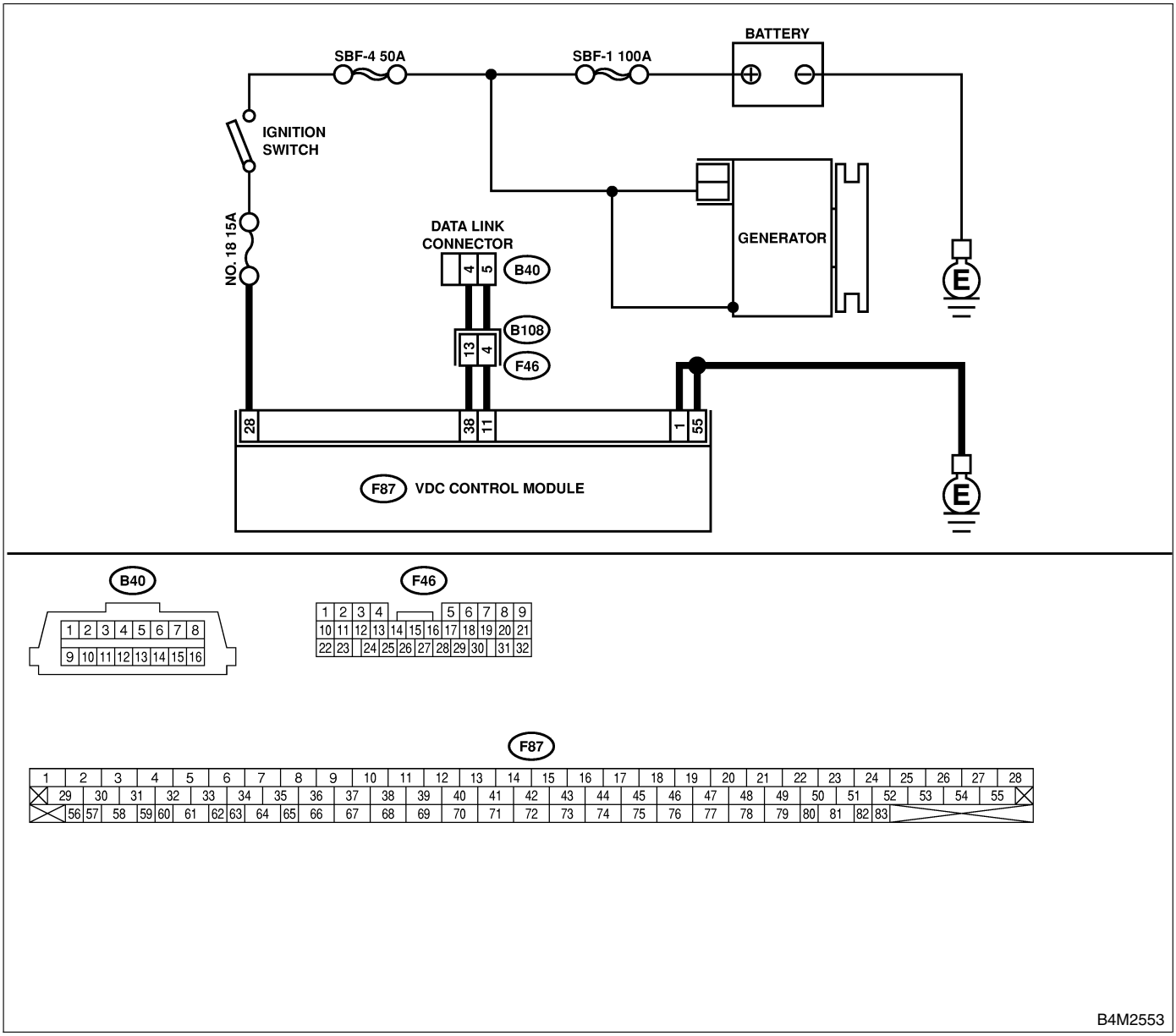
14. Diagnostics Chart with Select Monitor S005504

A: COMMUNICATION FOR INITIALIZING IMPOSSIBLE (SELECT MONITOR COMMUNICATION FAILURE) S005504E35

DIAGNOSIS:
- Faulty harness connector

TROUBLE SYMPTOM:
- ABS warning light remains on.

WIRING DIAGRAM:



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No.	Step	Check	Yes	No
1	**CHECK IGNITION SWITCH.**	Is ignition switch ON?	Go to step **2**.	Turn ignition switch ON, and select brake control mode using the select monitor.
2	**CHECK GENERATOR.** 1) Start the engine. 2) Idle the engine. 3) Measure voltage between generator and chassis ground. ***Terminal*** ***Generator B terminal (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **3**.	Repair generator.
3	**CHECK BATTERY TERMINAL.** Turn ignition switch to OFF.	Is there poor contact at battery terminal?	Repair battery terminal.	Go to step **4**.
4	**CHECK COMMUNICATION OF SELECT MONITOR.** Using the select monitor, check whether communication to other system (such as engine, AT, etc.) can be executed normally.	Are the name and year of the system displayed on the select monitor?	Go to step **5**.	Repair select monitor communication cable and connector.
5	**CHECK INSTALLATION OF VDCCM CONNECTOR.** Turn ignition switch to OFF.	Is VDCCM connector inserted into VDCCM until the clamp locks onto it?	Go to step **6**.	Insert VDCCM connector into VDCCM until the clamp locks onto it.
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 voltage between 10 and 15 V?	Go to step **7**.	Repair VDCCM power supply circuit.
7	**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 resistance less than 0.5 Ω?	Go to step **8**.	Repair harness/ connector between VDCCM and chassis ground.
8	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND DATA LINK CONNECTOR.** 1) Turn ignition switch OFF. 2) Measure resistance between VDCCM connector and data link connector. ***Connector & terminal*** ***(F87) No. 11 — (B40) No. 5:*** ***(F87) No. 38 — (B40) No. 4:***	Is the resistance less than 0.5 Ω?	Go to step **9**.	Repair harness and connector between VDCCM and data link connector.
9	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between VDCCM and data link connector?	Repair connector.	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>

B: DTC 21 FRONT RIGHT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY S005504J37

NOTE:
For diagnostic procedure, refer to DTC 27. <Ref. to VDC-132, DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY, Diagnostics Chart with Select Monitor.>

C: DTC 23 FRONT LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY S005504J38

NOTE:
For diagnostic procedure, refer to DTC 27. <Ref. to VDC-132, DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY, Diagnostics Chart with Select Monitor.>

D: DTC 25 REAR RIGHT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY S005504J39

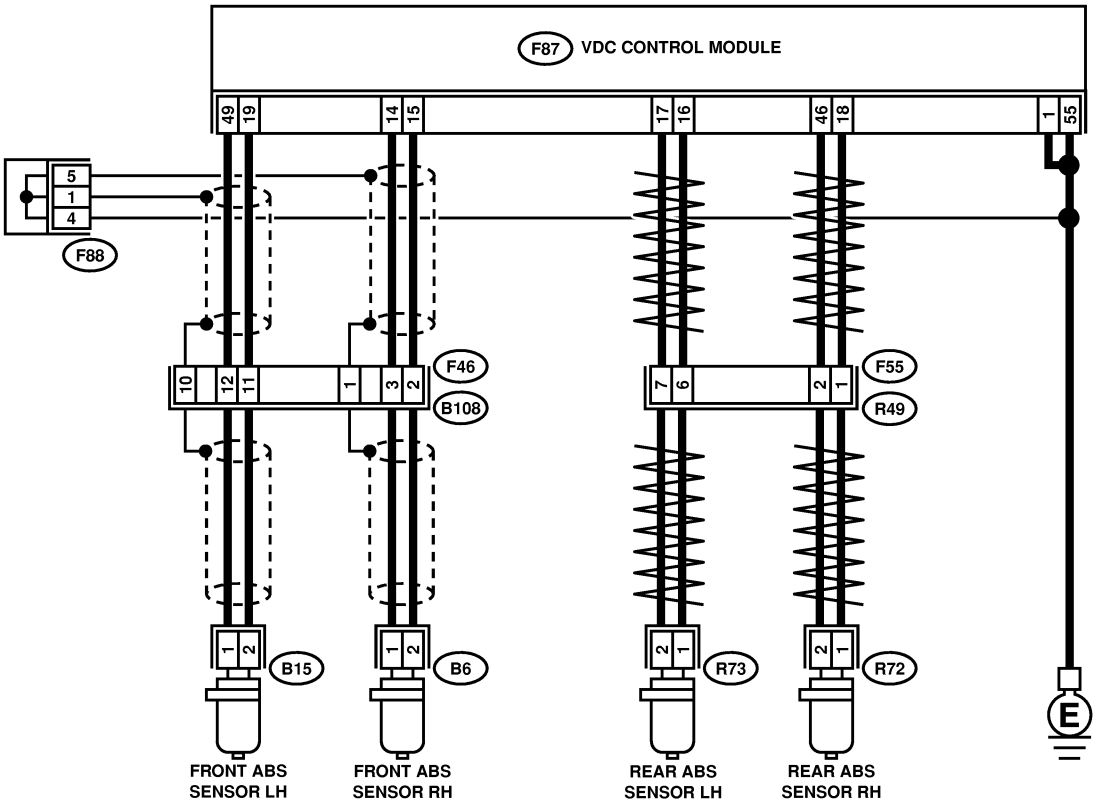
NOTE:
For diagnostic procedure, refer to DTC 27. <Ref. to VDC-132, DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY, Diagnostics Chart with Select Monitor.>

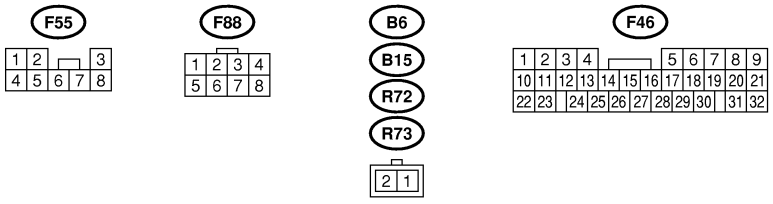
E: DTC 27 REAR LEFT ABS SENSOR CIRCUIT OPEN OR SHORTED BATTERY S005504J40

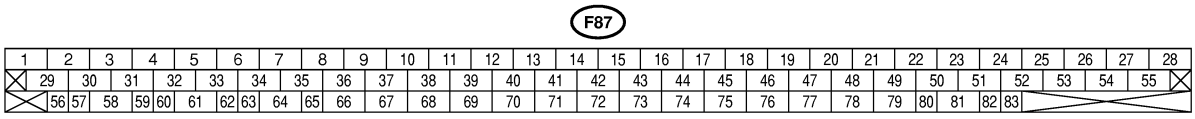
DIAGNOSIS:
- Faulty ABS sensor (Broken wire, input voltage too high)
- Faulty harness connector

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:







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DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**CHECK OUTPUT OF ABS SENSOR USING SELECT MONITOR.** 1) Select “Current data display & Save” on the select monitor. 2) Read the ABS sensor output corresponding to the faulty system in the select monitor data display mode.	Does the speed indicated on the display change in response to the speedometer reading during acceleration/deceleration when the steering wheel is in the straight-ahead position?	Go to step **2**.	Go to step **9**.
2	**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?	Go to step **3**.	Tighten ABS sensor installation bolts securely.
3	**CHECK ABS SENSOR GAP.** Measure tone wheel-to-pole piece gap over entire perimeter of the wheel. ***Specifications*** ***Front wheel*** ***0.3 — 0.8 mm (0.012 — 0.031 in)*** ***Rear wheel*** ***0.44 — 0.94 mm (0.0173 — 0.0370 in)***	Is the gap within the specifications?	Go to step **4**.	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.
4	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step **5**.	Repair tone wheel. Front <Ref. to VDC-30, Front Tone Wheel.> Rear <Ref. to VDC-31, Rear Tone Wheel.>
5	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connectors between VDCCM and ABS sensor?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **7**.
7	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact. NOTE: Check harness and connectors between VDCCM and ABS sensor.
8	**CHECK ABS SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ABS sensor. 3) Measure resistance of ABS sensor connector terminals. ***Terminal*** ***Front RH No. 1 — No. 2:*** ***Front LH No. 1 — No. 2:*** ***Rear RH No. 1 — No. 2:*** ***Rear LH No. 1 — No. 2:***	Is the resistance between 1.0 and 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.>

No.	Step	Check	Yes	No
9	**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 voltage less than 1 V?	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 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 voltage less than 1 V?	Go to step **11**.	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
11	**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 resistance between 1.0 and 1.5 kΩ?	Go to step **12**.	Repair harness/ connector between VDCCM and ABS sensor.
12	**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 voltage less than 1 V?	Go to step **13**.	Repair harness between VDCCM and ABS sensor.

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
13	**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 voltage less than 1 V?	Go to step **14**.	Repair harness between VDCCM and ABS sensor.
14	**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?	Go to step **15**.	Tighten ABS sensor installation bolts securely.
15	**CHECK ABS SENSOR GAP.** Measure tone wheel-to-pole piece gap over entire perimeter of the wheel. ***Specifications*** ***Front wheel*** ***0.3 — 0.8 mm (0.012 — 0.031 in)*** ***Rear wheel*** ***0.44 — 0.94 mm (0.0173 — 0.0370 in)***	Is the gap within the specifications?	Go to step **16**.	Adjust the gap. NOTE: Adjust the gap using spacers (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.
16	**CHECK HUB AND TONE WHEEL RUNOUT.** Measure hub and tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step **17**.	Repair hub and tone wheel. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
17	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between VDCCM and ABS sensor?	Repair connector.	Go to step **18**.
18	**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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **19**.
19	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact. NOTE: Check harness and connectors between VDCCM and ABS sensor.

MEMO:

F: DTC 22 FRONT RIGHT ABS SENSOR SIGNAL S005504J41

NOTE:
For diagnostic procedure, refer to DTC 28. <Ref. to VDC-138, DTC 28 REAR LEFT ABS SENSOR SIGNAL, Diagnostics Chart with Select Monitor.>

G: DTC 24 FRONT LEFT ABS SENSOR SIGNAL S005504J42

NOTE:
For diagnostic procedure, refer to DTC 28. <Ref. to VDC-138, DTC 28 REAR LEFT ABS SENSOR SIGNAL, Diagnostics Chart with Select Monitor.>

H: DTC 26 REAR RIGHT ABS SENSOR SIGNAL S005504J43

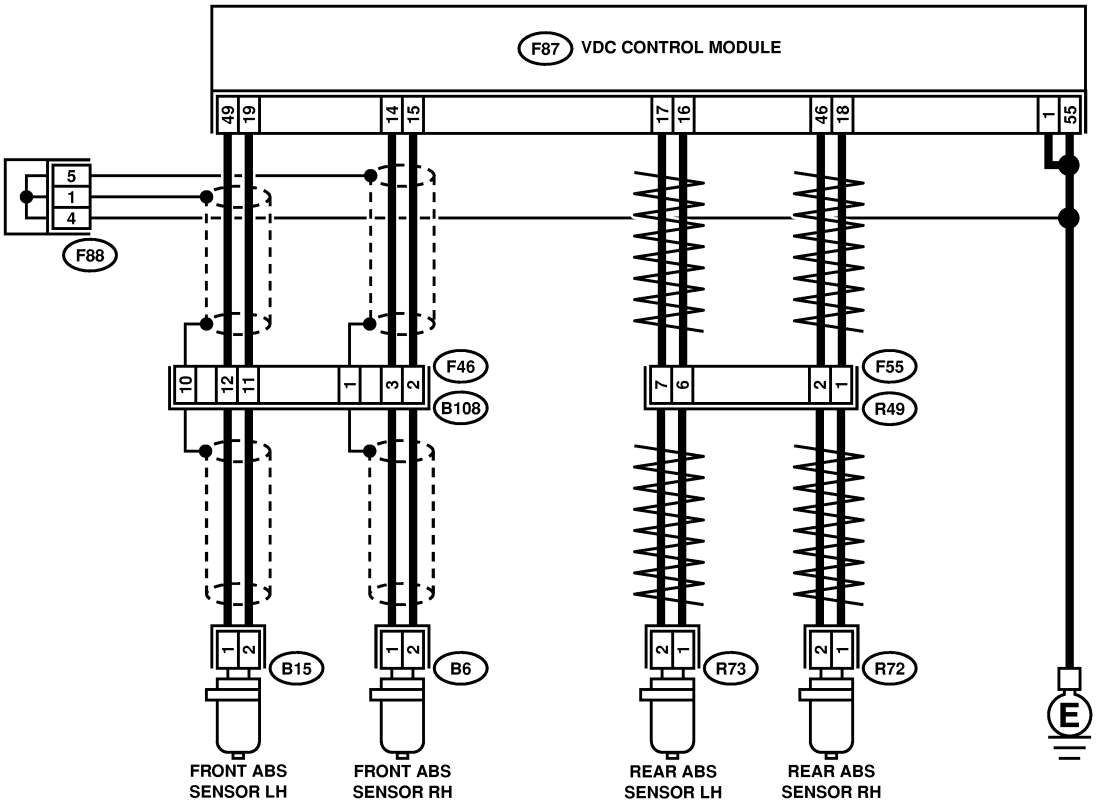
NOTE:
For diagnostic procedure, refer to DTC 28. <Ref. to VDC-138, DTC 28 REAR LEFT ABS SENSOR SIGNAL, Diagnostics Chart with Select Monitor.>

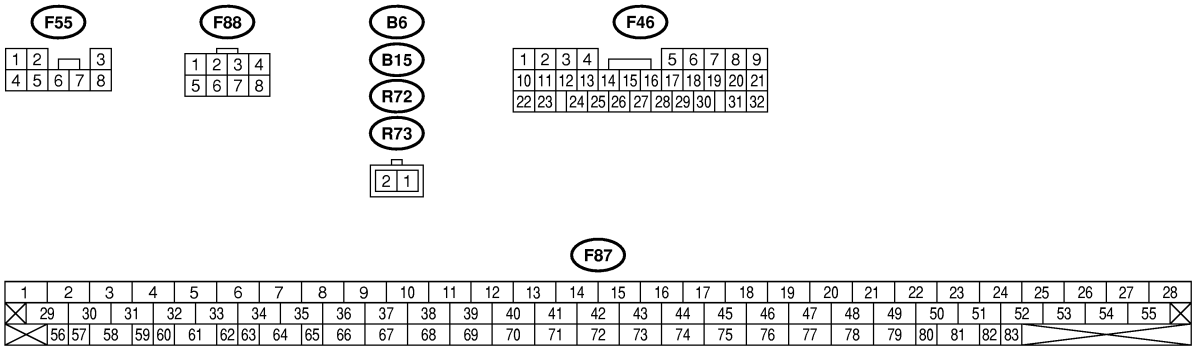
I: DTC 28 REAR LEFT ABS SENSOR SIGNAL S005504J44

DIAGNOSIS:
- Faulty ABS sensor signal (noise, irregular signal)
- Faulty harness/connector

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:





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DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**CHECK OUTPUT OF ABS SENSOR USING SELECT MONITOR.** 1) Select “Current data display & Save” on the select monitor. 2) Read the ABS sensor output corresponding to the faulty system in the select monitor data display mode.	Does the speed indicated on the display change in response to the speedometer reading during acceleration/deceleration when the steering wheel is in the straight-ahead position?	Go to step **2**.	Go to step **8**.
2	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connectors between VDCCM and ABS sensor?	Repair connector.	Go to step **3**.
3	**CHECK SOURCES OF SIGNAL NOISE.**	Is the car telephone or the wireless transmitter properly installed?	Go to step **4**.	Properly install the car telephone or the wireless transmitter.
4	**CHECK SOURCES OF SIGNAL NOISE.**	Are noise sources (such as an antenna) installed near the sensor harness?	Install the noise sources apart from the sensor harness.	Go to step **5**.
5	**CHECK SHIELD CIRCUIT.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Measure resistance between shield connector and chassis ground. ***Connector & terminal*** ***DTC 22 / (B108) No. 1 — Chassis ground:*** ***DTC 24 / (B108) No. 10 — Chassis ground:*** NOTE: For the DTC 26 and 28, Go to step **6**.	Is the resistance less than 0.5 Ω?	Go to step **6**.	Repair shield harness.
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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **7**.
7	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary noise interference.
8	**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?	Go to step **9**.	Tighten ABS sensor installation bolts securely.
9	**CHECK ABS SENSOR GAP.** Measure tone wheel to pole piece gap over entire perimeter of the wheel. ***Specifications*** ***Front wheel*** ***0.3 — 0.8 mm (0.012 — 0.031 in)*** ***Rear wheel*** ***0.44 — 0.94 mm (0.0173 — 0.0370 in)***	Is the gap within the specifications?	Go to step **10**.	Adjust the gap. NOTE: Adjust the gap using spacer (Part No. 26755AA000). If spacers cannot correct the gap, replace worn sensor or worn tone wheel.
10	**CHECK OSCILLOSCOPE.**	Is an oscilloscope available?	Go to step **11**.	Go to step **12**.

No.	Step	Check	Yes	No
11	**CHECK ABS SENSOR SIGNAL.** 1) Raise all four wheels of ground. 2) Turn ignition switch OFF. 3) Remove VDCCM connector cover. <Ref. to VDC-17, VDCCM Connector Cover.> 4) Connect the oscilloscope to the connector. 5) Turn ignition switch ON. 6) Rotate wheels and measure voltage at specified frequency. 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?	Go to step **15**.	Go to step **12**.
12	**CHECK CONTAMINATION OF ABS SENSOR OR TONE WHEEL.** Remove disc rotor or drum 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?	Thoroughly remove dirt or other foreign matter.	Go to step **13**.
13	**CHECK DAMAGE OF ABS SENSOR OR TONE WHEEL.**	Are there broken or damaged in the ABS sensor pole piece or the tone wheel?	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 **14**.
14	**CHECK TONE WHEEL RUNOUT.** Measure tone wheel runout.	Is the runout less than 0.05 mm (0.0020 in)?	Go to step **15**.	Repair tone wheel. Front <Ref. to VDC-30, Front Tone Wheel.> Rear <Ref. to VDC-31, Rear Tone Wheel.>
15	**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 resistance between 1.0 and 1.5 kΩ?	Go to step **16**.	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>
16	**CHECK GROUND SHORT OF ABS SENSOR.** Measure resistance between ABS sensor and chassis ground. ***Terminal*** ***Front RH No. 1 — Chassis ground:*** ***Front LH No. 1 — Chassis ground:*** ***Rear RH No. 1 — Chassis ground:*** ***Rear LH No. 1 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **17**.	Replace ABS sensor. Front <Ref. to VDC-28, Front ABS Sensor.> Rear <Ref. to VDC-29, Rear ABS Sensor.>

No.	Step	Check	Yes	No
17	**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 resistance between 1.0 and 1.5 kΩ?	Go to step **18**.	Repair harness/ connector between VDCCM and ABS sensor.
18	**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:***	Is the resistance more than 1 MΩ?	Go to step **19**.	Repair harness/ connector between VDCCM and ABS sensor.
19	**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 resistance less than 0.5 Ω?	Go to step **20**.	Repair VDCCM ground harness.
20	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connectors between VDCCM and ABS sensor?	Repair connector.	Go to step **21**.
21	**CHECK SOURCES OF SIGNAL NOISE.**	Is the car telephone or the wireless transmitter properly installed?	Go to step **22**.	Properly install the car telephone or the wireless transmitter.
22	**CHECK SOURCES OF SIGNAL NOISE.**	Are noise sources (such as an antenna) installed near the sensor harness?	Install the noise sources apart from the sensor harness.	Go to step **23**.
23	**CHECK SHIELD CIRCUIT.** 1) Connect all connectors. 2) Measure resistance between shield connector and chassis ground. ***Connector & terminal*** ***DTC 22 / (B62) No. A5 — Chassis ground:*** ***DTC 24 / (B62) No. A6 — Chassis ground:*** NOTE: For the DTC 26 and 28, Go to step **25**.	Is the resistance less than 0.5 Ω?	Go to step **24**.	Repair shield harness.
24	**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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **25**.

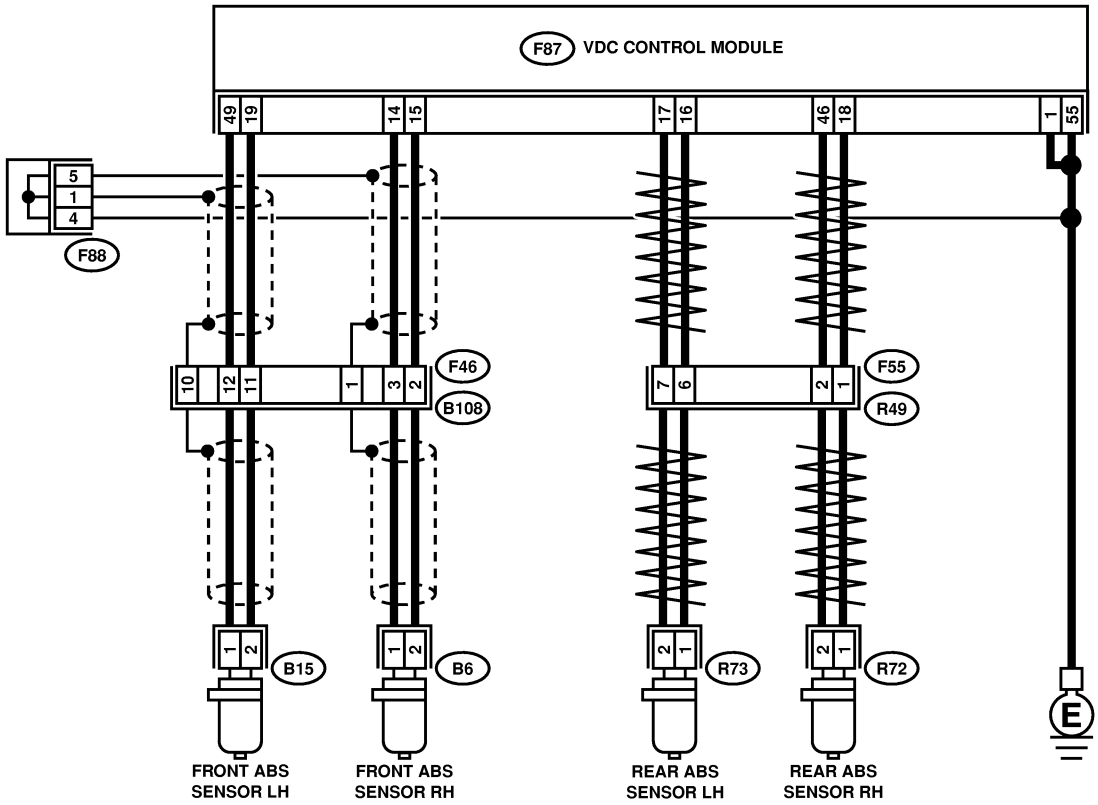
No.	Step	Check	Yes	No
25	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary noise interference.

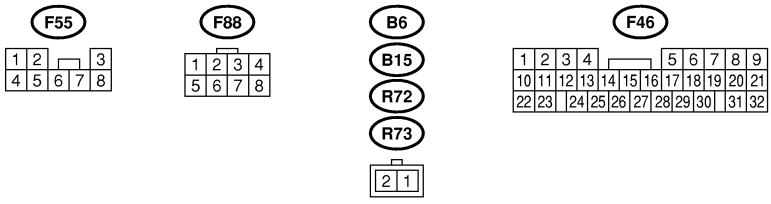
J: DTC 29 ANY ONE OF FOUR ABS SENSOR SIGNAL S005504J45

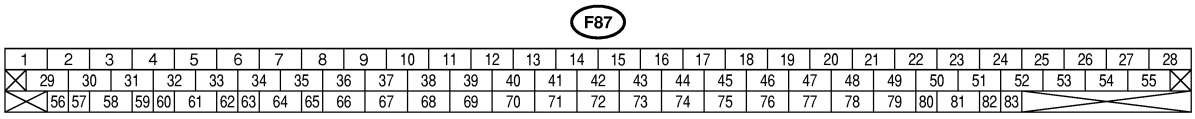
DIAGNOSIS:
- Faulty ABS sensor signal (noise, irregular signal, etc.)
- Faulty tone wheel
- Wheels turning freely for a long time

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:







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DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**CHECK IF THE WHEELS HAVE TURNED FREELY FOR A LONG TIME.**	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.	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?	Go to step **3**.	Replace tire.
3	**CHECK WEAR OF TIRE.**	Is the tire worn excessively?	Replace tire.	Go to step **4**.
4	**CHECK TIRE PRESSURE.**	Is the tire pressure correct?	Go to step **5**.	Adjust tire pressure.
5	**CHECK INSTALLATION OF ABS SENSOR.** ***Tightening torque:*** ***32±10 N·m (3.3±1.0 kgf-m, 24±7 ft-lb)***	Are the ABS sensor installation bolts 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. ***Specifications*** ***Front wheel*** ***0.3 — 0.8 mm (0.012 — 0.031 in)*** ***Rear wheel*** ***0.44 — 0.94 mm (0.0173 — 0.0370 in)***	Is the gap within the specifications?	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?	Go to step **8**.	Go to step **9**.
8	**CHECK ABS SENSOR SIGNAL.** 1) Raise all four wheels. 2) Turn ignition switch OFF. 3) Remove VDCCM connector cover. <Ref. to VDC-17, VDCCM Connector Cover.> 4) Connect the oscilloscope to the connector. 5) Turn ignition switch ON. 6) Rotate wheels and measure voltage at specified frequency. NOTE: When this inspection is completed, the VDCCM sometimes stores the DTC 29. ***Connector & terminal*** ***(F49) No. 14 (+) — No. 15 (–) (Front RH):*** ***(F49) No. 49 (+) — No. 19 (–) (Front LH):*** ***(F49) No. 18 (+) — No. 46 (–) (Rear RH):*** ***(F49) No. 16 (+) — No. 17 (–) (Rear LH):***	Is oscilloscope pattern smooth, as shown in figure?	Go to step **12**.	Go to step **9**.

No.	Step	Check	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?	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?	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 runout less than 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 same diagnostic trouble code as in the current diagnosis still being output?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **13**.
13	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

K: DTC 31 FR HOLD VALVE MALFUNCTION (FRONT RIGHT INLET VALVE MALFUNCTION) S005504J46

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-148, DTC 62 NORMAL OPENING VALVE 1 MALFUNCTION (SECONDARY CUT VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

L: DTC 33 FL HOLD VALVE MALFUNCTION (FRONT LEFT INLET VALVE MALFUNCTION) S005504J47

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-148, DTC 62 NORMAL OPENING VALVE 1 MALFUNCTION (SECONDARY CUT VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

M: DTC 35 RR HOLD VALVE MALFUNCTION (REAR RIGHT INLET VALVE MALFUNCTION) S005504J48

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-148, DTC 62 NORMAL OPENING VALVE 1 MALFUNCTION (SECONDARY CUT VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

N: DTC 37 RL HOLD VALVE MALFUNCTION (REAR LEFT INLET VALVE MALFUNCTION) S005504J49

NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-148, DTC 62 NORMAL OPENING VALVE 1 MALFUNCTION (SECONDARY CUT VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

O: DTC 61 NORMAL OPENING VALVE 2 MALFUNCTION (PRIMARY CUT VALVE MALFUNCTION) S005504J50

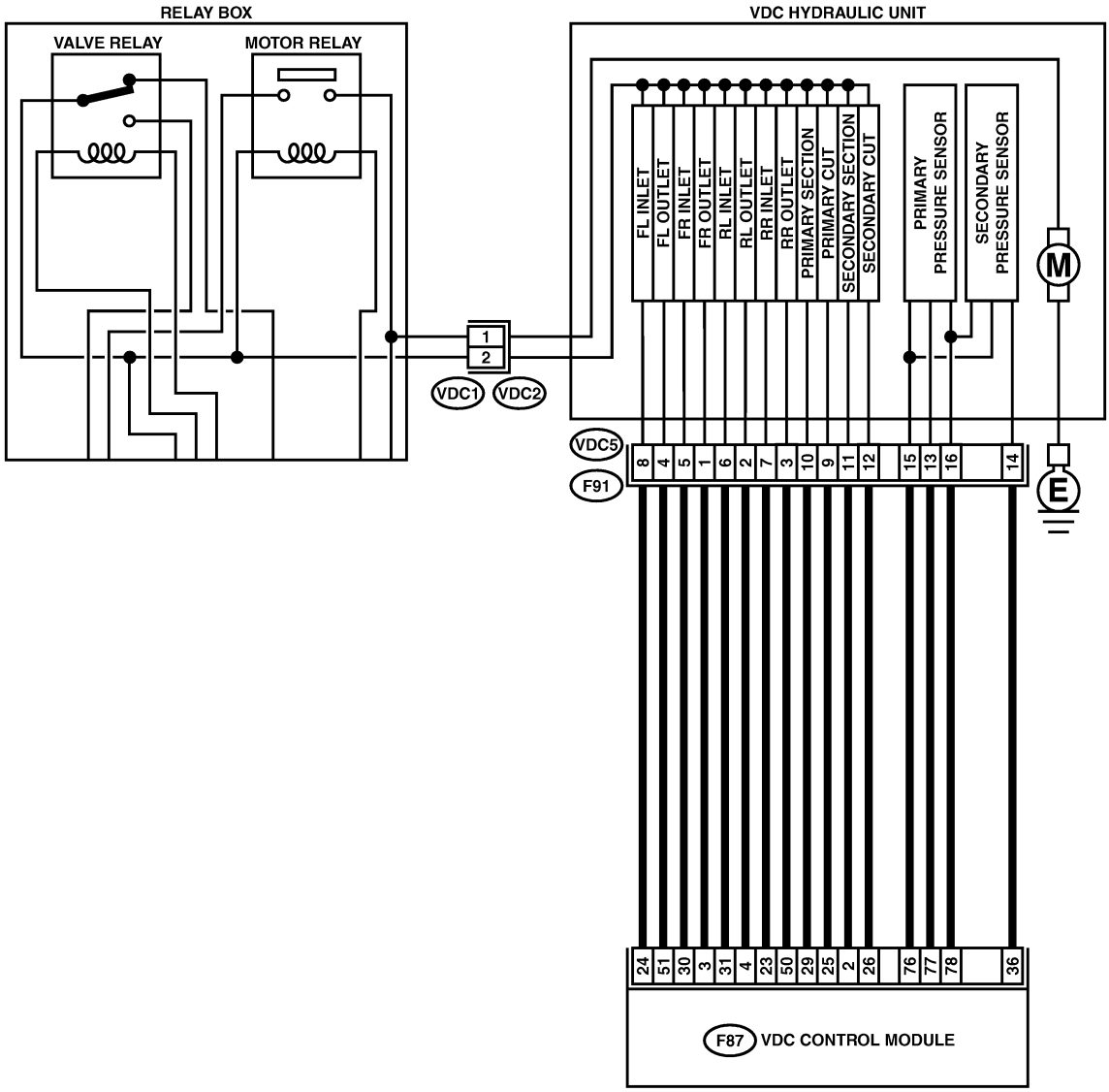
NOTE:
For diagnostic procedure, refer to DTC 62. <Ref. to VDC-148, DTC 62 NORMAL OPENING VALVE 1 MALFUNCTION (SECONDARY CUT VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

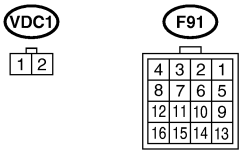
P: DTC 62 NORMAL OPENING VALVE 1 MALFUNCTION (SECONDARY CUT VALVE MALFUNCTION) S005504J51

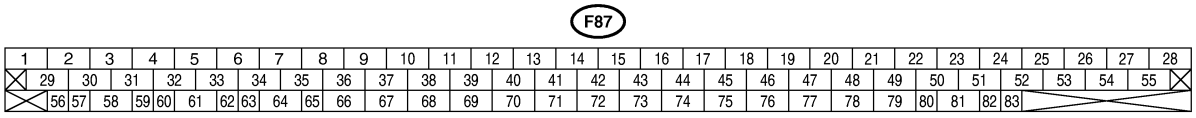
DIAGNOSIS:
- Faulty harness/connector
- Faulty solenoid valve in VDCH/U

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:







B4M2320

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	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 resistance between 8.04 and 9.04 Ω?	Go to step **2**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
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:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
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 voltage less than 1 V?	Go to step **4**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>

No.	Step	Check	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 voltage less than 1 V?	Go to step **5**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
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 voltage less than 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 voltage less than 1 V?	Go to step **7**.	Repair harness between VDCCM and VDCH/U.

No.	Step	Check	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:***	Is the resistance more than 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 resistance between 7 and 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?	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?	Repair VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **11**.
11	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

MEMO:

Q: DTC 32 FR PRESSURE REDUCING VALVE MALFUNCTION (FRONT RIGHT OUTLET VALVE MALFUNCTION) S005504J52

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-154, DTC 64 NORMAL CLOSING VALVE 1 MALFUNCTION (SECONDARY SUCTION VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

R: DTC 34 FL PRESSURE REDUCING VALVE MALFUNCTION (FRONT LEFT OUTLET VALVE MALFUNCTION) S005504J53

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-154, DTC 64 NORMAL CLOSING VALVE 1 MALFUNCTION (SECONDARY SUCTION VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

S: DTC 36 RR PRESSURE REDUCING VALVE MALFUNCTION (REAR RIGHT OUTLET VALVE MALFUNCTION) S005504J54

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-154, DTC 64 NORMAL CLOSING VALVE 1 MALFUNCTION (SECONDARY SUCTION VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

T: DTC 38 RL PRESSURE REDUCING VALVE MALFUNCTION (REAR LEFT OUTLET VALVE MALFUNCTION) S005504J55

NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-154, DTC 64 NORMAL CLOSING VALVE 1 MALFUNCTION (SECONDARY SUCTION VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

U: DTC 63 NORMAL CLOSING VALVE 2 MALFUNCTION (PRIMARY SUCTION VALVE MALFUNCTION) S005504J56

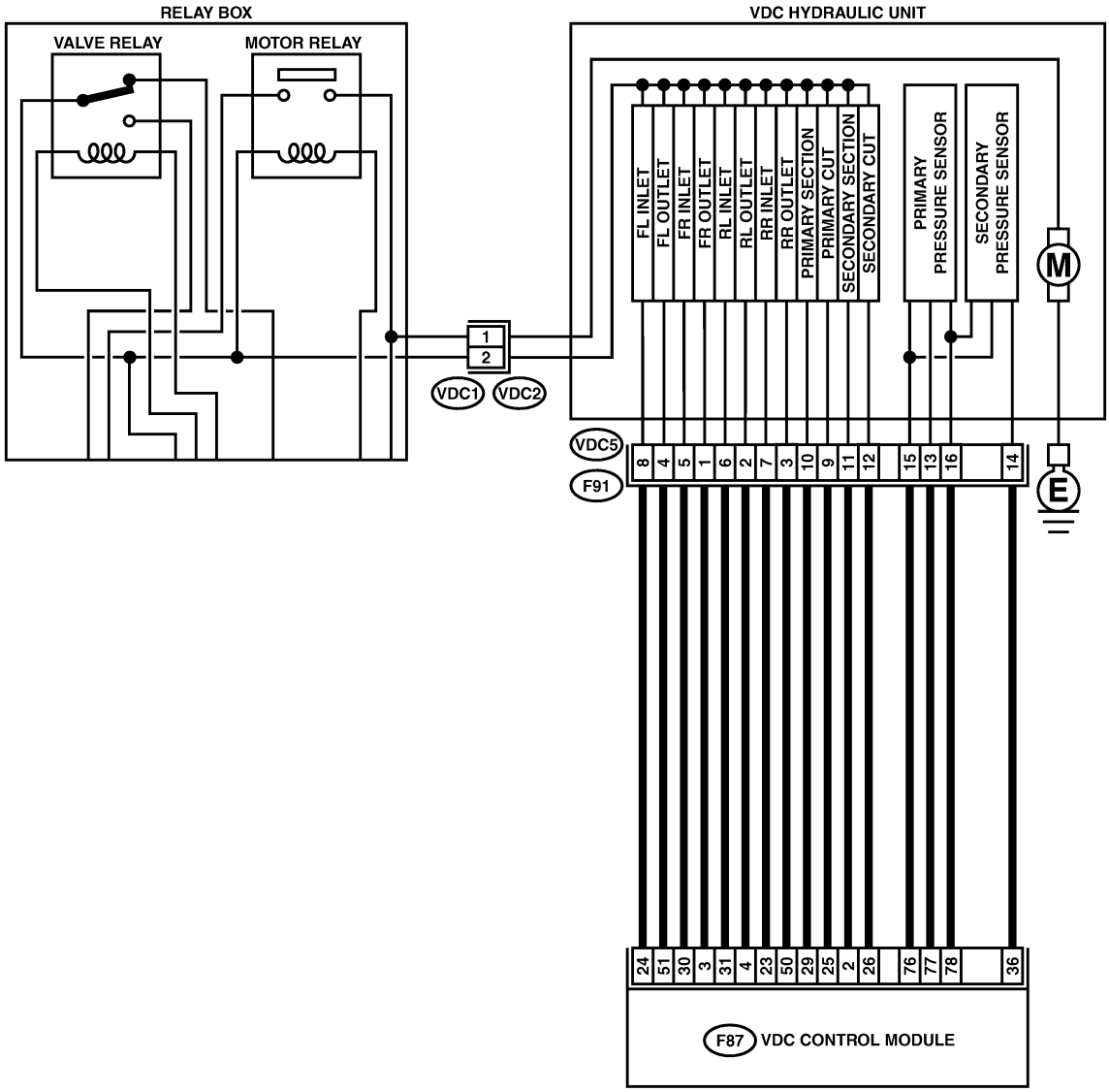
NOTE:
For diagnostic procedure, refer to DTC 64. <Ref. to VDC-154, DTC 64 NORMAL CLOSING VALVE 1 MALFUNCTION (SECONDARY SUCTION VALVE MALFUNCTION), Diagnostics Chart with Select Monitor.>

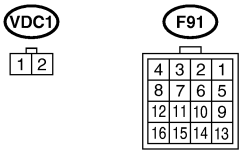
V: DTC 64 NORMAL CLOSING VALVE 1 MALFUNCTION (SECONDARY SUCTION VALVE MALFUNCTION) S005504J57

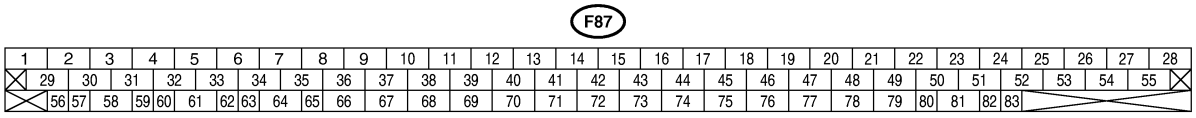
DIAGNOSIS:
- Faulty harness/connector
- Faulty solenoid valve in VDCH/U

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:







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No.	Step	Check	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 resistance between 3.8 and 4.8 Ω?	Go to step **2**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
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:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
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 voltage less than 1 V?	Go to step **4**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>

No.	Step	Check	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 voltage less than 1 V?	Go to step **5**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
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 voltage less than 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 voltage less than 1 V?	Go to step **7**.	Repair harness between VDCCM and VDCH/U.

No.	Step	Check	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:***	Is the resistance more than 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 resistance between 4 and 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?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **11**.
11	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

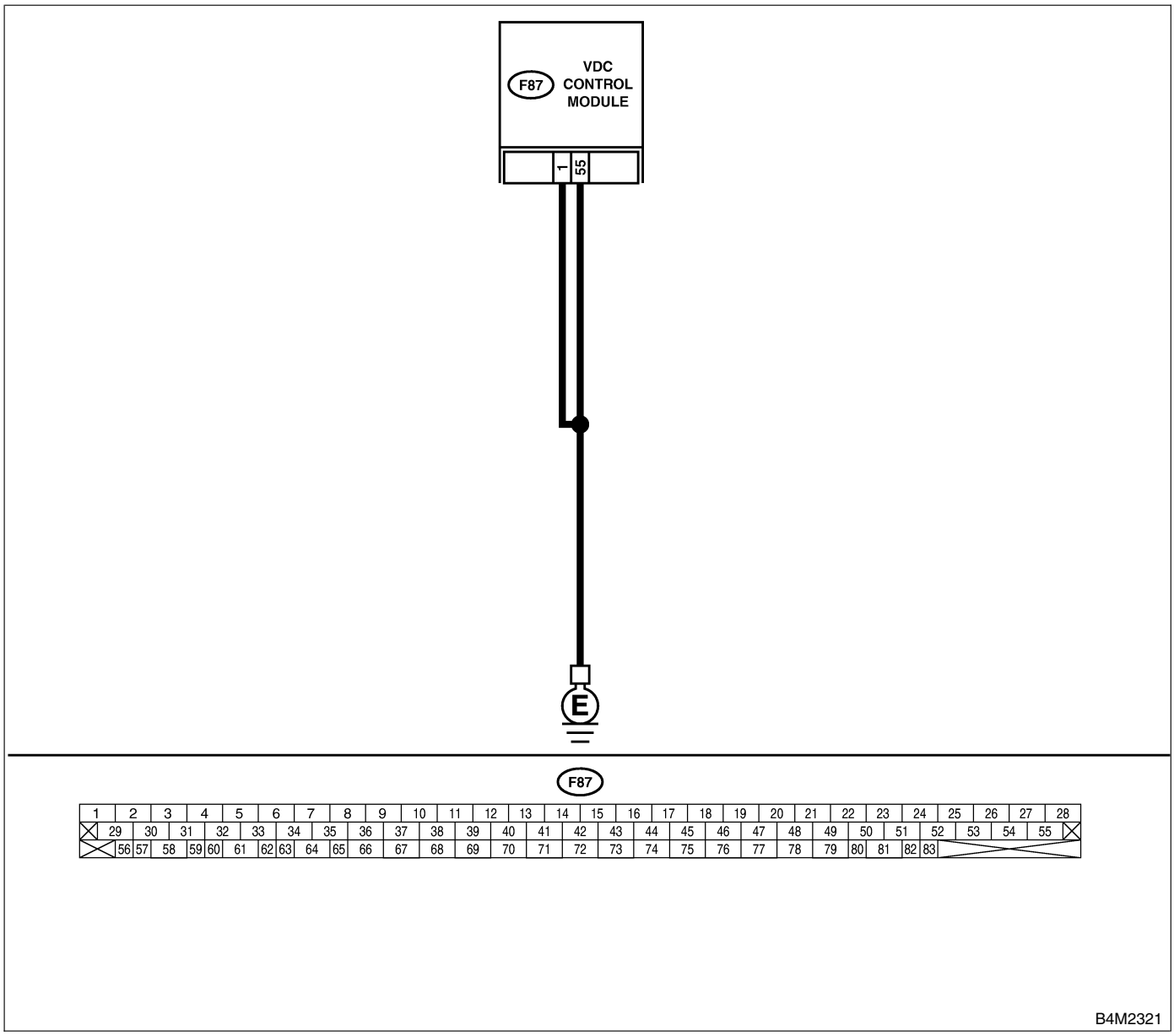
MEMO:

W: DTC 41 ELECTRICAL CONTROL MODULE (VDC CONTROL MODULE MALFUNCTION) S005504J58

DIAGNOSIS:
- Faulty VDCCM

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



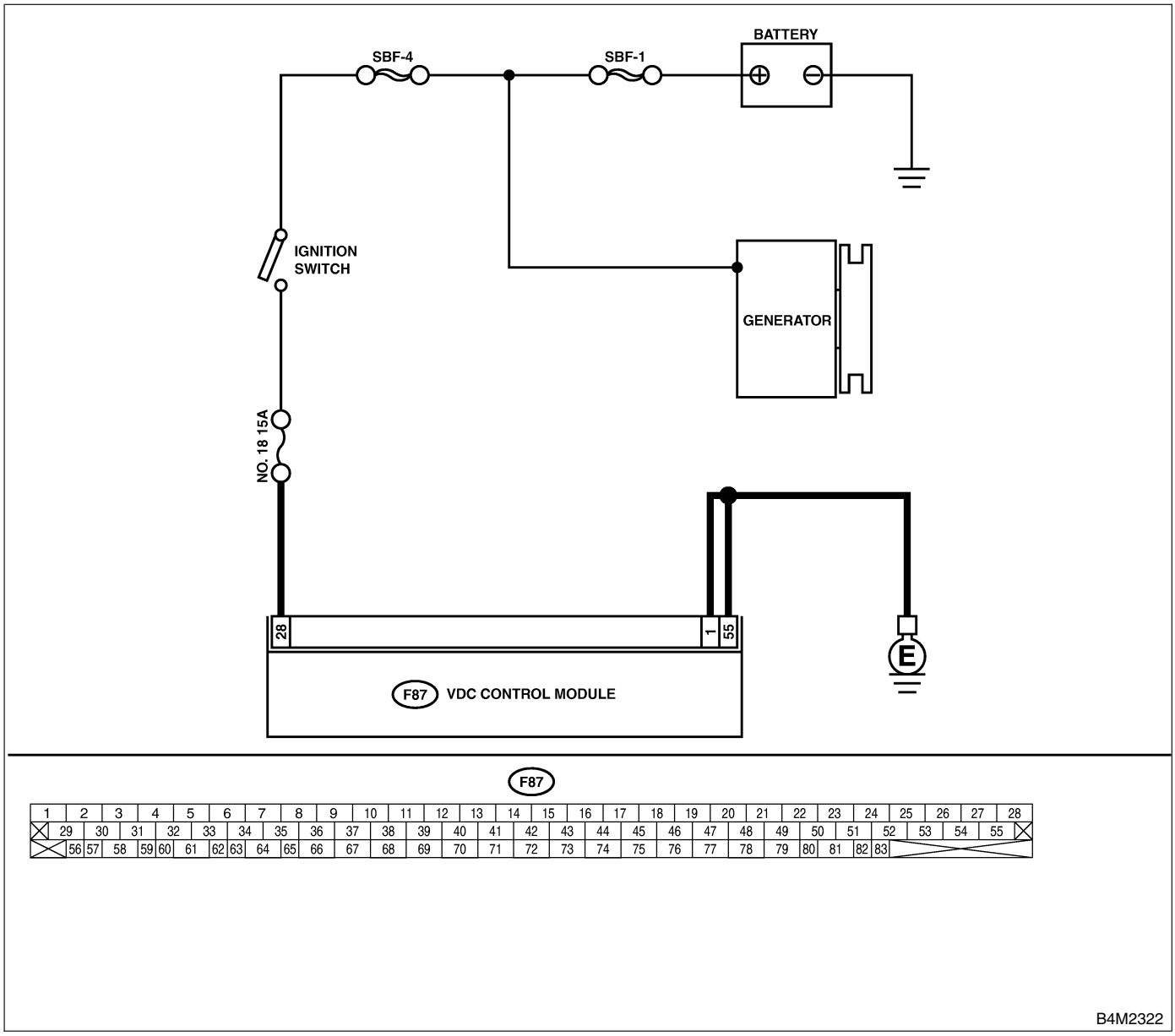
No.	Step	Check	Yes	No
1	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 1 — Chassis ground:*** ***(F87) No. 55 — Chassis ground:***	Is the resistance less than 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?	Repair connector.	Go to step **3**.
3	**CHECK SOURCES OF SIGNAL NOISE.**	Is the car telephone or the wireless transmitter properly installed?	Go to step **4**.	Properly install the car telephone or the wireless transmitter.
4	**CHECK SOURCES OF SIGNAL NOISE.**	Are noise sources (such as an antenna) installed near the sensor harness?	Install the noise sources apart from the sensor harness.	Go to step **5**.
5	**CHECK 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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **6**.
6	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

X: DTC 42 POWER SUPPLY VOLTAGE LOW S005504J59

DIAGNOSIS:
- Power source voltage of the VDCCM is low.

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



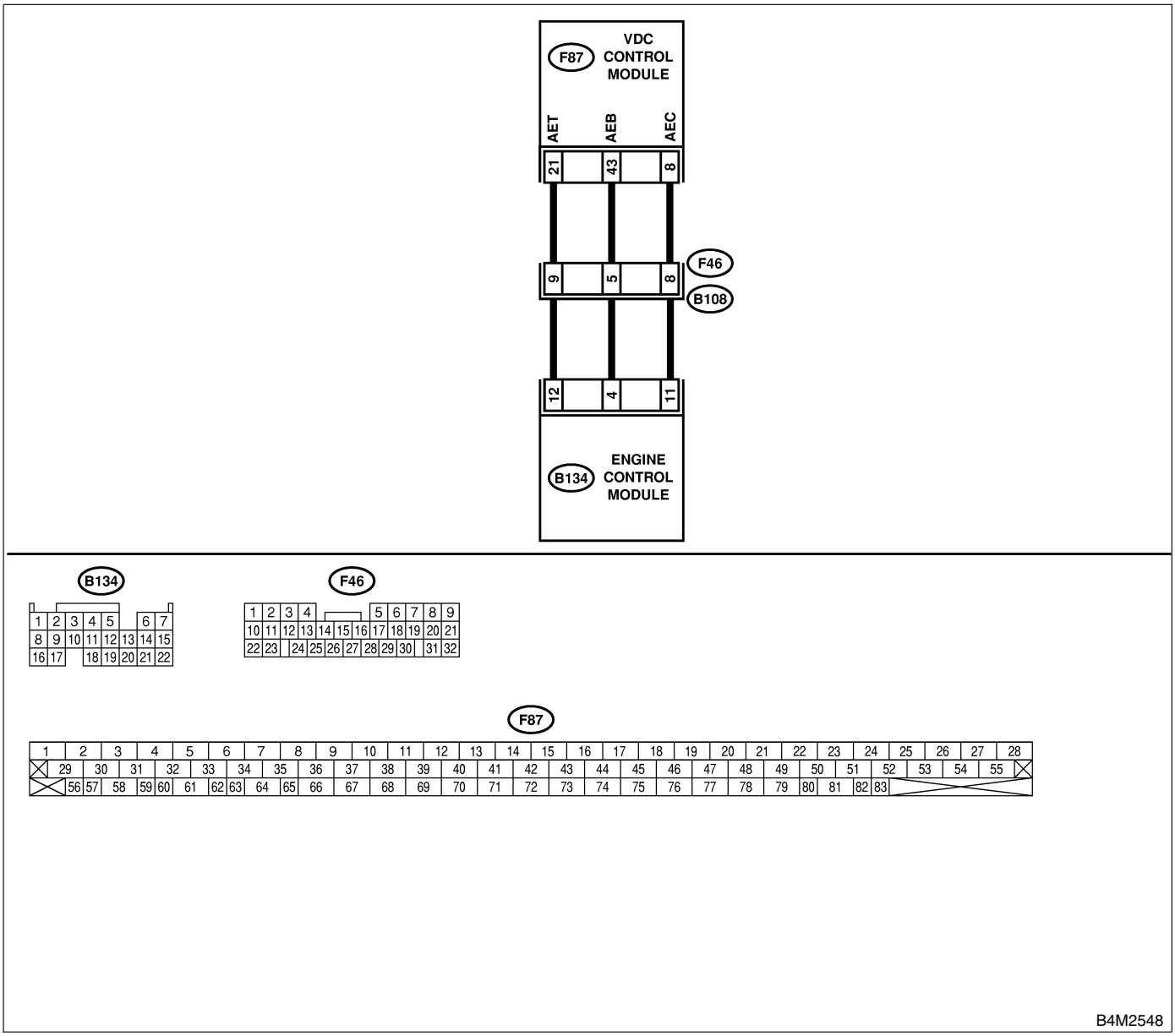
No.	Step	Check	Yes	No
1	**CHECK GENERATOR.** 1) Start engine. 2) Idling after warm-up. 3) Measure voltage between generator B terminal and chassis ground. ***Terminal*** ***Generator B terminal — Chassis ground:***	Is the voltage between 10 and 15 V?	Go to step **2**.	Repair generator.
2	**CHECK BATTERY TERMINAL.** Turn ignition switch to OFF.	Are the positive and negative battery terminals tightly clamped?	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 voltage between 10 and 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 and chassis ground. ***Connector & terminal*** ***(F87) No. 1 — Chassis ground:*** ***(F87) No. 55 — Chassis ground:***	Is the resistance less than 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?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **7**.
7	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

Y: DTC 43 AET COMMUNICATION LINE MALFUNCTION S005504J60

DIAGNOSIS:
- AET communication line is broken or short circuited.

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	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. ***Terminal*** ***(F87) No. 21 — (B135) No. 6:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	Repair harness/ connector between VDCCM and ECM.

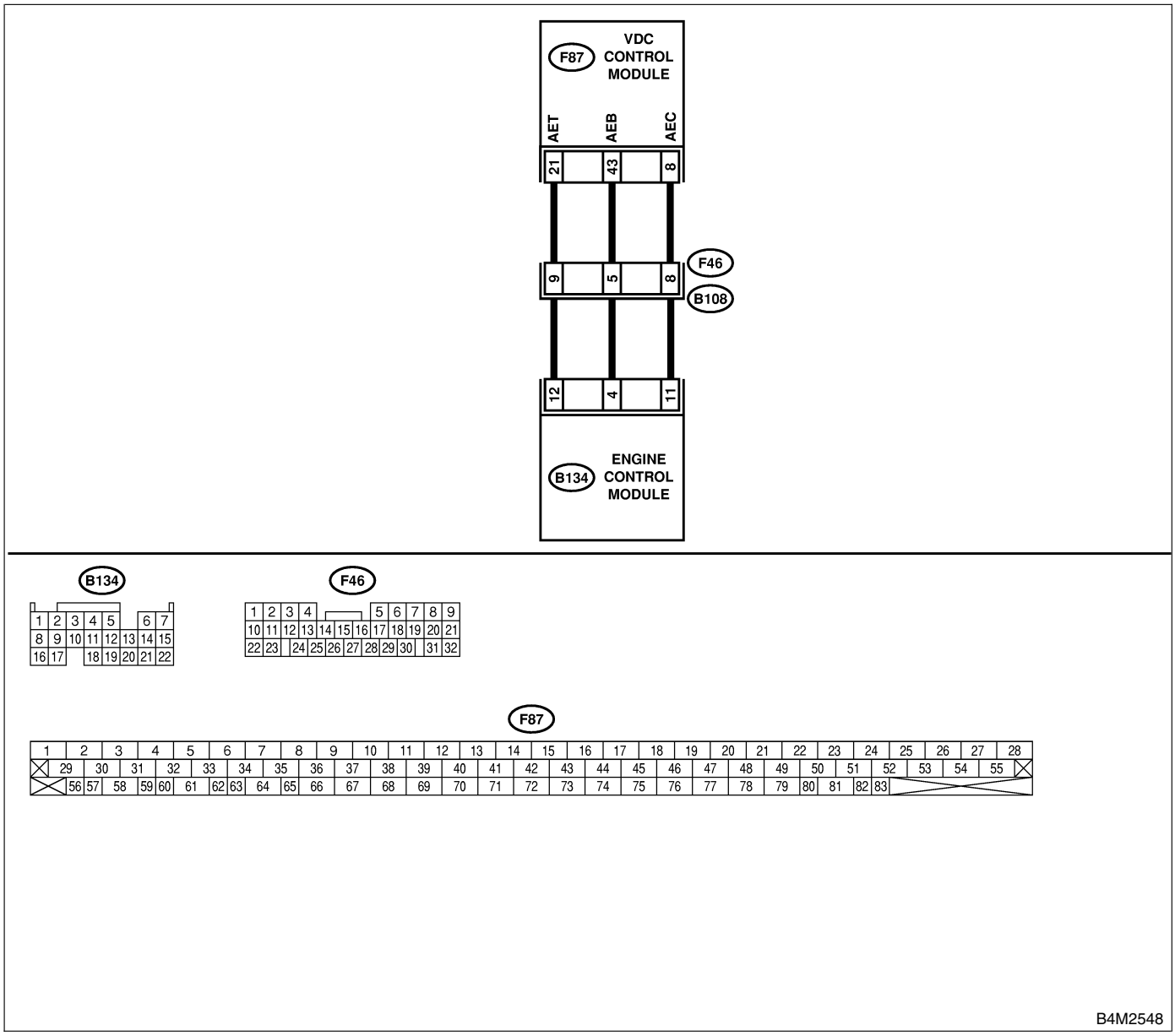
No.	Step	Check	Yes	No
2	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM connector and chassis ground. ***Terminal*** ***(F87) No. 21 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Repair harness/ connector between VDCCM and ECM.
3	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between VDCCM connector and chassis ground. ***Terminal*** ***(F87) No. 21 (+) — Chassis ground (–):***	Is the voltage less than 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. ***Terminal*** ***(F87) No. 21 (+) — Chassis ground (–):***	Is the voltage less than 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 (–):***	Is the voltage between 10 and 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?	Repair connector.	Go to step **7**.
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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **8**.
8	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	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 (–):***	Is the voltage between 10 and 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?	Repair connector.	Go to step **11**.
11	**CHECK ENGINE.**	Is the engine functioning normally?	Replace ECM.	Repair engine.

Z: DTC 43 AEB COMMUNICATION LINE MALFUNCTION S005504J61

DIAGNOSIS:
- AEB communication line is broken or short circuited.

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



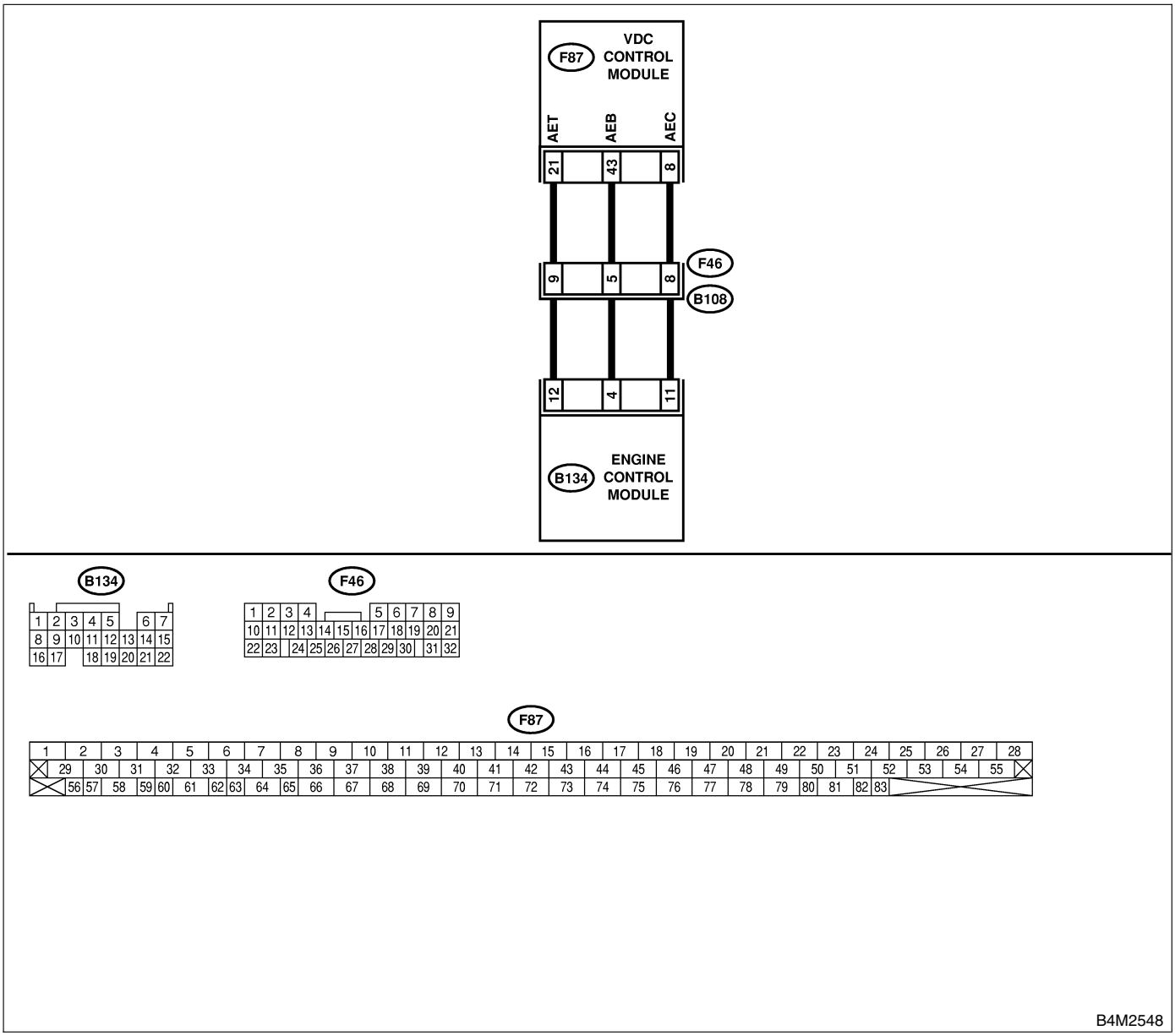
No.	Step	Check	Yes	No
1	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Disconnect connector from ECM. 4) Measure resistance between VDCCM connector and ECM. ***Terminal*** ***(F87) No. 43 — (B135) No. 4:***	Is the resistance less than 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. ***Terminal*** ***(F87) No. 43 — Chassis ground:***	Is the resistance more than 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. ***Terminal*** ***(F87) No. 43 (+) — Chassis ground (–):***	Is the voltage less than 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. ***Terminal*** ***(F87) No. 43 (+) — Chassis ground (–):***	Is the voltage less than 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. 43 (+) — Chassis ground (–):***	Is the voltage between 10 and 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?	Repair connector.	Go to step **7**.
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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **8**.
8	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	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. 5 (+) — Chassis ground (–):***	Is the voltage between 10 and 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?	Repair connector.	Go to step **11**.
11	**CHECK ENGINE.**	Is the engine functioning normally?	Replace ECM.	Repair engine.

AA: DTC 43 AEC COMMUNICATION LINE MALFUNCTION S005504J62

DIAGNOSIS:
- AEC communication line is broken or short circuited.

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



B4M2548

No.	Step	Check	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. ***Terminal*** ***(F87) No. 8 — (B135) No. 11:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	Repair harness/ connector between VDCCM and ECM.

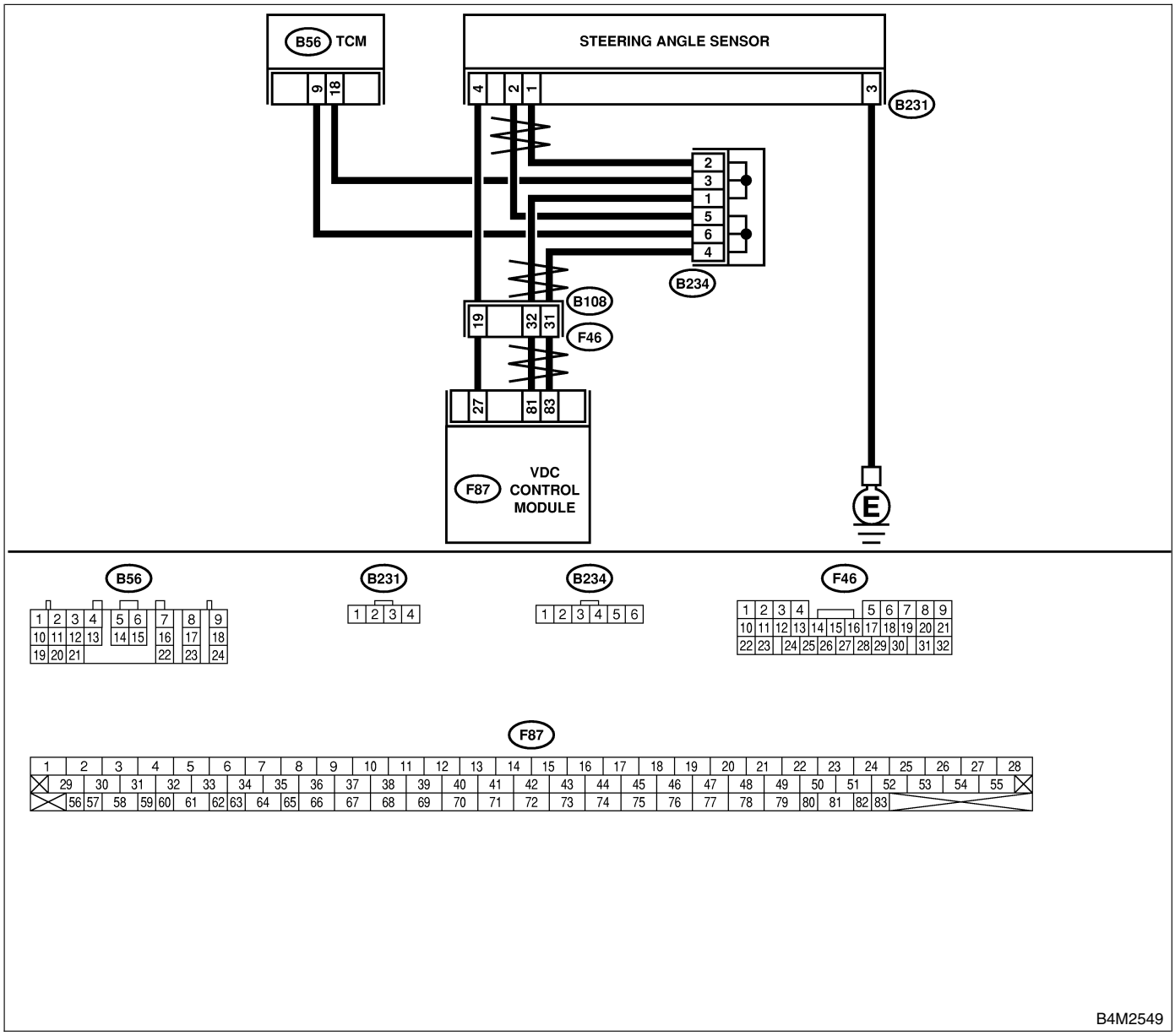
No.	Step	Check	Yes	No
2	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM connector and chassis ground. ***Terminal*** ***(F87) No. 8 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Repair harness/ connector between VDCCM and ECM.
3	**CHECK BATTERY SHORT OF HARNESS.** Measure voltage between VDCCM connector and chassis ground. ***Terminal*** ***(F87) No. 8 (+) — Chassis ground (–):***	Is the voltage less than 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. ***Terminal*** ***(F87) No. 8 (+) — Chassis ground (–):***	Is the voltage less than 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. 8 (+) — Chassis ground (–):***	Is the voltage between 10 and 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?	Repair connector.	Go to step **7**.
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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **8**.
8	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	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. 11 (+) — Chassis ground (–):***	Is the voltage between 10 and 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?	Repair connector.	Go to step **11**.
11	**CHECK ENGINE.**	Is the engine functioning normally?	Replace ECM.	Repair engine.

AB: DTC 44 TCM COMMUNICATION CIRCUIT S005504J63

DIAGNOSIS:
- Communication with AT control faults

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	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 resistance 60±3 Ω?	Go to step **2**.	Repair harness between TCM and VDCCM.
2	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in TCM connectors?	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?	Replace TCM. <Ref. to AT-49, Transmission Control Module (TCM).>	Go to step **4**.
4	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AC: DTC 45 INCORRECT VDC CONTROL MODULE S005504J64

DIAGNOSIS:
- Control module out of specification

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

No.	Step	Check	Yes	No
1	**CHECK VDCCM SPECIFICATIONS.** Check the VDCCM identification mark. ***VDCCM identification mark*** ***P***	Does the VDCCM identification mark agree with the vehicle specifications?	Go to step **2**.	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>
2	**CHECK TCM SPECIFICATIONS.** Check the TCM identification mark. ***TCM identification mark*** ***ZV***	Does the TCM identification mark agree with the vehicle specifications?	Go to step **3**.	Replace TCM. <Ref. to AT-49, Transmission Control Module (TCM).>
3	**CHECK TCM.** 1) Replace TCM. <Ref. to AT-49, 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?	Go to step **4**.	The original TCM has been faulty.
4	**CHECK TCM.**	Is the same diagnostic trouble code as in the current diagnosis still being output?	Go to step **5**.	Proceed with the diagnosis corresponding to the diagnostic trouble code.
5	**CHECK VDCCM.** 1) Install original TCM. 2) Replace VDCCM. <Ref. to VDC-9, 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?	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?	Replace TCM. <Ref. to AT-49, Transmission Control Module (TCM).>	Proceed with the diagnosis corresponding to the diagnostic trouble code.

AD: DTC 45 TCM MALFUNCTION SPECIFICATIONS S005504J65

DIAGNOSIS:
- Control module out of specification

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

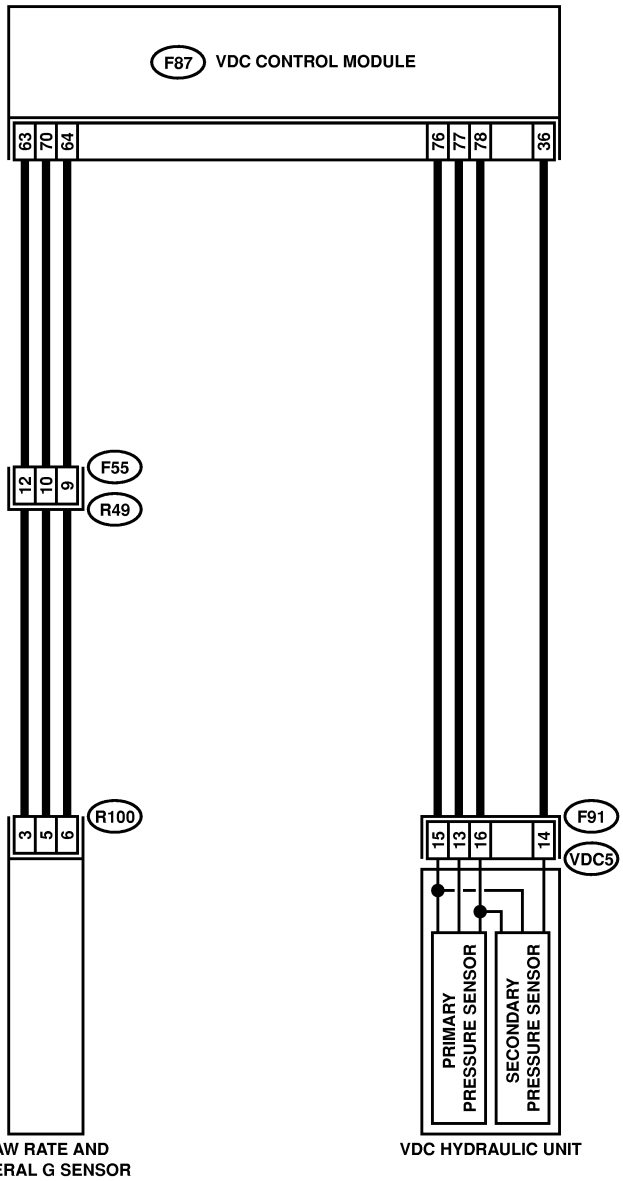
No.	Step	Check	Yes	No
1	**CHECK AT SYSTEM.** 1) Start the engine. 2) Check AT system diagnostic trouble code.	Is AT system diagnostic trouble code stored in memory?	Repair AT system.	Replace VDCCM.

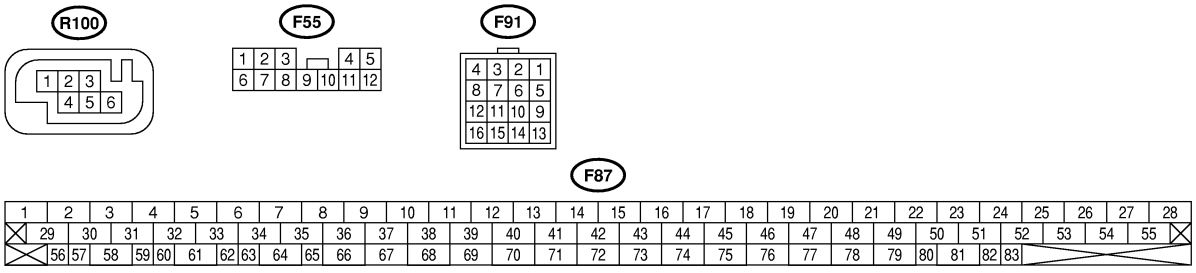
AE: DTC 46 ABNORMAL VOLTAGE OF 5 V POWER SUPPLY S005504J29

DIAGNOSIS:
- 5 volt power supply is abnormal.

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:





B4M2555

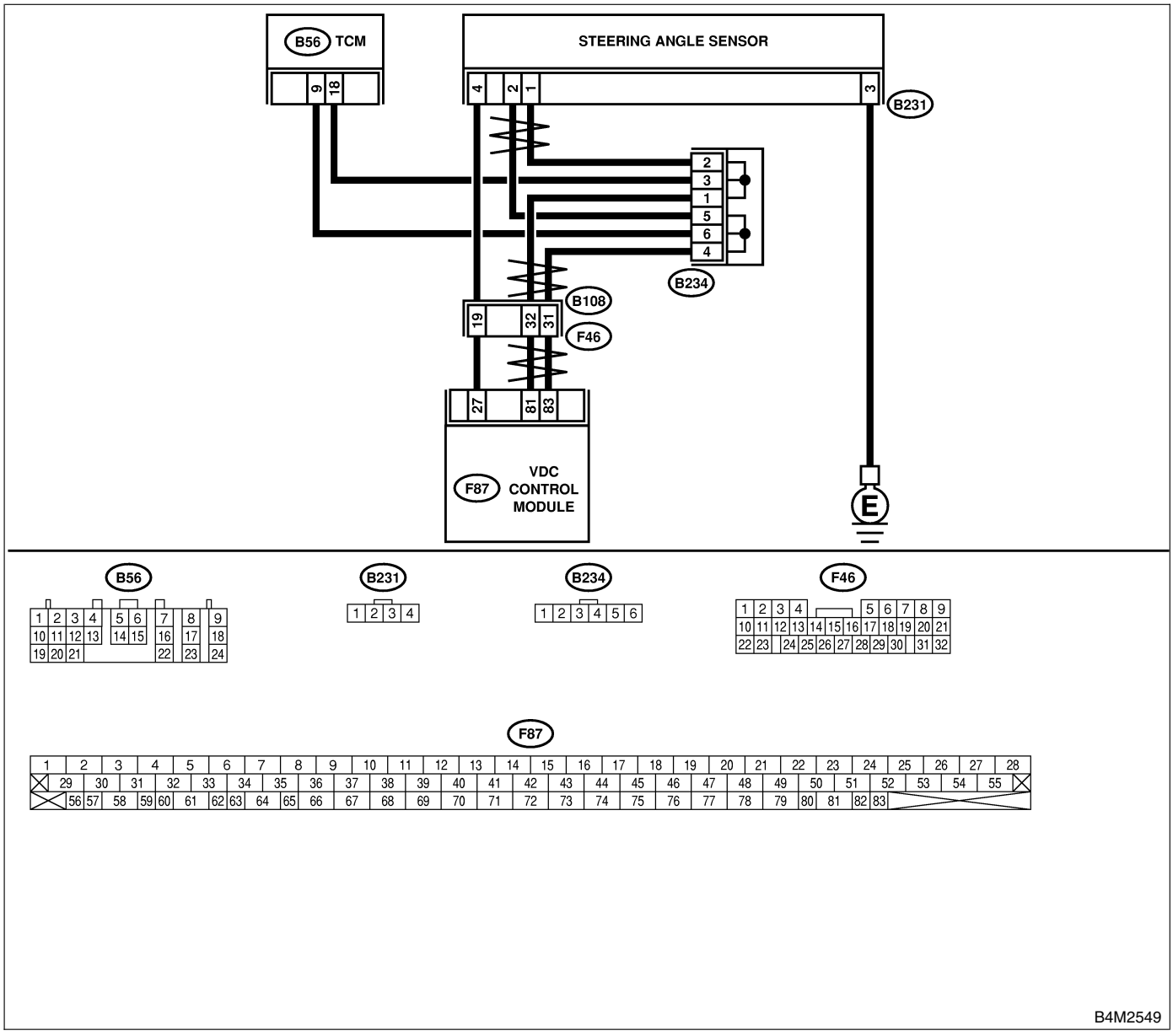
No.	Step	Check	Yes	No
1	**CHECK GROUND SHORT OF SENSOR AND HARNESS.** 1) Turn ignition switch OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 63 — Chassis ground (Lateral G sensor):*** ***(F87) No. 78 — Chassis ground (Pressure sensor):***	Is the resistance more than 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):***	Is the resistance more than 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 voltage less than 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 voltage less than 0.5 V?	Replace 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 voltage less than 0.5 V?	Go to step **6**.	Repair or replace harness connector between VDCCM and faulty sensor.
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 voltage less than 0.5 V?	Replace faulty sensor.	Repair or replace harness connector between VDCCM and faulty sensor.

AF: DTC 47 IMPROPER CAN COMMUNICATION S005504J66

DIAGNOSIS:
- CAN communication line is broken or short circuited.

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	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 resistance less than 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 resistance less than 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:***	Is the resistance more than 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 voltage less than 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 voltage less than 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 resistance 120±6 Ω?	Go to step **8**.	Go to step **7**.
7	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in steering angle sensor?	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 resistance 120±6 Ω?	Go to step **10**.	Go to step **9**.

No.	Step	Check	Yes	No
9	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in steering angle sensor?	Replace 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:***	Is the resistance more than 1 MΩ?	Go to step **12**.	Go to step **11**.
11	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in steering angle sensor?	Replace 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?	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?	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 DTC No. 86?	Replace steering angle sensor.	Replace VDCCM.

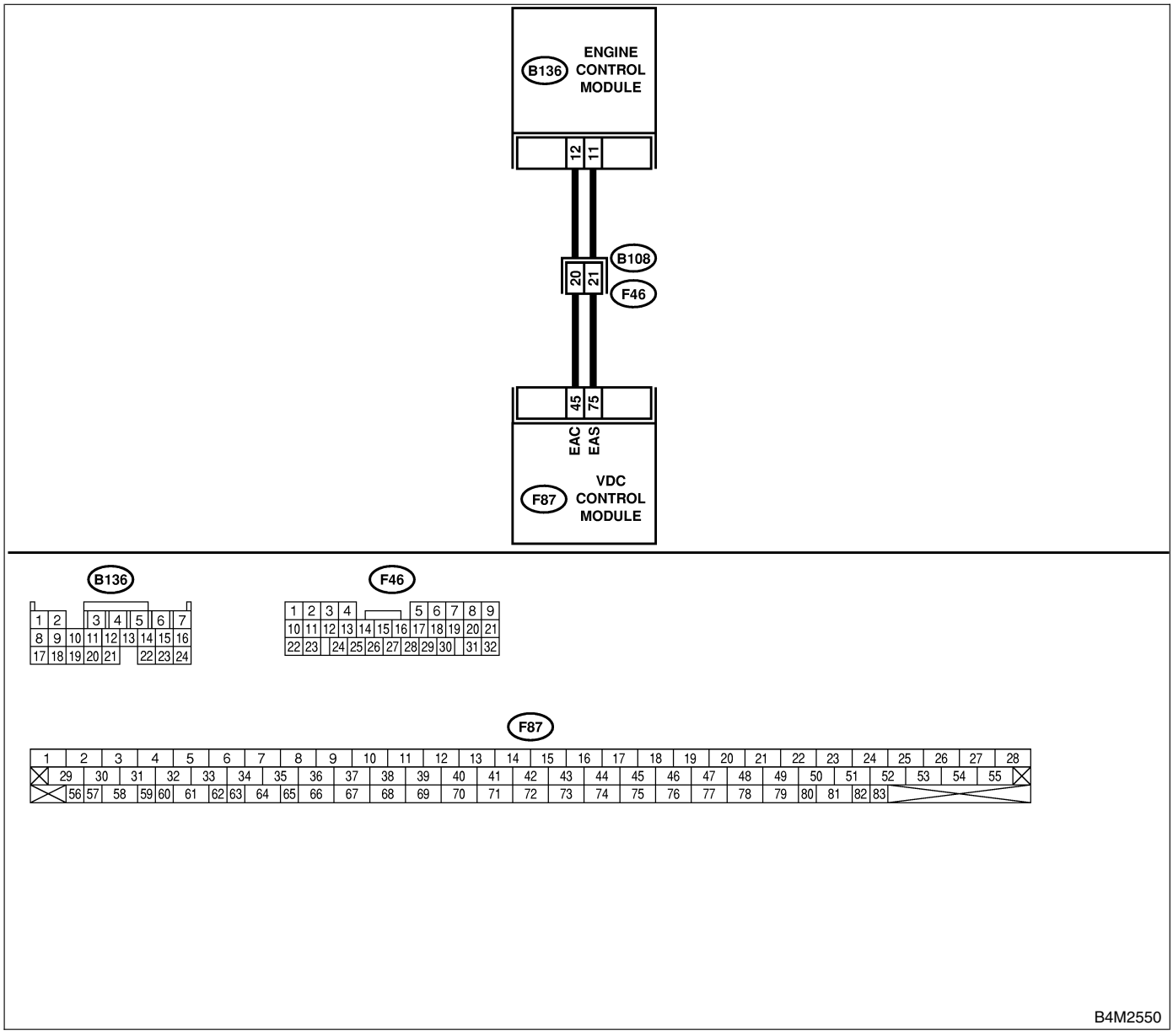
MEMO:

AG: DTC 48 IMPROPER EAC COMMUNICATION S005504J67

DIAGNOSIS:
- EAC communication line is broken or short circuited.

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



B4M2550

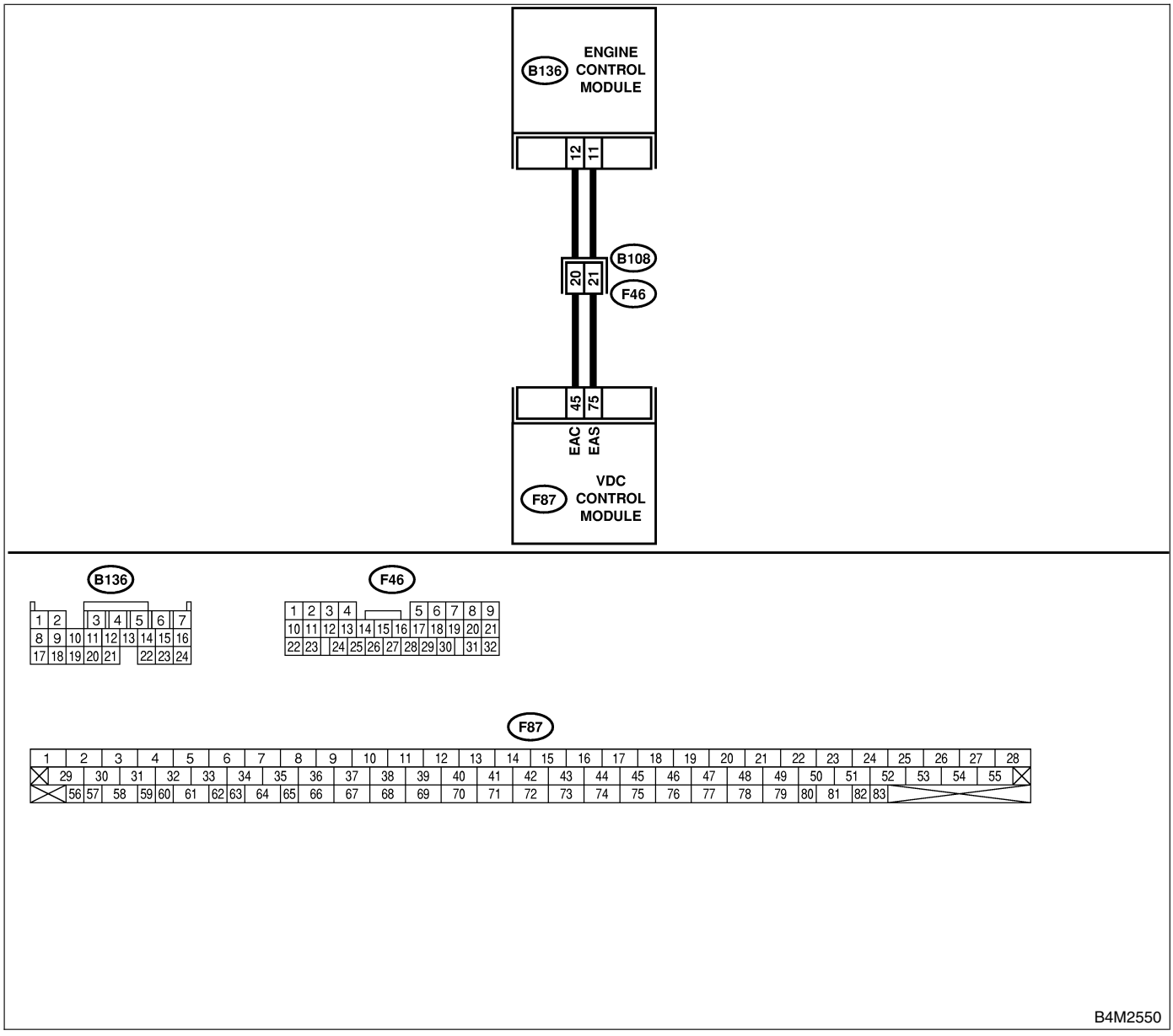
No.	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM and ECM. 3) Measure resistance between VDCCM and ECM. ***Connector & terminal*** ***(F87) No. 45 — (B137) No. 12:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	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. 45 — Chassis ground:***	Is the resistance more than 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. 45 — Chassis ground:***	Is the voltage less than 0.5 V?	Go to step **4**.	Repair or replace battery short circuit between VDCCM and ECM.
4	**CHECK INPUT VOLTAGE FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect connector to VDCCM. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 12 (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **6**.	Go to step **5**.
5	**CHECK POOR CONTACT IN ECM CONNECTORS.**	Is there poor contact in ECM connector?	Replace ECM.	Repair or replace ECM connector.
6	**ERASE MEMORY.** 1) Connect all connectors. 2) Erase the memory.	Can the memory be erased?	Go to step **7**.	Replace 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?	Replace ECM.	A temporary poor contact.

AH: DTC 48 EAS COMMUNICATION LINE GROUNDING SHORTED S005504J68

DIAGNOSIS:
- EAS communication line is short circuited.

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



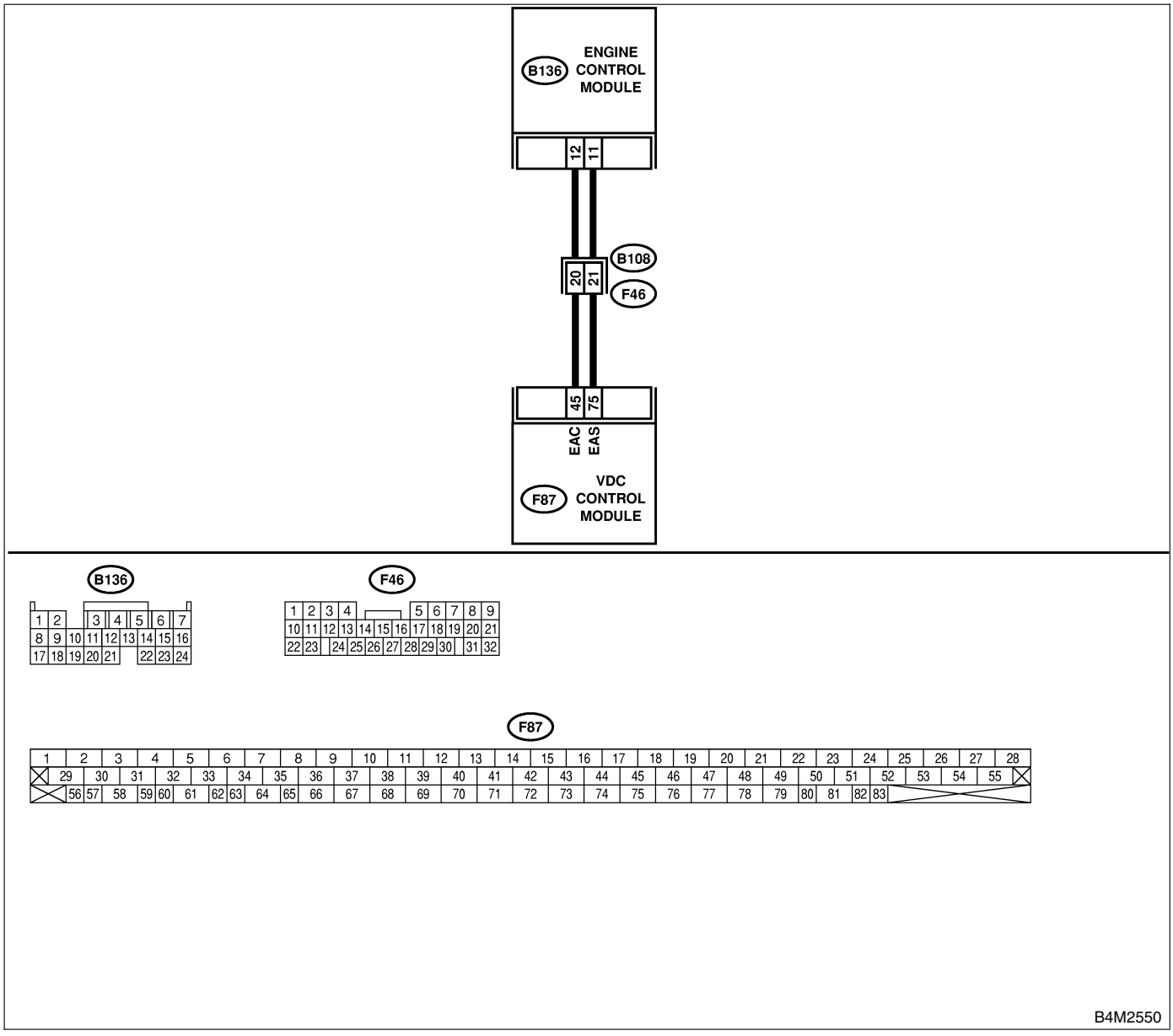
No.	Step	Check	Yes	No
1	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM and ECM. 3) Measure resistance between VDCCM and ECM. ***Connector & terminal*** ***(F87) No. 75 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **2**.	Repair or replace ground short circuit between VDCCM and ECM.
2	**CHECK INPUT VOLTAGE FROM ECM.** 1) Connect connector to VDCCM. 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 11 (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **4**.	Go to step **3**.
3	**CHECK POOR CONTACT IN ECM CONNECTORS.**	Is there poor contact in ECM connector?	Replace ECM.	Repair or replace ECM connector.
4	**ERASE MEMORY.** 1) Connect all connectors. 2) Erase the memory.	Can the memory be erased?	Go to step **5**.	Replace VDCCM.
5	**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?	Replace ECM.	A temporary poor contact.

AI: DTC 48 ERRONEOUS COMMUNICATION FROM EGI TO VDC S005504J69

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:



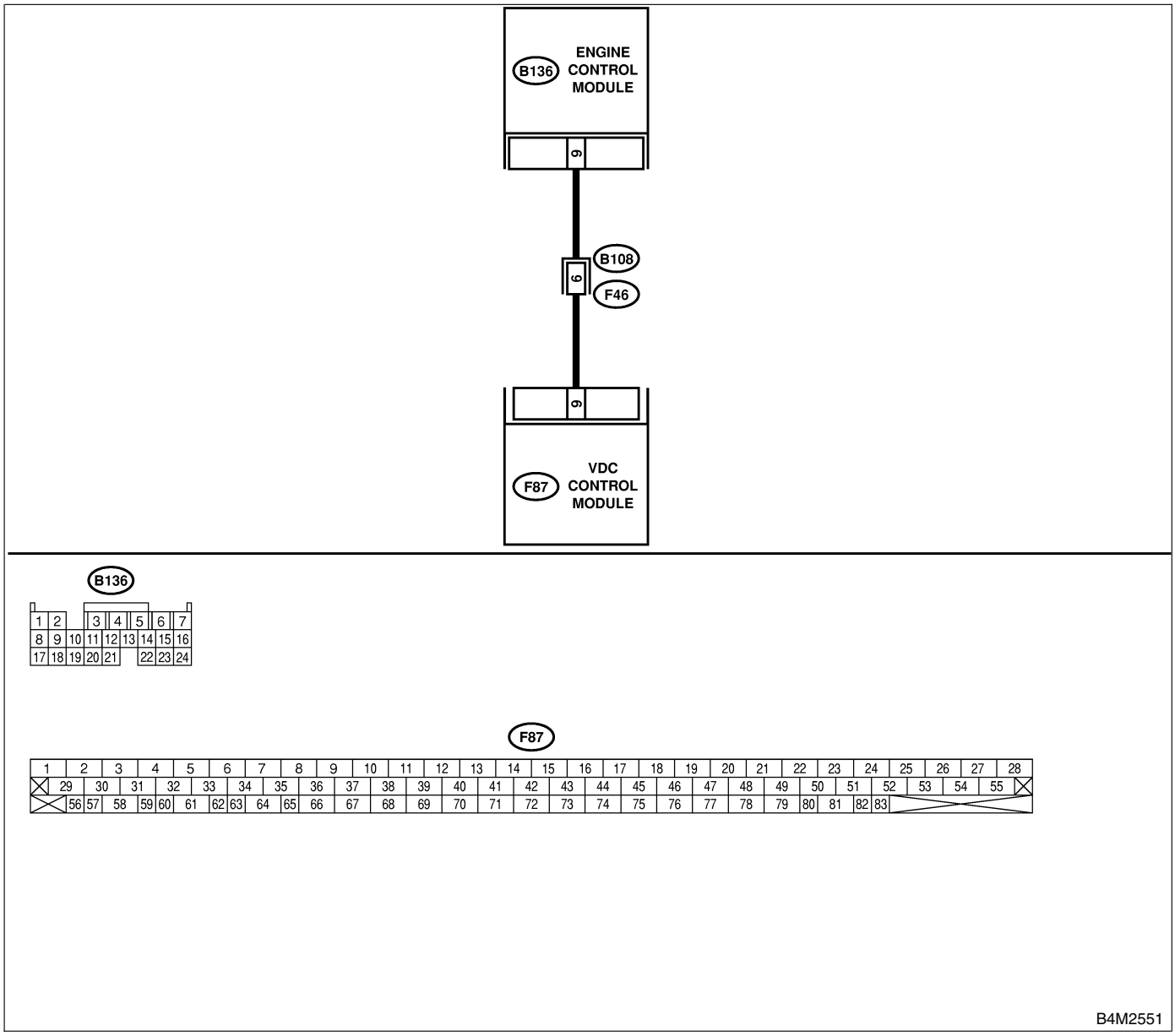
No.	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM and ECM. 3) Measure resistance between VDCCM and ECM. ***Connector & terminal*** ***(F87) No. 75 — (B137) No. 11:*** ***(F87) No. 45 — (B137) No. 12:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	Repair or replace open circuit between VDCCM and ECM.
2	**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 voltage less than 0.5 V?	Go to step **3**.	Repair or replace battery short circuit between VDCCM and ECM.
3	**CHECK INPUT VOLTAGE FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect connector to VDCCM. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 11 (+) — Chassis ground (–):*** ***(B136) No. 12 (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **5**.	Go to step **4**.
4	**CHECK POOR CONTACT IN ECM CONNECTORS.**	Is there poor contact in ECM connector?	Replace ECM.	Repair or replace ECM connector.
5	**ERASE MEMORY.** 1) Connect all connectors. 2) Erase the memory.	Can the memory be erased?	Go to step **6**.	Replace VDCCM.
6	**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?	Replace ECM.	A temporary poor contact.

AJ: DTC 49 ABNORMAL ENGINE SPEED SIGNAL S005504J32

DIAGNOSIS:
- Engine speed signal line is broken or short circuited.

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



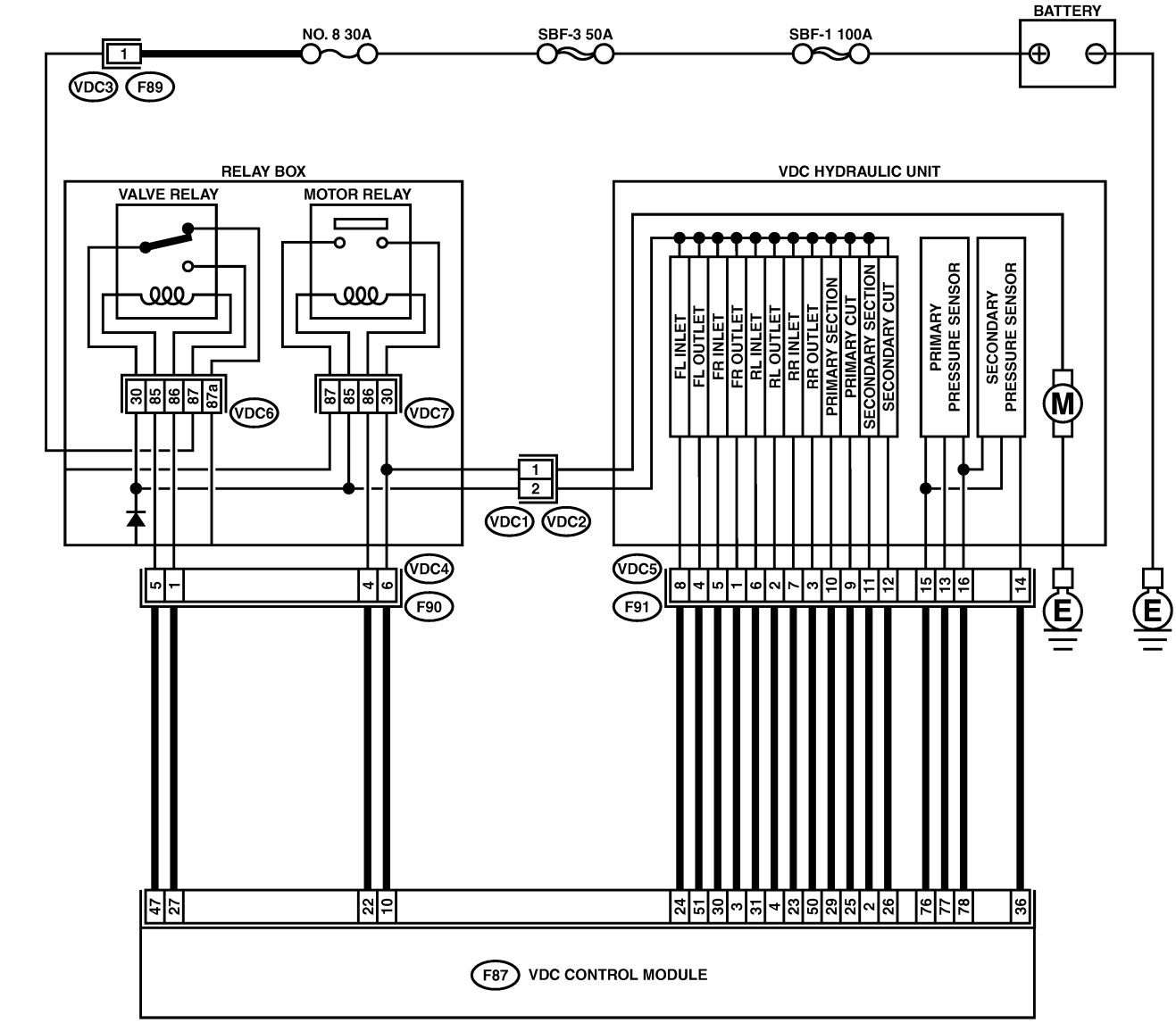
No.	Step	Check	Yes	No
1	**CHECK TACHOMETER OPERATION IN COMBINATION METER.**	Does tachometer operate normally?	Go to step **2**.	Repair tachometer.
2	**CHECK HARNESS BETWEEN VDCCM AND ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM and ECM. 3) Measure resistance between VDCCM connector and ECM. ***Connector & terminal*** ***(F87) No. 9 — (B136) No. 9:***	Is the resistance less than 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?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **5**.
5	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

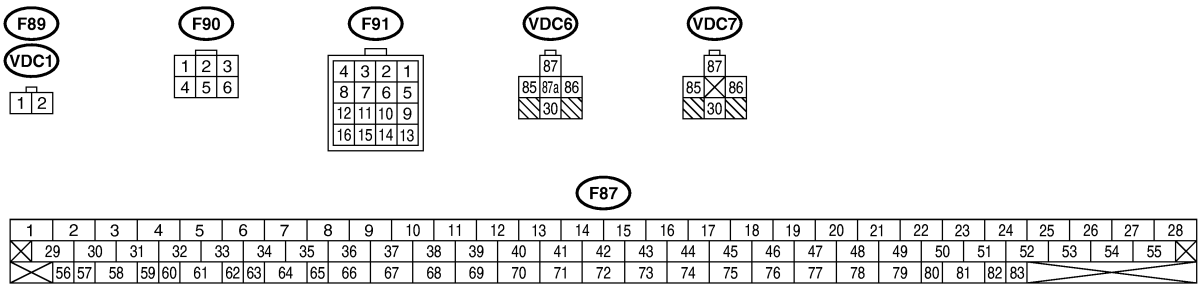
AK: DTC 51 VALVE RELAY S005504J70

DIAGNOSIS:
- Faulty valve relay

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:





B4M2328

No.	Step	Check	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 resistance between 93 and 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 resistance less than 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:***	Is the resistance more than 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:***	Is the resistance more than 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 resistance less than 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:***	Is the resistance more than 1 MΩ?	Go to step **7**.	Replace valve relay.
7	**CHECK POWER SUPPLY FOR VALVE RELAY.** 1) Disconnect connector (F89) from relay box. 2) Turn ignition switch to ON. 3) Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(F89) No. 1 (+) — Chassis ground (–):***	Is the voltage between 10 and 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) Turn ignition switch to ON. 4) Measure voltage of relay box. ***Connector & terminal*** ***Valve relay installing point No. 87 — Chassis ground:***	Is the voltage between 10 and 15 V?	Go to step **9**.	Replace relay box and check fuse No. 8.

No.	Step	Check	Yes	No
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 — Valve relay installing point No. 85:*** ***(VDC4) No. 1 — Valve relay installing point No. 86:***	Is the resistance less than 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:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Replace relay box and check fuse SBF6.
11	**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 resistance less than 0.5 Ω?	Go to step **12**.	Repair harness between VDCCM and relay box.
12	**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:***	Is the resistance more than 1 MΩ?	Go to step **13**.	Repair harness between VDCCM and relay box.
13	**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 — Valve relay installing point No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **14**.	Replace relay box.
14	**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:***	Is the resistance more than 1 MΩ?	Go to step **15**.	Replace relay box and check fuse No. 8.
15	**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 resistance between 8.04 and 9.04 Ω?	Go to step **16**.	Replace VDCH/U.

No.	Step	Check	Yes	No
16	**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 resistance between 4.04 and 4.54 Ω?	Go to step **17**.	Replace VDCH/U.
17	**CHECK GROUND SHORT OF SOLENOID VALVE.** Measure resistance between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **18**.	Replace VDCH/U and check all fuses.
18	**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:***	Is the resistance more than 1 MΩ?	Go to step **19**.	Repair harness between VDCH/U and VDCCM.
19	**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 & 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 resistance between 8.0 and 10.0 Ω?	Go to step **20**.	Repair harness/ connector between VDCH/U and VDCCM.
20	**CHECK HARNESS/CONNECTOR BETWEEN VDCCM AND VDCH/U.** Measure resistance between VDCCM connector terminals. ***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 resistance between 4.0 and 6.0 Ω?	Go to step **21**.	Repair harness/ connector between VDCH/U and VDCCM.
21	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between VDCCM and VDCH/U?	Repair connector.	Go to step **22**.

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
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?	Replace VDCCM.	Go to step **23**.
23	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

MEMO:

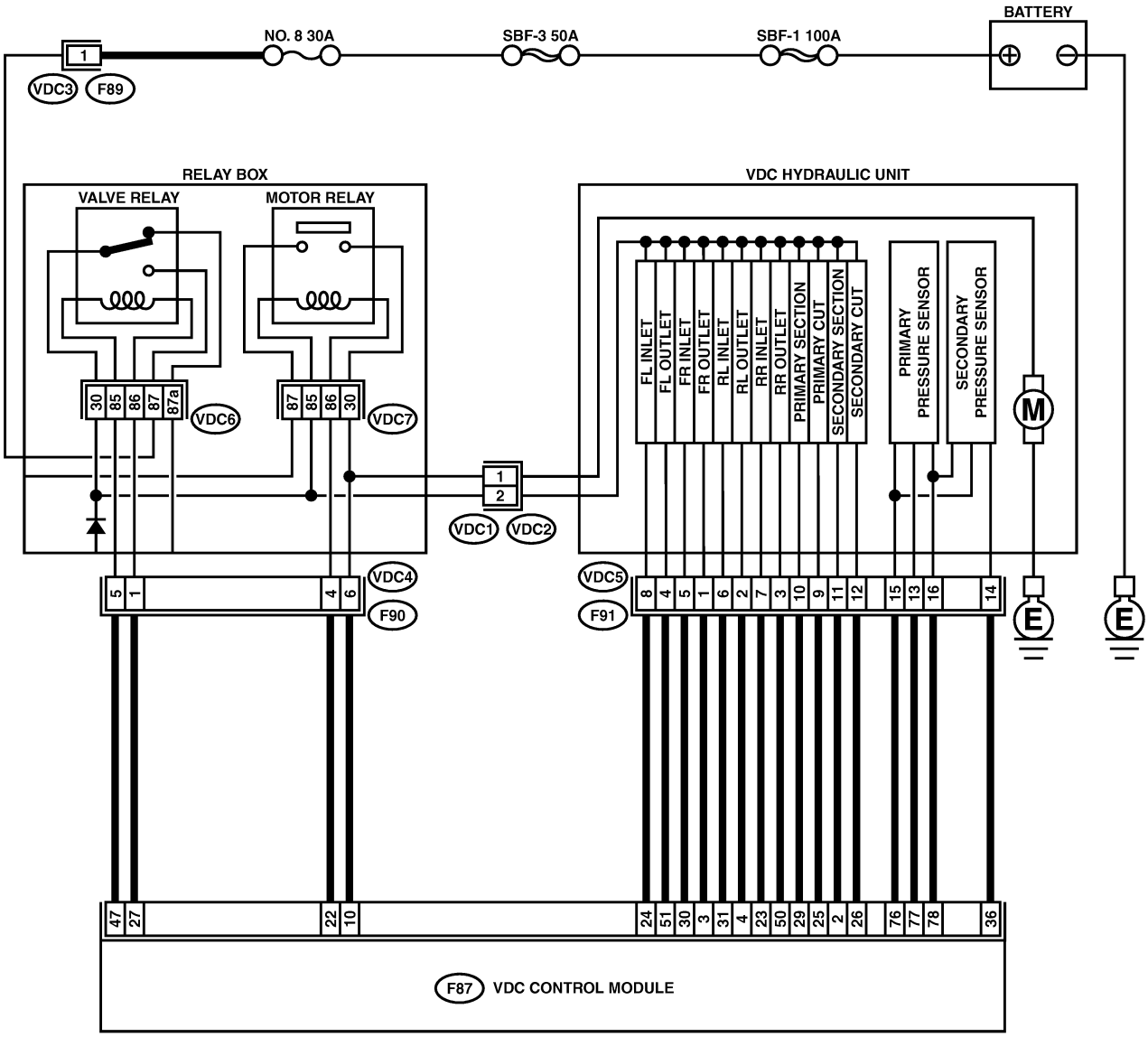
AL: DTC 51 VALVE RELAY ON FAILURE S005504I77

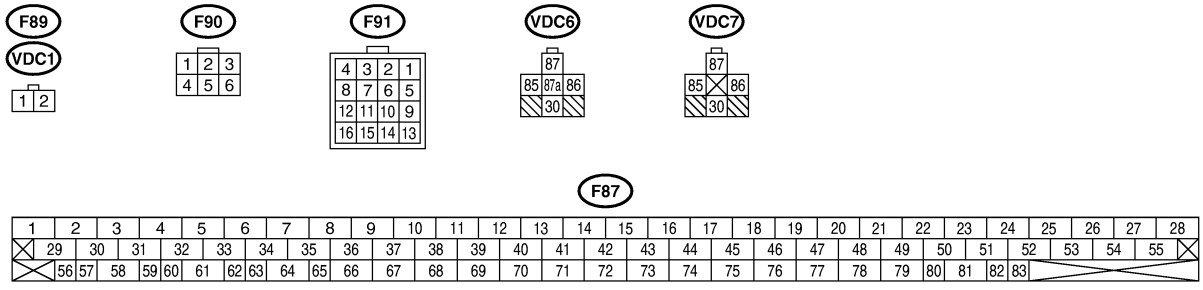
DIAGNOSIS:
- Faulty valve relay

NOTE:
When DTC 74 inspection is carried out, DTC 51 is memorized.

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:





B4M2328

DIAGNOSTICS CHART WITH SELECT MONITOR

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

No.	Step	Check	Yes	No
8	**CHECK BATTERY SHORT IN CONTROL SYSTEM HARNESS OF VALVE RELAY.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Disconnect connector from VDCH/U. 4) Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 27 (+) — Chassis ground (–):*** ***(F87) No. 47 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **9**.	Repair harness between VDCCM and relay box and check all fuses.
9	**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 voltage less than 1 V?	Go to step **10**.	Repair harness between VDCCM and relay box and check all fuses.
10	**CHECK BATTERY SHORT IN CONTACT POINT CIRCUIT OF RELAY BOX.** 1) Disconnect connector VDC1 from relay box. 2) Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC1) No. 2 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **11**.	Replace relay box.
11	**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 voltage less than 1 V?	Go to step **12**.	Replace relay box.
12	**CHECK BATTERY SHORT OF SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Measure voltage between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(VDC2) No. 2 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **13**.	Replace VDCH/U and check all fuses.
13	**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 voltage less than 1 V?	Go to step **14**.	Replace VDCH/U and check all fuses.

No.	Step	Check	Yes	No
14	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 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 voltage less than 1 V?	Go to step **15**.	Repair harness between VDCH/U and VDCCM and check all fuses.
15	**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 voltage less than 1 V?	Go to step **16**.	Repair harness between VDCH/U and VDCCM and check all fuses.
16	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between VDCCM and VDCH/U?	Repair connector.	Go to step **17**.
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?	Replace VDCCM.	Go to step **18**.
18	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

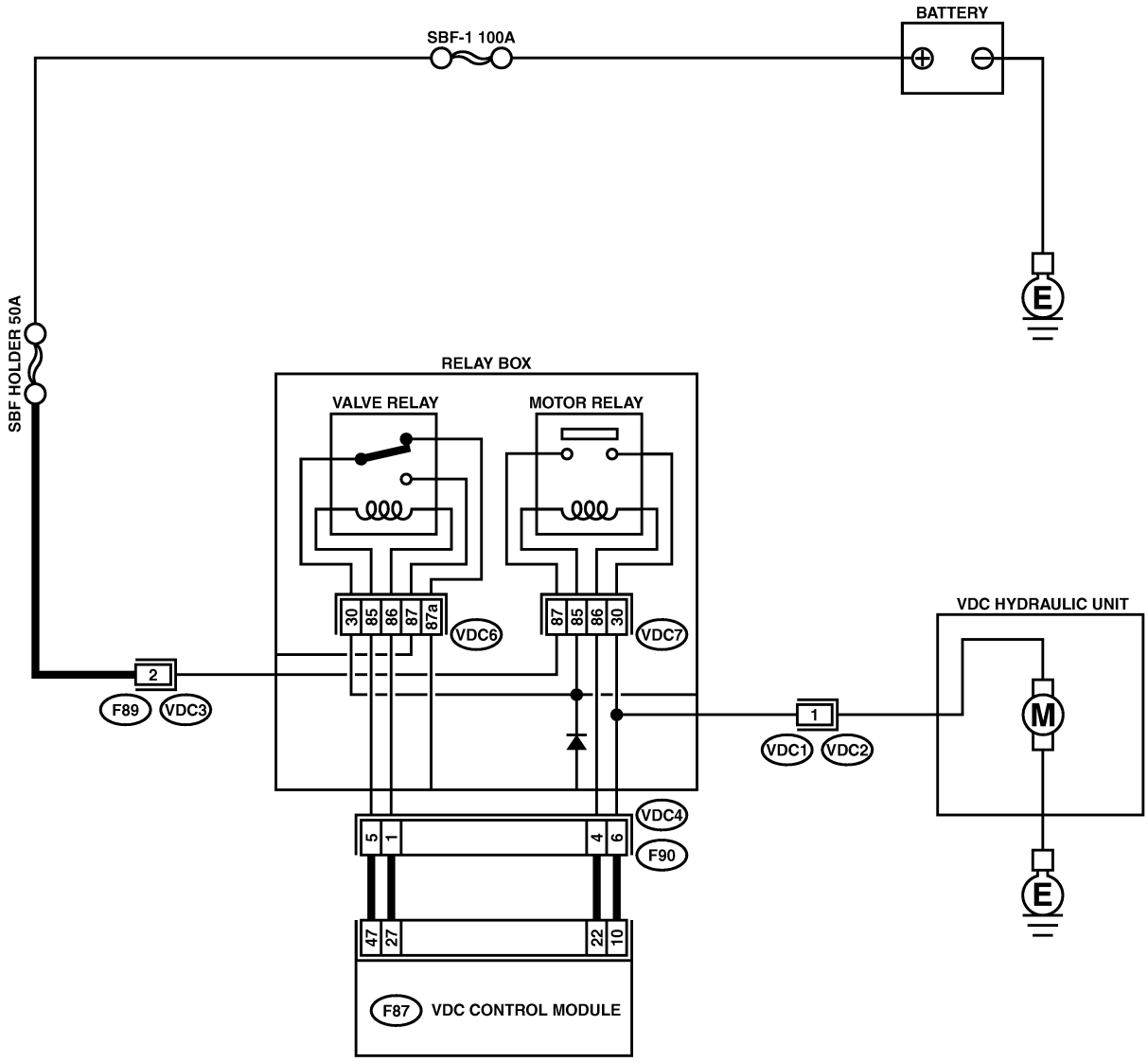
MEMO:

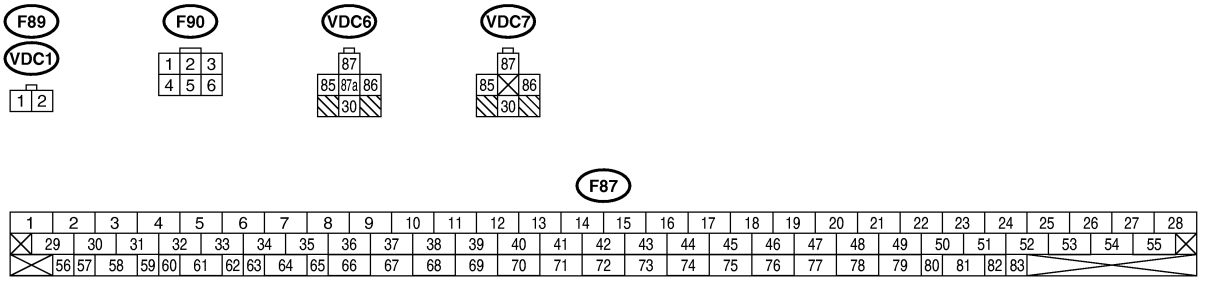
AM: DTC 52 MOTOR AND MOTOR RELAY OFF FAILURE S005504J71

DIAGNOSIS:
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:





B4M2329

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**CHECK CONTACT POINT 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. 30 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **2**.	Replace motor relay.
2	**CHECK SHORT OF MOTOR RELAY.** Measure resistance between motor relay terminals. ***Terminals*** ***No. 85 — No. 30:*** ***No. 85 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace motor relay.
3	**CHECK GROUND SHORT IN CIRCUIT OF RELAY BOX.** 1) Disconnect connector (F90) from relay box. 2) Measure resistance between relay box connector unit and chassis ground. ***Connector & terminal*** ***(VDC4) No. 4 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **4**.	Replace relay box.
4	**CHECK BATTERY SHORT IN CIRCUIT OF RELAY BOX.** Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **5**.	Replace relay box.
5	**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. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **6**.	Replace relay box.
6	**CHECK GROUND SHORT IN HARNESS BETWEEN RELAY BOX AND VDCCM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 22 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **7**.	Repair harness between VDCCM and relay box. Check fuse SBF holder.
7	**CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND VDCCM.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 10 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **8**.	Repair harness between VDCCM and relay box.
8	**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. 10 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **9**.	Repair harness between VDCCM and relay box.

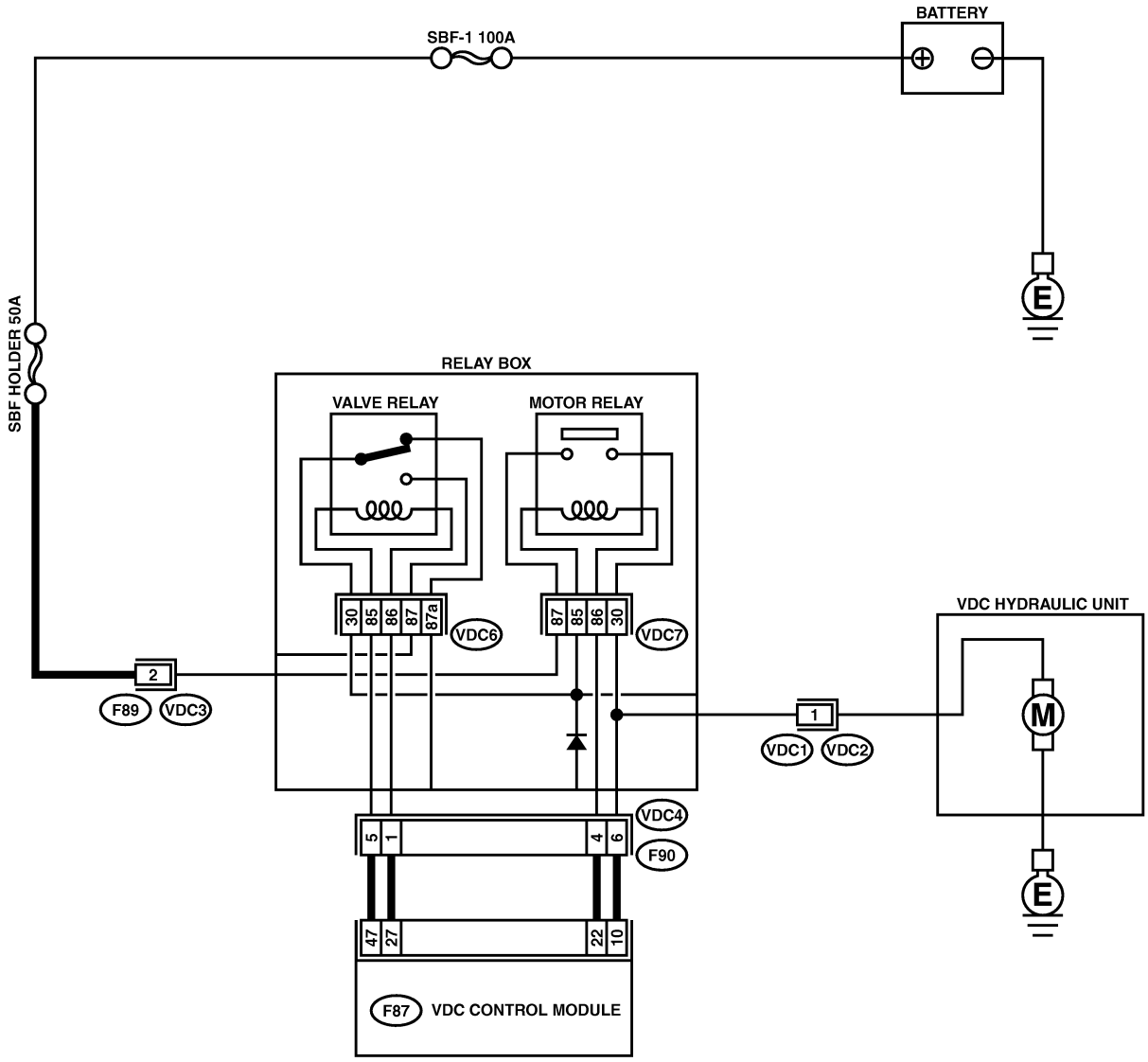
No.	Step	Check	Yes	No
9	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between VDCH/U, relay box and VDCCM?	Repair connector.	Go to step **10**.
10	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code.	Is the same diagnostic trouble code as in the current diagnosis still being output?	Replace VDCCM.	Go to step **11**.
11	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

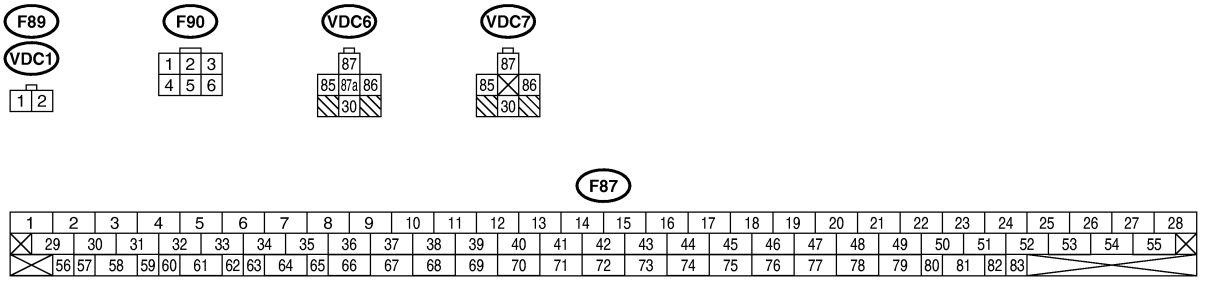
AN: DTC 52 MOTOR AND MOTOR RELAY ON FAILURE S005504J72

DIAGNOSIS:
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:





B4M2329

No.	Step	Check	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 resistance between 70 and 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 resistance less than 0.5 Ω?	Go to step **3**.	Replace motor relay.
3	**CHECK SHORT OF MOTOR RELAY.** Measure resistance between motor relay terminals. ***Terminals*** ***No. 85 — No. 30:*** ***No. 85 — No. 87:***	Is the resistance more than 1 MΩ?	Go to step **4**.	Replace motor relay.
4	**CHECK INPUT VOLTAGE OF RELAY BOX.** 1) Disconnect connector (F89) from relay box. 2) Disconnect connector from VDCCM. 3) Turn ignition switch to ON. 4) Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(F89) No. 2 (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **5**.	Repair harness/ connector between battery and relay box, and check fuse SBF holder.
5	**CHECK INPUT VOLTAGE OF MOTOR RELAY.** 1) Turn ignition switch to OFF. 2) Connect connector (F89) to relay box. 3) Turn ignition switch to ON. 4) Measure voltage between relay box and chassis ground. ***Connector & terminal*** ***Relay installing point No. 87 (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **6**.	Replace relay box.
6	**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 — Motor relay installing portion No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **7**.	Replace relay box.
7	**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 — Motor relay installing point No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **8**.	Replace relay box.

No.	Step	Check	Yes	No
8	**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 — Motor relay installing point No. 85:***	Is the resistance less than 0.5 Ω?	Go to step **9**.	Replace relay box.
9	**CHECK OPEN CIRCUIT IN CONTROL CIRCUIT OF RELAY BOX.** 1) Remove valve relay from relay box. 2) Measure resistance between motor relay installing point and valve relay installing point. ***Connector & terminal*** ***Motor relay installing point No. 86 — Valve relay installing point No. 30:***	Is the resistance less than 0.5 Ω?	Go to step **10**.	Replace relay box.
10	**CHECK GROUND SHORT IN CIRCUIT OF RELAY BOX.** Measure resistance between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 4 — Chassis ground:*** ***(VDC4) No. 6 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Replace relay box.
11	**CHECK BATTERY SHORT IN CIRCUIT OF RELAY BOX.** Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(VDC4) No. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **12**.	Replace relay box.
12	**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. 6 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **13**.	Replace relay box.
13	**CHECK OPEN CIRCUIT IN RELAY CONTROL SYSTEM HARNESS.** 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 resistance less than 0.5 Ω?	Go to step **14**.	Repair harness connector between VDCCM and relay box.
14	**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:***	Is the resistance more than 1 MΩ?	Go to step **15**.	Repair harness between VDCCM and relay box. Check fuse SBF holder.
15	**CHECK BATTERY SHORT IN HARNESS BETWEEN RELAY BOX AND VDCCM.** Measure voltage between VDCCM connector and chassis ground. ***Connector & terminal*** ***(F87) No. 10 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **16**.	Repair harness between VDCCM and relay box. Check fuse SBF holder.

No.	Step	Check	Yes	No
16	**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. 10 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **17**.	Repair harness between VDCCM and relay box. Check fuse SBF holder.
17	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between VDCH/U, relay box and VDCCM?	Repair connector.	Go to step **18**.
18	**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?	Replace VDCCM.	Go to step **19**.
19	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

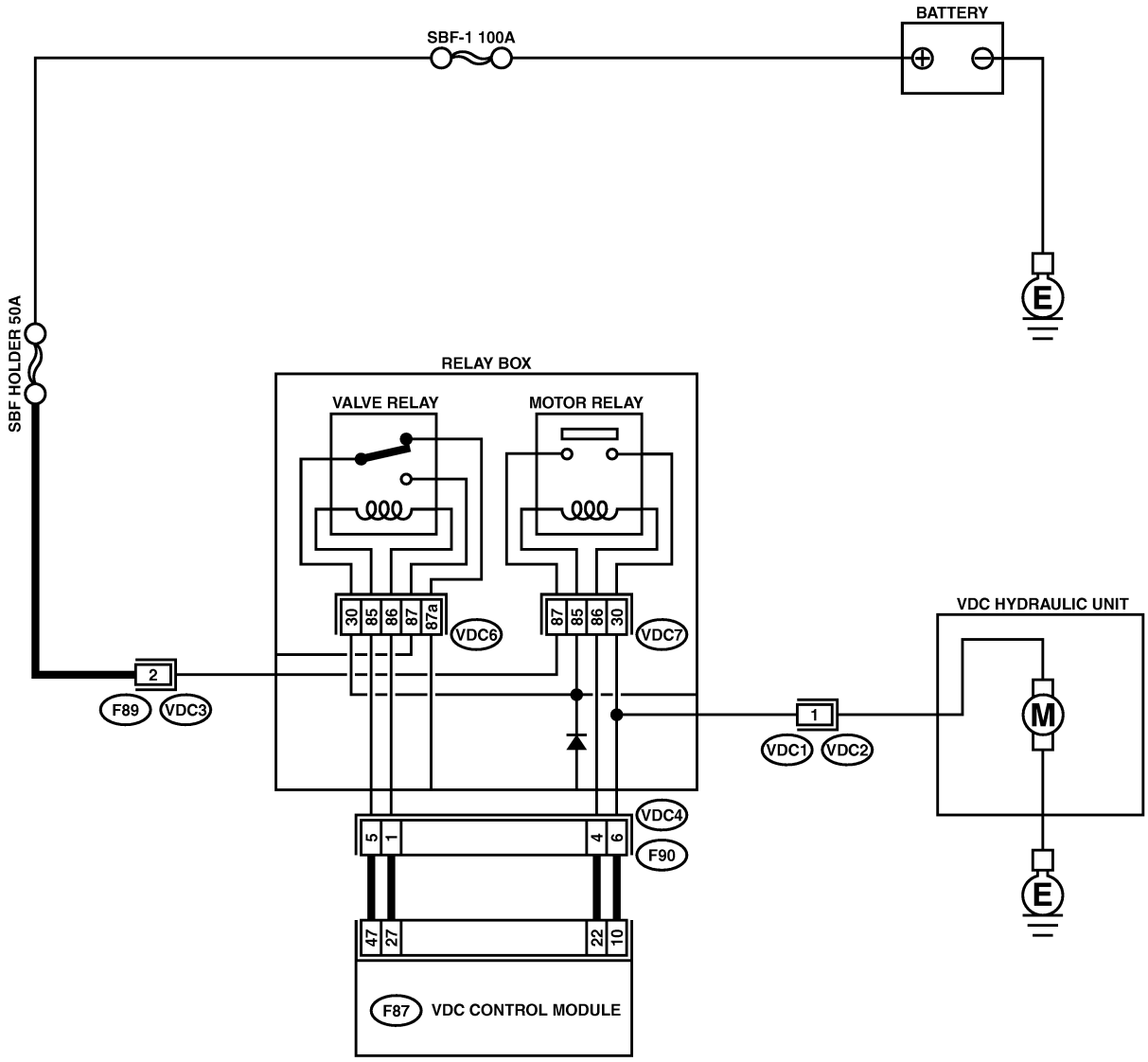
MEMO:

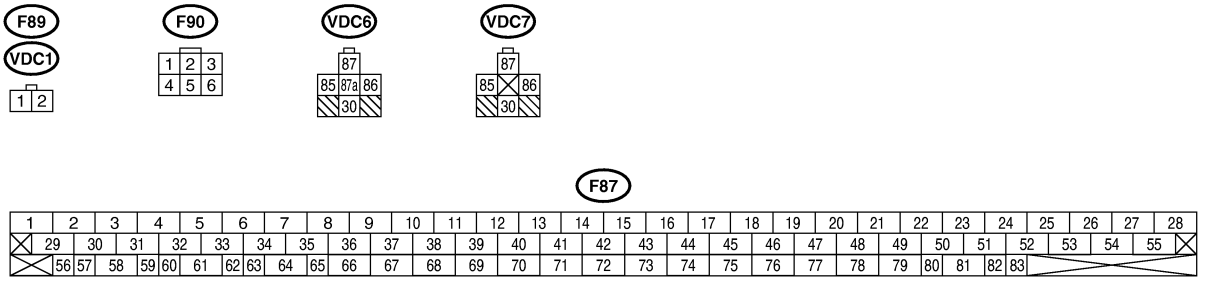
A0: DTC 52 MOTOR MALFUNCTION S005504I80

DIAGNOSIS:
- Faulty motor
- Faulty motor relay
- Faulty harness connector

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:





B4M2329

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**CHECK CONTACT POINT OF MOTOR RELAY.** 1) Turn ignition switch to OFF. 2) Remove motor relay from relay box. 3) Connect battery to motor relay terminals No. 85 and No. 86. 4) Measure resistance between motor relay terminals. ***Terminals*** ***No. 30 — No. 87:***	Is the resistance less than 0.5 Ω?	Go to step **2**.	Replace motor relay.
2	**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:***	Is the resistance more than 1 MΩ?	Go to step **3**.	Replace motor relay.
3	**CHECK INPUT VOLTAGE OF RELAY BOX.** 1) Disconnect connector (F89) from relay box. 2) Disconnect connector from VDCCM. 3) Turn ignition switch to ON. 4) Measure voltage between relay box connector and chassis ground. ***Connector & terminal*** ***(F89) No. 2 (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **4**.	Repair harness/ connector between battery and relay box, and check fuse SBF holder.
4	**CHECK INPUT VOLTAGE OF MOTOR RELAY.** 1) Turn ignition switch to OFF. 2) Connect connector (F89) to relay box. 3) Turn ignition switch to ON. 4) Measure voltage between relay box and chassis ground. ***Connector & terminal*** ***Relay installing point No. 87 (+) — Chassis ground (–):***	Is the voltage between 10 and 15 V?	Go to step **5**.	Replace relay box.
5	**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?	Go to step **6**.	Tighten the clamp of motor ground terminal.
6	**CHECK VDCCM MOTOR DRIVE TERMINAL.** 1) Turn ignition switch OFF. 2) Remove VDC connector cover. <Ref. to VDC-17, VDCCM Connector Cover.> 3) Connect all connectors. 4) Install motor relay. 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?	Go to step **7**.	Replace VDCCM.
7	**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?	Go to step **8**.	Replace VDCH/U.
8	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between VDCH/U, relay box and VDCCM?	Repair connector.	Go to step **9**.

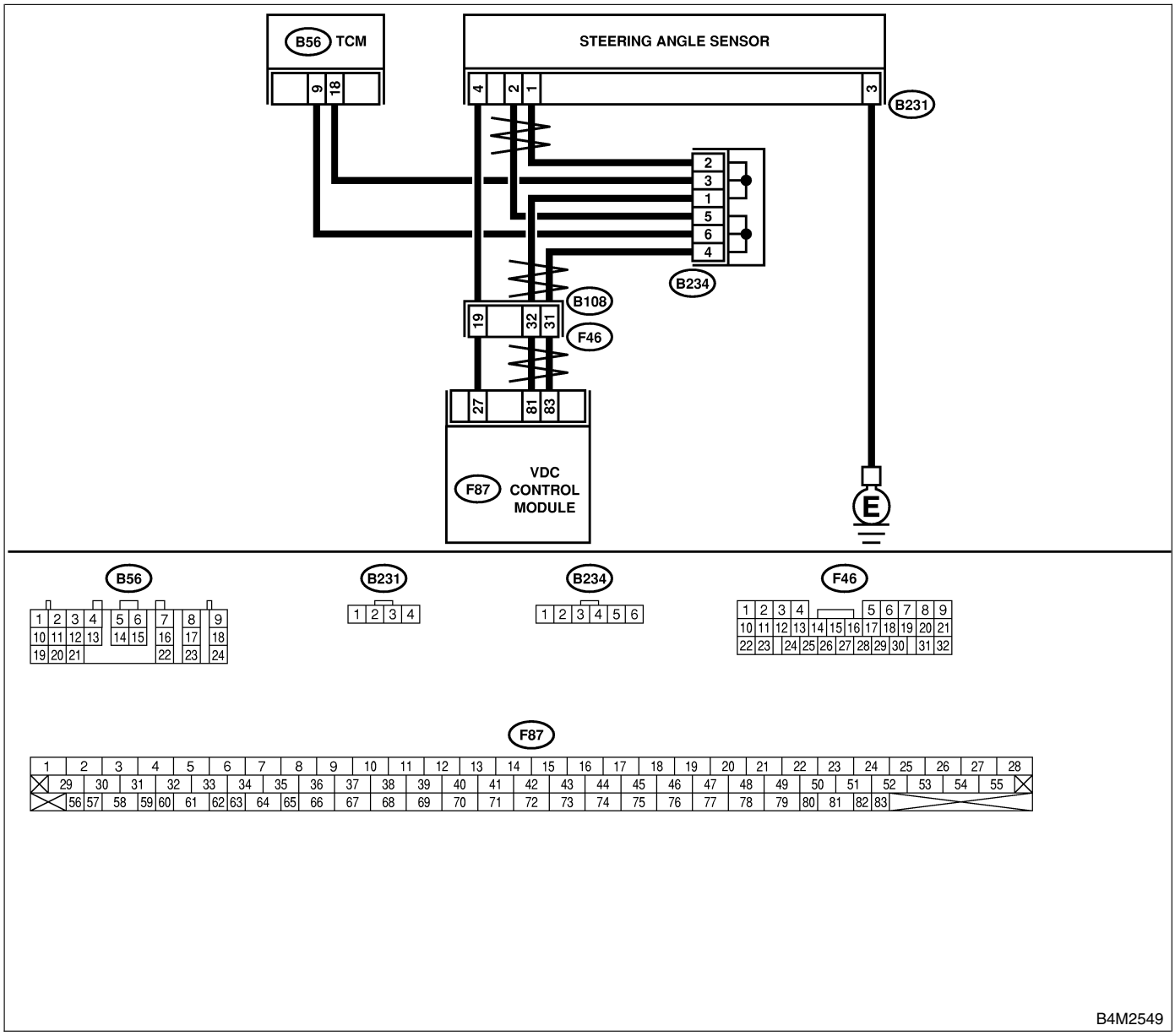
No.	Step	Check	Yes	No
9	**CHECK VDCCM.** 1) Connect all connectors. 2) Erase the memory. 3) Perform inspection mode. 4) Read out the diagnostic trouble code.	Is the same diagnostic trouble code as in the current diagnosis still being output?	Replace VDCCM.	Go to step **10**.
10	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AP: DTC 71 STEERING ANGLE SENSOR OFFSET IS TOO BIG. S005504J73

DIAGNOSIS:
- Faulty steering angle sensor

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	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 angle of steering wheel within 5°?	Go to step **2**.	Perform centering alignment of steering wheel.
2	**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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **3**.
3	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

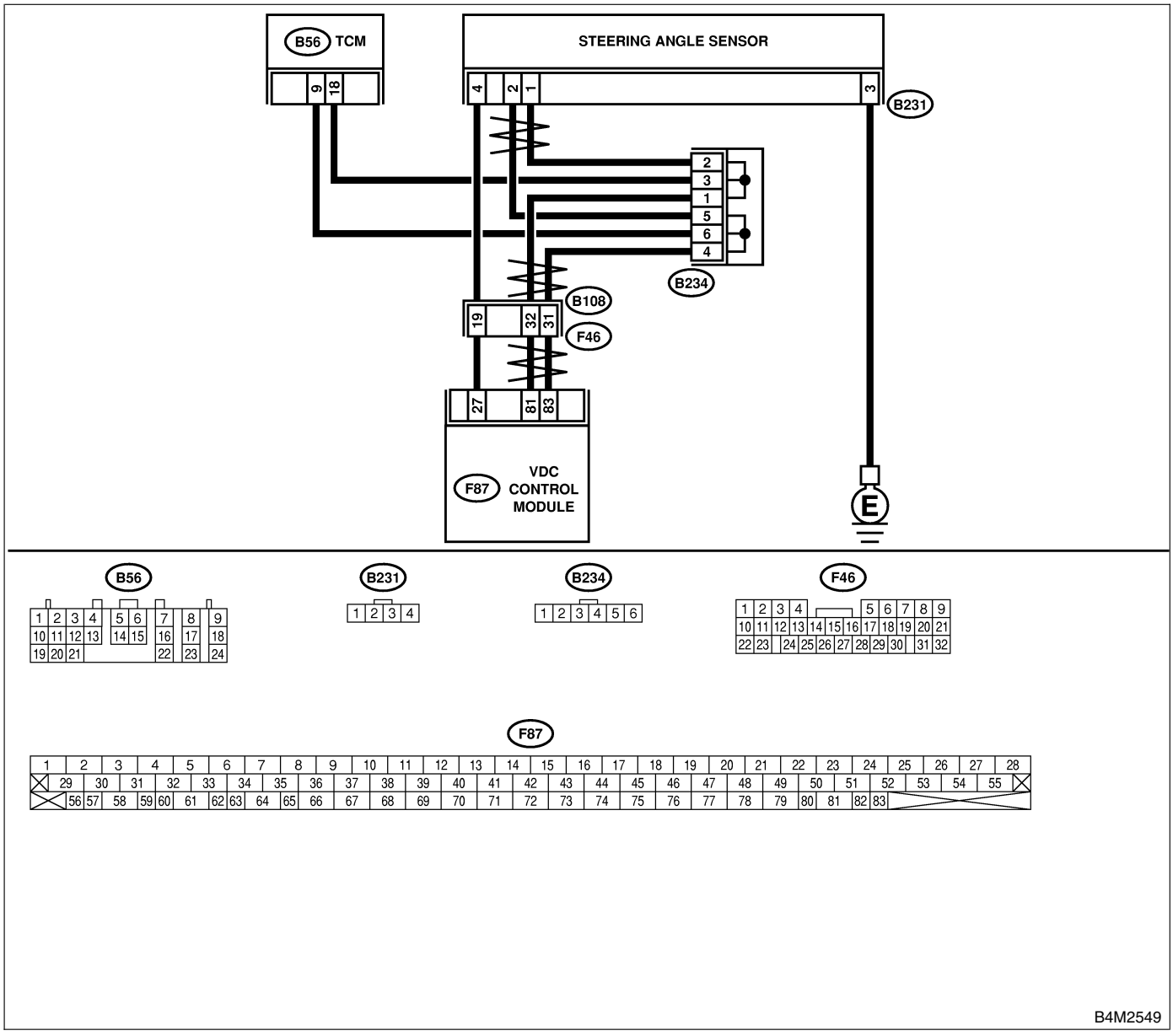
AQ: DTC 71 CHANGE RANGE OF STEERING ANGLE SENSOR IS TOO BIG.

S005504J74

DIAGNOSIS:
- Faulty steering angle sensor

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



B4M2549

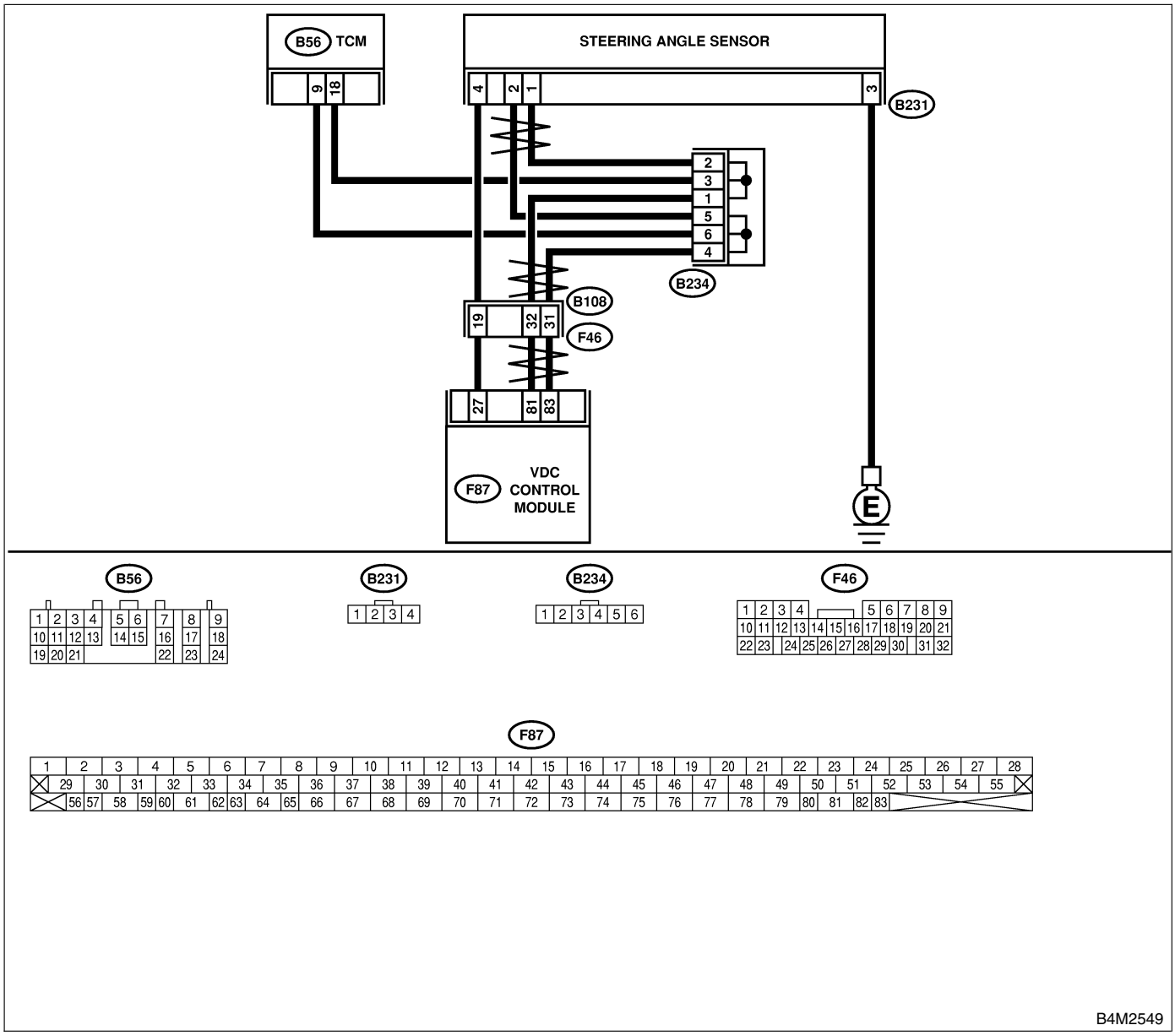
No.	Step	Check	Yes	No
1	**CHECK VDCCM.** 1) Turn ignition switch to OFF. 2) Connect all connectors. 3) Erase the memory. 4) Perform inspection mode. 5) Read out the diagnostic trouble code.	Is the same diagnostic trouble code as in the current diagnosis still being output?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **2**.
2	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AR: DTC 71 STEERING ANGLE SENSOR MALFUNCTION S005504J75

DIAGNOSIS:
- Faulty steering angle sensor

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:



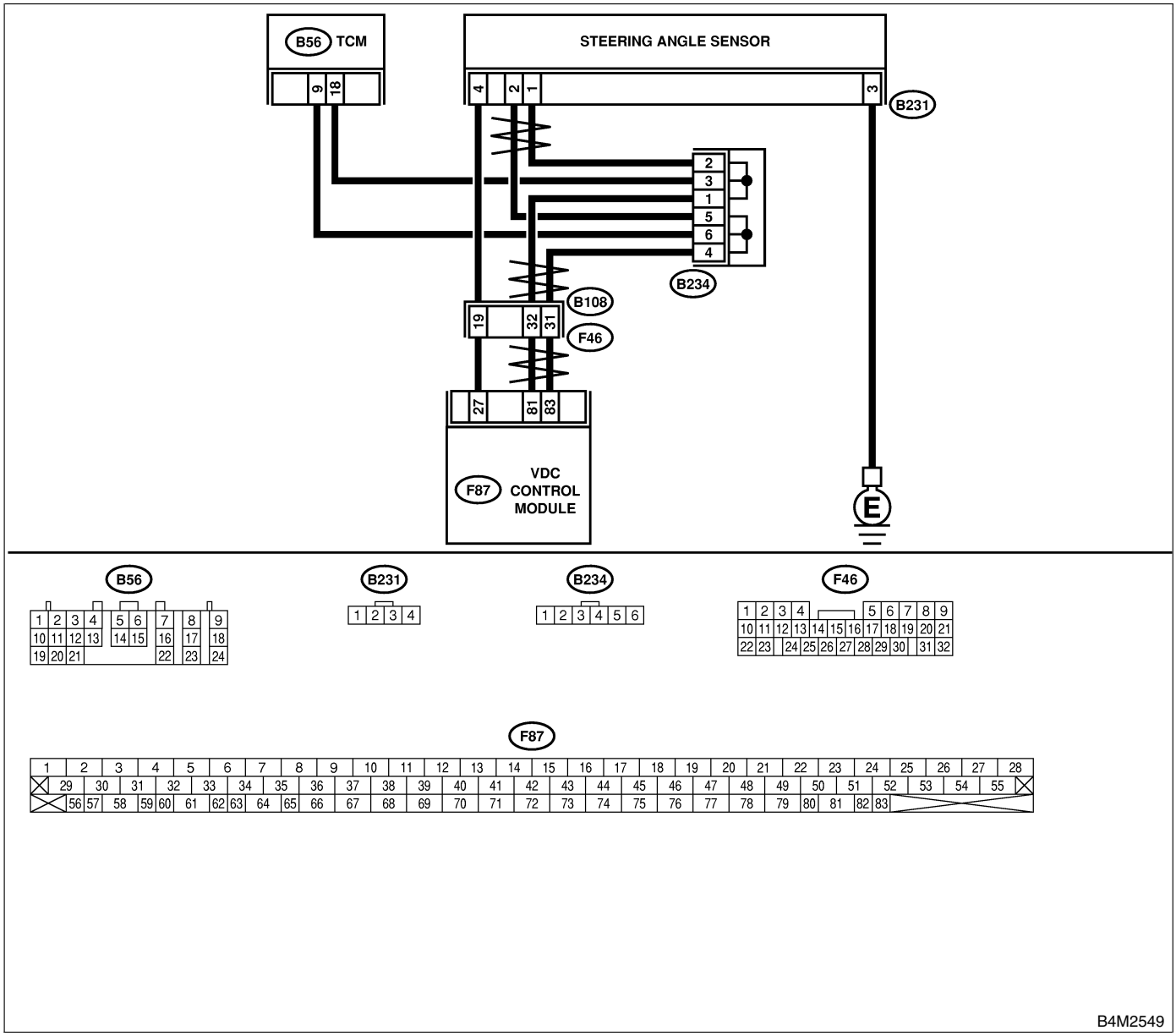
No.	Step	Check	Yes	No
1	**CHECK THE STEERING WHEEL.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight line. 3) Check the angle of steering wheel.	Is the angle of steering wheel within 5°?	Go to step **2**.	Perform centering alignment of steering.
2	**CHECK OUTPUT OF STEERING ANGLE SENSOR USING SELECT MONITOR.** 1) Select “Current data display & Save” on the select monitor. 2) Read steering angle sensor output on the select monitor display.	Does the steering angle sensor output (value) change on the monitor display when the steering wheel is turned in either direction?	Go to step **3**.	Replace steering angle sensor.
3	**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)?	Driving on banked road surfaces or sandy surfaces (not dirt road surfaces) sometimes results in a VDCCM memory diagnostic trouble code.	Go to step **4**.
4	**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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **5**.
5	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

AS: DTC 71 NO SIGNAL FROM STEERING ANGLE SENSOR S005504J76

DIAGNOSIS:
- Faulty steering angle sensor

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	**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 voltage between 10 and 15 V?	Go to step **4**.	Go to step **2**.
2	**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, VDC Sequence Control.> 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 voltage between 10 and 15 V?	Repair harness between yaw rate sensor and VDCCM.	Go to step **3**.
3	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in yaw rate sensor connector?	Repair or replace VDCCM connector.	Replace VDCCM.
4	**CHECK GROUND CIRCUIT OF STEERING ANGLE SENSOR.** Measure resistance between steering sensor and chassis ground. ***Connector & terminal*** ***(B231) No. 3 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Repair steering angle sensor ground harness.
5	**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 resistance 120±6 Ω?	Repair harness between steering angle sensor and VDCCM.	Go to step **6**.
6	**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?	Go to step **8**.	Go to step **7**.
7	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.
8	**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 trouble code as in the current diagnosis still being output?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **9**.

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
9	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	The original steering angle sensor has been faulty.

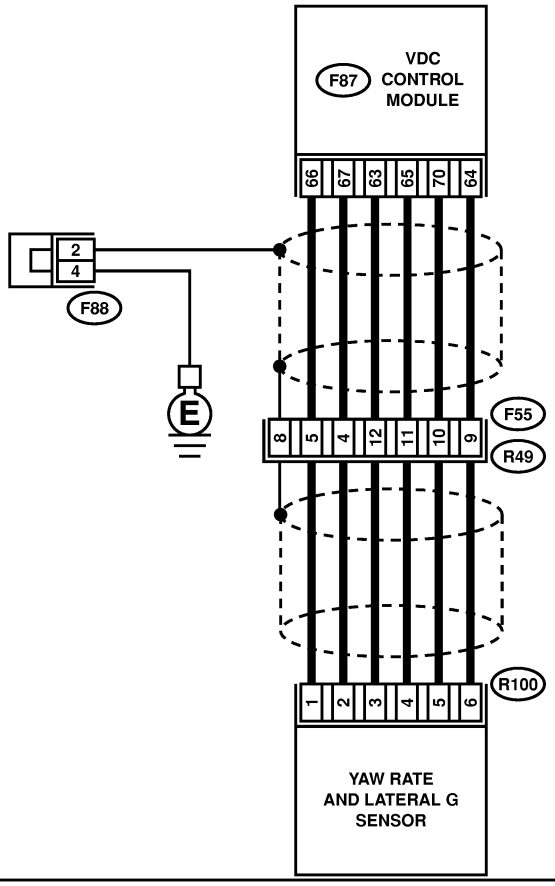
MEMO:

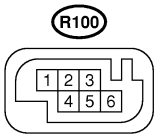
AT: DTC 72 ABNORMAL YAW RATE SENSOR OUTPUT S005504J77

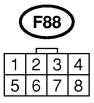
DIAGNOSIS:
- Faulty yaw rate sensor

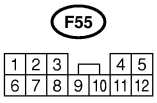
TROUBLE SYMPTOM:
- VDC does not operate.

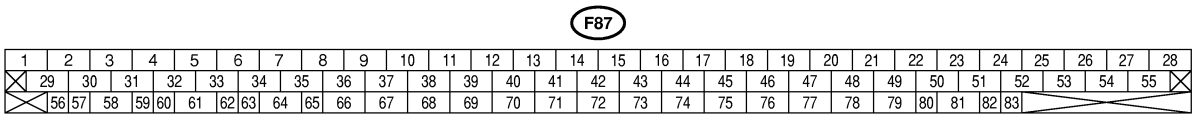
WIRING DIAGRAM:











B4M2552

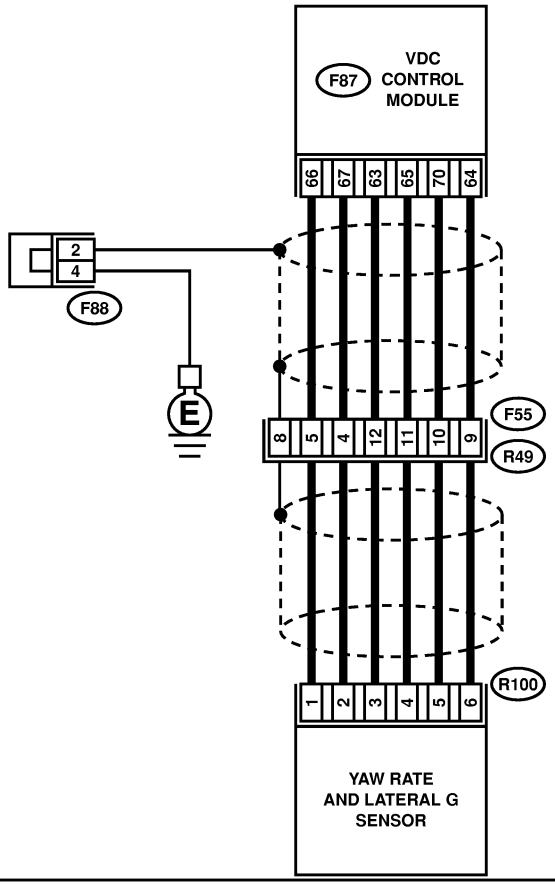
No.	Step	Check	Yes	No
1	**CHECK RUNNING FIELD.** Check if the vehicle was driven on banked road surfaces or sandy surfaces (not dirt road surfaces).	Was the vehicle driven on banked road surfaces or sandy surfaces (not dirt road surfaces)?	Driving on banked road surfaces or sandy surfaces (not dirt road surfaces) sometimes results in a VDCCM memory diagnostic trouble code.	Go to step **2**.
2	**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?	Go to step **3**.	Install yaw rate and lateral G sensor securely.
3	**CHECK OUTPUT OF YAW RATE AND LATERAL G SENSOR USING SELECT MONITOR.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight line. 3) Select “Current data display & Save” on the select monitor. 4) Read yaw rate and lateral G sensor output on the select monitor display.	Is the yaw rate and lateral G sensor output on monitor display 0±5.25 deg?	Go to step **4**.	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
4	**CHECK OUTPUT OF STEERING ANGLE SENSOR USING SELECT MONITOR.** 1) Drive the vehicle on a flat road. 2) Stop the vehicle in a straight line. 3) Select “Current data display & Save” on the select monitor. 4) Read steering angle sensor output on the select monitor display.	Is the steering angle sensor output on monitor display 0±2.5°?	Go to step **5**.	Perform centering alignment of steering wheel.
5	**CHECK YAW RATE AND LATERAL G 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?	Go to step **6**.	Go to step **7**.
6	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.
7	**CHECK VDCCM.** 1) Turn ignition switch to OFF. 2) Replace yaw rate and lateral G 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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **8**.
8	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	The original yaw rate and lateral G sensor has been faulty.

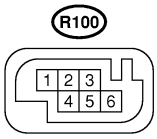
AU: DTC 72 VOLTAGE INPUTTED TO YAW RATE SENSOR EXCEEDS SPECIFICATION. S005504J78

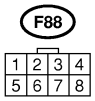
DIAGNOSIS:
- Faulty yaw rate sensor

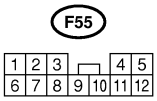
TROUBLE SYMPTOM:
- VDC does not operate.

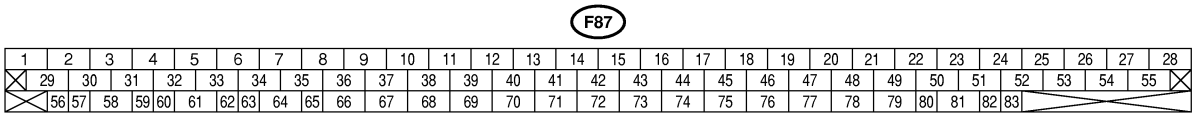
WIRING DIAGRAM:











B4M2552

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**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 voltage between 10 and 15 V?	Go to step **4**.	Go to step **2**.
2	**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-17, 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. 63 — Chassis ground:***	Is the voltage between 10 and 15 V?	Repair harness between yaw rate and lateral G sensor and VDCCM.	Go to step **3**.
3	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in yaw rate and lateral G sensor connector?	Repair or replace VDCCM connector.	Replace VDCCM.
4	**CHECK HARNESS OF YAW RATE AND LATERAL G SENSOR.** 1) Turn ignition switch OFF. 2) Disconnect connector from VDCCM. 3) Measure resistance between VDCCM and yaw rate and lateral G sensor. ***Connector & terminal*** ***(F87) No. 65 — (R100) No. 4:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
5	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 65 — Chassis ground:***	Is the resistance more than 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 and chassis ground. ***Connector & terminal*** ***(F87) No. 65 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **7**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
7	**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 (–):***	Is the voltage less than 0.5 V?	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>	Repair harness between yaw rate and lateral G sensor and VDCCM.

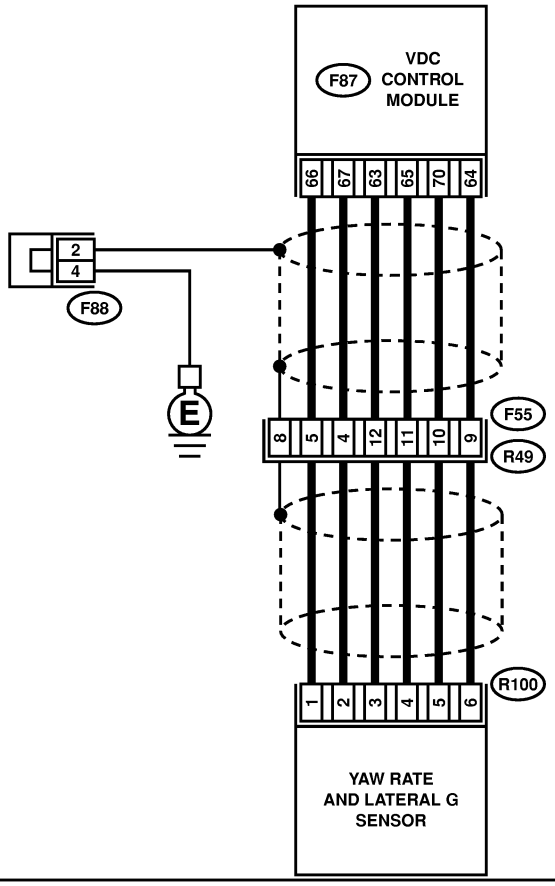
MEMO:

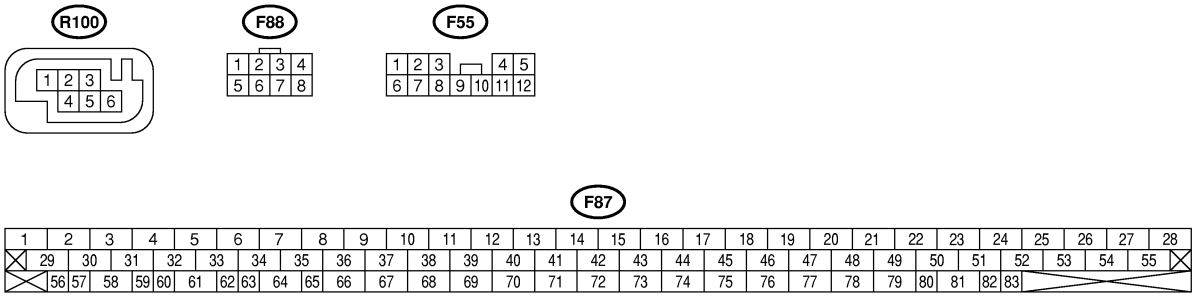
AV: DTC 72 ABNORMAL YAW RATE SENSOR REFERENCE VOLTAGE S005504J79

DIAGNOSIS:
- Faulty yaw rate sensor

TROUBLE SYMPTOM:
- VDC does not operate.

WIRING DIAGRAM:





B4M2552

No.	Step	Check	Yes	No
1	**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 voltage between 10 and 15 V?	Go to step **4**.	Go to step **2**.
2	**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-17, 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. 63 — Chassis ground:***	Is the voltage between 10 and 15 V?	Repair harness between yaw rate and lateral G sensor and VDCCM.	Go to step **3**.
3	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in yaw rate and lateral G sensor connector?	Repair or replace VDCCM connector.	Replace VDCCM.
4	**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. 66 — (R100) No. 1:***	Is the resistance less than 0.5 Ω?	Go to step **5**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
5	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 66 — Chassis ground:***	Is the resistance more than 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 and chassis ground. ***Connector & terminal*** ***(F87) No. 66 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **7**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
7	**CHECK BATTERY SHORT OF HARNESS.** 1) Turn ignition switch to ON. 2) Measure voltage between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 66 — Chassis ground:***	Is the voltage less than 0.5 V?	Go to step **8**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
8	**CHECK YAW RATE AND LATERAL G SENSOR.** 1) Turn ignition switch to OFF. 2) Install yaw rate and lateral G sensor to body. 3) Remove VDCCM connector cover. <Ref. to VDC-17, VDCCM Connector Cover.> 4) Connect all connectors. 5) Turn ignition switch to ON. 6) Measure voltage between VDCCM connector terminals. ***Connector & terminal*** ***(F87) No. 66 (+) — No. 64 (–):***	Is the voltage between 2.1 and 2.9 V?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>

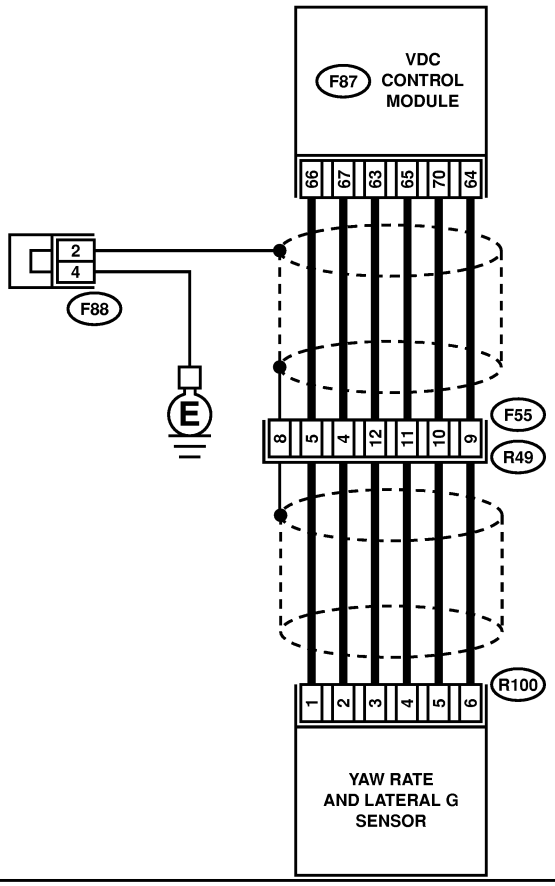
AW: DTC 72 CHANGE RANGE OF YAW RATE SENSOR SIGNAL IS TOO BIG.

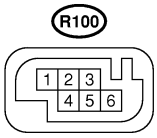
S005504J80

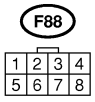
DIAGNOSIS:
- Faulty yaw rate sensor

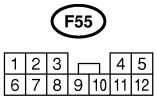
TROUBLE SYMPTOM:
- VDC does not operate.

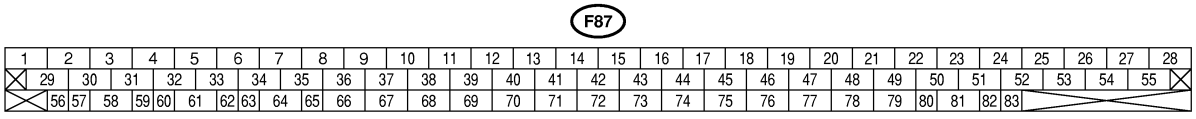
WIRING DIAGRAM:











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No.	Step	Check	Yes	No
1	**CHECK RUNNING FIELD.**	Was the vehicle driven on surfaces with holes or bumps at high speeds?	When driving on surfaces with holes or bumps at high speeds, VDCCM sometimes records diagnostic trouble codes in memory.	Go to step **2**.
2	**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?	Go to step **3**.	Install yaw rate and lateral G sensor securely.
3	**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 voltage between 10 and 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-17, 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. 63 — Chassis ground:***	Is the voltage between 10 and 15 V?	Repair harness between yaw rate and lateral G sensor and VDCCM.	Go to step **5**.
5	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in yaw rate and lateral G sensor connector?	Repair or replace VDCCM connector.	Replace VDCCM.
6	**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 resistance less than 0.5 Ω?	Go to step **9**.	Go to step **7**.
7	**CHECK GROUND CIRCUIT OF VDCCM.** 1) Disconnect connector from VDCCM. 2) Remove cover from VDCCM connector. <Ref. to VDC-17, VDCCM Connector Cover.> 3) Connect connector to VDCCM. 4) Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 64 — Chassis ground:***	Is the resistance less than 0.5 Ω?	Repair harness between yaw rate and lateral G sensor and VDCCM.	Go to step **8**.
8	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in VDCCM connector?	Repair or replace VDCCM connector.	Replace VDCCM.

No.	Step	Check	Yes	No
9	**CHECK HARNESS OF YAW RATE 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 resistance less than 0.5 Ω?	Go to step **10**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
10	**CHECK GROUND SHORT OF HARNESS.** Measure resistance between VDCCM and chassis ground. ***Connector & terminal*** ***(F87) No. 65 — Chassis ground:*** ***(F87) No. 66 — Chassis ground:*** ***(F87) No. 67 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
11	**CHECK BATTERY SHORT OF HARNESS.** 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 voltage less than 0.5 V?	Go to step **12**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
12	**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 voltage less than 0.5 V?	Go to step **13**.	Repair harness between yaw rate and lateral G sensor and VDCCM.
13	**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 yaw rate and lateral G sensor connector terminals. ***Connector & terminal*** ***(F87) No. 66 (+) — No. 64 (–):***	Is the voltage between 2.1 and 2.9 V?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>

MEMO:

AX: DTC 73 LATERAL G SENSOR OFFSET IS TOO BIG. S005504J81

NOTE:
For diagnostic procedure, refer to DTC 73. <Ref. VDC-236, DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL, Diagnostics Chart with Select Monitor.>

AY: DTC 73 ABNORMAL LATERAL G SENSOR OUTPUT S005504J82

NOTE:
For diagnostic procedure, refer to DTC 73. <Ref. VDC-236, DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL, Diagnostics Chart with Select Monitor.>

AZ: DTC 73 CHANGE RANGE OF LATERAL G SENSOR IS TOO BIG. S005504J83

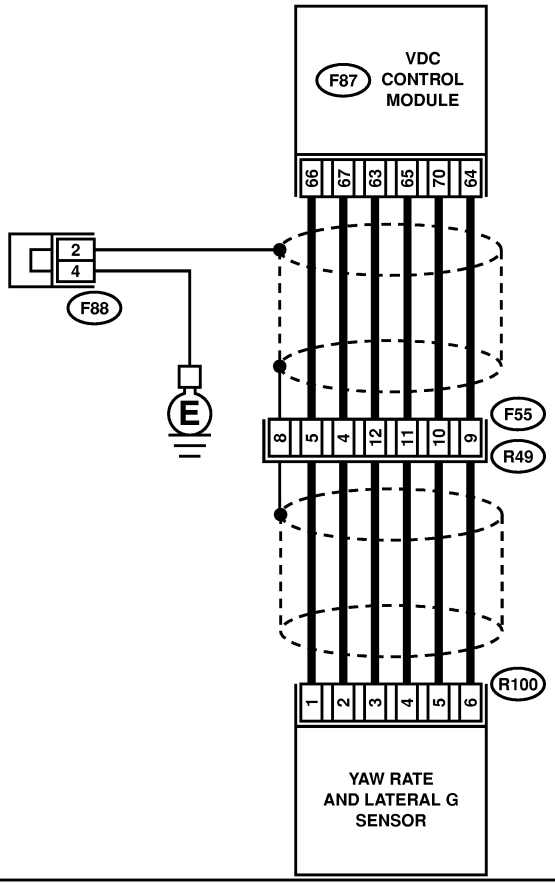
NOTE:
For diagnostic procedure, refer to DTC 73. <Ref. VDC-236, DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL, Diagnostics Chart with Select Monitor.>

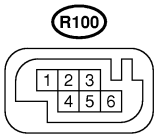
BA: DTC 73 EXCESSIVE LATERAL G SENSOR SIGNAL S005504J84

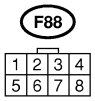
DIAGNOSIS:
- Faulty lateral G sensor

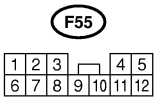
TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

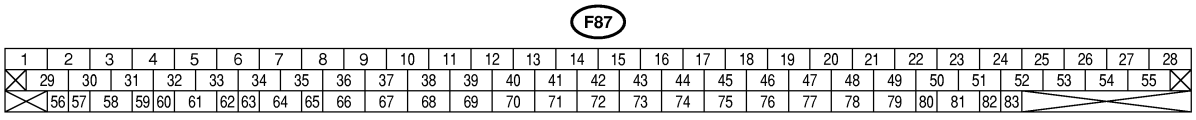
WIRING DIAGRAM:











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DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**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?	Go to step **2**.	Install yaw rate and lateral G sensor securely.
2	**CHECK OUTPUT OF LATERAL G SENSOR USING SELECT MONITOR.** 1) Stop the vehicle on a flat road. 2) Select “Current data display & Save” on the select monitor. 3) Read yaw rate and lateral G sensor output on the select monitor display.	Is the yaw rate and lateral G sensor output on monitor display 2.5±0.2 V?	Go to step **3**.	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
3	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between VDCCM and yaw rate and lateral G sensor?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **5**.
5	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

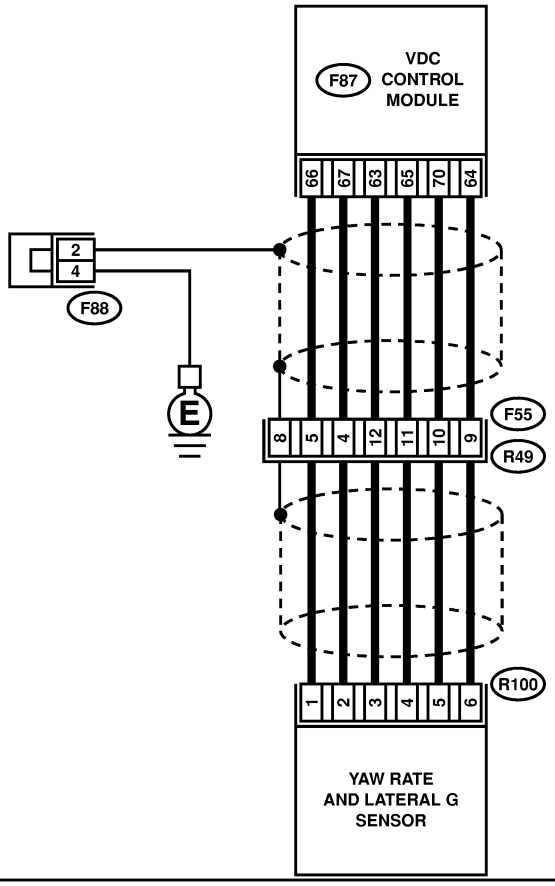
MEMO:

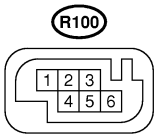
BB: DTC 73 VOLTAGE INPUTTED TO LATERAL G SENSOR EXCEEDS SPECIFICATION. S005504J85

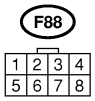
DIAGNOSIS:
- Faulty lateral G sensor

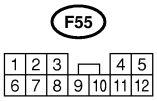
TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

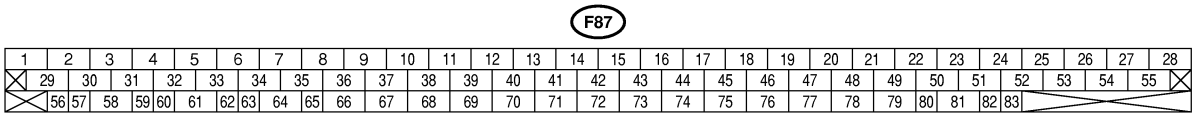
WIRING DIAGRAM:











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DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
1	**CHECK OUTPUT OF YAW RATE AND LATERAL G SENSOR USING SELECT MONITOR.** 1) Stop the vehicle on a flat road. 2) Select “Current data display & Save” on the select monitor. 3) Read yaw rate and lateral G sensor output on the select monitor display.	Is the yaw rate and lateral G sensor output on monitor display 2.5±0.2 V?	Go to step **2**.	Go to step **5**.
2	**CHECK POOR CONTACT IN CONNECTORS.** Turn ignition switch to OFF.	Is there poor contact in connector between VDCCM and yaw rate and lateral G sensor?	Repair connector.	Go to step **3**.
3	**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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **4**.
4	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.
5	**CHECK INPUT VOLTAGE OF YAW RATE AND LATERAL 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 voltage between 10 and 15 V?	Go to step **6**.	Repair harness/ connector between yaw rate and lateral G sensor and VDCCM.
6	**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 resistance between 4.3 and 4.9 kΩ?	Go to step **7**.	Replace yaw rate and lateral G sensor.
7	**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. 69 — No. 70:***	Is the resistance between 4.3 and 4.9 kΩ?	Go to step **8**.	Repair harness/ connector between yaw rate and lateral G sensor and VDCCM.
8	**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:***	Is the resistance more than 1 MΩ?	Go to step **9**.	Repair harness between yaw rate and lateral G sensor and VDCCM.

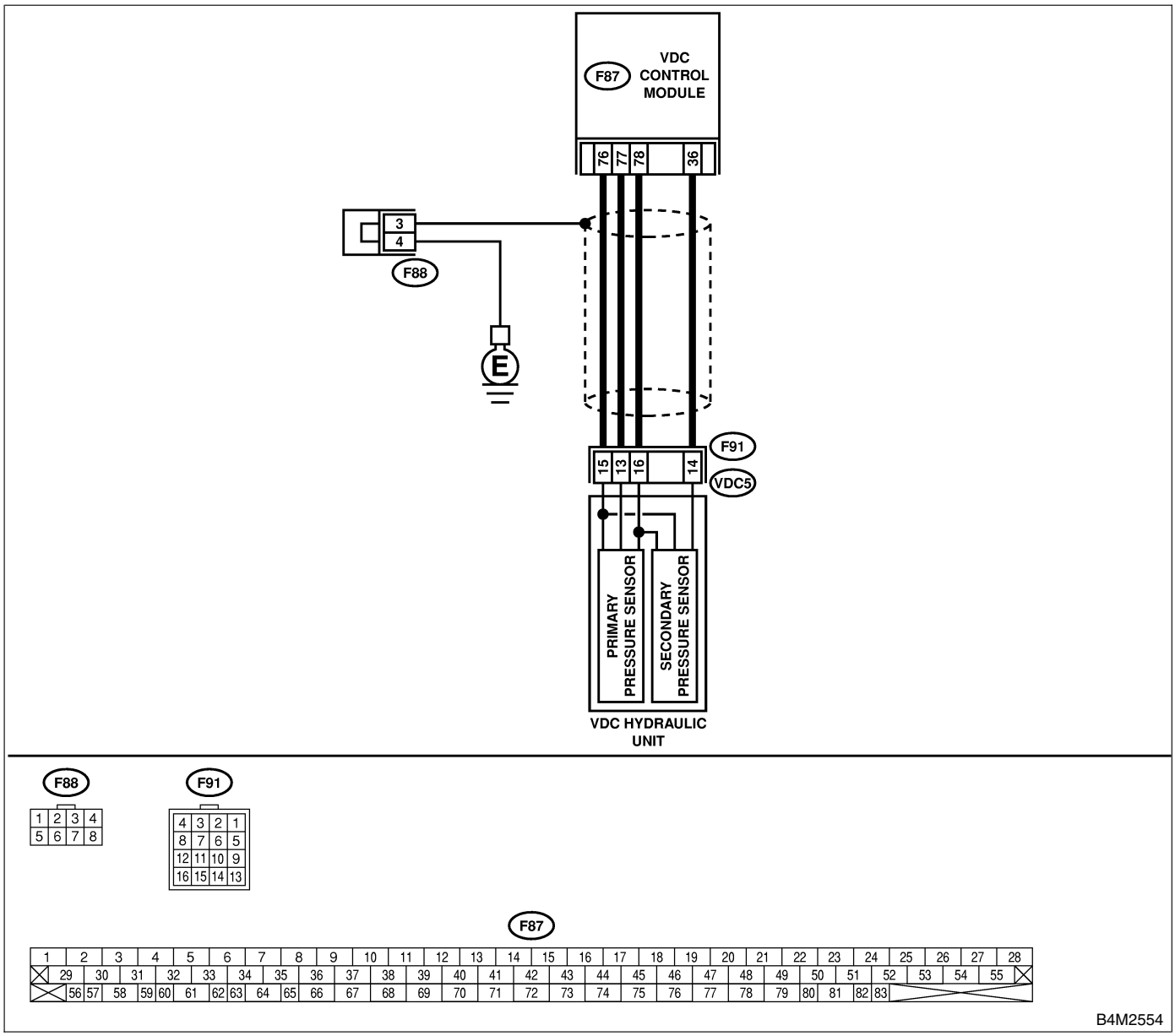
No.	Step	Check	Yes	No
9	**CHECK YAW RATE AND LATERAL G SENSOR.** 1) Turn ignition switch to OFF. 2) Remove yaw rate and lateral G sensor from vehicle. 3) Connect connector to yaw rate and lateral G sensor. 4) Connect connector to VDCCM. 5) Turn ignition switch to ON. 6) Measure voltage between yaw rate and lateral G sensor connector terminals. ***Connector & terminal*** ***(R100) No. 5 (+) — No. 6 (–):***	Is the voltage between 2.3 and 2.7 V when yaw rate and lateral G sensor is horizontal?	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 voltage between 3.3 and 3.7 V when yaw rate and lateral G sensor is horizontal, and is inclined 90° to the left in front of the sensor?	Go to step **11**.	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
11	**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 voltage between 1.3 and 1.7 V when yaw rate and lateral G sensor is horizontal, and is inclined 90° to the right in front of the sensor?	Go to step **12**.	Replace yaw rate and lateral G sensor. <Ref. to VDC-22, Yaw Rate and Lateral G Sensor.>
12	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between VDCCM and yaw rate and lateral G sensor?	Repair connector.	Go to step **13**.
13	**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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **14**.
14	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

BC: DTC 74 VOLTAGE INPUTTED TO PRESSURE SENSOR 1 EXCEEDS SPECIFICATION. (PRIMARY PRESSURE SENSOR) S005504J86

DIAGNOSIS:
- Faulty primary pressure sensor

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	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 resistance less than 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-17, 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 resistance less than 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?	Repair or replace VDCCM connector.	Replace 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 voltage between 4.75 and 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-17, 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 voltage between 4.75 and 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?	Repair or replace VDCCM connector.	Replace VDCCM.
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:***	Is the resistance more than 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 (–):***	Is the voltage less than 0.5 V?	Go to step **9**.	Repair harness between VDCH/U and VDCCM.

No.	Step	Check	Yes	No
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 (–):***	Is the voltage less than 0.5 V?	Go to step **10**.	Repair harness between VDCH/U and VDCCM.
10	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Remove cover from VDCCM. <Ref. to VDC-17, 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 (–):***	Is the voltage between 0.48 and 0.72 V?	Go to step **11**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
11	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between VDCCM and pressure sensor?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **13**.
13	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

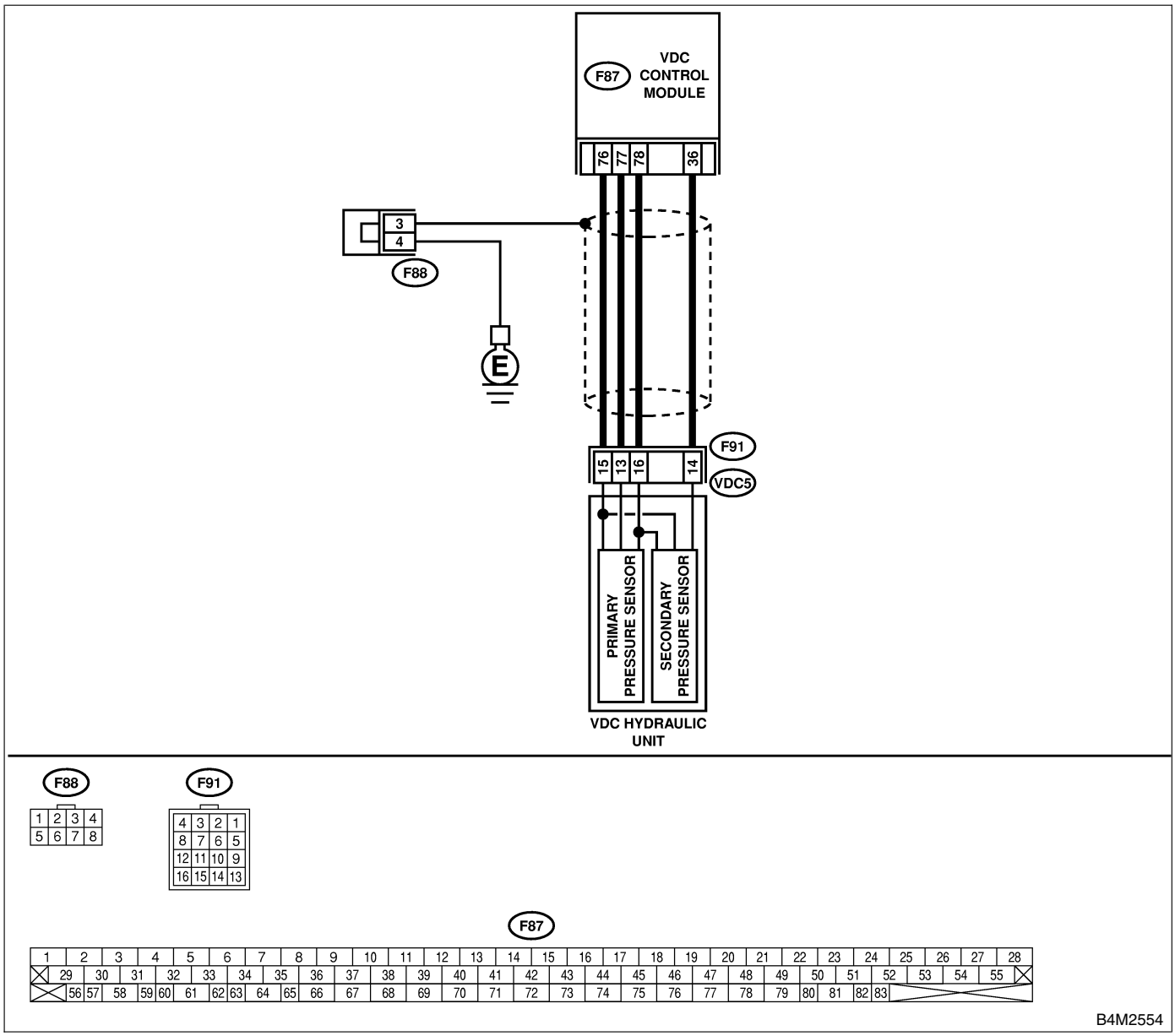
MEMO:

BD: DTC 74 VOLTAGE INPUTTED TO PRESSURE SENSOR 2 EXCEEDS SPECIFICATION. (SECONDARY PRESSURE SENSOR) S005504J87

DIAGNOSIS:
- Faulty secondary pressure sensor

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	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 resistance less than 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-17, 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 resistance less than 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?	Repair or replace VDCCM connector.	Replace 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 voltage between 4.75 and 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-17, 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 voltage between 4.75 and 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?	Repair or replace VDCCM connector.	Replace VDCCM.
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. 14 — Chassis ground:***	Is the resistance more than 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. 14 (+) — Chassis ground (–):***	Is the voltage less than 0.5 V?	Go to step **9**.	Repair harness between VDCH/U and VDCCM.

No.	Step	Check	Yes	No
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 voltage less than 0.5 V?	Go to step **10**.	Repair harness between VDCH/U and VDCCM.
10	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Remove cover from VDCCM. <Ref. to VDC-17, 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. 36 (+) — No. 76 (–):***	Is the voltage between 0.48 and 0.72 V?	Go to step **11**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
11	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between VDCCM and pressure sensor?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **13**.
13	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

MEMO:

BE: DTC 74 PRESSURE SENSOR 1 OFFSET IS TOO BIG. (PRIMARY PRESSURE SENSOR) S005504J88

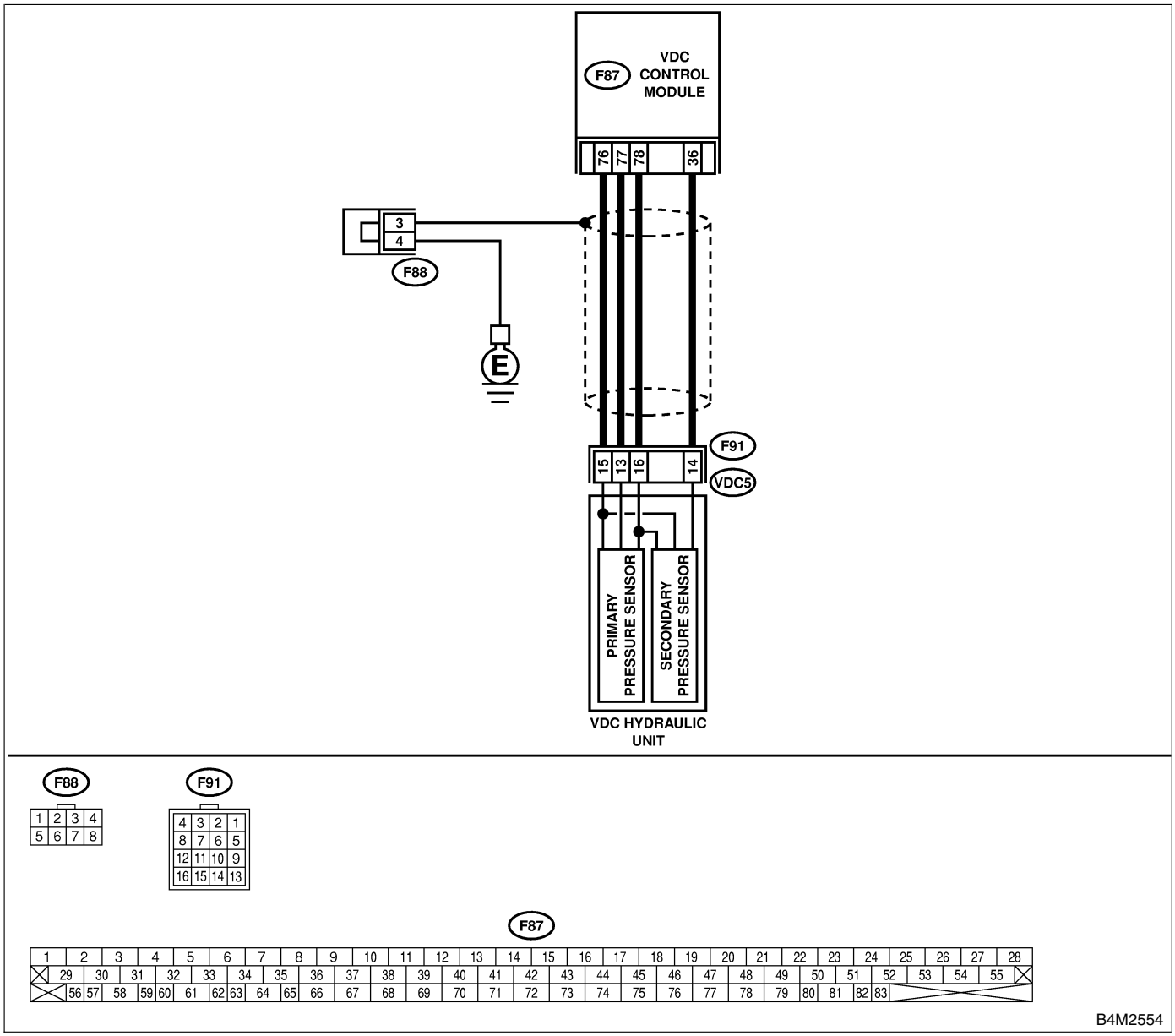
NOTE:
For diagnostic procedure, refer to DTC 74. <Ref. VDC-252, DTC 74 PRESSURE SENSOR 2 OFFSET IS TOO BIG. (SECONDARY PRESSURE SENSOR), Diagnostics Chart with Select Monitor.>

BF: DTC 74 PRESSURE SENSOR 2 OFFSET IS TOO BIG. (SECONDARY PRESSURE SENSOR) S005504J89

DIAGNOSIS:
- Faulty pressure sensor

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



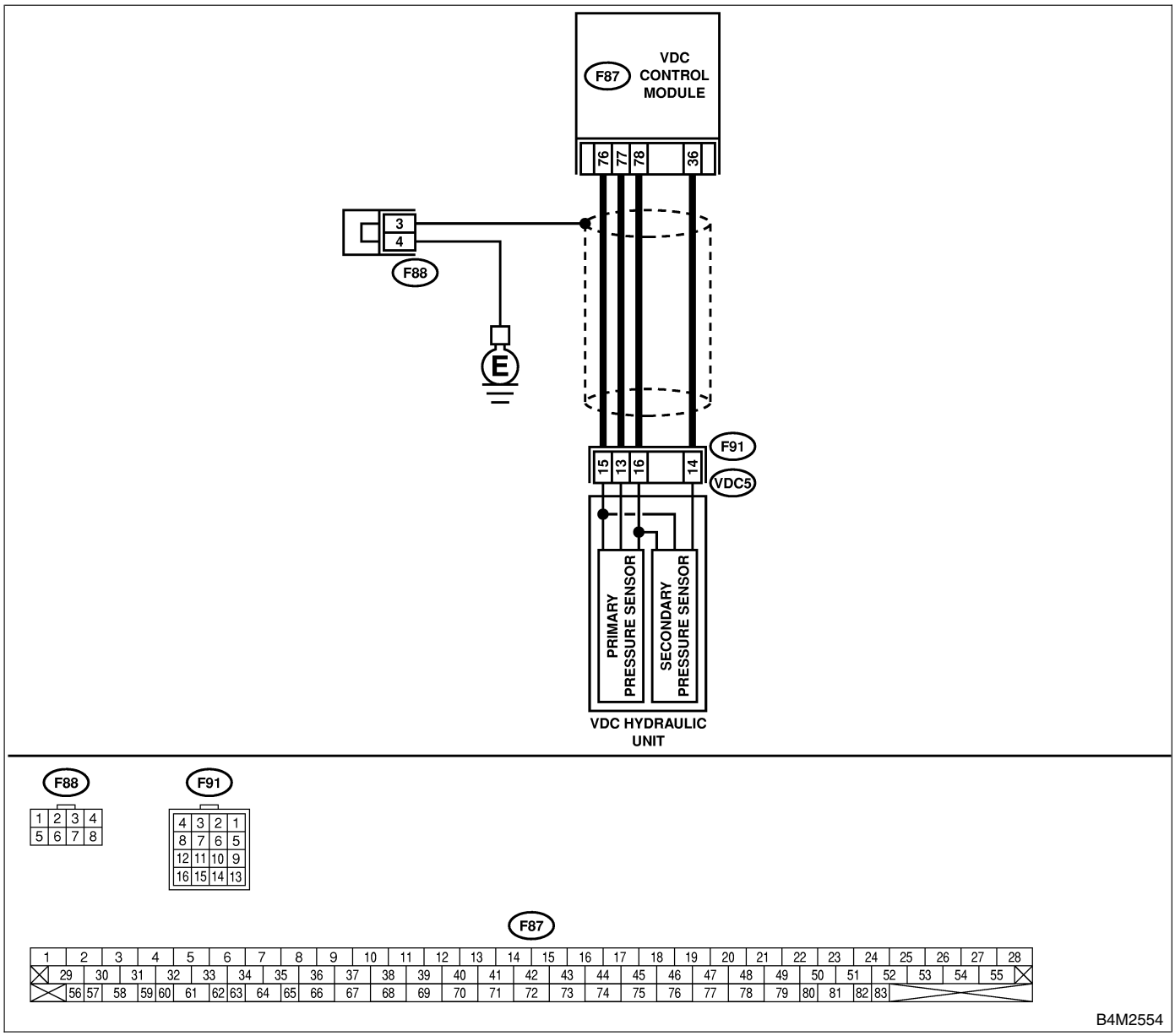
No.	Step	Check	Yes	No
1	**CHECK DRIVING TECHNIC.** Check the driver's technic.	Are the accelerator and brake pedals depressed simultaneously while driving?	The VDC is normal. Erase the diagnostic trouble code. NOTE: Driving the vehicle with both the accelerator pedal and brake pedal depressed may store a diagnostic trouble code in the memory.	Go to step **2**.
2	**CHECK OUTPUT OF PRESSURE SENSOR USING SELECT MONITOR.** 1) Select "Current data display & Save" on the select monitor. 2) Read pressure sensor output on the select monitor display.	Is the pressure sensor output on monitor display 0.6±0.12 V with brake pedal released?	Go to step **3**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
3	**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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **4**.
4	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.

BG: DTC 74 DIFFERENTIAL PRESSURE OF PRESSURE SENSOR IS TOO BIG. S005504J90

DIAGNOSIS:
- Faulty pressure sensor

TROUBLE SYMPTOM:
- ABS does not operate.
- VDC does not operate.

WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	**CHECK GROUND SHORT OF HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Disconnect connector (F91) from VDCH/U. 4) Measure resistance between VDCH/U connector and chassis ground. ***Connector & terminal*** ***(F91) No. 13 — Chassis ground:*** ***(F91) No. 14 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **2**.	Repair harness between VDCH/U and VDCCM.
2	**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 voltage less than 0.5 V?	Go to step **3**.	Repair harness between VDCH/U and VDCCM.
3	**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 voltage less than 0.5 V?	Go to step **4**.	Repair harness between VDCH/U and VDCCM.
4	**CHECK INPUT VOLTAGE OF PRESSURE SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from VDCCM. 3) Remove cover from VDCCM. <Ref. to VDC-17, 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 voltage between 0.48 and 0.72 V?	Go to step **5**.	Replace VDCH/U. <Ref. to VDC-11, Hydraulic Control Unit (H/U).>
5	**CHECK BRAKE FLUID LEAKAGE.** Inspect fluid leakage between brake master cylinder and VDC H/U.	Does brake fluid leak?	Retighten or replace.	Go to step **6**.
6	**CHECK BRAKE MASTER CYLINDER.** Inspect brake master cylinder hydraulic pressure. <Ref. to BR-31, OPERATION CHECK (WITH GAUGES), INSPECTION, Brake Booster.>	Is hydraulic pressure normal?	Go to step **7**.	Replace master cylinder.
7	**CHECK BRAKE PEDAL STROKE.** Measure the stroke between non-forced pedal position and forced pedal position with 50 kg (110 lb).	Is the stroke less than 95 mm (3.74 in)?	Go to step **8**.	Perform bleeding from brake system.
8	**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 (–):***	Is the voltage between A and B less than 0.2 V?	Go to step **9**.	Replace VDCH/U.

DIAGNOSTICS CHART WITH SELECT MONITOR

No.	Step	Check	Yes	No
9	**CHECK POOR CONTACT IN CONNECTORS.**	Is there poor contact in connector between VDCCM and pressure sensor?	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?	Replace VDCCM. <Ref. to VDC-9, VDC Control Module (VDCCM).>	Go to step **11**.
11	**CHECK ANY OTHER DIAGNOSTIC TROUBLE CODES APPEARANCE.**	Are other diagnostic trouble codes being output?	Proceed with the diagnosis corresponding to the diagnostic trouble code.	A temporary poor contact.