

6. Subaru Select Monitor

A: OPERATION

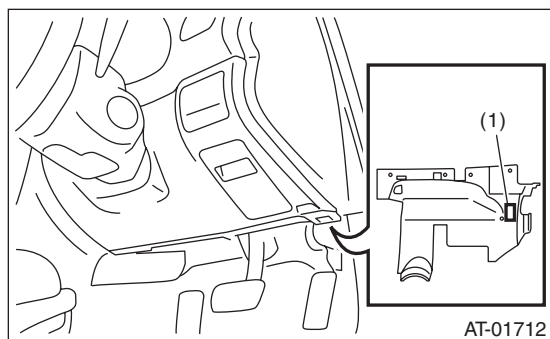
1. READ DIAGNOSTIC TROUBLE CODE (DTC)

1) Prepare the Subaru Select Monitor kit. <Ref. to VDC(diag)-8, SPECIAL TOOL, PREPARATION TOOL, General Description.>

2) Connect the diagnosis cable to the Subaru Select Monitor.

3) Connect the Subaru Select Monitor to the data link connector.

(1) Data link connector is located in the lower portion of instrument panel (on the driver's side).



(1) Data link connector

(2) Connect the diagnosis cable to the data link connector.

CAUTION:

Do not connect scan tools other than the Subaru Select Monitor.

4) Turn the ignition switch to ON (engine OFF) and run the Subaru Select Monitor.

5) On the «Main Menu» display screen, select the {Each System Check}.

6) On the «System Selection Menu» display screen, select the {Brake Control}.

7) Select the [OK] after the {VDC} is displayed.

8) On the «VDC Diagnosis» screen, select the {Diagnostic Code(s) Display}.

NOTE:

- For details concerning operation procedures, refer to the "SUBARU SELECT MONITOR OPERATION MANUAL".

- For details concerning DTCs, refer to "List of Diagnostic Trouble Code (DTC)". <Ref. to VDC(diag)-34, List of Diagnostic Trouble Code (DTC).>

- Up to 3 DTCs are displayed in the order of detection.

- If a particular DTC is not stored in memory properly at the occurrence of problem (due to a drop in VDCCM&H/U power supply etc.), the DTC suffixed with a question mark "—" is displayed on Subaru Select Monitor display screen. This shows it may be an unreliable reading.

9) If VDC and Subaru Select Monitor cannot communicate, check the communication circuit. <Ref. to VDC(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.>

Display	Contents to be monitored
Current	The current DTC is displayed on Subaru Select Monitor display screen.
Old	The latest DTC in previous troubles is displayed on Subaru Select Monitor display screen.
Older	The second latest DTC in previous troubles is displayed on Subaru Select Monitor display screen.
Third previous	The third latest DTC in previous problems is displayed on Subaru Select Monitor display screen.

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2. READ CURRENT DATA

- 1) On the «Main Menu» display screen, select the {Each System Check}.
 - 2) On the «System Selection Menu» display screen, select the {Brake Control}.
 - 3) Select the [OK] after {VDC} is displayed.
 - 4) On the «Brake Control Diagnosis» display screen, select the {Current Data Display/Save}.
 - 5) On the «Display Menu» screen, select the data display method.
 - 6) Using the scroll key, scroll the display screen up or down until necessary data is shown.
- A list of the support data is shown in the following table.

Display	Contents to be monitored	Unit of measure
FR Wheel Speed	Wheel speed detected by front ABS wheel speed sensor RH is displayed.	km/h or MPH
FL Wheel Speed	Wheel speed detected by front ABS wheel speed sensor LH is displayed.	km/h or MPH
RR Wheel Speed	Wheel speed detected by rear ABS wheel speed sensor RH is displayed.	km/h or MPH
RL Wheel Speed	Wheel speed detected by rear ABS wheel speed sensor LH is displayed.	km/h or MPH
Steering Angle Sensor	Steering angle detected by steering angle sensor is displayed.	deg
Yaw Rate Sensor	Vehicle angular speed detected by yaw rate sensor is displayed.	deg/s
Pressure Sensor	Brake fluid pressure detected by pressure sensor is displayed.	bar
Lateral G Sensor	Vehicle lateral acceleration detected by lateral G sensor is displayed.	m/s (m/s ²)
IG power supply voltage	Voltage supplied to VDCCM&H/U is displayed.	V
E/G Control Prohibited Flag	Engine control command signal is displayed.	1 or 0
ABS Control Flag	ABS operation condition is displayed.	ON or OFF
EBD Control Flag	EBD operation condition is displayed.	ON or OFF
TCS Control Flag	TCS operation condition is displayed.	ON or OFF
VDC Control Flag	VDC operation condition is displayed.	ON or OFF
VDC OFF Light	ON/OFF condition of VDC OFF indicator light is displayed.	ON or OFF
EBD Warning Light	ON operation of the EBD warning light is displayed.	ON or OFF
ABS Warning Light	ON operation of the ABS warning light is displayed.	ON or OFF
VDC Warning Light	ON operation of the VDC warning light is displayed.	ON or OFF
Valve Relay Signal	Valve relay operation signal is displayed.	ON or OFF
Motor Relay Signal	Motor relay operation signal is displayed.	ON or OFF
Motor Relay Monitor	Voltage applied to the motor relay is displayed.	V
OFF Switch Signal	Operation condition of VDC OFF switch is displayed.	ON or OFF
Brake Switch	Brake ON/OFF is displayed.	ON or OFF

NOTE:

For details concerning operation procedures, refer to the “SUBARU SELECT MONITOR OPERATION MANUAL”.

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3. CLEAR MEMORY MODE

- 1) On the «Main Menu» display screen, select the {2. Each System Check}.
- 2) On the «System Selection Menu» display screen, select the {Brake Control}.
- 3) Select the [OK] after {VDC} is displayed.
- 4) On the «Brake Control Diagnosis» display screen, select the {Clear Memory}.

Display	Contents to be monitored
Clear Memory?	DTC deleting function

5) When “Done” and “Turn ignition switch to OFF” are shown on the display screen, turn the ignition switch to OFF and close the Subaru Select Monitor.

NOTE:

For details concerning operation procedures, refer to the “SUBARU SELECT MONITOR OPERATION MANUAL”.

4. ABS SEQUENCE CONTROL

Display	Contents to be monitored	Reference target
ABS sequence control	Operate the valve and pump motor continuously to perform the ABS sequence control.	<Ref. to ABS-10, ABS Sequence Control.>
VDC confirmation mode	Operate the valve and pump motor continuously to perform the VDC sequence control.	<Ref. to VDC-13, VDC Sequence Control.>

5. FREEZE FRAME DATA

NOTE:

- Data stored at the time of trouble occurrence is shown on the display.
- Each time a trouble occurs, the latest information is stored in the freeze frame data in memory.
- If a freeze frame data is not properly stored in memory (due to a drop in VDCCM power supply, etc.), a DTC suffixed with a question mark “—” appears on the Subaru Select Monitor display. This shows it may be an unreliable reading.

Display	Contents to be monitored
Steering angle sensor	Steering angle detected by steering angle sensor is displayed.
Yaw rate sensor	Vehicle angular speed detected by yaw rate sensor is displayed.
Lateral G Sensor	Vehicle lateral acceleration detected by lateral G sensor is displayed.
Pressure Sensor	Brake fluid pressure detected by pressure sensor is displayed.
Vehicle Speed	Vehicle speed calculated by VDC control module is displayed.
FR Wheel Speed	Wheel speed detected by front ABS wheel speed sensor RH is displayed in km/h or MPH.
FL Wheel Speed	Wheel speed detected by front ABS wheel speed sensor LH is displayed in km/h or MPH.
RR Wheel Speed	Wheel speed detected by rear ABS wheel speed sensor RH is displayed in km/h or MPH.
RL Wheel Speed	Wheel speed detected by rear ABS wheel speed sensor LH is displayed in km/h or MPH.
Acceleration opening angle signal	Acceleration opening is displayed.
Engine Speed	Engine speed on malfunction occurrence is displayed.
Gear position	Gear position on malfunction occurrence is displayed.
IG power supply voltage	Voltage supplied to VDC control module is displayed.
Absolute angle recognition flag	Whether the absolute angle of the steering angle sensor was determined is displayed.
E/G Control Prohibited Flag	Engine control command signal is displayed.
VDC Control Flag	VDC control condition is displayed.
EBD Control Flag	EBD control condition is displayed.
TCS Control Flag	TCS control condition is displayed.
ABS Control Flag	ABS control condition is displayed.
VDC OFF light	ON/OFF condition of the VDC operated by the driver is displayed.
Brake Switch	Brake ON/OFF is displayed.

6. PARAMETER SELECTION

CAUTION:

- For parameter selection, the Subaru Select Monitor III is required.
- This function can be used for the replacement VDCCM&H/U and VDCCM.

NOTE:

- When a VDCCM is replaced with a replacement, use this function to select and register parameters to the VDCCM.
 - For confirmation of applied models, refer to the "Model number plate" attached to the vehicles. <Ref. to ID-2, IDENTIFICATION, Identification.>
 - If a wrong applied model is written, it can be re-written.
 - When no data is registered, ABS/EBD/VDC warning light illuminates and the DTC "Parameter selection failure" is detected.
- 1) Connect the Subaru Select Monitor III.
 - 2) On the <<Main Menu>> display screen, select the {Each System Check}.
 - 3) On the «System Selection Menu» display screen, select the {Brake Control}.
 - 4) Select the [OK] after {VDC} is displayed.
 - 5) On the "Brake Control Diagnosis" display screen, select the {Parameter Selection}.
 - 6) Check the applied model indicated in the "Model number plate". <Ref. to ID-2, IDENTIFICATION, Identification.>
 - 7) Enter the applied model of 7-digit alphanumeric characters and select the [Enter].
 - 8) When the confirmation screen indicating the vehicle information appears, check that the correct applied model and grade are displayed and select the "OK".

NOTE:

When the displayed applied model and grade are different from those of the vehicle, perform registration operations again after selecting the "OK".

- 9) Execute Clear Memory after parameter selection and registration operations because the DTC for "Parameter selection failure" is memorized.

7. PARAMETER CHECK

NOTE:

The parameter data registered in the VDCCM is shown on the display.

- 1) Connect the Subaru Select Monitor III.
- 2) On the <<Main Menu>> display screen, select the {Each System Check}.
- 3) On the «System Selection Menu» display screen, select the {Brake Control}.
- 4) Select the [OK] after {VDC} is displayed.
- 5) On the "Brake Control Diagnosis" display screen, select {Parameter Check}.
- 6) On the {Parameter Check} display screen, check that the applied model and grade of the target vehicle are included and select the [OK].
- 7) If the applied model and grade of the target vehicle are not included on the {Parameter Check} display screen, perform parameter selection and registration. <Ref. to VDC(diag)-17, PARAMETER SELECTION, OPERATION, Subaru Select Monitor.>

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VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

B: INSPECTION

1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

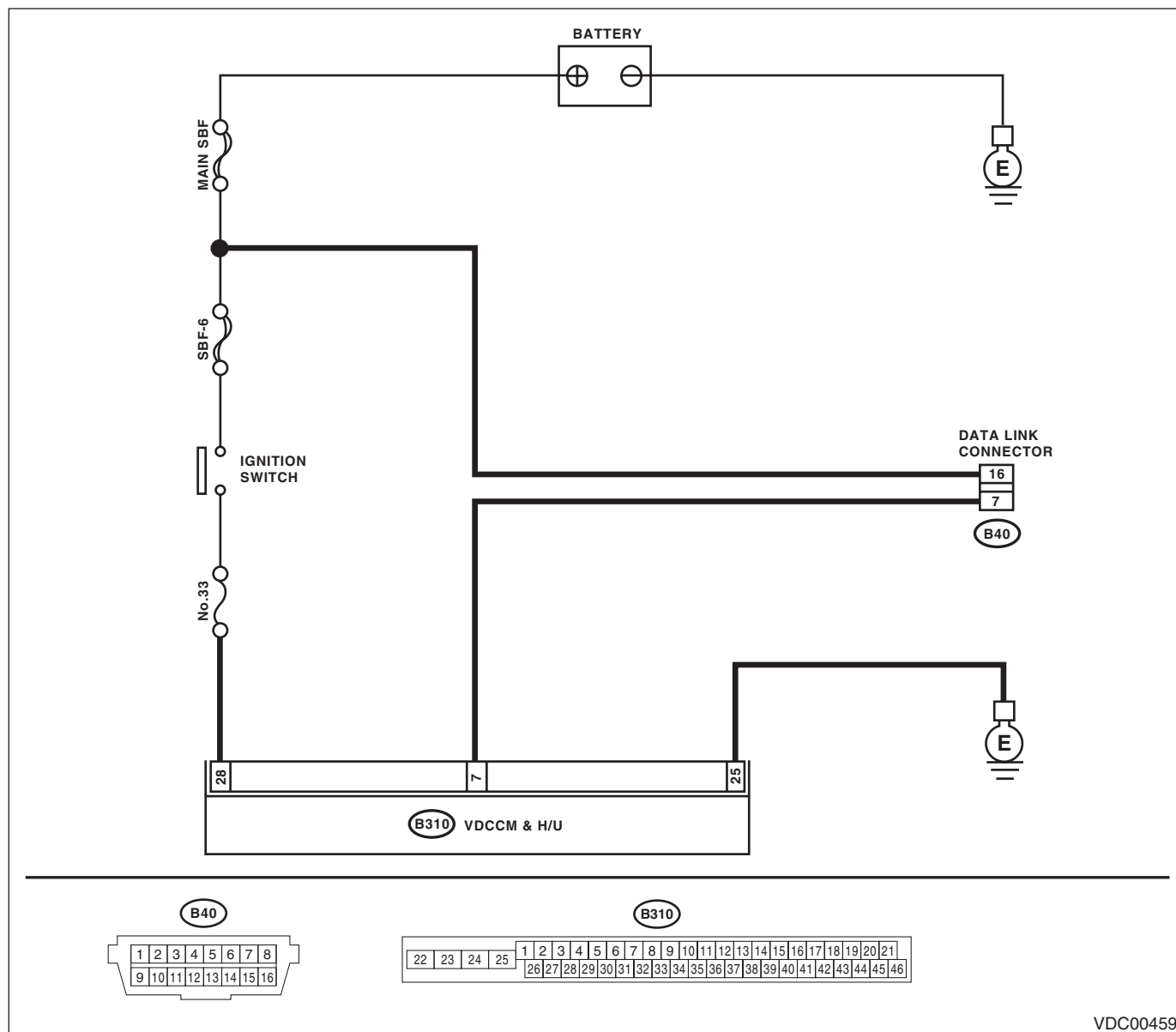
DETECTING CONDITION:

Defective harness connector

TROUBLE SYMPTOM:

Communication is impossible between VDC and Subaru Select Monitor.

WIRING DIAGRAM:



VDC00459

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Step	Check	Yes	No
1 CHECK IGNITION SWITCH.	Is the ignition switch ON?	Go to step 2.	Turn the ignition switch to ON, and select VDC mode using Subaru Select Monitor.
2 CHECK BATTERY. 1) Turn the ignition switch to OFF. 2) Measure the battery voltage.	Is the voltage 11 V or more?	Go to step 3.	Charge or replace the battery.
3 CHECK BATTERY TERMINAL.	Is there poor contact at the battery terminal?	Repair or tighten the battery terminal.	Go to step 4.
4 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check whether communication to other systems can be performed normally.	Are the system name and model year displayed on Subaru Select Monitor?	Go to step 8.	Go to step 5.
5 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to OFF. 2) Disconnect the VDCCM&H/U connector. 3) Turn the ignition switch to ON. 4) Check whether communication to other systems can be executed normally.	Are the system name and model year displayed on Subaru Select Monitor?	Replace the VDCCM only. <Ref. to VDC-9, REPLACEMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>	Go to step 6.
6 CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND DATA LINK CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the VDCCM&H/U, ECM and TCM. 3) Measure the resistance between data link connector and chassis ground. Connector & terminal (B40) No. 7 — Chassis ground:	Is the resistance 1 MΩ or more?	Go to step 7.	Repair the harness and connector between each control module and data link connector.
7 CHECK OUTPUT SIGNAL FOR VDCCM&H/U. 1) Turn the ignition switch to ON. 2) Measure the voltage between data link connector and chassis ground. Connector & terminal (B40) No. 7 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 8.	Repair the harness and connector between each control module and data link connector.
8 CHECK THE HARNESS CONNECTOR BETWEEN VDCCM&H/U AND DATA LINK CONNECTOR. Measure the resistance between VDCCM&H/U connector and data link connector. Connector & terminal (B310) No. 7 — (B40) No. 7:	Is the resistance less than 0.5 Ω?	Go to step 9.	Repair harness and connector between VDCCM&H/U and data link connector.
9 CHECK INSTALLATION OF VDCCM&H/U CONNECTOR. Turn the ignition switch to OFF.	Is the VDCCM&H/U connector inserted into VDCCM&H/U until the clamp locks onto it?	Go to step 10.	Insert VDCCM&H/U connector into VDCCM&H/U.
10 CHECK POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the ignition power supply voltage between VDCCM&H/U connector and chassis ground. Connector & terminal (B310) No. 28 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 11.	Repair open circuit in harness between VDCCM&H/U and battery.

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Step	Check	Yes	No
11 CHECK THE HARNESS CONNECTOR BETWEEN VDCCM&H/U AND CHASSIS GROUND. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the VDCCM&H/U. 3) Measure the resistance of harness between VDCCM&H/U connector and chassis ground. Connector & terminal (B310) No. 25 — Chassis ground:	Is the resistance less than 0.5 Ω ?	Go to step 12.	Repair the open circuit in harness between VDCCM&H/U and inhibitor side connector, and poor contact of coupling connector.
12 CHECK POOR CONTACT IN CONNECTOR.	Is there poor contact in control module power supply, ground circuit and data link connector?	Repair the connector.	Replace the VDCCM only. <Ref. to VDC-9, REPLACEMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>