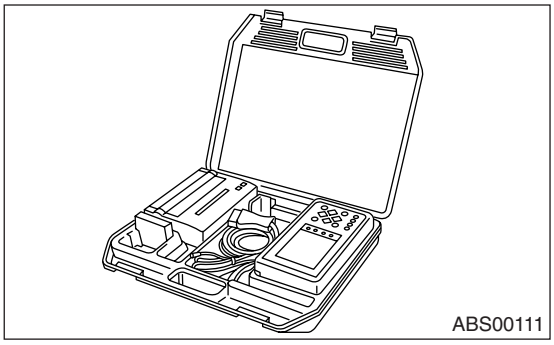
# 6. Subaru Select Monitor

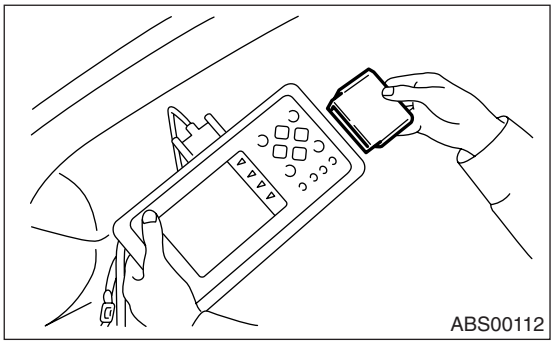
## A: OPERATION

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

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

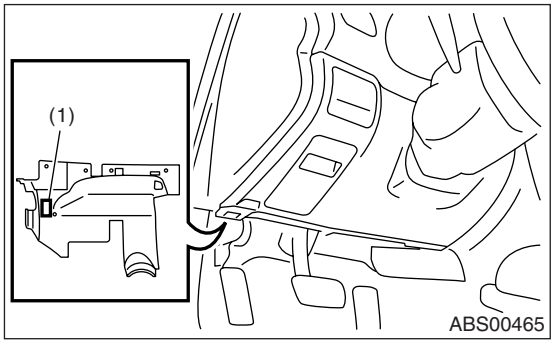



2) Connect the diagnosis cable to Subaru Select Monitor.
3) Insert the cartridge to Subaru Select Monitor. <Ref. to ABS(diag)-9, SPECIAL TOOL, PREPARATION TOOL, General Description.>




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

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

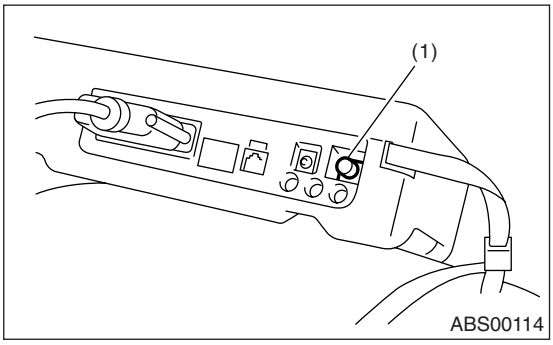



(1) Data link connector

(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 {ABS} is displayed.
9) On the «ABS Diagnosis» display screen, select the {DTC Display} and press the [YES] key.

NOTE:
• For details concerning operation procedure, refer to the "SUBARU SELECT MONITOR OPERATION MANUAL".
• For details concerning DTCs, refer to the "List of Diagnostic Trouble Code (DTC)". <Ref. to ABS(diag)-34, List of Diagnostic Trouble Code (DTC).>
• DTCs are displayed up to three in detected order.
• If a particular DTC is not properly stored in memory (due to a drop in ABSCM&H/U power supply, etc.) on the occurrence of a problem, the DTC which is suffixed with a question mark "?" appears on the Subaru Select Monitor display. This shows it may be an unreliable reading.

10) If ABS and Subaru Select Monitor cannot communicate, check the communication circuit. <Ref. to ABS(diag)-18, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.>

11) When DTC is not displayed, check the meter circuit or CAN communication circuit. <Ref. to ABS(diag)-20, WITHOUT DTC, INSPECTION, Subaru Select Monitor.>

| Display | Contents to be monitored |
|---|---|
| Current | Indicate the latest DTC on the Subaru Select Monitor display. |
| Old | Indicate the latest DTC in previous trouble on the Subaru Select Monitor display. |
| Older | Indicate the latest DTC in second previous trouble on the Subaru Select Monitor display. |
| Before 3 | Indicate the latest DTC in third previous trouble on the Subaru Select Monitor display. |

## 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 the {ABS} is displayed.
4) On the «Brake Control Diagnosis» screen, select the {Current Data Display/Save}, and then press the [YES] key.
5) On the «Data Display Menu» screen, select the data display style and press the [YES] key.
6) Using a scroll key, move 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 |
| BLS Signal | Brake ON/OFF is displayed. | ON or OFF |
| G Sensor | Vehicle acceleration detected by analog G sensor is displayed. | m/s ($m/s^2$) |
| Valve Relay Signal | Valve relay operation signal 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 Monitor | Motor relay monitor voltage is displayed. | V |
| IG power supply voltage | Voltage supplied to ABSCM&H/U is displayed. | V |
| ABS Control Flag | ABS control condition is displayed. | ON or OFF |
| ABS OK B Signal | ABS system normal/abnormal is displayed. | OK or NG |

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

## 3. CLEAR MEMORY MODE

1) On the «Main Menu» display screen, 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 the {ABS} is displayed.
4) On the «Brake Control Diagnosis» display screen, select the {Clear Memory} and press the [YES] key.

| Display | Contents to be monitored |
|---|---|
| Clear memory? | Function of clearing DTC. |

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. ABS SEQUENCE CONTROL

| Display | Contents to be monitored | Index No. |
|---|---|---|
| ABS sequence control | Operate the valve and pump motor continuously to perform the ABS sequence control. | <Ref. to ABS-10, ABS Sequence Control.> |

## 5. FREEZE FRAME DATA

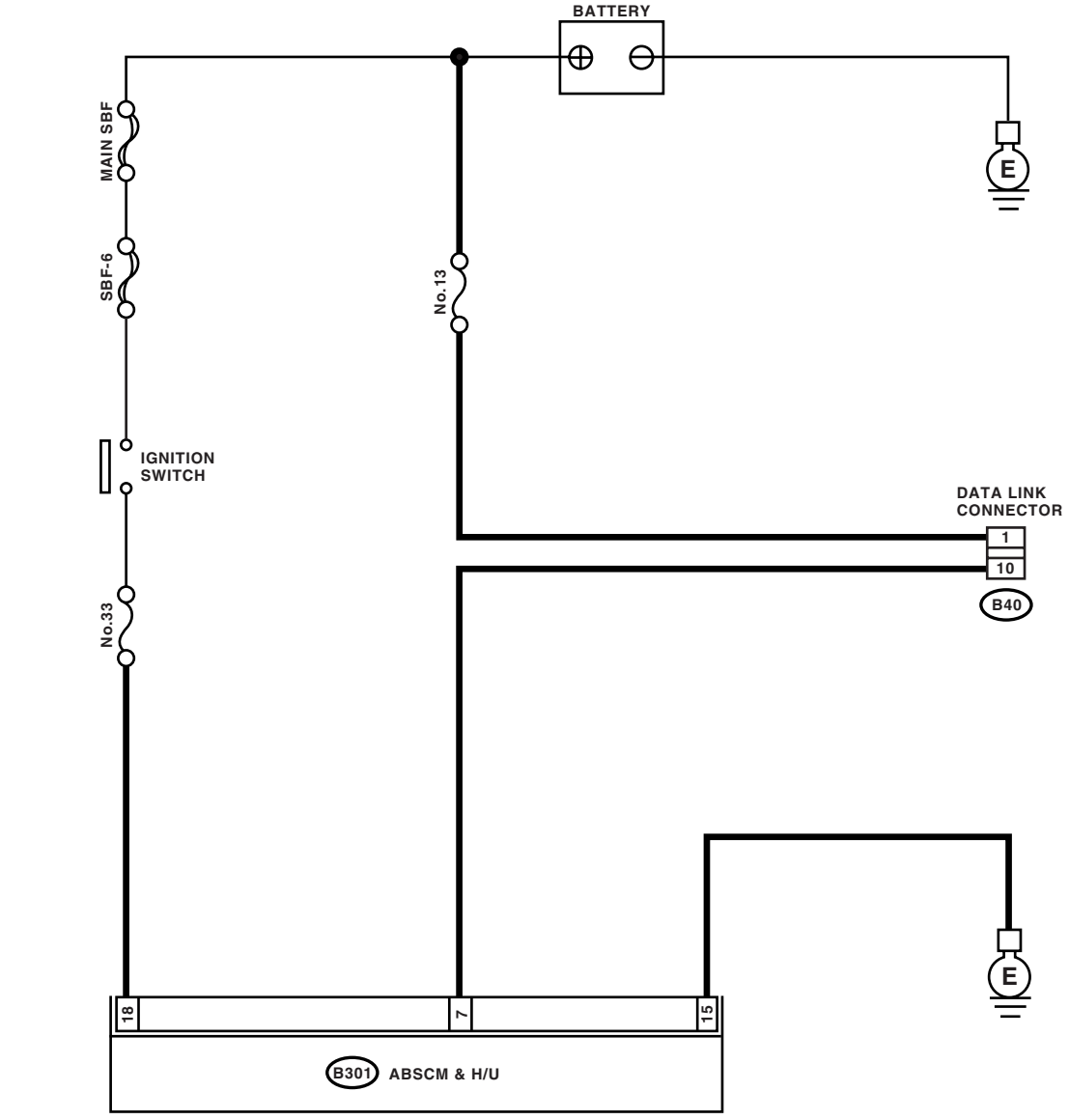
NOTE:
• Data stored at the time of trouble occurrence is shown on display.
• Each time trouble occurs, the latest information is stored in the freeze frame data in memory.
• Freeze frame data will be memorized up to three.
• If a Freeze Frame Data is not properly stored in memory (due to a drop in ABS control module power supply, etc.), the DTC which is suffixed with a question mark “?” appears on the Subaru Select Monitor display. This shows it may be an unreliable reading.

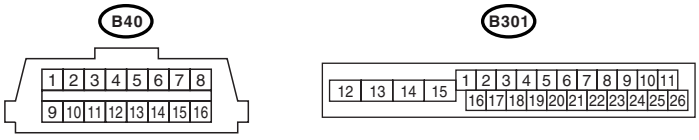
| Display | Contents to be monitored |
|---|---|
| FR Wheel speed | Wheel speed detected by the Front ABS wheel speed sensor RH is displayed in km/h or MPH. |
| FL Wheel speed | Wheel speed detected by the Front ABS wheel speed sensor LH is displayed in km/h or MPH. |
| RR Wheel speed | Wheel speed detected by the Rear ABS wheel speed sensor RH is displayed in km/h or MPH. |
| RL Wheel speed | Wheel speed detected by the Rear ABS wheel speed sensor LH is displayed in km/h or MPH. |
| IG power supply voltage | Voltage supplied (V) to ABSCM&H/U is displayed. |
| G Sensor | Vehicle acceleration detected by analog G sensor is displayed. |
| Motor relay monitor | Motor relay condition is displayed. |
| BLS Signal | Brake ON/OFF is displayed. |
| Vehicle speed | Vehicle speed calculated by ABS control module is displayed. |
| ABS Control Flag | ABS control condition is displayed. |
| Power Supply Failure | Whether abnormal voltage occurred or not is displayed during malfunction. |

# B: INSPECTION

## 1. COMMUNICATION FOR INITIALIZING IMPOSSIBLE

**DETECTING CONDITION:**
Defective harness connector
**TROUBLE SYMPTOM:**
Communication is impossible between ABS and Subaru Select Monitor.
**WIRING DIAGRAM:**




ABS00621

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **CHECK IGNITION SWITCH.** | Does the ignition switch turn to ON? | Go to step **2.** | Turn the ignition switch to ON, and select ABS mode using Subaru Select Monitor. |
| 2 | **CHECK BATTERY.**<br>1) Turn the ignition switch to OFF.<br>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.**<br>1) Turn the ignition switch to ON.<br>2) Using Subaru Select Monitor, check whether communication to other system can be executed normally. | Is 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.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the ABSCM&H/U connector.<br>3) Turn the ignition switch to ON.<br>4) Check whether communication to other systems can be executed normally. | Is the system name and model year displayed on Subaru Select Monitor? | Replace ABSCM&H/U. <Ref. to ABS-6, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).> | Go to step **6.** |
| 6 | **CHECK HARNESS CONNECTOR BETWEEN EACH CONTROL MODULE AND DATA LINK CONNECTOR.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect ABSCM&H/U, ECM and TCM.<br>3) Measure the resistance between data link connector and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 10 — 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 ABSCM&H/U OUTPUT SIGNAL.**<br>1) Turn the ignition switch to ON.<br>2) Measure the voltage between data link connector and chassis ground.<br>***Connector & terminal***<br>***(B40) No. 10 (+) — 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 HARNESS CONNECTOR BETWEEN ABSCM&H/U AND DATA LINK CONNECTOR.**<br>Measure the resistance between ABSCM&H/U connector and data link connector.<br>***Connector & terminal***<br>***(B301) No. 7 — (B40) No. 10:*** | Is the resistance less than 0.5 Ω? | Go to step **9.** | Repair the harness and connector between ABSCM&H/U and data link connector. |
| 9 | **CHECK INSTALLATION OF ABSCM&H/U CONNECTOR.**<br>Turn the ignition switch to OFF. | Is the ABSCM&H/U connector inserted into ABSCM&H/U until it is locked by clamps? | Go to step **10.** | Insert ABSCM&H/U connector into ABSCM&H/U. |
| 10 | **CHECK POWER SUPPLY CIRCUIT.**<br>1) Turn the ignition switch to ON. (engine OFF)<br>2) Measure the ignition power supply voltage between ABSCM&H/U connector and chassis ground.<br>***Connector & terminal***<br>***(B301) No. 18 (+) — Chassis ground (−):*** | Is the voltage 10 — 15 V? | Go to step **11.** | Repair the open circuit in harness between ABSCM&H/U and battery. |

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 11 | **CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND CHASSIS GROUND.**<br>1) Turn the ignition switch to OFF.<br>2) Disconnect the connector from ABSCM&H/U.<br>3) Measure the resistance of harness between ABSCM&H/U connector and chassis ground.<br>***Connector & terminal***<br>***(B301) No. 15 — Chassis ground:*** | Is the resistance less than 0.5 Ω? | Go to step **12.** | Repair the open circuit in harness between ABSCM&H/U and inhibitor side connector, and poor contact in 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 ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).> |

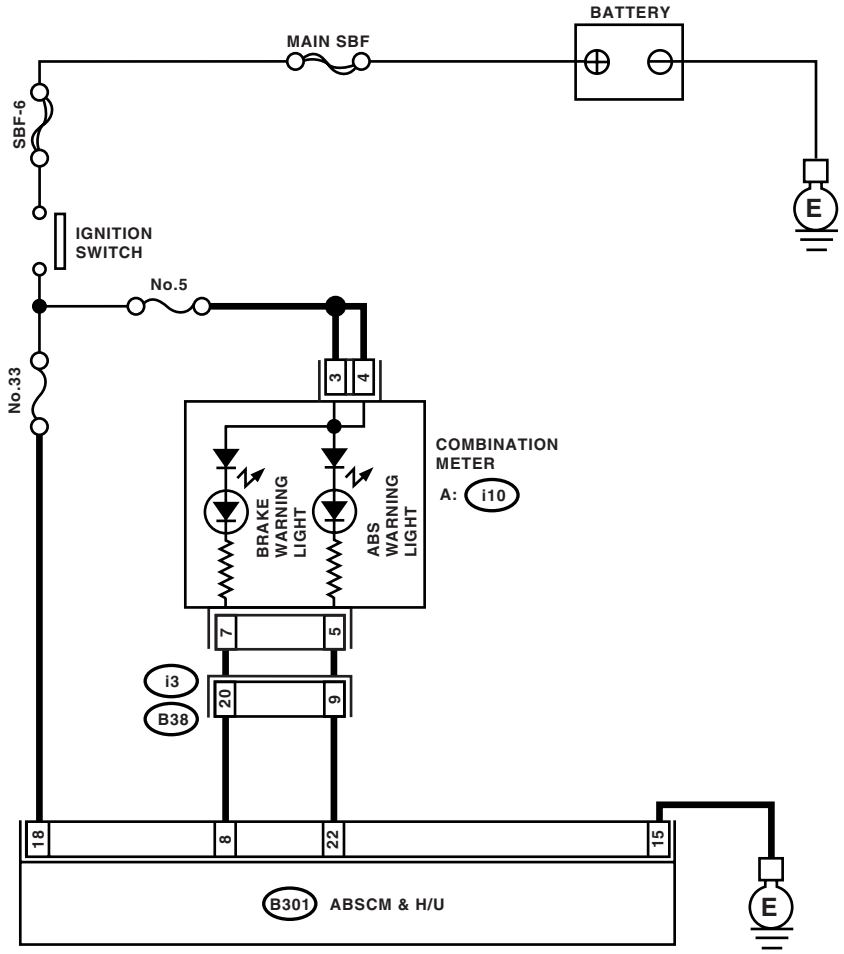
## 2. WITHOUT DTC

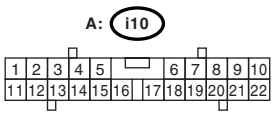
**DETECTING CONDITION:**
- Defective combination meter
- Open in harness

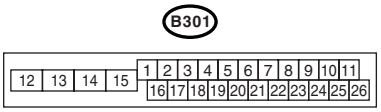
**TROUBLE SYMPTOM:**
- ABS warning light does not go off.
- “NO TROUBLE CODE” will be displayed on the Subaru Select Monitor.

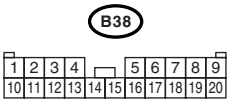
NOTE:
When the ABS warning light is OFF and “NO TROUBLE CODE” is displayed on Subaru Select Monitor, the system is in normal condition.

**WIRING DIAGRAM:**




ABS00593

| | Step | Check | Yes | No |
|---|---|---|---|---|
| 1 | **DATA CHECK SUBARU SELECT MONITOR.**<br>1) Select {Current Data Display & Save} in Subaru Select Monitor.<br>2) Read the condition of “ABS warning light”. | Is “ON” indicated? | Replace the ABSCM only. <Ref. to ABS-8, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).> | Go to step **2.** |
| 2 | **CHECK WIRING HARNESS.**<br>Measure the resistance between ABSCM connector and combination meter connector.<br>***Connector & terminal***<br>***(i10) No. 5 — (B301) No. 22:*** | Is the resistance less than 0.5 Ω? | Go to step **3.** | Repair the harness and connector between ABSCM&H/U and combination meter connector. |
| 3 | **CHECK POOR CONTACT IN CONNECTOR.** | Is there poor contact in ABSCM connector and combination meter connector? | Repair the connector. | Check the combination meter. |