

6. Subaru Select Monitor

A: OPERATION

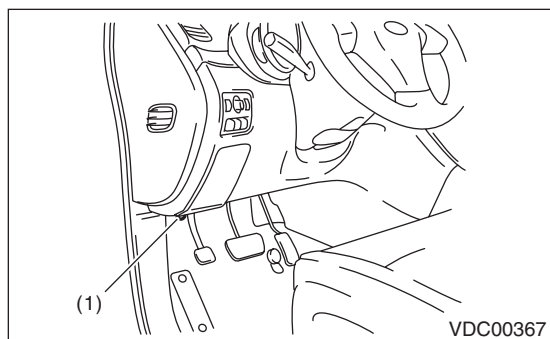
1. READ DIAGNOSTIC TROUBLE CODE (DTC)

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

2) Connect the diagnosis cable to Subaru Select Monitor.

3) 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.

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 AWD AT} is displayed.

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

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)-33, List of Diagnostic Trouble Code (DTC).>

- DTCs are displayed up to three in detected order.

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 | 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. |

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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» display screen, select the {Brake Control}.
 - 3) Select the [OK] after {VDC AWD AT} 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 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 ² |
| Lateral G Sensor | Vehicle lateral acceleration detected by G sensor is displayed. | m/s ² |
| 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”.

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3. CLEAR MEMORY MODE

- 1) On the «Main Menu», select the {2. Each System Check}.
- 2) On the «System Selection Menu» display screen, select the {Brake Control}.
- 3) Select the [OK] after {VDC AWD AT} 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 OFF” are shown on the display screen, turn the ignition switch to OFF and close the Subaru Select Monitor.

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-13, ABS Sequence Control.> |
| VDC sequence control | Operate the valve and pump motor continuously to perform the VDC sequence control. | <Ref. to VDC-16, 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 | Engine control command signal is displayed. |
| Absolute angle recognition flag | Whether the absolute angle was determined is displayed. |
| OFF Switch Signal | Operation condition of TCS OFF switch is displayed. |

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VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

B: INSPECTION

1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

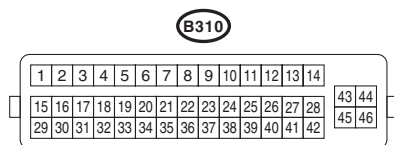
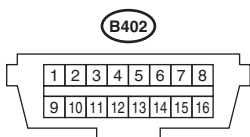
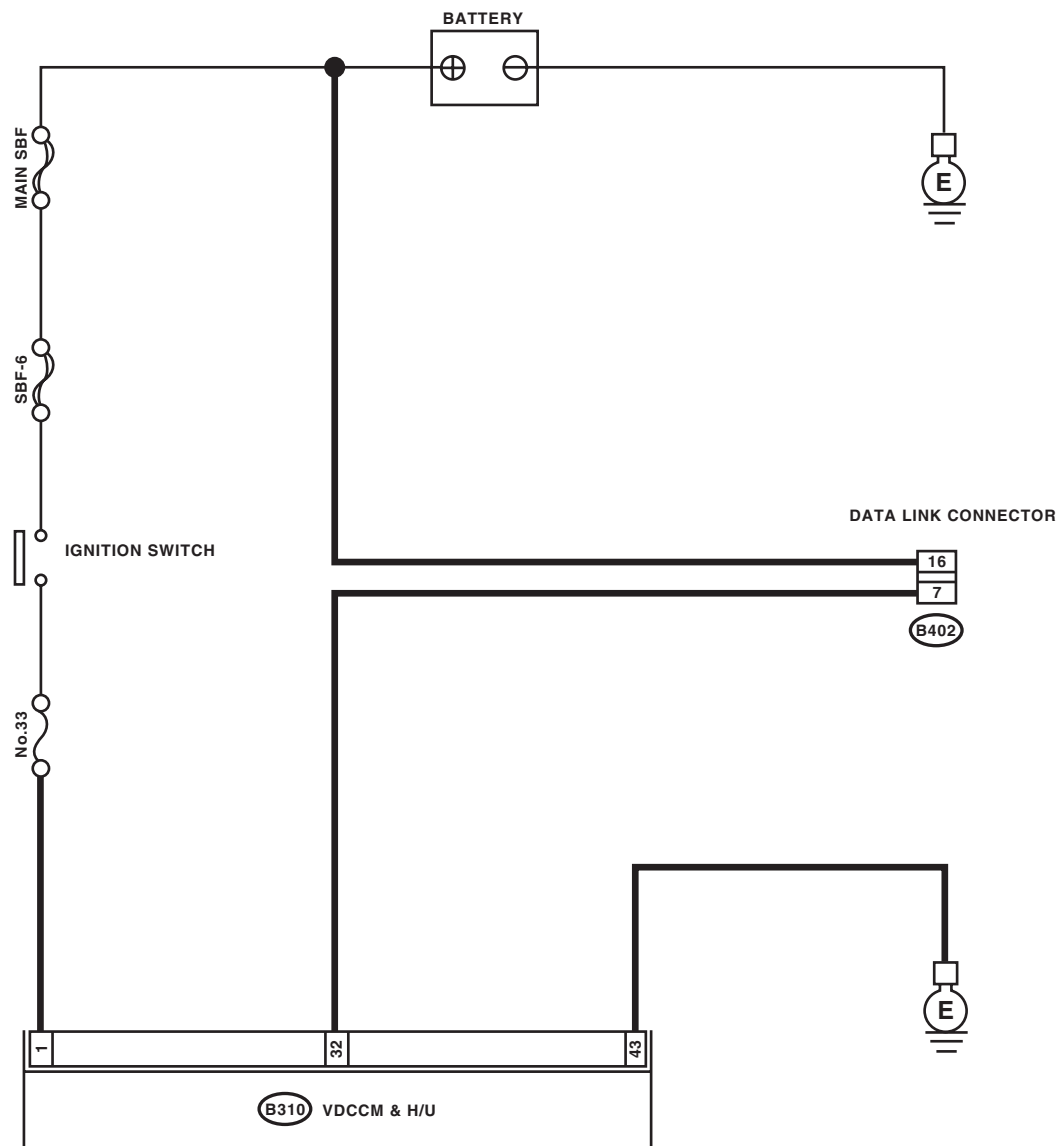
DETECTING CONDITION:

Defective harness connector

TROUBLE SYMPTOM:

Communication is impossible between VDC and Subaru Select Monitor.

WIRING DIAGRAM:



VDC00446

Subaru Select Monitor

VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

| 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 more than 11 V? | Go to step 3. | Charge or replace the battery. |
| 3 CHECK BATTERY TERMINAL. | Is there poor contact at 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 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. |
| 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&H/U. <Ref. to VDC-8, 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 (B402) No. 7 — Chassis ground: | Is the resistance more than 1 MΩ? | Go to step 7. | Repair the harness and connector between each control module and data link connector. |
| 7 CHECK THE VDCCM&H/U OUTPUT SIGNALS. 1) Turn the ignition switch to ON. 2) Measure the voltage between data link connector and chassis ground. Connector & terminal (B402) 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. 32 — (B402) 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. 1 (+) — 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. 43 — 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&H/U. <Ref. to VDC-8, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).> |