

IMMOBILIZER (DIAGNOSTICS)



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BASIC DIAGNOSTIC PROCEDURE

IMMOBILIZER (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

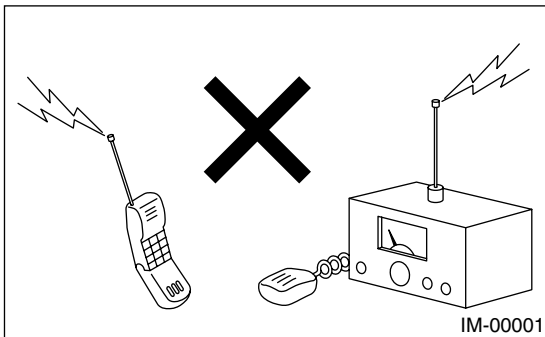
Step	Check	Yes	No
1 CHECK ILLUMINATION OF IMMOBILIZER INDICATOR LIGHT. 1) Turn the ignition switch to OFF or ACC position. 2) Wait at least 60 seconds. Does the immobilizer indicator light blink?	Indicator light blinks.	Go to step 2.	Check the immobilizer indicator light circuit. <Ref. to IM-10, CHECK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

2. General Description

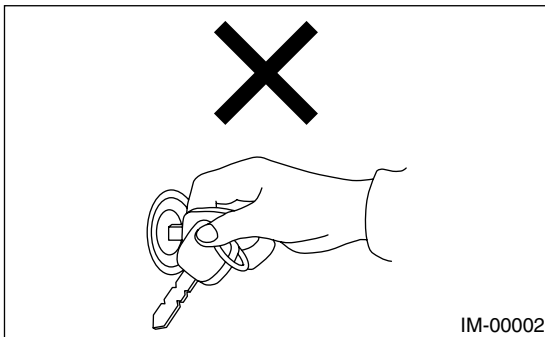
A: CAUTION

CAUTION:

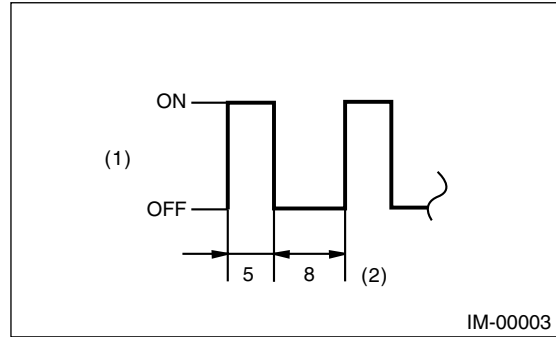
- The airbag system wiring harness is routed near the immobilizer control module. All airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuits.
- Be careful not to damage the airbag system wiring harness when servicing the immobilizer control 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.

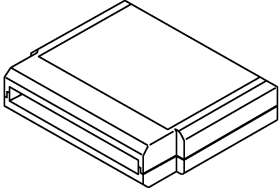

- If the engine fails to start with a registered ignition key, detach the ignition key from ignition switch and wait for approx. 1 second until immobilizer indicator light begins to flash. Start the engine again.
- Before checking the diagnostic items, obtain all keys for the vehicle to be checked possessed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

GENERAL DESCRIPTION

IMMOBILIZER (DIAGNOSTICS)

B: PREPARATION TOOL

1. SPECIAL TOOLS

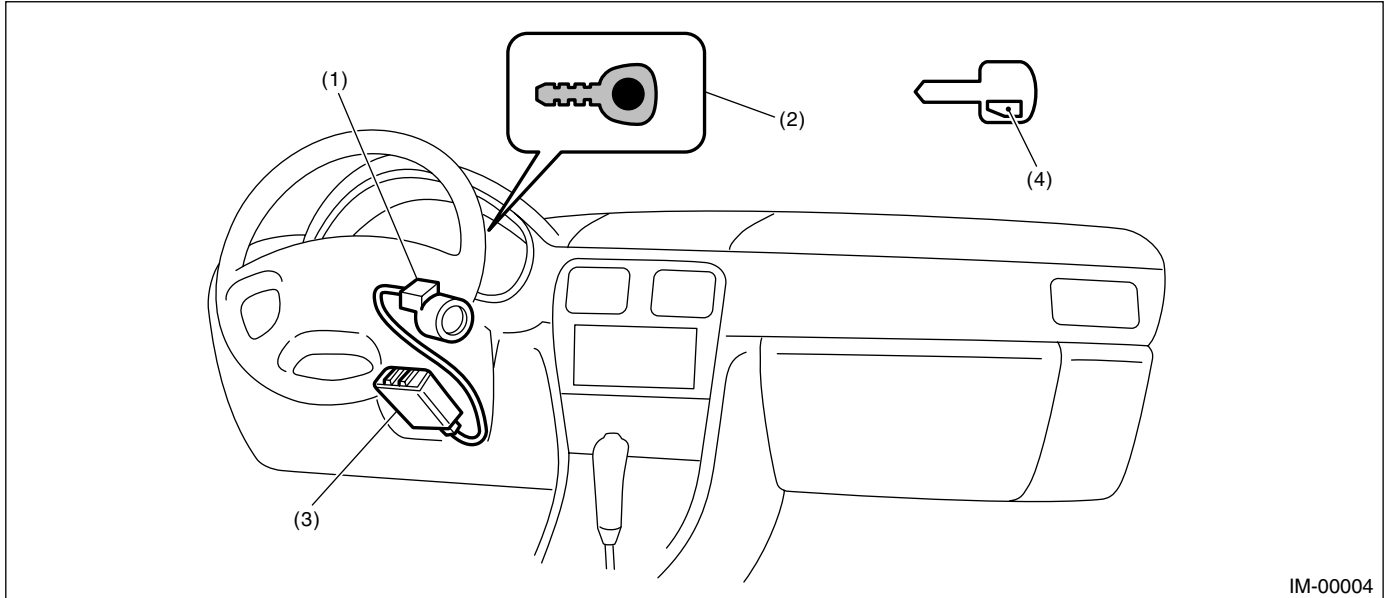
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST24082AA210	24082AA210 (Newly adopted tool)	CARTRIDGE	Troubleshooting for electrical systems.
 ST22771AA030	22771AA030	SUBARU SELECT MONITOR KIT	Troubleshooting for electrical systems. <ul style="list-style-type: none"> • English: 22771AA030 (Without printer) • German: 22771AA070 (Without printer) • French: 22771AA080 (Without printer) • Spanish: 22771AA090 (Without printer)

2. GENERAL TOOLS

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

3. Electrical Components Location

A: LOCATION



IM-00004

- (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)

4. Immobilizer Control Module I/O Signal

A: SCHEMATIC

1. IMMOBILIZER

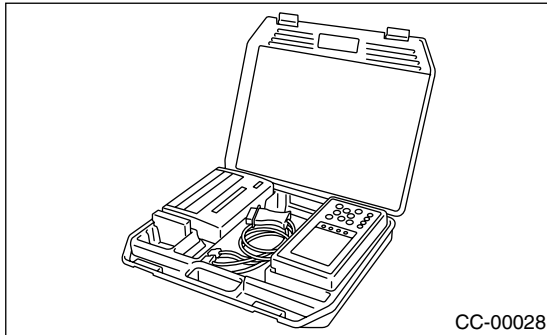
<Ref. to WI-172, SCHEMATIC, Immobilizer System.>

5. Subaru Select Monitor

A: OPERATION

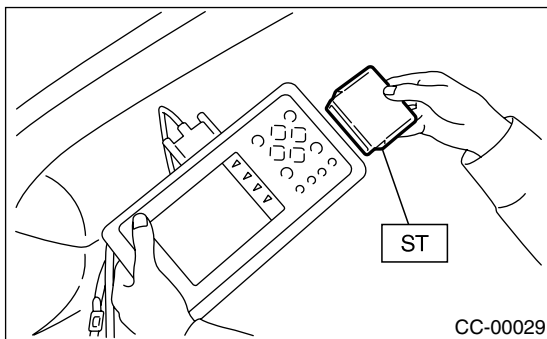
1. HOW TO USE SUBARU SELECT MONITOR

1) Prepare the Subaru Select Monitor kit.



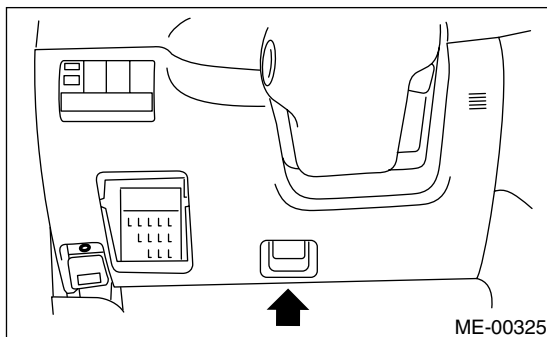
2) Connect the diagnosis cable to Subaru Select Monitor.

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).

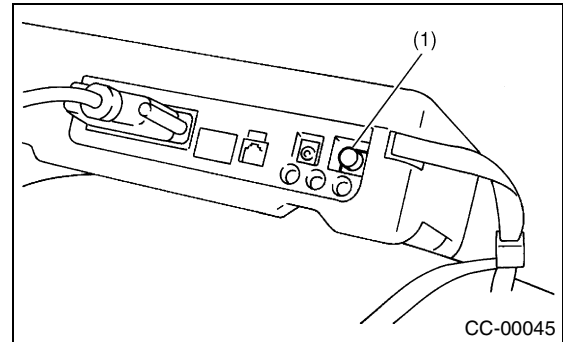


(2) Connect the diagnosis cable to data link connector.

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 Diagnostic Trouble Code for information about how to indicate DTC. <Ref. to IM-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-16, DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostics Chart with Diagnostic Trouble Code (DTC).>

READ DIAGNOSTIC TROUBLE CODE (DTC)

IMMOBILIZER (DIAGNOSTICS)

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 displayed information of engine type.
- 4) On the «Engine Diagnosis» display screen, select the {Diagnostic Code(s) Display}, and then press the [YES] key.
- 5) On the «Diagnostic Code(s) Display» display screen, select the {Current Diagnostic Code(s)} or {History Diagnostic Code(s)}, and then press the [YES] key.

NOTE:

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

7. Clear Memory Mode

A: OPERATION

- 1) On the «Main Menu» display screen, select the {2. 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 displayed information of engine type.
- 4) On the «Engine Diagnosis» display screen, select the {Clear Memory}, and then press the [YES] key.
- 5) When the `Done' and `Turn Ignition Switch OFF' 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

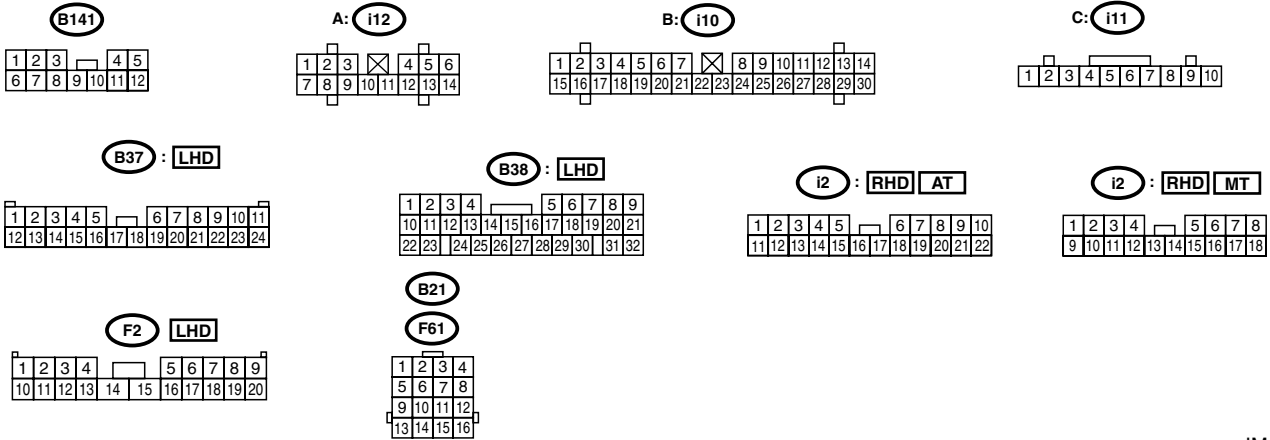
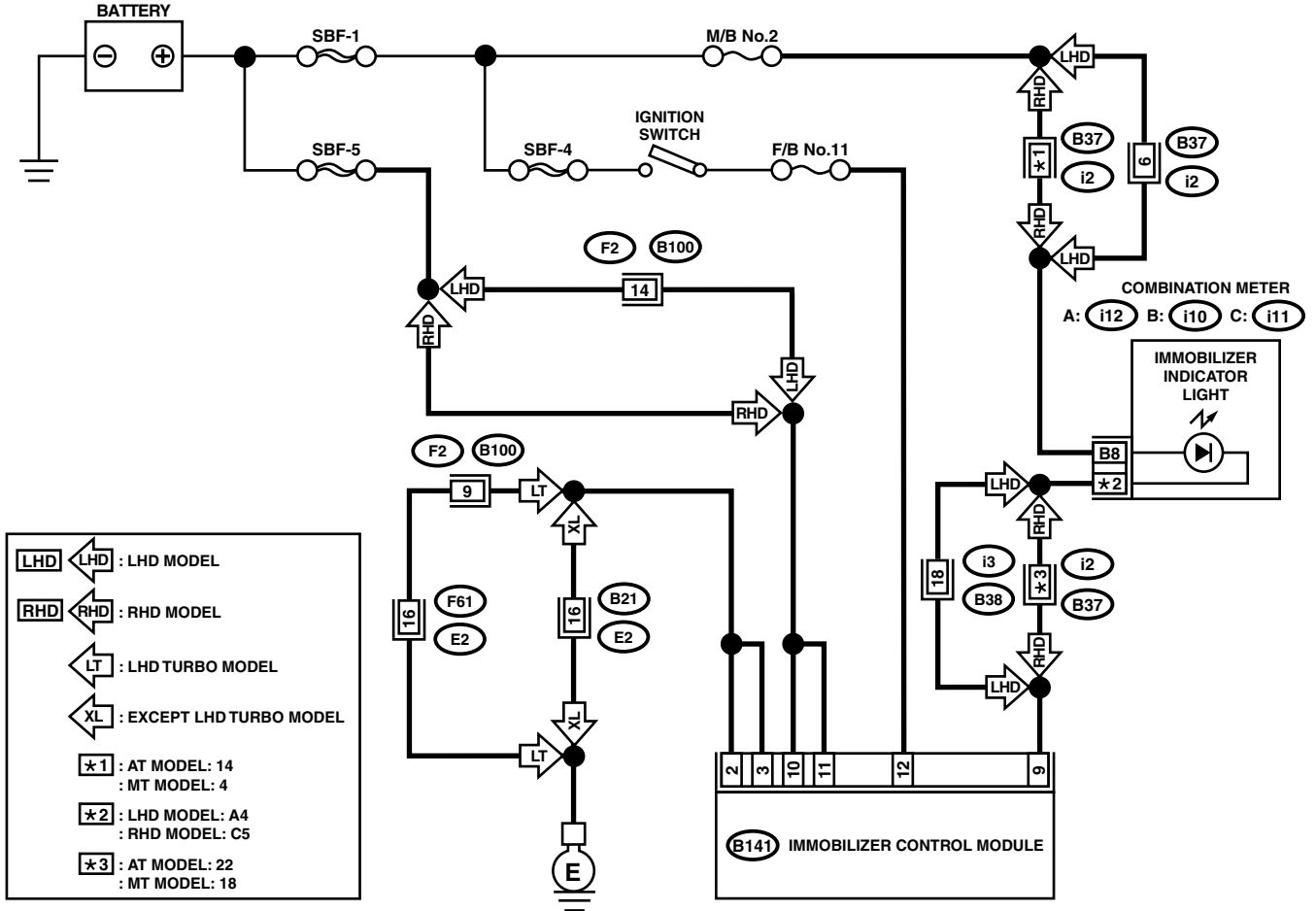
IMMOBILIZER (DIAGNOSTICS)

8. Diagnostics Chart for Immobilizer Indicator Light

A: INSPECTION

1. CHECK IMMOBILIZER INDICATOR CIRCUIT

WIRING DIAGRAM:



IM-00005

DIAGNOSTICS CHART FOR IMMOBILIZER INDICATOR LIGHT

IMMOBILIZER (DIAGNOSTICS)

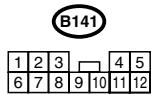
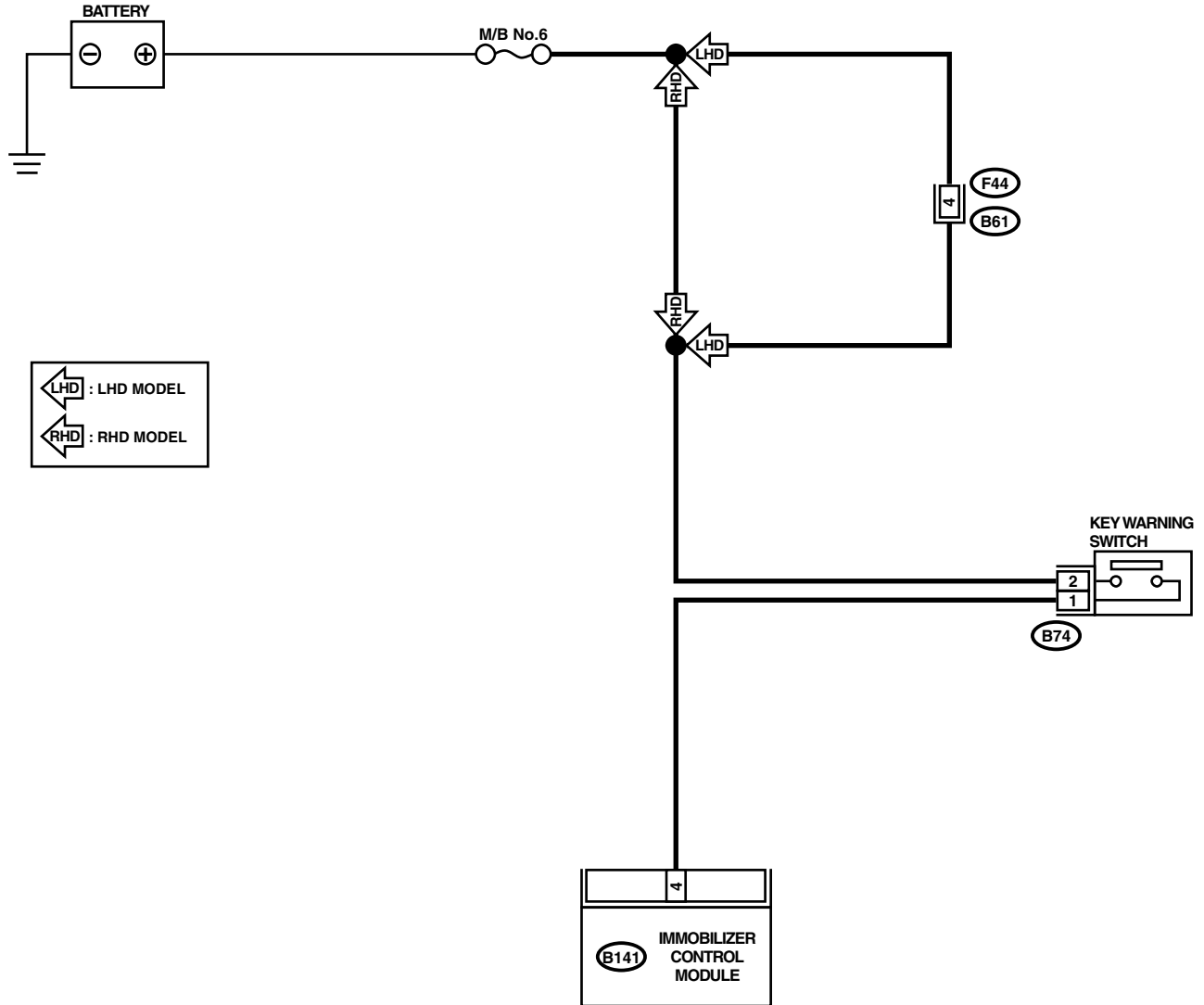
Step	Check	Yes	No
1 CHECK IMMOBILIZER INDICATOR LIGHT. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from IMM ECM. 3) Connect a resistor (750 Ω) between IMM ECM harness connector terminal No. 9 and chassis ground. Does the indicator light come on?	Indicator light illuminates.	Go to step 2.	Go to step 5.
2 CHECK IMM ECM GROUND CIRCUIT. Measure the resistance between IMM ECM harness connector terminal and chassis ground. <i>Connector & terminal</i> <i>(B141) No. 2, No. 3 — Chassis ground:</i> Is the measured value less than specified value?	10 Ω	Go to step 3.	Repair the open circuit of IMM ECM ground circuit.
3 CHECK IMM ECM IGNITION CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF.) 2) Measure the voltage between IMM ECM harness connector terminal and chassis ground. <i>Connector & terminal</i> <i>(B141) No. 12 (+) — Chassis ground (-):</i> Is the measured value more than specified value?	10 V	Go to step 4.	Check the harness for open or short between IMM ECM and ignition switch.
4 CHECK IMM ECM POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to OFF. 2) Measure the voltage between IMM ECM harness connector terminal and chassis ground. <i>Connector & terminal</i> <i>(B141) No. 10, No. 11 (+) — Chassis ground (-):</i> Is the measured value more than specified value?	10 V	Replace the IMM ECM <Ref. to SL-37, 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.
5 CHECK COMBINATION METER CIRCUIT. 1) Remove the combination meter. <Ref. to IDI-12, Combination Meter Assembly.> 2) Measure the voltage between combination meter harness connector terminal and chassis ground. <i>Connector & terminal</i> <i>(i10) No. 8 (+) — Chassis ground (-):</i> Is the measured value more than specified value?	10 V	Go to step 6.	Check the harness for open or short between combination meter and fuse.
6 CHECK COMBINATION METER CIRCUIT. Measure the resistance between IMM ECM harness connector terminal and combination meter harness connector terminal. <i>Connector & terminal</i> <i>LHD model</i> <i>(B141) No. 9 — (i12) No. 4:</i> <i>RHD model</i> <i>(B141) No. 9 — (i11) No. 5:</i> Is the measured value less than specified value?	10 Ω	Faulty LED bulb. Replace the combination meter printed circuit. <Ref. to IDI-13, DISASSEMBLY, Combination Meter Assembly.>	Repair the harness or connector.

DIAGNOSTICS CHART FOR IMMOBILIZER INDICATOR LIGHT

IMMOBILIZER (DIAGNOSTICS)

2. CHECK KEY SWITCH CIRCUIT

WIRING DIAGRAM:



IM-00006

DIAGNOSTICS CHART FOR IMMOBILIZER INDICATOR LIGHT

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<p>1</p> <p>CHECK POWER SUPPLY CIRCUIT. 1)Disconnect the harness connector from key warning switch. 2)Measure the voltage between key warning switch harness connector terminal and chassis ground. <i>Connector & terminal</i> (B74) No. 2 (+) — Chassis ground (-): Is the measured value more than specified value?</p>	10 V	Go to step 2.	Check the harness for open or short between key warning switch and fuse.
<p>2</p> <p>CHECK KEY SWITCH. 1)Insert the ignition key to the ignition switch. (OFF or ACC position) 2)Measure the resistance between key warning switch connector terminals. <i>Terminal</i> No. 1 — No. 2: Is the measured value less than specified value?</p>	1 Ω	Go to step 3.	Replace the key warning switch.
<p>3</p> <p>CHECK KEY SWITCH. 1)Remove the ignition key from the ignition switch. 2)Measure the resistance between key warning switch connector terminals. <i>Terminal</i> No. 1 — No. 2: Is the measured value more than specified value?</p>	1 MΩ	Go to step 4.	Replace the key warning switch.
<p>4</p> <p>CHECK HARNESS BETWEEN KEY SWITCH AND IMM ECM. 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>Connector & terminal</i> (B74) No. 1 — (B141) No. 4: Is the measured value less than specified value?</p>	10 Ω	Replace the IMM ECM <Ref. to SL-37, 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.
P1571	Reference Code Incompatibility	Reference code incompatibility between IMM ECM and ECM	<Ref. to IM-15, 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-16, 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-19, DTC P1574 KEY COMMUNICATION FAILURE, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
P0153	Use of Unregistered Key	Incorrect immobilizer key (Use of unregistered key in IMM ECM)	<Ref. to IM-20, DTC P0153 INCORRECT IMMOBILIZER KEY (USE OF UNREGISTERED KEY), Diagnostics Chart with Diagnostic Trouble Code (DTC).>
P1576	EGI Control Module EEPROM	ECM malfunctioning	<Ref. to IM-20, DTC P1576 EGI CONTROL MODULE EEPROM, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
P1577	IMM Control Module EEPROM	IMM ECM malfunctioning	<Ref. to IM-20, DTC P1577 IMM CONTROL MODULE EEPROM, Diagnostics Chart with Diagnostic Trouble Code (DTC).>
P1570	ANTENNA	Faulty antenna	<Ref. to IM-21, DTC P1570 ANTENNA, Diagnostics Chart with Diagnostic Trouble Code (DTC).>

NOTE:

- If any DTC except for the above immobilizer trouble code has been output, carry out diagnosis for the engine trouble code. <Ref. to EN(SOHC)-75, List of Diagnostic Trouble Code (DTC).> or <Ref. to EN(TURBO)-77, 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 P1571 REFERENCE CODE INCOMPATIBILITY

DIAGNOSIS:

- Reference code incompatibility between IMM ECM and ECM

Step	Check	Yes	No
1 PERFORM TEACHING OPERATION ON IGNITION KEY. Perform teaching operation on all keys of the vehicle. Refer to the teaching operation manual. Is teaching operation for all keys completed?	Teaching operation is completed.	END	Replace the ECM <Ref. to FU(SOHC)-46, Engine Control Module.>, or <Ref. to FU(TURBO)-48, Engine Control Module.>, IMM ECM <Ref. to SL-37, 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)

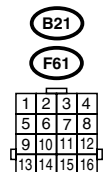
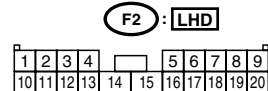
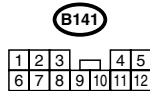
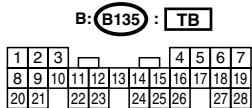
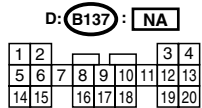
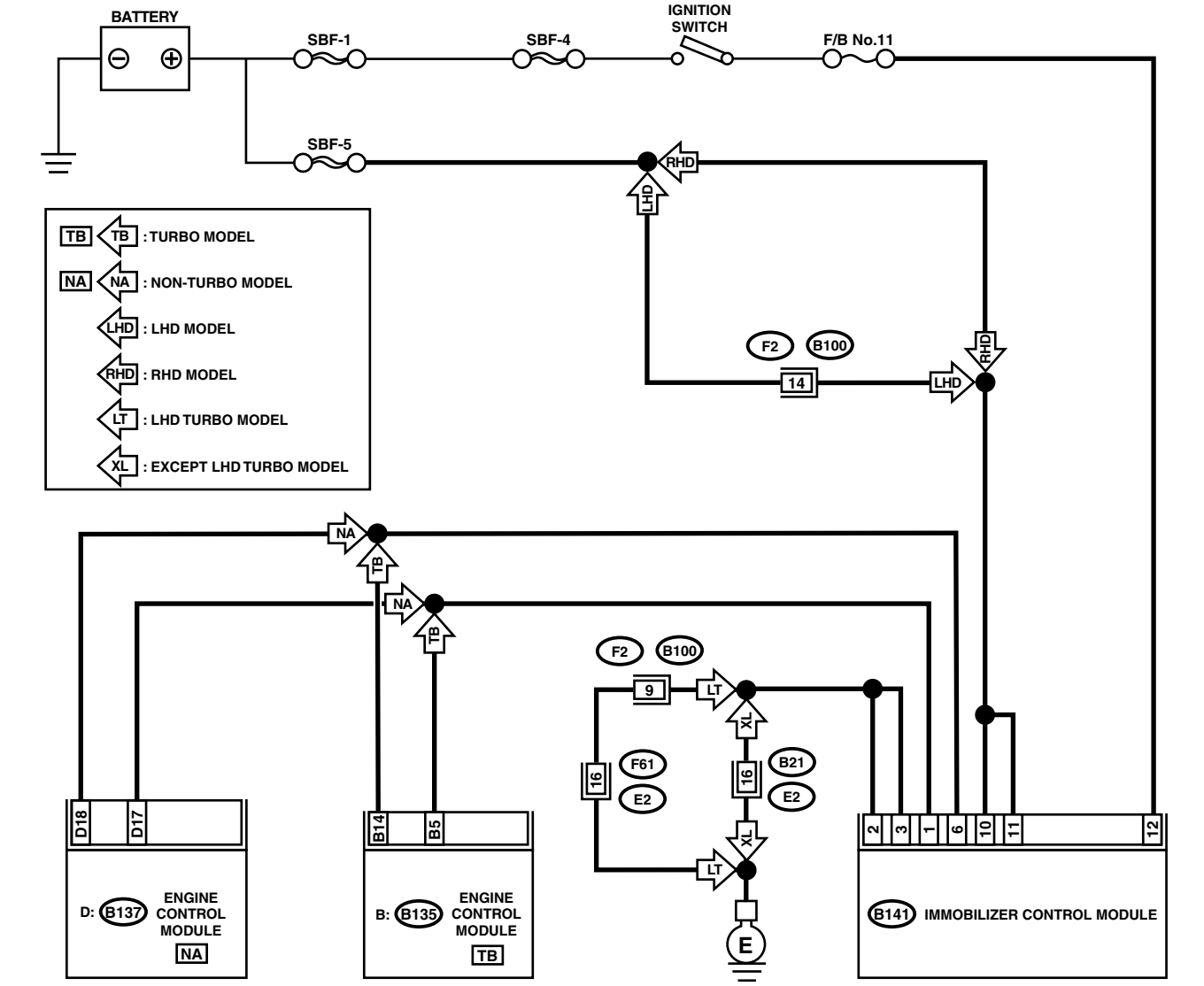
IMMOBILIZER (DIAGNOSTICS)

B: DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)

DIAGNOSIS:

- Communication failure between IMM ECM and ECM

WIRING DIAGRAM:



IM-00007

DIAGNOSTICS CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<p>1</p> <p>CHECK POWER SUPPLY CIRCUIT OF IMM ECM. 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. Connector & terminal (B141) No. 10, No.11 (+) — Chassis ground (-): Is the measured value more than specified value?</p>	10 V	Go to step 2.	Check the harness for open or short between IMM ECM and fuse.
<p>2</p> <p>CHECK IGNITION SWITCH CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF.) 2) Measure the voltage between IMM ECM harness connector terminal and chassis ground. Connector & terminal (B141) No. 12 (+) — Chassis ground (-): Is the measured value more than specified value?</p>	10 V	Go to step 3.	Check the harness for open or short between IMM ECM and ignition switch.
<p>3</p> <p>CHECK GROUND CIRCUIT OF IMM ECM. 1) Turn the ignition switch to OFF. 2) Measure the resistance between IMM ECM harness connector terminal and chassis ground. Connector & terminal (B141) No. 2, No.3 — Chassis ground: Is the measured value less than specified value?</p>	10 Ω	Go to step 4.	Repair the open circuit of IMM ECM ground circuit.
<p>4</p> <p>CHECK HARNESS BETWEEN IMM ECM AND ECM. 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. Connector & terminal Non-turbo model (B141) No. 1 — (B137) No. 17: Turbo model (B141) No. 1 — (B135) No. 14: Is the measured value less than specified value?</p>	10 Ω	Go to step 5.	Repair the open circuit of harness between IMM ECM and ECM.
<p>5</p> <p>CHECK HARNESS BETWEEN IMM ECM AND ECM. Measure the resistance between IMM ECM harness connector terminal and ECM harness connector terminal. Connector & terminal Non-turbo model (B141) No. 6 — (B137) No. 18: Turbo model (B141) No. 6 — (B135) No. 5: Is the measured value less than specified value?</p>	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
6 CHECK HARNESS OF COMMUNICATION LINE. 1) Turn the ignition switch to ON. (engine OFF.) 2) Measure the voltage between IMM ECM harness connector terminal and chassis ground. Connector & terminal (B141) No. 1, No.6 (+) — Chassis ground (-): Is the measured value as specified?	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.
7 CHECK HARNESS OF COMMUNICATION LINE. Measure the voltage between ECM harness connector terminal and engine ground. Connector & terminal Non-turbo model (B137) No. 17, No.18 (+) — Engine ground (-): Turbo model (B135) No. 5, No.14 (+) — Engine ground (-): Is the measured value as specified?	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.
8 CHECK ECM BY INTERFACE CHECK. 1) Connect the harness connector to ECM. 2) Disconnect the harness connector from IMM ECM. 3) Perform interface check. <Ref. to IM-7, INTERFACE CHECK, Subaru Select Monitor.> Does "Commun. Line Shorted to Ground" appear on the screen?	"Commun. Line Shorted to Ground" appear on the screen.	Replace the ECM. <Ref. to FU(SOHC)-46, Engine Control Module.>, or <Ref. to FU(TURBO)-48, Engine Control Module.> Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).	Go to step 9.
9 CHECK ECM BY INTERFACE CHECK. Perform interface check. Does "Commun. Line Shorted to Battery" appear on the screen?	"Commun. Line Shorted to Battery" appear on the screen.	Replace the ECM. <Ref. to FU(SOHC)-46, Engine Control Module.>, or <Ref. to FU(TURBO)-48, Engine Control Module.> Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).	Go to step 10.

DIAGNOSTICS CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
10	CHECK ECM BY INTERFACE CHECK. Perform interface check. Does "Communication Line not Shorted" appear on the screen?	Replace the IMM ECM <Ref. to SL-37, 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.

C: DTC P1574 KEY COMMUNICATION FAILURE

DIAGNOSIS:

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

Step	Check	Yes	No
1	CHECK IMM ECM FUNCTION. Insert the key to ignition switch (LOCK position), measure changes in voltage between Antenna connector. Connector & terminal (B142) No. 1 (+) — No. 2: (-) Is the measured value as specified?	Go to step 2.	Replace the IMM ECM <Ref. to SL-37, 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	CHECK IGNITION KEY (TRANSPONDER). 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-37, 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 P0153 INCORRECT IMMOBILIZER KEY (USE OF UNREGISTERED KEY)

DIAGNOSIS:

- Use of unregistered key in IMM ECM

	Step	Check	Yes	No
1	PERFORM TEACHING OPERATION ON IGNITION KEY. 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?	Teaching operation is completed.	END	Replace all ignition keys (including the transponder). Go to step 2.
2	PERFORM TEACHING OPERATION ON IGNITION KEY. Perform teaching operation on all keys with vehicle. Refer to the teaching operation manual (Pub. No. S0820GZ). Is teaching operation for all keys completed?	Teaching operation is completed.	END	Replace the IMM ECM <Ref. to SL-37, 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).

E: DTC P1576 EGI CONTROL MODULE EEPROM

DIAGNOSIS:

- ECM malfunctioning

1. REPLACE ECM.

Replace the ECM.

<Ref. to FU(SOHC)-46, Engine Control Module.>, or <Ref. to FU(TURBO)-48, Engine Control Module.>
Then perform teaching operation. Refer to the teaching operation manual (Pub. No. S0820GZ).

F: DTC P1577 IMM CONTROL MODULE EEPROM

DIAGNOSIS:

- IMM ECM malfunctioning

1. REPLACE IMM ECM.

Replace the IMM ECM <Ref. to SL-37, 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)

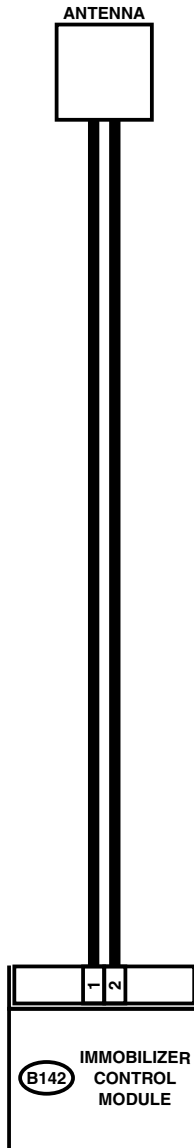
IMMOBILIZER (DIAGNOSTICS)

G: DTC P1570 ANTENNA

DIAGNOSIS:

- Faulty antenna

WIRING DIAGRAM:



B142

1 2

IM-00008

DIAGNOSTICS CHART WITH DIAGNOSTIC TROUBLE CODE (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK ANTENNA CIRCUIT. 1) Turn the ignition switch to OFF. 2) Disconnect the harness antenna connector from IMM ECM. <Ref. to SL-38, Immobilizer Antenna.> 3) Measure the resistance of antenna circuit. <i>Connector & terminal</i> <i>(B142) No. 1 — No. 2:</i> Is the measured value less than specified value?	10 Ω	Go to step 2.	Replace the antenna. <Ref. to SL-38, Immobilizer Antenna.>
2 CHECK ANTENNA CIRCUIT. Measure the resistance between antenna harness connector and chassis ground. <i>Connector & terminal</i> <i>(B142) No. 1 — Chassis ground:</i> Is the measured value less than specified value?	10 Ω	Replace the antenna. <Ref. to SL-38, Immobilizer Antenna.>	Go to step 3.
3 CHECK ANTENNA CIRCUIT. Measure the resistance between antenna harness connector and chassis ground. <i>Connector & terminal</i> <i>(B142) No. 2 — Chassis ground:</i> Is the measured value less than specified value?	10 Ω	Replace the antenna. <Ref. to SL-38, Immobilizer Antenna.>	Go to step 4.
4 CHECK ANTENNA CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF.) 2) Measure the voltage between antenna harness connector and chassis ground. <i>Connector & terminal</i> <i>(B142) No. 1 (+) — Chassis ground (-):</i> Is the measured value as specified?	0 V	Go to step 5.	Replace the antenna. <Ref. to SL-38, Immobilizer Antenna.>
5 CHECK ANTENNA CIRCUIT. Measure the voltage between antenna harness connector and chassis ground. <i>Connector & terminal</i> <i>(B142) No. 2 (+) — Chassis ground (-):</i> Is the measured value as specified?	0 V	Go to step 6.	Replace the antenna. <Ref. to SL-38, Immobilizer Antenna.>
6 CHECK IMM ECM FUNCTION. 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>Connector & terminal</i> <i>(B142) No. 1 (+) — No. 2 (-):</i> Is the measured value as specified?	-30 to 30 V: Approx. 0.1 second after inserting the key 0 V: Approx. 1 second after inserting the key	Go to step 7.	Replace the IMM ECM <Ref. to SL-37, 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)

Step	Check	Yes	No
7 CHECK IGNITION KEY (TRANSPONDER). 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?	Engine starts.	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-37, 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)
