

6. Subaru Select Monitor

A: OPERATION

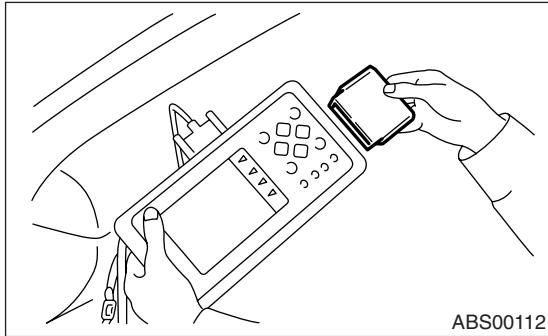
1. READ DIAGNOSTIC TROUBLE CODE (DTC)

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



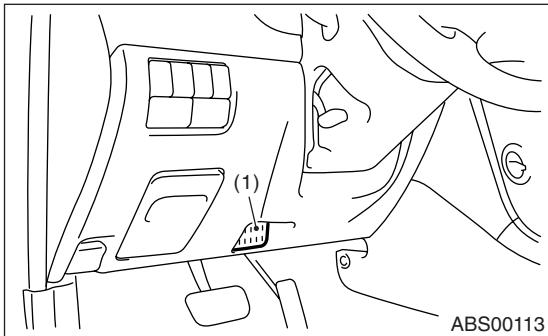
2) Connect the diagnosis cable to the Subaru Select Monitor.

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



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

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



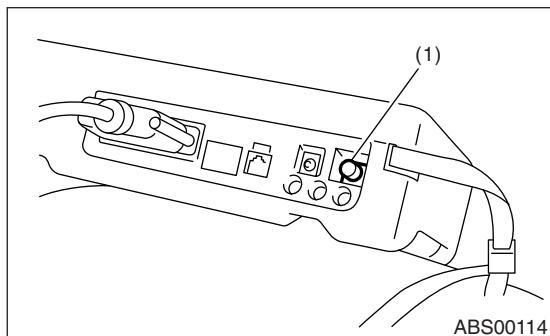
(1) Data link connector

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

CAUTION:

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

5) Turn the ignition switch ON (engine OFF) and turn the Subaru Select Monitor switch 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 {Brake Control} and press the [YES] key.

8) Press the [YES] key after the {ABS} is displayed.

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

NOTE:

- For details concerning operation procedures, refer to the "SUBARU SELECT MONITOR OPERATION MANUAL".

- For details concerning DTCs, refer to List of Diagnostic Trouble Code (DTC). <Ref. to ABS(diag)-35, List of Diagnostic Trouble Code (DTC).>

- Up to 3 DTCs are displayed in the order of detection.

- If a particular DTC is not stored in memory properly at the occurrence of problem (due to a drop in ABSCM&H/U power supply etc.), the DTC suffixed with a question mark "?" is displayed on Subaru Select Monitor display screen. This shows it may be an unreliable reading.

10) If communication is not possible between the ABS and the Subaru Select Monitor, check the communication circuit. <Ref. to ABS(diag)-19, COMMUNICATION FOR INITIALIZING IMPOSSIBLE, INSPECTION, Subaru Select Monitor.>

11) When DTC is not displayed, check the meter circuit and the CAN communication circuit. <Ref. to ABS(diag)-22, WITHOUT DTC, INSPECTION, Subaru Select Monitor.>

| Display | Contents to be monitored |
|-----------------|-----------------------------------------------------------------------------------------------------------------------|
| Current | The current DTC is displayed on Subaru Select Monitor display screen. |
| Previous | The latest DTC from the history of previous problems is displayed on Subaru Select Monitor display screen. |
| Second previous | The second latest DTC from the history of previous problems is displayed on the Subaru Select Monitor display screen. |
| Third previous | The third latest DTC from the history of previous problems is displayed on Subaru Select Monitor display screen. |

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 {ABS} 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 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 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 procedures, refer to the “SUBARU SELECT MONITOR OPERATION MANUAL”.

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ABS (DIAGNOSTICS)

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

| Display | Contents to be monitored |
|---------------|--------------------------|
| Clear memory? | DTC deleting function |

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

NOTE:

For details concerning operation procedures, 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-11, ABS Sequence Control.> |

5. FREEZE FRAME DATA

NOTE:

- 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.
- Up to 3 freeze frame data will be stored.
- If freeze frame data is not stored in memory properly (due to a drop in ABS control module power supply etc.), a DTC suffixed with a question mark “?” is displayed on Subaru Select Monitor display screen. This shows it may be an unreliable reading.

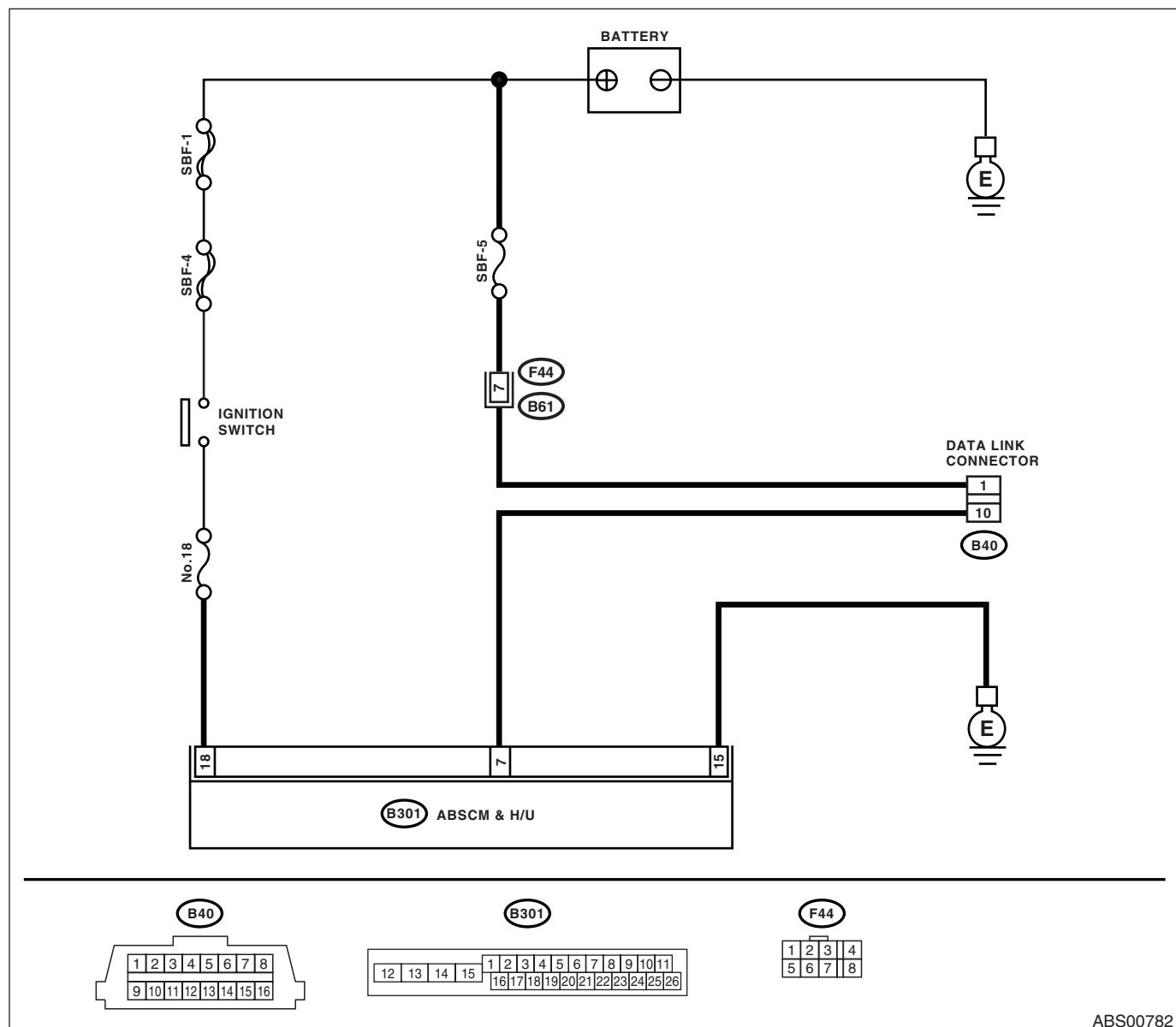
| Display | Contents to be monitored |
|-------------------------|--------------------------------------------------------------------------------------|
| FR Wheel Speed | Wheel speed detected by front ABS wheel speed sensor RH is displayed in km/h or MPH. |
| FL Wheel Speed | Wheel speed detected by 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. |
| 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:

| Step | Check | Yes | No |
|------------------------------------------------------------------------------------------------|--------------------------------|---------------|-------------------------------------------------------------------------------|
| 1 CHECK IGNITION SWITCH. | Is the ignition switch ON? | Go to step 2. | Turn the ignition switch ON, and select ABS mode using Subaru Select Monitor. |
| 2 CHECK BATTERY. 1) Turn the ignition switch OFF. 2) Measure the battery voltage. | Is the voltage more than 11 V? | Go to step 3. | Charge or replace the battery. |

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| Step | Check | Yes | No |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| 3 CHECK BATTERY TERMINAL. | Is there poor contact at the battery terminal? | Repair or tighten the battery terminal. | Go to step 4. |
| 4 CHECK SUBARU SELECT MONITOR COMMUNICATION. 1) Turn the ignition switch ON. 2) Using the Subaru Select Monitor, check whether communication to other systems 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 OFF. 2) Disconnect the ABSCM&H/U connectors. 3) Turn the ignition switch 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 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. 1) Turn the ignition switch OFF. 2) Disconnect the ABSCM&H/U, ECM and TCM. 3) Measure the resistance between data link connector and chassis ground. <i>Connector & terminal (B40) No. 10 — Chassis ground:</i> | 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 OUTPUT SIGNAL FOR ABSCM&H/U. 1) Turn the ignition switch ON. 2) Measure the voltage between ABSCM&H/U connector and chassis ground. <i>Connector & terminal (B40) No. 10 (+) — 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. |
| 8 CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND DATA LINK CONNECTOR. Measure the resistance between ABSCM&H/U connector and data link connector. <i>Connector & terminal (B301) No. 7 — (B40) No. 10:</i> | Is the resistance less than 0.5 Ω? | Go to step 9. | Repair harness and connector between ABSCM&H/U and data link connector. |
| 9 CHECK INSTALLATION OF ABSCM&H/U CONNECTOR. Turn the ignition switch OFF. | Is the ABSCM&H/U connector inserted into ABSCM&H/U until the clamp locks onto it? | Go to step 10. | Insert ABSCM&H/U connector into ABSCM&H/U. |
| 10 CHECK POWER SUPPLY CIRCUIT. 1) Turn the ignition switch ON. (Engine OFF) 2) Measure the ignition power supply voltage between ABSCM&H/U connector and chassis ground. <i>Connector & terminal (B301) No. 18 (+) — Chassis ground (-):</i> | Is the voltage 10 — 15 V? | Go to step 11. | Repair open circuit of harness between ABSCM&H/U and battery. |
| 11 CHECK HARNESS CONNECTOR BETWEEN ABSCM&H/U AND CHASSIS GROUND. 1) Turn the ignition switch OFF. 2) Disconnect the ABSCM&H/U connectors. 3) Measure the resistance of the harness between ABSCM&H/U and chassis ground. <i>Connector & terminal (B301) No. 15 — Chassis ground:</i> | Is the resistance less than 0.5 Ω? | Go to step 12. | Repair the open circuit of the harness between ABSCM&H/U and inhibitor side connector, and poor contact of coupling connector. |

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| Step | Check | Yes | No |
|--------------------------------------------|-----------------------------------------------------------------------------------------------|-----------------------|---------------------------------------------------------------------------------------------------------------------|
| 12 CHECK POOR CONTACT OF 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-7, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).> |

Subaru Select Monitor

ABS (DIAGNOSTICS)

2. WITHOUT DTC

DETECTING CONDITION:

- Defective combination meter
- Open circuit of harness

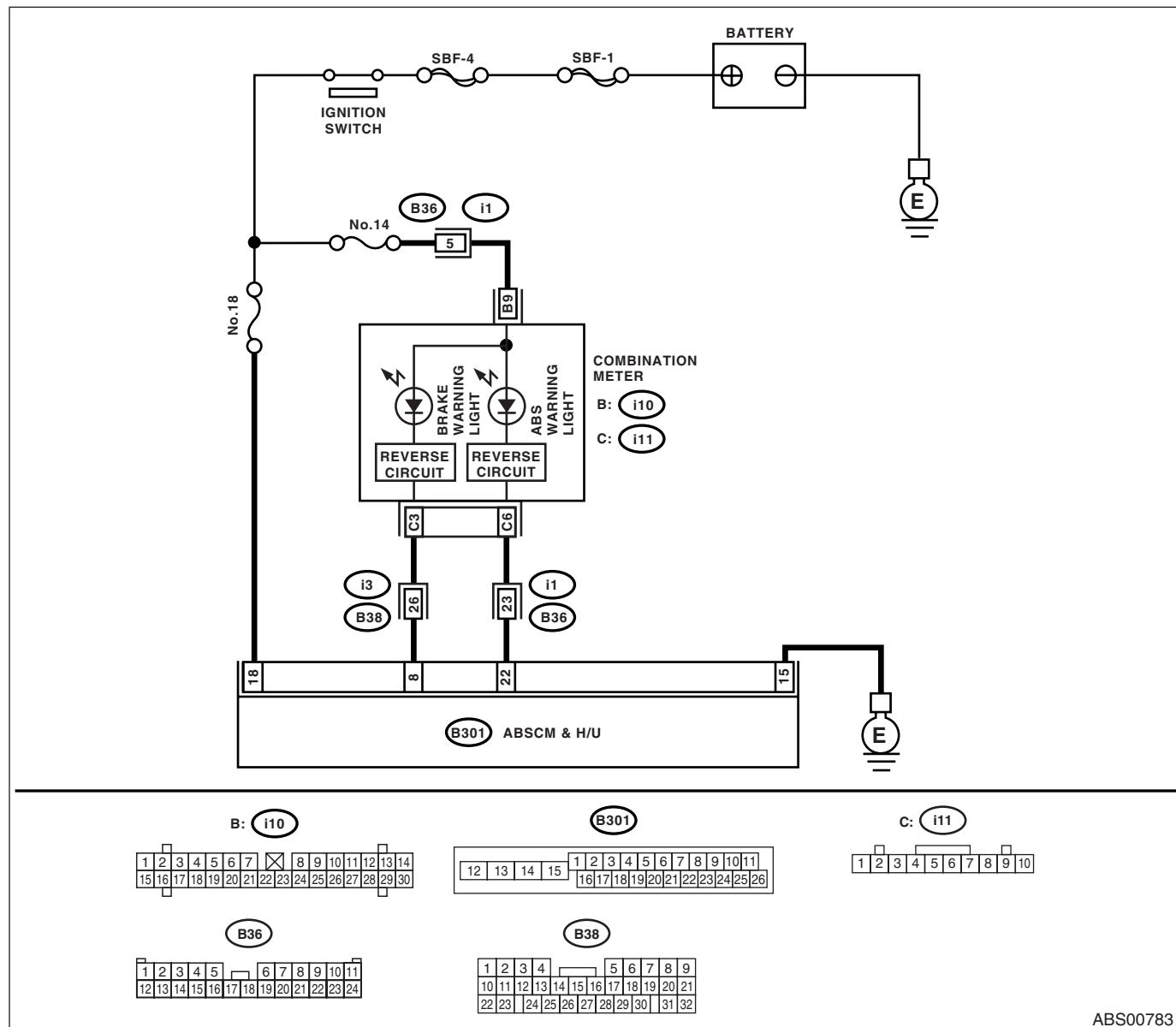
TROUBLE SYMPTOM:

- 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:



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ABS (DIAGNOSTICS)

| Step | Check | Yes | No |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------|
| 1 CHECK SUBARU SELECT MONITOR DATA. 1) Select {Current Data Display & Save} in Subaru Select Monitor. 2) Read the condition of "ABS warning light." | Is "ON" indicated? | Replace the ABSCM only. <Ref. to ABS-7, REPLACEMENT, ABS Control Module and Hydraulic Control Unit (ABSCM&H/U).> | Go to step 2. |
| 2 CHECK WIRING HARNESS. Measure the resistance between ABSCM connector and combination meter connector. <i>Connector & terminal</i> (i11) No. 6 — (B301) No. 22: | Is the resistance less than 0.5 Ω ? | Go to step 3. | Repair harness and connector between ABSCM&H/U and combination meter. |
| 3 CHECK POOR CONTACT OF CONNECTOR. | Is there poor contact in ABSCM connector and combination meter connector? | Repair the connector. | Check the combination meter. |