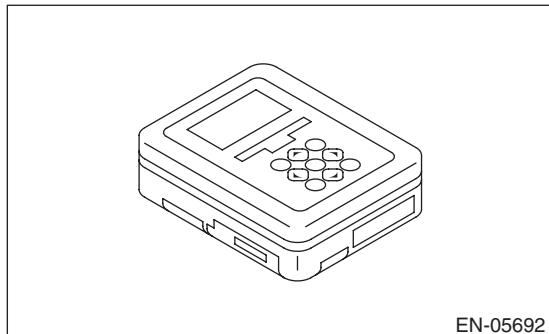


## 6. Subaru Select Monitor

### A: OPERATION

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

- 1) Prepare the Subaru Select Monitor kit. <Ref. to VDC(diag)-9, SPECIAL TOOL, PREPARATION TOOL, General Description.>

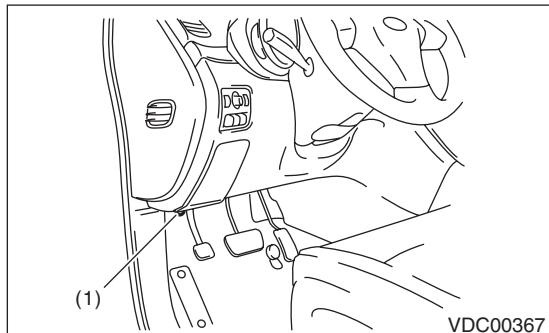


- 2) Prepare PC with Subaru Select Monitor installed.
- 3) Connect the USB cable to the SDI (Subaru Diagnostic Interface) and the USB port of the personal computer (port for Subaru Select Monitor).

**NOTE:**

The dedicated port for the Subaru Select Monitor means the USB port which was used to install the Subaru Select Monitor.

- 4) Connect the diagnosis cable to SDI.
- 5) Connect the SDI to the data link connector located in the lower portion of the instrument panel (on the driver's side).



(1) Data link connector

**CAUTION:**

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

- 6) Start the PC.
- 7) Turn the ignition switch to ON (engine OFF) and run the "PC application help for Subaru Select Monitor".

**NOTE:**

For detailed operation procedure, refer to the "PC application help for Subaru Select Monitor".

- 8) 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.>

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

### 2. READ CURRENT DATA

- 1) On the «Main Menu» display screen, select the {Each System Check}.
- 2) On the «System Selection Menu», select the {Brake Control System}.
- 3) Click the [OK] button after the {VDC} is displayed.
- 4) Select {Current Data Display & Save} in Brake Control Diagnosis display screen.
- 5) On the «Data Display Menu», 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 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      |
| Longitudinal 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> |
| ABS_CM Power 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 Lamp               | ON/OFF condition of the TCS OFF indicator light is displayed.         | ON or OFF        |
| E/G Control Stop Flag  | Engine control command signal is displayed.                           | 1 or 0           |
| OFF SW Signal          | Operation condition of TCS OFF switch is displayed.                   | ON or OFF        |
| Fail Safe Relay Signal | Motor fail safe relay drive signal is displayed.                      | ON or OFF        |

#### NOTE:

For details concerning the operation procedure, refer to the “PC application help for Subaru Select Monitor”.

# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

### 3. FUNCTION CHECK

| Display                                                                     | Contents to be displayed                                                              | Reference target                         |
|-----------------------------------------------------------------------------|---------------------------------------------------------------------------------------|------------------------------------------|
| ABS Sequence Control Mode                                                   | Operate the valve and pump motor continuously to perform the ABS sequence control.    | <Ref. to VDC-13, ABS Sequence Control.>  |
| VDC Check Mode                                                              | Operate the valve and pump motor continuously to perform the VDC sequence control.    | <Ref. to VDC-16, 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 yaw rate & G sensor "0" point. | <Ref. to VDC-20, Steering Angle Sensor.> |

### 4. 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 displayed                                                             |
|---------------------------|--------------------------------------------------------------------------------------|
| IG counter                | Number of times ignition switch turned to ON is displayed.                           |
| diagnostic trouble code   | 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 Axis (GL1) | The sensor value for a 45° angle crossed 2 axis G sensor is displayed.               |
| G Sensor Sec Axis (GL2)   |                                                                                      |
| Yaw Rate Sensor Output    | Vehicle angular speed detected by yaw rate sensor is displayed.                      |
| ABS_CM Power Voltage      | Voltage supplied to VDC control module is displayed.                                 |

| Display                           | Contents to be displayed                                       |
|-----------------------------------|----------------------------------------------------------------|
| Steering Angle Sensor Malfunction | 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.           |
| Accel. Opening Angle              | Acceleration opening is displayed.                             |
| Gear Position                     | Gear position on malfunction occurrence is displayed.          |
| Steering Angle Sens 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 Stop Flag             | Engine control command signal is displayed.                    |
| Steering angle flag               | Whether the absolute angle was determined is displayed.        |
| OFF SW Signal                     | Operation condition of TCS OFF switch is displayed.            |

### B: INSPECTION

#### 1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

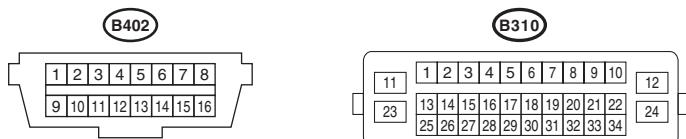
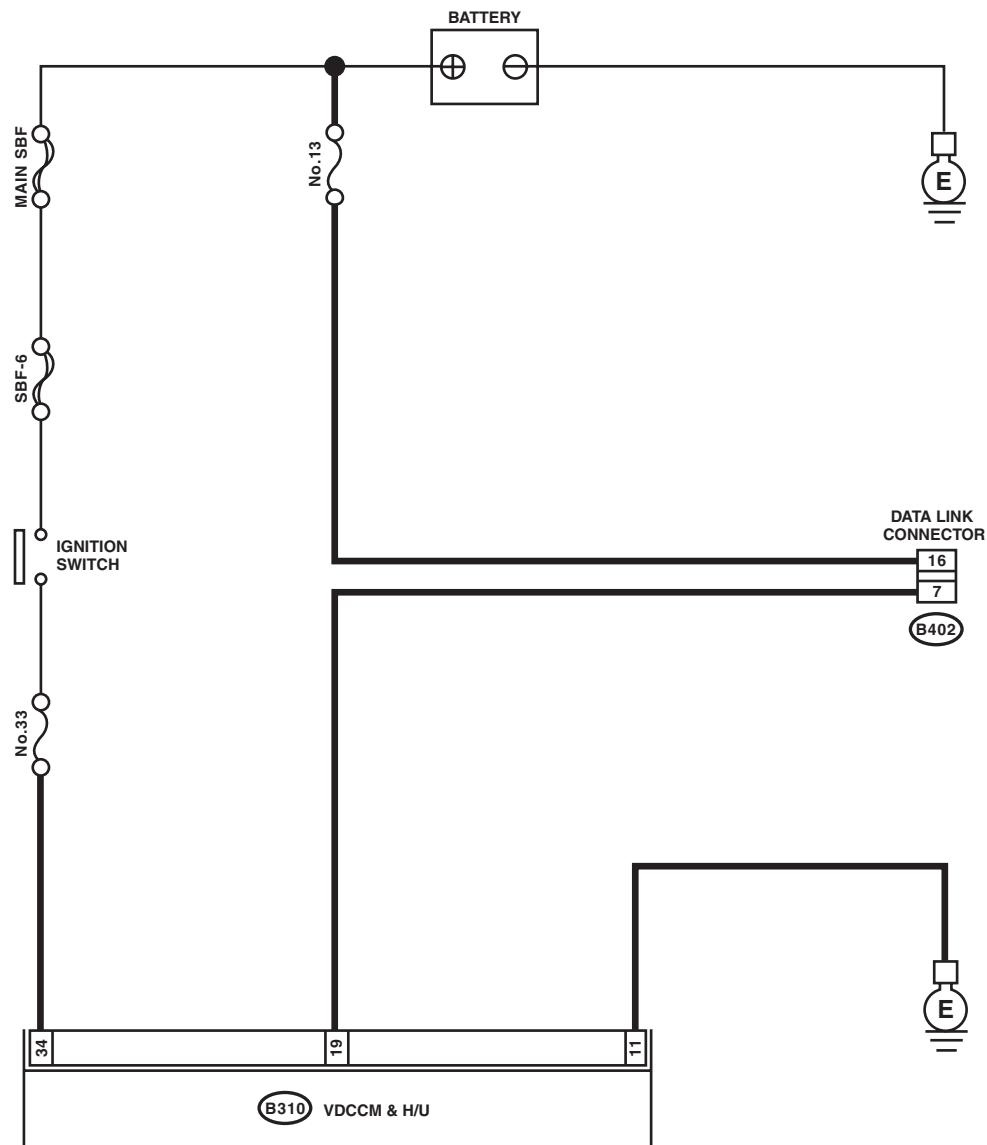
##### DETECTING CONDITION:

Defective harness connector

##### TROUBLE SYMPTOM:

Communication is impossible between VDC and Subaru Select Monitor.

##### WIRING DIAGRAM:



# Subaru Select Monitor

## VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

| Step                                                                                                                                                                                                                                                                                                                         | Check                                                                             | Yes                                                                                                   | No                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| <b>1 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 CHECK BATTERY.</b><br>1) Turn the ignition switch to OFF.<br>2) Measure the battery voltage.                                                                                                                                                                                                                            | Is the voltage 11 V or more?                                                      | Go to step 3.                                                                                         | Charge or replace the battery.                                                        |
| <b>3 CHECK BATTERY TERMINAL.</b>                                                                                                                                                                                                                                                                                             | Is there poor contact at battery terminal?                                        | Repair or tighten the battery terminal.                                                               | Go to step 4.                                                                         |
| <b>4 CHECK SUBARU SELECT MONITOR COMMUNICATION.</b><br>1) Turn the ignition switch to ON.<br>2) Using the Subaru Select Monitor, check whether communication to other systems can be executed normally.                                                                                                                      | Is the system name displayed on the Subaru Select Monitor?                        | Go to step 8.                                                                                         | Go to step 5.                                                                         |
| <b>5 CHECK SUBARU SELECT MONITOR COMMUNICATION.</b><br>1) Turn the ignition switch to OFF.<br>2) Disconnect the VDCCM&H/U connector.<br>3) Turn the ignition switch to ON.<br>4) Check whether communication to other system can be executed normally.                                                                       | Is the system name displayed on the Subaru Select Monitor?                        | Replace the VDCCM&H/U.<br><Ref. to VDC-8, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> | Go to step 6.                                                                         |
| <b>6 CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND DATA LINK CONNECTOR.</b><br>1) Turn the ignition switch to OFF.<br>2) Disconnect the VDCCM&H/U, ECM and TCM.<br>3) Measure the resistance between data link connector and chassis ground.<br><br><i>Connector &amp; terminal (B402) No. 7 — Chassis ground:</i> | 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 CHECK VDCCM&amp;H/U OUTPUT SIGNALS.</b><br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between data link connector and chassis ground.<br><br><i>Connector &amp; terminal (B402) No. 7 (+) — Chassis ground (-):</i>                                                                                   | 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 CHECK HARNESS CONNECTOR BETWEEN VDCCM&amp;H/U AND DATA LINK CONNECTOR.</b><br>Measure the resistance between VDCCM&H/U connector and data link connector.<br><br><i>Connector &amp; terminal (B310) No. 19 — (B402) No. 7:</i>                                                                                          | 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 CHECK INSTALLATION OF VDCCM&amp;H/U CONNECTOR.</b><br>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 CHECK POWER SUPPLY CIRCUIT.</b><br>1) Turn the ignition switch to ON. (engine OFF)<br>2) Measure the ignition power supply voltage between VDCCM&H/U connector and chassis ground.<br><br><i>Connector &amp; terminal (B310) No. 34 (+) — Chassis ground (-):</i>                                                      | 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                                                                                                    |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------|-------------------------------------------------------------------------------------------------------|
| 11 <b>CHECK HARNESS CONNECTOR BETWEEN VDCCM&amp;H/U AND CHASSIS GROUND.</b><br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from the VDCCM&H/U.<br>3) Measure the resistance of harness between VDCCM&H/U connector and chassis ground.<br><i>Connector &amp; terminal</i><br><i>(B310) No. 11 — Chassis ground:</i> | Is the resistance less than $0.5 \Omega$ ?                                                    | Go to step 12.        | Repair the open circuit of VDCCM&H/U ground harness and poor contact of connector.                    |
| 12 <b>CHECK POOR CONTACT OF 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.<br><Ref. to VDC-8, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> |