CHECK INPUT VOLTAGE OF RELAY BOX.** 1) Disconnect the connector (B369) from the relay box. 2) Disconnect the connectors from VDCCM. 3) Turn the ignition switch ON. 4) Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(B369) No. 2 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **5**.	Repair the harness connector between battery and relay box and check the fuse SBF-holder.
5	**CHECK INPUT VOLTAGE OF MOTOR RELAY.** 1) Turn the ignition switch OFF. 2) Connect the connector (B369) to the relay box. 3) Turn the ignition switch ON. 4) Measure the voltage between the relay box and chassis ground. ***Connector & terminal*** ***Motor relay installation point No. 87 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **6**.	Replace the relay box.
6	**CHECK OPEN CIRCUIT OF THE RELAY BOX CONTACT POINT CIRCUIT.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors (VDC2, B370) from the relay box. 3) Measure the resistance between the relay box connector and motor relay installation point. ***Connector & terminal*** ***(VDC1) No. 1 — Motor relay installation point No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **7**.	Replace the relay box.
7	**CHECK OPEN CIRCUIT OF RELAY BOX MONITOR SYSTEM.** Measure the resistance between the relay box connector and motor relay installation point. ***Connector & terminal*** ***(VDC4) No. 6 — Motor relay installation point No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **8**.	Replace the relay box.
8	**CHECK OPEN CIRCUIT OF RELAY BOX CONTROL CIRCUIT.** Measure the resistance between the motor relay installation point and the relay box connector. ***Connector & terminal*** ***(VDC4) No. 4 — Motor relay installation point No. 86:***	Is the resistance less than 0.5 Ω?	Go to step **9**.	Replace the relay box.

	Step	Check	Yes	No
9	**CHECK OPEN CIRCUIT OF RELAY BOX CONTROL CIRCUIT.** 1) Remove the valve relay from the relay box. 2) Measure the resistance between the motor relay installation point and the valve relay installation point. ***Connector & terminal*** ***Motor relay installation point No. 85 — Valve relay installation point No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **10**.	Replace the relay box.
10	**CHECK GROUND SHORT CIRCUIT IN RELAY BOX CIRCUIT.** Measure the resistance between the relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 4 — Chassis ground:*** ***(VDC4) No. 6 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Replace the relay box.
11	**CHECK BATTERY SHORT CIRCUIT IN RELAY BOX CIRCUIT.** Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **12**.	Replace the relay box.
12	**CHECK BATTERY SHORT CIRCUIT IN RELAY BOX CIRCUIT.** 1) Turn the ignition switch ON. 2) Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **13**.	Replace the relay box.
13	**CHECK OPEN CIRCUIT OF RELAY CONTROL SYSTEM HARNESS CIRCUIT.** Measure the resistance between VDCCM connector and relay box connector. ***Connector & terminal*** ***(B310) No. 22 — (B370) No. 4:*** ***(B310) No. 9 — (B370) No. 6:***	Is the resistance less than 0.5 Ω?	Go to step **14**.	Repair the harness connector between the VDCCM and relay box.
14	**CHECK HARNESS GROUND SHORT BETWEEN RELAY BOX AND VDCCM.** Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 22 — Chassis ground:*** ***(B310) No. 9 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **15**.	Repair the harness between VDCCM and relay box. Check the fuse SBF holder.
15	**CHECK HARNESS BATTERY SHORT BETWEEN RELAY BOX AND VDCCM.** Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 9 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **16**.	Repair the harness between VDCCM and relay box. Check the fuse SBF holder.
16	**CHECK HARNESS BATTERY SHORT BETWEEN RELAY BOX AND VDCCM.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 9 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **17**.	Repair the harness between VDCCM and relay box. Check the fuse SBF holder.
17	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connectors between the VDCH/M, relay box and VDCCM?	Repair the connector.	Go to step **18**.

Step		Check	Yes	No
18	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **19**.
19	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs. NOTE: The ABS warning light will remain lit until the vehicle reaches approximately 12 km/h (7.46 MPH) even when the memory is cleared. This is normal.

AK:DTC 52 MOTOR

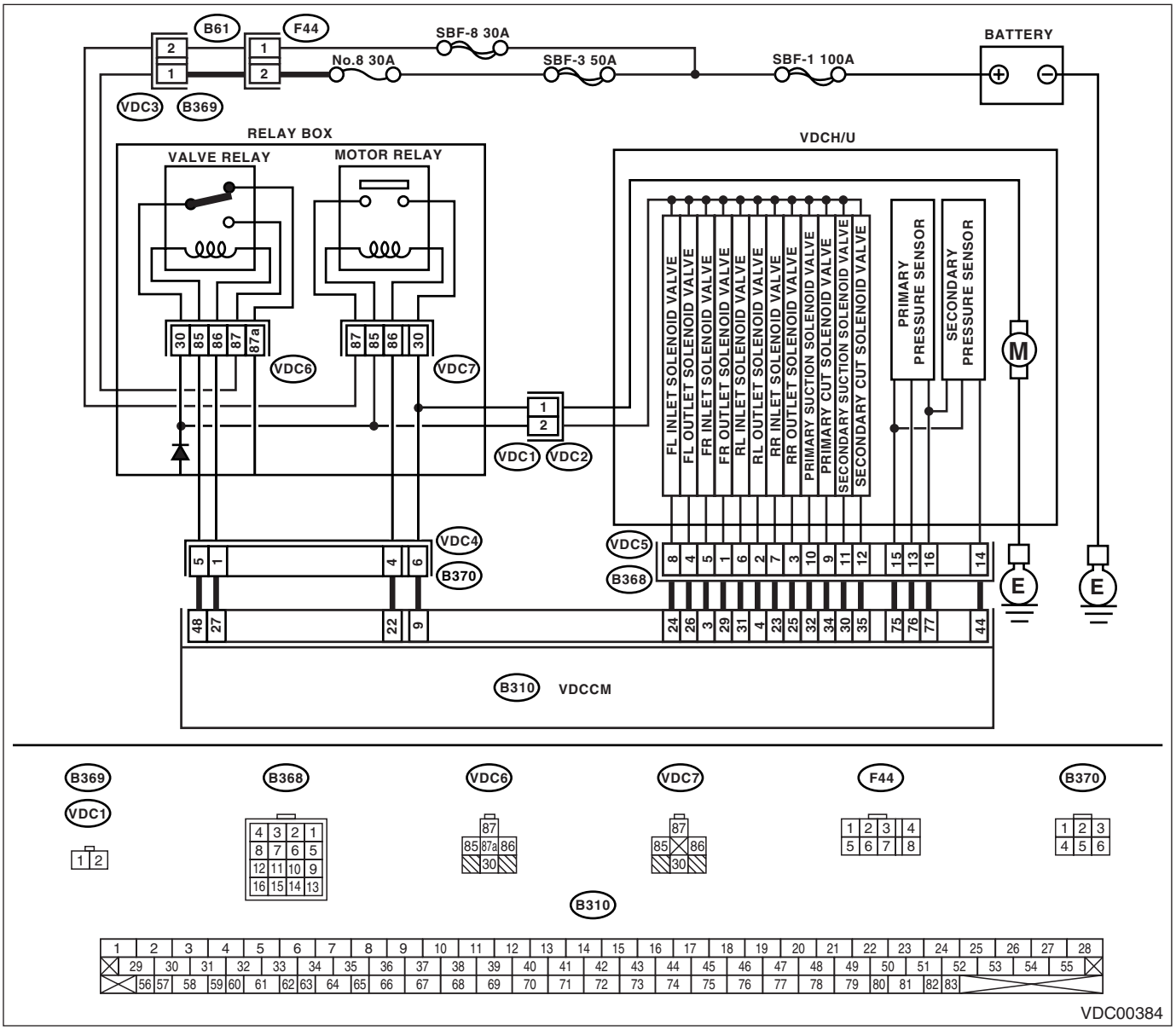
DTC DETECTING CONDITION:

- Defective motor
- Defective motor relay
- Defective harness connector

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK CONTACT POINT OF MOTOR RELAY.** 1) Turn the ignition switch OFF. 2) Remove the motor relay from the relay box. 3) Connect the battery to motor relay terminals No. 85 and No. 86. 4) Measure the resistance between motor relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	Replace the motor relay.
2	**CHECK CONTACT POINT OF MOTOR RELAY.** 1) Disconnect the battery from the motor relay terminals. 2) Measure the resistance between motor relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace the motor relay.
3	**CHECK INPUT VOLTAGE OF RELAY BOX.** 1) Disconnect the connector (B369) from the relay box. 2) Disconnect the connectors from VDCCM. 3) Turn the ignition switch ON. 4) Measure the voltage between the relay box connector and chassis ground. ***Connector & terminal*** ***(B369) No. 2 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **4**.	Repair the harness connector between battery and relay box and check the fuse SBF-holder.
4	**CHECK INPUT VOLTAGE OF MOTOR RELAY.** 1) Turn the ignition switch OFF. 2) Connect the connector (B369) to the relay box. 3) Turn the ignition switch ON. 4) Measure the voltage between the relay box and chassis ground. ***Connector & terminal*** ***Motor relay installation point No. 87 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **5**.	Replace the relay box.
5	**CHECK MOTOR GROUND STATUS.**	Is the motor ground terminal tightened to 33±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)?	Go to step **6**.	Tighten the motor ground terminal clamp.
6	**CHECK VDCCM MOTOR DRIVE TERMINAL.** 1) Turn the ignition switch OFF. 2) Remove the VDC connector cover. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 3) Connect all the connectors. 4) Install the motor relay. 5) Check the ABS sequence control. <Ref. to VDC-16, ABS Sequence Control.> 6) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 22 (+) — No. 1 (–):***	Does the voltage fall from 10 V — 13 V to less than 1.5 V, and then rise to 10 V — 13 V again when checking the ABS sequence control?	Go to step **7**.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
7	**CHECK MOTOR OPERATION.** Check the ABS sequence control. <Ref. to VDC-19, VDC Sequence Control.>	Can the motor revolution noise (engine sound) be heard when checking the ABS sequence control?	Go to step **8**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>

	Step	Check	Yes	No
8	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connectors between the VDCH/M, relay box and VDCCM?	Repair the connector.	Go to step **9**.
9	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **10**.
10	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs. NOTE: The ABS warning light will remain lit until the vehicle reaches approximately 12 km/h (7.46 MPH) even when the memory is cleared. This is normal.

AL:DTC 57 EGI COMMUNICATION

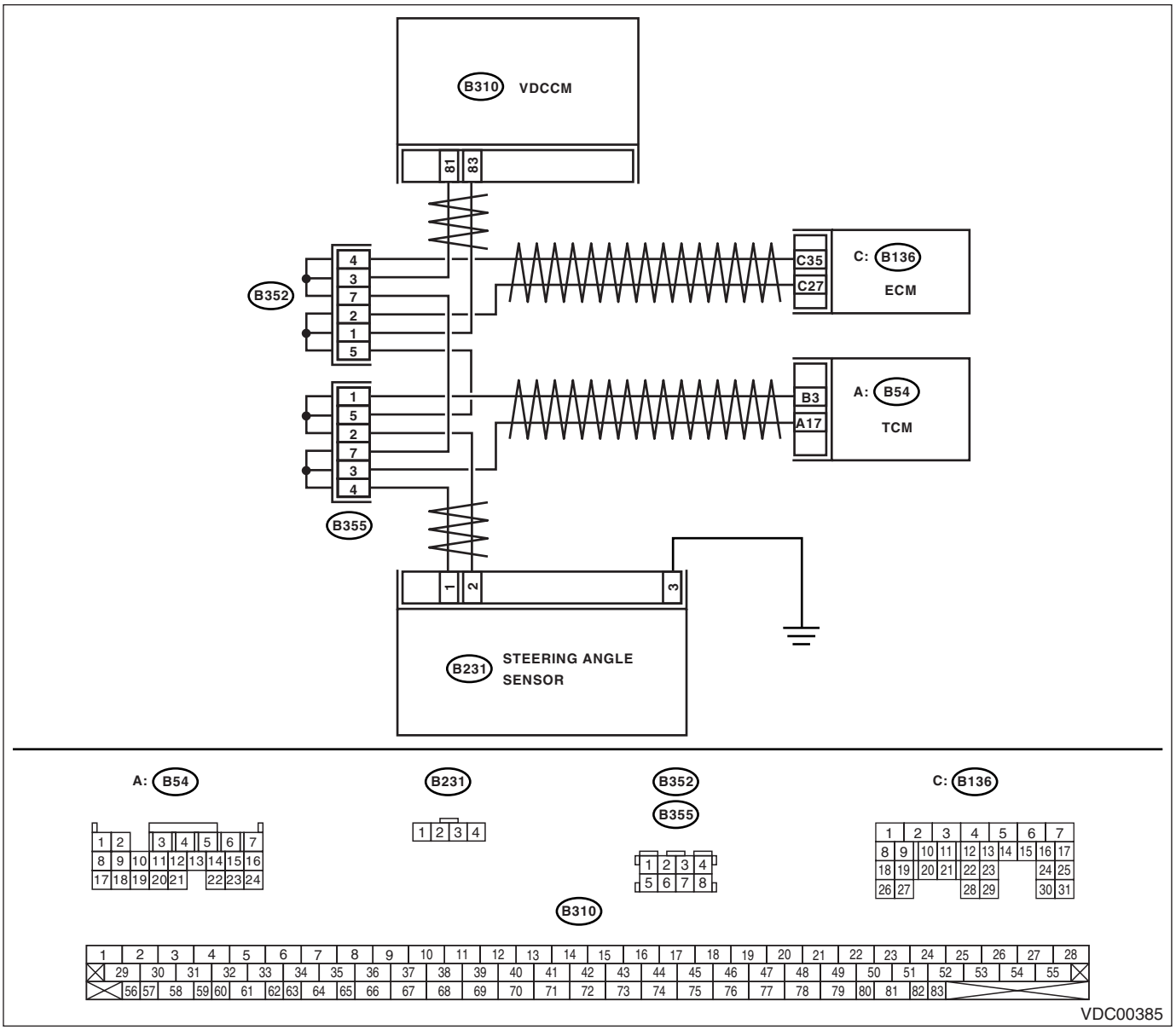
DTC DETECTING CONDITION:

Communication malfunction between engine control module

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK HARNESS RESISTANCE.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance between ECM connector terminals. ***Connector & terminal (B137) No. 18 — No. 26:***	Is the resistance 60±3 Ω?	Go to step **2**.	Repair the harness between ECM and VDCCM.
2	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in ECM connector?	Repair the connector.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK ECM.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	Is the same DTC displayed again?	Replace the ECM.	Go to step **4**.
4	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AM:DTC 71 STEERING ANGLE SENSOR OFFSET IS TOO BIG

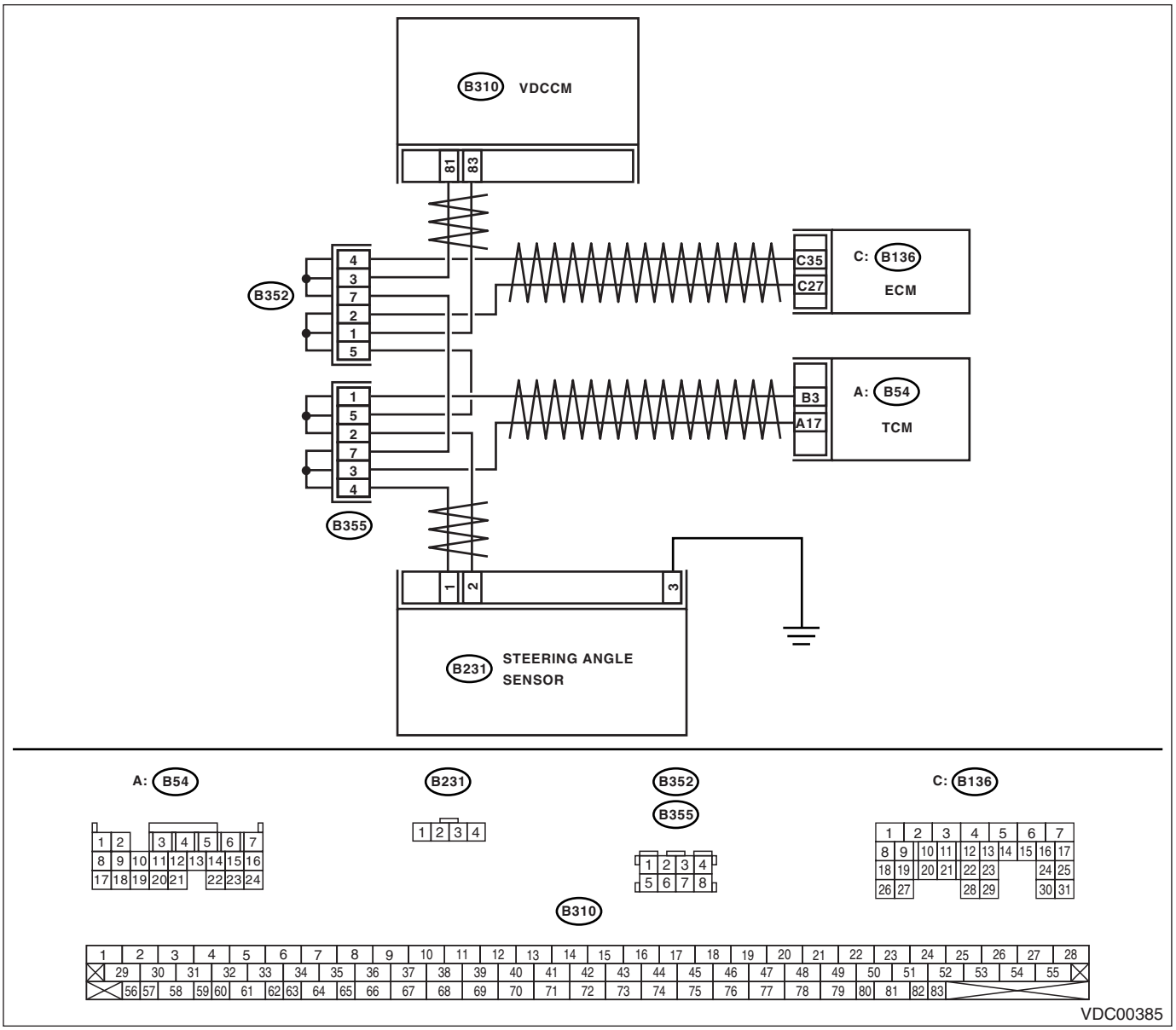
DTC DETECTING CONDITION:

Defective steering angle sensor

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK STEERING WHEEL.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight forward direction. 3) Check the steering wheel angle.	Is the deviation from the center of steering wheel less than 5°?	Go to step **2**.	Perform the centering adjustment of steering wheel. <Ref. to PS-13, INSPECTION, Steering Wheel.>

	Step	Check	Yes	No
2	**CHECK VDCCM.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **3**.
3	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AN:DTC 71 CHANGE RANGE OF STEERING ANGLE SENSOR IS TOO BIG

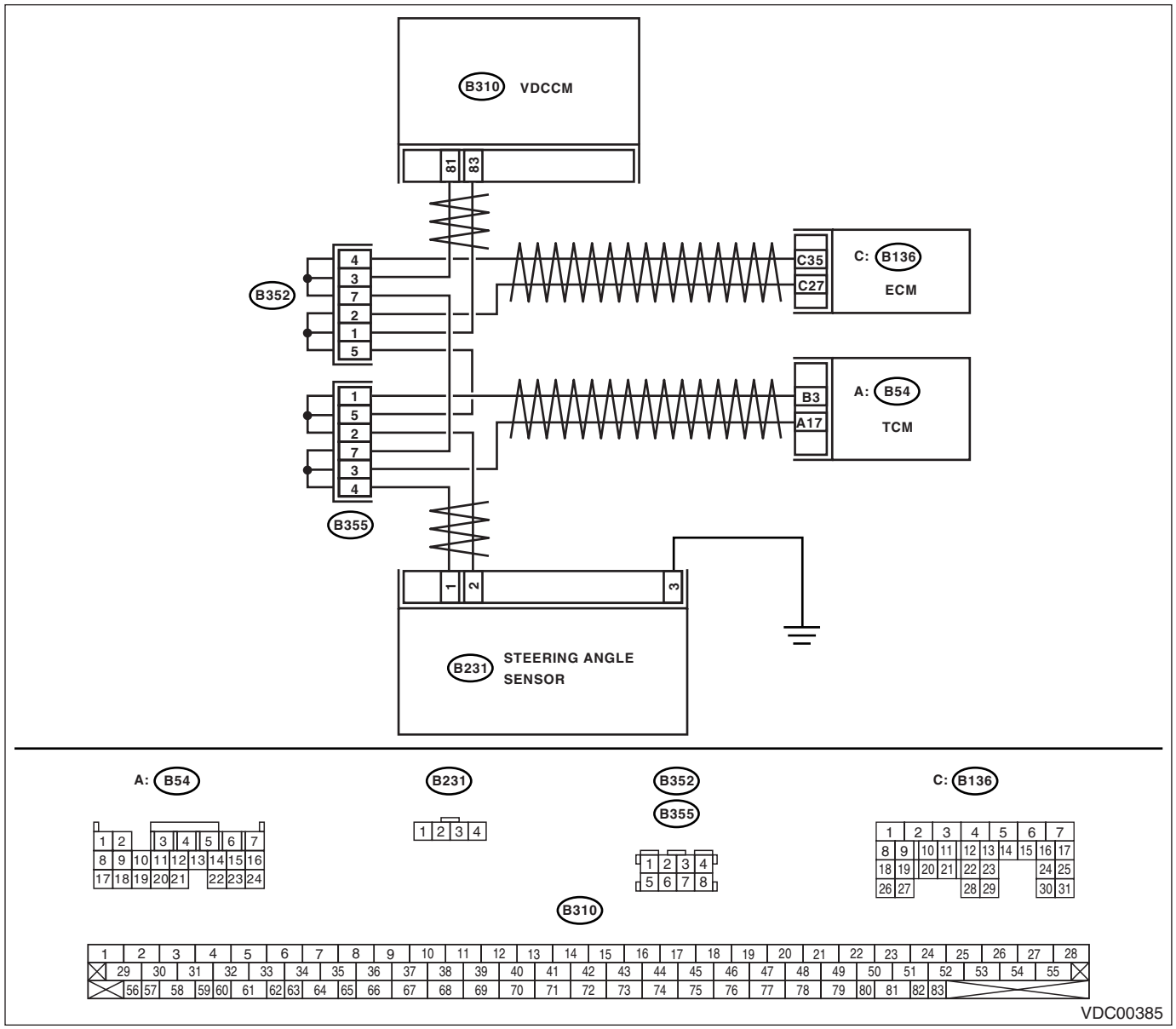
DTC DETECTING CONDITION:

Defective steering angle sensor

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK THE VDCCM.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	Is the same DTC as current diagnosis still displayed?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **2**.
2	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Proceed with the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AO:DTC 71 STEERING ANGLE SENSOR MALFUNCTION

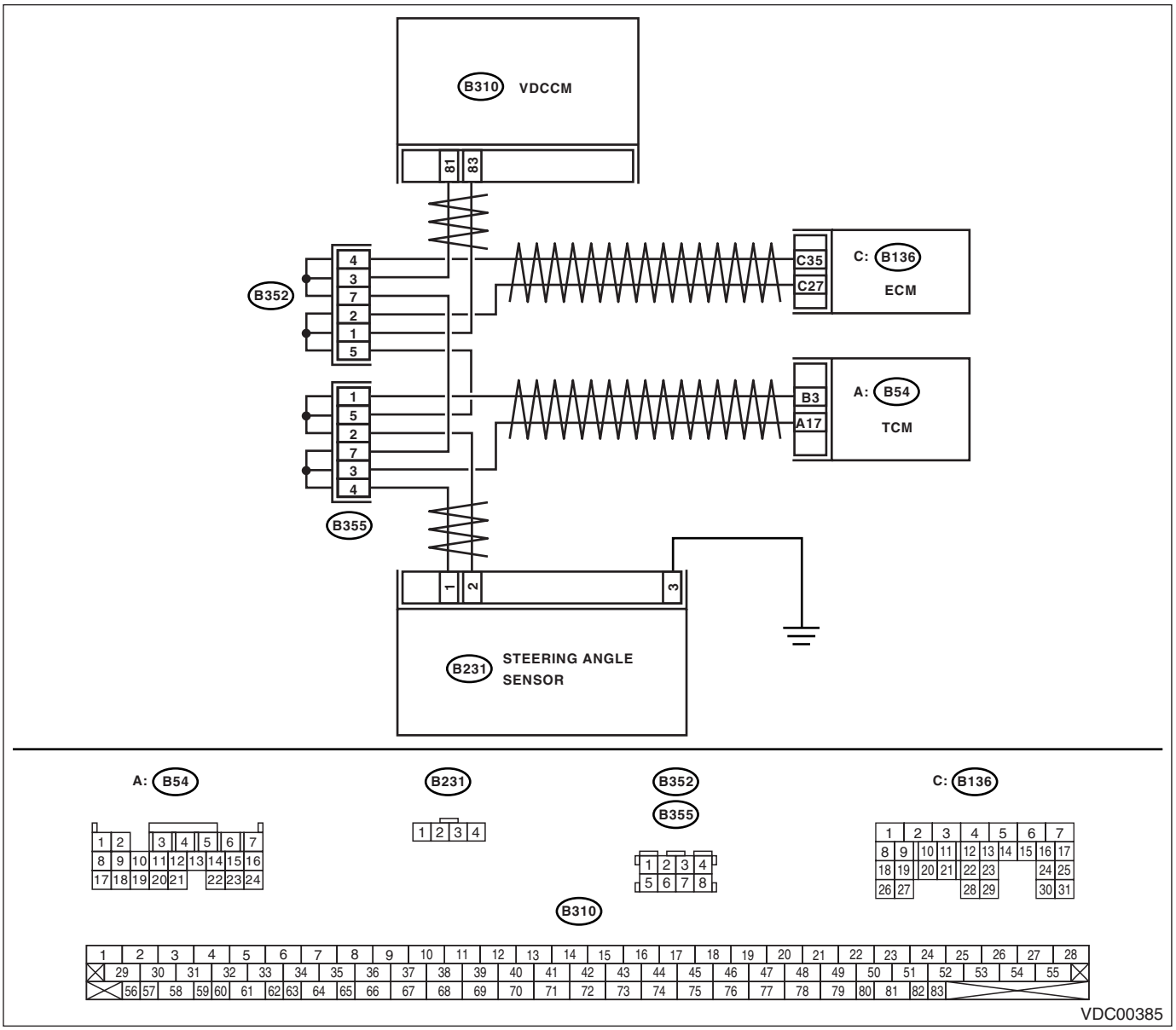
DTC DETECTING CONDITION:

Defective steering angle sensor

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK STEERING WHEEL.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight forward direction. 3) Check the steering wheel angle.	Is the angle from the center of steering wheel less than 5°?	Go to step **2**.	Center the steering wheel. <Ref. to PS-13, INSPECTION, Steering Wheel.>

	Step	Check	Yes	No
2	**CHECK OUTPUT OF STEERING ANGLE SENSOR USING SUBARU SELECT MONITOR.** 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the steering sensor output on Subaru Select Monitor display.	Does the output of the steering sensor change on the monitor when the steering wheel turns either way?	Go to step **3**.	Replace the steering angle sensor. <Ref. to VDC-25, Steering Angle Sensor.>
3	**CHECK DRIVING ROAD.** Interview whether the vehicle was driven on the road with banks or sandy surface.	Was the vehicle driven on the road with banks or sandy surface?	If driven on the road with banks or sandy surface, the VDCCM stores the DTC occasionally.	Go to step **4**.
4	**CHECK VDCCM.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **5**.
5	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AP:DTC 71 NO SIGNAL FROM STEERING ANGLE SENSOR

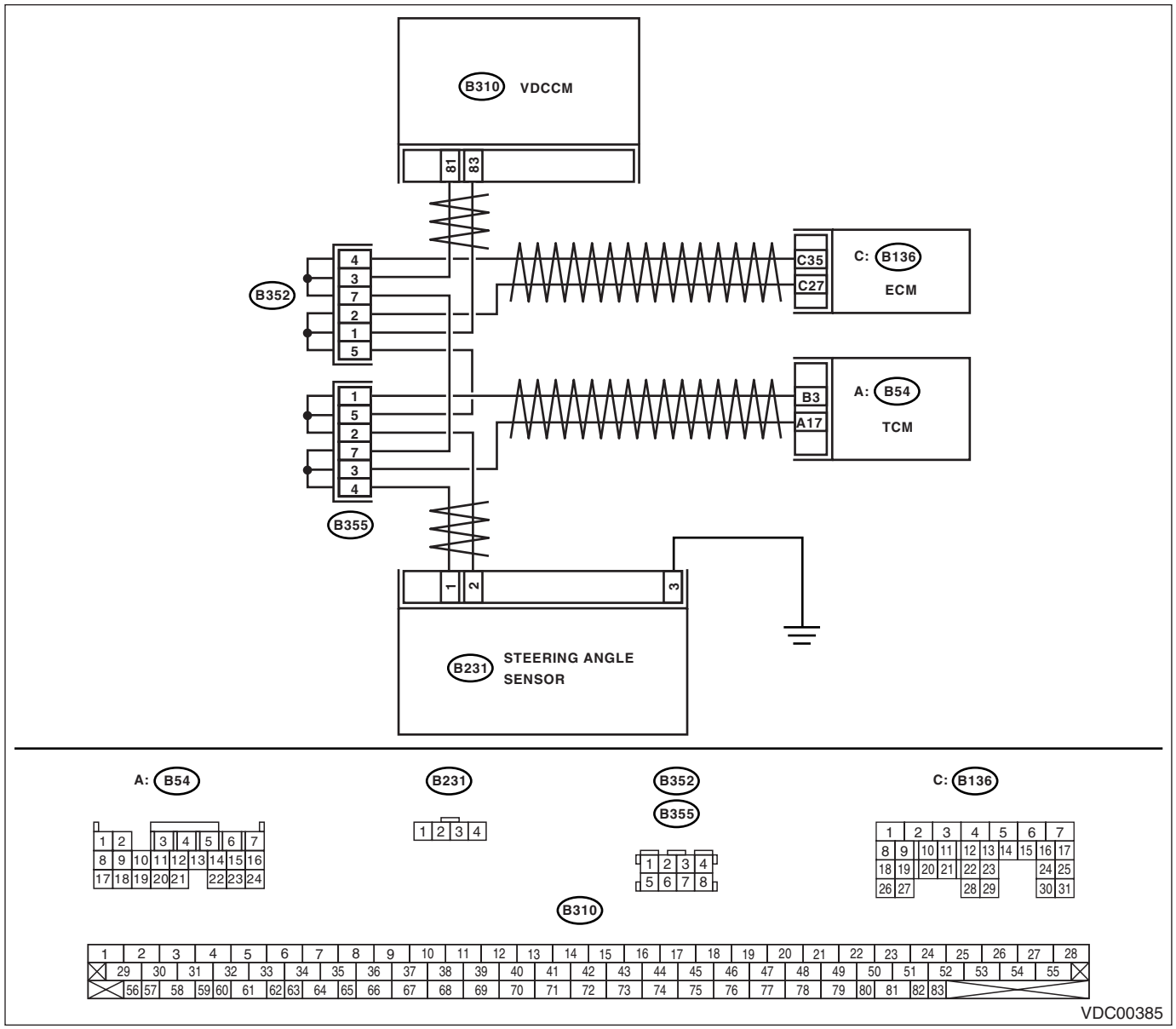
DTC DETECTING CONDITION:

Defective steering angle sensor

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK STEERING ANGLE SENSOR POWER SUPPLY.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from steering angle sensor. 3) Turn the ignition switch ON. 4) Measure the voltage between the steering angle sensor and chassis ground. ***Connector & terminal*** ***(B231) No. 4 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **4**.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK VDCCM OUTPUT VOLTAGE.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 27 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Repair the harness between yaw rate sensor and VDCCM.	Go to step **3**.
3	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the yaw rate sensor connector?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
4	**CHECK GROUND CIRCUIT OF STEERING ANGLE SENSOR.** Measure the resistance between steering angle sensor and chassis ground. ***Connector & terminal*** ***(B231) No. 3 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Repair the steering angle sensor ground harness.
5	**CHECK STEERING ANGLE SENSOR HARNESS.** 1) Connect the connector to the steering angle sensor. 2) Disconnect the connector from VDCCM. 3) Measure the resistance between the VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 81 — No. 83:***	Is the resistance 120±6 Ω?	Repair the harness between the steering angle sensor and VDCCM.	Go to step **6**.
6	**CHECK STEERING ANGLE SENSOR.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Go to step **8**.	Go to step **7**.
7	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.
8	**CHECK VDCCM.** 1) Turn the ignition switch OFF. 2) Replace the steering angle sensor. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **9**.
9	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Original steering angle sensor malfunction

AQ:DTC 72 YAW RATE SENSOR OUTPUT

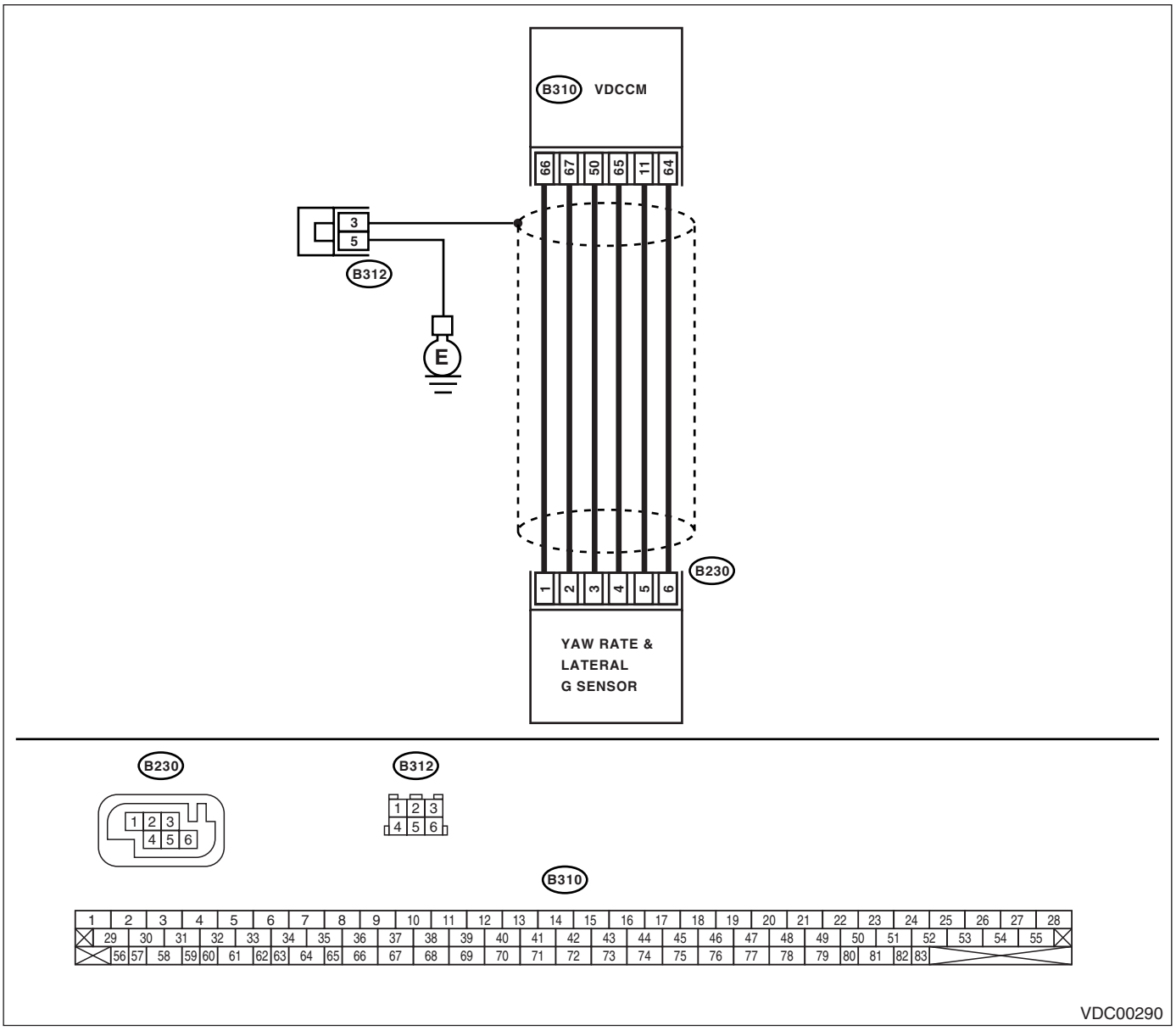
DTC DETECTING CONDITION:

Defective yaw rate sensor

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK DRIVING ROAD.** Interview whether the vehicle was driven on the road with banks or sandy surface.	Was the vehicle driven on the road with banks or sandy surface?	If driven on the road with banks or sandy surface, the VDCCM stores the DTC occasionally.	Go to step **2**.
2	**CHECK YAW RATE & LATERAL G SENSOR INSTALLATION.** Check the yaw rate & lateral G sensor installation.	Is the yaw rate & lateral G sensor tightened securely?	Go to step **3**.	Tighten the yaw rate & lateral G sensor securely.

	Step	Check	Yes	No
3	**CHECK OUTPUT OF YAW RATE & LATERAL G SENSOR USING SUBARU SELECT MONITOR.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight forward direction. 3) Select {Current Data Display & Save} in Subaru Select Monitor. 4) Read the yaw rate & lateral G sensor output on the Subaru Select Monitor display.	Is the resistance 0±5.25 deg/s?	Go to step **4**.	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>
4	**CHECK OUTPUT OF STEERING ANGLE SENSOR USING SUBARU SELECT MONITOR.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight forward direction. 3) Select {Current Data Display & Save} in Subaru Select Monitor. 4) Read the steering angle sensor output on the Subaru Select Monitor display.	Is the resistance 0±2.5 deg?	Go to step **5**.	Perform the centering adjustment of steering wheel.
5	**CHECK YAW RATE & LATERAL G SENSOR.** 1) Turn the ignition switch OFF. 2) Connect all the connectors. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Go to step **7**.	Go to step **6**.
6	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.
7	**CHECK VDCCM.** 1) Turn the ignition switch OFF. 2) Replace the yaw rate & lateral G sensor. 3) Erase the memory. 4) Perform the Inspection Mode. 5) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Go to step **8**.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
8	**CHECK THE DTC DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Malfunction in original yaw rate & lateral G sensor.

AR:DTC 72 YAW RATE SENSOR POWER/OUTPUT

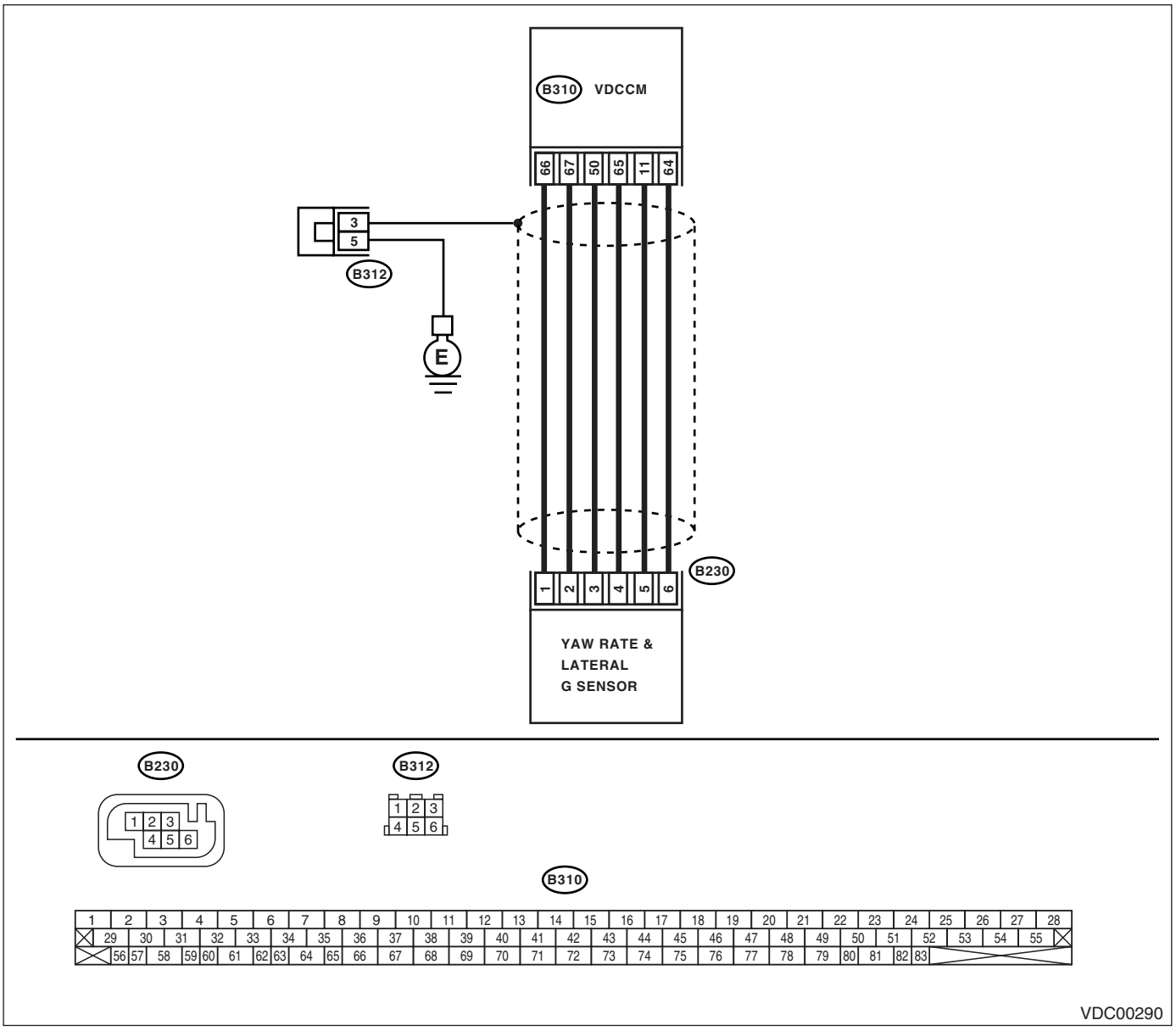
DTC DETECTING CONDITION:

Defective yaw rate sensor

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK YAW RATE & LATERAL G SENSOR POWER SUPPLY.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from yaw rate & lateral G sensor. 3) Turn the ignition switch ON. 4) Measure the voltage between yaw rate & lateral G sensor and chassis ground. ***Connector & terminal*** ***(B230) No. 3 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **4**.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK VDCCM OUTPUT VOLTAGE.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 50 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Repair the harness between yaw rate & lateral G sensor and VDCCM.	Go to step **3**.
3	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connector between yaw rate & lateral G sensor?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
4	**CHECK YAW RATE & LATERAL G SENSOR HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between VDCCM and yaw rate & lateral G sensor. ***Connector & terminal*** ***(B310) No. 65 — (B230) No. 4:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
5	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 65 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **6**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
6	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 65 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **7**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
7	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 65 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>	Repair the harness between yaw rate & lateral G sensor and VDCCM.

AS:DTC 72 YAW RATE SENSOR REFERENCE

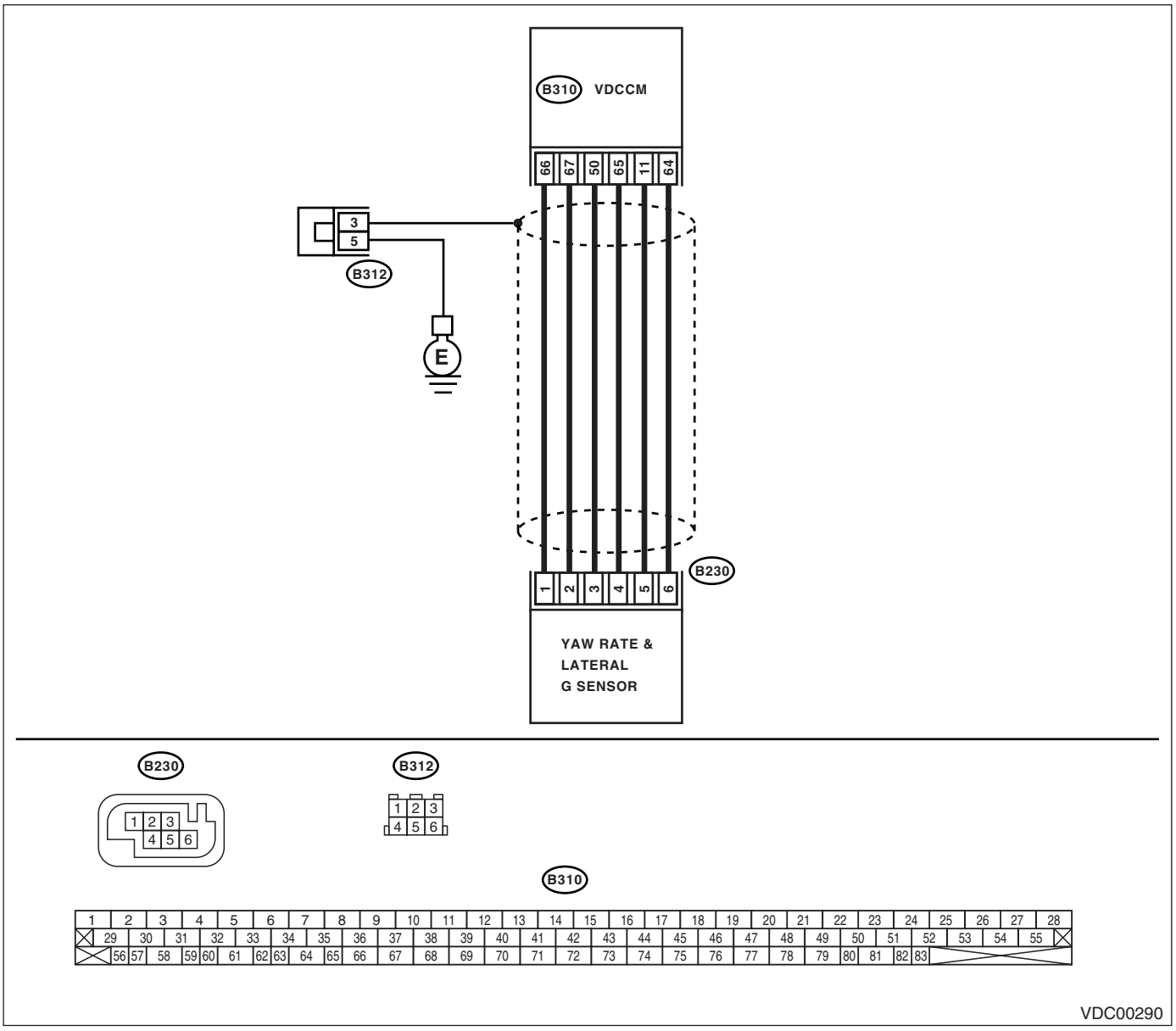
DTC DETECTING CONDITION:

Defective yaw rate sensor

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK YAW RATE & LATERAL G SENSOR POWER SUPPLY.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from yaw rate & lateral G sensor. 3) Turn the ignition switch ON. 4) Measure the voltage between yaw rate & lateral G sensor and chassis ground. ***Connector & terminal*** ***(B230) No. 3 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **4**.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK VDCCM OUTPUT VOLTAGE.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 50 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **3**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
3	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connector between yaw rate & lateral G sensor?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
4	**CHECK YAW RATE & LATERAL G SENSOR HARNESS.** 1) Disconnect the connectors from VDCCM. 2) Measure the resistance between VDCCM and yaw rate & lateral G sensor. ***Connector & terminal*** ***(B310) No. 66 — (B230) No. 1:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
5	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 66 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **6**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
6	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 66 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **7**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
7	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 66 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **8**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
8	**CHECK YAW RATE & LATERAL G SENSOR.** 1) Turn the ignition switch OFF. 2) Install the yaw rate & lateral G sensor to the body. 3) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, VDCCM Connector Cover.> 4) Connect all the connectors. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 66 (+) — No. 64 (–):***	Is the voltage 2.1 — 2.9 V?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>

AT:DTC 72 EXCESSIVE VARIATION AMOUNT OF YAW RATE SENSOR OUTPUT

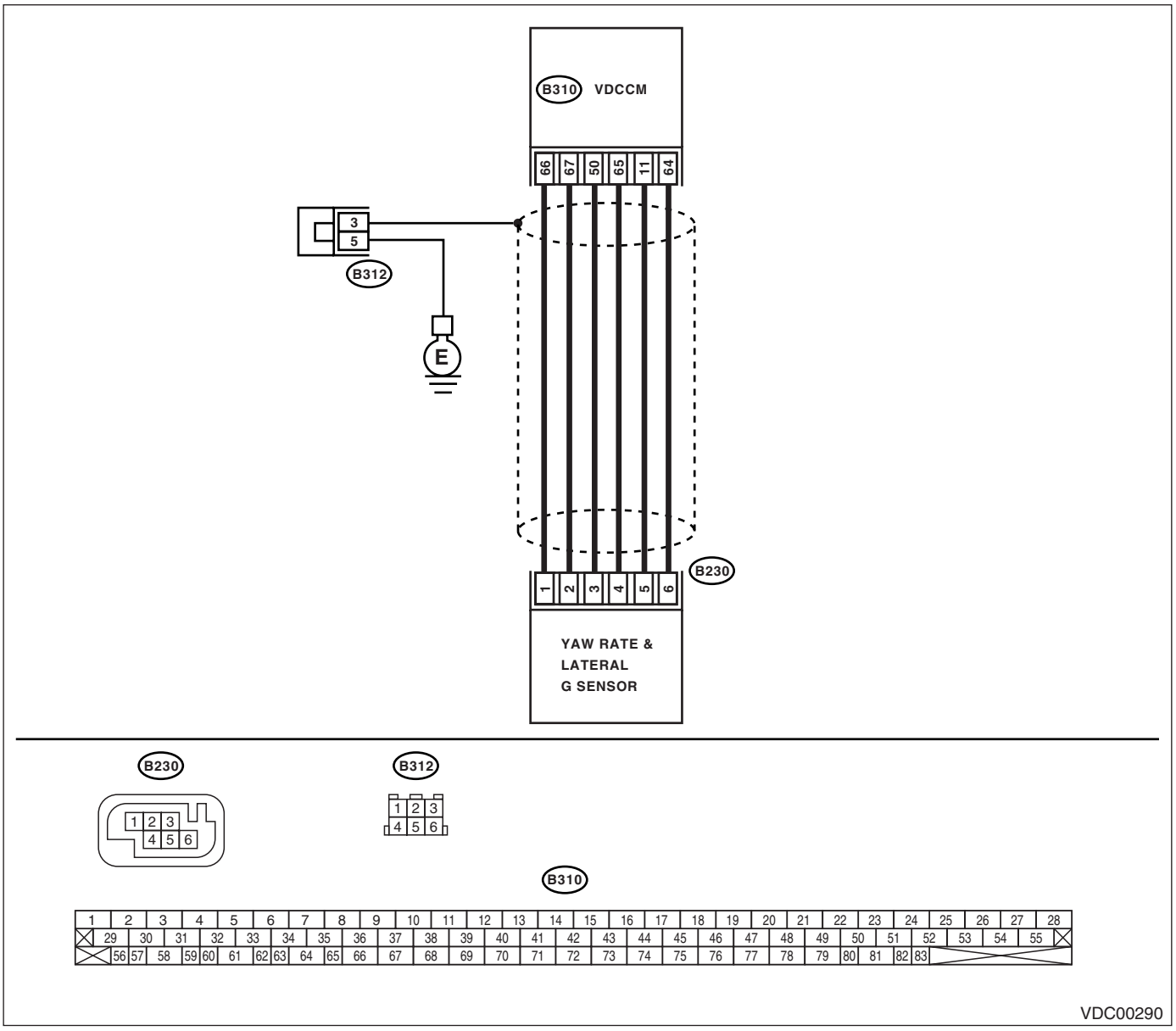
DTC DETECTING CONDITION:

Defective yaw rate sensor

TROUBLE SYMPTOM:

- VDC does not operate.
- ABS does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK DRIVING ROAD.** Interview whether the vehicle was driven on the road with banks or sandy surface.	Was the vehicle driven on the road with banks or sandy surface?	If driven on the road with banks or sandy surface, the VDCCM stores the DTC occasionally.	Go to step **2**.
2	**CHECK YAW RATE & LATERAL G SENSOR INSTALLATION.** Check the yaw rate & lateral G sensor installation.	Is the yaw rate & lateral G sensor tightened securely?	Go to step **3**.	Tighten the yaw rate & lateral G sensor securely.

	Step	Check	Yes	No
3	**CHECK YAW RATE & LATERAL G SENSOR POWER SUPPLY.** 1) Turn the ignition switch OFF. 2) Disconnect the connector from yaw rate & lateral G sensor. 3) Turn the ignition switch ON. 4) Measure the voltage between yaw rate & lateral sensor and the chassis ground. ***Connector & terminal*** ***(B230) No. 3 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Go to step **6**.	Go to step **4**.
4	**CHECK VDCCM OUTPUT VOLTAGE.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 50 (+) — Chassis ground (–):***	Is the voltage 10 — 15 V?	Repair the harness between yaw rate & lateral G sensor and VDCCM.	Go to step **5**.
5	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connector between yaw rate & lateral G sensor?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
6	**CHECK YAW RATE & LATERAL G SENSOR GROUND CIRCUIT.** Measure the resistance between the yaw rate & lateral G sensor and the chassis ground. ***Connector & terminal*** ***(B230) No. 6 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **9**.	Go to step **7**.
7	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Disconnect the connectors from VDCCM. 2) Remove the VDCCM connector cover. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 3) Connect the connector to the VDCCM. 4) Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 64 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Repair the harness between yaw rate & lateral G sensor and VDCCM.	Go to step **8**.
8	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the VDCCM connector?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
9	**CHECK YAW RATE & LATERAL G SENSOR HARNESS.** 1) Disconnect the connectors from VDCCM. 2) Measure the resistance between VDCCM and yaw rate & lateral G sensor. ***Connector & terminal*** ***(B310) No. 65 — (B230) No. 4:*** ***(B310) No. 66 — (B230) No. 1:*** ***(B310) No. 67 — (B230) No. 2:***	Is the resistance less than 0.5 Ω?	Go to step **10**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.

	Step	Check	Yes	No
10	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 65 — Chassis ground:*** ***(B310) No. 66 — Chassis ground:*** ***(B310) No. 67 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
11	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 65 (+) — Chassis ground (–):*** ***(B310) No. 66 (+) — Chassis ground (–):*** ***(B310) No. 67 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **12**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
12	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 65 (+) — Chassis ground (–):*** ***(B310) No. 66 (+) — Chassis ground (–):*** ***(B310) No. 67 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **13**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
13	**CHECK YAW RATE & LATERAL G SENSOR.** 1) Turn the ignition switch OFF. 2) Install the yaw rate & lateral G sensor to the body. 3) Connect all the connectors. 4) Turn the ignition switch ON. 5) Measure the voltage between yaw rate & lateral G sensor connector terminals. ***Connector & terminal*** ***(B310) No. 66 (+) — No. 64 (–):***	Is the voltage 2.1 — 2.9 V?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>

AU:DTC 73 LATERAL G SENSOR OFFSET IS TOO BIG

NOTE:
Refer to DTC 73 for diagnostic procedure. <Ref. to VDC(diag)-113, DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AV:DTC 73 LATERAL G SENSOR OUTPUT

NOTE:
Refer to DTC 73 for diagnostic procedure. <Ref. to VDC(diag)-113, DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AW:DTC 73 EXCESSIVE VARIATION AMOUNT OF LATERAL G SENSOR OUTPUT

NOTE:
Refer to DTC 73 for diagnostic procedure. <Ref. to VDC(diag)-113, DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AX:DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL

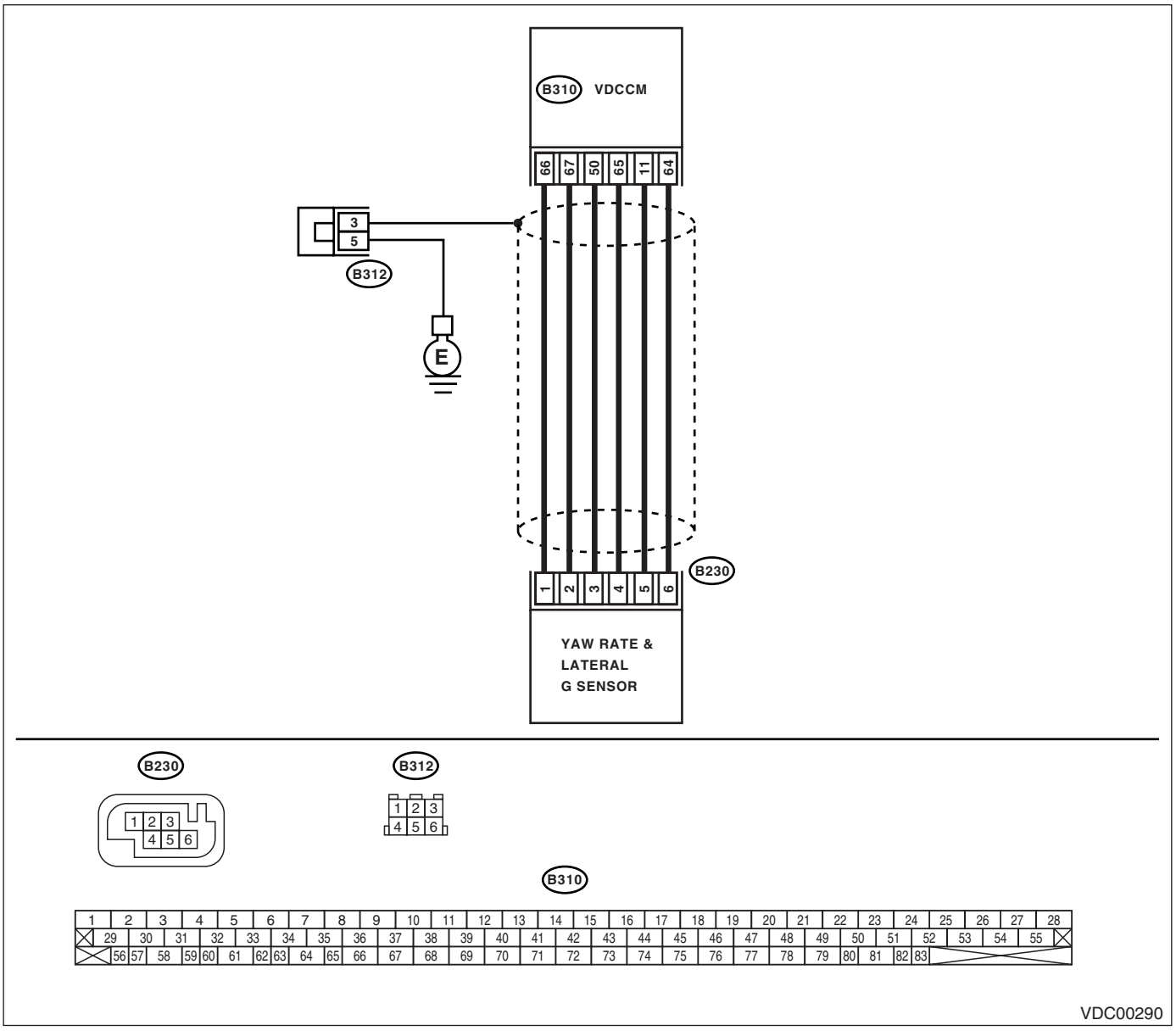
DTC DETECTING CONDITION:

Lateral G sensor malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK YAW RATE & LATERAL G SENSOR INSTALLATION.** Check the yaw rate & lateral G sensor installation.	Is the yaw rate & lateral G sensor tightened securely?	Go to step **2**.	Tighten the yaw rate & lateral G sensor securely.

	Step	Check	Yes	No
2	**CHECK OUTPUT OF LATERAL G SENSOR USING SUBARU SELECT MONITOR.** 1) Stop the vehicle on a flat road. 2) Select {Current Data Display & Save} in Subaru Select Monitor. 3) Read the yaw rate & lateral G sensor output on the Subaru Select Monitor display.	Is the resistance 2.5±0.2 V?	Go to step **3**.	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>
3	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connector between VDCCM and yaw rate & lateral G sensor?	Repair the connector.	Go to step **4**.
4	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **5**.
5	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AY:DTC 73 VOLTAGE INPUT TO LATERAL G SENSOR EXCEEDS SPECIFICATION

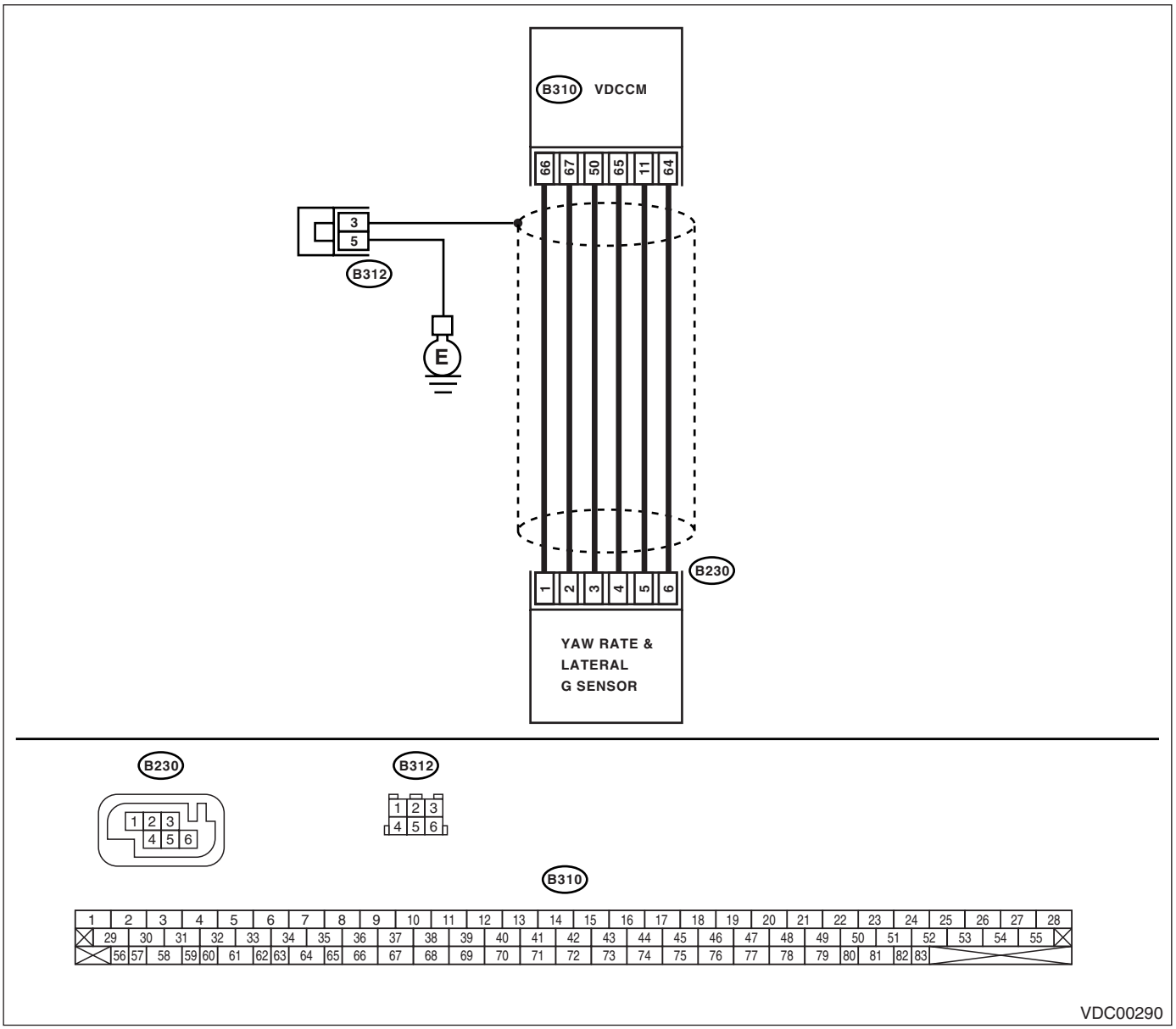
DTC DETECTING CONDITION:

Lateral G sensor malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK OUTPUT OF YAW RATE & LATERAL G SENSOR USING SUBARU SELECT MONITOR.** 1) Stop the vehicle on a flat road. 2) Select {Current Data Display & Save} in Subaru Select Monitor. 3) Read the yaw rate & lateral G sensor output on the Subaru Select Monitor display.	Is the resistance 2.5±0.2 V?	Go to step **2**.	Go to step **5**.

	Step	Check	Yes	No
2	**CHECK POOR CONTACT OF CONNECTOR.** Turn the ignition switch OFF.	Is there poor contact in connector between VDCCM and yaw rate & lateral G sensor?	Repair the connector.	Go to step **3**.
3	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **4**.
4	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.
5	**CHECK YAW RATE & LATERAL G SENSOR INPUT VOLTAGE.** 1) Turn the ignition switch OFF. 2) Remove the console box. 3) Disconnect the connector from yaw rate & lateral G sensor. 4) Turn the ignition switch ON. 5) Measure the voltage between yaw rate & lateral G sensor connector terminals. ***Connector & terminal*** ***(B230) No. 3 (+) — No. 6 (–):***	Is the voltage 10 — 15 V?	Go to step **6**.	Repair the harness or connector between yaw rate & lateral G sensor and VDCCM.
6	**CHECK YAW RATE & LATERAL G SENSOR.** 1) Turn the ignition switch OFF. 2) Measure the resistance between yaw rate & lateral G sensor connector terminals. ***Terminals*** ***No. 3 — No. 5:***	Is the resistance between 4.3 and 4.9 kΩ?	Go to step **7**.	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>
7	**CHECK OPEN CIRCUIT FOR OUTPUT HARNESS AND GROUND HARNESS OF YAW RATE & LATERAL G SENSOR.** 1) Connect the connector to the yaw rate & lateral G sensor. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between the VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 11 — No. 64:***	Is the resistance between 4.3 and 4.9 kΩ?	Go to step **8**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
8	**CHECK GROUND SHORT IN YAW RATE & LATERAL G SENSOR HARNESS.** 1) Disconnect the connector from yaw rate & lateral G sensor. 2) Measure the resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(B310) No. 65 — Chassis ground:*** ***(B310) No. 66 — Chassis ground:*** ***(B310) No. 67 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **9**.	Repair the harness between yaw rate & lateral G sensor and VDCCM.
9	**CHECK YAW RATE & LATERAL G SENSOR.** 1) Turn the ignition switch OFF. 2) Remove the yaw rate & lateral G sensors from vehicle. 3) Connect the connector to the yaw rate & lateral G sensor. 4) Connect the connector to the VDCCM. 5) Turn the ignition switch ON. 6) Measure the voltage between yaw rate & lateral G sensor connector terminals. ***Connector & terminal*** ***(B230) No. 5 (+) — No. 6 (–):***	Is the voltage 2.3 — 2.7 V when yaw rate & lateral G sensor is on a level?	Go to step **10**.	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>

	Step	Check	Yes	No
10	**CHECK YAW RATE & LATERAL G SENSOR.** Measure the voltage between yaw rate & lateral G sensor connector terminals. ***Connector & terminal*** ***(B230) No. 5 (+) — No. 6 (–):***	Is the voltage 3.3 — 3.7 V when yaw rate & lateral G sensor is inclined 90° to the left?	Go to step **11**.	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>
11	**CHECK YAW RATE & LATERAL G SENSOR.** Measure the voltage between yaw rate & lateral G sensor connector terminals. ***Connector & terminal*** ***(B230) No. 5 (+) — No. 6 (–):***	Is the voltage 1.3 — 1.7 V when yaw rate & lateral G sensor is inclined 90° to the right?	Go to step **12**.	Replace the yaw rate & lateral G sensor. <Ref. to VDC-22, Yaw Rate & Lateral G Sensor.>
12	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connector between VDCCM and yaw rate & lateral G sensor?	Repair the connector.	Go to step **13**.
13	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **14**.
14	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

AZ:DTC 74 PRIMARY PRESSURE SENSOR POWER/OUTPUT

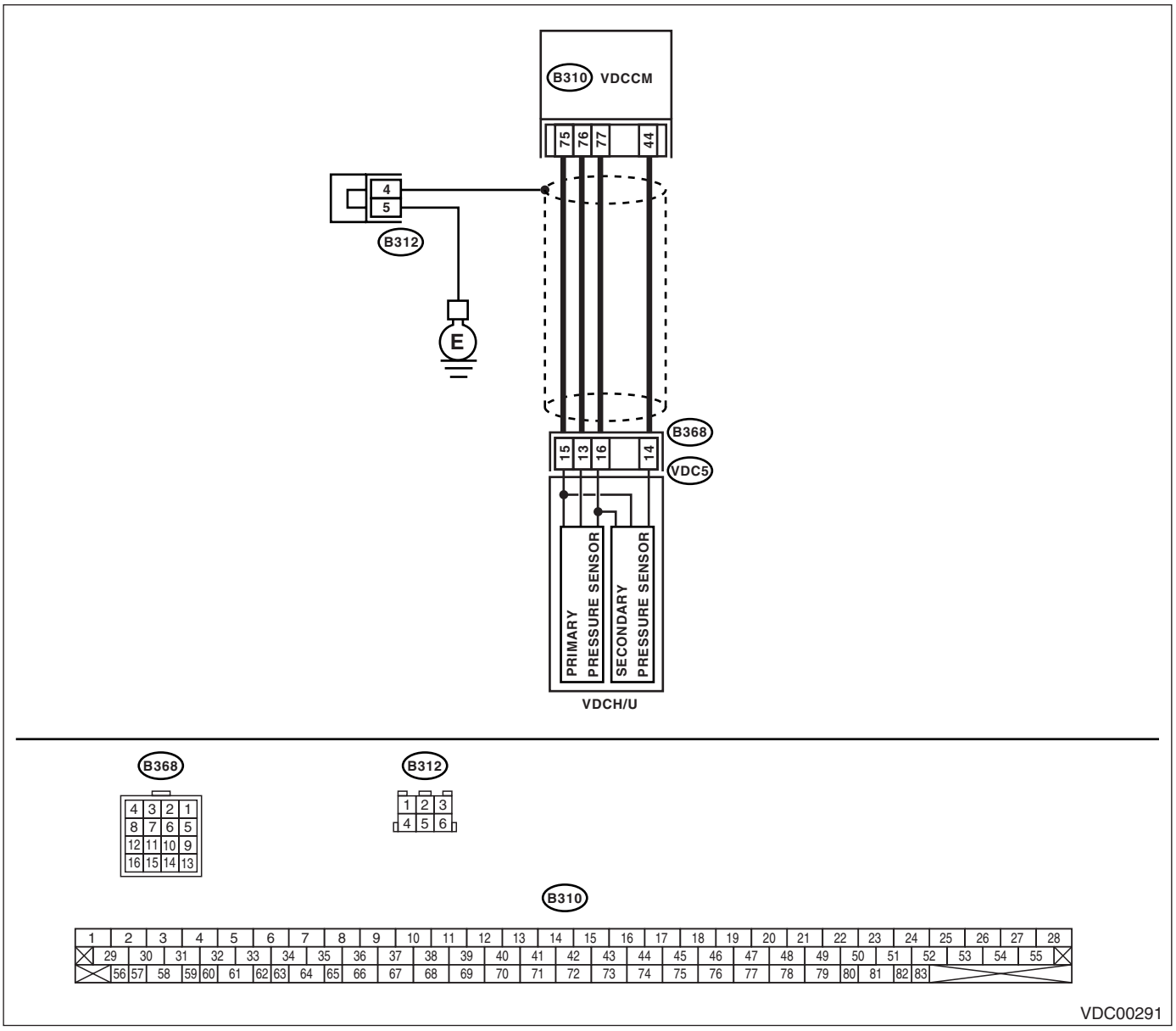
DTC DETECTING CONDITION:

Primary pressure sensor malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK GROUND CIRCUIT OF PRESSURE SENSOR.** 1) Turn the ignition switch OFF. 2) Disconnect the connector (B368) from VDCH/M. 3) Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 15 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **4**.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Disconnect the connectors from VDCCM. 2) Remove the cover from VDCCM. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 3) Connect the connector to the VDCCM. 4) Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 75 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Replace the harness between VDCH/M and VDCCM.	Go to step **3**.
3	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the VDCCM connector?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
4	**CHECK POWER SUPPLY FOR PRESSURE SENSOR.** NOTE: When performing this inspection, DTC 51 VALVE RELAY MALFUNCTION is stored. However, this does not indicate a malfunction of valve relay. 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector terminals. ***Connector & terminal*** ***(B368) No. 16 (+) — No. 15 (–):***	Is the voltage 4.75 — 5.25 V?	Go to step **7**.	Go to step **5**.
5	**CHECK VDCCM POWER SUPPLY.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the cover from VDCCM. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 77 (+) — No. 75 (–):***	Is the voltage 4.75 — 5.25 V?	Repair the harness between VDCH/M and VDCCM.	Go to step **6**.
6	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the VDCCM connector?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
7	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 13 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **8**.	Repair the harness between VDCH/M and VDCCM.
8	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 13 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **9**.	Repair the harness between VDCH/M and VDCCM.

	Step	Check	Yes	No
9	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 13 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **10**.	Repair the harness between VDCH/M and VDCCM.
10	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the cover from VDCCM. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Connect all the connectors. 6) Turn the ignition switch ON. 7) Do not depress the brake pedal. 8) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 76 (+) — No. 75 (–):***	Is the voltage 0.48 — 0.72 V?	Go to step **11**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
11	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connectors between VDCCM and pressure sensor?	Repair the connector.	Go to step **12**.
12	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **13**.
13	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

BA:DTC 74 SECONDARY PRESSURE SENSOR POWER/OUTPUT

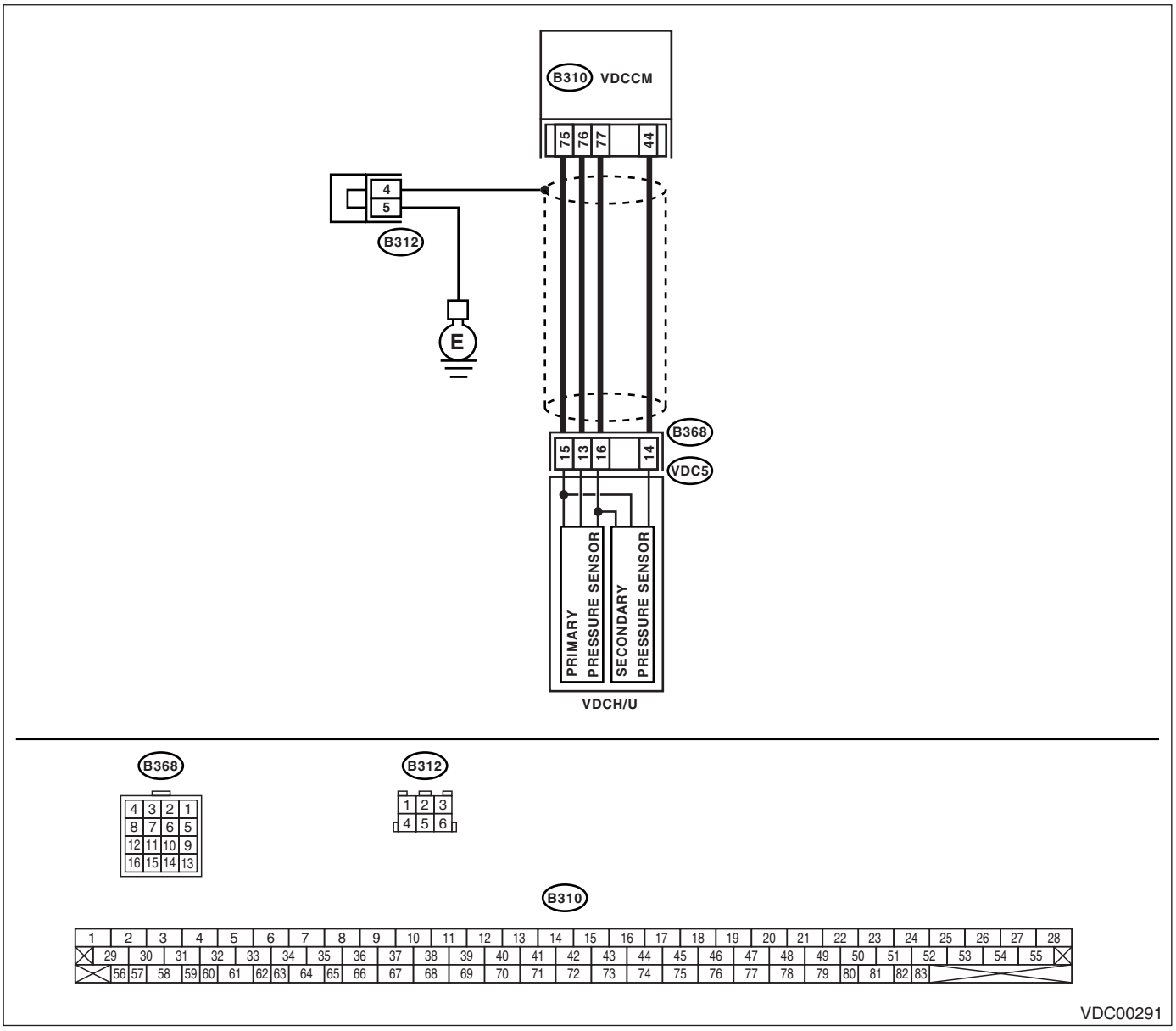
DTC DETECTING CONDITION:

Secondary pressure sensor malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK GROUND CIRCUIT OF PRESSURE SENSOR.** 1) Turn the ignition switch OFF. 2) Disconnect the connector (B368) from VDCH/M. 3) Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 15 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **4**.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Disconnect the connectors from VDCCM. 2) Remove the cover from VDCCM. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 3) Connect the connector to the VDCCM. 4) Measure the resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(B310) No. 75 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Replace the harness between VDCH/M and VDCCM.	Go to step **3**.
3	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the VDCCM connector?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
4	**CHECK POWER SUPPLY FOR PRESSURE SENSOR.** NOTE: When performing this inspection, DTC 51 VALVE RELAY MALFUNCTION is stored. However, this does not indicate a malfunction of valve relay. 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector terminals. ***Connector & terminal*** ***(B368) No. 16 (+) — No. 15 (–):***	Is the voltage 4.75 — 5.25 V?	Go to step **7**.	Go to step **5**.
5	**CHECK VDCCM POWER SUPPLY.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the cover from VDCCM. <Ref. to VDC(diag)-18, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Turn the ignition switch ON. 6) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 77 (+) — No. 75 (–):***	Is the voltage 4.75 — 5.25 V?	Repair the harness between VDCH/M and VDCCM.	Go to step **6**.
6	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in the VDCCM connector?	Repair or replace the VDCCM connector.	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
7	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 14 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **8**.	Repair the harness between VDCH/M and VDCCM.
8	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 14 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **9**.	Repair the harness between VDCH/M and VDCCM.

	Step	Check	Yes	No
9	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 13 (+) — Chassis ground (–):*** ***(B368) No. 14 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **10**.	Repair the harness between VDCH/M and VDCCM.
10	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the cover from VDCCM. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Connect all the connectors. 6) Turn the ignition switch ON. 7) Do not depress the brake pedal. 8) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 44 (+) — No. 75 (–):***	Is the voltage 0.48 — 0.72 V?	Go to step **11**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
11	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connectors between VDCCM and pressure sensor?	Repair the connector.	Go to step **12**.
12	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **13**.
13	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

BB:DTC 74 PRIMARY PRESSURE SENSOR OFFSET IS TOO BIG

NOTE:
Refer to DTC 74 for diagnostic procedure. <Ref. to VDC(diag)-124, DTC 74 SECONDARY PRESSURE SENSOR OFFSET IS TOO BIG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BC:DTC 74 SECONDARY PRESSURE SENSOR OFFSET IS TOO BIG

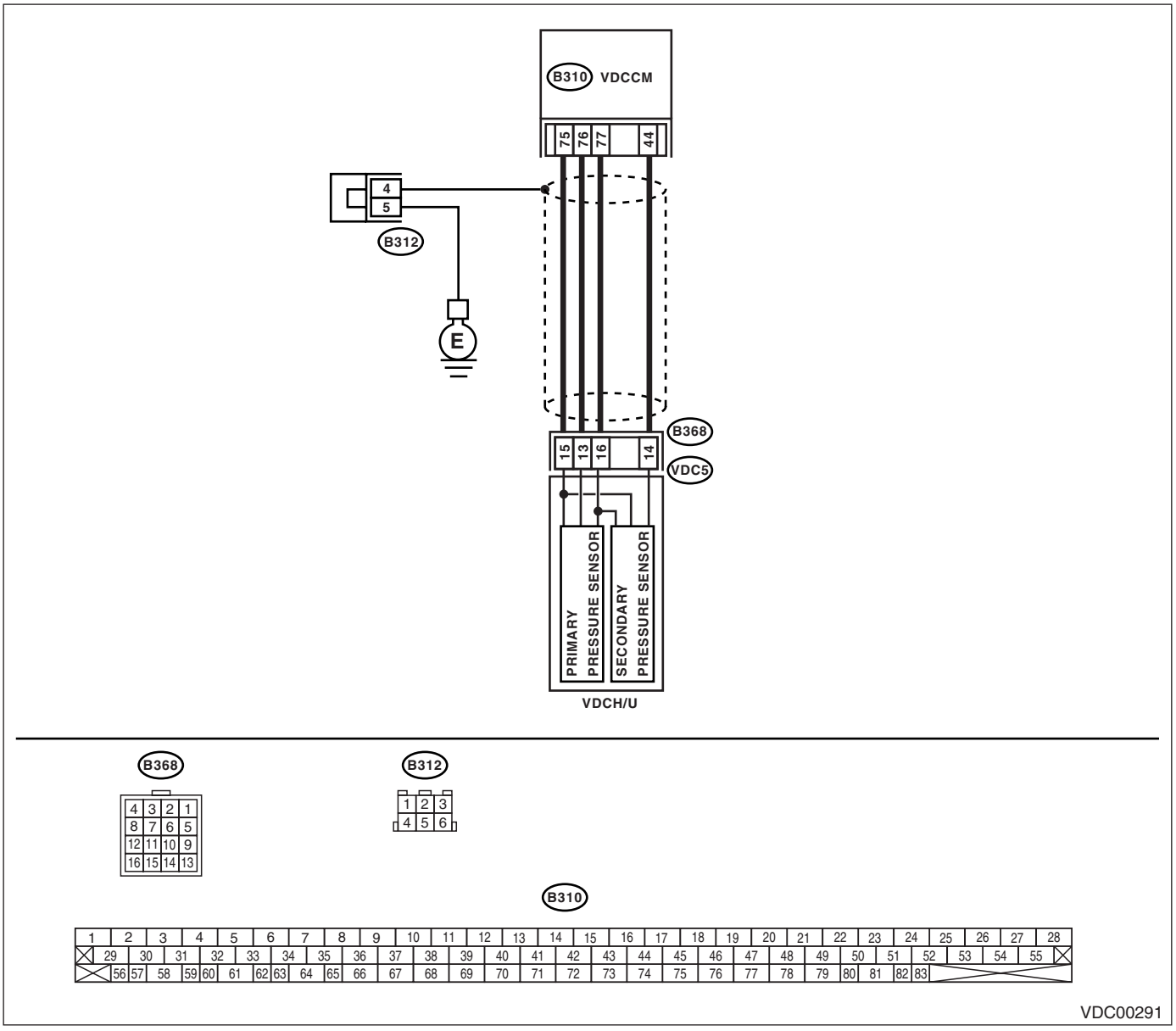
DTC DETECTING CONDITION:

Pressure sensor malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK USER DRIVING METHOD.** Interview the user about their driving habits.	Are the acceleration pedal and brake pedal depressed simultaneously while driving?	Erase the normal DTC for the VDC. NOTE: If the vehicle is driven while both the accelerator pedal and brake pedal are used, the DTC is sometimes stored in memory.	Go to step **2**.
2	**CHECK OUTPUT OF THE PRESSURE SENSOR USING SUBARU SELECT MONITOR.** 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the pressure sensor output on the Subaru Select Monitor display.	Is the output value 0.6±0.12 V when the brake pedal is not depressed?	Go to step **3**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
3	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **4**.
4	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.

BD:DTC 74 PRESSURE SENSOR DIFFERENTIAL PRESSURE TOO LARGE

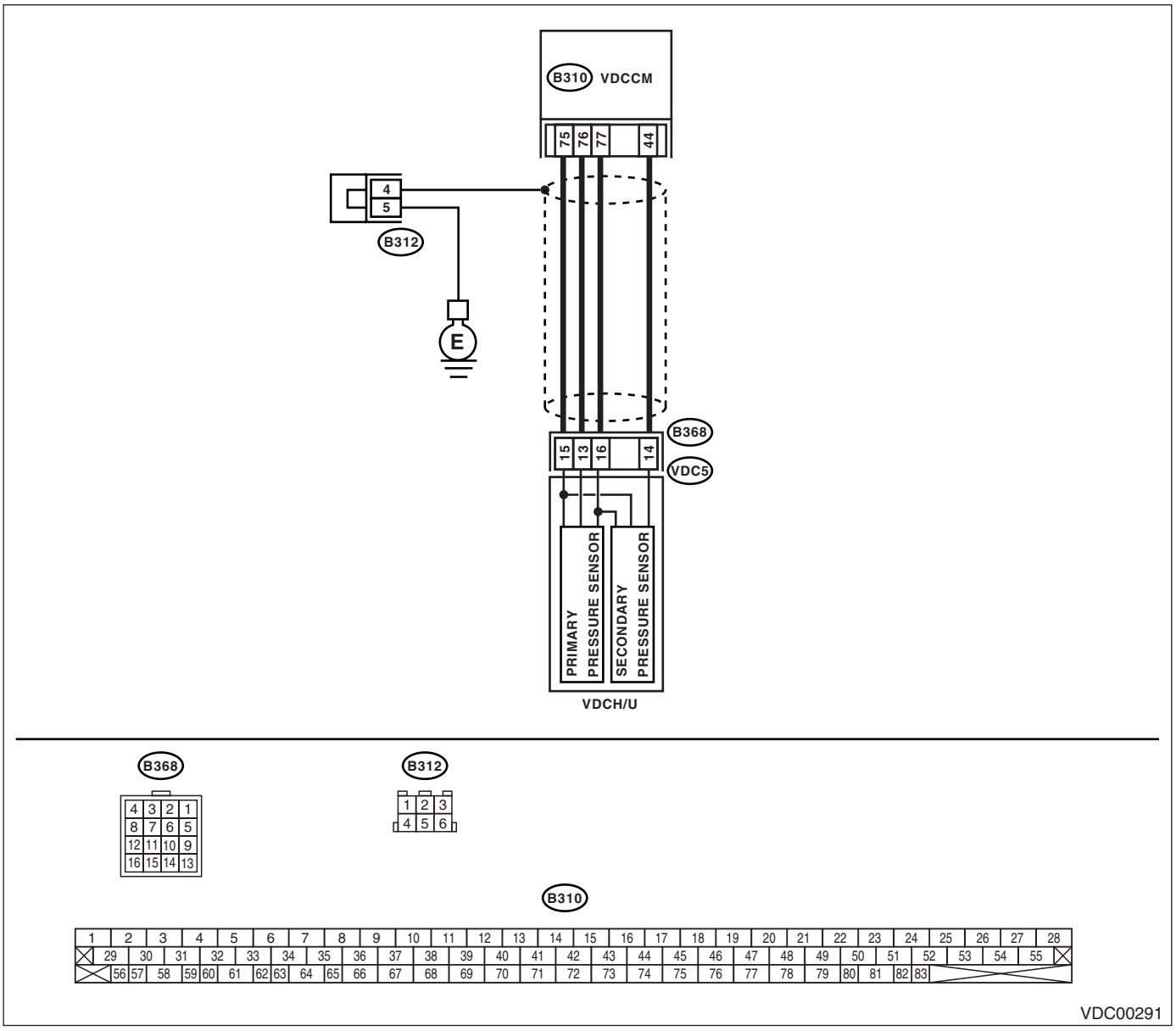
DTC DETECTING CONDITION:

Pressure sensor malfunction

TROUBLE SYMPTOM:

- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK GROUND SHORT CIRCUIT OF HARNESS.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Disconnect the connector (B368) from VDCH/M. 4) Measure the resistance between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 13 — Chassis ground:*** ***(B368) No. 14 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **2**.	Repair the harness between VDCH/M and VDCCM.
2	**CHECK BATTERY SHORT OF HARNESS.** Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 13 (+) — Chassis ground (–):*** ***(B368) No. 14 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **3**.	Repair the harness between VDCH/M and VDCCM.
3	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn the ignition switch ON. 2) Measure the voltage between VDCH/M connector and chassis ground. ***Connector & terminal*** ***(B368) No. 13 (+) — Chassis ground (–):*** ***(B368) No. 14 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **4**.	Repair the harness between VDCH/M and VDCCM.
4	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Turn the ignition switch OFF. 2) Disconnect the connectors from VDCCM. 3) Remove the cover from VDCCM. <Ref. to VDC(diag)-18, REMOVAL, VDCCM Connector Cover.> 4) Connect the connector to the VDCCM. 5) Connect all the connectors. 6) Turn the ignition switch ON. 7) Do not depress the brake pedal. 8) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 76 (+) — No. 75 (–):*** ***(B310) No. 44 (+) — No. 75 (–):***	Is the voltage 0.48 — 0.72 V?	Go to step **5**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>
5	**CHECK FOR BRAKE FLUID LEAKS.** Check for fluid leaks between brake master cylinder and VDCH/M.	Is brake fluid leaking?	Retighten or replace.	Go to step **6**.
6	**CHECK BRAKE MASTER CYLINDER.** Check the brake master cylinder oil pressure. <Ref. to BR-38, OPERATION CHECK (WITH GAUGE), INSPECTION, Brake Booster.>	Is oil pressure normal?	Go to step **7**.	Replace the master cylinder.
7	**CHECK BRAKE PEDAL STROKE** Measure the stroke of the brake pedal at 50 kg (110 lb).	Is the stroke less than 105 mm (4.13 in)?	Go to step **8**.	Bleed the air of brake system.
8	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Depress the brake pedal with 50 kg (110 lb). 2) Measure the voltage between VDCCM connector terminals. ***Connector & terminal*** ***(B310) No. 76 (+) — No. 75 (–):*** ***(B310) No. 44 (+) — No. 75 (–):***	Is the voltage less than 0.2 V?	Go to step **9**.	Replace the VDCH/M. <Ref. to VDC-10, VDC Hydraulic Control Module (VDCH/M).>

	Step	Check	Yes	No
9	**CHECK POOR CONTACT OF CONNECTOR.**	Is there poor contact in connectors between VDCCM and pressure sensor?	Repair the connector.	Go to step **10**.
10	**CHECK VDCCM.** 1) Connect all the connectors. 2) Erase the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	In the current diagnosis, is the same DTC displayed again?	Replace the VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **11**.
11	**CHECK ANY OTHER DTC ON DISPLAY.**	Are other DTCs displayed?	Go to the diagnosis corresponding to the DTC.	Temporary poor contact occurs.