

Subaru Select Monitor

VEHICLE DYNAMICS CONTROL (VDC) (DIAGNOSTICS)

6. Subaru Select Monitor

A: OPERATION

1. HOW TO USE THE SUBARU SELECT MONITOR

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

2. READ CURRENT DATA

For detailed operation procedures, refer to “PC application help for Subaru Select Monitor”.

Display	Contents to be displayed	Unit of measure
Trip Count	Total number of ignition switch ON	times
Count	Counter	—
Time Count	Elapsed time after ignition switch ON	ms
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
Master Cylinder Pressure Sensor	Brake fluid pressure detected by pressure sensor is displayed.	bar
Longitudinal G Sensor	Vehicle longitudinal acceleration detected by longitudinal G sensor is displayed.	m/s ²
Lateral G Sensor	Vehicle lateral acceleration detected by lateral G sensor is displayed.	m/s ²
Voltage of IGN	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 driving signal is displayed.	ON or OFF
Valve Relay Signal	Valve relay driving signal is displayed.	ON or OFF
EBD Warning Light	ON operation of the EBD warning light is displayed.	ON or OFF
ABS Warning Lamp	ON operation of the ABS warning light is displayed.	ON or OFF
VDC Warning Lamp	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
E/G torques up Control Stop Flag	Engine control command signal is displayed.	1 or 0
VDC-OFF Light	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 Light Switch	Brake ON/OFF is displayed.	ON or OFF
Clutch switch	Clutch ON/OFF is displayed. (MT model)	ON or OFF
Reverse Signal	Reverse gear ON/OFF is displayed. (MT model)	ON or OFF

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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-17, ABS Sequence Control.>
VDC Check Mode	Operate the valve and pump motor continuously to perform the VDC sequence control.	<Ref. to VDC-20, VDC Sequence Control.>
VSC(VDC) Centering Mode	Set the steering angle sensor neutral position, and the lateral G sensor and longitudinal G sensor "0" point.	<Ref. to VDC-16, VDC SENSOR MIDPOINT SETTING MODE, ADJUSTMENT, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>

4. READ FREEZE FRAME DATA

NOTE:

- Freeze frame 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.

Display	Contents to be displayed	Unit of measure
Classification	Recorded trouble code is displayed.	—
Trip Count	Total number of ignition switch ON	times
Count	Counter	—
Time Count	Elapsed time after ignition switch ON	ms
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
Vehicle speed	Vehicle speed calculated by VDC control module 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
Master Cylinder Pressure Sensor	Brake fluid pressure detected by pressure sensor is displayed.	bar
Longitudinal G Sensor	Vehicle longitudinal acceleration detected by longitudinal G sensor is displayed.	m/s ²
Lateral G Sensor	Vehicle lateral acceleration detected by lateral G sensor is displayed.	m/s ²
Voltage of IGN	Voltage supplied to VDC control module is displayed.	V
Acceleration Pedal Position	Accelerator pedal opening angle is displayed.	%
Engine Speed	Engine speed on malfunction occurrence is displayed.	rpm
Steering angle flag	Whether the absolute angle of the steering angle sensor was determined is displayed.	Recognized or No recognition
EBD Control Flag	EBD control condition is displayed.	ON or OFF
ABS Control Flag	ABS control condition is displayed.	ON or OFF
TCS Control Flag	TCS control condition is displayed.	ON or OFF
VDC Control Flag	VDC control condition is displayed.	ON or OFF
E/G Control Stop Flag	Engine control command signal is displayed.	1 or 0
E/G torques up Control Stop Flag	Engine control command signal is displayed.	1 or 0
VDC OFF Status	ON/OFF condition of the VDC operated by the driver is displayed.	ON or OFF
Brake Light Switch	Brake ON/OFF is displayed.	ON or OFF
Clutch switch	Clutch ON/OFF is displayed. (MT model)	ON or OFF
Reverse Signal	Reverse gear ON/OFF is displayed. (MT model)	ON or OFF

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 check the applied model, refer to the "Model number plate" attached to the vehicle. <Ref. to ID-2, IDENTIFICATION, Identification.>
 - If you entered a wrong applied model, you can re-write it.
 - When the registration has not been performed, the DTC code "Parameter" 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 {Work Support}.
 - 6) On «Work Support» display, select {Select Parameter}.
 - 7) Check the applied model and option code indicated on the "Model number plate". <Ref. to ID-2, IDENTIFICATION, Identification.>
 - 8) Enter the applied model of 7-digit alphanumeric characters and press the [Enter] key.
 - 9) 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" (zero) in front and enter the code as 4 digits.
 - 10) 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.

- 11) Execute the Clear Memory Mode after parameter selection and registration operations because the DTC for "Parameter selection error" is memorized. <Ref. to VDC(diag)-23, 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 «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 {Work Support}.
- 6) On «Work Support» display, select {Confirm on parameter}.
- 7) 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.
- 8) 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)-17, PARAMETER SELECTION, OPERATION, Subaru Select Monitor.>

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7. READ PARAMETER

- 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 {Work Support}.
- 6) On «Work Support» display, select {Maintenance at the time of ECM replacement}.
- 7) Select «Reading of parameter: ECM to SSM».
- 8) Save and close the file.

8. WRITE PARAMETER

- 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 {Work Support}.
- 6) On «Work Support» display, select {Maintenance at the time of ECM replacement}.
- 7) Select «Writing of parameter: SSM to ECM».
- 8) Open the file saved in the «Reading of parameter: ECM to SSM» procedure.
- 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.

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B: INSPECTION

1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

DETECTING CONDITION:

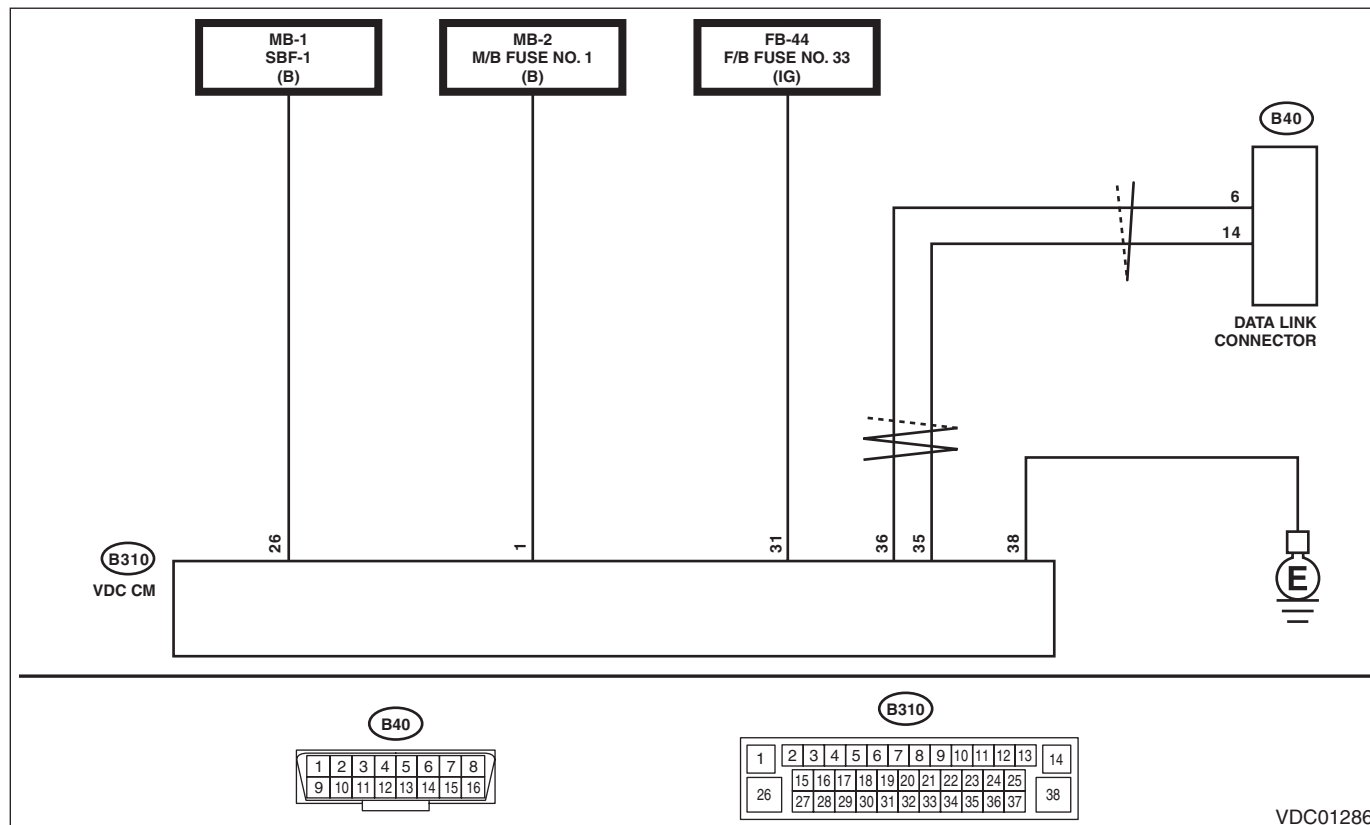
Defective harness connector

TROUBLE SYMPTOM:

Communication is impossible between VDC and Subaru Select Monitor.

WIRING DIAGRAM:

Vehicle dynamics control system <Ref. to WI-412, Vehicle Dynamics Control System.>



VDC01286

Step	Check	Yes	No
1	CHECK IGNITION SWITCH.	Is the ignition switch ON?	Go to step 2.
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.
3	CHECK BATTERY TERMINAL.	Is there poor contact at battery terminal?	Repair or tighten the battery terminal.
4	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 5.
5	CHECK LAN SYSTEM. Perform the diagnosis for LAN system. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Is there any fault in LAN system?	Perform the diagnosis according to DTC for LAN system. <Ref. to LAN(diag)-70, List of Diagnostic Trouble Code (DTC).>

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Step	Check	Yes	No
6 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch to ON. 2) Check whether communication to VDC system can be executed normally.	Is the system name displayed on Subaru Select Monitor?	Check the DTC in VDC system. <Ref. to VDC(diag)-21, Read Diagnostic Trouble Code (DTC).>	Go to step 7.
7 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 (-): (B310) No. 26 (+) — Chassis ground (-): (B310) No. 31 (+) — Chassis ground (-):	Is the voltage 10 — 15 V?	Go to step 8.	Repair open circuit in harness between VDCCM&H/U and battery.
8 CHECK 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. 38 — Chassis ground:	Is the resistance less than 10 Ω ?	Go to step 9.	Repair the open circuit of VDCCM&H/U ground circuit and poor contact of connector.
9 CHECK POOR CONTACT OF CONNECTOR.	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-8, VDC Control Module and Hydraulic Control Unit (VDCCM&H/U).>