

**BODY SECTION**

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.

This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.

Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

<b>HVAC SYSTEM (HEATER, VENTILATOR AND A/C)</b>	<b>AC</b>
<b>HVAC SYSTEM (AUTO A/C) (DIAGNOSTICS)</b>	<b>AC(diag)</b>
<b>AIRBAG SYSTEM</b>	<b>AB</b>
<b>AIRBAG SYSTEM (DIAGNOSTICS)</b>	<b>AB(diag)</b>
<b>SEAT BELT SYSTEM</b>	<b>SB</b>
<b>LIGHTING SYSTEM</b>	<b>LI</b>
<b>WIPER AND WASHER SYSTEMS</b>	<b>WW</b>
<b>ENTERTAINMENT</b>	<b>ET</b>
<b>COMMUNICATION SYSTEM</b>	<b>COM</b>
<b>GLASS/WINDOWS/MIRRORS</b>	<b>GW</b>
<b>BODY STRUCTURE</b>	<b>BS</b>
<b>INSTRUMENTATION/DRIVER INFO</b>	<b>IDI</b>
<b>SEATS</b>	<b>SE</b>
<b>SECURITY AND LOCKS</b>	<b>SL</b>
<b>SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)</b>	<b>SR</b>
<b>EXTERIOR/INTERIOR TRIM</b>	<b>EI</b>
<b>EXTERIOR BODY PANELS</b>	<b>EB</b>

**BODY SECTION**

**CRUISE CONTROL SYSTEM**

**CC**

**CRUISE CONTROL SYSTEM  
(DIAGNOSTICS)**

**CC(diag)**

**IMMOBILIZER (DIAGNOSTICS)**

**IM(diag)**

# IMMOBILIZER (DIAGNOSTICS)

# *IM(diag)*

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# Basic Diagnostic Procedure

IMMOBILIZER (DIAGNOSTICS)

## 1. Basic Diagnostic Procedure

### A: PROCEDURE

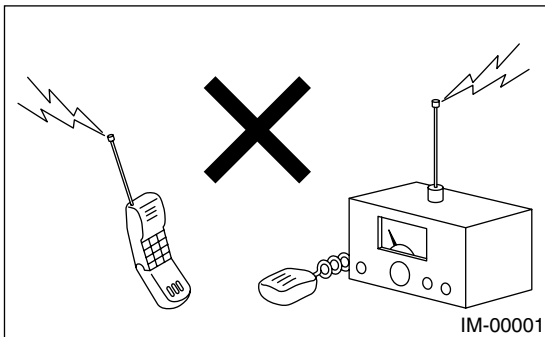
Step	Check	Yes	No
<b>1 CHECK ILLUMINATION OF IMMOBILIZER INDICATOR LIGHT.</b> 1) Turn the ignition switch to OFF or ACC position. 2) Wait at least 60 seconds.	Does the immobilizer indicator light blink?	Go to step 2.	Check the immobilizer indicator light circuit. <Ref. to IM(diag)-10, CHECK IMMOBILIZER INDICATOR CIRCUIT, Diagnostics Chart for Immobilizer Indicator Light.>
<b>2 CHECK ILLUMINATION OF IMMOBILIZER INDICATOR LIGHT.</b> Remove the key from ignition switch.	Does the immobilizer indicator light begin to blink within 1 second after the key is removed?	Go to step 3.	Check the key switch circuit. <Ref. to IM(diag)-12, CHECK KEY SWITCH CIRCUIT, Diagnostics Chart for Immobilizer Indicator Light.>
<b>3 CHECK ENGINE START.</b> Turn the ignition switch to START position.	Does the engine start?	Go to step 4.	Go to step 5.
<b>4 CHECK ILLUMINATION OF IMMOBILIZER INDICATOR LIGHT.</b> Turn the ignition switch to ON.	Does the immobilizer indicator light illuminate?	Check the immobilizer indicator light circuit. <Ref. to IM(diag)-10, CHECK IMMOBILIZER INDICATOR CIRCUIT, Diagnostics Chart for Immobilizer Indicator Light.>	Immobilizer system is normal.
<b>5 CHECK INDICATION OF DTC ON DISPLAY.</b> 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to data link connector. <Ref. to IM(diag)-7, Subaru Select Monitor.> 3) Turn the ignition switch and Subaru Select Monitor switch to ON. 4) Read any DTC on the display.	Are DTCs indicated on display?	Go to step 6.	Repair the related parts.
<b>6 PERFORM THE DIAGNOSIS.</b> 1) Inspect using "Diagnostics Chart with DTC". <Ref. to IM(diag)-15, Diagnostics Chart with Diagnostic Trouble Code (DTC).> 2) Repair the trouble cause. 3) Perform the clear memory mode. 4) Read any DTC again.	Are DTCs indicated on display?	Inspect using "Diagnostic Chart with DTC". <Ref. to IM(diag)-15, Diagnostics Chart with Diagnostic Trouble Code (DTC).>	Finish the diagnostics.

## 2. General Description

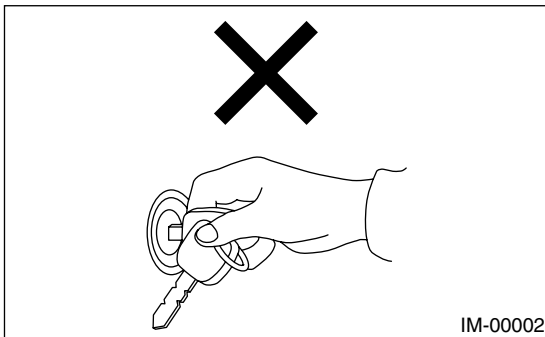
### A: CAUTION

**CAUTION:**

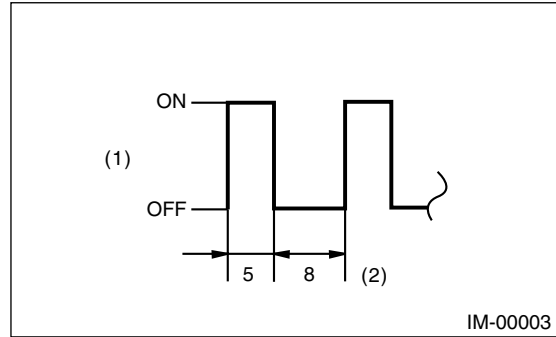
- The airbag system wiring harness is routed near the immobilizer control module. All airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuits.
- Be careful not to damage the airbag system wiring harness when servicing the immobilizer control module.
- While diagnostic items are being checked, do not operate radios, portable telephones, etc. which emit electromagnetic waves near or inside the vehicle.



- When the ignition switch is being turned 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 in a key holder, remove it from the holder before carrying out diagnoses.



- When repeatedly turning the ignition 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.

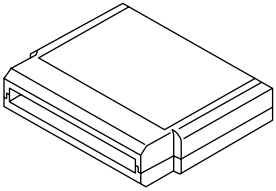

- If the engine fails to start with a registered ignition key, detach the ignition key from ignition switch and wait for approx. 1 second until immobilizer indicator light begins to flash. Start the engine again.
- Before checking the diagnostic items, obtain all keys for the vehicle to be checked possessed by owner.

# General Description

IMMOBILIZER (DIAGNOSTICS)

## B: PREPARATION TOOL

### 1. SPECIAL TOOLS

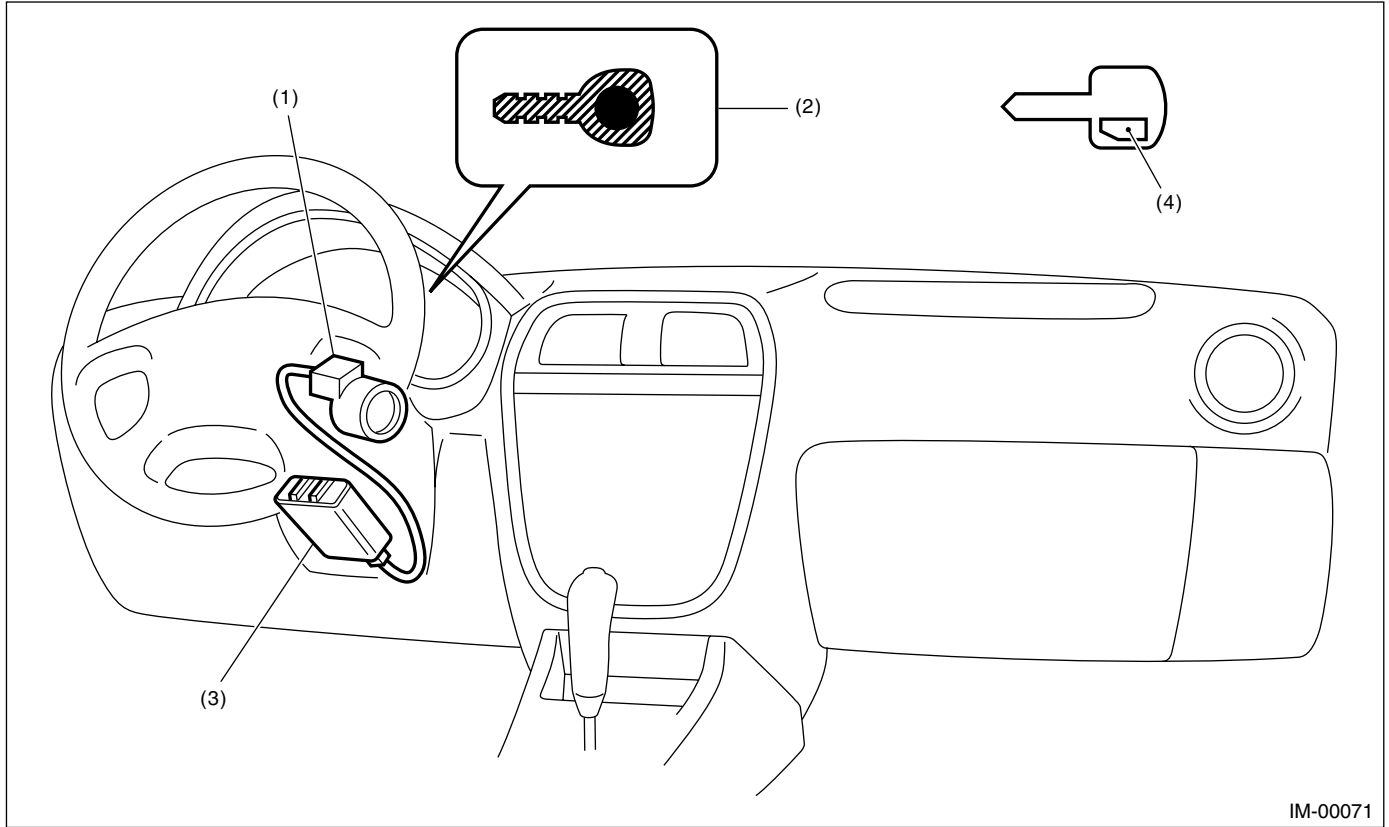
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST24082AA230	24082AA230	CARTRIDGE	Troubleshooting for electrical systems.
 ST22771AA030	22771AA030	SUBARU SELECT MONITOR KIT	Troubleshooting for electrical systems. <ul style="list-style-type: none"> <li>• English: 22771AA030 (Without printer)</li> <li>• German: 22771AA070 (Without printer)</li> <li>• French: 22771AA080 (Without printer)</li> <li>• Spanish: 22771AA090 (Without printer)</li> </ul>

### 2. GENERAL TOOLS

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

### 3. Electrical Components Location

#### A: LOCATION



IM-00071

- (1) Antenna
- (2) Immobilizer indicator light (LED bulb)
- (3) Immobilizer control module (IMM ECM)
- (4) Transponder

**NOTE:**  
IMM ECM location for RHD model is symmetrically opposite.

## Immobilizer Control Module I/O Signal

IMMOBILIZER (DIAGNOSTICS)

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### 4. Immobilizer Control Module I/O Signal

#### A: WIRING DIAGRAM

##### 1. IMMOBILIZER

<Ref. to WI-184, WIRING DIAGRAM, Immobilizer System.>

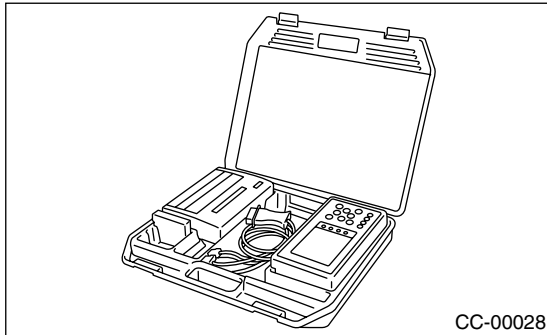


## 5. Subaru Select Monitor

### A: OPERATION

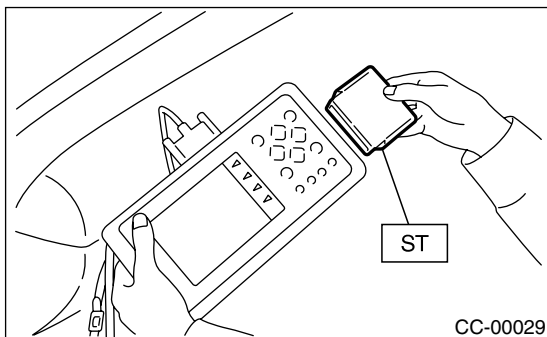
#### 1. HOW TO USE SUBARU SELECT MONITOR

1) Prepare the Subaru Select Monitor kit.



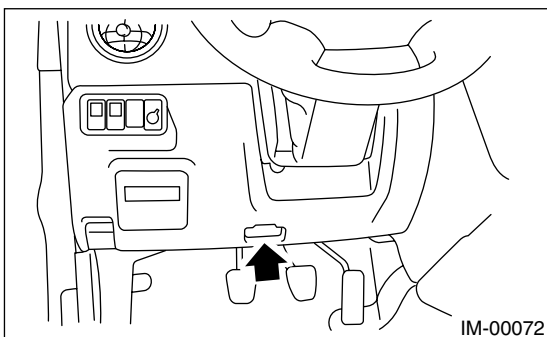
2) Connect the diagnosis cable to Subaru Select Monitor.

3) Insert the cartridge into Subaru Select Monitor.



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 driver's side).

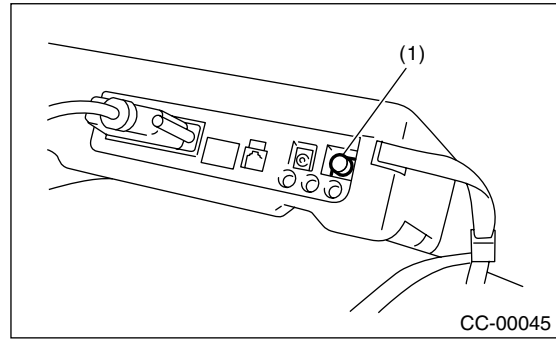


(2) Connect the diagnosis cable to data link connector.

#### CAUTION:

**Do not connect the scan tools except for Subaru Select Monitor.**

5) Turn the ignition switch to ON (engine OFF), and then Subaru Select Monitor switch to ON.



(1) Power switch

6) Using the Subaru Select Monitor, call up any DTCs and various data, and then record them.

#### 2. READ DIAGNOSTIC TROUBLE CODE (DTC) FOR ENGINE.

Refer to Read DTC for information about how to indicate DTC. <Ref. to IM(diag)-8, Read Diagnostic Trouble Code (DTC).>

#### 3. INTERFACE CHECK

##### NOTE:

The communication line between ECM and IMM ECM can be checked in «System Operation Check Mode». This is referred to as «interface check».

1) Connect the Subaru Select Monitor.

2) Set the «System Operation Check Mode» menu display screen, and then select «Immobilizer System».

3) Start the interface check.

4) Does «Communication Line not Shorted» appear on screen?

If «Yes». Go to step 5).

If «No». Go to step 6).

5) After diagnostic results, it is determined that the short circuit is not a diagnostic item. This completes interface check.

6) If a problem is detected, repair. <Ref. to IM(diag)-19, DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostics Chart with Diagnostic Trouble Code (DTC).>

## Read Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

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### 6. Read Diagnostic Trouble Code (DTC)

#### A: OPERATION

- 1) On the «Main Menu» display screen, select the {Each System Check}, and then press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Engine Control System}, and then press the [YES] key.
- 3) Press the [YES] key after the information of engine type is displayed.
- 4) On the «Engine Diagnosis» display screen, select the {DTC Display}, and then press the [YES] key.
- 5) On the «DTC Display» display screen, select the {Current DTC} or {History DTC}, and then press the [YES] key.

#### NOTE:

- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.
- For detailed concerning DTC, refer to the List of DTC. <Ref. to IM(diag)-14, LIST, List of Diagnostic Trouble Code (DTC).>

## 7. Clear Memory Mode

### A: OPERATION

- 1) On the «Main Menu» display screen, select the {Each System Check}, and then press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Engine Control System}, and then press the [YES] key.
- 3) Press the [YES] key after the information of engine type is displayed.
- 4) On the «Engine Diagnosis» display screen, select the {Clear Memory}, and then press the [YES] key.
- 5) When the 'Done' are shown on the display screen, turn the Subaru Select Monitor and ignition switch to OFF.

#### NOTE:

- After the memory has been cleared, the ISC must be initialized. To do this, turn the ignition switch to ON position. Wait 3 seconds before starting the engine.
- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

# Diagnostics Chart for Immobilizer Indicator Light

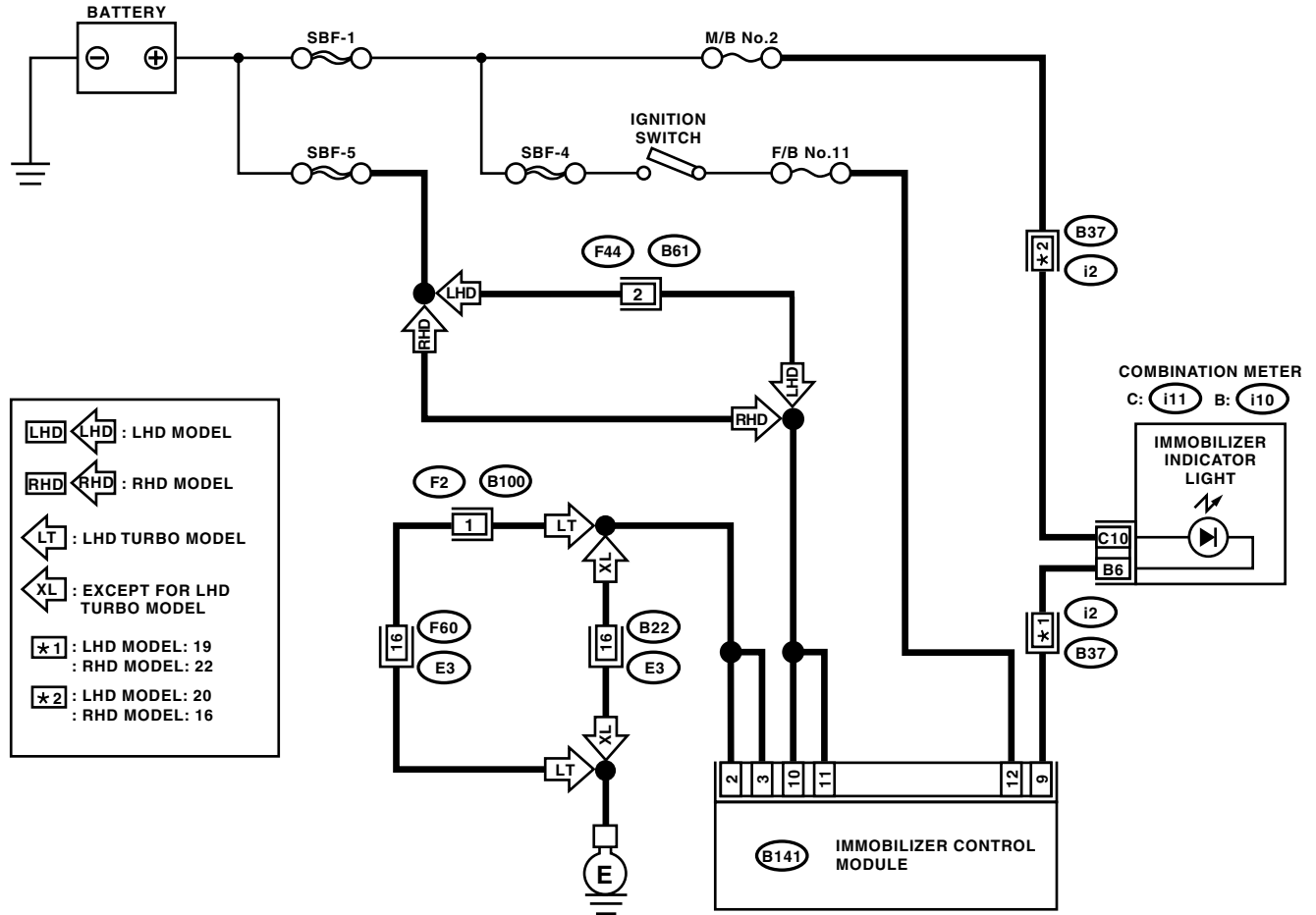
IMMOBILIZER (DIAGNOSTICS)

## 8. Diagnostics Chart for Immobilizer Indicator Light

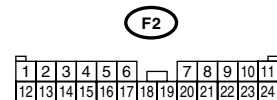
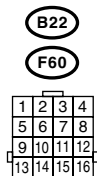
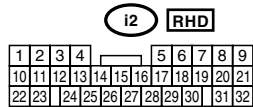
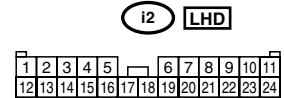
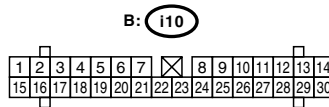
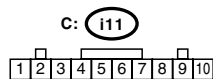
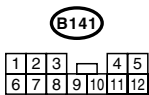
### A: INSPECTION

#### 1. CHECK IMMOBILIZER INDICATOR CIRCUIT

WIRING DIAGRAM:



**LHD** ← **LHD** : LHD MODEL  
**RHD** ← **RHD** : RHD MODEL  
**LT** : LHD TURBO MODEL  
**XL** : EXCEPT FOR LHD TURBO MODEL  
**\*1** : LHD MODEL: 19  
           : RHD MODEL: 22  
**\*2** : LHD MODEL: 20  
           : RHD MODEL: 16



IM-00089

# Diagnostics Chart for Immobilizer Indicator Light

IMMOBILIZER (DIAGNOSTICS)

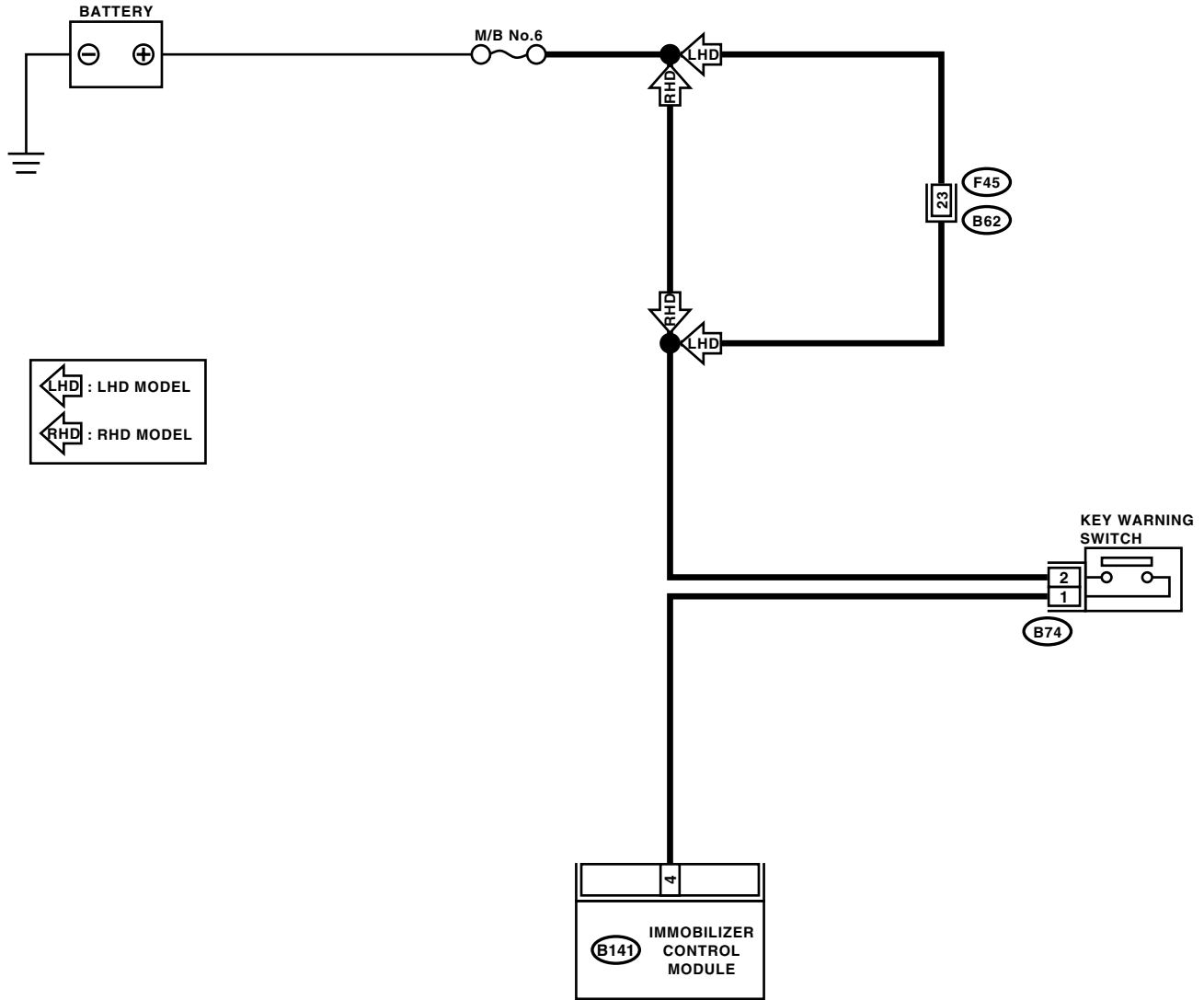
Step	Check	Yes	No
<b>1 CHECK IMMOBILIZER INDICATOR LIGHT COMES ON.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from IMM ECM. 3) Connect a resistor (750 Ω) between IMM ECM harness connector terminal No. 9 and chassis ground.	Does the indicator light come on?	Go to step 2.	Go to step 5.
<b>2 CHECK IMM ECM GROUND CIRCUIT.</b> Measure the resistance between IMM ECM harness connector terminal and chassis ground.  <i>Connector &amp; terminal</i> <i>(B141) No. 2, No. 3 — Chassis ground:</i>	Is the resistance less than 10 Ω?	Go to step 3.	Repair the open circuit of IMM ECM ground circuit.
<b>3 CHECK IMM ECM IGNITION CIRCUIT.</b> 1) Turn the ignition switch to ON. (Engine OFF.) 2) Measure the voltage between IMM ECM harness connector terminal and chassis ground.  <i>Connector &amp; terminal</i> <i>(B141) No. 12 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 4.	Check the harness for open or short between IMM ECM and ignition switch.
<b>4 CHECK IMM ECM POWER SUPPLY CIRCUIT.</b> 1) Turn the ignition switch to OFF. 2) Measure the voltage between IMM ECM harness connector terminal and chassis ground.  <i>Connector &amp; terminal</i> <i>(B141) No. 10, No. 11 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to teaching operation manual (Pub. No. S0820GZ).	Check the harness for open or short between IMM ECM and fuse.
<b>5 CHECK COMBINATION METER CIRCUIT.</b> 1) Remove the combination meter. <Ref. to IDI-11, Combination Meter Assembly.> 2) Measure the voltage between combination meter harness connector terminal and chassis ground.  <i>Connector &amp; terminal</i> <i>(i11) No. 10 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 6.	Check the harness for open or short between combination meter and fuse.
<b>6 CHECK COMBINATION METER CIRCUIT.</b> Measure the resistance between IMM ECM harness connector terminal and combination meter harness connector terminal.  <i>Connector &amp; terminal</i> <i>(B141) No. 9 — (i10) No. 6:</i>	Is the resistance less than 10 Ω?	Faulty LED bulb. Replace the combination meter printed circuit. <Ref. to IDI-12, DISASSEMBLY, Combination Meter Assembly.>	Repair the harness or connector.

# Diagnostics Chart for Immobilizer Indicator Light

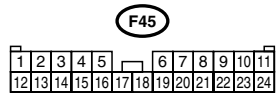
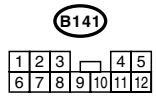
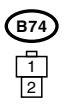
IMMOBILIZER (DIAGNOSTICS)

## 2. CHECK KEY SWITCH CIRCUIT

WIRING DIAGRAM:



←LHD : LHD MODEL  
 ←RHD : RHD MODEL



IM-00074

# Diagnostics Chart for Immobilizer Indicator Light

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK POWER SUPPLY CIRCUIT.</b> 1) Disconnect the harness connector from key warning switch. 2) Turn the ignition switch to ACC or LOCK position (The key inserted). 3) Measure the voltage between key warning switch harness connector terminal and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B74) No. 2 (+) — Chassis ground (-):</b></i>	Is the voltage more than 10 V?	Go to step 2.	Check the harness for open or short between key warning switch and fuse.
<b>2 CHECK KEY SWITCH.</b> 1) Insert the ignition key to the ignition switch. (OFF or ACC position) 2) Measure the resistance between key warning switch connector terminals. <i><b>Connector &amp; terminal</b></i> <i><b>No. 1 — No. 2:</b></i>	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Replace the key warning switch.
<b>3 CHECK KEY SWITCH.</b> 1) Remove the ignition key from the ignition switch. 2) Measure the resistance between key warning switch connector terminals. <i><b>Connector &amp; terminal</b></i> <i><b>No. 1 — No. 2:</b></i>	Is the resistance more than 1 M $\Omega$ ?	Go to step 4.	Replace the key warning switch.
<b>4 CHECK HARNESS BETWEEN KEY SWITCH AND IMM ECM.</b> 1) Disconnect the harness connector from key warning switch. 2) Disconnect the harness connector from IMM ECM. 3) Measure the resistance between key warning switch harness connector terminal and IMM ECM harness connector terminal. <i><b>Connector &amp; terminal</b></i> <i><b>(B74) No. 1 — (B141) No. 4:</b></i>	Is the resistance less than 10 $\Omega$ ?	Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to teaching operation manual (Pub. No. S0820GZ).	Repair the harness between key warning switch and IMM ECM.

## List of Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

### 9. List of Diagnostic Trouble Code (DTC)

#### A: LIST

DTC		Item	Contents of diagnosis	Index No.
Without OBD	With OBD			
53	P0513	Incorrect Immobilizer Key	Incorrect immobilizer key (Use of unregistered key in IMM ECM)	<Ref. to IM(diag)-15, DTC P0513 INCORRECT IMMOBILIZER KEY, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
	P1570	ANTENNA	Faulty antenna	<Ref. to IM(diag)-16, DTC P1570 ANTENNA, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
	P1571	Reference Code Incompatibility	Reference code incompatibility between IMM ECM and ECM	<Ref. to IM(diag)-18, DTC P1571 REFERENCE CODE INCOMPATIBILITY, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
	P1572	IMM Circuit Failure (Except Antenna Circuit)	Communication failure between IMM ECM and ECM	<Ref. to IM(diag)-19, DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostics Chart with Diagnostic Trouble Code (DTC).>
	P1574	Key Communication Failure	Failure of IMM ECM to verify key (transponder) ID code	<Ref. to IM(diag)-23, DTC P1574 KEY COMMUNICATION FAILURE, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
	P1576	EI Control Module EEPROM	ECM malfunctioning	<Ref. to IM(diag)-23, DTC P1576 EGI CONTROL MODULE EEPROM, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
	P1577	IMM Control Module EEPROM	IMM ECM malfunctioning	<Ref. to IM(diag)-23, DTC P1577 IMM CONTROL MODULE EEPROM, Diagnostics Chart with Diagnostic Trouble Code (DTC).>

**NOTE:**

If any DTC except for the above immobilizer DTC has been output, carry out diagnosis for the engine DTC. <Ref. to EN(H4SO)(diag)-74, List of Diagnostic Trouble Code (DTC).> or <Ref. to EN(H4SOw/oOBD)(diag)-55, List of Diagnostic Trouble Code (DTC).> or <Ref. to EN(H4DOTC)(diag)-74, List of Diagnostic Trouble Code (DTC).>



# Diagnostics Chart with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

## 10. Diagnostics Chart with Diagnostic Trouble Code (DTC)

### A: DTC P0513 INCORRECT IMMOBILIZER KEY

#### DIAGNOSIS:

Use of unregistered key in IMM ECM

	Step	Check	Yes	No
1	<b>PERFORM TEACHING OPERATION ON IGNITION KEY.</b> Perform teaching operation on all keys of the vehicle. Refer to the teaching operation manual (Pub. No. S0820GZ).	Is teaching operation for all keys completed?	END	Replace all ignition keys (including the transponder). Go to step <b>2</b> .
2	<b>PERFORM TEACHING OPERATION ON IGNITION KEY.</b> Perform teaching operation on all keys with vehicle. Refer to the teaching operation manual (Pub. No. S0820GZ).	Is teaching operation for all keys completed?	END	Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).

# Diagnostics Chart with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

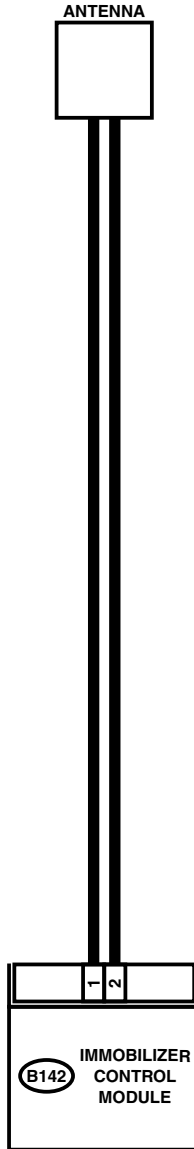
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## B: DTC P1570 ANTENNA

### DIAGNOSIS:

Faulty antenna

### WIRING DIAGRAM:



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B142

1 2

IM-00008

# Diagnostics Chart with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<b>1 CHECK ANTENNA CIRCUIT.</b> 1) Turn the ignition switch to OFF. 2) Disconnect the harness antenna connector from IMM ECM. <Ref. to SL-40, Immobilizer Antenna.> 3) Measure the resistance of antenna circuit. <i><b>Connector &amp; terminal</b></i> <i><b>(B142) No. 1 — No. 2:</b></i>	Is the resistance less than 10 $\Omega$ ?	Go to step 2.	Replace the antenna. <Ref. to SL-40, Immobilizer Antenna.>
<b>2 CHECK ANTENNA CIRCUIT.</b> Measure the resistance between antenna harness connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B142) No. 1 — Chassis ground:</b></i>	Is the resistance less than 10 $\Omega$ ?	Replace the antenna. <Ref. to SL-40, Immobilizer Antenna.>	Go to step 3.
<b>3 CHECK ANTENNA CIRCUIT.</b> Measure the resistance between antenna harness connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B142) No. 2 — Chassis ground:</b></i>	Is the resistance less than 10 $\Omega$ ?	Replace the antenna. <Ref. to SL-40, Immobilizer Antenna.>	Go to step 4.
<b>4 CHECK ANTENNA CIRCUIT.</b> 1) Turn the ignition switch to ON. (Engine OFF.) 2) Measure the voltage between antenna harness connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B142) No. 1 (+) — Chassis ground (-):</b></i>	Is the voltage 0 V?	Go to step 5.	Replace the antenna. <Ref. to SL-40, Immobilizer Antenna.>
<b>5 CHECK ANTENNA CIRCUIT.</b> Measure the voltage between antenna harness connector and chassis ground. <i><b>Connector &amp; terminal</b></i> <i><b>(B142) No. 2 (+) — Chassis ground (-):</b></i>	Is the voltage 0 V?	Go to step 6.	Repair the harness between IMM ECM and antenna, because there is short circuit with battery voltage line or ignition switch "ON" line.
<b>6 CHECK IMM ECM FUNCTION.</b> 1) Turn the ignition switch to OFF. 2) Connect the antenna harness connector to IMM ECM. 3) Insert the key to ignition switch, measure changes in voltage between antenna harness connector. <i><b>Connector &amp; terminal</b></i> <i><b>(B142) No. 1 (+) — No. 2 (-):</b></i>	Is the voltage -30 — 30 V? (Approx. 0.1 second after inserting the key) Is the voltage 0 V? (Approx. 1 second after inserting the key)	Go to step 7.	Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).
<b>7 CHECK IGNITION KEY (TRANSPONDER).</b> 1) Remove the key from ignition switch. 2) Start the engine using other keys that have undergone the teaching operation, furnished with vehicle.	Does the engine start?	Replace the ignition key (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).	Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).

# Diagnostics Chart with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

## C: DTC P1571 REFERENCE CODE INCOMPATIBILITY

### DIAGNOSIS:

Reference code incompatibility between IMM ECM and ECM

	Step	Check	Yes	No
1	<b>PERFORM TEACHING OPERATION ON IGNITION KEY.</b> Perform teaching operation on all keys of the vehicle. Refer to the teaching operation manual.	Is teaching operation for all keys completed?	END	Replace the ECM <Ref. to FU(H4SO)-47, Engine Control Module (ECM).>, <Ref. to FU(H4SOw/oOBD)-43, Engine Control Module (ECM).> or <Ref. to FU(H4DOTC)-49, Engine Control Module (ECM).>, IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).

# Diagnostics Chart with Diagnostic Trouble Code (DTC)

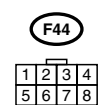
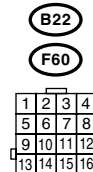
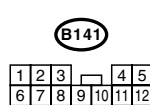
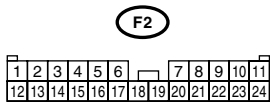
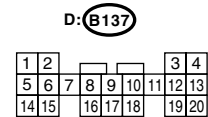
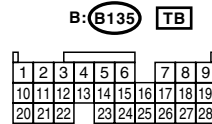
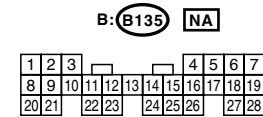
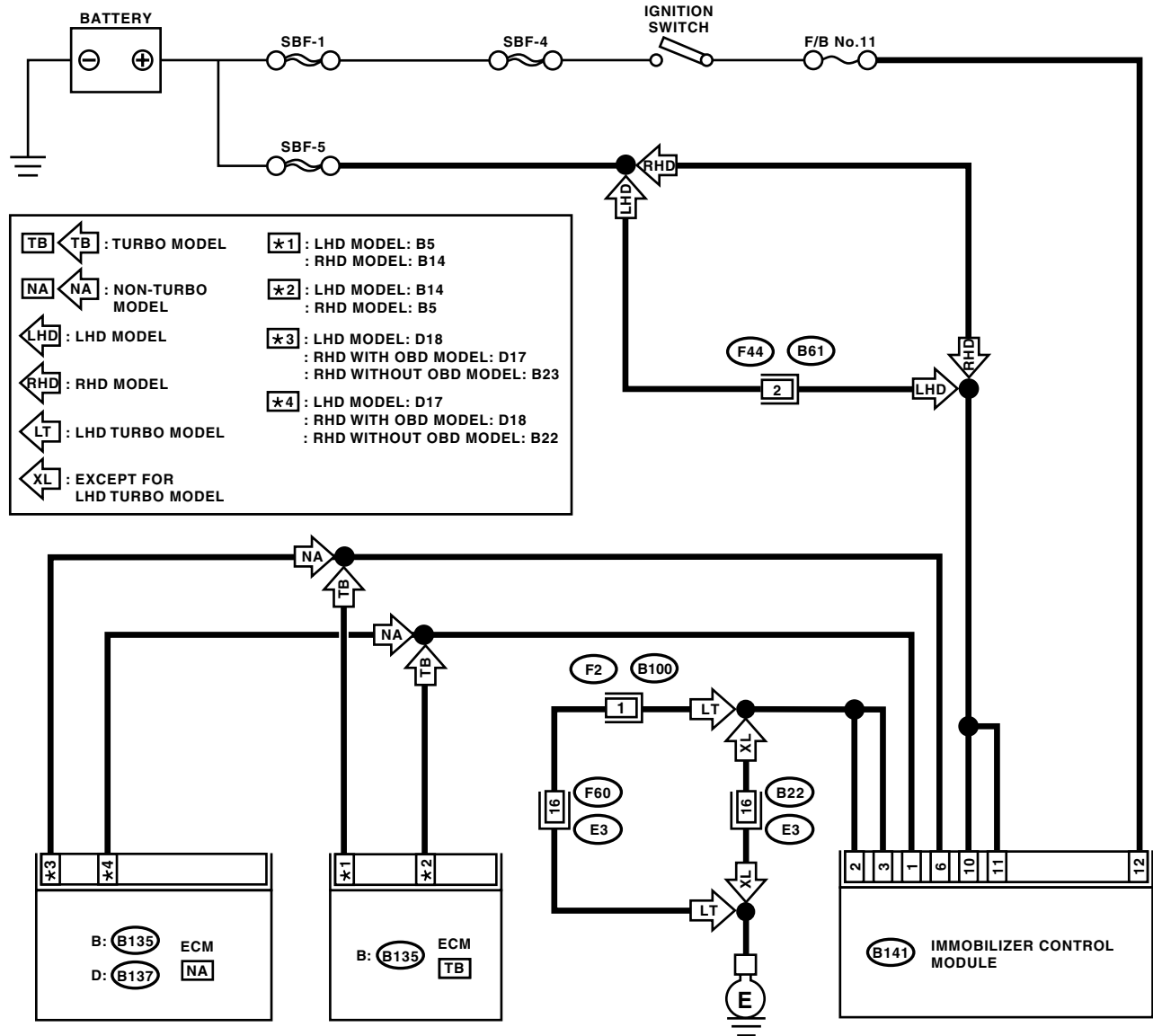
IMMOBILIZER (DIAGNOSTICS)

## D: DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)

### DIAGNOSIS:

Communication failure between IMM ECM and ECM

### WIRING DIAGRAM:



IM-00090

# Diagnostics Chart with Diagnostic Trouble Code (DTC)

## IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>1 CHECK POWER SUPPLY CIRCUIT OF IMM ECM.</b>                      1) Turn the ignition switch to OFF.                      2) Disconnect the harness connector from IMM ECM.                      3) Measure the voltage between IMM ECM harness connector terminal and chassis ground.  <b>Connector &amp; terminal</b>  <b>(B141) No. 10, No.11 (+) — Chassis ground (-):</b></p>	Is the voltage more than 10 V?	Go to step 2.	Check the harness for open or short between IMM ECM and fuse.
<p><b>2 CHECK POWER SUPPLY CIRCUIT OF IMM ECM.</b>                      1) Turn the ignition switch to ON. (Engine OFF.)                      2) Measure the voltage between IMM ECM harness connector terminal and chassis ground.  <b>Connector &amp; terminal</b>  <b>(B141) No. 12 (+) — Chassis ground (-):</b></p>	Is the voltage more than 10 V?	Go to step 3.	Check the harness for open or short between IMM ECM and ignition switch.
<p><b>3 CHECK GROUND CIRCUIT OF IMM ECM.</b>                      1) Turn the ignition switch to OFF.                      2) Measure the resistance between IMM ECM harness connector terminal and chassis ground.  <b>Connector &amp; terminal</b>  <b>(B141) No. 2, No.3 — Chassis ground:</b></p>	Is the resistance less than 10 Ω?	Go to step 4.	Repair the open circuit of IMM ECM ground circuit.
<p><b>4 CHECK HARNESS BETWEEN IMM ECM AND ECM.</b>                      1) Disconnect the harness connector from ECM and IMM ECM.                      2) Measure the resistance between IMM ECM harness connector terminal and ECM harness connector terminal.  <b>Connector &amp; terminal</b>  <b>LHD SOHC model</b>  <b>(B141) No. 1 — (B137) No. 17:</b>  <b>RHD SOHC model with OBD</b>  <b>(B141) No. 1 — (B137) No. 18:</b>  <b>RHD SOHC model without OBD</b>  <b>(B141) No. 1 — (B135) No. 22:</b>  <b>LHD turbo model</b>  <b>(B141) No. 1 — (B135) No. 14:</b>  <b>RHD turbo model</b>  <b>(B141) No. 1 — (B135) No. 5:</b></p>	Is the resistance less than 10 Ω?	Go to step 5.	Repair the open circuit of harness between IMM ECM and ECM.
<p><b>5 CHECK HARNESS BETWEEN IMM ECM AND ECM.</b>                      Measure the resistance between IMM ECM harness connector terminal and ECM harness connector terminal.  <b>Connector &amp; terminal</b>  <b>LHD SOHC model</b>  <b>(B141) No. 6 — (B137) No. 18:</b>  <b>RHD SOHC model with OBD</b>  <b>(B141) No. 6 — (B137) No. 17:</b>  <b>RHD SOHC model without OBD</b>  <b>(B141) No. 6 — (B135) No. 23:</b>  <b>LHD turbo model</b>  <b>(B141) No. 6 — (B135) No. 5:</b>  <b>RHD turbo model</b>  <b>(B141) No. 6 — (B135) No. 14:</b></p>	Is the resistance less than 10 Ω?	Go to step 6.	Repair the open circuit of harness between IMM ECM and ECM.

# Diagnostics Chart with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<p><b>6</b></p> <p><b>CHECK HARNESS OF COMMUNICATION LINE.</b>                      1) Turn the ignition switch to ON. (Engine OFF.)                      2) Measure the voltage between IMM ECM harness connector terminal and chassis ground.  <i><b>Connector &amp; terminal</b></i>  <i><b>(B141) No. 1, No.6 (+) — Chassis ground (-):</b></i></p>	Is the voltage 0 V?	Go to step 7.	Repair the harness between IMM ECM and ECM, because there is short circuit with battery voltage line or ignition switch "ON" line.
<p><b>7</b></p> <p><b>CHECK HARNESS OF COMMUNICATION LINE.</b>                      Measure the voltage between ECM harness connector terminal and engine ground.  <i><b>Connector &amp; terminal</b></i>  <i><b>LHD SOHC and RHD SOHC model with OBD</b></i>  <i><b>(B137) No. 17, No. 18 (+) — Engine ground (-):</b></i>  <i><b>RHD SOHC model without OBD</b></i>  <i><b>(B135) No. 22, No.23 (+) — Engine ground (-):</b></i>  <i><b>Turbo model</b></i>  <i><b>(B135) No. 5, No.14 (+) — Engine ground (-):</b></i></p>	Is the voltage 0 V?	Go to step 8.	Repair the harness between IMM ECM and ECM, because there is short circuit with battery voltage line or ignition switch "ON" line.
<p><b>8</b></p> <p><b>CHECK ECM BY INTERFACE CHECK.</b>                      1) Connect the harness connector to ECM.                      2) Disconnect the harness connector from IMM ECM.                      3) Perform interface check. &lt;Ref. to IM(diag)-7, INTERFACE CHECK, Subaru Select Monitor.&gt;</p>	Does "Commun. Line Shorted to Ground" appear on the screen?	Replace the ECM. <Ref. to FU(H4SO)-47, Engine Control Module (ECM).>, <Ref. to FU(H4SOw/oOBD)-43, Engine Control Module (ECM).> or <Ref. to FU(H4DOTC)-49, Engine Control Module (ECM).> Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).	Go to step 9.

## Diagnostics Chart with Diagnostic Trouble Code (DTC)

### IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<b>9</b> <b>CHECK ECM BY INTERFACE CHECK.</b> Perform interface check.	Does "Commun. Line Shorted to Battery" appear on the screen?	Replace the ECM. <Ref. to FU(H4SO)-47, Engine Control Module (ECM).>, <Ref. to FU(H4SOw/oOBD)-43, Engine Control Module (ECM).> or <Ref. to FU(H4DOTC)-49, Engine Control Module (ECM).> Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).	Go to step <b>10</b> .
<b>10</b> <b>CHECK ECM BY INTERFACE CHECK.</b> Perform interface check.	Does "Communication Line not Shorted" appear on the screen?	Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).	When "Check (Time Out)" appears on the screen, perform interface check again.



# Diagnostics Chart with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

## E: DTC P1574 KEY COMMUNICATION FAILURE

### DIAGNOSIS:

Failure of IMM ECM to verify key (transponder) ID code

Step	Check	Yes	No
1 <b>CHECK IMM ECM FUNCTION.</b> Insert the key to ignition switch (LOCK position), measure changes in voltage between Antenna connector. <b>Connector &amp; terminal</b> <b>(B142) No. 1 — No. 2:</b>	Is the voltage -30 — 30 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 IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).
2 <b>CHECK IGNITION KEY (TRANSPONDER).</b> 1) Remove the key from ignition switch. 2) Start the engine using other keys that have undergone the teaching operation, furnished with vehicle.	Does the engine start?	Replace the ignition key (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).	Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.> and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).

## F: DTC P1576 EGI CONTROL MODULE EEPROM

### DIAGNOSIS:

ECM malfunctioning

#### 1. REPLACE ECM.

Replace the ECM.

<Ref. to FU(H4SO)-47, Engine Control Module (ECM).>, <Ref. to FU(H4SOw/oOBD)-43, Engine Control Module (ECM).> or <Ref. to FU(H4DOTC)-49, Engine Control Module (ECM).>

Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).

## G: DTC P1577 IMM CONTROL MODULE EEPROM

### DIAGNOSIS:

IMM ECM malfunctioning

#### 1. REPLACE IMM ECM.

Replace the IMM ECM <Ref. to SL-39, Immobilizer Control Module.>, and then replace all ignition keys (including the transponder). Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).

# Diagnostics Chart with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

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