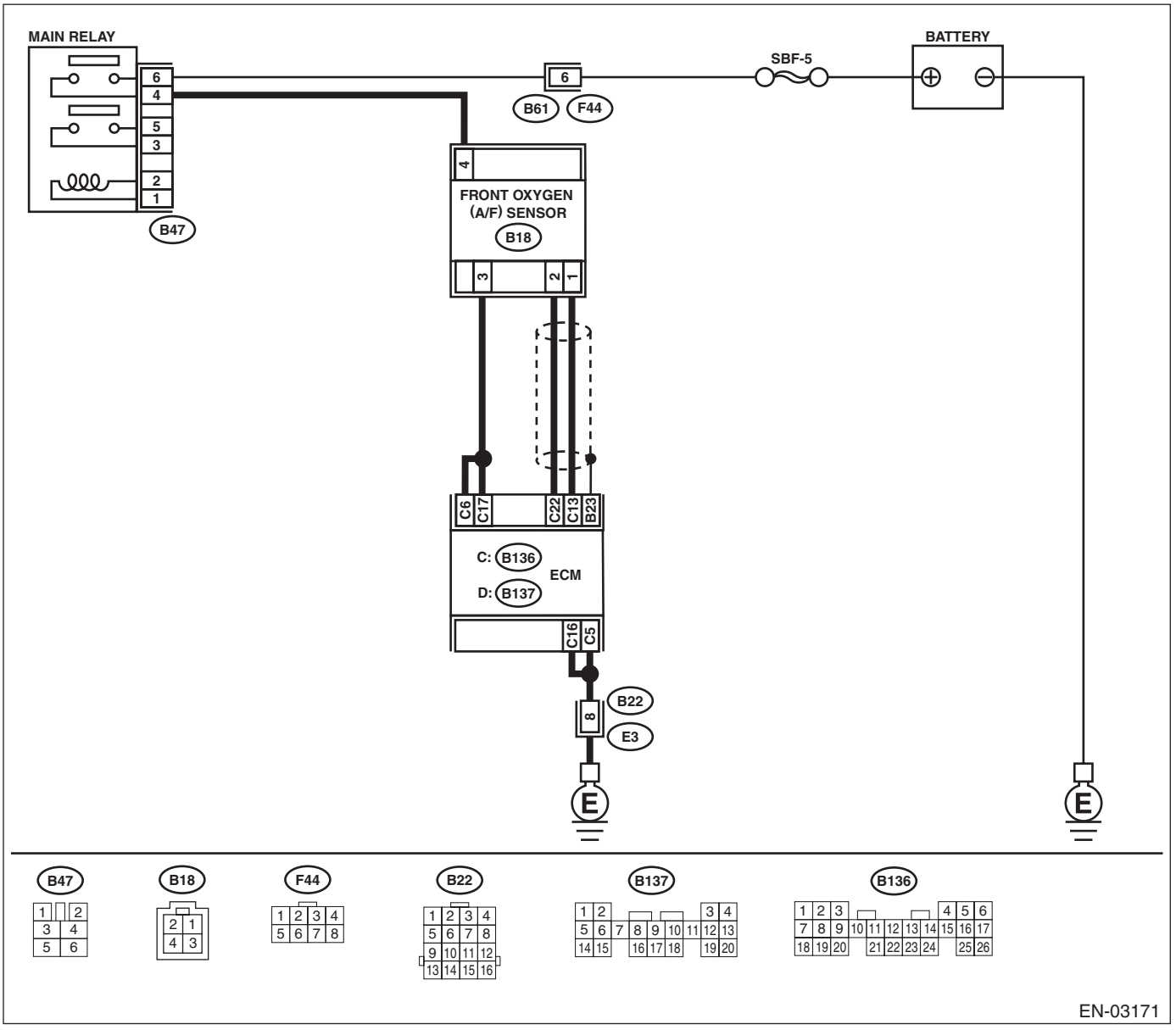
19.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC P0030 — HO2S HEATER CONTROL CIRCUIT (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



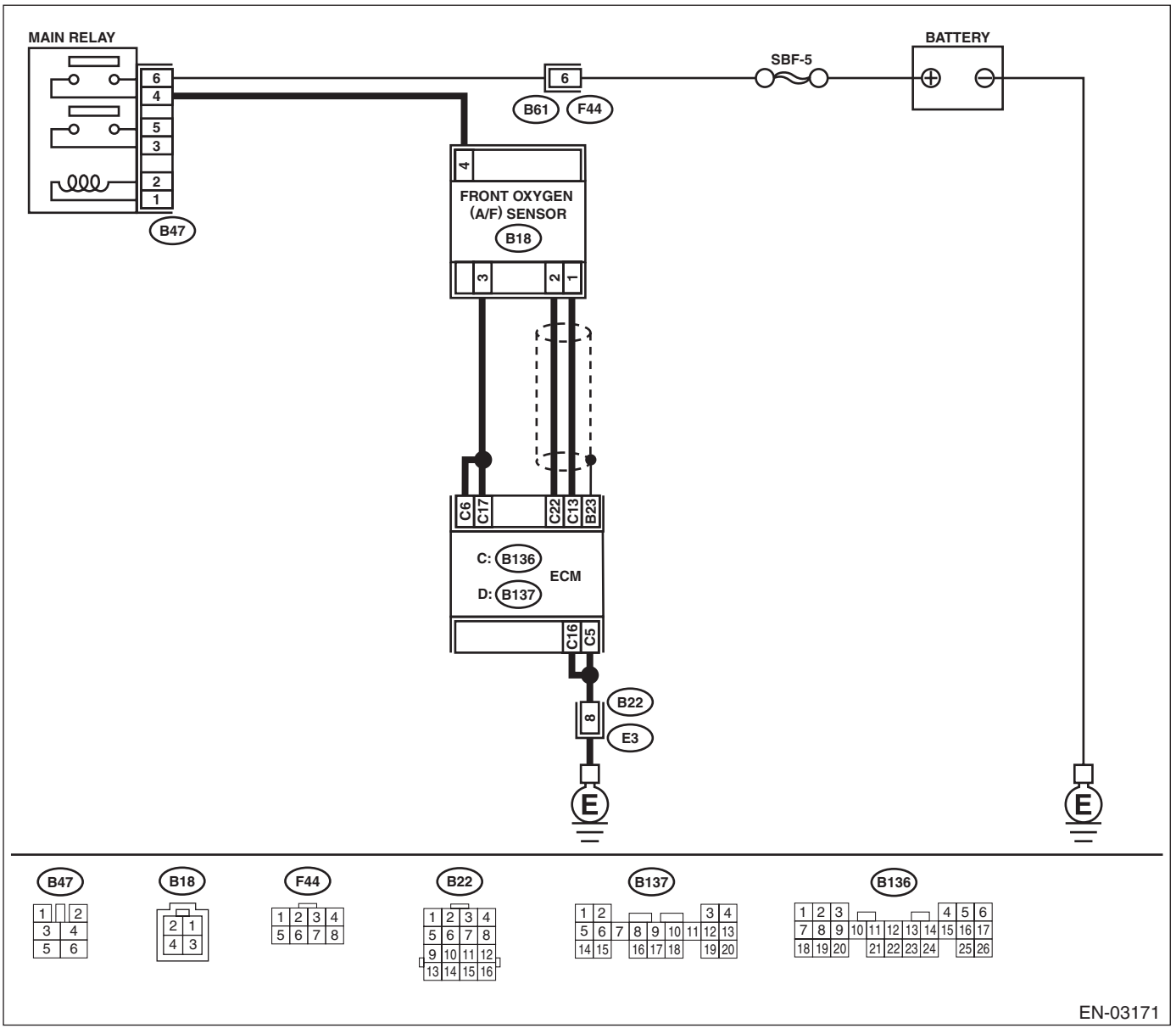
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Start and warm-up engine. 2) Turn ignition switch to OFF. 3) Disconnect connectors from ECM and front oxygen (A/F) sensor. 4) Measure harness resistance between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 6 - (B18) No. 3:*** ***(B136) No. 17 - (B18) No. 3:***	Is the measured value less than 1 Ω?	Go to step **2.**	Repair open circuit between ECM and front oxygen (A/F) sensor connector.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure harness resistance between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 13 - (B18) No. 1:*** ***(B136) No. 22 - (B18) No. 2:***	Is the measured value less than 1 Ω?	Go to step **3.**	Repair open circuit between ECM and front oxygen (A/F) sensor connector.
3	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure harness resistance between main relay and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B47) No. 4 — (B18) No. 4:***	Is the measured value less than 1 Ω?	Go to step **4.**	Repair open circuit between ECM and front oxygen (A/F) sensor connector.
4	**CHECK FRONT OXYGEN (A/F) SENSOR.** Measure resistance between terminals in front oxygen (A/F) sensor connector. ***Terminal*** ***No.3 - No.4:***	Is the measured value less than 5 Ω?	Go to step **5.**	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>
5	**CHECK POOR CONTACT.** Check ECM and front oxygen (A/F) sensor connector for poor contact.	Is there any poor contact in ECM and front oxygen (A/F) sensor connector.	Repair poor contact in ECM and front oxygen (A/F) sensor connector.	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>

B: DTC P0031 — HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Does the Subaru Select Monitor or general scan tool indicate DTC P1132 and P0141 at the same time?	Go to step **2.**	Go to step **5.**

	Step	Check	Yes	No
2	**CHECK POWER SUPPLY TO FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from front oxygen (A/F) sensor. 3) Turn ignition switch to ON. 4) Measure voltage between front oxygen (A/F) sensor connector and engine ground. ***Connector & terminal*** ***(B18) No. 4 (+) — Engine ground (–):***	Is the measured value more than 10 V?	Go to step **3.**	Repair power supply line. NOTE: In this case, repair the following: • Open circuit in harness between main relay and front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in main relay connector
3	**CHECK GROUND CIRCUIT OF ECM.** Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 5 — Chassis ground:*** ***(B136) No. 16 — Chassis ground:***	Is the measured value less than 5 Ω?	Go to step **4.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and engine ground terminal • Poor contact in ECM connector Poor contact in coupling connector
4	**CHECK CURRENT DATA.** 1) Start engine 2) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •OBD-II scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than 0.2 A?	Repair poor contact in connector. NOTE: In this case, repair the following: • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector	Go to step **6.**
5	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start and idle the engine. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 6 (+) — Chassis ground (–):*** ***(B136) No. 17 (+) — Chassis ground (–):***	Is the measured value less than 1.0 V?	Go to step **7.**	Go to step **6.**
6	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 6 (+) — Chassis ground (–):*** ***(B136) No. 17 (+) — Chassis ground (–):***	Is the measured value less than 1.0 V shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor contact in ECM connector.	Go to step **7.**

Step		Check	Yes	No
7	**CHECK FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between front oxygen (A/F) sensor connector terminals. ***Terminals*** ***No. 3— No. 4:***	Is the measured value less than 10 Ω?	Repair harness and connector. NOTE: In this case, repair the following: • Open or ground short circuit in harness between front oxygen (A/F) sensor and ECM connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>

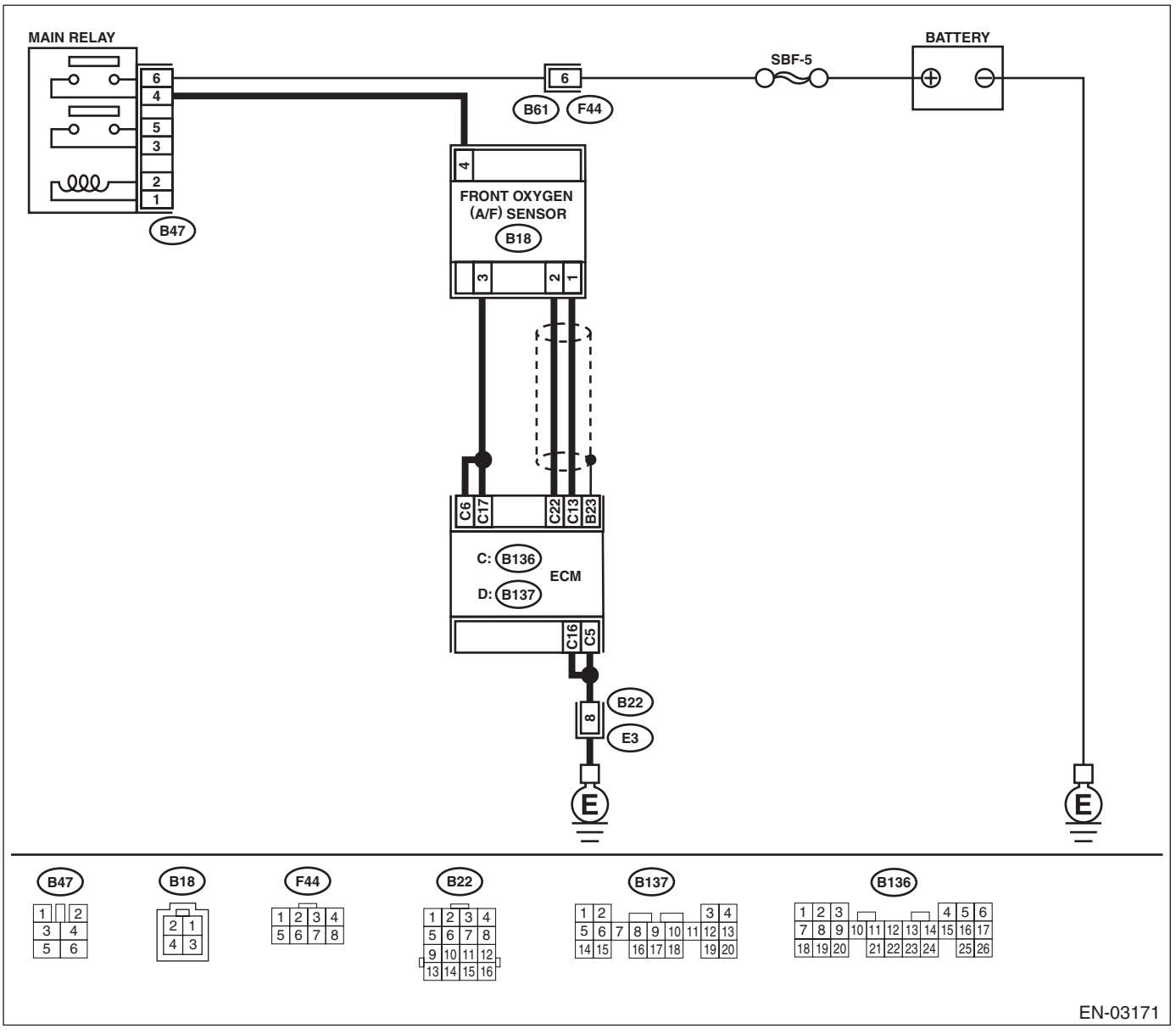
MEMO:

C: DTC P0032 — HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



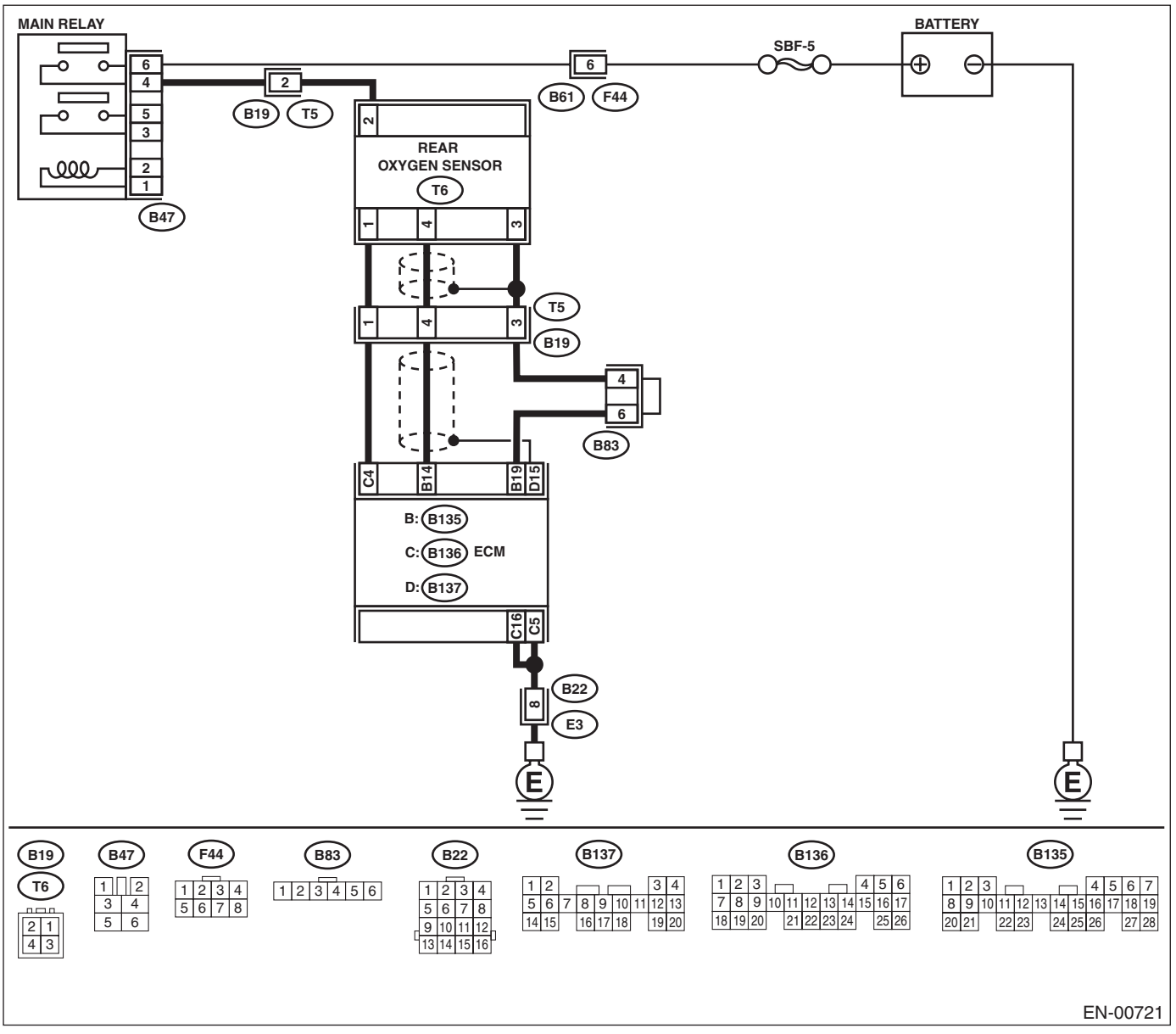
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 6 (+) — Chassis ground (–):*** ***(B136) No. 17 (+) — Chassis ground (–):***	Is the measured value more than 8 V?	Go to step **3.**	Go to step **2.**
2	**CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT.** 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. 3) Turn ignition switch to ON. 4) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedure, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 2.3 A?	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	END
3	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 6 (+) — Chassis ground (–):*** ***(B136) No. 17 (+) — Chassis ground (–):***	Is the measured value more than 8 V when shaking harness and connector of ECM?	Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.	END

D: DTC P0037 — HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK GROUND CIRCUIT OF ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 5 — Chassis ground:*** ***(B136) No. 16 — Chassis ground:***	Is the measured value less than 5 Ω?	Go to step **3.**	Go to step **2.**
2	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of rear oxygen sensor heater current using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •OBD-II scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 0.2 A?	Repair connector. NOTE: In this case, repair the following: • Poor contact in rear oxygen sensor connector • Poor contact in rear oxygen sensor connecting harness connector • Poor contact in ECM connector	Go to step **3.**
3	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start and idle the engine. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 4 (+) — Chassis ground (–):***	Is the measured value less than 1.0 V?	Go to step **6.**	Go to step **4.**
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 4 (+) — Chassis ground (–):***	Is the measured value less than 1.0 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Go to step **5.**
5	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Disconnect connector from rear oxygen sensor. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 4 (+) — Chassis ground (–):***	Is the measured value less than 1.0 V?	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Repair battery short circuit in harness between ECM and rear oxygen sensor connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>
6	**CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from rear oxygen sensor. 3) Turn ignition switch to ON. 4) Measure voltage between rear oxygen sensor connector and engine ground or chassis ground. ***Connector & terminal*** ***(T6) No. 2 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Go to step **7.**	Repair power supply line. NOTE: In this case, repair the following: • Open circuit in harness between main relay and rear oxygen sensor connector • Poor contact in rear oxygen sensor connector • Poor contact in coupling connector

Step		Check	Yes	No
7	**CHECK REAR OXYGEN SENSOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between rear oxygen sensor connector terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value less than 30 Ω?	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between rear oxygen sensor and ECM connector • Poor contact in rear oxygen sensor connector • Poor contact in ECM connector • Poor contact in coupling connector	Replace rear oxygen sensor. <Ref. to FU(H4SO)-44, Rear Oxygen Sensor.>

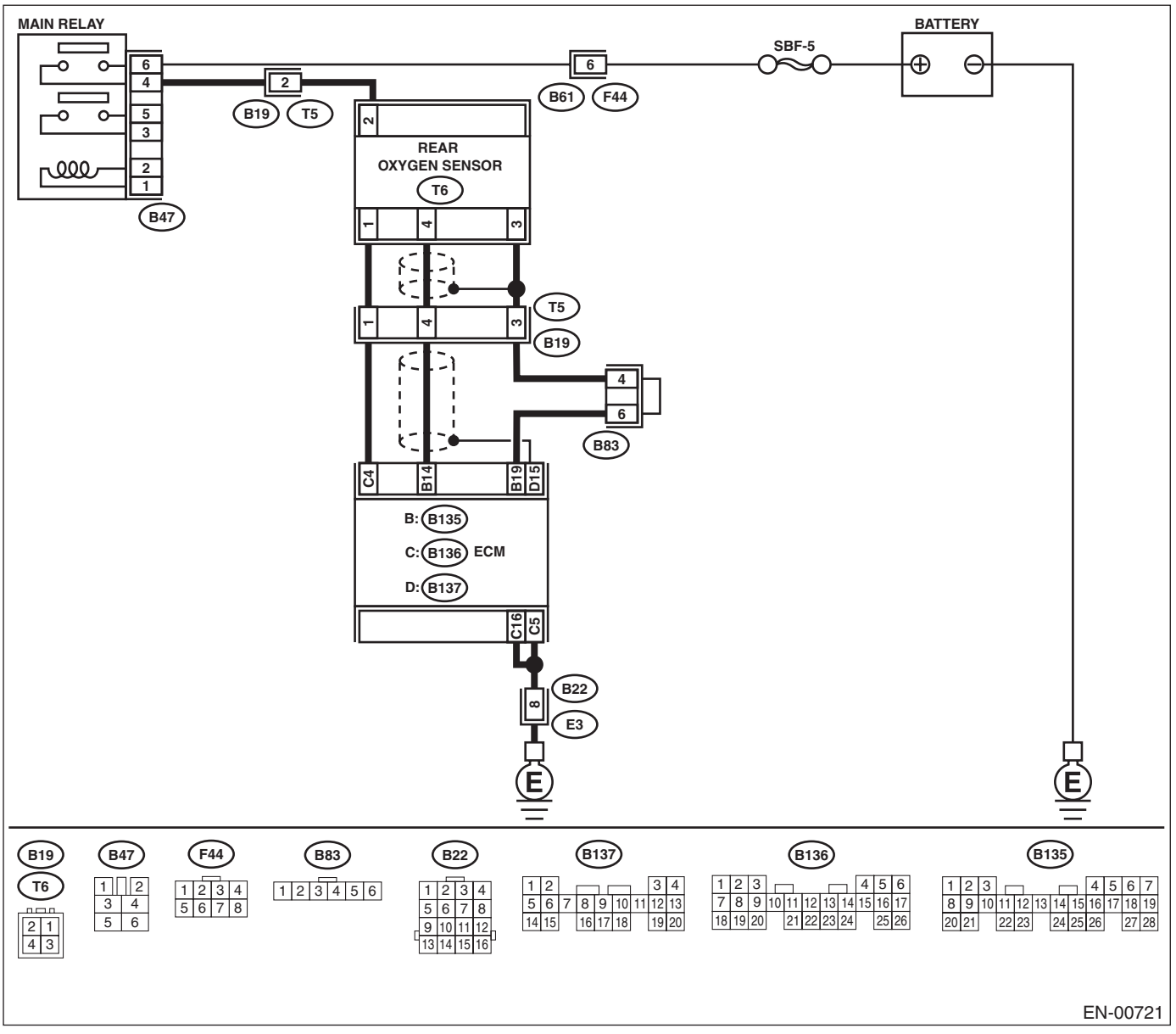
MEMO:

E: DTC P0038 — HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 4 (+) — Chassis ground (–):***	Is the measured value more than 8 V?	Go to step **2.**	Go to step **3.**

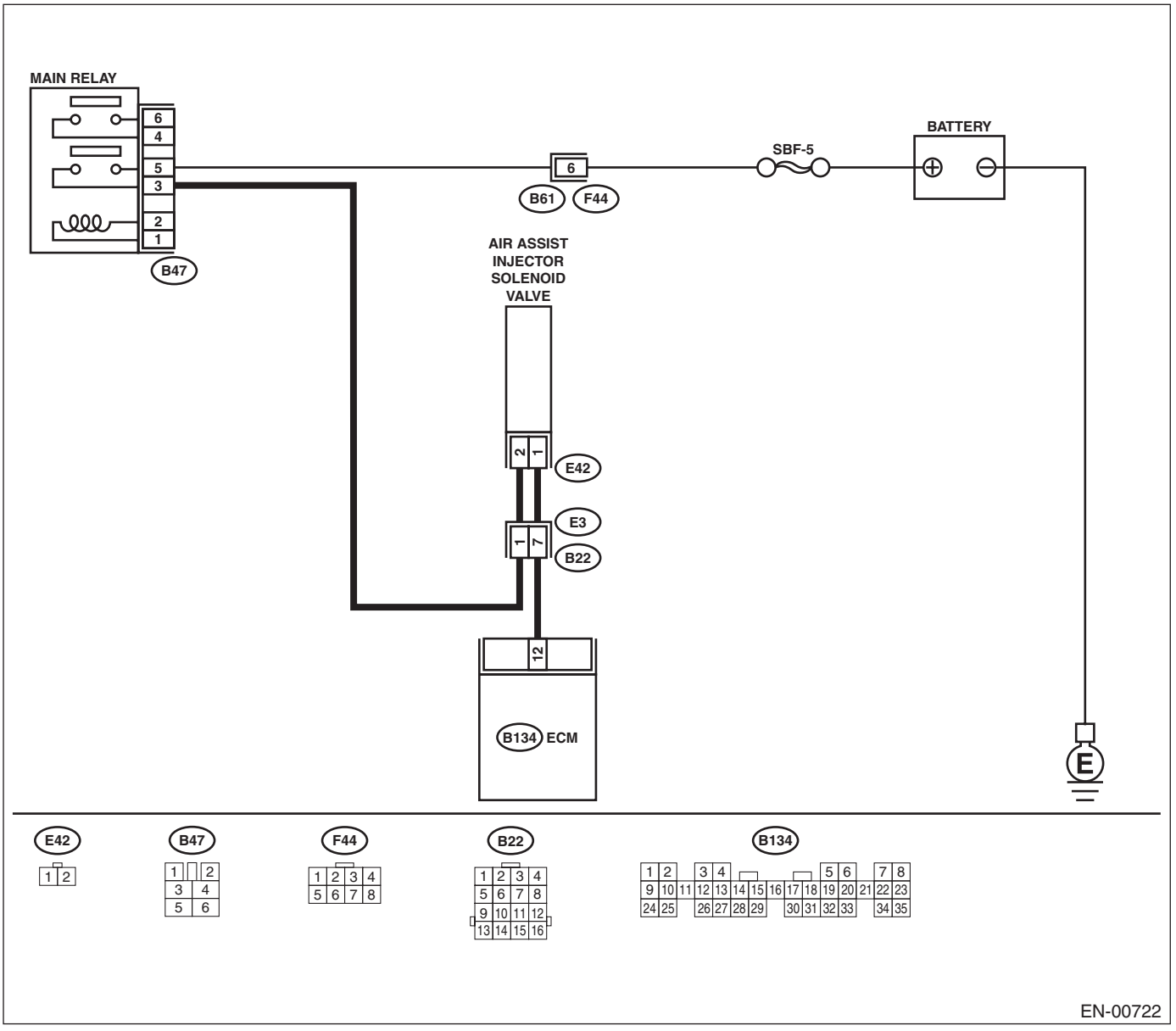
Step		Check	Yes	No
2	**CHECK CURRENT DATA.** 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and rear oxygen sensor connector. 3) Turn ignition switch to ON. 4) Read data of rear oxygen sensor heater current using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedure, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 7 A?	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	END
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	END

F: DTC P0065 — AIR ASSISTED INJECTOR CONTROL RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



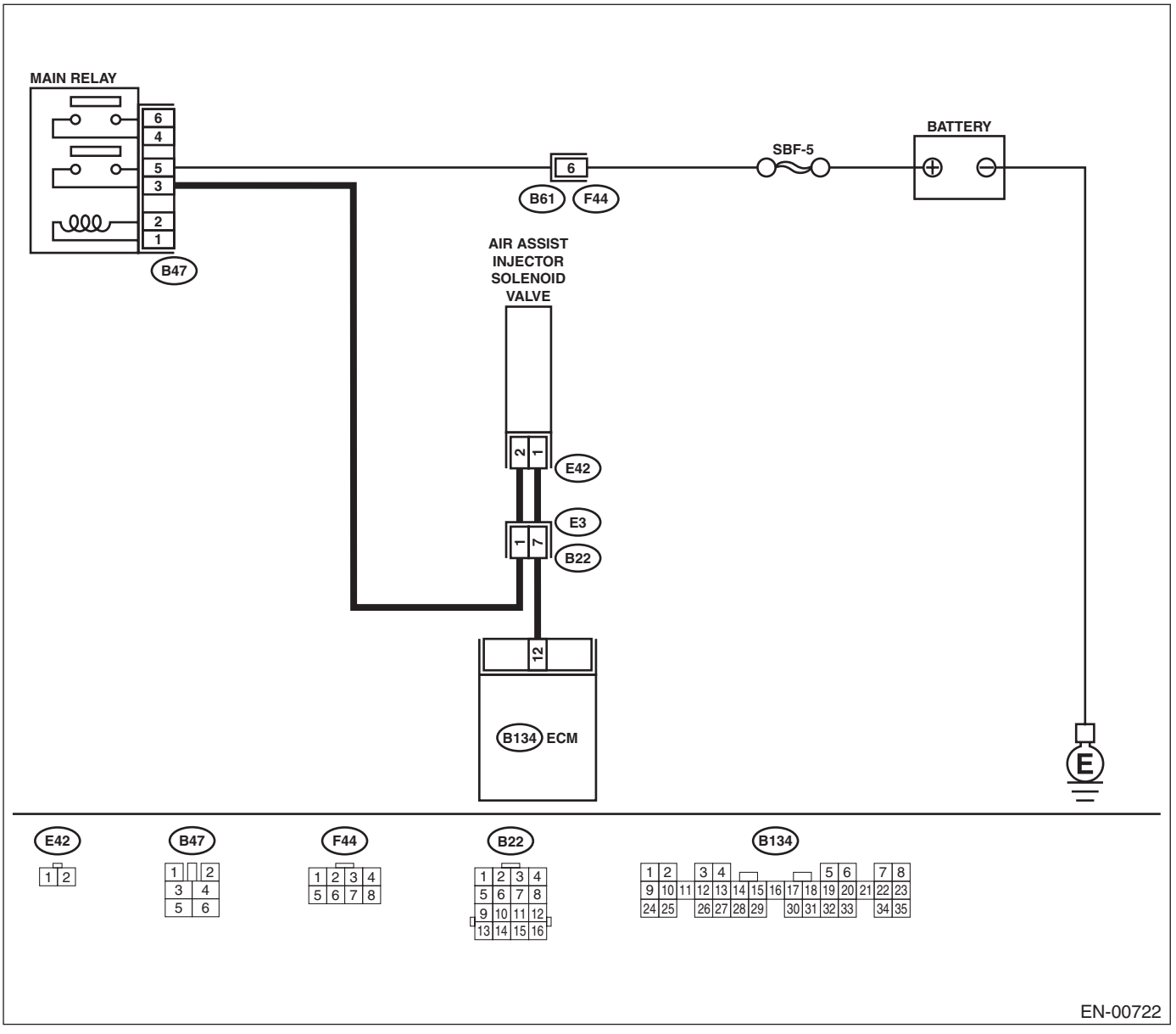
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK AIR ASSIST INJECTOR SOLENOID VALVE OPERATION.** 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) Operate air assist injector solenoid valve. NOTE: Air assist injector solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to the "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does air assist injector solenoid valve produce operating sound?	Go to step **3.**	Replace air assist injector solenoid valve. <Ref. to FU(H4SO)-36, Air Assist Injector Solenoid Valve.>
3	**CHECK AIR BY-PASS HOSES.** Use your mouth to blow through air by-pass hose to make sure that there is a smooth air flow (no clogging).	Is air by-pass hose clogged?	Repair or replace air by-pass hoses.	Go to step **4.**
4	**CHECK FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Remove fuel injector. <Ref. to FU(H4SO)-38, Fuel Injector.> 3) Check for clogged fuel injectors.	Is fuel injector clogged?	Replace fuel injector. <Ref. to FU(H4SO)-38, Fuel Injector.>	Replace air assist injector solenoid valve. <Ref. to FU(H4SO)-36, Air Assist Injector Solenoid Valve.>

G: DTC P0066 — AIR ASSISTED INJECTOR CONTROL CIRCUIT OR CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



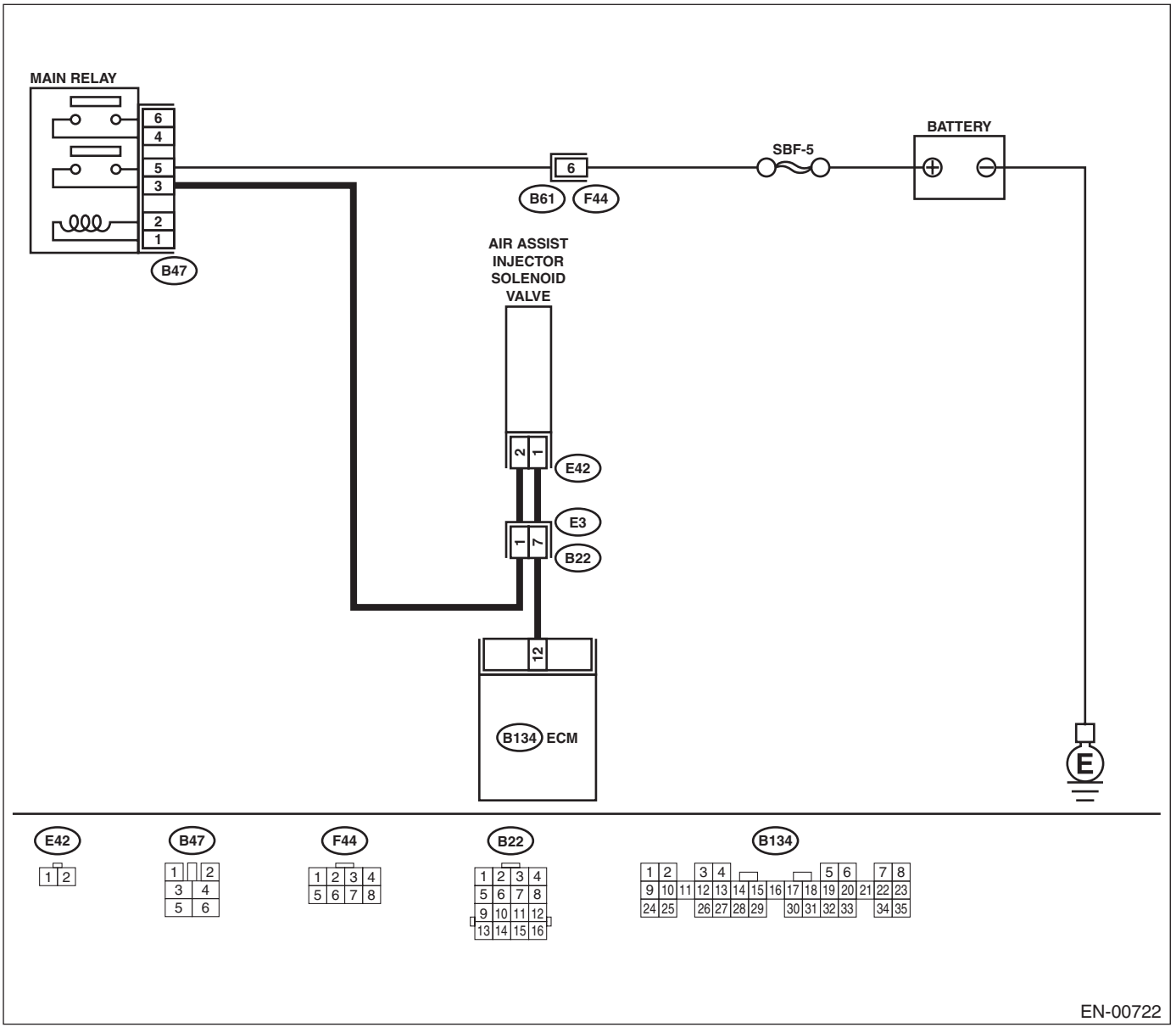
Step		Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 12 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK POWER SUPPLY TO AIR ASSIST INJECTOR SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Disconnect connector from air assist injector solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between air assist injector solenoid valve and engine ground. ***Connector & terminal*** ***(E42) No. 2 (+) — Engine ground (−):***	Is the measured value more than 10 V?	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between air assist injector solenoid valve and main relay connector • Poor contact in coupling connector
3	**CHECK HARNESS BETWEEN ECM AND AIR ASSIST INJECTOR SOLENOID VALVE CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and air assist injector solenoid valve connector. ***Connector & terminal*** ***(B134) No. 12 — (E42) No. 1:***	Is the measured value less than 1 Ω?	Go to step **4.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and air assist injector solenoid valve connector • Poor contact in coupling connector
4	**CHECK HARNESS BETWEEN ECM AND AIR ASSIST INJECTOR SOLENOID VALVE CONNECTOR.** Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 12 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **5.**	Repair ground short circuit in harness between ECM and air assist injector solenoid valve connector.
5	**CHECK POOR CONTACT.** Check poor contact in ECM and air assist injector solenoid valve connectors.	Is there poor contact in ECM and air assist injector solenoid valve connectors?	Repair poor contact in ECM and air assist injector solenoid valve connectors.	Replace air assist injector solenoid valve. <Ref. to FU(H4SO)-36, Air Assist Injector Solenoid Valve.>

H: DTC P0067 — AIR ASSISTED INJECTOR CONTROL CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



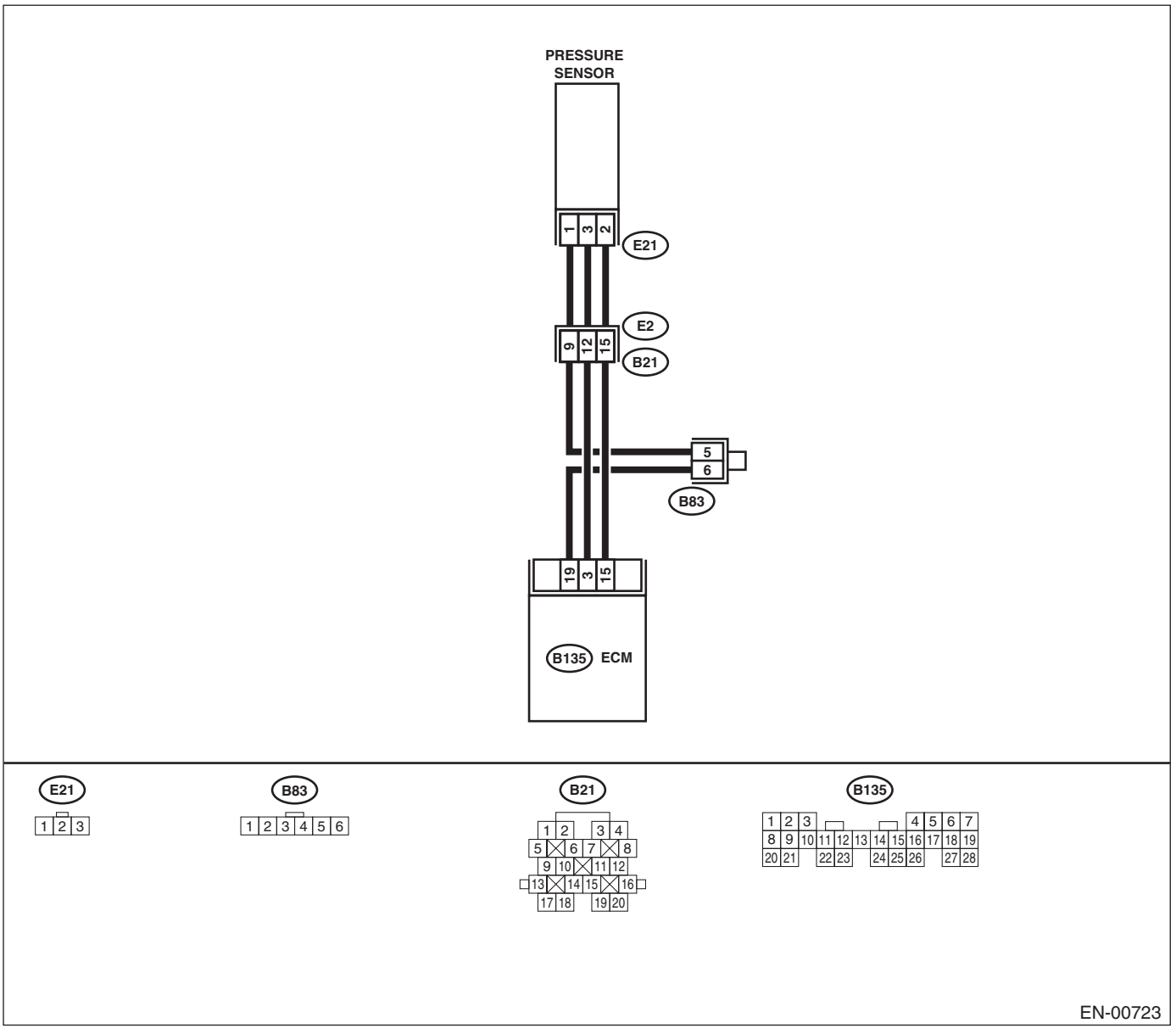
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 12 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Go to step **2.**	Go to step **3.**
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from air assist injector solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 12 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and air assist injector solenoid valve connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Replace air assist injector solenoid valve <Ref. to FU(H4SO)-36, Air Assist Injector Solenoid Valve.> and ECM <Ref. to FU(H4SO)-45, Engine Control Module.>
3	**CHECK INPUT SIGNAL FROM ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 12(+) — Chassis ground (–):*** Does the measured value exceed the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and air assist injector solenoid valve connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

I: DTC P0068 — MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



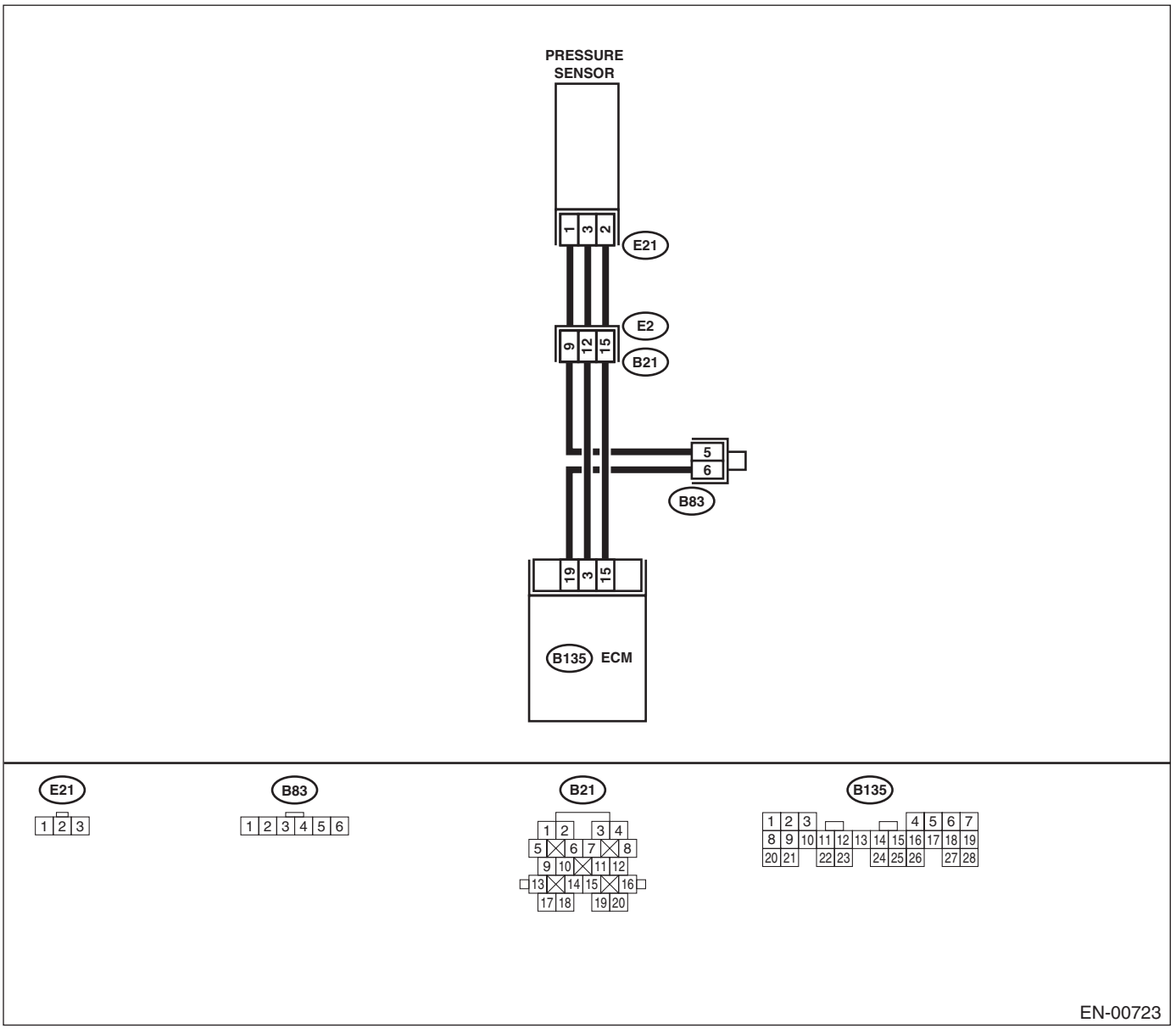
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair air intake system.	Go to step **3.**
3	**CHECK PRESSURE SENSOR.** 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the shift lever in the selector lever in "N" or "P" position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or general scan tool. Is the measured value within the specified range? NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedure, refer to the General Scan Tool Instruction Manual. Specification:	Is the measured value within 73.3 to 106.6 kPa (550 to 800 mmHg, 21.65 to 31.50 inHg) when turning ignition switch ON, or within 20.0 to 46.7 kPa (150 to 350 mmHg, 5.91 to 13.78 inHg) when idling?	Go to step **4.**	Replace intake air temperature sensor and pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>
4	**CHECK THROTTLE POSITION.** Read data of throttle position signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedure, refer to the General Scan Tool Instruction Manual.	Is the measured value less than 5% when throttle is fully closed?	Go to step **5.**	Adjust or replace throttle position sensor. <Ref. to FU(H4SO)-31, Throttle Position Sensor.>
5	**CHECK THROTTLE POSITION.**	Is the measured value more than 85% when throttle is fully open.	Replace pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>	Replace throttle position sensor. <Ref. to FU(H4SO)-31, Throttle Position Sensor.>

J: DTC P0107 — MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than 13.3 kPa (100 mmHg, 3.94 inHg)?	Go to step **3.**	Go to step **2.**
2	**CHECK POOR CONTACT.** Check poor contact in ECM and pressure sensor connector.	Is there poor contact in ECM or pressure sensor connector?	Repair poor contact in ECM or pressure sensor connector.	Even if MIL lights up, the circuit has returned to a normal condition at this time.
3	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V?	Go to step **5.**	Go to step **4.**
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
5	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 15 (+) — Chassis ground (–):***	Is the measured value less than 0.2 V?	Go to step **7.**	Go to step **6.**
6	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read data of atmospheric absolute pressure signal using Subaru Select Monitor. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.>	Is the measured value more than 13.3 kPa (100 mmHg, 3.94 inHg) when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Go to step **7.**
7	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from pressure sensor. 3) Turn ignition switch to ON. 4) Measure voltage between intake air temperature sensor and pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 3 (+) — Engine ground (–):***	Is the measured value more than 4.5 V?	Go to step **8.**	Repair open circuit in harness between ECM and pressure sensor connector.

	Step	Check	Yes	No
8	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and pressure sensor connector. ***Connector & terminal*** ***(B135) No. 19 — (E21) No. 1:***	Is the measured value less than 1 Ω?	Go to step **9.**	Repair open circuit in harness between ECM and pressure sensor connector.
9	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** Measure resistance of harness between pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 2 — Engine ground:***	Is the measured value more than 500 kΩ?	Go to step **10.**	Repair ground short circuit in harness between ECM and intake air temperature and pressure sensor connector.
10	**CHECK POOR CONTACT.** Check poor contact in intake manifold pressure sensor connector.	Is there poor contact in intake manifold pressure sensor connector?	Repair poor contact in pressure sensor connector.	Replace pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>

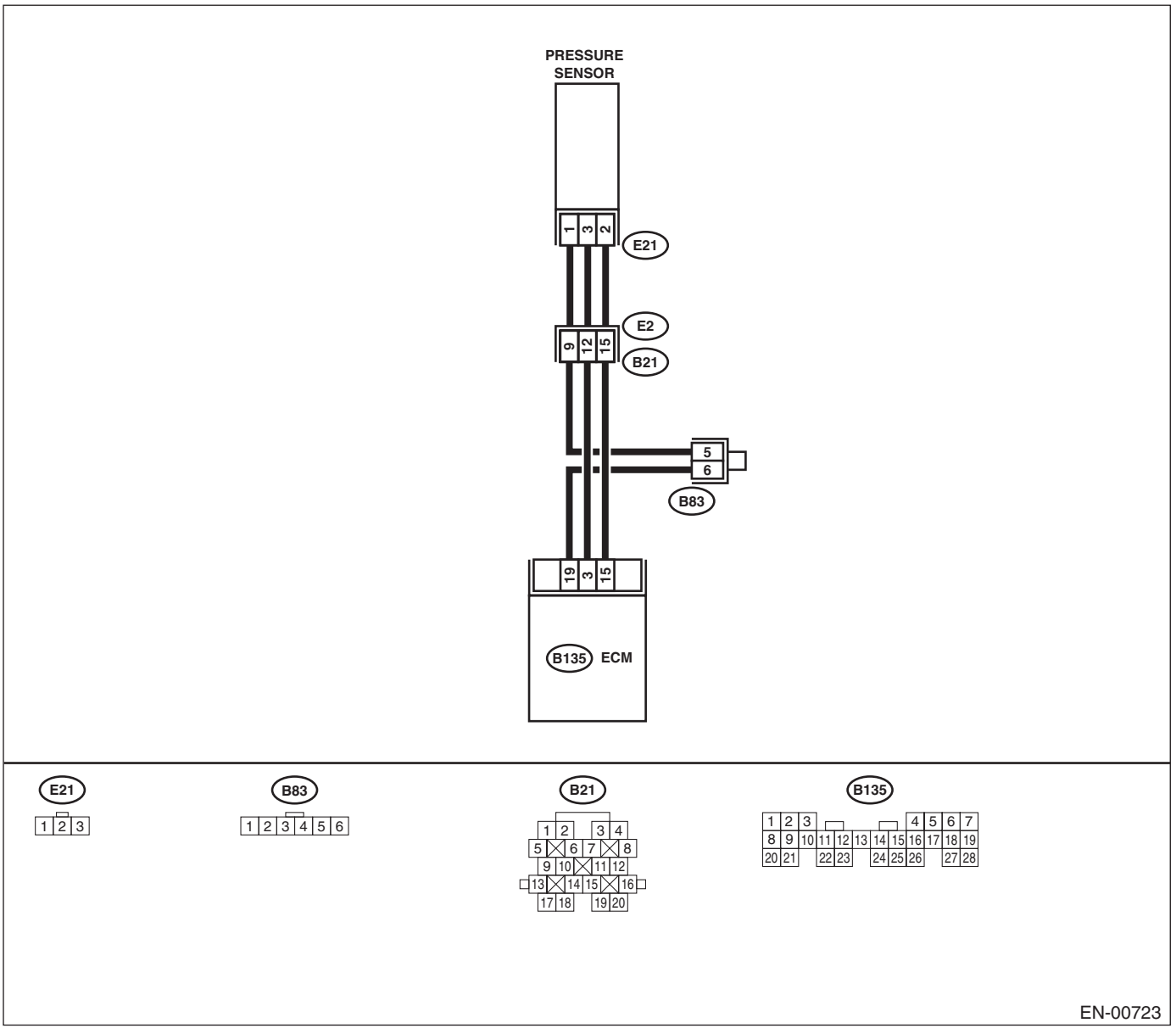
MEMO:

K: DTC P0108 — MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 119.5 kPa (896.5 mmHg, 35.29 inHg)?	Go to step **9.**	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V?	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 15 (+) — Chassis ground (–):***	Is the measured value less than 0.2 V?	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read data of atmospheric absolute pressure signal using Subaru Select Monitor. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.>	Is the measured value more than 13.3 kPa (100 mmHg, 3.94 inHg) when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Go to step **6.**
6	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from pressure sensor. 3) Turn ignition switch to ON. 4) Measure voltage between pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 3 (+) — Engine ground (–):***	Is the measured value more than 4.5 V?	Go to step **7.**	Repair open circuit in harness between ECM and pressure sensor connector.

	Step	Check	Yes	No
7	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and pressure sensor connector. ***Connector & terminal*** ***(B135) No. 15 — (E21) No. 2:*** ***(B135) No. 19 — (E21) No. 1:***	Is the measured value more than 1 Ω?	Go to step **8.**	Repair open circuit in harness between ECM and pressure sensor connector.
8	**CHECK POOR CONTACT.** Check poor contact in pressure sensor connector.	Is there poor contact in pressure sensor connector?	Repair poor contact in pressure sensor connector.	Replace pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>
9	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF and Subaru Select Monitor or the general scan tool switch to OFF. 2) Disconnect connector from pressure sensor. 3) Turn ignition switch to ON and Subaru Select Monitor or the general scan tool switch to ON. 4) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 119.5 kPa (896.5 mmHg, 35.29 inHg)?	Repair battery short circuit in harness between ECM and pressure sensor connector.	Replace pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>

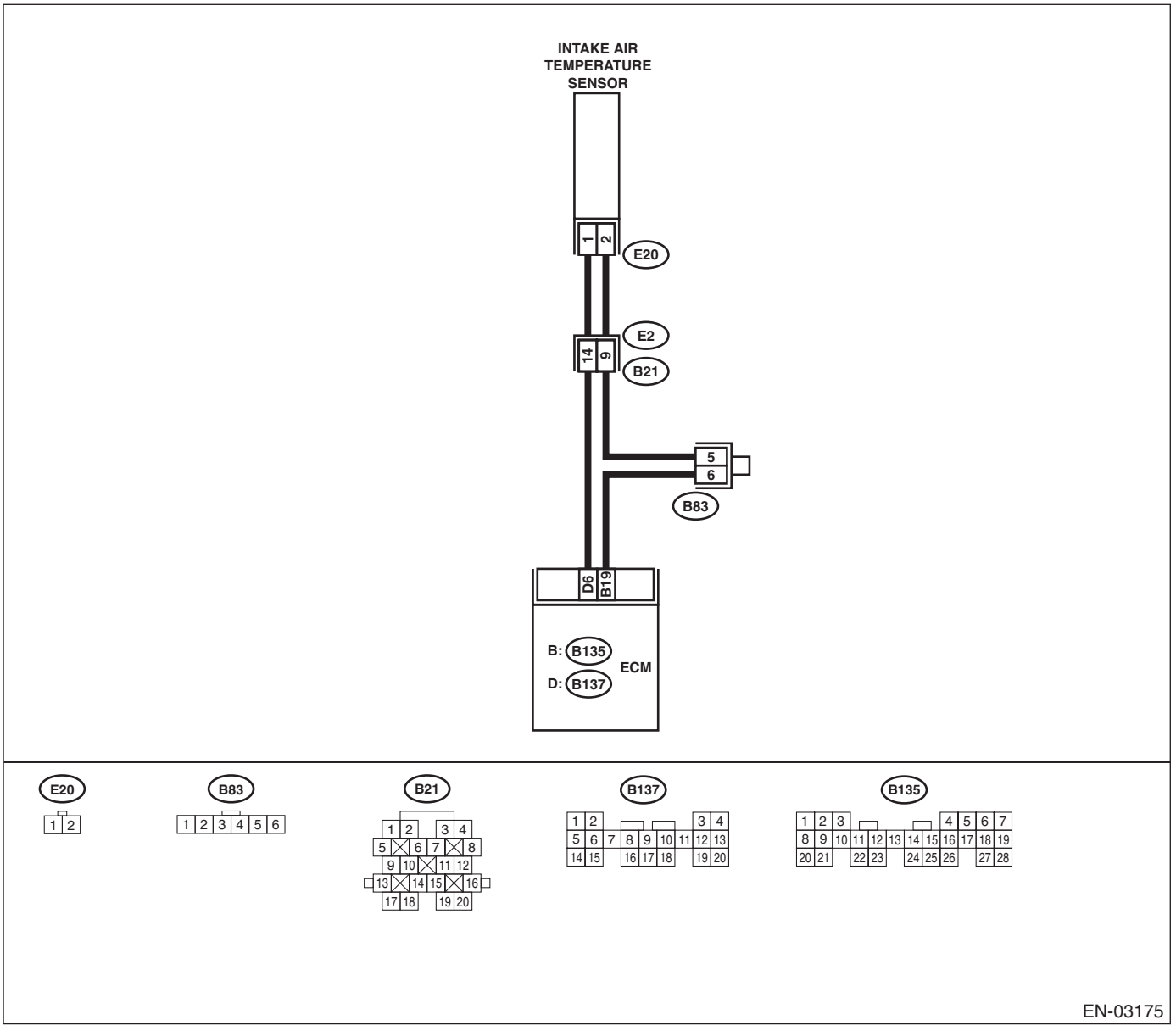
MEMO:

L: DTC P0111 — INTAKE AIR TEMPERATURE CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



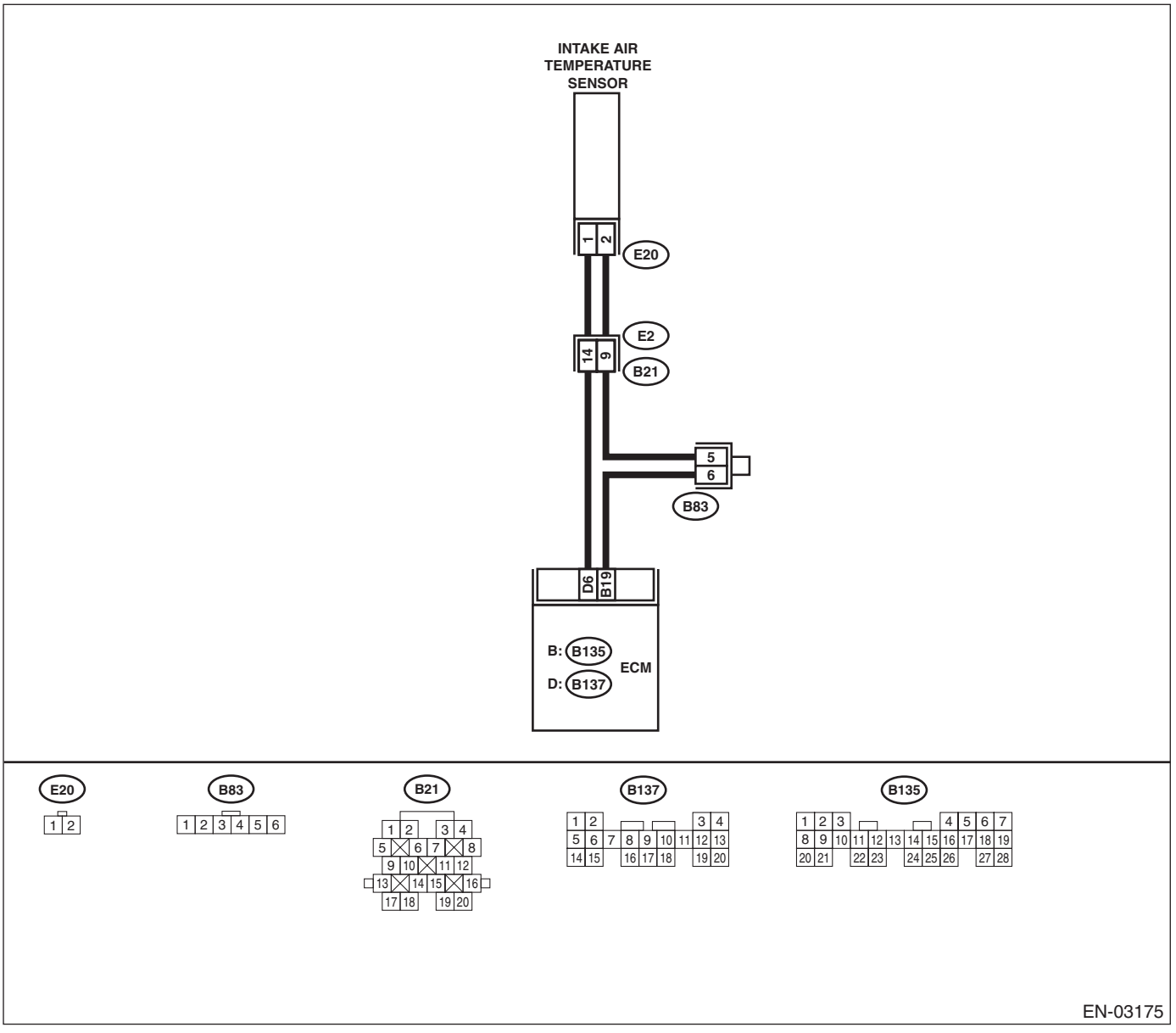
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0111.	Go to step **2.**
2	**CHECK ENGINE COOLANT TEMPERATURE.** 1) Start the engine and warm it up completely. 2) Measure engine coolant temperature using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 75 to 95°C (167 to 203°F)?	Replace intake air temperature sensor. <Ref. to FU(H4SO)-34, REMOVAL, Intake Air Temperature Sensor.>	Inspect DTC P0125 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>

M: DTC P0112 — INTAKE AIR TEMPERATURE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



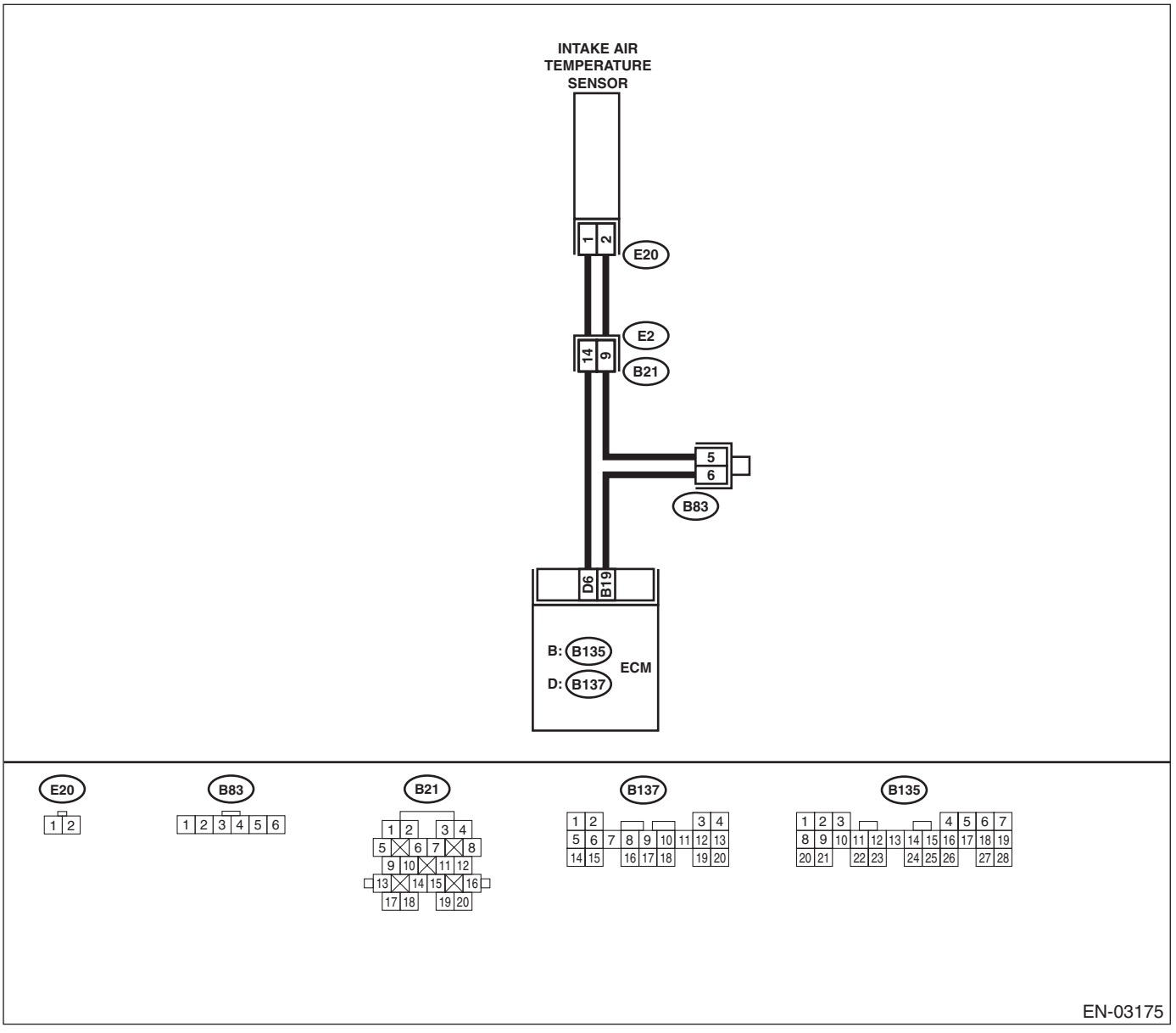
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of intake air temperature sensor signal using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedure, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 120°C (248°F)?	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air temperature and pressure sensor. 3) Turn ignition switch to ON. 4) Read data of intake air temperature sensor signal using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedure, refer to the General Scan Tool Instruction Manual.	Is the measured value less than –40°C (–40°F)?	Replace intake air temperature sensor. <Ref. to FU(H4SO)-34, REMOVAL, Intake Air Temperature Sensor.>	Repair ground short circuit in harness between intake air temperature sensor and ECM connector.

N: DTC P0113 — INTAKE AIR TEMPERATURE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of intake air temperature sensor signal using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedure, refer to the General Scan Tool Instruction Manual.	Is the measured value less than –40°C (–40°F)?	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air temperature sensor. 3) Measure voltage between intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 1 (+) — Engine ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between intake air temperature sensor and ECM connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 1 (+) — Engine ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between intake air temperature sensor and ECM connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure voltage between intake air temperature and pressure sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 1 (+) — Engine ground (–):***	Is the measured value more than 3 V?	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between intake air temperature sensor and ECM connector • Poor contact in intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector

	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness between intake air temperature and pressure sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Replace intake air temperature sensor. <Ref. to FU(H4SO)-34, REMOVAL, Intake Air Temperature Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between intake air temperature sensor and ECM connector • Poor contact in intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector

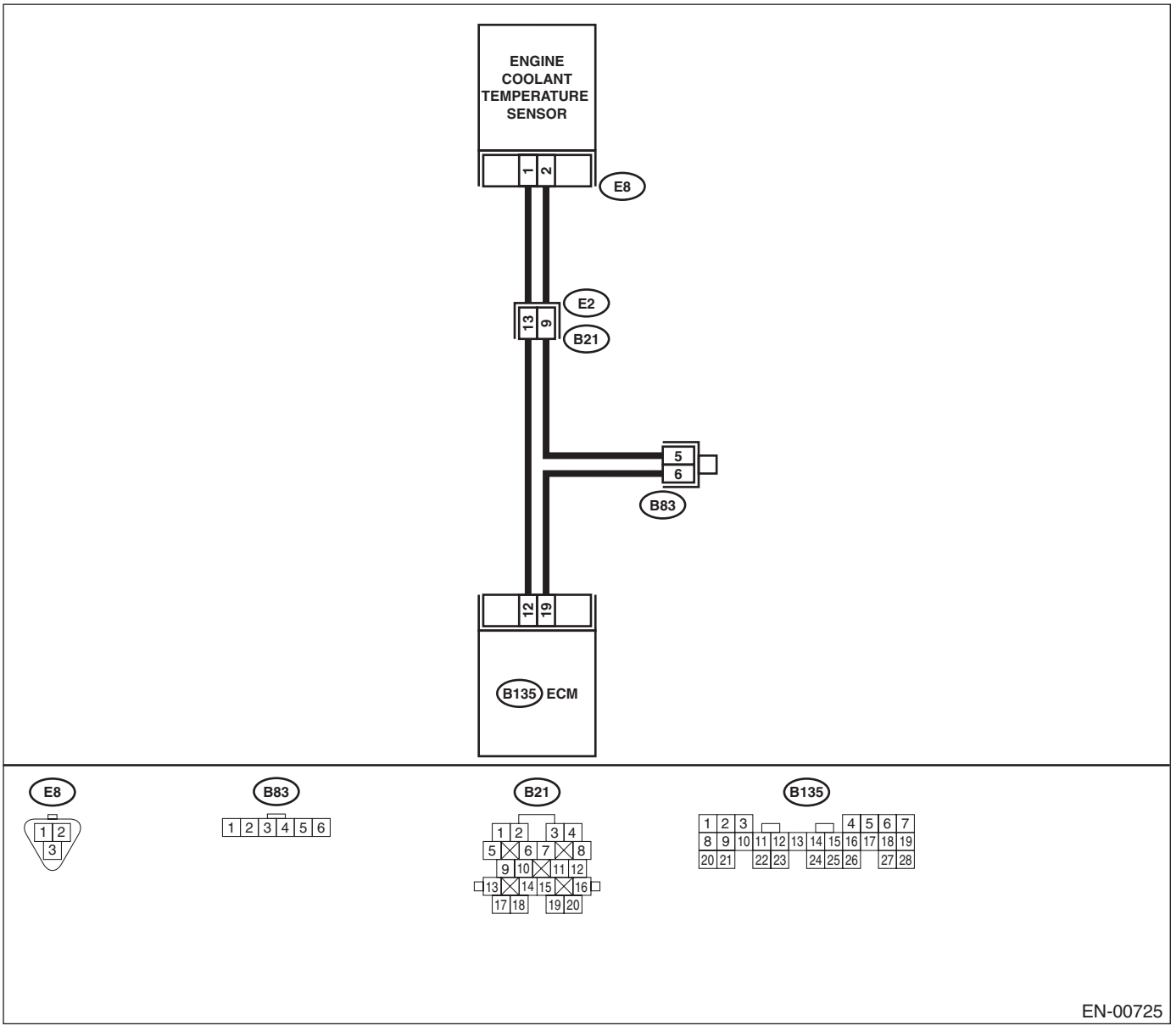
MEMO:

O: DTC P0117 — ENGINE COOLANT TEMPERATURE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



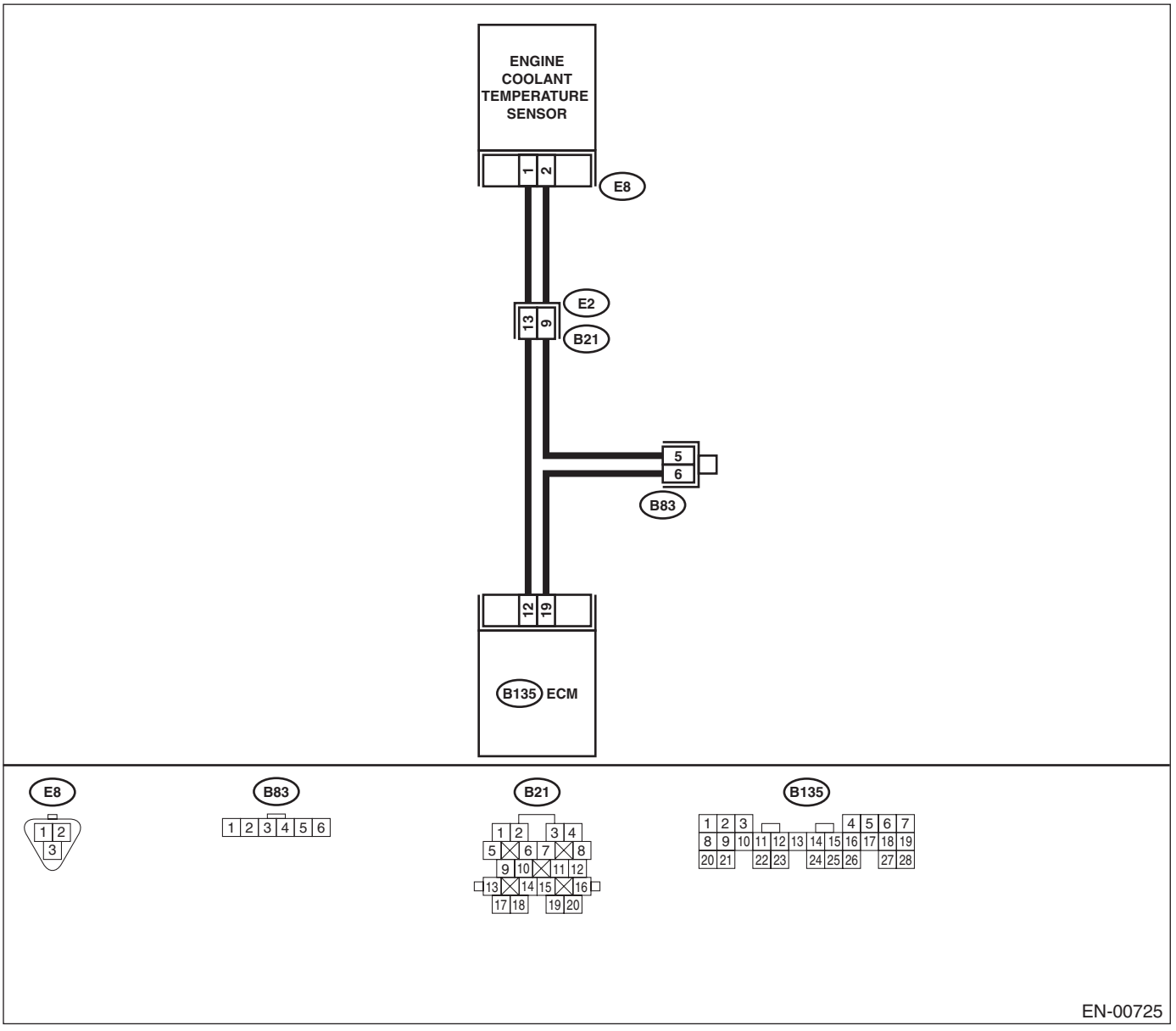
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 120°C (248°F)?	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in engine coolant temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant temperature sensor. 3) Turn ignition switch to ON. 4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than –40°C (–40°F)?	Replace engine coolant temperature sensor. <Ref. to FU(H4SO)-27, REMOVAL, Engine Coolant Temperature Sensor.>	Repair ground short circuit in harness between engine coolant temperature sensor and ECM connector.

P: DTC P0118 — ENGINE COOLANT TEMPERATURE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than –40°C (–40°F)?	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in engine coolant temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant temperature sensor. 3) Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (–):***	Is the measured value more than 4 V?	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and engine coolant temperature sensor connector • Poor contact in engine coolant temperature sensor connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in joint connector

Step		Check	Yes	No
5	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Replace engine coolant temperature sensor. <Ref. to FU(H4SO)-27, Engine Coolant Temperature Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and engine coolant temperature sensor connector • Poor contact in engine coolant temperature sensor connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in joint connector

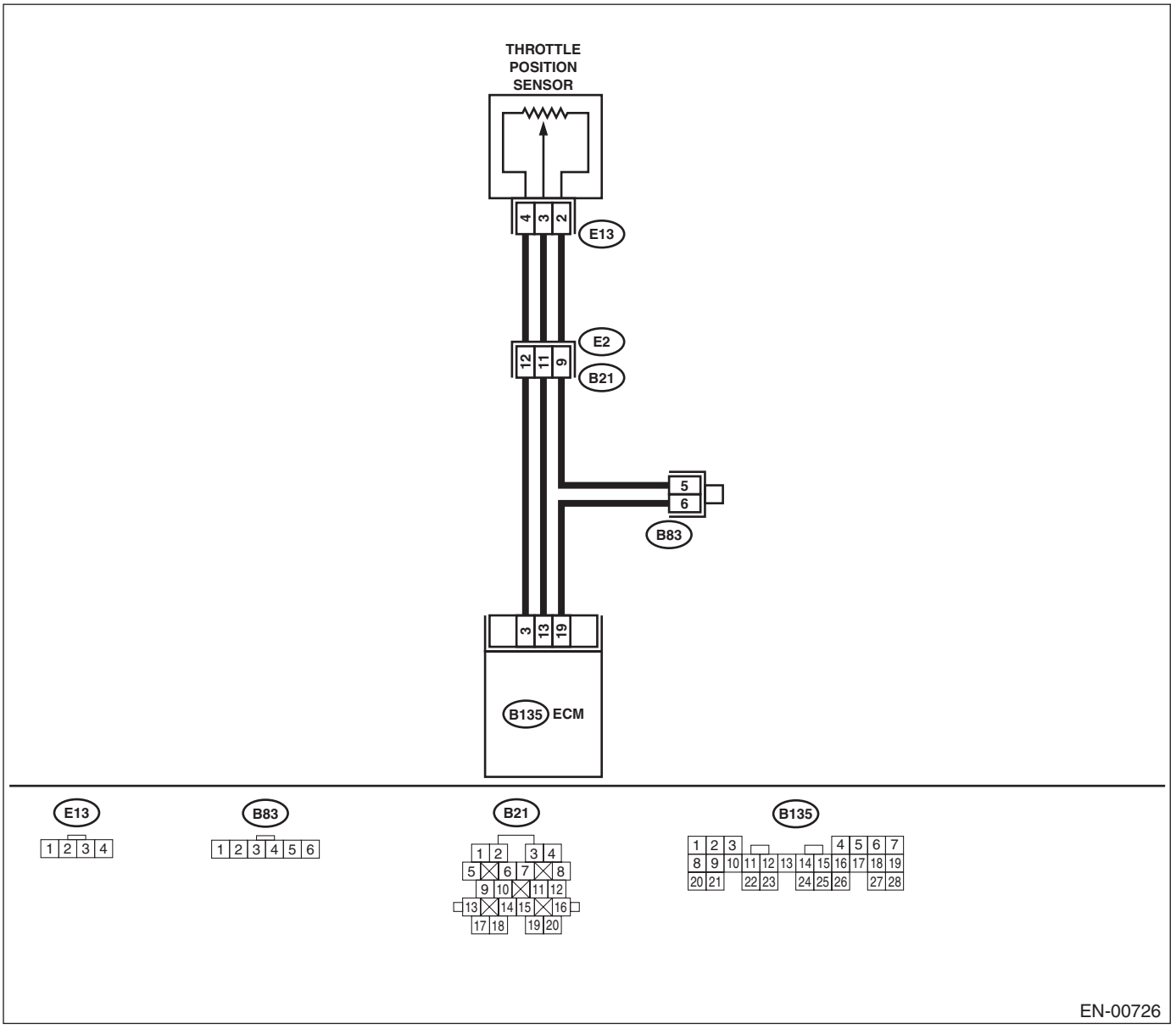
MEMO:

Q: DTC P0121 — THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



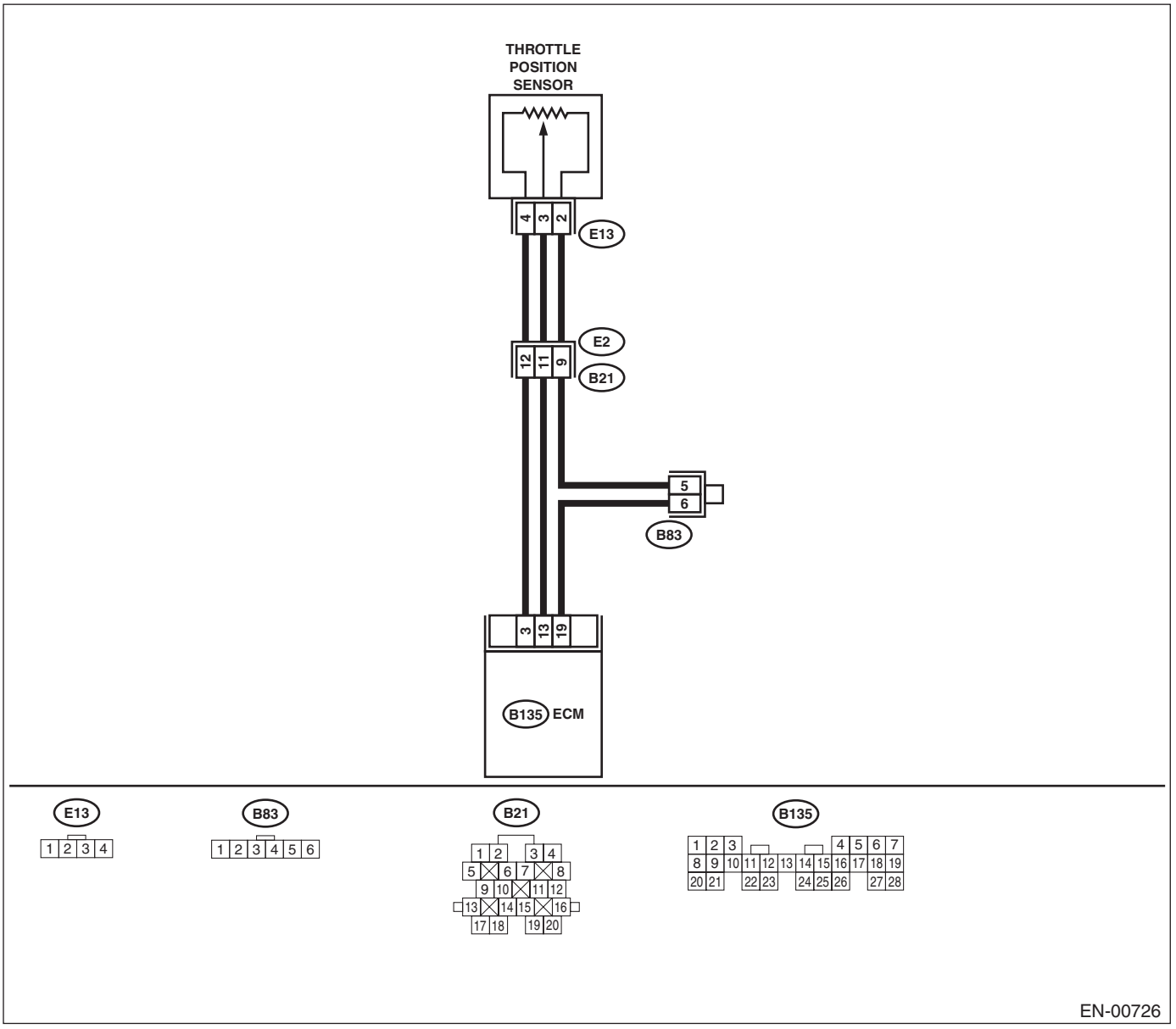
Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0121.	Replace throttle position sensor. <Ref. to FU(H4SO)-31, Throttle Position Sensor.>

R: DTC P0122 — THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of throttle position sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than 0.1 V?	Go to step **2.**	Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground while throttle valve is fully closed. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (−):***	Is the measured value more than 4.5 V?	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 3 (+) — Chassis ground (−):***	Is the measured value more than 4.5 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 13 (+) — Chassis ground (−):***	Is the measured value less than 0.1 V?	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Measure voltage between ECM connector and chassis ground.	Is the measured value more than 0.1 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Go to step **6.**

	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from throttle position sensor. 3) Turn ignition switch to ON. 4) Measure voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 4 (+) — Engine ground (−):***	Is the measured value more than 4.5 V?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in joint connector
7	**CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness between ECM connector and throttle position sensor connector. ***Connector & terminal*** ***(B135) No. 13 — (E13) No. 3:***	Is the measured value less than 1 Ω?	Go to step **8.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in ECM connector • Poor contact in throttle position sensor connector • Poor contact in coupling connector
8	**CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.** Measure resistance of harness between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 3 — Engine ground:***	Is the measured value more than 1 MΩ?	Go to step **9.**	Repair ground short circuit in harness between throttle position sensor and ECM connector.
9	**CHECK POOR CONTACT.** Check poor contact in throttle position sensor connector.	Is there poor contact in throttle position sensor connector?	Repair poor contact in throttle position sensor connector.	Replace throttle position sensor. <Ref. to FU(H4SO)-31, Throttle Position Sensor.>

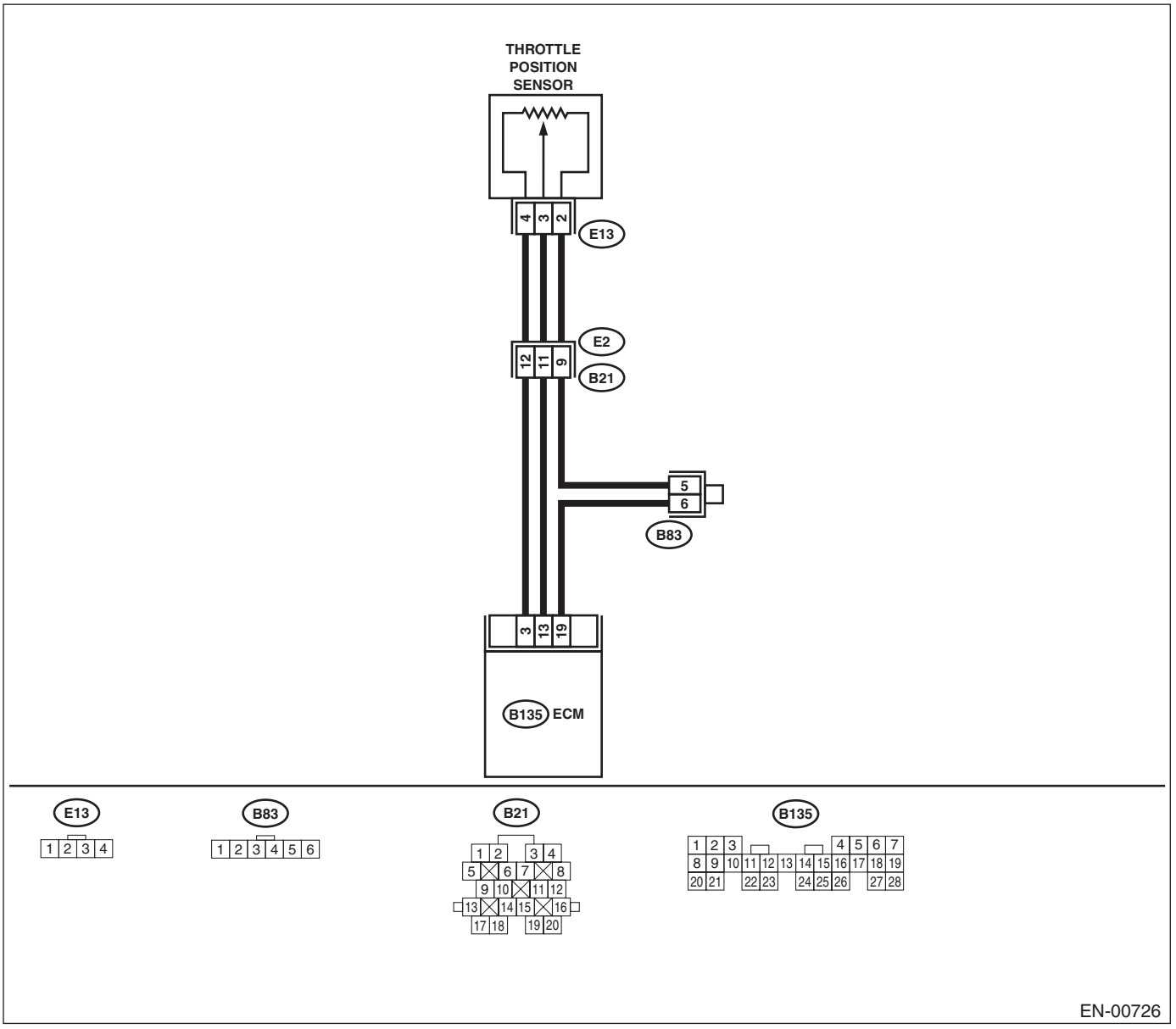
MEMO:

S: DTC P0123 — THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



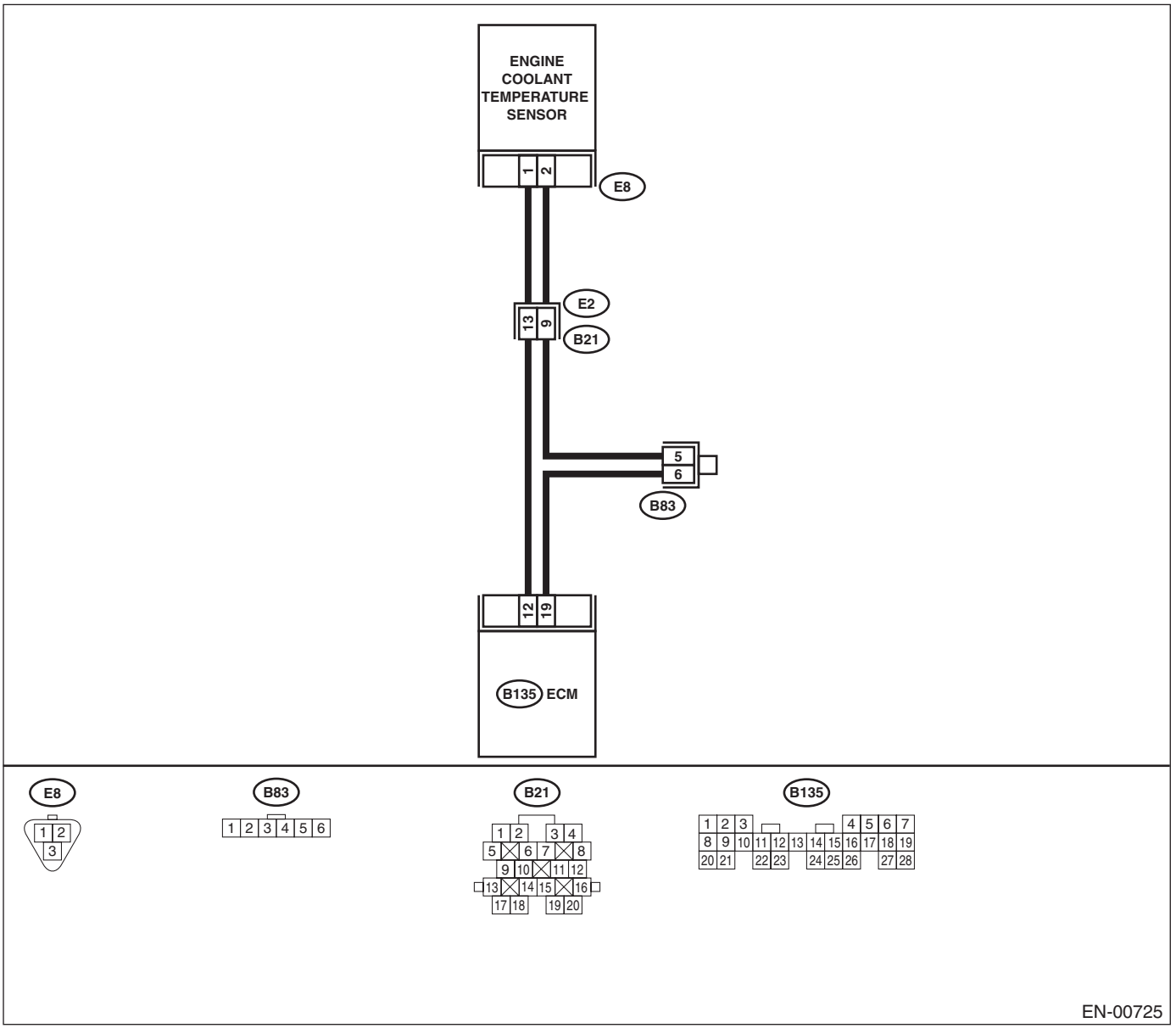
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of throttle position sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 4.9 V?	Go to step **2.**	Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from throttle position sensor. 3) Measure resistance of harness between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in coupling connector • Poor contact in joint connector
3	**CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 3 (+) — Engine ground (−):***	Is the measured value more than 4.9 V?	Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Replace throttle position sensor. <Ref. to FU(H4SO)-31, Throttle Position Sensor.>

T: DTC P0125 — INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Engine would not return to idling.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



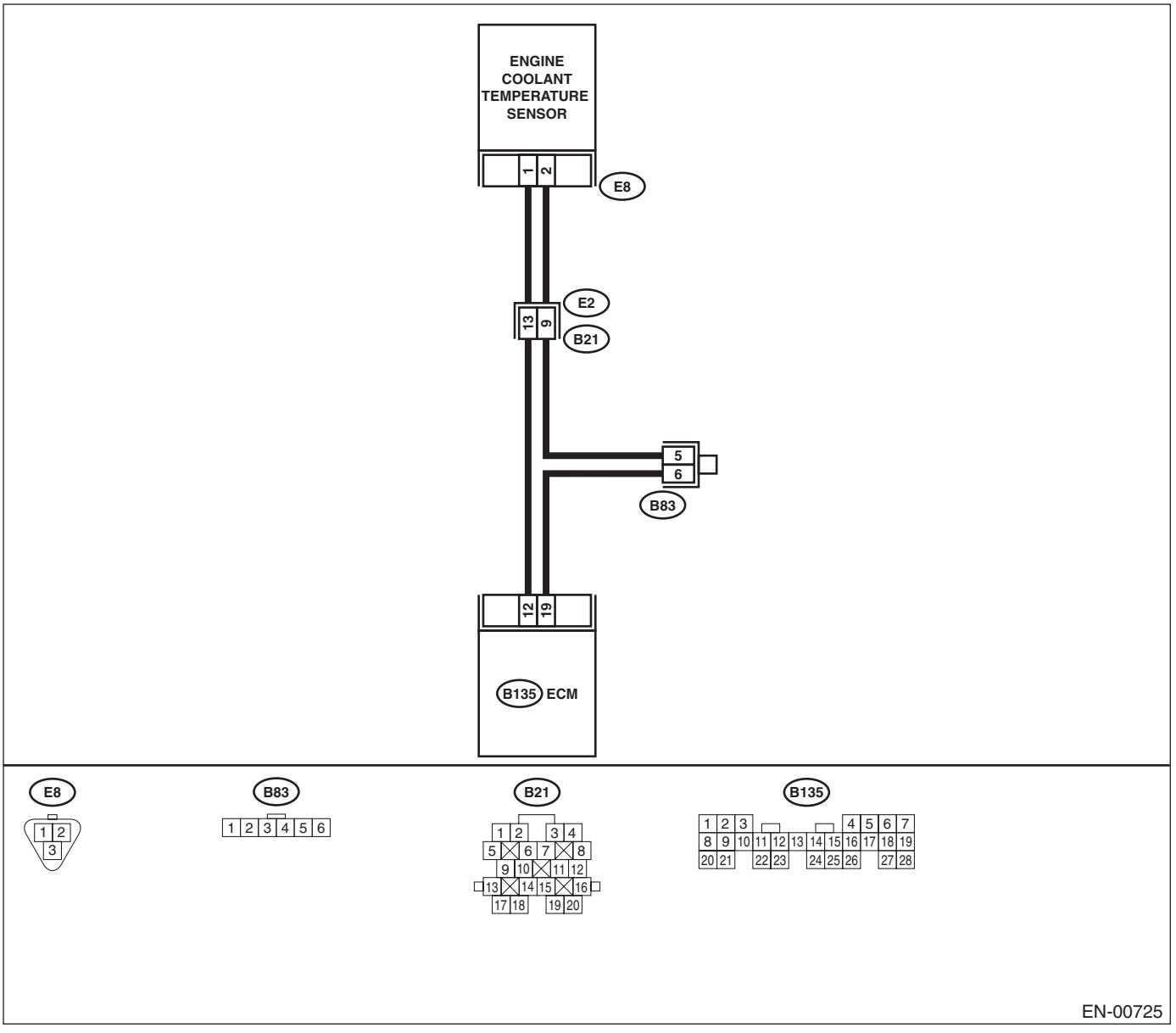
Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0125.	Go to step **2.**
2	**CHECK THERMOSTAT.**	Does thermostat remain opened?	Replace thermostat. <Ref. to CO(H4SO)-19, Thermostat.>	Replace engine coolant temperature sensor. <Ref. to FU(H4SO)-27, Engine Coolant Temperature Sensor.>

U: DTC P0126 — SUFFICIENT COOLANT TEMPERATURE FOR STABLE OPERATION —

- **DTC DETECTING CONDITION:**
  - Detected when two consecutive driving cycles with malfunction is occurred.
  - GENERAL DESCRIPTION <Ref. to GD(H4SO)-51, DTC P0126 — INSUFFICIENT COOLANT TEMPERATURE FOR STABLE OPERATION —, Diagnostic Trouble Code (DTC) Detecting Criteria.>
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** Measure the resistance between terminals of engine coolant temperature sensor when the engine is cold and when the engine is warmed up. ***terminal*** ***No. 1 — No. 2:***	Does the resistance value change between the condition when the engine is cooled and when it is warmed up?	Go to step **3.**	Replace the engine coolant temperature sensor. <Ref. to FU(H4DOTC)-27, Engine Coolant Temperature Sensor.>
3	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant temperature sensor. 3) Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.	Go to step **5.**
5	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (−):***	Is the measured value more than 4 V?	Go to step **6.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and engine coolant temperature sensor connector • Poor contact in engine coolant temperature sensor connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in joint connector

	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Contact your SOA Service Center.	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and engine coolant temperature sensor connector • Poor contact in engine coolant temperature sensor connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in joint connector

V: DTC P0128 — COOLANT THERMOSTAT (COOLANT TEMPERATURE BELOW THERMOSTAT REGULATING TEMPERATURE) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Thermostat remains open.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

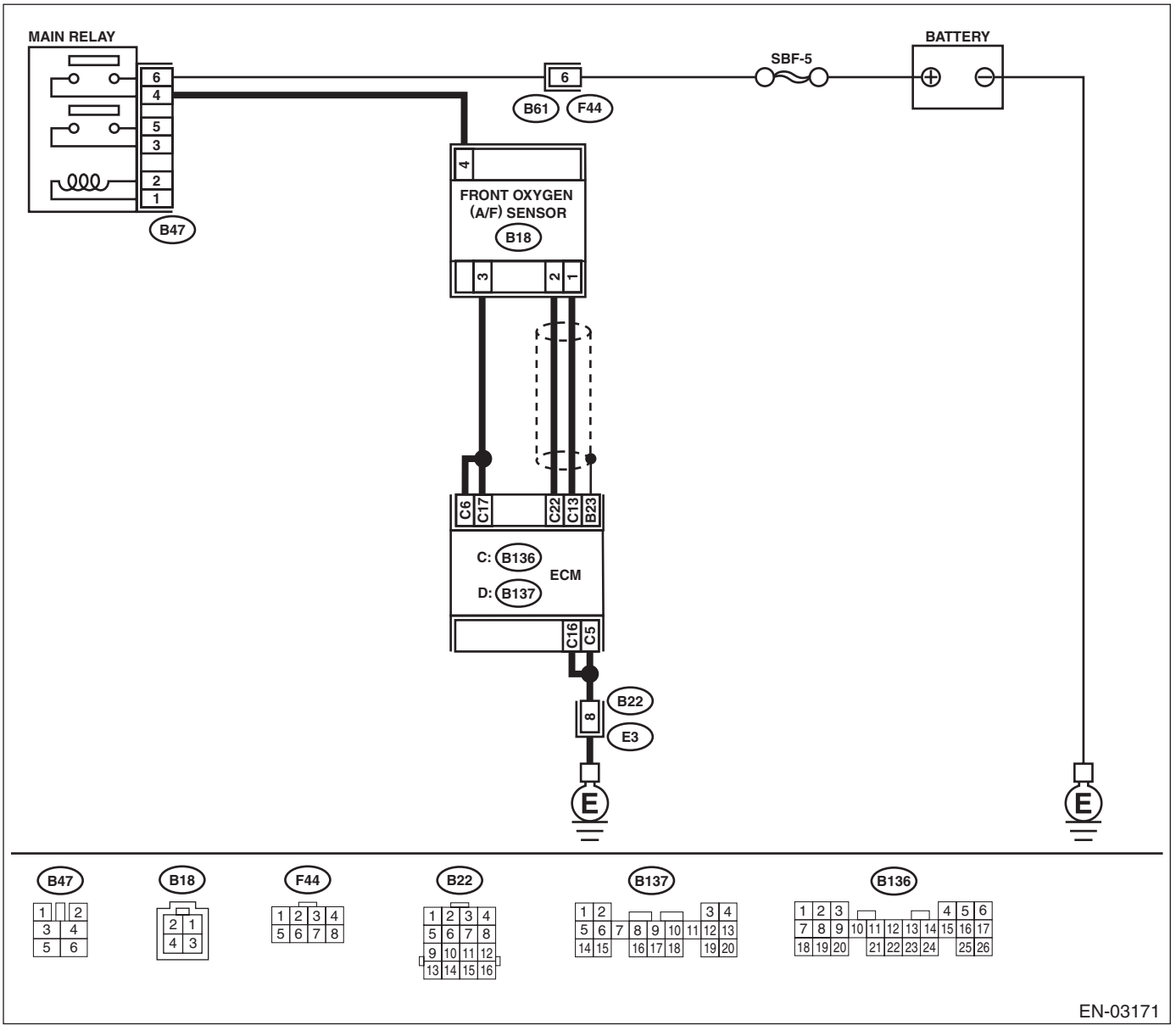
	Step	Check	Yes	No
1	**CHECK VEHICLE CONDITION.**	Has engine operated at idle or has vehicle been driven with part of engine submerged under water?	In this case, it is not necessary to inspect DTC P0128.	Go to step **2.**
2	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **3.**
3	**CHECK TIRE SIZE.**	Are all four wheels same as the specified size?	Go to step **4.**	Replace tire.
4	**CHECK ENGINE COOLANT.**	Are coolant level and mixture ratio of cooling water to anti-freeze solution correct?	Go to step **5.**	Replace engine coolant. <Ref. to CO(H4SO)-12, REPLACEMENT, Engine Coolant.>
5	**CHECK RADIATOR FAN.** 1) Start the engine. 2) Check radiator fan operation.	Does radiator fan continuously rotate for more than 3 minutes during idling?	Repair radiator fan circuit. <Ref. to CO(H4SO)-25, Radiator Main Fan and Fan Motor.> and <Ref. to CO(H4SO)-27, Radiator Sub Fan and Fan Motor.>	Replace thermostat. <Ref. to CO(H4SO)-19, Thermostat.>

W: DTC P0130 — O2 SENSOR CIRCUIT (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** 1) Start engine. 2) While observing the Subaru Select Monitor or general scan tool screen, warm-up the engine until coolant temperature is above 70°C (158°F). If the engine is already warmed-up, operate at idle speed for at least 1 minute. 3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 0.85 to 1.15 V?	Go to step **3.**	Go to step **4.**
3	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** 1) Race engine at speeds from idling to 5,000 rpm for a total of 5 cycles. 2) Read data of front oxygen (A/F) sensor signal during racing using Subaru Select Monitor or general scan tool. NOTE: •Normally, A/F mixture ratio is rich with racing engine. •To increase engine speed to 5,000 rpm, slowly depress accelerator pedal, taking approximately 5 seconds, and quickly release accelerator pedal to decrease engine speed.	Is the measured value more than 1.1 V?	Go to step **6.**	Go to step **4.**
4	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance between ECM and front oxygen (A/F) sensor. ***Connector & terminals*** ***(B136) No. 13 — (B18) No. 1:*** ***(B136) No. 22— (B18) No. 2:***	Is the measured value less than 5 Ω?	Go to step **5.**	Repair open circuit between ECM and front oxygen (A/F) sensor.
5	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** Measure resistance between ECM and chassis ground. ***Connector & terminals*** ***(B136) No. 13 — Chassis ground:*** ***(B136) No. 22 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **6.**	Repair ground short circuit between ECM and front oxygen (A/F) sensor.

Step		Check	Yes	No
6	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loose installation of portions •Damage (crack, hole etc.) of parts •Looseness of front oxygen (A/F) sensor •Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there any malfunction in exhaust system?	Repair or replace malfunctioning parts.	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>

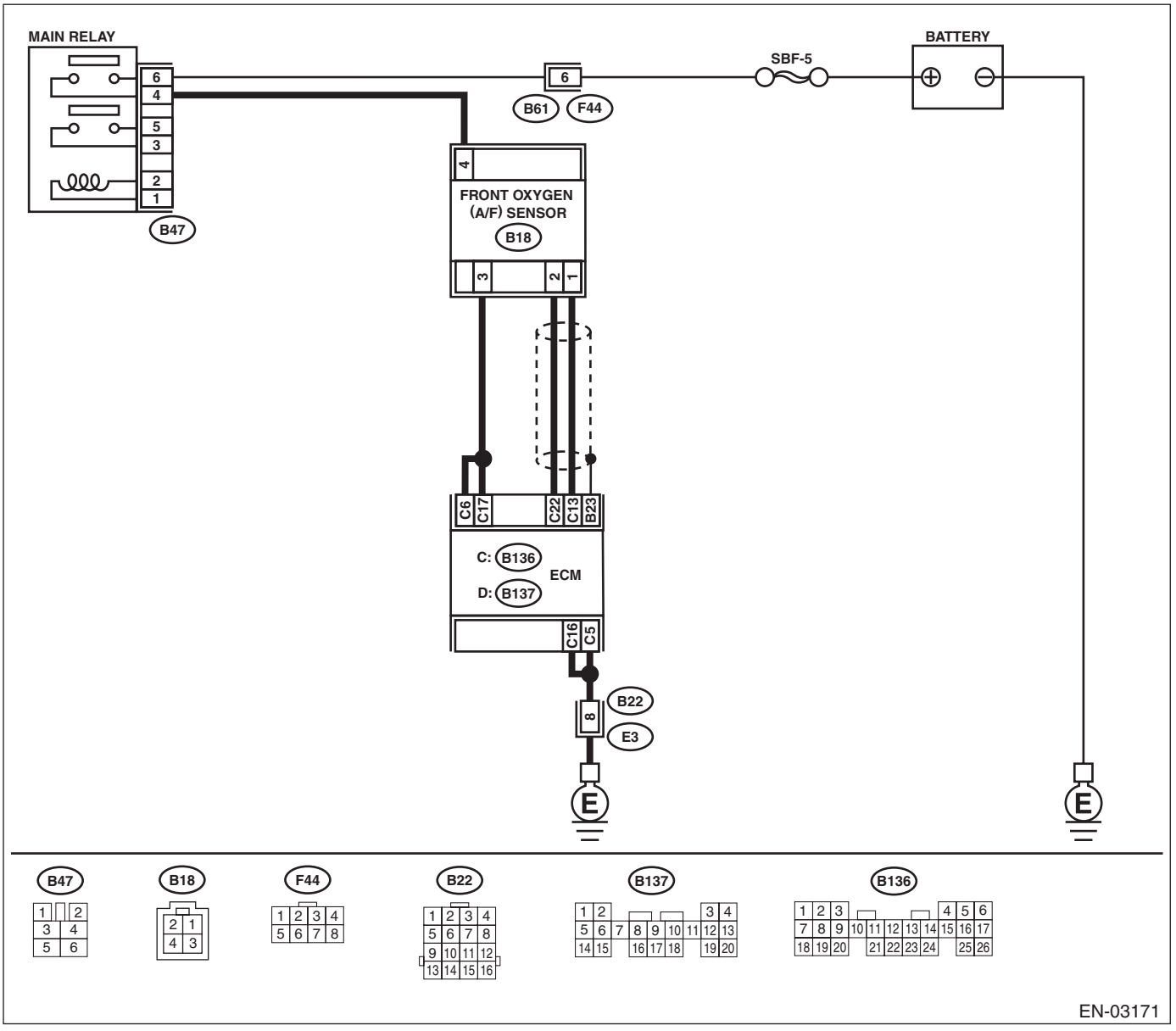
MEMO:

X: DTC P0131 — O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



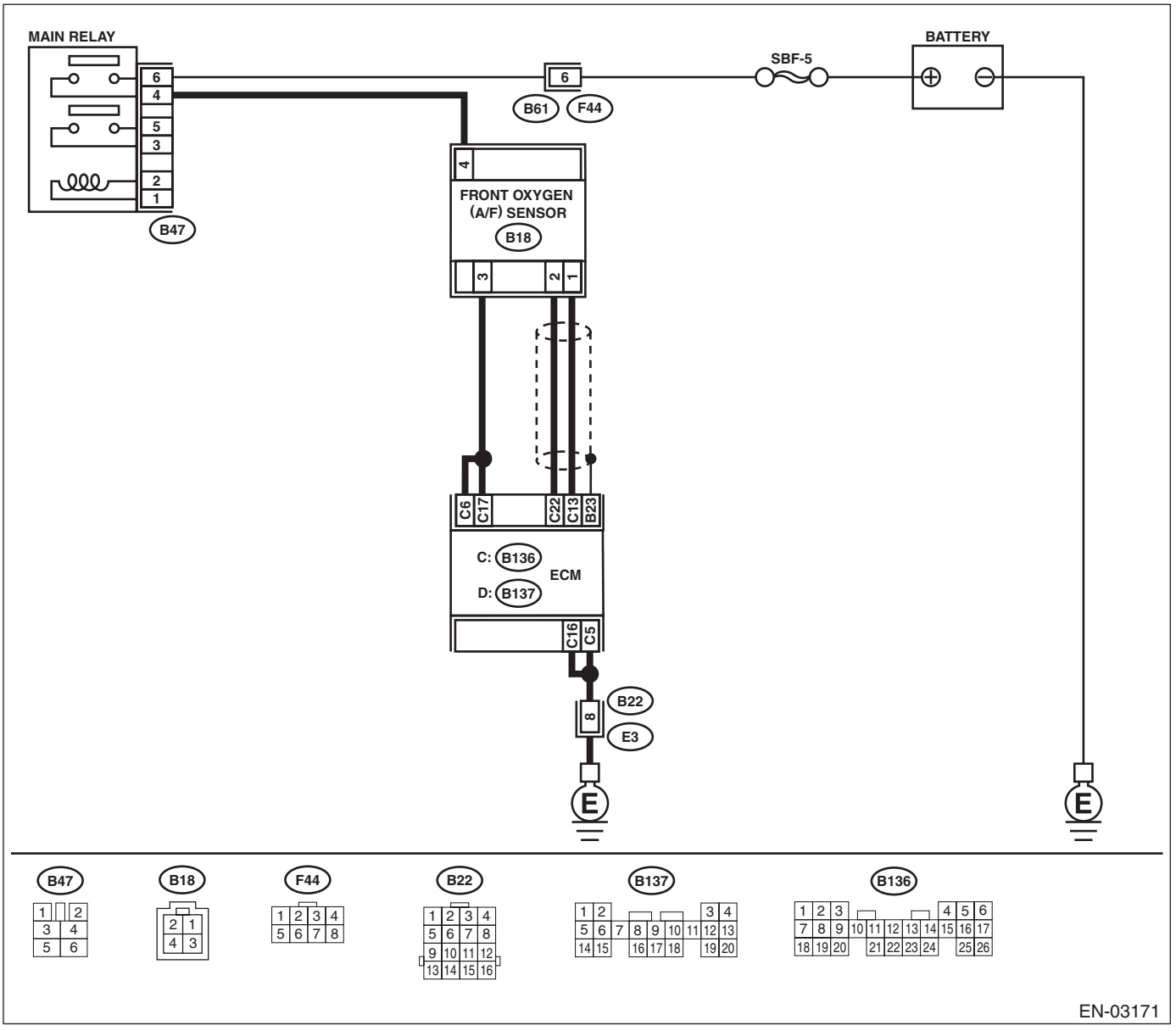
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 13 — Chassis ground:*** ***(B136) No. 22 — Chassis ground:***	Is the measured value more than 1 MΩ?	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>	Repair short circuit between ECM and front oxygen (A/F) sensor connector.

Y: DTC P0132 — O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



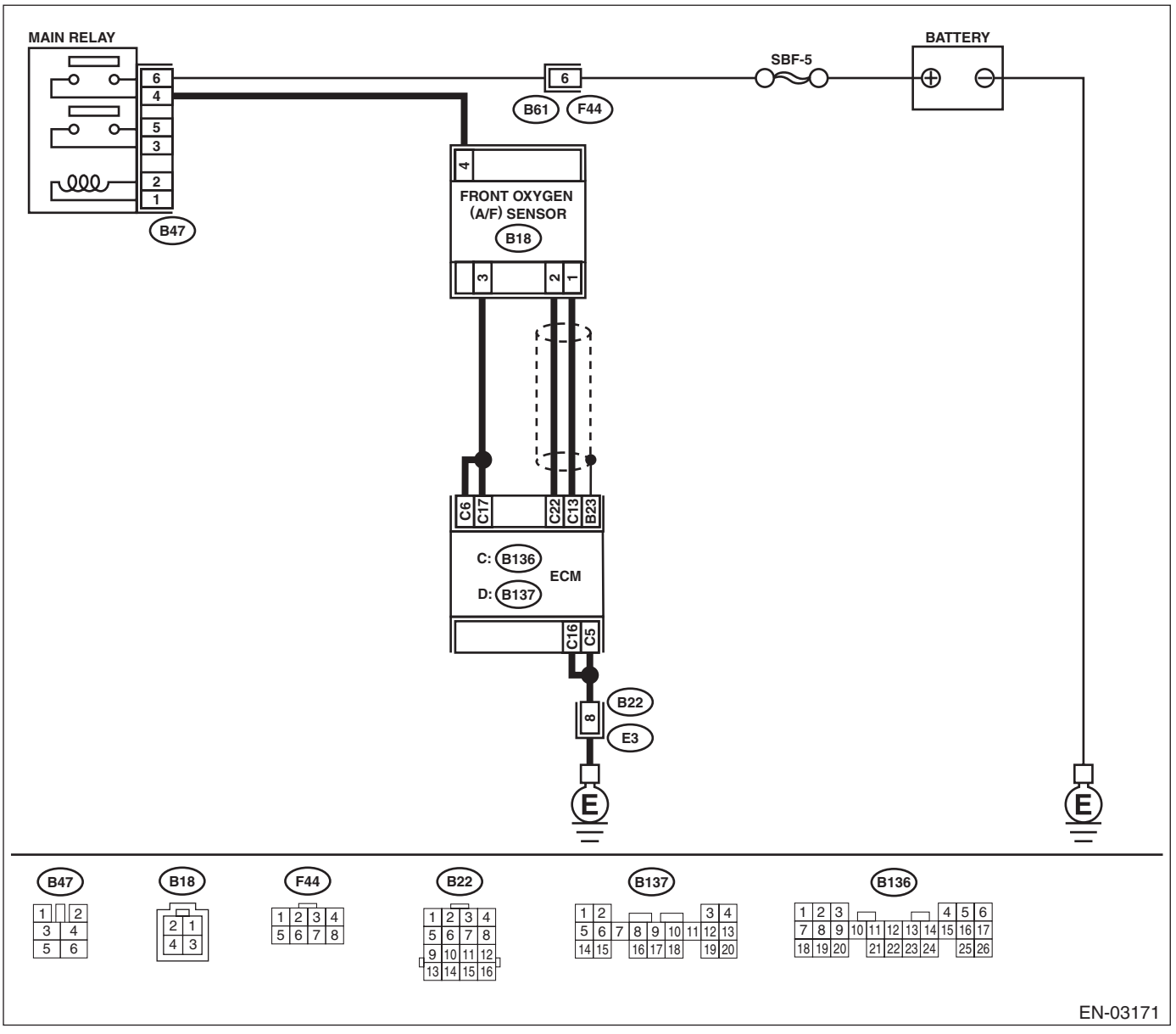
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure voltage of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 13 (+) — Chassis ground (-):*** ***(B136) No. 22 (+) — Chassis ground (-):***	Is the measured value more than 8 V?	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>	Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.

Z: DTC P0133 — O2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



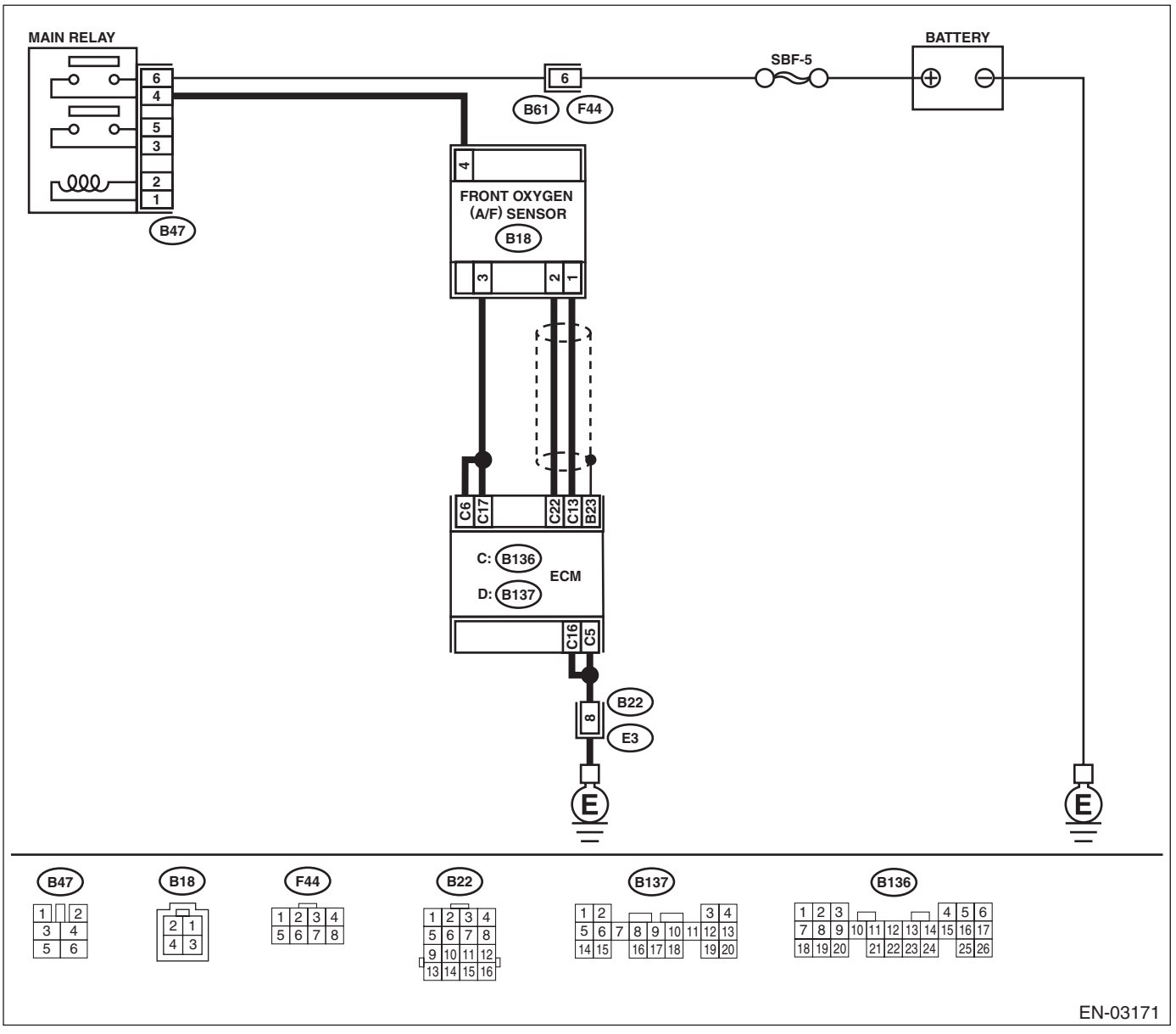
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0133.	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.** NOTE: Check the following items. •Loose installation of front portion of exhaust pipe onto cylinder heads •Loose connection between front exhaust pipe and front catalytic converter •Damage of exhaust pipe resulting in a hole	Is there any malfunction in exhaust system?	Repair exhaust system.	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>

AA:DTC P0134 — O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



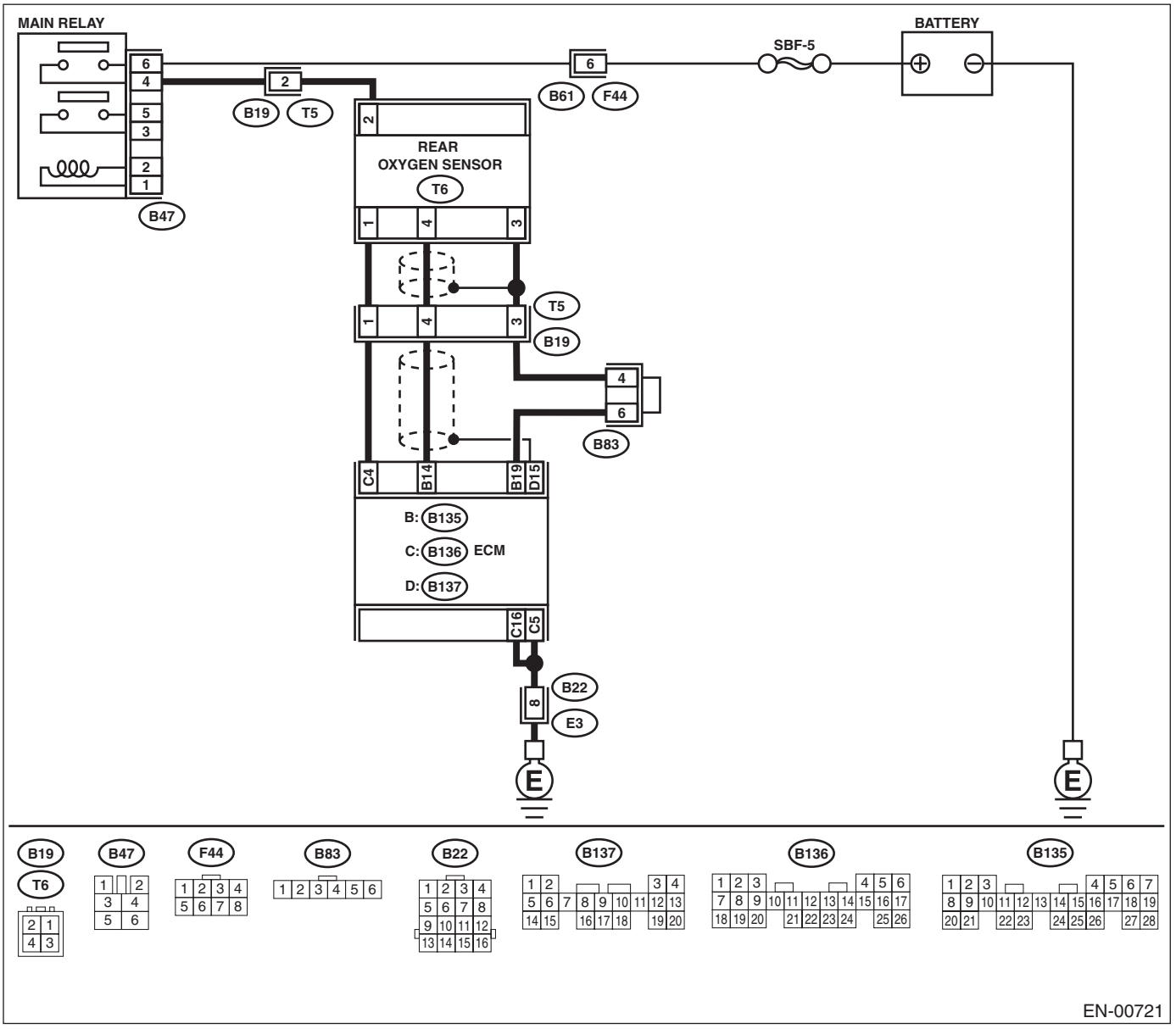
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 13 — (E18) No. 1:*** ***(B136) No. 22 — (B18) No. 2:***	Is the measured value less than 1 Ω?	Go to step **2.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and fornt oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector
2	**CHECK POOR CONTACT.** Chack poor contact in front oxygen (A/F) sensor connector.	Is there poor contact in front oxygen (A/F) sensor connector?	Repair poor contact in front oxygen (A/F) sensor connector.	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>

AB:DTC P0137 — O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



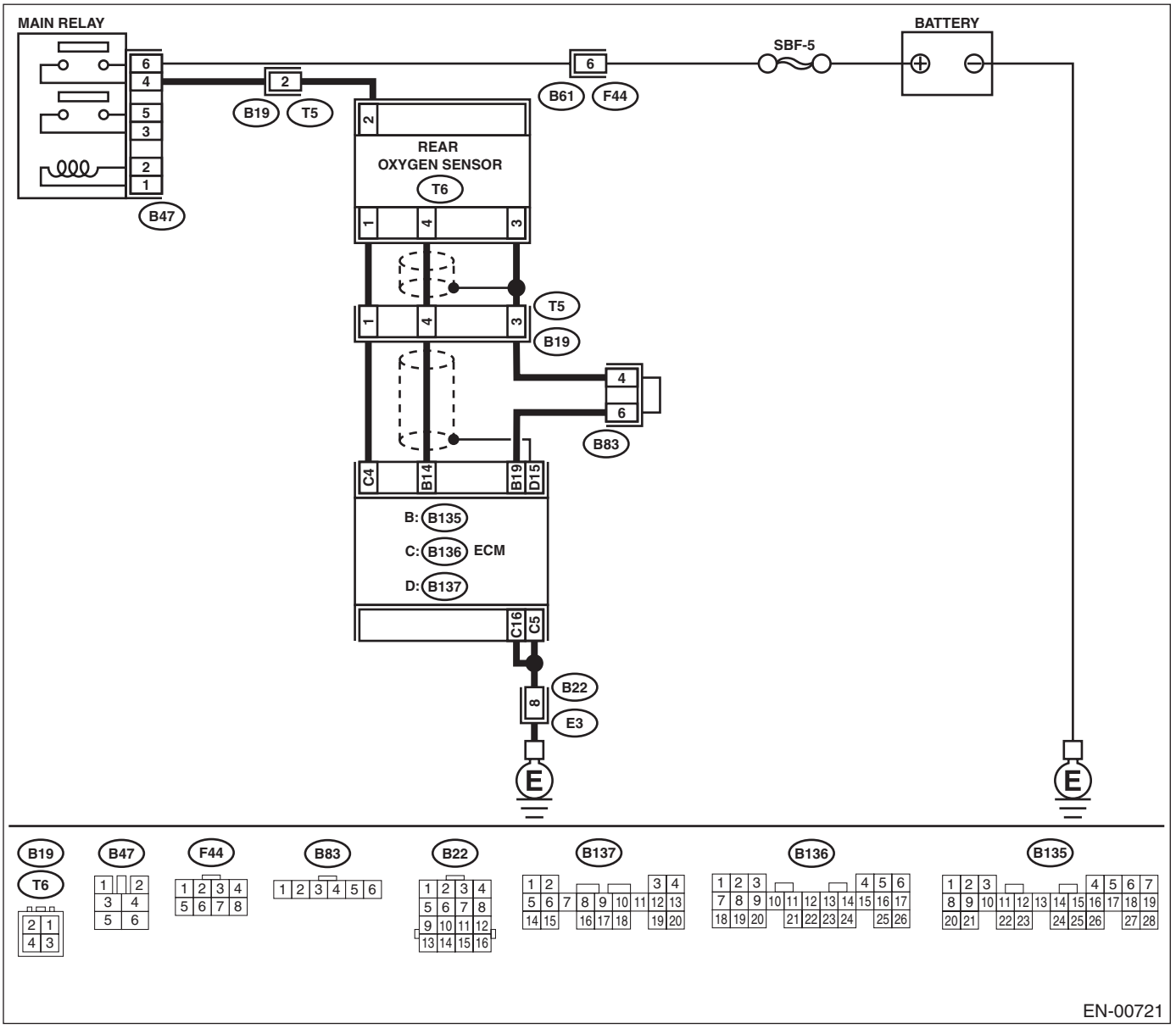
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Does the Subaru Select Monitor or general scan tool indicate DTC P0131, P0132 or P0134?	Repair referring procedure for P0131, P0132 and P0134. NOTE: In this case, checking procedure for P0137 is not necessary.	Go to step **2.**
2	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and keep the engine speed at 5,000 rpm for two minutes. 2) Read data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value 490 mV?	Go to step **5.**	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and rear oxygen sensor. 3) Measure resistance of harness between ECM and rear oxygen sensor connector. ***Connector & terminal*** ***(B135) No. 14 — (T6) No. 4:*** ***(B135) No. 19 — (T6) No. 3:***	Is the measured value more than 3 Ω?	Repair open circuit in harness between ECM and rear oxygen sensor connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from rear oxygen sensor. 3) Turn ignition switch to ON. 4) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground. ***Connector & terminal*** ***(T6) No. 4 (+) — Engine ground (−):***	Is the measured value within 0.2 to 0.5 V?	Replace rear oxygen sensor. <Ref. to FU(H4SO)-44, Rear Oxygen Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between rear oxygen sensor and ECM connector • Poor contact in rear oxygen sensor connector • Poor contact in ECM connector
5	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loose installation of portions •Damage (crack, hole etc.) of parts •Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there any malfunction in exhaust system?	Repair or replace malfunctioning parts.	Replace rear oxygen sensor. <Ref. to FU(H4SO)-44, Rear Oxygen Sensor.>

AC:DTC P0138 — O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTCX displayed?	Check DTC referring "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, CHECKING procedure for P0138 is not necessary.	Go to step **3.**
2	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and race engine until the engine speed reaches to 5,000 rpm and release accelerator pedal rapidly. 2) Read data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value 250 mV?	Go to step **5.**	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and rear oxygen sensor. 3) Measure resistance of harness between ECM and rear oxygen sensor connector. ***Connector & terminal*** ***(B135) No. 14 — (T6) No. 4:*** ***(B135) No. 19 — (T6) No. 3:***	Is the measured value more than 3 Ω?	Repair open circuit in harness between ECM and rear oxygen sensor connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from rear oxygen sensor. 3) Turn ignition switch to ON. 4) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground. ***Connector & terminal*** ***(T6) No. 4 (+) — Engine ground (−):***	Is the measured value within 0.2 to 0.5 V?	Replace rear oxygen sensor. <Ref. to FU(H4SO)-44, Rear Oxygen Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between rear oxygen sensor and ECM connector • Poor contact in rear oxygen sensor connector • Poor contact in ECM connector

Step		Check	Yes	No
5	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loose installation of portions •Damage (crack, hole etc.) of parts •Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there any malfunction in exhaust system?	Repair or replace malfunctioning parts.	Replace rear oxygen sensor. <Ref. to FU(H4SO)-44, Rear Oxygen Sensor.>

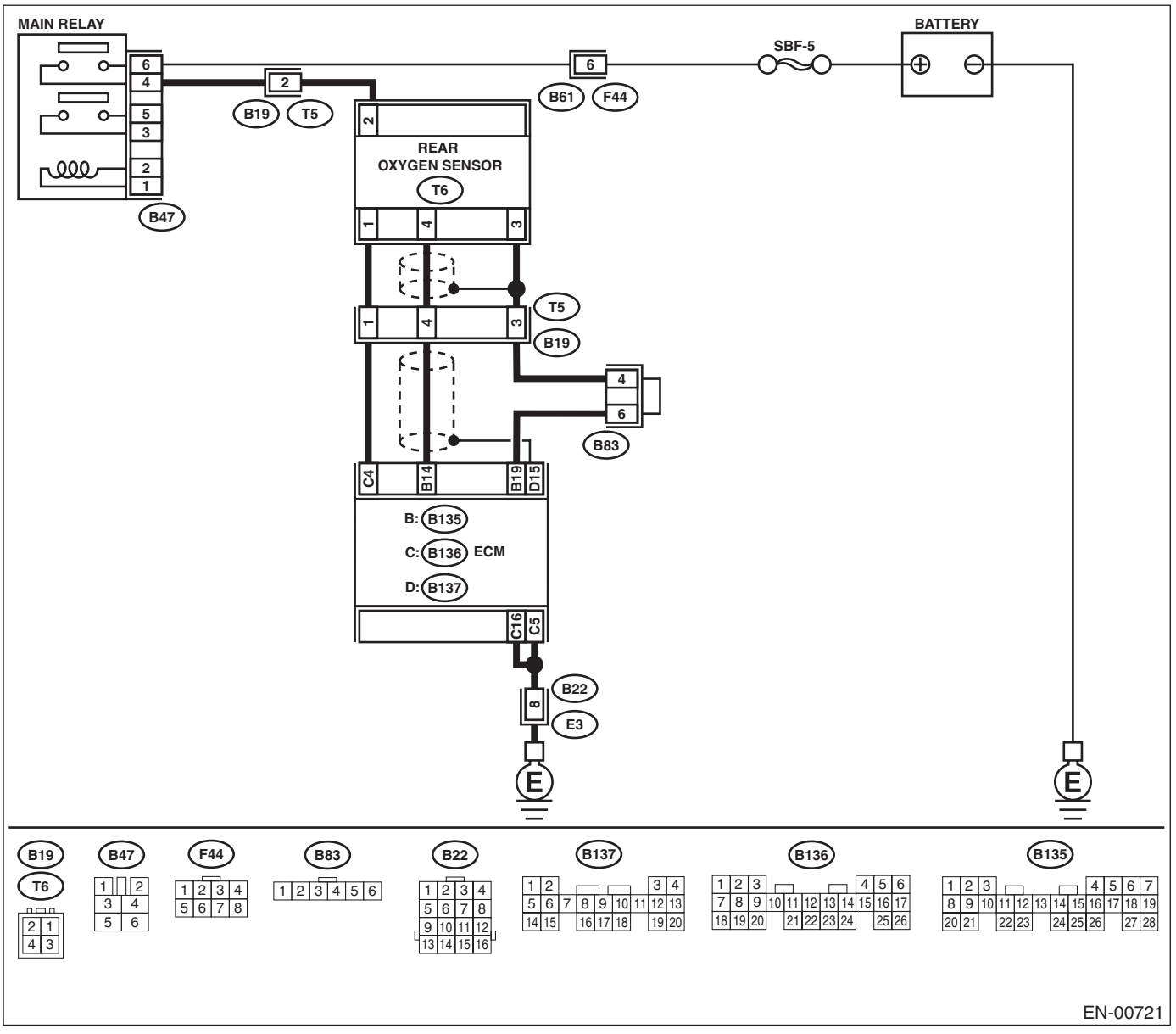
MEMO:

AD:DTC P0139 — O2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0139.	Replace rear oxygen sensor. <Ref. to FU(H4SO)-44, Rear Oxygen Sensor.>

AE:DTC P0171 — SYSTEM TOO LEAN (BANK 1) —

NOTE:
For the diagnostic procedure, refer to DTC P0172. <Ref. to EN(H4SO)-170, DTC P0172 — SYSTEM TOO RICH (BANK 1) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AF:DTC P0172 — SYSTEM TOO RICH (BANK 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.**	Are there holes or loose bolts on exhaust system?	Repair exhaust system.	Go to step **3.**
3	**CHECK EGR VALVE.**	Is EGR valve clogged?	Replace EGR valve.	Go to step **4.**
4	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair air intake system.	Go to step **5.**
5	**CHECK PURGE CONTROL SOLENOID VALVE.**	Is purge control solenoid valve clogged?	Replace purge control solenoid valve.	Go to step **6.**
6	**CHECK PCV VALVE.**	Is PCV valve clogged?	Replace PCV valve.	Go to step **7.**

	Step	Check	Yes	No
7	**CHECK FUEL PRESSURE.** **Warning:** **•Place "NO FIRE" signs near the working area.** **•Be careful not to spill fuel on the floor.** 1) Release fuel pressure. (1) Disconnect connector from fuel pump relay. (2) Start the engine and run it until it stalls. (3) After the engine stalls, crank it for five more seconds. (4) Turn ignition switch to OFF. 2) Connect connector to fuel pump relay. 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4) Install fuel filler cap. 5) Start the engine and idle while gear position is neutral. 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. **Warning:** **Before removing fuel pressure gauge, release fuel pressure.** NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.	Is the measured value within 284 to 314 kPa (2.9 to 3.2 kg/cm^2, 41 to 46 psi)?	Go to step **8.**	Repair the following items. **Fuel pressure too high** • Clogged fuel return line or bent hose **Fuel pressure too low** • Improper fuel pump discharge • Clogged fuel supply line
8	**CHECK FUEL PRESSURE.** After connecting pressure regulator vacuum hose, measure fuel pressure. **Warning:** **Before removing fuel pressure gauge, release fuel pressure.** NOTE: •If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. •If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.	Is the measured value within 206 to 235 kPa (2.1 to 2.4 kg/cm^2, 30 to 34 psi)?	Go to step **9.**	Repair the following items. **Fuel pressure too high** • Malfunctioning pressure regulator • Clogged fuel return line or bent hose **Fuel pressure too low** • Malfunctioning pressure regulator • Improper fuel pump discharge • Clogged fuel supply line

	Step	Check	Yes	No
9	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm-up completely. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 70 to 100°C (158 to 212°F)?	Go to step **10.**	Replace engine coolant temperature sensor. <Ref. to FU(H4SO)-27, Engine Coolant Temperature Sensor.>
10	**CHECK INTAKE MANIFOLD PRESSURE SENSOR SIGNAL.** 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the selector lever in "N" or "P" position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 24.0 to 41.3 kPa (180 to 310 mmHg, 7.09 to 12.20 inHg) when idling or within 73.3 to 106.6 kPa (550 to 800 mmHg, 21.65 to 31.50 inHg) when turning ignition switch ON?	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Replace intake air temperature and pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>

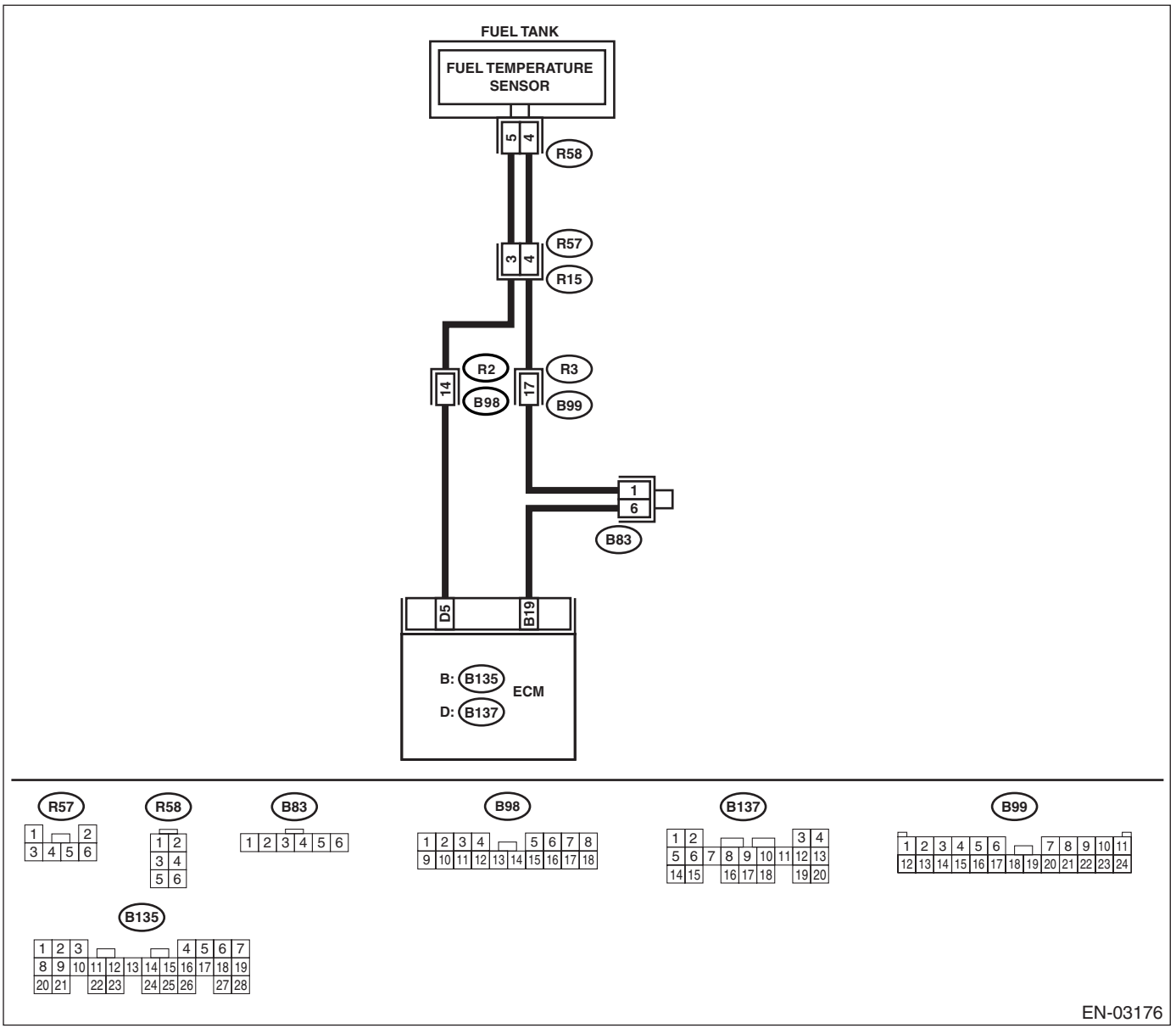
MEMO:

AG:DTC P0181 — FUEL TEMPERATURE SENSOR “A” CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



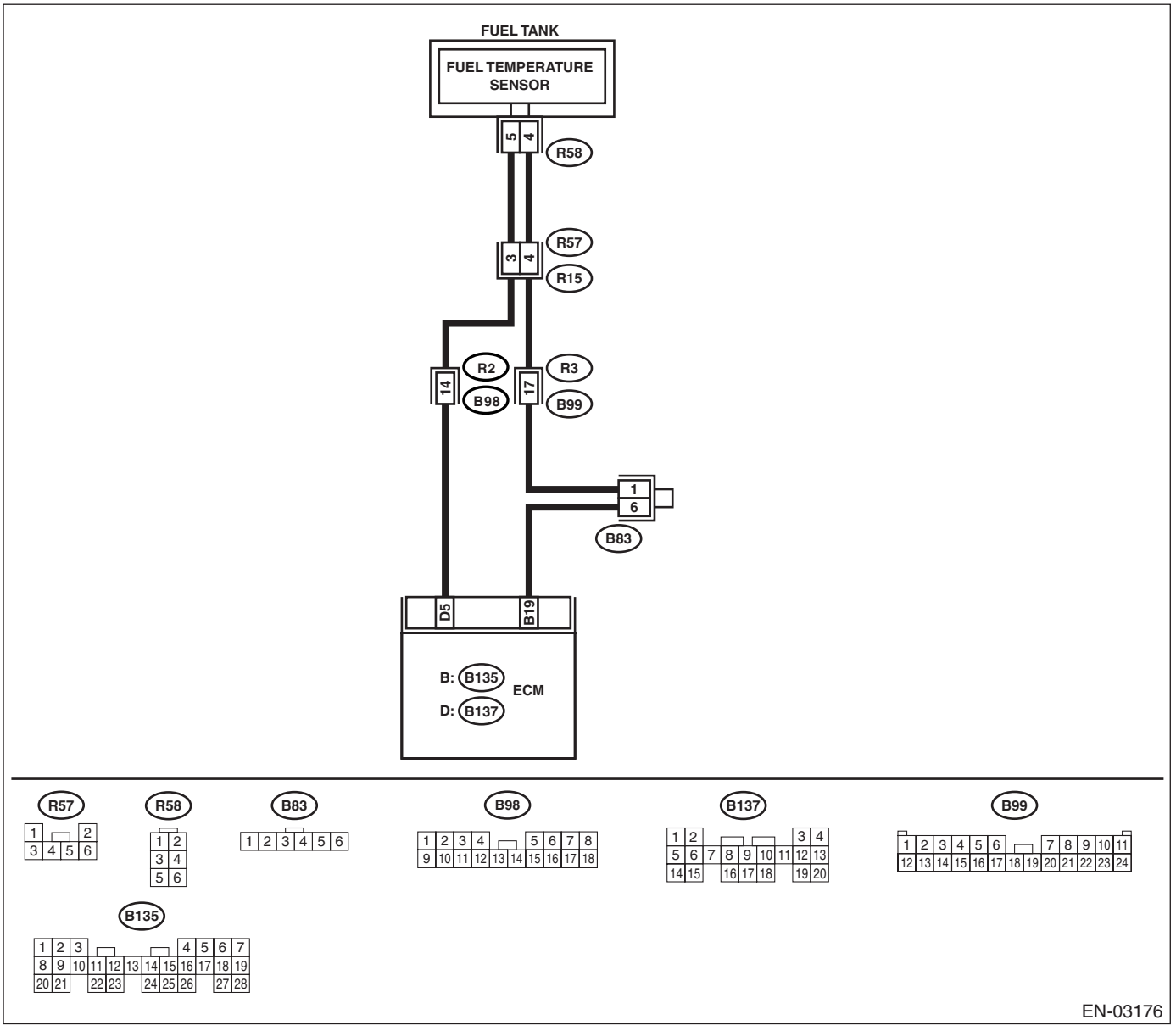
Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0181.	Replace fuel temperature sensor. <Ref. to EC(H4SO)-9, Fuel Temperature Sensor.>

AH:DTC P0182 — FUEL TEMPERATURE SENSOR "A" CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-03176

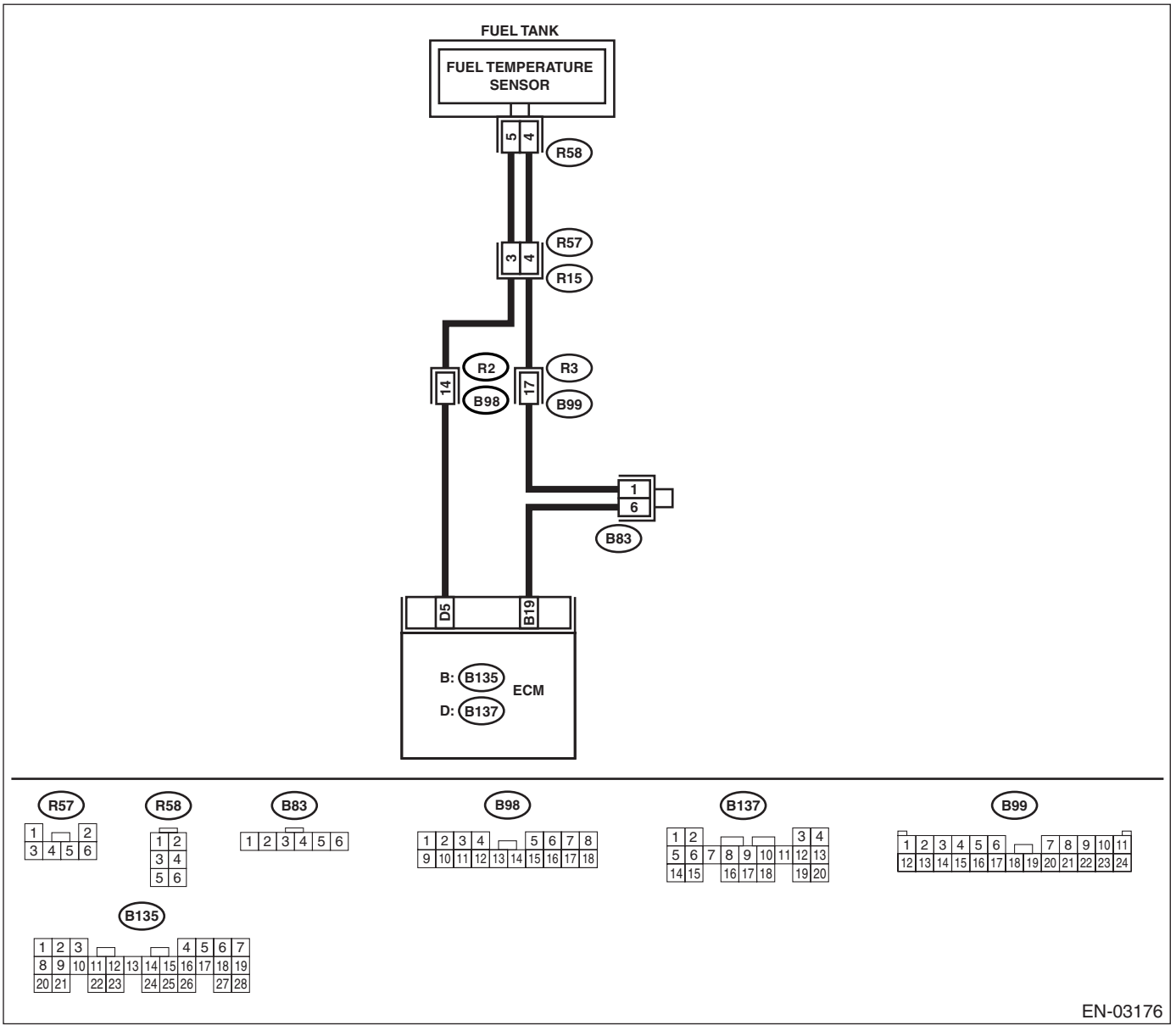
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of fuel temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 150°C (302°F)?	Go to step **2.**	Even if MIL lights up, the circuit has returned to a normal condition at this time.
2	**CHECK CURRENT DATA.** 1) Turn ignition switch to OFF. 2) Remove access hole lid. 3) Disconnect connector from fuel pump. 4) Turn ignition switch to ON. 5) Read data of fuel temperature sensor signal using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than –40°C (–40°F)?	Replace fuel temperature sensor. <Ref. to EC(H4SO)-9, Fuel Temperature Sensor.>	Repair ground short circuit in harness between fuel pump and ECM connector.

AI: DTC P0183 — FUEL TEMPERATURE SENSOR “A” CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of fuel temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than –40°C (–40°F)?	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in fuel pump connector • Poor contact in ECM connector • Poor contact in coupling connectors • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Remove access hole lid. 3) Disconnect connector from fuel pump. 4) Measure voltage between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 5 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and fuel pump connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 5 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and fuel pump connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure voltage between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 5 (+) — Chassis ground (–):***	Is the measured value more than 4 V?	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and fuel pump connector • Poor contact in fuel pump connector • Poor contact in ECM connector • Poor contact in coupling connectors

Step		Check	Yes	No
5	**CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 4 — Chassis ground:***	Is the measured value less than 5 Ω?	Replace fuel temperature sensor. <Ref. to EC(H4SO)-9, Fuel Temperature Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and fuel pump connector • Poor contact in fuel pump connector • Poor contact in ECM connector • Poor contact in coupling connectors • Poor contact in joint connector

AJ:DTC P0301 — CYLINDER 1 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4SO)-182, DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AK:DTC P0302 — CYLINDER 2 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4SO)-182, DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AL:DTC P0303 — CYLINDER 3 MISFIRE DETECTED —

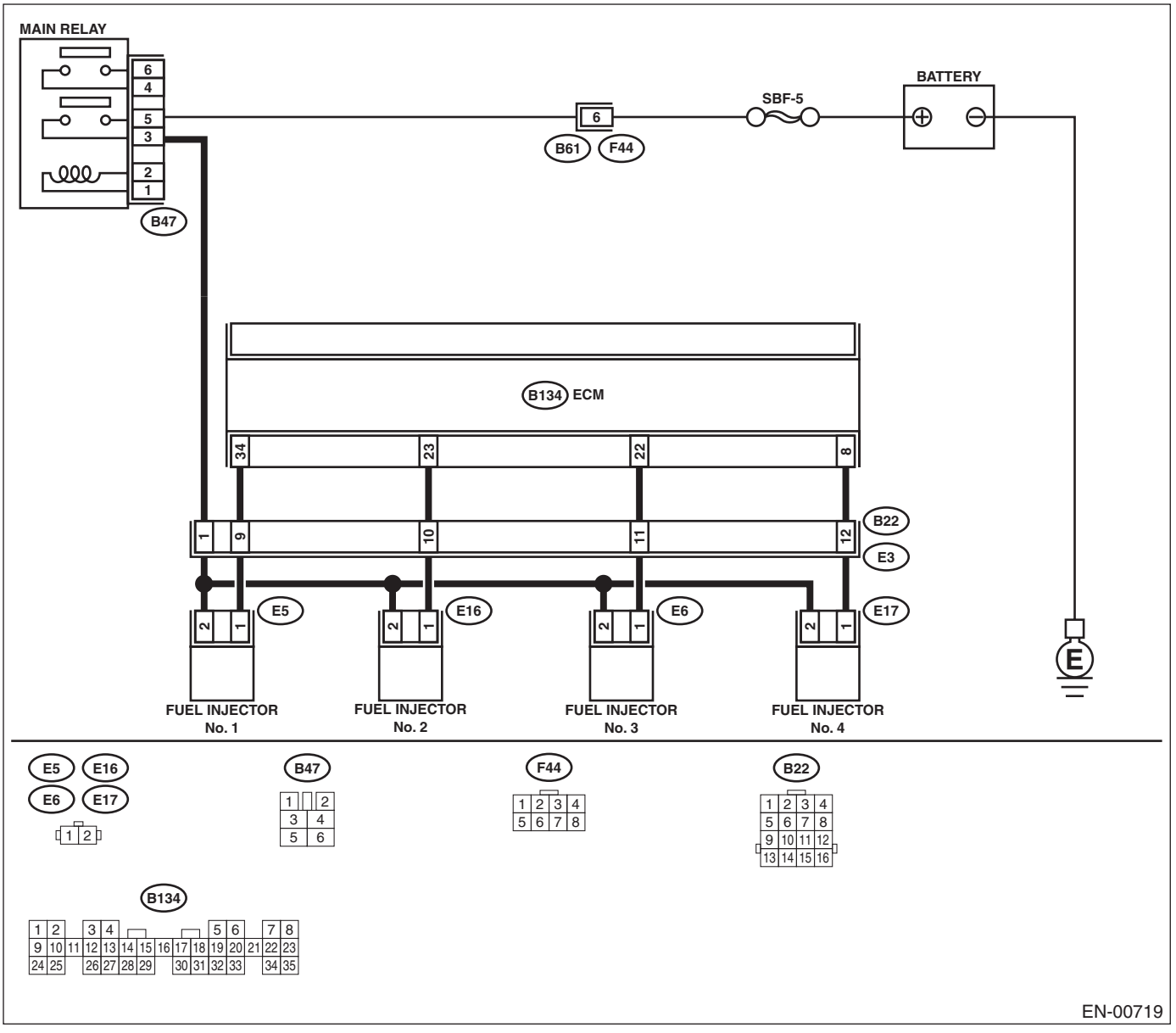
NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4SO)-182, DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AM:DTC P0304 — CYLINDER 4 MISFIRE DETECTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
  - Detected simultaneously at occurrence of malfunction. (When a misfire which could damage catalyst occurs.)
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Erroneous idling
  - Rough driving

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0301, P0302, P0303 and P0304.	Go to step **2.**
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground on malfunctioning cylinders. ***Connector & terminal*** ***#1 (B134) No. 34 (+) — Chassis ground (–):*** ***#2 (B134) No. 23 (+) — Chassis ground (–):*** ***#3 (B134) No. 22 (+) — Chassis ground (–):*** ***#4 (B134) No. 8 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Go to step **7.**	Go to step **3.**
3	**CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on malfunctioning cylinders. 3) Measure voltage between ECM connector and engine ground on malfunctioning cylinders. ***Connector & terminal*** ***#1 (E5) No. 1 — Engine ground:*** ***#2 (E16) No. 1 — Engine ground:*** ***#3 (E6) No. 1 — Engine ground:*** ***#4 (E17) No. 1 — Engine ground:***	Is the measured value less than 10 Ω?	Repair ground short circuit in harness between fuel injector and ECM connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.** Measure resistance of harness connector between ECM connector and fuel injector on malfunctioning cylinders. ***Connector & terminal*** ***#1 (B134) No. 34 — (E5) No. 1:*** ***#2 (B134) No. 23 — (E16) No. 1:*** ***#3 (B134) No. 22 — (E6) No. 1:*** ***#4 (B134) No. 18 — (E17) No. 1:***	Is the measured value less than 1 Ω?	Go to step **5.**	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
5	**CHECK FUEL INJECTOR.** Measure resistance between fuel injector terminals on malfunctioning cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 5 to 20 Ω?	Go to step **6.**	Replace faulty fuel injector. <Ref. to FU(H4SO)-38, Fuel Injector.>

	Step	Check	Yes	No
6	**CHECK POWER SUPPLY LINE.** 1) Turn ignition switch to ON. 2) Measure voltage between fuel injector and engine ground on malfinctioning cylinders. ***Connector & terminal*** ***#1 (E5) No. 2 (+) — Engine ground (–):*** ***#2 (E16) No. 2 (+) — Engine ground (–):*** ***#3 (E6) No. 2 (+) — Engine ground (–):*** ***#4 (E17) No. 2 (+) — Engine ground (–):***	Is the measured value more than 10 V?	Repair poor contact in all connectors in fuel injector circuit.	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between main relay and fuel injector connector on malfunctioning cylinders • Poor contact in coupling connector • Poor contact in main relay connector • Poor contact in fuel injector connector on malfunctioning cylinders
7	**CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on malfunctioning cylinder. 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground on malfunctioning cylinders. ***Connector & terminal*** ***#1 (B134) No. 34 (+) — Chassis ground (–):*** ***#2 (B134) No. 23 (+) — Chassis ground (–):*** ***#3 (B134) No. 22 (+) — Chassis ground (–):*** ***#4 (B134) No. 8 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **8.**
8	**CHECK FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on malfunctioning cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value less than 1 Ω?	Replace malfunctioning fuel injector <Ref. to FU(H4SO)-38, Fuel Injector.> and ECM <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **9.**
9	**CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.**	Is camshaft position sensor or crankshaft position sensor loosely installed?	Tighten camshaft position sensor or crankshaft position sensor.	Go to step **10.**
10	**CHECK CRANKSHAFT SPROCKET.** Remove timing belt cover.	Is crankshaft sprocket rusted or does it have broken teeth?	Replace crankshaft sprocket. <Ref. to ME(H4SO)-50, Crankshaft Sprocket.>	Go to step **11.**

	Step	Check	Yes	No
11	**CHECK INSTALLATION CONDITION OF TIMING BELT.** Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block.	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <Ref. to ME(H4SO)-44, Timing Belt.>	Go to step **12.**
12	**CHECK FUEL LEVEL.**	Is the fuel meter indication higher than the “Lower” level?	Go to step **13.**	Replenish fuel so fuel meter indication is higher than the “Lower” level. After replenishing fuel, Go to step **13.**
13	**CHECK STATUS OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).** 1) Clear memory using Subaru Select Monitor. <Ref. to EN(H4SO)-50, Clear Memory Mode.> 2) Start engine, and drive the vehicle more than 10 minutes.	Is the MIL coming on or blinking?	Go to step **15.**	Go to step **14.**
14	**CHECK CAUSE OF MISFIRE DIAGNOSED.** NOTE: Disconnected spark plug code, etc.	Was the cause of misfire diagnosed when the engine is running?	Finish diagnostics operation, if the engine has no abnormality.	(1) Repair poor contact. NOTE: In this case, repair the following: • Poor contact in ignitor connector • Poor contact in ignition coil connector • Poor contact in fuel injector connector on malfunctioning cylinders • Poor contact in ECM connector • Poor contact in coupling connector (2) If there is no poor contact, contact SOA (distributor). Before contacting, the following items must be checked: • Fuel for condition • Fuel additives • Spark plug for condition • Plug code for condition • Engine oil for condition

Step		Check	Yes	No
15	**CHECK AIR INTAKE SYSTEM.**	Is there any malfunction in air intake system?	Repair air intake system. NOTE: Check the following items: • Are there air leaks or air suction caused by loose or dislocated nuts and bolts? • Are there cracks or any disconnection of hoses?	Go to step **16.**
16	**CHECK MISFIRE SYMPTOM.** 1) Turn ignition switch to ON. 2) Read diagnostic trouble code (DTC). •Subaru Select Monitor <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Operation Manual. NOTE: Perform diagnosis according to the items listed below.	Does the Subaru Select Monitor or general scan tool indicate only one DTC?	Go to step **21.**	Go to step **17.**
17	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.**	Does the Subaru Select Monitor or general scan tool indicate DTC P0301 and P0302?	Go to step **22.**	Go to step **18.**
18	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.**	Does the Subaru Select Monitor or general scan tool indicate DTC P0303 and P0304?	Go to step **23.**	Go to step **19.**
19	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.**	Does the Subaru Select Monitor or general scan tool indicate DTC P0301 and P0303?	Go to step **24.**	Go to step **20.**
20	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.**	Does the Subaru Select Monitor or general scan tool indicate DTC P0302 and P0304?	Go to step **25.**	Go to step **26.**
21	**ONLY ONE CYLINDER**	Is there any malfunction in that cylinder?	Repair or replace malfunctioning parts. NOTE: Check the following items. • Spark plug • Spark plug cord • Fuel injector • Compression ratio	Go to DTC P0171. <Ref. to EN(H4SO)-170, DTC P0171 — SYSTEM TOO LEAN (BANK 1) — , Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Step		Check	Yes	No
22	GROUP OF #1 AND #2 CYLINDERS	Are there malfunctions in #1 and #2 cylinders?	Repair or replace malfunctioning parts. NOTE: • Check the following items. • Spark plugs • Fuel injectors • Ignition coil • Compression ratio • If no abnormal is discovered, check for “IGNITION CONTROL SYSTEM” of #1 and #2 cylinders side. <Ref. to EN(H4SO)-74, IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	Go to DTC P0171. <Ref. to EN(H4SO)-170, DTC P0171 — SYSTEM TOO LEAN (BANK 1) — , Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
23	GROUP OF #3 AND #4 CYLINDERS	Are there malfunctions in #3 and #4 cylinders?	Repair or replace malfunctioning parts. NOTE: • Check the following items. • Spark plugs • Fuel injectors • Ignition coil • If no abnormal is discovered, check for “16. D: IGNITION CONTROL SYSTEM” of #3 and #4 cylinders side. <Ref. to EN(H4SO)-74, IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	Go to DTC P0171. <Ref. to EN(H4SO)-170, DTC P0171 — SYSTEM TOO LEAN (BANK 1) — , Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
24	GROUP OF #1 AND #3 CYLINDERS	Are there malfunctions in #1 and #3 cylinders?	Repair or replace malfunctioning parts. NOTE: Check the following items. • Spark plugs • Fuel injectors • Skipping timing belt teeth	Go to DTC P0171. <Ref. to EN(H4SO)-170, DTC P0171 — SYSTEM TOO LEAN (BANK 1) — , Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Step		Check	Yes	No
25	GROUP OF #2 AND #4 CYLINDERS	Are there malfunctions in #2 and #4 cylinders?	Repair or replace malfunctioning parts. NOTE: Check the following items. • Spark plugs • Fuel injectors • Compression ratio • Skipping timing belt teeth	Go to DTC P0171. <Ref. to EN(H4SO)-170, DTC P0171 — SYSTEM TOO LEAN (BANK 1) — , Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
26	CYLINDER AT RANDOM	Is the engine idle unstable?	Go to DTC P0171. <Ref. to EN(H4SO)-170, DTC P0171 — SYSTEM TOO LEAN (BANK 1) — , Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Repair or replace malfunctioning parts. NOTE: Check the following items. • Spark plugs • Fuel injectors • Compression ratio

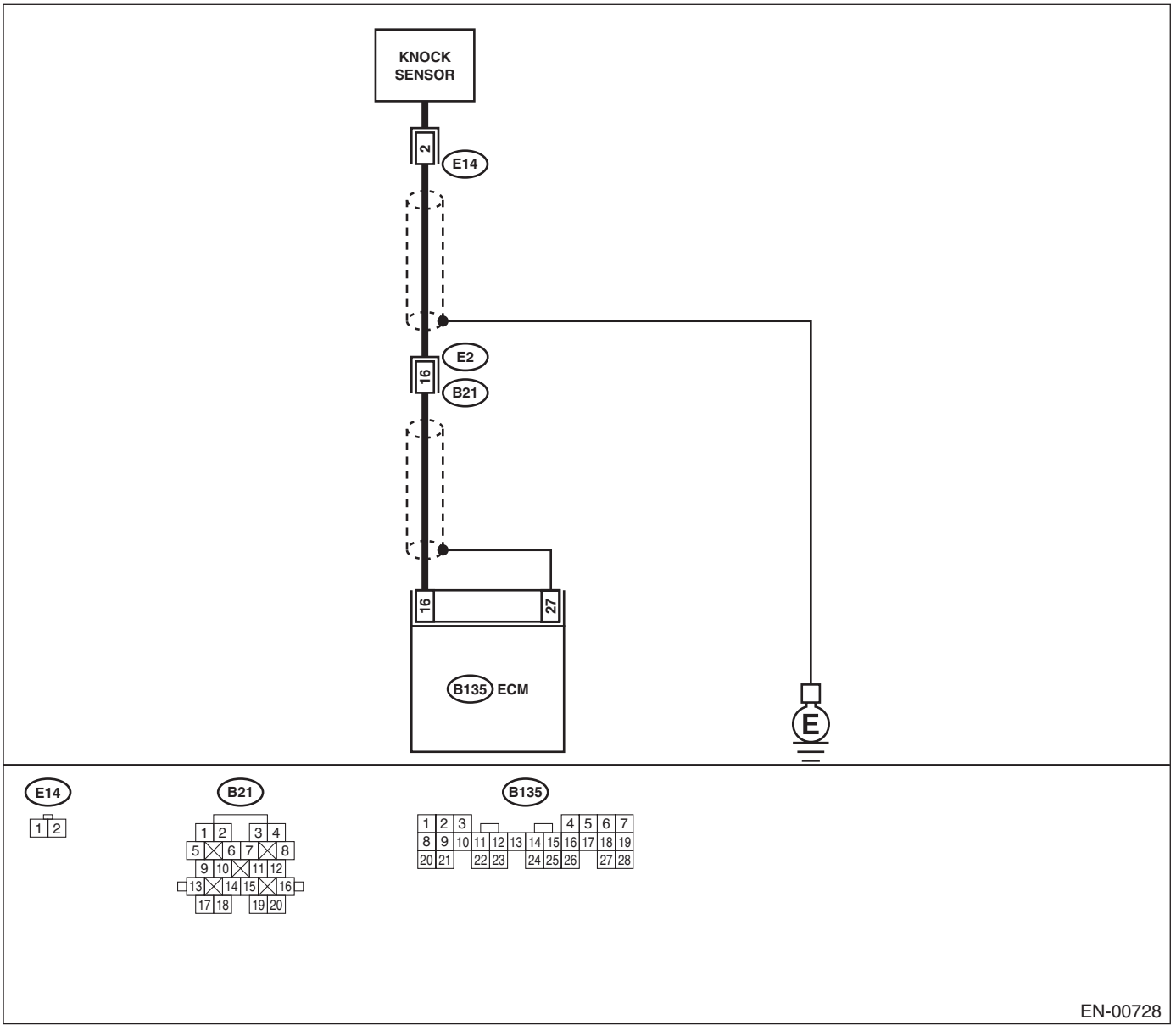
MEMO:

AN:DTC P0327 — KNOCK SENSOR 1 CIRCUIT LOW INPUT (BANK 1 OR SINGLE SENSOR) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Poor driving performance
  - Knocking occurs.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



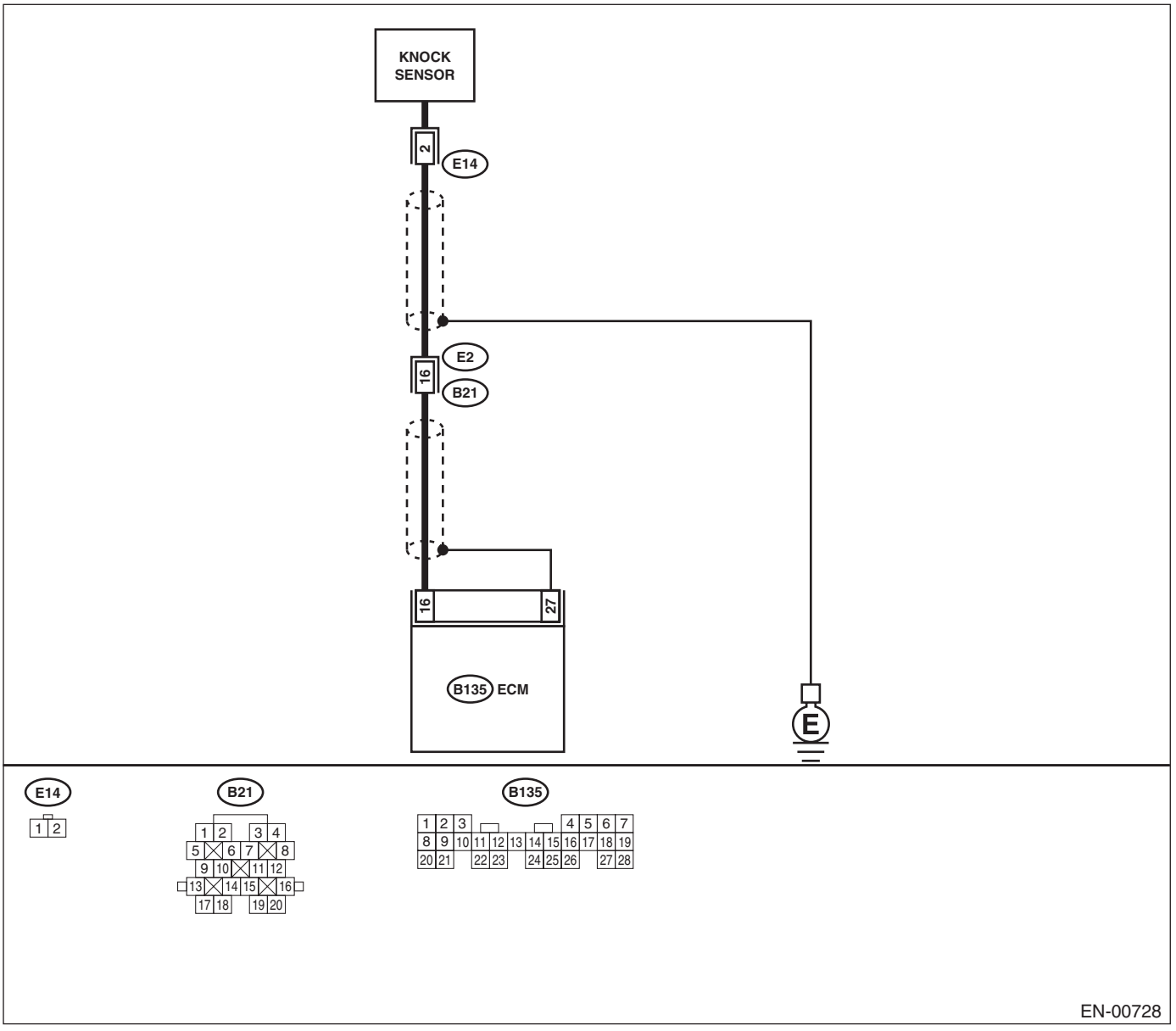
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance between ECM harness connector and chassis ground. ***Connector & terminal*** ***(B135) No. 16 — Chassis ground:***	Is the measured value more than 700 kΩ?	Go to step **2.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between knock sensor and ECM connector • Poor contact in knock sensor connector • Poor contact in coupling connector
2	**CHECK KNOCK SENSOR.** 1) Disconnect connector from knock sensor. 2) Measure resistance between knock sensor connector terminal and engine ground. ***Terminal*** ***No. 2 — Engine ground:***	Is the measured value more than 700 kΩ?	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between knock sensor and ECM connector • Poor contact in knock sensor connector • Poor contact in coupling connector
3	**CHECK CONDITION OF KNOCK SENSOR INSTALLATION.**	Is the knock sensor installation bolt tightened securely?	Replace knock sensor. <Ref. to FU(H4SO)-30, Knock Sensor.>	Tighten knock sensor installation bolt securely.

AO:DTC P0328 — KNOCK SENSOR 1 CIRCUIT HIGH INPUT (BANK 1 OR SINGLE SENSOR) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Poor driving performance
  - Knocking occurs.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



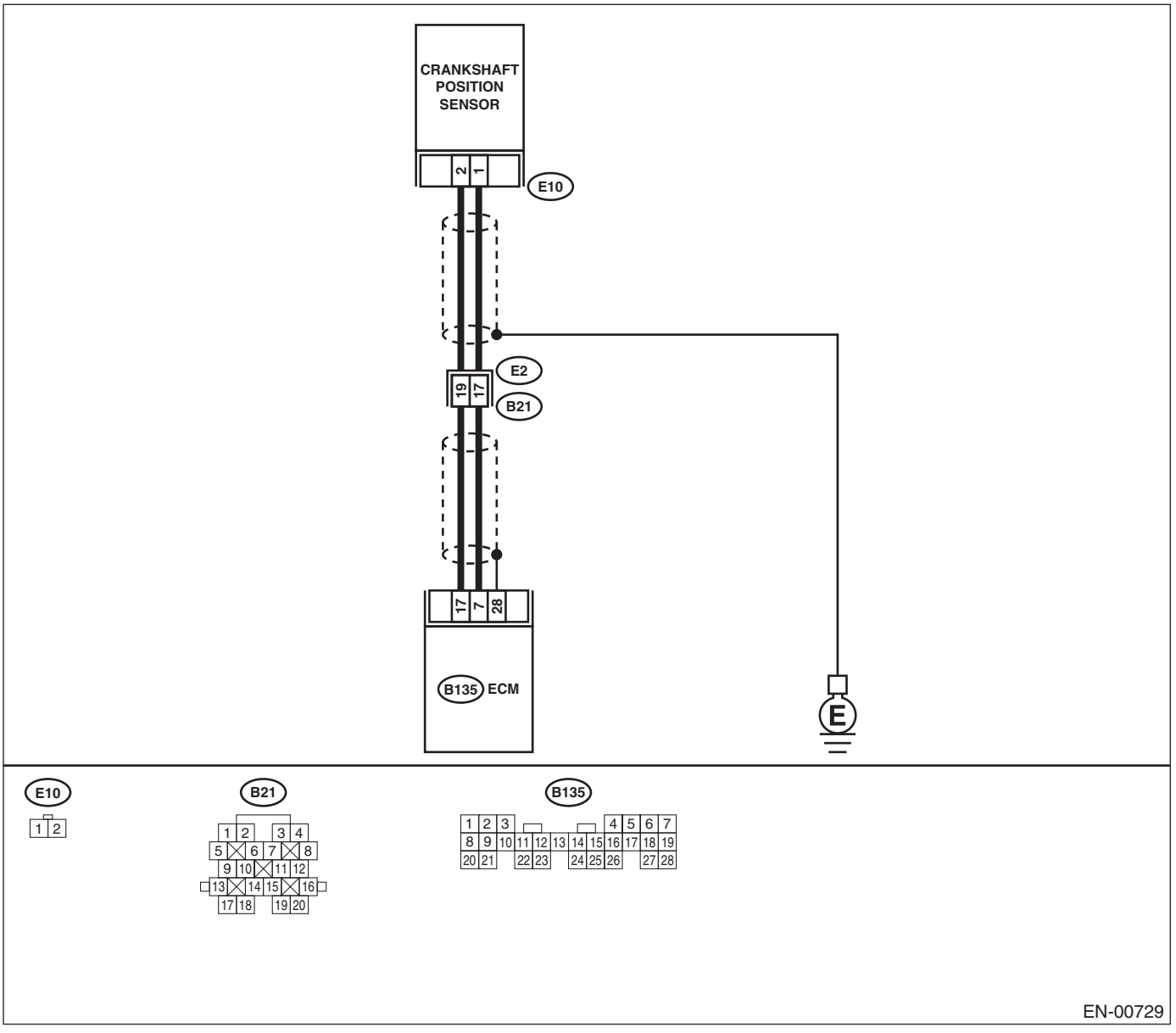
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.** Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 16 — Chassis ground:***	Is the measured value less than 400 kΩ?	Go to step **2.**	Go to step **3.**
2	**CHECK KNOCK SENSOR.** 1) Disconnect connector from knock sensor. 2) Measure resistance between knock sensor connector terminal and engine ground. ***Terminal*** ***No. 2 — Engine ground:***	Is the measured value less than 400 kΩ?	Replace knock sensor. <Ref. to FU(H4SO)-30, Knock Sensor.>	Repair ground short circuit in harness between knock sensor connector and ECM connector. NOTE: The harness between both connectors is shielded. Repair short circuit of harness together with shield.
3	**CHECK INPUT SIGNAL FOR ECM.** 1) Connect connectors to ECM and knock sensor. 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 16 (+) — Chassis ground (−):***	Is the measured value more than 2 V?	Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the following: • Poor contact in knock sensor connector • Poor contact in ECM connector • Poor contact in coupling connector	Repair poor contact in ECM connector.

AP:DTC P0335 — CRANKSHAFT POSITION SENSOR "A" CIRCUIT —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Engine does not start.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



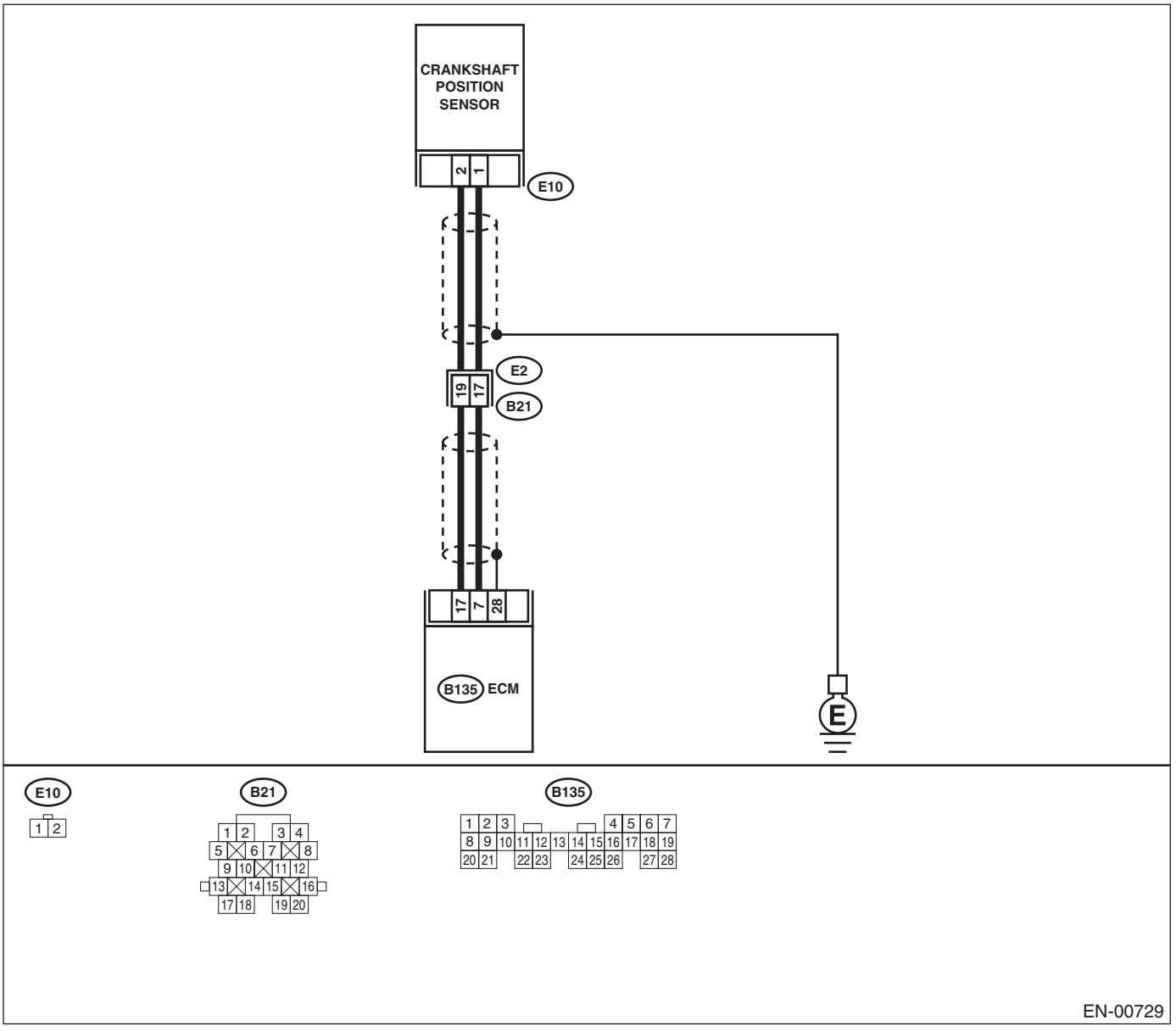
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from crankshaft position sensor. 3) Measure resistance of harness between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 1 — Engine ground:***	Is the measured value more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between crankshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector	Go to step **2.**
2	**CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure resistance of harness between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 1 — Engine ground:***	Is the measured value less than 10 Ω?	Repair ground short circuit in harness between crankshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.	Go to step **3.**
3	**CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure resistance of harness between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Go to step **4.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between crankshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector
4	**CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.**	Is the crankshaft position sensor installation bolt tightened securely?	Go to step **5.**	Tighten crankshaft position sensor installation bolt securely.
5	**CHECK CRANKSHAFT POSITION SENSOR.** 1) Remove crankshaft position sensor. 2) Measure resistance between connector terminals of crankshaft position sensor. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 1 to 4 kΩ?	Repair poor contact in crankshaft position sensor connector.	Replace crankshaft position sensor. <Ref. to FU(H4SO)-28, Crankshaft Position Sensor.>

AQ:DTC P0336 — CRANKSHAFT POSITION SENSOR “A” CIRCUIT RANGE/ PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Engine does not start.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



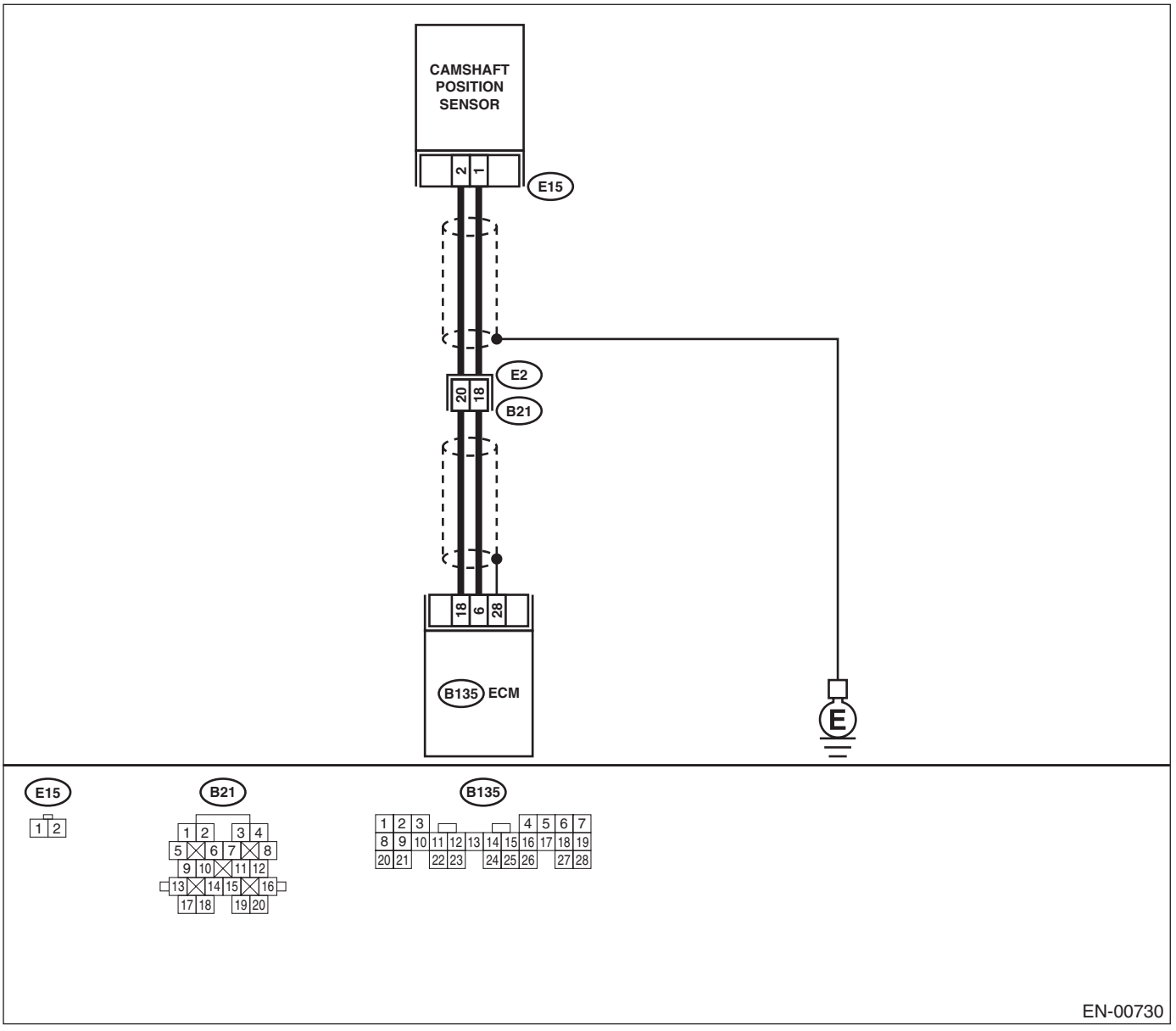
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect DTC P0335 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.** Turn ignition switch to OFF.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step **3.**	Tighten crankshaft position sensor installation bolt securely.
3	**CHECK CRANKSHAFT SPROCKET.** Remove front belt cover.	Are crankshaft sprocket teeth cracked or damaged?	Replace crankshaft sprocket. <Ref. to ME(H4SO)-50, Crankshaft Sprocket.>	Go to step **4.**
4	**CHECK INSTALLATION CONDITION OF TIMING BELT.** Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block.	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <Ref. to ME(H4SO)-44, Timing Belt.>	Replace crankshaft position sensor. <Ref. to FU(H4SO)-28, Crankshaft Position Sensor.>

AR:DTC P0340 — CAMSHAFT POSITION SENSOR “A” CIRCUIT (BANK 1 OR SINGLE SENSOR) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Engine does not start.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



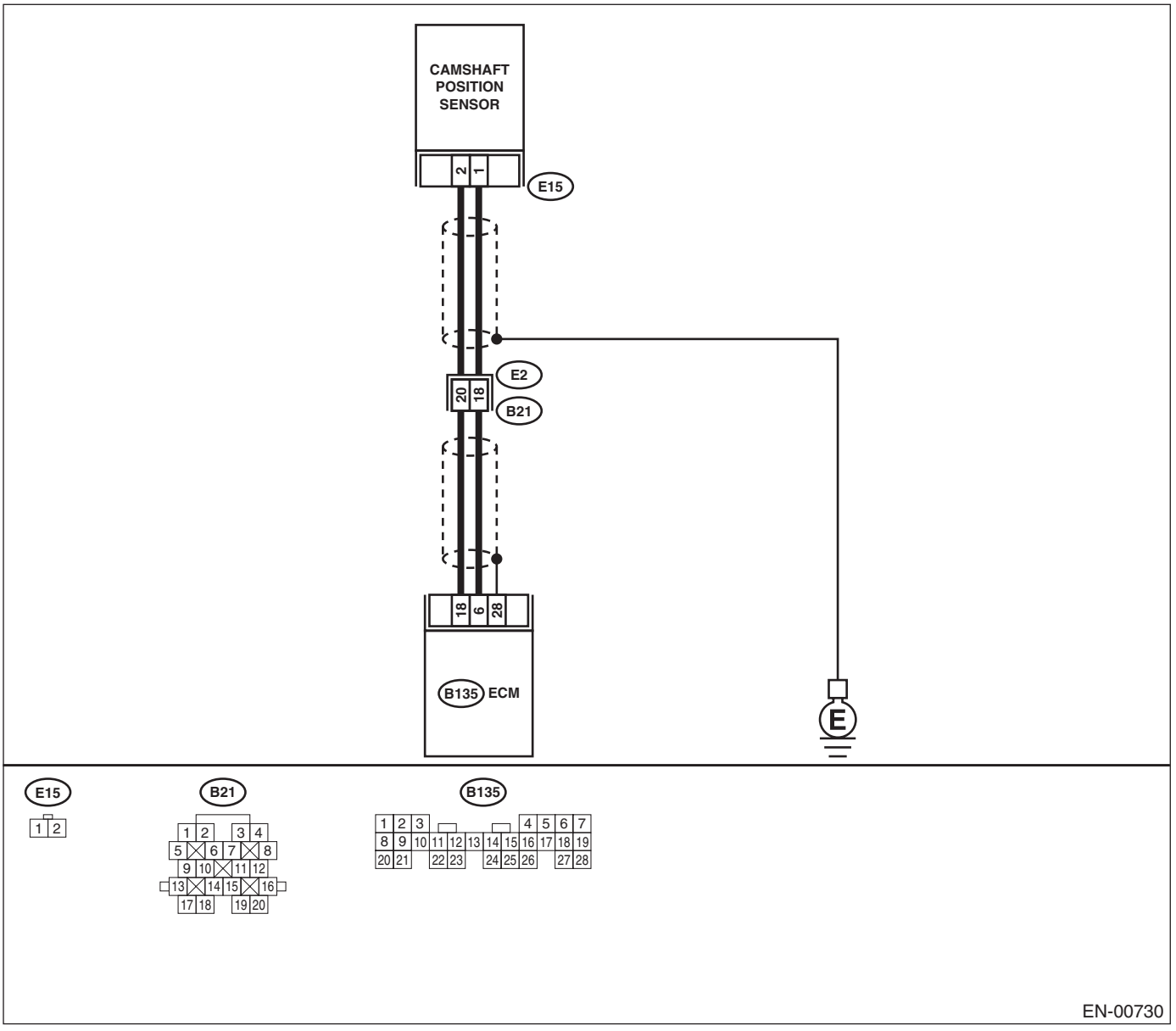
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from camshaft position sensor. 3) Measure resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:***	Is the measured value more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector	Go to step **2.**
2	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:***	Is the measured value less than 10 Ω?	Repair ground short circuit in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.	Go to step **3.**
3	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Go to step **4.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector
4	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.**	Is the camshaft position sensor installation bolt tightened securely?	Go to step **5.**	Tighten camshaft position sensor installation bolt securely.
5	**CHECK CAMSHAFT POSITION SENSOR.** 1) Remove camshaft position sensor. 2) Measure resistance between connector terminals of camshaft position sensor. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 1 to 4 kΩ?	Repair poor contact in camshaft position sensor connector.	Replace camshaft position sensor. <Ref. to FU(H4SO)-29, Camshaft Position Sensor.>

AS:DTC P0341 — CAMSHAFT POSITION SENSOR “A” CIRCUIT RANGE/PERFORMANCE (BANK 1 OR SINGLE SENSOR) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Engine does not start.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect DTC P0340 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from camshaft position sensor. 3) Measure resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:***	Is the measured value more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector	Go to step **3.**
3	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:***	Is the measured value less than 10 Ω?	Repair ground short circuit in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short circuit in harness together with shield.	Go to step **4.**
4	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector
5	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.**	Is the camshaft position sensor installation bolt tightened securely?	Go to step **6.**	Tighten camshaft position sensor installation bolt securely.
6	**CHECK CAMSHAFT POSITION SENSOR.** 1) Remove camshaft position sensor. 2) Measure resistance between connector terminals of camshaft position sensor. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 1 to 4 kΩ?	Go to step **7.**	Replace camshaft position sensor. <Ref. to FU(H4SO)-29, Camshaft Position Sensor.>

	Step	Check	Yes	No
7	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.** Turn ignition switch to OFF.	Is the camshaft position sensor installation bolt tightened securely?	Go to step **8.**	Tighten camshaft position sensor installation bolt securely.
8	**CHECK CAMSHAFT SPROCKET.** Remove front belt cover.	Are camshaft sprocket teeth cracked or damaged?	Replace camshaft sprocket. <Ref. to ME (H4SO)-, Camshaft Sprocket.>	Go to step **9.**
9	**CHECK INSTALLATION CONDITION OF TIMING BELT.** Turn camshaft using ST, and align alignment mark on camshaft sprocket with alignment mark on timing belt cover LH.	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <Ref. to ME(H4SO)-44, Timing Belt.>	Replace camshaft position sensor. <Ref. to FU(H4SO)-29, Camshaft Position Sensor.>

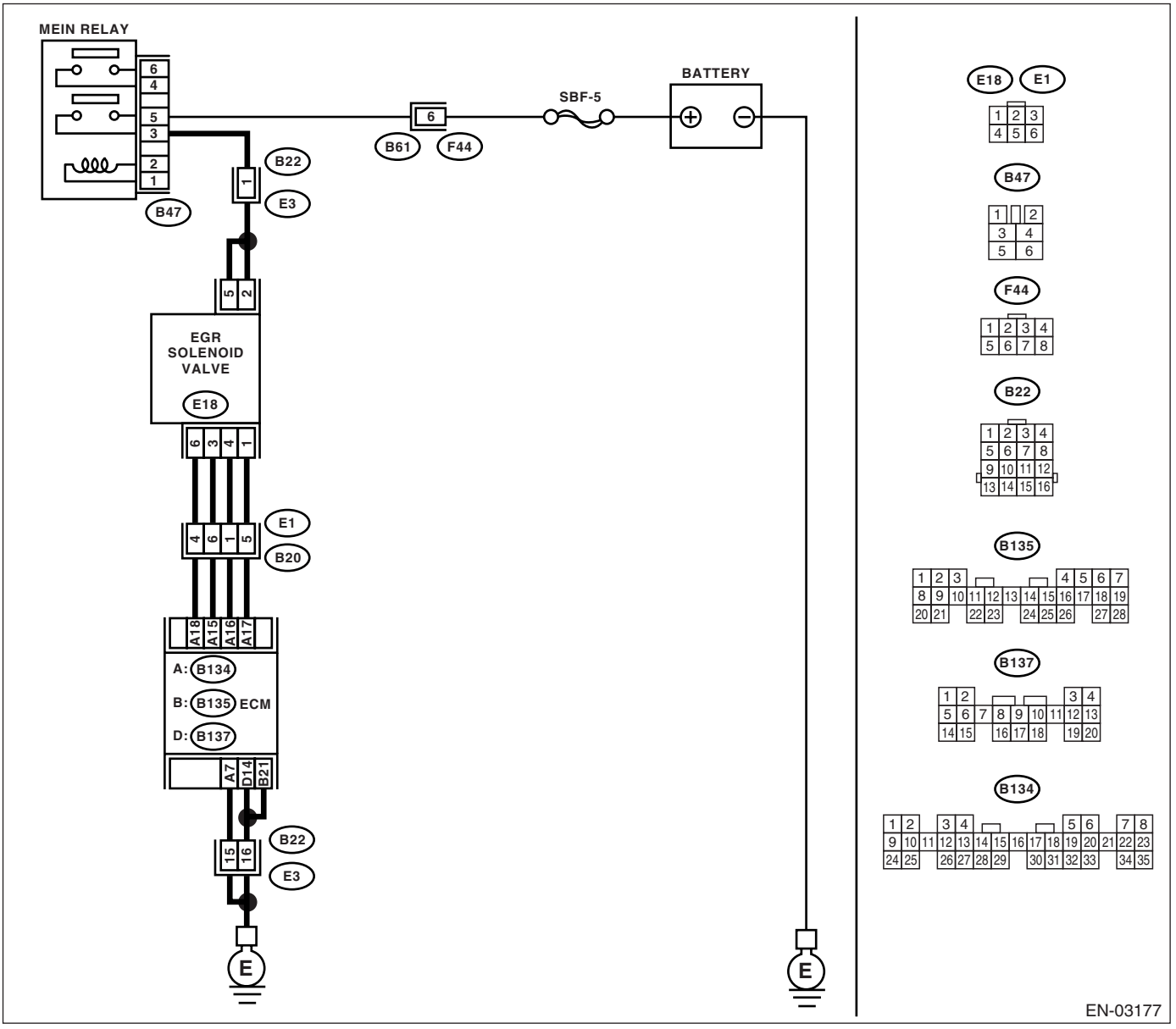
MEMO:

AT:DTC P0400 — EXHAUST GAS RECIRCULATION FLOW —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Poor driving performance on low engine speed
  - Erroneous idling
  - Poor driving performance.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK CURRENT DATA.** 1) Start engine. 2) Rear the data of intake manifold absolute pressure signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 53.3 kPa (400 mmHg, 15.75 inHg)?	Check if EGR valve, intake manifold pressure sensor and throttle body are securely installed.	Go to step **3.**
3	**CHECK POWER SUPPLY TO EGR SOLENOID VALVE.** 1) Disconnect connector from EGR solenoid valve. 2) Turn ignition switch to ON. 3) Measure voltage between EGR solenoid valve and engine ground. ***Connector & terminal*** ***(E18) No. 2 — Engine ground:*** ***(E18) No. 5 — Engine ground:***	Is the measured value more than 10 V?	Go to step **4.**	Repair open circuit in harness between main relay and EGR solenoid valve connector.
4	**CHECK EGR SOLENOID VALVE.** Measure resistance between EGR solenoid valve terminals. NOTE: Make sure there are no foreign objects caught between EGR solenoid valve and valve seat. ***Terminals*** ***No. 1 — No. 2:*** ***No. 3 — No. 2:*** ***No. 4 — No. 5:*** ***No. 6 — No. 5:***	Is the measured value within 20 to 30 Ω?	Go to step **5.**	Replace EGR solenoid valve. <Ref. to FU(H4SO)-37, EGR Valve.>
5	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect connectors to ECM and EGR solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 15 — Chassis ground:*** ***(B134) No. 16 — Chassis ground:*** ***(B134) No. 17 — Chassis ground:*** ***(B134) No. 18 — Chassis ground:***	Does the measured value change within 0 to 10 V?	Repair poor contact in ECM connector.	Go to step **6.**

	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN EGR SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from EGR solenoid valve and ECM. 3) Measure resistance of harness between EGR solenoid valve and ECM connector. ***Connector & terminal*** ***(B134) No. 18 — (E18) No. 6:*** ***(B134) No. 17 — (E18) No. 1:*** ***(B134) No. 16 — (E18) No. 4:*** ***(B134) No. 15 — (E18) No. 3:***	Is the measured value less than 1 Ω?	Go to step **7.**	Repair open circuit in harness between ECM and EGR solenoid valve connector.
7	**CHECK HARNESS BETWEEN EGR SOLENOID VALVE AND ECM CONNECTOR.** Measure resistance of harness between EGR solenoid valve and chassis ground. ***Connector & terminal*** ***(E18) No. 1 — Chassis ground:*** ***(E18) No. 3 — Chassis ground:*** ***(E18) No. 4 — Chassis ground:*** ***(E18) No. 6 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **8.**	Repair short circuit in harness between main relay and EGR solenoid valve connector.
8	**CHECK POOR CONTACT.** Check poor contact in ECM and EGR solenoid valve connector.	Is there poor contact in ECM and EGR solenoid valve connector?	Repair poor contact in ECM and EGR solenoid valve connector.	Even if MIL lights up, the circuit has returned to a normal condition at this time.

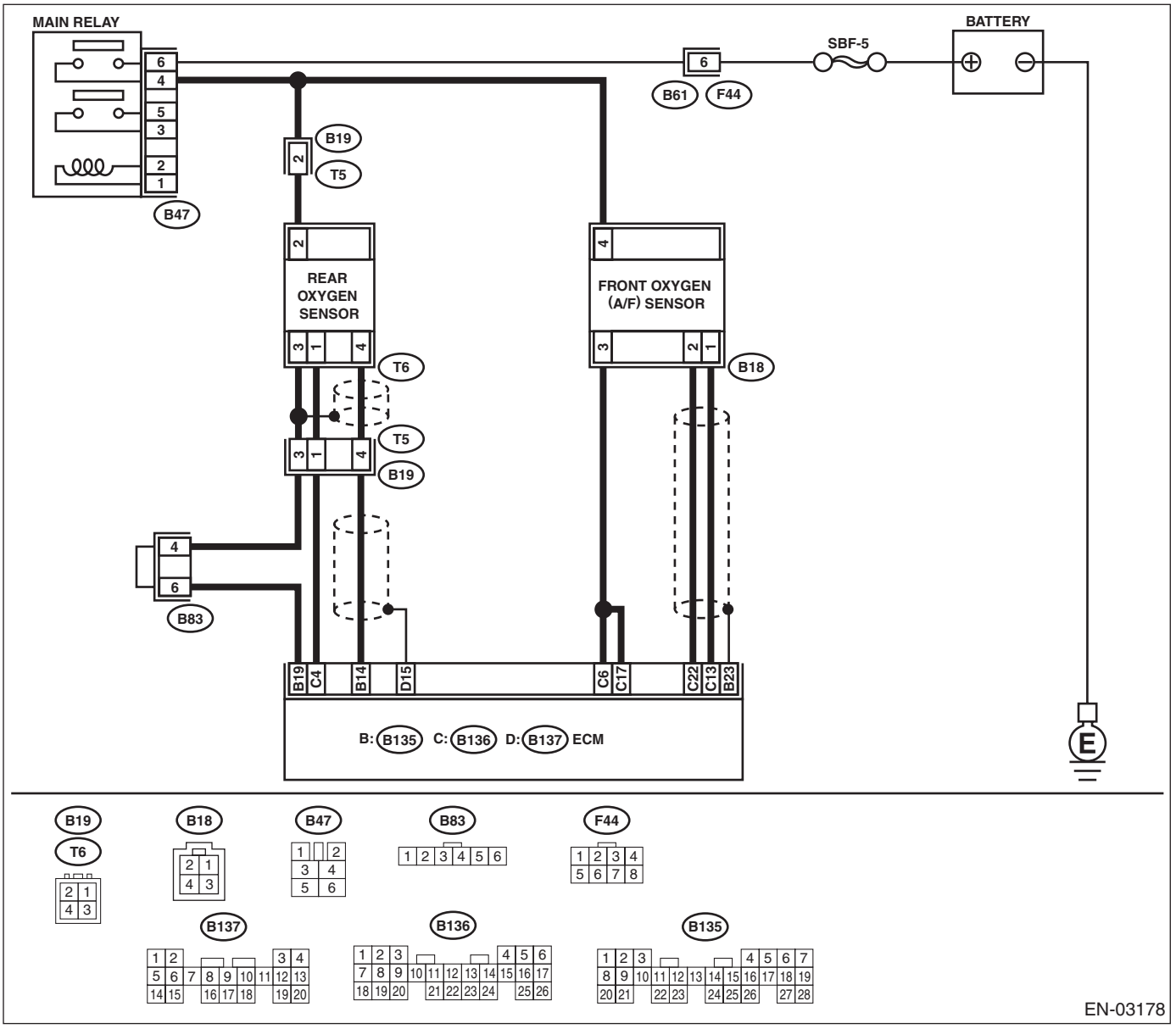
MEMO:

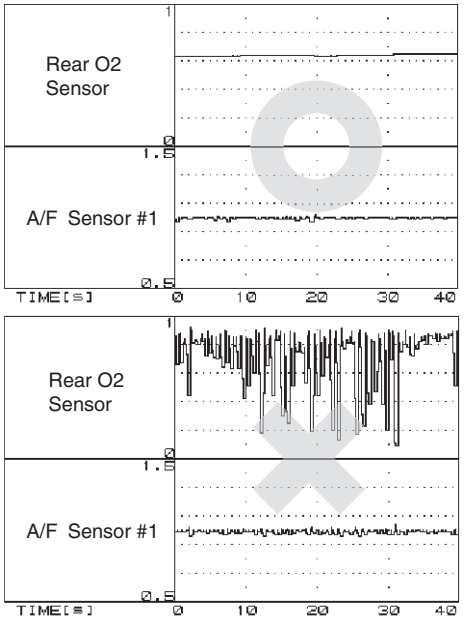
AU:DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 1) —

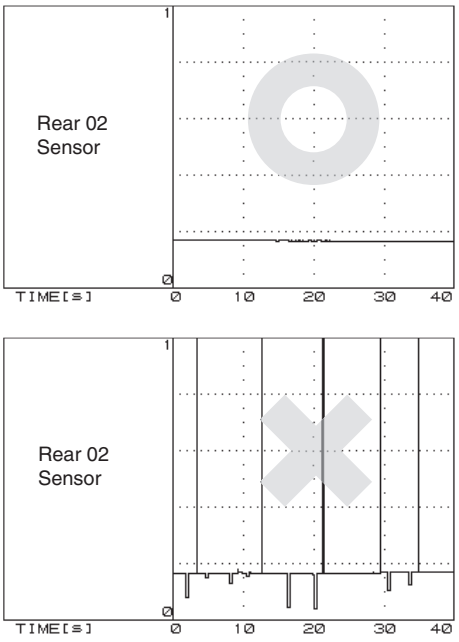
- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Idle mixture is out of specifications.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0420.	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.** Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes. NOTE: Check the following positions. •Between cylinder head and front exhaust pipe •Between front exhaust pipe and front catalytic converter •Between front catalytic converter and rear catalytic converter •Loose part and improper installation of front oxygen (A/F) sensor or rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace the exhaust system. <Ref. to EX(H4SO)-2, General Description.>	Go to step **3.**
3	**CHECK WAVEFORM DATA ON SUBARU SELECT MONITOR (WHILE DRIVING).** 1) Drive the vehicle at a constant speed of 80 — 112 km/h (50 — 70 MPH). 2) Keep the condition of step 1) for 5 minutes, then read the waveform data in a driving condition using Subaru Select Monitor.  EN-04680	Is normal waveform pattern displayed?	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.	Go to step **4.**

	Step	Check	Yes	No
4	**CHECK WAVEFORM DATA ON SUBARU SELECT MONITOR (WHILE IDLING).** 1) Idle the engine. 2) Under the condition of step 1), read the waveform data using Subaru Select Monitor.  EN-04681	Is normal waveform pattern displayed?	Go to step **10.**	Go to step **5.**
5	**CHECK REAR OXYGEN SENSOR VOLTAGE.** 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and keep the engine speed at 3,000 rpm. (Max. 2 minutes) 2) Read the voltage of rear oxygen sensor using Subaru Select Monitor. NOTE: •For MT model, depress the clutch pedal. •Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.>	Is the voltage more than 490 mV?	Go to step **9.**	Go to step **6.**
6	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Does water enter the connector?	Dry the water thoroughly.	Go to step **7.**
7	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM and rear oxygen sensor connector. ***Connector & terminal*** ***(B135) No. 14 — (T6) No. 4:*** ***(B135) No. 19 — (T6) No. 3:***	Is the resistance more than 3 Ω	Repair the open circuit of harness between ECM and rear oxygen sensor connector.	Go to step **8.**

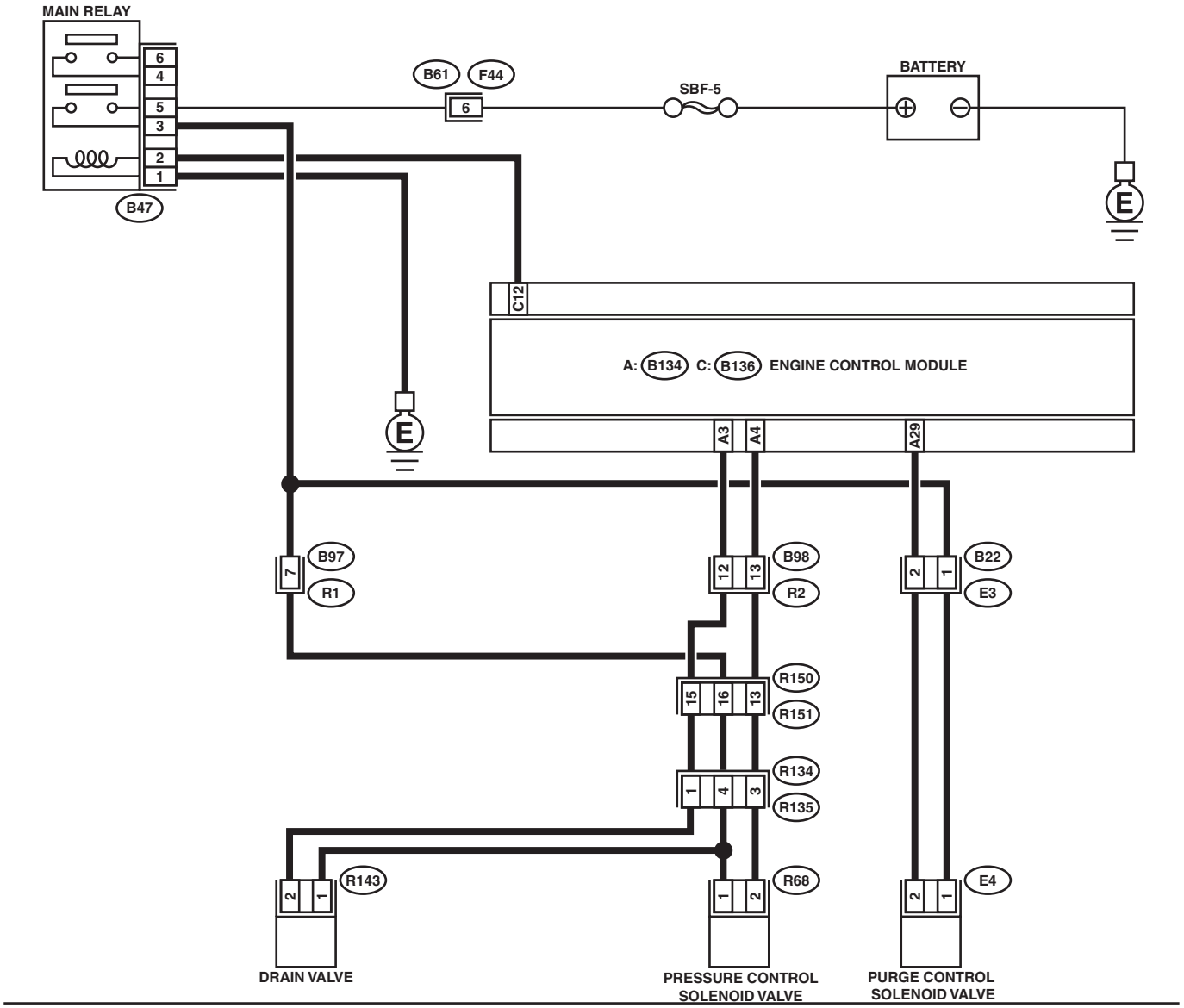
	Step	Check	Yes	No
8	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(T6) No. 4 (+) — Chassis ground (−):***	Is the voltage 0.2 — 0.5 V?	Go to step **11.**	Repair the harness and connector. NOTE: Repair the following. • Open circuit in harness between rear oxygen sensor and ECM connector • Poor contact in rear oxygen sensor and ECM connector • Poor contact in ECM connector
9	**CHECK REAR OXYGEN SENSOR VOLTAGE.** 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the voltage of rear oxygen sensor using Subaru Select Monitor. NOTE: •For MT model, depress the clutch pedal. •Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.>	Is the voltage 250 mV or less?	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.	Go to step **6.**
10	**CHECK CATALYTIC CONVERTER.**	Is the catalytic converter damaged?	Replace the catalytic converter. <Ref. to EC(H4SO)-3, Front Catalytic Converter.>	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.
11	**CHECK REAR OXYGEN SENSOR SHIELD.** 1) Turn the ignition switch to OFF. 2) Bare the harness sensor shield on the body side of rear oxygen sensor connector. 3) Measure the resistance between sensor shield and chassis ground.	Is resistance less than 1 Ω	Replace the rear oxygen sensor. <Ref. to FU(H4SO)-44, Rear Oxygen Sensor.>	Repair the open circuit of rear oxygen sensor harness.

AV:DTC P0442 — EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Gasoline smell
  - There is a hole of more than 1.0 mm (0.04 in) dia. in evaporation system or fuel tank.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-03179

	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is there any other DTC on display?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1) Turn ignition switch to OFF. 2) Check the fuel filler cap. NOTE: The DTC code is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Is the fuel filler cap tightened securely?	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK FUEL FILLER CAP.**	Is the genuine fuel filler cap used?	Go to step **4.**	Replace with a genuine fuel filler cap.
4	**CHECK FUEL FILLER PIPE PACKING.**	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace fuel filler cap and fuel filler pipe. <Ref. to FU(H4SO)-59, Fuel Filler Pipe.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1) Connect test mode connector. 2) Turn ignition switch to ON. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does drain valve produce operating sound?	Go to step **6.**	Replace drain valve. <Ref. to EC(H4SO)-17, Drain Valve.>
6	**CHECK PURGE CONTROL SOLENOID VALVE.** NOTE: Purge control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does purge control solenoid valve produce operating sound?	Go to step **7.**	Replace purge control solenoid valve. <Ref. to EC(H4SO)-6, Purge Control Solenoid Valve.>
7	**CHECK PRESSURE CONTROL SOLENOID VALVE.** NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does pressure control solenoid valve produce operating sound?	Go to step **8.**	Replace pressure control solenoid valve. <Ref. to EC(H4SO)-13, Pressure Control Solenoid Valve.>
8	**CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.** Turn ignition switch to OFF.	Is there a hole of more than 1.0 mm (0.04 in) dia. on evaporative emission control system line?	Repair or replace fuel line. <Ref. to FU(H4SO)-72, Fuel Delivery, Return and Evaporation Lines.>	Go to step **9.**

	Step	Check	Yes	No
9	**CHECK CANISTER.**	Is canister damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace canister. <Ref. to EC(H4SO)-5, Canister.>	Go to step **10.**
10	**CHECK FUEL TANK.** Remove fuel tank. <Ref. to FU(H4SO)-51, Fuel Tank.>	Is fuel tank damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace fuel tank. <Ref. to FU(H4SO)-51, Fuel Tank.>	Go to step **11.**
11	**CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.**	Are there holes of more than 1.0 mm (0.04 in) dia., cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?	Repair or replace hoses or pipes.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

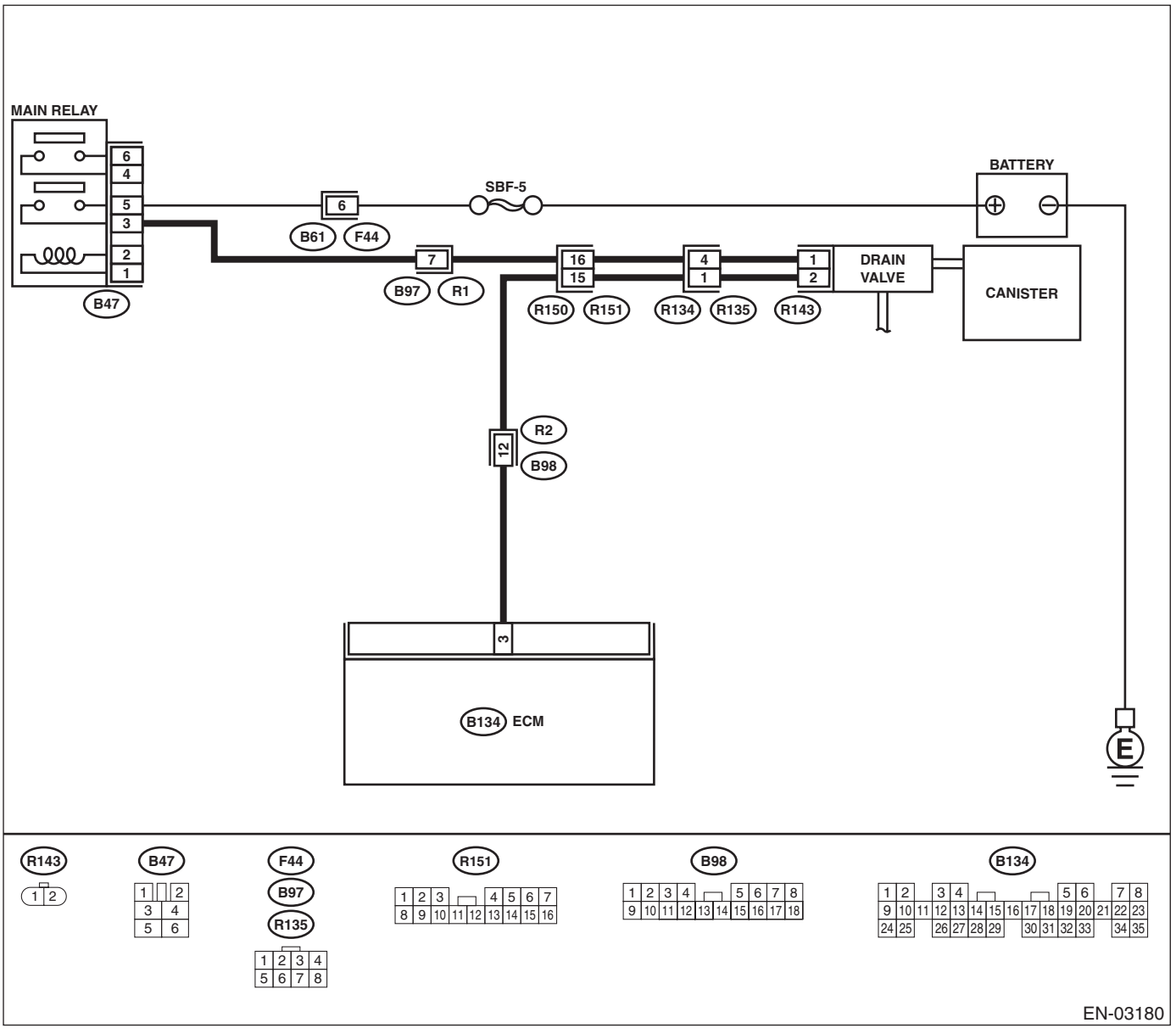
MEMO:

AW:DTC P0447 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT OPEN —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 3 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **2.**	Go to step **3.**
2	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the following: • Poor contact in drain valve connector • Poor contact in ECM connector • Poor contact in coupling connectors
3	**CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from drain valve and ECM. 3) Measure resistance of harness between drain valve connector and chassis ground. ***Connector & terminal*** ***(R143) No. 2 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **4.**	Repair ground short circuit in harness between ECM and drain valve connector.
4	**CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.** Measure resistance of harness between ECM and drain valve connector. ***Connector & terminal*** ***(B134) No. 3 — (R143) No. 2:***	Is the measured value less than 1 Ω?	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and drain valve connector • Poor contact in coupling connectors
5	**CHECK DRAIN VALVE.** Measure resistance between drain valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 10 to 100 Ω?	Go to step **6.**	Replace drain valve. <Ref. to EC(H4SO)-17, Drain Valve.>

	Step	Check	Yes	No
6	**CHECK POWER SUPPLY TO DRAIN VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between drain valve and chassis ground. ***Connector & terminal*** ***(R143) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between main relay and drain valve • Poor contact in coupling connectors • Poor contact in main relay connector
7	**CHECK POOR CONTACT.** Check poor contact in drain valve connector.	Is there poor contact in drain valve connector?	Repair poor contact in drain valve connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

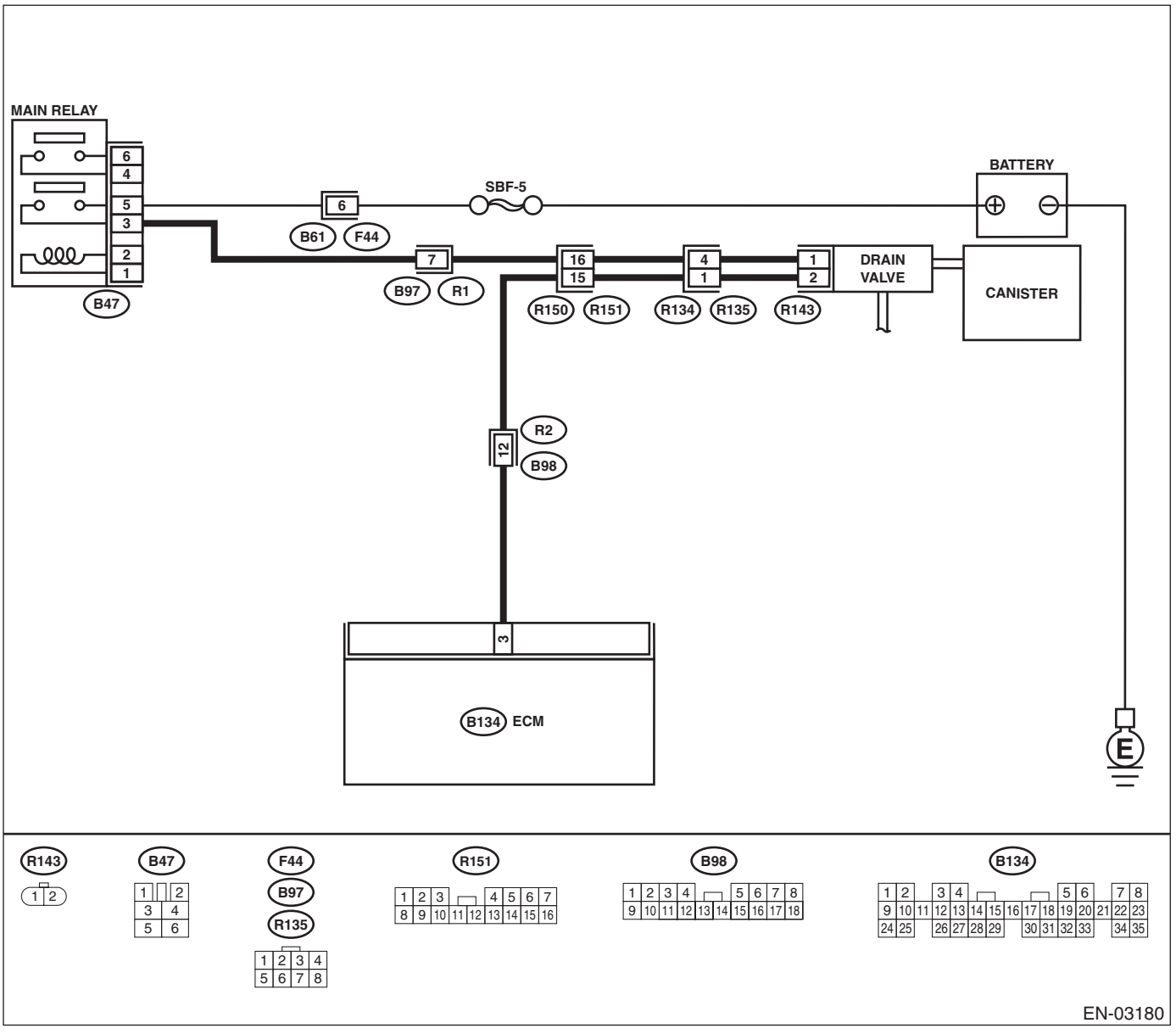
MEMO:

AX:DTC P0448 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT SHORTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



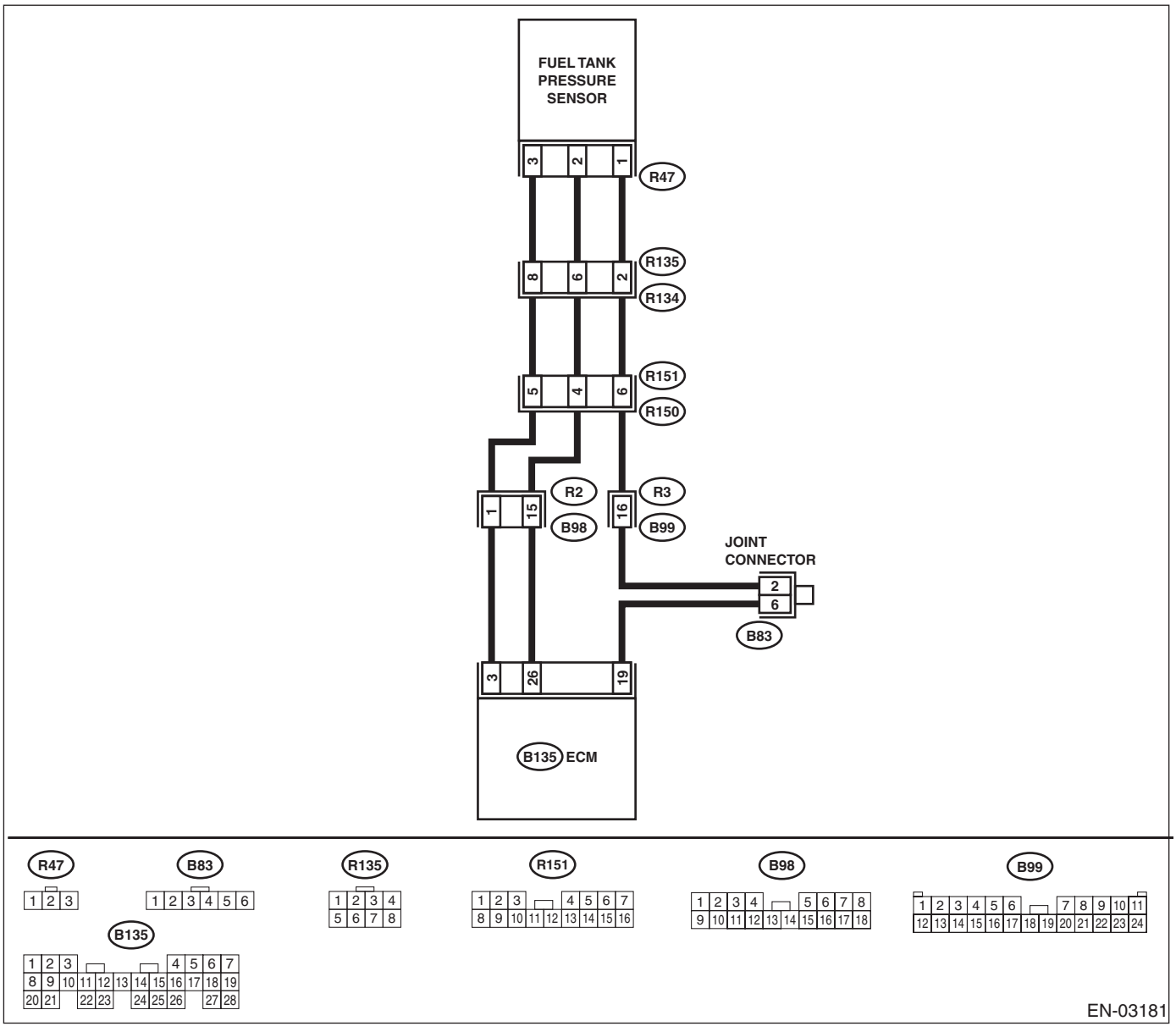
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side). 3) Turn ignition switch to ON. 4) While operating drain valve, measure voltage between ECM and chassis ground. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B134) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Go to step **2.**	Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Go to step **4.**	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>
4	**CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from drain valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1) Turn ignition switch to OFF. 2) Measure resistance between drain valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value less than 1 Ω?	Replace drain valve <Ref. to EC(H4SO)-17, Drain Valve.> and ECM <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **6.**
6	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

AY:DTC P0451 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



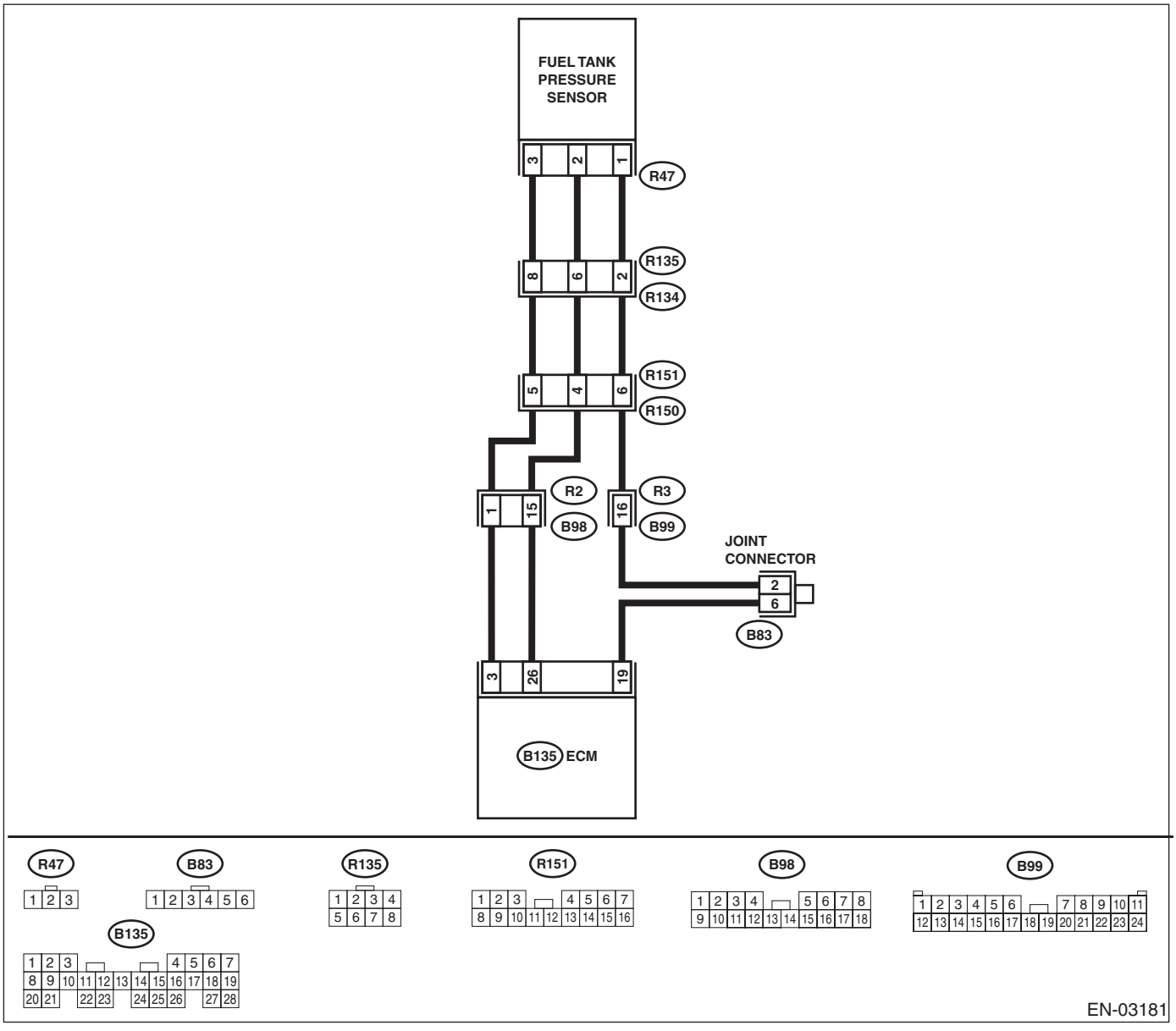
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is there any DTC on display?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1) Turn ignition switch to OFF. 2) Open the fuel flap.	Is the fuel filler cap tightened securely?	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK PRESSURE/VACUUM LINE.** NOTE: Check the following items. •Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank •Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank	Is there any malfunction in pressure/vacuum line?	Repair or replace hoses and pipes.	Replace fuel tank pressure sensor. <Ref. to EC(H4SO)-11, Fuel Tank Pressure Sensor.>

AZ:DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Turn ignition switch to OFF. 2) Remove fuel filler cap. 3) Install fuel filler cap. 4) Turn ignition switch to ON. 5) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value less than –2.8 kPa (–21.0 mmHg, –0.827 inHg)?	Go to step **2.**	Even if MIL lights up, the circuit has returned to a normal condition at this time.
2	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V?	Go to step **4.**	Go to step **3.**
3	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 26 (+) — Chassis ground (–):***	Is the measured value less than 0.2 V?	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.>	Does the measured value change when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Go to step **6.**
6	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Remove rear seat cushion. 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring harness connector and chassis ground. ***Connector & terminal*** ***(R134) No. 8 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and rear wiring harness connector • Poor contact in coupling connector

Step		Check	Yes	No
7	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and rear wiring harness connector. ***Connector & terminal*** ***(B135) No. 19 — (R134) No. 2:***	Is the measured value less than 1 Ω?	Go to step **8.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and rear wiring harness connector • Poor contact in coupling connector • Poor contact in joint connector
8	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** Measure resistance of harness between rear wiring harness connector and chassis ground. ***Connector & terminal*** ***(R134) No. 2 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **9.**	Repair ground short circuit in harness between ECM and rear wiring harness connector.
9	**CHECK FUEL TANK CORD.** 1) Disconnect connector from fuel tank pressure sensor. 2) Measure resistance of fuel tank cord. ***Connector & terminal*** ***(R135) No. 8 — (R47) No. 3:***	Is the measured value less than 1 Ω?	Go to step **10.**	Repair open circuit in fuel tank cord.
10	**CHECK FUEL TANK CORD.** Measure resistance of fuel tank cord. ***Connector & terminal*** ***(R135) No. 2 — (R47) No. 1:***	Is the measured value less than 1 Ω?	Go to step **11.**	Repair open circuit in fuel tank cord.
11	**CHECK FUEL TANK CORD.** Measure resistance of harness between fuel tank pressure sensor connector and chassis ground. ***Connector & terminal*** ***(R47) No. 2 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **12.**	Repair ground short circuit in fuel tank cord.
12	**CHECK POOR CONTACT.** Check poor contact in fuel tank pressure sensor connector.	Is there poor contact in fuel tank pressure sensor connector?	Repair poor contact in fuel tank pressure sensor connector.	Replace fuel tank pressure sensor. <Ref. to EC(H4SO)-11, Fuel Tank Pressure Sensor.>

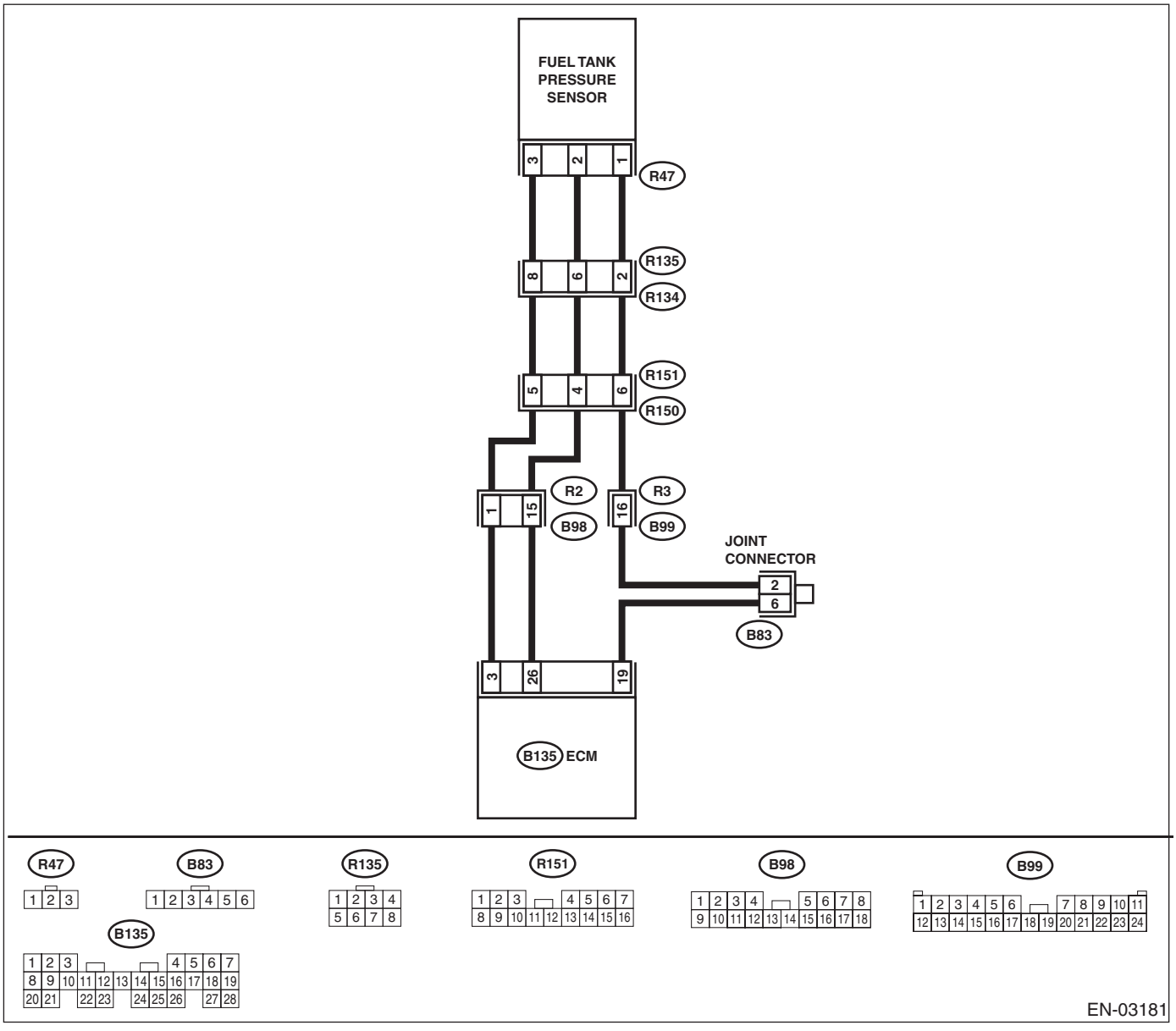
MEMO:

BA:DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Turn ignition switch to OFF. 2) Remove fuel filler cap. 3) Install fuel filler cap. 4) Turn ignition switch to ON. 5) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?	Go to step **12.**	Go to step **2.**
2	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V?	Go to step **4.**	Go to step **3.**
3	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 3 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 26 (+) — Chassis ground (–):***	Is the measured value less than 0.2 V?	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.>	Does the measured value change when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Go to step **6.**
6	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring harness connector and chassis ground. ***Connector & terminal*** ***(R134) No. 8 (+) — Chassis ground (–):***	Is the measured value more than 4.5 V?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and rear wiring harness connector • Poor contact in coupling connector

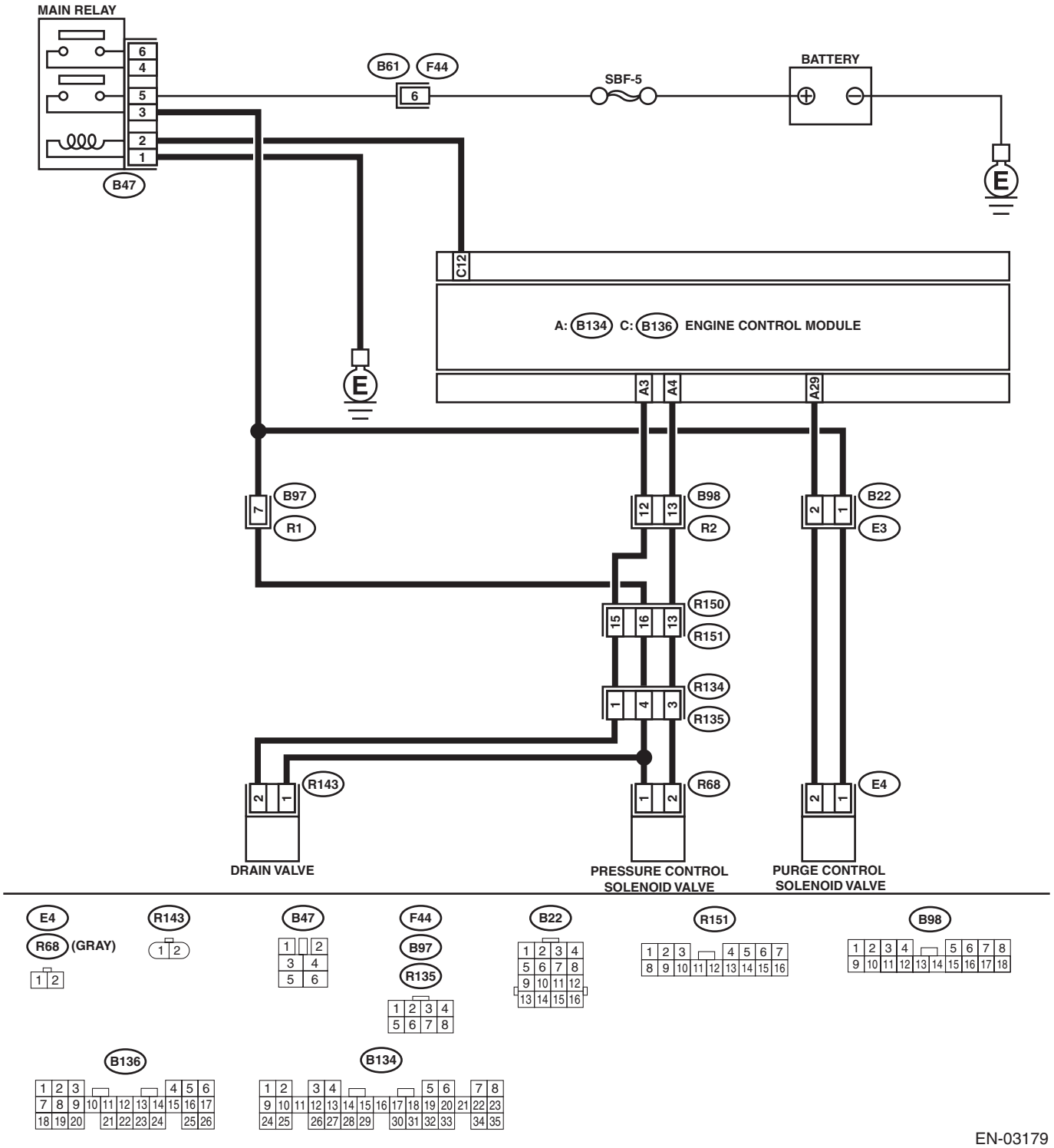
Step		Check	Yes	No
7	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and rear wiring harness connector. ***Connector & terminal*** ***(B135) No. 26 — (R134) No. 6:***	Is the measured value less than 1 Ω?	Go to step **8.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and rear wiring harness connector • Poor contact in coupling connector
8	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** Measure resistance of harness between rear wiring harness connector and chassis ground. ***Connector & terminal*** ***(B135) No. 19 — (R134) No. 2:***	Is the measured value less than 1 Ω?	Go to step **9.**	Repair ground short circuit in harness between ECM and rear wiring harness connector.
9	**CHECK FUEL TANK CORD.** 1) Disconnect connector from fuel tank pressure sensor. 2) Measure resistance of fuel tank cord. ***Connector & terminal*** ***(R135) No. 6 — (R47) No. 2:***	Is the measured value less than 1 Ω?	Go to step **10.**	Repair open circuit in fuel tank cord.
10	**CHECK FUEL TANK CORD.** Measure resistance of fuel tank cord. ***Connector & terminal*** ***(R135) No. 2 — (R47) No. 1:***	Is the measured value less than 1 Ω?	Go to step **11.**	Repair open circuit in fuel tank cord.
11	**CHECK POOR CONTACT.** Check poor contact in fuel tank pressure sensor connector.	Is there poor contact in fuel tank pressure sensor connector?	Repair poor contact in fuel tank pressure sensor connector.	Replace fuel tank pressure sensor. <Ref. to EC(H4SO)-11, Fuel Tank Pressure Sensor.>
12	**CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel tank pressure sensor. 3) Turn ignition switch to ON. 4) Read data of fuel tank pressure sensor signal using Subaru Select Monitor or the general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?	Repair battery short circuit in harness between ECM and fuel tank pressure sensor connector.	Replace fuel tank pressure sensor. <Ref. to EC(H4SO)-11, Fuel Tank Pressure Sensor.>

BB:DTC P0456 — EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (VERY SMALL LEAK) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Gasoline smell
  - There is a hole of more than 0.5 mm (0.020 in) dia. in evaporation system or fuel tank.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-03179

	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1) Turn ignition switch to OFF. 2) Check the fuel filler cap. NOTE: The DTC code is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Is the fuel filler cap tightened securely?	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK FUEL FILLER CAP.**	Is the genuine fuel filler cap used?	Go to step **4.**	Replace with a genuine fuel filler cap.
4	**CHECK FUEL FILLER PIPE PACKING.**	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace fuel filler cap and fuel filler pipe. <Ref. to FU(H4SO)-59, Fuel Filler Pipe.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1) Connect test mode connector. 2) Turn ignition switch to ON. 3) Operate drain valve. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does drain valve produce operating sound?	Go to step **6.**	Replace drain valve. <Ref. to EC(H4SO)-17, Drain Valve.>
6	**CHECK PURGE CONTROL SOLENOID VALVE.** Operate purge control solenoid valve. NOTE: Purge control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does purge control solenoid valve produce operating sound?	Go to step **7.**	Replace purge control solenoid valve. <Ref. to EC(H4SO)-6, Purge Control Solenoid Valve.>
7	**CHECK PRESSURE CONTROL SOLENOID VALVE.** Operate pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does pressure control solenoid valve produce operating sound?	Go to step **8.**	Replace pressure control solenoid valve. <Ref. to EC(H4SO)-13, Pressure Control Solenoid Valve.>
8	**CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.** Turn ignition switch to OFF.	Is there a hole of more than 0.5 mm (0.020 in) dia. on evaporative emission control system line?	Repair or replace fuel line. <Ref. to FU(H4SO)-72, Fuel Delivery, Return and Evaporation Lines.>	Go to step **9.**

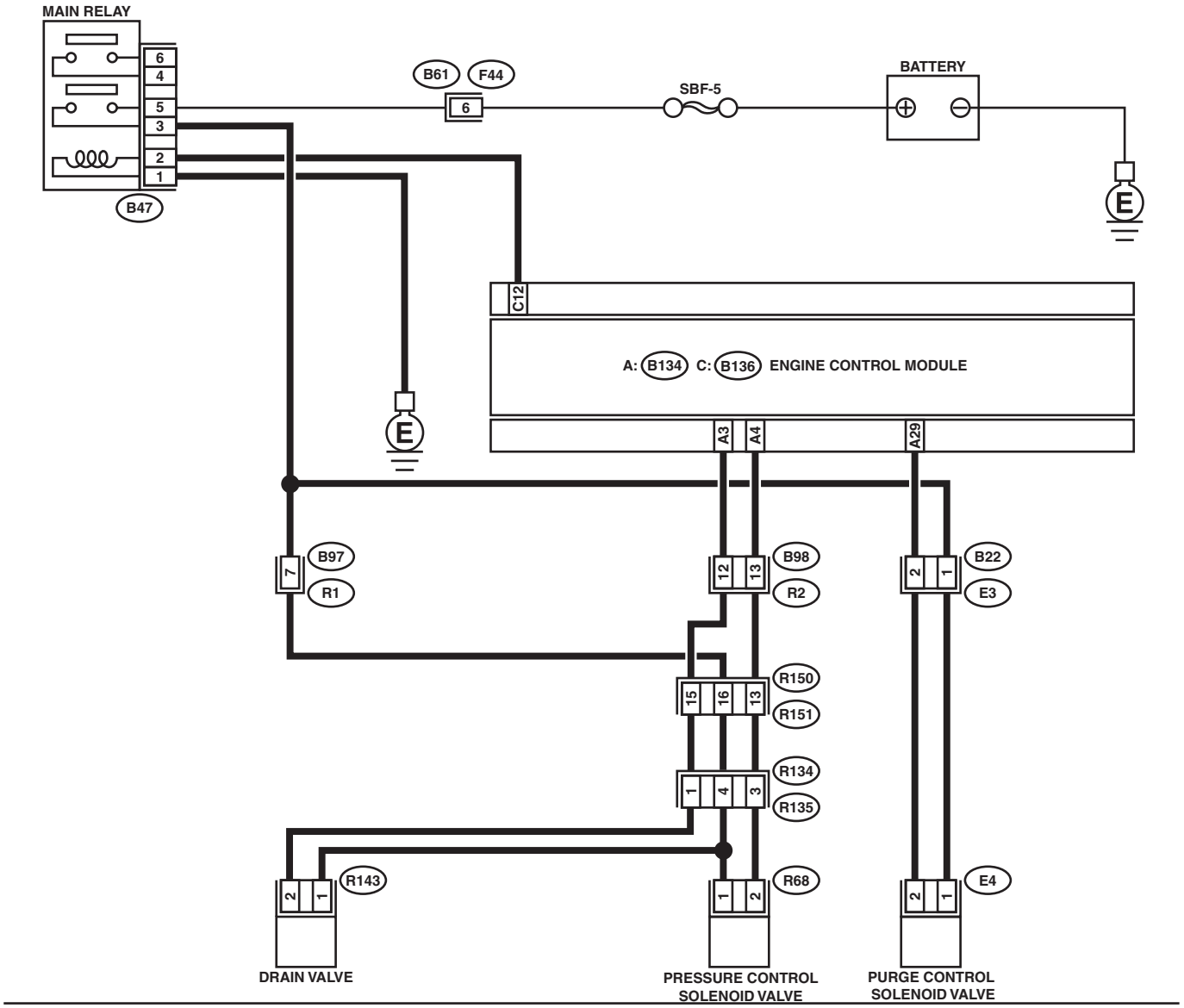
	Step	Check	Yes	No
9	**CHECK CANISTER.**	Is canister damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace canister. <Ref. to EC(H4SO)-5, Canister.>	Go to step **10.**
10	**CHECK FUEL TANK.** Remove fuel tank. <Ref. to FU(H4SO)-51, Fuel Tank.>	Is fuel tank damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace fuel tank. <Ref. to FU(H4SO)-51, Fuel Tank.>	Go to step **11.**
11	**CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.**	Are there holes of more than 0.5 mm (0.020 in) dia., cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?	Repair or replace hoses or pipes.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

BC:DTC P0457 — EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (FUEL CAP LOOSE/OFF) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Gasoline smell
  - Fuel filler cap loose or missing

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-03179

	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1) Turn ignition switch to OFF. 2) Check the fuel filler cap. NOTE: The DTC code is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Is the fuel filler cap tightened securely?	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK FUEL FILLER CAP.**	Is the genuine fuel filler cap used?	Go to step **4.**	Replace with a genuine fuel filler cap.
4	**CHECK FUEL FILLER PIPE PACKING.**	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace fuel filler cap and fuel filler pipe. <Ref. to FU(H4SO)-59, Fuel Filler Pipe.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1) Connect test mode connector. 2) Turn ignition switch to ON. 3) Operate drain valve. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does drain valve produce operating sound?	Go to step **6.**	Replace drain valve. <Ref. to EC(H4SO)-17, Drain Valve.>
6	**CHECK PURGE CONTROL SOLENOID VALVE.** Operate purge control solenoid valve. NOTE: Purge control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does purge control solenoid valve produce operating sound?	Go to step **7.**	Replace purge control solenoid valve. <Ref. to EC(H4SO)-6, Purge Control Solenoid Valve.>
7	**CHECK PRESSURE CONTROL SOLENOID VALVE.** Operate pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does pressure control solenoid valve produce operating sound?	Go to step **8.**	Replace pressure control solenoid valve. <Ref. to EC(H4SO)-13, Pressure Control Solenoid Valve.>
8	**CHECK CANISTER.**	Is canister damaged?	Repair or replace canister. <Ref. to EC(H4SO)-5, Canister.>	Go to step **9.**

	Step	Check	Yes	No
9	**CHECK FUEL TANK.** Remove fuel tank. <Ref. to FU(H4SO)-51, Fuel Tank.>	Is fuel tank damaged?	Repair or replace fuel tank. <Ref. to FU(H4SO)-51, Fuel Tank.>	Go to step **10.**
10	**CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.**	Are there holes of more than 0.5 mm (0.020 in) dia., cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?	Repair or replace hoses or pipes.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

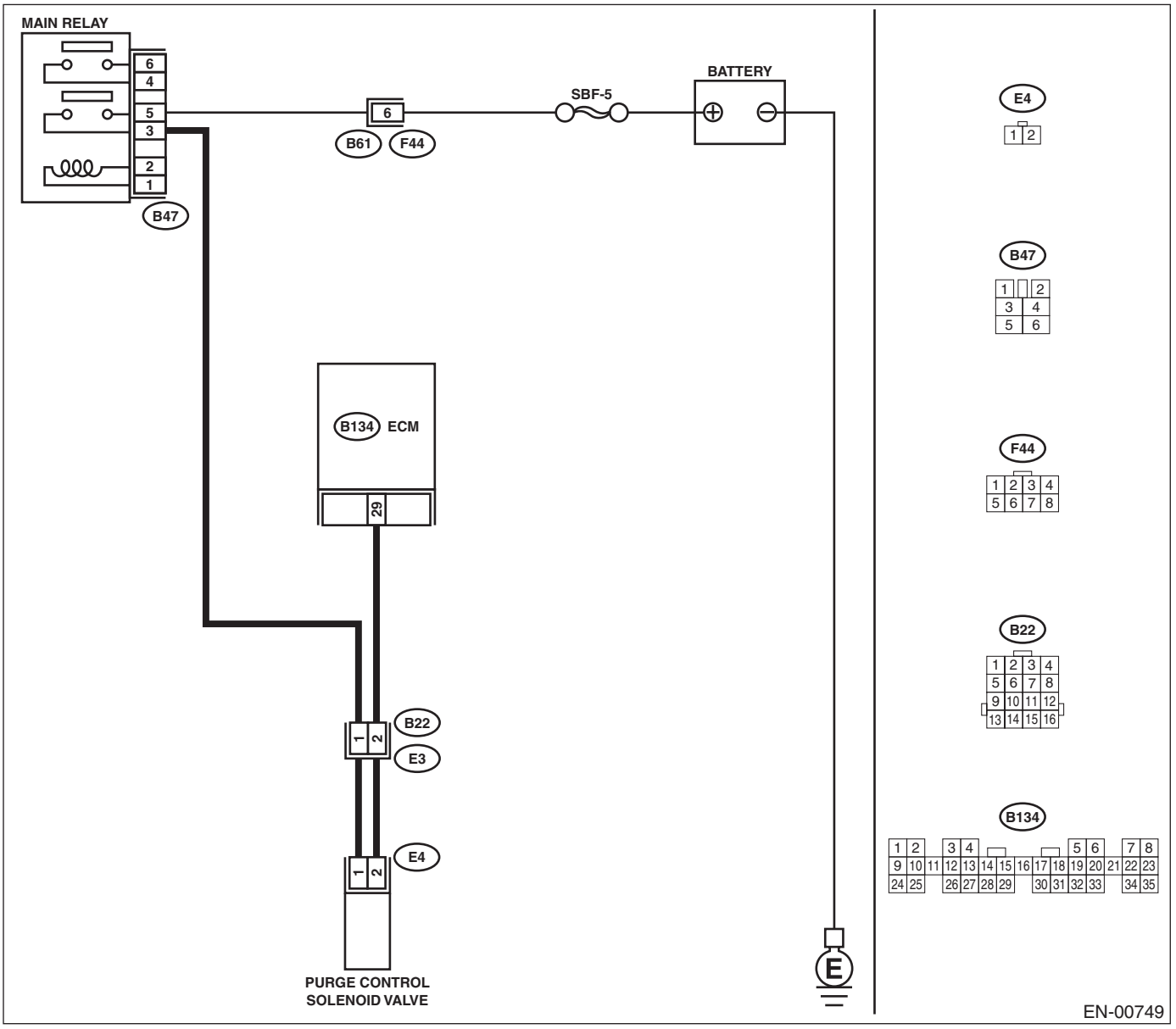
MEMO:

BD:DTC P0458 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 29 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Even if MIL lights up, the circuit has returned to a normal condition at this time. Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Go to step **2.**
2	**CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from purge control solenoid valve and ECM. 3) Measure resistance of harness between purge control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E4) No. 2 — Engine ground:***	Is the measured value more than 1 MΩ?	Go to step **3.**	Repair ground short circuit in harness between ECM and purge control solenoid valve connector.
3	**CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** Measure resistance of harness between ECM and purge control solenoid valve of harness connector. ***Connector & terminal*** ***(B134) No. 29 — (E4) No. 2:***	Is the measured value less than 1 Ω?	Go to step **4.**	Repair open circuit in harness between ECM and purge control solenoid valve connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and purge control solenoid valve connector • Poor contact in coupling connector
4	**CHECK PURGE CONTROL SOLENOID VALVE.** 1) Remove purge control solenoid valve. 2) Measure resistance between purge control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 10 to 100 Ω?	Go to step **5.**	Replace purge control solenoid valve. <Ref. to EC(H4SO)-6, Purge Control Solenoid Valve.>
5	**CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between purge control solenoid valve and engine ground. ***Connector & terminal*** ***(E4) No. 1 (+) — Engine ground (−):***	Is the measured value more than 10 V?	Go to step **6.**	Repair open circuit in harness between main relay and purge control solenoid valve connector.

Step		Check	Yes	No
6	**CHECK POOR CONTACT.** Check poor contact in purge control solenoid valve connector.	Is there poor contact in purge control solenoid valve connector?	Repair poor contact in purge control solenoid valve connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

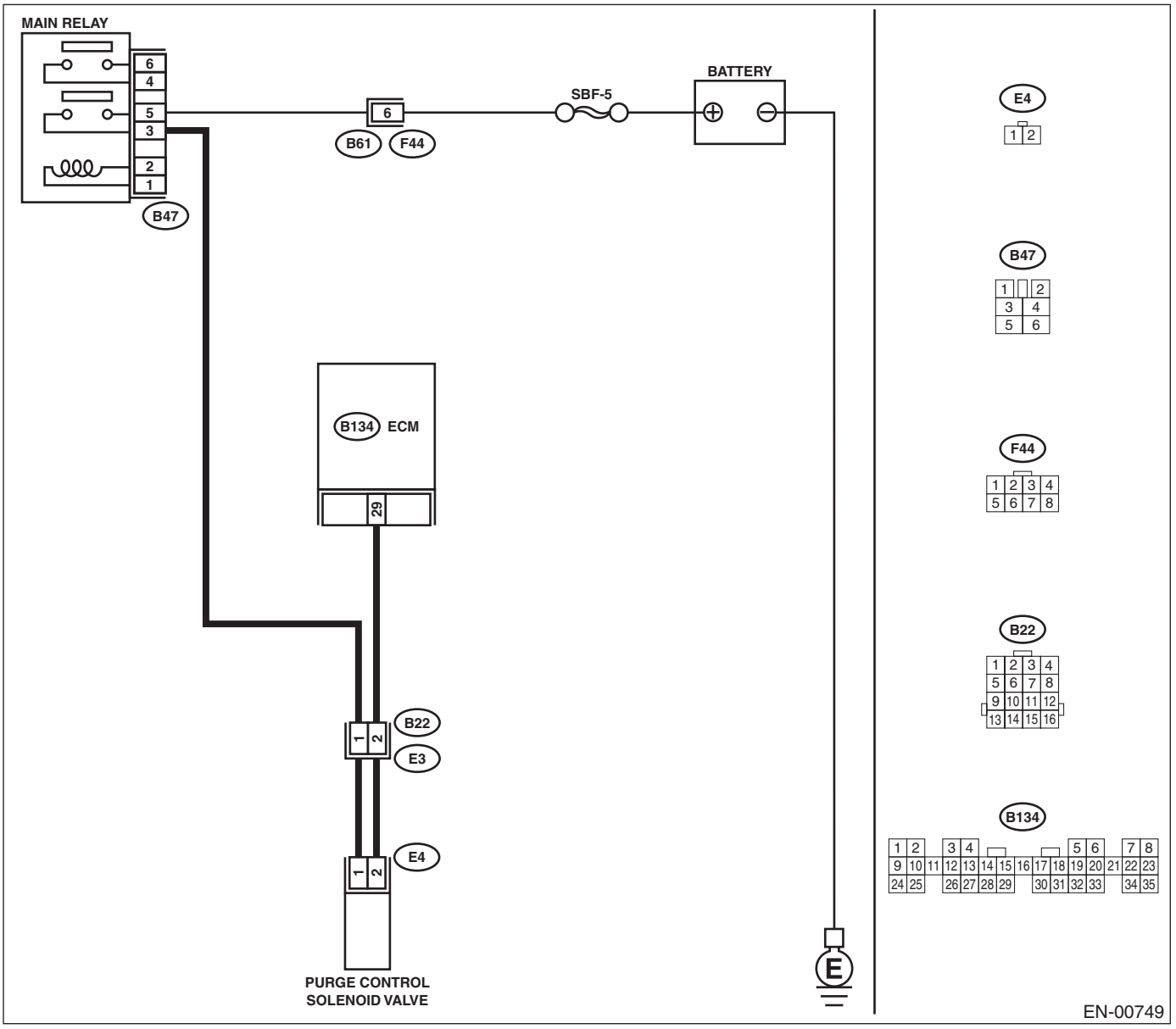
MEMO:

BE:DTC P0459 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



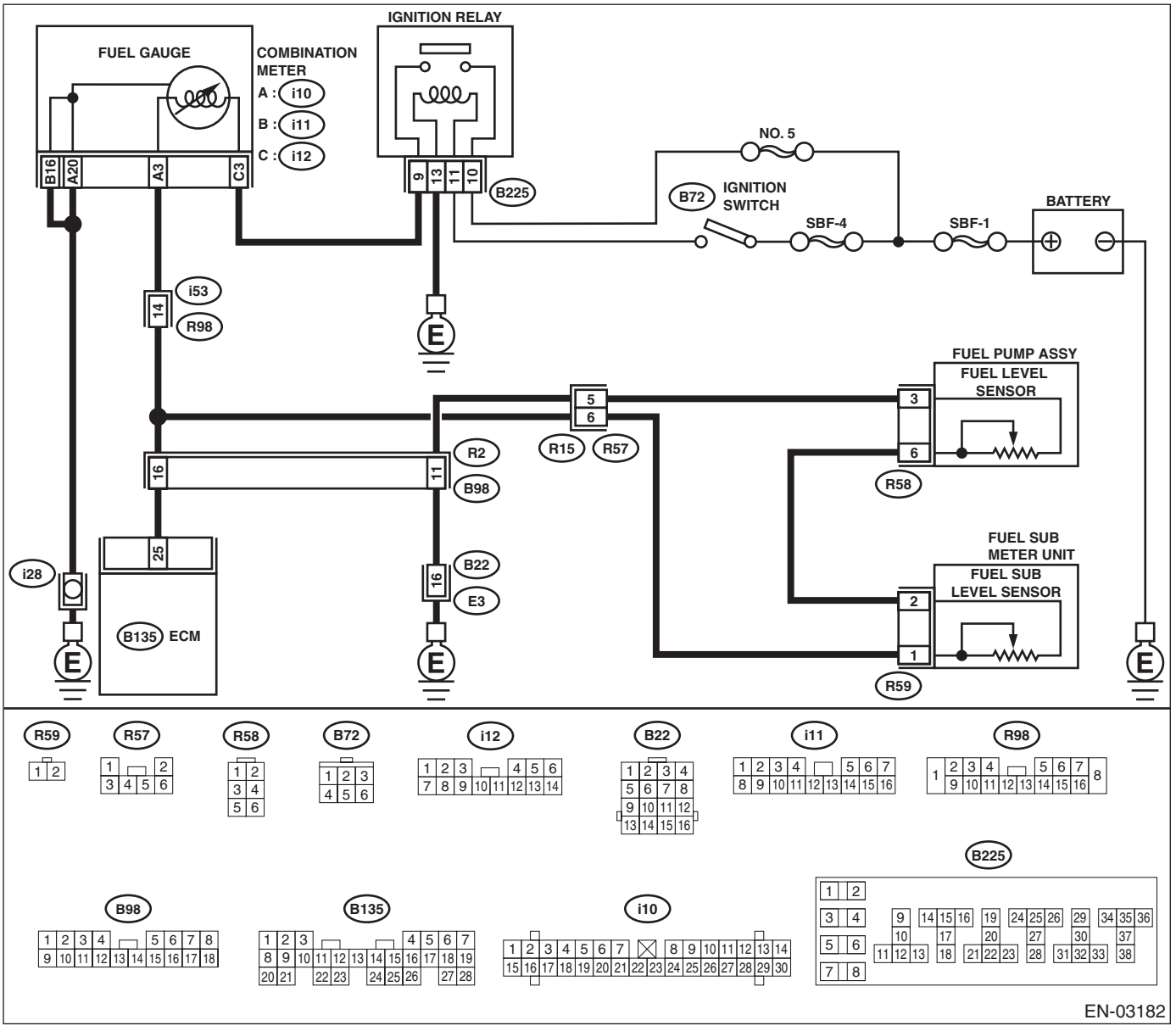
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating purge control solenoid valve, measure voltage between ECM and chassis ground. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B134) No. 29 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **2.**	Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 29 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **4.**	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>
4	**CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from purge control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 29 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **5.**
5	**CHECK PURGE CONTROL SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Measure resistance between purge control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value less than 1 Ω?	Replace purge control solenoid valve <Ref. to EC(H4SO)-6, Purge Control Solenoid Valve.> and ECM <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **6.**
6	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

BF:DTC P0461 — FUEL LEVEL SENSOR CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



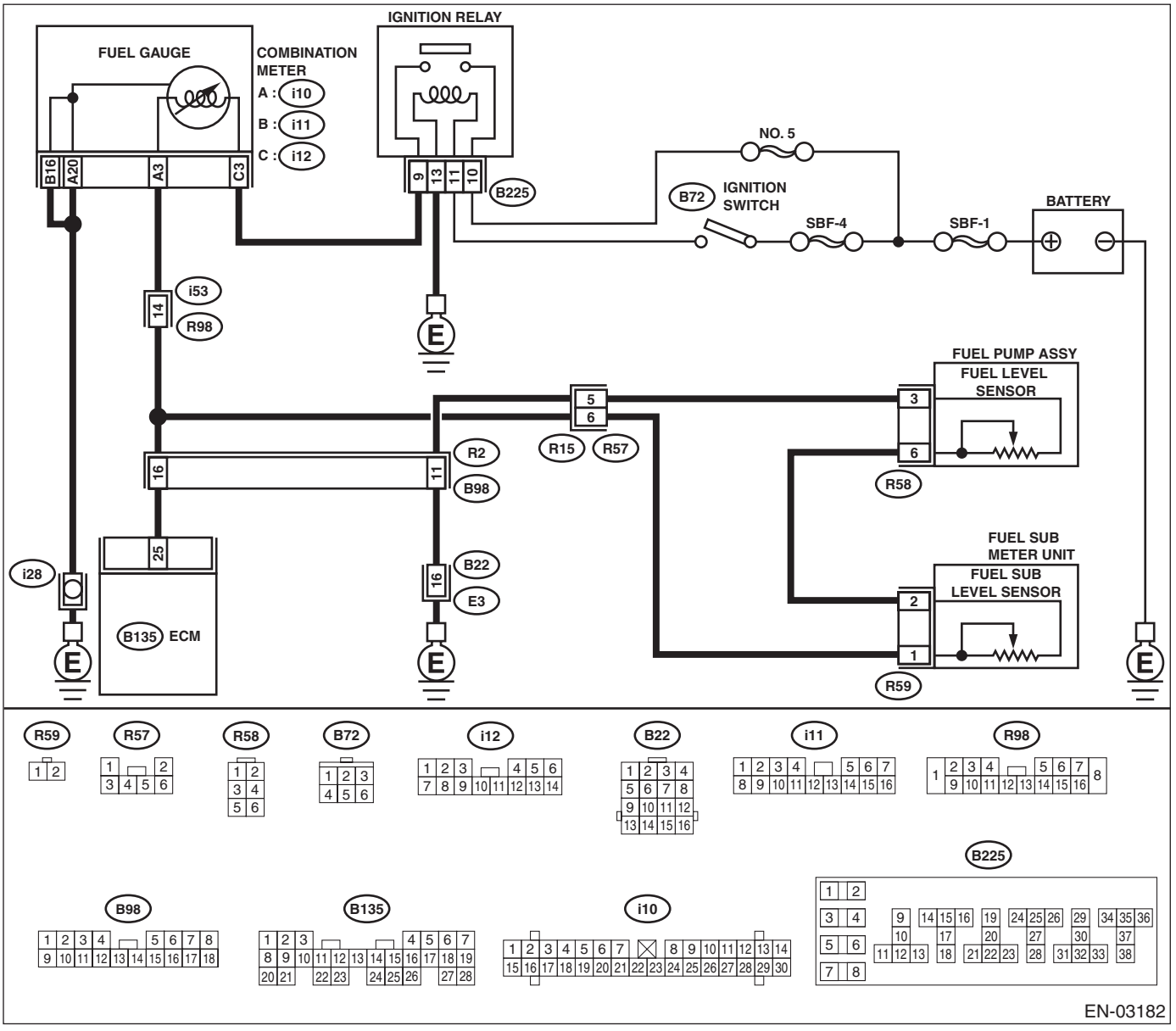
Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect this trouble.	Replace fuel level sensor <Ref. to FU(H4SO)-68, Fuel Level Sensor.> and fuel sub level sensor. <Ref. to FU(H4SO)-69, Fuel Sub Level Sensor.>

BG:DTC P0462 — FUEL LEVEL SENSOR CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.**	Does speedometer and tachometer operate normally?	Go to step **2.**	Repair or replace combination meter. <Ref. to IDI-4, Combination Meter System.>

	Step	Check	Yes	No
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. (Engine OFF) 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):***	Is the measured value less than 0.12 V?	Go to step **6.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read data of fuel level sensor signal using Subaru Select Monitor. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.>	Is the measured value less than 0.12 V when shaking harness and connector of ECM?	Repair poor contact in ECM connector.	Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in combination meter connector • Poor contact in ECM connector • Poor contact in coupling connectors
4	**CHECK INPUT VOLTAGE OF ECM.** 1) Turn ignition switch to OFF. 2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). 3) Turn ignition switch to ON. 4) Measure voltage of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):***	Is the measured value more than 0.12 V?	Go to step **4.**	Go to step **7.**
5	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER.** 1) Turn ignition switch to OFF. 2) Disconnect connector from connector (i10) and ECM connector. 3) Measure resistance between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 25 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **6.**	Repair ground short circuit in harness between ECM and combination meter connector.
6	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER.** Measure resistance between ECM and combination meter connector. ***Connector & terminal*** ***(B135) No. 25 — (i10) No. 3:***	Is the measured value less than 10 Ω?	Repair or replace combination meter. <Ref. to IDI-4, Combination Meter System.>	Repair open circuit between ECM and combination meter connector. NOTE: In this case, repair the following: Poor contact in coupling connector
7	**CHECK FUEL TANK CORD.** 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel sub level sensor. 3) Measure resistance between fuel sub level sensor and chassis ground. ***Connector & terminal*** ***(R59) No. 1 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **8.**	Repair ground short circuit in fuel tank cord.

	Step	Check	Yes	No
8	**CHECK FUEL TANK CORD.** 1) Disconnect connector from fuel pump assembly. 2) Measure resistance between fuel pump assembly and chassis ground. ***Connector & terminal*** ***(R59) No. 2 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **9.**	Repair ground short circuit in fuel tank cord.
9	**CHECK FUEL LEVEL SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel pump assembly. <Ref. to FU(H4SO)-66, Fuel Pump.> 2) Measure resistance between fuel level sensor and terminals with its float set to the full position. ***Terminals*** ***No. 3 — No. 6:***	Is the measured value within 0.5 to 2.5 Ω?	Go to step **10.**	Replace fuel level sensor.
10	**CHECK FUEL SUB LEVLE SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel sub level sensor. <Ref. to FU(H4SO)-69, Fuel Sub Level Sensor.> 2) Measure resistance between fuel sub level sensor and terminals with its float set to the full position. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 0.5 to 2.5 Ω?	Repair poor contact in harness between ECM and combination meter connector.	Replace fuel sub level sensor.

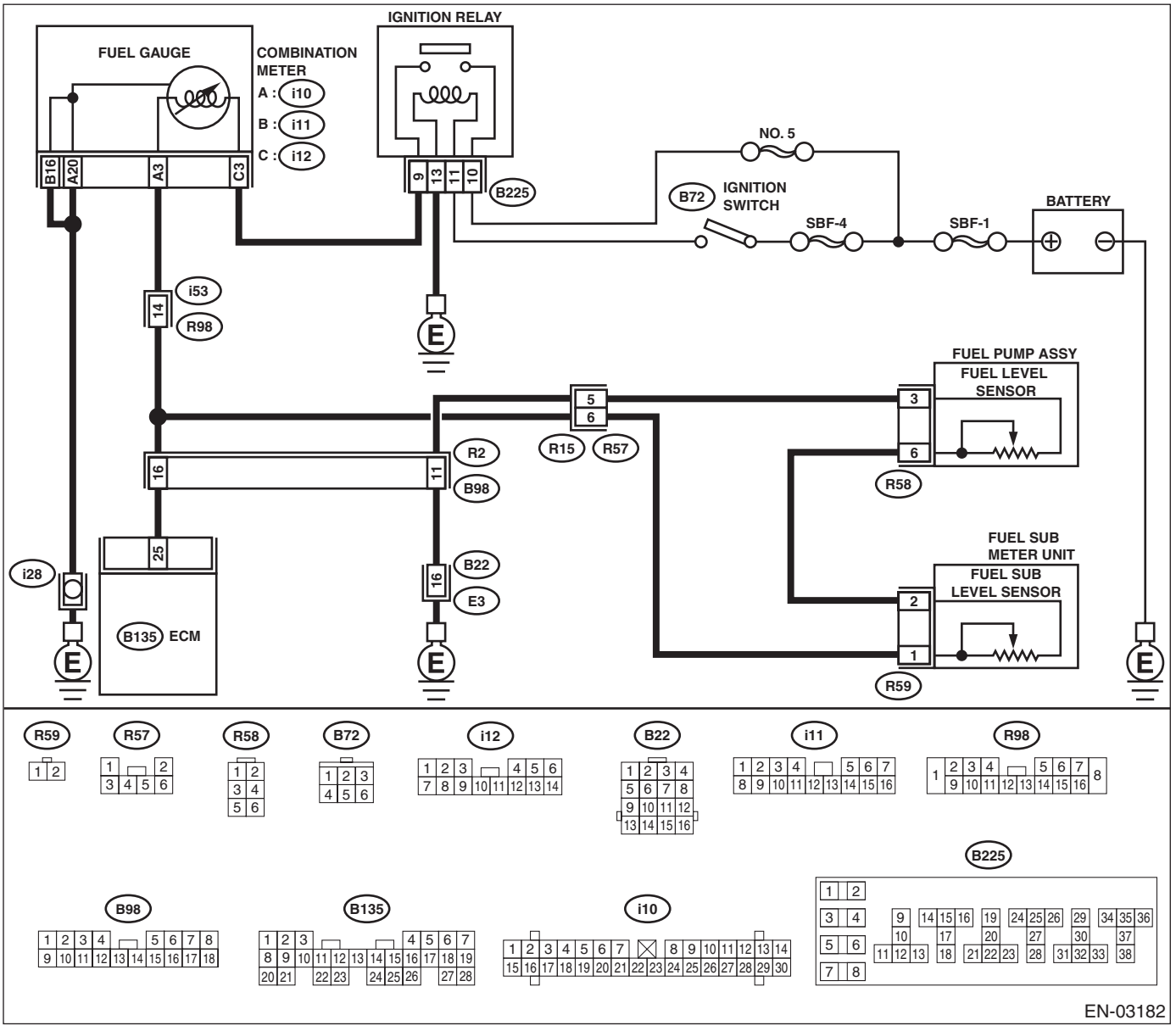
MEMO:

BH:DTC P0463 — FUEL LEVEL SENSOR CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.**	Does speedometer and tachometer operate normally?	Go to step **2.**	Repair or replace combination meter. <Ref. to IDI-4, Combination Meter System.>

	Step	Check	Yes	No
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. (Engine OFF) 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):***	Is the measured value more than 4.75 V?	Go to step **3.**	Even if MIL lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in fuel pump connector • Poor contact in coupling connector
3	**CHECK INPUT VOLTAGE OF ECM.** 1) Turn ignition switch to OFF. 2) Disconnect combination meter connector (i10) and ECM connector. 3) Turn ignition switch to ON. 4) Measure voltage of harness between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):***	Is the measured value more than 4.75 V?	Repair battery short circuit between ECM and combination meter connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN ECM AND FUEL TANK CORD.** 1) Turn ignition switch to OFF. 2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). 3) Measure resistance between ECM and fuel tank cord. ***Connector & terminal*** ***(B135) No. 25 — (R15) No. 6:***	Is the measured value less than 5 Ω?	Go to step **5.**	Repair open circuit between ECM and fuel tank cord.
5	**CHECK HARNESS BETWEEN FUEL TANK CORD AND CHASSIS GROUND.** Measure resistance between fuel tank cord and chassis ground. ***Connector & terminal*** ***(R15) No. 5 — Chassis ground:***	Is the measured value less than 5 Ω?	Go to step **6.**	Repair open circuit between fuel tank cord and chassis ground. NOTE: In this case, repair the following: Poor contact in coupling connectors
6	**CHECK FUEL TANK CORD.** 1) Disconnect connector from fuel level sensor. 2) Measure resistance between fuel level sensor and coupling connector. ***Connector & terminal*** ***(R57) No. 5 — (R58) No. 3:***	Is the measured value less than 1 Ω?	Go to step **7.**	Repair open circuit between coupling connector and fuel level sensor.
7	**CHECK FUEL TANK CORD.** 1) Disconnect connector from fuel sub level sensor. 2) Measure resistance between fuel level sensor and fuel sub level sensor. ***Connector & terminal*** ***(R58) No. 6 — (R59) No. 2:***	Is the measured value less than 1 Ω?	Go to step **8.**	Repair open circuit between fuel level sensor and fuel sub level sensor.

	Step	Check	Yes	No
8	**CHECK FUEL TANK CORD.** Measure resistance between fuel sub level sensor and coupling connector. ***Connector & terminal*** ***(R57) No. 6 — (R59) No. 1:***	Is the measured value less than 1 Ω?	Go to step **9.**	Repair open circuit between coupling connector and fuel sub level sensor.
9	**CHECK FUEL LEVEL SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel pump assembly. <Ref. to FU(H4SO)-66, Fuel Pump.> 2) While moving fuel level sensor float up and down, measure resistance between fuel level sensor terminals. ***Terminals*** ***No. 3 — No. 6:***	Is the measured value more than 54.5 Ω?	Replace fuel level sensor. <Ref. to FU(H4SO)-68, Fuel Level Sensor.>	Go to step **10.**
10	**CHECK FUEL SUB LEVEL SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel sub level sensor. <Ref. to FU(H4SO)-69, Fuel Sub Level Sensor.> 2) While moving fuel sub level sensor float up and down, measure resistance between fuel sub level sensor terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value more than 41.5 Ω?	Replace fuel sub level sensor. <Ref. to FU(H4SO)-69, Fuel Sub Level Sensor.>	Replace combination meter. <Ref. to IDI-13, Combination Meter Assembly.>

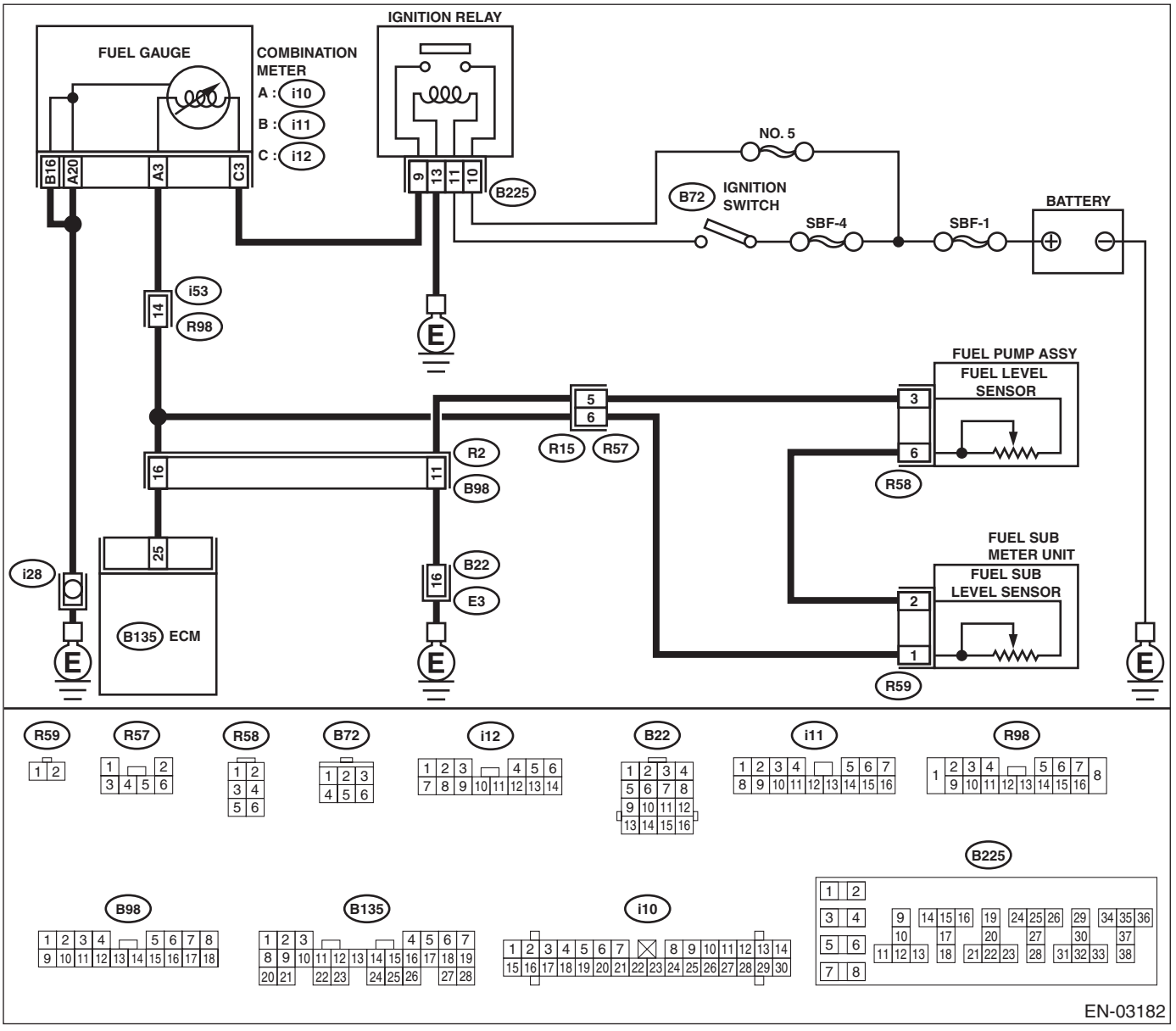
MEMO:

BI: DTC P0464 — FUEL LEVEL SENSOR CIRCUIT INTERMITTENT—

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FUEL LEVEL SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel pump assembly. <Ref. to FU(H4SO)-66, Fuel Pump.> 2) While moving fuel level sensor float up and down, make sure that the resistance between fuel level sensor terminals changes smoothly. ***Terminals*** ***No. 3 — No. 6:***	Does the resistance change smoothly?	Go to step **3.**	Replace fuel level sensor. <Ref. to FU(H4SO)-68, Fuel Level Sensor.>
3	**CHECK FUEL SUB LEVEL SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel sub level sensor. <Ref. to FU(H4SO)-69, Fuel Sub Level Sensor.> 2) While moving fuel sub level sensor float up and down, make sure that the resistance between fuel level sensor terminals changes smoothly. ***Terminals*** ***No. 1 — No. 2:***	Does the resistance change smoothly?	Repair poor contact in ECM, combination meter and coupling connectors.	Replace fuel sub level sensor. <Ref. to FU(H4SO)-69, Fuel Sub Level Sensor.>

MEMO:

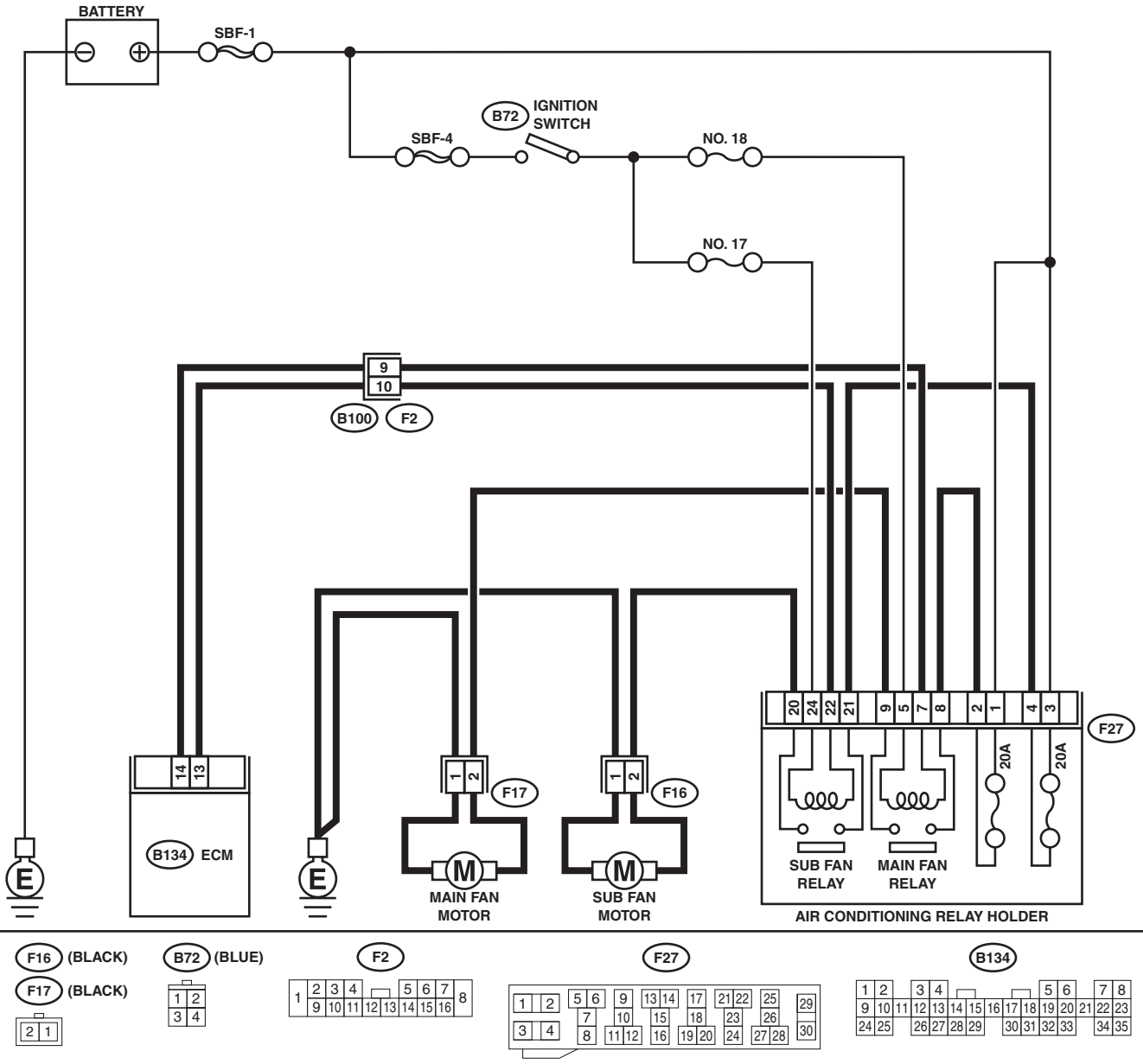
BJ:DTC P0483 — COOLING FAN RATIONALITY CHECK —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Occurrence of noise
  - Overheating

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

NOTE:
If the vehicle, with the engine idling, is placed very close to a wall or another vehicle, preventing normal cooling function, the OBD system may detect malfunction.

- **WIRING DIAGRAM:**



EN-03183

Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Check radiator fan and fan motor. <Ref. to CO(H4SO)-25, Radiator Main Fan and Fan Motor.> and <Ref. to CO(H4SO)-27, Radiator Sub Fan and Fan Motor.>

BK:DTC P0502 — VEHICLE SPEED SENSOR CIRCUIT LOW INPUT —

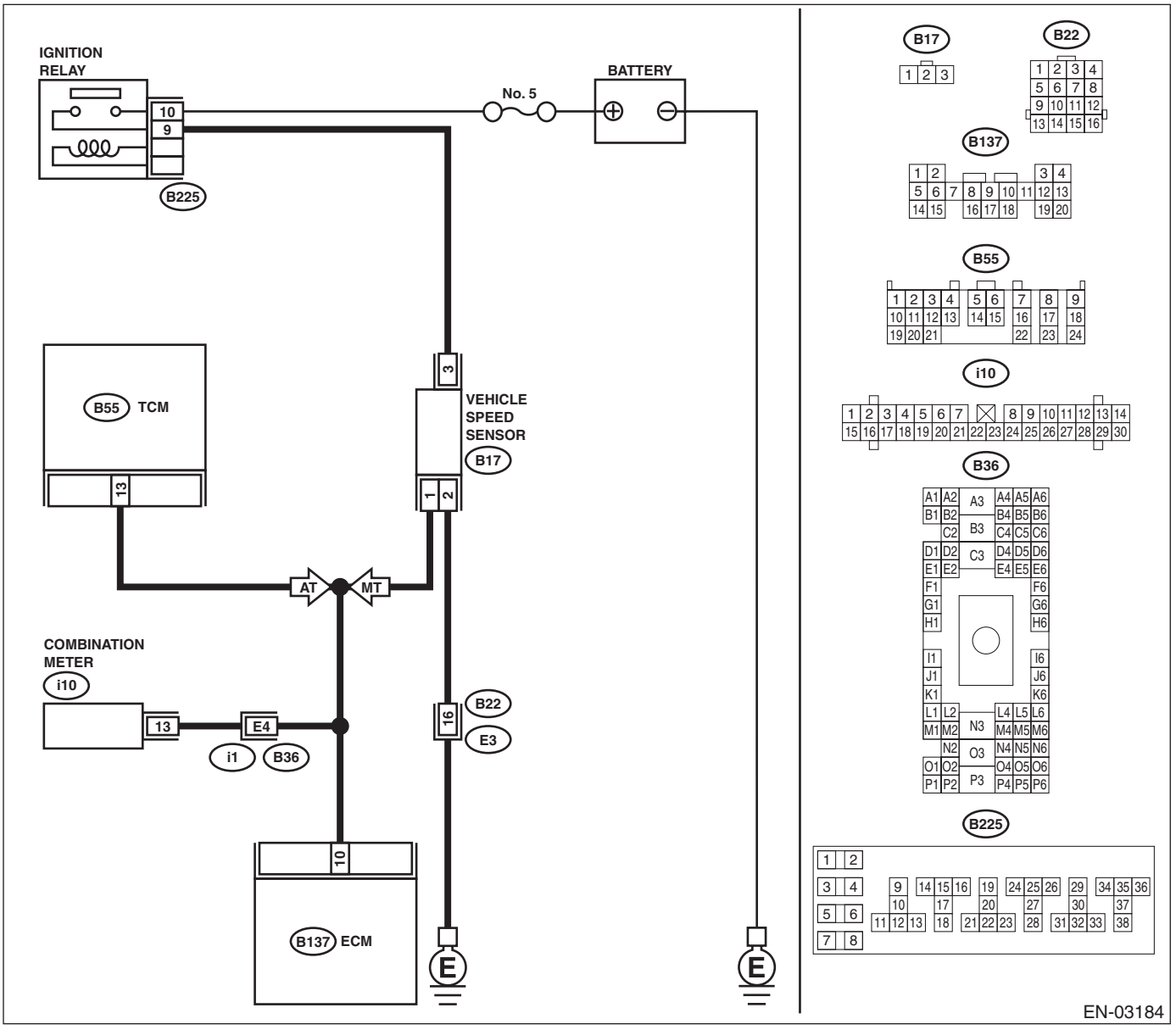
NOTE:
For the diagnostic procedure, refer to DTC P0503. <Ref. to EN(H4SO)-264, DTC P0503 — VEHICLE SPEED SENSOR INTERMITTENT/ERRATIC/HIGH —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BL:DTC P0503 — VEHICLE SPEED SENSOR INTERMITTENT/ERRATIC/HIGH —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



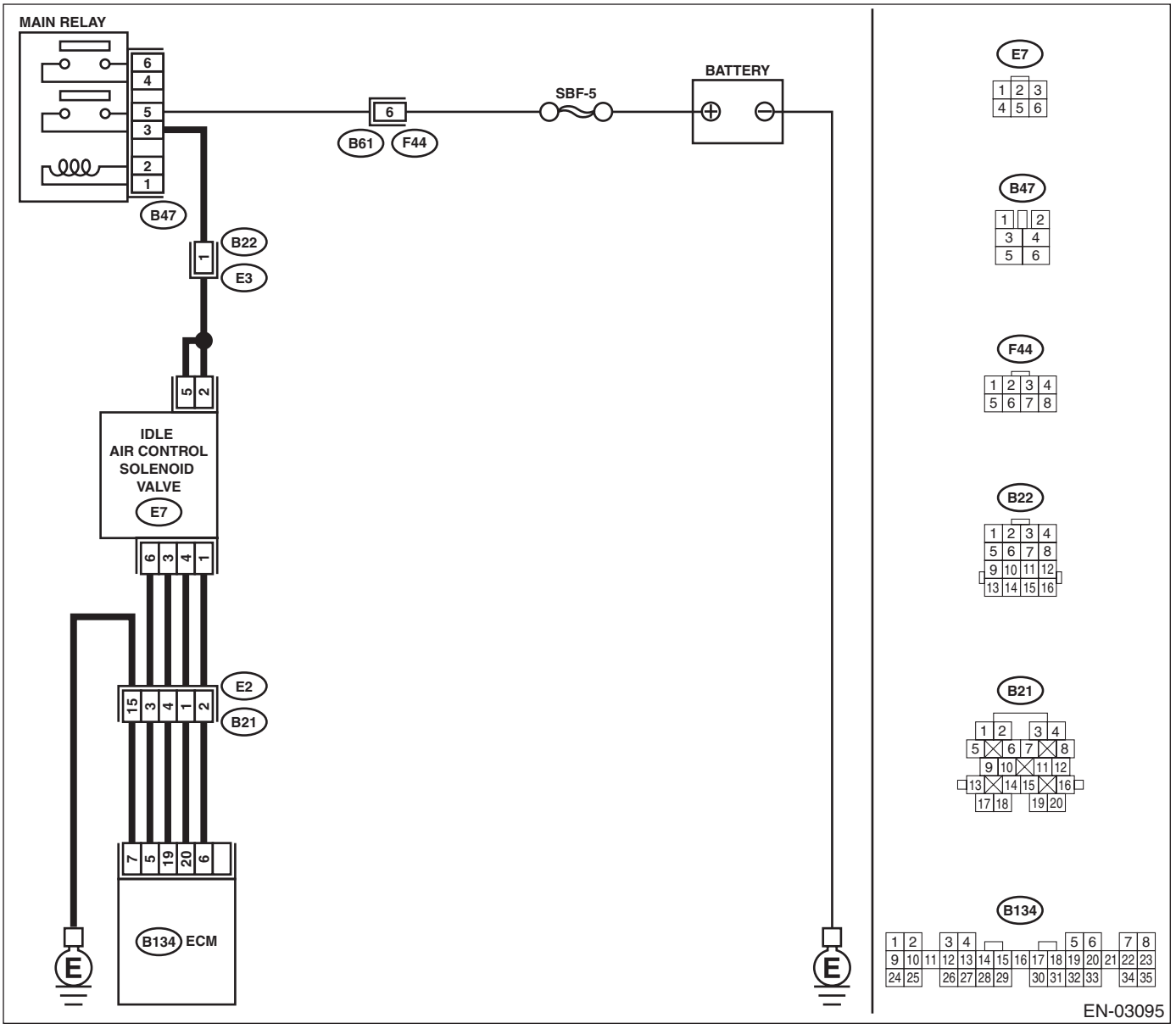
	Step	Check	Yes	No
1	**CHECK TRANSMISSION TYPE.**	Is the transmission type AT?	Go to step **2.**	Go to step **3.**
2	**CHECK DTC P0720 ON DISPLAY.**	Does the Subaru Select Monitor or general scan tool indicate DTC P0720?	Check front vehicle speed sensor signal circuit. <Ref. to 4AT-48, DTC 33 FRONT VEHICLE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Go to step **3.**
3	**CHECK SPEEDOMETER OPERATION IN COMBINATION METER.**	Does speedometer operate normally?	Go to step **4.**	Check speedometer and vehicle speed sensor. <Ref. to IDI-15, Speedometer.> and <Ref. to 4AT-54, Front Vehicle Speed Sensor.> and <Ref. to 4AT-59, Rear Vehicle Speed Sensor.> and <Ref. to 4AT-60, Torque Converter Turbine Speed Sensor.>
4	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from combination meter. 3) Measure resistance between ECM and combination meter. ***Connector & terminal*** ***(B137) No. 10 — (i10) No. 13:***	Is the measured value less than 10 Ω?	Repair poor contact in ECM connector.	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and combination meter connector • Poor contact in ECM connector • Poor contact in combination meter connector • Poor contact in coupling connector

BM:DTC P0506 — IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Engine is difficult to start.
  - Engine does not start.
  - Erroneous idling
  - Engine stalls.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



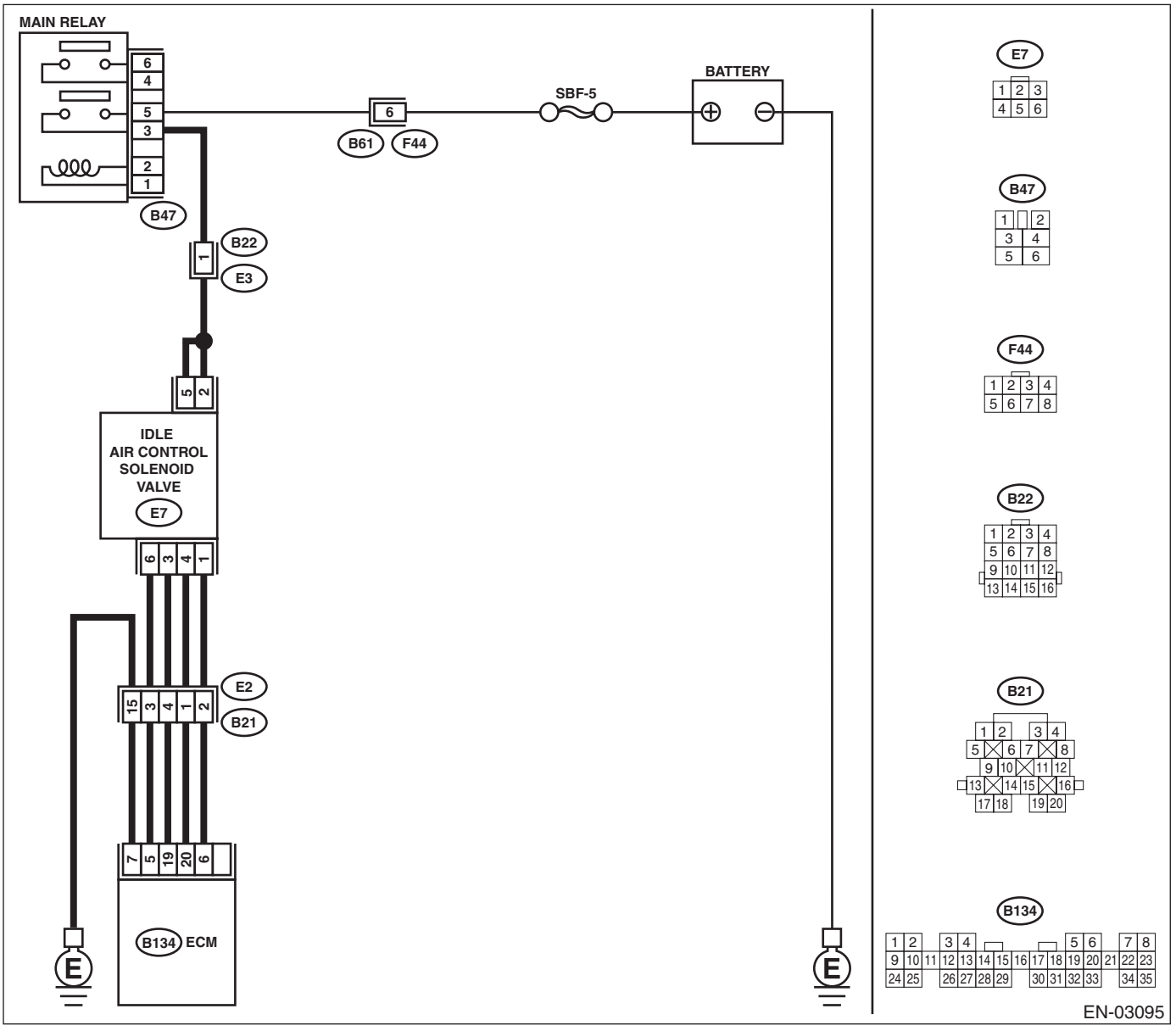
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0506.	Go to step **2.**
2	**CHECK AIR BY-PASS LINE.** 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <Ref. to FU(H4SO)-35, REMOVAL, Idle Air Control Solenoid Valve.> 3) Remove throttle body from intake manifold. <Ref. to FU(H4SO)-14, REMOVAL, Throttle Body.> 4) Using an air gun, force air into idle air control solenoid valve installation area. Confirm that forced air subsequently escapes from throttle body interior.	Does air flow out?	Replace idle air control solenoid valve. <Ref. to FU(H4SO)-35, INSTALLATION, Idle Air Control Solenoid Valve.>	Replace throttle body. <Ref. to FU(H4SO)-14, INSTALLATION, Throttle Body.>

BN:DTC P0507 — IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Engine keeps running at higher revolution than specified idling revolution.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



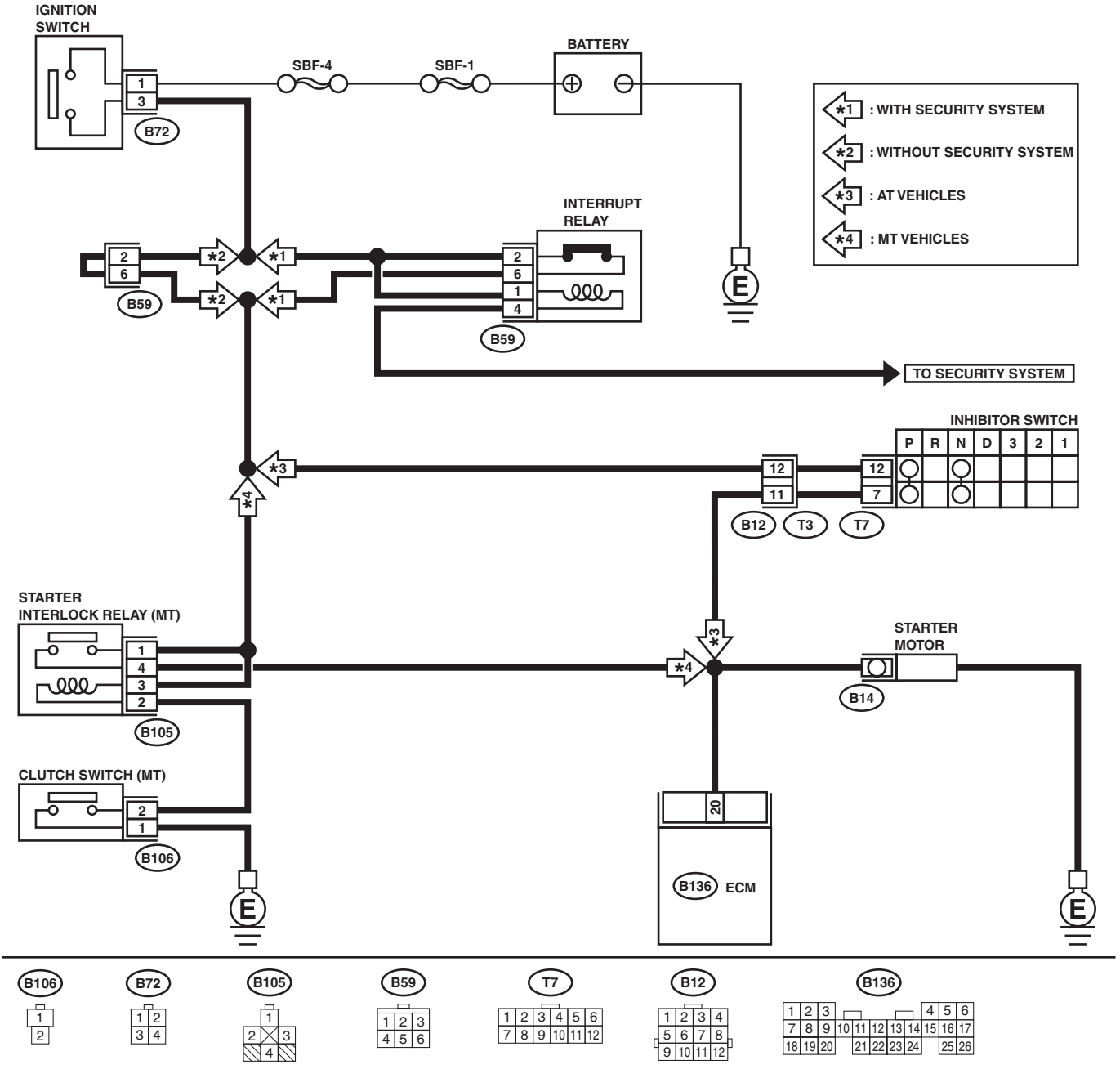
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0507.	Go to step **2.**
2	**CHECK AIR INTAKE SYSTEM.** 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. •Loose installation of intake manifold, idle air control solenoid valve and throttle body •Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket •Disconnections of vacuum hoses	Is there any fault in air intake system?	Repair air suction and leaks.	Go to step **3.**
3	**CHECK THROTTLE CABLE.**	Does throttle cable have play for adjustment?	Go to step **4.**	Adjust throttle cable. <Ref. to SP(H4SO)-6, Accelerator Control Cable.>
4	**CHECK AIR BY-PASS LINE.** 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <Ref. to FU(H4SO)-35, REMOVAL, Idle Air Control Solenoid Valve.> 3) Confirm that there are no foreign particles in by-pass air line.	Are foreign particles in by-pass air line?	Remove foreign particles from by-pass air line.	Replace idle air control solenoid valve. <Ref. to FU(H4SO)-35, Idle Air Control Solenoid Valve.>

BO:DTC P0512 — STARTER REQUEST CIRCUIT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-00715

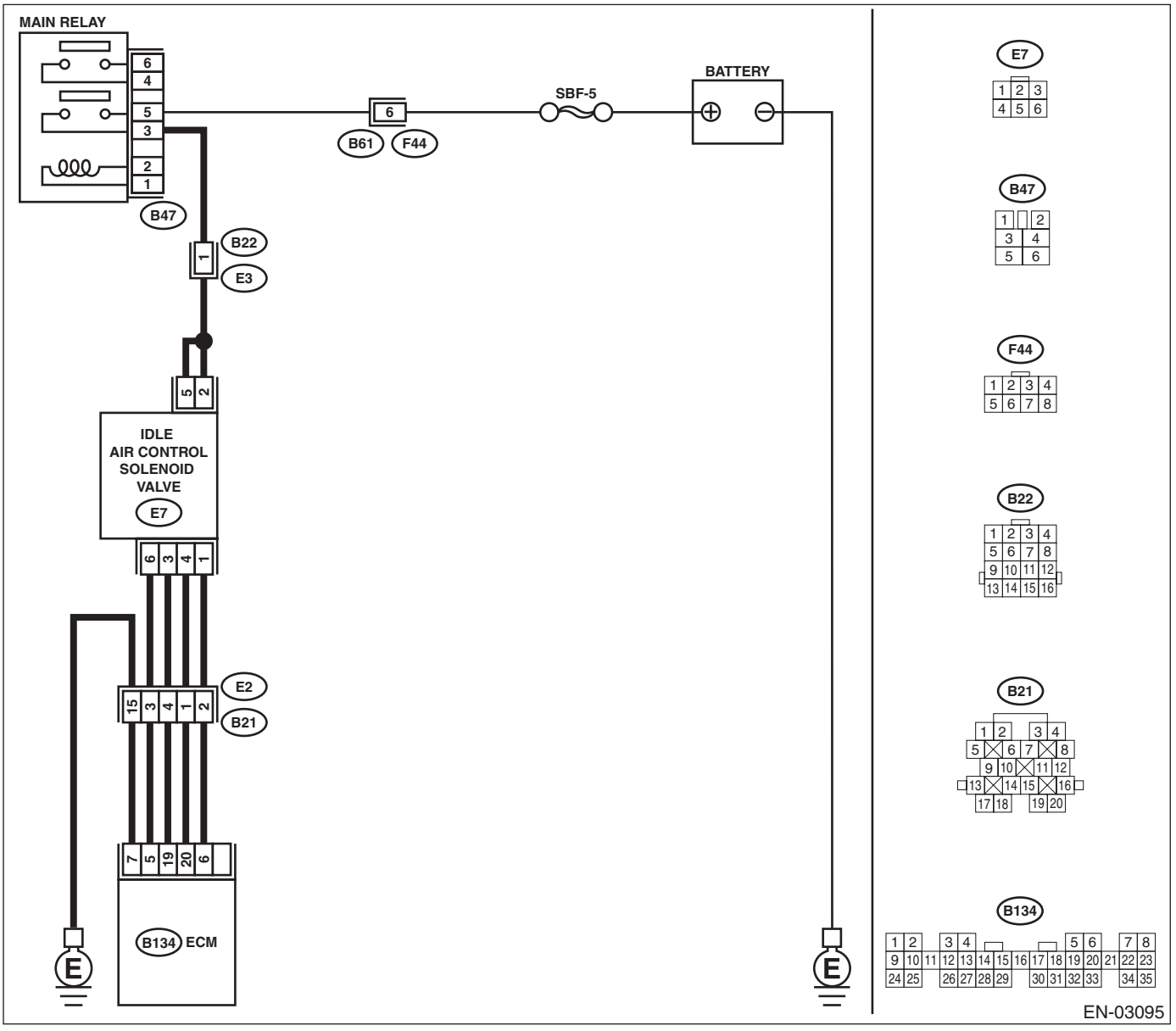
Step		Check	Yes	No
1	**CHECK OPERATION OF STARTER MOTOR.** NOTE: Place the inhibitor switch in “P” or “N” position (AT). Depress the clutch pedal (MT).	Does starter motor operate when ignition switch to “ON”?	Repair battery short circuit in starter motor circuit.	Check starter motor circuit. <Ref. to EN(H4SO)-64, Diagnostics for Engine Starting Failure.>

BP:DTC P0519 — IDLE AIR CONTROL CIRCUIT SYSTEM PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Engine keeps running at higher revolution than specified idling revolution.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



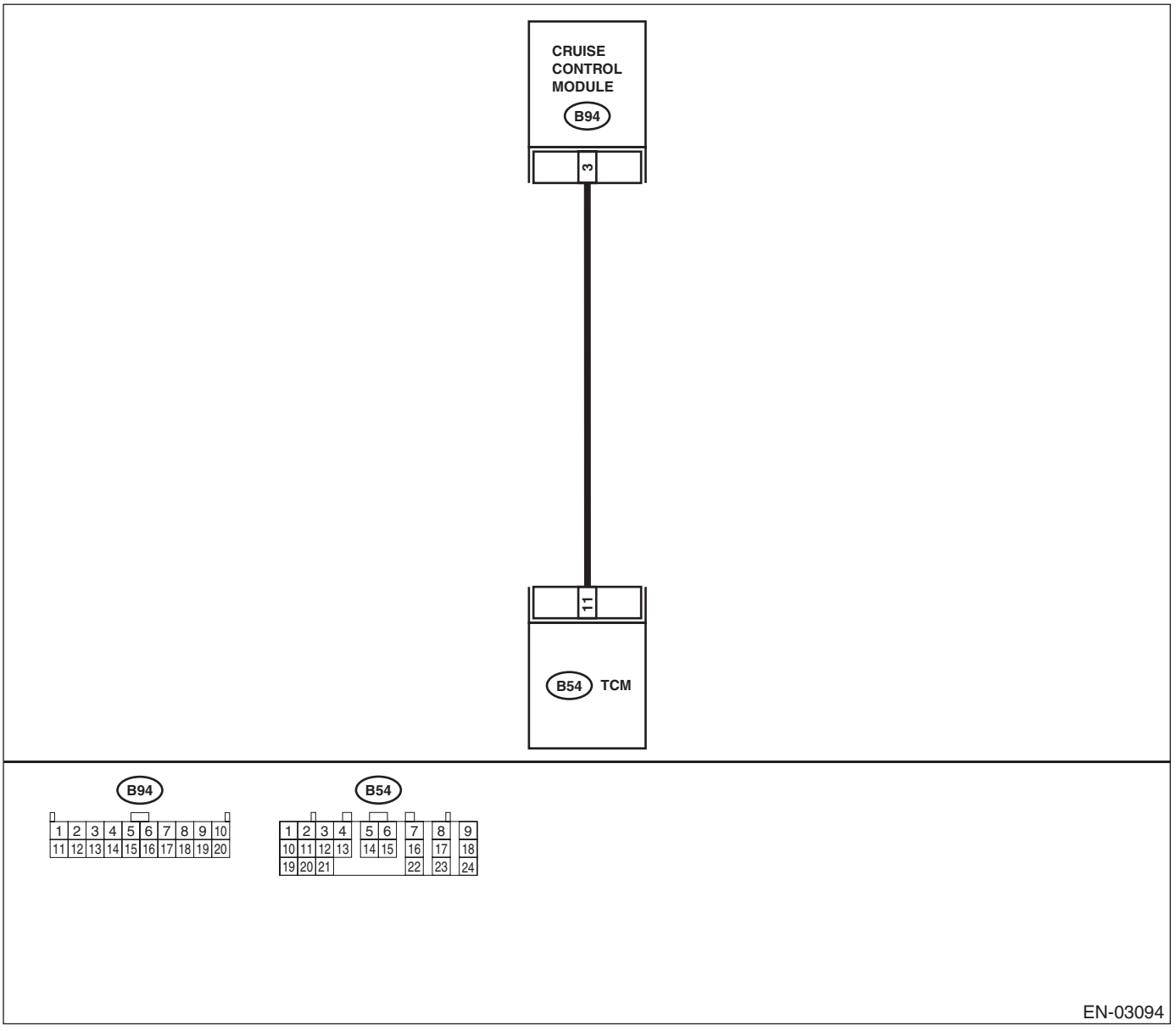
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0519.	Go to step **2.**
2	**CHECK AIR INTAKE SYSTEM.** 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. •Loose installation of intake manifold, idle air control solenoid valve and throttle body •Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket •Disconnections of vacuum hoses	Is there any malfunction in air intake system?	Repair air suction and leaks.	Go to step **3.**
3	**CHECK THROTTLE CABLE.**	Does throttle cable have play for adjustment?	Go to step **4.**	Adjust throttle cable. <Ref. to SP(H4SO)-6, Accelerator Control Cable.>
4	**CHECK AIR BY-PASS LINE.** 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <Ref. to FU(H4SO)-35, REMOVAL, Idle Air Control Solenoid Valve.> 3) Confirm that there are no foreign particles in by-pass air line.	Are foreign particles in by-pass air line?	Remove foreign particles from by-pass air line.	Replace idle air control solenoid valve. <Ref. to FU(H4SO)-35, Idle Air Control Solenoid Valve.>

BQ:DTC P0565 — CRUISE CONTROL ON SIGNAL —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



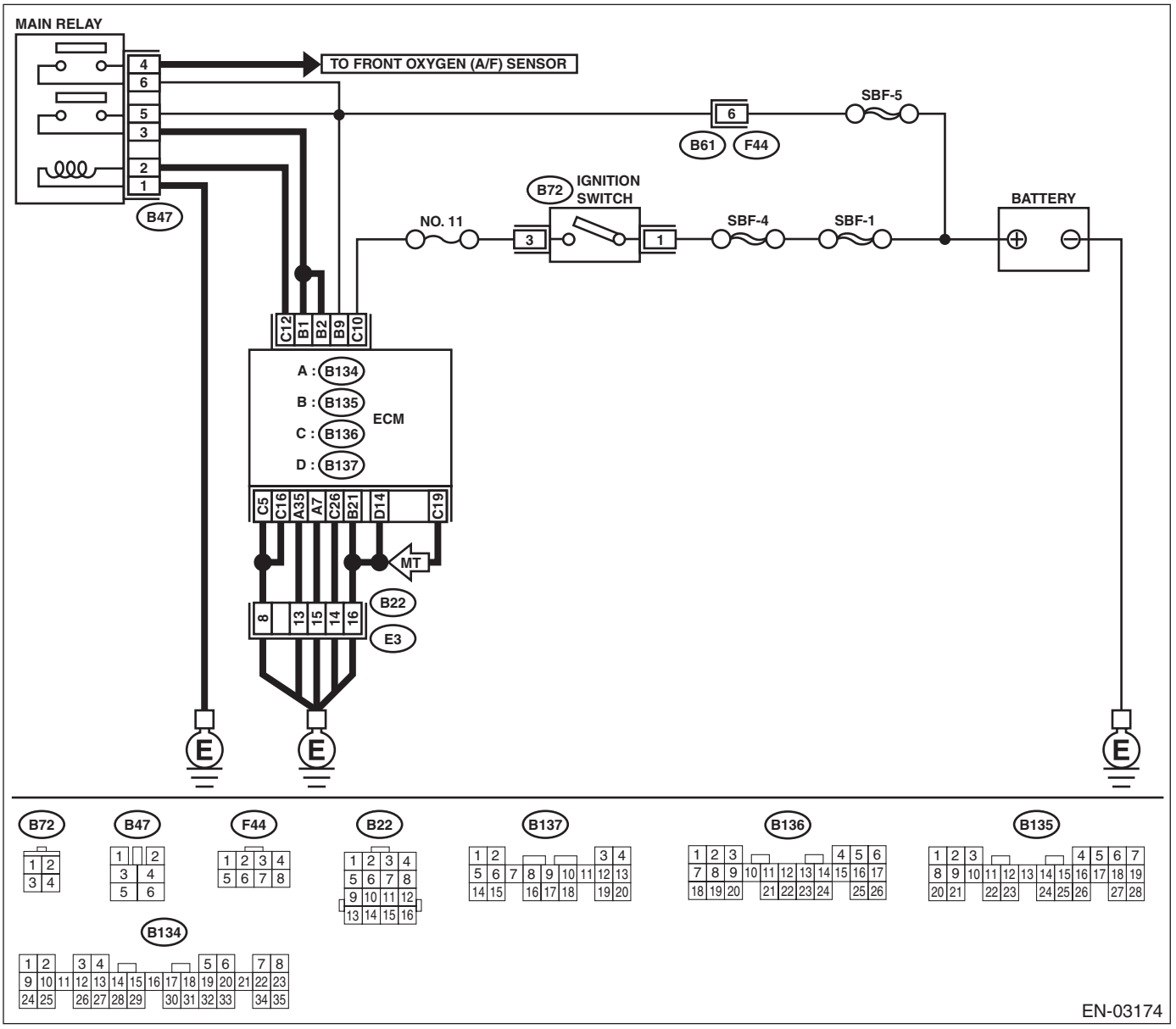
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from TCM and CCM. 3) Measure resistance of harness between TCM and CCM connector. ***Connector & terminal*** ***(B54) No. 11 - (B94) No. 3:***	Is the measured value less than 1 Ω?	Go to step **2.**	Repair open circuit in harness between TCM and CCM connector.
2	**CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.** Measure resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 22 - Chassis ground: (with SPORT shift)*** ***(B54) No. 11 - Chassis ground: (without SPORT shift)***	Is the measured value more than 1 MΩ?	Go to step **3.**	Repair short circuit in harness between TCM and CCM connector.
3	**CHECK INPUT SIGNAL FOR TCM.** 1) Connect connector to TCM and CCM. 2) Lift-up the vehicle or set the vehicle on free rollers. **CAUTION:** **On AWD models, raise all wheels off ground.** 3) Start the engine. 4) Cruise control main switch to ON. 5) Move selector lever to “D” and slowly increase vehicle speed to 50 km/h (31 MPH). 6) Cruise control command switch to ON. 7) Measure voltage between TCM and chassis ground. ***Connector & terminal*** ***(B54) No. 11 - Chassis ground:***	Is the measured value less than 1 V?	Go to step **4.**	Check cruise control command switch circuit. <Ref. to CC-8, INSPECTION, Cruise Control Command Switch.>
4	**CHECK POOR CONTACT.** Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor contact in TCM connector.	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

BR:DTC P0604 — INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Engine does not start.
  - Engine stalls.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step	Check	Yes	No
1 **CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the related DTC using List of Diagnostic Trouble Code (DTC). <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	A temporary poor contact.

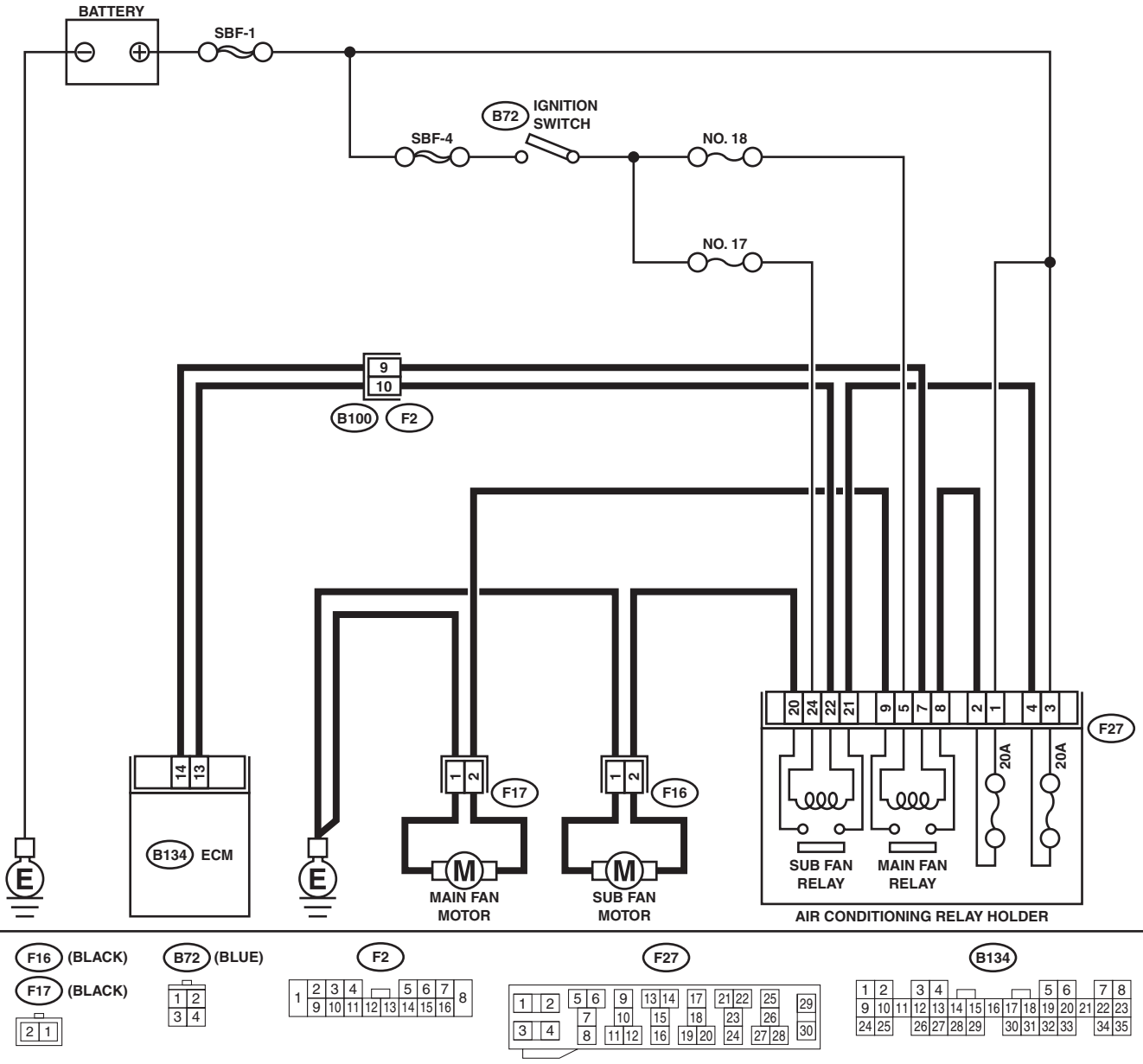
MEMO:

BS:DTC P0691 — COOLING FAN 1 CONTROL CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Radiator fan does not operate properly.
  - Overheating

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-03183

	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side). 3) Turn ignition switch to ON. 4) While operating radiator fan relay, measure voltage between ECM terminal and ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H4SO)-34, Subaru Select Monitor.> ***Connector & terminal*** ***(B134) No. 14 (+) — Chassis ground (−):***	Is the measured value within 0 to 10 V?	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK GROUND SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and remove main fan relay from A/C relay holder. 3) Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 14 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **3.**	Repair ground short circuit in radiator fan relay 1 control circuit.
3	**CHECK POWER SUPPLY FOR RELAY.** 1) Turn ignition switch to ON. 2) Measure voltage between fuse and relay box (F/B) connector and chassis ground. ***Connector & terminal*** ***(F27) No. 5 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **4.**	Repair open circuit in harness between ignition switch and fuse and relay box (F/B) connector.
4	**CHECK MAIN FAN RELAY.** 1) Turn ignition switch to OFF. 2) Measure resistance between main fan relay terminals. ***Terminal*** ***No. 5 — No. 7:***	Is the measured value within 87 to 107 Ω?	Go to step **5.**	Replace main fan relay.
5	**CHECK OPEN CIRCUIT IN MAIN FAN RELAY CONTROL CIRCUIT.** Measure resistance of harness between ECM and main fan relay connector. ***Connector & terminal*** ***(B134) No. 14 — (F27) No. 7:***	Is the measured value less than 1 Ω?	Go to step **6.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and main fan relay connector • Poor contact in coupling connector
6	**CHECK POOR CONTACT.** Check poor contact in ECM or main fan relay connector.	Is there poor contact in ECM or main fan relay connector?	Repair poor contact in ECM or main fan relay connector.	Contact with SOA service center.

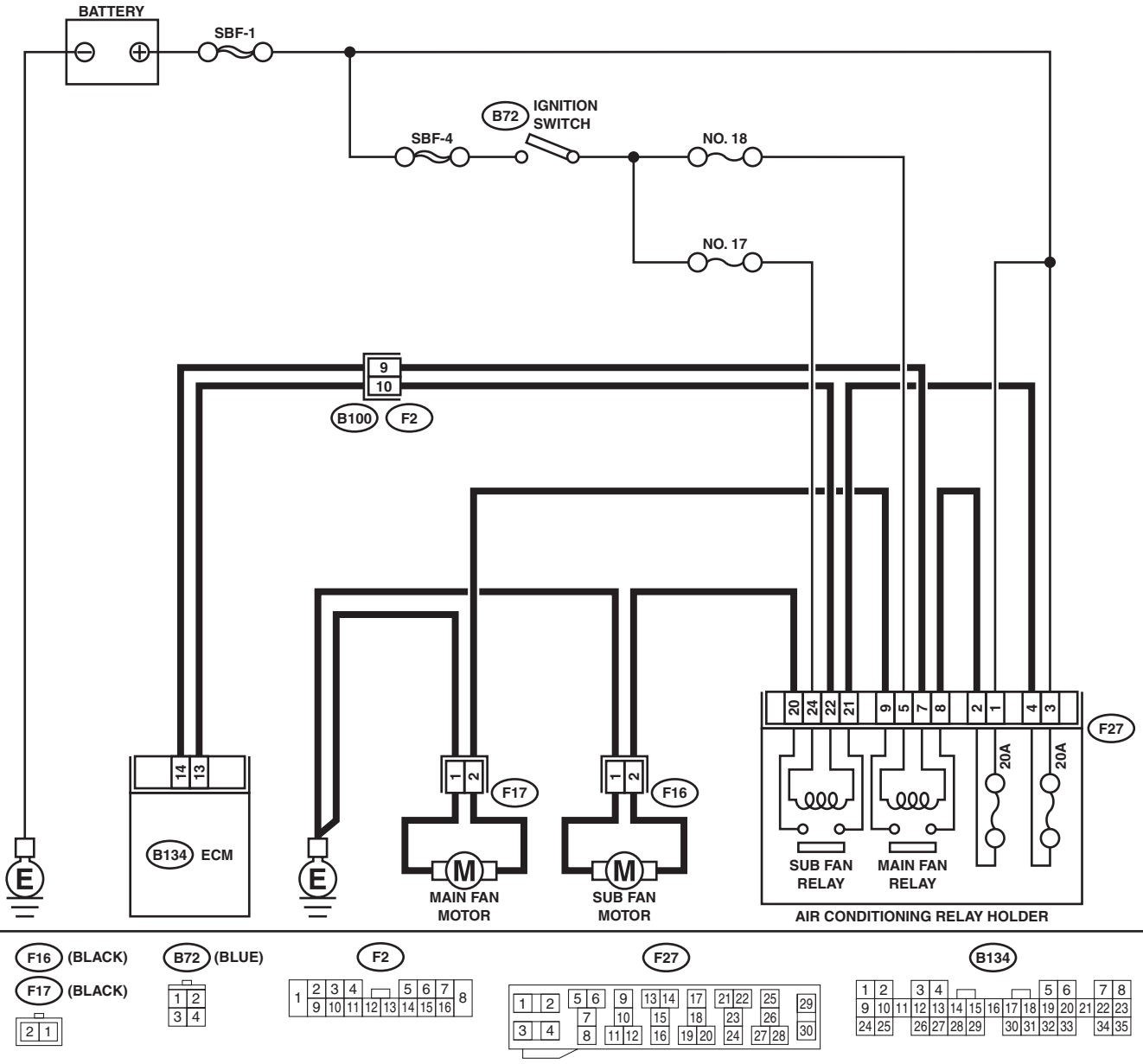
MEMO:

BT:DTC P0692 — COOLING FAN 1 CONTROL CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Radiator fan does not operate properly.
  - Overheating

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-03183

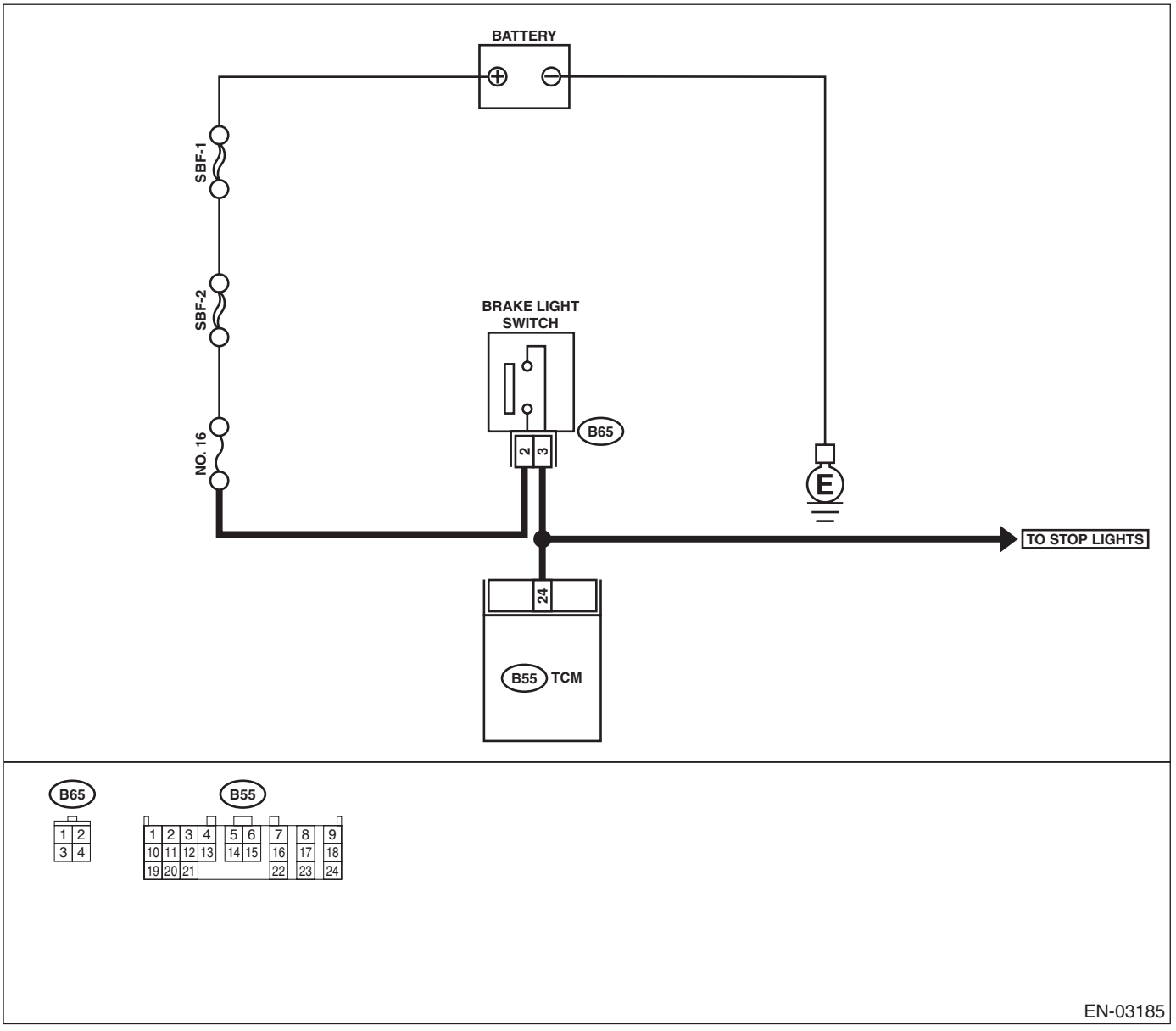
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating radiator fan relay, measure voltage between ECM and chassis ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B134) No. 14 (+) — Chassis ground (−):***	Is the measured value within 0 to 10 V?	Even if MIL lights up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY CONTROL CIRCUIT.** 1) Turn ignition switch to OFF. 2) Remove main fan relay and sub fan relay. (with A/C models) 3) Disconnect test mode connector. 4) Turn ignition switch to ON. 5) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 14 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in radiator fan relay control circuit.	Go to step **3.**
3	**CHECK MAIN FAN RELAY.** 1) Turn ignition switch to OFF. 2) Remove main fan relay. 3) Measure resistance between main fan relay terminals. ***Terminal*** ***No. 5 — No. 7:***	Is the measured value less than 1 Ω?	Replace main fan relay.	Go to step **4.**
4	**CHECK SUB FAN RELAY.** 1) Remove sub fan relay. 2) Measure resistance between sub fan relay terminals. ***Terminal*** ***No. 22 — No. 24***	Is the measured value less than 1 Ω?	Replace sub fan relay.	Go to step **5.**
5	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

BU:DTC P0703 — TORQUE CONVERTER/BRAKE SWITCH "B" CIRCUIT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	CHECK OPERATION OF BRAKE LIGHT.	Does brake light come on when depressing the brake pedal?	Go to step **2.**	Repair or replace brake light circuit.

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.** 1) Disconnect connectors from TCM and brake light switch. 2) Measure resistance of harness between TCM and brake light switch connector. ***Connector & terminal*** ***(B55) No. 24 — (B65) No. 3:***	Is the measured value less than 1 Ω?	Go to step **3.**	Repair or replace harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between TCM and brake light switch connector • Poor contact in TCM connector • Poor contact in brake light switch connector
3	**CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.** Measure resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 24 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **4.**	Repair ground short circuit in harness between TCM and brake light switch connector.
4	**CHECK INPUT SIGNAL FOR TCM.** 1) Connect connectors to TCM and brake light switch. 2) Measure voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 24 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Go to step **5.**	Adjust or replace brake light switch. <Ref. to LI-8, STOP LIGHT SWITCH, INSPECTION, Stop Light System.>
5	**CHECK INPUT SIGNAL FOR TCM.** Measure voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 24 (+) — Chassis ground (−):***	Is the measured value more than 10 V when depressing the brake pedal?	Go to step **6.**	Adjust or replace brake light switch. <Ref. to LI-8, STOP LIGHT SWITCH, INSPECTION, Stop Light System.>
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor contact in TCM connector.	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

BV:DTC P0731 — GEAR 1 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4SO)-289, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BW:DTC P0732 — GEAR 2 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4SO)-289, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BX:DTC P0733 — GEAR 3 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4SO)-289, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BY:DTC P0734 — GEAR 4 INCORRECT RATIO —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Shift point too high or too low; engine brake not effected in “3” range; excessive shift shock; excessive tight corner “braking”

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**

	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect relevant DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK THROTTLE POSITION SENSOR CIRCUIT.** Check throttle position sensor circuit. <Ref. to 4AT-44, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in throttle position sensor circuit?	Repair or replace throttle position sensor circuit.	Go to step **3.**
3	**CHECK FRONT VEHICLE SPEED SENSOR CIRCUIT.** Check front vehicle speed sensor circuit. <Ref. to 4AT-48, DTC 33 FRONT VEHICLE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in vehicle speed sensor 2 circuit?	Repair or replace vehicle speed sensor 2 circuit.	Go to step **4.**
4	**CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.** Check torque converter turbine speed sensor circuit. <Ref. to 4AT-52, DTC 36 TORQUE CONVERTER TURBINE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in torque converter turbine speed sensor circuit?	Repair or replace torque converter turbine speed sensor circuit.	Go to step **5.**
5	**CHECK POOR CONTACT.** Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor contact in TCM connector.	Go to step **6.**
6	**CHECK MECHANICAL TROUBLE.** Check mechanical trouble in automatic transmission.	Is there any mechanical trouble in automatic transmission?	Repair or replace automatic transmission. <Ref. to 4AT-33, INSPECTION, Road Test.>	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

BZ:DTC P0741 — TORQUE CONVERTER CLUTCH CIRCUIT PERFORMANCE OR STUCK OFF —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - No lock-up (after engine warm-up)
  - No shift or excessive tight corner “braking”

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK LOCK-UP DUTY SOLENOID CIRCUIT.** Check lock-up duty solenoid circuit. <Ref. to 4AT-84, DTC 77 LOCK-UP DUTY SOLENOID, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in lock-up duty solenoid circuit?	Repair or replace lock-up duty solenoid circuit.	Go to step **3.**
3	**CHECK THROTTLE POSITION SENSOR CIRCUIT.** Check throttle position sensor circuit. <Ref. to 4AT-44, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in throttle position sensor circuit?	Repair or replace throttle position sensor circuit.	Go to step **4.**
4	**CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.** Check torque converter turbine speed sensor circuit. <Ref. to 4AT-52, DTC 36 TORQUE CONVERTER TURBINE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in torque converter turbine speed sensor circuit?	Repair or replace torque converter turbine speed sensor circuit.	Go to step **5.**
5	**CHECK ENGINE SPEED INPUT CIRCUIT.** Check engine speed input circuit. <Ref. to 4AT-38, DTC 11 ENGINE SPEED SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in engine speed input circuit?	Repair or replace engine speed input circuit.	Go to step **6.**
6	**CHECK INHIBITOR SWITCH CIRCUIT.** Check inhibitor switch circuit. <Ref. to 4AT-101, CHECK INHIBITOR SWITCH, Diagnostic Procedure without Diagnostic Trouble Code (DTC).>	Is there any malfunction in inhibitor switch circuit?	Repair or replace inhibitor switch circuit.	Go to step **7.**
7	**CHECK BRAKE LIGHT SWITCH CIRCUIT.** Check brake light switch circuit. <Ref. to 4AT-99, CHECK BRAKE SWITCH, Diagnostic Procedure without Diagnostic Trouble Code (DTC).>	Is there any malfunction in brake light switch circuit?	Repair or replace brake light switch circuit.	Go to step **8.**

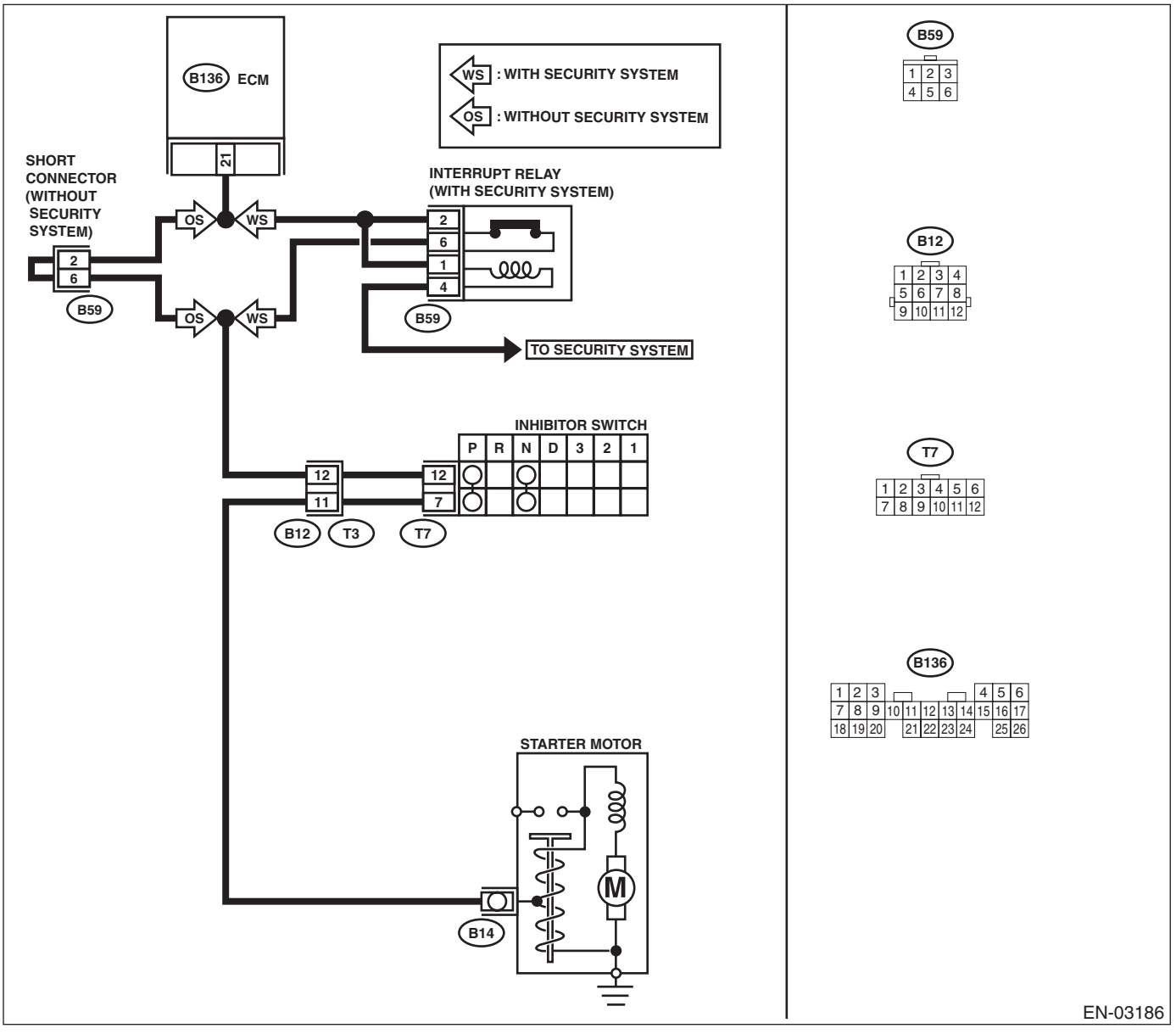
	Step	Check	Yes	No
8	**CHECK ATF TEMPERATURE SENSOR CIRCUIT.** Check ATF temperature sensor circuit. <Ref. to 4AT-40, DTC 27 ATF TEMPERATURE SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Is there any malfunction in ATF temperature sensor circuit?	Repair or replace ATF temperature sensor circuit.	Go to step **9.**
9	**CHECK POOR CONTACT.** Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor contact in TCM connector.	Go to step **10.**
10	**CHECK MECHANICAL TROUBLE.** Check mechanical trouble in automatic transmission.	Is there any mechanical malfunction in automatic transmission?	Repair or replace automatic transmission. <Ref. to 4AT-33, INSPECTION, Road Test.>	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

CA:DTC P0851 — NEUTRAL SWITCH INPUT CIRCUIT LOW (AT MODEL) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



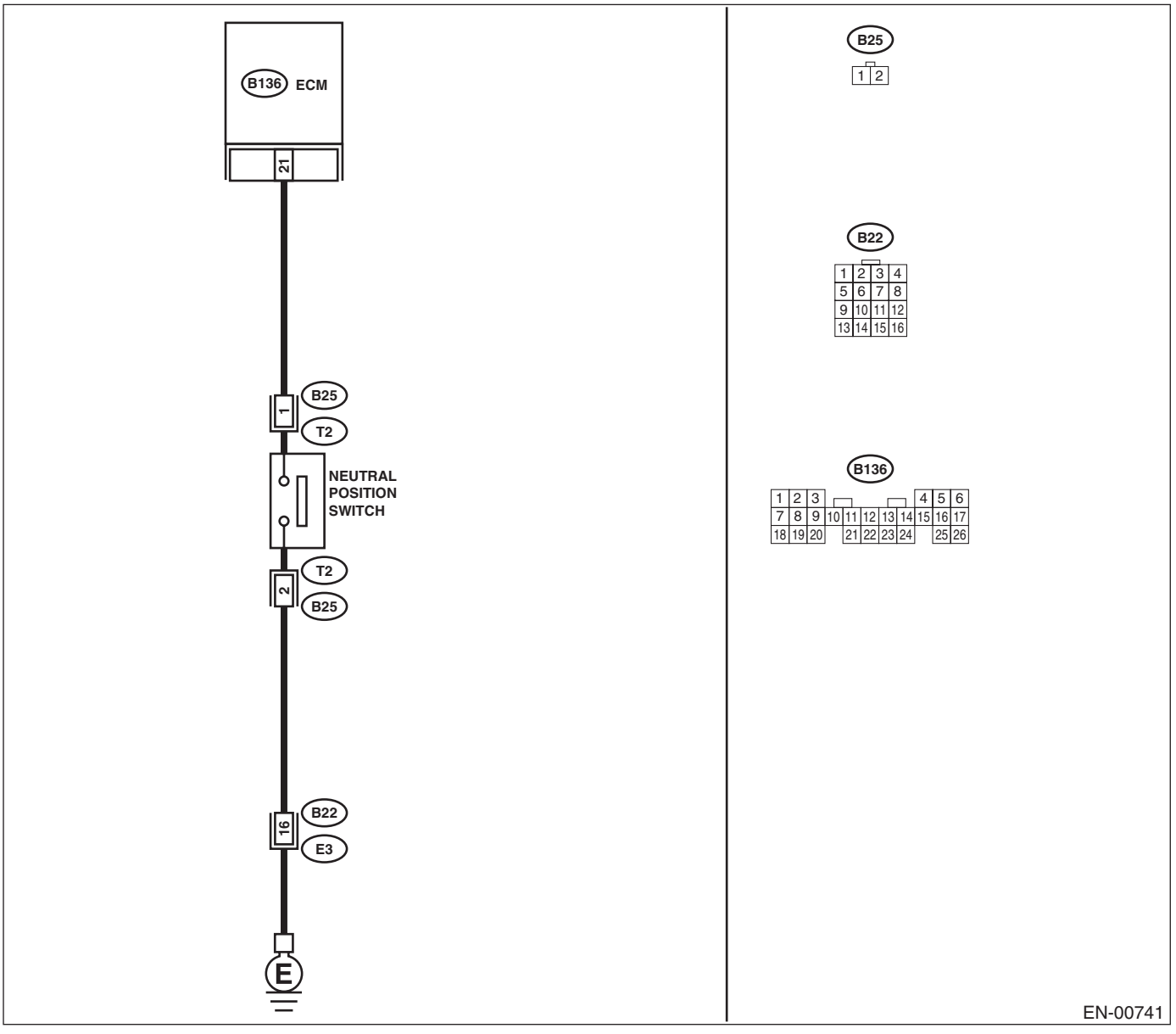
	Step	Check	Yes	No
1	**CHECK SELECTOR CABLE CONNECTION.**	Is there any malfunction in selector cable?	Repair or adjust selector cable connection. <Ref. to CS-31, Select Cable.>	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Place the select lever in any other than “P” or “N” range. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Even if MIL lights up, the circuit has returned to a normal condition at this time.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and transmission harness connector (T3). 3) Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 21 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **4.**	Repair ground short circuit in harness between ECM and transmission harness connector.
4	**CHECK TRANSMISSION HARNESS CONNECTOR.** 1) Disconnect connector from inhibitor switch. 2) Measure resistance of harness between transmission harness connector and engine ground. ***Connector & terminal*** ***(T3) No. 12 — Engine ground:***	Is the measured value more than 1 MΩ?	Go to step **5.**	Repair ground short circuit in harness between transmission harness and inhibitor switch connector.
5	**CHECK INHIBITOR SWITCH.** Measure resistance between inhibitor switch connector terminals in select lever in any other than “P” or “N” position. ***Terminals*** ***No. 7 — No. 12:***	Is the measured value more than 1 MΩ?	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Replace inhibitor switch. <Ref. to 4AT-50, Inhibitor Switch.>

CB:DTC P0851 — NEUTRAL SWITCH INPUT CIRCUIT LOW (MT MODEL) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



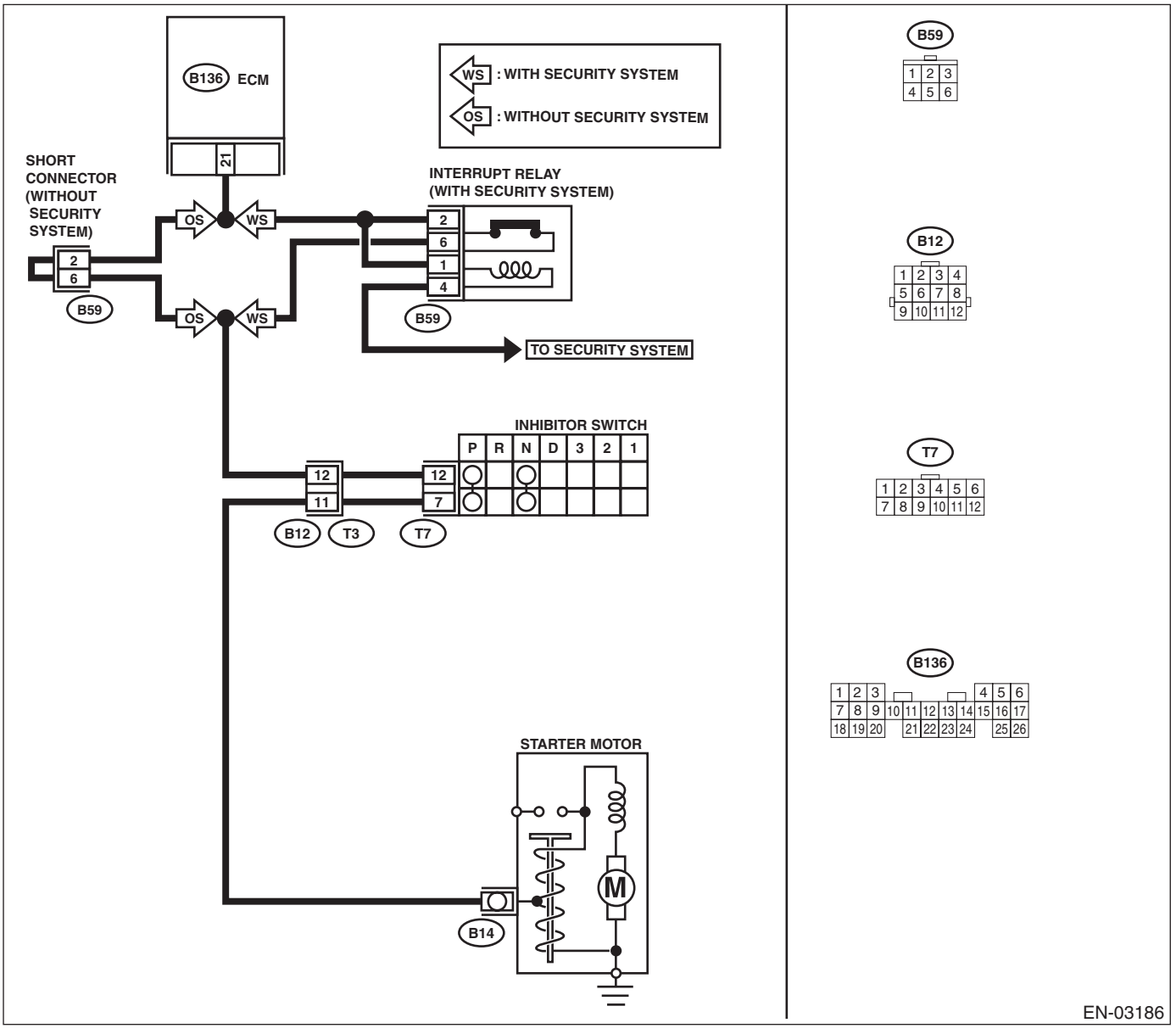
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Place the shift lever in neutral position. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Place the shift lever in any other than neutral position. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value more than 5 V?	Go to step **3.**	Go to step **4.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK NEUTRAL POSITION SWITCH.** 1) Turn ignition switch to OFF. 2) Disconnect connector from transmission harness. 3) Place the shift lever in neutral position. 4) Measure resistance between transmission harness and connector terminals. ***Connector & terminal*** ***(T2) No. 1 — No. 2:***	Is the measured value 1 MΩ or less?	Go to step **5.**	Repair open circuit in transmission harness or replace neutral position switch.
5	**CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.** 1) Disconnect connector from ECM. 2) Measure resistance between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **6.**	Repair ground short circuit in harness between ECM and transmission harness connector.
6	**CHECK POOR CONTACT.** Check poor contact in transmission harness connector.	Is there poor contact in transmission harness connector?	Repair poor contact in transmission harness connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CC:DTC P0852 — NEUTRAL SWITCH INPUT CIRCUIT HIGH (AT MODEL) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK SELECTOR CABLE CONNECTION.**	Is there any malfunction in selector cable?	Repair or adjust selector cable connection. <Ref. to CS-31, Select Cable.>	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground in select level “N” and “P” positions. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Go to step **3.**	Go to step **5.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground in select level “N” and “P” positions. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **4.**	Go to step **5.**
4	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector.	Repair poor contact in ECM connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
5	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair the battery short in harness between ECM and inhibitor switch connector.	Go to step **6.**
6	**CHECK HARNESS BETWEEN ECM AND INHIBITOR SWITCH CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and inhibitor switch. 3) Measure resistance of harness between ECM and inhibitor switch connector. ***Connector & terminal*** ***(B136) No. 21 — (T7) No. 12:***	Is the measured value less than 1 Ω?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and inhibitor switch connector • Poor contact in coupling connector • Poor contact in inhibitor switch connector • Poor contact in ECM connector

	Step	Check	Yes	No
7	**CHECK INHIBITOR SWITCH GROUND LINE.** Measure resistance of harness between inhibitor switch connector and engine ground. ***Connector & terminal*** ***(T7) No. 7 — Engine ground:***	Is the measured value less than 5 Ω?	Go to step **8.**	Repair open circuit in harness between inhibitor switch connector and starter motor ground line. NOTE: In this case, repair the following: • Open circuit in harness between inhibitor switch connector and starter motor grond line • Poor contact in satrter motor connector • Poor contact in starter motor ground • Starter motor
8	**CHECK INHIBITOR SWITCH.** Measure resistance between inhibitor switch connector terminals in select level “N” and “P” positions. ***Terminal*** ***No. 7 — No. 12:***	Is the measured value less than 1 Ω?	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Replace inhibitor switch. <Ref. to 4AT-50, Inhibitor Switch.>

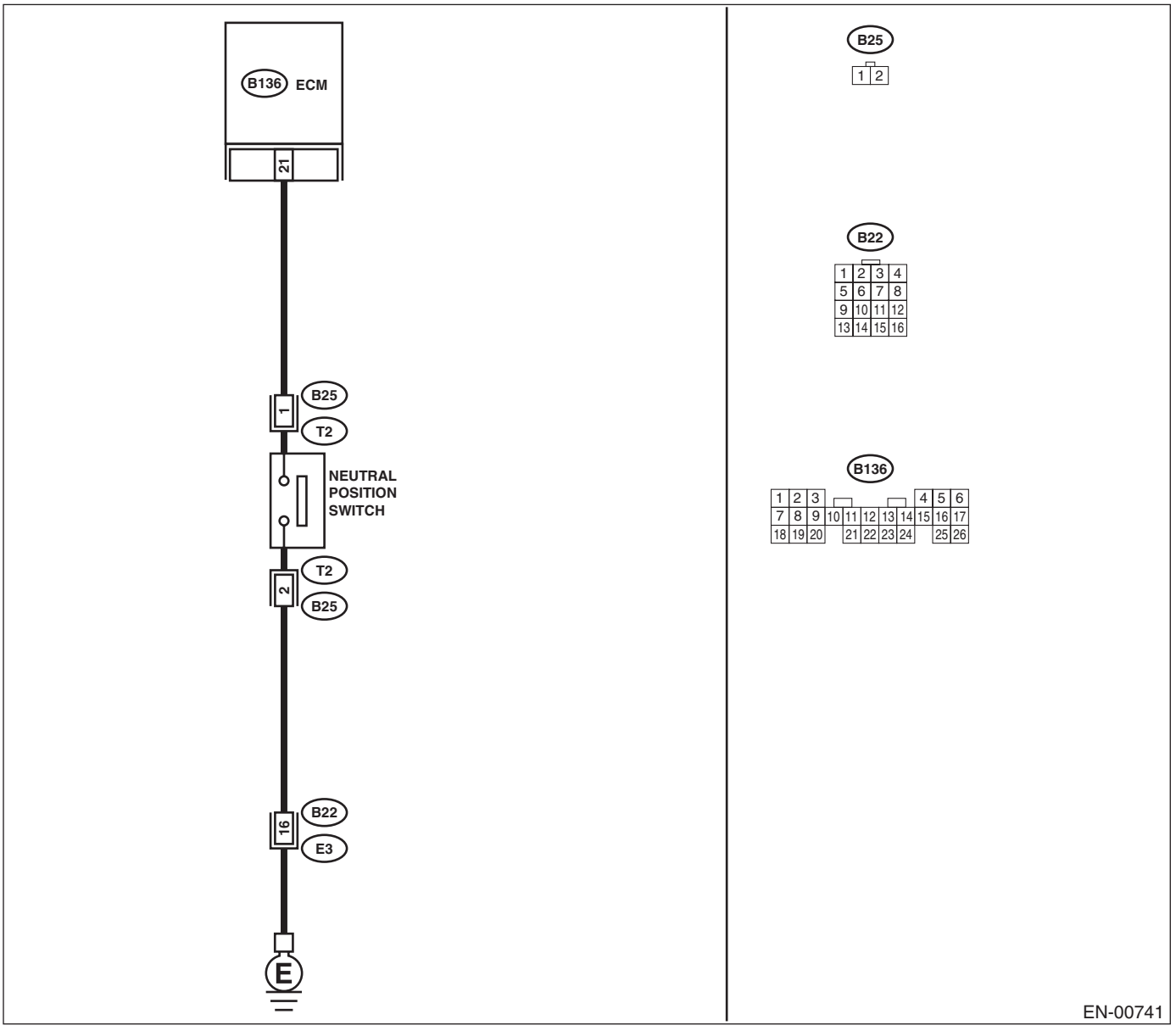
MEMO:

CD:DTC P0852 — NEUTRAL SWITCH INPUT CIRCUIT HIGH (MT MODEL) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Place the shift lever in neutral position. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Place the shift lever in any other than neutral position. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 21 (+) — Chassis ground (−):***	Is the measured value more than 5 V?	Go to step **3.**	Go to step **5.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK NEUTRAL POSITION SWITCH.** 1) Place the shift lever in any other than neutral position. 2) Measure resistance between transmission harness connector terminals. ***Connector & terminal*** ***(T2) No. 1 — No. 2:***	Is the measured value 1 MΩ or more?	Go to step **5.**	Repair short circuit in transmission harness or replace neutral position switch.
5	**CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.** 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and transmission harness connector. ***Connector & terminal*** ***(B136) No. 21 — (B25) No. 1:***	Is the measured value less than 1 Ω?	Go to step **6.**	Repair open circuit in harness between ECM and transmission harness connector.
6	**CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.** Measure resistance of harness between transmission harness connector and engine ground. ***Connector & terminal*** ***(B25) No. 2 — Engine ground:***	Is the measured value less than 5 Ω?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between transmission harness connector and engine grounding terminal • Poor contact in coupling connector

Step		Check	Yes	No
7	**CHECK POOR CONTACT.** Check poor contact in transmission harness connector.	Is there poor contact in transmission harness connector?	Repair poor contact in transmission harness connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

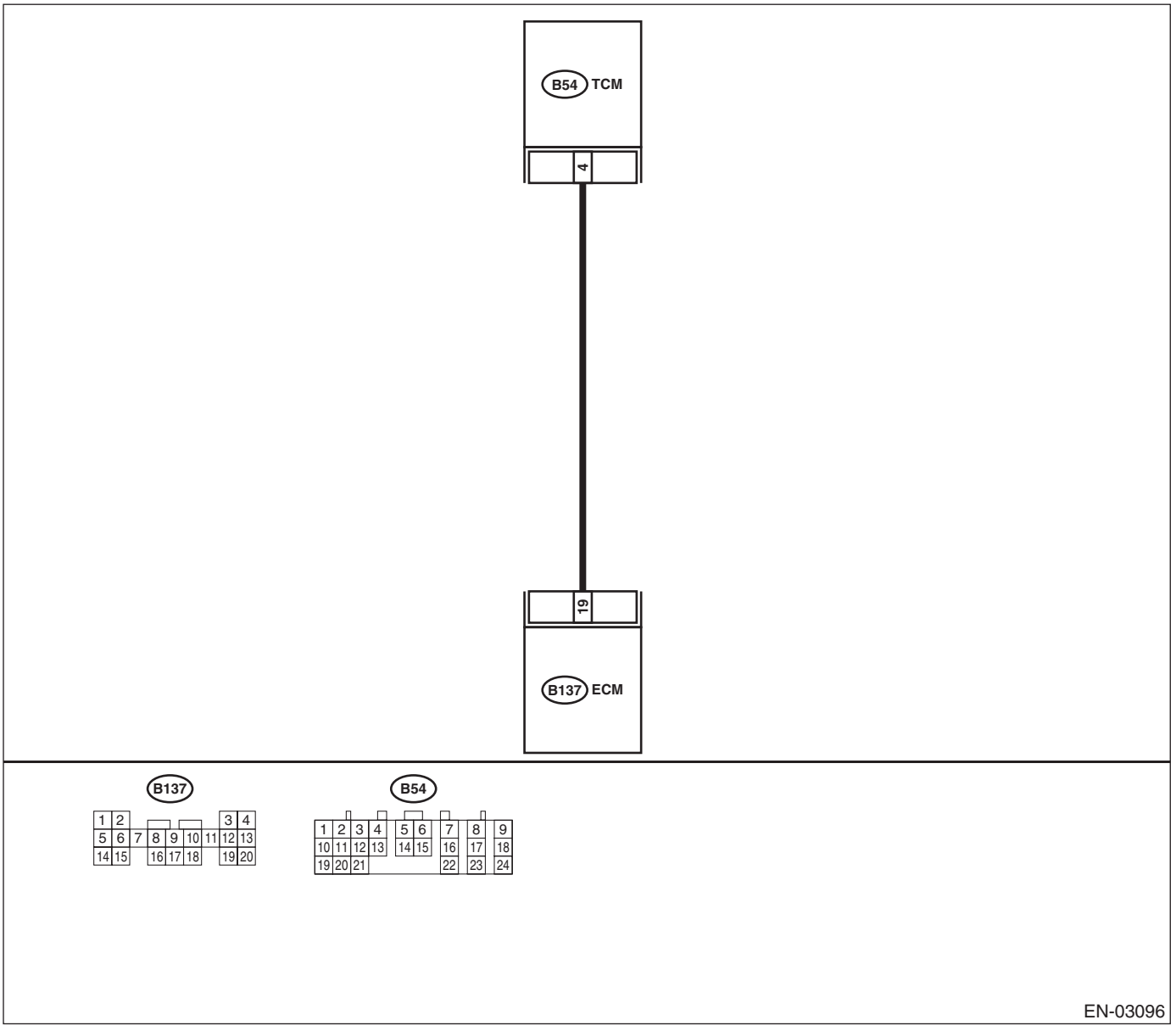
MEMO:

CE:DTC P0864 — TCM COMMUNICATION CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK DRIVING CONDITION.** 1) Start and warm-up the engine until the radiator fan makes one complete rotation. 2) Drive the vehicle.	Is AT shift control functioning properly?	Go to step **2.**	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

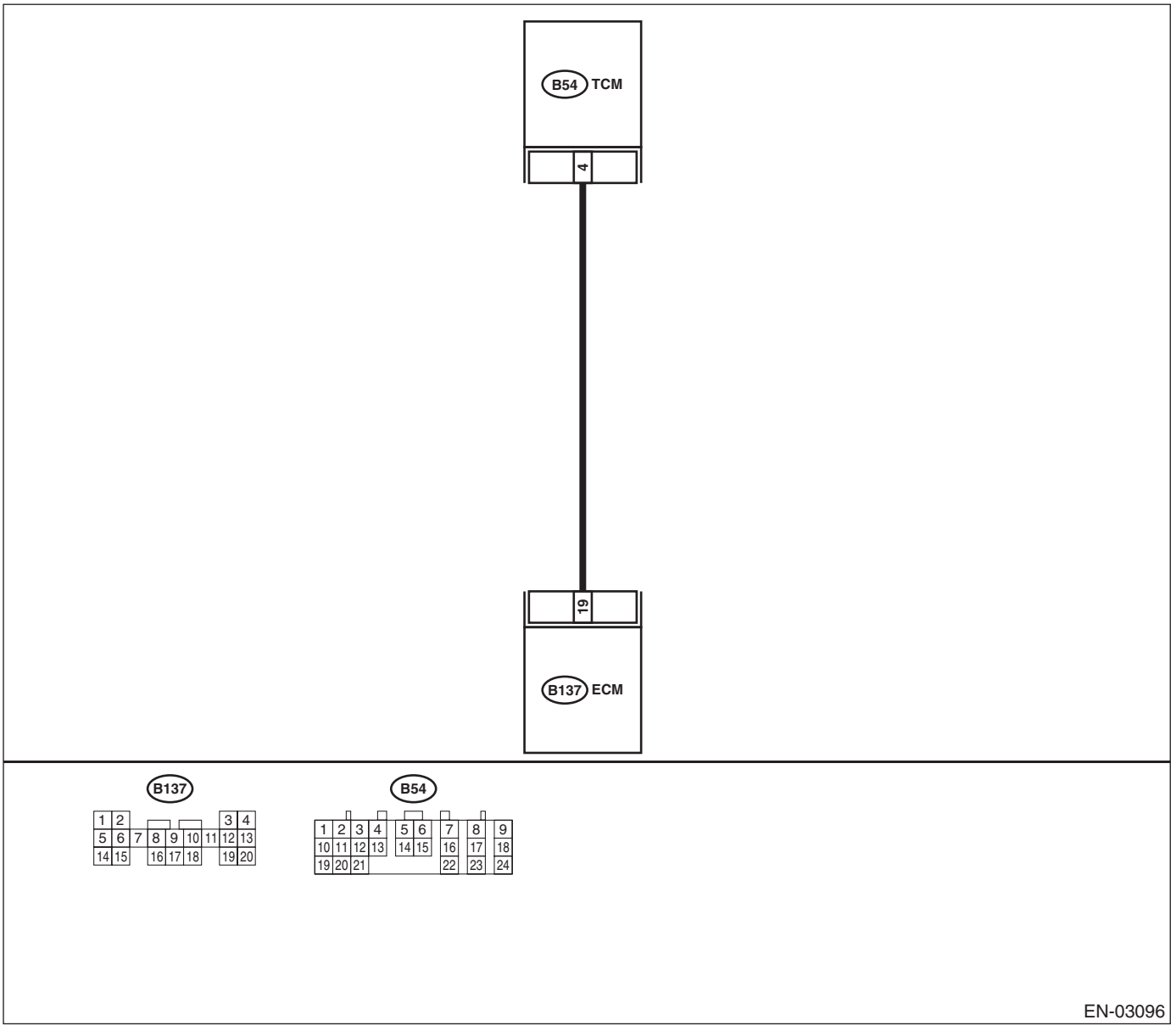
Step		Check	Yes	No
2	**CHECK ACCESSORY.**	Are car phone and/or CB installed on vehicle?	Repair grounding line of car phone or CB system.	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

CF:DTC P0865 — TCM COMMUNICATION CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



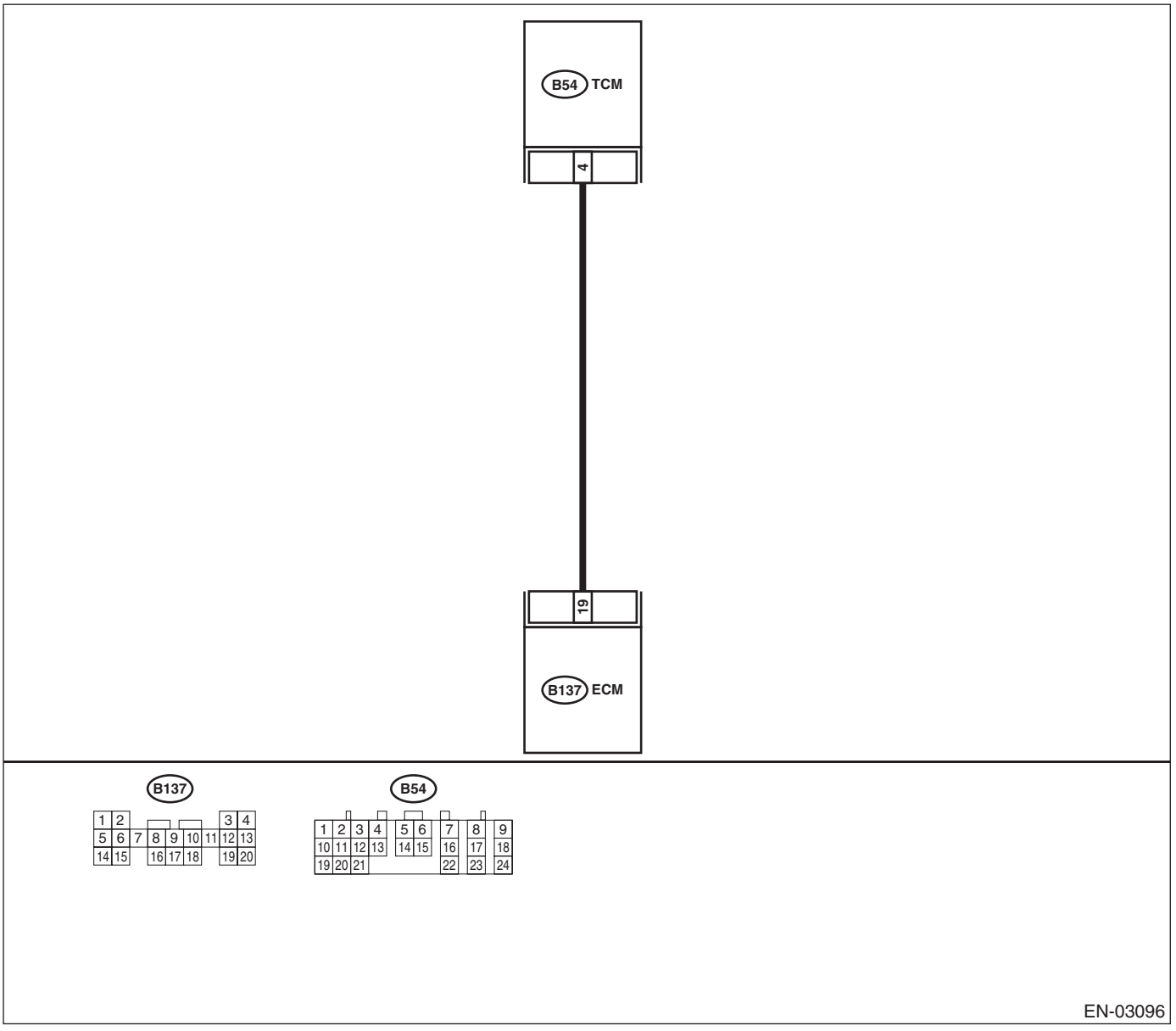
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Go to step **2.**	Even if MIL lights up, the circuit has returned to a normal condition at this time. NOTE: In this case, repair the following: • Poor contact in ECM connector • Poor contact in TCM connector
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and TCM. 3) Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 19 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **3.**	Repair ground short circuit in harness between ECM and TCM connector.
3	**CHECK OUTPUT SIGNAL FOR ECM.** 1) Connect connector to ECM. 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):***	Is the measured value more than 5 V?	Go to step **4.**	Repair poor contact in ECM connector.
4	**CHECK TROUBLE CODE FOR AUTOMATIC TRANSMISSION.** Read trouble code for automatic transmission. <Ref. to 4AT-21, Read Diagnostic Trouble Code (DTC).>	Does trouble code appear for automatic transmission?	Inspect trouble code for automatic transmission. <Ref. to 4AT-38, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

CG:DTC P0866 — TCM Communication circuit high —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



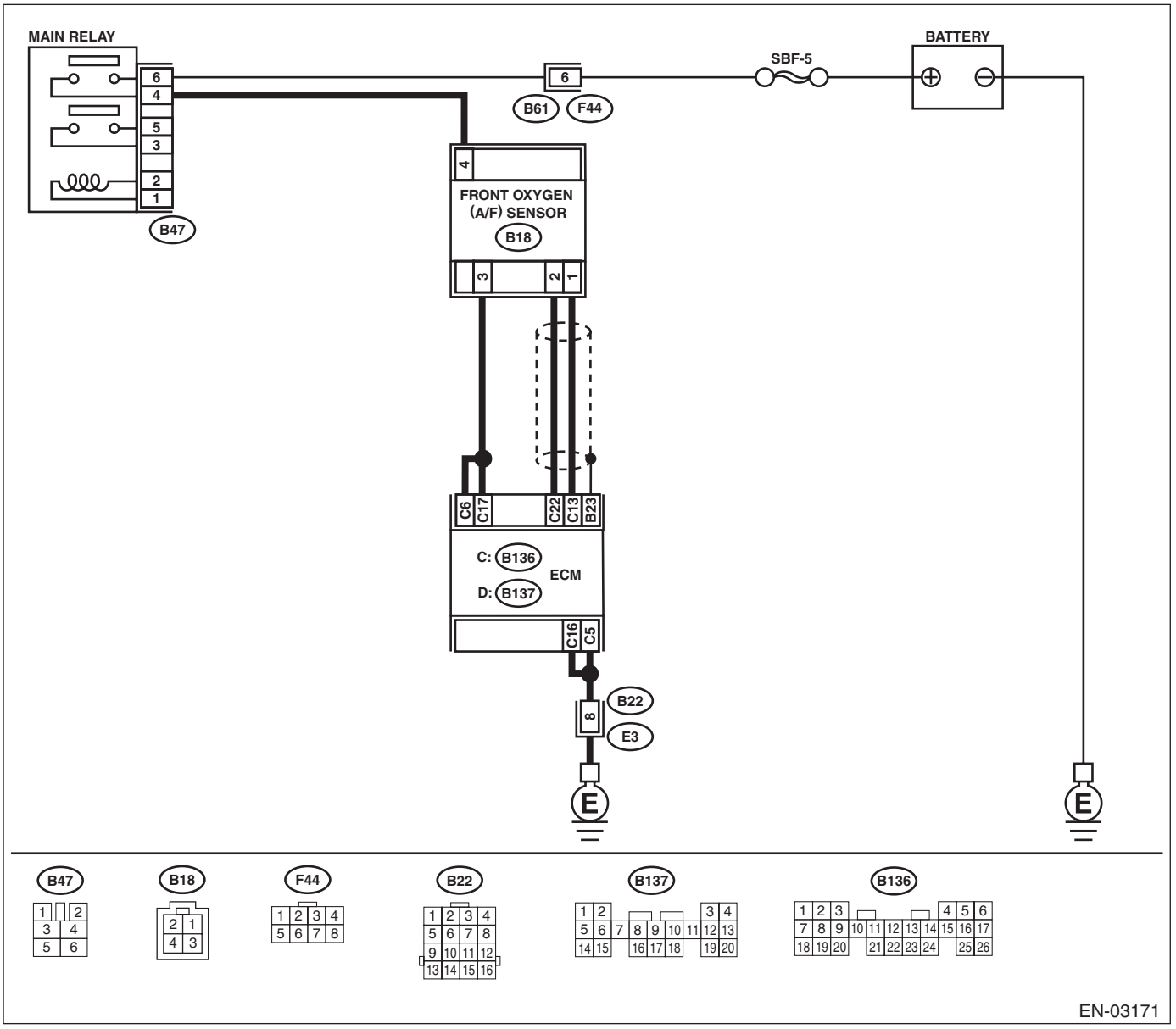
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):***	Is the measured value more than 4 V?	Go to step **5.**	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):***	Is the measured value less than 1 V?	Repair poor contact in ECM connector.	Go to step **4.**
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):***	Is the measured value within 1 to 4 V?	Even if MIL lights up, the circuit has returned to a normal condition at this time. NOTE: In this case, repair the following: • Poor contact in ECM connector • Poor contact in TCM connector	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
5	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure voltage between TCM and chassis ground. ***Connector & terminal*** ***(B54) No. 4 (+) - Chassis ground (-):***	Is the measured value more than 4 V?	Go to step **6.**	Repair open circuit in harness between ECM and TCM connector.
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor contact in TCM connector.	Check TCM power supply line and grounding line.

CH:DTC P1134 — A/F SENSOR MICRO-COMPUTER PROBLEM —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



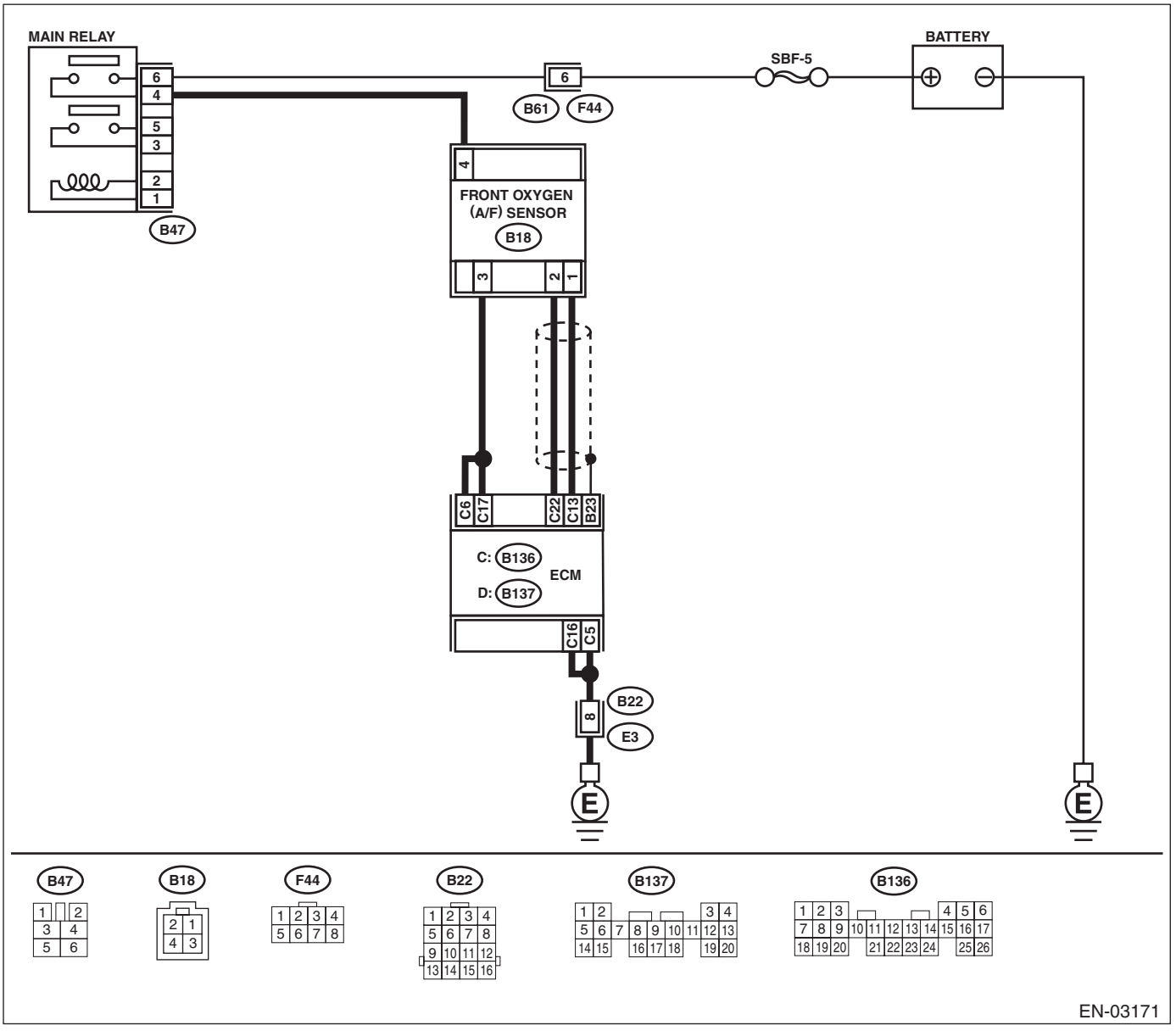
Step	Check	Yes	No
1 **CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the related DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: It is not necessary to inspect DTC P1134.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

CI: DTC P1137 — O2 SENSOR CIRCUIT (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** 1) Start engine. 2) While observing the Subaru Select Monitor or general scan tool screen, warm-up the engine until coolant temperature is above 70°C (158°F). If the engine is already warmed-up, operate at idle speed for at least 1 minute. 3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 0.85 to 1.15?	Go to step **3.**	Go to step **4.**
3	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** Race engine at speeds from idling to 5,000 rpm for a total of 5 cycles. NOTE: •Normally, A/F mixture ratio is rich with racing engine. •To increase engine speed to 5,000 rpm, slowly depress accelerator pedal, taking approximately 5 seconds, and quickly release accelerator pedal to decrease engine speed.	Is the measured value more than 1.1 V?	Go to step **6.**	Go to step **4.**
4	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance between ECM and front oxygen (A/F) sensor. ***Connector & terminals*** ***(B136) No. 13 — (B18) No. 1:*** ***(B136) No. 22 — (B18) No. 2:***	Is the measured value less than 5 Ω?	Go to step **5.**	Repair open circuit between ECM and front oxygen (A/F) sensor.
5	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** Measure resistance between ECM and chassis ground. ***Connector & terminals*** ***(B136) No. 13 — Chassis ground:*** ***(B136) No. 22 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **6.**	Repair ground short circuit between ECM and front oxygen (A/F) sensor.

	Step	Check	Yes	No
6	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loose installation of portions •Damage (crack, hole etc.) of parts •Looseness of front oxygen (A/F) sensor •Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there any malfunction in exhaust system?	Repair or replace malfunctioning parts.	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>

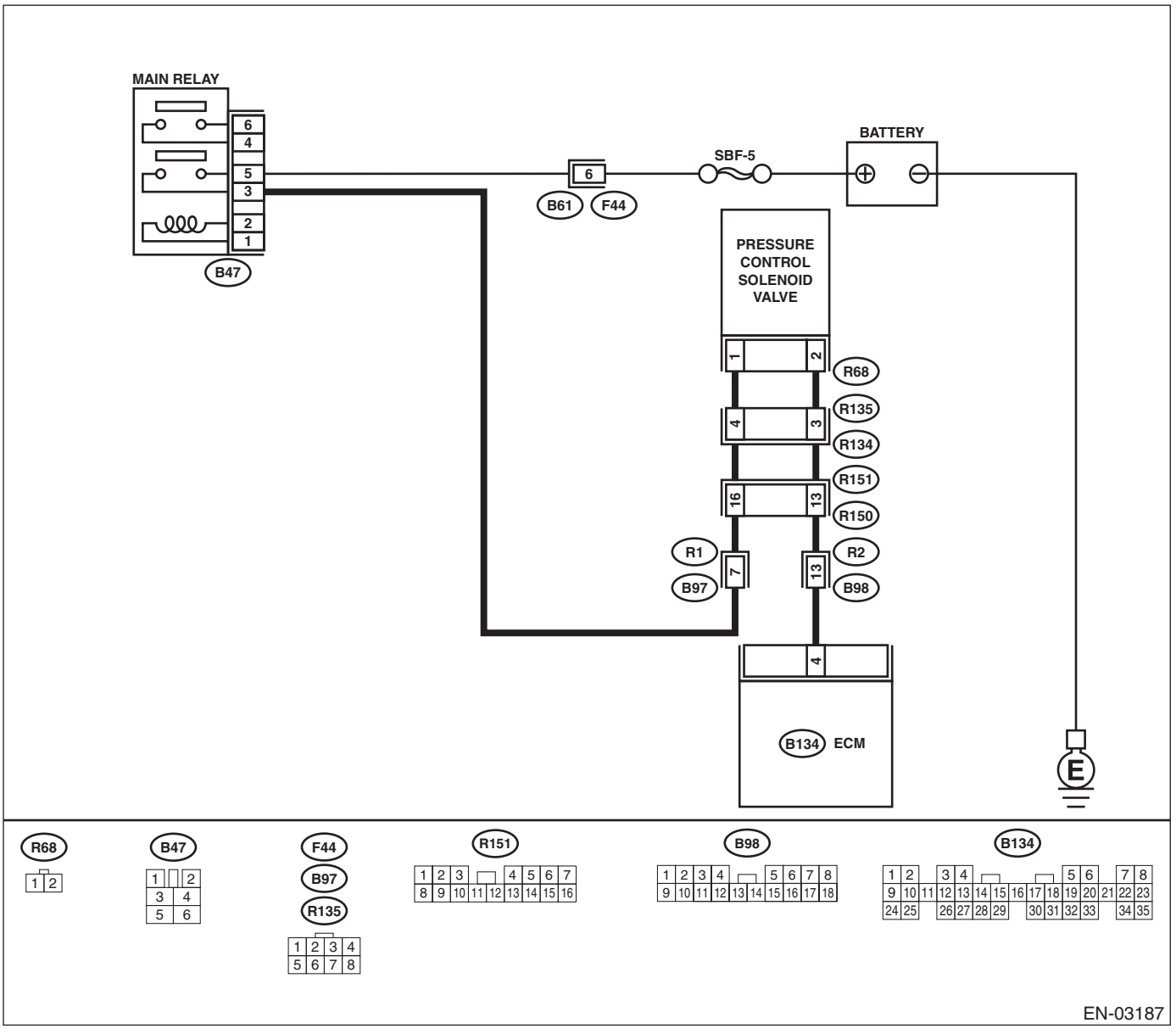
MEMO:

CJ:DTC P1400 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 4 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **2.**	Go to step **3.**
2	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
3	**CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from pressure control solenoid valve and ECM. 3) Measure resistance of harness between pressure control solenoid valve connector and chassis ground. ***Connector & terminal*** ***(R68) No. 2 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **4.**	Repair ground short circuit in harness between ECM and pressure control solenoid valve connector.
4	**CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** Measure resistance of harness between ECM and pressure control solenoid valve connector. ***Connector & terminal*** ***(B134) No. 4 — (R68) No. 2:***	Is the measured value less than 1 Ω?	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and pressure control solenoid valve connector • Poor contact in coupling connectors
5	**CHECK PRESSURE CONTROL SOLENOID VALVE.** Measure resistance between pressure control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 10 to 100 Ω?	Go to step **6.**	Replace pressure control solenoid valve. <Ref. to EC(H4SO)-13, Pressure Control Solenoid Valve.>

	Step	Check	Yes	No
6	**CHECK POWER SUPPLY TO PRESSURE CONTROL SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between pressure control solenoid valve and chassis ground. ***Connector & terminal*** ***(R68) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between main relay and pressure control solenoid valve connector • Poor contact in coupling connectors • Poor contact in main relay connector
7	**CHECK POOR CONTACT.** Check poor contact in pressure control solenoid valve connector.	Is there poor contact in pressure control solenoid valve connector?	Repair poor contact in pressure control solenoid valve connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

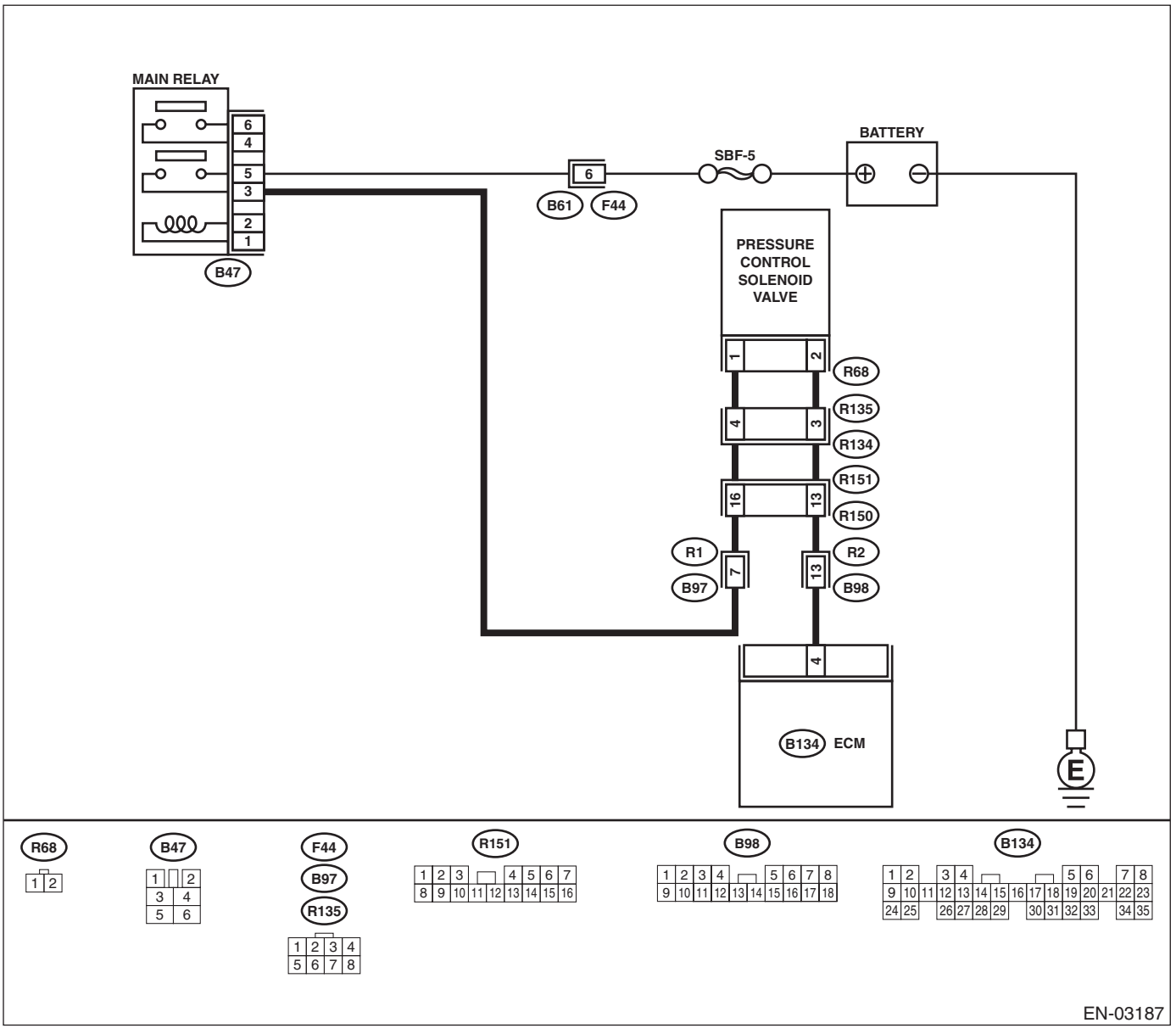
MEMO:

CK:DTC P1420 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



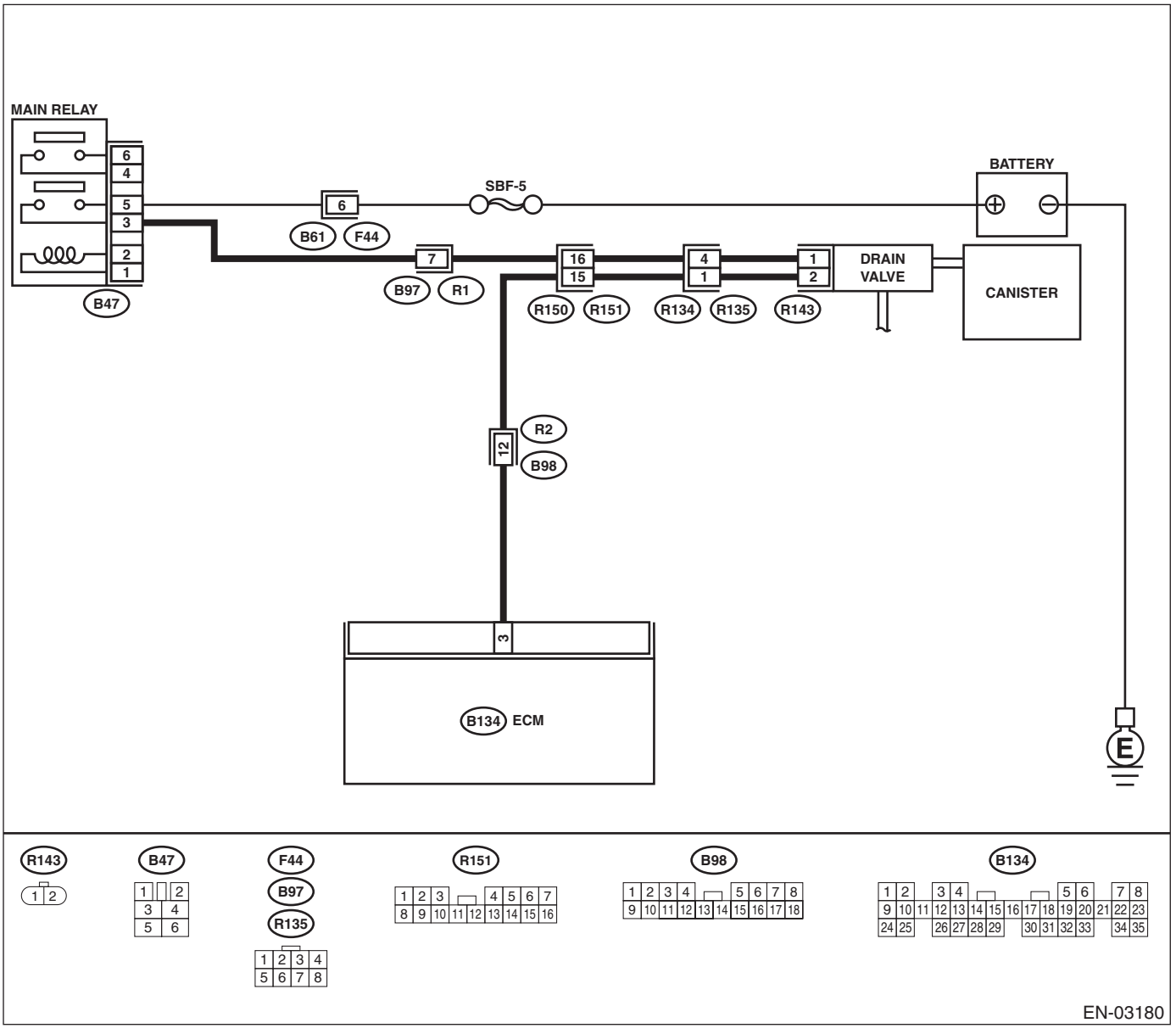
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. NOTE: Pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B134) No. 4 (+) — Chassis ground (–):***	Is the measured value within 0 to 10 V?	Go to step **2.**	Even if MIL light up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 4 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Go to step **4.**	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>
4	**CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from pressure control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 4 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and pressure control solenoid valve connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **5.**
5	**CHECK PRESSURE CONTROL SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Measure resistance between pressure control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value less than 1 Ω?	Replace pressure control solenoid valve <Ref. to EC(H4SO)-13, Pressure Control Solenoid Valve.> and ECM <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **6.**
6	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

CL:DTC P1443 — VENT CONTROL SOLENOID VALVE FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Improper fuel supply

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



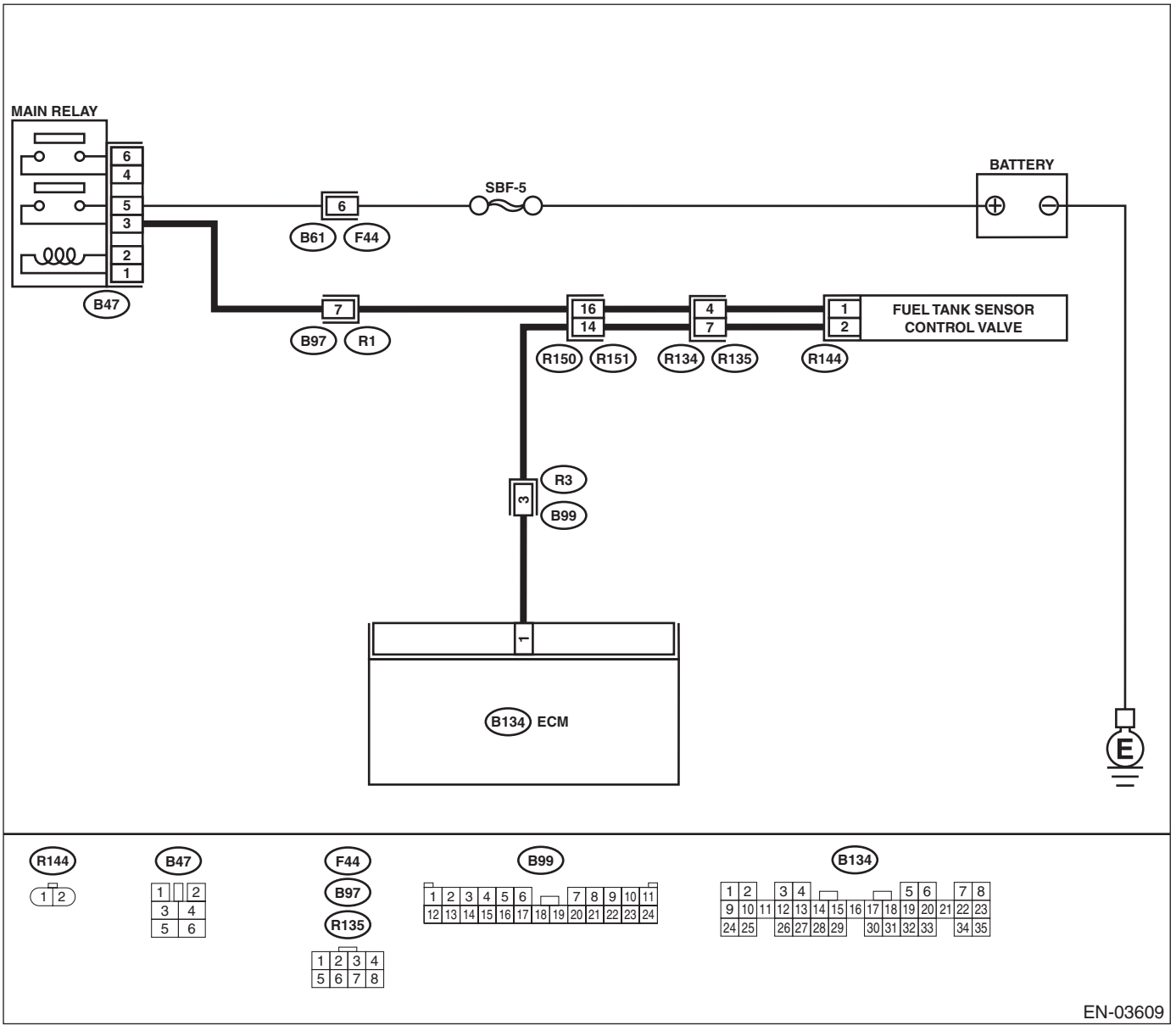
	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK DRAIN HOSE.** Check the following items. •Clogging of canister drain hose	Is drain hose clogged?	Repair or replace the malfunctioning part.	Go to step **3.**
3	**CHECK DRAIN VALVE OPERATION.** 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side). 3) Turn ignition switch to ON. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to the "Compulsory Valve Operation Check Mode".<Ref. to EN(H4SO)-51, Compulsory Valve Operation Check Mode.>	Does drain valve produce operating sound?	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Replace drain valve. <Ref. to EC(H4SO)-17, Drain Valve.>

CM:DTC P1446 — FUEL TANK SENSOR CONTROL VALVE CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **2.**	Go to step **3.**
2	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the following: • Poor contact in fuel tank sensor control valve connector • Poor contact in ECM connector • Poor contact in coupling connectors
3	**CHECK HARNESS BETWEEN FUEL TANK SENSOR CONTROL VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from fuel tank sensor control valve and ECM. 3) Measure resistance of harness between drain valve connector and chassis ground. ***Connector & terminal*** ***(R144) No. 2 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **4.**	Repair ground short circuit in harness between ECM and fuel tank sensor control valve connector.
4	**CHECK HARNESS BETWEEN FUEL TANK SENSOR CONTROL VALVE AND ECM CONNECTOR.** Measure resistance of harness between ECM and fuel tank control solenoid valve connector. ***Connector & terminal*** ***(B134) No. 1 — (R144) No. 2:***	Is the measured value less than 1 Ω?	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and fuel tank sensor control valve connector • Poor contact in coupling connectors
5	**CHECK FUEL TANK SENSOR CONTROL VALVE.** Measure resistance between fuel tank sensor control valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value within 10 to 100 Ω?	Go to step **6.**	Replace fuel tank control solenoid valve. <Ref. to EC(H4SO)-12, Fuel Tank Sensor Control Valve.>

	Step	Check	Yes	No
6	**CHECK POWER SUPPLY TO FUEL TANK CONTROL SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between fuel tank sensor control valve and chassis ground. ***Connector & terminal*** ***(R144) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between main relay and fuel tank sensor control valve • Poor contact in coupling connectors • Poor contact in main relay connector
7	**CHECK POOR CONTACT.** Check poor contact in fuel tank sensor control valve connector.	Is there poor contact in fuel tank sensor control valve connector?	Repair poor contact in fuel tank sensor control valve connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

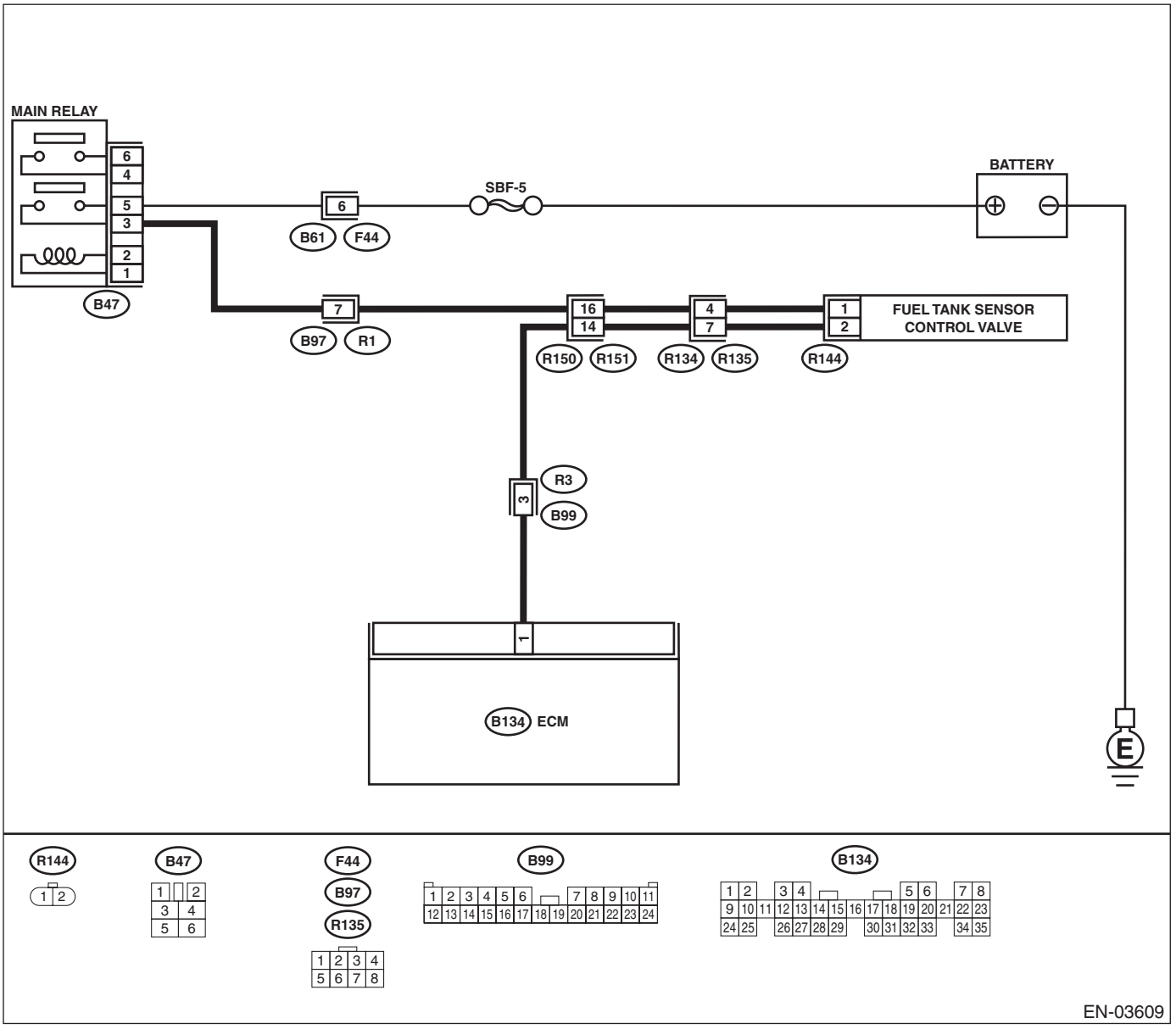
MEMO:

CN:DTC P1447 — FUEL TANK SENSOR CONTROL VALVE CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



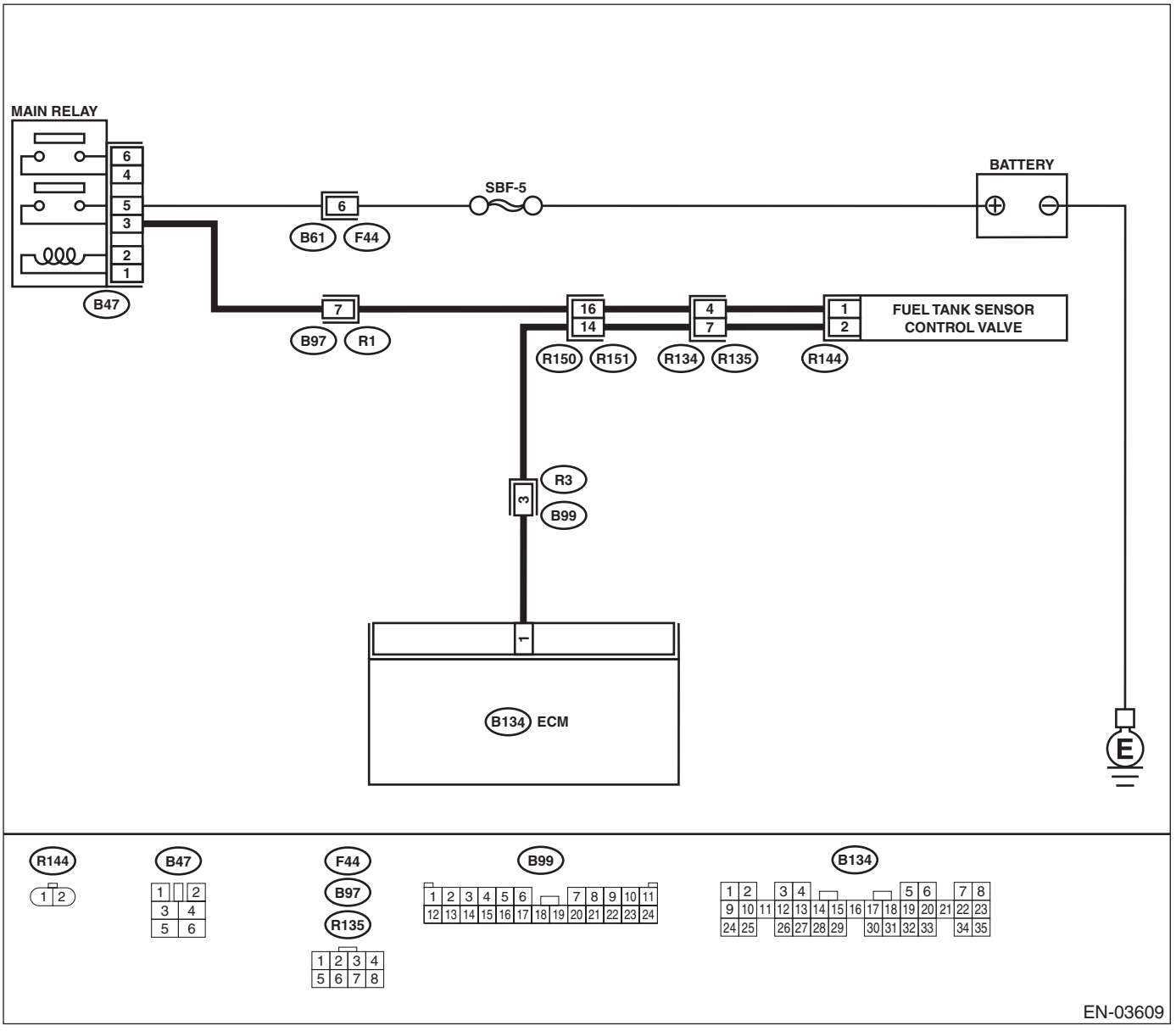
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Go to step **3.**	Go to step **2.**
2	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>
3	**CHECK HARNESS BETWEEN FUEL TANK SENSOR CONTROL VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel tank sensor control valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and fuel tank sensor control valve connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **4.**
4	**CHECK DRAIN VALVE.** 1) Turn ignition switch to OFF. 2) Measure resistance between fuel tank sensor control valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the measured value less than 1 Ω?	Replace fuel tank sensor control valve <Ref. to EC(H4SO)-12, Fuel Tank Sensor Control Valve.> and ECM <Ref. to FU(H4SO)-45, Engine Control Module.>	Go to step **5.**
5	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

CO:DTC P1448 — Fuel tank sensor control valve range/performance —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1) Turn ignition switch to OFF. 2) Open the fuel flap.	Is the fuel filler cap tightened securely?	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK PRESSURE/VACUUM LINE.** NOTE: Check the following items. •Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank •Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank	Is there any malfunction in pressure/vacuum line?	Repair or replace hoses and pipes.	Replace fuel tank pressure sensor. <Ref. to EC(H4SO)-11, Fuel Tank Pressure Sensor.>

CP:DTC P1492 — EGR SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (LOW INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4SO)-334, DTC P1498 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CQ:DTC P1493 — EGR SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (HIGH INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4SO)-336, DTC P1499 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CR:DTC P1494 — EGR SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (LOW INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4SO)-334, DTC P1498 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CS:DTC P1495 — EGR SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (HIGH INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4SO)-336, DTC P1499 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CT:DTC P1496 — EGR SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (LOW INPUT)—

NOTE:
For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4SO)-334, DTC P1498 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CU:DTC P1497 — EGR SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (HIGH INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4SO)-336, DTC P1499 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

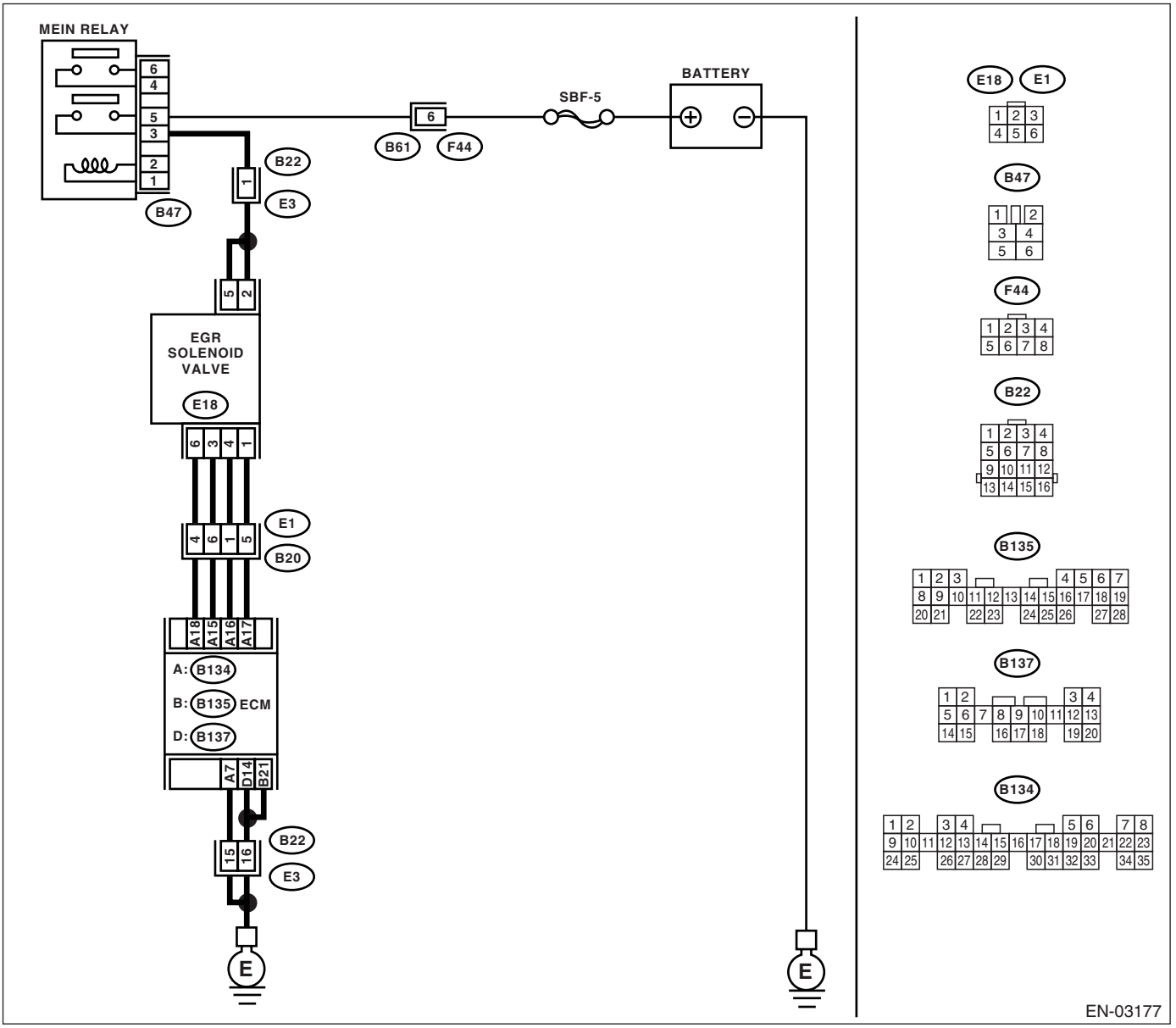
MEMO:

CV:DTC P1498 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Engine breathing

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



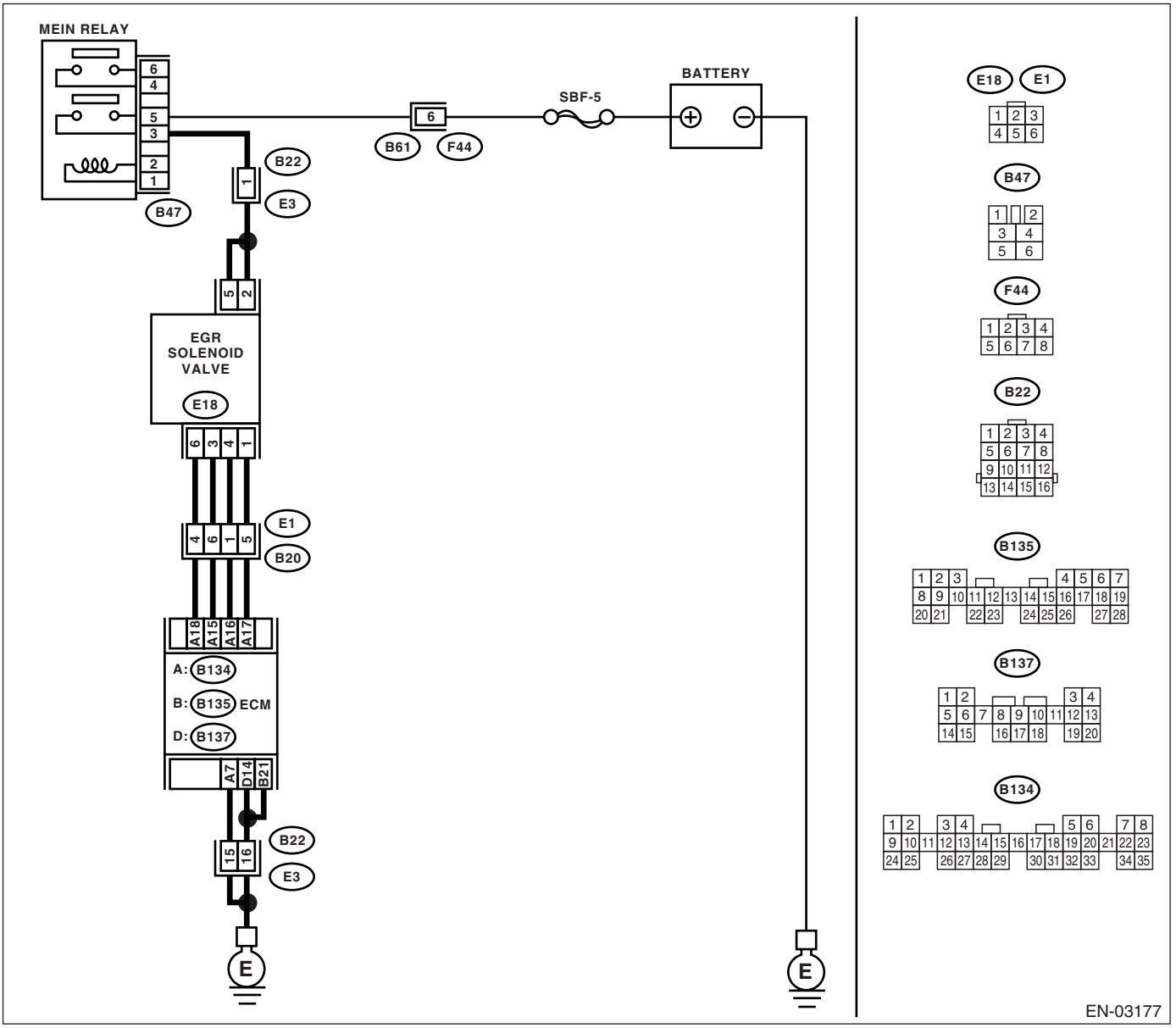
	Step	Check	Yes	No
1	**CHECK POWER SUPPLY TO EGR SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Disconnect connector from EGR solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between EGR solenoid valve connector and engine ground. ***Connector & terminal*** ***(E18) No. 2 (+) - Engine ground (-):*** ***(E18) No. 5 (+) - Engine ground (-):***	Is the measured value more than 10 V?	Go to step **2.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between EGR solenoid valve and main relay connector • Poor contact in coupling connector
2	**CHECK HARNESS BETWEEN ECM AND EGR SOLENOID VALVE CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between ECM and EGR solenoid valve connector. ***Connector & terminal*** ***DTC P1492; (B134) No. 18 - (E18) No. 6:*** ***DTC P1494; (B134) No. 17 - (E18) No. 1:*** ***DTC P1496; (B134) No. 16 - (E18) No. 4:*** ***DTC P1498; (B134) No. 15 - (E18) No. 3:***	Is the measured value less than 1 Ω?	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and EGR solenoid valve connector • Poor contact in coupling connector
3	**CHECK HARNESS BETWEEN ECM AND EGR SOLENOID VALVE CONNECTOR.** 1) Disconnect connector from ECM. 2) Measure resistance between ECM connector and chassis ground. ***Connector & terminal*** ***DTC P1492; (B134) No. 18 - Chassis ground:*** ***DTC P1494; (B134) No. 17 - Chassis ground:*** ***DTC P1496; (B134) No. 16 - Chassis ground:*** ***DTC P1498; (B134) No. 15 - Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **4.**	Repair ground short circuit between ECM and EGR solenoid valve connector.
4	**CHECK POOR CONTACT.** Check poor contact between ECM connector and EGR solenoid valve connector.	Is there poor contact of ECM connector or EGR solenoid valve connector?	Repair poor contact of ECM connector or EGR solenoid valve connector.	Replace EGR solenoid valve. <Ref. to FU(H4SO)-37, EGR Valve.>

CW:DTC P1499 — EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Engine breathing

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is there any DTC on display?	Go to step **2.**	Go to step **3.**
2	**CHECK ECM GROUND CIRCUIT.** 1) Turn ignition switch to OFF. 2) Measure resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 7 - Chassis ground:*** ***(B137) No. 14 - Chassis ground:*** ***(B135) No. 21 - Chassis ground:***	Is the measured value less than 5 Ω?	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM connector and engine ground • Poor contact in ECM connector • Poor contact in coupling connector
3	**CHECK HARNESS BETWEEN ECM AND EGR SOLENOID VALVE CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from EGR solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***DTC P1493; (B134) No. 18 - Chassis ground:*** ***DTC P1495; (B134) No. 17 - Chassis ground:*** ***DTC P1497; (B134) No. 16 - Chassis ground:*** ***DTC P1499; (B134) No. 15 - Chassis ground:***	Is the measured value more than 10 V?	Repair ground short circuit between ECM and EGR solenoid valve connector. After completion of repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

CX:DTC P1510 — ISC SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (LOW INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1516. <Ref. to EN(H4SO)-340, DTC P1516 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CY:DTC P1511 — ISC SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (HIGH INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1517. <Ref. to EN(H4SO)-342, DTC P1517 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CZ:DTC P1512 — ISC SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (LOW INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1516. <Ref. to EN(H4SO)-340, DTC P1516 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DA:DTC P1513 — ISC SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (HIGH INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1517. <Ref. to EN(H4SO)-342, DTC P1517 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DB:DTC P1514 — ISC SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (LOW INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1516. <Ref. to EN(H4SO)-340, DTC P1516 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DC:DTC P1515 — ISC SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (HIGH INPUT) —

NOTE:
For the diagnostic procedure, refer to DTC P1517. <Ref. to EN(H4SO)-342, DTC P1517 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

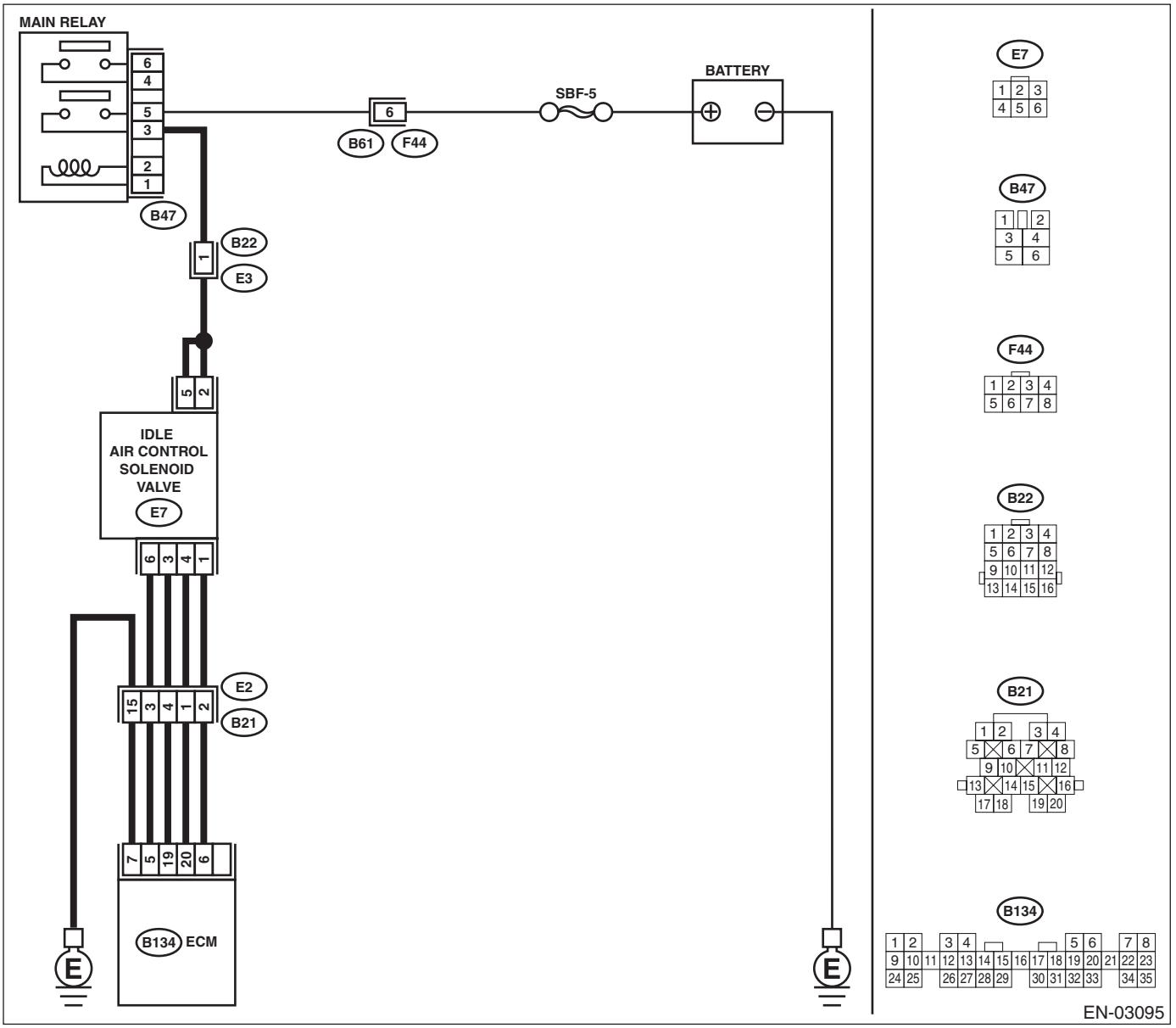
MEMO:

DD:DTC P1516 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Engine breathing

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



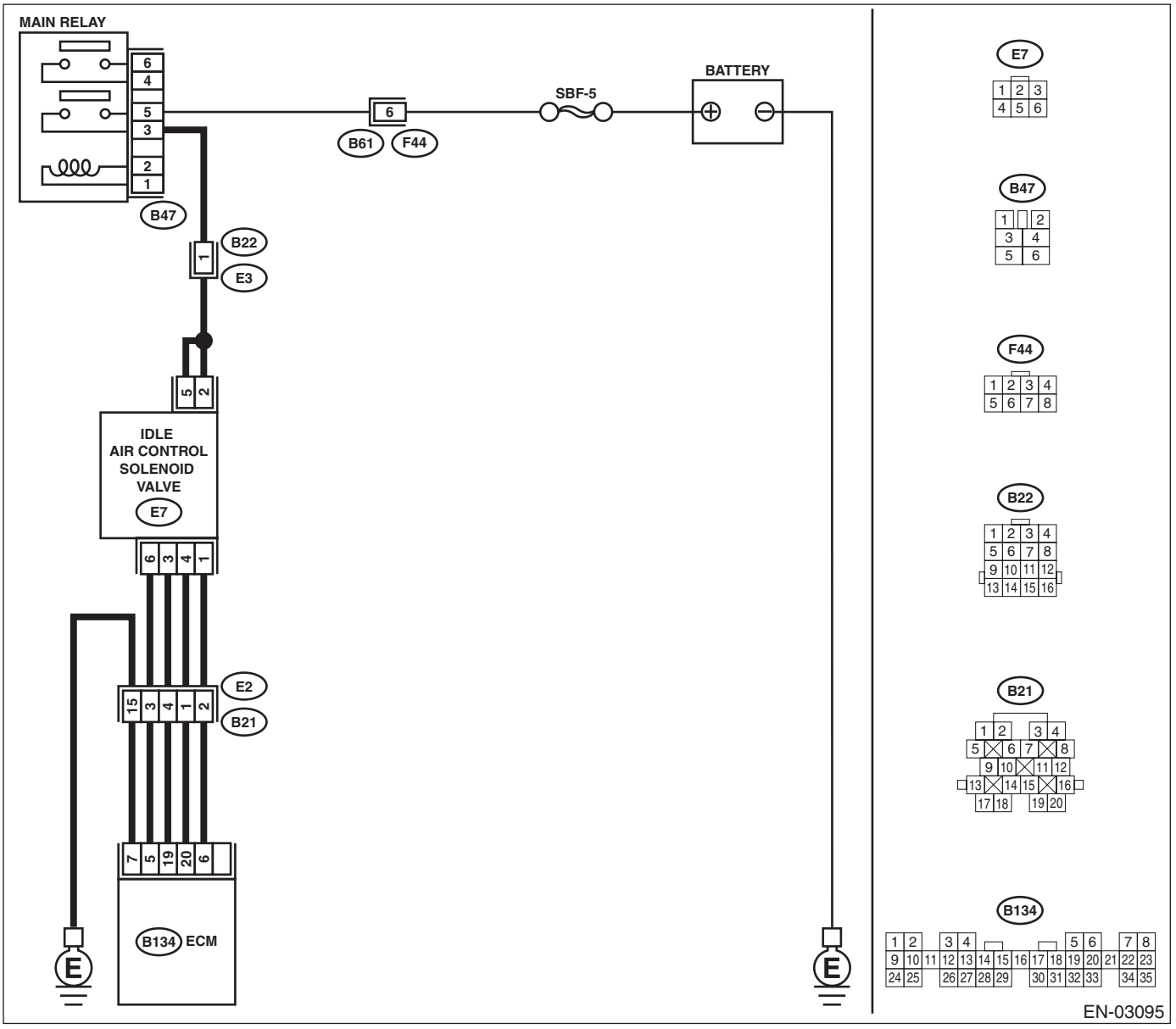
	Step	Check	Yes	No
1	**CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Disconnect connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between idle air control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E7) No. 2 (+) — Engine ground (−):*** ***(E7) No. 5 (+) — Engine ground (−):***	Is the measured value more than 10 V?	Go to step **2.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between idle air control solenoid valve and main relay connector • Poor contact in coupling connector
2	**CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.** Measure voltage between idle air control solenoid valve connector and engine ground.	Is the measured value more than 10 V?	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between idle air control solenoid valve and main relay connector • Poor contact in coupling connector
3	**CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between ECM and idle air control solenoid valve connector. ***Connector & terminal*** ***DTC P1510; (B134) No. 20 — (E7) No. 4:*** ***DTC P1512; (B134) No. 6 — (E7) No. 1:*** ***DTC P1514; (B134) No. 5 — (E7) No. 6:*** ***DTC P1516; (B134) No. 19 — (E7) No. 3:***	Is the measured value less than 1 Ω?	Go to step **4.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and idle air control solenoid valve connector • Poor contact in coupling connector
4	**CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.** 1) Disconnect connector from ECM. 2) Measure resistance between ECM connector and chassis ground. ***Connector & terminal*** ***DTC P1510; (B134) No. 20 — Chassis ground:*** ***DTC P1512; (B134) No. 6 — Chassis ground:*** ***DTC P1514; (B134) No. 5 — Chassis ground:*** ***DTC P1516; (B134) No. 19 — Chassis ground:***	Is the measured value more than 1 MΩ?	Repair ground short circuit in harness between ECM and idle air control solenoid valve connector.	Go to step **5.**
5	**CHECK POOR CONTACT.** Check poor contact in ECM connector and idle air control solenoid valve connector.	Is there poor contact in ECM connector or idle air control solenoid valve connector?	Repair poor contact in ECM connector or idle air control solenoid valve connector.	Replace idle air control solenoid valve. <Ref. to FU(H4SO)-35, Idle Air Control Solenoid Valve.>

DE:DTC P1517 — ISC SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.
- **TROUBLE SYMPTOM:**
  - Rough idling
  - Engine stalls.
  - Engine speed varies.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the related DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **3.**
2	**CHECK GROUND CIRCUIT FOR ECM.** 1) Turn ignition switch to OFF. 2) Measure resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 7 — Chassis ground:***	Is the measured value less than 5 Ω?	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM connector and engine ground terminal • Poor contact in ECM connector • Poor contact in coupling connector
3	**CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***DTC P1511; (B134) No. 20 (+) — Chassis ground (–):*** ***DTC P1513; (B134) No. 6 (+) — Chassis ground (–):*** ***DTC P1515; (B134) No. 5 (+) — Chassis ground (–):*** ***DTC P1517; (B134) No. 19 (+) — Chassis ground (–):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

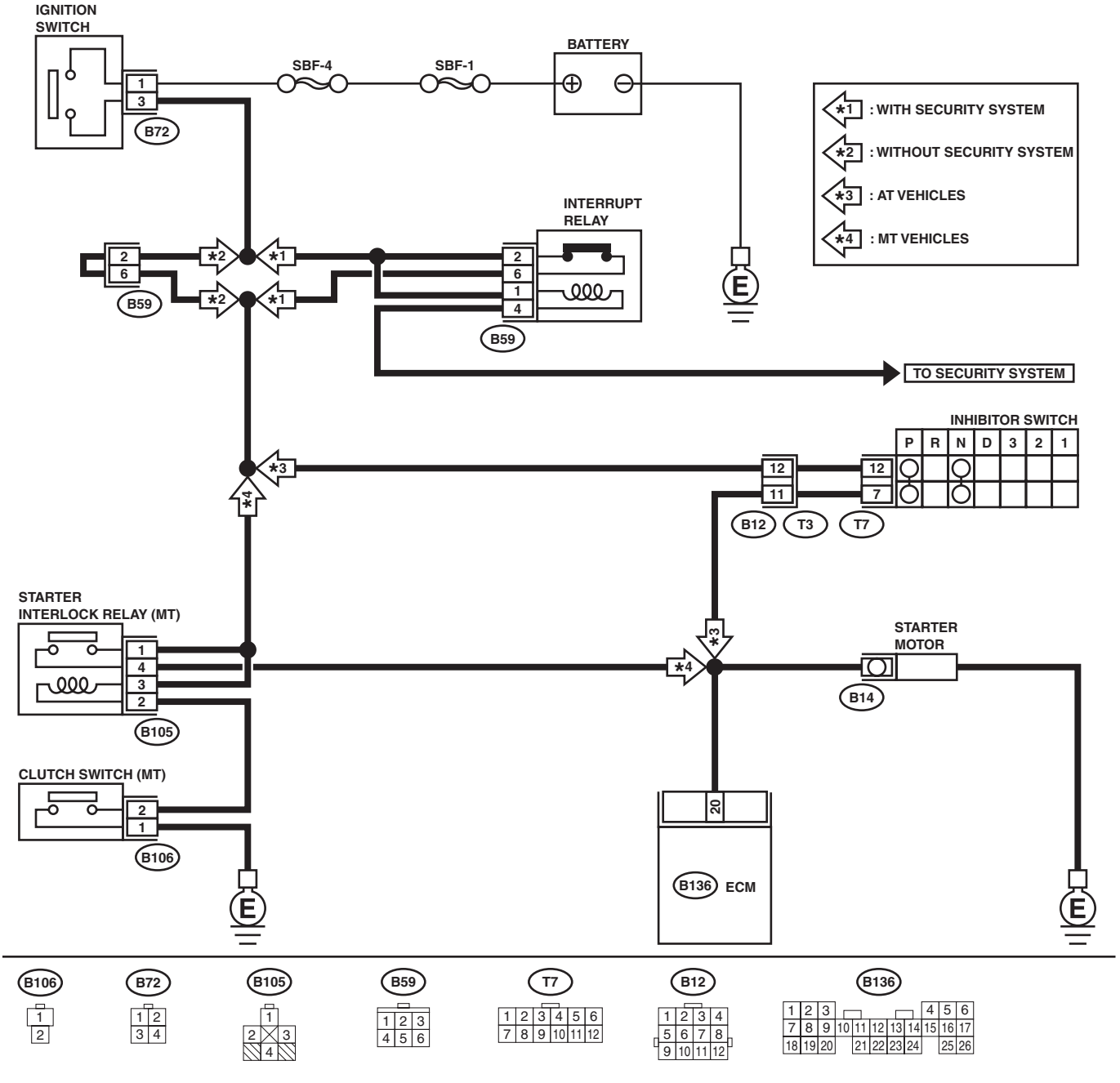
MEMO:

DF:DTC P1518 — STARTER SWITCH CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



EN-00715

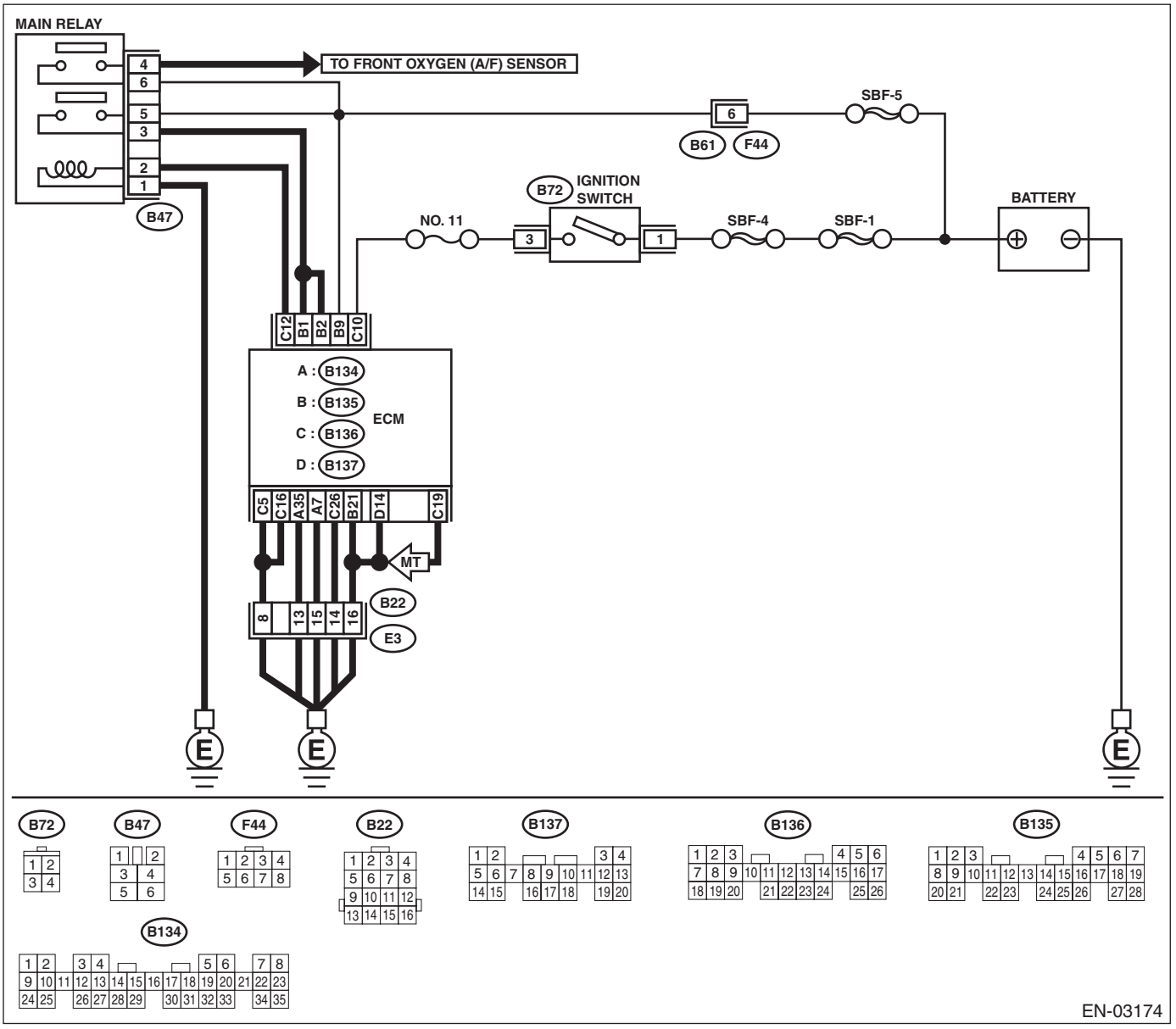
Step		Check	Yes	No
1	**CHECK OPERATION OF STARTER MOTOR.** NOTE: •Place the inhibitor switch in the “P” or “N” position. (AT) •Depress the clutch pedal. (MT)	Does starter motor operate when turning ignition switch to “ST”?	Repair harness and connector. NOTE: In this case, repair the following: • Open or ground short circuit in harness between ECM and starter motor connector. • Poor contact in ECM connector.	Check starter motor circuit. <Ref. to EN(H4SO)-66, STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.>

DG:DTC P1560 — BACK-UP VOLTAGE CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Detected simultaneously at occurrence of malfunction.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



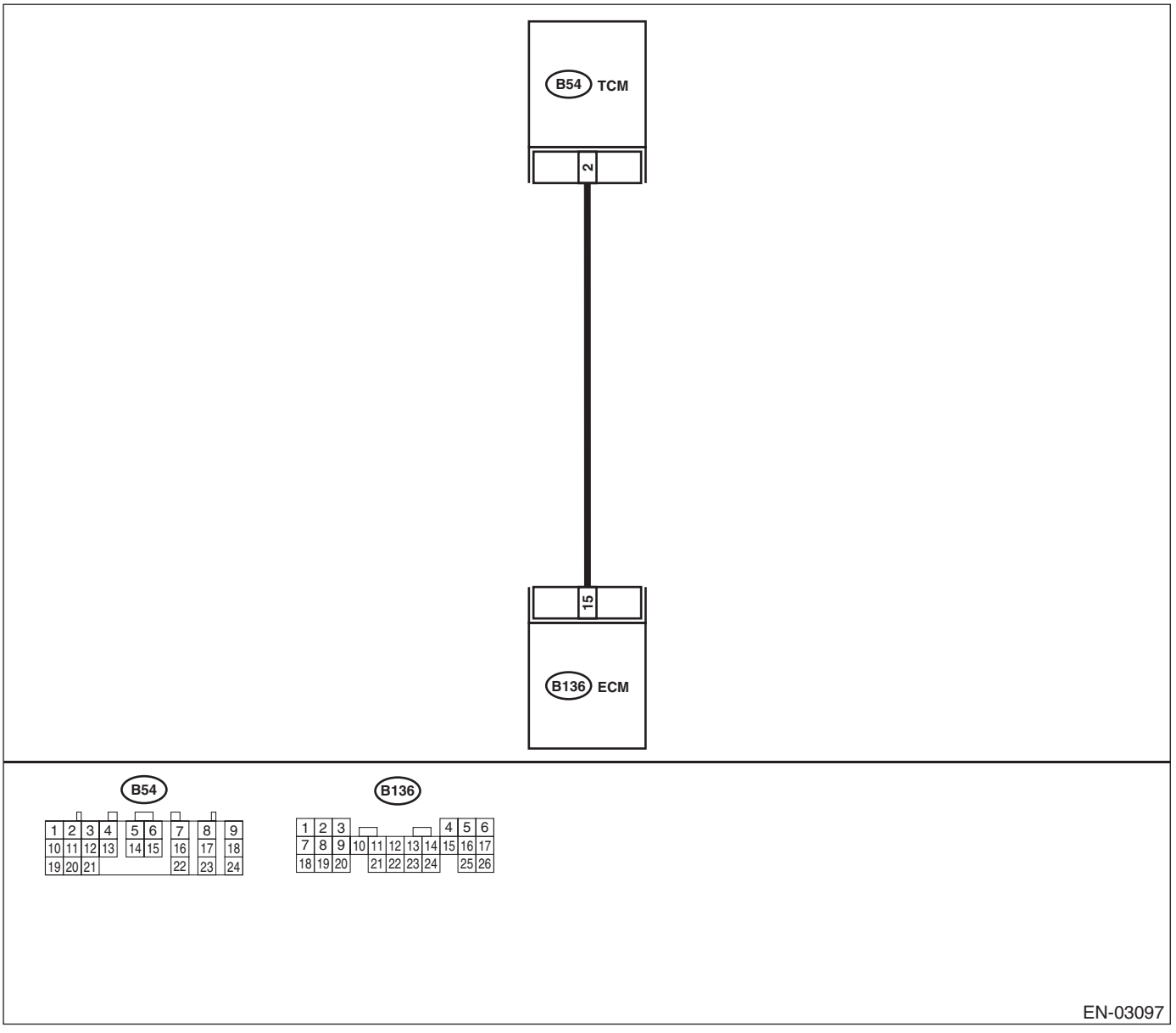
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to OFF. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.** 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 9 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **3.**	Repair ground short circuit in harness between ECM connector and battery terminal.
3	**CHECK FUSE SBF-5.**	Is fuse blown out?	Replace fuse.	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and battery • Poor contact in ECM connector • Poor contact in battery terminal

DH:DTC P1698 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT MALFUNCTION (LOW INPUT) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



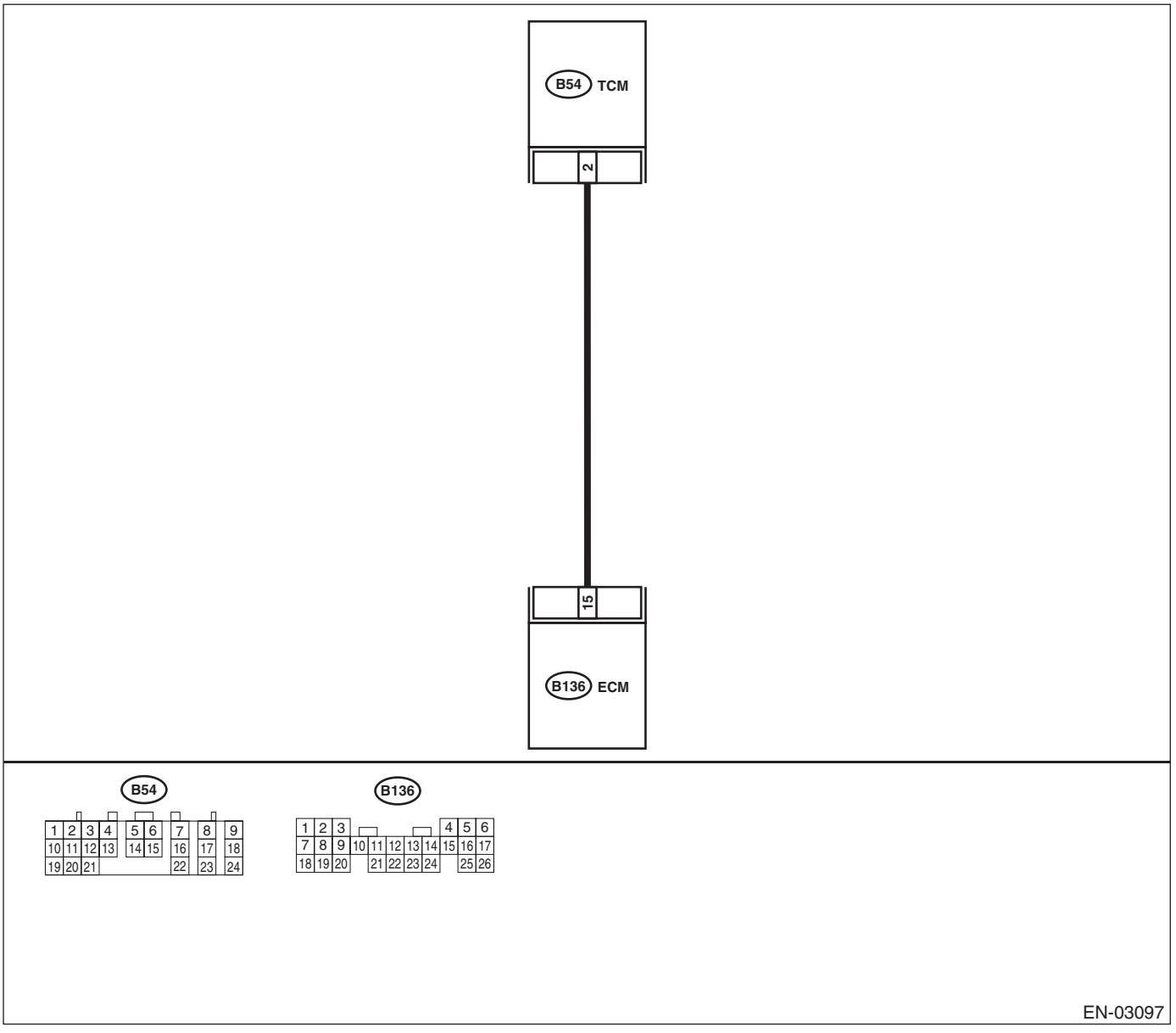
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 15 (+) — Chassis ground (−):***	Is the measured value more than 3 V?	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 15 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **3.**	Repair ground short circuit in harness between ECM and TCM connector.
3	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B136) No. 15 — (B54) No. 2:***	Is the measured value less than 1 Ω?	Repair poor contact in ECM or TCM connector.	Repair open circuit in harness between ECM and TCM connector.

DI: DTC P1699 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT MALFUNCTION (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



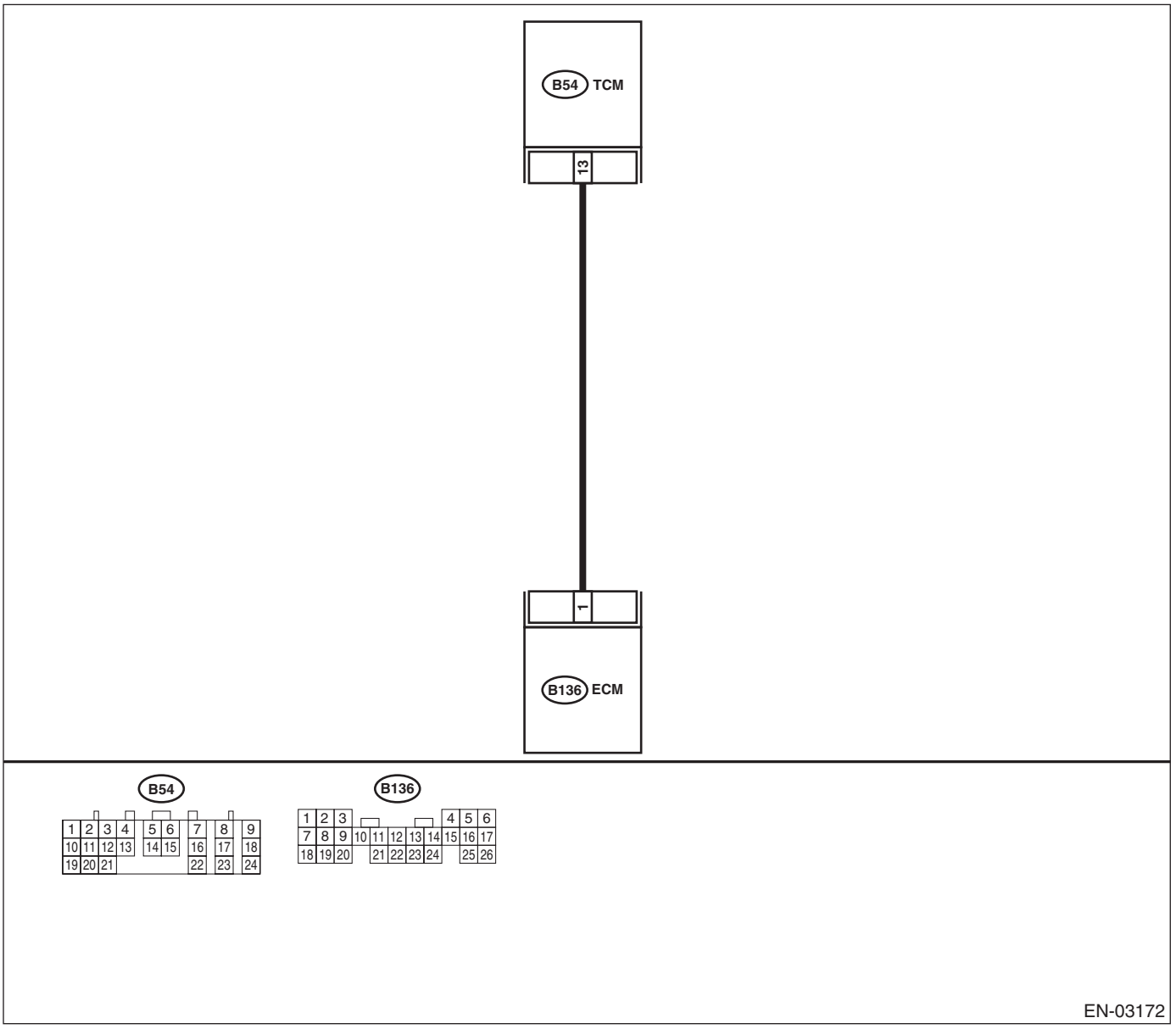
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Disconnect connector from TCM. 4) Turn ignition switch to ON. 5) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 15 (+) — Chassis ground (−):***	Is the measured value less than 3 V?	Go to step **2.**	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 15 (+) — Chassis ground (−):***	Is the measured value more than 10 V when shaking harness and connector of ECM?	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

DJ:DTC P1711 — ENGINE TORQUE CONTROL SIGNAL #1 CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Excessive shift shock

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



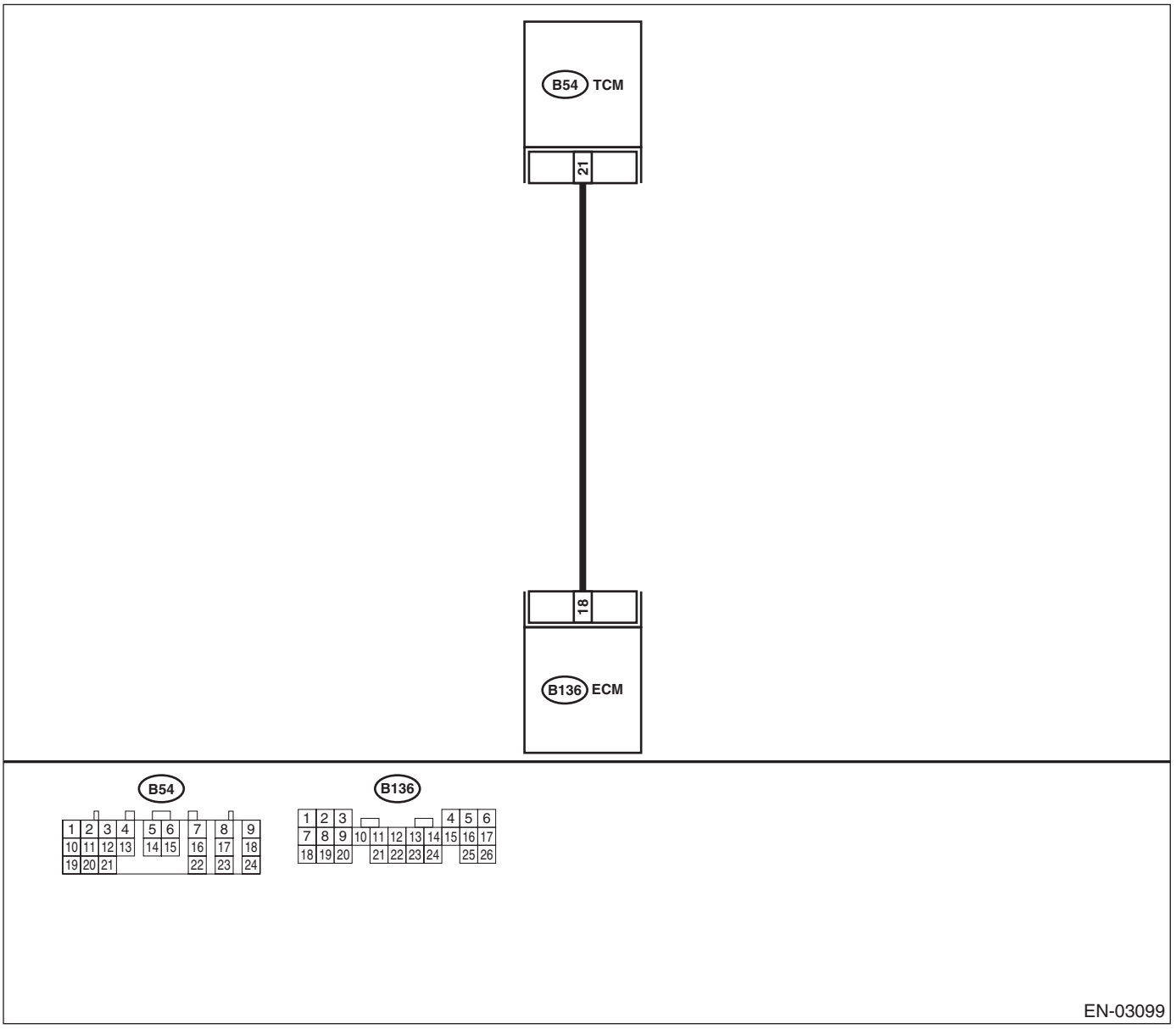
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 4.5 V	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 1 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B136) No. 1 — (B54) No. 13:***	Is the measured value less than 1 Ω?	Go to step **5.**	Repair open circuit in harness between ECM and TCM connector.
5	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 1 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **6.**	Repair ground short circuit in harness between ECM and TCM connector.
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor contact in TCM connector.	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DK:DTC P1712 — ENGINE TORQUE CONTROL SIGNAL #2 CIRCUIT MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction
- **TROUBLE SYMPTOM:**
  - Excessive shift shock

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



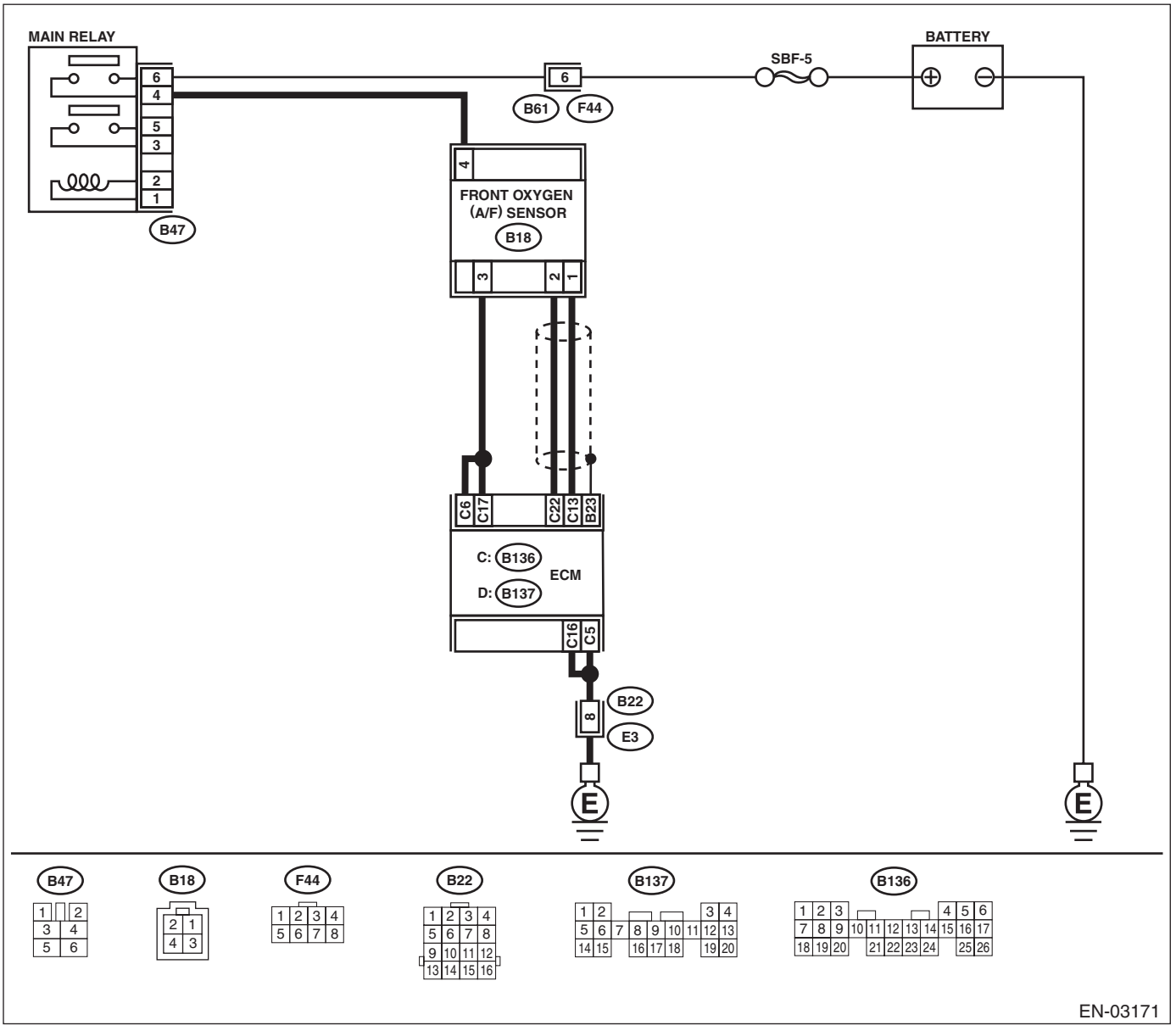
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 18 (+) — Chassis ground (−):***	Is the measured value more than 4.5 V?	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 18 (+) — Chassis ground (−):***	Is the measured value more than 10 V?	Repair battery short circuit in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact with SOA service center. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B136) No. 18 — (B54) No. 21:***	Is the measured value less than 1 Ω?	Go to step **5.**	Repair open circuit in harness between ECM and TCM connector.
5	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 18 — Chassis ground:***	Is the measured value less than 10 Ω?	Go to step **6.**	Repair ground short circuit in harness between ECM and TCM connector.
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor contact in TCM connector.	Replace TCM. <Ref. to 4AT-77, Transmission Control Module (TCM).>

DL:DTC P2096 — POST CATALYST FUEL TRIM SYSTEM TOO LEAN BANK 1 —

- **DTC DETECTING CONDITION:**
  - Detected when a malfunction occurs in two consecutive driving cycles.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** 1) Start engine. 2) While observing the Subaru Select Monitor or general scan tool screen, warm-up the engine until coolant temperature is above 70°C (158°F). If the engine is already warmed-up, operate at idle speed for at least 1 minute. 3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 0.85 to 1.15?	Go to step **3.**	Go to step **4.**
3	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** Race engine at speeds from idling to 5,000 rpm for a total of 5 cycles. NOTE: •Normally, A/F mixture ratio is rich with racing engine. •To increase engine speed to 5,000 rpm, slowly depress accelerator pedal, taking approximately 5 seconds, and quickly release accelerator pedal to decrease engine speed.	Is the measured value more than 1.1 V?	Go to step **6.**	Go to step **4.**
4	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance between ECM and front oxygen (A/F) sensor. ***Connector & terminals*** ***(B136) No. 13 — (B18) No. 1:*** ***(B136) No. 22 — (B18) No. 2:***	Is the measured value less than 5 Ω?	Go to step **5.**	Repair open circuit between ECM and front oxygen (A/F) sensor.
5	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** Measure resistance between ECM and chassis ground. ***Connector & terminals*** ***(B136) No. 13 — Chassis ground:*** ***(B136) No. 22 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **6.**	Repair ground short circuit between ECM and front oxygen (A/F) sensor.

	Step	Check	Yes	No
6	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loose installation of portions •Damage (crack, hole etc.) of parts •Looseness of front oxygen (A/F) sensor •Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace malfunctioning parts.	Go to step **7.**
7	**CHECK EGR VALVE.**	Is EGR valve clogged?	Replace EGR valve.	Go to step **8.**
8	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair air intake system.	Go to step **9.**
9	**CHECK PURGE CONTROL SOLENOID VALVE.**	Is purge control solenoid valve clogged?	Replace purge control solenoid valve.	Go to step **10.**
10	**CHECK PCV VALVE.**	Is PCV valve clogged?	Replace PCV valve.	Go to step **11.**
11	**CHECK FUEL PRESSURE.** **Warning:** **•Place "NO FIRE" signs near the working area.** **•Be careful not to spill fuel on the floor.** 1) Release fuel pressure. (1) Disconnect connector from fuel pump relay. (2) Start the engine and run it until it stalls. (3) After the engine stalls, crank it for five more seconds. (4) Turn ignition switch to OFF. 2) Connect connector to fuel pump relay. 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4) Install fuel filler cap. 5) Start the engine and idle while gear position is neutral. 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. **Warning:** **Before removing fuel pressure gauge, release fuel pressure.** NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.	Is the measured value within 284 to 314 kPa (2.9 to 3.2 kg/cm^2, 41 to 46 psi)?	Go to step **12.**	Repair the following items. **Fuel pressure too high** • Clogged fuel return line or bent hose **Fuel pressure too low** • Improper fuel pump discharge • Clogged fuel supply line

	Step	Check	Yes	No
12	**CHECK FUEL PRESSURE.** After connecting pressure regulator vacuum hose, measure fuel pressure. **Warning:** **Before removing fuel pressure gauge, release fuel pressure.** NOTE: •If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. •If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.	Is the measured value within 206 to 235 kPa (2.1 to 2.4 kg/cm^2, 30 to 34 psi)?	Go to step **13.**	Repair the following items. **Fuel pressure too high** • Malfunctioning pressure regulator • Clogged fuel return line or bent hose **Fuel pressure too low** • Malfunctioning pressure regulator • Improper fuel pump discharge • Clogged fuel supply line
13	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm-up completely. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 70 to 100°C (158 to 212°F)?	Go to step **14.**	Replace engine coolant temperature sensor. <Ref. to FU(H4SO)-27, Engine Coolant Temperature Sensor.>
14	**CHECK INTAKE MANIFOLD PRESSURE SENSOR SIGNAL.** 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the selector lever in "N" or "P" position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 24.0 to 41.3 kPa (180 to 310 mmHg, 7.09 to 12.20 inHg) when idling or within 73.3 to 106.6 kPa (550 to 800 mmHg, 21.65 to 31.50 inHg) when turning ignition switch ON?	Go to step **15.**	Replace intake air temperature and pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>

Step		Check	Yes	No
15	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 13 — Chassis ground:*** ***(B136) No. 22 — Chassis ground:***	Is the measured value more than 1 MΩ?	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>	Repair short circuit between ECM and front oxygen (A/F) sensor connector.

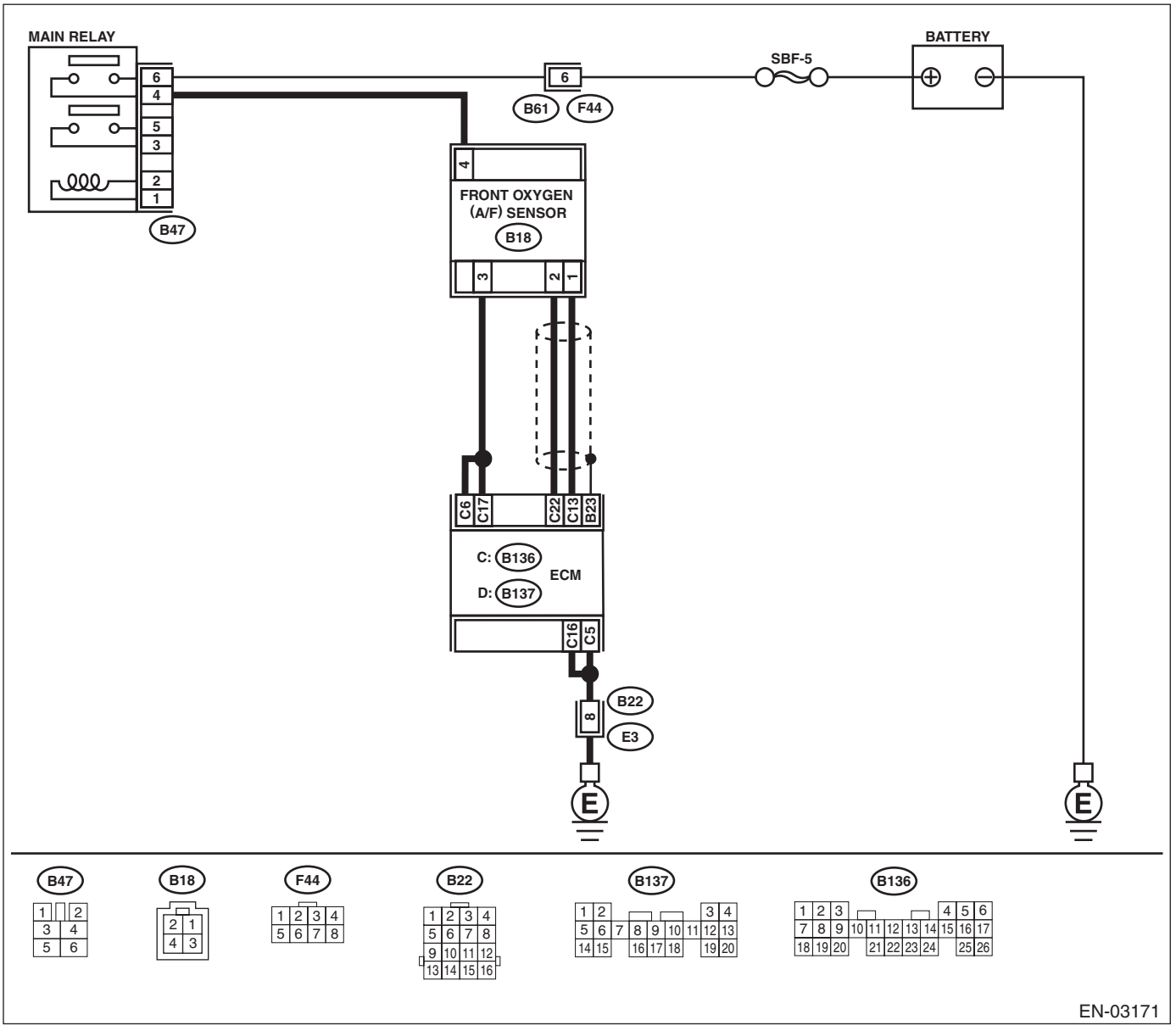
MEMO:

DM:DTC P2097 — POST CATALYST FUEL TRIM SYSTEM TOO RICH BANK 1 —

- **DTC DETECTING CONDITION:**
  - Detected when a malfunction occurs in two consecutive driving cycles.

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** 1) Start engine. 2) While observing the Subaru Select Monitor or general scan tool screen, warm-up the engine until coolant temperature is above 70°C (158°F). If the engine is already warmed-up, operate at idle speed for at least 1 minute. 3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 0.85 to 1.15?	Go to step **3.**	Go to step **4.**
3	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** Race engine at speeds from idling to 5,000 rpm for a total of 5 cycles. NOTE: •Normally, A/F mixture ratio is rich with racing engine. •To increase engine speed to 5,000 rpm, slowly depress accelerator pedal, taking approximately 5 seconds, and quickly release accelerator pedal to decrease engine speed.	Is the measured value more than 1.1 V?	Go to step **6.**	Go to step **4.**
4	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance between ECM and front oxygen (A/F) sensor. ***Connector & terminals*** ***(B136) No. 13 — (B18) No. 1:*** ***(B136) No. 22 — (B18) No. 2:***	Is the measured value less than 5 Ω?	Go to step **5.**	Repair open circuit between ECM and front oxygen (A/F) sensor.
5	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR.** Measure resistance between ECM and chassis ground. ***Connector & terminals*** ***(B136) No. 13 — Chassis ground:*** ***(B136) No. 22 — Chassis ground:***	Is the measured value more than 1 MΩ?	Go to step **6.**	Repair ground short circuit between ECM and front oxygen (A/F) sensor.

	Step	Check	Yes	No
6	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loose installation of portions •Damage (crack, hole etc.) of parts •Looseness of front oxygen (A/F) sensor •Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace malfunctioning parts.	Go to step **7.**
7	**CHECK EGR VALVE.**	Is EGR valve clogged?	Replace EGR valve.	Go to step **8.**
8	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair air intake system.	Go to step **9.**
9	**CHECK PURGE CONTROL SOLENOID VALVE.**	Is purge control solenoid valve clogged?	Replace purge control solenoid valve.	Go to step **10.**
10	**CHECK PCV VALVE.**	Is PCV valve clogged?	Replace PCV valve.	Go to step **11.**
11	**CHECK FUEL PRESSURE.** **Warning:** **•Place "NO FIRE" signs near the working area.** **•Be careful not to spill fuel on the floor.** 1) Release fuel pressure. (1) Disconnect connector from fuel pump relay. (2) Start the engine and run it until it stalls. (3) After the engine stalls, crank it for five more seconds. (4) Turn ignition switch to OFF. 2) Connect connector to fuel pump relay. 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4) Install fuel filler cap. 5) Start the engine and idle while gear position is neutral. 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. **Warning:** **Before removing fuel pressure gauge, release fuel pressure.** NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.	Is the measured value within 284 to 314 kPa (2.9 to 3.2 kg/cm^2, 41 to 46 psi)?	Go to step **12.**	Repair the following items. **Fuel pressure too high** • Clogged fuel return line or bent hose **Fuel pressure too low** • Improper fuel pump discharge • Clogged fuel supply line

	Step	Check	Yes	No
12	**CHECK FUEL PRESSURE.** After connecting pressure regulator vacuum hose, measure fuel pressure. **Warning:** **Before removing fuel pressure gauge, release fuel pressure.** NOTE: •If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. •If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.	Is the measured value within 206 to 235 kPa (2.1 to 2.4 kg/cm^2, 30 to 34 psi)?	Go to step **13.**	Repair the following items. **Fuel pressure too high** • Malfunctioning pressure regulator • Clogged fuel return line or bent hose **Fuel pressure too low** • Malfunctioning pressure regulator • Improper fuel pump discharge • Clogged fuel supply line
13	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm-up completely. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 70 to 100°C (158 to 212°F)?	Go to step **14.**	Replace engine coolant temperature sensor. <Ref. to FU(H4SO)-27, Engine Coolant Temperature Sensor.>
14	**CHECK INTAKE MANIFOLD PRESSURE SENSOR SIGNAL.** 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the selector lever in "N" or "P" position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or general scan tool. NOTE: •Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4SO)-34, Subaru Select Monitor.> •General scan tool For detailed operation procedures, refer to the General Scan Tool Instruction Manual.	Is the measured value within 24.0 to 41.3 kPa (180 to 310 mmHg, 7.09 to 12.20 inHg) when idling or within 73.3 to 106.6 kPa (550 to 800 mmHg, 21.65 to 31.50 inHg) when turning ignition switch ON?	Go to step **15.**	Replace intake air temperature and pressure sensor. <Ref. to FU(H4SO)-33, Pressure Sensor.>

Step		Check	Yes	No
15	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 13 — Chassis ground:*** ***(B136) No. 22 — Chassis ground:***	Is the measured value more than 1 MΩ?	Replace front oxygen (A/F) sensor. <Ref. to FU(H4SO)-43, Front Oxygen (A/F) Sensor.>	Repair short circuit between ECM and front oxygen (A/F) sensor connector.

DN:DTC P2227 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the related DTC using List of Diagnostic Trouble Code (DTC). <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P2227.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.> NOTE: Atmospheric pressure sensor is built into ECM.

DO:DTC P2228 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT MALFUNCTION (LOW INPUT) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: It is not necessary to inspect DTC P2228.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>

DP:DTC P2229 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT MALFUNCTION (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with malfunction

CAUTION:
After repair or replacement of malfunctioning parts, conduct Clear Memory Mode <Ref. to EN(H4SO)-50, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)-42, OPERATION, Inspection Mode.> .

Step		Check	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4SO)-84, List of Diagnostic Trouble Code (DTC).> NOTE: It is not necessary to inspect DTC P2229.	Replace ECM. <Ref. to FU(H4SO)-45, Engine Control Module.>