

IMMOBILIZER (DIAGNOSTICS)

IM(diag)

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Basic Diagnostic Procedure

IMMOBILIZER (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

1. MODELS WITHOUT KEYLESS ACCESS

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 CONFIRM NUMBER OF REGISTERED IMMOBILIZER KEY. Confirm the number of registered immobilizer key. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is the number of registration 0?	Register the immobilizer system.	Go to step 2.
2 CHECK SECURITY INDICATOR LIGHT. 1) Remove the ignition key from ignition switch. 2) Wait at least 60 seconds.	Does the security indicator light blink?	Go to step 3.	Check the security indicator light circuit. <Ref. to IM(diag)-11, CHECK SECURITY INDICATOR LIGHT CIRCUIT, INSPECTION, Diagnostics Chart for Security Indicator Light.>
3 CHECK KEY SWITCH. Insert the ignition key in the ignition switch. (OFF or ACC)	Does the security indicator light remain blinking?	Check the key switch circuit. <Ref. to IM(diag)-13, CHECK KEY SWITCH CIRCUIT, INSPECTION, Diagnostics Chart for Security Indicator Light.>	Go to step 4.
4 CHECK SECURITY INDICATOR LIGHT. Check the security indicator light status in the condition of step 3.	Does the security indicator light go off?	Go to step 7.	Go to step 5.
5 CHECK SECURITY INDICATOR LIGHT. Turn the ignition switch to ON.	Does the security indicator light go off?	Go to step 7.	Go to step 6.
6 CHECK ENGINE START. Turn the ignition switch to START.	Does the starter operate?	Check the LAN communication system. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Go to step 8.
7 CHECK ENGINE START. Turn the ignition switch to START.	Does the engine start?	Immobilizer system is normal.	Go to step 9.
8 CHECK DTC. Read the DTC of body integrated unit and ECM and time stamp using Subaru Select Monitor. NOTE: For time stamp, refer to "LAN SYSTEM". <Ref. to LAN(diag)-6, TIME STAMP, CAUTION, General Description.>	Is the DTC displayed on screen?	Go to step 10.	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>



Basic Diagnostic Procedure

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
9 CHECK DTC. Read the DTC of body integrated unit and ECM and time stamp using Subaru Select Monitor. NOTE: For time stamp, refer to "LAN SYSTEM". <Ref. to LAN(diag)-6, TIME STAMP, CAUTION, General Description.>	Is the DTC displayed on screen?	Go to step 10.	Perform the diagnosis for engine system. <Ref. to EN(H4DO)(diag)-2, ENGINE, PROCEDURE, Basic Diagnostic Procedure.>
10 CHECK FREEZE FRAME DATA. Using the Subaru Select Monitor, check the Freeze Frame Data.	Are the data recorded?	Record the data. Go to step 11.	Go to step 11.
11 PERFORM DIAGNOSIS. 1) Inspect using the "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to IM(diag)-16, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> 2) Repair the trouble cause. 3) Perform the Clear Memory Mode. 4) Read DTCs again.	Is the DTC displayed on screen?	Inspect using the "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to IM(diag)-16, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Finish the diagnosis.

2. MODELS WITH KEYLESS ACCESS

NOTE:

For immobilizer diagnosis of model with keyless access, refer to "Keyless Access with Push Button Start System". <Ref. to KPS(diag)-2, Basic Diagnostic Procedure.>



General Description

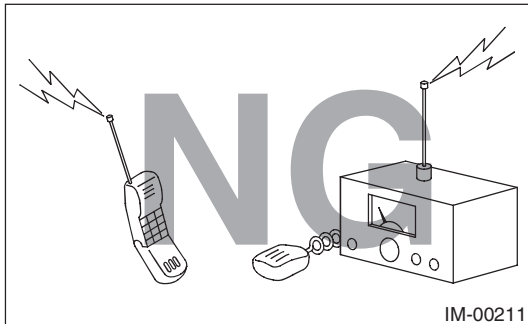
IMMOBILIZER (DIAGNOSTICS)

2. General Description

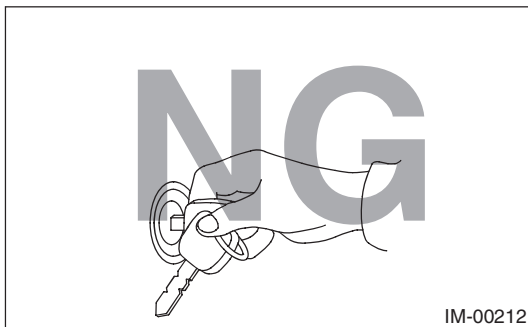
A: CAUTION

CAUTION:

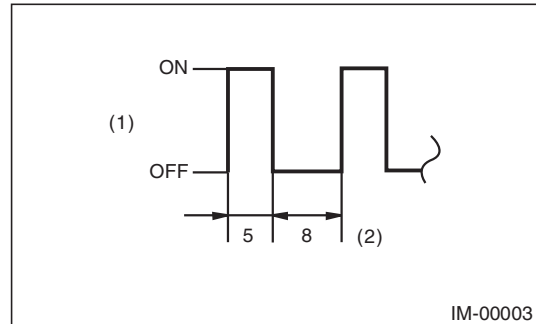
- Do not use the electrical test equipment on the airbag system wiring harnesses and connector circuits.
- Be careful not to damage the airbag system wiring harness.
- While diagnostic items are being checked, do not operate radios, portable telephones, etc. which emit electromagnetic waves near or inside the vehicle.



- When turning the ignition switch to ON or OFF while diagnostic items are being checked, do not allow keys with different ID codes close to the ignition switch. If the ignition key is on a key holder, remove it from the key holder before performing diagnoses.



- When repeatedly turning the ignition switch to ON or OFF while diagnostic items are being checked, it should be switched in cycles of "ON" for at least 5 seconds → "OFF" for at least 8 seconds.



- (1) Ignition switch position
(2) Sec.

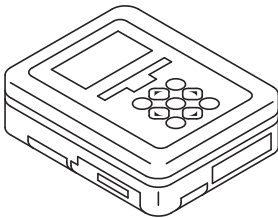
- If the engine fails to start with a registered ignition key, detach the ignition key from ignition switch and wait for approx. 1 second until security indicator light begins to flash. And then start the engine again.
- Before performing the diagnostics, obtain all keys for the vehicle from the owner.
- Do not register a body integrated unit already registered to another vehicle to diagnose failures or inspect functions.

General Description

IMMOBILIZER (DIAGNOSTICS)

B: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for troubleshooting the electrical system.

2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and current.

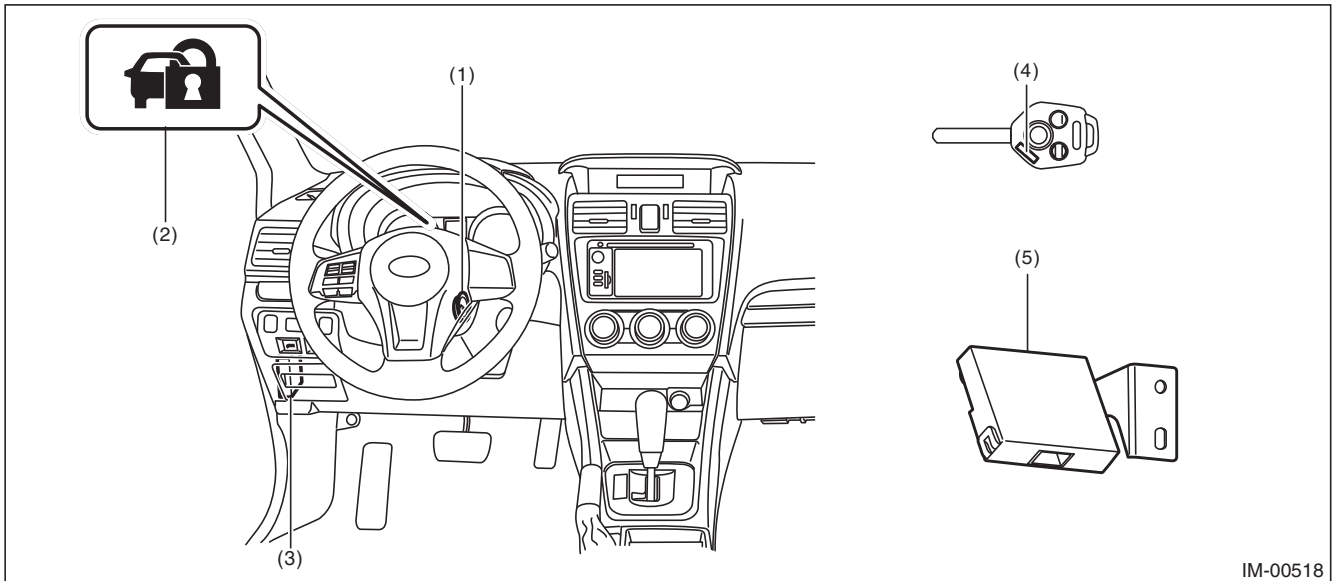


Electrical Component Location

IMMOBILIZER (DIAGNOSTICS)

3. Electrical Component Location

A: LOCATION



IM-00518

- | | | |
|---|--------------------------|---|
| (1) Antenna | (3) Body integrated unit | (5) Security control module (for C0 and C5 models only) |
| (2) Security indicator light (LED bulb) | (4) Transponder | |

Immobilizer Control Module I/O Signal

IMMOBILIZER (DIAGNOSTICS)

4. Immobilizer Control Module I/O Signal

A: WIRING DIAGRAM

1. IMMOBILIZER

<Ref. to WI-269, WIRING DIAGRAM, Immobilizer
System.>

Subaru Select Monitor

IMMOBILIZER (DIAGNOSTICS)

5. Subaru Select Monitor

A: OPERATION

1. HOW TO USE THE SUBARU SELECT MONITOR

For the operation procedure, refer to the “PC application help for Subaru Select Monitor”.

2. READ DIAGNOSTIC TROUBLE CODE (DTC) FOR ENGINE AND BODY INTEGRATED UNIT

Refer to “Read Diagnostic Trouble Code (DTC)” for information about how to indicate DTC. <Ref. to IM(diag)-9, Read Diagnostic Trouble Code (DTC).>

NOTE:

If a problem is detected, repair the trouble cause. <Ref. to IM(diag)-20, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>



Read Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

6. Read Diagnostic Trouble Code (DTC)

A: OPERATION

1. ECM

For the operation procedure, refer to the "PC application help for Subaru Select Monitor".

NOTE:

For detailed concerning DTC, refer to the List of Diagnostic Trouble Codes (DTC). <Ref. to IM(diag)-14, LIST, List of Diagnostic Trouble Code (DTC).>

2. BODY INTEGRATED UNIT

For the operation procedure, refer to the "PC application help for Subaru Select Monitor".

NOTE:

For detailed concerning DTC, refer to the List of Diagnostic Trouble Codes (DTC). <Ref. to IM(diag)-14, LIST, List of Diagnostic Trouble Code (DTC).>



Clear Memory Mode

IMMOBILIZER (DIAGNOSTICS)

7. Clear Memory Mode

A: OPERATION

1. ECM

For the operation procedure, refer to the “PC application help for Subaru Select Monitor”.

NOTE:

Initial diagnosis of electronic throttle control is performed after memory clearance. Wait for 10 seconds or more after turning the ignition switch to ON, and then start the engine.

2. BODY INTEGRATED UNIT

For the operation procedure, refer to the “PC application help for Subaru Select Monitor”.



Diagnostics Chart for Security Indicator Light

IMMOBILIZER (DIAGNOSTICS)

8. Diagnostics Chart for Security Indicator Light

A: INSPECTION

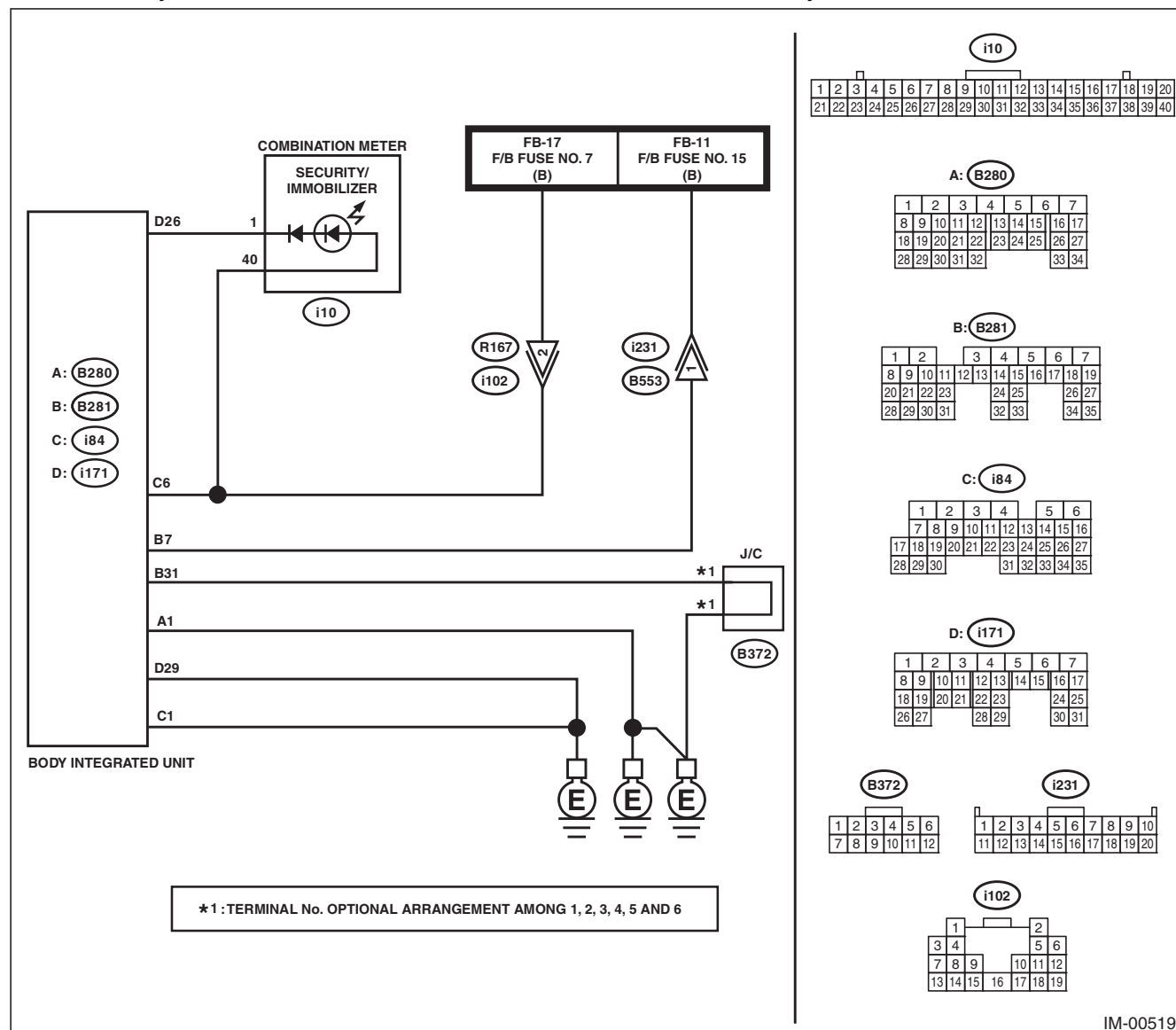
1. CHECK SECURITY INDICATOR LIGHT CIRCUIT

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-269, WIRING DIAGRAM, Immobilizer System.>



IM-00519

Step	Check	Yes	No
1 CHECK FUSE. 1) Remove the ignition key from ignition switch. 2) Check the fuse (M/B No. 8).	Is the fuse OK?	Go to step 2.	Replace the fuse. If the replaced fuse blows out easily, repair the short circuit in the harness between the fuse and body integrated unit.

Diagnostics Chart for Security Indicator Light

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
2 CHECK SECURITY INDICATOR LIGHT. 1) Disconnect the connector from body integrated unit. 2) Connect the resistor (100 Ω) between the body integrated unit connector terminal (i171) No. 26 and chassis ground.	Does the security indicator light illuminate?	Go to step 3.	Go to step 5.
3 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT. Measure the resistance between the body integrated unit connector terminal and chassis ground. <i>Connector & 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 Ω ?	Go to step 4.	Repair the open circuit of the body integrated unit ground circuit.
4 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT. Measure the voltage between the body integrated unit connector terminal and chassis ground. <i>Connector & terminal</i> <i>(B281) No. 7 (+) — Chassis ground (-):</i> <i>(i84) No. 6 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	Check the harness for open or short circuit between body integrated unit and fuse.
5 CHECK COMBINATION METER CIRCUIT. 1) Remove the combination meter. <Ref. to IDI-18, Combination Meter.> 2) Measure the voltage between combination meter connector terminal and chassis ground. <i>Connector & terminal</i> <i>(i10) No. 40 (+) — Chassis ground (-):</i>	Is the voltage 10 V or more?	Go to step 6.	Check for an open or short circuit in the harness between the combination meter and fuse.
6 CHECK COMBINATION METER CIRCUIT. Measure the resistance between the body integrated unit connector terminal and combination meter connector terminal. <i>Connector & terminal</i> <i>(i171) No. 26 — (i10) No. 1:</i>	Is the resistance less than 10 Ω ?	LED bulb is defective. Replace the combination meter case assembly. <Ref. to IDI-20, DISASSEMBLY, Combination Meter.>	Repair the harness or connector.

Diagnostics Chart for Security Indicator Light

IMMOBILIZER (DIAGNOSTICS)

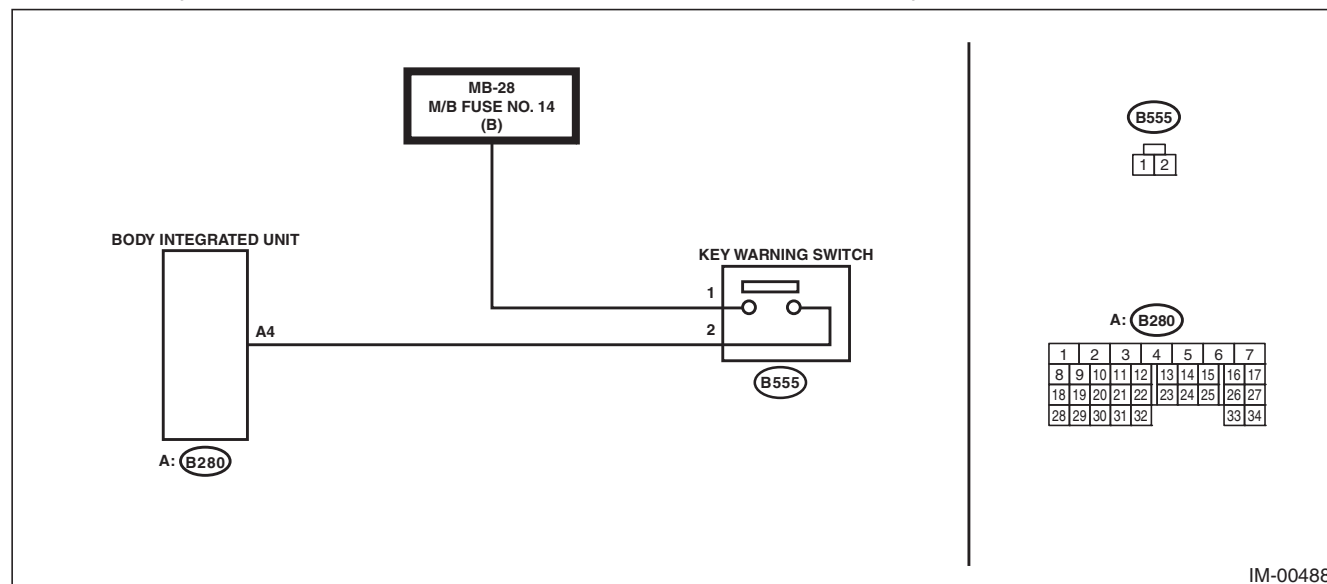
2. CHECK KEY SWITCH CIRCUIT

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-269, WIRING DIAGRAM, Immobilizer System.>



Step	Check	Yes	No
1 CHECK POWER SUPPLY CIRCUIT. 1) Disconnect the connector from key warning switch. 2) Measure the voltage between key warning switch connector terminal and chassis ground. Connector & terminal (B555) No. 1 (+) — Chassis ground (-):	Is the voltage 10 V or more?	Go to step 2.	Check the harness for an open or short between the key warning switch and fuse.
2 CHECK KEY WARNING SWITCH. 1) Insert the ignition key in the ignition switch. (OFF or ACC) 2) Measure the resistance between key warning switch connector terminals. Connector & terminal No. 1 — No. 2:	Is the resistance less than 1 Ω?	Go to step 3.	Replace the key warning switch.
3 CHECK KEY WARNING SWITCH. 1) Remove the ignition key from ignition switch. 2) Measure the resistance between key warning switch connector terminals. Connector & terminal No. 1 — No. 2:	Is the resistance 1 MΩ or more?	Go to step 4.	Replace the key warning switch.
4 CHECK HARNESS BETWEEN KEY WARNING SWITCH AND BODY INTEGRATED UNIT. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance between key warning switch connector terminal and body integrated unit connector terminal. Connector & terminal (B555) No. 2 — (B280) No. 4:	Is the resistance less than 10 Ω?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	Repair the harness between key warning switch and body integrated unit.

List of Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

9. List of Diagnostic Trouble Code (DTC)

A: LIST

1. ECM

DTC	Item	Contents of diagnosis	Index No.
B1570	Antenna	Faulty antenna	<Ref. to IM(diag)-16, DTC B1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1571	Reference Code Incompatibility	Reference code incompatibility between body integrated unit and ECM	<Ref. to IM(diag)-19, DTC B1571 REFERENCE CODE INCOMPATIBILITY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1572	IMM Circuit Failure (Except Antenna Circuit)	Communication failure between body integrated unit and ECM	<Ref. to IM(diag)-20, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1574	Key Communication Failure	Communication failure between key and body integrated unit	<Ref. to IM(diag)-23, DTC B1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1575	Incorrect Immobilizer Key	Incorrect immobilizer key (Use of unregistered key in body integrated unit)	<Ref. to IM(diag)-23, DTC B1575 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1576	EGI Control Module EEPROM	ECM malfunctioning	<Ref. to IM(diag)-24, DTC B1576 EGI CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1577	IMM Control Module EEPROM	Body integrated unit malfunctioning	<Ref. to IM(diag)-24, DTC B1577 IMM CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
B1578	Meter Failure (Except for model for C0 or C5)	- Reference code incompatibility between combination meter and body integrated unit - Communication failure between body integrated unit and ECM	<Ref. to IM(diag)-25, DTC B1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
	Meter Failure (Model for C0 or C5)	- Reference code incompatibility between body integrated unit and security control module - Communication failure between body integrated unit and ECM	

NOTE:

Perform diagnosis of engine DTC when a DTC other than an immobilizer DTC is detected. <Ref. to EN(H4DO)(diag)-83, List of Diagnostic Trouble Code (DTC).>

List of Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

2. BODY INTEGRATED UNIT

DTC	Item	Contents of diagnosis	Index No.	Relation between ECM and DTC
B1401	M Collation NG	Reference code incompatibility between combination meter and body integrated unit	<Ref. to IM(diag)-25, DTC B1401 M COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1578
B1402	Immobilizer Key Collation NG	• Incorrect immobilizer key (Use of unregistered key in body integrated unit) • Faulty antenna • Communication failure between key and body integrated unit	<Ref. to IM(diag)-26, DTC B1402 IMMOBILIZER KEY COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	• B1575 • B1570 • B1574
B1405	SCU Collation NG	Reference code incompatibility between body integrated unit and security control module	<Ref. to IM(diag)-26, DTC B1405 SCU COLLATION NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1578
B1406	SCU_EEPROM_NG	Malfunction of security control module	<Ref. to IM(diag)-26, DTC B1406 SCU_EEPROM_NG, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1578
B1407	M Communication Abnormal	Communication failure between body integrated unit and combination meter	<Ref. to IM(diag)-27, DTC B1407 M COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1578
B1408	Meter EEPROM Abnormal	Combination meter malfunction	<Ref. to IM(diag)-27, DTC B1408 METER EEPROM ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1578
B1409	SCU Communication Abnormal	Communication failure between body integrated unit and security control module	<Ref. to IM(diag)-28, DTC B1409 SCU COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1578
B1410	Transponder Communication Abnormal	Communication failure between key and body integrated unit	<Ref. to IM(diag)-30, DTC B1410 TRANSPONDER COMMUNICATION ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1574
B1411	Immobilizer Antenna Abnormal	Faulty antenna	<Ref. to IM(diag)-30, DTC B1411 IMMOBILIZER ANTENNA ABNORMAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	B1570

NOTE:

The starter relay control is performed in immobilizer system. When the body integrated unit detects a non-conformity of reference code, it immediately outputs a starter relay cut signal to ECM, and then ECM stops the starter relay operation. In this case, engine does not start, and DTC is not recorded in ECM. Check that the engine does not start on the DTC of body integrated unit.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

10. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC B1570 ANTENNA

DTC DETECTING CONDITION:

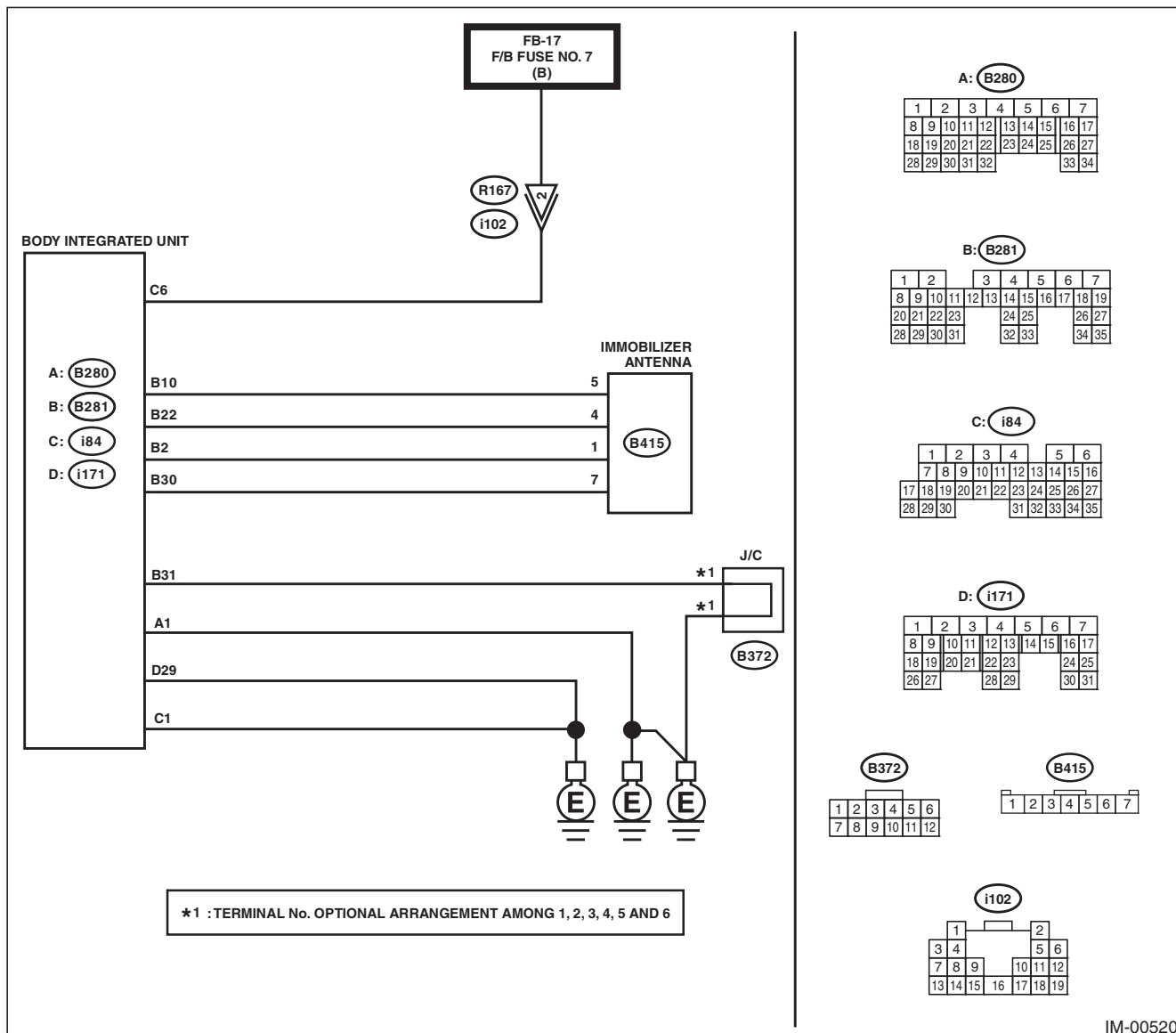
Faulty antenna

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-269, WIRING DIAGRAM, Immobilizer System.>



IM-00520

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT. 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. Connector & terminal (i84) No. 6 (+) — Chassis ground (–):	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.
2 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT. Measure the resistance between the body integrated unit connector terminal and chassis ground. Connector & terminal (B280) No. 1 — Chassis ground: (B281) No. 31 — Chassis ground: (i84) No. 1 — Chassis ground: (i171) No. 29 — Chassis ground:	Is the resistance less than 10 Ω?	Go to step 3.	Repair the open circuit of the body integrated unit ground circuit.
3 CHECK ANTENNA POWER SUPPLY CIRCUIT. 1) Connect the connector to body integrated unit. 2) Disconnect the connector from the antenna. 3) Insert the ignition key into the key cylinder, then measure the voltage between the antenna connector terminal and the chassis ground. Connector & terminal (B415) No. 1 (+) — Chassis ground (–):	Is the voltage 5±0.5 V approx. 200 ms after inserting the ignition key into the key cylinder? And then, does the voltage return to 0 V within 2 s?	Go to step 5.	Go to step 4.
4 CHECK ANTENNA POWER SUPPLY CIRCUIT. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance of body integrated unit connector terminal and antenna connector terminal. Connector & terminal (B281) No. 2 — (B415) No. 1:	Is the resistance less than 10 Ω?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	Repair the harness or connector between body integrated unit and antenna.
5 CHECK ANTENNA GROUND CIRCUIT. Measure the resistance between antenna connector terminal and chassis ground. Connector & terminal (B415) No. 7 — Chassis ground:	Is the resistance less than 10 Ω?	Go to step 7.	Go to step 6.
6 CHECK ANTENNA GROUND CIRCUIT. 1) Disconnect the connector from body integrated unit. 2) Measure the resistance between antenna connector terminal and chassis ground. Connector & terminal (B281) No. 30 — (B415) No. 7:	Is the resistance less than 10 Ω?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	Repair the harness or connector between body integrated unit and antenna.
7 CHECK ANTENNA COMMUNICATION CIRCUIT. Measure the resistance of body integrated unit connector terminal and antenna connector terminal. Connector & terminal (B281) No. 10 — (B415) No. 5: (B281) No. 22 — (B415) No. 4:	Is the resistance less than 10 Ω?	Go to step 8.	Repair the harness or connector between body integrated unit and antenna.



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

	Step	Check	Yes	No
8	CHECK ANTENNA. 1) Replace the immobilizer antenna. 2) Insert the ignition key in the ignition switch. (OFF or ACC) 3) Check DTC of body integrated unit.	Is DTC B1411 detected?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	Antenna has a failure.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

B: DTC B1571 REFERENCE CODE INCOMPATIBILITY

DTC DETECTING CONDITION:

Reference code incompatibility between body integrated unit and ECM

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 CONFIRM NUMBER OF REGISTERED IMMOBILIZER KEY. Confirm the number of registered immobilizer key. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is the number of registration 0?	Go to step 2.	Go to step 3.
2 PERFORM IMMOBILIZER SYSTEM REGISTRATION. Register the immobilizer system. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Go to step 4.
3 PERFORM ECM REGISTRATION. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Go to step 4.
4 CHECK FOR ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Perform the diagnosis according to DTC.	Go to step 5.
5 PERFORM ECM REGISTRATION. 1) Replace the ECM. 2) Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

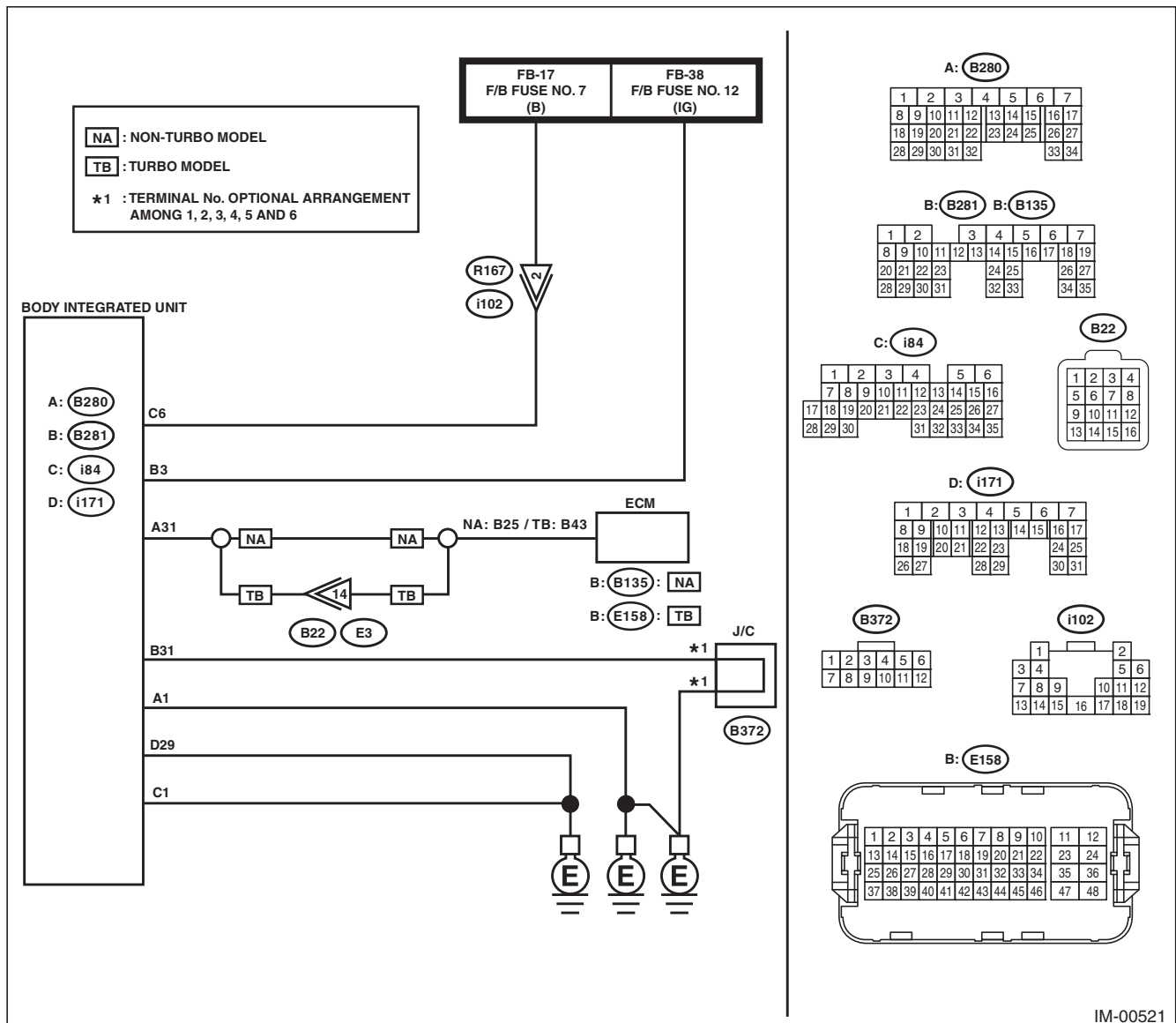
Communication failure between body integrated unit and ECM

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-269, WIRING DIAGRAM, Immobilizer System.>



IM-00521

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT. 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. Connector & terminal (i84) No. 6 (+) — Chassis ground (–):	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.
2 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. 2) Measure the voltage between the body integrated unit connector terminal and chassis ground. Connector & terminal (B281) No. 3 (+) — Chassis ground (–):	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.
3 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Measure the resistance between the body integrated unit connector terminal and chassis ground. Connector & terminal (B280) No. 1 — Chassis ground: (B281) No. 31 — Chassis ground: (i84) No. 1 — Chassis ground: (i171) No. 29 — Chassis ground:	Is the resistance less than 10 Ω ?	Go to step 4.	Repair the open circuit of the body integrated unit ground circuit.
4 CHECK GROUND CIRCUIT FOR ECM. Measure the resistance between the ECM ground terminal and engine ground.	Is the resistance less than 10 Ω ?	Go to step 5.	Repair the ECM ground circuit.
5 CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM. 1) Disconnect the connector from ECM. 2) Measure the resistance between body integrated unit connector terminal and ECM connector terminal. Connector & terminal Non-turbo model (B280) No. 31 — (B135) No. 25: Turbo model (B280) No. 31 — (E158) No. 43:	Is the resistance less than 10 Ω ?	Go to step 6.	Repair the open circuit of the harness between the body integrated unit and ECM.
6 CHECK COMMUNICATION CIRCUIT HARNESS. 1) Turn the ignition switch to ON. 2) Measure the voltage between the body integrated unit connector terminal and chassis ground. Connector & terminal (B280) No. 31 (+) — Chassis ground (–):	Is the voltage 6 V or more?	Repair the harness between body integrated unit and ECM.	Go to step 7.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK COMMUNICATION CIRCUIT HARNESS. Measure the voltage between ECM connector terminal and engine ground. <i>Connector & terminal</i> <i>Non-turbo model</i> <i>(B135) No. 25 (+) — Engine ground (-):</i> <i>Turbo model</i> <i>(E158) No. 43 (+) — Engine ground (-):</i>	Is the voltage 6 V or more?	Repair the harness between body integrated unit and ECM.	Go to step 8.
8 CHECK COMMUNICATION CIRCUIT HARNESS. 1) Turn the ignition switch to OFF. 2) Measure the resistance between the body integrated unit connector terminal and chassis ground. <i>Connector & terminal</i> <i>(B280) No. 31 — Chassis ground:</i>	Is the resistance less than 10 Ω ?	Repair the harness between body integrated unit and ECM.	Go to step 9.
9 CHECK COMMUNICATION CIRCUIT HARNESS. Measure the resistance between ECM connector terminal and engine ground. <i>Connector & terminal</i> <i>Non-turbo model</i> <i>(B135) No. 25 — Engine ground:</i> <i>Turbo model</i> <i>(E158) No. 43 — Engine ground:</i>	Is the resistance less than 10 Ω ?	Repair the harness between body integrated unit and ECM.	Go to step 10.
10 CHECK ECM. 1) Replace the ECM. (Do not perform ECM registration.) 2) Turn the ignition switch to ON. 3) Wait for 5 seconds. 4) Read the DTC relating the ECM using the Subaru Select Monitor.	Is DTC B1572 detected?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	ECM has a failure. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".



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

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 CHECK IGNITION KEY. 1) Remove the ignition key from the ignition switch. 2) Insert the ignition key into the ignition switch, and then turn the ignition switch to ON. 3) Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC B1410 detected?	Go to step 2.	Finish the diagnosis.
2 CHECK IGNITION KEY. 1) Prepare another ignition key. 2) Insert the ignition key into the ignition switch, and then turn the ignition switch to ON. 3) Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC B1410 detected?	Go to step 3.	Ignition key unit was defective.
3 CHECK IMMOBILIZER ANTENNA. 1) Replace the immobilizer antenna. 2) Insert the ignition key into the ignition switch, and then turn the ignition switch to ON. 3) Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC B1410 detected?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	Immobilizer antenna was defective.

E: DTC B1575 INCORRECT IMMOBILIZER KEY

DTC DETECTING CONDITION:

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

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 PERFORM IGNITION KEY REGISTRATION. Perform key registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is key registration complete?	Finish the diagnosis.	Replace ignition keys (including transponder) which cannot be registered. Go to step 2.
2 PERFORM IGNITION KEY REGISTRATION. Perform key registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is key registration complete?	Finish the diagnosis.	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>

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.

CAUTION:

When the ECM is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 PERFORM ECM REGISTRATION. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Go to step 2.
2 PERFORM ECM REGISTRATION. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Go to step 3.
3 PERFORM ECM REGISTRATION. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Replace the ECM. <Ref. to FU(H4DO)-94, Engine Control Module (ECM).>

G: DTC B1577 IMM CONTROL MODULE EEPROM

DTC DETECTING CONDITION:

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

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 PERFORM ECM REGISTRATION. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Go to step 2.
2 PERFORM ECM REGISTRATION. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Go to step 3.
3 PERFORM ECM REGISTRATION. Perform ECM registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

H: DTC B1578 METER FAILURE

DTC DETECTING CONDITION:

- Except for C0 and C5 models

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

- For C0 and C5 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
1	CHECK DTC. Read the DTC of body integrated unit using Subaru Select Monitor.	Is any of DTC B1401, B1405, B1406, B1407, B1408 or B1409 detected?	Perform the diagnosis according to the DTC.
			<Ref. to IM(diag)-20, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

I: DTC B1401 M COLLATION NG

DTC DETECTING CONDITION:

Reference code incompatibility between combination meter and body integrated unit

CAUTION:

When the combination meter is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1	CHECK DTC. Read the DTC of body integrated unit using Subaru Select Monitor.	Is any of DTC B1407 or B1408 detected?	Perform the diagnosis according to the DTC.
2	CHECK COMBINATION METER REGISTRATION. Perform registration of combination meter. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.
3	CHECK DTC. Read the DTC of body integrated unit using Subaru Select Monitor.	Is any of DTC B1407 or B1408 detected?	Perform the diagnosis according to the DTC.
			Replace the combination meter. <Ref. to IDI-18, Combination Meter.>



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

J: DTC B1402 IMMOBILIZER KEY COLLATION NG

DTC DETECTING CONDITION:

- Incorrect immobilizer key (use of unregistered key in body integrated unit)
- Faulty antenna
- Communication failure between key and body integrated unit

Step	Check	Yes	No
1 CHECK DTC. Read the DTC of body integrated unit using Subaru Select Monitor.	Is any of DTC B1410 or B1411 detected?	Perform the diagnosis according to the DTC.	<Ref. to IM(diag)-23, DTC B1575 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC B1405 SCU COLLATION NG

DTC DETECTING CONDITION:

Reference code incompatibility between security control module and body integrated unit

CAUTION:

When the security control module is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 CHECK DTC. Read the DTC of body integrated unit using Subaru Select Monitor.	Is any of DTC B1406 or B1409 detected?	Perform the diagnosis according to DTC.	Go to step 2.
2 PERFORM SECURITY CONTROL MODULE REGISTRATION. Perform security control module registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Is registration complete?	Finish the diagnosis.	Go to step 3.
3 CHECK DTC. Read the DTC of body integrated unit using Subaru Select Monitor.	Is any of DTC B1406 or B1409 detected?	Perform the diagnosis according to DTC.	Replace the security control module. <Ref. to SL-69, Security Control Module.>

L: DTC B1406 SCU_EEPROM_NG

DTC DETECTING CONDITION:

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

CAUTION:

When the security control module is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 PERFORM SECURITY CONTROL MODULE REGISTRATION. 1) Perform security control module registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". 2) Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC B1406 detected?	Replace the security control module. <Ref. to SL-69, Security Control Module.>	Finish the diagnosis.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

M: DTC B1407 M COMMUNICATION ABNORMAL

DTC DETECTING CONDITION:

Communication failure between body integrated unit and combination meter

CAUTION:

When the combination meter is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 CHECK DTC. Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC of the body integrated unit except for DTC B1407 displayed?	Perform the diagnosis according to the DTC.	Replace the combination meter. <Ref. to IDI-18, Combination Meter.>

N: DTC B1408 METER EEPROM ABNORMAL

DTC DETECTING CONDITION:

Defective combination meter

CAUTION:

When the combination meter is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

Step	Check	Yes	No
1 CHECK COMBINATION METER REGISTRATION. 1) Perform registration of combination meter. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER". 2) Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC B1408 detected?	Replace the combination meter. <Ref. to IDI-18, Combination Meter.>	Finish the diagnosis.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

O: DTC B1409 SCU COMMUNICATION ABNORMAL

DTC DETECTING CONDITION:

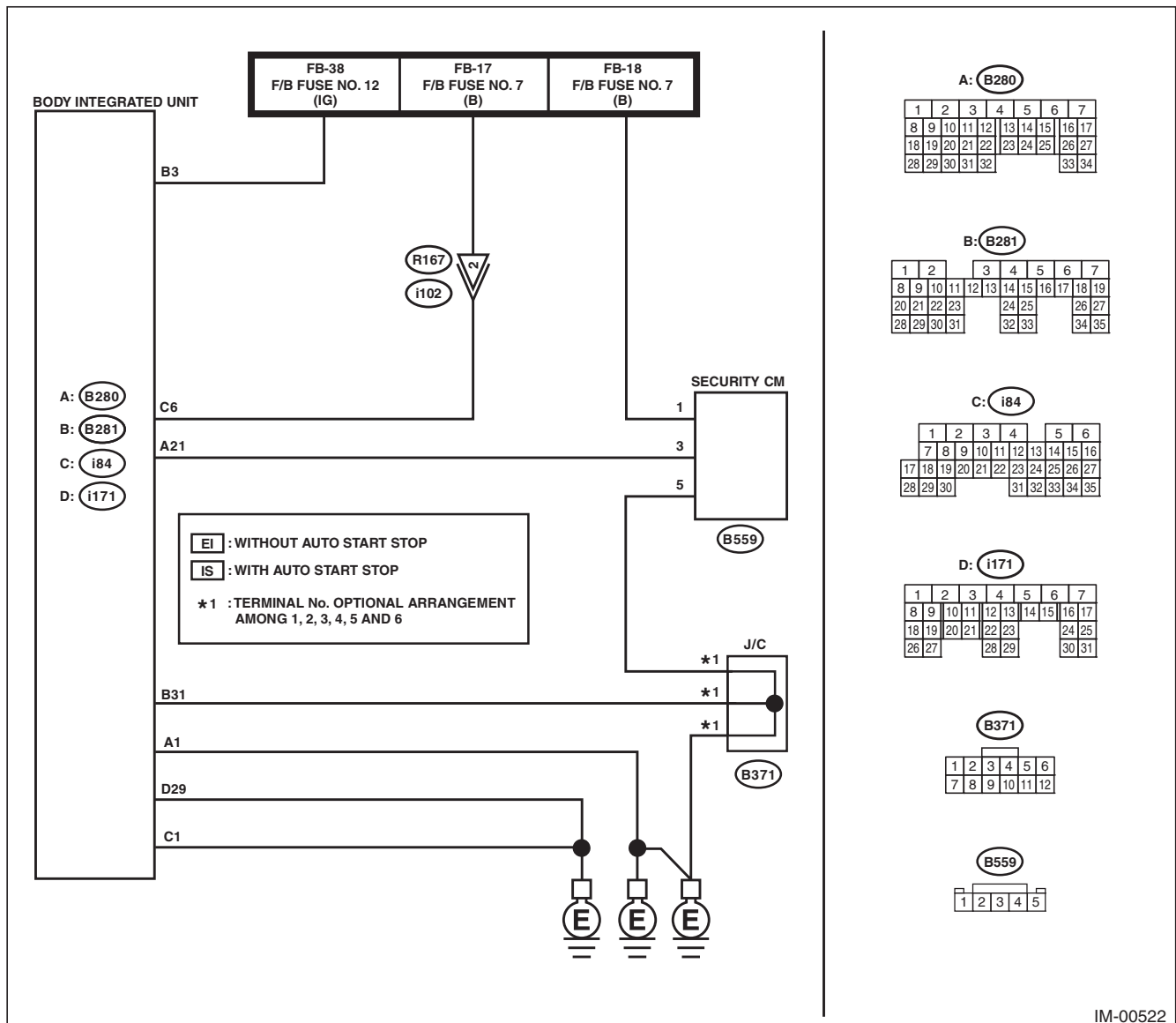
Communication failure between body integrated unit and security control module

CAUTION:

When the body integrated unit is replaced, registration of the immobilizer system is required. For details, refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-269, WIRING DIAGRAM, Immobilizer System.>



IM-00522

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT. 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. Connector & terminal (i84) No. 6 (+) — Chassis ground (–):	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.
2 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to ON. 2) Measure the voltage between the body integrated unit connector terminal and chassis ground. Connector & terminal (B281) No. 3 (+) — Chassis ground (–):	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.
3 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT. 1) Turn the ignition switch to OFF. 2) Measure the resistance between the body integrated unit connector terminal and chassis ground. Connector & terminal (B280) No. 1 — Chassis ground: (B281) No. 31 — Chassis ground: (i84) No. 1 — Chassis ground: (i171) No. 29 — Chassis ground:	Is the resistance less than 10 Ω ?	Go to step 4.	Repair the open circuit of the body integrated unit ground circuit.
4 CHECK SECURITY CONTROL MODULE POWER SUPPLY CIRCUIT. 1) Disconnect the connector from the security control module. 2) Measure the power supply between security control module connector terminal and chassis ground. Connector & terminal (B559) No. 1 (+) — Chassis ground (–):	Is the voltage 10 V or more?	Go to step 5.	Check for an open or short circuit in the harness between security control module and fuse.
5 CHECK SECURITY CONTROL MODULE GROUND CIRCUIT. Measure the resistance between security control module connector terminal and chassis ground. Connector & terminal (B559) No. 5 — Chassis ground:	Is the resistance less than 10 Ω ?	Go to step 6.	Repair the open circuit of the security control module ground circuit.
6 CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND SECURITY CONTROL MODULE. Measure the resistance between the body integrated unit connector terminal and security control module connector terminal. Connector & terminal (B280) No. 21 — (B559) No. 3:	Is the resistance less than 10 Ω ?	Go to step 7.	Repair the harness between body integrated unit and security control module.



Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
7 CHECK COMMUNICATION CIRCUIT HARNESS. 1) Turn the ignition switch to ON. 2) Measure the voltage between security control module connector terminal and chassis ground. Connector & terminal (B559) No. 3 (+) — Chassis ground (—):	Is the voltage 6 V or more?	Repair the harness between body integrated unit and security control module.	Go to step 8.
8 CHECK COMMUNICATION CIRCUIT HARNESS. Measure the voltage between the body integrated unit connector terminal and chassis ground. Connector & terminal (B280) No. 21 (+) — Chassis ground (—):	Is the voltage 6 V or more?	Repair the harness between body integrated unit and security control module.	Go to step 9.
9 CHECK COMMUNICATION CIRCUIT HARNESS. 1) Turn the ignition switch to OFF. 2) Measure the resistance between security control module connector terminal and chassis ground. Connector & terminal (B559) No. 3 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair the harness between body integrated unit and ECM.	Go to step 10.
10 CHECK COMMUNICATION CIRCUIT HARNESS. Measure the resistance between the body integrated unit connector terminal and chassis ground. Connector & terminal (B280) No. 21 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair the harness between body integrated unit and security control module.	Go to step 11.
11 CHECK SECURITY CONTROL MODULE. 1) Replace the security control module. (Do not perform security control module registration.) 2) Turn the ignition switch to ON. 3) Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC B1409 detected?	Replace the body integrated unit. <Ref. to SL-74, Body Integrated Unit.>	Security control module was defective. Perform security control module registration. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

P: DTC B1410 TRANSPONDER COMMUNICATION ABNORMAL

NOTE:

Refer to DTC B1574 for diagnostic procedure. <Ref. to IM(diag)-23, DTC B1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Q: DTC B1411 IMMOBILIZER ANTENNA ABNORMAL

NOTE:

Refer to DTC B1570 for diagnostic procedure. <Ref. to IM(diag)-16, DTC B1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>