10.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC P0513 INCORRECT IMMOBILIZER KEY

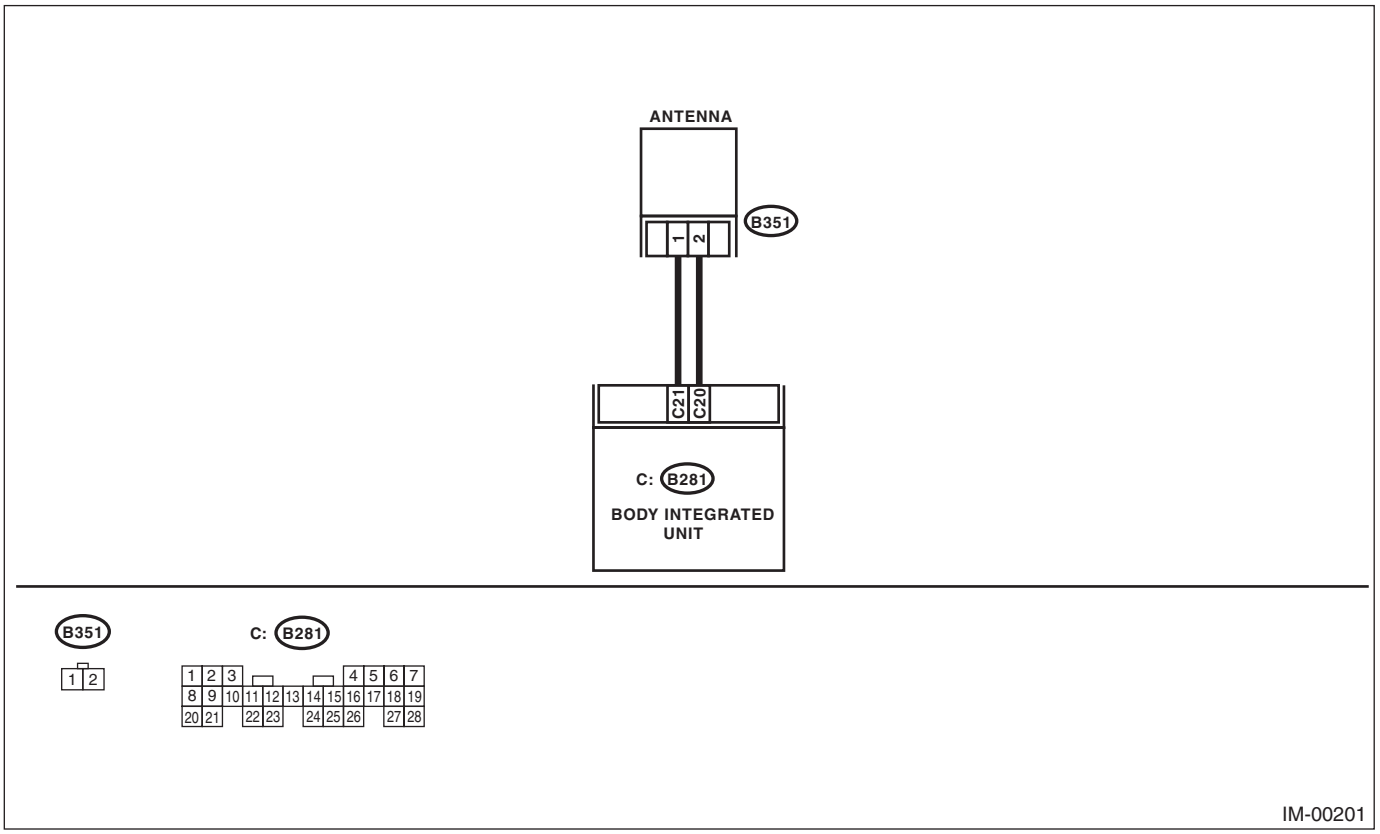
DTC DETECTING CONDITION:

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

	Step	Check	Yes	No
1	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	END.	Replace ignition keys (including transponder) which cannot be registered. Go to step **2**.
2	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	END.	Replace the body integrated unit <Ref. to SL-53, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

B: DTC P1570 ANTENNA

DTC DETECTING CONDITION:
Faulty antenna
WIRING DIAGRAM:



	Step	Check	Yes	No
1	**CHECK ANTENNA CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from the antenna. <Ref. to SL-56, Immobilizer Antenna.> 3) Measure the resistance of the 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-56, 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**.

	Step	Check	Yes	No
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 into the ignition switch, then measure changes in voltage between the antenna harness connectors. ***Connector & terminal*** ***(B281) No. 20 (+) — No. 21 (–):***	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 body integrated unit <Ref. to SL-53, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.
7	**CHECK IGNITION KEY (TRANSPONDER).** 1) Remove the key from ignition switch. 2) Start the engine using other key which is already registered.	Does the engine start?	Replace the ignition key (including the transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Replace the body integrated unit <Ref. to SL-53, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

C: DTC P1571 REFERENCE CODE INCOMPATIBILITY

DTC DETECTING CONDITION:

Reference code incompatibility between body integrated unit and ECM

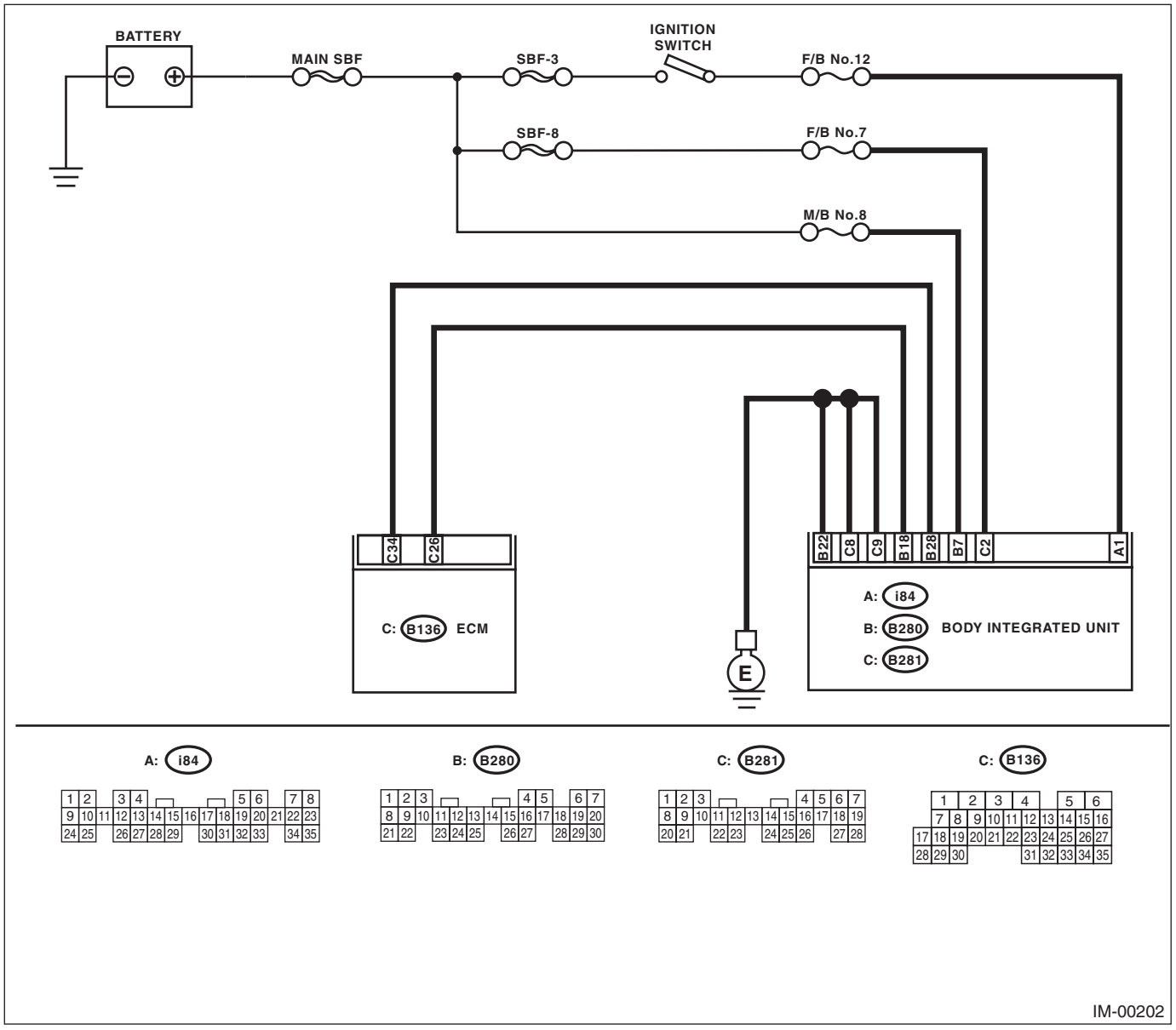
	Step	Check	Yes	No
1	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	END.	Go to step **2**.
2	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other immobilizer DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to IM(diag)-14, List of Diagnostic Trouble Code (DTC).> Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Replace the ECM. <Ref. to FU(H4DOTC)-44, Engine Control Module (ECM).> <Ref. to FU(H6DO)-33, Engine Control Module (ECM).>Replace the body integrated unit <Ref. to SL-53, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

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

DTC DETECTING CONDITION:

Communication failure between body integrated unit and ECM

WIRING DIAGRAM:



Step		Check	Yes	No
1	**CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Disconnect the harness connector from body integrated unit. 3) Measure the voltage between body integrated unit harness connector terminal and chassis ground. ***Connector & terminal*** ***(B280) No. 7 (+) — Chassis ground (–):*** ***(B281) No. 2 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Check the harness for open or short circuit between the body integrated unit and fuse.

	Step	Check	Yes	No
2	**CHECK BODY INTEGRATED UNIT POWER SUPPLY 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*** ***(i84) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **3**.	Check the harness for open or short circuit between body integrated unit and ignition switch.
3	**CHECK BODY INTEGRATED UNIT GROUND CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between body integrated unit harness connector terminal and chassis ground. ***Connector & terminal*** ***(B280) No. 22 — Chassis ground:*** ***(B281) No. 8 — Chassis ground:*** ***(B281) No. 9 — Chassis ground:***	Is the resistance less than 10 Ω?	Go to step **4**.	Repair the open circuit of body integrated unit ground circuit.
4	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM.** 1) Disconnect the harness connector from body integrated unit and ECM. 2) Measure the resistance between body integrated unit harness connector terminal and ECM harness connector terminal. ***Connector & terminal*** ***(B280) No. 18 — (B136) No. 26:***	Is the resistance less than 10 Ω?	Go to step **5**.	Repair the open circuit of harness between body integrated unit and ECM.
5	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM.** Measure the resistance between body integrated unit harness connector terminal and ECM harness connector terminal. ***Connector & terminal*** ***(B280) No. 28 — (B136) No. 34:***	Is the resistance less than 10 Ω?	Go to step **6**.	Repair the open circuit of harness between body integrated unit and ECM.
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 (+) — Chassis ground (–):*** ***(B280) 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 voltage between the ECM harness connector terminal and engine ground. ***Connector & terminal*** ***(B136) No. 26 (+) — Engine ground (–):*** ***(B136) No. 34 (+) — 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.

	Step	Check	Yes	No
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)-7, COMMUNICATION LINE CHECK, OPERATION, Subaru Select Monitor.>	Does “Communication Line not Shorted” appear on the screen?	Replace the body integrated unit <Ref. to SL-53, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Replace the ECM. <Ref. to FU(H4DOTC)-44, Engine Control Module (ECM).> <Ref. to FU(H6DO)-33, Engine Control Module (ECM).> Perform the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

E: DTC P1574 KEY COMMUNICATION FAILURE

DTC DETECTING CONDITION:

Communication failure between key and the body integrated unit

	Step	Check	Yes	No
1	**CHECK BODY INTEGRATED UNIT FUNCTION.** Insert the key into the ignition switch (LOCK position), then measure changes in voltage between the antenna connectors. ***Connector & terminal*** ***(B142) No. 1 (+) — No. 2 (–):***	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 body integrated unit <Ref. to SL-53, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.
2	**CHECK IGNITION KEY (TRANSPONDER).** 1) Remove the key from ignition switch. 2) Start the engine using other key which is already registered.	Does the engine start?	Replace the ignition key (including the transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Replace the body integrated unit <Ref. to SL-53, Body Integrated Unit.> and replace all the ignition keys (including transponder). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

F: DTC P1576 EGI CONTROL MODULE EEPROM

DTC DETECTING CONDITION:

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

	Step	Check	Yes	No
1	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step **2**.
2	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step **3**.
3	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Replace the ECM. <Ref. to FU(H4DOTC)-44, Engine Control Module (ECM).> <Ref. to FU(H6DO)-33, Engine Control Module (ECM).>

G: DTC P1577 IMM CONTROL MODULE EEPROM

DTC DETECTING CONDITION:

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

	Step	Check	Yes	No
1	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step **2**.
2	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Go to step **3**.
3	**PERFORM REGISTRATION ON IGNITION KEY.** Perform registration on all keys of the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration for all keys complete?	Make sure it is possible to start the engine with all keys that have been taught. This completes the work.	Replace the body integrated unit. <Ref. to SL-53, Body Integrated Unit.>

H: DTC P1578 METER FAILURE

DTC DETECTING CONDITION:
Reference code incompatibility between combination meter and body integrated unit

1. CHECK LAN COMMUNICATION SYSTEM

Inspect the LAN communication system in the following cases. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>
- DTC of body integrated unit U1300, U1301, U1302, B1100 or U1321 is displayed.
- “Er IU” or “Er LC” is displayed in combination meter odo/trip meter. (except for the meter with MID)

2. REPLACE COMBINATION METER

Replace the combination meter. <Ref. to IDI-19, REMOVAL, Combination Meter.>Next, perform the registration procedure for all immobilizer parts (combination meter and etc.). Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

NOTE:
When the combination meter has been replaced, be sure to perform the registration procedure of immobilizer.

LAN SYSTEM (DIAGNOSTICS)

LAN(diag)