

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## IMMOBILIZER (DIAGNOSTICS)

### 10. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

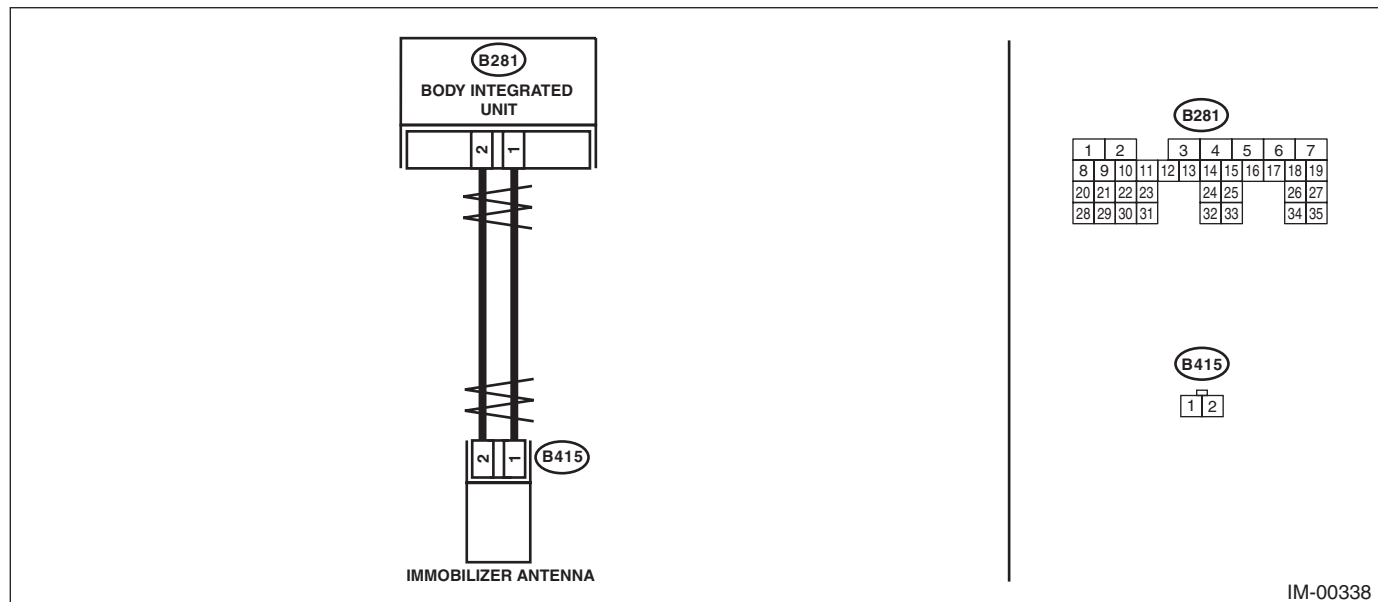
#### A: DTC B1570 ANTENNA

##### DTC DETECTING CONDITION:

Faulty antenna

##### WIRING DIAGRAM:

Immobilizer system <Ref. to WI-200, WIRING DIAGRAM, Immobilizer System.>



IM-00338

Step	Check	Yes	No
1	<b>CHECK ANTENNA CIRCUIT.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the antenna. <Ref. to SL-93, Immobilizer Antenna.> 3) Measure the resistance of antenna circuit. <b>Connector &amp; terminal</b> <b>(B415) No. 1 — No. 2:</b>	Go to step 2.	Replace the antenna. <Ref. to SL-93, Immobilizer Antenna.>
2	<b>CHECK ANTENNA CIRCUIT.</b> 1) Disconnect the connector from body integrated unit. 2) Measure the resistance between body integrated unit connector and antenna connector. <b>Connector &amp; terminal</b> <b>(B281) No. 1 — (B415) No. 1:</b> <b>(B281) No. 2 — (B415) No. 2:</b>	Go to step 3.	Repair the harness.
3	<b>CHECK ANTENNA CIRCUIT.</b> Measure the resistance between body integrated unit connector and chassis ground. <b>Connector &amp; terminal</b> <b>(B281) No. 1 — Chassis ground:</b> <b>(B281) No. 2 — Chassis ground:</b>	Go to step 4.	Repair the harness.

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Step	Check	Yes	No
<b>4</b> <b>CHECK BODY INTEGRATED UNIT FUNCTION.</b> 1) Connect the connector to antenna. 2) Connect the connector to body integrated unit. 3) Insert the key into the ignition switch, then use an oscilloscope to measure changes in voltage between the antenna connectors. <b>Connector &amp; terminal</b> <b>(B281) No. 1 (+) — Chassis ground (–):</b>	Is the maximum voltage more than 40 V? (Approx. 0.1 second after inserting the key) Is the voltage 0 V? (Approx. 1 second after inserting the key)	Go to step 5.	Replace the body integrated unit <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.
<b>5</b> <b>CHECK IGNITION KEY (TRANSPONDER).</b> 1) Remove the key from ignition switch. 2) Start the engine using other key which is already registered.	Does the engine start?	Replace the ignition key (transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Replace the body integrated unit <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

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### IMMOBILIZER (DIAGNOSTICS)

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#### B: DTC B1571 REFERENCE CODE INCOMPATIBILITY

##### DTC DETECTING CONDITION:

Reference code incompatibility between body integrated unit and ECM

Step	Check	Yes	No
<b>1</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Finish the diagnosis.	Go to step 2.
<b>2</b> <b>CHECK FOR ANY OTHER DTC ON DISPLAY.</b>	Is any other immobilizer DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to IM(diag)-14, List of Diagnostic Trouble Code (DTC).> Execute the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the ECM. <Ref. to FU(H6DO)-54, Engine Control Module (ECM).> Replace the body integrated unit. <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

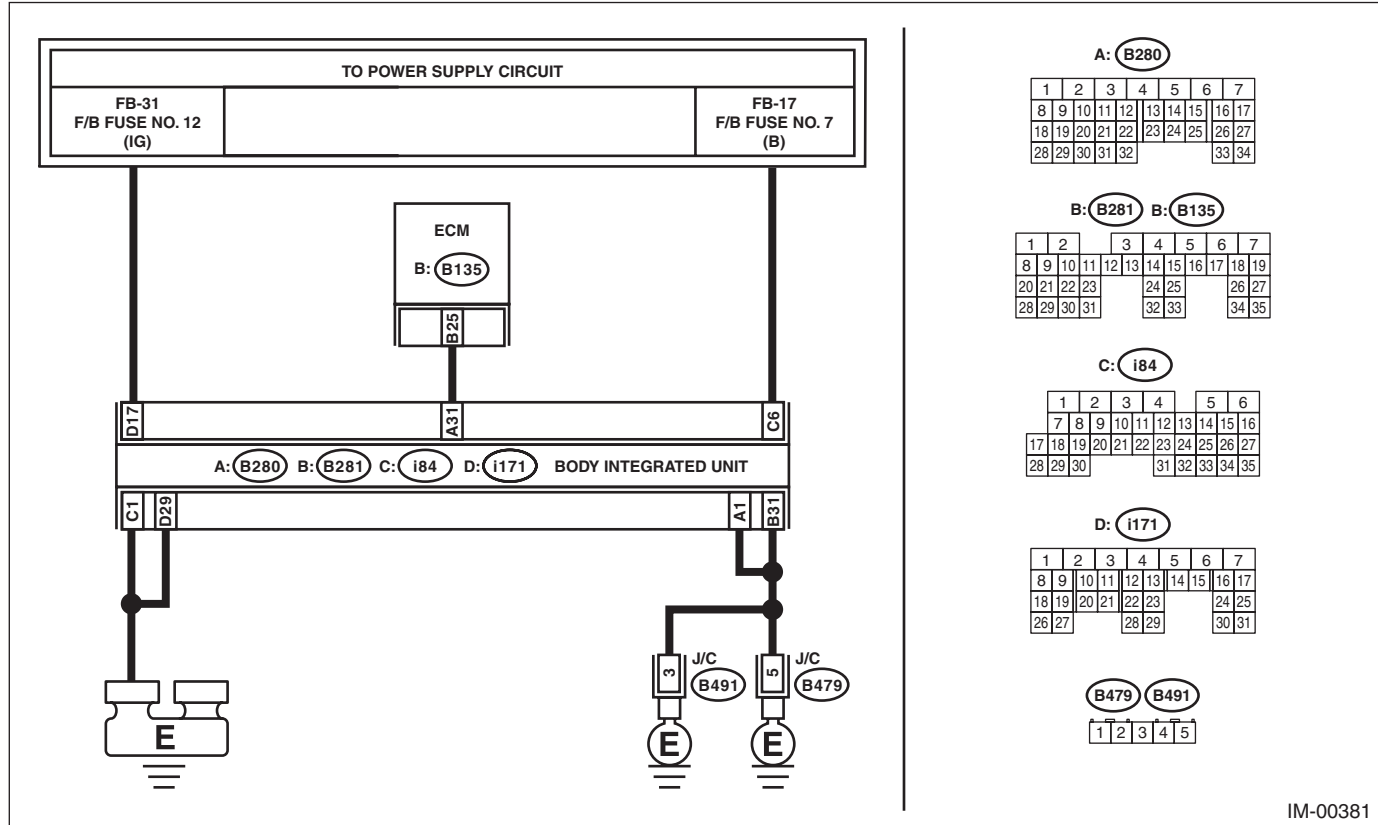
### C: DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)

#### DTC DETECTING CONDITION:

Communication failure between body integrated unit and ECM

#### WIRING DIAGRAM:

Immobilizer system <Ref. to WI-200, WIRING DIAGRAM, Immobilizer System.>



IM-00381

Step	Check	Yes	No
<b>1</b> <b>CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the connector from body integrated unit. 3) Measure the voltage between the body integrated unit connector terminal and chassis ground. <i>Connector &amp; terminal (i84) No. 6 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Go to step 2.	Check the harness for open or short circuit between body integrated unit and fuse.
<b>2</b> <b>CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to ON. 2) Measure the voltage between the body integrated unit connector terminal and chassis ground. <i>Connector &amp; terminal (i171) No. 17 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Go to step 3.	Check the harness for open or short circuit between the body integrated unit and ignition switch.

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Step	Check	Yes	No
<b>3 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT.</b> 1) Turn the ignition switch to OFF. 2) Measure the resistance between the body integrated unit connector terminal and chassis ground. <i>Connector &amp; terminal</i> <i>(B280) No. 1 — Chassis ground:</i> <i>(B281) No. 31 — Chassis ground:</i> <i>(i84) No. 1 — Chassis ground:</i> <i>(i171) No. 29 — Chassis ground:</i>	Is the resistance less than 10 $\Omega$ ?	Go to step 4.	Repair the open circuit of the body integrated unit ground circuit.
<b>4 CHECK GROUND CIRCUIT FOR ECM.</b> Measure the resistance between the ECM ground terminal and engine ground.	Is the resistance less than 10 $\Omega$ ?	Go to step 5.	Repair the ECM ground circuit.
<b>5 CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM.</b> 1) Disconnect the connector from ECM. 2) Measure the resistance between body integrated unit connector terminal and ECM connector terminal. <i>Connector &amp; terminal</i> <i>(B280) No. 31 — (B135) No. 25:</i>	Is the resistance less than 10 $\Omega$ ?	Go to step 6.	Repair the open circuit of the harness between the body integrated unit and ECM.
<b>6 CHECK COMMUNICATION CIRCUIT HARNESS.</b> 1) Turn the ignition switch to ON. 2) Measure the voltage between the body integrated unit connector terminal and chassis ground. <i>Connector &amp; terminal</i> <i>(B280) No. 31 (+) — Chassis ground (-):</i>	Is the voltage 6 V or more?	Repair the harness between body integrated unit and ECM.	Go to step 7.
<b>7 CHECK COMMUNICATION CIRCUIT HARNESS.</b> Measure the voltage between ECM connector terminal and engine ground. <i>Connector &amp; terminal</i> <i>(B135) No. 25 (+) — Engine ground (-):</i>	Is the voltage 6 V or more?	Repair the harness between body integrated unit and ECM.	Go to step 8.
<b>8 CHECK ECM BY COMMUNICATION LINE CHECK.</b> 1) Connect the connector to ECM only. 2) Start the communication line short check. <Ref. to IM(diag)-8, COMMUNICATION LINE CHECK, OPERATION, Subaru Select Monitor.>	Is the communication line check OK?	Replace the body integrated unit. <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the ECM. <Ref. to FU(H6DO)-54, Engine Control Module (ECM).> Perform the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

### NOTE:

Refer to the following inspection when DTC is detected after inspection above. <Ref. to IM(diag)-25, DTC B1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

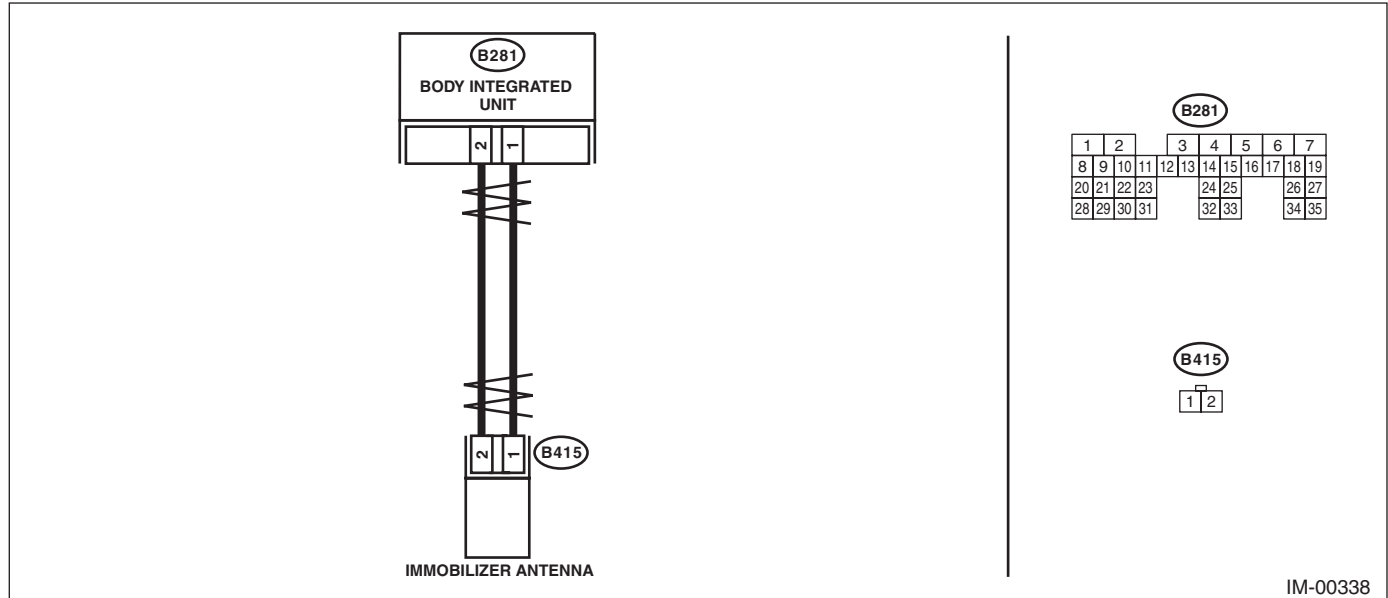
## D: DTC B1574 KEY COMMUNICATION FAILURE

### DTC DETECTING CONDITION:

Communication failure between key and body integrated unit

### WIRING DIAGRAM:

Immobilizer system <Ref. to WI-200, WIRING DIAGRAM, Immobilizer System.>



Step	Check	Yes	No
<b>1 CHECK BODY INTEGRATED UNIT FUNCTION.</b> Insert the key into the ignition switch (LOCK position), then measure changes in voltage between the antenna connector and the chassis ground. <b>Connector &amp; terminal</b> <b>(B415) No. 1 (+) — Chassis ground (—):</b>	Is the maximum voltage more than 40 V? (Approx. 0.1 second after inserting the key) Is the voltage 0 V? (Approx. 1 second after inserting the key)	Go to step 2.	Replace the body integrated unit. <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".
<b>2 CHECK IGNITION KEY (TRANSPONDER).</b> 1) Remove the key from ignition switch. 2) Start the engine using other key which is already registered.	Does the engine start?	Register ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the body integrated unit. <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### IMMOBILIZER (DIAGNOSTICS)

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#### E: DTC B1575 INCORRECT IMMOBILIZER KEY

##### DTC DETECTING CONDITION:

Incorrect immobilizer key (Use of unregistered key in body integrated unit)

Step	Check	Yes	No
<b>1</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Finish the diagnosis.	Replace ignition keys (including transponder) which cannot be registered. Go to step 2.
<b>2</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Finish the diagnosis.	Replace the body integrated unit. <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

## F: DTC B1576 EGI CONTROL MODULE EEPROM

### DTC DETECTING CONDITION:

- ECM malfunctioning
- Inaccessible ROM in ECM during key registration.

Step	Check	Yes	No
<b>1</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step 2.
<b>2</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step 3.
<b>3</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Replace the ECM. <Ref. to FU(H6DO)-54, Engine Control Module (ECM).>



# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

## IMMOBILIZER (DIAGNOSTICS)

### G: DTC B1577 IMM CONTROL MODULE EEPROM

#### DTC DETECTING CONDITION:

- Body integrated unit malfunctioning
- Failed to access ROM inside the body integrated unit.

Step	Check	Yes	No
<b>1</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step 2.
<b>2</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step 3.
<b>3</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Replace the body integrated unit. <Ref. to SL-84, Body Integrated Unit.> Register all ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

## H: DTC B1578 METER FAILURE

### DTC DETECTING CONDITION:

- Except Canada models

Reference code incompatibility between combination meter and body integrated unit or communication failure between body integrated unit and ECM

- Canada models

Reference code incompatibility between security control module and body integrated unit or communication failure between body integrated unit and ECM

Step	Check	Yes	No
<b>1</b> <b>CHECK DTC.</b> Read the DTC of body integrated unit using Subaru Select Monitor.	Is any of DTC B1401, B1405 and B1406 detected?	Go to step 2.	<Ref. to IM(diag)-19, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
<b>2</b> <b>CHECK LAN COMMUNICATION SYSTEM.</b> Inspect LAN communication system. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Is DTC U1300, U1301, U1302, B1100 or B1101 of the body integrated unit displayed?	Perform the diagnosis according to the DTC. <Ref. to LAN(diag)-59, List of Diagnostic Trouble Code (DTC).>	Go to step 3.
<b>3</b> <b>CHECK DTC.</b> Perform inspection for the diagnosis trouble code detected in step 1.	Is DTC B1401 detected?	Go to step 4.	Perform the diagnosis for DTC B1405 or B1406.
<b>4</b> <b>CHECK COMBINATION METER.</b> Perform the registration of immobilizer. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is the immobilizer registration achieved?	Go to step 5.	Replace the combination meter and perform the registration of immobilizer again.
<b>5</b> <b>CHECK ENGINE START.</b> Start the engine.	Does the engine start?	System is normal.	Replace the combination meter, perform the registration of immobilizer again and check that the engine starts normally.

### NOTE:

When the combination meter and body integrated unit are replaced at a time, the immobilizer can not be registered. In this case, it is necessary to rewrite the ID into the body integrated unit.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### IMMOBILIZER (DIAGNOSTICS)

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#### **I: DTC B1401 M COLLATION NG**

**NOTE:**

For diagnostic procedures, refer to DTC B1578 "METER FAILURE". <Ref. to IM(diag)-25, DTC B1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

#### **J: DTC B1402 IMMOBILIZER KEY COLLATION NG**

**NOTE:**

For diagnostic procedures, refer to the following items.

- DTC B1575 "INCORRECT IMMOBILIZER KEY" <Ref. to IM(diag)-22, DTC B1575 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
- DTC B1570 "ANTENNA" <Ref. to IM(diag)-16, DTC B1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
- DTC P1574 "KEY COMMUNICATION FAILURE" <Ref. to IM(diag)-21, DTC B1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

## K: DTC B1405 SCU COLLATION NG

### DTC DETECTING CONDITION:

Reference code incompatibility between security control module and body integrated unit

Step	Check	Yes	No
1 <b>CHECK SCM COLLATION MODE.</b> Using Subaru Select Monitor, perform the function check «SCM Collation Mode» for the body integrated unit. <Ref. to BC(diag)-22, OPERATION, Function Check.>	Is there any malfunction?	Make sure it is possible to start the engine with all keys. This completes the work.	Perform the diagnosis according to the Select Monitor display.

## Diagnostic Procedure with Diagnostic Trouble Code (DTC)

### IMMOBILIZER (DIAGNOSTICS)

#### L: DTC B1406 SCU\_EEPROM\_NG

##### DTC DETECTING CONDITION:

- Defective security control module
- ROM of security control module cannot be accessed

Step	Check	Yes	No
<b>1</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step 2.
<b>2</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step 3.
<b>3</b> <b>PERFORM IGNITION KEY REGISTRATION.</b> Perform registration to all keys used for the vehicle. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration of all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Replace the security control module. <Ref. to SL-78, Security Control Module.> Register all ignition keys (transponders). Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

##### NOTE:

When the security control module and body integrated unit are replaced at a time, the immobilizer can not be registered. In this case, it is necessary to rewrite the ID into the body integrated unit.

### **M: DTC P0513 INCORRECT IMMOBILIZER KEY**

**NOTE:**

For diagnostic procedures, refer to DTC B1575 “INCORRECT IMMOBILIZER KEY”. <Ref. to IM(diag)-22, DTC B1575 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **N: DTC P1570 ANTENNA**

**NOTE:**

For diagnostic procedures, refer to DTC B1570 “ANTENNA”. <Ref. to IM(diag)-16, DTC B1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **O: DTC P1571 REFERENCE CODE INCOMPATIBILITY**

**NOTE:**

For diagnostic procedures, refer to DTC B1571 “REFERENCE CODE INCOMPATIBILITY”. <Ref. to IM(diag)-18, DTC B1571 REFERENCE CODE INCOMPATIBILITY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **P: DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)**

**NOTE:**

For diagnostic procedures, refer to DTC B1572 “IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)”. <Ref. to IM(diag)-19, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **Q: DTC P1574 KEY COMMUNICATION FAILURE**

**NOTE:**

For diagnostic procedures, refer to DTC B1574 “KEY COMMUNICATION FAILURE”. <Ref. to IM(diag)-21, DTC B1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **R: DTC P1576 EGI CONTROL MODULE EEPROM**

**NOTE:**

For diagnostic procedures, refer to DTC B1576 “EGI CONTROL MODULE EEPROM”. <Ref. to IM(diag)-23, DTC B1576 EGI CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **S: DTC P1577 IMM CONTROL MODULE EEPROM**

**NOTE:**

For diagnostic procedures, refer to DTC B1577 “IMM CONTROL MODULE EEPROM”. <Ref. to IM(diag)-24, DTC B1577 IMM CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **T: DTC P1578 METER FAILURE**

**NOTE:**

For diagnostic procedures, refer to DTC B1578 “METER FAILURE”. <Ref. to IM(diag)-25, DTC B1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# **Diagnostic Procedure with Diagnostic Trouble Code (DTC)**

IMMOBILIZER (DIAGNOSTICS)

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# LAN SYSTEM (DIAGNOSTICS)

# *LAN(diag)*

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