

# Subaru Select Monitor

VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

## 6. Subaru Select Monitor

### A: OPERATION

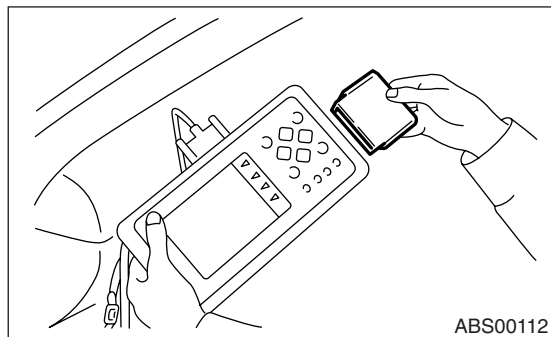
#### 1. READ DIAGNOSTIC TROUBLE CODE (DTC)

1) Prepare the Subaru Select Monitor kit. <Ref. to VDC(diag)-10, SPECIAL TOOL, PREPARATION TOOL, General Description.>



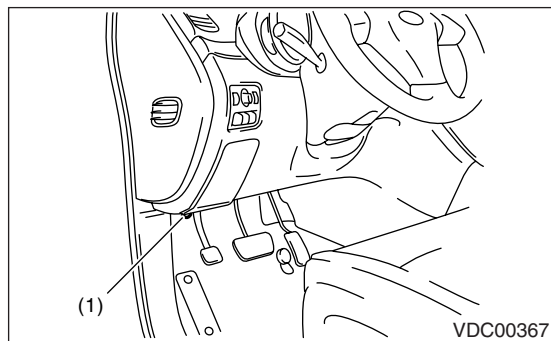
2) Connect the diagnosis cable to Subaru Select Monitor.

3) Insert the cartridge to the Subaru Select Monitor. <Ref. to VDC(diag)-10, SPECIAL TOOL, PREPARATION TOOL, General Description.>



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

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



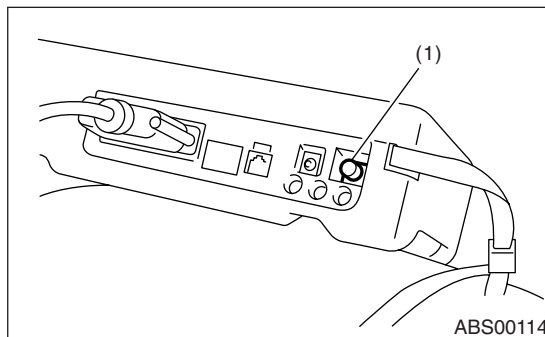
(1) Data link connector

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

#### CAUTION:

**Do not connect the scan tools except for Subaru Select Monitor.**

5) Turn the ignition switch to ON (engine OFF) and turn the Subaru Select Monitor switch to ON.



(1) Power switch

6) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.

7) On the «System Selection Menu» display screen, select the {Brake Control} and press the [YES] key.

8) Press the [YES] key after the {VDC AWD AT} is displayed.

9) On the «VDC Diagnosis» screen, select the {Diagnostic Code(s) Display}, and then press the [YES] key.

#### NOTE:

- For details concerning operation procedure, 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).>

- DTCs are displayed up to three in detected order.

10) 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.>

Display	Contents to be monitored
Current	Indicate the latest malfunction DTC on the Subaru Select Monitor display.
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.

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

### 2. READ CURRENT DATA

- 1) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
  - 2) On the «System Selection Menu» display screen, select the {Brake Control} and press the [YES] key.
  - 3) Press the [YES] key after {VDC AWD AT} is displayed.
  - 4) On the «Brake Control Diagnosis» display screen, select the {Current Data Display/Save}, and then press the [YES] key.
  - 5) On the «Display Menu» screen, select the data display method and press the [YES] key.
  - 6) Using a 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
Front/Rear G Sensor	Vehicle front/rear acceleration detected by G sensor is displayed.	m/s <sup>2</sup>
Lateral G Sensor	Vehicle lateral acceleration detected by G sensor is displayed.	m/s <sup>2</sup>
IG power supply voltage	Voltage supplied to VDCCM&H/U is displayed.	V
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
ABS Control Flag	ABS control condition is displayed.	ON or OFF
EBD Control Flag	EBD control condition is displayed.	ON or OFF
Brake Switch	Brake ON/OFF is displayed.	ON or OFF
ABS Warning Light	ON operation of the ABS warning light is displayed.	ON or OFF
EBD Warning Light	ON operation of the EBD warning light is displayed.	ON or OFF
Motor Relay Signal	Motor relay operation signal is displayed.	ON or OFF
Motor Relay Monitor	Motor relay monitor signal is displayed.	ON or OFF
TCS Control Flag	TCS control condition is displayed.	ON or OFF
Valve Relay Signal	Valve relay operation signal is displayed.	ON or OFF
VDC Control Flag	VDC control condition is displayed.	ON or OFF
VDC Warning Light	ON operation of the VDC warning light is displayed.	ON or OFF
OFF Light	ON/OFF condition of TCS OFF indicator light is displayed.	ON or OFF
E/G Control Prohibited Flag	Engine control command signal is displayed.	1 or 0
OFF Switch Signal	Operation condition of TCS OFF switch is displayed.	ON or OFF
Motor Fail Safe Relay Drive Signal	Motor fail safe relay drive signal is displayed.	ON or OFF

#### NOTE:

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

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

### 3. CLEAR MEMORY MODE

- 1) On the «Main Menu», select the {2. Each System Check} and press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Brake Control} and press the [YES] key.
- 3) Press the [YES] key after {VDC AWD AT} is displayed.
- 4) On the «Brake Control Diagnosis» display screen, select the {Memory Clear} and press the [YES] key.

Display	Contents to be monitored
Clear memory?	DTC deleting function

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

#### NOTE:

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

### 4. 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 VDC-12, ABS Sequence Control.>
VDC sequence control	Operate the valve and pump motor continuously to perform the VDC sequence control.	<Ref. to VDC-15, VDC Sequence Control.>

### 5. FREEZE FRAME DATA

#### NOTE:

- Data stored at the time of trouble occurrence is shown on display.
- Each time trouble occurs, the latest information is stored in the freeze frame data in memory.

Display	Contents to be monitored
IG Counter	Number of times ignition switch turned to ON is displayed.
DTC	The recorded failure code 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.
Vehicle Speed	Vehicle speed calculated by VDC control module is displayed.
G Sensor First Shaft	The sensor value for a 45° angle crossed 2 axis G sensor is displayed.
G Sensor Second Shaft	
Yaw Rate Sensor	Vehicle angular speed detected by yaw rate sensor is displayed.
IG power supply voltage	Voltage supplied to VDC control module is displayed.
Steering Angle Sensor	Steering angle detected by steering angle sensor is displayed.
Pressure sensor output	Brake fluid pressure detected by pressure sensor is displayed.
Engine Speed	Engine speed on malfunction occurrence is displayed.
Acceleration Opening Angle	Acceleration opening is displayed.
Gear position	Gear position on malfunction occurrence is displayed.
Steering Angle Sensor Malfunction Code	The recorded steering angle sensor failure code is displayed?
ABS Control Flag	ABS control condition is displayed.
EBD Control Flag	EBD control condition is displayed.
Brake Switch	Brake ON/OFF is displayed.
TCS Control Flag	TCS control condition is displayed.
VDC Control Flag	VDC control condition is displayed.
E/G Control Flag	
Absolute angle recognition flag	Whether the absolute angle was determined is displayed.
OFF Switch Signal	Operation condition of TCS OFF switch is displayed.

# Subaru Select Monitor

VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

## B: INSPECTION

### 1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

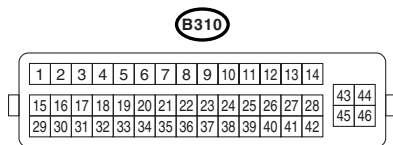
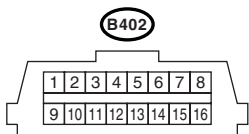
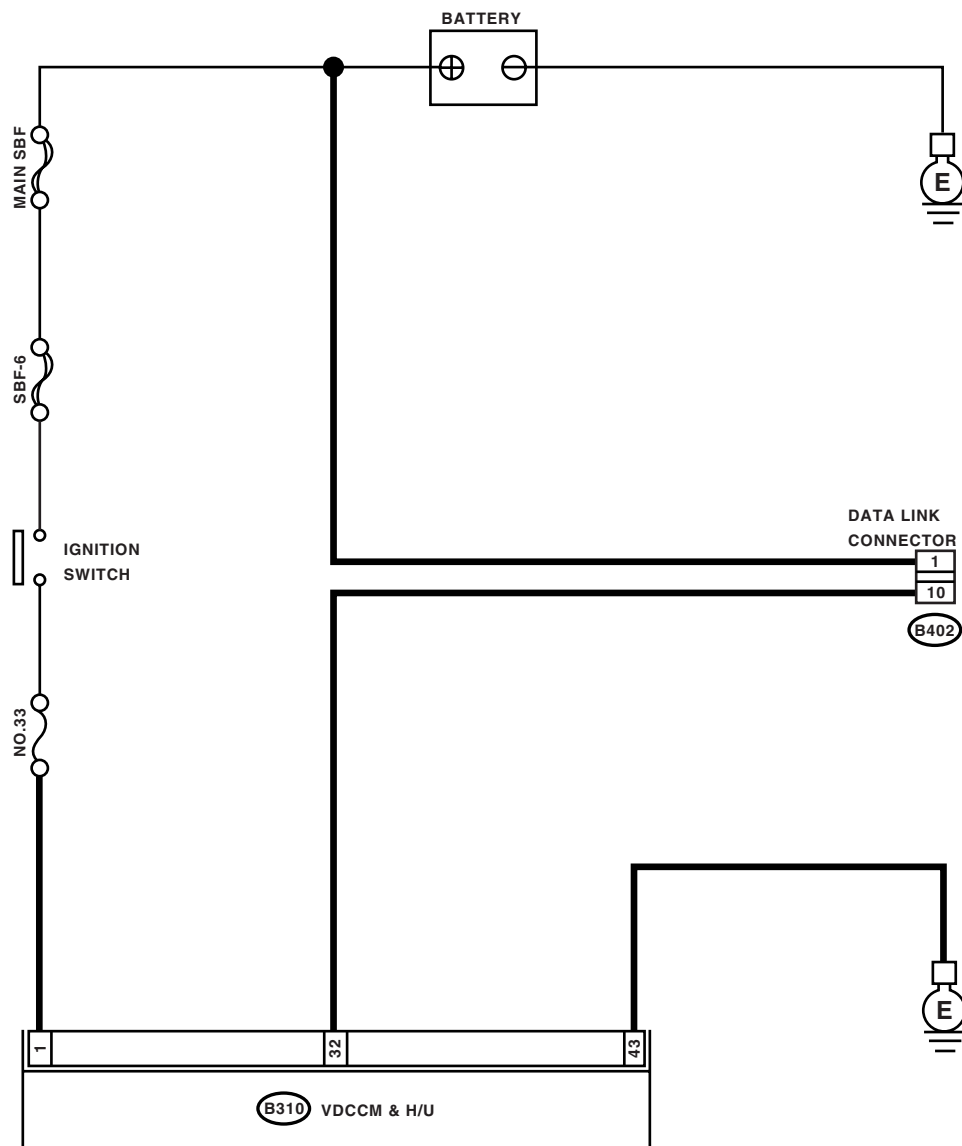
#### DETECTING CONDITION:

Defective harness connector

#### TROUBLE SYMPTOM:

Communication is impossible between VDC and Subaru Select Monitor.

#### WIRING DIAGRAM:



VDC00368

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

Step	Check	Yes	No
<b>1</b> <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.
<b>2</b> <b>CHECK BATTERY.</b> 1) Turn the ignition switch to OFF. 2) Measure the battery voltage.	Is the voltage more than 11 V?	Go to step 3.	Charge or replace the battery.
<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 system can be executed normally.	Are the system name and model year 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.	Are the system name and model year displayed on Subaru Select Monitor?	Replace the VDCCM&H/U. <Ref. to VDC-7, VDC Control Module & 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 VDCCM&H/U, ECM and TCM. 3) Measure the resistance between data link connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B402) No. 10 — Chassis ground:</b>	Is the resistance more than 1 MΩ?	Go to step 7.	Repair the harness and connector between each control module and data link connector.
<b>7</b> <b>CHECK THE VDCCM&amp;H/U OUTPUT SIGNALS.</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>(B402) No. 10 (+) — 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 THE 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. 32 — (B402) No. 10:</b>	Is the resistance less than 0.5 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. 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 THE 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. 43 — Chassis ground:</b>	Is the resistance less than 0.5 $\Omega$ ?	Go to step 12.	Repair the open circuit in harness between VDCCM&H/U and inhibitor side connector, and poor contact of coupling connector.
<b>12 CHECK POOR CONTACT IN CONNECTOR.</b>	Is there poor contact in control module power supply, ground circuit and data link connector?	Repair the connector.	Replace the VDCCM&H/U. <Ref. to VDC-7, VDC Control Module & Hydraulic Control Unit (VDCCM&H/U).>