

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.

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

BODY SECTION

CRUISE CONTROL SYSTEM CC

CRUISE CONTROL SYSTEM (DIAGNOSTICS) CC(diag)

IMMOBILIZER (DIAGNOSTICS) IM(diag)

LAN SYSTEM (DIAGNOSTICS) LAN(diag)

IMMOBILIZER (DIAGNOSTICS)

IM(diag)

	Page
1. Basic Diagnostic Procedure	2
2. General Description	4
3. Electrical Component Location	6
4. Immobilizer Control Module I/O Signal.....	7
5. Subaru Select Monitor.....	8
6. Read Diagnostic Trouble Code (DTC)	9
7. Clear Memory Mode.....	10
8. Diagnostics Chart for Immobilizer Indicator Light.....	11
9. List of Diagnostic Trouble Code (DTC)	15
10. Diagnostic Procedure with Diagnostic Trouble Code (DTC)	17

Basic Diagnostic Procedure

IMMOBILIZER (DIAGNOSTICS)

1. Basic Diagnostic Procedure

A: PROCEDURE

Step	Check	Yes	No
1 CHECK IMMOBILIZER WARNING LIGHT. 1) Turn the ignition switch to "OFF" or "ACC". 2) Wait for more than 60 seconds.	Does the immobilizer warning light blink?	Go to step 2.	Check the immobilizer warning light circuit. <Ref. to IM(diag)-11, CHECK IMMOBILIZER INDICATOR CIRCUIT, INSPECTION, Diagnostics Chart for Immobilizer Indicator Light.>
2 CHECK KEY SWITCH. Remove the key from ignition switch.	Does the immobilizer warning light blink within 1 second after removing ignition key?	Go to step 3.	Check the key switch circuit. <Ref. to IM(diag)-13, CHECK KEY SWITCH CIRCUIT, INSPECTION, Diagnostics Chart for Immobilizer Indicator Light.>
3 CHECK IMMOBILIZER WARNING LIGHT. Turn the ignition switch to ON.	Does the immobilizer warning light off?	Go to step 5.	Go to step 4.
4 CHECK ENGINE START. Turn the ignition switch to START.	Does the starter operate?	Check the LAN communication circuit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Check the DTC display (body integrated unit). Go to step 7.
5 CHECK ENGINE START. Turn the ignition switch to START.	Does the starter operate?	Go to step 6.	Check the LAN communication circuit. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
6 CHECK ENGINE START. Turn the ignition switch to START.	Does the engine start?	Immobilizer system is OK.	Check the DTC display (ECM). Go to step 7.
7 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(diag)-8, Subaru Select Monitor.> 3) Turn the ignition switch and Subaru Select Monitor switch to ON. 4) Read DTC on display.	Is the DTC displayed on screen?	Go to step 8.	Repair the related parts.

Basic Diagnostic Procedure

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
8 PERFORM THE DIAGNOSIS. 1) Inspect using the "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to IM(diag)-17, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> 2) Repair the trouble cause. 3) Perform clear memory mode. 4) Read DTC again.	Is the DTC displayed on screen?	Inspect using the "Diagnostic Procedure with Diagnostic Trouble Code (DTC)". <Ref. to IM(diag)-17, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Finish the diagnosis.

General Description

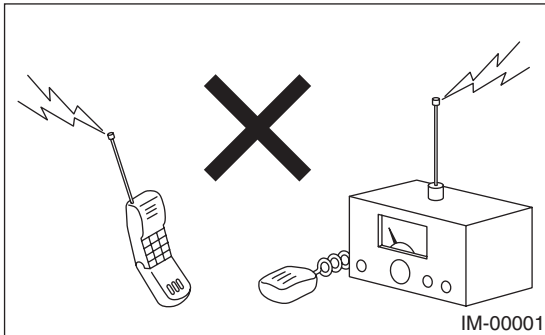
IMMOBILIZER (DIAGNOSTICS)

2. General Description

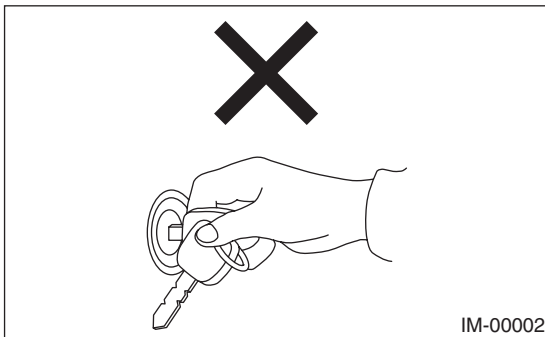
A: CAUTION

CAUTION:

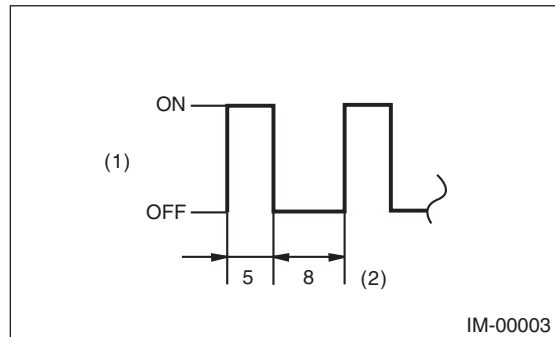
- All airbag system wiring harnesses and connectors are yellow. Do not use the electrical test equipment on these circuits.
- Be careful not to damage the airbag system wiring harness.
- While diagnostic items are being checked, do not operate radios, portable telephones, etc. which emit electromagnetic 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 in a key holder, remove it from the holder before carrying out diagnosis.



- 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.

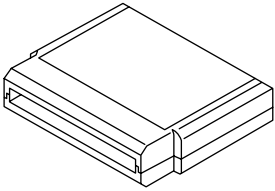



- (1) Ignition switch position
- (2) Sec.

- 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 immobilizer indicator light begins to flash. And then start the engine again.
- Before checking the diagnostic items, obtain all keys for the vehicle to be checked possessed by owner.

B: PREPARATION TOOL

1. SPECIAL TOOL

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

2. GENERAL TOOL

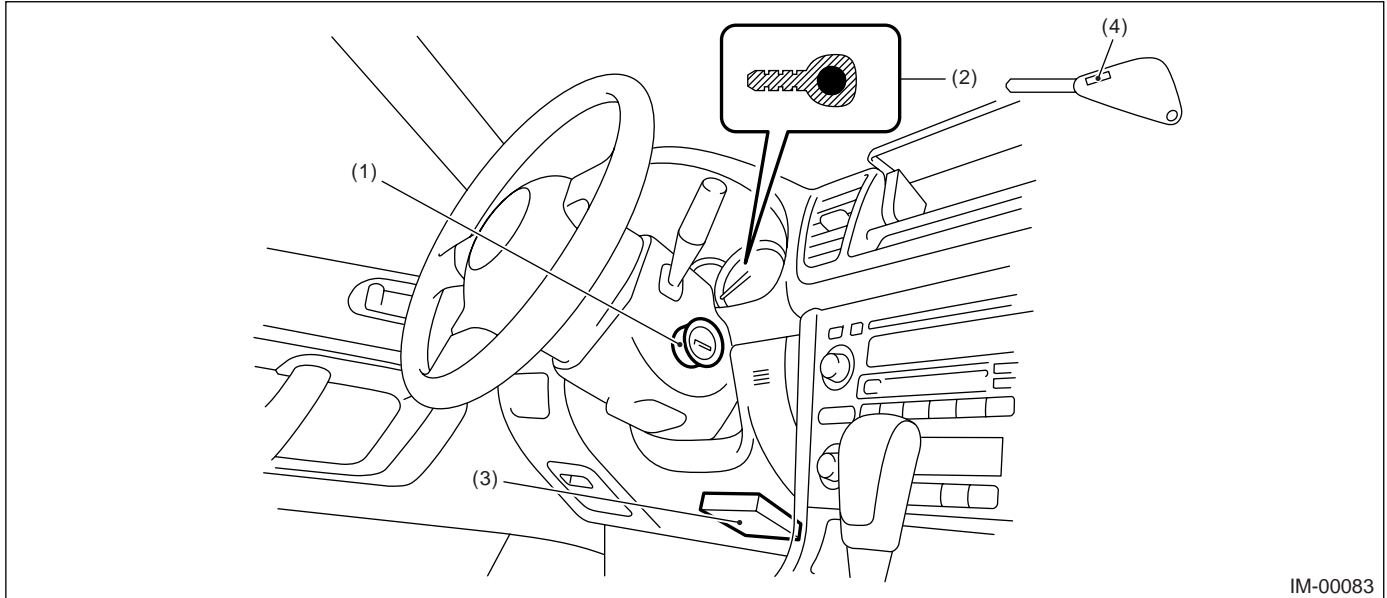
TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance, voltage and ampere.

Electrical Component Location

IMMOBILIZER (DIAGNOSTICS)

3. Electrical Component Location

A: LOCATION



(1) Antenna

(3) Body integrated unit

(4) Transponder

(2) Immobilizer indicator light (LED bulb)

NOTE:

Body integrated unit location for RHD model is symmetrically opposite.

4. Immobilizer Control Module I/O Signal

A: WIRING DIAGRAM

1. IMMOBILIZER

<Ref. to WI-246, WIRING DIAGRAM, Immobilizer System.>

Subaru Select Monitor

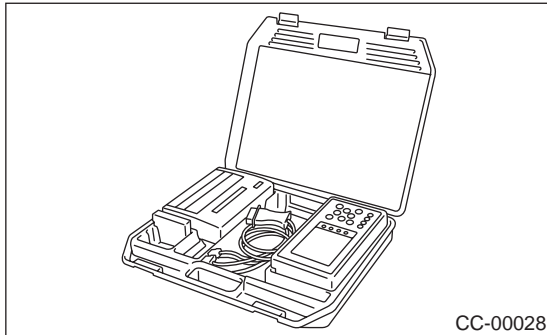
IMMOBILIZER (DIAGNOSTICS)

5. Subaru Select Monitor

A: OPERATION

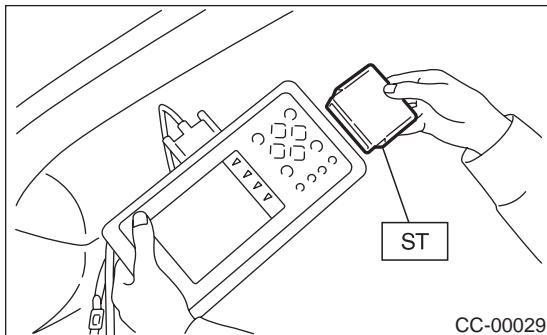
1. HOW TO USE SUBARU SELECT MONITOR

1) Prepare the Subaru Select Monitor kit.



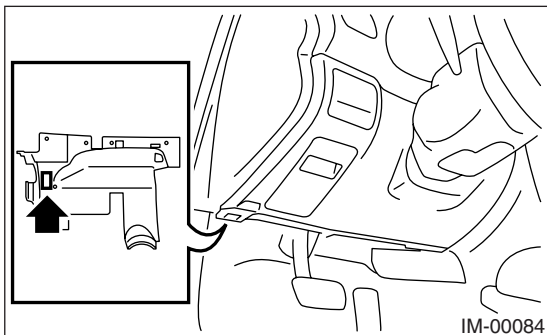
2) Connect the diagnosis cable to Subaru Select Monitor.

3) Insert the cartridge to 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 the driver's side).

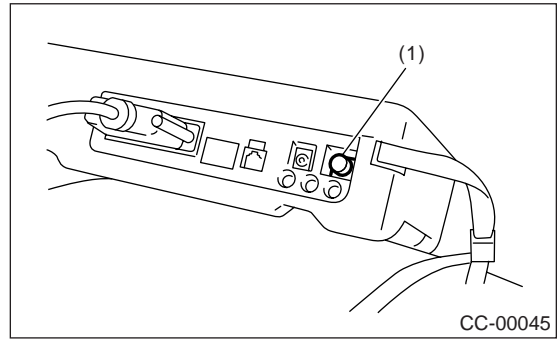


(2) Connect the diagnosis cable to data link connector.

CAUTION:

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

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



(1) Power switch

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

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

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

3. COMMUNICATION LINE CHECK

NOTE:

The communication line between ECM and body integrated module can be checked in "System Operation Check Mode". This is referred to as "Communication line check".

- 1) Connect the Subaru Select Monitor.
- 2) On the «System operation check mode» display, select the {security system}.
- 3) Start the communication line check.
- 4) Is «Communication Line not Shorted» displayed on screen?

If displayed, go to step 5).

If "NO", go to step 6).

5) After diagnostic results, it is determined that the circuit is not shorted. Finish the communication line check.

6) If a problem is detected, repair the trouble cause. <Ref. to IM(diag)-22, DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

6. Read Diagnostic Trouble Code (DTC)

A: OPERATION

1. ECM

- 1) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Engine Control System} and 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 {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 DTC, refer to the List of DTC. <Ref. to IM(diag)-15, LIST, List of Diagnostic Trouble Code (DTC).>

2. BODY INTEGRATED UNIT

- 1) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Integ. unit mode} and press the [YES] key.
- 3) Press the [YES] key after the {Integ. unit mode} is displayed.
- 4) On the «Integ. unit mode failure diag» display screen, select the {Diagnostic Code(s) Display} and 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)-15, LIST, List of Diagnostic Trouble Code (DTC).>

7. Clear Memory Mode

A: OPERATION

1. ECM

- 1) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Engine Control System} and 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 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 idle air control solenoid valve must be initialized. To execute this procedure, turn the ignition switch to ON. Wait 3 seconds before starting the engine.
- For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

2. BODY INTEGRATED UNIT

- 1) On the «Main Menu» display screen, select the {Each System Check} and press the [YES] key.
- 2) On the «System Selection Menu» display screen, select the {Integ. unit mode} and press the [YES] key.
- 3) Press the [YES] key after the {Integ. unit mode} is displayed.
- 4) On the «Integ. unit mode failure diag» display screen, select the {Clear Memory} and 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:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

Diagnostics Chart for Immobilizer Indicator Light

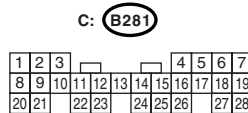
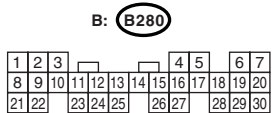
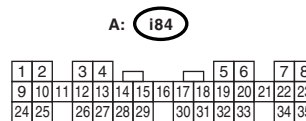
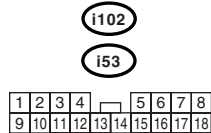
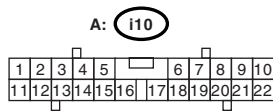
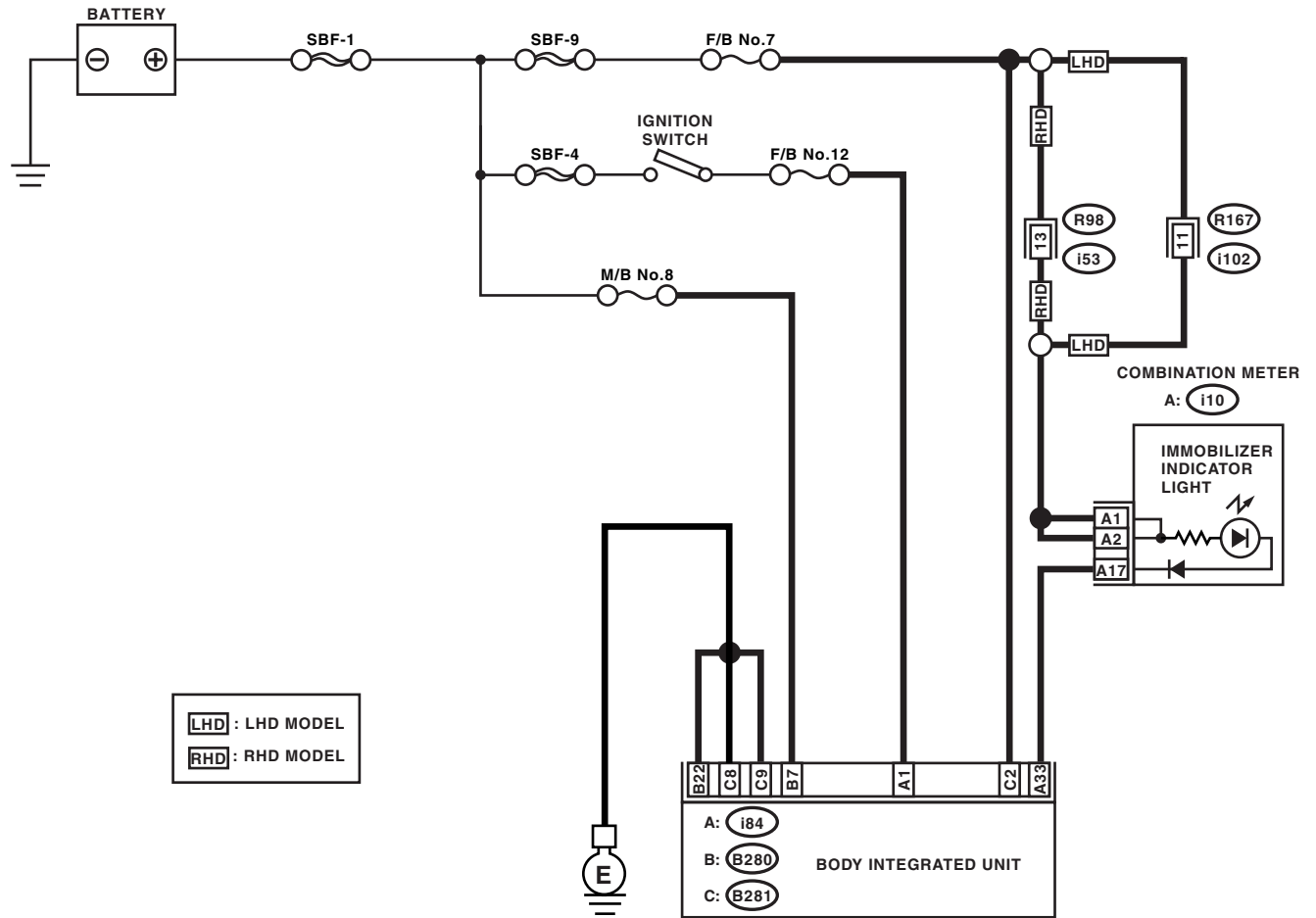
IMMOBILIZER (DIAGNOSTICS)

8. Diagnostics Chart for Immobilizer Indicator Light

A: INSPECTION

1. CHECK IMMOBILIZER INDICATOR CIRCUIT

WIRING DIAGRAM:



IM-00086

Diagnostics Chart for Immobilizer Indicator Light

IMMOBILIZER (DIAGNOSTICS)

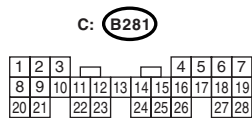
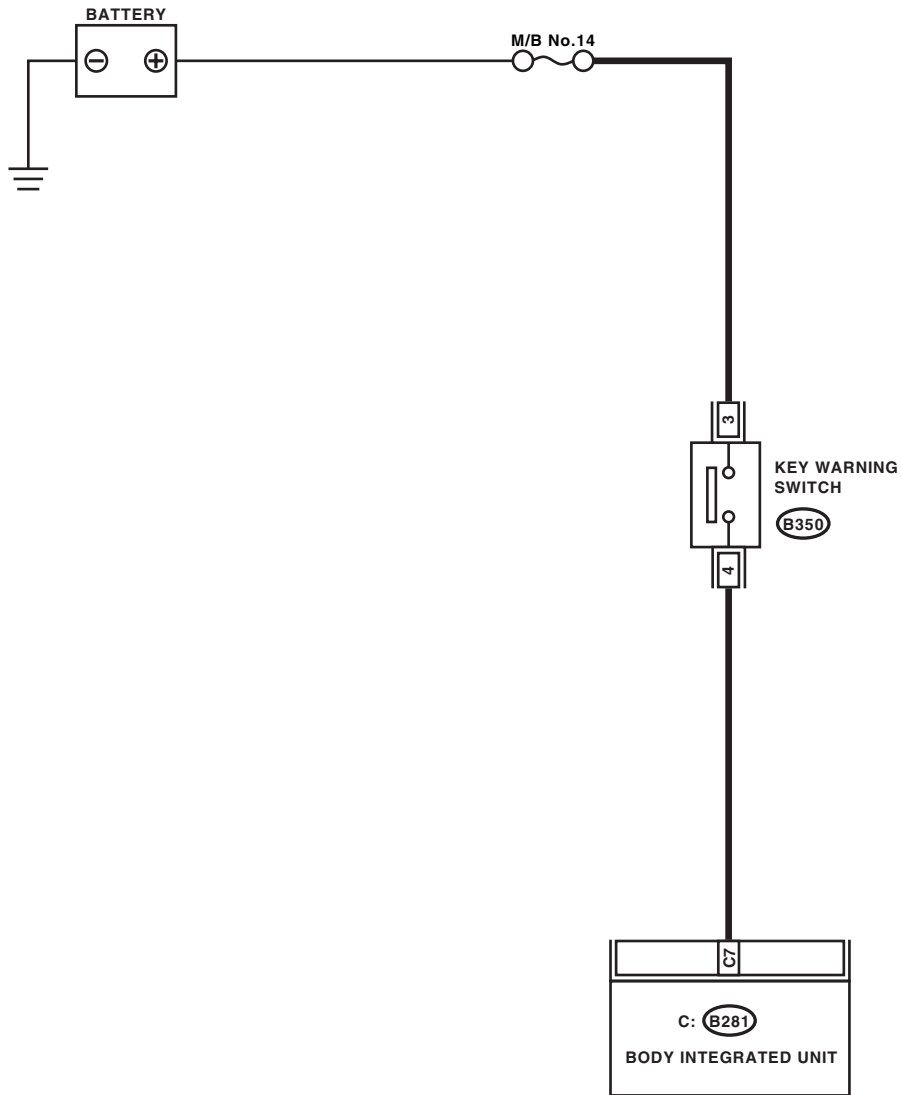
Step	Check	Yes	No
1 CHECK IMMOBILIZER WARNING LIGHT. 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from body integrated unit. 3) Connect the resistor (100 Ω) between body integrated unit harness connector terminal (i84) No. 33 and chassis ground.	Does the immobilizer indicator light illuminate?	Go to step 2.	Go to step 5.
2 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT. Measure the resistance between body integrated unit harness connector terminal and chassis ground. Connector & terminal <i>(B280) No. 22 — Chassis ground:</i> <i>(B281) No. 8, No. 9 — Chassis ground:</i>	Is the resistance less than 10 Ω ?	Go to step 3.	Repair the open circuit of body integrated unit ground circuit.
3 CHECK BODY INTEGRATED UNIT IGNITION CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the voltage between body integrated unit harness connector terminal and chassis ground. Connector & terminal <i>(i84) No. 1 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 4.	Check the harness for open or short circuit between body integrated unit and ignition switch.
4 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT. 1) Turn the ignition switch to OFF. 2) Measure the voltage between body integrated unit harness connector terminal and chassis ground. Connector & terminal <i>(B280) No. 7 (+) — Chassis ground (-):</i> <i>(B281) No. 2 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace the all ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".	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-16, Combination Meter Assembly.> 2) Measure the voltage between the combination meter harness connector terminal and chassis ground. Connector & terminal <i>(i10) No. 1, No. 2 (+) — Chassis ground (-):</i>	Is the voltage more than 10 V?	Go to step 6.	Check the harness for open or short circuit between combination meter and fuse.
6 CHECK COMBINATION METER CIRCUIT. Measure the resistance between body integrated unit harness connector terminal and combination meter harness connector terminal. Connector & terminal <i>(i84) No. 33 — (i10) No. 17:</i>	Is the resistance less than 10 Ω ?	LED bulb malfunction. Replace the combination meter case assembly. <Ref. to IDI-17, DISASSEMBLY, Combination Meter Assembly.>	Repair the harness/connector.

Diagnostics Chart for Immobilizer Indicator Light

IMMOBILIZER (DIAGNOSTICS)

2. CHECK KEY SWITCH CIRCUIT

WIRING DIAGRAM:



IM-00078

Diagnostics Chart for Immobilizer Indicator Light

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK POWER SUPPLY CIRCUIT. 1) Disconnect the harness connector from key warning switch. 2) Turn the ignition switch to "ACC" or "LOCK" (with key inserted). 3) Measure the voltage between key warning switch harness connector terminal and chassis ground. Connector & terminal (B350) No. 3 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 2.	Check the harness for open or short circuit between key warning switch and fuse.
2 CHECK KEY WARNING SWITCH. 1) Insert the ignition key to ignition switch. (OFF or ACC) 2) Measure the resistance between key warning switch terminals. Connector & terminal No. 3 — No. 4:	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 terminals. Connector & terminal No. 3 — No. 4:	Is the resistance more than 1 M Ω ?	Go to step 4.	Replace the key warning switch.
4 CHECK HARNESS BETWEEN KEY WARNING SWITCH AND BODY INTEGRATED UNIT. 1) Disconnect the harness connector from key warning switch. 2) Disconnect the harness connector from body integrated unit. 3) Measure the resistance between key warning switch harness connector terminal and body integrated unit harness connector terminal. Connector & terminal (B350) No. 4 — (B281) No. 7:	Is the resistance less than 10 Ω ?	Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace the all ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".	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.
P0513	Incorrect Immobilizer Key	Incorrect immobilizer key (Use of unregistered key in body integrated unit)	<Ref. to IM(diag)-17, DTC P0513 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1570	ANTENNA	Faulty antenna	<Ref. to IM(diag)-18, DTC P1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1571	Reference Code Incompatibility	Reference code incompatibility between body integrated unit and ECM	<Ref. to IM(diag)-21, DTC P1571 REFERENCE CODE INCOMPATIBILITY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1572	EGI — Immobilizer Communication (Except Antenna Circuit)	Communication failure between body integrated unit and ECM	<Ref. to IM(diag)-22, DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1574	Key — Immobilizer Communication	Failure of body integrated unit to verify key (transponder) ID code	<Ref. to IM(diag)-25, DTC P1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1576	EGI Control Module EEPROM	ECM malfunctioning	<Ref. to IM(diag)-25, DTC P1576 EGI CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1577	IMM Control Module EEPROM	Body integrated unit malfunctioning	<Ref. to IM(diag)-25, DTC P1577 IMM CONTROL MODULE EEPROM, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
P1578	Meter malfunctioning	Reference code incompatibility between body integrated unit and combination meter	<Ref. to IM(diag)-26, DTC P1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

NOTE:

Perform the engine DTC when the DTC except for immobilizer DTC is detected.

<Ref. to EN(H4SO 2.0)(diag)-66, List of Diagnostic Trouble Code (DTC).> <Ref. to EN(H4SO 2.5)(diag)-70, List of Diagnostic Trouble Code (DTC).> <Ref. to EN(H4DOTC)(diag)-55, List of Diagnostic Trouble Code (DTC).> <Ref. to EN(H6DO)(diag)-66, 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
B0401	M collation NG	Reference code incompatibility between body integrated unit and combination meter	<Ref. to IM(diag)-26, DTC P1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	P1578
B0402	Immobilizer Key collation NG	<ul style="list-style-type: none"> • Incorrect immobilizer key (Use of unregistered key in body integrated unit) • Faulty antenna 	<Ref. to IM(diag)-17, DTC P0513 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> <Ref. to IM(diag)-18, DTC P1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> or <Ref. to IM(diag)-25, DTC P1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	<ul style="list-style-type: none"> • P0513 • P1570 • P1574
B0403	E/G request NG	Communication failure between body integrated unit and ECM	<Ref. to IM(diag)-22, DTC P1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	P1572

NOTE:

- Immobilizer system of 2.5 L EC, EK model and 3.0 L model perform the starter relay control. When the body integrated unit detect the inconformity of reference code, immediately out put the starter relay cut signal to ECM, and then ECM stop 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.
- DTC B0402 is recorded as freeze frame data when the ignition switch is turned to OFF. When trying to start the engine with unregistered immobilizer key, DTC is not displayed on Subaru Select Monitor immediately. Turn the ignition switch to OFF once and turn to ON again before checking DTC. At this time (when turning the ignition switch to ON again), be careful that the DTC is displayed as freeze frame data even with the registered immobilizer key.

10. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC P0513 INCORRECT IMMOBILIZER KEY

DTC DETECTING CONDITION:

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

Step	Check	Yes	No
1 PERFORM TEACHING OPERATION ON IGNITION KEY. Perform teaching operation on all keys of the vehicle. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".	Is the teaching operation for all keys completed?	END.	Replace the ignition keys (including transponder) which cannot be registered. Go to step 2.
2 PERFORM TEACHING OPERATION ON IGNITION KEY. Perform teaching operation on all keys of the vehicle. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".	Is the teaching operation for all keys completed?	END.	Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

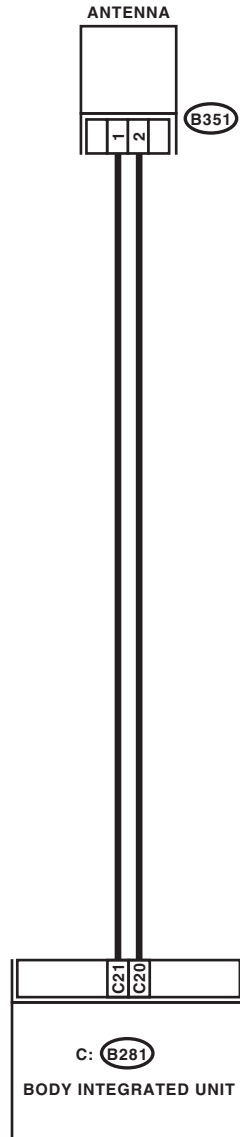
IMMOBILIZER (DIAGNOSTICS)

B: DTC P1570 ANTENNA

DTC DETECTING CONDITION:

Faulty antenna

WIRING DIAGRAM:



B351



C: B281

1	2	3		4	5	6	7				
8	9	10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28			

IM-00079

Diagnostic Procedure 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 connector from antenna. <Ref. to SL-50, Immobilizer Antenna.> 3) Measure the resistance of antenna circuit. Connector & terminal (B351) No. 1 — No. 2:	Is the resistance less than 10 Ω ?	Go to step 2.	Replace the antenna. <Ref. to SL-50, Immobilizer Antenna.>
2 CHECK ANTENNA CIRCUIT. 1) Disconnect the harness connector from body integrated unit. 2) Measure the resistance between harness connector and chassis ground. Connector & terminal (B281) No. 21 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair the harness.	Go to step 3.
3 CHECK ANTENNA CIRCUIT. Measure the resistance between harness connector and chassis ground. Connector & terminal (B281) No. 20 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair the harness.	Go to step 4.
4 CHECK ANTENNA CIRCUIT. 1) Turn the ignition switch to ON. (engine OFF) 2) Measure the voltage between harness connector and chassis ground. Connector & terminal (B281) No. 21 (+) — Chassis ground (-):	Is the voltage 0 V?	Go to step 5.	Repair the harness.
5 CHECK ANTENNA CIRCUIT. Measure the voltage between harness connector and chassis ground. Connector & terminal (B281) No. 20 (+) — Chassis ground (-):	Is the voltage 0 V?	Go to step 6.	Repair the harness between body integrated unit and antenna, because there is short circuit with battery voltage line or ignition switch "ON" line.
6 CHECK BODY INTEGRATED UNIT FUNCTION. 1) Turn the ignition switch to OFF. 2) Connect the harness connector to body integrated unit. 3) Insert the key to ignition switch, and measure the changes in voltage between antenna harness connectors. Connector & terminal (B281) No. 20 (+) — No. 21 (-):	Is the voltage -30 to 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 body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".

Diagnostic Procedure 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?	Replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace the all ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

C: DTC P1571 REFERENCE CODE INCOMPATIBILITY

DTC DETECTING CONDITION:

Reference code incompatibility between body integrated unit and ECM

	Step	Check	Yes	No
1	PERFORM TEACHING OPERATION ON IGNITION KEY. Perform teaching operation on all keys of the vehicle. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".	Is the teaching operation for all keys completed?	END.	Replace the ECM. <Ref. to FU(H4SO 2.0)-34, Engine Control Module (ECM).> <Ref. to FU(H4SO 2.5)-36, Engine Control Module (ECM).> <Ref. to FU(H4DOTC)-35, Engine Control Module (ECM).> <Ref. to FU(H6DO)-34, Engine Control Module (ECM).> Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

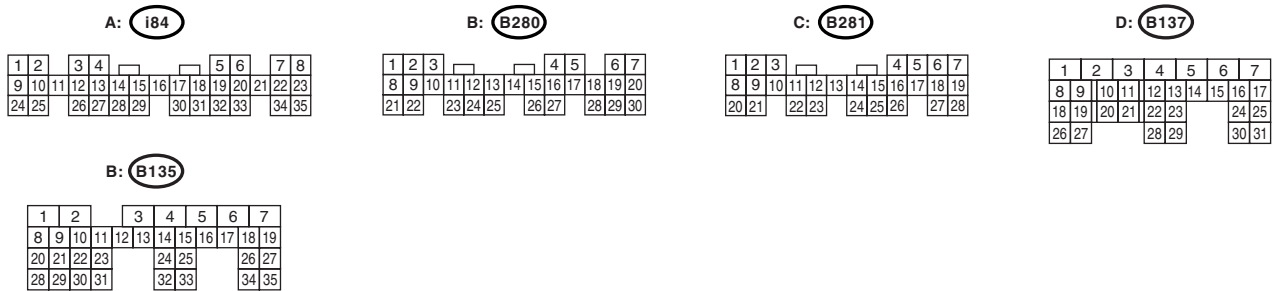
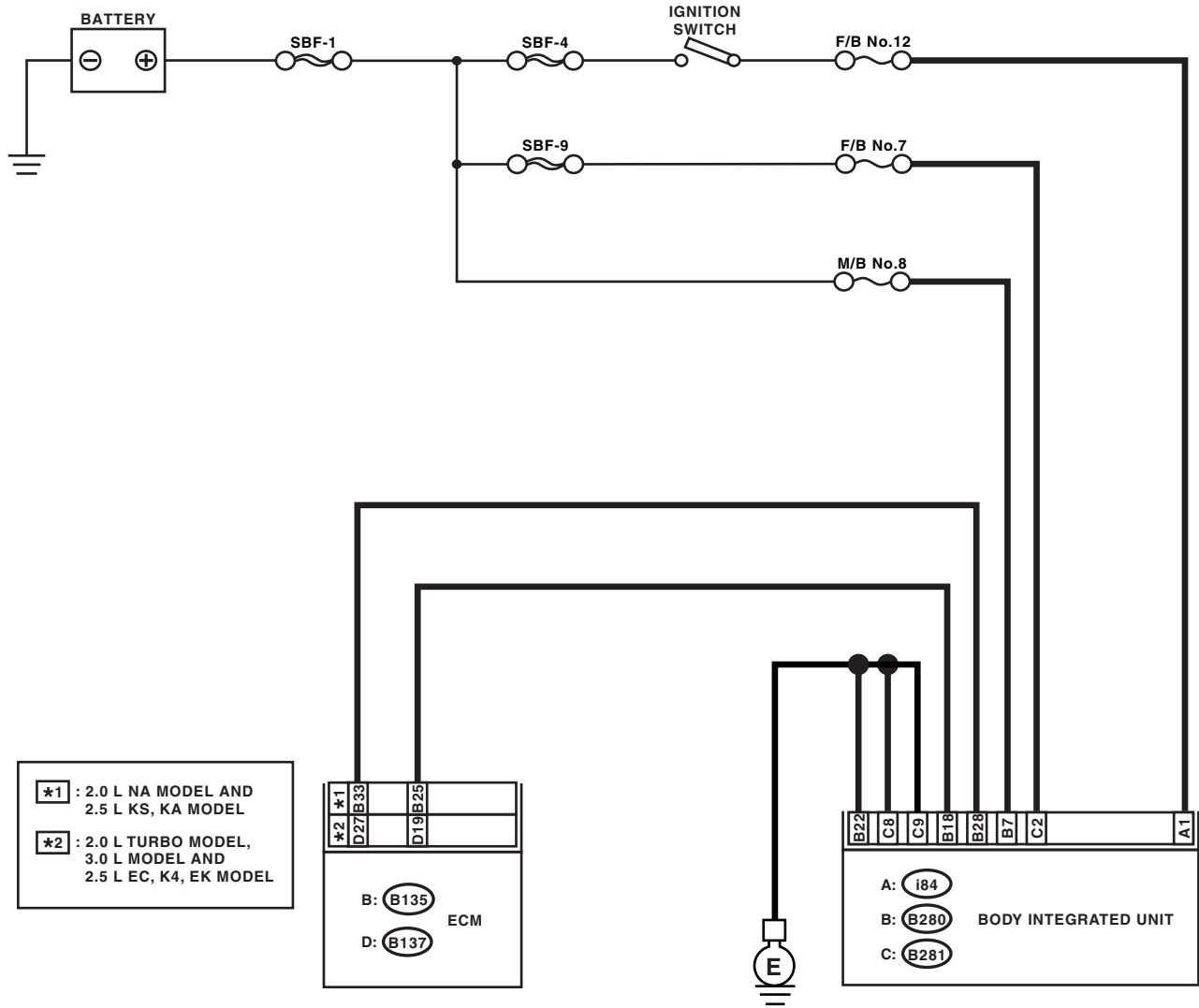
IMMOBILIZER (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

Communication failure between body integrated unit and ECM

WIRING DIAGRAM:



IM-00087

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

Step	Check	Yes	No
<p>1 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.</p> <p>1) Turn the ignition switch to OFF.</p> <p>2) Disconnect the harness connector from body integrated unit.</p> <p>3) Measure the voltage between body integrated unit harness connector terminal and chassis ground.</p> <p>Connector & terminal (B280) No. 7 (+) — Chassis ground (-): (B281) No. 2 (+) — Chassis ground (-):</p>	Is the voltage more than 10 V?	Go to step 2.	Check the harness for open or short circuit between body integrated unit and fuse.
<p>2 CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.</p> <p>1) Turn the ignition switch to ON. (engine OFF)</p> <p>2) Measure the voltage between body integrated unit harness connector terminal and chassis ground.</p> <p>Connector & terminal (i84) No. 1 (+) — Chassis ground (-):</p>	Is the voltage more than 10 V?	Go to step 3.	Check the harness for open or short circuit between body integrated unit and ignition switch.
<p>3 CHECK BODY INTEGRATED UNIT GROUND CIRCUIT.</p> <p>1) Turn the ignition switch to OFF.</p> <p>2) Measure the resistance between body integrated unit harness connector terminal and chassis ground.</p> <p>Connector & terminal (B280) No. 22 — Chassis ground: (B281) No. 8, No. 9 — Chassis ground:</p>	Is the resistance less than 10 Ω ?	Go to step 4.	Repair the open circuit of body integrated unit ground circuit.
<p>4 CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM.</p> <p>1) Disconnect the harness connector from body integrated unit and ECM.</p> <p>2) Measure the resistance between body integrated unit harness connector terminal and ECM connector terminal.</p> <p>Connector & terminal 2.0 L non-turbo model, 2.5 L KS, KA model (B280) No. 18 — (B135) No. 25: 2.0 L turbo model, 3.0 L model, 2.5 L EC, K4, EK model (B280) No. 18 — (B137) No. 19:</p>	Is the resistance less than 10 Ω ?	Go to step 5.	Repair the open circuit of harness between body integrated unit and ECM.
<p>5 CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM.</p> <p>Measure the resistance between body integrated unit harness connector terminal and ECM connector terminal.</p> <p>Connector & terminal 2.0 L non-turbo model, 2.5 L KS, KA model (B280) No. 28 — (B135) No. 33: 2.0 L turbo model, 3.0 L model, 2.5 L EC, K4, EK model (B280) No. 28 — (B137) No. 27:</p>	Is the resistance less than 10 Ω ?	Go to step 6.	Repair the open circuit of harness between body integrated unit and ECM.

Diagnostic Procedure 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 body integrated unit harness connector terminal and chassis ground. Connector & terminal (B280) No. 18, No. 28 (+) — Chassis ground (-):	Is the voltage 0 V?	Go to step 7.	Repair the harness between body integrated unit 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 harness connector terminal and engine ground. Connector & terminal 2.0 L non-turbo model, 2.5 L KS, KA model (B135) No. 25, 33 (+) — Engine ground (-): 2.0 L turbo model, 3.0 L model, 2.5 L EC, K4, EK model (B137) No. 19, 27 (+) — Engine ground (-):	Is the voltage 0 V?	Go to step 8.	Repair the harness between body integrated unit and ECM, because there is short circuit with battery voltage line or ignition switch "ON" line.
8 CHECK ECM BY COMMUNICATION LINE CHECK. 1) Connect the harness connector to ECM. 2) Disconnect the harness connector from body integrated unit. 3) Start the communication line check. <Ref. to IM(diag)-8, COMMUNICATION LINE CHECK, OPERATION, Subaru Select Monitor.>	Does "Communication Line not Shorted" appear on the screen?	Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace the all ignition keys (including transponder). Execute the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the ECM. <Ref. to FU(H4SO 2.0)-34, Engine Control Module (ECM).> <Ref. to FU(H4SO 2.5)-36, Engine Control Module (ECM).> <Ref. to FU(H4DOTC)-35, Engine Control Module (ECM).> <Ref. to FU(H6DO)-34, Engine Control Module (ECM).> Perform the registration procedure next. Refer to "REGISTRATION MANUAL FOR IMMOBILIZER".

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

E: DTC P1574 KEY COMMUNICATION FAILURE

DTC DETECTING CONDITION:

Failure of body integrated unit to verify key (transponder) ID code

Step	Check	Yes	No
1 CHECK BODY INTEGRATED UNIT FUNCTION. Insert the key to ignition switch (LOCK position), and measure the changes in voltage between antenna connectors. Connector & terminal (B142) No. 1 — No. 2:	Is the voltage –30 to 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 body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace the all ignition keys (including transponder). Execute the registration procedure next. Refer to “REGISTRATION MANUAL FOR IMMOBILIZER”.
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 all the ignition keys (including transponder). Execute the registration procedure next. Refer to “REGISTRATION MANUAL FOR IMMOBILIZER”.	Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace the all ignition keys (including transponder). Execute the registration procedure next. Refer to “REGISTRATION MANUAL FOR IMMOBILIZER”.

F: DTC P1576 EGI CONTROL MODULE EEPROM

DTC DETECTING CONDITION:

ECM malfunctioning

1. REPLACE ECM

Replace the ECM. <Ref. to FU(H4SO 2.0)-34, Engine Control Module (ECM).> <Ref. to FU(H4SO 2.5)-36, Engine Control Module (ECM).> <Ref. to FU(H4DOTC)-35, Engine Control Module (ECM).> <Ref. to FU(H6DO)-34, Engine Control Module (ECM).>

Perform the registration procedure next. Refer to “REGISTRATION MANUAL FOR IMMOBILIZER”.

G: DTC P1577 IMM CONTROL MODULE EEPROM

DTC DETECTING CONDITION:

Body integrated unit malfunctioning

1. REPLACE BODY INTEGRATED UNIT

Replace the body integrated unit <Ref. to SL-46, Body Integrated Unit.> and replace the all ignition keys (including transponder). Execute the registration procedure next. Refer to “REGISTRATION MANUAL FOR IMMOBILIZER”.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

IMMOBILIZER (DIAGNOSTICS)

H: DTC P1578 METER FAILURE

DTC DETECTING CONDITION:

Reference code incompatibility between body integrated unit and combination meter

1. CHECK LAN COMMUNICATION SYSTEM

Inspect LAN communication system in the following situation. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>

- DTC of body integrated unit B0300, B0301, B0302, B0111 or B0321 is displayed.
- “Er IU” or “Er LC” is displayed in odo/trip meter on combination meter.

2. REPLACE COMBINATION METER

Replace the combination meter. <Ref. to IDI-16, REMOVAL, Combination Meter Assembly.> Execute the registration procedure of all immobilizer part (combination meter and etc.) next. Refer to “REGISTRATION MANUAL FOR IMMOBILIZER”.

NOTE:

- When the combination meter has been replaced, be sure to perform the registration procedure of immobilizer.
- Engine may not start when the combination meter which removed from the model with immobilizer to the model without immobilizer. When installed wrong one, correct with the following procedure.
 - (1) Turn the ignition switch to OFF.
 - (2) Reinstall the combination meter. (Install the combination meter for the model without immobilizer.)
 - (3) Disconnect the ground cable from battery, and reconnect one minute later.
 - (4) Turn the ignition switch to START, and check that the engine starts.
- When the combination meter and body integrated unit are replaced at the same time, the registration procedure cannot be performed. In this case, it is necessary to write an ID newly to body integrated unit.