

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

### 6. Subaru Select Monitor

#### A: OPERATION

##### 1. HOW TO USE SUBARU SELECT MONITOR

NOTE:

- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- If VDC and Subaru Select Monitor cannot communicate, check the communication circuit. <Ref. to VDC(diag)-19, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.>

##### 2. READ CURRENT DATA

NOTE:

- For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.
- A list of the support data is shown in the following table.

Display	Contents to be displayed	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
Steer Angle Sensor Op	Steering angle detected by steering angle sensor is displayed.	deg
Yaw Rate Sensor Output	Vehicle angular speed detected by yaw rate sensor is displayed.	deg/s
Master Cylinder Pressure Sensor	Master cylinder brake fluid pressure detected by pressure sensor is displayed.	bar
FL Wheel Cylinder Pressure Sensor	For models with EyeSight, FL wheel cylinder brake fluid pressure detected by pressure sensor is displayed. (For models without EyeSight, 0 bar is always displayed.)	bar
FR Wheel Cylinder Pressure Sensor	For models with EyeSight, FR wheel cylinder brake fluid pressure detected by pressure sensor is displayed. (For models without EyeSight, 0 bar is always displayed.)	bar
Fr Rr G sensor Output	Vehicle longitudinal acceleration detected by longitudinal G sensor is displayed.	m/s <sup>2</sup>
Lateral G sensor Output	Vehicle lateral acceleration detected by lateral G sensor is displayed.	m/s <sup>2</sup>
ABS_CM Power Voltage	Voltage supplied to VDCCM&H/U is displayed.	V
M. Relay monitor Voltage	Voltage applied to the motor relay is displayed.	V
Motor Relay Signal	Motor relay operation signal is displayed.	ON or OFF
Valve Relay Signal	Valve relay operation signal 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
EBD Control Flag	EBD operation condition is displayed.	ON or OFF
ABS Control Flag	ABS 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
E/G Control Stop Flag	Engine control command signal is displayed.	1 or 0
OFF Lamp	ON/OFF condition of VDC OFF indicator light is displayed.	ON or OFF
OFF SW Signal	Operation condition of VDC OFF switch is displayed.	ON or OFF
Brake Switch	Brake ON/OFF is displayed.	ON or OFF

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

### 3. FUNCTION CHECK

Display	Contents of display	Index No.
ABS Sequence Control Mode	Operate the valve and pump motor continuously to perform the ABS sequence control.	<Ref. to VDC-21, ABS Sequence Control.>
VDC Check Mode	Operate the valve and pump motor continuously to perform the VDC sequence control.	<Ref. to VDC-24, VDC Sequence Control.>
Set up mode for Neutral of Steering Angle Sensor & Lateral G Sensor 0 point	Set the steering angle sensor neutral position and the lateral G sensor "0" point.	<Ref. to VDC-20, SET UP MODE FOR NEUTRAL OF STEERING ANGLE SENSOR & LATERAL G SENSOR 0 POINT, ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>
Longitudinal G sensor & lateral G sensor 0 point setting mode	Set "0" point of the longitudinal G sensor and the lateral G sensor.	<Ref. to VDC-20, LONGITUDINAL G SENSOR & LATERAL G SENSOR 0 POINT SETTING MODE, ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>

### 4. FREEZE FRAME DATA

#### NOTE:

- Data stored at the time of trouble occurrence is shown on 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 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.
Vehicle Speed	Vehicle speed calculated by VDC control module is displayed.
Steer Angle Sensor Op	Steering angle detected by steering angle sensor is displayed.
Yaw Rate Sensor Output	Vehicle angular speed detected by yaw rate sensor is displayed.
Master Cylinder Pressure Sensor	Master cylinder brake fluid pressure detected by pressure sensor is displayed.
FL Wheel Cylinder Pressure Sensor	For models with EyeSight, FL wheel cylinder brake fluid pressure detected by pressure sensor is displayed. (For models without EyeSight, 0 bar is always displayed.)
FR Wheel Cylinder Pressure Sensor	For models with EyeSight, FR wheel cylinder brake fluid pressure detected by pressure sensor is displayed. (For models without EyeSight, 0 bar is always displayed.)

Display	Contents to be displayed
Fr Rr G sensor Output	Vehicle longitudinal acceleration detected by longitudinal G sensor is displayed.
Lateral G sensor Output	Vehicle lateral acceleration detected by lateral G sensor is displayed.
ABS_CM Power Voltage	Voltage supplied to VDC control module is displayed.
Accel. Opening Angle	Acceleration opening is displayed.
Engine Speed	Engine speed on malfunction occurrence is displayed.
Steering angle flag	Whether the absolute angle of the steering angle sensor was determined is displayed.
EBD Control Flag	EBD control condition is displayed.
ABS Control Flag	ABS control condition is displayed.
TCS Control Flag	TCS control condition is displayed.
VDC Control Flag	VDC control condition is displayed.
E/G Control Stop Flag	Engine control command signal is displayed.
OFF Switch Detection	ON/OFF condition of the VDC operated by the driver is displayed.
Brake Switch	Brake ON/OFF is displayed.

# Subaru Select Monitor

VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

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## 5. PARAMETER SELECTION

### CAUTION:

- **Subaru Select Monitor is required for parameter selection.**
- **This function can be used for the replacement part of VDCCM&H/U.**

### NOTE:

- When the VDCCM&H/U is replaced with a replacement part, be sure to perform the parameter selection/registration to the VDCCM&H/U using this function.
  - To confirm the applied model, refer to the “model number plate” attached on the vehicle. <Ref. to ID-2, IDENTIFICATION, Identification.>
  - When the applied model is entered wrong, re-entry is possible.
  - When the registration has not been performed, the DTC code “Parameter selection error” is detected together with the ABS/EBD/VDC warning light illumination.
- 1) Connect the Subaru Select Monitor.
  - 2) On «Main Menu» display, select {Each System Check}.
  - 3) On «System Selection Menu» display, select {Brake Control System}.
  - 4) When {VDC} is displayed, select the [OK] button.
  - 5) On «Brake Control Diagnosis» display, select {Select Parameter}.
  - 6) Check the applied model and option code indicated in the “Model number plate”. <Ref. to ID-2, IDENTIFICATION, Identification.>
  - 7) Enter the applied model of 7-digit alphanumeric characters and press the [Enter] key.
  - 8) When the option code input screen appears after entering the applied model, enter the option code consisting of 4-digit alphanumeric characters, and press the [Enter] key. When the option code is 3 digits, add “0” in front and enter the code as 4 digits.
  - 9) When the confirmation screen indicating the vehicle information appears, check that the correct applied model and grade are displayed and click the [OK] button.

### NOTE:

When the displayed applied model and grade are different from those of the vehicle, perform registration operations again after clicking the [OK] button.

- 10) Execute the Clear Memory Mode after parameter selection and registration operations because the DTC for “Parameter selection error” is memorized. <Ref. to VDC(diag)-24, Clear Memory Mode.>

## 6. PARAMETER CHECK

### NOTE:

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

- 1) Connect the Subaru Select Monitor.
- 2) On the «Main Menu» display, select the {Each System Check}.
- 3) On the «System Selection Menu» display, select the {Brake Control System}.
- 4) Click the [OK] button after the {VDC} is displayed.
- 5) On the «Brake Control Diagnosis» display, select the {Confirm on parameter}.
- 6) On the {Confirm on parameter} display screen, check that the applied model and grade of the target vehicle are included, and click the [OK] button.
- 7) If the applied model and grade of the target vehicle are not included on the {Confirm on parameter} display screen, perform parameter selection and registration. <Ref. to VDC(diag)-18, PARAMETER SELECTION, OPERATION, Subaru Select Monitor.>

### B: INSPECTION

#### 1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

##### DETECTING CONDITION:

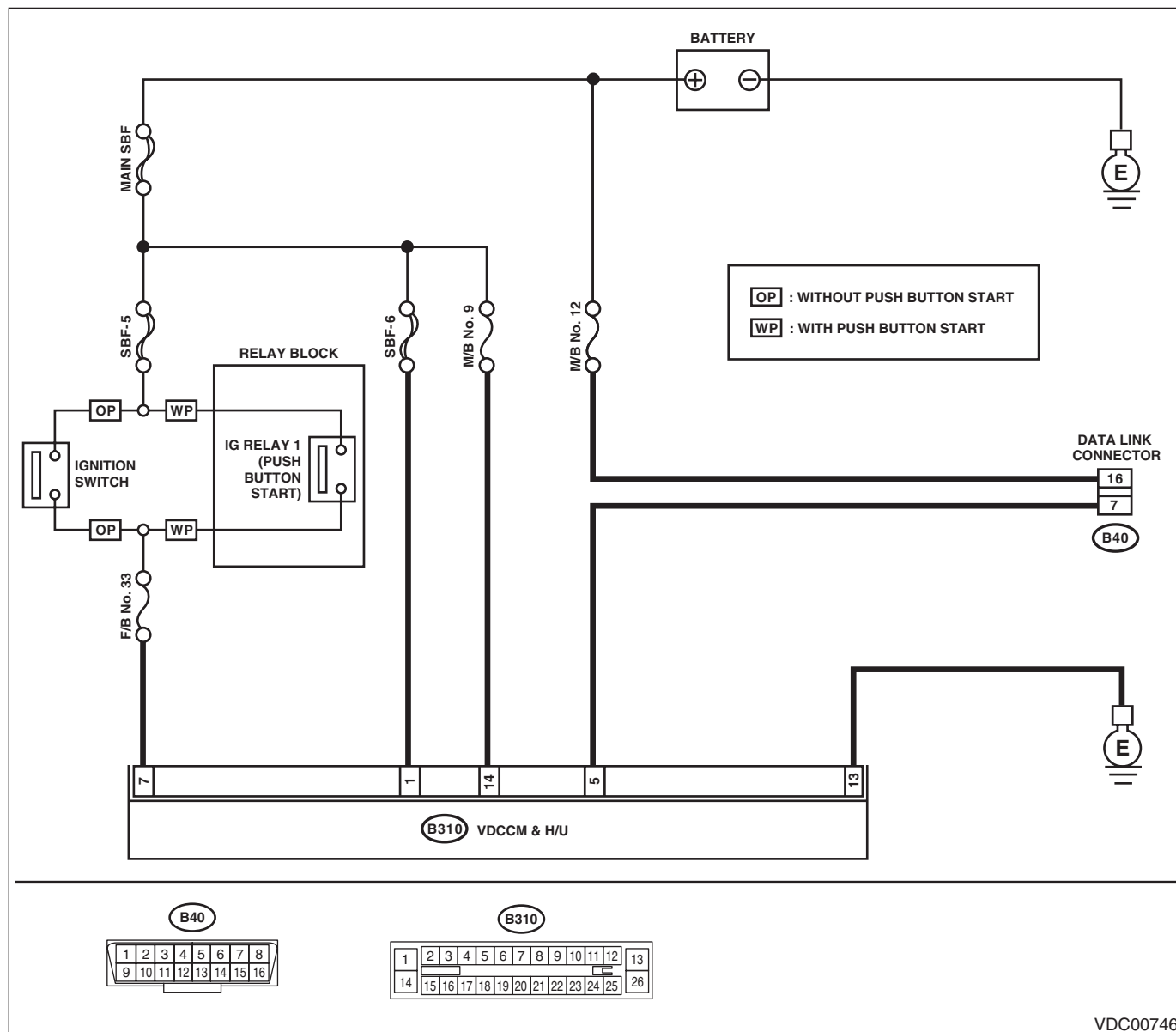
Defective harness connector

##### TROUBLE SYMPTOM:

Communication is impossible between VDC and Subaru Select Monitor.

##### WIRING DIAGRAM:

Vehicle Dynamics Control System <Ref. to WI-297, Vehicle Dynamics Control System.>



VDC00746

Step	Check	Yes	No
1	<b>CHECK IGNITION SWITCH.</b>		
	Is the ignition switch ON?	Go to step 2.	Turn the ignition switch to ON, and select VDC mode using Subaru Select Monitor.
2	<b>CHECK BATTERY.</b>		
	1) Turn the ignition switch to OFF. 2) Measure the battery voltage.	Go to step 3.	Charge or replace the battery.

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

Step	Check	Yes	No
<b>3</b> <b>CHECK BATTERY TERMINAL.</b>	Is there poor contact at battery terminal?	Repair or tighten the battery terminal.	Go to step 4.
<b>4</b> <b>CHECK SUBARU SELECT MONITOR COMMUNICATION.</b> 1) Turn the ignition switch to ON. 2) Using the Subaru Select Monitor, check whether communication to other systems can be executed normally.	Is the system name displayed on Subaru Select Monitor?	Go to step 8.	Go to step 5.
<b>5</b> <b>CHECK SUBARU SELECT MONITOR COMMUNICATION.</b> 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.	Is the system name displayed on Subaru Select Monitor?	Replace the VDCCM&H/U. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>	Go to step 6.
<b>6</b> <b>CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND DATA LINK CONNECTOR.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the ECM, TCM, airbag CM, TPMS & keyless entry CM, and impact sensor. <b>CAUTION:</b> <b>When disconnecting the connector from airbag CM, always follow the precautions on AB section. &lt;Ref. to AB-10, CAUTION, General Description.&gt;</b> 3) Measure the resistance between data link connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B40) No. 7 — Chassis ground:</b>	Is the resistance 1 MΩ or more?	Go to step 7.	Repair the harness and connector between each control module and data link connector.
<b>7</b> <b>CHECK HARNESS CONNECTOR BETWEEN VDCCM&amp;H/U AND DATA LINK CONNECTOR.</b> 1) Turn the ignition switch to ON. 2) Measure the voltage between data link connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B40) No. 7 (+) — Chassis ground (-):</b>	Is the voltage less than 1 V?	Go to step 8.	Repair the harness and connector between each control module and data link connector.
<b>8</b> <b>CHECK HARNESS CONNECTOR BETWEEN VDCCM&amp;H/U AND DATA LINK CONNECTOR.</b> Measure the resistance between VDCCM&H/U connector and data link connector. <b>Connector &amp; terminal</b> <b>(B310) No. 5 — (B40) No. 7:</b>	Is the resistance less than 1 Ω?	Go to step 9.	Repair harness and connector between VDCCM&H/U and data link connector.
<b>9</b> <b>CHECK INSTALLATION OF VDCCM&amp;H/U CONNECTOR.</b> 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.
<b>10</b> <b>CHECK POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the ignition power supply voltage between VDCCM&H/U connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B310) No. 7 (+) — Chassis ground (-):</b> <b>(B310) No. 14 (+) — Chassis ground (-):</b> <b>(B310) No. 1 (+) — Chassis ground (-):</b>	Is the voltage 10 — 15 V?	Go to step 11.	Repair open circuit in harness between VDCCM&H/U and battery.

# Subaru Select Monitor

VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

Step	Check	Yes	No
<b>11 CHECK HARNESS CONNECTOR BETWEEN VDCCM&amp;H/U AND CHASSIS GROUND.</b> 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. <b>Connector &amp; terminal</b> <b>(B310) No. 13 — Chassis ground:</b>	Is the resistance less than 10 $\Omega$ ?	Go to step 12.	Repair the open circuit of VDCCM&H/U ground harness and poor contact of connector.
<b>12 CHECK POOR CONTACT OF CONNECTOR.</b>	Is there poor contact of control module power supply, ground circuit and data link connector?	Repair the connector.	Replace the VDCCM&H/U. <Ref. to VDC-10, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>