16. Diagnostics for Engine Starting Failure S008533

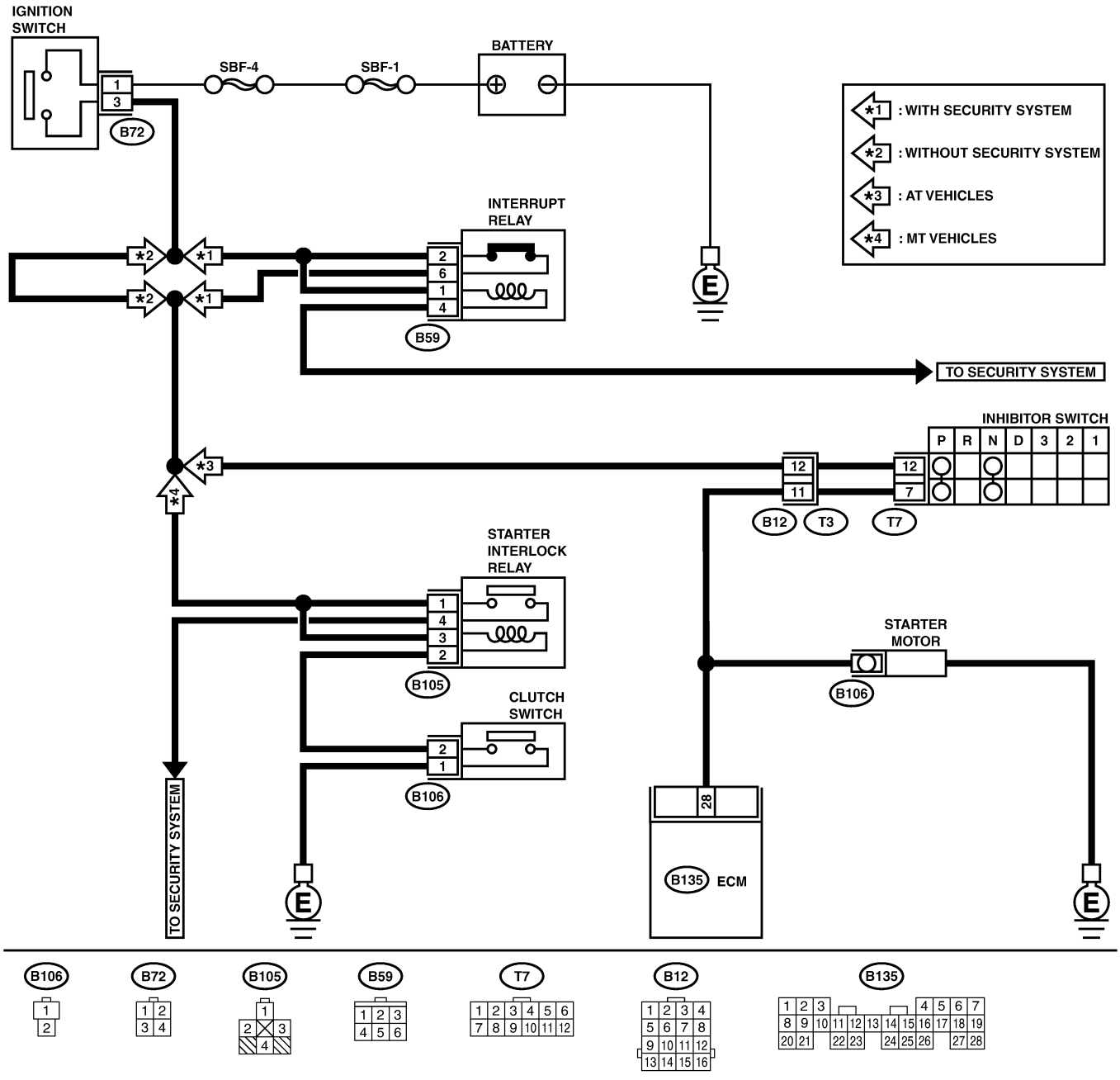
A: PROCEDURE S008533E45

1. Inspection of starter motor circuit. <Ref. to EN(H4)-78 STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.>
↓
2. Inspection of ECM power supply and ground line. <Ref. to EN(H4)-82 CONTROL MODULE POWER SUPPLY AND GROUND LINE, Diagnostics for Engine Starting Failure.>
↓
3. Inspection of ignition control system. <Ref. to EN(H4)-86 IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>
↓
4. Inspection of fuel pump circuit. <Ref. to EN(H4)-90 FUEL PUMP CIRCUIT, Diagnostics for Engine Starting Failure.>
↓
5. Inspection of fuel injector circuit. <Ref. to EN(H4)-94 FUEL INJECTOR CIRCUIT, Diagnostics for Engine Starting Failure.>
↓
6. Inspection of crankshaft position sensor circuit. <Ref. to EN(H4)-98 CRANKSHAFT POSITION SENSOR CIRCUIT, Diagnostics for Engine Starting Failure.>
↓
7. Inspection of camshaft position sensor circuit. <Ref. to EN(H4)-98 CAMSHAFT POSITION SENSOR CIRCUIT, Diagnostics for Engine Starting Failure.>
↓
8. Inspection using Subaru Select Monitor or OBD-II general scan tool (MT vehicles: <Ref. to EN(H4)-106 Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>, AT vehicles: <Ref. to EN(H4)-310 Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>) or inspection using “21. General Diagnostics Table”. <Ref. to EN(H4)-562 General Diagnostic Table.>

B: STARTER MOTOR CIRCUIT S008533E94

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

- **WIRING DIAGRAM:**



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No.	Step	Check	Yes	No
1	**CHECK BATTERY.**	Is the voltage more than 12 V?	Go to step **2**.	Charge or replace battery.
2	**CHECK INPUT SIGNAL FOR STARTER MOTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from starter motor. 3) Turn ignition switch to ST. 4) Measure power supply voltage between starter motor connector terminal and engine ground. ***Connector & terminal*** ***(B14) No. 1 (+) — Engine ground (−):*** NOTE: ● On AT vehicles, place the selector lever in the “P” or “N” position. ● On MT vehicles, depress the clutch pedal.	Is the voltage more than 10 V?	Go to step **3**.	Go to step **4**.
3	**CHECK GROUND CIRCUIT OF STARTER MOTOR.** 1) Turn ignition switch to OFF. 2) Disconnect terminal from starter motor. 3) Measure resistance of ground cable between ground cable terminal and engine ground.	Is resistance less than 5 Ω?	Check starter motor. <Ref. to SC(H4)-7 Starter.>	Repair open circuit of ground cable.
4	**CHECK HARNESS BETWEEN BATTERY AND IGNITION SWITCH CONNECTOR.** 1) Disconnect connector from ignition switch. 2) Measure power supply voltage between ignition switch connector and chassis ground. ***Connector & terminal*** ***(B72) No. 1 (+) — Chassis ground (−):***	Is the voltage more than 10 V?	Go to step **6**.	Repair open circuit in harness between ignition switch and battery, and check fuse SBF No. 4 and SBF No.1.
5	**CHECK IGNITION SWITCH.** 1) Disconnect connector from ignition switch. 2) Measure resistance between ignition switch terminals while turning ignition switch to the “ST” position. ***Terminals*** ***No. 1 — No. 3:***	Is the resistance less than 5 Ω?	Go to step **6**.	Replace ignition switch.
6	**CHECK TRANSMISSION TYPE.**	Is transmission type AT?	Go to step **7**.	Go to step **11**.
7	**CHECK INPUT VOLTAGE OF INHIBITOR SWITCH.** 1) Turn ignition switch to OFF. 2) Disconnect connector from inhibitor switch. 3) Connect connector to ignition switch. 4) Measure input voltage between inhibitor switch connector terminal and engine ground while turning ignition switch to ST. ***Connector & terminal*** ***(B12) No. 12 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **8**.	Repair open or ground short circuit in harness between inhibitor switch and ignition switch. NOTE: Check security system (if equipped). <Ref. to SL-24 Security System.>
8	**CHECK INHIBITOR SWITCH.** 1) Place the selector lever in the “P” or “N” position. 2) Measure resistance between inhibitor switch terminals. ***Connector & terminal*** ***(T3) No. 11 — No. 12:***	Is the resistance less than 1 Ω?	Repair open or ground short circuit in harness between inhibitor switch and starter motor.	Replace inhibitor switch. <Ref. to AT-28 Inhibitor Switch.>

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No.	Step	Check	Yes	No
9	**CHECK INPUT VOLTAGE OF STARTER INTERLOCK RELAY.** 1) Turn ignition switch to OFF. 2) Disconnect connector from starter interlock relay. 3) Connect connector to ignition switch. 4) Measure input voltage between starter interlock relay connector and chassis ground while turning ignition switch to ST. ***Connector & terminal*** ***(B105) No. 1 (+) — Chassis ground (–):*** ***(B105) No. 3 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **10**.	Repair open or ground short circuit in harness between starter interlock relay and ignition switch. NOTE: Check security system (if equipped). <Ref. to SL-24 Security System.>
10	**CHECK STARTER INTERLOCK RELAY.** 1) Connect battery to starter interlock relay terminals No. 2 and No. 3. 2) Measure resistance between starter interlock relay terminals. ***Terminals*** ***No. 1 — No. 4:***	Is the resistance less than 1 Ω?	Go to step **11**.	Replace starter interlock relay.
11	**CHECK GROUND CIRCUIT OF CLUTCH SWITCH.** 1) Disconnect connector from clutch switch. 2) Measure resistance between clutch switch connector and chassis ground. ***Connector & terminal*** ***(B106) No. 1 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **12**.	Repair open circuit of ground cable.
12	**CHECK CLUTCH SWITCH.** 1) Measure resistance between clutch switch terminal while depressing the clutch pedal. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance less than 1 Ω?	Go to step **13**.	Replace clutch switch. <Ref. to CL-8 Clutch Switch.>
13	**CHECK CLUTCH SWITCH CIRCUIT.** 1) Connect connector to clutch switch. 2) Measure resistance between starter interlock relay connector and chassis ground while depressing the clutch pedal. ***Connector & terminal*** ***(B105) No. 2 — Chassis ground:***	Is the resistance less than 1 Ω?	Repair open or ground short circuit in harness between starter interlock relay and starter motor.	Repair open circuit in harness between starter interlock relay and clutch switch.

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MEMO:

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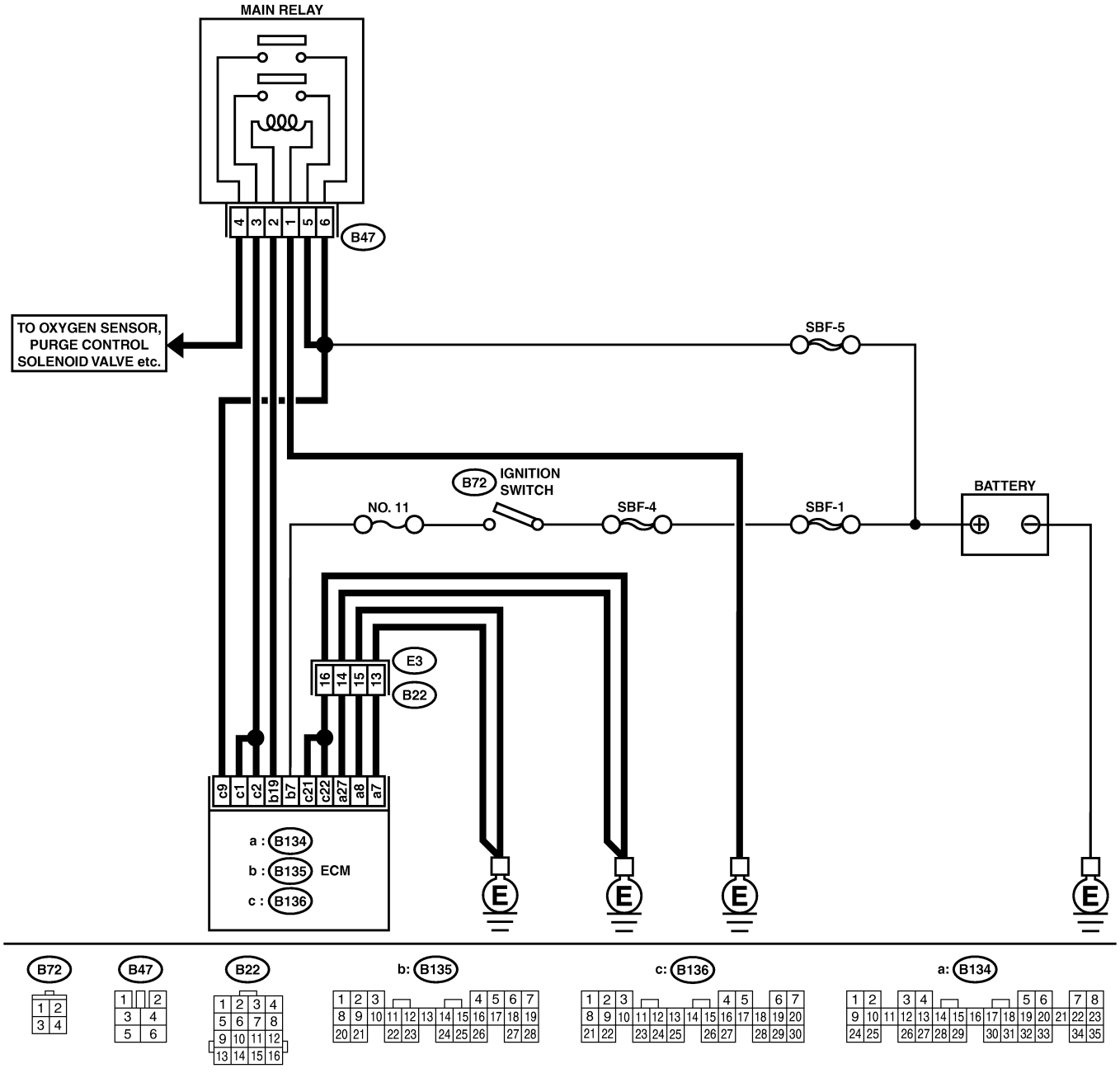
C: CONTROL MODULE POWER SUPPLY AND GROUND LINE S008533E37

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE. <Ref. to EN(H4)-60 Inspection Mode.>

- **WIRING DIAGRAM:**



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No.	Step	Check	Yes	No
1	**CHECK MAIN RELAY.** 1) Turn the ignition switch to OFF. 2) Remove main relay. 3) Connect battery to main relay terminals No. 1 and No. 2. 4) Measure resistance between main relay terminals. ***Terminals*** ***No. 3 — No. 5:***	Is the resistance less than 10 Ω?	Go to step **2**.	Replace main relay.
2	**CHECK MAIN RELAY.** Measure resistance between main relay terminals. ***Terminals*** ***No. 4 — No. 6:***	Is the resistance less than 10 Ω?	Go to step **3**.	Replace main relay.
3	**CHECK GROUND CIRCUIT OF ECM.** 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **4**.	Repair open circuit in harness between ECM connector and engine grounding terminal.
4	**CHECK GROUND CIRCUIT OF ECM.** Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 22 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **5**.	Repair open circuit in harness between ECM connector and engine grounding terminal.
5	**CHECK GROUND CIRCUIT OF ECM.** Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 27 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **6**.	Repair open circuit in harness between ECM connector and engine grounding terminal.
6	**CHECK GROUND CIRCUIT OF ECM.** Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **7**.	Repair open circuit in harness between ECM connector and engine grounding terminal.
7	**CHECK GROUND CIRCUIT OF ECM.** Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 7 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **8**.	Repair open circuit in harness between ECM connector and engine ground terminal.
8	**CHECK INPUT VOLTAGE OF ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 9 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **9**.	Repair open or ground short circuit of power supply circuit.
9	**CHECK INPUT VOLTAGE OF ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 7 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **10**.	Repair open or ground short circuit of power supply circuit.

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No.	Step	Check	Yes	No
10	**CHECK HARNESS BETWEEN ECM AND MAIN RELAY CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 19 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Repair ground short circuit in harness between ECM connector and main relay connector, then replace ECM.
11	**CHECK OUTPUT VOLTAGE FROM ECM.** 1) Connect connector to ECM. 2) Turn ignition switch to ON. 3) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 19 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **12**.	Replace ECM.
12	**CHECK INPUT VOLTAGE OF MAIN RELAY.** Check voltage between main relay connector and chassis ground. ***Connector & terminal*** ***(B47) No. 2 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **13**.	Repair open circuit in harness between ECM connector and main relay connector.
13	**CHECK GROUND CIRCUIT OF MAIN RELAY.** 1) Turn ignition switch to OFF. 2) Measure resistance between main relay connector and chassis ground. ***Connector & terminal*** ***(B47) No. 1 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **14**.	Repair open circuit between main relay and chassis ground.
14	**CHECK INPUT VOLTAGE OF MAIN RELAY.** Measure voltage between main relay connector and chassis ground. ***Connector & terminal*** ***(B47) No. 5 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **15**.	Repair open or ground short circuit in harness of power supply circuit.
15	**CHECK INPUT VOLTAGE OF MAIN RELAY.** Measure voltage between main relay connector and chassis ground. ***Connector & terminal*** ***(B47) No. 6 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **16**.	Repair open or ground short circuit in harness of power supply circuit.
16	**CHECK INPUT VOLTAGE OF ECM.** 1) Connect main relay connector. 2) Turn ignition switch to ON. 3) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 1 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Go to step **17**.	Repair open or ground short circuit in harness between ECM connector and main relay connector.
17	**CHECK INPUT VOLTAGE OF ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 2 (+) — Chassis ground (–):***	Is the voltage more than 10 V?	Check ignition control system. <Ref. to EN(H4)-86 IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	Repair open or ground short circuit in harness between ECM connector and main relay connector.

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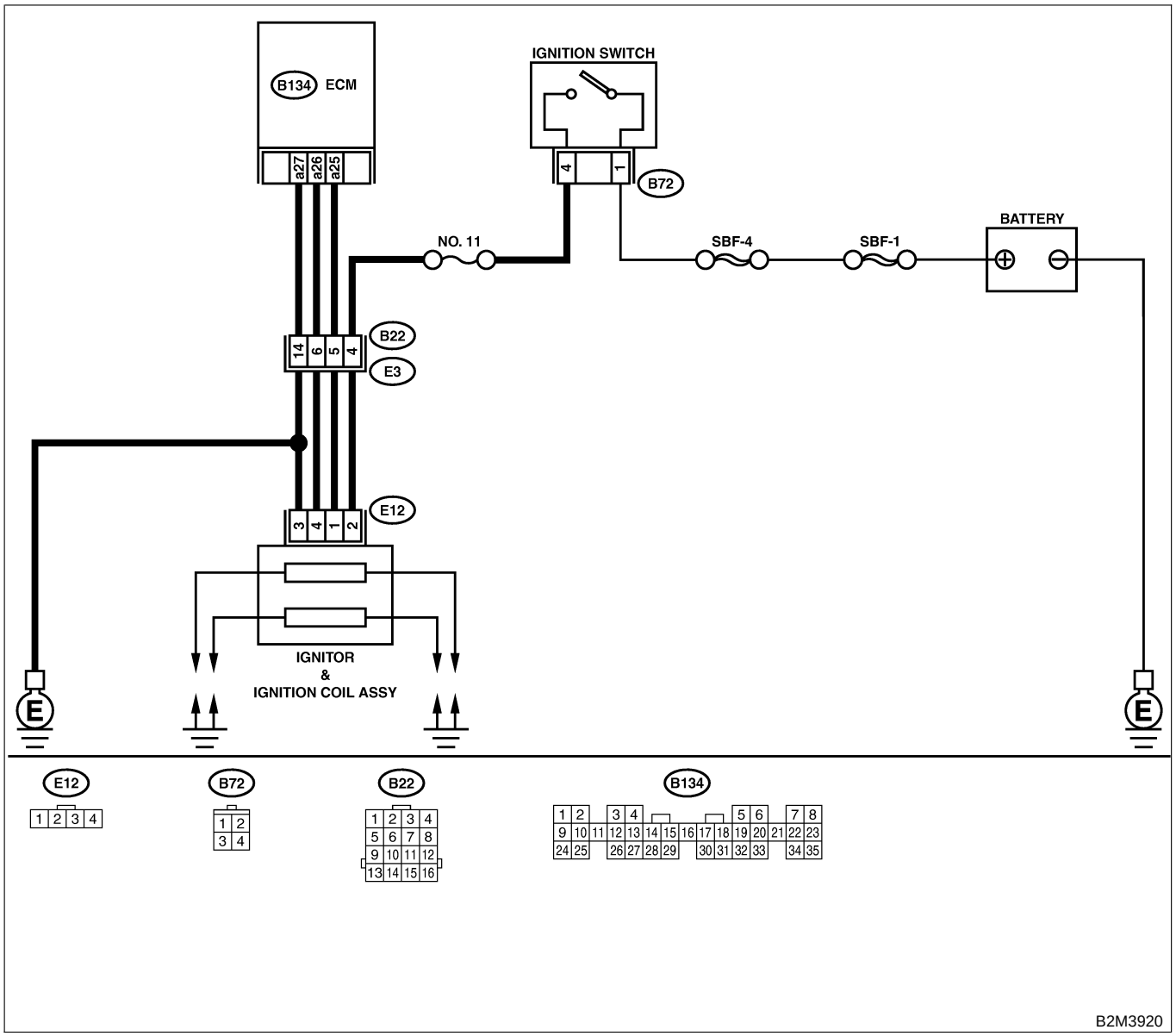
MEMO:

D: IGNITION CONTROL SYSTEM S008533E95

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

- **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	**CHECK IGNITION SYSTEM FOR SPARKS.** 1) Remove plug cord cap from each spark plug. 2) Install new spark plug on plug cord cap. **CAUTION:** **Do not remove spark plug from engine.** 3) Contact spark plug's thread portion on engine. 4) While opening throttle valve fully, crank engine to check that spark occurs at each cylinder.	Does spark occur at each cylinder?	Check fuel pump system. <Ref. to EN(H4)-90 FUEL PUMP CIRCUIT, Diagnostics for Engine Starting Failure.>	Go to step **2**.

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No.	Step	Check	Yes	No
2	**CHECK POWER SUPPLY CIRCUIT FOR IGNITION COIL & IGNITOR ASSEMBLY.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ignition coil & ignitor assembly. 3) Turn ignition switch to ON. 4) Measure power supply voltage between ignition coil & ignitor assembly connector and engine ground. ***Connector & terminal*** ***(E12) No. 2 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **3**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ignition coil & ignitor assembly, and ignition switch connector ● Poor contact in coupling connectors (B22)
3	**CHECK HARNESS OF IGNITION COIL & IGNITOR ASSEMBLY GROUND CIRCUIT.** 1) Turn ignition switch to OFF. 2) Measure resistance between ignition coil & ignitor assembly connector and engine ground. ***Connector & terminal*** ***(E12) No. 3 — Engine ground:***	Is the resistance between less than 5 Ω?	Go to step **4**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ignition coil & ignitor assembly connector and engine grounding terminal
4	**CHECK IGNITION COIL & IGNITOR ASSEMBLY.** 1) Remove spark plug cords. 2) Measure resistance between spark plug cord contact portions to check secondary coil. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance between 10 and 15 kΩ?	Go to step **5**.	Replace ignition coil & ignitor assembly. <Ref. to IG(H4)-8 Ignition Coil and Ignitor Assembly.>
5	**CHECK IGNITION COIL & IGNITOR ASSEMBLY.** Measure resistance between spark plug cord contact portions to check secondary coil. ***Terminals*** ***No. 3 — No. 4:***	Is the resistance between 10 and 15 kΩ?	Go to step **6**.	Replace ignition coil & ignitor assembly. <Ref. to IG(H4)-8 Ignition Coil and Ignitor Assembly.>
6	**CHECK INPUT SIGNAL FOR IGNITION COIL & IGNITOR ASSEMBLY.** 1) Connect connector to ignition coil & ignitor assembly. 2) Check if voltage varies synchronously with engine speed when cranking, while monitoring voltage between ignition coil & ignitor assembly connector and engine ground. ***Connector & terminal*** ***(E12) No. 1 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **7**.	Replace ignition coil & ignitor assembly. <Ref. to IG(H4)-8 Ignition Coil and Ignitor Assembly.>
7	**CHECK INPUT SIGNAL FOR IGNITION COIL & IGNITOR ASSEMBLY.** Check if voltage varies synchronously with engine speed when cranking, while monitoring voltage between ignition coil & ignitor assembly connector and engine ground. ***Connector & terminal*** ***(E12) No. 4 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **8**.	Replace ignition coil & ignitor assembly. <Ref. to IG(H4)-8 Ignition Coil and Ignitor Assembly.>

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No.	Step	Check	Yes	No
8	**CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Disconnect connector from ignition coil & ignitor assembly. 4) Measure resistance of harness between ECM and ignition coil & ignitor assembly connector. ***Connector & terminal*** ***(B134) No. 25 — (E12) No. 1:***	Is the resistance less than 1 Ω?	Go to step **9**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ECM and ignition coil & ignitor assembly connector ● Poor contact in coupling connector (B22)
9	**CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.** Measure resistance of harness between ECM and ignition coil & ignitor assembly connector. ***Connector & terminal*** ***(B134) No. 26 — (E12) No. 4:***	Is the resistance less than 1 Ω?	Go to step **10**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ECM and ignition coil & ignitor assembly connector ● Poor contact in coupling connector (B22)
10	**CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.** Measure resistance of harness between ECM and engine ground. ***Connector & terminal:*** ***(B134) No. 25 — Engine ground:***	Is the resistance more than 1 MΩ?	Go to step **11**.	Repair ground short circuit in harness between ECM and ignition coil & ignitor assembly connector.
11	**CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR.** Measure resistance of harness between ECM and engine ground. ***Connector & terminal*** ***(B134) No. 26 — Engine ground:***	Is the resistance more than 1 MΩ?	Go to step **12**.	Repair ground short circuit in harness between ECM and ignition coil & ignitor assembly connector.
12	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Check fuel pump circuit. <Ref. to EN(H4)-90 FUEL PUMP CIRCUIT, Diagnostics for Engine Starting Failure.>

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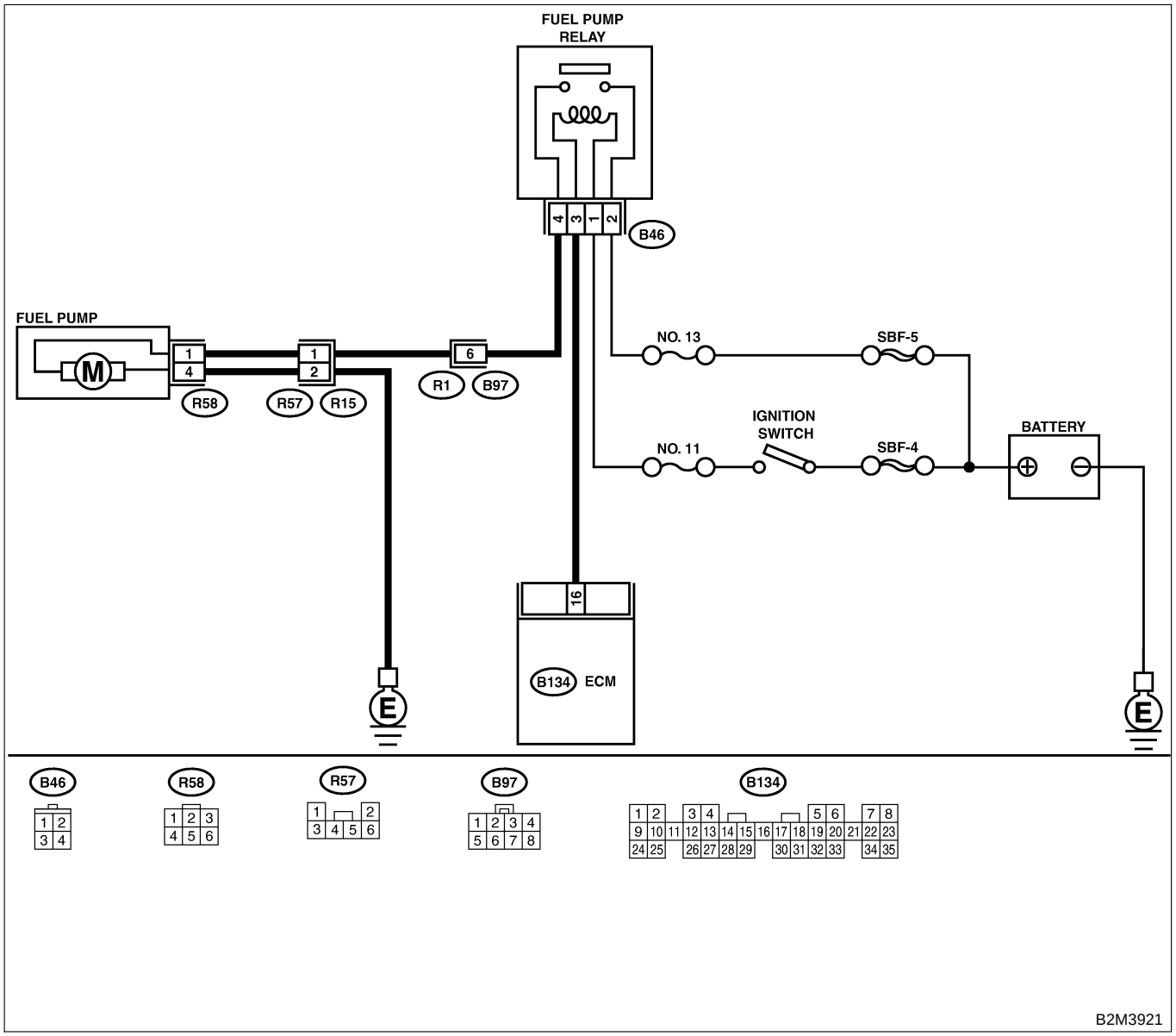
MEMO:

E: FUEL PUMP CIRCUIT S008533E96

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

- **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	**CHECK OPERATING SOUND OF FUEL PUMP.** Make sure that fuel pump is in operation for two seconds when turning ignition switch to ON. NOTE: Fuel pump operation can also be executed using Subaru Select Monitor (Function mode: FD01). For the procedure, refer to “Compulsory Valve Operation Check Mode”. <Ref. to EN(H4)-64 Compulsory Valve Operation Check Mode.>	Does fuel pump produce operating sound?	Check fuel injector circuit. <Ref. to EN(H4)-94 FUEL INJECTOR CIRCUIT, Diagnostics for Engine Starting Failure.>	Go to step **2**.

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No.	Step	Check	Yes	No
2	**CHECK GROUND CIRCUIT OF FUEL PUMP.** 1) Turn ignition switch to OFF. 2) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon). 3) Disconnect connector from fuel pump. 4) Measure resistance of harness connector between fuel pump and chassis ground. ***Connector & terminal*** ***(R58) No. 4 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **3**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between fuel pump connector and chassis grounding terminal ● Poor contact in coupling connector (R57)
3	**CHECK POWER SUPPLY TO FUEL PUMP.** 1) Turn ignition switch to ON. 2) Measure voltage of power supply circuit between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 1 (+) — Chassis ground (−):***	Is the voltage more than 10 V?	Replace fuel pump. <Ref. to FU(H4)-90 Fuel Pump.>	Go to step **4**.
4	**CHECK HARNESS BETWEEN FUEL PUMP AND FUEL PUMP RELAY CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness connector between fuel pump and fuel pump relay. ***Connector & terminal*** ***(R58) No. 1 — (B46) No. 4:***	Is the resistance less than 1 Ω?	Go to step **5**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between fuel pump connector and chassis grounding terminal ● Poor contact in coupling connectors (R57 and B97)
5	**CHECK HARNESS BETWEEN FUEL PUMP AND FUEL PUMP RELAY CONNECTOR.** Measure resistance of harness between fuel pump and fuel pump relay connector. ***Connector & terminal*** ***(R58) No. 1 — Chassis ground:***	Is the resistance more than 1 MΩ?	Go to step **6**.	Repair short circuit in harness between fuel pump and fuel pump relay connector.
6	**CHECK FUEL PUMP RELAY.** 1) Disconnect connectors from fuel pump relay and main relay. 2) Remove fuel pump relay and main relay with bracket. 3) Connect battery to fuel pump relay connector terminals No. 1 and No. 3. 4) Measure resistance between connector terminals of fuel pump relay. ***Terminals*** ***No. 2 — No. 4:***	Is the resistance less than 10 Ω?	Go to step **7**.	Replace fuel pump relay. <Ref. to FU(H4)-69 Fuel Pump Relay.>

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No.	Step	Check	Yes	No
7	**CHECK HARNESS BETWEEN ECM AND FUEL PUMP RELAY CONNECTOR.** 1) Disconnect connectors from ECM. 2) Measure resistance of harness between ECM and fuel pump relay connector. ***Connector & terminal*** ***(B134) No. 16 — (B46) No. 3:***	Is the resistance less than 1 Ω?	Go to step **8**.	Repair open circuit in harness between ECM and fuel pump relay connector.
8	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Check fuel injector circuit. <Ref. to EN(H4)-94 FUEL INJECTOR CIRCUIT, Diagnostics for Engine Starting Failure.>

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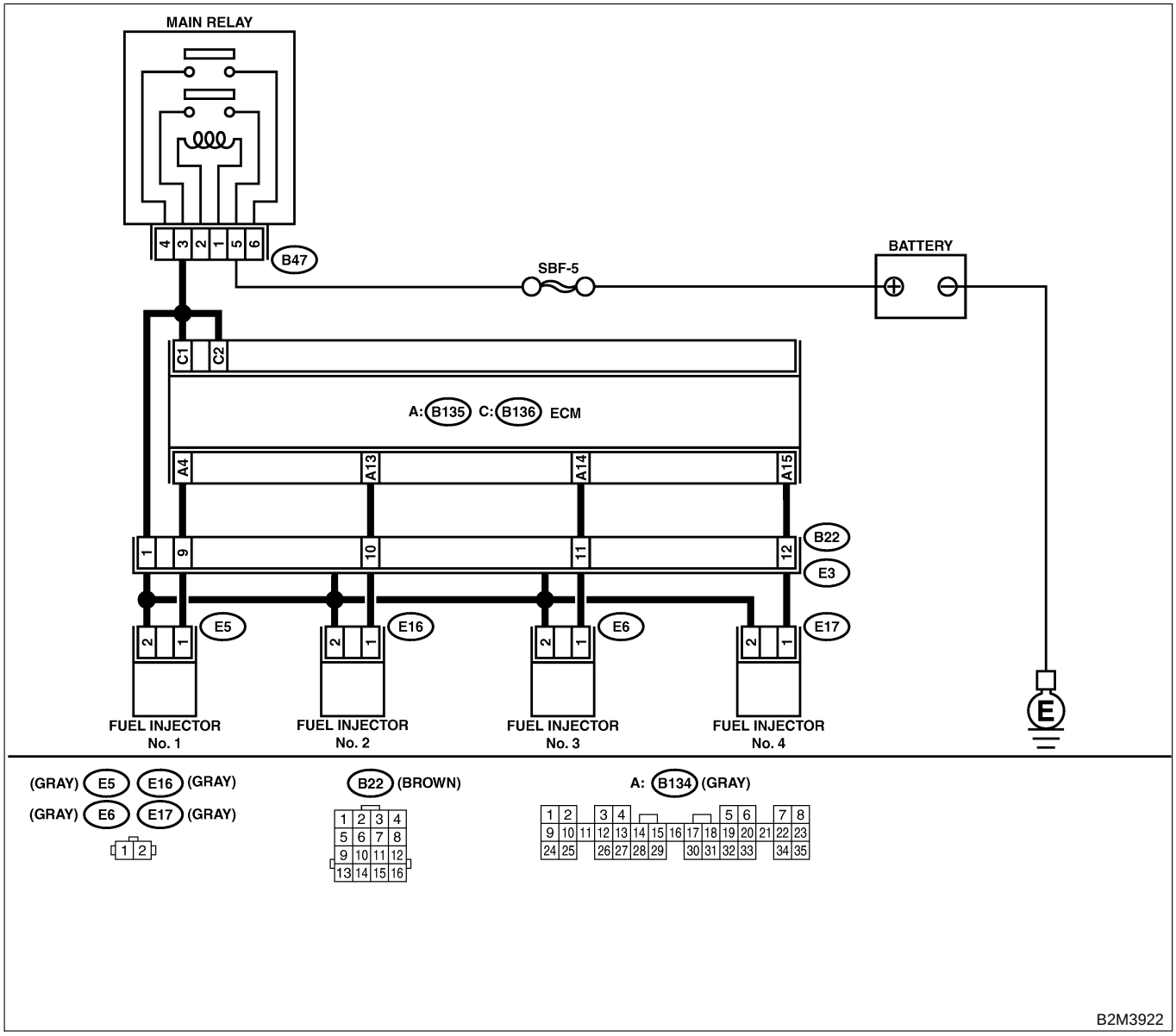
MEMO:

F: FUEL INJECTOR CIRCUIT S008533E97

CAUTION:
- **Check or repair only faulty parts.**
- **After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE. <Ref. to EN(H4)-60 Inspection Mode.>**
- **WIRING DIAGRAM:**



No.	Step	Check	Yes	No
1	**CHECK OPERATION OF EACH FUEL INJECTOR.** While cranking the engine, check that each fuel injector emits “operating” sound. Use a sound scope or attach a screwdriver to injector for this check.	Is the fuel injector emits “operating” sound?	Check fuel pressure. <Ref. to FU(H4)-70 Fuel.>	Go to step **2**.

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No.	Step	Check	Yes	No
2	**CHECK POWER SUPPLY TO EACH FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from #1 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. ***Connector & terminal*** ***#1 (E5) No. 2 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **3**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between main relay and fuel injector connector ● Poor contact in main relay connector ● Poor contact in coupling connector (B22) ● Poor contact in fuel injector connector
3	**CHECK POWER SUPPLY TO EACH FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from #2 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. ***Connector & terminal*** ***#2 (E16) No. 2 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **4**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between main relay and fuel injector connector ● Poor contact in main relay connector ● Poor contact in coupling connector (B22) ● Poor contact in fuel injector connector
4	**CHECK POWER SUPPLY TO EACH FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from #3 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. ***Connector & terminal*** ***#3 (E6) No. 2 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **5**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between main relay and fuel injector connector ● Poor contact in main relay connector ● Poor contact in coupling connectors (B22) ● Poor contact in fuel injector connector

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No.	Step	Check	Yes	No
5	**CHECK POWER SUPPLY TO EACH FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from #4 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. ***Connector & terminal*** ***#4 (E17) No. 2 (+) — Engine ground (–):***	Is the voltage more than 10 V?	Go to step **6**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between main relay and fuel injector connector ● Poor contact in main relay connector ● Poor contact in coupling connectors (B22) ● Poor contact in fuel injector connector
6	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 4 — (B136) No. 2:***	Is the resistance between 5 and 20 Ω?	Go to step **7**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ECM and fuel injector connector ● Poor contact in coupling connector (B22)
7	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 4 — Chassis ground:***	Is the resistance less than 1 Ω?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step **8**.
8	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 13 — (B136) No. 2:***	Is the resistance between 5 and 20 Ω?	Go to step **9**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ECM and fuel injector connector ● Poor contact in coupling connector (B22)
9	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 13 — Chassis ground:***	Is the resistance less than 1 Ω?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step **10**.

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No.	Step	Check	Yes	No
10	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 14 — (B136) No. 2:***	Is the resistance between 5 and 20 Ω?	Go to step **11**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ECM and fuel injector connector ● Poor contact in coupling connector (B22)
11	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 14 — Chassis ground:***	Is the resistance less than 1 Ω?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step **12**.
12	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 15 — (B136) No. 2:***	Is the resistance between 5 and 20 Ω?	Go to step **13**.	Repair harness and connector. NOTE: In this case, repair the following: ● Open circuit in harness between ECM and fuel injector connector ● Poor contact in coupling connector (B22)
13	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure resistance of harness between ECM and fuel injector connector. ***Connector & terminal*** ***(B134) No. 15 — Chassis ground:***	Is the resistance less than 1 Ω?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step **14**.
14	**CHECK EACH FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between each fuel injector terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance between 5 and 20 Ω?	Go to step **15**.	Replace faulty fuel injector.
15	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Check crankshaft position sensor circuit. <Ref. to EN(H4)-98 CRANKSHAFT POSITION SENSOR CIRCUIT, Diagnostics for Engine Starting Failure.>

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G: CRANKSHAFT POSITION SENSOR CIRCUIT S008533E98

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

NOTE:
Check crankshaft position sensor circuit.
● MT vehicles: <Ref. to EN(H4)-182 DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>
● AT vehicles: <Ref. to EN(H4)-404 DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

H: CAMSHAFT POSITION SENSOR CIRCUIT S008533E99

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:
Check camshaft position sensor circuit.
● MT vehicles: <Ref. to EN(H4)-186 DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>
● AT vehicles: <Ref. to EN(H4)-410 DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>