10.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

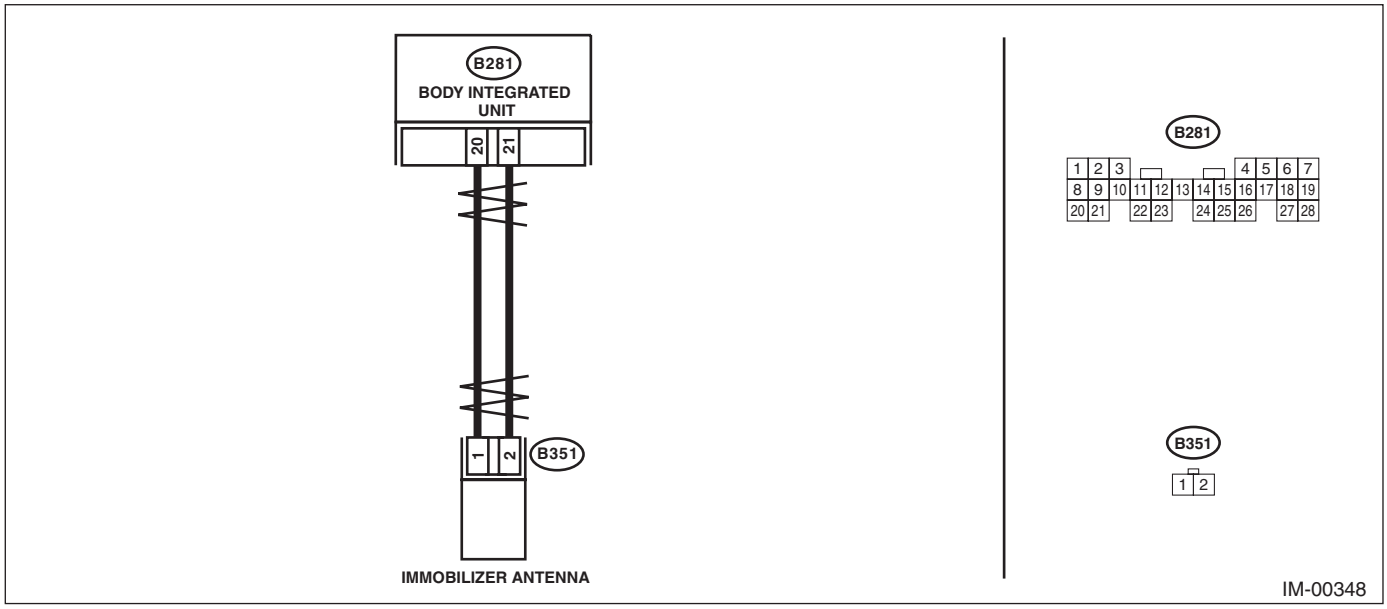
A: DTC B1570 ANTENNA

DTC DETECTING CONDITION:

Faulty antenna

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-74, WIRING DIAGRAM, Immobilizer System.>



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-52, Immobilizer Antenna.> 3) Measure the resistance of antenna circuit. ***Connector & terminal*** ***(B351) No. 1 — No. 2:***	Is the resistance less than 6 — 10 Ω?	Go to step **2**.	Replace the antenna. <Ref. to SL-52, Immobilizer Antenna.>
2	**CHECK ANTENNA CIRCUIT.** 1) Disconnect the harness connector from body integrated unit. 2) Measure the resistance between harness connectors. ***Connector & terminal*** ***(B281) No. 21 — (B351) No. 2:*** ***(B281) No. 20 — (B351) No. 1:***	Is the resistance less than 10 Ω?	Go to step **3**.	Repair the harness.
3	**CHECK ANTENNA CIRCUIT.** Measure the voltage between body integrated unit and chassis ground. ***Connector & terminal*** ***(B281) No. 21 (+) — Chassis ground (–):*** ***(B281) No. 20 (+) — Chassis ground (–):***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair the harness between body integrated unit and antenna.

	Step	Check	Yes	No
4	**CHECK BODY INTEGRATED UNIT FUNCTION.** 1) Connect the antenna connector. 2) Connect the harness connector to body integrated unit. 3) Insert the key into the ignition switch, then use an oscilloscope to measure changes in voltage between the antenna harness connectors. ***Connector & terminal*** ***(B281) No. 20 (+) — Chassis ground (–):***	Is the maximum voltage more than 40 V? (Approx. 0.1 second after inserting the key) Is the voltage 0 V? (Approx. 1 second after inserting the key)	Go to step **5**.	Replace the body integrated unit <Ref. to SL-48, Body Integrated Unit.> Replace all the ignition keys (transponders). Execute the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".
5	**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 (transponder). Execute the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the body integrated unit <Ref. to SL-48, Body Integrated Unit.> Replace all the ignition keys (transponders). Execute the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

B: DTC B1571 REFERENCE CODE INCOMPATIBILITY

DTC DETECTING CONDITION:

Reference code incompatibility between body integrated unit and ECM

	Step	Check	Yes	No
1	**PERFORM IGNITION KEY REGISTRATION.** Perform registration to all keys used for the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration of all keys complete?	Finish the check operation.	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(H6DO)-55, Engine Control Module (ECM).> Replace the body integrated unit <Ref. to SL-48, Body Integrated Unit.>, and replace all the ignition keys (transponders). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

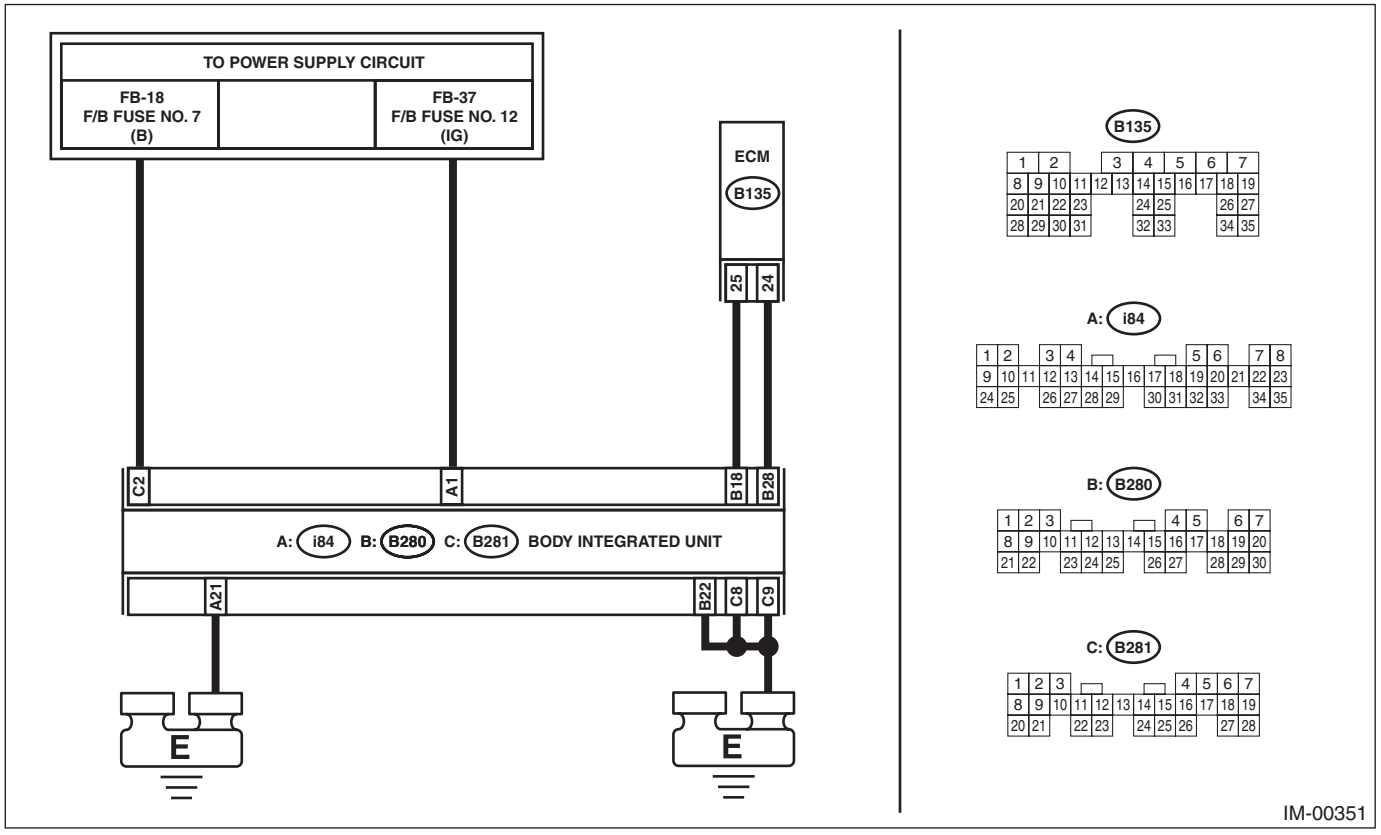
C: DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)

DTC DETECTING CONDITION:

Communication failure between body integrated unit and ECM

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-74, WIRING DIAGRAM, Immobilizer System.>



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 the body integrated unit harness connector terminal and chassis ground. ***Connector & terminal*** ***(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 body integrated unit and fuse.
2	**CHECK BODY INTEGRATED UNIT POWER SUPPLY CIRCUIT.** 1) Turn the ignition switch to ON. 2) Measure the voltage between the body integrated unit 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 the body integrated unit and ignition switch.

	Step	Check	Yes	No
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:*** ***(i84) No. 21 — Chassis ground:***	Is the resistance less than 10 Ω?	Go to step **4**.	Repair the open circuit of the body integrated unit ground circuit.
4	**CHECK GROUND CIRCUIT FOR ECM.** Measure the resistance between the ECM ground terminal and engine ground.	Is the resistance less than 10 Ω?	Go to step **5**.	Repair the ECM ground circuit.
5	**CHECK HARNESS BETWEEN BODY INTEGRATED UNIT AND ECM.** 1) Disconnect the harness connector from the ECM and body integrated unit. 2) Measure the resistance between body integrated unit harness connector terminal and ECM harness connector terminal. ***Connector & terminal*** ***(B280) No. 18 — (B135) No. 25:*** ***(B280) No. 28 — (B135) No. 24:***	Is the resistance less than 10 Ω?	Go to step **6**.	Repair the open circuit of the harness between the body integrated unit and ECM.
6	**CHECK COMMUNICATION CIRCUIT HARNESS.** 1) Turn the ignition switch to ON. 2) Measure the voltage between the body integrated unit harness connector terminal and chassis ground. ***Connector & terminal*** ***(B280) No. 18 (+) — Chassis ground (–):*** ***(B280) No. 28 (+) — Chassis ground (–):***	Is the voltage 6 V or more?	Repair the harness between body integrated unit and ECM.	Go to step **7**.
7	**CHECK COMMUNICATION CIRCUIT HARNESS.** Measure the voltage between ECM harness connector terminal and engine ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Engine ground (–):*** ***(B135) No. 24 (+) — Engine ground (–):***	Is the voltage 6 V or more?	Repair the harness between body integrated unit and ECM.	Go to step **8**.
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 short check. <Ref. to IM(diag)-8, COMMUNICATION LINE CHECK, OPERATION, Subaru Select Monitor.>	Is the communication line check OK?	Replace the body integrated unit <Ref. to SL-48, Body Integrated Unit.> Replace all the ignition keys (transponders). Execute the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the ECM. <Ref. to FU(H6DO)-55, Engine Control Module (ECM).> Perform the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

NOTE:
Refer to the following inspection when DTC is detected after inspection above. <Ref. to IM(diag)-24, DTC B1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

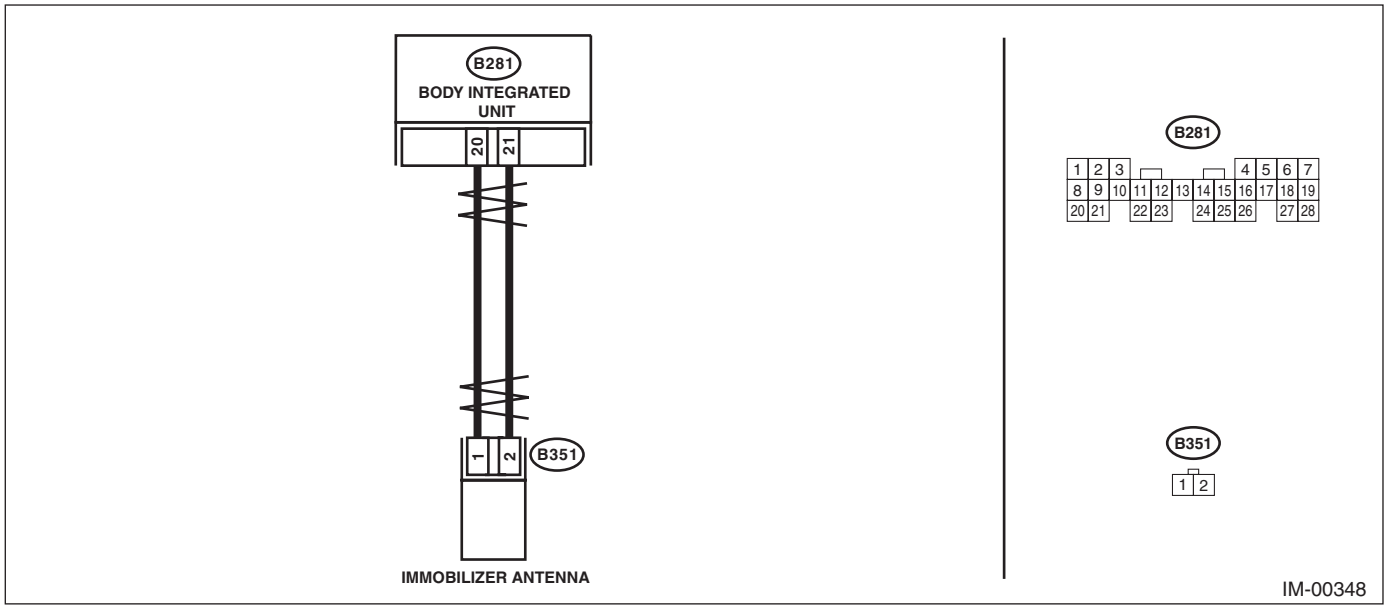
D: DTC B1574 KEY COMMUNICATION FAILURE

DTC DETECTING CONDITION:

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

WIRING DIAGRAM:

Immobilizer system <Ref. to WI-74, WIRING DIAGRAM, Immobilizer System.>



	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*** ***(B351) No. 1 (+) — Chassis ground (–):***	Is the maximum voltage more than 40 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-48, Body Integrated Unit.> Replace all the ignition keys (transponders). 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 (transponder). Execute the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".	Replace the body integrated unit <Ref. to SL-48, Body Integrated Unit.> Replace all the ignition keys (transponders). Execute the registration procedure next. Refer to the "REGISTRATION MANUAL FOR IMMOBILIZER".

E: DTC B1575 INCORRECT IMMOBILIZER KEY

DTC DETECTING CONDITION:

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

	Step	Check	Yes	No
1	**PERFORM IGNITION KEY REGISTRATION.** Perform registration to all keys used for the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration of all keys complete?	Finish the check operation.	Replace ignition keys (including transponder) which cannot be registered. Go to step **2**.
2	**PERFORM IGNITION KEY REGISTRATION.** Perform registration to all keys used for the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration of all keys complete?	Finish the check operation.	Replace the body integrated unit <Ref. to SL-48, Body Integrated Unit.> Replace all the ignition keys (transponders). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

F: DTC B1576 EGI CONTROL MODULE EEPROM

DTC DETECTING CONDITION:

- ECM malfunctioning
- Inaccessible ROM in ECM during key registration

	Step	Check	Yes	No
1	**PERFORM IGNITION KEY REGISTRATION.** Perform registration to all keys used for the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration of 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 IGNITION KEY REGISTRATION.** Perform registration to all keys used for the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration of 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 of 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(H6DO)-55, Engine Control Module (ECM).>

G: DTC B1577 IMM CONTROL MODULE EEPROM

DTC DETECTING CONDITION:

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

	Step	Check	Yes	No
1	**PERFORM IGNITION KEY REGISTRATION.** Perform registration to all keys used for the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration of 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 IGNITION KEY REGISTRATION.** Perform registration to all keys used for the vehicle. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.	Is registration of 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 of 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-48, Body Integrated Unit.> Replace all the ignition keys (transponders). Execute the registration procedure next. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”.

H: DTC B1578 METER FAILURE

DTC DETECTING CONDITION:

- Reference code incompatibility between combination meter and body integrated unit
- Communication failure between body integrated unit and ECM

	Step	Check	Yes	No
1	**CHECK DTC.** Read the DTC of body integrated unit using Subaru Select Monitor.	Is DTC B1401 detected?	Go to step **2**.	<Ref. to IM(diag)-19, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
2	**CHECK LAN COMMUNICATION SYSTEM.** Inspect LAN communication system. <Ref. to LAN(diag)-2, Basic Diagnostic Procedure.>	Is DTC U1300, U1301, U1302, B1100 or B1101 of the body integrated unit displayed?	Perform the diagnosis according to the DTC. <Ref. to LAN(diag)-31, List of Diagnostic Trouble Code (DTC).>	Go to step **3**.
3	**CHECK COMBINATION METER.** 1) Perform the registration of immobilizer. Refer to the “REGISTRATION MANUAL FOR IMMOBILIZER”. 2) Start the engine.	Does the engine start?	System is normal.	Replace the combination meter. <Ref. to IDI-11, REMOVAL, Combination Meter.>

NOTE:

- When the combination meter has been replaced, be sure to perform the registration procedure of immobilizer.
- When the combination meter and body integrated unit are replaced at a time, the immobilizer can not be registered. In this case, it is necessary to rewrite the security ID into the body integrated unit.

I: DTC B1401 M COLLATION NG

NOTE:

For diagnostic procedures, refer to DTC B1578 “METER FAILURE”. <Ref. to IM(diag)-24, DTC B1578 METER FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

J: DTC B1402 IMMOBILIZER KEY COLLATION NG

NOTE:

For diagnostic procedures, refer to the following items.

- DTC B1575 “INCORRECT IMMOBILIZER KEY” <Ref. to IM(diag)-22, DTC B1575 INCORRECT IMMOBILIZER KEY, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
- DTC B1570 “ANTENNA” <Ref. to IM(diag)-16, DTC B1570 ANTENNA, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
- DTC B1574 “KEY COMMUNICATION FAILURE” <Ref. to IM(diag)-21, DTC B1574 KEY COMMUNICATION FAILURE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

K: DTC B1403 E/G REQUEST NG

NOTE:

For diagnostic procedures, refer to DTC B1572 “IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT)”. <Ref. to IM(diag)-19, DTC B1572 IMM CIRCUIT FAILURE (EXCEPT ANTENNA CIRCUIT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

LAN SYSTEM (DIAGNOSTICS)

LAN(diag)