13.Diagnostics Chart with Diagnosis Connector

A: ABS WARNING LIGHT, VDC WARNING LIGHT, VDC OPERATING INDICATOR LIGHT OR VDC OFF INDICATOR LIGHT DOES NOT COME ON.

DIAGNOSIS:

- ABS warning light circuit is open or shorted.
- VDC warning light circuit is open or shorted.
- VDC operating indicator light circuit is open or shorted.
- VDC OFF indicator light circuit is open or shorted.

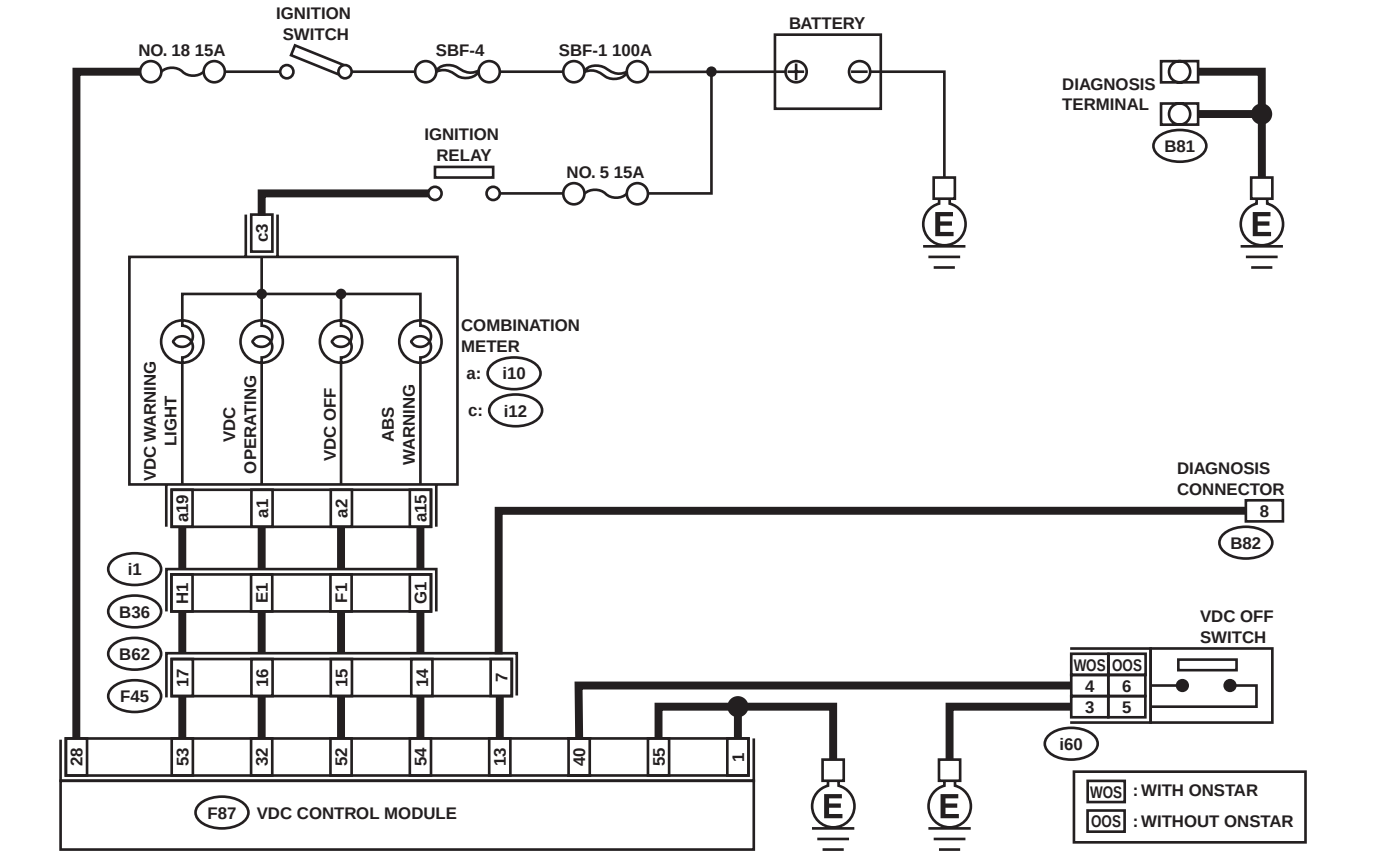
TROUBLE SYMPTOM:

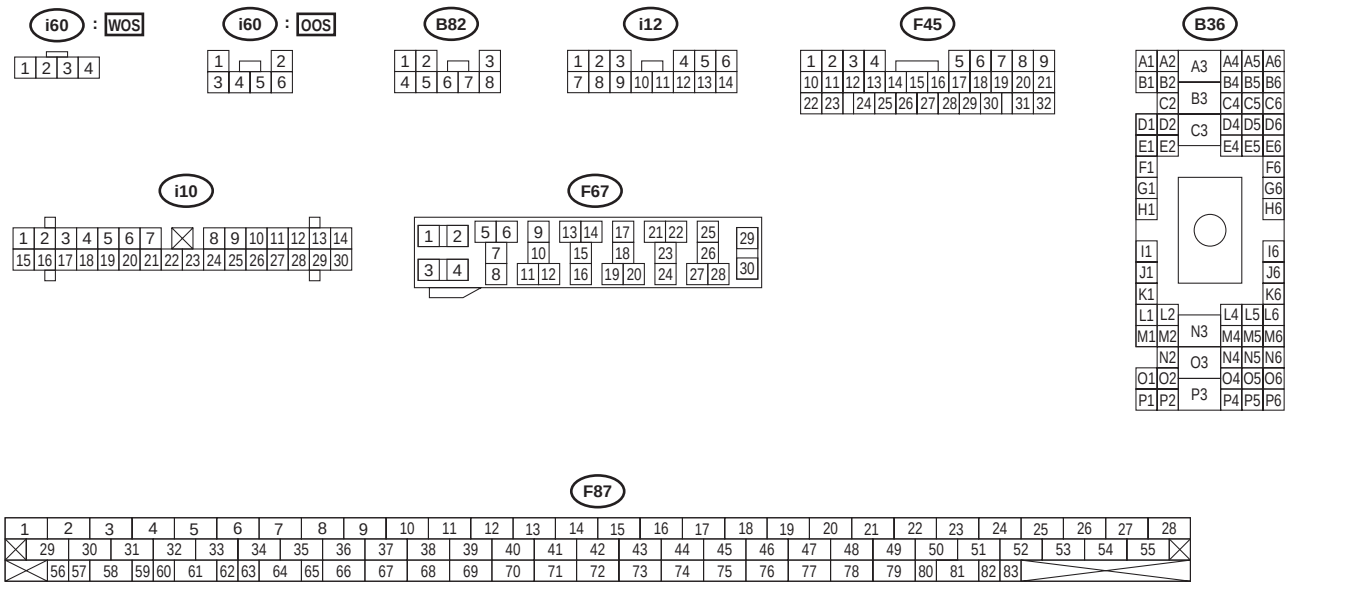
- When ignition switch is turned ON (engine OFF), ABS warning light, VDC warning light, VDC operating indicator light or VDC OFF indicator light does not come on.

NOTE:
When pushing the VDC OFF switch for 10 seconds or more while revving the engine, the VDC OFF indicator light goes off and operations cannot be continued. Turn ignition switch from OFF to ON again to recover the previous condition.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

WIRING DIAGRAM:





VDC00140

Vehicle-id:

SIE-id::A: ABS Warning Light, VDC Warning Light, VDC Operating Indicator Light or VDC OFF Indicator Light Does Not Come On.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK IF OTHER WARNING LIGHTS TURN ON.** Turn ignition switch to ON (engine OFF). Do other warning lights turn on?	Warning lights turn on.	Go to step **2.**	Repair combination meter. <Ref. to IDI-12, Combination Meter Assembly.>
2	**CHECK LIGHT BULB.** 1) Turn ignition switch to OFF. 2) Remove combination meter. 3) Remove ABS warning light bulb, VDC warning light bulb, VDC operating indicator light bulb or VDC OFF indicator light bulb from combination meter. Is light bulb OK?	OK.	Go to step **3.**	Replace faulty light bulb. <Ref. to IDI-12, DISASSEMBLY, Combination Meter Assembly.>
3	**CHECK BATTERY SHORT OF LIGHT HARNESS.** 1) Disconnect VDCCM connector from VDCCM. 2) Place a sheet of thick paper [thickness 1.5 mm (0.059 in)] in switch area of VDCCM connector. 3) Turn ignition switch to ON. 4) Measure voltage between VDC connector and chassis ground. ***Connector & terminal*** ***ABS warning light*** ***(F87) No. 54 (+) — Chassis ground (–):*** ***VDC warning light*** ***(F87) No. 53 (+) — Chassis ground (–):*** ***VDC operating indicator light*** ***(F87) No. 32 (+) — Chassis ground (–):*** ***VDC OFF indicator light*** ***(F87) No. 52 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	3 V	Go to step **4.**	Repair light harness.
4	**CHECK WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Install ABS warning light bulb from combination meter. 3) Install combination meter. 4) Place a sheet of thick paper [thickness 1.5 mm (0.059 in)] in switch area of VDCCM connector. 5) Turn ignition switch to ON. 6) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***ABS warning light*** ***(F87) No. 54 (+) — Chassis ground (–):*** ***VDC warning light*** ***(F87) No. 53 (+) — Chassis ground (–):*** ***VDC operating indicator light*** ***(F87) No. 32 (+) — Chassis ground (–):*** ***VDC OFF indicator light*** ***(F87) No. 52 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **5.**	Repair wiring harness.
5	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF. Is there poor contact in connectors between combination meter and VDCCM?	There is poor contact.	Repair connector.	Go to step **6.**

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

Step		Value	Yes	No
6	**CHECK WARNING AND INDICATOR LIGHTS.** 1) Connect connector to VDCCM. 2) Turn ignition switch to ON. Do ABS warning light, VDC warning light, VDC operating indicator light and VDC OFF indicator light turn on?	Turn(s) on.	A temporary poor contact.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

Vehicle-id:
SIE-id::A: ABS Warning Light, VDC Warning Light, VDC Operating Indicator Light or VDC OFF Indicator Light Does Not Come On.

MEMO:

Vehicle-id:
SIE-id::A: ABS Warning Light, VDC Warning Light, VDC Operating Indicator Light or VDC OFF Indicator Light Does Not Come On.

B: ABS AND VDC WARNING LIGHTS DO NOT GO OFF.

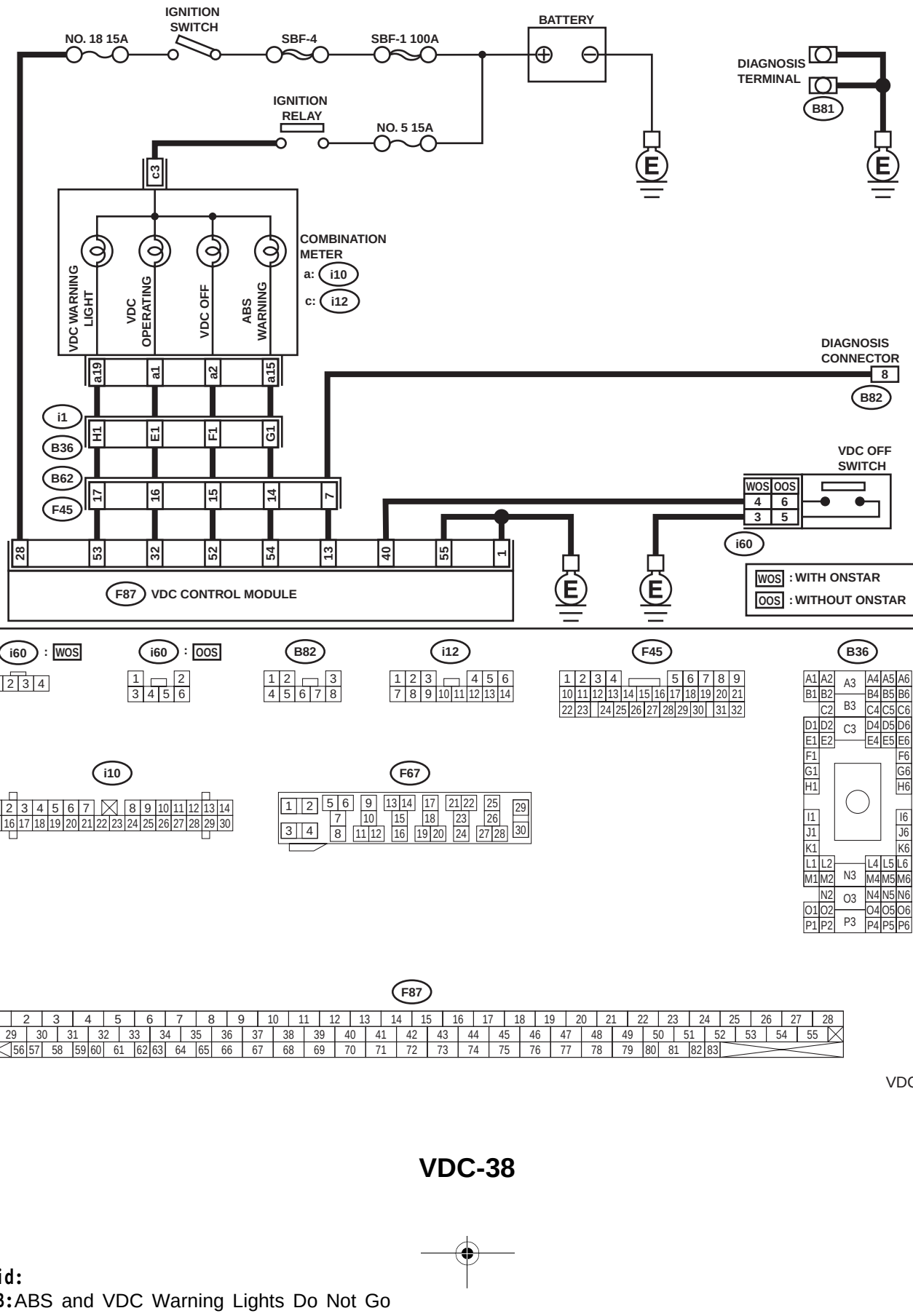
DIAGNOSIS:

- ABS warning light circuit is open or shorted.
- VDC warning light circuit is open or shorted.
- Diagnosis circuit is open.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00140

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK INSTALLATION OF VDCCM CONNECTOR.** Turn ignition switch to OFF. Is VDCCM connector inserted into VDCCM until the clamp locks onto it?	VDCCM connector is connected and the clamp is locked.	Go to step **2.**	Insert VDCCM connector into VDCCM until the clamp locks onto it.
2	**CHECK DIAGNOSIS TERMINAL.** Measure resistance between diagnosis terminals (B81) and chassis ground. ***Terminals*** ***Diagnosis terminal (A) — Chassis ground:*** ***Diagnosis terminal (B) — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair diagnosis terminal harness.
3	**CHECK DIAGNOSIS LINE.** 1) Turn ignition switch to OFF. 2) Connect diagnosis terminal (B81) to diagnosis connector (B82) No. 8. 3) Disconnect connector from VDCCM. 4) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 13 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **4.**	Repair harness connector between VDCCM and diagnosis connector.
4	**CHECK WIRING HARNESS.** 1) Place a sheet of thick paper [thickness 1.5 mm (0.059 in)] in switch area of VDCCM connector. 2) Turn ignition switch to ON. Do the ABS warning light and VDC warning light remain off?	Warning lights remain off.	Go to step **5.**	Repair front wiring harness.
5	**CHECK VDCCM TERMINAL.** 1) Turn ignition switch to OFF. 2) Check, if there is any faulty condition of VDCCM terminal. Is there any faulty condition of VDCCM terminal?	There is no problem.	Go to step **6.**	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
6	**CHECK POWER SUPPLY OF VDCCM.** 1) Disconnect connector from VDCCM. 2) Start engine. 3) Idle the engine. 4) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 28 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **7.**	Repair VDCCM power supply circuit.
7	**CHECK POOR CONTACT IN VDCCM CONNECTOR.** Is there poor contact in VDCCM connector?	There is poor contact.	Repair connector.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

C: VDC OPERATING INDICATOR LIGHT DOES NOT GO OFF.

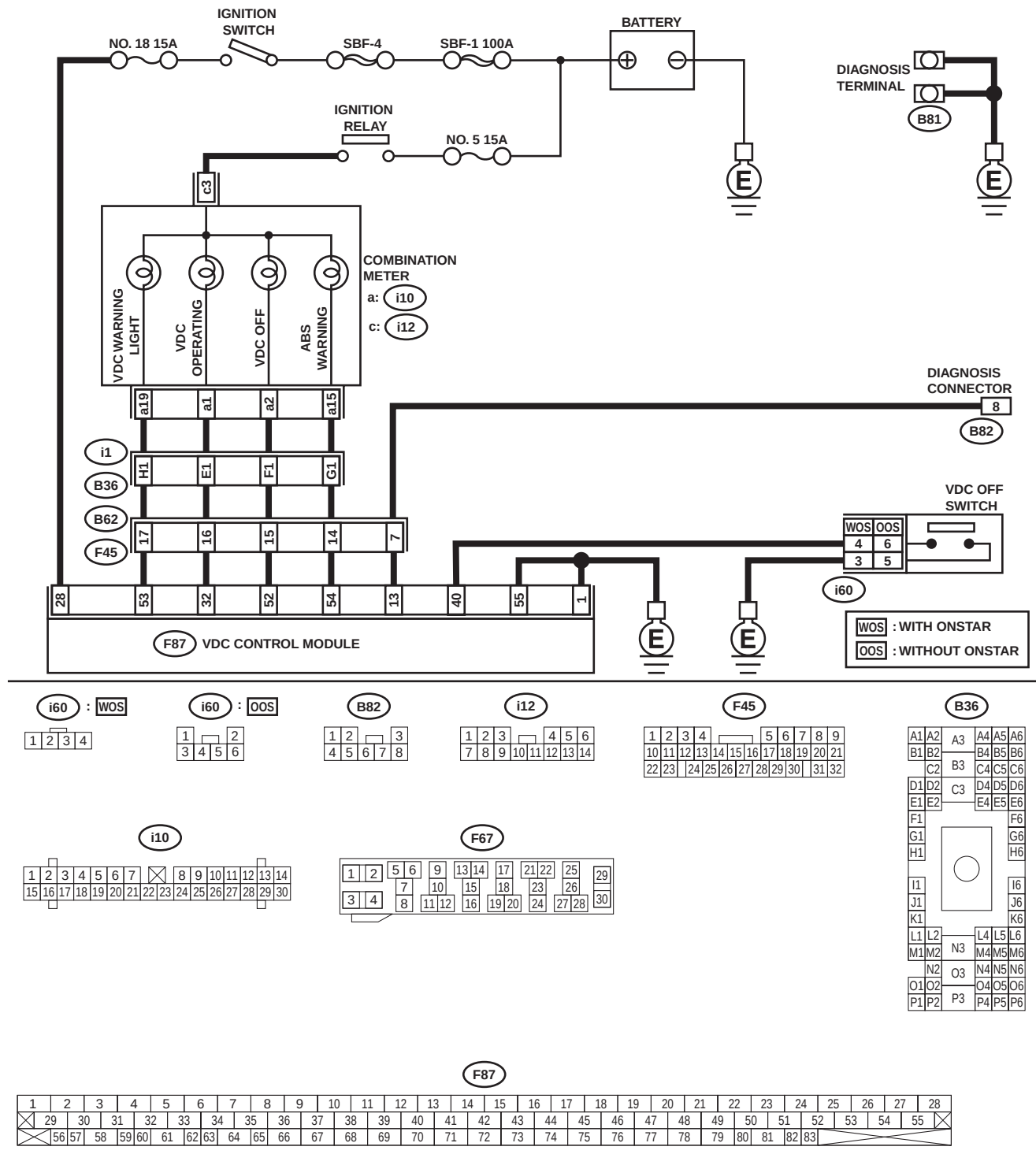
DIAGNOSIS:

- VDC operating indicator light circuit is open or shorted.

TROUBLE SYMPTOM:

- When starting the engine and while VDC operating indicator light is kept ON.

WIRING DIAGRAM:



VDC00140

Vehicle-id:
SIE-id::C:VDC Operating Indicator Light Does Not Go Off.
~

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

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

Vehicle-id:
SIE-id::C:VDC Operating Indicator Light Does Not Go Off.
~

D: VDC OFF INDICATOR LIGHT DOES NOT GO OFF.

DIAGNOSIS:

- VDC OFF indicator light circuit is open or shorted.
- VDC OFF switch is shorted.

TROUBLE SYMPTOM:

- When starting the engine and while VDC OFF indicator light is kept ON.

NOTE:
When pushing the VDC OFF switch for 10 seconds or more while revving the engine, the VDC OFF indicator light goes off and operations cannot be continued. Turn ignition switch from OFF to ON again to recover the previous condition.

Vehicle-id:
SIE-id::D:VDC OFF Indicator Light Does Not Go Off.
~

MEMO:

Vehicle-id:
SIE-id::D:VDC OFF Indicator Light Does Not Go Off.
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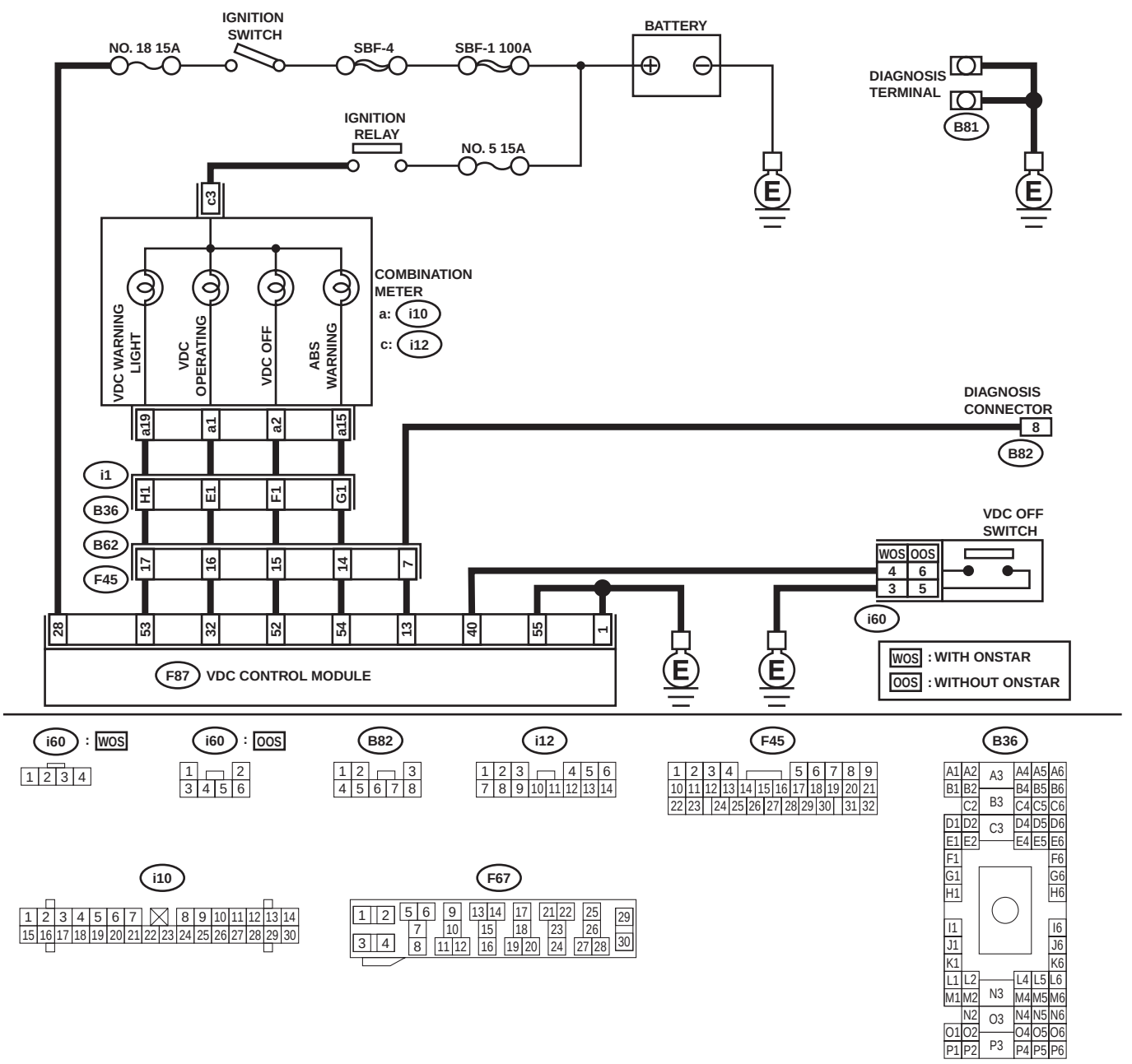
DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

WIRING DIAGRAM:



VDC00140

Vehicle-id:
SIE-id::D: VDC OFF Indicator Light Does Not Go Off.
～

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**OPERATE VDC OFF SWITCH.** 1) Operate VDC OFF switch. 2) Turn ignition switch OFF, then turn ignition switch ON. Is VDC OFF indicator light off?	Indicator lights off.	The VDC is normal.	Go to step **2.**
2	**CHECK ENGINE COOLANT TEMPERATURE.** Does VDC OFF indicator light come on when engine coolant temperature is too low? Does it go out after engine has warmed up?	Indicator lights on, when engine coolant temperature is too low and goes out after warmed up.	The VDC is normal.	Go to step **3.**
3	**CHECK VDC OFF SWITCH.** Remove and check VDC OFF switch. <Ref. to VDC-32, VDC Off Switch.> Is VDC OFF switch OK?	OK.	Go to step **4.**	Replace VDC OFF switch.
4	**CHECK WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect VDCCM connector from VDCCM. 3) Turn ignition switch to ON. Does the VDC OFF indicator light remain off?	Indicator lights off.	Go to step **5.**	Repair wiring harness.
5	**CHECK VDC OFF SWITCH LINE.** 1) Disconnect fuse from VDC OFF switch. 2) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 40 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Repair VDC OFF switch circuit.

Vehicle-id:
SIE-id::D:VDC OFF Indicator Light Does Not Go Off.
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E: DIAGNOSTIC TROUBLE CODE (DTC) DOES NOT APPEAR.

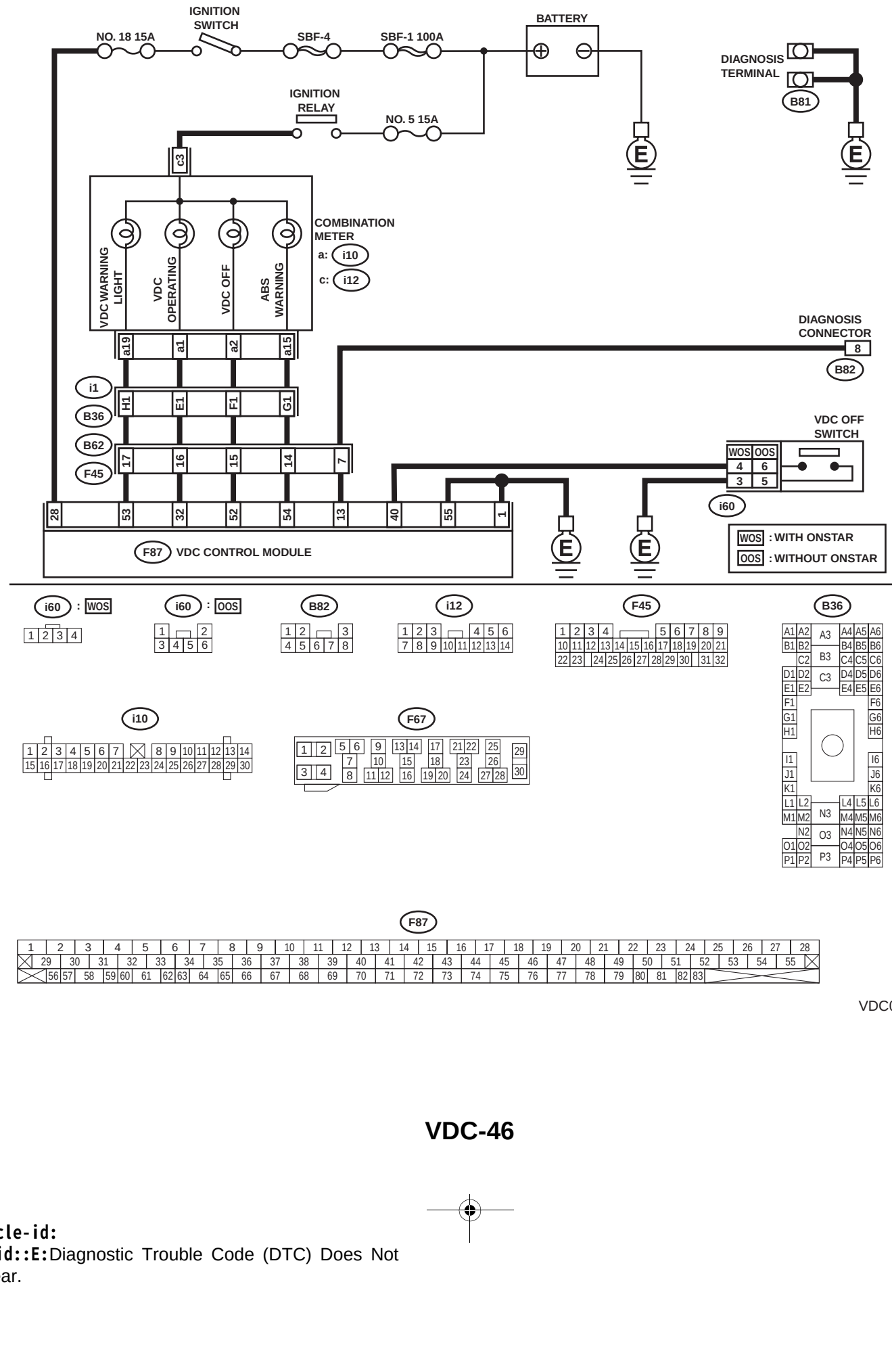
DIAGNOSIS:

- Diagnosis circuit is open.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00140

Vehicle-id:
SIE-id::E: Diagnostic Trouble Code (DTC) Does Not Appear.
~

	Step	Value	Yes	No
1	**CHECK DIAGNOSIS TERMINAL.** Measure resistance between diagnosis terminals (B81) and chassis ground. ***Terminals*** ***Diagnosis terminal (A) — Chassis ground:*** ***Diagnosis terminal (B) — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **2.**	Repair diagnosis terminal harness.
2	**CHECK DIAGNOSIS LINE.** 1) Turn ignition switch to OFF. 2) Connect diagnosis terminal (B81) to diagnosis connector (B82) No. 8. 3) Disconnect connector from VDCCM. 4) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 13 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair harness connector between VDCCM and diagnosis connector.
3	**CHECK POOR CONTACT IN VDCCM CONNECTOR.** Is there poor contact in VDCCM connector?	There is poor contact.	Repair connector.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

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

NOTE:
For diagnostic procedure, refer to DTC 27. <Ref. to VDC-50, DTC 27 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

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

NOTE:
For diagnostic procedure, refer to DTC 27. <Ref. to VDC-50, DTC 27 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

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

NOTE:
For diagnostic procedure, refer to DTC 27. <Ref. to VDC-50, DTC 27 ABNORMAL ABS SENSOR (OPEN CIRCUIT OR INPUT VOLTAGE TOO HIGH) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

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

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

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

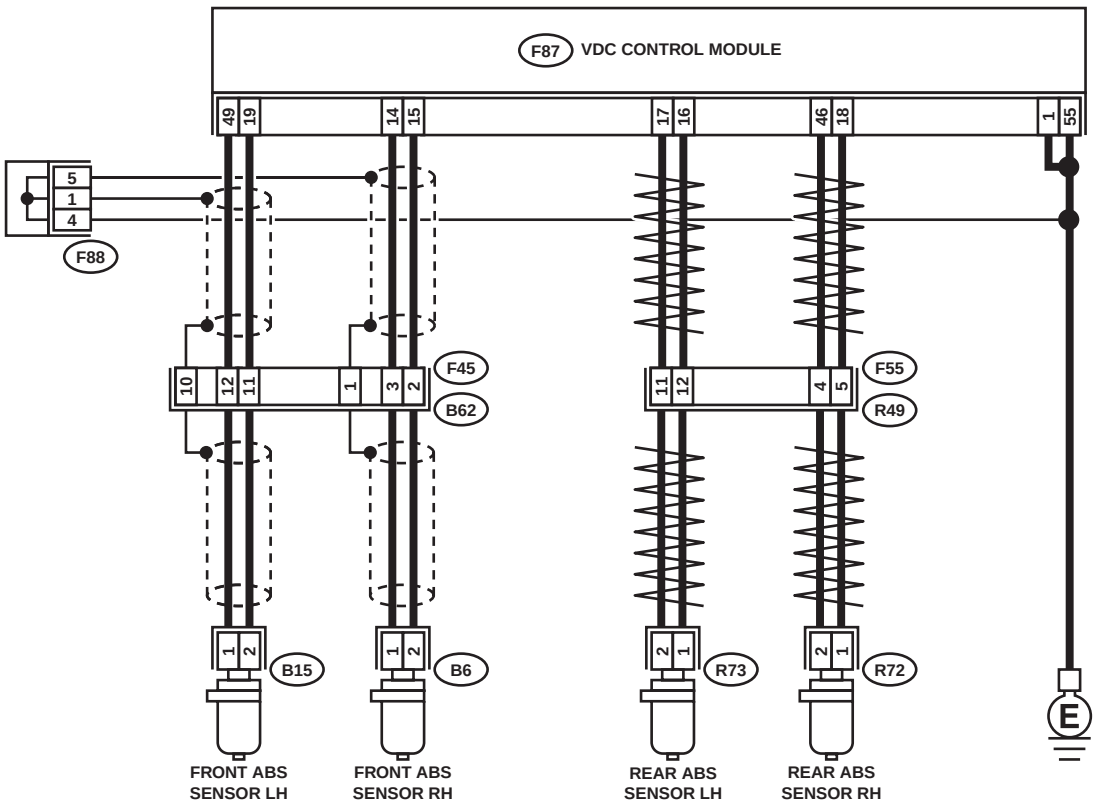
DIAGNOSIS:

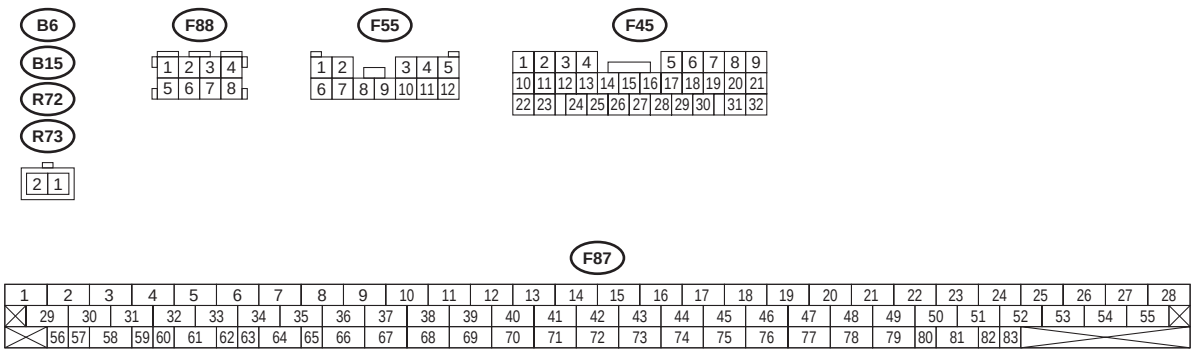
- Faulty ABS sensor (Broken wire, input voltage too high)
- Faulty harness connector

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





VDC00141

Vehicle-id:
SIE-id::I:DTC 27 Abnormal ABS Sensor (Open Circuit or Input Voltage Too High) (Rear LH)
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	Step	Value	Yes	No
1	**CHECK ABS SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABS sensor. 3) Measure resistance of ABS sensor connector terminals. ***Terminal*** ***Front RH No. 1 — No. 2:*** ***Front LH No. 1 — No. 2:*** ***Rear RH No. 1 — No. 2:*** ***Rear LH No. 1 — No. 2:*** Is the measured value within the specified range?	1.0 — 1.5 kΩ	Go to step **2.**	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
2	**CHECK BATTERY SHORT OF ABS SENSOR.** 1) Disconnect connector from VDCCM. 2) Measure voltage between ABS sensor and chassis ground. ***Terminal*** ***Front RH No. 1 (+) — Chassis ground (–):*** ***Front LH No. 1 (+) — Chassis ground (–):*** ***Rear RH No. 1 (+) — Chassis ground (–):*** ***Rear LH No. 1 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **3.**	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
3	**CHECK BATTERY SHORT OF ABS SENSOR.** 1) Turn ignition switch to ON. 2) Measure voltage between ABS sensor and chassis ground. ***Terminal*** ***Front RH No. 1 (+) — Chassis ground (–):*** ***Front LH No. 1 (+) — Chassis ground (–):*** ***Rear RH No. 1 (+) — Chassis ground (–):*** ***Rear LH No. 1 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **4.**	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
4	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND ABS SENSOR.** 1) Turn ignition switch to OFF. 2) Connect connector to ABS sensor. 3) Measure resistance between VDCCM connector terminals. ***Connector & terminal*** ***DTC 21 / (F87) No. 14 — No. 15:*** ***DTC 23 / (F87) No. 49 — No. 19:*** ***DTC 25 / (F87) No. 18 — No. 46:*** ***DTC 27 / (F87) No. 16 — No. 17:*** Is the measured value within the specified range?	1.0 — 1.5 kΩ	Go to step **5.**	Repair harness/ connector between VDCCM and ABS sensor.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
5	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 21 / (F87) No. 14 (+) — Chassis ground (–):*** ***DTC 23 / (F87) No. 49 (+) — Chassis ground (–):*** ***DTC 25 / (F87) No. 18 (+) — Chassis ground (–):*** ***DTC 27 / (F87) No. 16 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **6.**	Repair harness between VDCCM and ABS sensor.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 21 / (F87) No. 14 (+) — Chassis ground (–):*** ***DTC 23 / (F87) No. 49 (+) — Chassis ground (–):*** ***DTC 25 / (F87) No. 18 (+) — Chassis ground (–):*** ***DTC 27 / (F87) No. 16 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **7.**	Repair harness between VDCCM and ABS sensor.
7	**CHECK INSTALLATION OF ABS SENSOR.** ***Tightening torque:*** ***32±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)*** Are the ABS sensor installation bolts tightened securely?	Tightened securely.	Go to step **8.**	Tighten ABS sensor installation bolts securely.
8	**CHECK ABS SENSOR GAP.** Measure tone wheel-to-pole piece gap over entire perimeter of the wheel. Is the measured value within the specified range?	Front wheel 0.3 - 0.8 mm (0.012 - 0.031 in) and Rear wheel 0.44 - 0.94 mm (0.0173 - 0.0370 in)	Go to step **9.**	Adjust the gap. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.
9	**CHECK HUB AND TONE WHEEL RUNOUT.** Measure hub and tone wheel runout. Is the measured value less than the specified value?	0.05 mm (0.0020 in)	Go to step **10.**	Repair hub and tone wheel. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
10	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between VDCCM and ABS sensor?	There is poor contact.	Repair connector.	Go to step **11.**

Step		Value	Yes	No
11	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **12.**
12	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact. NOTE: Check harness and connectors between VDCCM and ABS sensor.

J: DTC 22 ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) (FRONT RH)

NOTE:
For diagnostic procedure, refer to DTC 28. <Ref. to VDC-56, DTC 28 ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

K: DTC 24 ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) (FRONT LH)

NOTE:
For diagnostic procedure, refer to DTC 28. <Ref. to VDC-56, DTC 28 ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

L: DTC 26 ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) (REAR RH)

NOTE:
For diagnostic procedure, refer to DTC 28. <Ref. to VDC-56, DTC 28 ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) (REAR LH), Diagnostics Chart with Diagnosis Connector.>

Vehicle-id:
SIE-id::J:DTC 22 Abnormal ABS Sensor (Abnormal ABS Sensor Signal) (Front RH)
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MEMO:

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

M: DTC 28 ABNORMAL ABS SENSOR (ABNORMAL ABS SENSOR SIGNAL) (REAR LH)

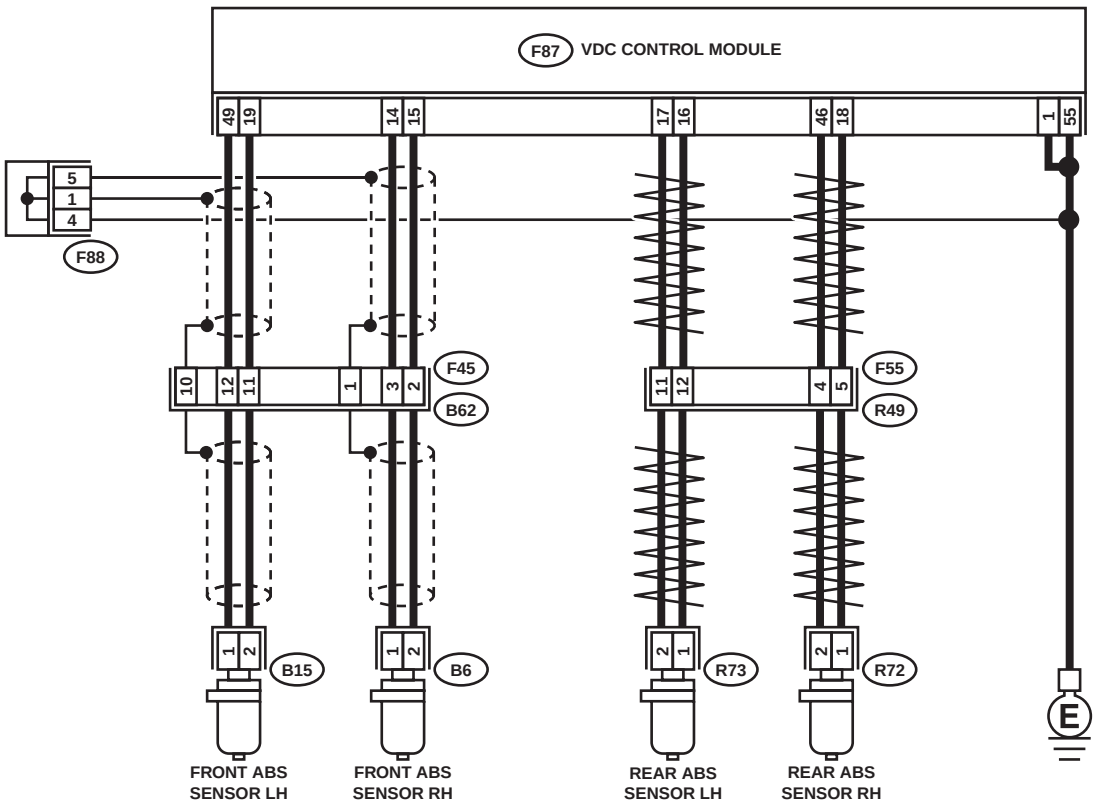
DIAGNOSIS:

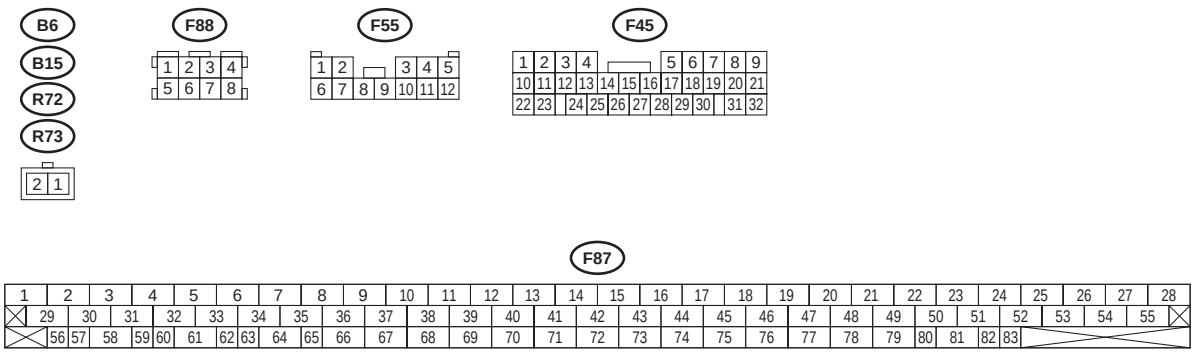
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty harness/connector

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





VDC00141

	Step	Value	Yes	No
1	**CHECK INSTALLATION OF ABS SENSOR.** ***Tightening torque:*** ***32±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)*** Are the ABS sensor installation bolts tightened securely?	Tightened securely.	Go to step **2.**	Tighten ABS sensor installation bolts securely.
2	**CHECK ABS SENSOR GAP.** Measure tone wheel to pole piece gap over entire perimeter of the wheel. Is the measured value within the specified range?	Front wheel 0.3 - 0.8 mm (0.012 - 0.031 in) and Rear wheel 0.44 - 0.94 mm (0.0173 - 0.0370 in)	Go to step **3.**	Adjust the gap. NOTE: Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.
3	**CHECK OSCILLOSCOPE.** Is an oscilloscope available?	Available.	Go to step **4.**	Go to step **5.**
4	**CHECK ABS SENSOR SIGNAL.** 1) Raise all four wheels of ground. 2) Turn ignition switch OFF. 3) Remove VDCCM connector cover. <Ref. to VDC-19, VDCCM Connector Cover.> 4) Connect the oscilloscope to the connector. 5) Turn ignition switch ON. 6) Rotate wheels and measure voltage at specified frequency. <Ref. to ABS-15, WAVEFORM, Control Module I/O Signal.> NOTE: When this inspection is completed, the VDCCM sometimes stores the DTC 29. ***Connector & terminal*** ***DTC 22 / (F87) No. 14 (+) — No. 15 (–):*** ***DTC 24 / (F87) No. 49 (+) — No. 19 (–):*** ***DTC 26 / (F87) No. 18 (+) — No. 46 (–):*** ***DTC 28 / (F87) No. 16 (+) — No. 17 (–):*** Is oscilloscope pattern smooth, as shown in figure?	Smooth pattern.	Go to step **8.**	Go to step **5.**
5	**CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.** Remove disc rotor from hub in accordance with diagnostic trouble code. Is the ABS sensor pole piece or the tone wheel contaminated by dirt or other foreign matter?	Dirt or foreign matter found.	Thoroughly remove dirt or other foreign matter.	Go to step **6.**
6	**CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.** Are there broken or damaged in the ABS sensor pole piece or the tone wheel?	Broken or damaged.	Replace ABS sensor or tone wheel. Front <Ref. to VDC-28, Front ABS Sensor.> and <Ref. to VDC-30, Front Tone Wheel.> Rear <Ref. to VDC-29, Rear ABS Sensor.> and <Ref. to VDC-31, Rear Tone Wheel.>	Go to step **7.**

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout. Is the measured value less than the specified value?	0.05 mm (0.0020 in)	Go to step **8.**	Repair tone wheel. Front <Ref. to VDC-30, Front Tone Wheel.> Rear <Ref. to VDC-31, Rear Tone Wheel.>
8	**CHECK RESISTANCE OF ABS SENSOR.** 1) Turn ignition switch OFF. 2) Disconnect connector from ABS sensor. 3) Measure resistance between ABS sensor connector terminals. ***Terminal*** ***Front RH No. 1 — No. 2:*** ***Front LH No. 1 — No. 2:*** ***Rear RH No. 1 — No. 2:*** ***Rear LH No. 1 — No. 2:*** Is the measured value within the specified range?	1.0 — 1.5 kΩ	Go to step **9.**	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
9	**CHECK GROUND SHORT OF ABS SENSOR.** Measure resistance between ABS sensor and chassis ground. ***Terminal*** ***Front RH No. 1 — Chassis ground:*** ***Front LH No. 1 — Chassis ground:*** ***Rear RH No. 1 — Chassis ground:*** ***Rear LH No. 1 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **10.**	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
10	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND ABS SENSOR.** 1) Connect connector to ABS sensor. 2) Disconnect connector from VDCCM. 3) Measure resistance at VDCCM connector terminals. ***Connector & terminal*** ***DTC 22 / (F87) No. 14 — No. 15:*** ***DTC 24 / (F87) No. 49 — No. 19:*** ***DTC 26 / (F87) No. 18 — No. 46:*** ***DTC 28 / (F87) No. 16 — No. 17:*** Is the measured value within the specified range?	1.0 — 1.5 kΩ	Go to step **11.**	Repair harness/ connector between VDCCM and ABS sensor.
11	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 22 / (F87) No. 14 — Chassis ground:*** ***DTC 24 / (F87) No. 49 — Chassis ground:*** ***DTC 26 / (F87) No. 18 — Chassis ground:*** ***DTC 28 / (F87) No. 16 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **12.**	Repair harness/ connector between VDCCM and ABS sensor.

	Step	Value	Yes	No
12	**CHECK GROUND CIRCUIT OF VDCCM.** Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 1 — Chassis ground:*** ***(F87) No. 55 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **13.**	Repair VDCCM ground harness.
13	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between VDCCM and ABS sensor?	There is poor contact.	Repair connector.	Go to step **14.**
14	**CHECK SOURCES OF SIGNAL NOISE.** Is the car telephone or the wireless transmitter properly installed?	Installed properly.	Go to step **15.**	Properly install the car telephone or the wireless transmitter.
15	**CHECK SOURCES OF SIGNAL NOISE.** Are noise sources (such as an antenna) installed near the sensor harness?	Installed properly.	Install the noise sources apart from the sensor harness.	Go to step **16.**
16	**CHECK SHIELD CIRCUIT.** 1) Connect all connectors. 2) Measure resistance between shield connector and chassis ground. ***Connector & terminal*** ***DTC 22 / (F45) No. 1 — Chassis ground:*** ***DTC 24 / (F45) No. 10 — Chassis ground:*** Is the measured value less than the specified value? NOTE: For the DTC 26 and 28, Go to step **17.**	0.5 Ω	Go to step **17.**	Repair shield harness.
17	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **18.**
18	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary noise interference.

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

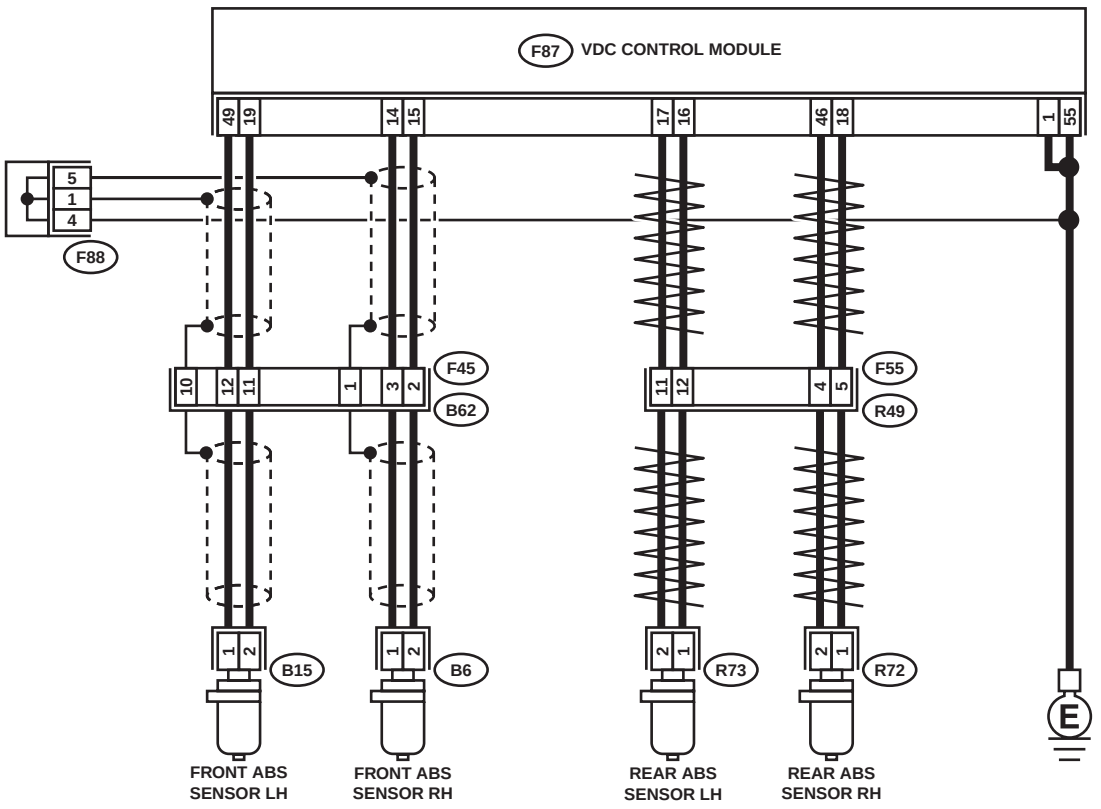
DIAGNOSIS:

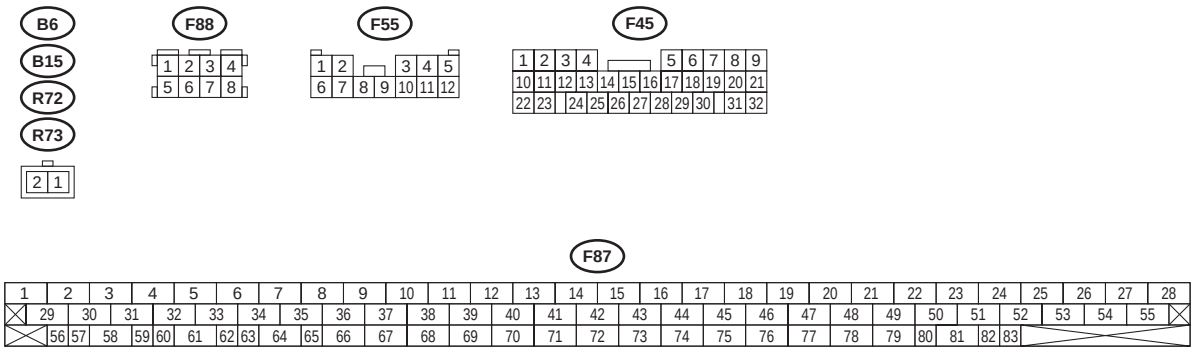
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty tone wheel
- Wheels turning freely for a long time

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





VDC00141

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK IF THE WHEELS HAVE TURNED FREELY.** Check if the wheels have been turned freely for more than one minute, such as when the vehicle is jacked-up, under full-lock cornering or when tire is not in contact with road surface.	Turned freely over 1 minutes.	The VDC is normal. Erase the diagnostic trouble code. NOTE: When the wheels turn freely for a long time, such as when the vehicle is towed or jacked-up, or when steering wheel is continuously turned all the way, this trouble code may sometimes occur.	Go to step **2.**
2	**CHECK TIRE SPECIFICATIONS.** Are the tire specifications correct?	Correct specification.	Go to step **3.**	Replace tire.
3	**CHECK WEAR OF TIRE.** Is the tire worn excessively?	Worn excesiblely.	Replace tire.	Go to step **4.**
4	**CHECK TIRE PRESSURE.** Is the tire pressure correct?	Correct tire pressure.	Go to step **5.**	Adjust tire pressure.
5	**CHECK INSTALLATION OF ABS SENSOR.** ***Tightening torque:*** ***32±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)*** Are the ABS sensor installation bolts tightened securely?	Tightened securely.	Go to step **6.**	Tighten ABS sensor installation bolts securely.
6	**CHECK ABS SENSOR GAP.** Measure tone wheel to pole piece gap over entire perimeter of the wheel. Is the measured value within the specified range?	Front wheel 0.3 - 0.8 mm (0.012 - 0.031 in) and Rear wheel 0.44 - 0.94 mm (0.0173 - 0.0370 in)	Go to step **7.**	Adjust the gap. NOTE: Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.
7	**CHECK OSCILLOSCOPE.** Is an oscilloscope available?	Available.	Go to step **8.**	Go to step **9.**
8	**CHECK ABS SENSOR SIGNAL.** 1) Raise all four wheels of ground. 2) Turn ignition switch OFF. 3) Remove VDCCM connector cover. <Ref. to VDC-19, VDCCM Connector Cover.> 4) Connect the oscilloscope to the connector. 5) Turn ignition switch ON. 6) Rotate wheels and measure voltage at specified frequency. <Ref. to ABS-15, WAVEFORM, Control Module I/O Signal.> NOTE: When this inspection is completed, the VDCCM sometimes stores the DTC 29. ***Connector & terminal*** ***(F87) No. 14 (+) — No. 15 (–) (Front RH):*** ***(F87) No. 49 (+) — No. 19 (–) (Front LH):*** ***(F87) No. 18 (+) — No. 46 (–) (Rear RH):*** ***(F87) No. 16 (+) — No. 17 (–) (Rear LH):*** Is oscilloscope pattern smooth, as shown in figure?	Smooth pattern.	Go to step **12.**	Go to step **9.**

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
9	**CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.** Remove disc rotor from hub. Is the ABS sensor pole piece or the tone wheel contaminated by dirt or other foreign matter?	Dirt or foreign matter found.	Thoroughly remove dirt or other foreign matter.	Go to step **10.**
10	**CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.** Are there broken or damaged teeth in the ABS sensor pole piece or the tone wheel?	Broken or damaged.	Replace ABS sensor or tone wheel. Front <Ref. to VDC-28, Front ABS Sensor.> and <Ref. to VDC-30, Front Tone Wheel.> Rear <Ref. to VDC-29, Rear ABS Sensor.> and <Ref. to VDC-31, Rear Tone Wheel.>	Go to step **11.**
11	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout. Is the measured value less than the specified value?	0.05 mm (0.0020 in)	Go to step **12.**	Repair tone wheel. Front <Ref. to VDC-30, Front Tone Wheel.> Rear <Ref. to VDC-31, Rear Tone Wheel.>
12	**CHECK VDCCM.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the diagnostic trouble code. Is the diagnostic same trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **13.**
13	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

O: DTC 31 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (FRONT RH INLET)

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-64, DTC 62 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (SECONDARY CUT), Diagnostics Chart with Diagnosis Connector.>

P: DTC 33 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (FRONT LH INLET)

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-64, DTC 62 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (SECONDARY CUT), Diagnostics Chart with Diagnosis Connector.>

Q: DTC 35 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (REAR RH INLET)

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-64, DTC 62 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (SECONDARY CUT), Diagnostics Chart with Diagnosis Connector.>

R: DTC 37 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (REAR LH INLET)

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-64, DTC 62 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (SECONDARY CUT), Diagnostics Chart with Diagnosis Connector.>

S: DTC 61 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (PRIMARY CUT)

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-64, DTC 62 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (SECONDARY CUT), Diagnostics Chart with Diagnosis Connector.>

T: DTC 62 ABNORMAL INLET AND CUT SOLENOID VALVE CIRCUIT(S) (SECONDARY CUT)

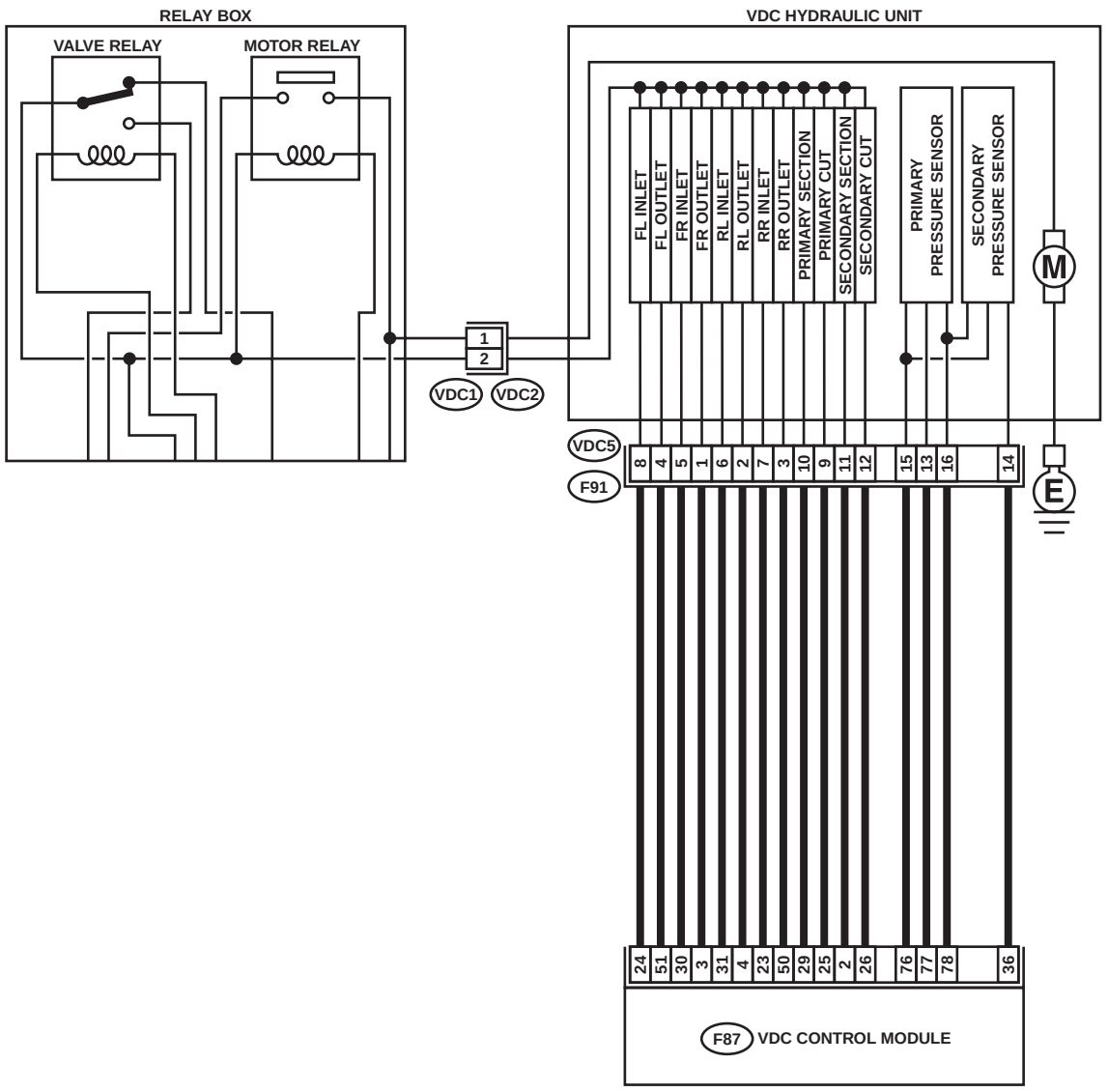
DIAGNOSIS:

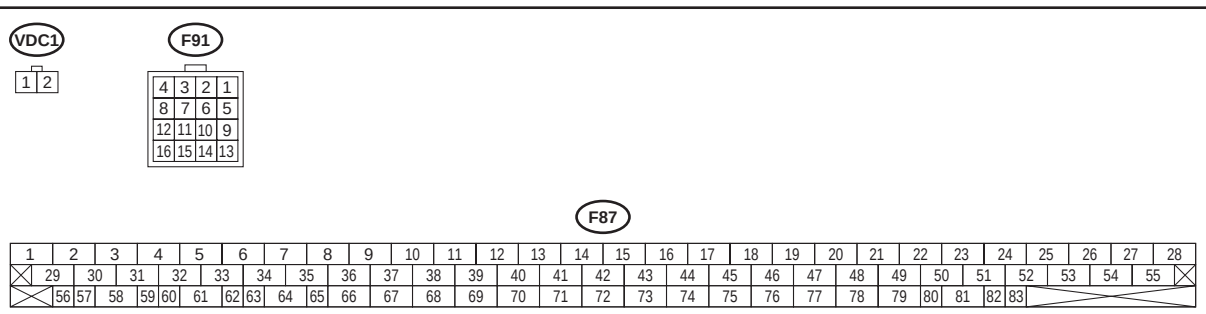
- Faulty harness/connector
- Faulty solenoid valve in VDCH/U

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





VDC00142

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK RESISTANCE OF SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Disconnect two connectors (VDC1, F91) from VDCH/U. 3) Measure resistance between VDCH/U 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 measured value within the specified range?	8.04 — 9.04 Ω	Go to step **2.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
2	**CHECK GROUND SHORT OF SOLENOID VALVE.** Measure resistance between VDCH/U 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:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
3	**CHECK BATTERY SHORT OF SOLENOID VALVE.** 1) Disconnect connector from VDCCM. 2) Measure voltage between VDCH/U 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 measured value less than the specified value?	1 V	Go to step **4.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>

Vehicle-id:
SIE-id::T:DTC 62 Abnormal Inlet and Cut Solenoid Valve Circuit(s) (Secondary Cut)
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DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
4	**CHECK BATTERY SHORT OF SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCH/U 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 measured value less than the specified value?	1 V	Go to step **5.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
5	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 31/(F87) No. 30 (+) — Chassis ground (–):*** ***DTC 33/(F87) No. 24 (+) — Chassis ground (–):*** ***DTC 35/(F87) No. 23 (+) — Chassis ground (–):*** ***DTC 37/(F87) No. 31 (+) — Chassis ground (–):*** ***DTC 61/(F87) No. 25 (+) — Chassis ground (–):*** ***DTC 62/(F87) No. 26 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **6.**	Repair harness between VDCCM and VDCH/U.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 31/(F87) No. 30 (+) — Chassis ground (–):*** ***DTC 33/(F87) No. 24 (+) — Chassis ground (–):*** ***DTC 35/(F87) No. 23 (+) — Chassis ground (–):*** ***DTC 37/(F87) No. 31 (+) — Chassis ground (–):*** ***DTC 61/(F87) No. 25 (+) — Chassis ground (–):*** ***DTC 62/(F87) No. 26 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **7.**	Repair harness between VDCCM and VDCH/U.

	Step	Value	Yes	No
7	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 31/(F87) No. 30 — Chassis ground:*** ***DTC 33/(F87) No. 24 — Chassis ground:*** ***DTC 35/(F87) No. 23 — Chassis ground:*** ***DTC 37/(F87) No. 31 — Chassis ground:*** ***DTC 61/(F87) No. 25 — Chassis ground:*** ***DTC 62/(F87) No. 26 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **8.**	Repair harness between VDCCM and VDCH/U.
8	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND VDCH/U.** 1) Connect connector (F91) to VDCH/U. 2) Measure resistance between VDCCM connector and VDCH/U connector. ***Connector & terminal*** ***DTC 31/(F87) No. 30 — (VDC2) No. 2:*** ***DTC 33/(F87) No. 24 — (VDC2) No. 2:*** ***DTC 35/(F87) No. 23 — (VDC2) No. 2:*** ***DTC 37/(F87) No. 31— (VDC2) No. 2:*** ***DTC 61/(F87) No. 25 — (VDC2) No. 2:*** ***DTC 62/(F87) No. 26 — (VDC2) No. 2:*** Is the measured value within the specified range?	7 — 10 Ω	Go to step **9.**	Repair harness/ connector between VDCCM and VDCH/U.
9	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between VDCCM and VDCH/U?	There is poor contact.	Repair connector.	Go to step **10.**
10	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Repair VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **11.**
11	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

U: DTC 32 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (FRONT RH OUTLET)

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-70, DTC 64 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (SECONDARY SUCTION), Diagnostics Chart with Diagnosis Connector.>

V: DTC 34 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (FRONT LH OUTLET)

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-70, DTC 64 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (SECONDARY SUCTION), Diagnostics Chart with Diagnosis Connector.>

W: DTC 36 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (REAR RH OUTLET)

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-70, DTC 64 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (SECONDARY SUCTION), Diagnostics Chart with Diagnosis Connector.>

X: DTC 38 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (REAR LH OUTLET)

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-70, DTC 64 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (SECONDARY SUCTION), Diagnostics Chart with Diagnosis Connector.>

Y: DTC 63 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (PRIMARY SUCTION)

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-70, DTC 64 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (SECONDARY SUCTION), Diagnostics Chart with Diagnosis Connector.>

MEMO:

Vehicle-id:
SIE-id::Y:DTC 63 Abnormal Outlet and Suction Solenoid Valve Circuit(s) (Primary Suction)
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Z: DTC 64 ABNORMAL OUTLET AND SUCTION SOLENOID VALVE CIRCUIT(S) (SECONDARY SUCTION)

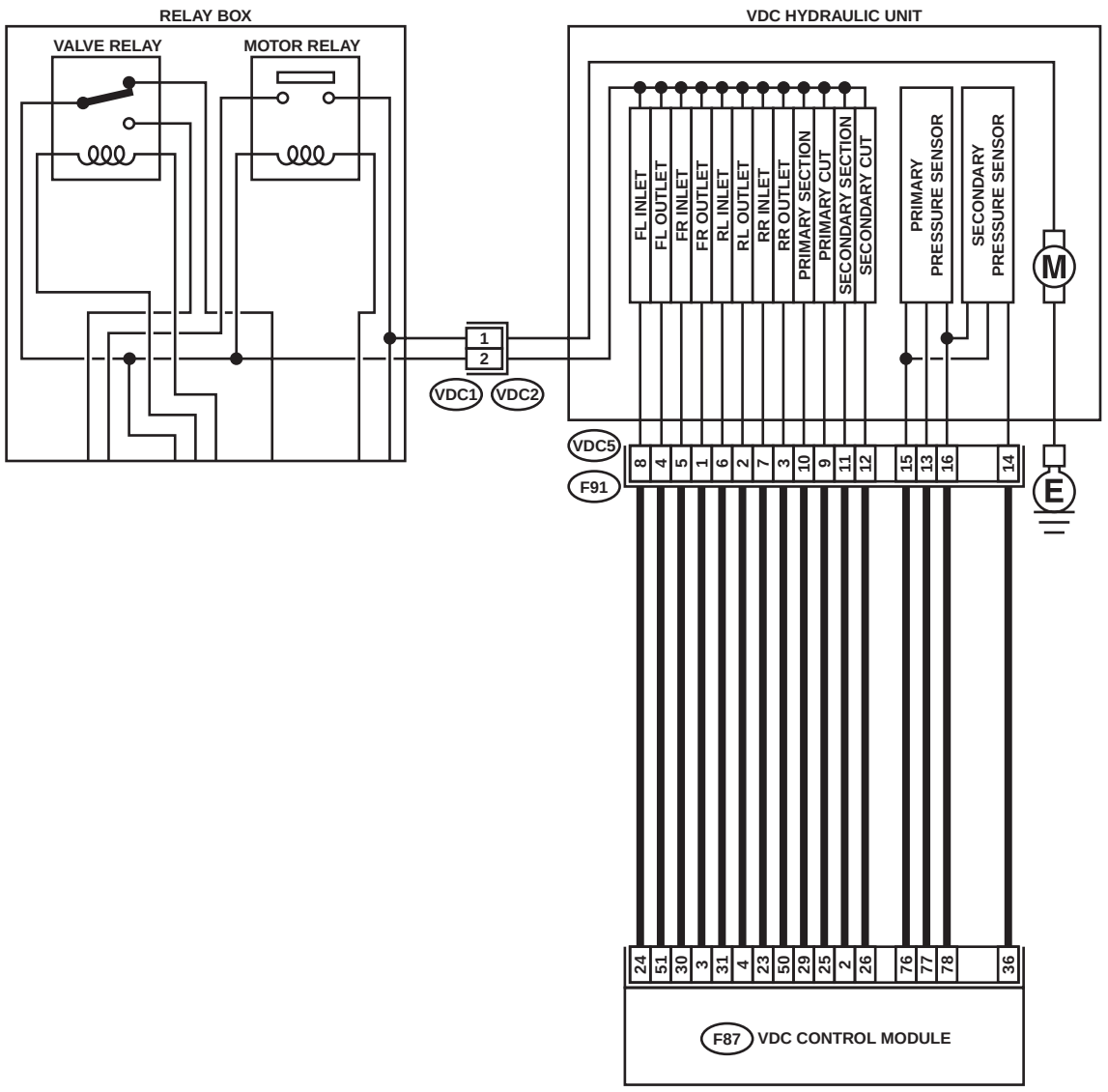
DIAGNOSIS:

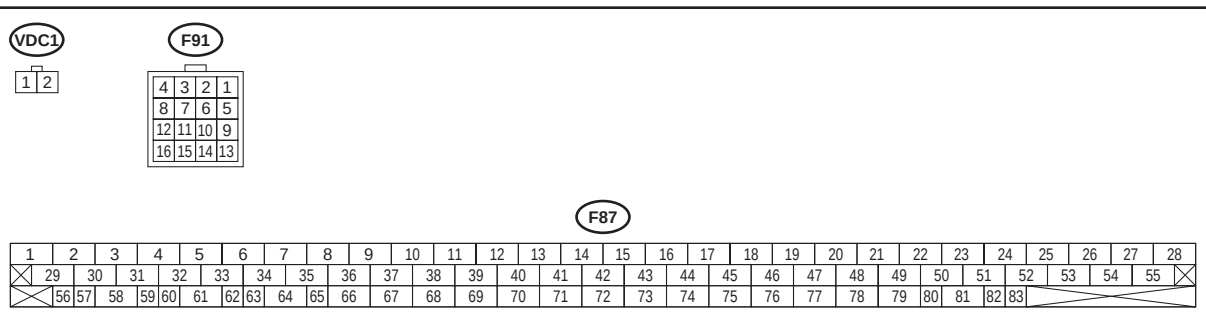
- Faulty harness/connector
- Faulty solenoid valve in VDCH/U

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





VDC00142

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK RESISTANCE OF SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Disconnect two connectors (VDC1, F91) from VDCH/U. 3) Measure resistance between VDCH/U 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 measured value within the specified range?	3.8 — 4.8 Ω	Go to step **2.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
2	**CHECK GROUND SHORT OF SOLENOID VALVE.** Measure resistance between VDCH/U 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:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
3	**CHECK BATTERY SHORT OF SOLENOID VALVE.** 1) Disconnect connector from VDCCM. 2) Measure voltage between VDCH/U 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 measured value less than the specified value?	1 V	Go to step **4.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>

Vehicle-id:
SIE-id::Z:DTC 64 Abnormal Outlet and Suction Solenoid Valve Circuit(s) (Secondary Suction)
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DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
4	**CHECK BATTERY SHORT OF SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCH/U 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 measured value less than the specified value?	1 V	Go to step **5.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
5	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 32/(F87) No. 3 (+) — Chassis ground (–):*** ***DTC 34/(F87) No. 51 (+) — Chassis ground (–):*** ***DTC 36/(F87) No. 50 (+) — Chassis ground (–):*** ***DTC 38/(F87) No. 4 (+) — Chassis ground (–):*** ***DTC 63/(F87) No. 29 (+) — Chassis ground (–):*** ***DTC 64/(F87) No. 2 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **6.**	Repair harness between VDCCM and VDCH/U.
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 32/(F87) No. 3 (+) — Chassis ground (–):*** ***DTC 34/(F87) No. 51 (+) — Chassis ground (–):*** ***DTC 36/(F87) No. 50 (+) — Chassis ground (–):*** ***DTC 38/(F87) No. 4 (+) — Chassis ground (–):*** ***DTC 63/(F87) No. 29 (+) — Chassis ground (–):*** ***DTC 64/(F87) No. 2 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **7.**	Repair harness between VDCCM and VDCH/U.

Vehicle-id:
SIE-id::Z:DTC 64 Abnormal Outlet and Suction Solenoid Valve Circuit(s) (Secondary Suction)
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	Step	Value	Yes	No
7	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***DTC 32/(F87) No. 3 — Chassis ground:*** ***DTC 34/(F87) No. 51 — Chassis ground:*** ***DTC 36/(F87) No. 50 — Chassis ground:*** ***DTC 38/(F87) No. 4 — Chassis ground:*** ***DTC 63/(F87) No. 29 — Chassis ground:*** ***DTC 64/(F87) No. 2 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **8.**	Repair harness between VDCCM and VDCH/U.
8	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND VDCH/U.** 1) Connect connector (F91) to VDCH/U. 2) Measure resistance between VDCCM connector and VDCH/U connector. ***Connector & terminal*** ***DTC 32/(F87) No. 3 — (VDC2) No. 1:*** ***DTC 34/(F87) No. 51 — (VDC2) No. 1:*** ***DTC 36/(F87) No. 50 — (VDC2) No. 1:*** ***DTC 38/(F87) No. 4 — (VDC2) No. 1:*** ***DTC 63/(F87) No. 29 — (VDC2) No. 1:*** ***DTC 64/(F87) No. 2 — (VDC2) No. 1:*** Is the measured value within the specified range?	3 — 6 Ω	Go to step **9.**	Repair harness/ connector between VDCCM and VDCH/U.
9	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between VDCCM and VDCH/U?	There is poor contact.	Repair connector.	Go to step **10.**
10	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **11.**
11	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AA:DTC 41 ABNORMAL VDC CONTROL MODULE

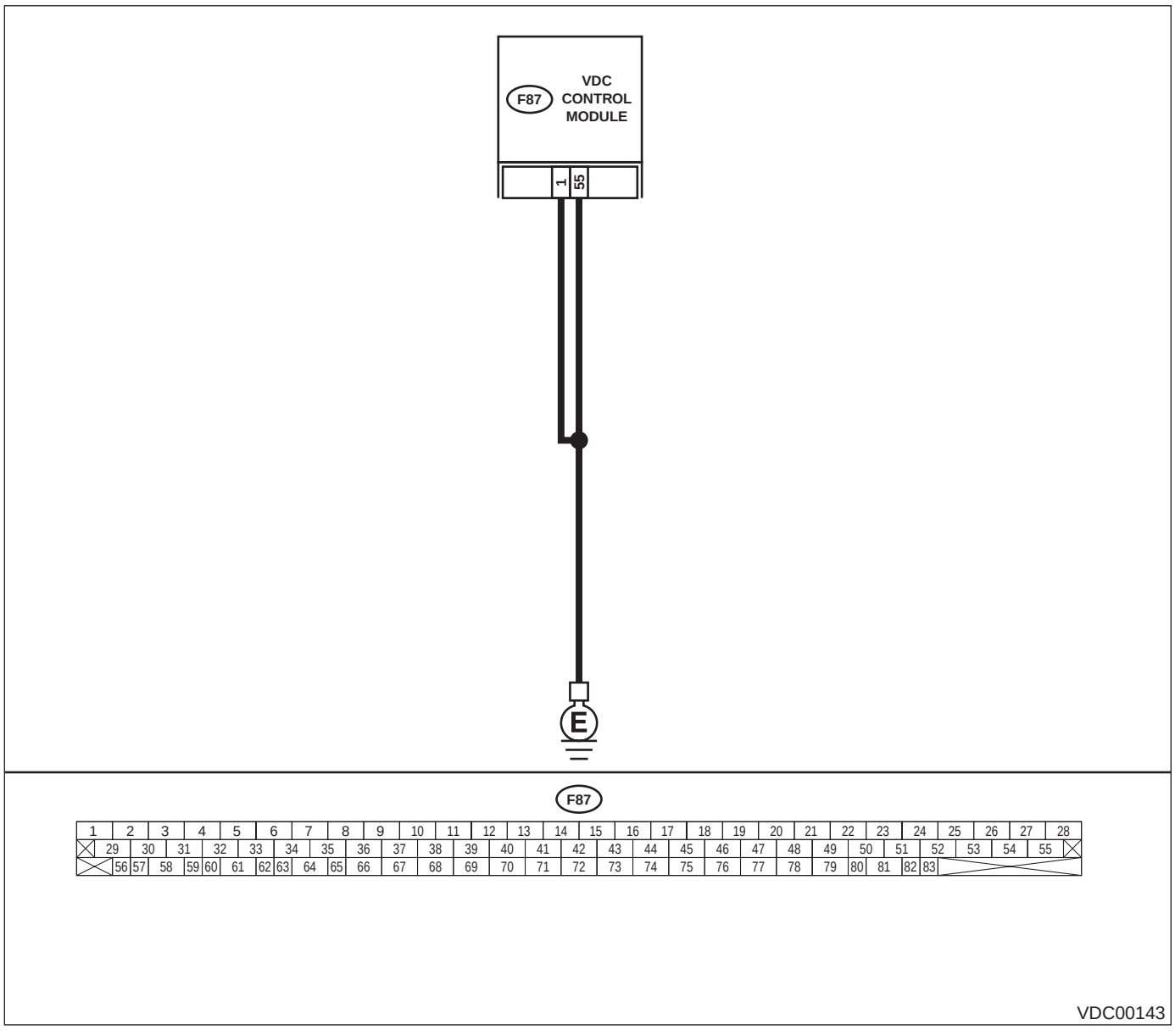
DIAGNOSIS:

- Faulty VDCCM

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 1 — Chassis ground:*** ***(F87) No. 55 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **2.**	Repair VDCCM ground harness.
2	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between battery, ignition switch and VDCCM?	There is poor contact.	Repair connector.	Go to step **3.**
3	**CHECK SOURCES OF SIGNAL NOISE.** Is the car telephone or the wireless transmitter properly installed?	Tightened securely.	Go to step **4.**	Properly install the car telephone or the wireless transmitter.
4	**CHECK SOURCES OF SIGNAL NOISE.** Are noise sources (such as an antenna) installed near the sensor harness?	Installed properly.	Install the noise sources apart from the sensor harness.	Go to step **5.**
5	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **6.**
6	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AB:DTC 42 SOURCE VOLTAGE IS ABNORMAL.

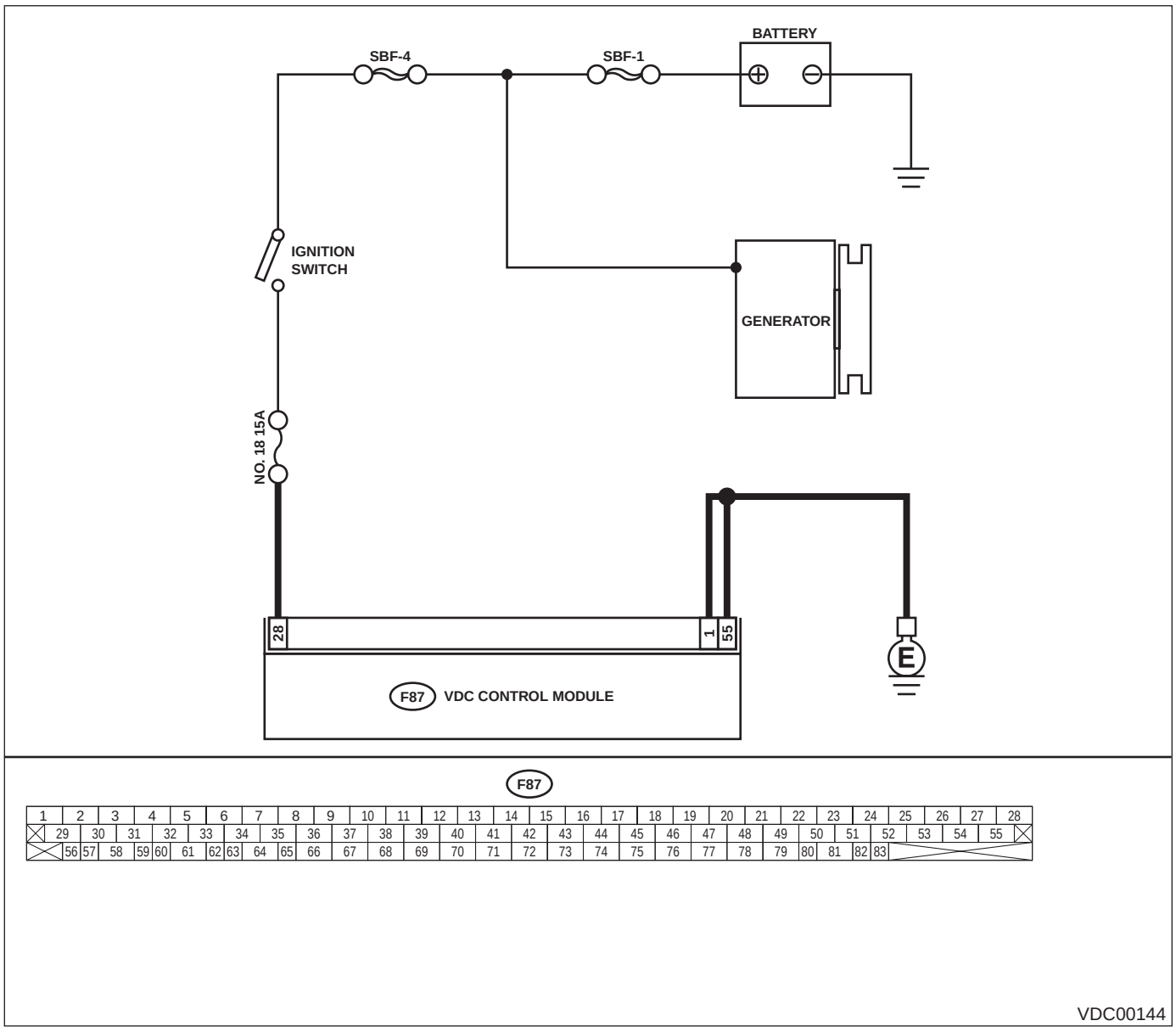
DIAGNOSIS:

- Power source voltage of the VDCCM is low.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



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

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK GENERATOR.** 1) Start engine. 2) Idling after warm-up. 3) Measure voltage between generator B terminal and chassis ground. ***Terminal*** ***Generator B terminal — Chassis ground:*** Is the measured value within the specified range?	10 — 15 V	Go to step **2.**	Repair generator.
2	**CHECK BATTERY TERMINAL.** Turn ignition switch to OFF. Are the positive and negative battery terminals tightly clamped?	Clamped securely.	Go to step **3.**	Tighten the clamp of terminal.
3	**CHECK INPUT VOLTAGE OF VDCCM.** 1) Disconnect connector from VDCCM. 2) Run the engine at idle. 3) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 28 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **4.**	Repair harness connector between battery, ignition switch and VDCCM.
4	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Turn ignition switch to OFF. 2) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 1 — Chassis ground:*** ***(F87) No. 55 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **5.**	Repair VDCCM ground harness.
5	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between generator, battery and VDCCM?	There is poor contact.	Repair connector.	Go to step **6.**
6	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **7.**
7	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

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

AC:DTC 43 FAULTY VDCCM — ECM COMMUNICATION LINE

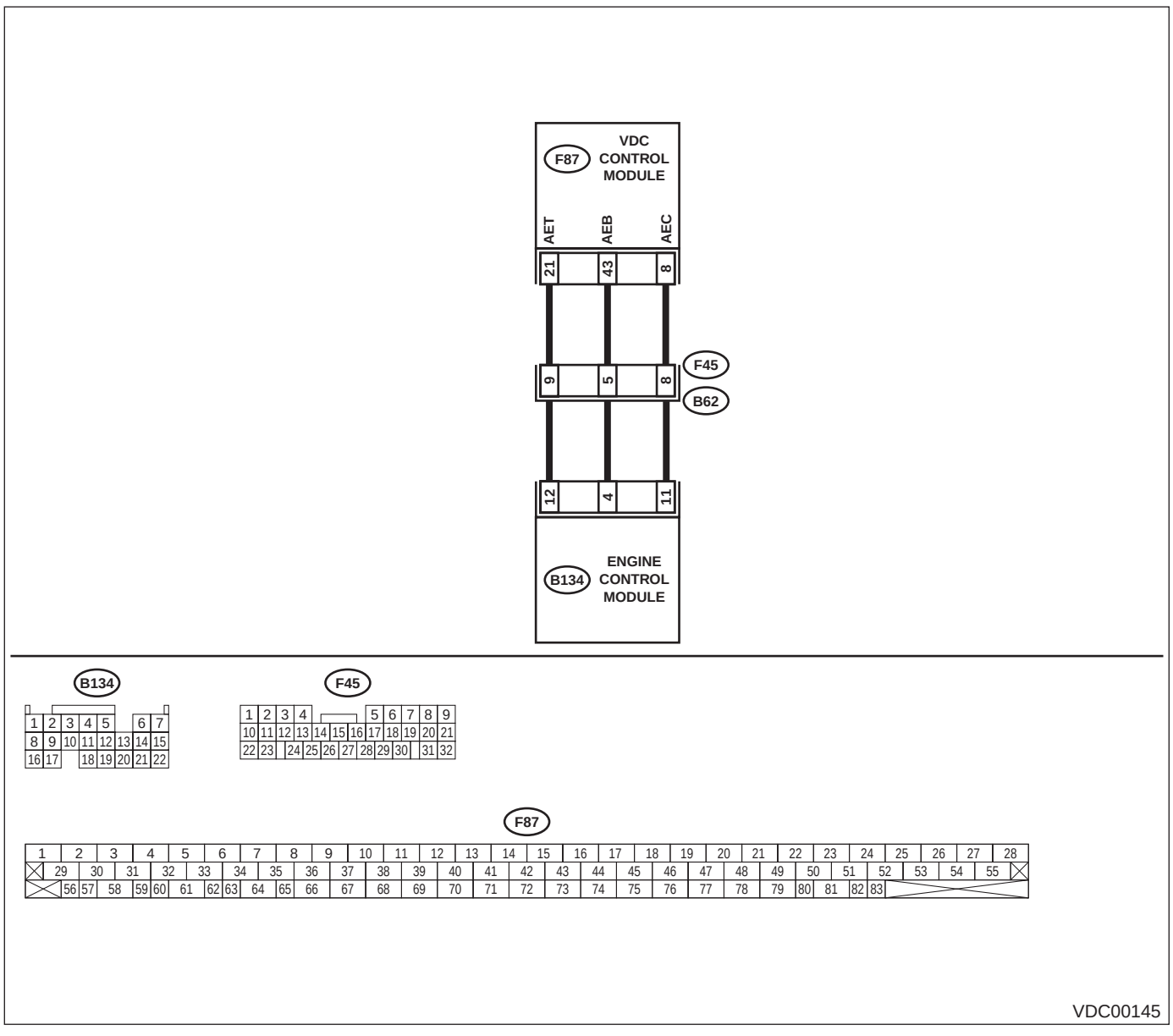
DIAGNOSIS:

- AET communication line is broken or short circuited.
- AEB communication line is broken or short circuited.
- AEC communication line is broken or short circuited.

TROUBLE SYMPTOM:

- VDC does not operate.

WIRING DIAGRAM:



VDC00145

	Step	Value	Yes	No
1	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Disconnect connector from ECM. 4) Measure resistance between VDCCM connector and ECM. ***Connector & terminal*** ***(F87) No. 21 — (B134) No. 12:*** ***(F87) No. 43 — (B134) No. 4:*** ***(F87) No. 8 — (B134) No. 11:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **2.**	Repair harness/ connector between VDCCM and ECM.
2	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 21 — Chassis ground:*** ***(F87) No. 43 — Chassis ground:*** ***(F87) No. 8 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Repair harness/ connector between VDCCM and ECM.
3	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 21 (+) — Chassis ground (–):*** ***(F87) No. 43 (+) — Chassis ground (–):*** ***(F87) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.5 V	Go to step **4.**	Repair harness/ connector between VDCCM and ECM.
4	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 21 (+) — Chassis ground (–):*** ***(F87) No. 43 (+) — Chassis ground (–):*** ***(F87) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **5.**	Repair harness/ connector between VDCCM and ECM.
5	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND ECM.** 1) Turn ignition switch to OFF. 2) Connect connector to ECM. 3) Turn ignition switch to ON. 4) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 21 (+) — Chassis ground (–):*** ***(F87) No. 43 (+) — Chassis ground (–):*** ***(F87) No. 8 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **6.**	Go to step **9.**
6	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between ECM and VDCCM?	There is poor contact.	Repair connector.	Go to step **7.**

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK VDCCM.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **8.**
8	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.
9	**CHECK ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector terminal and chassis ground. ***Connector & terminal*** ***(B134) No. 12 (+) — Chassis ground (–):*** ***(B134) No. 4 (+) — Chassis ground (–):*** ***(B134) No. 11 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Repair harness/ connector between ECM and VDCCM.	Go to step **10.**
10	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connector ECM?	There is poor contact.	Repair connector.	Go to step **11.**
11	**CHECK ENGINE.** Is the engine functioning normally?	Operates properly.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Repair engine.

MEMO:

Vehicle-id:
SIE-id::AC:DTC 43 Faulty VDCCM — ECM Communication Line
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AD:DTC 44 A COMMUNICATION WITH AT CONTROL ABNORMAL

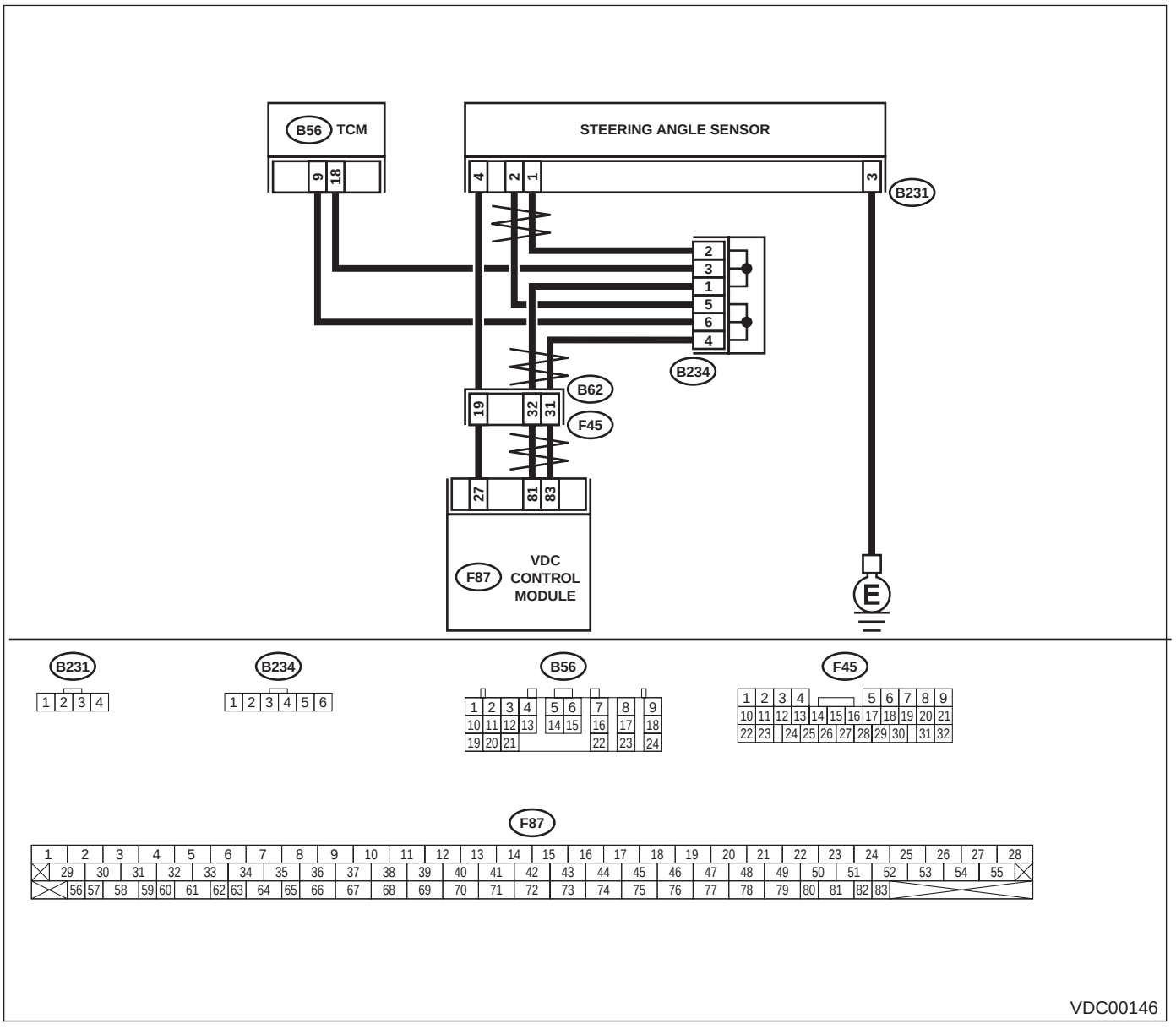
DIAGNOSIS:

- Communication with AT control faults

TROUBLE SYMPTOM:

- VDC does not operate.

WIRING DIAGRAM:



VDC00146

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK RESISTANCE OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect two connectors from TCM. 3) Measure resistance between TCM connector terminals. ***Connector & terminal*** ***(B56) No. 9 — No. 18:*** Is the measured value within the specified range?	57 — 63 Ω	Go to step **2.**	Repair harness between TCM and VDCCM.
2	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in TCM connectors?	There is poor contact.	Repair connector.	Go to step **3.**
3	**CHECK TCM.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace TCM. <Ref. to AT-75, Transmission Control Module (TCM).>	Go to step **4.**
4	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AE:DTC 45 CONTROL MODULE OUT OF SPECIFICATION

DIAGNOSIS:

- Control module out of specification

TROUBLE SYMPTOM:

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

	Step	Value	Yes	No
1	**CHECK TCM.** Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Go to step **2.**	Proceed with the diagnosis corresponding to the diagnostic trouble code.
2	**CHECK VDCCM SPECIFICATIONS.** Check the VDCCM identification mark. ***VDCCM identification mark*** ***P*** Does the VDCCM identification mark agree with the vehicle specifications?	Agree.	Go to step **3.**	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
3	**CHECK TCM SPECIFICATIONS.** Check the TCM identification mark. ***TCM identification mark*** ***ZV*** Does the TCM identification mark agree with the vehicle specifications?	Agree.	Go to step **4.**	Replace TCM. <Ref. to AT-75, Transmission Control Module (TCM).>
4	**CHECK TCM.** 1) Replace TCM. <Ref. to AT-75, Transmission Control Module (TCM).> 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Go to step **5.**	The original TCM has been faulty.
5	**CHECK VDCCM.** 1) Install original TCM. 2) Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).> 3) Erase the memory. 4) Perform inspection mode. 5) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Go to step **6.**	The original VDCCM has been faulty.
6	**CHECK VDCCM.** Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace TCM. <Ref. to AT-75, Transmission Control Module (TCM).>	Proceed with the diagnosis corresponding to the diagnostic trouble code.

MEMO:

Vehicle-id:
SIE-id::AE:DTC 45 Control Module out of Specification
～

AF:DTC 46 ABNORMAL VOLTAGE OF 5 V POWER SUPPLY

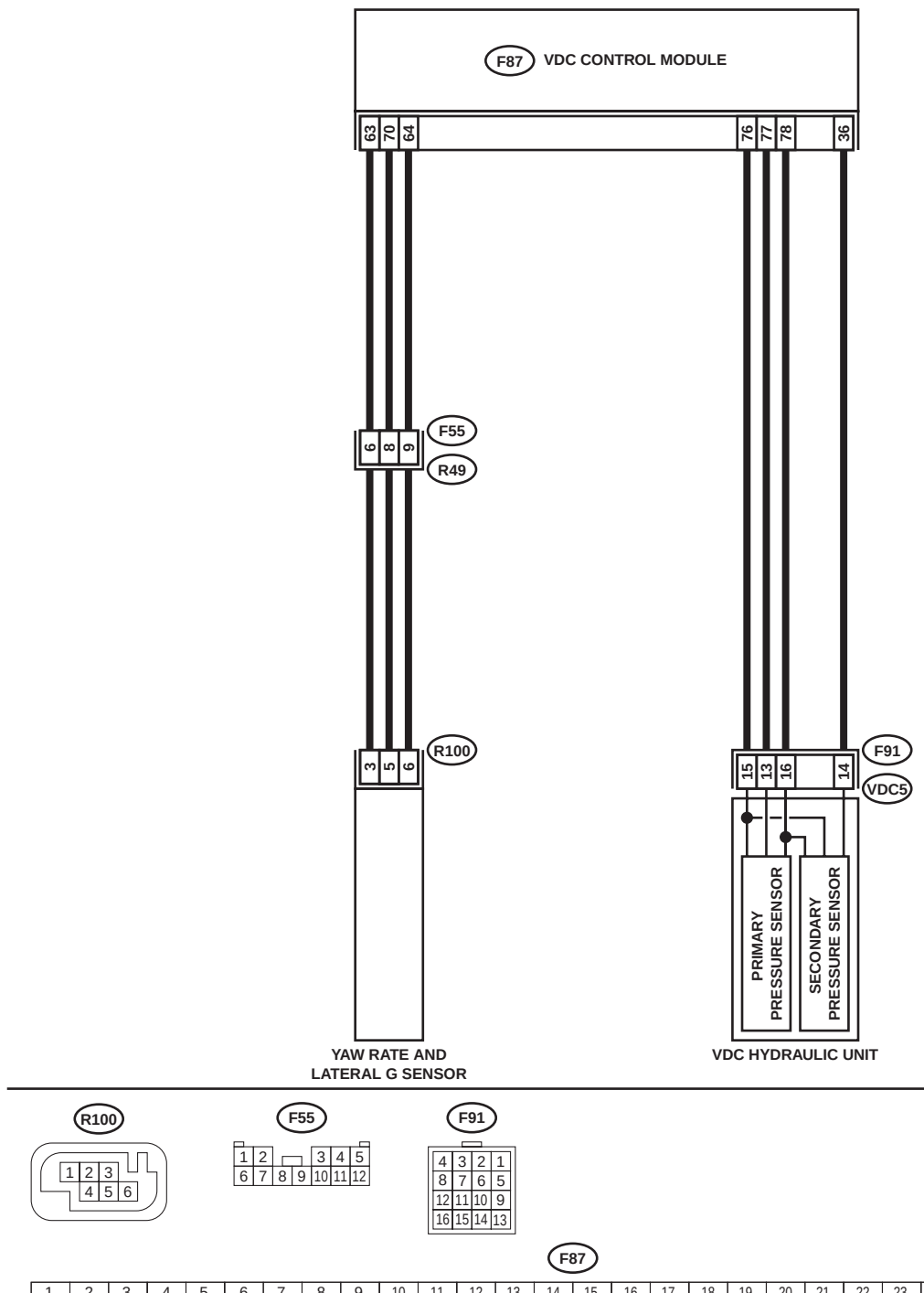
DIAGNOSIS:

- 5 volt power supply is abnormal.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00147

	Step	Value	Yes	No
1	**CHECK GROUND SHORT OF SENSOR AND HARNESS.** 1) Turn ignition switch OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 63 — Chassis ground (Lateral G sensor):*** ***(F87) No. 78 — Chassis ground (Pressure sensor):*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Go to step **2.**
2	**CHECK GROUND SHORT OF HARNESS.** 1) Disconnect connector from faulty sensors. 2) Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 63 — Chassis ground (Lateral G sensor):*** ***(F87) No. 78 — Chassis ground (Pressure sensor):*** Does the measured value exceed the specified value?	1 MΩ	Replace faulty sensors.	Repair or replace harness connector between VDCCM and faulty sensor.
3	**CHECK BATTERY SHORT OF SENSOR AND HARNESS.** Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 63 (+) — Chassis ground (–) (Lateral G sensor):*** ***(F87) No. 78 (+) — Chassis ground (–) (Pressure sensor):*** Is the measured value less than the specified value?	0.5 V	Go to step **4.**	Go to step **5.**
4	**CHECK BATTERY SHORT OF SENSOR AND HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 63 (+) — Chassis ground (–) (Lateral G sensor):*** ***(F87) No. 78 (+) — Chassis ground (–) (Pressure sensor):*** Is the measured value less than the specified value?	0.5 V	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **5.**
5	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from faulty sensors. 3) Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 63 (+) — Chassis ground (–) (Lateral G sensor):*** ***(F87) No. 78 (+) — Chassis ground (–) (Pressure sensor):*** Is the measured value less than the specified value?	0.5 V	Go to step **6.**	Repair or replace harness connector between VDCCM and faulty sensor.

	Step	Value	Yes	No
6	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 63 (+) — Chassis ground (–) (Lateral G sensor):*** ***(F87) No. 78 (+) — Chassis ground (–) (Pressure sensor):*** Is the measured value less than the specified value?	0.5 V	Replace faulty sensor.	Repair or replace harness connector between VDCCM and faulty sensor.

MEMO:

Vehicle-id:
SIE-id::AF:DTC 46 Abnormal Voltage of 5 V Power Supply
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AG:DTC 47 FAULTY CAN COMMUNICATION LINE

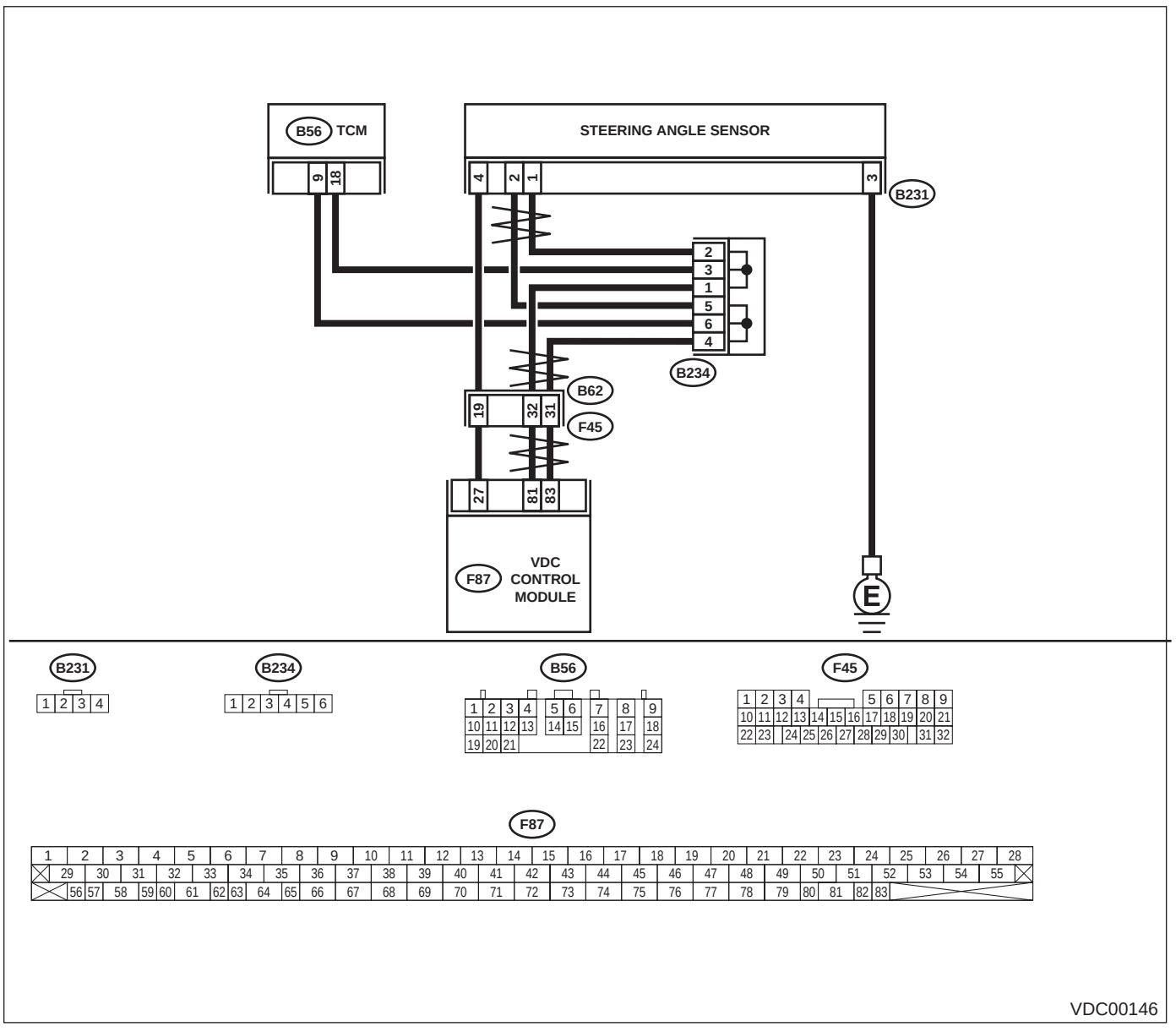
DIAGNOSIS:

- CAN communication line is broken or short circuited.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00146

	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN VDCCM, STEERING ANGLE SENSOR AND TCM.** 1) Turn ignition switch OFF. 2) Disconnect connector from VDCCM, TCM and steering angle sensor. 3) Measure resistance between VDCCM, TCM and steering angle sensor. ***Connector & terminal*** ***(F87) No. 83 — (B56) No. 9:*** ***(F87) No. 81 — (B56) No. 18:*** ***(F87) No. 83 — (B231) No. 2:*** ***(F87) No. 81 — (B231) No. 1:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Go to step **2.**
2	**CHECK HARNESS BETWEEN STEERING ANGLE SENSOR AND TCM.** Measure resistance between TCM and steering angle sensor. ***Connector & terminal*** ***(B56) No. 9 — (B231) No. 2:*** ***(B56) No. 18 — (B231) No. 1:*** Is the measured value less than the specified value?	0.5 Ω	Repair or replace harness connector between VDCCM and steering angle sensor.	Repair or replace harness connector between TCM and steering angle sensor.
3	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 83 — Chassis ground:*** ***(F87) No. 81 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **4.**	Repair or replace harness connector between VDCCM, TCM and steering angle sensor.
4	**CHECK BATTERY SHORT OF SENSOR.** Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 83 — Chassis ground:*** ***(F87) No. 81 — Chassis ground:*** Is the measured value less than the specified value?	0.5 V	Go to step **5.**	Repair or replace harness connector between VDCCM, TCM and steering angle sensor.
5	**CHECK BATTERY SHORT OF SENSOR.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 83 — Chassis ground:*** ***(F87) No. 81 — Chassis ground:*** Is the measured value less than the specified value?	0.5 V	Go to step **6.**	Repair or replace harness connector between VDCCM, TCM and steering angle sensor.
6	**CHECK STEERING ANGLE SENSOR.** 1) Turn ignition switch to OFF. 2) Connect connector to steering angle sensor. 3) Measure resistance between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 83 — No. 81:*** Is the measured value within the specified range?	114 — 126 Ω	Go to step **8.**	Go to step **7.**

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in steering angle sensor?	There is poor contact.	Replace steering angle sensor.	Repair or replace steering angle sensor connector.
8	**CHECK VDCCM.** 1) Connect connector to VDCCM. 2) Disconnect connector from steering angle sensor. 3) Measure resistance between steering angle sensor connector terminals. ***Connector & terminal*** ***(B231) No. 1 — No. 2:*** Is the measured value within the specified range?	114 — 126 Ω	Go to step **10.**	Go to step **9.**
9	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in steering angle sensor?	There is poor contact.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Repair or replace VDCCM connector.
10	**CHECK TCM.** 1) Connect connector to TCM. 2) Disconnect connector from VDCCM. 3) Measure resistance between steering angle sensor terminals. ***Connector & terminal*** ***(B231) No. 1 — No. 2:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **12.**	Go to step **11.**
11	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in steering angle sensor?	There is poor contact.	Replace TCM. <Ref. to AT-75, Transmission Control Module (TCM).>	Repair or replace TCM connector.
12	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Are other diagnostic trouble codes being output?	Other DTC indicated.	Go to step **13.**	A temporary poor contact.
13	**CHECK DIAGNOSTIC TROUBLE CODE.** Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Go to step **14.**	Proceed with the diagnosis corresponding to the diagnostic trouble code.
14	**CHECK AT SYSTEM DIAGNOSTIC TROUBLE CODE.** Is the AT system diagnostic trouble code is same as the specification?	DTC 86	Replace steering angle sensor.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

MEMO:

Vehicle-id:
SIE-id::AG:DTC 47 Faulty CAN Communication Line
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AH:DTC 48 FAULTY ECM — VDCCM COMMUNICATION LINE

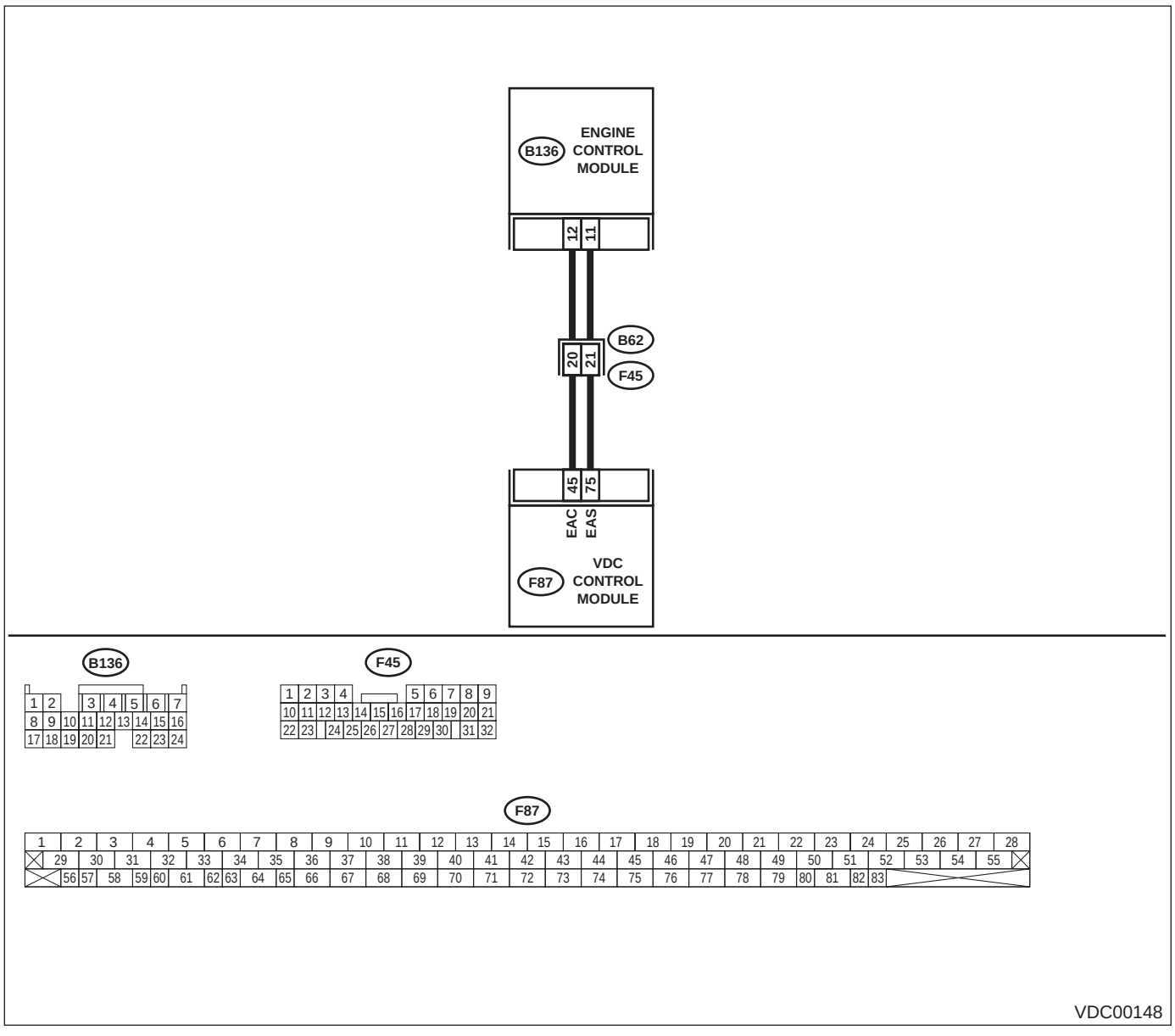
DIAGNOSIS:

- EAS communication line is broken or short circuited.
- EAC communication line is broken or short circuited.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00148

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from VDCCM and ECM. 3) Measure resistance between VDCCM and ECM. ***Connector & terminal*** ***(F87) No. 75 — (B136) No. 11:*** ***(F87) No. 45 — (B136) No. 12:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **2.**	Repair or replace open circuit between VDCCM and ECM.
2	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM and ECM. ***Connector & terminal*** ***(F87) No. 75 — Chassis ground:*** ***(F87) No. 45 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Repair or replace ground short circuit between VDCCM and ECM.
3	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 75 — Chassis ground:*** ***(F87) No. 45 — Chassis ground:*** Is the measured value less than the specified value?	0.5 V	Go to step **4.**	Repair or replace battery short circuit between VDCCM and ECM.
4	**CHECK INPUT VOLTAGE TO ECM.** 1) Turn ignition switch to OFF. 2) Connect connector to VDCCM. 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 11 (+) — Chassis ground (–):*** ***(B136) No. 12 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **6.**	Go to step **5.**
5	**CHECK POOR CONTACT IN ECM CONNECTORS.** Is there poor contact in ECM connector?	There is poor contact.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Repair or replace ECM connector.
6	**ERASE MEMORY.** 1) Connect all connectors. 2) Erase the memory. Can the memory be erased?	Can be erased.	Go to step **7.**	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
7	**CHECK DIAGNOSTIC TROUBLE CODE.** 1) Perform inspection mode. 2) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	A temporary poor contact.

AI: DTC 49 ABNORMAL ENGINE SPEED SIGNAL

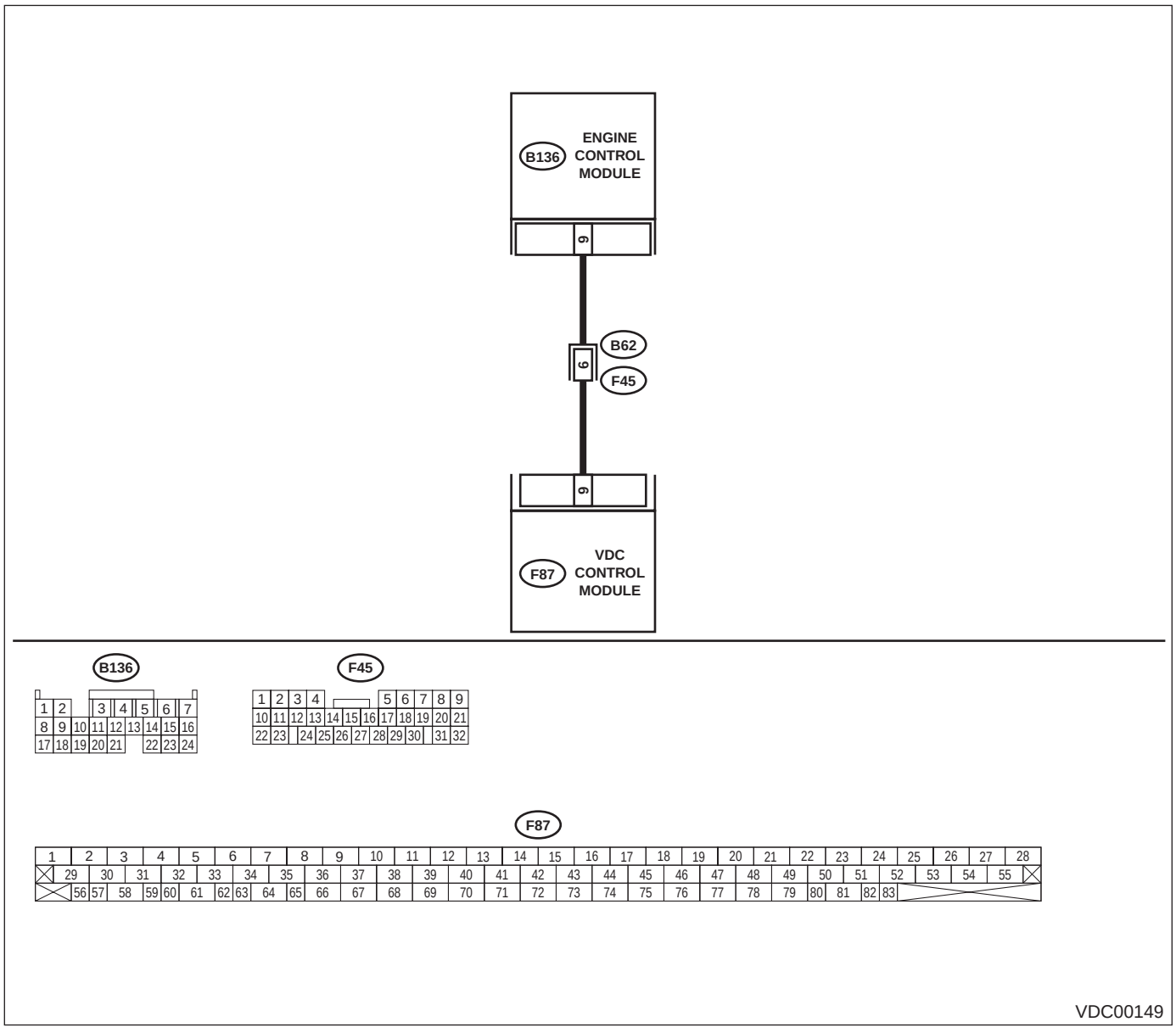
DIAGNOSIS:

- Engine speed signal line is broken or short circuited.

TROUBLE SYMPTOM:

- VDC does not operate.

WIRING DIAGRAM:



VDC00149

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK TACHOMETER OPERATION IN COMBINATION METER.** Does tachometer operate normally?	Operates properly.	Go to step **2.**	Repair tachometer.
2	**CHECK HARNESS BETWEEN VDCCM AND ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM and ECM. 3) Measure resistance between VDCCM connector and ECM. ***Connector & terminal*** ***(F87) No. 9 — (B136) No. 9:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Repair harness connector between VDCCM and ECM.
3	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connectors between VDCCM and ECM?	There is poor contact.	Repair connector.	Go to step **4.**
4	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **5.**
5	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AJ:DTC 51 ABNORMAL VALVE RELAY

DIAGNOSIS:

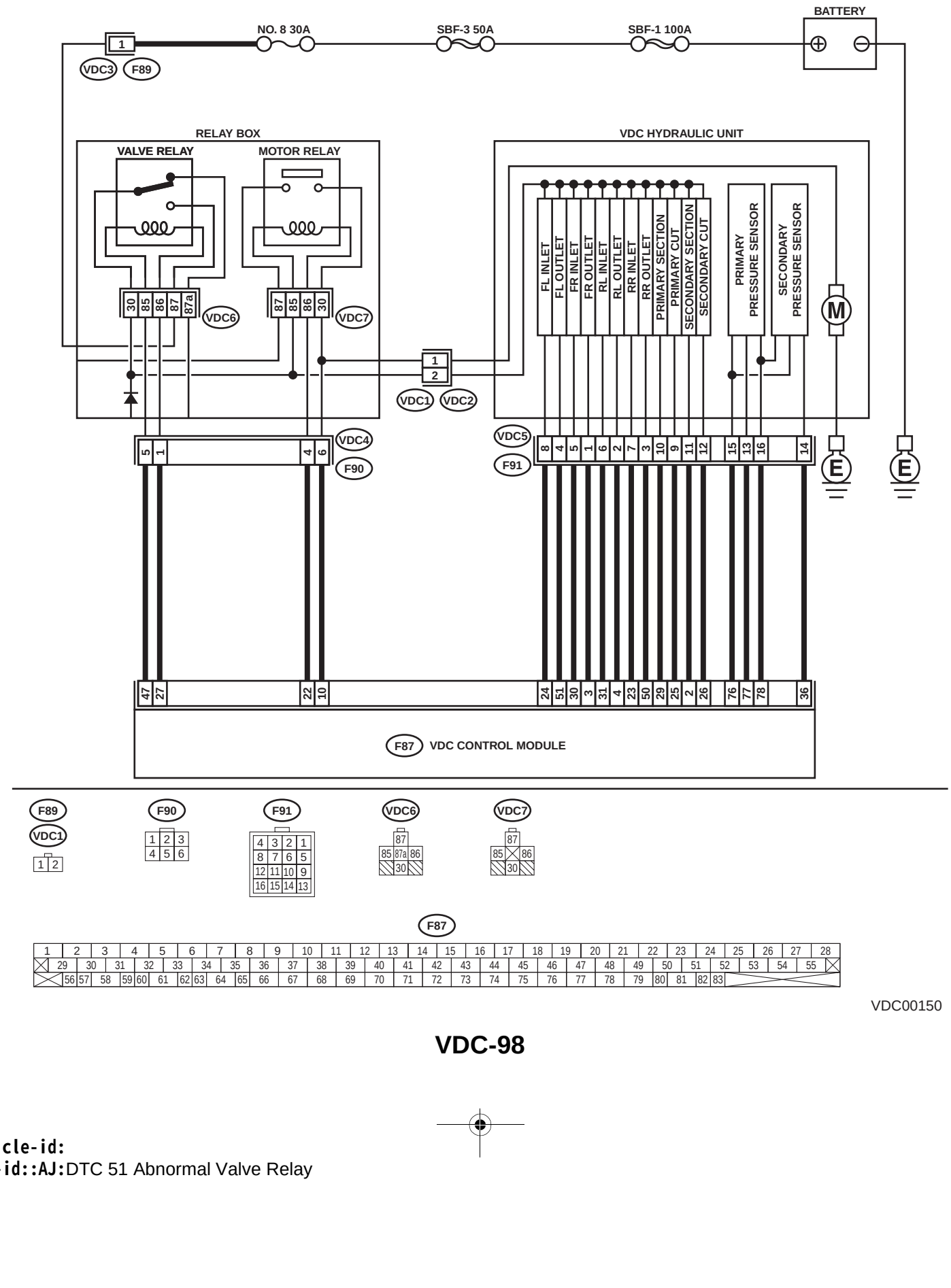
- Faulty valve relay

NOTE:
When DTC 74 ABNORMAL PRESSURE SENSOR procedure 4 is carried out, DTC 51 is memorized.

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00150

	Step	Value	Yes	No
1	**CHECK RESISTANCE OF VALVE RELAY.** 1) Turn ignition switch to OFF. 2) Remove valve relay from relay box. 3) Measure resistance between valve relay terminals. ***Terminals*** ***No. 85 — No. 86:*** Is the measured value within the specified range?	93 — 113 Ω	Go to step **2.**	Replace valve relay.
2	**CHECK CONTACT POINT OF VALVE RELAY.** 1) Connect battery to valve relay terminals No. 85 and No. 86. 2) Measure resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Replace valve relay.
3	**CHECK CONTACT POINT OF VALVE RELAY.** Measure resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87a:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **4.**	Replace valve relay.
4	**CHECK CONTACT POINT OF VALVE RELAY.** 1) Disconnect battery from valve relay terminals. 2) Measure resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **5.**	Replace valve relay.
5	**CHECK CONTACT POINT OF VALVE RELAY.** Measure resistance between valve relay terminals. ***Terminals*** ***No. 30 — No. 87a:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **6.**	Replace valve relay.
6	**CHECK SHORT OF VALVE RELAY.** Measure resistance between valve relay terminals. ***Terminals*** ***No. 86 — No. 87:*** ***No. 86 — No. 87a:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **7.**	Replace valve relay.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK POWER SUPPLY FOR VALVE RELAY.** 1) Disconnect connector (F89) from relay box. 2) Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(F89) No. 1 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **8.**	Repair harness between battery and relay box connector. Check fuse No. 8.
8	**CHECK OPEN CIRCUIT AND GROUND SHORT IN POWER SUPPLY CIRCUIT OF RELAY BOX.** 1) Disconnect connector (VDC1) from VDCH/U. 2) Connect connector (F89) to relay box. 3) Measure voltage of relay box. ***Connector & terminal*** ***(VDC6) No. 87 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **9.**	Replace relay box and check fuse No. 8.
9	**CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.** 1) Turn ignition switch to OFF. 2) Disconnect connector (F90) from relay box. 3) Measure resistance between relay box connector and valve relay installing point. ***Connector & terminal*** ***(VDC4) No. 5 — (VDC6) No. 85:*** ***(VDC4) No. 1 — (VDC6) No. 86:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **10.**	Replace relay box.
10	**CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.** Measure resistance between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 5 — Chassis ground:*** ***(VDC4) No. 1 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **11.**	Replace relay box and check fuse No. 8.
11	**CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.** Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 5 (+) — Chassis ground (–):*** ***(VDC4) No. 1 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **12.**	Replace relay box. Check fuse No. 8.

	Step	Value	Yes	No
12	**CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.** 1) Turn ignition switch to ON. 2) Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 5 (+) — Chassis ground (–):*** ***(VDC4) No. 1 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **13.**	Replace relay box. Check fuse No. 8.
13	**CHECK OPEN CIRCUIT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM connector and relay box connector. ***Connector & terminal*** ***(F87) No. 47 — (F90) No. 5:*** ***(F87) No. 27 — (F90) No. 1:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **14.**	Repair harness between VDCCM and relay box.
14	**CHECK GROUND SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.** Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 47 — Chassis ground:*** ***(F87) No. 27 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **15.**	Repair harness between VDCCM and relay box and check all fuses.
15	**CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 27 (+) — Chassis ground (–):*** ***(F87) No. 47 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **16.**	Repair harness between VDCCM and relay box.
16	**CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 27 (+) — Chassis ground (–):*** ***(F87) No. 47 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **17.**	Repair harness between VDCCM and relay box.
17	**CHECK OPEN CIRCUIT IN CONTACT POINT CIRCUIT OF RELAY BOX.** Measure resistance between VDCH/U connector and valve relay installing point. ***Connector & terminal*** ***(VDC1) No. 2 — (VDC6) No. 30:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **18.**	Replace relay box.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
18	**CHECK GROUND SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.** Measure resistance between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC1) No. 2 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **19.**	Replace relay box and check fuse No. 8.
19	**CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.** Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC1) No. 2 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **20.**	Replace relay box. Check fuse No. 8.
20	**CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC1) No. 2 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **21.**	Replace relay box. Check fuse No. 8.
21	**CHECK RESISTANCE OF INLET AND CUT SOLENOID VALVES.** 1) Disconnect connector from VDCH/U. 2) Measure resistance between VDCH/U 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 measured value within the specified range?	8.04 — 9.04 Ω	Go to step **22.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
22	**CHECK RESISTANCE OF OUTLET SOLENOID VALVE.** Measure resistance between VDCH/U 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 measured value within the specified range?	4.04 — 4.54 Ω	Go to step **23.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
23	**CHECK GROUND SHORT OF SOLENOID VALVE.** Measure resistance between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **24.**	Replace VDCH/U and check all fuses. <Ref. to VDC-8, VDC Control Module (VDCCM).>
24	**CHECK BATTERY SHORT OF SOLENOID VALVE.** Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **25.**	Replace VDCH/U and check all fuses. <Ref. to VDC-8, VDC Control Module (VDCCM).>
25	**CHECK BATTERY SHORT OF SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **26.**	Replace VDCH/U and check all fuses. <Ref. to VDC-8, VDC Control Module (VDCCM).>
26	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 30 (+) — Chassis ground (–):*** ***(F87) No. 24 (+) — Chassis ground (–):*** ***(F87) No. 23 (+) — Chassis ground (–):*** ***(F87) No. 31 (+) — Chassis ground (–):*** ***(F87) No. 26 (+) — Chassis ground (–):*** ***(F87) No. 25 (+) — Chassis ground (–):*** ***(F87) No. 3 (+) — Chassis ground (–):*** ***(F87) No. 51 (+) — Chassis ground (–):*** ***(F87) No. 50 (+) — Chassis ground (–):*** ***(F87) No. 4 (+) — Chassis ground (–):*** ***(F87) No. 2 (+) — Chassis ground (–):*** ***(F87) No. 29 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **27.**	Repair harness between VDCH/U and VDCCM and check all fuses.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
27	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 30 (+) — Chassis ground (–):*** ***(F87) No. 24 (+) — Chassis ground (–):*** ***(F87) No. 23 (+) — Chassis ground (–):*** ***(F87) No. 31 (+) — Chassis ground (–):*** ***(F87) No. 26 (+) — Chassis ground (–):*** ***(F87) No. 25 (+) — Chassis ground (–):*** ***(F87) No. 3 (+) — Chassis ground (–):*** ***(F87) No. 51 (+) — Chassis ground (–):*** ***(F87) No. 50 (+) — Chassis ground (–):*** ***(F87) No. 4 (+) — Chassis ground (–):*** ***(F87) No. 2 (+) — Chassis ground (–):*** ***(F87) No. 29 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **28.**	Repair harness between VDCH/U and VDCCM and check all fuses.
28	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 30 — Chassis ground:*** ***(F87) No. 24 — Chassis ground:*** ***(F87) No. 23 — Chassis ground:*** ***(F87) No. 31 — Chassis ground:*** ***(F87) No. 26 — Chassis ground:*** ***(F87) No. 25 — Chassis ground:*** ***(F87) No. 3 — Chassis ground:*** ***(F87) No. 51 — Chassis ground:*** ***(F87) No. 50 — Chassis ground:*** ***(F87) No. 4 — Chassis ground:*** ***(F87) No. 2 — Chassis ground:*** ***(F87) No. 29 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **29.**	Repair harness between VDCH/U and VDCCM.
29	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND VDCH/U.** 1) Connect connector (F91) to VDCH/U. 2) Measure resistance between VDCCM connector and VDCH/U connector. ***Connector & terminal*** ***(F87) No. 30 — (VDC2) No. 2:*** ***(F87) No. 24 — (VDC2) No. 2:*** ***(F87) No. 23 — (VDC2) No. 2:*** ***(F87) No. 31 — (VDC2) No. 2:*** ***(F87) No. 26 — (VDC2) No. 2:*** ***(F87) No. 25 — (VDC2) No. 2:*** Is the measured value within the specified range?	8.0 — 10.0 Ω	Go to step **30.**	Repair harness/ connector between VDCH/U and VDCCM.

	Step	Value	Yes	No
30	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND VDCH/U.** Measure resistance between VDCCM connector and VDCH/U connector. ***Connector & terminal*** ***(F87) No. 3 — (VDC2) No. 2:*** ***(F87) No. 51 — (VDC2) No. 2:*** ***(F87) No. 50 — (VDC2) No. 2:*** ***(F87) No. 4 — (VDC2) No. 2:*** ***(F87) No. 2 — (VDC2) No. 2:*** ***(F87) No. 29 — (VDC2) No. 2:*** Is the measured value within the specified range?	4.0 — 6.0 Ω	Go to step **31.**	Repair harness/ connector between VDCH/U and VDCCM.
31	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connector between VDCCM and VDCH/U?	There is poor contact.	Repair connector.	Go to step **32.**
32	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **33.**
33	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

AK:DTC 52 ABNORMAL MOTOR AND/OR MOTOR RELAY

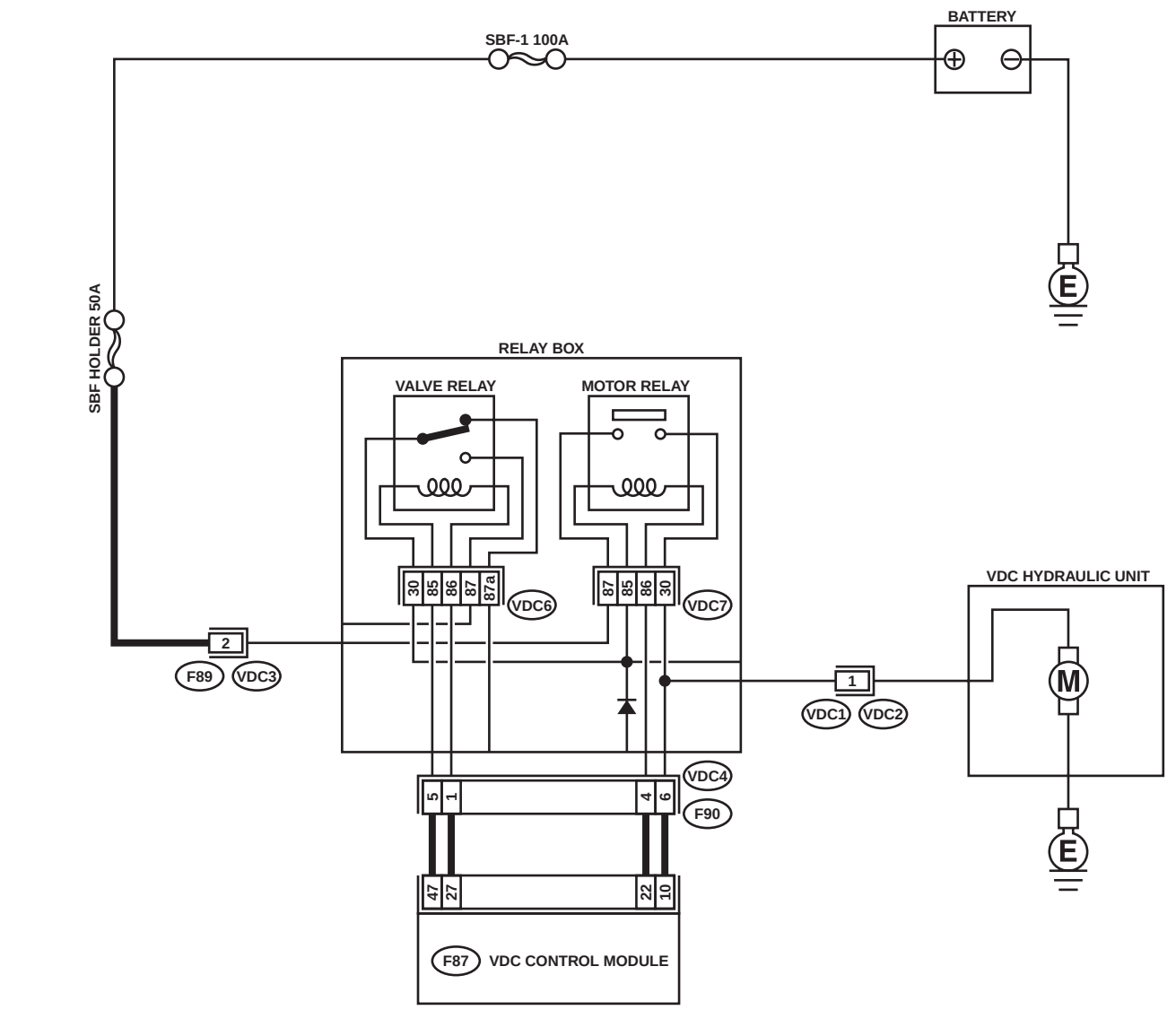
DIAGNOSIS:

- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00155

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK RESISTANCE OF MOTOR RELAY.** 1) Turn ignition switch to OFF. 2) Remove motor relay from relay box. 3) Measure resistance between motor relay terminals. ***Terminals*** ***No. 85 — No. 86:*** Is the measured value within the specified range?	70 — 90 Ω	Go to step **2.**	Replace motor relay.
2	**CHECK CONTACT POINT OF MOTOR RELAY.** 1) Connect battery to motor relay terminals No. 85 and No. 86. 2) Measure resistance between motor relay terminals. ***Terminals*** ***No. 30 — No. 87:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **3.**	Replace motor relay.
3	**CHECK CONTACT POINT OF MOTOR RELAY.** 1) Disconnect battery from motor relay terminals. 2) Measure resistance between motor relay terminals. ***Terminals*** ***No. 30 — No. 87:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **4.**	Replace motor relay.
4	**CHECK SHORT OF MOTOR RELAY.** Measure resistance between motor relay terminals. ***Terminals*** ***No. 85 — No. 30:*** ***No. 85 — No. 87:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **5.**	Replace motor relay.
5	**CHECK INPUT VOLTAGE OF RELAY BOX.** 1) Disconnect connector (F89) from relay box. 2) Disconnect connector from VDCCM. 3) Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(F89) No. 2 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **6.**	Repair harness/ connector between battery and relay box, and check fuse SBF holder.
6	**CHECK INPUT VOLTAGE OF MOTOR RELAY.** 1) Connect connector (F89) to relay box. 2) Measure voltage between relay box and chassis ground. ***Connector & terminal*** ***(VDC7) No. 87 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **7.**	Replace relay box.

	Step	Value	Yes	No
7	**CHECK OPEN CIRCUIT IN CONTACT POINT CIRCUIT OF RELAY BOX.** 1) Turn ignition switch to OFF. 2) Disconnect connectors (VDC2, F90) from relay box. 3) Measure resistance between relay box connector unit and motor relay installing portion. ***Connector & terminal*** ***(VDC1) No. 1 — (VDC7) No. 30:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **8.**	Replace relay box.
8	**CHECK OPEN CIRCUIT IN MONITOR SYSTEM CIRCUIT OF RELAY BOX.** Measure resistance between relay box connector and motor relay installing point. ***Connector & terminal*** ***(VDC4) No. 6 — (VDC7) No. 30:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **9.**	Replace relay box.
9	**CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.** Measure resistance between motor relay installing point and relay box connector. ***Connector & terminal*** ***(VDC4) No. 4 — (VDC7) No. 86:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **10.**	Replace relay box.
10	**CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.** 1) Remove valve relay from relay box. 2) Measure resistance between motor relay installing point and valve relay installing point. ***Connector & terminal*** ***(VDC7) No. 85 — (VDC6) No. 30:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **11.**	Replace relay box.
11	**CHECK GROUND SHORT IN CIRCUIT OF RELAY BOX.** Measure resistance between relay box connector unit and chassis ground. ***Connector & terminal*** ***(VDC4) No. 4 — Chassis ground:*** ***(VDC4) No. 6 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **12.**	Replace relay box.
12	**CHECK BATTERY SHORT IN CIRCUIT OF RELAY BOX.** Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 4 (+) — Chassis ground (–):*** ***(VDC4) No. 6 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **13.**	Replace relay box.

	Step	Value	Yes	No
13	**CHECK BATTERY SHORT IN CIRCUIT OF RELAY BOX.** 1) Turn ignition switch to ON. 2) Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 4 (+) — Chassis ground (–):*** ***(VDC4) No. 6 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **14.**	Replace relay box.
14	**CHECK OPEN CIRCUIT IN RELAY CONTROL SYSTEM HARNESS.** 1) Turn ignition switch to OFF. 2) Measure resistance between VDCCM connector and relay box connector. ***Connector & terminal*** ***(F87) No. 22 — (F90) No. 4:*** ***(F87) No. 10 — (F90) No. 6:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **15.**	Repair harness connector between VDCCM and relay box.
15	**CHECK GROUND SHORT IN HARNESS BETWEEN RELAY BOX AND VDCCM.** Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 22 — Chassis ground:*** ***(F87) No. 10 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **16.**	Repair harness between VDCCM and relay box. Check fuse SBF holder.
16	**CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND VDCCM.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 22 (+) — Chassis ground (–):*** ***(F87) No. 10 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **17.**	Repair harness between VDCCM and relay box. Check fuse SBF holder.
17	**CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND VDCCM.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 22 (+) — Chassis ground (–):*** ***(F87) No. 10 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **18.**	Repair harness between VDCCM and relay box. Check fuse SBF holder.
18	**CHECK CONDITION OF MOTOR GROUND.** ***Tightening torque:*** ***32±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)*** Is the motor ground terminal tightly clamped?	Clamped securely.	Go to step **19.**	Tighten the clamp of motor ground terminal.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
19	**CHECK VDCCM MOTOR DRIVE TERMINAL.** 1) Turn ignition switch OFF. 2) Remove VDC connector cover. <Ref. to VDC-19, REMOVE, VDCCM Connector Cover.> 3) Connect all connectors. 4) Install motor relay and valve relay to relay box. 5) Operate the ABS check sequence. <Ref. to VDC-16, ABS Sequence Control.> 6) Measure voltage between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 22 (+) — No. 1 (–):*** Does the voltage drop from between 10 V and 13 V to less than 1.5 V, and rise to between 10 V and 13 V again when carrying out the check sequence?	Drop from 10 — 13 V to less than 1.5 V, and rise to 10 — 13 V again when carrying out the check sequence.	Go to step **20.**	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
20	**CHECK MOTOR OPERATION.** Operate the check sequence. <Ref. to VDC-19, VDC Sequence Control.> Can motor revolution noise (buzz) be heard when carrying out the check sequence?	Noise heard	Go to step **21.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
21	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF. Is there poor contact in connector between VDCH/U, relay box and VDCCM?	There is poor contact.	Repair connector.	Go to step **22.**
22	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **23.**
23	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

MEMO:

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

AL:DTC 71 ABNORMAL STEERING ANGLE SENSOR

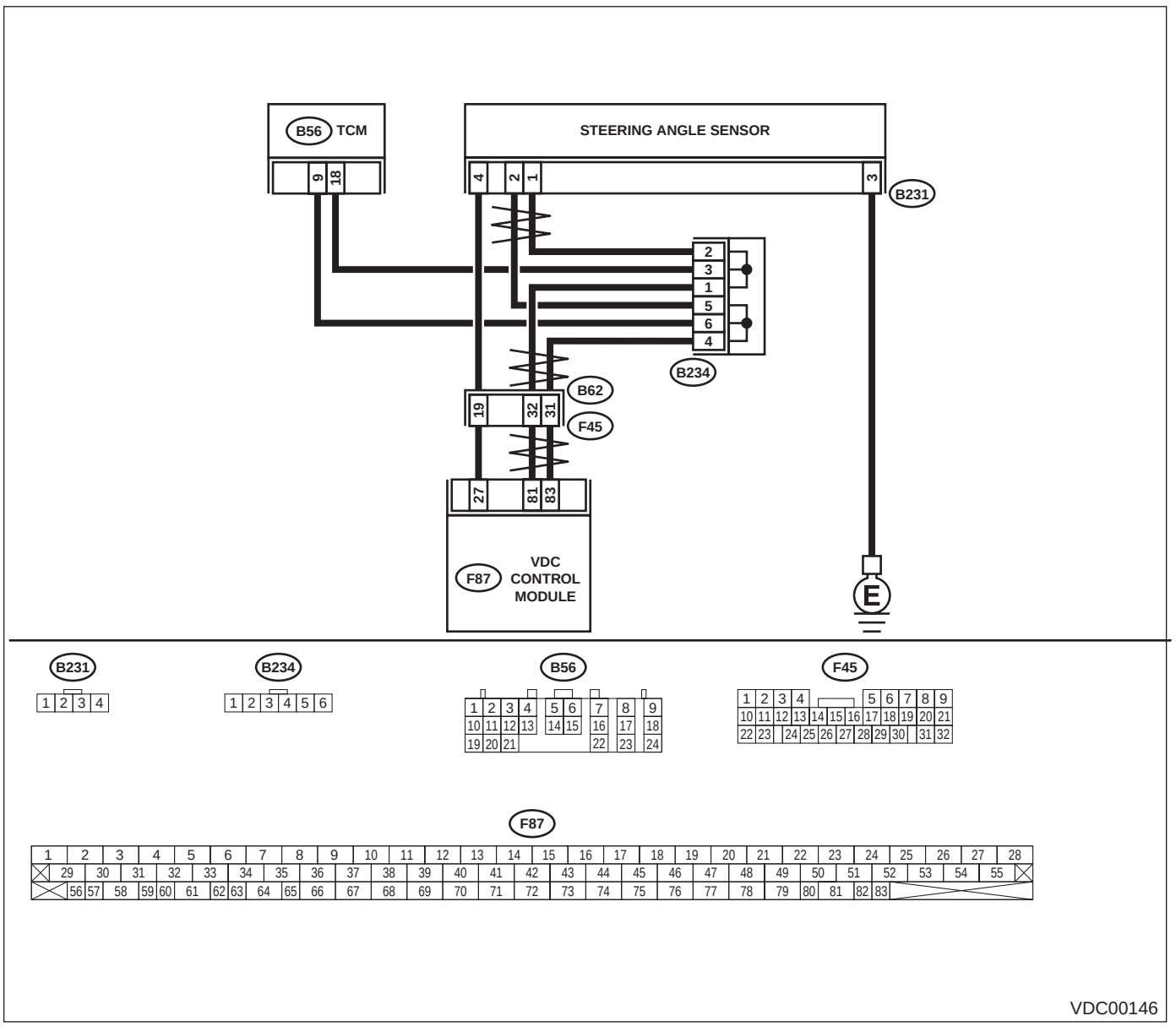
DIAGNOSIS:

- Faulty steering angle sensor

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



VDC00146

	Step	Value	Yes	No
1	**CHECK THE STEERING WHEEL.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight line. 3) Check the angle of steering wheel. Is the measured value less than the specified value?	5°	Go to step **2.**	Perform centering alignment of steering.
2	**CHECK RUNNING FIELD.** Check if the vehicle was driven on banked road surfaces or sandy surfaces (not dirt road surfaces). Was the vehicle driven on banked road surfaces or sandy surfaces (not dirt road surfaces)?	Driven	Driving on banked road surfaces or sandy surfaces (not dirt road surfaces) sometimes results in a VDCCM memory trouble code.	Go to step **3.**
3	**CHECK POWER SUPPLY OF STEERING ANGLE SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from steering angle sensor. 3) Turn ignition switch to ON. 4) Measure voltage between steering angle sensor and chassis ground. ***Connector & terminal*** ***(B231) No. 4 — Chassis ground:*** Is the measured value within the specified range?	10 — 15 V	Go to step **6.**	Go to step **4.**
4	**CHECK OUTPUT VOLTAGE OF VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Remove cover for VDCCM connector. <Ref. to VDC-19, REMOVE, VDCCM Connector Cover.> 4) Connect connector to VDCCM. 5) Turn ignition switch to ON. 6) Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 27 — Chassis ground:*** Is the measured value within the specified range?	10 — 15 V	Repair harness between yaw rate sensor and VDCCM.	Go to step **5.**
5	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in yaw rate sensor connector?	There is poor contact.	Repair or replace VDCCM connector.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
6	**CHECK GROUND CIRCUIT OF STEERING ANGLE SENSOR.** Measure resistance between steering sensor and chassis ground. ***Connector & terminal*** ***(B231) No. 3 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **7.**	Repair steering angle sensor ground harness.

	Step	Value	Yes	No
7	**CHECK HARNESS OF STEERING ANGLE SENSOR.** 1) Connect connector to steering angle sensor. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 81 — No. 83:*** Is the measured value within the specified range?	114 — 126 Ω	Repair harness between steering angle sensor and VDCCM.	Go to step **8.**
8	**CHECK STEERING ANGLE SENSOR.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Go to step **10.**	Go to step **9.**
9	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.
10	**CHECK VDCCM.** 1) Turn ignition switch to OFF. 2) Replace steering angle sensor. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same DTC indicated.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **11.**
11	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	The original steering angle sensor has been faulty.

MEMO:

Vehicle-id:
SIE-id::AL:DTC 71 Abnormal Steering Angle Sensor
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AM:DTC 72 ABNORMAL YAW RATE SENSOR

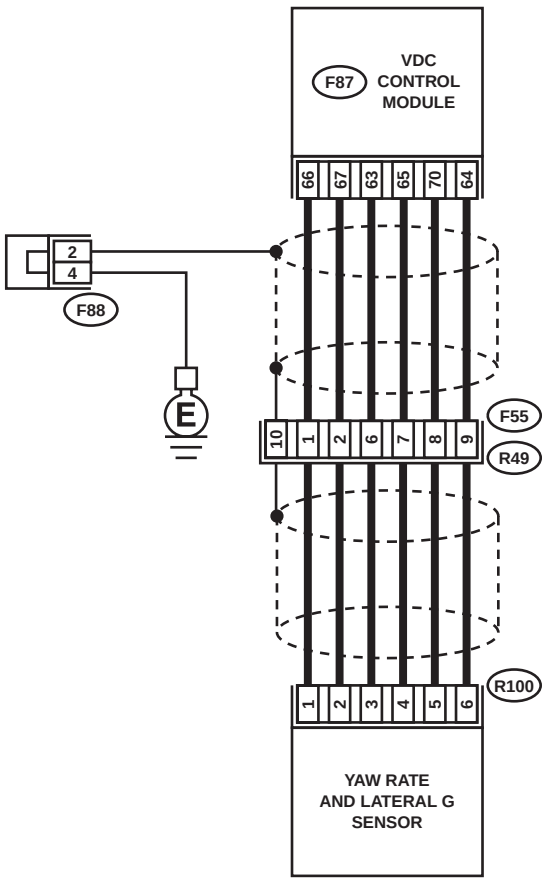
DIAGNOSIS:

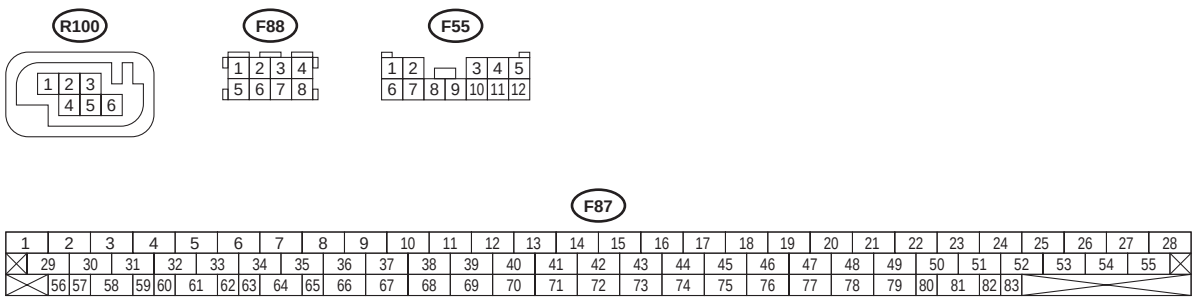
- Faulty yaw rate sensor

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





VDC00151

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK THE STEERING WHEEL.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight line. 3) Check the angle of steering wheel. Is the measured value less than the specified value?	5°	Go to step **2.**	Perform centering alignment of steering.
2	**CHECK RUNNING FIELD.** Was the vehicle driven on banked road surfaces or sandy surfaces (not dirt road surfaces) or surfaces with holes or bumps at high speeds?	Driven	Driving on banked road surfaces or sandy surfaces (not dirt road surfaces) or surfaces with holes or bumps at high speeds, sometimes results in a VDCCM memory trouble code.	Go to step **3.**
3	**CHECK INSTALLATION OF YAW RATE AND LATERAL G SENSOR.** Check installation of yaw rate and lateral G sensor. Is the yaw rate and lateral G sensor fixed securely?	Fixed securely.	Go to step **4.**	Install yaw rate and lateral G sensor securely.
4	**CHECK POWER SUPPLY OF YAW RATE AND LATERAL G SENSOR.** 1) Turn ignition switch OFF. 2) Disconnect connector from yaw rate and lateral G sensor. 3) Turn ignition switch to ON. 4) Measure voltage between yaw rate and lateral G sensor and chassis ground. ***Connector & terminal*** ***(R100) No. 3 — Chassis ground:*** Is the measured value within the specified range?	10 — 15 V	Go to step **7.**	Go to step **5.**
5	**CHECK OUTPUT VOLTAGE OF VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Remove cover for VDCCM connector. <Ref. to VDC-19, REMOVE, VDCCM Connector Cover.> 4) Connect connector to VDCCM. 5) Turn ignition switch to ON. 6) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 63 — Chassis ground:*** Is the measured value within the specified range?	10 — 15 V	Repair harness between yaw rate and lateral G sensor and VDCCM.	Go to step **6.**
6	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in yaw rate and lateral G sensor connector?	There is poor contact.	Repair or replace VDCCM connector.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK GROUND CIRCUIT OF YAW RATE AND LATERAL G SENSOR.** Measure resistance between yaw rate and lateral G sensor and chassis ground. ***Connector & terminal*** ***(R100) No. 6 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **10.**	Go to step **8.**
8	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Disconnect connector from VDCCM. 2) Remove cover from VDCCM connector. <Ref. to VDC-19, REMOVE, VDCCM Connector Cover.> 3) Connect connector to VDCCM. 4) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 64 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Repair harness between yaw rate and lateral G sensor and VDCCM.	Go to step **9.**
9	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in VDCCM connector?	There is poor contact.	Repair or replace VDCCM connector.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
10	**CHECK HARNESS OF YAW RATE AND LATERAL G SENSOR.** 1) Disconnect connector from VDCCM. 2) Measure resistance between VDCCM and yaw rate and lateral G sensor. ***Connector & terminal*** ***(F87) No. 65 — (R100) No. 4:*** ***(F87) No. 66 — (R100) No. 1:*** ***(F87) No. 67 — (R100) No. 2:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **11.**	Repair harness between yaw rate and lateral G sensor and VDCCM.
11	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 65 — Chassis ground:*** ***(F87) No. 66 — Chassis ground:*** ***(F87) No. 67 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **12.**	Repair harness between yaw rate and lateral G sensor and VDCCM.
12	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 65 (+) — Chassis ground (–):*** ***(F87) No. 66 (+) — Chassis ground (–):*** ***(F87) No. 67 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.5 V	Go to step **13.**	Repair harness between yaw rate and lateral G sensor and VDCCM.

	Step	Value	Yes	No
13	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 65 (+) — Chassis ground (–):*** ***(F87) No. 66 (+) — Chassis ground (–):*** ***(F87) No. 67 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.5 V	Go to step **14.**	Repair harness between yaw rate and lateral G sensor and VDCCM.
14	**CHECK YAW RATE AND LATERAL G SENSOR.** 1) Turn ignition switch to OFF. 2) Install yaw rate and lateral G sensor to body. 3) Connect all connectors. 4) Turn ignition switch to ON. 5) Measure voltage between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 66 (+) — No. 64 (–):*** Is the measured value within the specified range?	2.1 — 2.9 V	Go to step **15.**	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
15	**CHECK YAW RATE AND LATERAL G SENSOR.** 1) Turn ignition switch to ON. 2) Check oscilloscope signal pattern between VDCCM connector terminals.<Ref. to VDC-18, WAVEFORM, MEASUREMENT, Control Module I/O Signal.> ***Connector & terminal*** ***(F87) No. 67 (+) — No. 64 (–):*** Is the oscilloscope pattern the same as shown in the figure?	Same pattern.	Go to step **16.**	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
16	**CHECK YAW RATE SENSOR.** Check oscilloscope pattern between yaw rate and lateral G sensor terminals.<Ref. to VDC-18, WAVEFORM, MEASUREMENT, Control Module I/O Signal.> ***Connector & terminal*** ***(F87) No. 65 (+) — No. 64 (–):*** Is the oscilloscope pattern the same as shown in the figure?	Same pattern.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Replace yaw rate and lateral G sensor. <Ref. to VDC-8, VDC Control Module (VDCCM).>

AN:DTC 73 ABNORMAL LATERAL G SENSOR

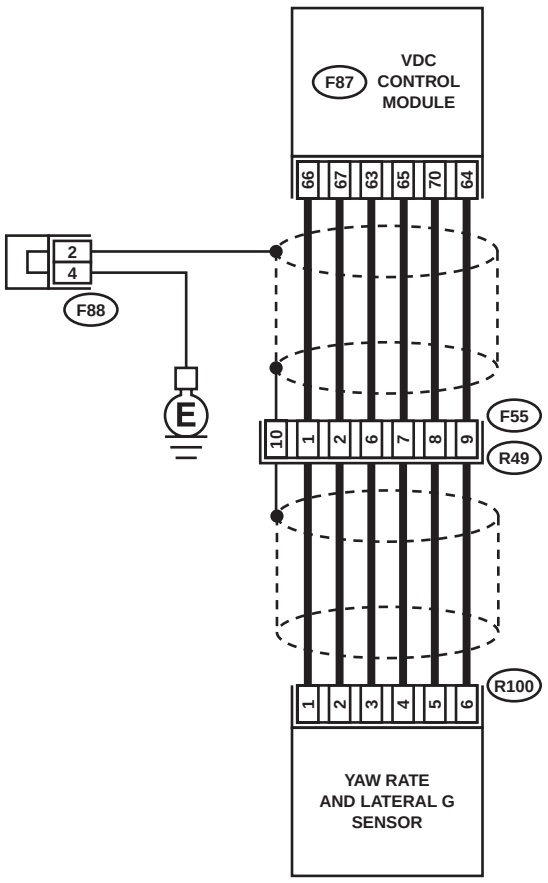
DIAGNOSIS:

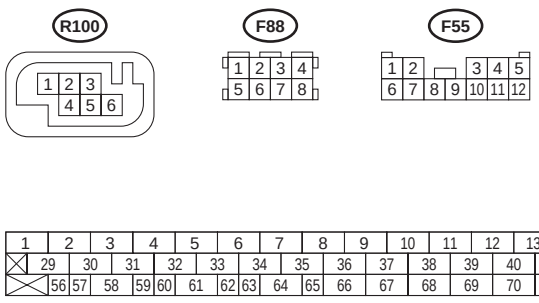
- Faulty lateral G sensor

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:





VDC00151

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK INSTALLATION OF LATERAL G SENSOR.** Check installation of lateral G sensor. Is the yaw rate and lateral G sensor fixed securely?	Fixed securely.	Go to step **2.**	Install yaw rate and lateral G sensor securely.
2	**CHECK INPUT VOLTAGE OF G SENSOR.** 1) Turn ignition switch to OFF. 2) Remove console box. 3) Disconnect connector from yaw rate and lateral G sensor. 4) Turn ignition switch to ON. 5) Measure voltage between yaw rate and lateral G sensor connector terminals. ***Connector & terminal*** ***(R100) No. 3 (+) — No. 6 (–):*** Is the measured value within the specified range?	10 — 15 V	Go to step **3.**	Repair harness/ connector between yaw rate and lateral G sensor and VDCCM.
3	**CHECK YAW RATE AND LATERAL G SENSOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between yaw rate and lateral G sensor terminals. ***Terminals*** ***No. 3 — No. 5:*** Is the measured value within the specified range?	4.3 — 4.9 kΩ	Go to step **4.**	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
4	**CHECK OPEN CIRCUIT IN YAW RATE AND LATERAL G SENSOR OUTPUT HARNESS AND GROUND HARNESS.** 1) Connect connector to yaw rate and lateral G sensor. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 63 — No. 70:*** Is the measured value within the specified range?	4.3 — 4.9 kΩ	Go to step **5.**	Repair harness/ connector between yaw rate and lateral G sensor and VDCCM.
5	**CHECK GROUND SHORT IN YAW RATE AND LATERAL G SENSOR HARNESS.** 1) Disconnect connector from yaw rate and lateral G sensor. 2) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 63 — Chassis ground:*** ***(F87) No. 70 — Chassis ground:*** ***(F87) No. 64 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **6.**	Repair harness between yaw rate and lateral G sensor and VDCCM.
6	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 63 (+) — Chassis ground (–):*** ***(F87) No. 70 (+) — Chassis ground (–):*** ***(F87) No. 64 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **7.**	Repair harness between yaw rate and lateral G sensor and VDCCM.

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 63 (+) — Chassis ground (–):*** ***(F87) No. 70 (+) — Chassis ground (–):*** ***(F87) No. 64 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **8.**	Repair harness between yaw rate and lateral G sensor and VDCCM.
8	**CHECK LATERAL G SENSOR.** 1) Turn ignition switch to OFF. 2) Remove yaw rate and lateral G sensor from vehicle. 3) Connect connector to yaw rate and lateral G sensor. 4) Connect connector to VDCCM. 5) Turn ignition switch to ON. 6) Measure voltage between yaw rate and lateral G sensor connector terminals. ***Connector & terminal*** ***(R100) No. 5 (+) — No. 6 (–):*** Is the measured value within the specified range when yaw rate and lateral G sensor is horizontal?	2.3 — 2.7 V	Go to step **9.**	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
9	**CHECK YAW RATE AND LATERAL G SENSOR.** Measure voltage between yaw rate and lateral G sensor connector terminals. ***Connector & terminal*** ***(R100) No. 5 (+) — No. 6 (–):*** Is the measured value within the specified range when yaw rate and lateral G sensor is inclined 90° to left?	3.3 — 3.7 V	Go to step **10.**	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
10	**CHECK YAW RATE AND LATERAL G SENSOR.** Measure voltage between yaw rate and lateral G sensor connector terminals. ***Connector & terminal*** ***(R100) No. 5 (+) — No. 6 (–):*** Is the measured value within the specified range when yaw rate and lateral G sensor is inclined 90° to right?	1.3 — 1.7 V	Go to step **11.**	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
11	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connector between VDCCM and yaw rate and lateral G sensor?	There is poor contact.	Repair connector.	Go to step **12.**
12	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same pattern.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **13.**
13	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

MEMO:

Vehicle-id:
SIE-id::AN:DTC 73 Abnormal Lateral G Sensor
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AO:DTC 74 ABNORMAL PRESSURE SENSOR

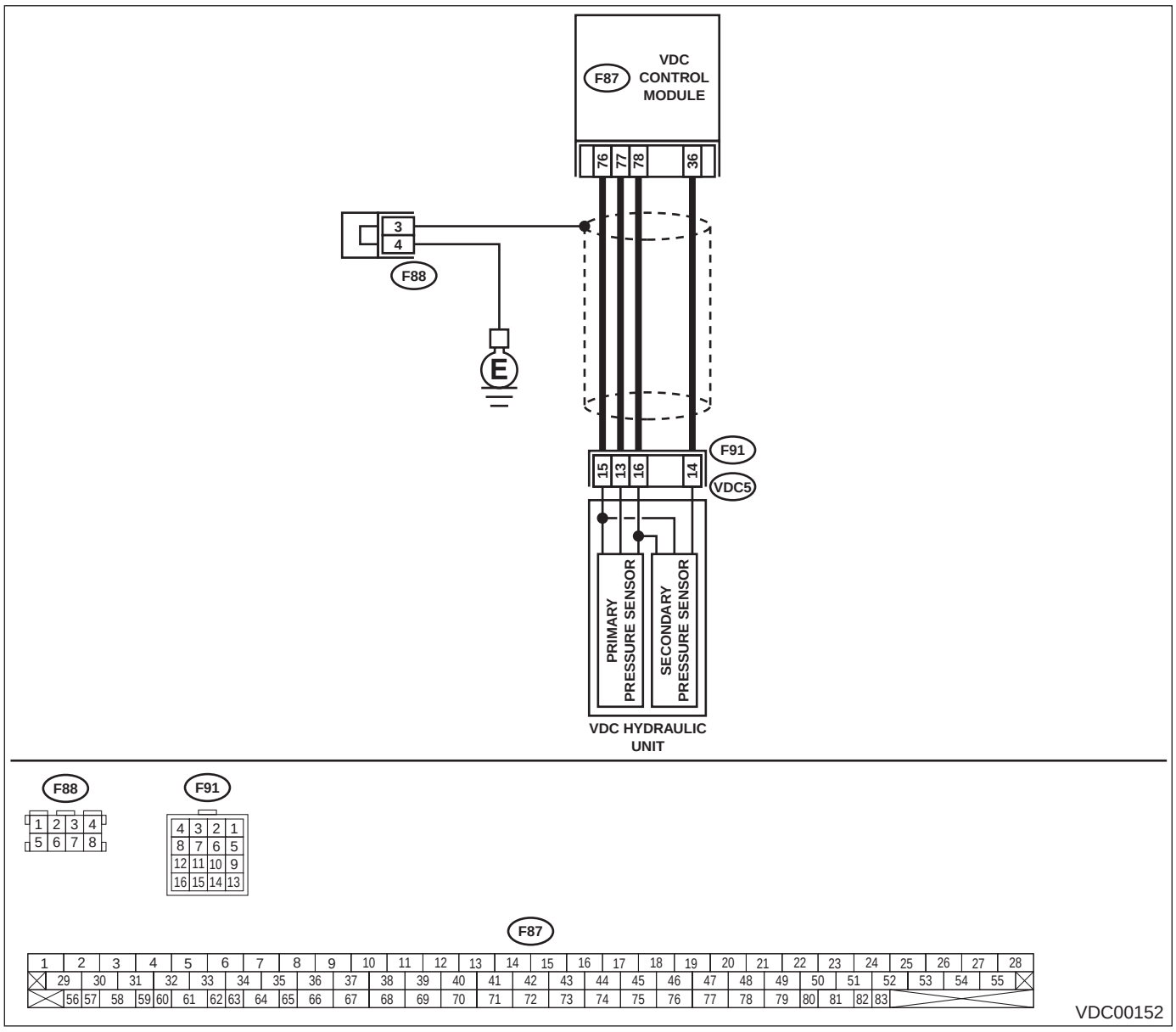
DIAGNOSIS:

- Faulty pressure sensor

TROUBLE SYMPTOM:

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

WIRING DIAGRAM:



DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
1	**CHECK GROUND CIRCUIT OF PRESSURE SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector (F91) from VDCH/U. 3) Measure resistance between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(F91) No. 15 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Go to step **4.**	Go to step **2.**
2	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Disconnect connector from VDCCM. 2) Remove cover from VDCCM. <Ref. to VDC-19, REMOVE, VDCCM Connector Cover.> 3) Connect connector to VDCCM. 4) Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 76 — Chassis ground:*** Is the measured value less than the specified value?	0.5 Ω	Replace harness between VDCH/U and VDCCM.	Go to step **3.**
3	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in VDCCM connector?	There is poor contact.	Repair or replace VDCCM connector.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>
4	**CHECK POWER SUPPLY OF PRESSURE SENSOR.** NOTE: When this inspection is carried out, DTC 51 ABNORMAL VALVE RELAY is memorized, but this does not indicate valve relay malfunction. 1) Turn ignition switch to ON. 2) Measure voltage between VDCH/U connector terminals. ***Connector & terminal*** ***(F91) No. 16 (+) — No. 15 (–):*** Is the measured value within the specified range?	4.75 — 5.25 V	Go to step **7.**	Go to step **5.**
5	**CHECK POWER SUPPLY OF VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Remove cover from VDCCM. <Ref. to VDC-19, REMOVE, VDCCM Connector Cover.> 4) Connect connector to VDCCM. 5) Turn ignition switch to ON. 6) Measure voltage between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 78 (+) — No. 76 (–):*** Is the measured value within the specified range?	4.75 — 5.25 V	Repair harness between VDCH/U and VDCCM.	Go to step **6.**
6	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in VDCCM connector?	There is poor contact.	Repair or replace VDCCM connector.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>

DIAGNOSTICS CHART WITH DIAGNOSIS CONNECTOR

	Step	Value	Yes	No
7	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(F91) No. 13 — Chassis ground:*** ***(F91) No. 14 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **8.**	Repair harness between VDCH/U and VDCCM.
8	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(F91) No. 13 (+) — Chassis ground (–):*** ***(F91) No. 14 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.5 V	Go to step **9.**	Repair harness between VDCH/U and VDCCM.
9	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(F91) No. 13 (+) — Chassis ground (–):*** ***(F91) No. 14 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.5 V	Go to step **10.**	Repair harness between VDCH/U and VDCCM.
10	**CHECK OUTPUT VOLTAGE OF PRESSURE SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Remove cover from VDCCM. <Ref. to VDC-19, REMOVE, VDCCM Connector Cover.> 4) Connect connector to VDCCM. 5) Connect all connectors. 6) Turn ignition switch to ON. 7) Do not depress brake pedal. 8) Measure voltage between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 77 (+) — No. 76 (–):*** ***(F87) No. 36 (+) — No. 76 (–):*** Is the measured value within the specified range?	0.48 — 0.72 V	Go to step **11.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
11	**CHECK BRAKE FLUID LEAKAGE.** Inspect fluid leakage between brake master cylinder and VDCH/U. Does brake fluid leak?	Fluid leaks.	Retighten or replace.	Go to step **12.**
12	**CHECK BRAKE MASTER CYLINDER.** Inspect brake master cylinder hydraulic pressure. <Ref. to BR-29, OPERATION CHECK (WITH GAUGES), INSPECTION, Brake Booster.> Is hydraulic pressure normal?	Normal.	Go to step **13.**	Replace master cylinder.

	Step	Value	Yes	No
13	**CHECK BRAKE PEDAL STROKE.** Measure the stroke between non-forced pedal position and forced pedal position with 50 kg (110 lb). Is the measured value less than the specified value?	95 mm (3.74 in)	Go to step **14.**	Perform bleeding.
14	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Depress the brake pedal with 50 kg (110 lb). 2) Measure voltage between VDCCM connector terminals. ***Connector & terminal*** ***A (F87) No. 77 (+) — No. 76 (–):*** ***B (F87) No. 36 (+) — No. 76 (–):*** Does the voltage difference between A and B exceed the specified value?	0.2 V	Go to step **15.**	Replace VDCH/U. <Ref. to VDC-8, VDC Control Module (VDCCM).>
15	**CHECK POOR CONTACT IN CONNECTORS.** Is there poor contact in connector between VDCCM and pressure sensor?	There is poor contact.	Repair connector.	Go to step **16.**
16	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code. Is the same diagnostic trouble code as in the current diagnosis still being output?	Same pattern.	Replace VDCCM. <Ref. to VDC-8, VDC Control Module (VDCCM).>	Go to step **17.**
17	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.** Are other diagnostic trouble codes being output?	Other DTC indicated.	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.