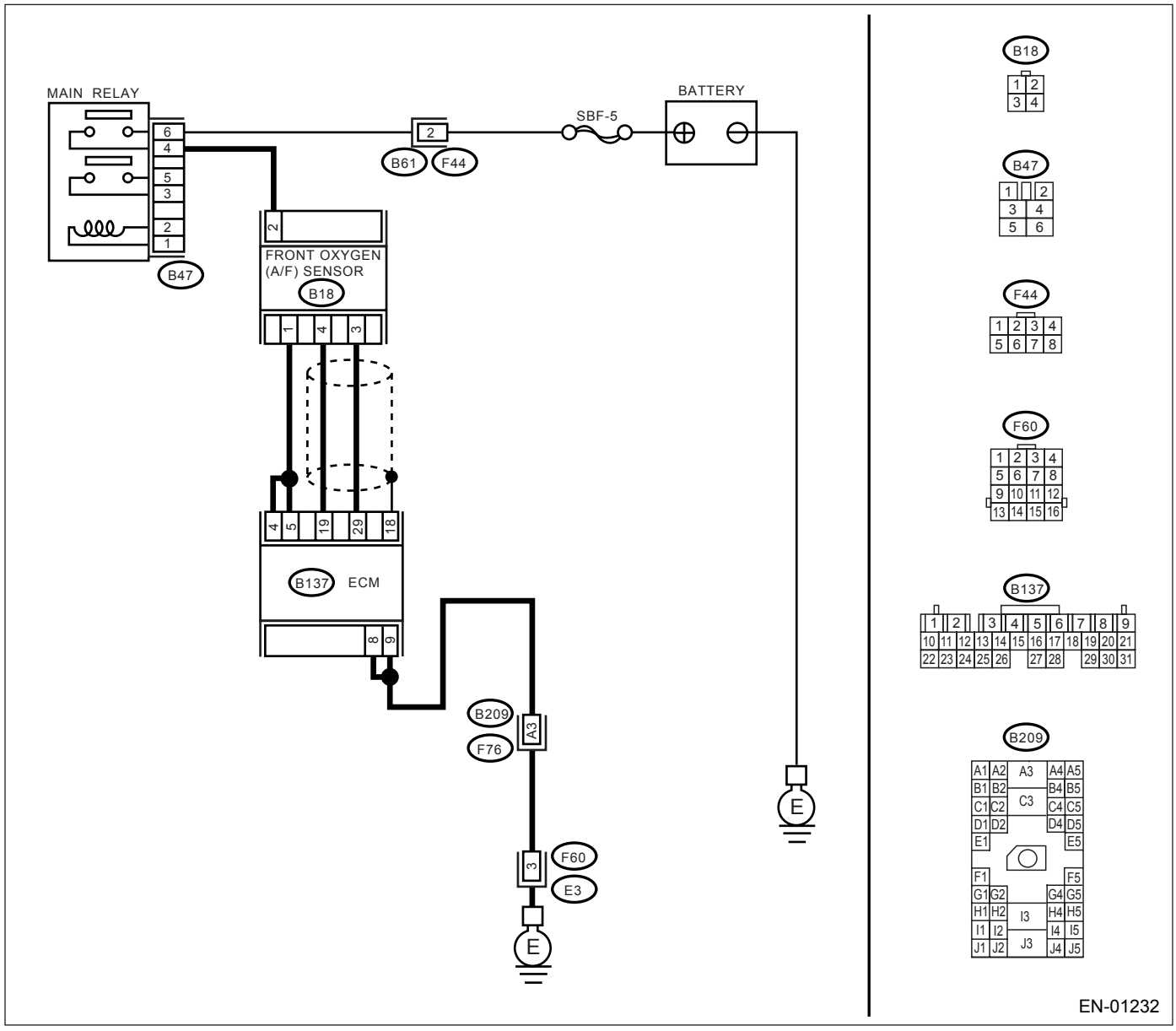
19.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC P0030 — HO_2S HEATER CONTROL CIRCUIT (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



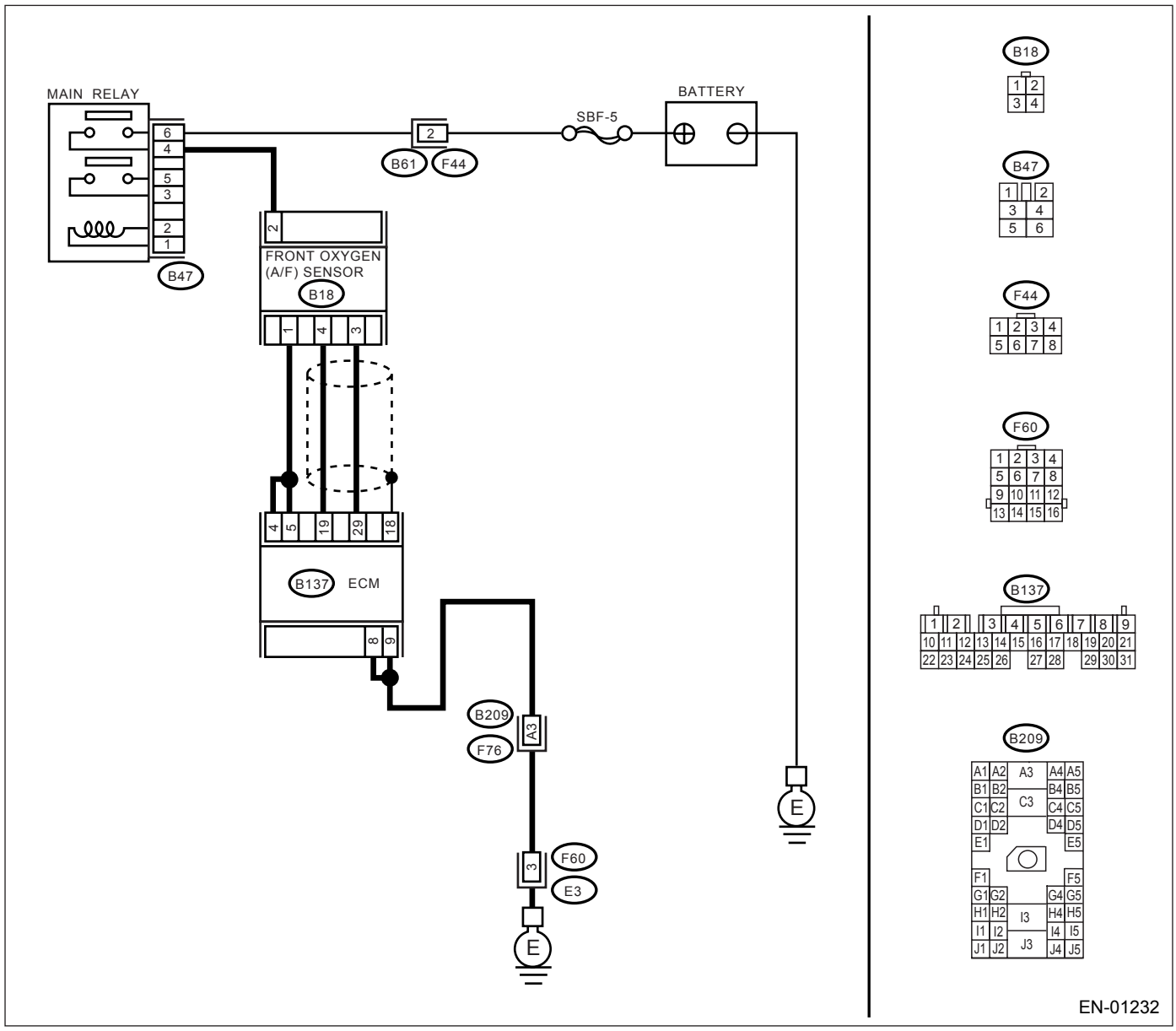
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1)Start and warm-up the engine. 2)Turn ignition switch to OFF. 3)Disconnect the connectors from ECM and front oxygen (A/F) sensor. 4)Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 5 — (B18) No. 1:*** ***(B137) No. 4 — (B18) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair the open circuit in harness between ECM and front oxygen (A/F) sensor connector.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 19 — (B18) No. 4:*** ***(B137) No. 29 — (B18) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair the open circuit in harness between ECM and front oxygen (A/F) sensor connector.
3	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure the resistance of harness between main relay and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B47) No. 4 — (B18) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair the open circuit in harness between ECM and front oxygen (A/F) sensor connector.
4	**CHECK FRONT OXYGEN (A/F) SENSOR.** Measure the resistance between front oxygen (A/F) sensor connector terminals. ***Terminal*** ***No. 2 — No. 1:*** Is the measured value less than the specified value?	5 Ω	Go to step **5.**	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-45, Front Oxygen (A/F) Sensor.>
5	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM and front oxygen (A/F) sensor connectors. Is there poor contact in ECM or front oxygen (A/F) sensor connector?	There is poor contact.	Repair the poor contact in ECM or front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-45, Front Oxygen (A/F) Sensor.>

B: DTC P0031 — HO_2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY TO FRONT OXYGEN (A/F) SENSOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from front oxygen (A/F) sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between front oxygen (A/F) sensor connector and engine ground. ***Connector & terminal*** ***(B18) No. 2 (+) — Engine ground (–):*** Is the measured value more than the specified value?	10 V	Go to step **2.**	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 main relay connector • Malfunction in main relay
2	**CHECK GROUND CIRCUIT OF ECM.** Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 8 — Chassis ground:*** ***(B137) No. 9 — Chassis ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and engine ground cable • Poor contact in ECM connector • Poor contact in coupling connector
3	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	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 **4.**
4	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Start and idle the engine. 2)Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (–):*** ***(B137) No. 5 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1.0 V	Go to step **6.**	Go to step **5.**

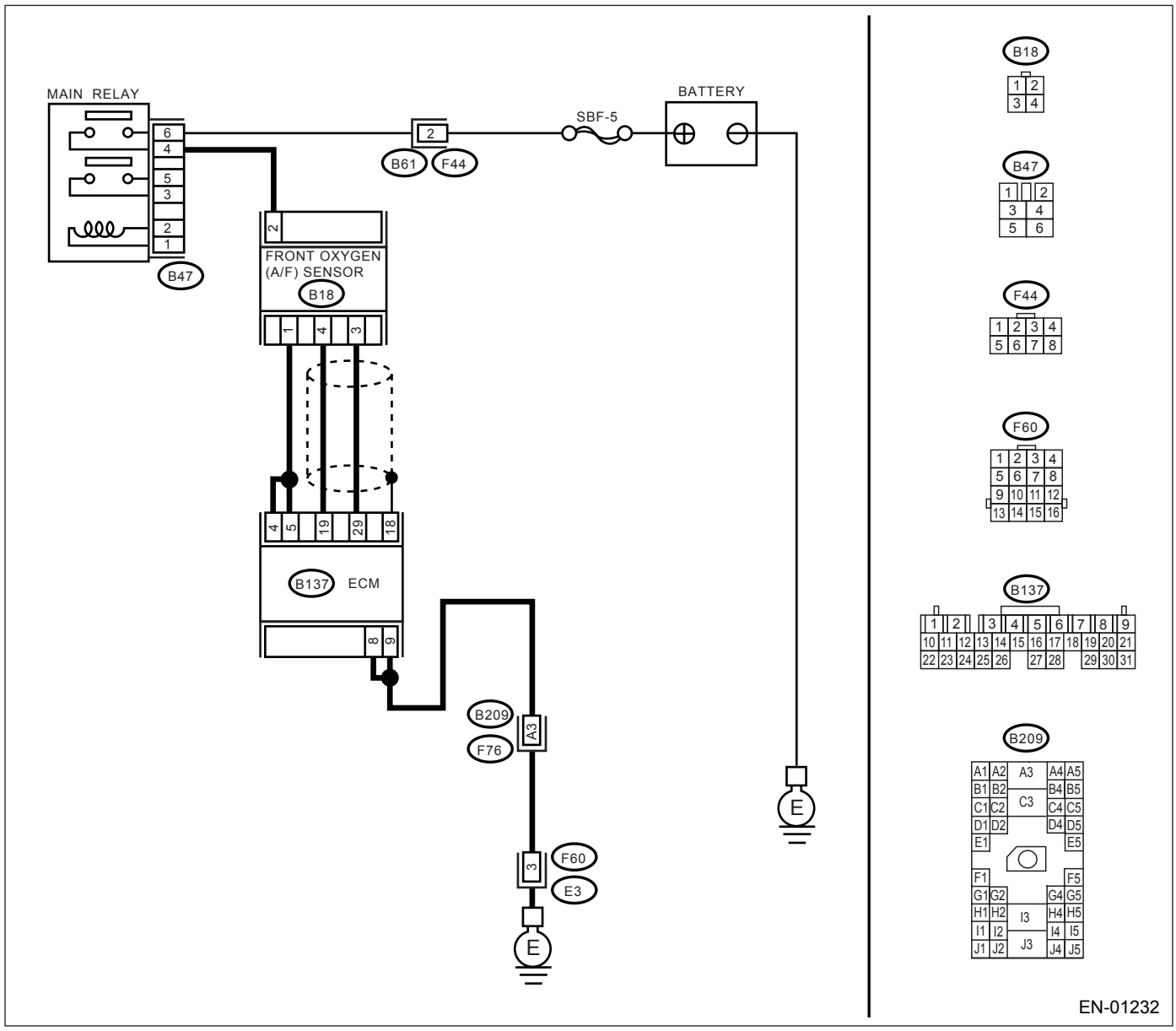
	Step	Check	Yes	No
5	**CHECK OUTPUT SIGNAL FROM ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (−):*** ***(B137) No. 5 (+) — Chassis ground (−):*** Does the voltage variance stay less than the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	1.0 V	Repair poor contact in ECM connector.	Go to step **6.**
6	**CHECK FRONT OXYGEN (A/F) SENSOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance between front oxygen (A/F) sensor connector terminals. ***Terminal*** ***No. 2 — No. 1:*** Is the measured value less than the specified value?	10 Ω	Repair harness and connector. NOTE: In this case, repair the following: • Open or short circuit to ground 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 the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-45, Front Oxygen (A/F) Sensor.>

C: DTC P0032 — HO_2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



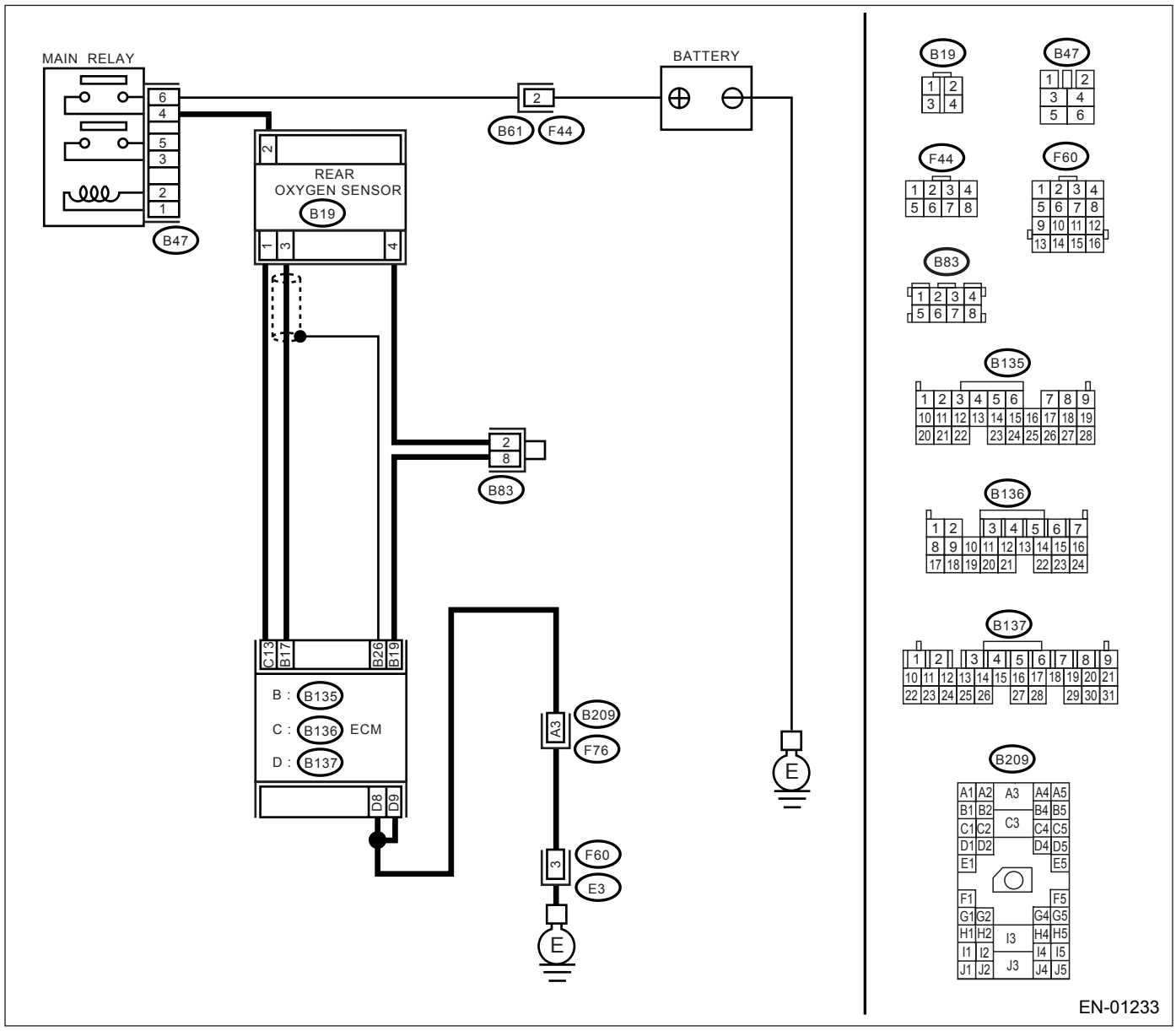
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (−):*** ***(B137) No. 5 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	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 the short circuit to battery in harness between ECM and front oxygen (A/F) sensor connector. 3)Turn ignition switch to ON. 4)Read the data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	2.3 A	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	END
3	**CHECK OUTPUT SIGNAL FROM ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (−):*** ***(B137) No. 5 (+) — Chassis ground (−):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	8 V	Repair the short circuit to battery in harness between ECM and front oxygen (A/F) sensor connector.	END

D: DTC P0037 — HO_2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK GROUND CIRCUIT OF ECM.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 8 — Chassis ground:*** ***(B137) No. 9 — Chassis ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **2.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and engine ground cable • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of rear oxygen sensor heater current using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.2 A	Repair the 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 the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 13 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1.0 V	Go to step **6.**	Go to step **4.**
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 13 (+) — Chassis ground (−):*** Does the voltage variance stay less than the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	1.0 V	Repair poor contact in ECM connector.	Go to step **5.**
5	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from rear oxygen sensor. 3)Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 13 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1.0 V	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Repair short circuit to battery in harness between ECM and rear oxygen sensor connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>

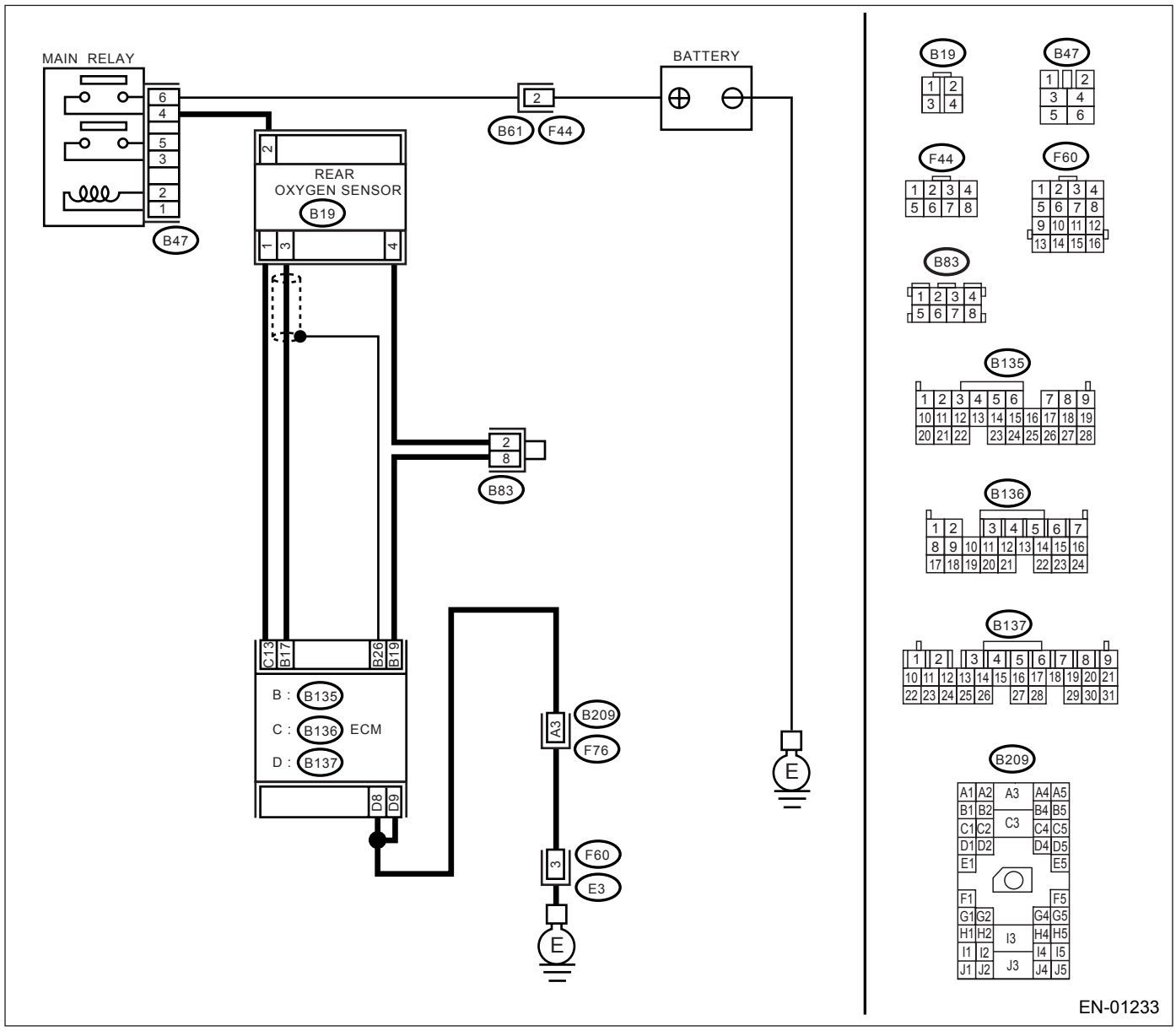
	Step	Check	Yes	No
6	**CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from rear oxygen sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between rear oxygen sensor connector and engine ground or chassis ground. ***Connector & terminal*** ***(B19) No. 1 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	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 main relay connector • Malfunction in main relay
7	**CHECK REAR OXYGEN SENSOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance between rear oxygen sensor connector terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	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 the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, Rear Oxygen Sensor.>

E: DTC P0038 — HO_2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



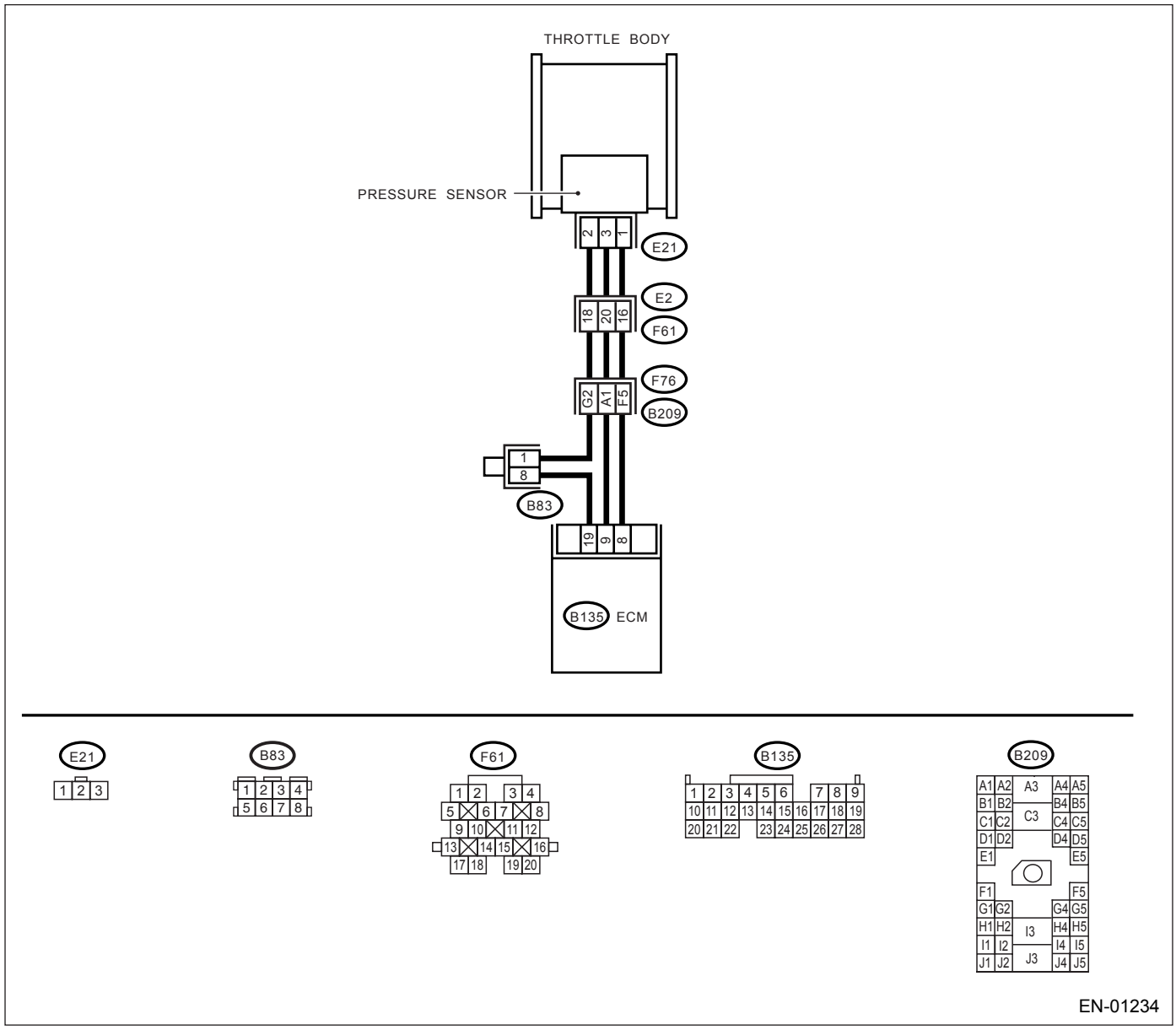
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to OFF. 2)Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 13 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	8 V	Go to step **2.**	Go to step **3.**
2	**CHECK CURRENT DATA.** 1)Repair short circuit to battery in harness between ECM and rear oxygen sensor connector. 2)Turn ignition switch to ON. 3)Read the data of rear oxygen sensor heater current using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	7 A	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	END
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	END

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



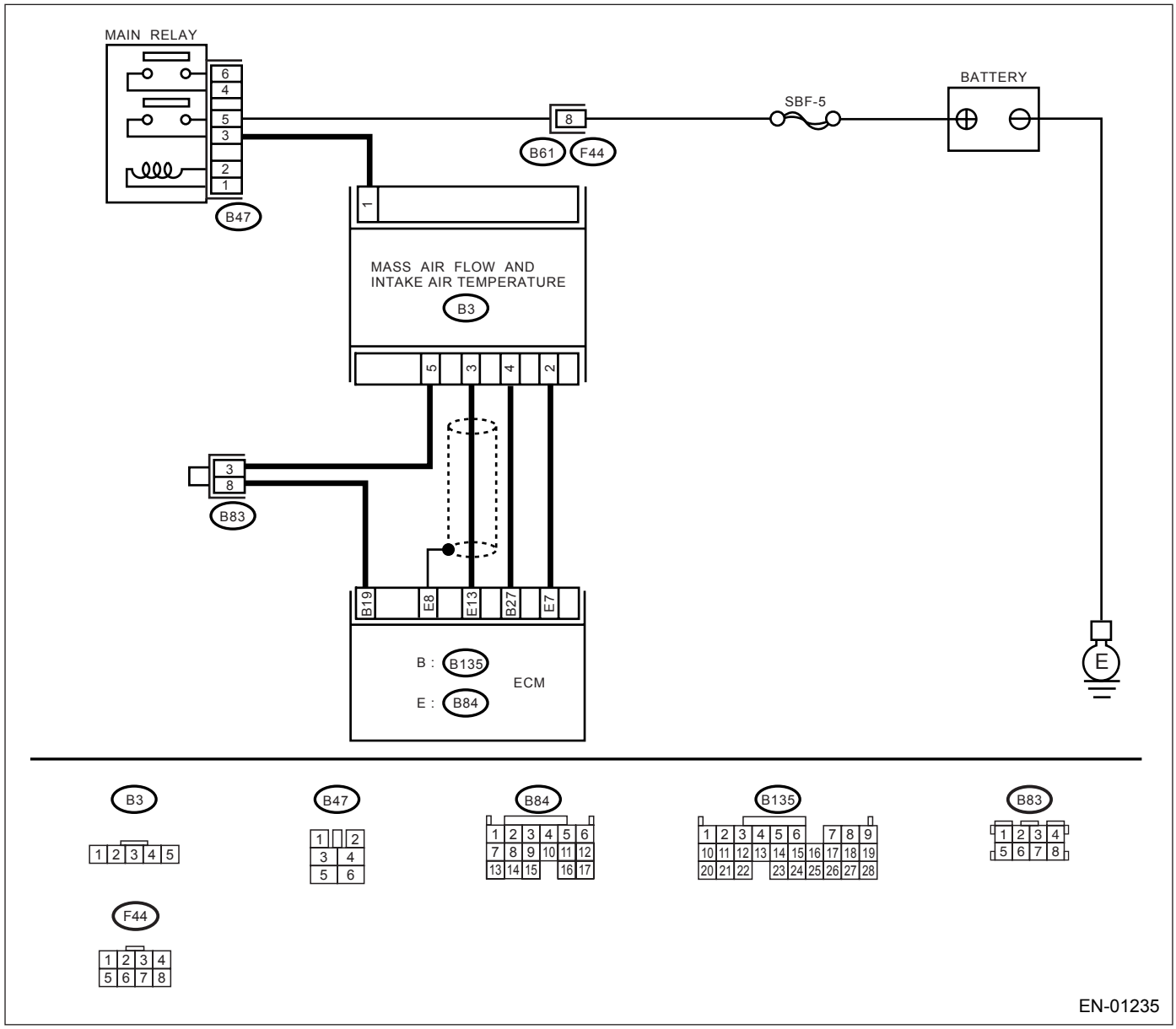
	Step	Check	Yes	No
1	**CHECK IDLE SWITCH SIGNAL.** 1)Turn ignition switch to ON. 2)Activate the LED operation mode for engine using the Subaru Select Monitor. Does the {Idle Switch Signal} LED come on? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to LED Operation Mode for Engine. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.>	LED comes on.	Go to step **2.**	Check throttle position sensor circuit. <Ref. to EN(H4DOTC)-134, DTC P0121 — THROTTLE/ PEDAL POSITION SENSOR/ SWITCH “A” CIRCUIT RANGE/ PERFORMANCE —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0106.
2	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Record related DTCs. List of Diagnostic Trouble Codes (DTC) <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0106.	Go to step **3.**
3	**CHECK CONDITION OF INTAKE MANIFOLD PRESSURE SENSOR.** Is the pressure sensor installation bolt tightened securely?	Tightened securely.	Go to step **4.**	Tighten pressure sensor installation bolt securely.
4	**CHECK CONDITION OF THROTTLE BODY.** Is the throttle body installation bolt tightened securely?	Tightened securely.	Replace the pressure sensor. <Ref. to FU(H4DOTC)-35, Pressure Sensor.>	Tighten throttle body installation bolt securely.

G: DTC P0101 — MASS OR VOLUME AIR FLOW CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls.
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

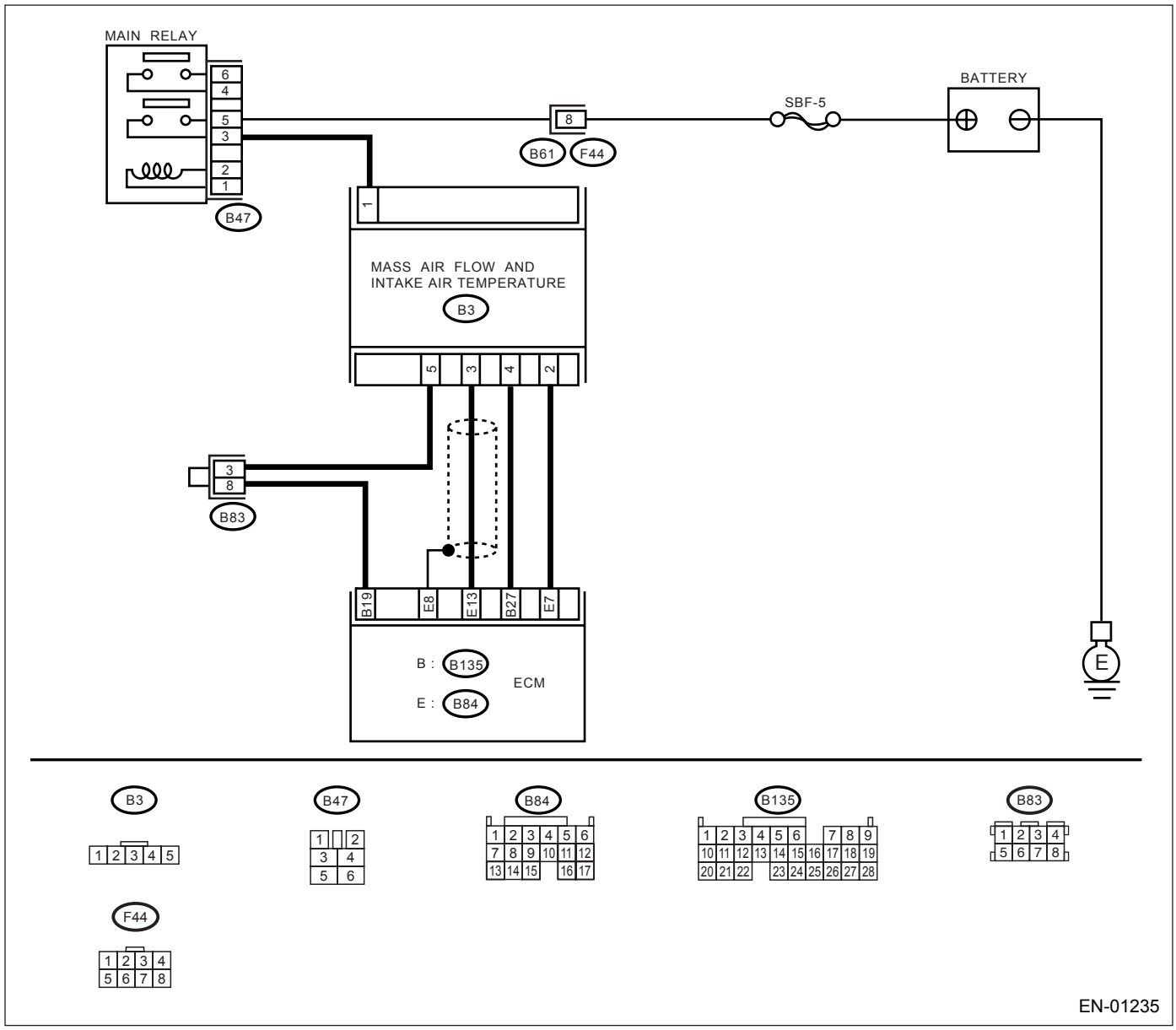
- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0101.	Replace mass air flow & intake air temperature sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>

H: DTC P0102 — MASS OR VOLUME AIR FLOW CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance
- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**Connect a Subaru Select Monitor or OBD-II general scan tool to read the data.** 1)Turn ignition switch to OFF. 2)Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector. 3)Turn the ignition switch to ON and the Subaru Select Monitor or OBD-II general scan tool switch to ON. 4)Start the engine. 5)Read the mass air flow sensor voltage using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.2 — 4.7 V	The MIL may light up, however, the circuit is returned to the normal status at the moment. A temporary poor contact in the connector or harness may be the cause. Repair the harness or connector for mass air flow sensor. NOTE: In this case, repair the following: • Open or short circuit to ground in harness between mass air flow sensor and ECM connector. • Poor contact in mass air flow sensor or ECM connector	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** Idle the engine and measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B84) No. 13 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	0.2 V	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Idle the engine and measure the voltage between ECM connector and chassis ground. Does the voltage variance exceed the specified value while monitoring the Subaru Select Monitor and shaking the ECM harness and connector ?	0.2 V	Repair poor contact in ECM connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK POWER SUPPLY FOR MASS AIR FLOW SENSOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from mass air flow sensor. 3)Turn ignition switch to ON. 4)Check the voltage between mass air flow sensor connector and chassis ground. ***Connector & terminal*** ***(B3) No. 1 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	5 V	Go to step **5.**	Repair open circuit between mass air flow sensor and main relay.

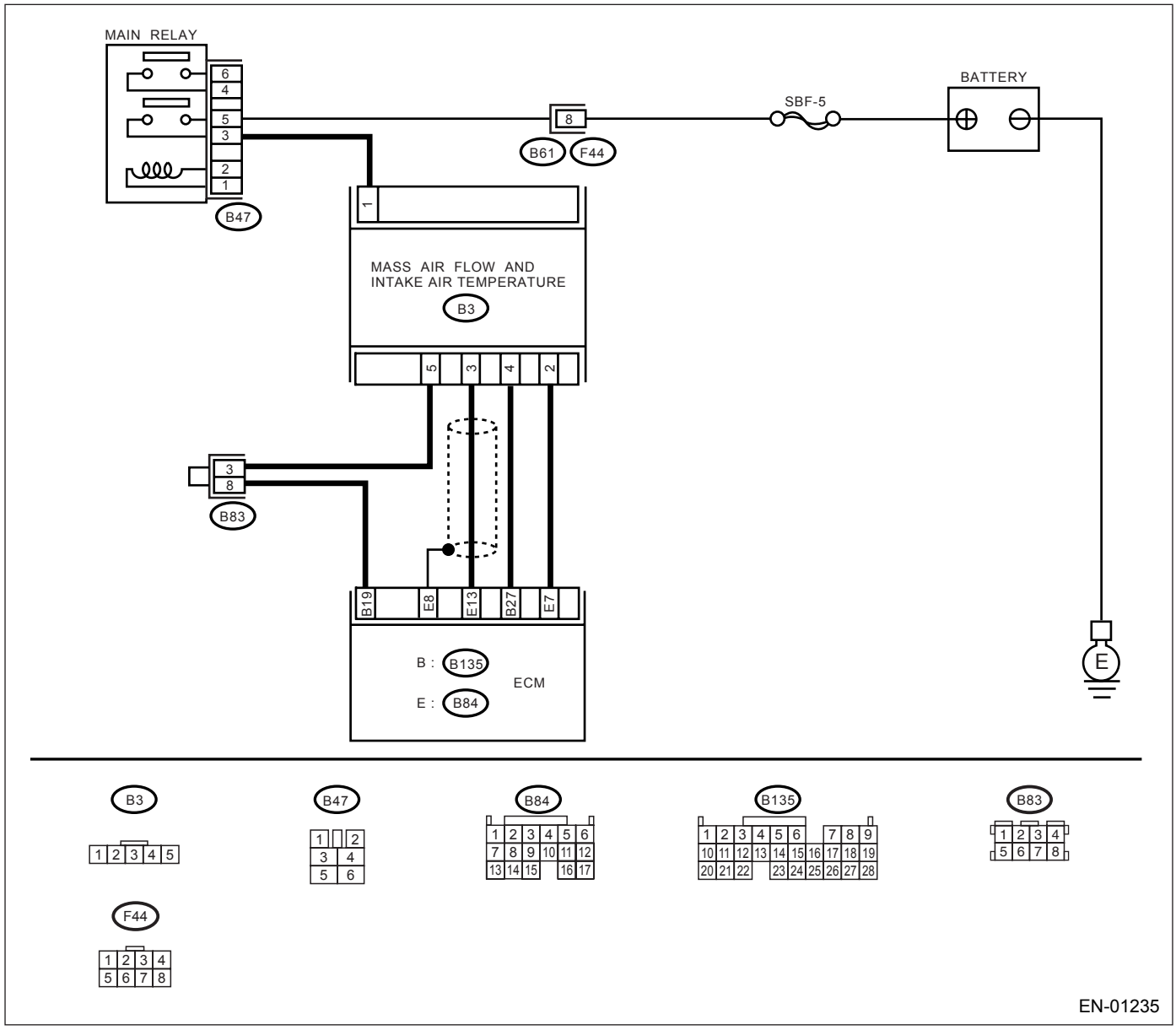
	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM and mass air flow sensor connector. ***Connector & terminal*** ***(B84) No. 13 — (B3) No. 3:*** ***(B84) No. 7 — (B3) No. 2:*** ***(B135) No. 19 — (B3) No. 5:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair open circuit between ECM and mass air flow sensor connector.
6	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.** Measure the resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B84) No. 13 — Chassis ground:*** ***(B84) No. 7 — Chassis ground:*** ***(B135) No. 19 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **7.**	Repair short circuit to ground between ECM and mass air flow sensor connector.
7	**CHECK FOR POOR CONTACT.** Check for poor contact in mass air flow sensor connector. Is there poor contact in mass air flow sensor connector?	There is poor contact.	Repair poor contact in mass air flow sensor connector.	Replace mass air flow & intake air temperature sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>

I: DTC P0103 — MASS OR VOLUME AIR FLOW CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



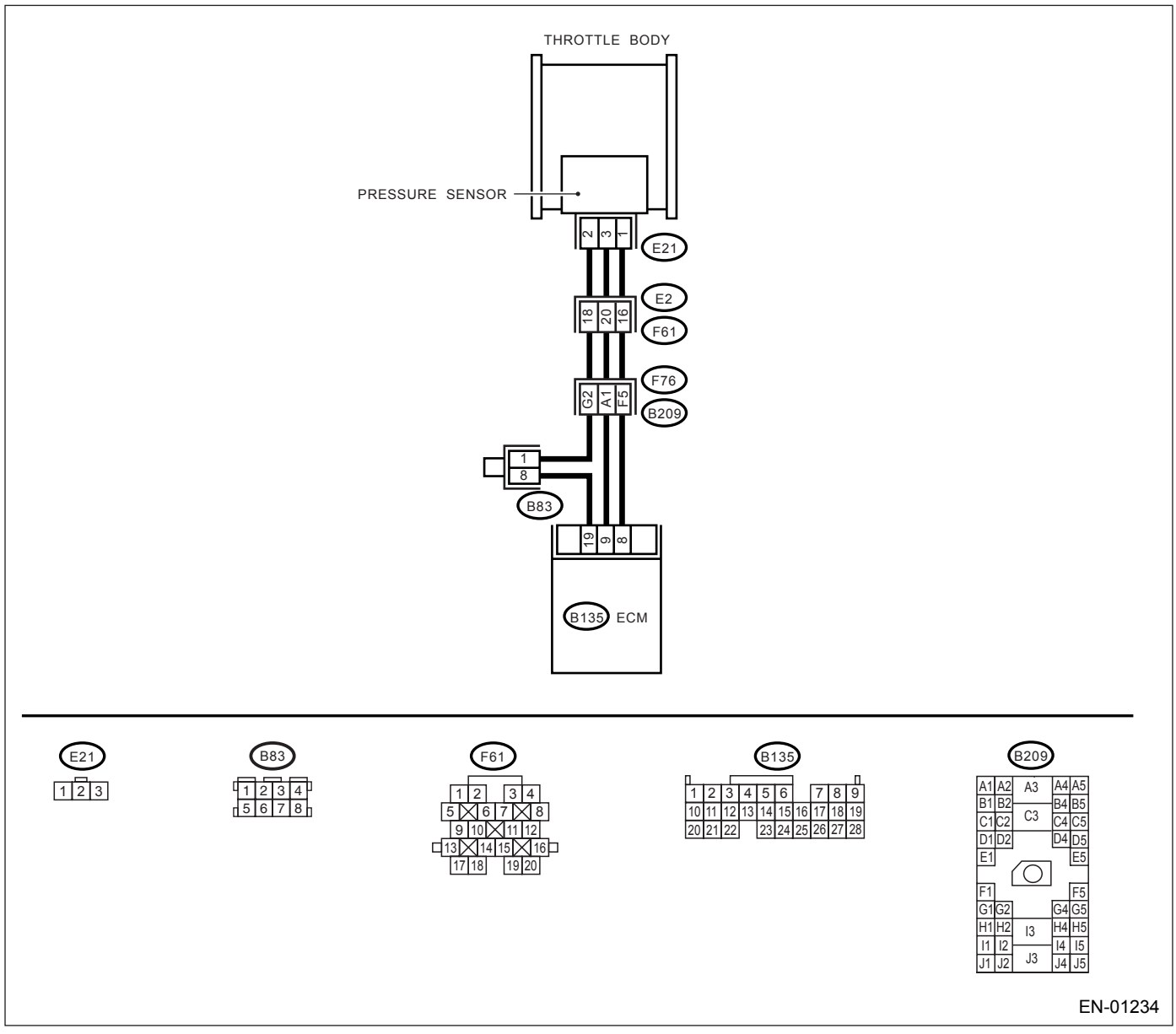
	Step	Check	Yes	No
1	**Connect a Subaru Select Monitor or OBD-II general scan tool to read the data.** 1)Turn ignition switch to OFF. 2)Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector. 3)Turn the ignition switch to ON and the Subaru Select Monitor or OBD-II general scan tool switch to ON. 4)Start the engine. 5)Read the mass air flow sensor voltage using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.2 — 4.7 V	The MIL may light up, however, the circuit is returned to the normal status at the moment.	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from mass air flow sensor. 3)Turn ignition switch to ON. 4)Check the voltage between mass air flow sensor connector and chassis ground. ***Connector & terminal*** ***(B3) No. 3 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	5 V	Repair short circuit to battery in harness between mass air flow sensor connector and ECM connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM connector and mass air flow sensor connector. ***Connector & terminal*** ***(B3) No. 2 — (B84) No. 7:*** Is the measured value less than the specified value?	1 Ω	Replace the mass air flow sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>	Repair open circuit in harness between mass air flow sensor connector and ECM connector.

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01234

	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	4.5 V	Go to step **3.**	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	4.5 V	Repair poor contact in ECM connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
3	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.7 V	Go to step **4.**	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from pressure sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 3 (+) — Engine ground (–):*** Is the measured value more than the specified value?	4.5 V	Go to step **5.**	Repair open circuit in harness between ECM and pressure sensor connector.
5	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM and intake manifold pressure sensor connector. ***Connector & terminal*** ***(B135) No. 19 — (E21) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair open circuit in harness between ECM and pressure sensor connector.
6	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** Measure the resistance of harness between intake manifold pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 1 — Engine ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **7.**	Repair short circuit to ground in harness between ECM and pressure sensor connector.

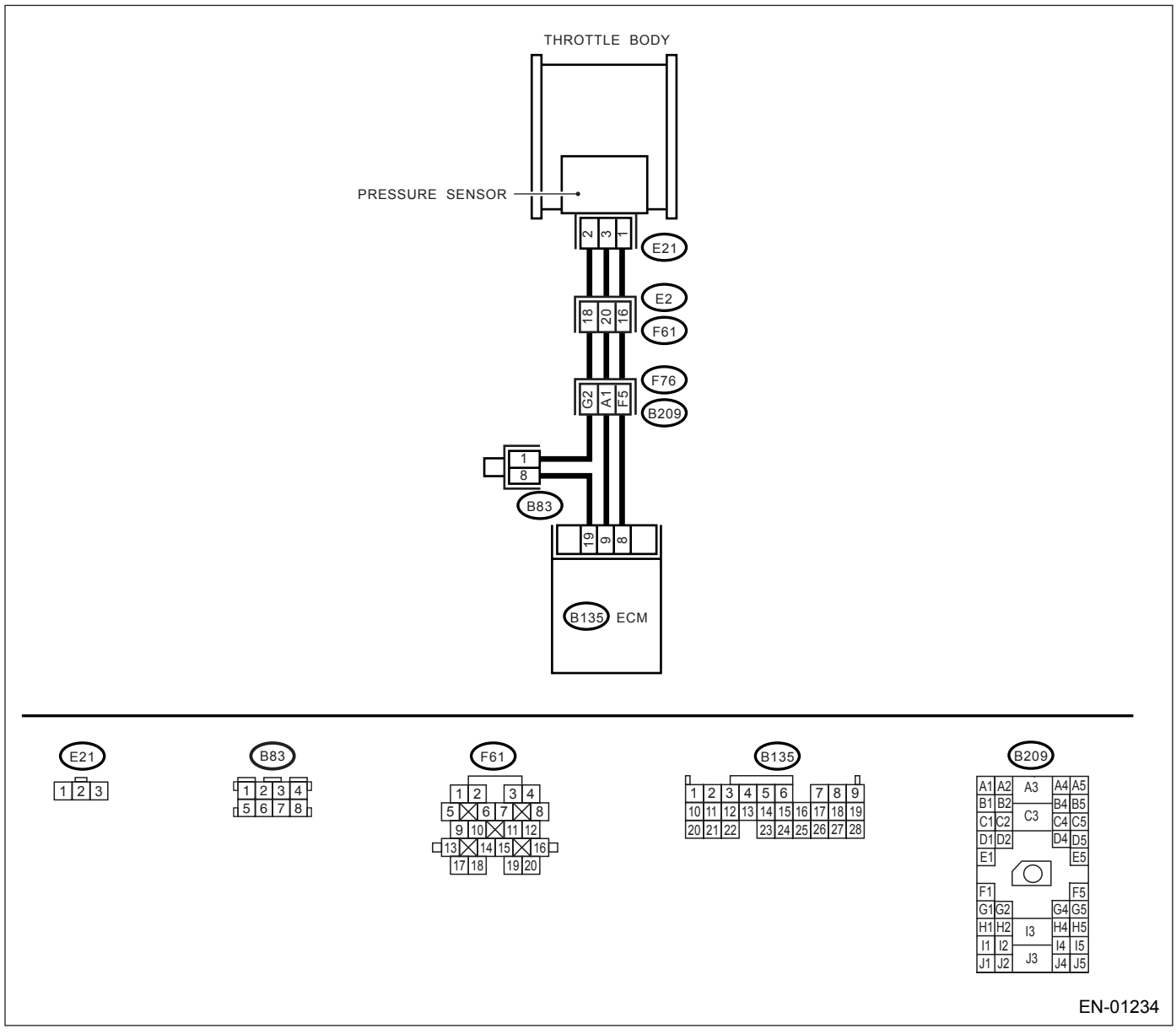
	Step	Check	Yes	No
7	**CHECK FOR POOR CONTACT.** Check for poor contact in pressure sensor connector. Is there poor contact in pressure sensor connector?	There is poor contact.	Repair poor contact in pressure sensor connector.	Replace the pressure sensor. <Ref. to FU(H4DOTC)-35, Pressure Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **3.**	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	4.5 V	Repair poor contact in ECM connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
3	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 8 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **4.**	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from pressure sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 3 (+) — Engine ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **5.**	Repair open circuit in harness between ECM and pressure sensor connector.
5	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM and pressure sensor connector. ***Connector & terminal*** ***(B135) No. 8 — (E21) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair open circuit in harness between ECM and pressure sensor connector.
6	**CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.** Measure the resistance of harness between ECM and pressure sensor connector. ***Connector & terminal*** ***(B135) No. 19 — (E21) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **7.**	Repair open circuit in harness between ECM and pressure sensor connector.

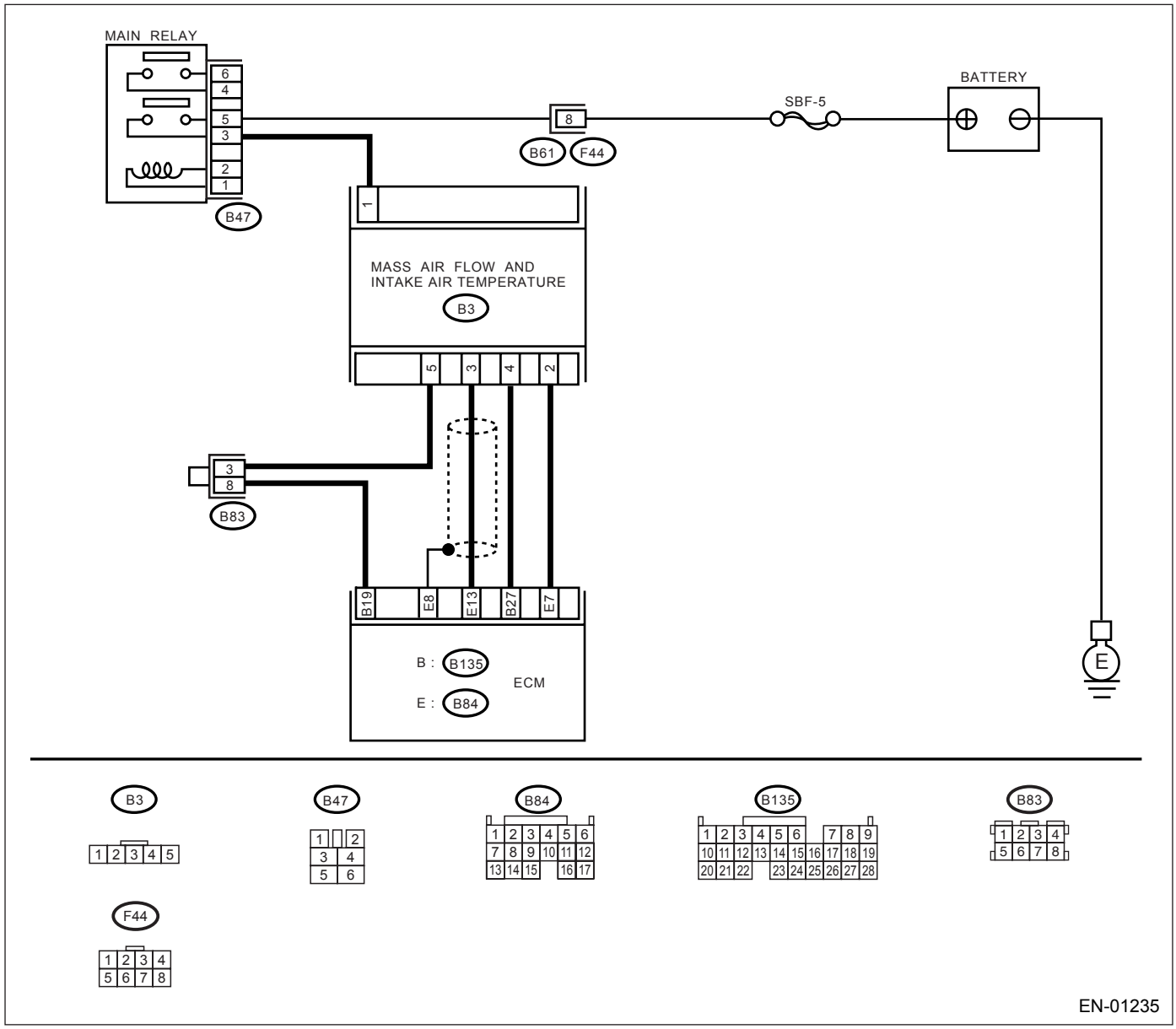
	Step	Check	Yes	No
7	**CHECK FOR POOR CONTACT.** Check for poor contact in pressure sensor connector. Is there poor contact in pressure sensor connector?	There is poor contact.	Repair poor contact in pressure sensor connector.	Replace the pressure sensor. <Ref. to FU(H4DOTC)-35, Pressure Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



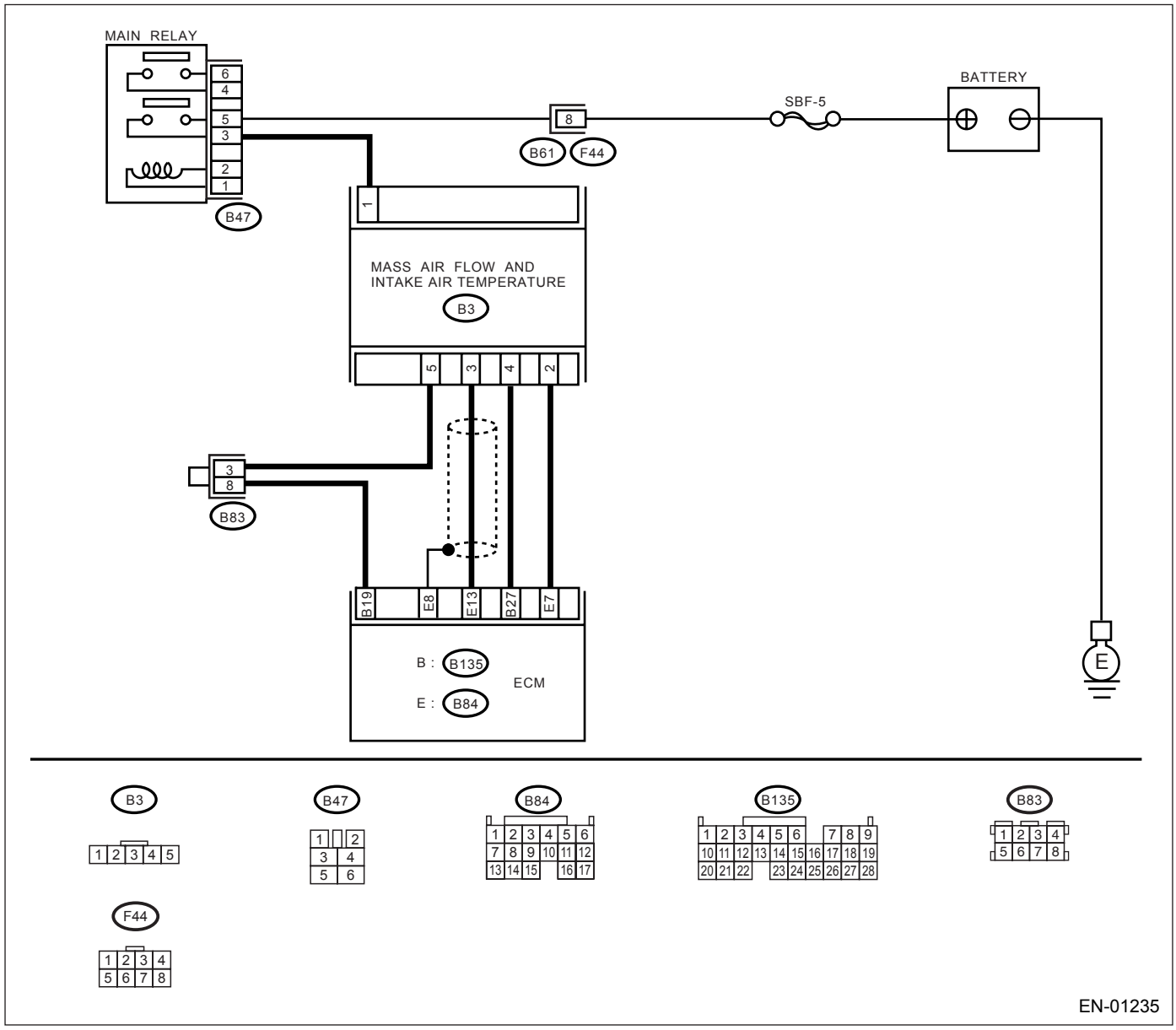
	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect DTC using "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0111.	Replace mass air flow & intake air temperature sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



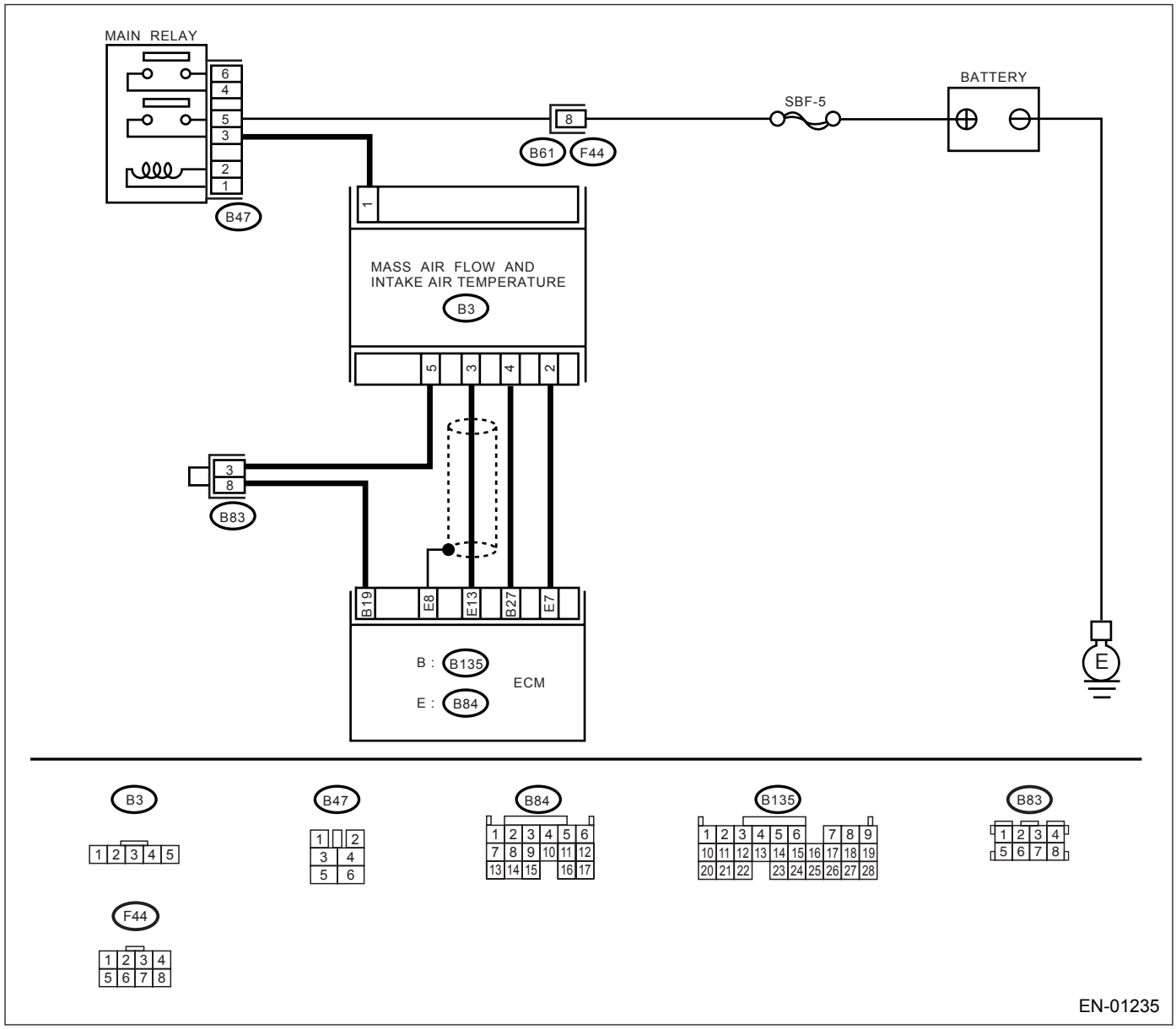
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of intake air temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	55 °C (131°F)	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in mass air flow & intake air temperature sensor • Poor contact in ECM • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN MASS AIR FLOW & INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from mass air flow & intake air temperature sensor. 3)Turn ignition switch to ON. 4)Read the data of intake air temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	–36 °C (–97°F)	Replace mass air flow & intake air temperature sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>	Repair short circuit to ground in harness between mass air flow & intake air temperature sensor and ECM connector.

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of intake air temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	–36 °C (–97°F)	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in mass air flow & intake air temperature sensor • Poor contact in ECM • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN MASS AIR FLOW & INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from mass air flow & intake air temperature sensor. 3)Measure the voltage between mass air flow & intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(B3) No. 4 (+) — Engine ground (–):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between mass air flow & intake air temperature sensor and ECM connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN MASS AIR FLOW & INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to ON. 2)Measure the voltage between mass air flow & intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(B3) No. 4 (+) — Engine ground (–):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between mass air flow & intake air temperature sensor and ECM connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN MASS AIR FLOW & INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure the voltage between mass air flow & intake air temperature sensor and engine ground. ***Connector & terminal*** ***(B3) No. 4 (+) — Engine ground (–):*** Is the measured value more than the specified value?	4 V	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between mass air flow & intake air temperature sensor and ECM connector. • Poor contact in mass air flow & intake air temperature sensor • Poor contact in ECM • Poor contact in joint connector

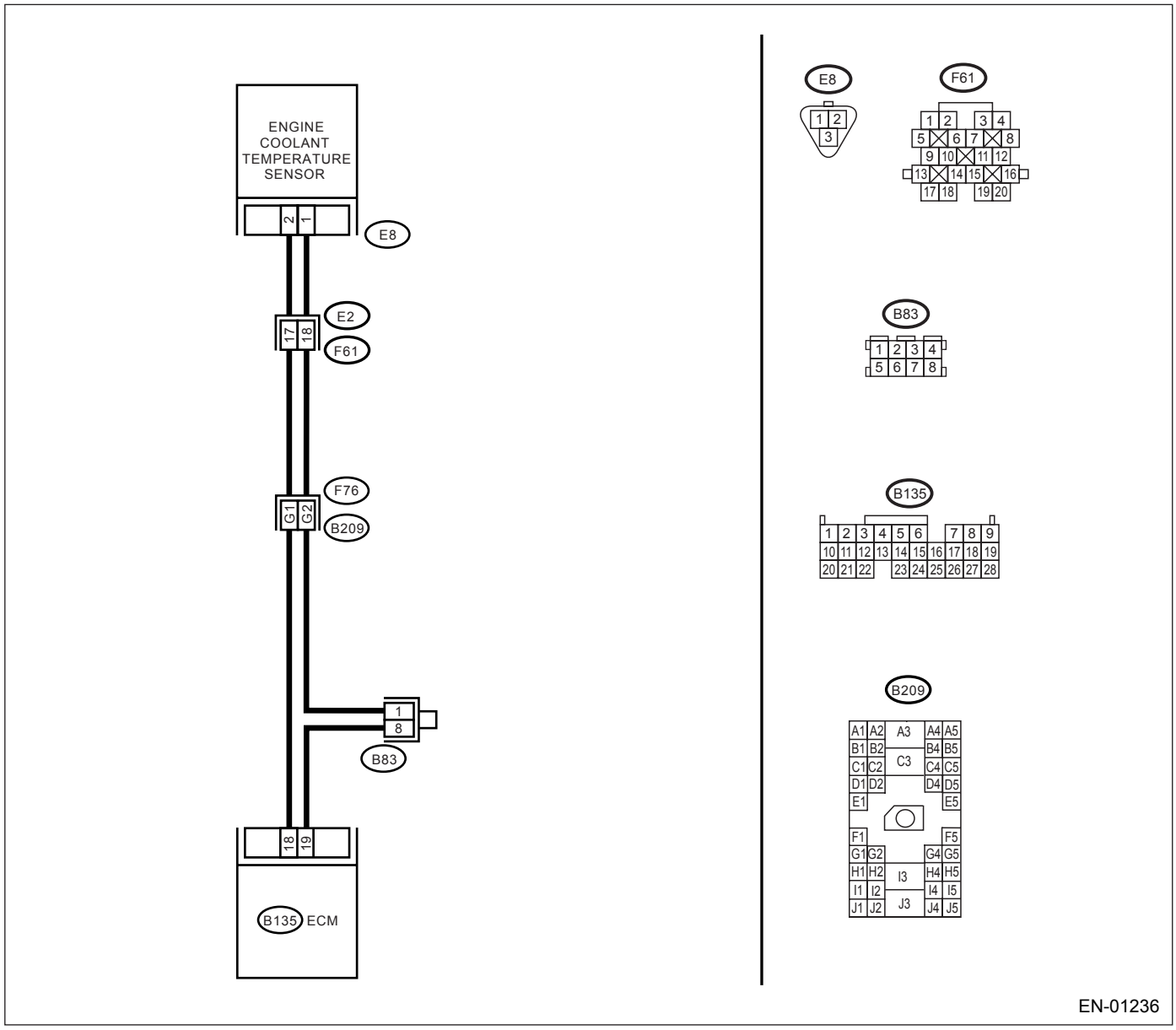
	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN MASS AIR FLOW & INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance between mass air flow & intake air temperature sensor and engine ground. ***Connector & terminal*** ***(B3) No. 5 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Replace mass air flow & intake air temperature sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between mass air flow & intake air temperature sensor and ECM connector. • Poor contact in mass air flow & intake air temperature sensor • Poor contact in ECM • Poor contact in joint connector

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



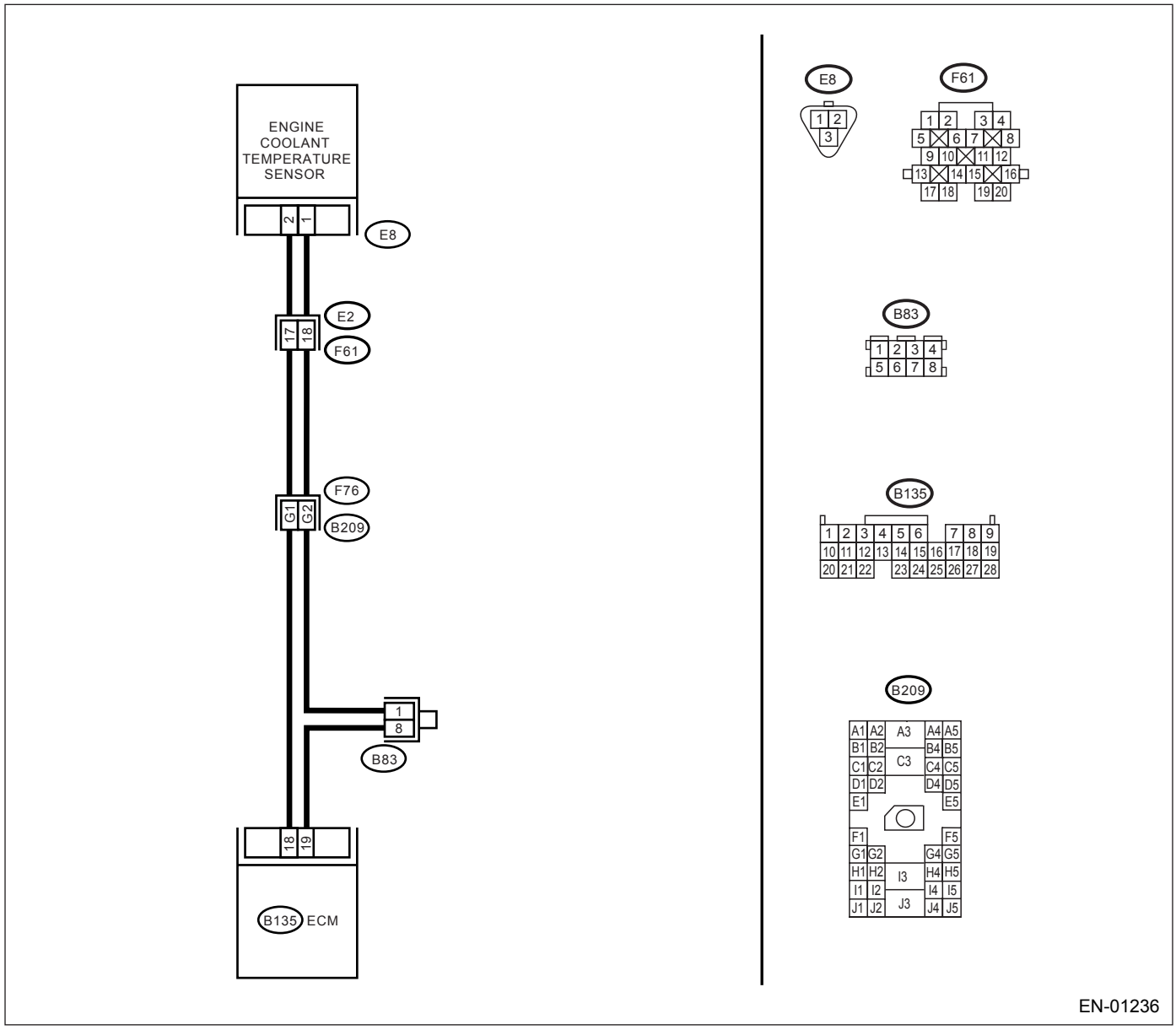
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	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 the connector from engine coolant temperature sensor. 3)Turn ignition switch to ON. 4)Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	–40 °C (–40°F)	Replace the engine coolant temperature sensor. <Ref. to FU(H4DOTC)-29, Engine Coolant Temperature Sensor.>	Repair short circuit to ground in harness between engine coolant temperature sensor and ECM connector.

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	–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 the connector from engine coolant temperature sensor. 3)Measure the voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 2 (+) — Engine ground (–):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery 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 the voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 2 (+) — Engine ground (–):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery 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 the voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 2 (+) — Engine ground (–):*** Is the measured value more than the specified value?	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

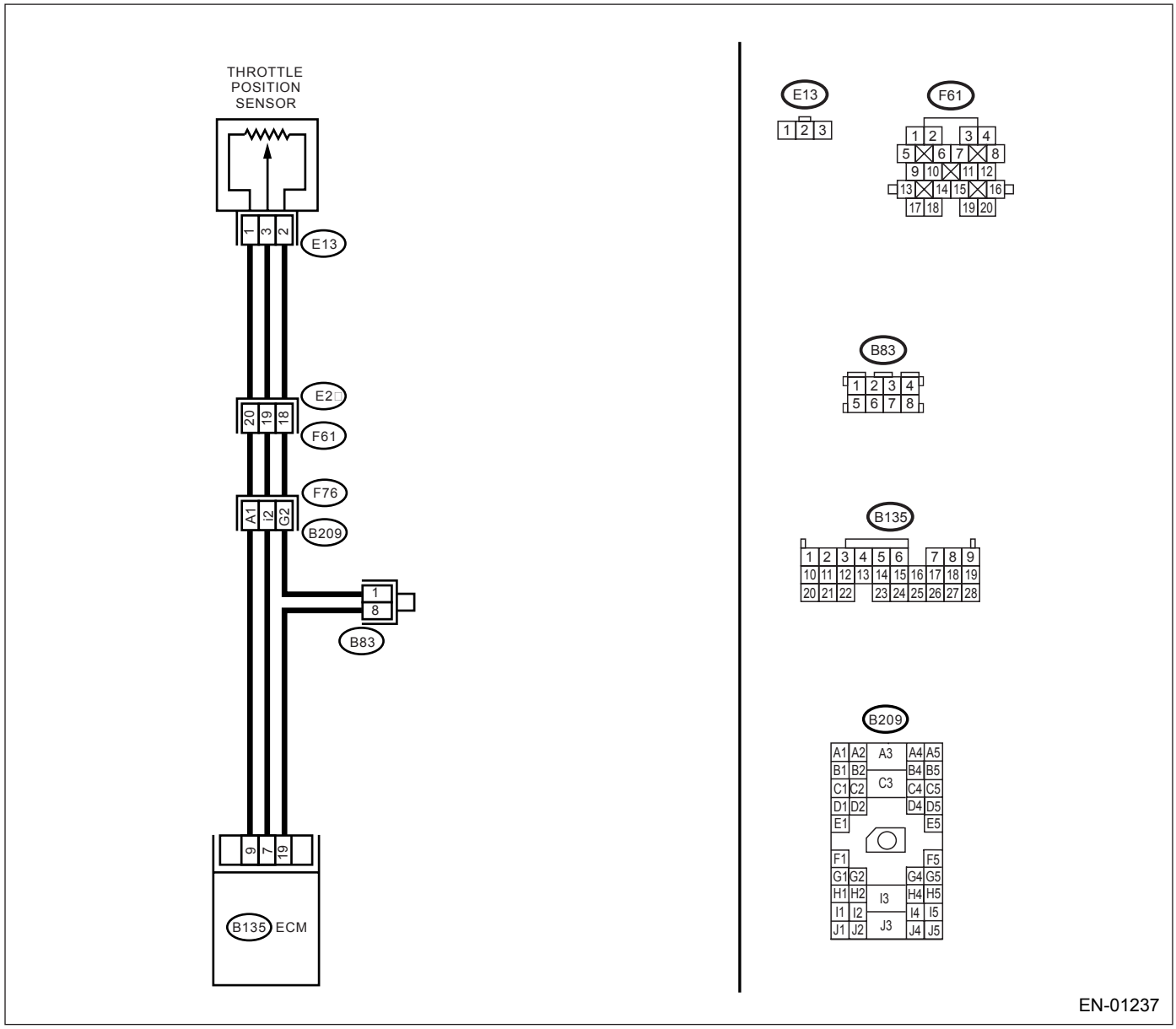
	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance of harness between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Replace the engine coolant temperature sensor. <Ref. to FU(H4DOTC)-29, 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

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance
  - Fuel supply is cut

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



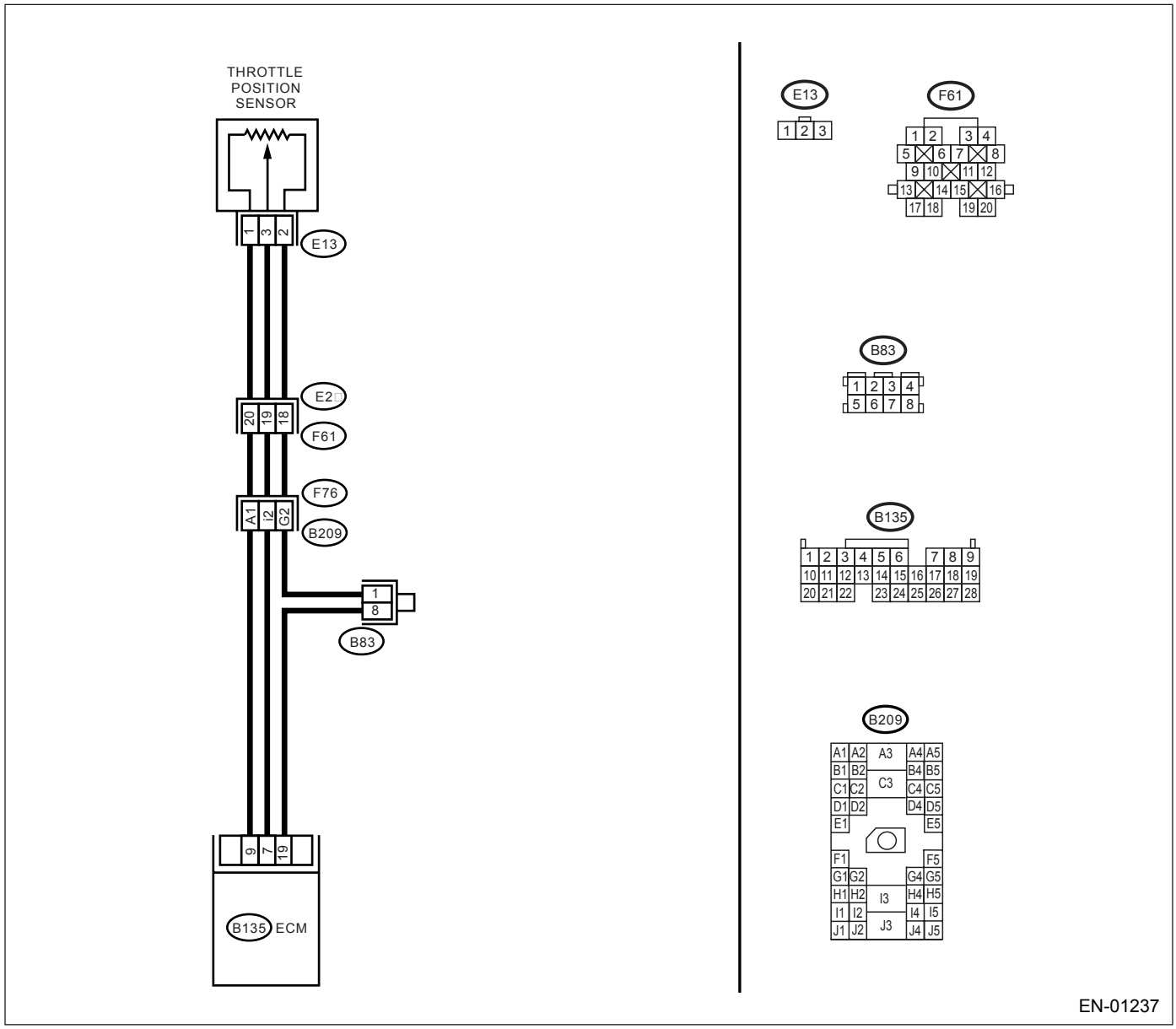
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0121.	Replace the throttle position sensor. <Ref. to FU(H4DOTC)-33, Throttle Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.15 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. 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 the voltage between ECM connector and chassis ground while throttle valve is fully closed. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	4.5 V	Repair poor contact in ECM connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 7 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	0.15 V	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Measure the voltage between ECM connector and chassis ground. Does the voltage variance exceed the specified value while monitoring the Subaru Select Monitor and shaking the ECM harness and connector ?	0.15 V	Repair poor contact in ECM connector.	Go to step **6.**

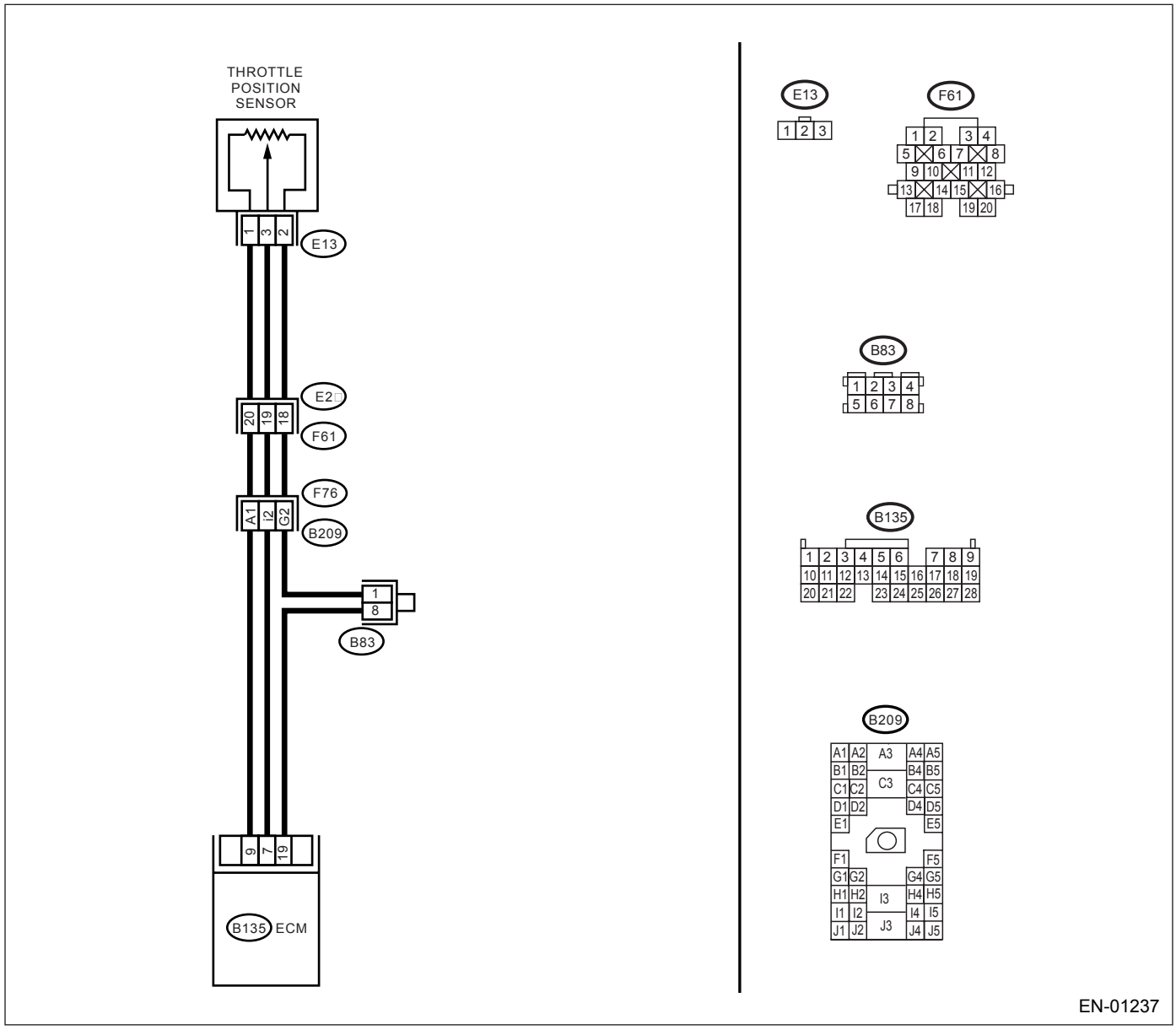
	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from throttle position sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 1 (+) — Engine ground (−):*** Is the measured value more than the specified value?	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 the resistance of harness between ECM connector and throttle position sensor connector. ***Connector & terminal*** ***(B135) No. 7 — (E13) No. 3:*** Is the measured value less than the specified value?	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 the resistance of harness between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 3 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between throttle position sensor and ECM connector.	Go to step **9.**
9	**CHECK FOR POOR CONTACT.** Check for poor contact in throttle position sensor connector. Is there poor contact in throttle position sensor connector?	There is poor contact.	Repair poor contact in throttle position sensor connector.	Replace the throttle position sensor. <Ref. to FU(H4DOTC)-33, Throttle Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



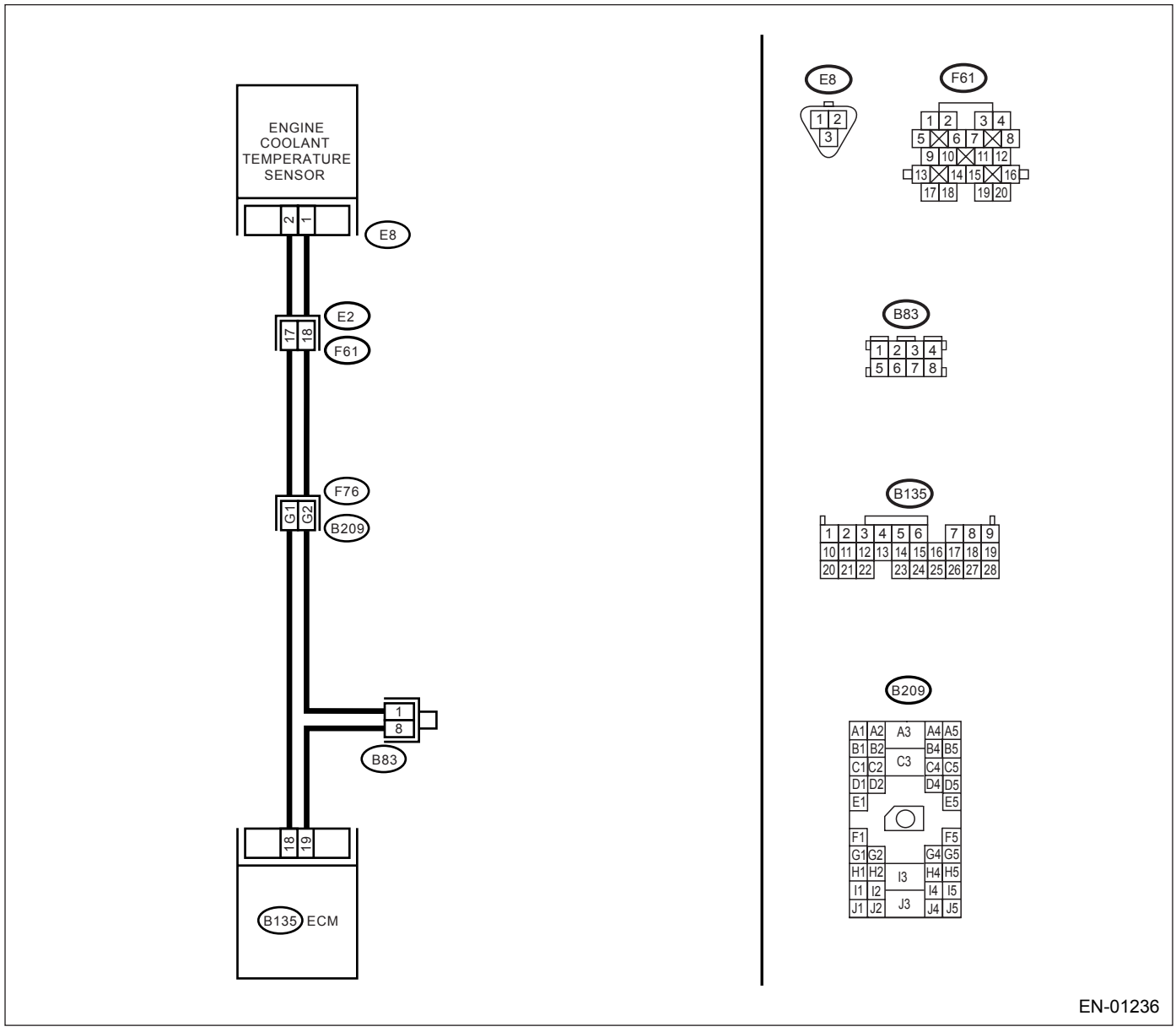
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	4.7 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. 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 the connectors from throttle position sensor. 3)Measure the resistance of harness between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 2 — Engine ground:*** Is the measured value less than the specified value?	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 the voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 3 (+) — Engine ground (−):*** Is the measured value more than the specified value?	4.7 V	Repair short circuit to battery in harness between throttle position sensor and ECM connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Replace the throttle position sensor. <Ref. to FU(H4DOTC)-33, Throttle Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Engine would not return to idling.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0125.	Go to step **2.**
2	**CHECK ENGINE COOLING SYSTEM.** NOTE: Check the following items. •Thermostat stuck open •Coolant level •Coolant freeze •Tire diameter Is there a fault in engine cooling system?	There is a fault.	Replace the thermostat. <Ref. to CO(H4SO)-36, Thermostat.>	Replace the engine coolant temperature sensor. <Ref. to FU(H4DOTC)-29, Engine Coolant Temperature Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Thermostat remains open.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK VEHICLE CONDITION.** Was the vehicle driven or idled with the engine partially submerged under water?	Vehicle was driven or idled with part of engine submerged under water.	In this case, it is not necessary to inspect DTC P0128.	Go to step **2.**
2	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect DTC using "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **3.**
3	**CHECK ENGINE COOLANT.** Are coolant level and mixture ratio of cooling water to anti-freeze solution correct?	Level and mixture ratio are correct.	Go to step **4.**	Replace the engine coolant. <Ref. to CO(H4SO)-29, REPLACEMENT, Engine Coolant.>
4	**CHECK RADIATOR FAN.** 1)Start the engine. 2)Check radiator fan operation. Does the radiator fan continuously rotate for more than 3 minutes during idling?	Radiator fan rotates.	Repair radiator fan circuit. <Ref. to CO(H4SO)-47, Radiator Main Fan and Fan Motor.> and <Ref. to CO(H4SO)-49, Radiator Sub Fan and Fan Motor.>.	Replace the thermostat. <Ref. to CO(H4SO)-36, Thermostat.>

V: DTC P0129 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

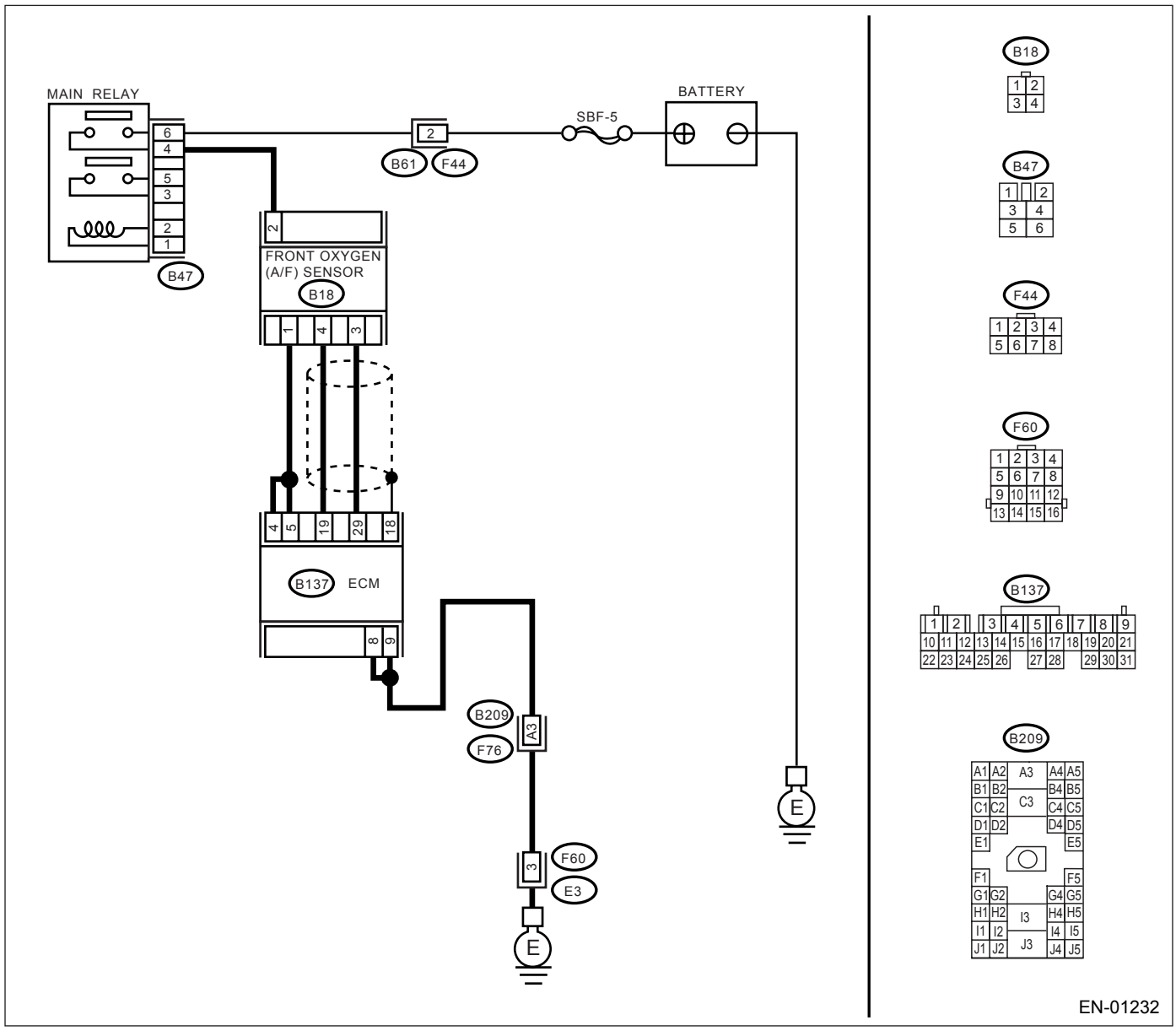
Step		Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.> NOTE: The barometric pressure sensor is incorporated in the ECM.	It is not necessary to inspect DTC P0129.

W: DTC P0130 — O_2 SENSOR CIRCUIT (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



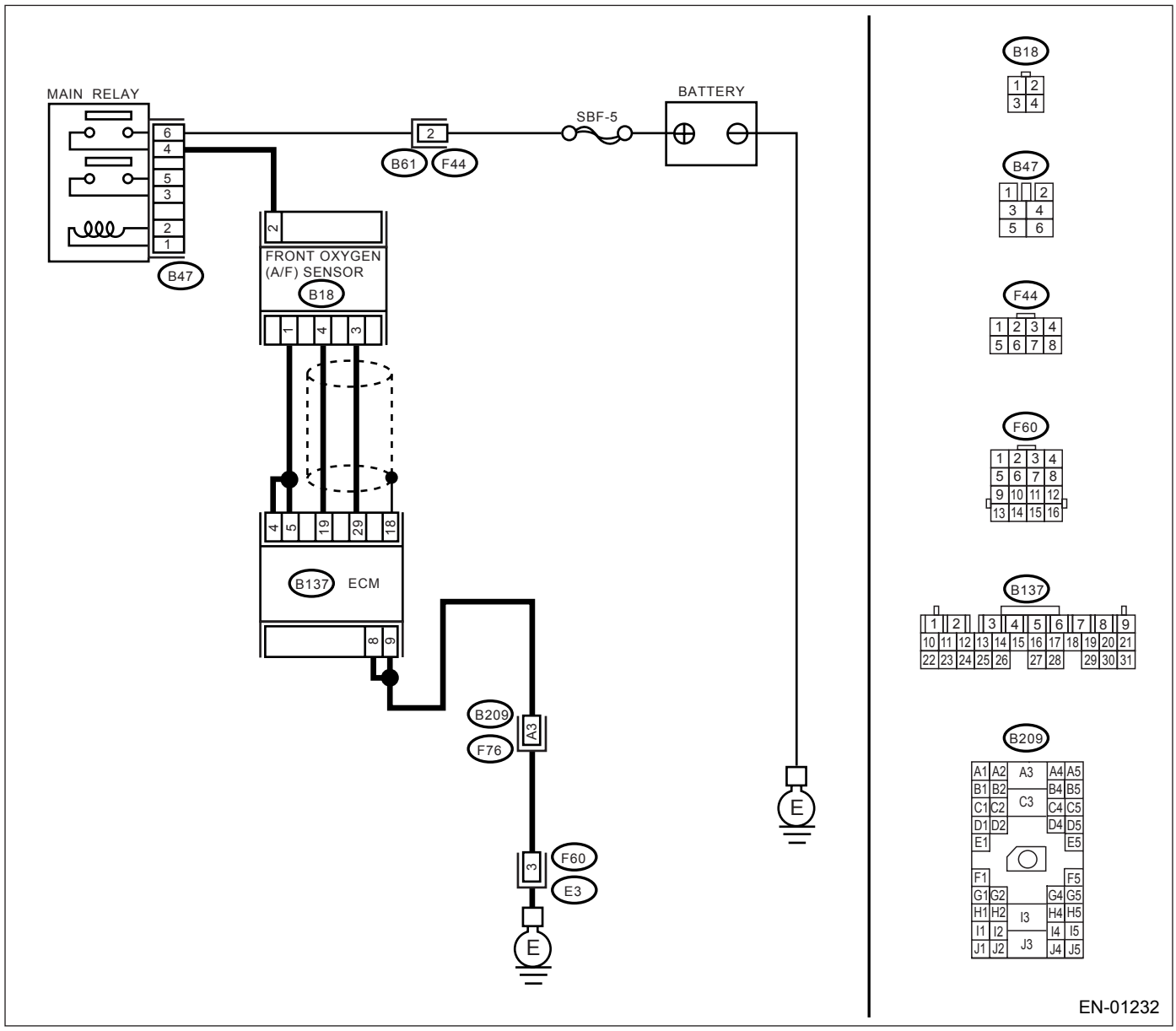
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK FRONT OXYGEN (A/F) SENSOR DATA.** 1)Start the engine. 2)While observing the Subaru Select Monitor or OBD-II 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 the data of front oxygen (A/F) sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.85 — 1.15 (idling)	Go to step **3.**	Go to step **4.**
3	**CHECK REAR OXYGEN SENSOR SIGNAL.** 1)Race up the engine from idling to 5,000 rpm for a total of 5 cycles. NOTE: 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. 2)Activate the LED operation mode for engine. Does the {Rear O2 Rich Signal} LED blink? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to LED Operation Mode for Engine. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.>	LED blinks.	Repair poor contact in front oxygen (A/F) sensor and rear oxygen sensor connectors.	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, Rear Oxygen Sensor.>
4	**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 a fault in exhaust system?	There is a fault.	Repair or replace faulty parts.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-45, Front Oxygen (A/F) Sensor.>

X: DTC P0133 — O_2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 1) —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (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 a fault in exhaust system?	There is a fault.	Repair exhaust system.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-45, Front Oxygen (A/F) Sensor.>

Y: DTC P0134 — O_2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SENSOR 1) —

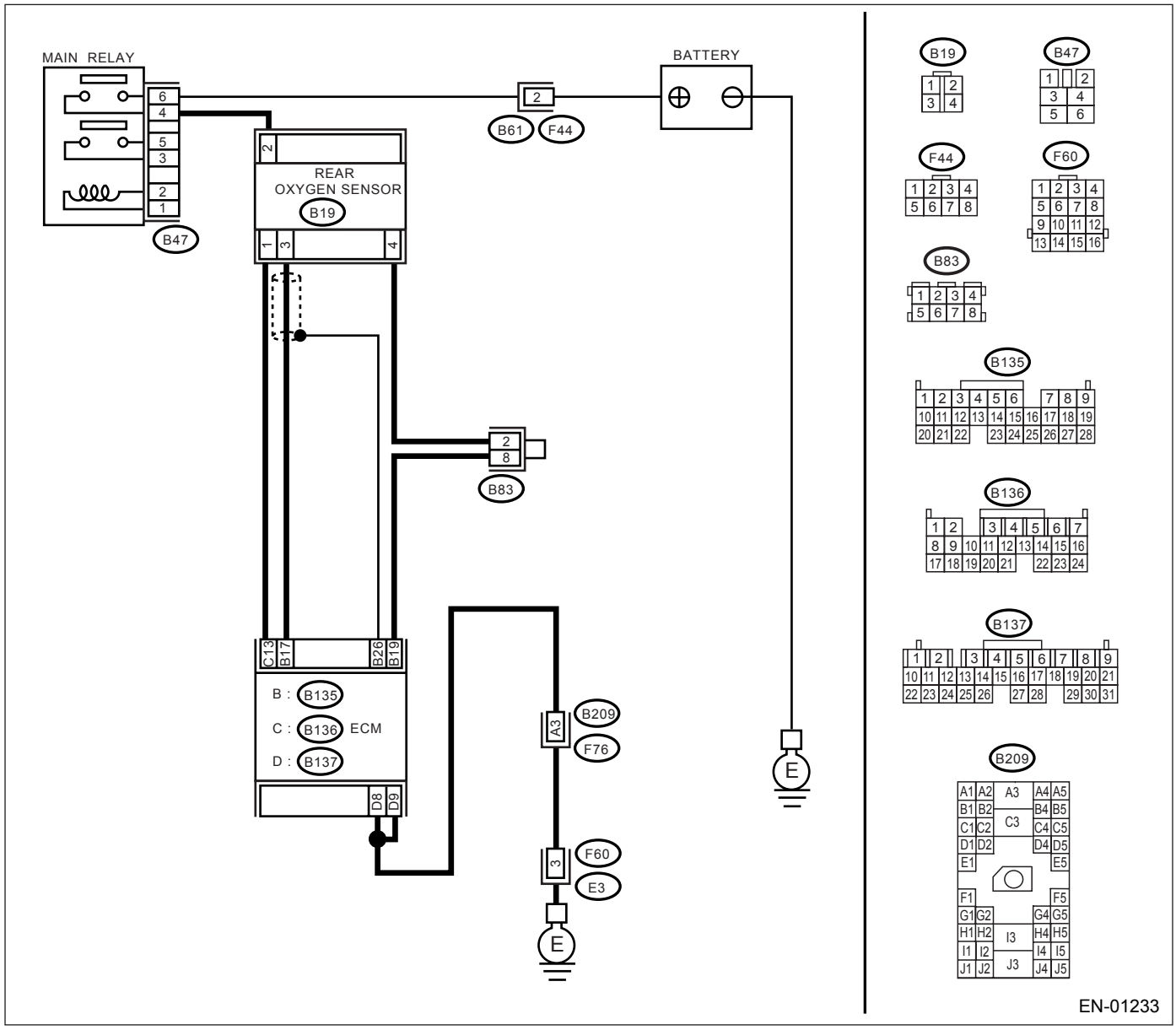
NOTE:
For the diagnostic procedure, refer to DTC P0130. <Ref. to EN(H4DOTC)-146, DTC P0130 — O_2 SENSOR CIRCUIT (BANK 1 SENSOR 1) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

Z: DTC P0137 — O_2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	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 2,000 to 3,000 rpm for 2 minutes. 2)Read the data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool. Does the value change? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	Value changes.	Go to step **6.**	Go to step **3.**
3	**CHECK REAR OXYGEN SENSOR DATA.** Read the data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range?	0.2 — 0.4 V	Go to step **4.**	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, Rear Oxygen Sensor.>
4	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from ECM and rear oxygen sensor. 3)Measure the resistance of harness between ECM and rear oxygen sensor connector. ***Connector & terminal*** ***(B135) No. 17 — (B19) No. 3:*** Is the measured value more than the specified value?	3 Ω	Repair open circuit in harness between ECM and rear oxygen sensor connector.	Go to step **5.**
5	**CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from rear oxygen sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between rear oxygen sensor harness connector and engine ground, or chassis ground. ***Connector & terminal*** ***(B19) No. 4 (+) — Engine ground (−):*** Is the measured value more than the specified value?	0.2 V	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, 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

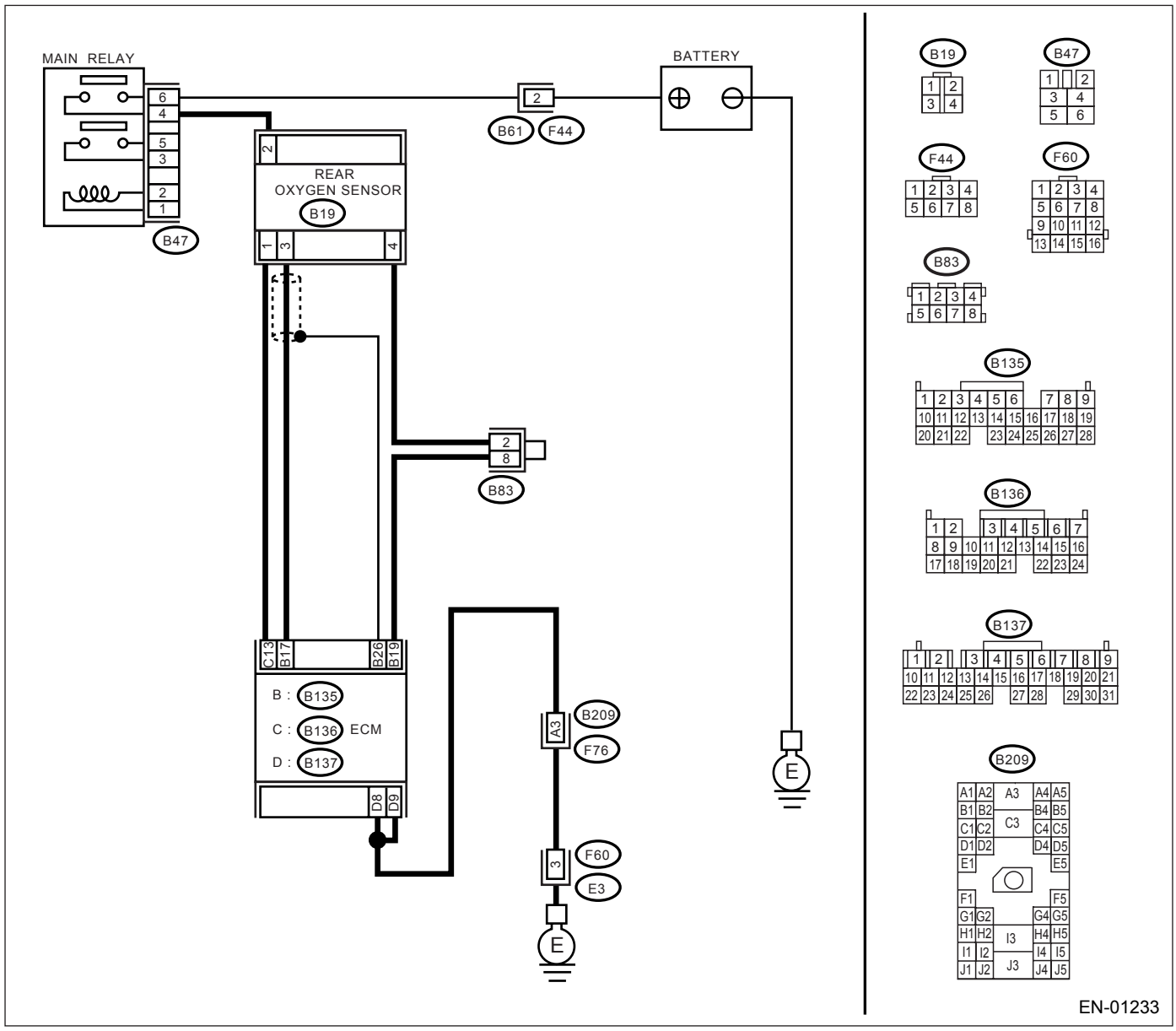
	Step	Check	Yes	No
6	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loose installation of portions •Damage (crack, hole etc.) of parts •Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor Is there a fault in exhaust system?	There is a fault.	Repair or replace faulty parts.	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, Rear Oxygen Sensor.>

AA:DTC P0138 — O_2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 2) —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	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 2,000 to 3,000 rpm for 2 minutes. 2)Read the data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool. Does the value change? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	Value changes.	Go to step **6.**	Go to step **3.**
3	**CHECK REAR OXYGEN SENSOR DATA.** Read the data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range?	0.2 — 0.4 V	Go to step **4.**	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, Rear Oxygen Sensor.>
4	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from ECM and rear oxygen sensor. 3)Measure the resistance of harness between ECM and rear oxygen sensor connector. ***Connector & terminal*** ***(B135) No. 17 — (B19)No. 3:*** Is the measured value more than the specified value?	3 Ω	Repair open circuit in harness between ECM and rear oxygen sensor connector.	Go to step **5.**
5	**CHECK HARNESS BETWEEN REAR OXYGEN SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from rear oxygen sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between rear oxygen sensor harness connector and engine ground, or chassis ground. ***Connector & terminal*** ***(B19) No. 3 (+) — Engine ground (−):*** Is the measured value more than the specified value?	0.2 V	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, 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
6	**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 a fault in exhaust system?	There is a fault.	Repair or replace faulty parts.	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, Rear Oxygen Sensor.>

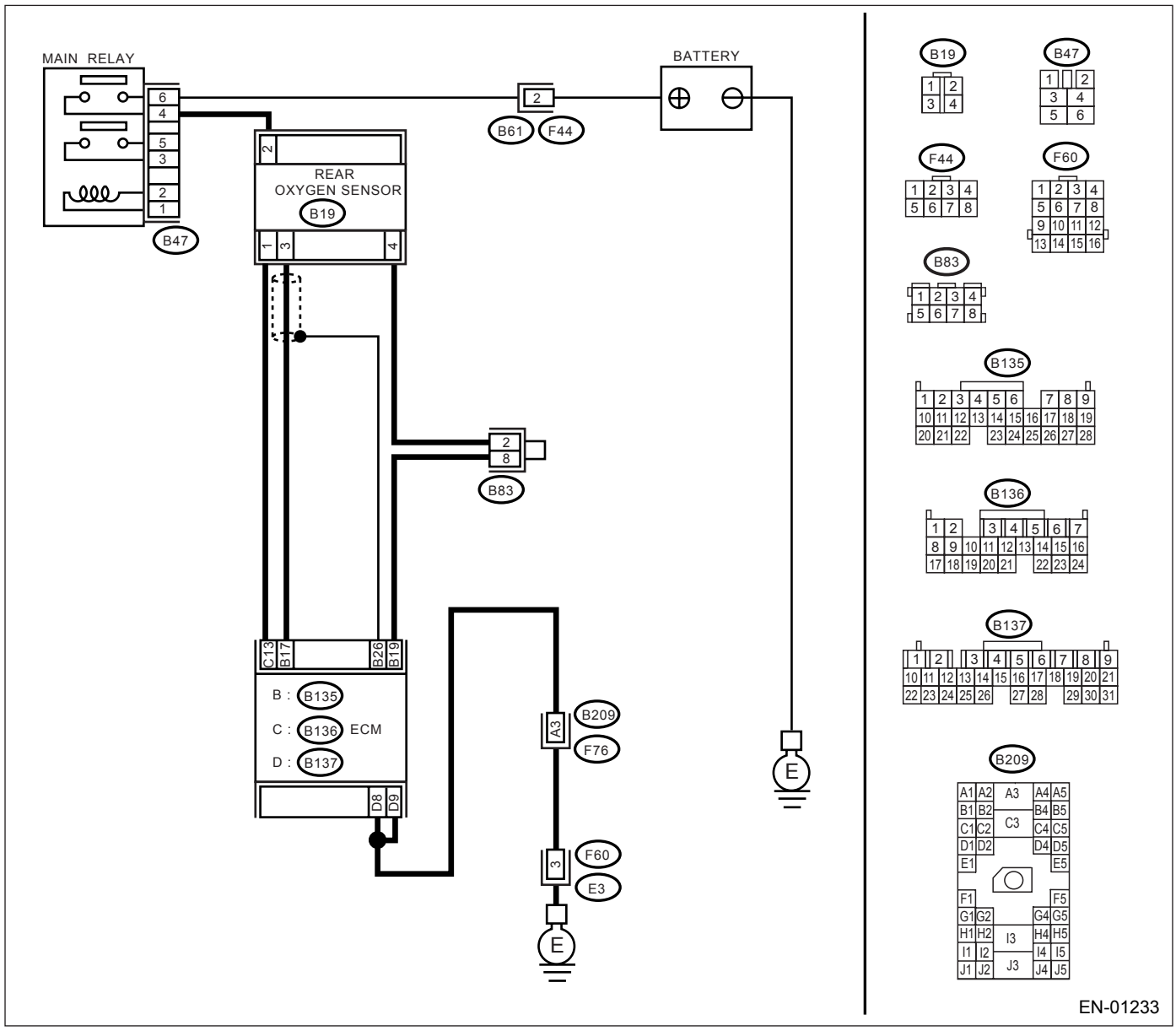
AB:DTC P0139 — O_2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 2)

—

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0139.	Replace the rear oxygen sensor. <Ref. to FU(H4DOTC)-47, Rear Oxygen Sensor.>

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

NOTE:
For the diagnostic procedure, refer to DTC P0172. <Ref. to EN(H4DOTC)-160, DTC P0172 — SYSTEM TOO RICH (BANK 1) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK EXHAUST SYSTEM.** Are there holes or loose bolts on exhaust system?	No holes or loose bolts.	Go to step **2.**	Repair exhaust system.
2	**CHECK AIR INTAKE SYSTEM.** Are there holes, loose bolts or disconnection of hose on air intake system?	No holes, loose bolts or disconnection.	Go to step **3.**	Repair air intake system.
3	**CHECK FUEL PRESSURE.** **Warning:** **•Place "NO FIRE" signs near the working area.** **•Be careful not to spill fuel on the floor.** 1)Lower the fuel pressure. (1) Disconnect the 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 the connector to fuel pump relay. 3)Disconnect the fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4)Install the fuel filler cap. 5)Start the engine and idle while gear position is neutral. 6)Measure the fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. Is the measured value within the specified range? **Warning:** **Before removing the fuel pressure gauge, lower the fuel pressure.** NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.	284 — 314 kPa (2.9 — 3.2 kg/cm^2, 41 — 46 psi)	Go to step **4.**	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
4	**CHECK FUEL PRESSURE.** After connecting the pressure regulator vacuum hose, measure fuel pressure. Is the measured value within the specified range? **Warning:** **Before removing the 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 the value measured in this step is out of specification, check or replace pressure regulator and pressure regulator vacuum hose.	206 — 235 kPa (2.1 — 2.4 kg/cm^2, 30 — 34 psi)	Go to step **5.**	Repair the following items. Fuel pressure too high: • Faulty pressure regulator • Clogged fuel return line or bent hose Fuel pressure too low: • Faulty pressure regulator • Improper fuel pump discharge • Clogged fuel supply line
5	**CHECK ENGINE COOLANT TEMPERATURE SENSOR** 1)Start the engine and warm it up completely. 2)Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	60°C (140°F)	Go to step **6.**	Replace the engine coolant temperature sensor. <Ref. to FU(H4DOTC)-29, Engine Coolant Temperature Sensor.>
6	**CHECK MASS AIR FLOW & INTAKE AIR TEMPERATURE 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 neutral position. 3)Turn the A/C switch to OFF. 4)All accessory switches OFF. 5)Read the data of mass air flow & intake air temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	Ignition switch ON: 73.3 — 106.6 kPa (550 — 800 mmHg, 21.65 — 31.50 inHg) Idling: 24.0 — 41.3 kPa (180 — 310 mmHg, 7.09 — 12.20 inHg)	Go to step **7.**	Replace mass air flow & intake air temperature sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>

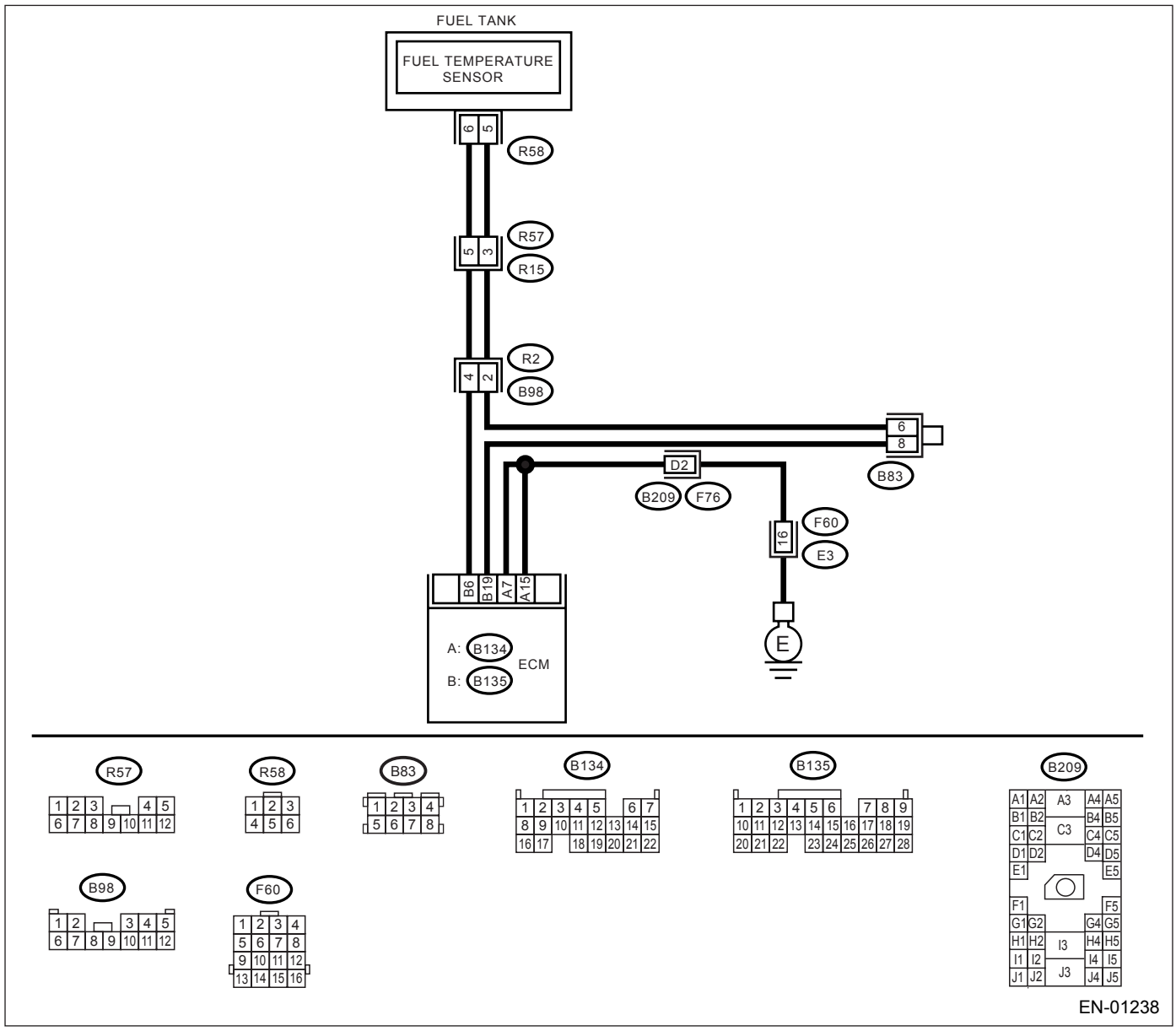
	Step	Check	Yes	No
7	**CHECK MASS AIR FLOW & INTAKE AIR TEMPERATURE SENSOR** 1)Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2)Place the shift lever in neutral position. 3)Turn the A/C switch to OFF. 4)All accessory switches OFF. 5)Open the hood. 6)Measure the ambient temperature. 7)Read the data of mass air flow & intake air temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the value of intake air temperature minus ambient temperature within the specified range? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	−10°C (14°F) — 50°C (122°F)	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Check mass air flow & intake air temperature sensor. <Ref. to FU(H4DOTC)-34, Mass Air Flow and Intake Air Temperature Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



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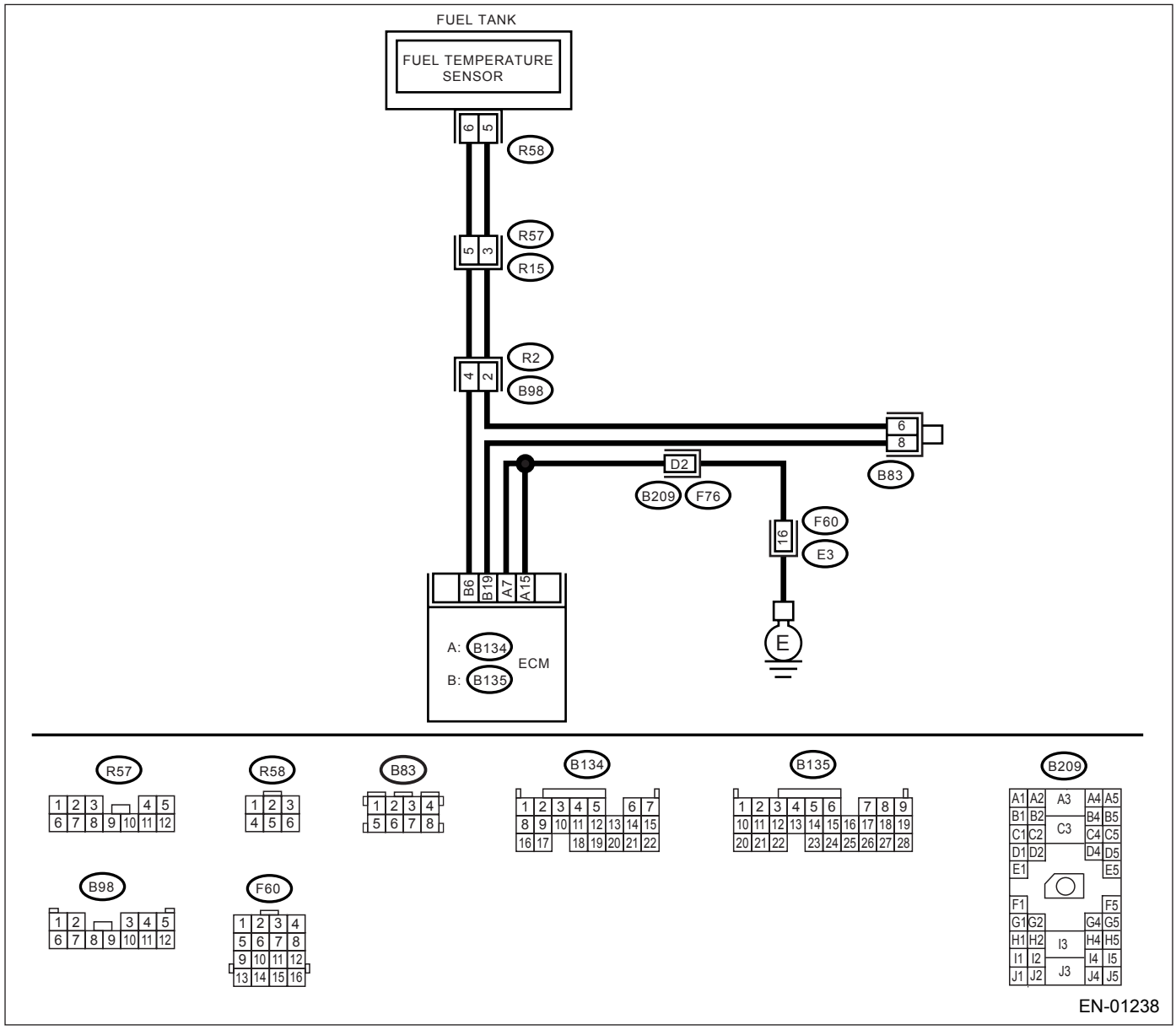
	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect DTC using "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0181.	Replace the fuel temperature sensor. <Ref. to EC(H4DOTC)-9, Fuel Temperature Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



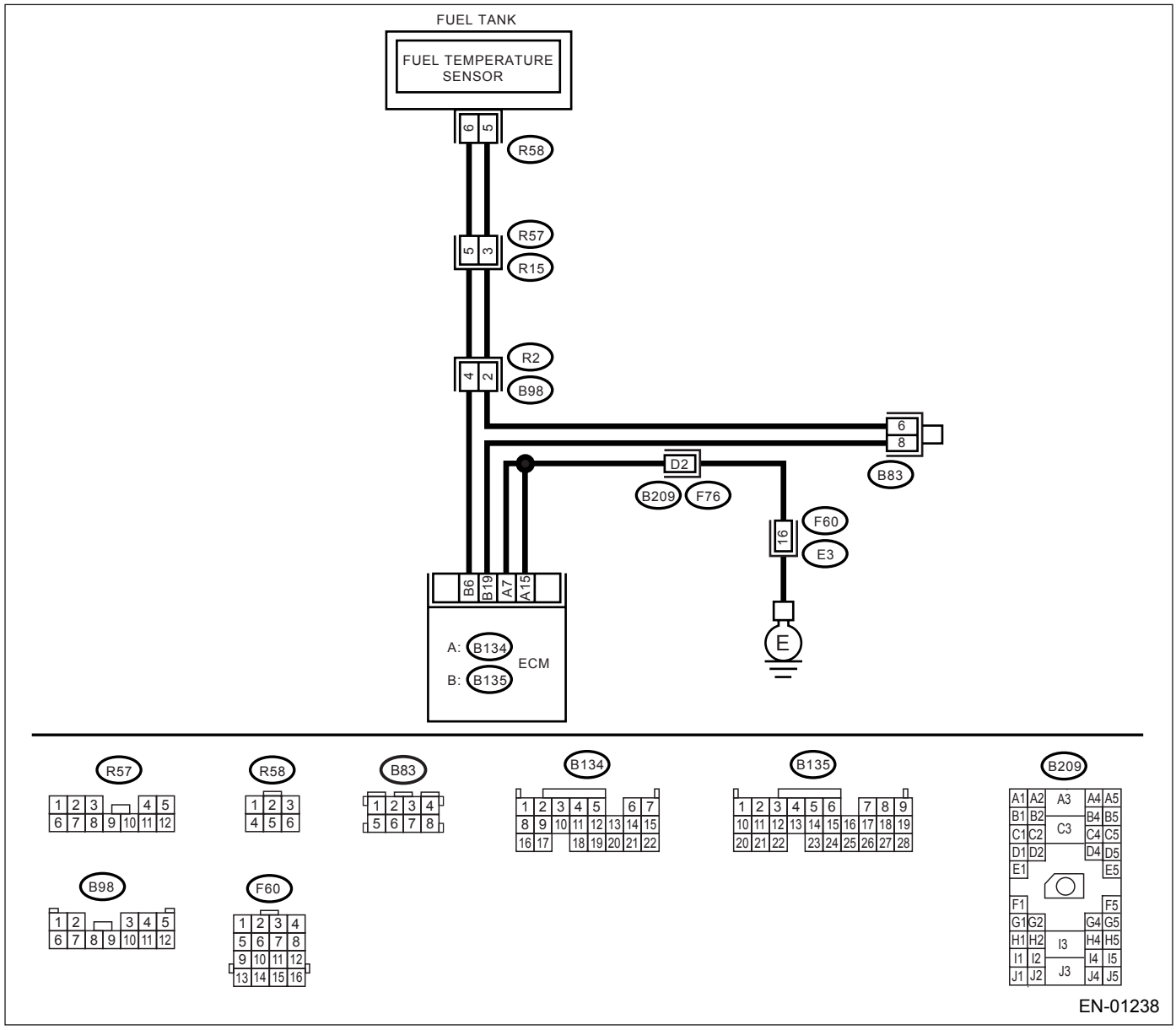
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	150°C (302°F)	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment.
2	**CHECK CURRENT DATA.** 1)Turn ignition switch to OFF. 2)Remove the access hole lid. 3)Disconnect the connector from fuel pump. 4)Turn ignition switch to ON. 5)Read the data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	−40°C (−40°F)	Replace the fuel temperature sensor. <Ref. to EC(H4DOTC)-9, Fuel Temperature Sensor.>	Repair short circuit to ground in harness between fuel pump and ECM connector.

AG:DTC P0183 — FUEL TEMPERATURE SENSOR "A" CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	–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 connector • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Remove the access hole lid. 3)Disconnect the connector from fuel pump. 4)Measure the voltage between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 6 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery 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 the voltage between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 6 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and fuel pump connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure the voltage between fuel pump connector and chassis ground. ***Connector & terminal*** ***(R58) No. 6 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	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 connector

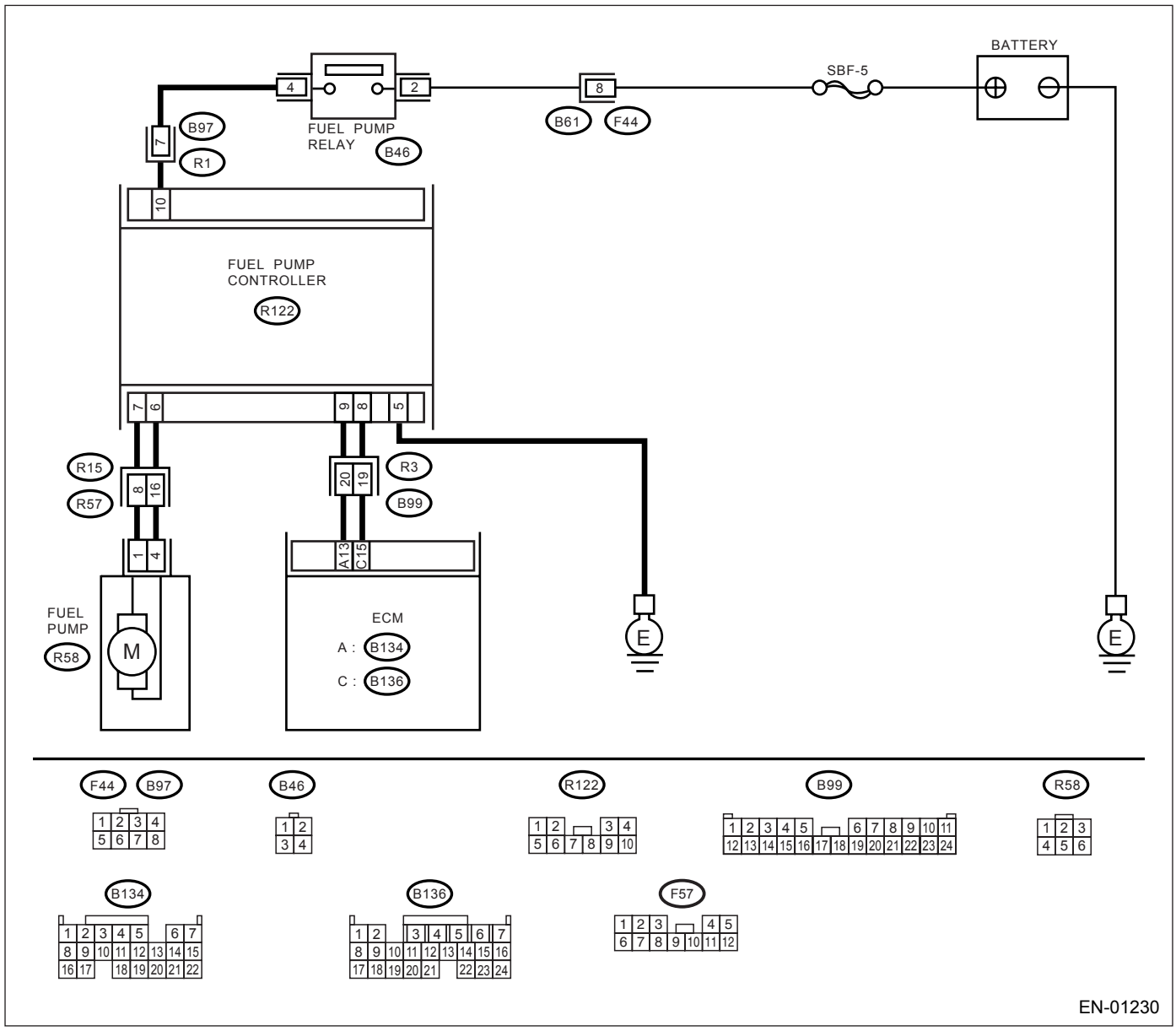
	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between fuel pump connector and ECM. ***Connector & terminal*** ***(R58) No. 5 — (B135) No. 19:*** Is the measured value less than the specified value?	1 Ω	Replace the fuel temperature sensor. <Ref. to EC(H4DOTC)-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 connector • Poor contact in joint connector

AH:DTC P0230 — FUEL PUMP PRIMARY CIRCUIT —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY CIRCUIT TO FUEL PUMP CONTROLLER.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from fuel pump controller. 3)Turn ignition switch to ON. 4)Measure the voltage between fuel pump controller and chassis ground. ***Connector & terminal*** ***(R122) No. 10 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **2.**	Repair the power supply circuit. NOTE: In this case, repair the following: • Open or short circuit to ground in harness between fuel pump relay and fuel pump controller. • Poor contact in fuel pump controller connector • Poor contact in fuel pump relay connector
2	**CHECK GROUND CIRCUIT OF FUEL PUMP CONTROLLER.** 1)Turn ignition switch to OFF. 2)Measure the resistance of harness between fuel pump controller and chassis ground. ***Connector & terminal*** ***(R122) No. 5 — Chassis ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in between fuel pump controller and chassis ground • Poor contact in fuel pump controller connector
3	**CHECK HARNESS BETWEEN FUEL PUMP CONTROLLER AND FUEL PUMP CONNECTOR.** 1)Disconnect the connector from fuel pump. 2)Measure the resistance of harness between fuel pump controller and fuel pump connector. ***Connector & terminal*** ***(R122) No. 7 — (R58) No. 1:*** ***(R122) No. 6 — (R58) No. 4:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair the open circuit in between fuel pump controller and fuel pump.
4	**CHECK HARNESS BETWEEN FUEL PUMP CONTROLLER AND FUEL PUMP CONNECTOR.** Measure the resistance of harness between fuel pump controller and chassis ground. ***Connector & terminal*** ***(R122) No. 7 — Chassis ground:*** ***(R122) No. 6 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **5.**	Repair the short circuit to ground in between fuel pump controller and fuel pump.

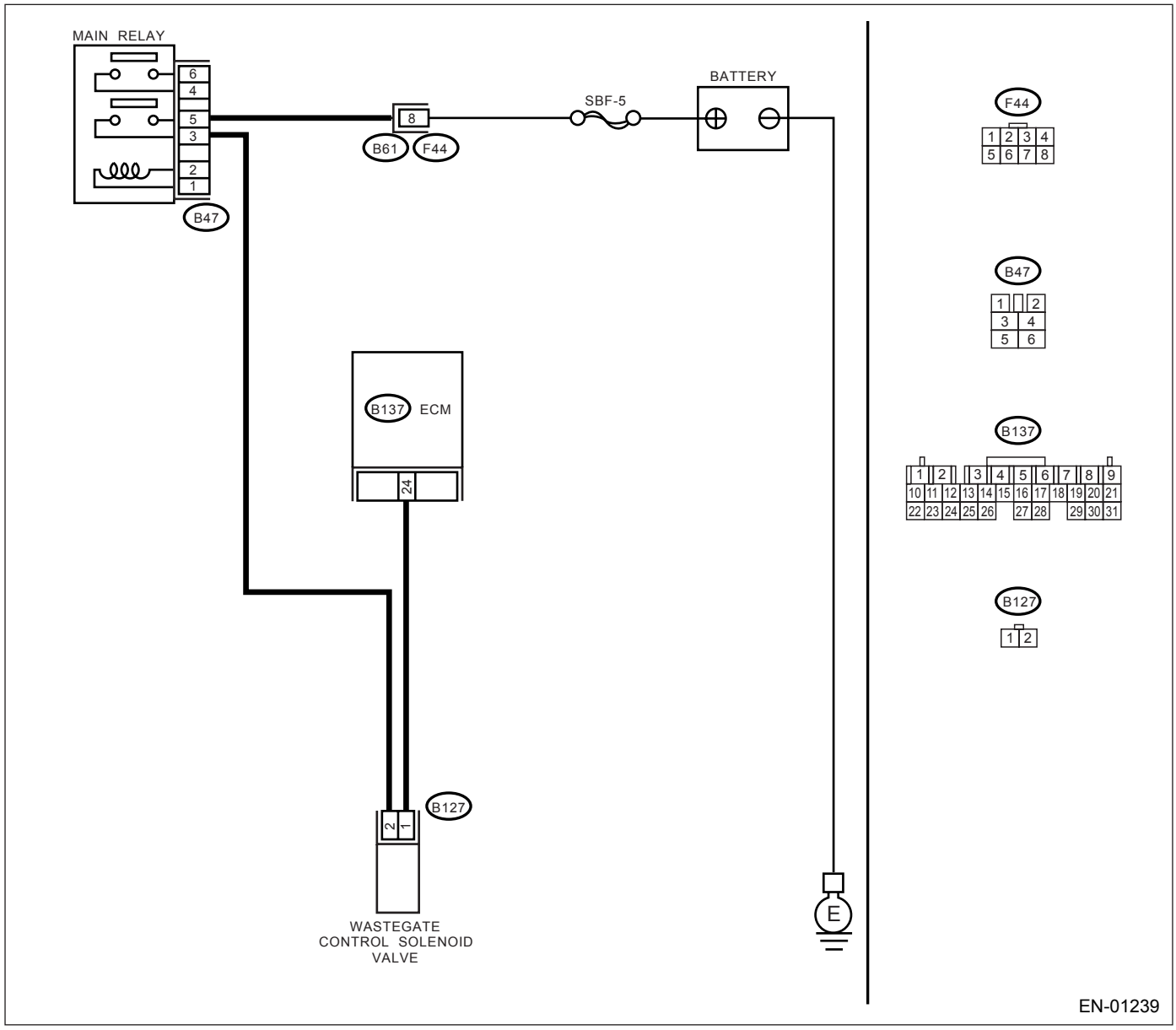
	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN FUEL PUMP CONTROLLER AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between fuel pump controller and ECM connector. ***Connector & terminal*** ***(R122) No. 9 — (B134) No. 13:*** ***(R122) No. 8 — (B136) No. 16:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in between fuel pump controller and ECM • Poor contact between fuel pump controller and ECM connector
6	**CHECK HARNESS BETWEEN FUEL PUMP CONTROLLER AND ECM CONNECTOR.** Measure the resistance of harness between fuel pump controller and chassis ground. ***Connector & terminal*** ***(R122) No. 9 — Chassis ground:*** ***(R122) No. 8 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **7.**	Repair the short circuit to ground in between fuel pump controller and ECM.
7	**CHECK FOR POOR CONTACT.** Check for poor contact between ECM and fuel pump controller connector. Is there poor contact between ECM and fuel pump controller connector?	There is poor contact.	Repair poor contact between ECM and fuel pump controller.	Replace the fuel pump controller. <Ref. to FU(H4DOTC)-53, Fuel Pump Controller.>

AI: DTC P0244 — TURBO/SUPER CHARGER WASTEGATE SOLENOID "A" RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



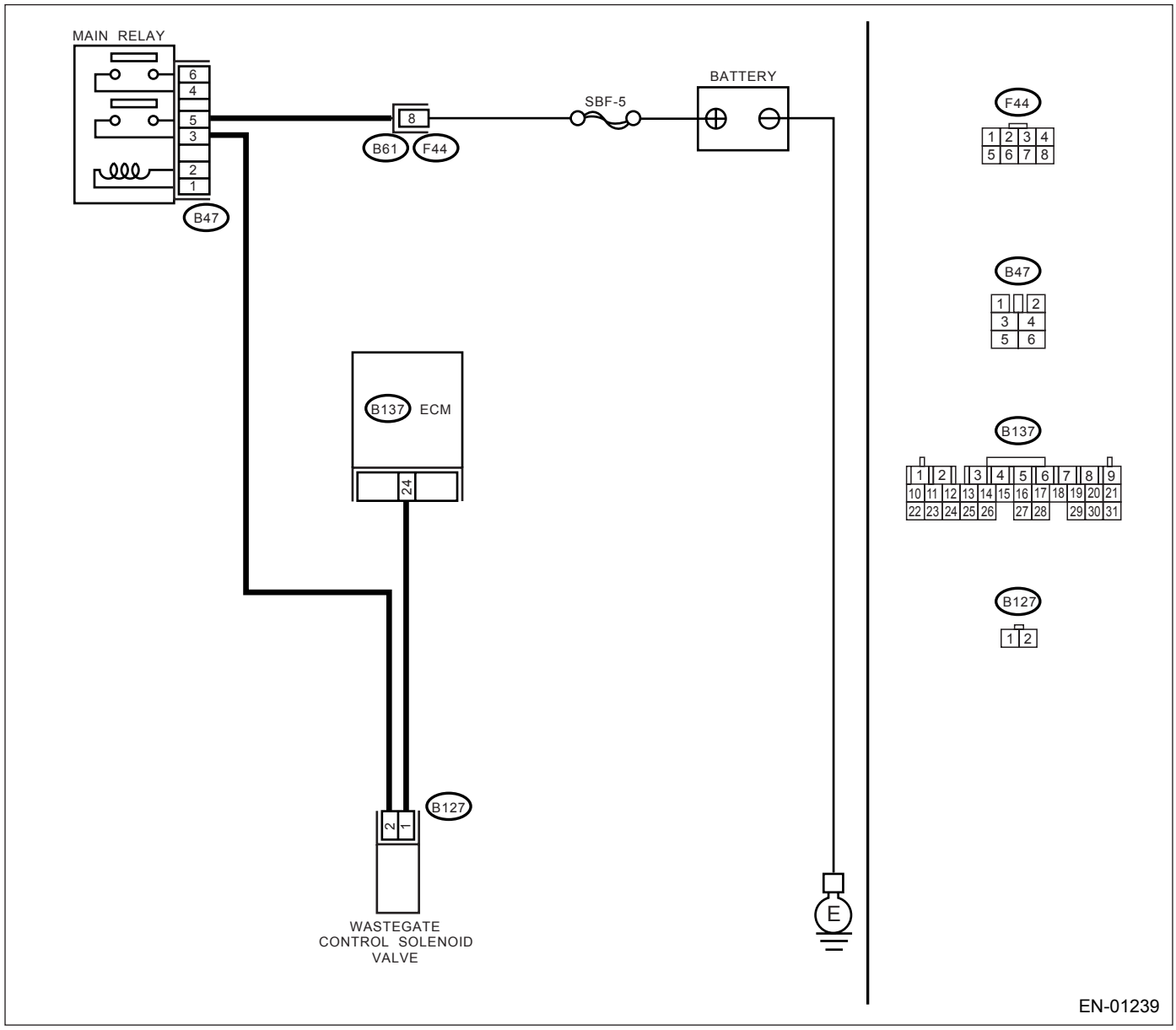
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0244.	Replace the waste gate control solenoid valve. <Ref. to FU(H4DOTC)-44, Wastegate Control Solenoid Valve.>

AJ:DTC P0245 — TURBO/SUPER CHARGER WASTEGATE SOLENOID “A” LOW —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 24 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	The MIL may light up, however, the circuit is returned to the normal status at the moment. Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Go to step **2.**
2	**CHECK HARNESS BETWEEN WASTE GATE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from waste gate control solenoid valve and ECM. 3)Measure the resistance of harness between waste gate control solenoid valve connector and engine ground. ***Connector & terminal*** ***(B127) No. 1 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and waste gate control solenoid valve connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN WASTE GATE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** Measure the resistance of harness between waste gate control solenoid valve and ECM. ***Connector & terminal*** ***(B137) No. 24 — (B127) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair open circuit in harness between ECM and waste gate control solenoid valve connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and waste gate control solenoid valve connector
4	**CHECK WASTE GATE CONTROL SOLENOID VALVE.** 1)Remove the waste gate control solenoid valve. 2)Measure the resistance between waste control solenoid valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	30 — 34 Ω	Go to step **5.**	Replace the waste gate control solenoid valve. <Ref. to FU(H4DOTC)-44, Wastegate Control Solenoid Valve.>

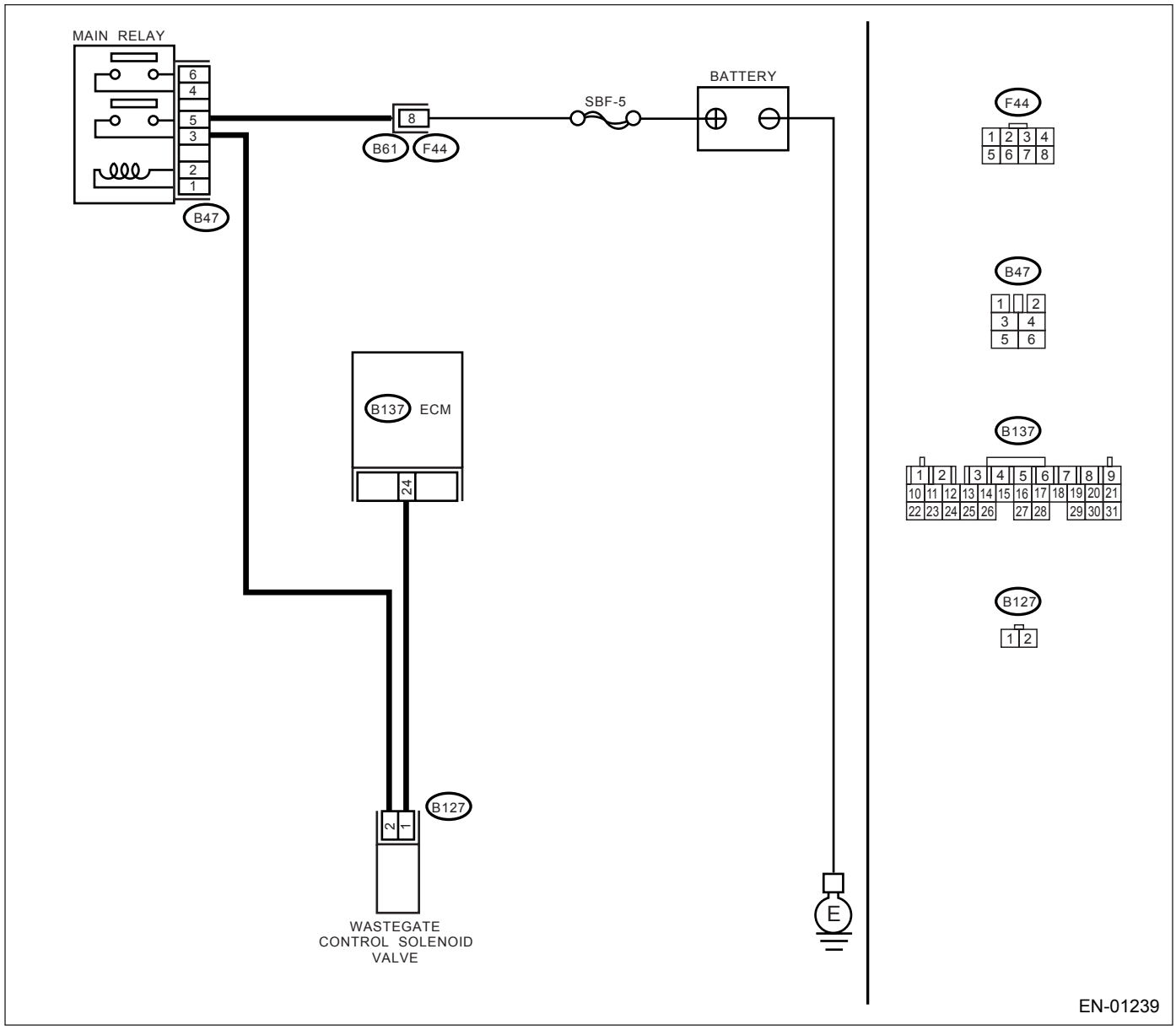
	Step	Check	Yes	No
5	**CHECK POWER SUPPLY TO WASTE GATE CONTROL SOLENOID VALVE.** 1)Turn ignition switch to ON. 2)Measure the voltage between waste gate control solenoid valve and engine ground. ***Connector & terminal*** ***(B127) No. 2 (+) — Engine ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **6.**	Repair open circuit in harness between main relay and waste gate control solenoid valve connector.
6	**CHECK FOR POOR CONTACT.** Check for poor contact in waste gate control solenoid valve connector. Is there poor contact in waste gate control solenoid valve connector?	There is poor contact.	Repair poor contact in waste gate control solenoid valve connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

AK:DTC P0246 — TURBO/SUPER CHARGER WASTEGATE SOLENOID “A” HIGH —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 24 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **3.**	Go to step **2.**
2	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
3	**CHECK HARNESS BETWEEN WASTE GATE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from waste gate control solenoid valve. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 24 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and waste gate control solenoid valve connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **4.**
4	**CHECK WASTE GATE CONTROL SOLENOID VALVE.** 1)Turn ignition switch to OFF. 2)Measure the resistance between waste control solenoid valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace the waste gate control solenoid valve and ECM. <Ref. to FU(H4DOTC)-44, Wastegate Control Solenoid Valve.> and <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **5.**
5	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>

AL:DTC P0301 — CYLINDER 1 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DOTC)-186, DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AM:DTC P0302 — CYLINDER 2 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DOTC)-186, DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AN:DTC P0303 — CYLINDER 3 MISFIRE DETECTED —

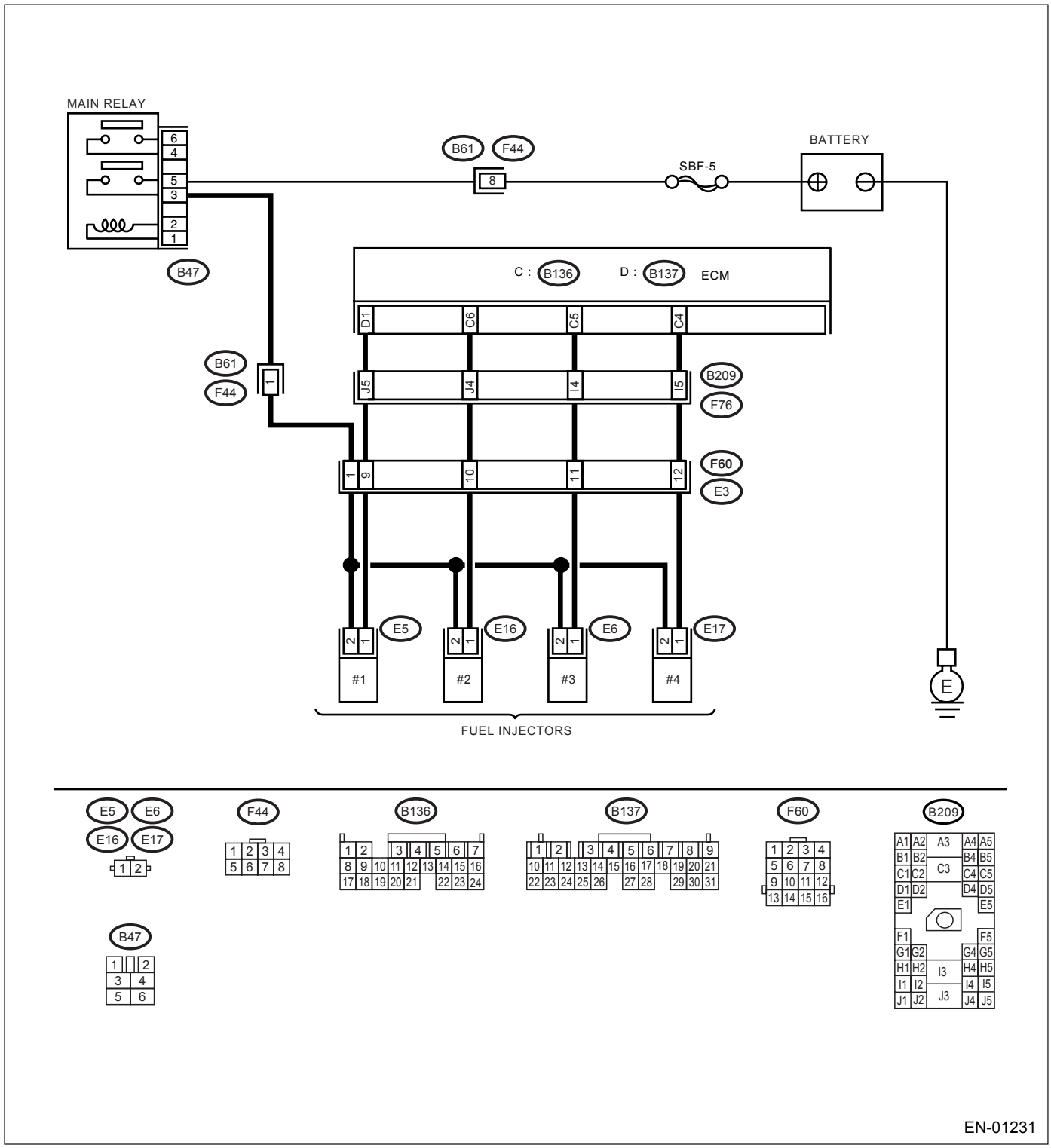
NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DOTC)-186, DTC P0304 — CYLINDER 4 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AO:DTC P0304 — CYLINDER 4 MISFIRE DETECTED —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
  - Immediately at fault recognition (when a misfire which could damage catalyst occurs.)
- **TROUBLE SYMPTOM:**
  - Engine stalls
  - Erroneous idling
  - Rough driving

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM connector and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B137) No. 1 (+) — Chassis ground (–):*** ***#2 (B136) No. 6 (+) — Chassis ground (–):*** ***#3 (B136) No. 5 (+) — Chassis ground (–):*** ***#4 (B136) No. 4 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	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 the connector from fuel injector on faulty cylinders. 3)Disconnect the connector from ECM. 4)Measure the resistance between ECM connector and engine ground on faulty 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 the specified value?	10 Ω	Repair short circuit to ground in harness between fuel injector and ECM connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.** Measure the resistance of harness connector between ECM connector and fuel injector on faulty cylinders. ***Connector & terminal*** ***#1 (B137) No. 1 — (E5) No. 1:*** ***#2 (B136) No. 6 — (E16) No. 1:*** ***#3 (B136) No. 5 — (E6) No. 1:*** ***#4 (B136) No. 4 — (E17) No. 1:*** Is the measured value less than the specified value?	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 the resistance between fuel injector terminals on faulty cylinder. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	5 — 20 Ω	Go to step **6.**	Replace the faulty fuel injector. <Ref. to FU(H4DOTC)-37, Fuel Injector.>

	Step	Check	Yes	No
6	**CHECK POWER SUPPLY LINE.** 1)Turn ignition switch to ON. 2)Measure the voltage between fuel injector and engine ground on faulty 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 the specified value?	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 faulty cylinders • Poor contact in coupling connector • Poor contact in main relay connector • Poor contact in fuel injector connector on faulty cylinders
7	**CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from fuel injector on faulty cylinder. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM connector and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B137) No. 1 (+) — Chassis ground (–):*** ***#2 (B136) No. 6 (+) — Chassis ground (–):*** ***#3 (B136) No. 5 (+) — Chassis ground (–):*** ***#4 (B136) No. 4 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and fuel injector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **8.**
8	**CHECK FUEL INJECTOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance between fuel injector terminals on faulty cylinder. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace the faulty fuel injector and the ECM. <Ref. to FU(H4DOTC)-37, Fuel Injector.> and <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **9.**
9	**CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.** Is the camshaft position sensor or crankshaft position sensor loosely installed?	Loosely installed.	Tighten camshaft position sensor or crankshaft position sensor.	Go to step **10.**
10	**CHECK CRANKSHAFT SPROCKET.** Remove the timing belt cover. Is the crankshaft sprocket rusted or does it have broken teeth?	Rusted. Or broken.	Replace the crankshaft sprocket. <Ref. to ME(H4DOTC)-58, Crankshaft Sprocket.>	Go to step **11.**

	Step	Check	Yes	No
11	**CHECK INSTALLATION CONDITION OF TIMING BELT.** Turn the crankshaft, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block. Is the timing belt dislocated from its proper position?	Dislocated.	Repair installation condition of timing belt. <Ref. to ME(H4DOTC)-48, Timing Belt Assembly.>	Go to step **12.**
12	**CHECK FUEL LEVEL.** Is the fuel meter indication higher than the “Lower” level?	Indication is higher.	Go to step **13.**	Replenish fuel so fuel meter indication becomes higher than the “Lower” level. After replenishing fuel, Go to step **13.**
13	**CHECK STATUS OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).** 1)Clear the memory using Subaru Select Monitor. <Ref. to EN(H4DOTC)-49, Clear Memory Mode.> 2)Start the engine, and drive the vehicle for more than 10 minutes. Does the MIL illuminate or blink?	Illuminates or blinks.	Go to step **15.**	Go to step **14.**
14	**CHECK CAUSE OF MISFIRE DIAGNOSED.** Was the cause of misfire identified when the engine is running?	Cause identified.	Finish diagnostics operation, if the engine has no abnormality.	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in ignition coil connector • Poor contact in fuel injector connector on faulty cylinders • Poor contact in ECM connector • Poor contact in coupling connector
15	**CHECK AIR INTAKE SYSTEM.** Is there a fault in air intake system?	There is a fault.	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.**

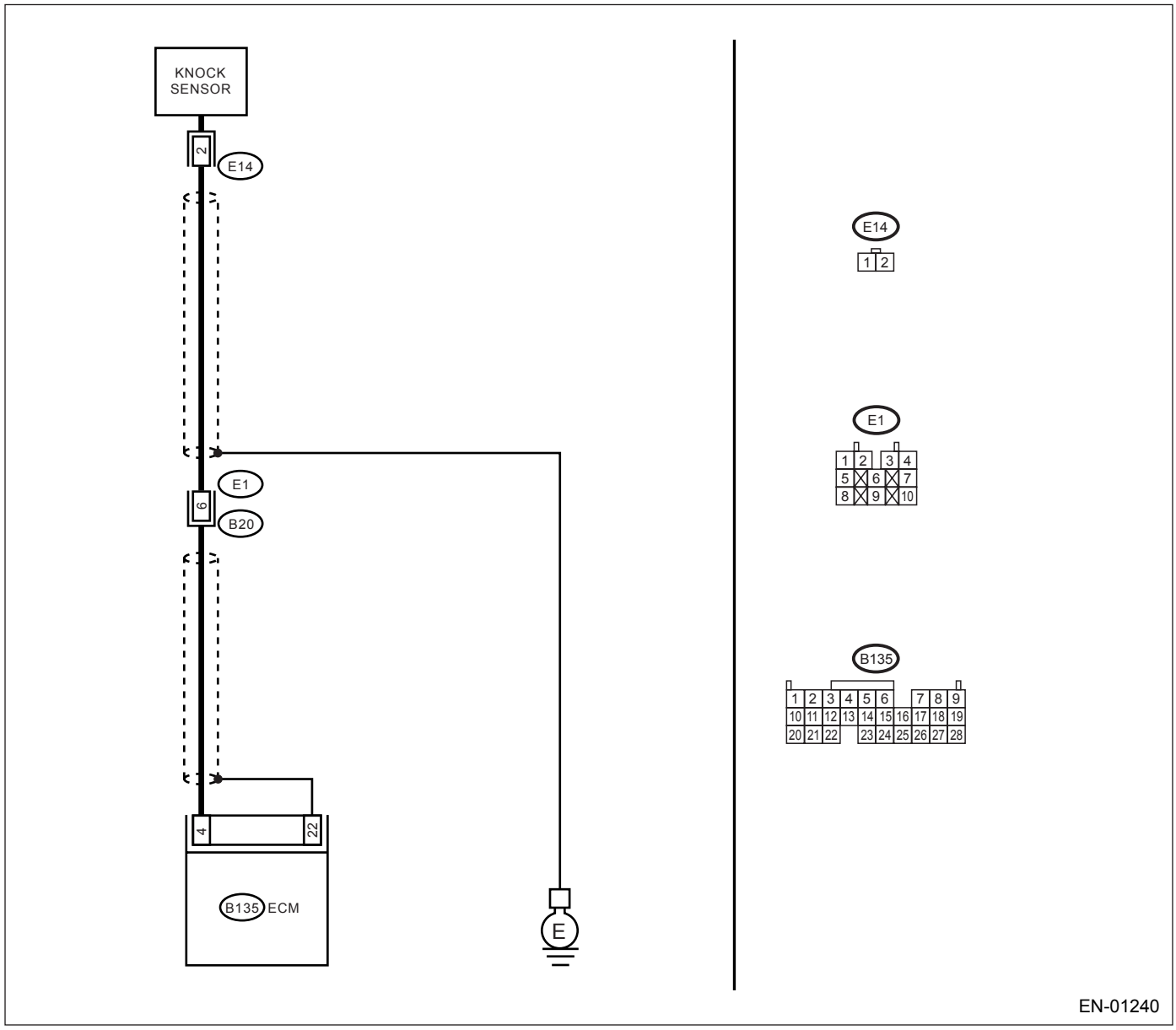
Step		Check	Yes	No
16	**CHECK CYLINDER.** Is there a fault in that cylinder?	There is a fault.	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Fuel injector • Compression	Go to DTC P0171 and P0172. <Ref. to EN(H4DOTC)-159, DTC P0171 — SYSTEM TOO LEAN (BANK 1) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Poor driving performance
  - Knocking occurs.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



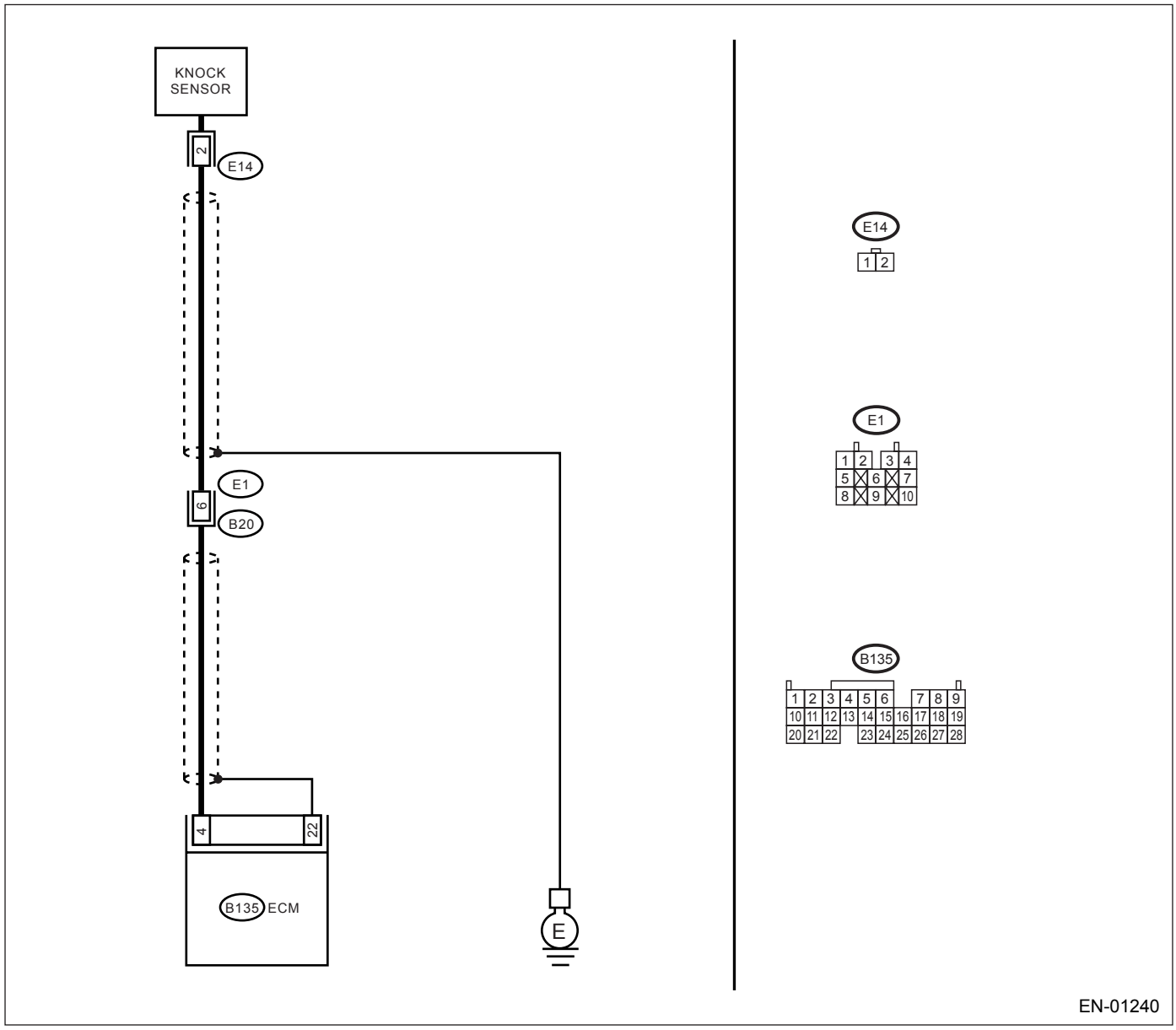
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance between ECM harness connector and chassis ground. ***Connector & terminal*** ***(B135) No. 4 — Chassis ground:*** Is the measured value more than the specified value?	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 the connector from knock sensor. 2)Measure the resistance between knock sensor connector terminal and engine ground. ***Terminal*** ***No. 2 — Engine ground:*** Is the measured value more than the specified value?	700 kΩ	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • 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?	Tightened securely.	Replace the knock sensor. <Ref. to FU(H4DOTC)-32, Knock Sensor.>	Tighten knock sensor installation bolt securely.

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Poor driving performance
  - Knocking occurs.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



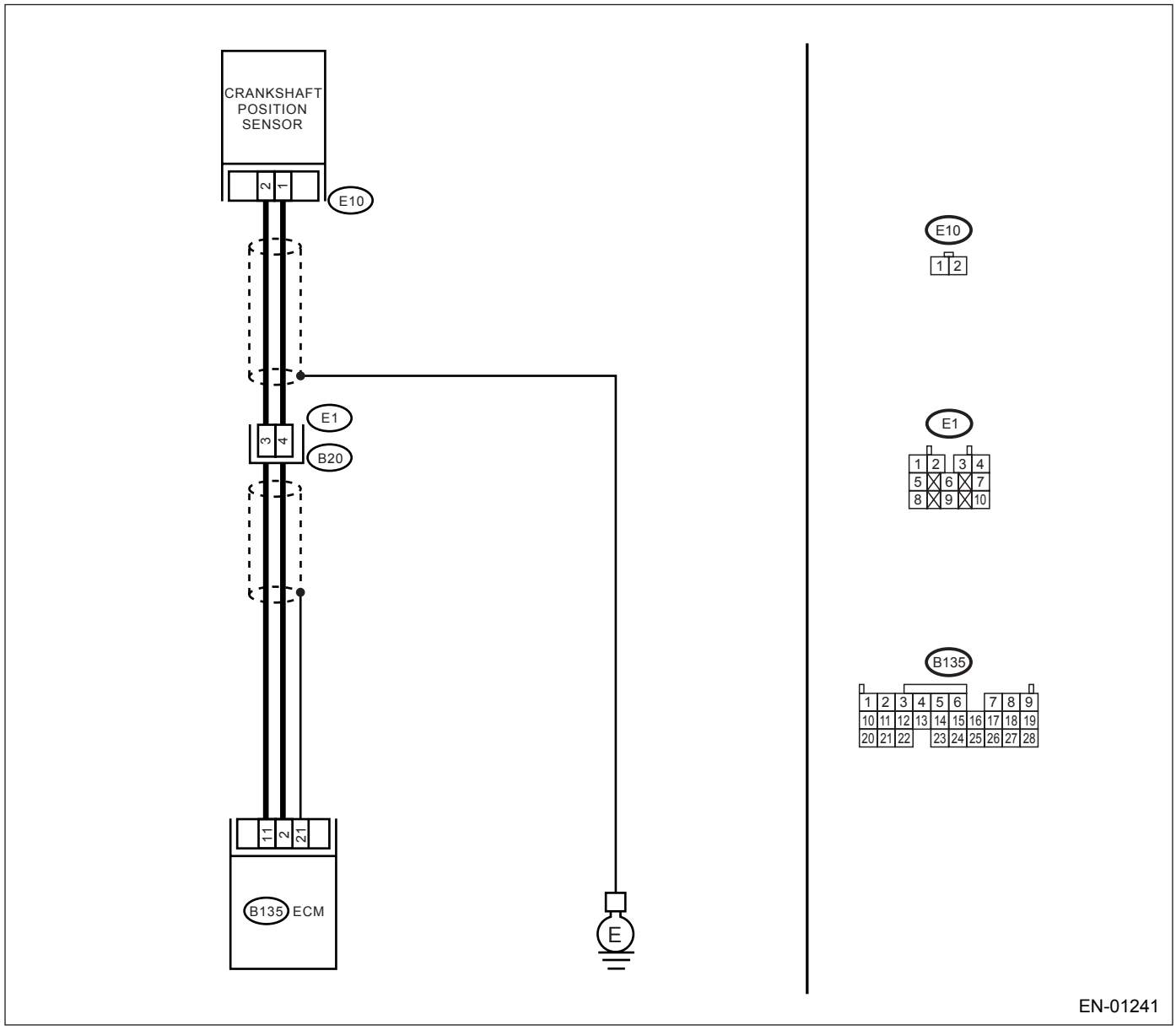
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR.** Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 4 — Chassis ground:*** Is the measured value less than the specified value?	400 kΩ	Go to step **2.**	Go to step **3.**
2	**CHECK KNOCK SENSOR.** 1)Disconnect the connector from knock sensor. 2)Measure the resistance between knock sensor connector terminal and engine ground. ***Terminal*** ***No. 2 — Engine ground:*** Is the measured value less than the specified value?	400 kΩ	Replace the knock sensor. <Ref. to FU(H4DOTC)-32, Knock Sensor.>	Repair short circuit to ground in harness between knock sensor connector and ECM connector. NOTE: The harness between both connectors are shielded. Repair short circuit of harness together with shield.
3	**CHECK INPUT SIGNAL FOR ECM.** 1)Connect the connectors to ECM and knock sensor. 2)Turn ignition switch to ON. 3)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 4 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	2 V	The MIL may light up, however, the circuit is returned to the normal status at the moment. (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.

AR:DTC P0335 — CRANKSHAFT POSITION SENSOR “A” CIRCUIT —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



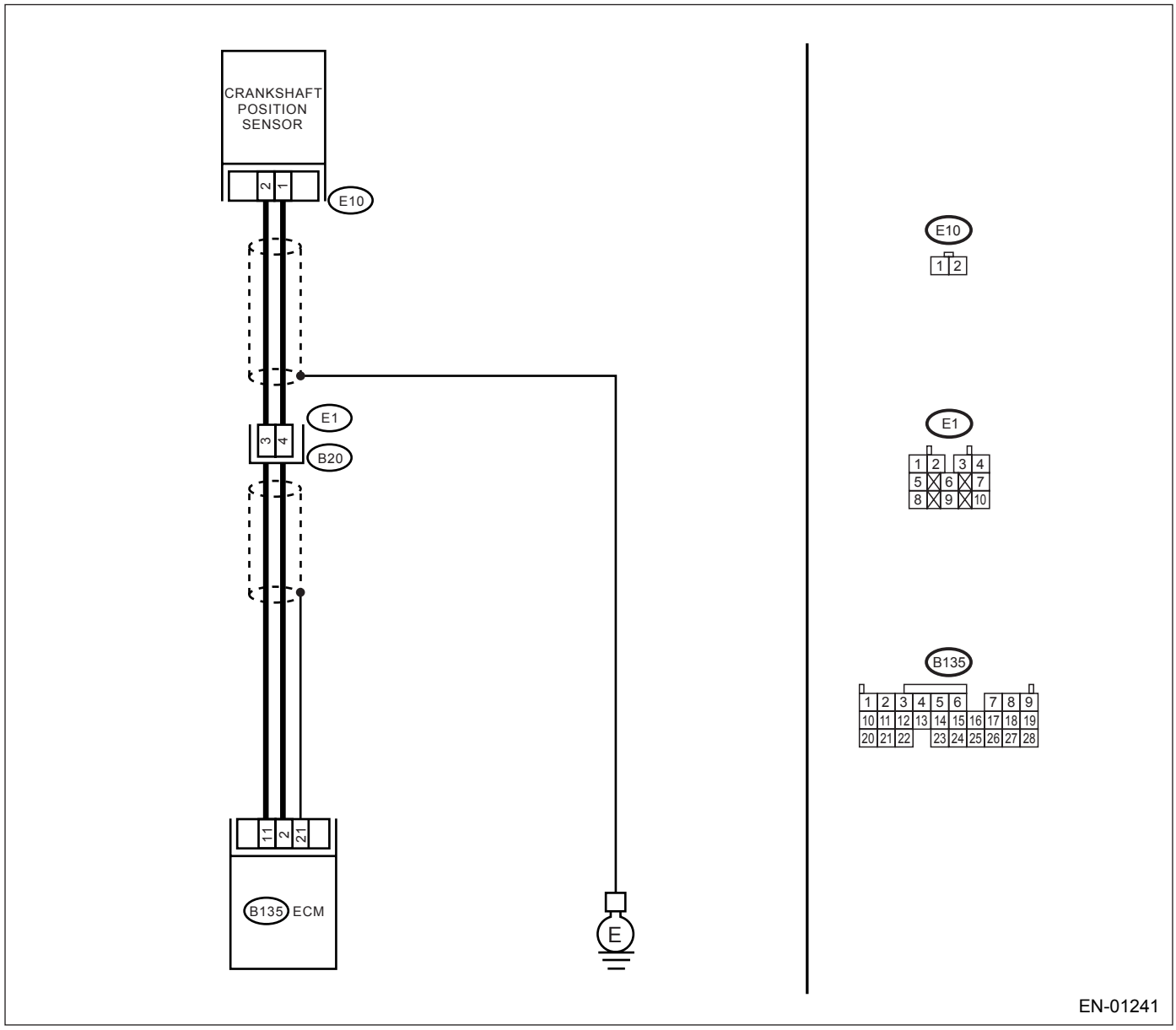
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from crankshaft position sensor. 3)Measure the resistance of harness between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 1 — Engine ground:*** Is the measured value more than the specified value?	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 the resistance of harness between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 1 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between crankshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair short circuit to ground in harness together with shield.	Go to step **3.**
3	**CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure the resistance of harness between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 2 — Engine ground:*** Is the measured value less than the specified value?	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?	Tightened securely.	Go to step **5.**	Tighten crankshaft position sensor installation bolt securely.
5	**CHECK CRANKSHAFT POSITION SENSOR.** 1)Remove the crankshaft position sensor. 2)Measure the resistance between connector terminals of crankshaft position sensor. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	1 — 4 kΩ	Repair poor contact in crankshaft position sensor connector.	Replace the crankshaft position sensor. <Ref. to FU(H4DOTC)-30, Crankshaft Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Engine stalls
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



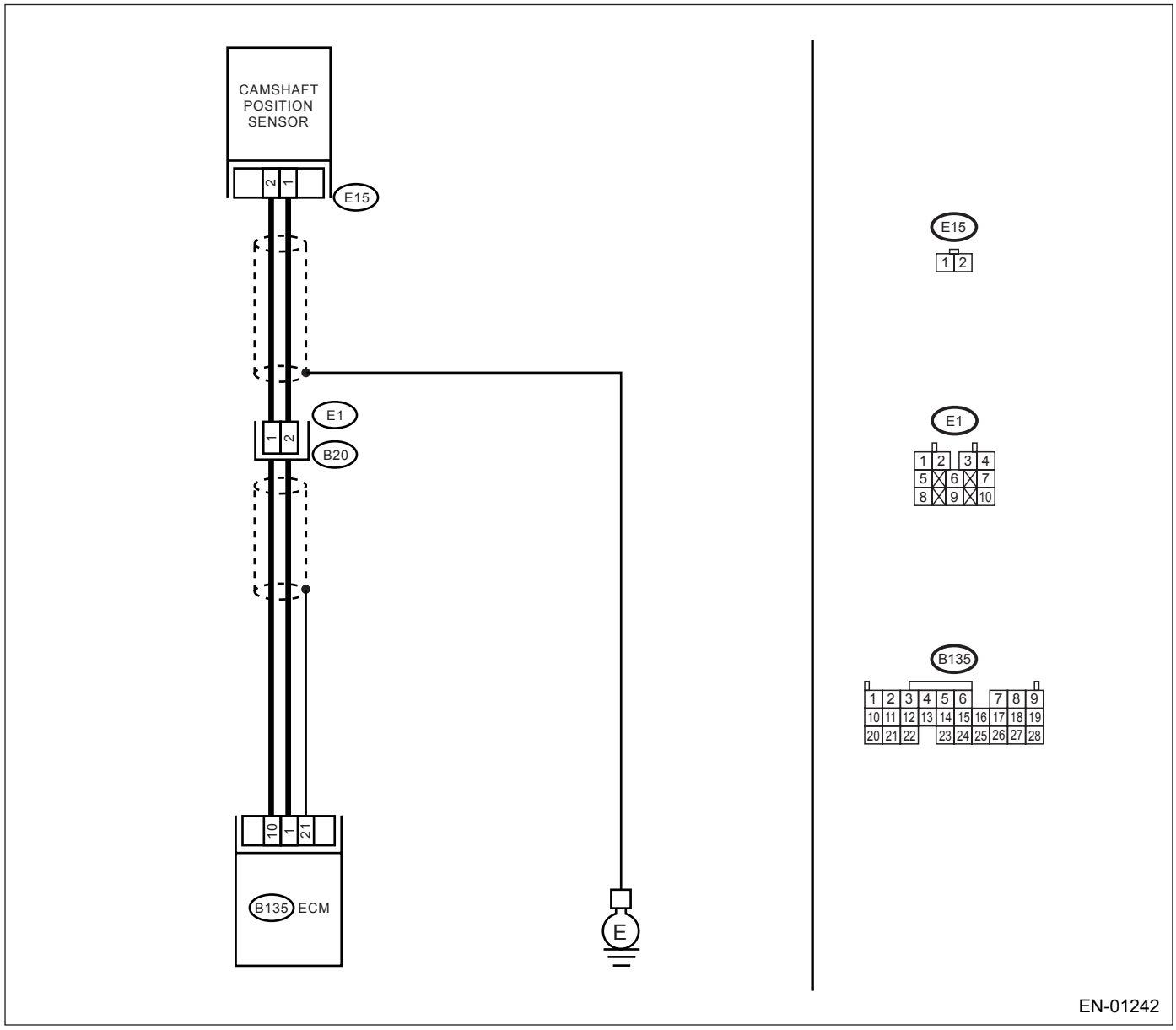
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.** Turn ignition switch to OFF. Is the crankshaft position sensor installation bolt tightened securely?	Tightened securely.	Go to step **3.**	Tighten crankshaft position sensor installation bolt securely.
3	**CHECK CRANKSHAFT SPROCKET.** Remove the front belt cover. Are crankshaft sprocket teeth cracked or damaged?	There is a crack or damage.	Replace the crankshaft sprocket. <Ref. to FU(H4DOTC)-30, Crankshaft Position Sensor.>	Go to step **4.**
4	**CHECK INSTALLATION CONDITION OF TIMING BELT.** Turn the crankshaft, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block. Is the timing belt dislocated from its proper position?	Dislocated.	Repair installation condition of timing belt. <Ref. to ME(H4DOTC)-48, Timing Belt Assembly.>	Replace the crankshaft position sensor. <Ref. to FU(H4DOTC)-30, Crankshaft Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine stalls
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



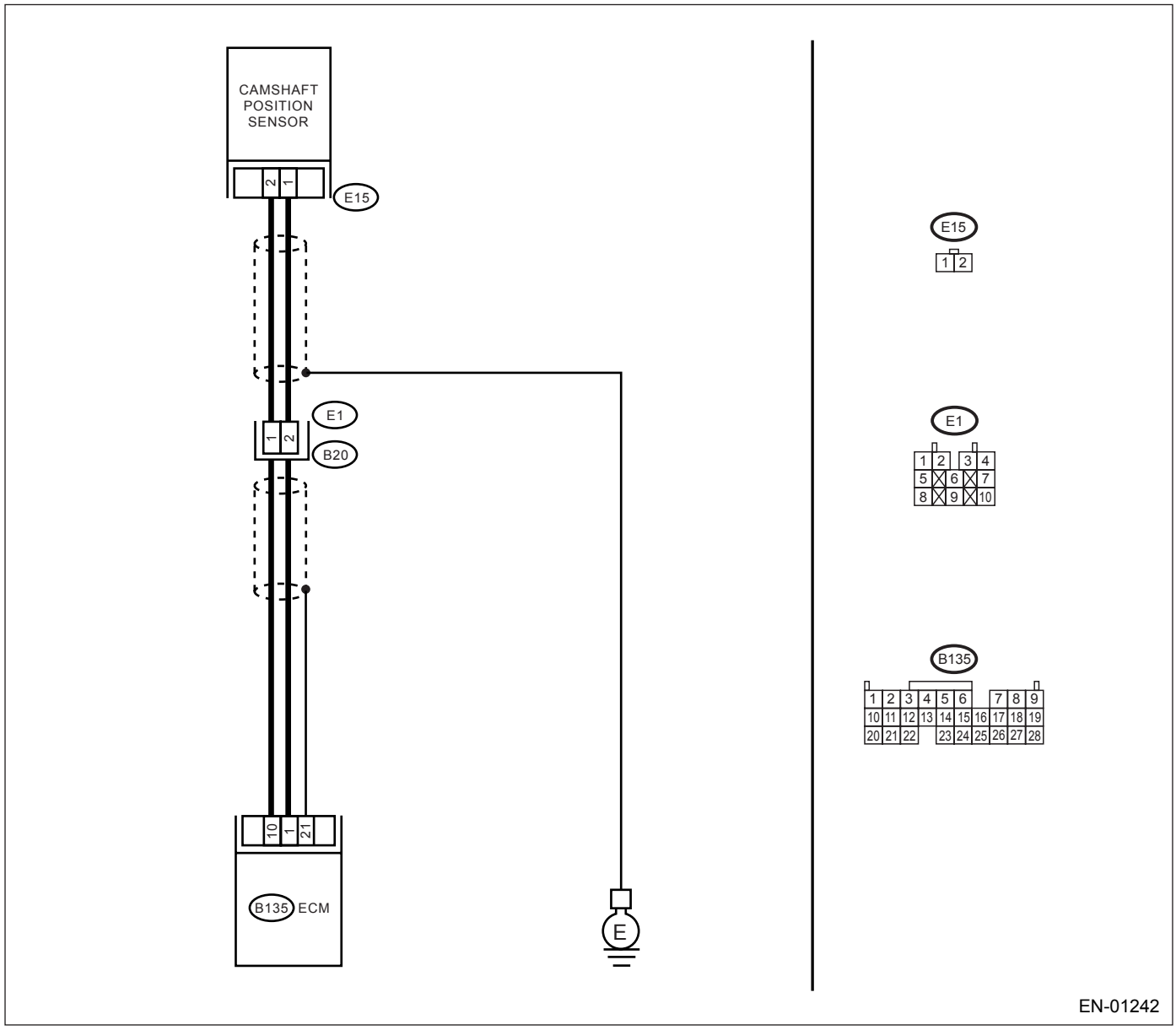
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from camshaft position sensor. 3)Measure the resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:*** Is the measured value more than the specified value?	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 the resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair short circuit to ground in harness together with shield.	Go to step **3.**
3	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure the resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 2 — Engine ground:*** Is the measured value less than the specified value?	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?	Tightened securely.	Go to step **5.**	Tighten camshaft position sensor installation bolt securely.
5	**CHECK CAMSHAFT POSITION SENSOR.** 1)Remove the camshaft position sensor. 2)Measure the resistance between connector terminals of camshaft position sensor. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	1 — 4 kΩ	Repair poor contact in camshaft position sensor connector.	Replace the camshaft position sensor. <Ref. to FU(H4DOTC)-31, Camshaft Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Engine stalls
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from camshaft position sensor. 3)Measure the resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:*** Is the measured value more than the specified value?	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 the resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 1 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair short circuit to ground in harness together with shield.	Go to step **4.**
4	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR.** Measure the resistance of harness between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E15) No. 2 — Engine ground:*** Is the measured value less than the specified value?	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?	Tightened securely.	Go to step **6.**	Tighten camshaft position sensor installation bolt securely.

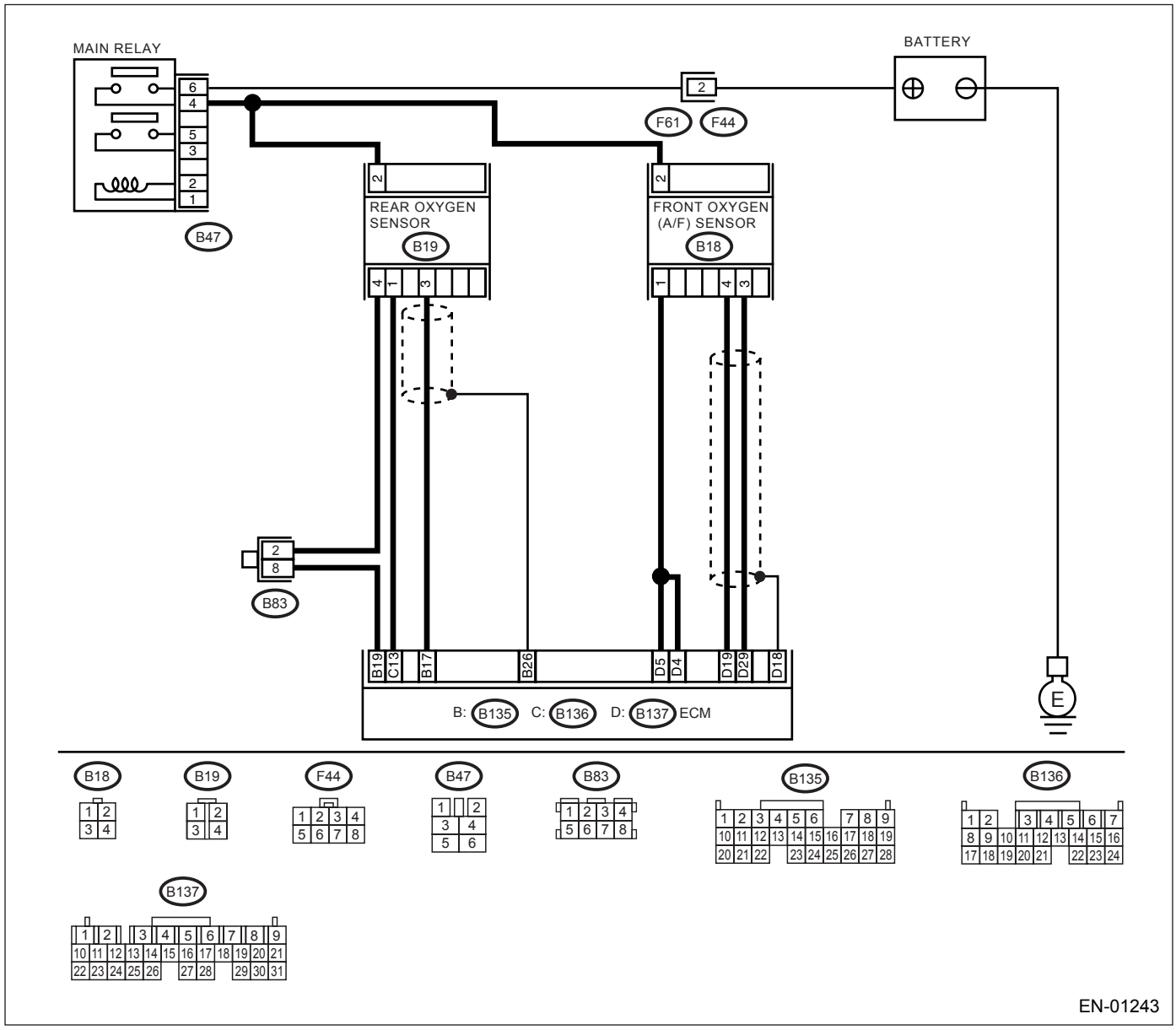
	Step	Check	Yes	No
6	**CHECK CAMSHAFT POSITION SENSOR.** 1)Remove the camshaft position sensor. 2)Measure the resistance between connector terminals of camshaft position sensor. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	1 — 4 kΩ	Go to step **7.**	Replace the camshaft position sensor. <Ref. to FU(H4DOTC)-31, Camshaft Position Sensor.>
7	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.** Turn ignition switch to OFF. Is the camshaft position sensor installation bolt tightened securely?	Tightened securely.	Go to step **8.**	Tighten camshaft position sensor installation bolt securely.
8	**CHECK CAMSHAFT SPROCKET.** Remove the front belt cover. <Ref. to ME(H4DOTC)-47, Belt Cover.> Are camshaft sprocket teeth cracked or damaged?	There is a crack or damage.	Replace the camshaft sprocket. <Ref. to ME(H4DOTC)-57, Camshaft Sprocket.>	Go to step **9.**
9	**CHECK INSTALLATION CONDITION OF TIMING BELT.** Turn the crankshaft, and align alignment mark on camshaft sprocket with alignment mark on timing belt cover LH. Is the timing belt dislocated from its proper position?	Dislocated.	Repair installation condition of timing belt. <Ref. to ME(H4DOTC)-48, Timing Belt Assembly.>	Replace the camshaft position sensor. <Ref. to FU(H4DOTC)-31, Camshaft Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Engine stalls
  - Idle mixture is out of specifications.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



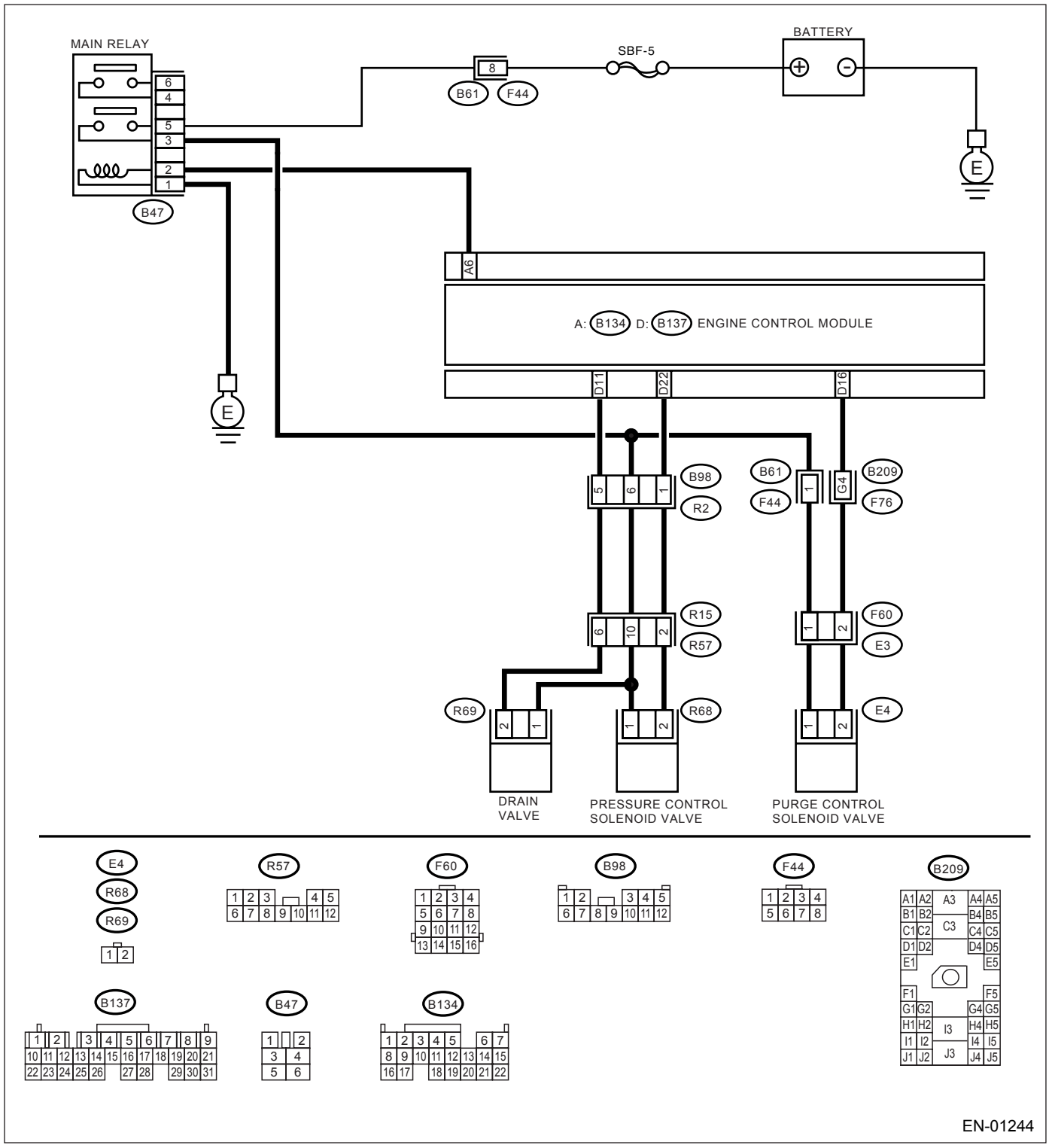
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is 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 Is there a fault in exhaust system?	There is a fault.	Repair or replace the exhaust system. <Ref. to EX(H4DOTC)-2, General Description.>	Go to step **3.**
3	**CHECK REAR CATALYTIC CONVERTER.** Separate the rear catalytic converter from rear exhaust pipe. Is there any damage on rear face of rear catalytic converter?	There is damage.	Replace the front and rear catalytic converters. <Ref. to EC(H4DOTC)-3, Front Catalytic Converter.> and <Ref. to EC(H4DOTC)-4, Rear Catalytic Converter.>	Go to step **4.**
4	**CHECK FRONT CATALYTIC CONVERTER.** Remove the front catalytic converter. Is there any damage on rear face of front catalytic converter?	There is damage.	Replace the front catalytic converter. <Ref. to EC(H4DOTC)-3, Front Catalytic Converter.>	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Fuel odor
  - 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 faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1)Turn ignition switch to OFF. 2)Check the fuel filler cap. Is the fuel filler cap tightened securely? NOTE: The DTC is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Tightened securely.	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK FUEL FILLER CAP.** Is the fuel filler cap SUBARU genuine?	The SUBAU genuine fuel filler cap is used.	Go to step **4.**	Replace with a SUBARU 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?	There is damage.	Repair or replace the fuel filler cap and fuel filler pipe. <Ref. to FU(H4DOTC)-58, Fuel Filler Pipe.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1)Connect the test mode connector. 2)Turn ignition switch to ON. 3)Operate the drain valve. Does the drain valve operate? 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(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **6.**	Replace the drain valve. <Ref. to EC(H4DOTC)-19, Drain Valve.>
6	**CHECK PURGE CONTROL SOLENOID VALVE.** Operate the purge control solenoid valve. Does the purge control solenoid valve operate? 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(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **7.**	Replace the purge control solenoid valve. <Ref. to EC(H4DOTC)-7, Purge Control Solenoid Valve.>

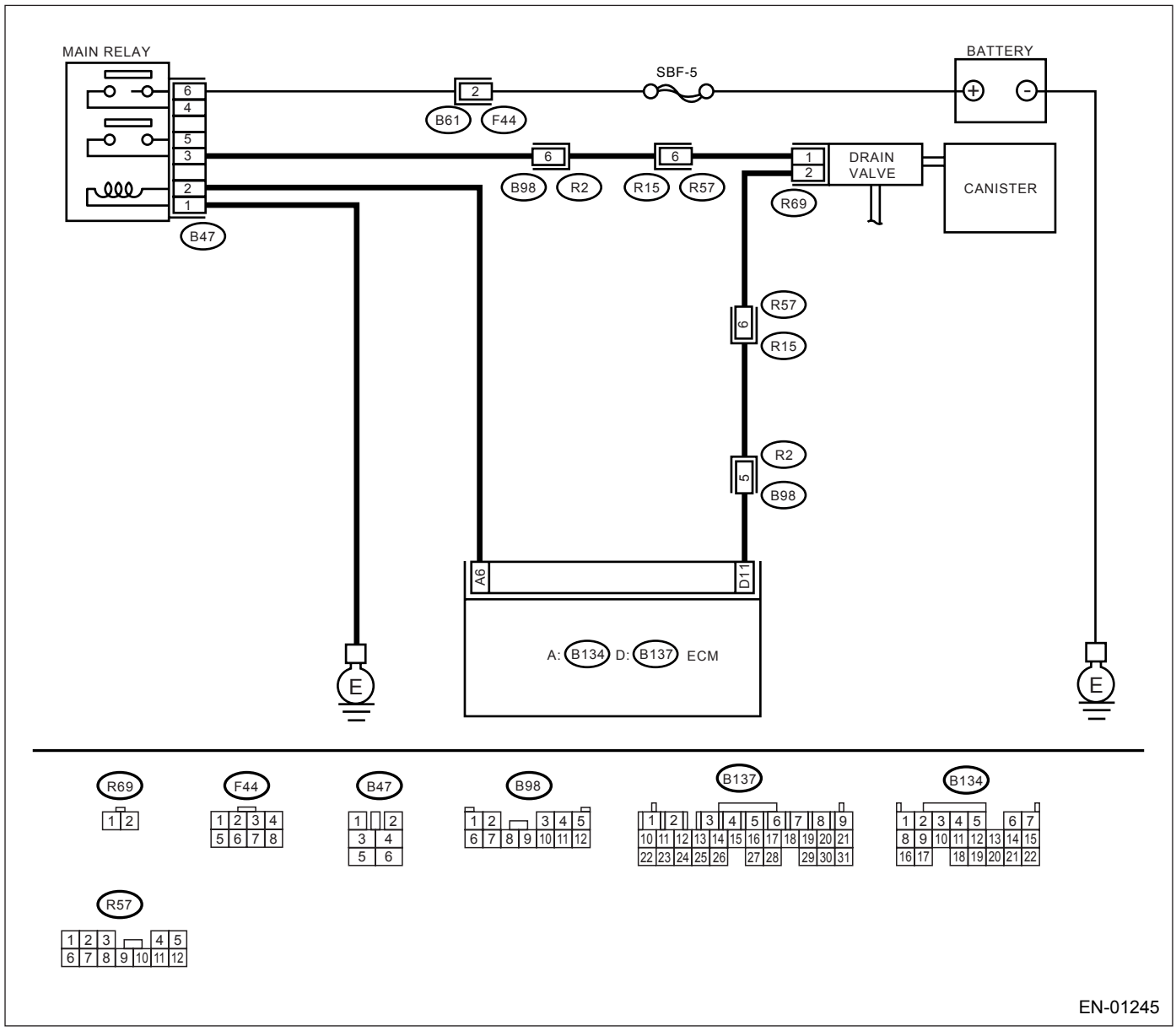
	Step	Check	Yes	No
7	**CHECK PRESSURE CONTROL SOLENOID VALVE.** Operate the pressure control solenoid valve. Does the pressure control solenoid valve operate? NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **8.**	Replace the pressure control solenoid valve. <Ref. to EC(H4DOTC)-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 evaporation line?	There is a hole.	Repair or replace the evaporation line. <Ref. to FU(H4DOTC)-71, Fuel Delivery, Return and Evaporation Lines.>	Go to step **9.**
9	**CHECK CANISTER.** Is the canister damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	There is damage or a hole.	Repair or replace the canister. <Ref. to EC(H4DOTC)-6, Canister.>	Go to step **10.**
10	**CHECK FUEL TANK.** Remove the fuel tank. <Ref. to FU(H4DOTC)-55, Fuel Tank.> Is the fuel tank damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	There is damage or a hole.	Repair or replace the fuel tank. <Ref. to FU(H4DOTC)-55, 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, bend, misconnection of hoses or pipes in evaporative emission control system?	There are holes, cracks, clogging, or disconnection, bend, misconnection of hoses or pipes.	Repair or replace the hoses or pipes.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 11 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **2.**	Go to step **3.**
2	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	The MIL may light up, however, the circuit is returned to the normal status at the moment. (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 connector
3	**CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from drain valve and ECM. 3)Measure the resistance of harness between drain valve connector and chassis ground. ***Connector & terminal*** ***(R69) No. 2 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit to ground in harness between ECM and drain valve connector.
4	**CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.** Measure the resistance of harness between ECM and drain valve connector. ***Connector & terminal*** ***(B137) No. 11 — (R69) No. 2:*** Is the measured value less than the specified value?	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 connector
5	**CHECK DRAIN VALVE.** Measure the resistance between drain valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	10 — 100 Ω	Go to step **6.**	Replace the drain valve. <Ref. to EC(H4DOTC)-19, Drain Valve.>

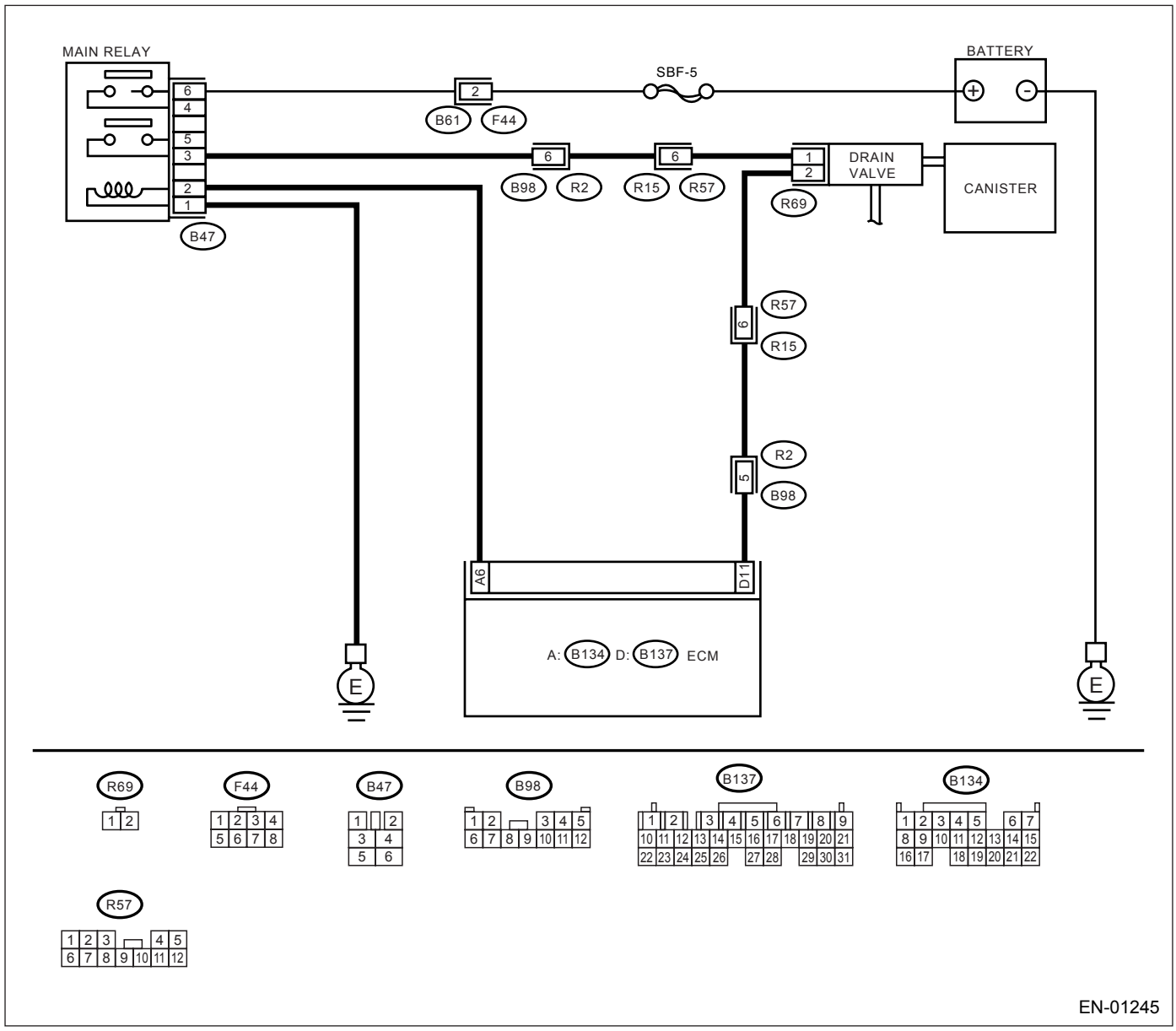
	Step	Check	Yes	No
6	**CHECK POWER SUPPLY TO DRAIN VALVE.** 1)Turn ignition switch to ON. 2)Measure the voltage between drain valve and chassis ground. ***Connector & terminal*** ***(R69) No. 1 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between main relay and drain valve • Poor contact in coupling connector • Poor contact in main relay connector
7	**CHECK FOR POOR CONTACT.** Check for poor contact in drain valve connector. Is there poor contact in drain valve connector?	There is poor contact.	Repair poor contact in drain valve connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



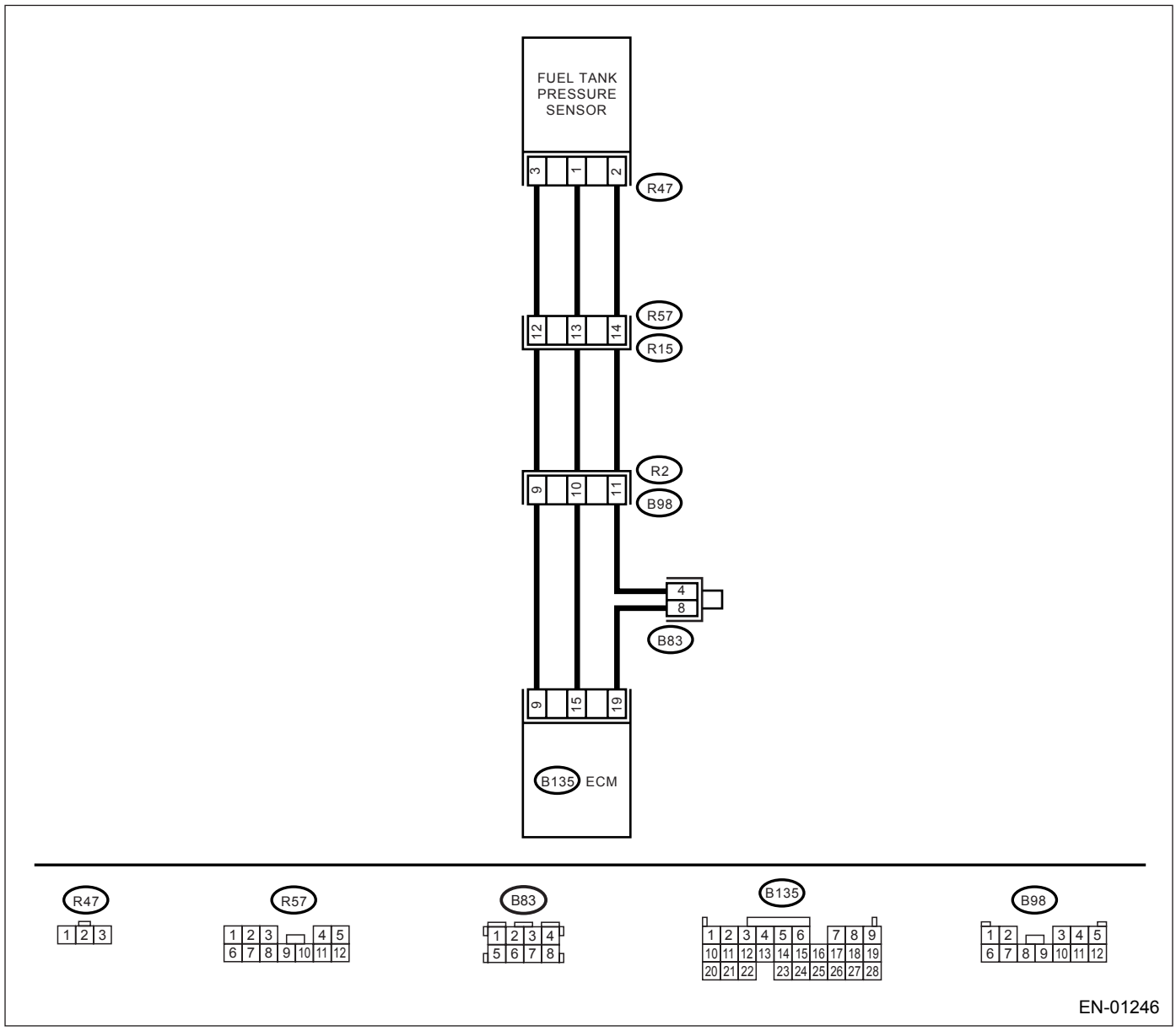
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to OFF. 2)Connect the test mode connector at the lower portion of instrument panel (on the driver's side). 3)Turn ignition switch to ON. 4)While operating the drain valve, measure voltage between ECM and chassis ground. NOTE: Drain valve operation can be excecuted using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4DOTC)-50, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B137) No. 11 (+) — Chassis ground (−):*** Does the measured value change within the specified range?	0 — 10 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. In this case, repair poor contact in ECM connector.
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 11 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **4.**	Go to step **3.**
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
4	**CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from drain valve. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 11 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and drain valve connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1)Turn ignition switch to OFF. 2)Measure the resistance between drain valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace the drain valve <Ref. to EC(H4DOTC)-19, Drain Valve.> and ECM <Ref. to FU(H4DOTC)-50, Engine Control Module.>.	Go to step **6.**
6	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



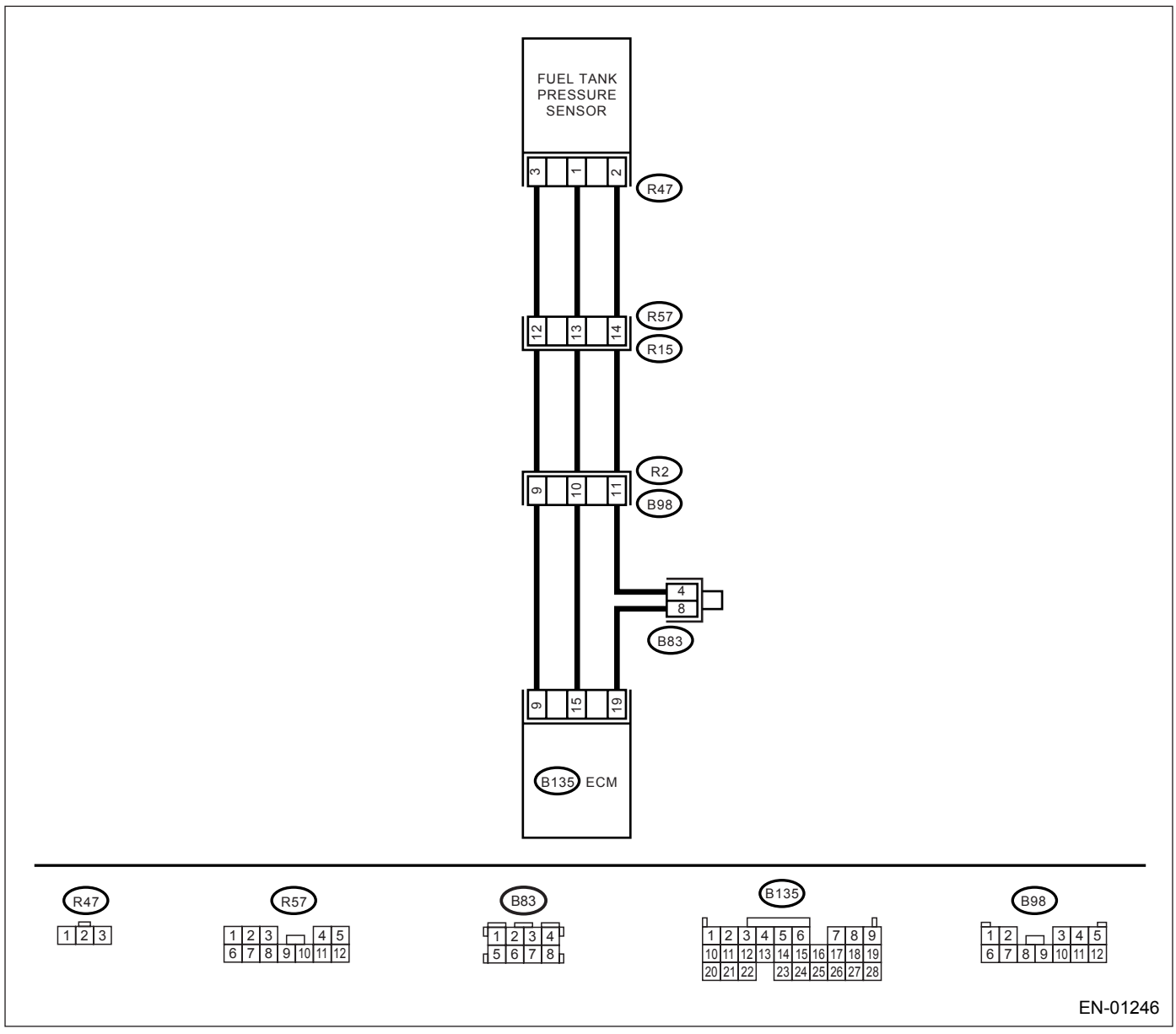
	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1)Turn ignition switch to OFF. 2)Open the fuel flap. Is the fuel filler cap tightened securely?	Tightened securely.	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK PRESSURE/VACUUM LINE.** Is there a fault in 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	There is a fault.	Repair or replace the hoses and pipes.	Replace the fuel tank pressure sensor. <Ref. to EC(H4DOTC)-11, Fuel Tank Pressure Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Turn ignition switch to OFF. 2)Remove the fuel filler cap. 3)Install the 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 OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	–2.8 kPa (–21.0 mmHg, –0.827 inHg)	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment.
2	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	4.5 V	Go to step **4.**	Go to step **3.**
3	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Is the measured value more than the specified value?	4.5 V	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 the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 15 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.2 V	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read the data of fuel tank pressure sensor signal using Subaru Select Monitor. Does the measured value exceed the specified value by shaking the ECM harness and connector? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.>	– 2.8 kPa (–21.0 mmHg, –0.827 inHg)	Repair poor contact in ECM connector.	Go to step **6.**

	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1)Turn ignition switch to OFF. 2)Remove the rear seat cushion. 3)Separate rear wiring harness and fuel tank cord. 4)Turn ignition switch to ON. 5)Measure the voltage between rear wiring harness connector and chassis ground. ***Connector & terminal*** ***(R15) No. 12 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	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
7	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM and rear wiring harness connector. ***Connector & terminal*** ***(B135) No. 19 — (R15) No. 14:*** Is the measured value less than the specified value?	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 the resistance of harness between rear wiring harness connector and chassis ground. ***Connector & terminal*** ***(R15) No. 14 — Chassis ground:*** Is the measured value more than the specified value?	500 kΩ	Go to step **9.**	Repair short circuit to ground in harness between ECM and rear wiring harness connector.
9	**CHECK FUEL TANK CORD.** 1)Disconnect the connector from fuel tank pressure sensor. 2)Measure the resistance of fuel tank cord. ***Connector & terminal*** ***(R57) No. 12 — (R47) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **10.**	Repair open circuit in fuel tank cord.
10	**CHECK FUEL TANK CORD.** Measure the resistance of fuel tank cord. ***Connector & terminal*** ***(R57) No. 14 — (R47) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **11.**	Repair open circuit in fuel tank cord.

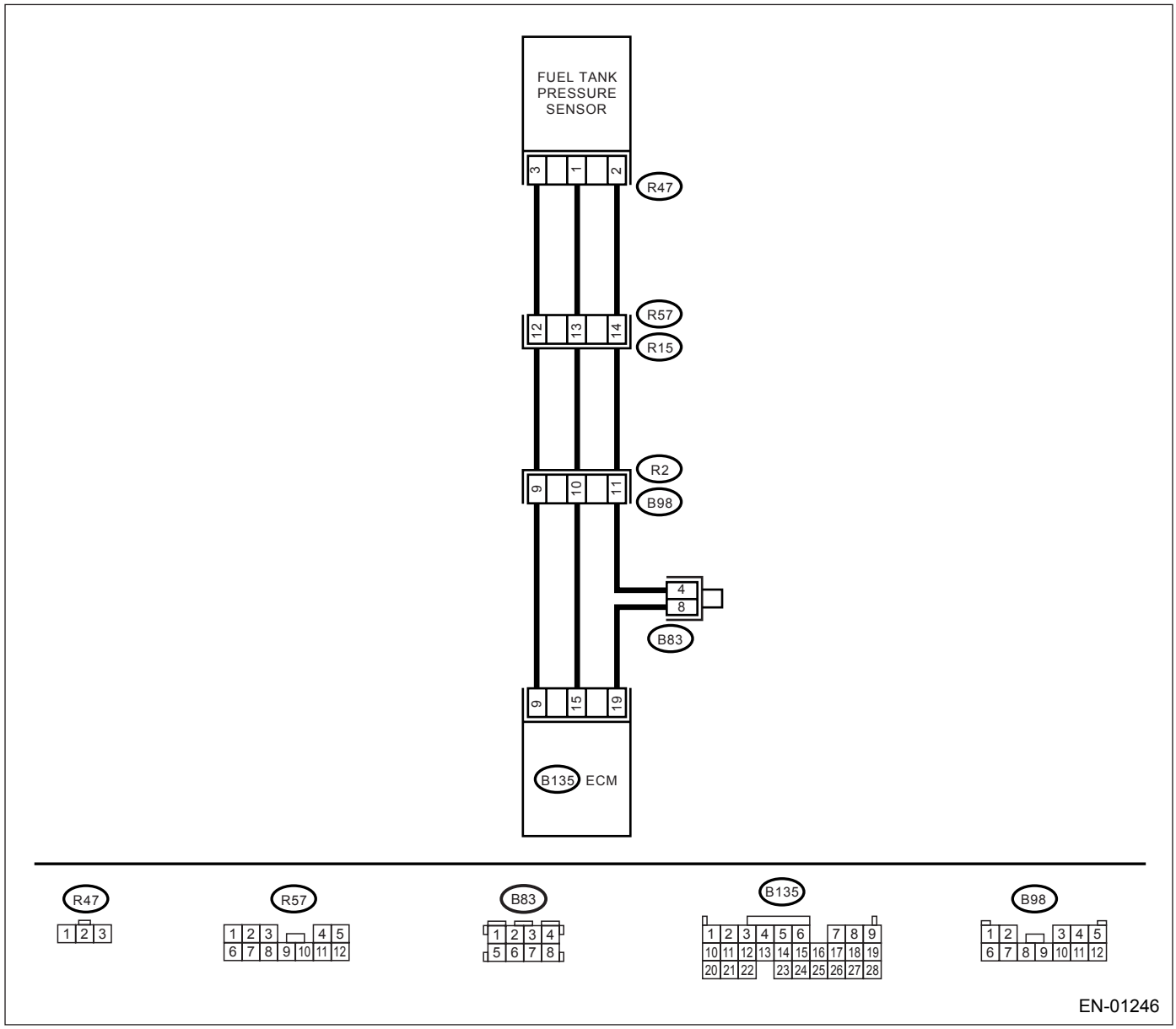
	Step	Check	Yes	No
11	**CHECK FUEL TANK CORD.** Measure the resistance of harness between fuel tank pressure sensor connector and engine ground. ***Connector & terminal*** ***(R47) No. 1 — Chassis ground:*** Is the measured value more than the specified value?	500 kΩ	Go to step **12.**	Repair short circuit to ground in fuel tank cord.
12	**CHECK FOR POOR CONTACT.** Check for poor contact in fuel tank pressure sensor connector. Is there poor contact in fuel tank pressure sensor connector?	There is poor contact.	Repair poor contact in fuel tank pressure sensor connector.	Replace the fuel tank pressure sensor. <Ref. to EC(H4DOTC)-11, Fuel Tank Pressure Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Turn ignition switch to OFF. 2)Remove the fuel filler cap. 3)Install the 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 OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	2.8 kPa (21.0 mmHg, 0.827 inHg)	Go to step **11.**	Go to step **2.**
2	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **4.**	Go to step **3.**
3	**CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Does the measured value exceed the specified value by shaking the ECM harness and connector?	4.5 V	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
4	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 15 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	0.2 V	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read the data of fuel tank pressure sensor signal using Subaru Select Monitor. Does the measured value exceed the specified value by shaking the ECM harness and connector? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.>	− 2.8 kPa (−21.0 mmHg, −0.827 inHg)	Repair poor contact in ECM connector.	Go to step **6.**

	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1)Turn ignition switch to OFF. 2)Remove the rear seat cushion. 3)Separate rear wiring harness and fuel tank cord. 4)Turn ignition switch to ON. 5)Measure the voltage between rear wiring harness connector and chassis ground. ***Connector & terminal*** ***(R15) No. 12 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	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
7	**CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM and rear wiring harness connector. ***Connector & terminal*** ***(B135) No. 15 — (R15) No. 13:*** ***(B135) No. 19 — (R15) No. 14:*** Is the measured value less than the specified value?	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 FUEL TANK CORD.** 1)Disconnect the connector from fuel tank pressure sensor. 2)Measure the resistance of fuel tank cord. ***Connector & terminal*** ***(R57) No. 13 — (R47) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **9.**	Repair open circuit in fuel tank cord.
9	**CHECK FUEL TANK CORD.** Measure the resistance of fuel tank cord. ***Connector & terminal*** ***(R57) No. 14 — (R47) No. 2:*** Is the measured value less than the specified value?	1 Ω	Go to step **10.**	Repair open circuit in fuel tank cord.
10	**CHECK FOR POOR CONTACT.** Check for poor contact in fuel tank pressure sensor connector. Is there poor contact in fuel tank pressure sensor connector?	There is poor contact.	Repair poor contact in fuel tank pressure sensor connector.	Replace the fuel tank pressure sensor. <Ref. to EC(H4DOTC)-11, Fuel Tank Pressure Sensor.>

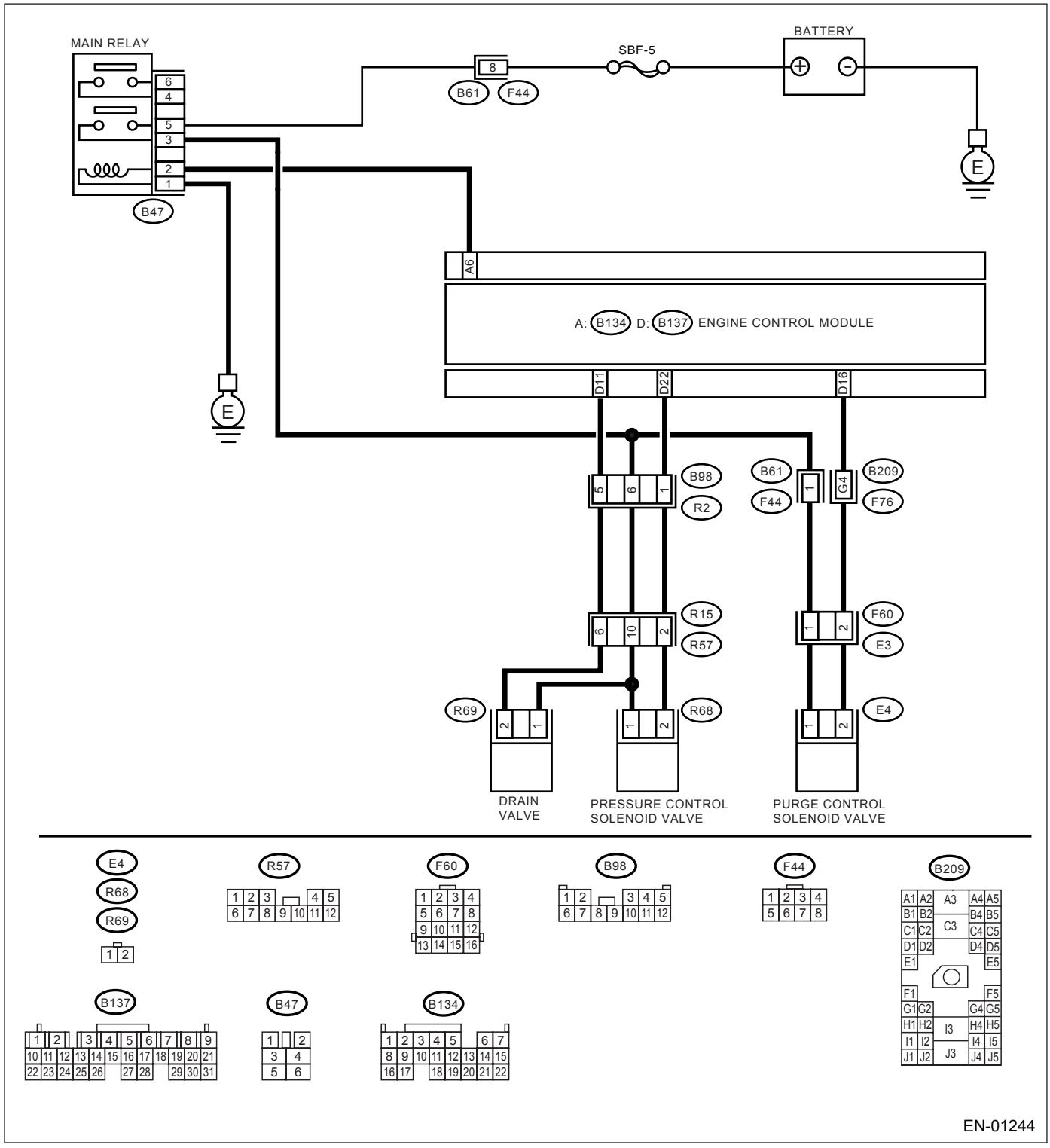
	Step	Check	Yes	No
11	**CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from fuel tank pressure sensor. 3)Turn ignition switch to ON. 4)Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to “READ CURRENT DATA FOR ENGINE”. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	2.8 kPa (21.0 mmHg, 0.827 inHg)	Repair short circuit to battery in harness between ECM and fuel tank pressure sensor connector.	Replace the fuel tank pressure sensor. <Ref. to EC(H4DOTC)-11, Fuel Tank Pressure Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Fuel odor
  - 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 faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01244

	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1)Turn ignition switch to OFF. 2)Check the fuel filler cap. Is the fuel filler cap tightened securely? NOTE: The DTC is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Tightened securely.	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK FUEL FILLER CAP.** Is the fuel filler cap SUBARU genuine?	The SUBAU genuine fuel filler cap is used.	Go to step **4.**	Replace with a SUBARU 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?	There is damage.	Repair or replace the fuel filler cap and fuel filler pipe. <Ref. to FU(H4DOTC)-58, Fuel Filler Pipe.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1)Connect the test mode connector. 2)Turn ignition switch to ON. 3)Operate the drain valve. Does the drain valve operate? 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(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **6.**	Replace the drain valve. <Ref. to EC(H4DOTC)-19, Drain Valve.>
6	**CHECK PURGE CONTROL SOLENOID VALVE.** Operate the purge control solenoid valve. Does the purge control solenoid valve operate? 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(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **7.**	Replace the purge control solenoid valve. <Ref. to EC(H4DOTC)-7, Purge Control Solenoid Valve.>

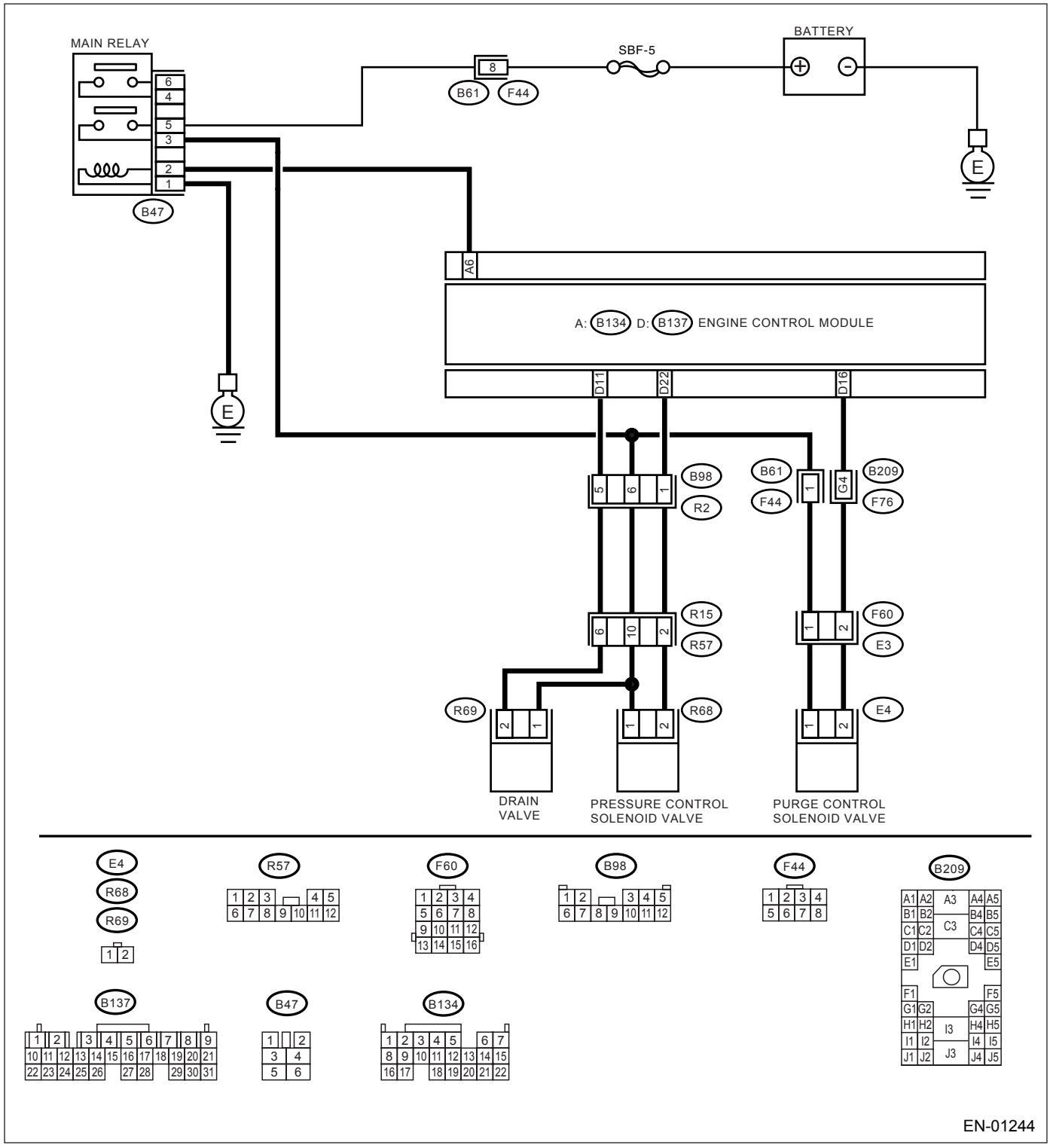
	Step	Check	Yes	No
7	**CHECK PRESSURE CONTROL SOLENOID VALVE.** Operate the pressure control solenoid valve. Does the pressure control solenoid valve operate? NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **8.**	Replace the pressure control solenoid valve. <Ref. to EC(H4DOTC)-7, Purge 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 evaporation line?	There is a hole.	Repair or replace the evaporation line. <Ref. to FU(H4DOTC)-71, Fuel Delivery, Return and Evaporation Lines.>	Go to step **9.**
9	**CHECK CANISTER.** Is the canister damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	There is damage or a hole.	Repair or replace the canister. <Ref. to EC(H4DOTC)-6, Canister.>	Go to step **10.**
10	**CHECK FUEL TANK.** Remove the fuel tank. <Ref. to FU(H4DOTC)-55, Fuel Tank.> Is the fuel tank damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	There is damage or a hole.	Repair or replace the fuel tank. <Ref. to FU(H4DOTC)-55, 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, bend, misconnection of hoses or pipes in evaporative emission control system?	There are holes, cracks, clogging, or disconnection, bend, misconnection of hoses or pipes.	Repair or replace the hoses or pipes.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Fuel odor
  - Fuel filler cap is loose or not installed.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1)Turn ignition switch to OFF. 2)Check the fuel filler cap. Is the fuel filler cap tightened securely? NOTE: The DTC is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Tightened securely.	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK FUEL FILLER CAP.** Is the fuel filler cap SUBARU genuine?	The SUBAU genuine fuel filler cap is used.	Go to step **4.**	Replace with a SUBARU 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?	There is damage.	Repair or replace the fuel filler cap and fuel filler pipe. <Ref. to FU(H4DOTC)-58, Fuel Filler Pipe.>	Go to step **5.**
5	**CHECK DRAIN VALVE.** 1)Connect the test mode connector. 2)Turn ignition switch to ON. 3)Operate the drain valve. Does the drain valve operate? 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(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **6.**	Replace the drain valve. <Ref. to EC(H4DOTC)-19, Drain Valve.>
6	**CHECK PURGE CONTROL SOLENOID VALVE.** Operate the purge control solenoid valve. Does the purge control solenoid valve operate? 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(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Operates.	Go to step **7.**	Replace the purge control solenoid valve. <Ref. to EC(H4DOTC)-7, Purge Control Solenoid Valve.>

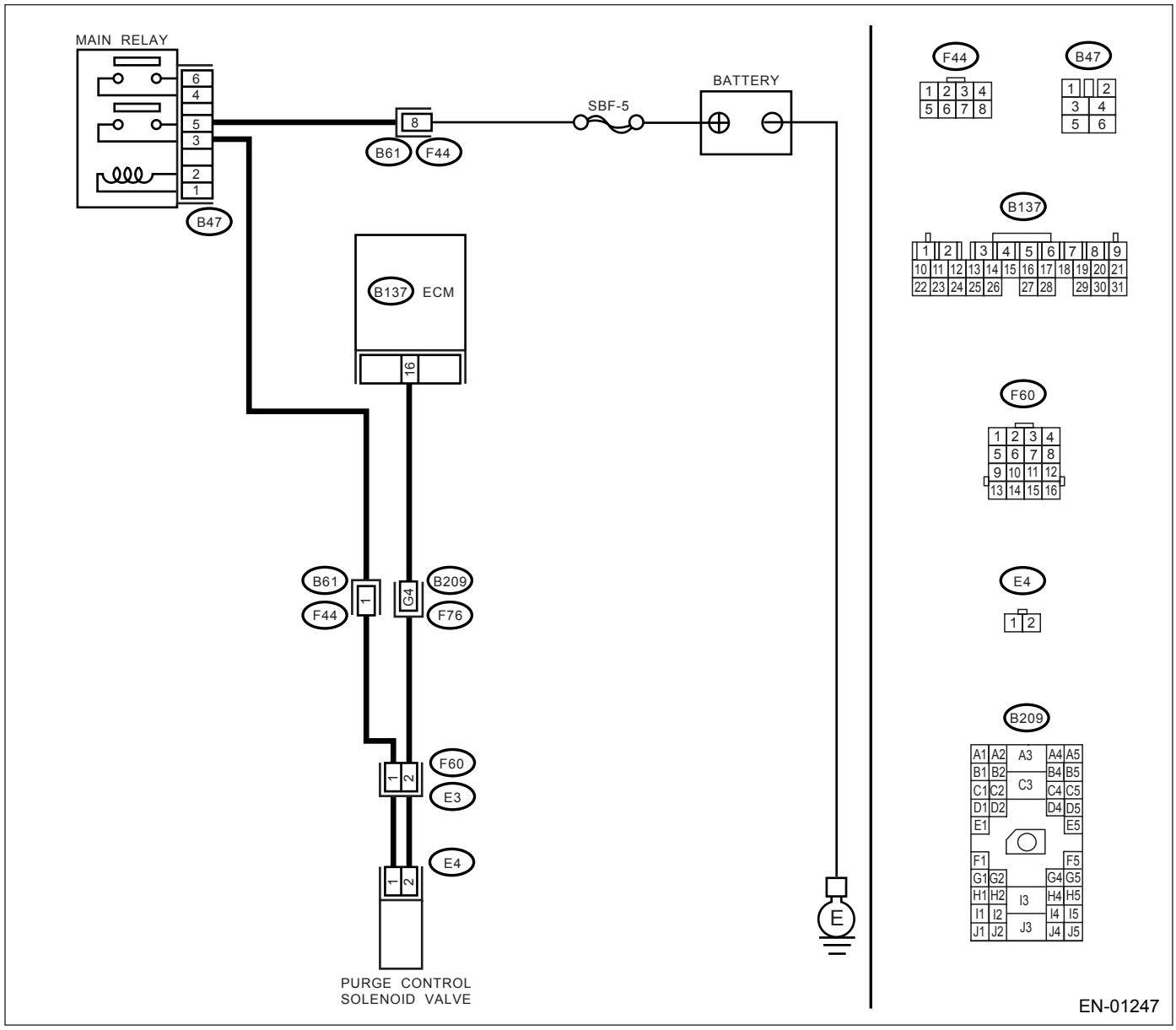
	Step	Check	Yes	No
7	**CHECK PRESSURE CONTROL SOLENOID VALVE.** Operate the pressure control solenoid valve. Does the pressure control solenoid valve operate? NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Operates.	Go to step **8.**	Replace the pressure control solenoid valve. <Ref. to EC(H4DOTC)-7, Purge Control Solenoid Valve.>
8	**CHECK CANISTER.** Is the canister damaged?	There is damage.	Repair or replace the canister. <Ref. to EC(H4DOTC)-6, Canister.>	Go to step **9.**
9	**CHECK FUEL TANK.** Remove the fuel tank. <Ref. to FU(H4DOTC)-55, Fuel Tank.> Is the fuel tank damaged?	There is damage.	Repair or replace the fuel tank. <Ref. to FU(H4DOTC)-55, 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, misconnection of hoses or pipes in evaporative emission control system?	There are holes, cracks, clogging, or disconnection, misconnection of hoses or pipes.	Repair or replace the hoses or pipes.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	The MIL may light up, however, the circuit is returned to the normal status at the moment. Contact SOA (distributor) service. 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 the connectors from purge control solenoid valve and ECM. 3)Measure the resistance of harness between purge control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E4) No. 2 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and purge control solenoid valve connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** Measure the resistance of harness between ECM and purge control solenoid valve. ***Connector & terminal*** ***(B137) No. 16 — (E4) No. 2:*** Is the measured value less than the specified value?	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 the purge control solenoid valve. 2)Measure the resistance between purge control solenoid valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	10 — 100 Ω	Go to step **5.**	Replace the purge control solenoid valve. <Ref. to EC(H4DOTC)-7, Purge Control Solenoid Valve.>

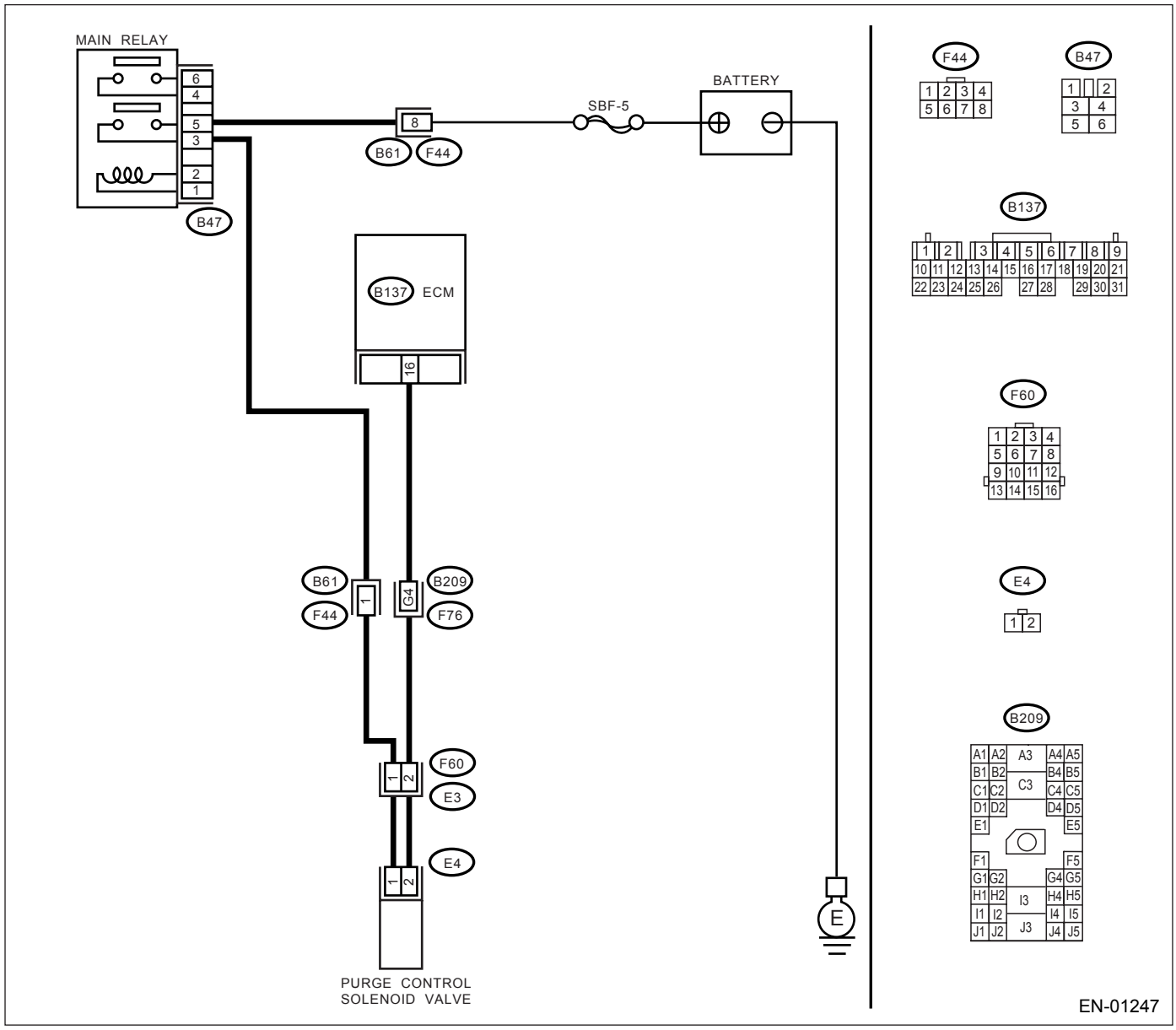
	Step	Check	Yes	No
5	**CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.** 1)Turn ignition switch to ON. 2)Measure the voltage between purge control solenoid valve and engine ground. ***Connector & terminal*** ***(E4) No. 1 (+) — Engine ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **6.**	Repair open circuit in harness between main relay and purge control solenoid valve connector.
6	**CHECK FOR POOR CONTACT.** Check for poor contact in purge control solenoid valve connector. Is there poor contact in purge control solenoid valve connector?	There is poor contact.	Repair poor contact in purge control solenoid valve connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to OFF. 2)Connect the test mode connector at the lower portion of instrument panel (on the driver's side). 3)Turn ignition switch to ON. 4)While operating the purge control solenoid valve, measure voltage between ECM and chassis ground. 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(H4DOTC)-50, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (−):*** Is the measured value within the specified range?	0 — 13 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. In this case, repair poor contact in ECM connector.
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **4.**	Go to step **3.**
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
4	**CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from purge control solenoid valve. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and purge control solenoid valve connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **5.**
5	**CHECK PURGE CONTROL SOLENOID VALVE.** 1)Turn ignition switch to OFF. 2)Measure the resistance between purge control solenoid valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace the purge control solenoid valve and ECM. <Ref. to EC(H4DOTC)-7, Purge Control Solenoid Valve.> and <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **6.**

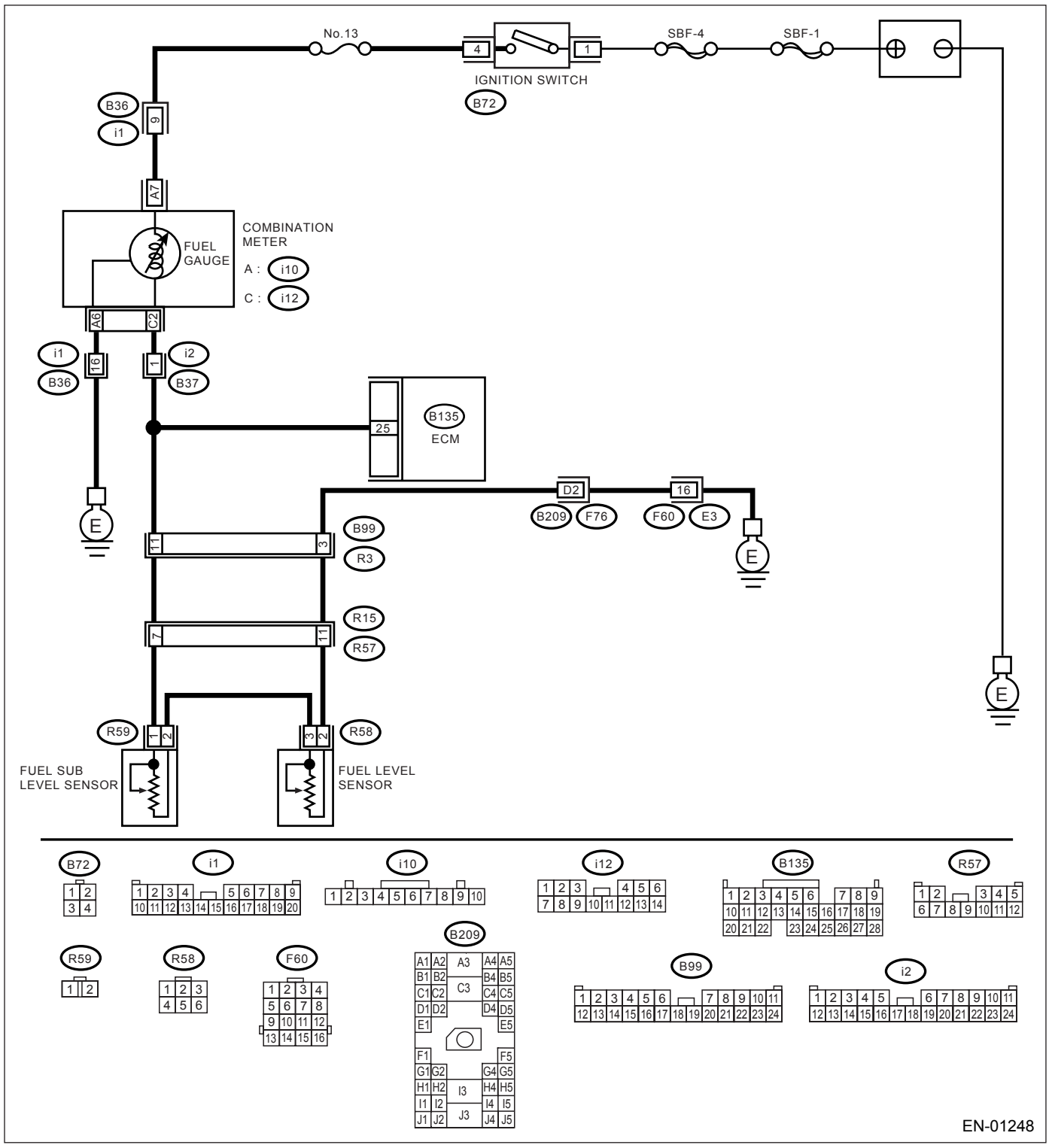
	Step	Check	Yes	No
6	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



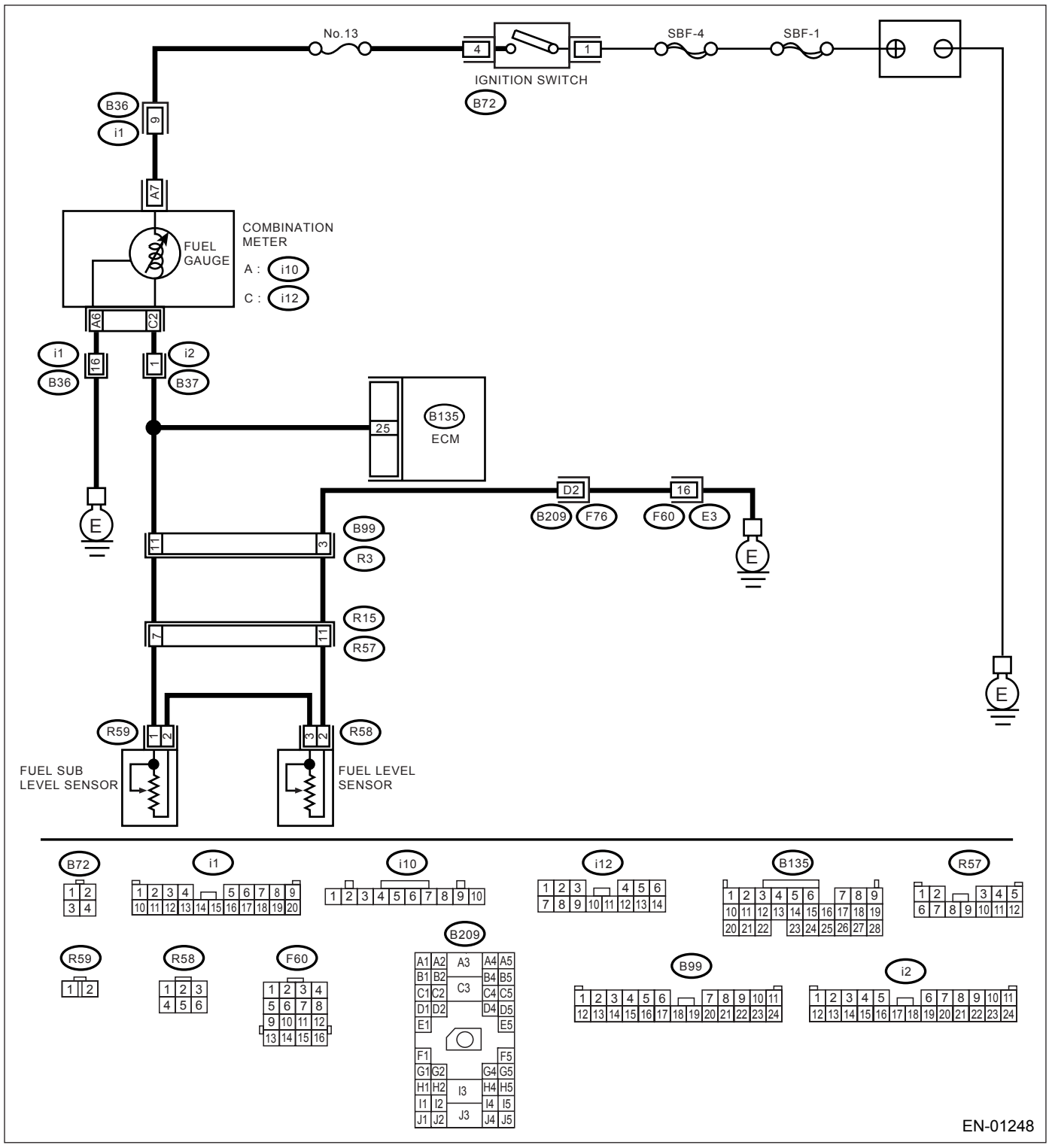
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0461.	Replace the fuel level sensor and fuel sub level sensor. <Ref. to FU(H4DOTC)-65, Fuel Level Sensor.> and <Ref. to FU(H4DOTC)-66, Fuel Sub Level Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.** Does the speedometer and tachometer operate normally?	They operate normally.	Go to step **2.**	Repair or replace the combination meter. <Ref. to IDI-4, Combination Meter System.>
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. (engine OFF) 2)Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	0.12 V	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Read the data of fuel level sensor signal using Subaru Select Monitor. NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> Does the voltage variance stay within the specified range while monitoring the Subaru Select Monitor and shaking the ECM harness and connector ?	0.12 V	Repair poor contact in ECM connector.	The MIL may light up, however, the circuit is returned to the normal status at the moment. 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 connector
4	**CHECK INPUT VOLTAGE OF ECM.** 1)Turn ignition switch to OFF. 2)Disconnect fuel tank cord connector (R57) and rear wiring harness connector (R15). 3)Turn ignition switch to ON. 4)Measure the voltage of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	0.12 V	Go to step **5.**	Go to step **6.**
5	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from connector (i10), (i11) and ECM connector. 3)Measure the resistance between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 25 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **7.**	Repair short circuit to ground in harness between ECM and combination meter connector.

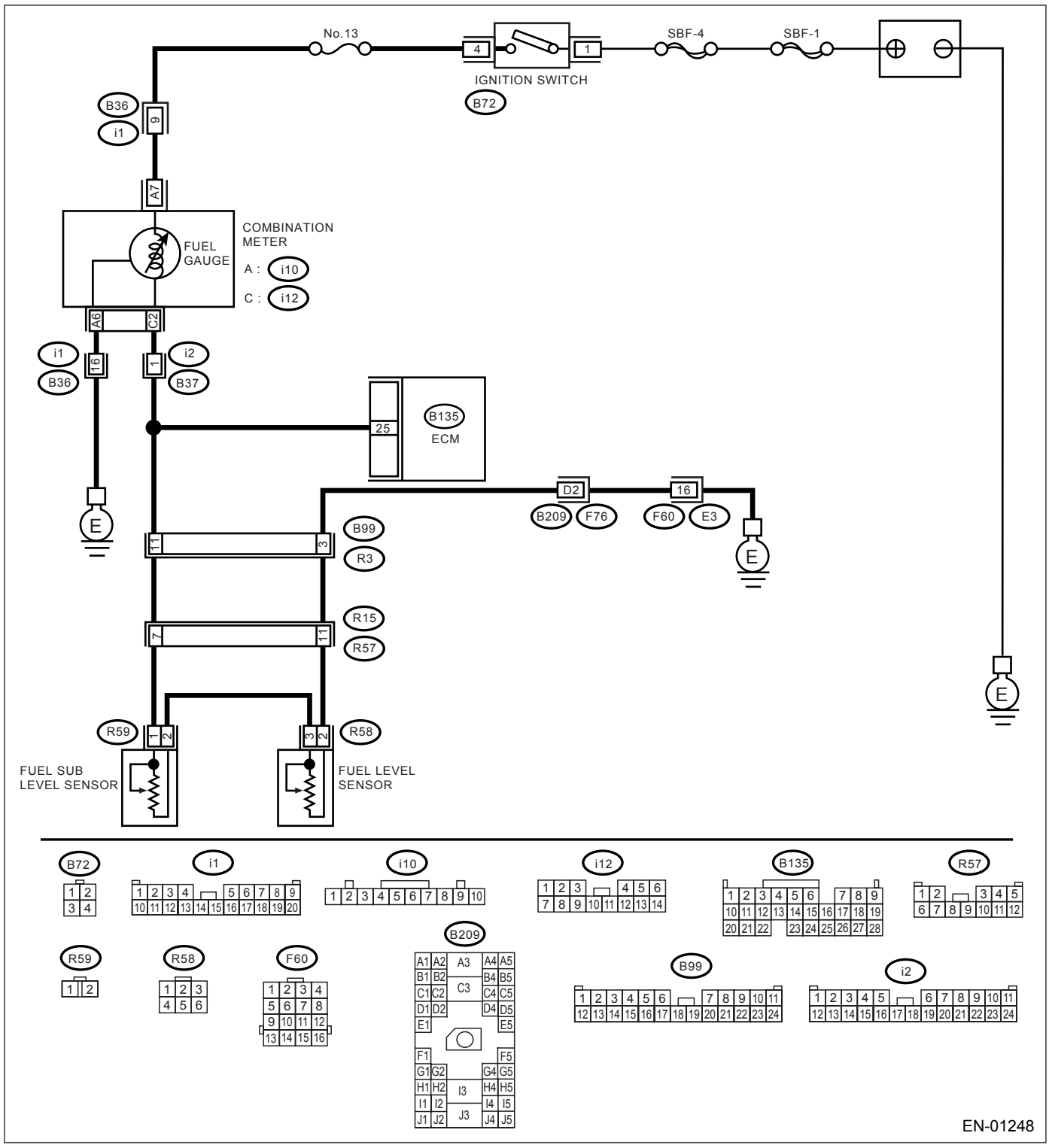
	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER.** Measure the resistance between ECM and combination meter connector. ***Connector & terminal*** ***(B135) No. 25 — (i12) No. 2:*** Is the measured value less than the specified value?	10 Ω	Repair or replace the combination meter. <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 the connector from fuel sub level sensor. 3)Measure the resistance between fuel sub level sensor and chassis ground. ***Connector & terminal*** ***(R59) No. 1 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **8.**	Repair short circuit to ground in fuel tank cord.
8	**CHECK FUEL TANK CORD.** 1)Disconnect the connector from fuel pump assembly. 2)Measure the resistance between fuel pump assembly and chassis ground. ***Connector & terminal*** ***(R59) No. 2 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **9.**	Repair short circuit to ground in fuel tank cord.
9	**CHECK FUEL LEVEL SENSOR.** 1)Remove the fuel pump assembly. <Ref. to FU(H4DOTC)-63, Fuel Pump.> 2)Measure the resistance between fuel level sensor and terminals with its float set to the full position. ***Terminal*** ***No. 2 — No. 3:*** Is the measured value within the specified range?	0.5 — 2.5 Ω	Go to step **10.**	Replace the fuel level sensor.
10	**CHECK FUEL SUB LEVEL SENSOR.** 1)Remove the fuel sub level sensor. <Ref. to FU(H4DOTC)-66, Fuel Sub Level Sensor.> 2)Measure the resistance between fuel sub level sensor and terminals with its float set to the full position. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	0.5 — 2.5 Ω	Repair poor contact in harness between ECM and combination meter connector.	Replace the fuel sub level sensor.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.** Does the speedometer and tachometer operate normally?	They operate normally.	Go to step **2.**	Repair or replace the combination meter. <Ref. to IDI-4, Combination Meter System.>
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. (engine OFF) 2)Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.75 V	Go to step **3.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. 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 the combination meter connector (i11) and ECM connector. 3)Turn ignition switch to ON. 4)Measure the voltage of harness between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.75 V	Go to step **4.**	Repair short circuit to battery between ECM and combination meter connector.
4	**CHECK HARNESS BETWEEN ECM AND FUEL TANK CORD.** 1)Turn ignition switch to OFF. 2)Disconnect fuel tank cord connector (R57) and rear wiring harness connector (R15). 3)Measure the resistance between ECM and fuel tank cord. ***Connector & terminal*** ***(B135) No. 25 — (R15) No. 7:*** Is the measured value less than the specified value?	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 the resistance between fuel tank cord and chassis ground. ***Connector & terminal*** ***(R15) No. 11 — Chassis ground:*** Is the measured value less than the specified value?	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 connector

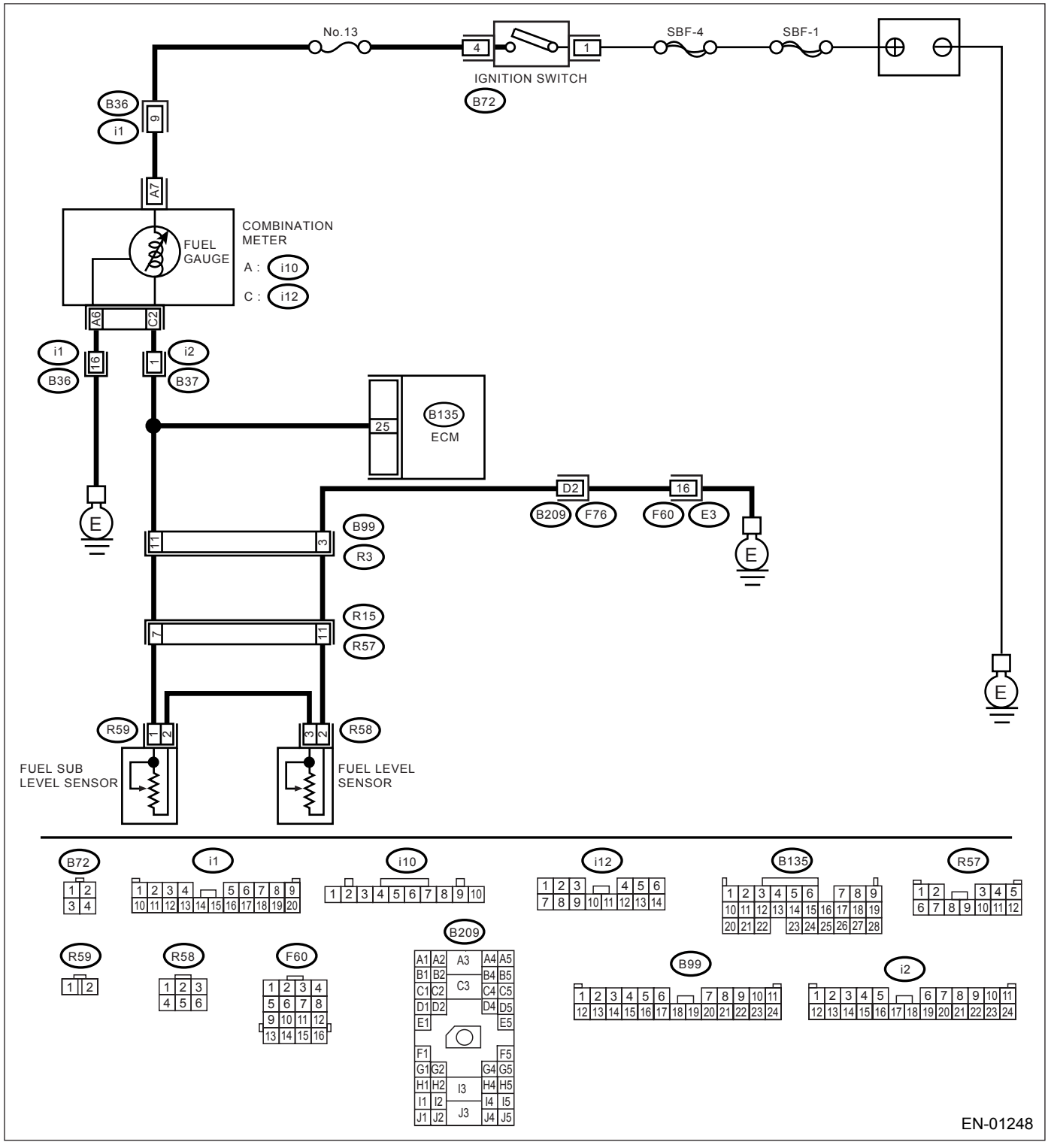
	Step	Check	Yes	No
6	**CHECK FUEL TANK CORD.** 1)Disconnect the connector from fuel level sensor. 2)Measure the resistance between fuel level sensor and coupling connector. ***Connector & terminal*** ***(R57) No. 11 — (R58) No. 2:*** Is the measured value less than the specified value?	10 Ω	Go to step **7.**	Repair open circuit between coupling connector and fuel level sensor.
7	**CHECK FUEL TANK CORD.** 1)Disconnect the connector from fuel sub level sensor. 2)Measure the resistance between fuel level sensor and fuel sub level sensor. ***Connector & terminal*** ***(R58) No. 3 — (R59) No. 2:*** Is the measured value less than the specified value?	10 Ω	Go to step **8.**	Repair open circuit between fuel level sensor and fuel sub level sensor.
8	**CHECK FUEL TANK CORD.** Measure the resistance between fuel sub level sensor and coupling connector. ***Connector & terminal*** ***(R57) No. 7 — (R59) No. 1:*** Is the measured value less than the specified value?	10 Ω	Go to step **9.**	Repair open circuit between coupling connector and fuel sub level sensor.
9	**CHECK FUEL LEVEL SENSOR.** 1)Remove the fuel pump assembly. <Ref. to FU(H4DOTC)-63, Fuel Pump.> 2)While moving the fuel level sensor float up and down, measure resistance between fuel level sensor terminals. ***Terminal*** ***No. 2 — No. 3:*** Is the measured value more than the specified value?	53 Ω	Replace the fuel level sensor. <Ref. to FU(H4DOTC)-65, Fuel Level Sensor.>	Go to step **10.**
10	**CHECK FUEL SUB LEVEL SENSOR.** 1)Remove the fuel sub level sensor. <Ref. to FU(H4DOTC)-66, Fuel Sub Level Sensor.> 2)While moving the fuel sub level sensor float up and down, measure resistance between fuel sub level sensor terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value more than the specified value?	45 Ω	Replace the fuel sub level sensor. <Ref. to FU(H4DOTC)-66, Fuel Sub Level Sensor.>	Replace the combination meter. <Ref. to IDI-12, Combination Meter Assembly.>

BJ:DTC P0464 — FUEL LEVEL SENSOR CIRCUIT INTERMITTENT —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect DTC P0462 or P0463 using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK FUEL LEVEL SENSOR.** 1)Remove the fuel pump assembly. <Ref. to FU(H4DOTC)-63, Fuel Pump.> 2)While moving the fuel level sensor float up and down, make sure that the resistance between fuel level sensor terminals changes smoothly. ***Terminal*** ***No. 3 — No. 2:*** Does the resistance change smoothly?	Changes smoothly.	Go to step **3.**	Replace the fuel level sensor. <Ref. to FU(H4DOTC)-65, Fuel Level Sensor.>
3	**CHECK FUEL SUB LEVEL SENSOR.** 1)Remove the fuel sub level sensor. <Ref. to FU(H4DOTC)-65, Fuel Level Sensor.> 2)While moving the fuel sub level sensor float up and down, make sure that the resistance between fuel level sensor terminals changes smoothly. ***Terminal*** ***No. 1 — No. 2:*** Does the resistance change smoothly?	Changes smoothly.	Repair poor contact in ECM, combination meter and coupling connectors.	Replace the fuel sub level sensor. <Ref. to FU(H4DOTC)-65, Fuel Level Sensor.>

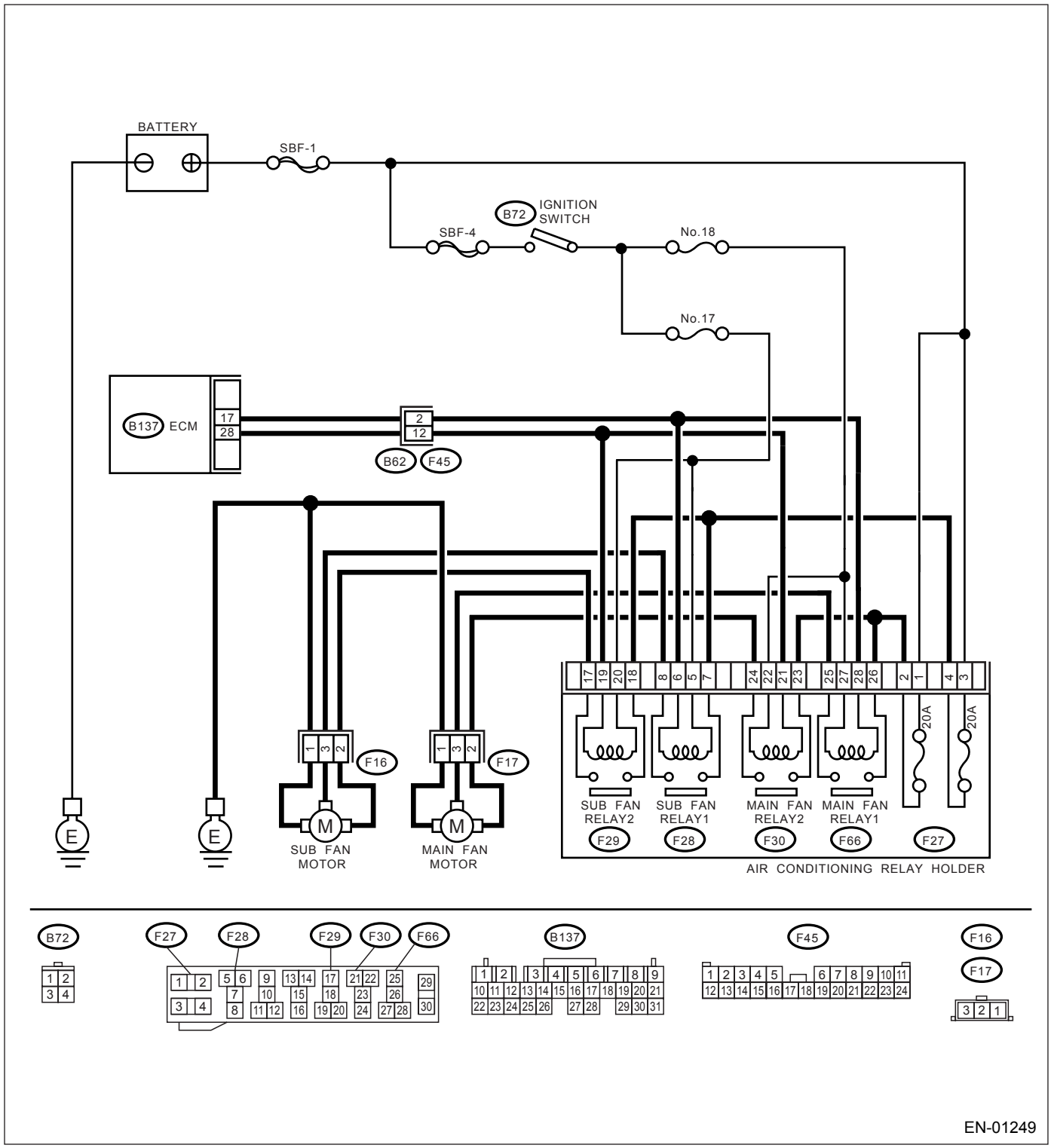
BK:DTC P0483 — COOLING FAN RATIONALITY CHECK —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Occurrence of noise
  - Overheating

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

NOTE:
If the vehicle is placed very close to a wall or another vehicle with the engine idling, the normal cooling function may be impeded causing the OBD system to interpret as a malfunction.

- **WIRING DIAGRAM:**



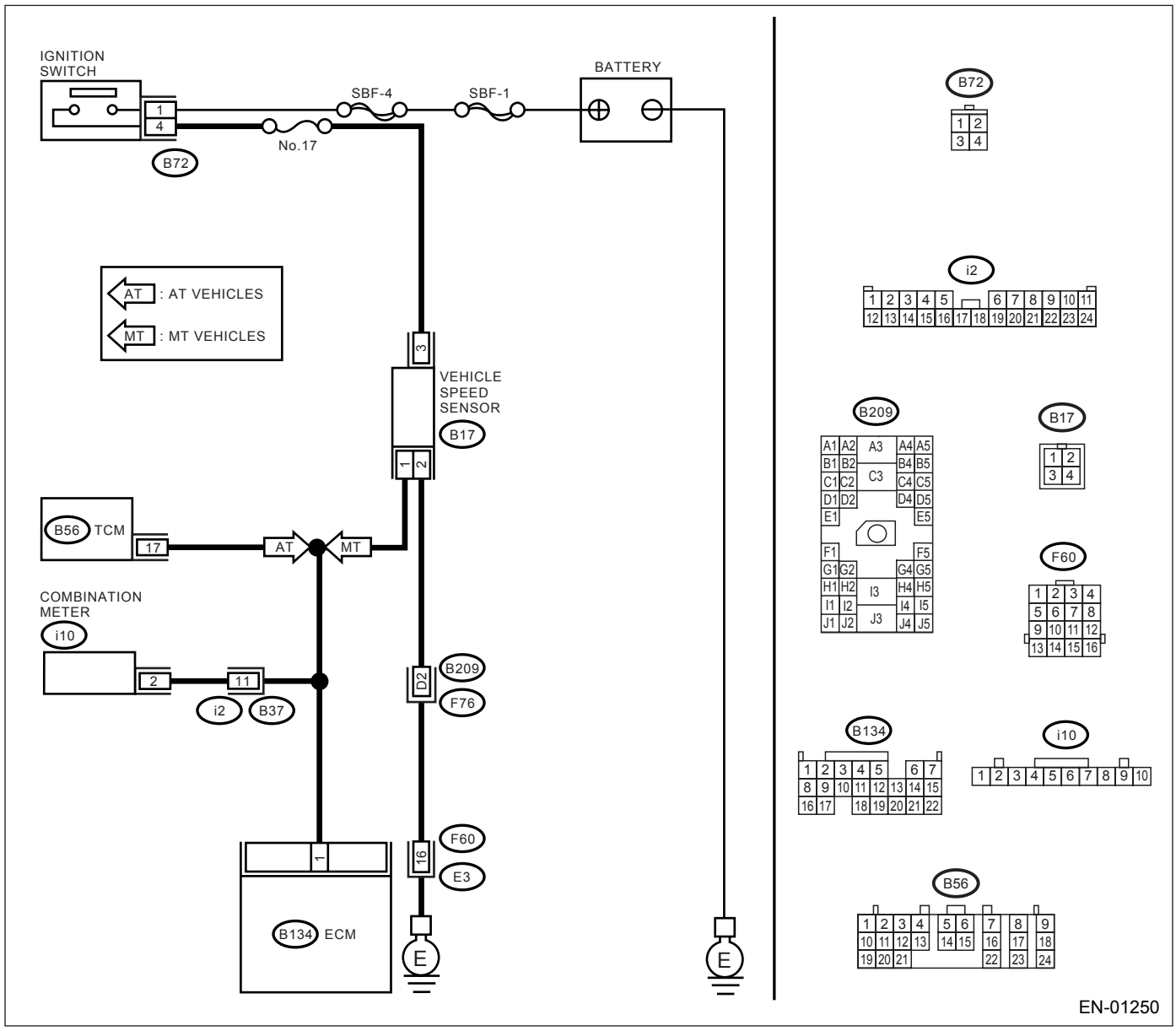
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Inspect radiator fan, fan motor and thermostat, and replace the thermostat if stuck. <Ref. to CO(H4SO)-47, Radiator Main Fan and Fan Motor.> and <Ref. to CO(H4SO)-49, Radiator Sub Fan and Fan Motor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK TRANSMISSION TYPE.** Is the transmission AT?	AT.	Go to step **2.**	Go to step **4.**

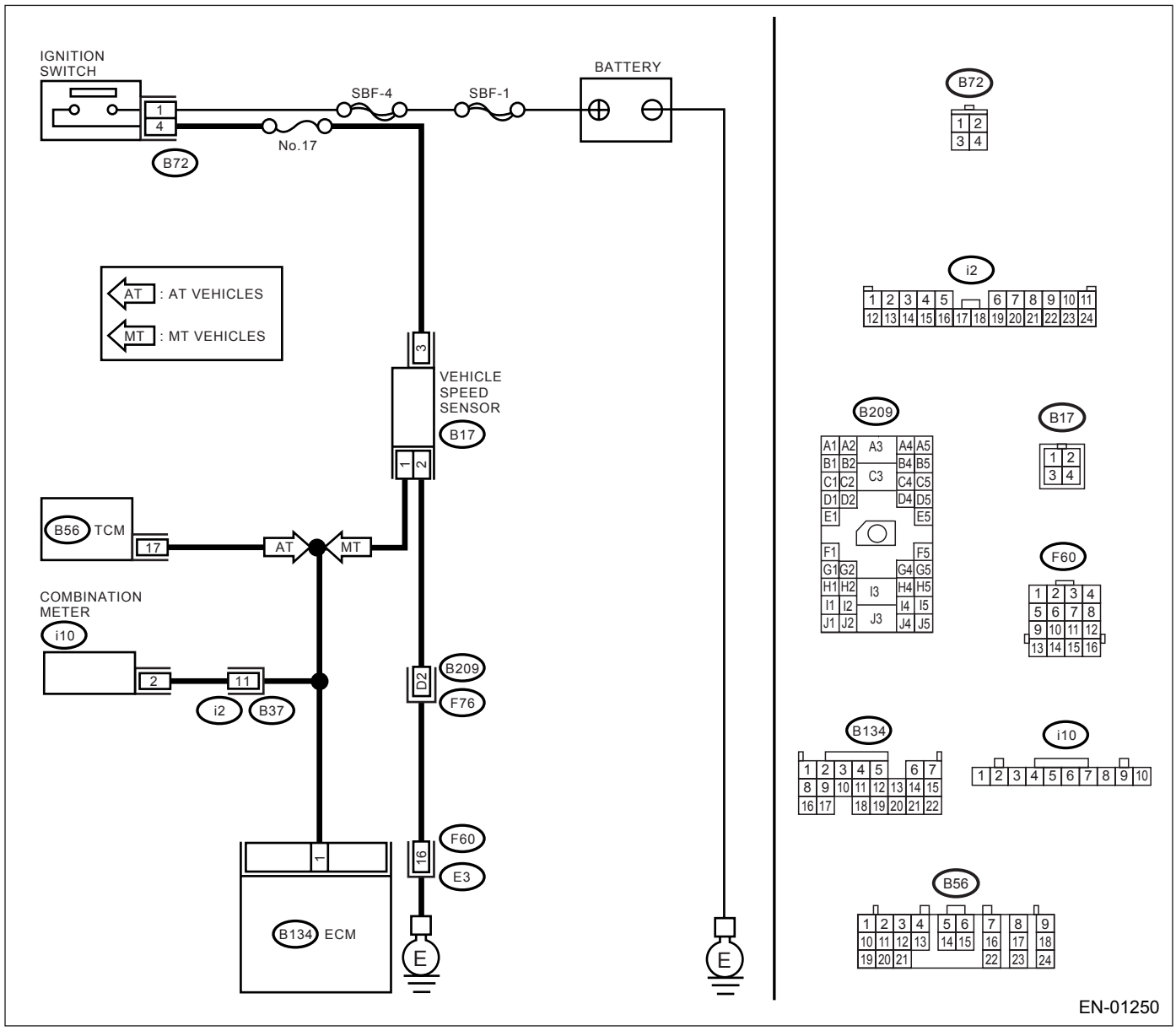
	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM and TCM. 3)Measure the resistance of harness between TCM connector and chassis ground. ***Connector & terminal*** ***(B56) No. 17 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **3.**	Repair short circuit to ground in harness between ECM and TCM connector.
3	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Contact SOA (distributor) service.
4	**CHECK HARNESS BETWEEN VEHICLE SPEED SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect connectors from vehicle speed sensor and ECM. 3)Measure the resistance of harness between vehicle speed sensor connector and chassis ground. ***Connector & terminal*** ***(B17) No. 1 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **5.**	Repair short circuit to ground in harness between vehicle speed sensor and ECM connector.
5	**CHECK FOR POOR CONTACT.** Check for poor contact in vehicle speed sensor connector. Is there poor contact in vehicle speed sensor connector?	There is poor contact.	Repair poor contact in vehicle speed sensor connector.	Replace the vehicle speed sensor. <Ref. to MT-39, Vehicle Speed Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



Step		Check	Yes	No
1	**CHECK TRANSMISSION TYPE.** Is the transmission AT?	AT.	Go to step **2.**	Go to step **3.**

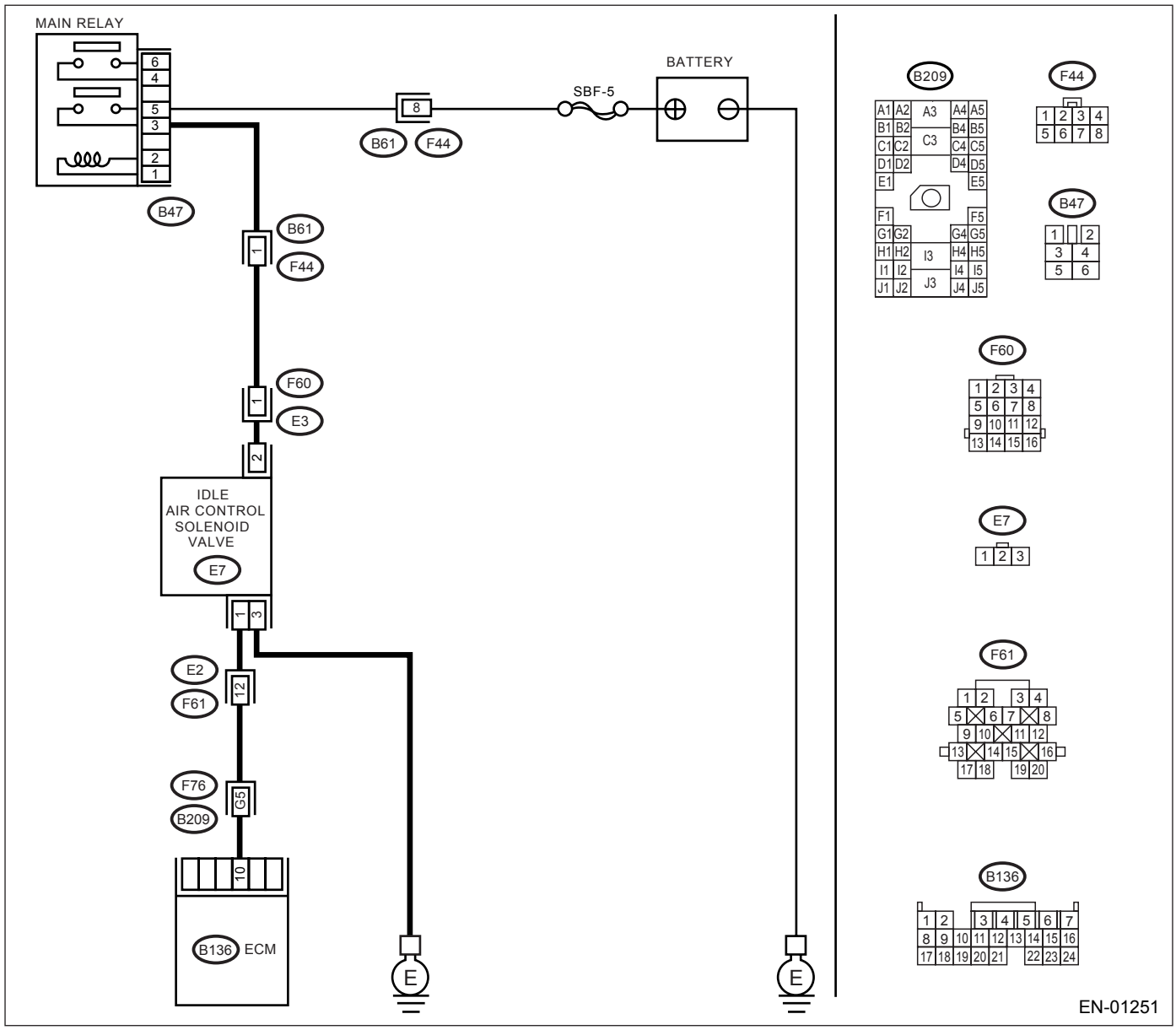
	Step	Check	Yes	No
2	**CHECK DTC P0720 ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?	DTC P0720 is indicated.	Inspect the front vehicle speed sensor signal circuit. <Ref. to AT-61, DTC 33 FRONT VEHICLE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Go to step **3.**
3	**CHECK SPEEDOMETER OPERATION IN COMBINATION METER.** Does the speedometer operate normally?	Speedometer is normal.	Go to step **4.**	Check the speedometer. <Ref. to IDI-14, Speedometer.>
4	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from combination meter. 3)Measure the resistance between ECM and combination meter. ***Connector & terminal*** ***(B134) No. 1 — (i10) No. 2:*** Is the measured value less than the specified value?	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

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Engine is difficult to start.
  - Engine does not start.
  - Erroneous idling
  - Engine stalls

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



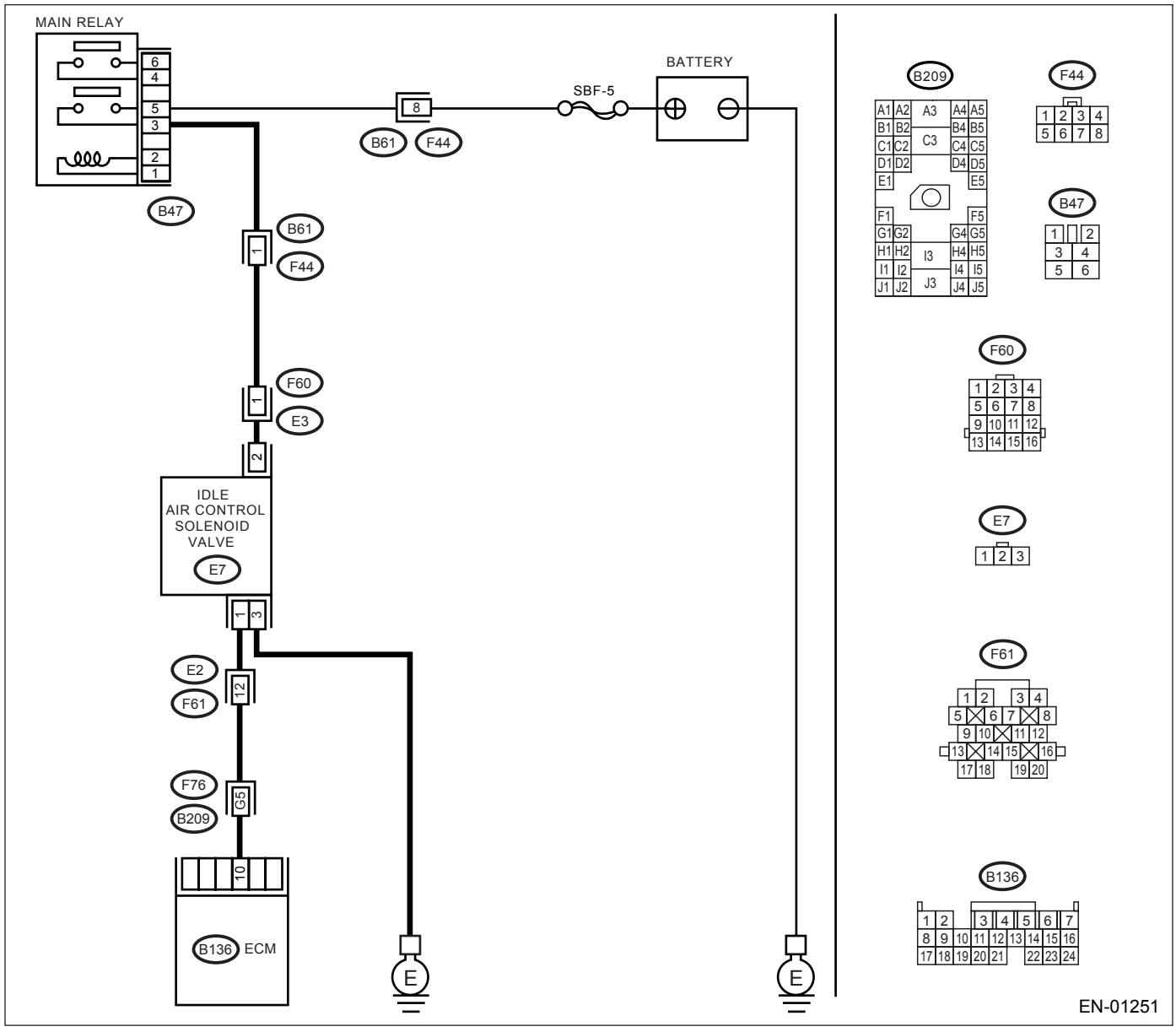
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0506.	Go to step **2.**
2	**CHECK IDLE AIR CONTROL SOLENOID VALVE.** 1)Turn ignition switch to OFF. 2)Remove the idle air control solenoid valve from throttle body. <Ref. to FU(H4DOTC)-36, REMOVAL, Idle Air Control Solenoid Valve.> 3)Using an air gun, force air into the idle air control solenoid valve bypass air inlet. Confirm that forced air escapes from both the main air passage and assist air passage. Does air flow out?	Air flows out.	Go to step **4.**	Replace the idle air control solenoid valve. <Ref. to FU(H4DOTC)-36, Idle Air Control Solenoid Valve.> After replacement, Go to step **3.**
3	**CHECK IDLE AIR CONTROL SOLENOID VALVE DUTY RATIO.** 1)Turn ignition switch to ON. 2)Start and warm-up the engine. 3)All accessory switches OFF. 4)Read the data of idle air control solenoid duty ratio using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	60 %	Go to step **4.**	END
4	**CHECK AIR BYPASS LINE.** 1)Turn ignition switch to OFF. 2)Remove the idle air control solenoid valve from throttle body. <Ref. to FU(H4DOTC)-36, REMOVAL, Idle Air Control Solenoid Valve.> 3)Remove throttle body — intake manifold. <Ref. to FU(H4DOTC)-14, REMOVAL, Throttle Body.> 4)Using an air gun, force air into the solenoid valve installation area and into the throttle valve. Confirm that forced air escapes from both of these parts. Does air flow out?	Air flows out.	Replace the idle air control solenoid valve. <Ref. to FU(H4DOTC)-36, Idle Air Control Solenoid Valve.>	Replace the throttle body. <Ref. to FU(H4DOTC)-14, Throttle Body.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Engine keeps running at higher revolution than specified idling revolution.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



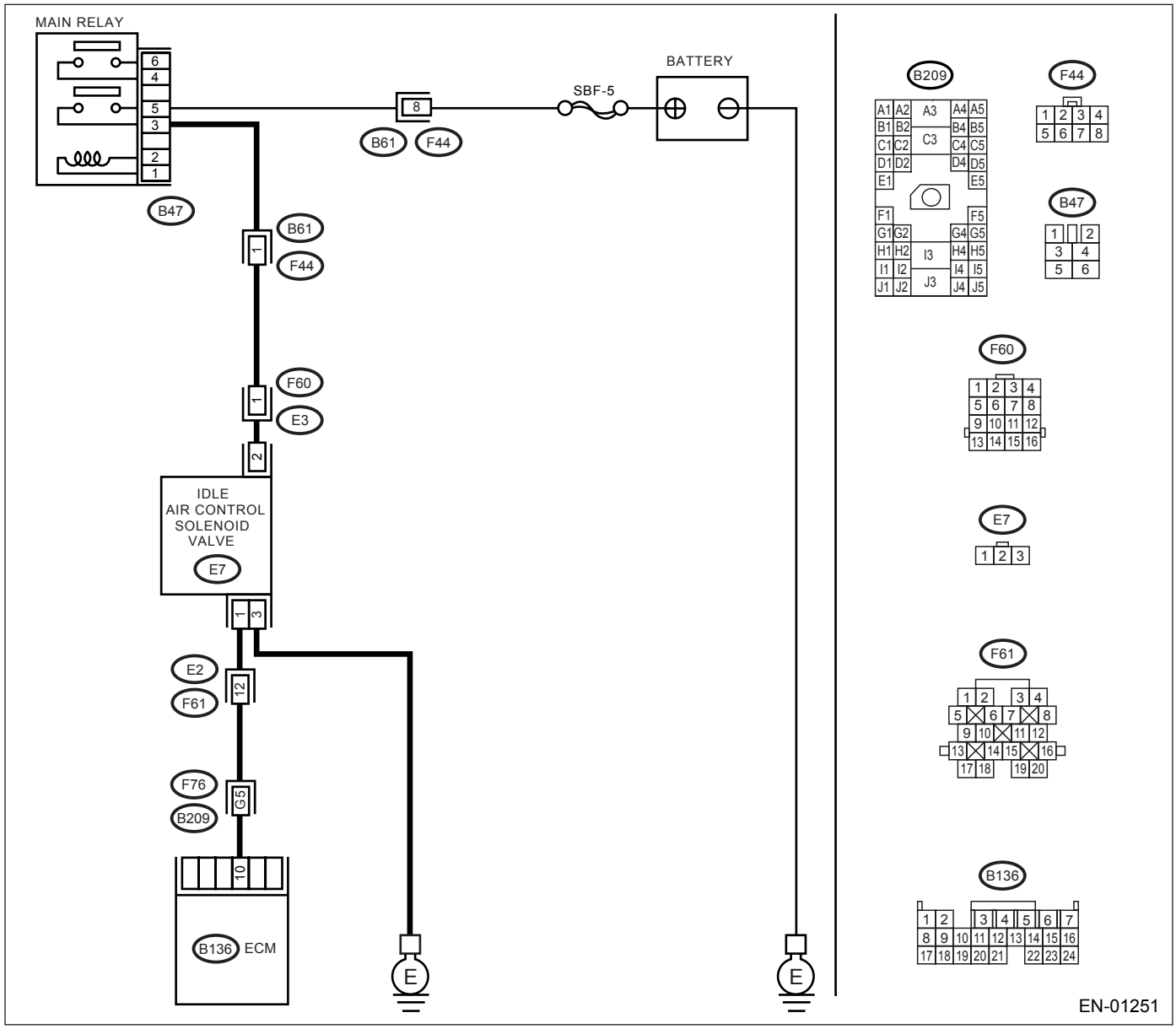
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0507.	Go to step **2.**
2	**CHECK THROTTLE CABLE.** Is there a play for adjustment at the throttle cable?	There is play.	Go to step **3.**	Adjust throttle cable. <Ref. to SP(H4SO)-6, INSTALLATION, Accelerator Control Cable.>
3	**CHECK AIR INTAKE SYSTEM.** 1)Turn ignition switch to ON. 2)Start and idle the engine. 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 a fault in air intake system?	There is a fault.	Repair air suction and leaks.	Replace the idle air control solenoid valve. <Ref. to FU(H4DOTC)-36, Idle Air Control Solenoid Valve.>

BP:DTC P0508 — IDLE CONTROL SYSTEM CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Engine breathing

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



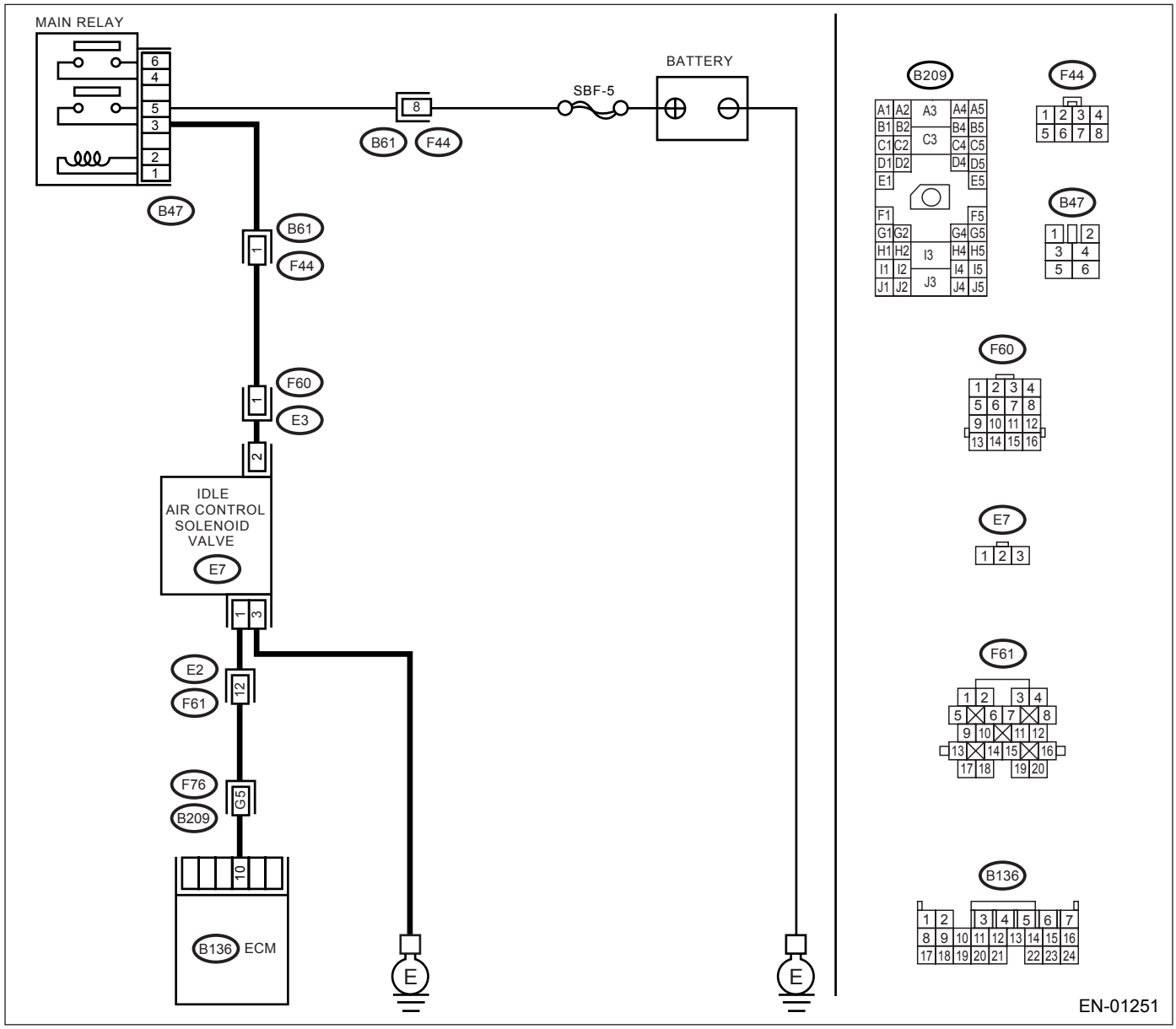
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	3 V	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from idle air control solenoid valve. 3)Turn ignition switch to ON. 4)Measure the voltage between idle air control solenoid valve and engine ground. ***Connector & terminal*** ***(E7) No. 2 (+) — Engine ground (−):*** Is the measured value more than the specified value?	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)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM and idle air control solenoid valve connector. ***Connector & terminal*** ***(B136) No. 10 — (E7) No. 1:*** Is the measured value less than the specified value?	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.** Measure the resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and idle air control solenoid valve connector.	Go to step **5.**
5	**CHECK GROUND CIRCUIT OF IDLE AIR CONTROL SOLENOID VALVE.** Measure the resistance of harness between idle air control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E7) No. 3 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **6.**	Repair open circuit in harness between idle air control solenoid valve connector and engine grounding cable.
6	**CHECK FOR POOR CONTACT.** Check for 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?	There is poor contact.	Is there poor contact in ECM connector or idle air control solenoid valve connector?	Replace the idle air control solenoid valve. <Ref. to FU(H4DOTC)-36, Idle Air Control Solenoid Valve.>

BQ:DTC P0509 — IDLE CONTROL SYSTEM CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Engine breathing

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



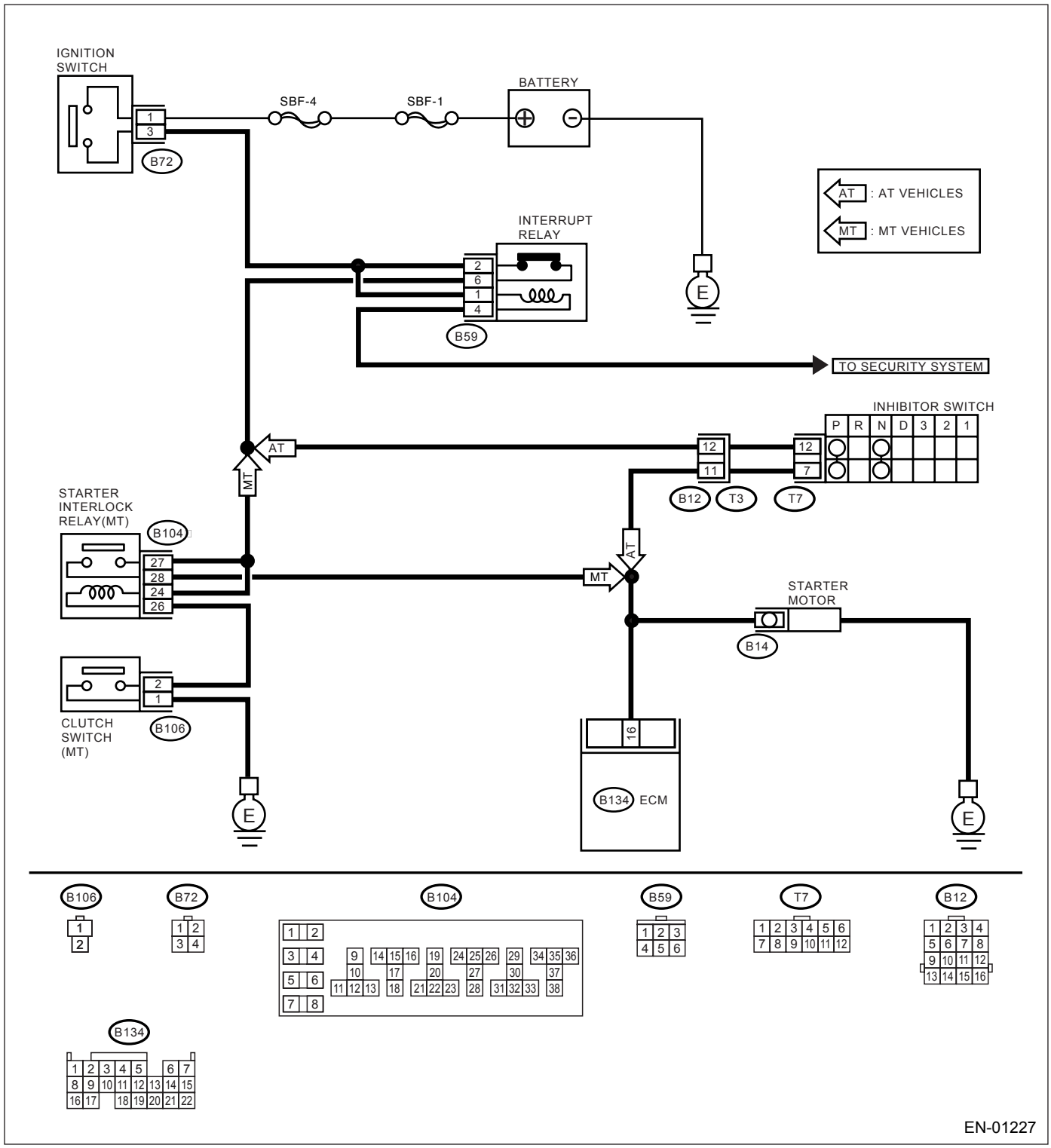
	Step	Check	Yes	No
1	**CHECK THROTTLE CABLE.** Is there a play for adjustment at the throttle cable?	There is play.	Go to step **2.**	Adjust throttle cable. <Ref. to SP(H4SO)-6, INSTALLATION, Accelerator Control Cable.>
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **3.**	Go to step **4.**
3	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from idle air control solenoid valve. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and idle air control solenoid valve connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Replace the idle air control solenoid valve and ECM. <Ref. to FU(H4DOTC)-36, Idle Air Control Solenoid Valve.> and <Ref. to FU(H4DOTC)-50, Engine Control Module.>
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (−):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	10 V	Repair short circuit to battery in harness between ECM and idle air control solenoid valve connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

BR:DTC P0512 — STARTER SWITCH CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



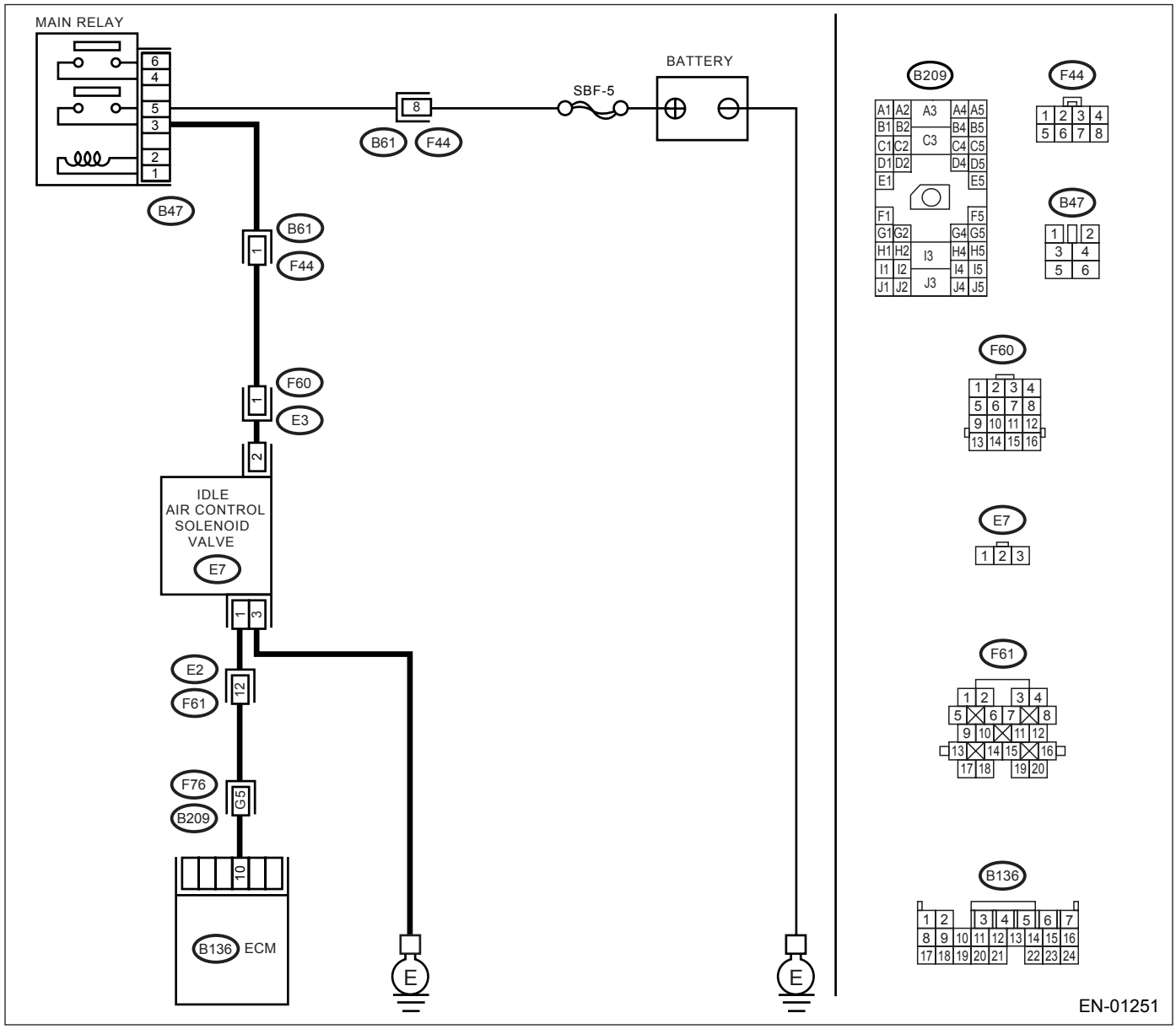
	Step	Check	Yes	No
1	**CHECK OPERATION OF STARTER MOTOR.** Does the starter motor operate when ignition switch is turned to ON?	Starter motor operates.	Repair short circuit to battery in starter motor circuit. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Check starter motor circuit. <Ref. to EN(H4DOTC)-62, STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.>

BS:DTC P0519 — IDLE CONTROL SYSTEM MALFUNCTION (FAIL-SAFE) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine keeps running at higher revolution than specified idling revolution.
  - Fuel supply is cut by the fail-safe function.

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



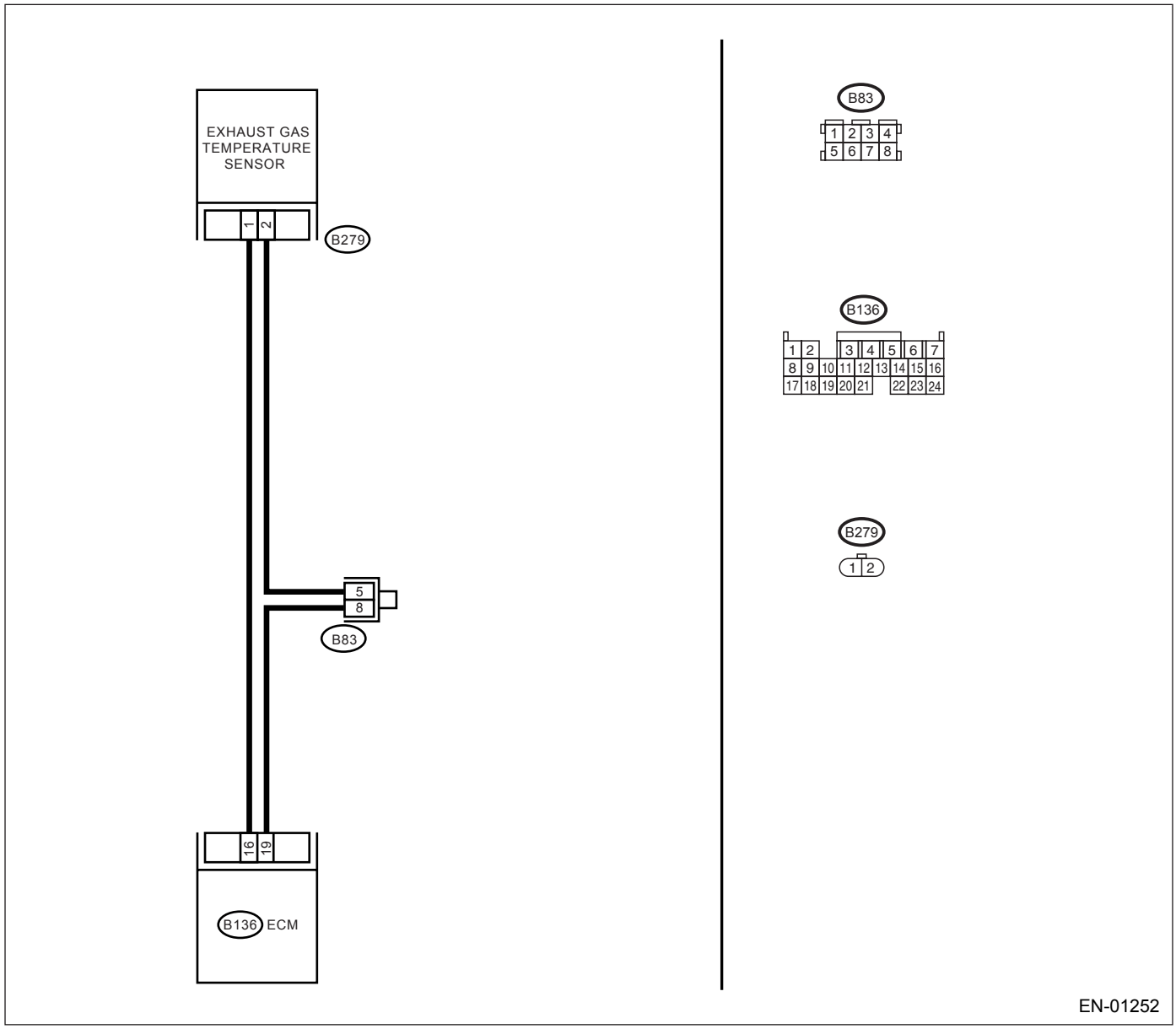
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0519.	Go to step **2.**
2	**CHECK AIR INTAKE SYSTEM.** 1)Turn ignition switch to ON. 2)Start and idle the engine. 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 a fault in air intake system?	There is a fault.	Repair air suction and leaks.	Go to step **3.**
3	**CHECK THROTTLE CABLE.** Is there a play for adjustment at the throttle cable?	There is play.	Go to step **4.**	Adjust throttle cable. <Ref. to SP(H4SO)-6, INSTALLATION, Accelerator Control Cable.>
4	**CHECK AIR BYPASS LINE.** 1)Turn ignition switch to OFF. 2)Remove the idle air control solenoid valve from throttle body. <Ref. to FU(H4DOTC)-36, Idle Air Control Solenoid Valve.> 3)Confirm that there are no foreign particles in the bypass air line. Is the bypass air line clogged by foreign particles?	Line is clogged.	Remove foreign particles from bypass air line.	Replace the idle air control solenoid valve. <Ref. to FU(H4DOTC)-36, Idle Air Control Solenoid Valve.>

BT:DTC P0545 — EXHAUST GAS TEMPERATURE SENSOR CIRCUIT LOW-BANK 1 —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



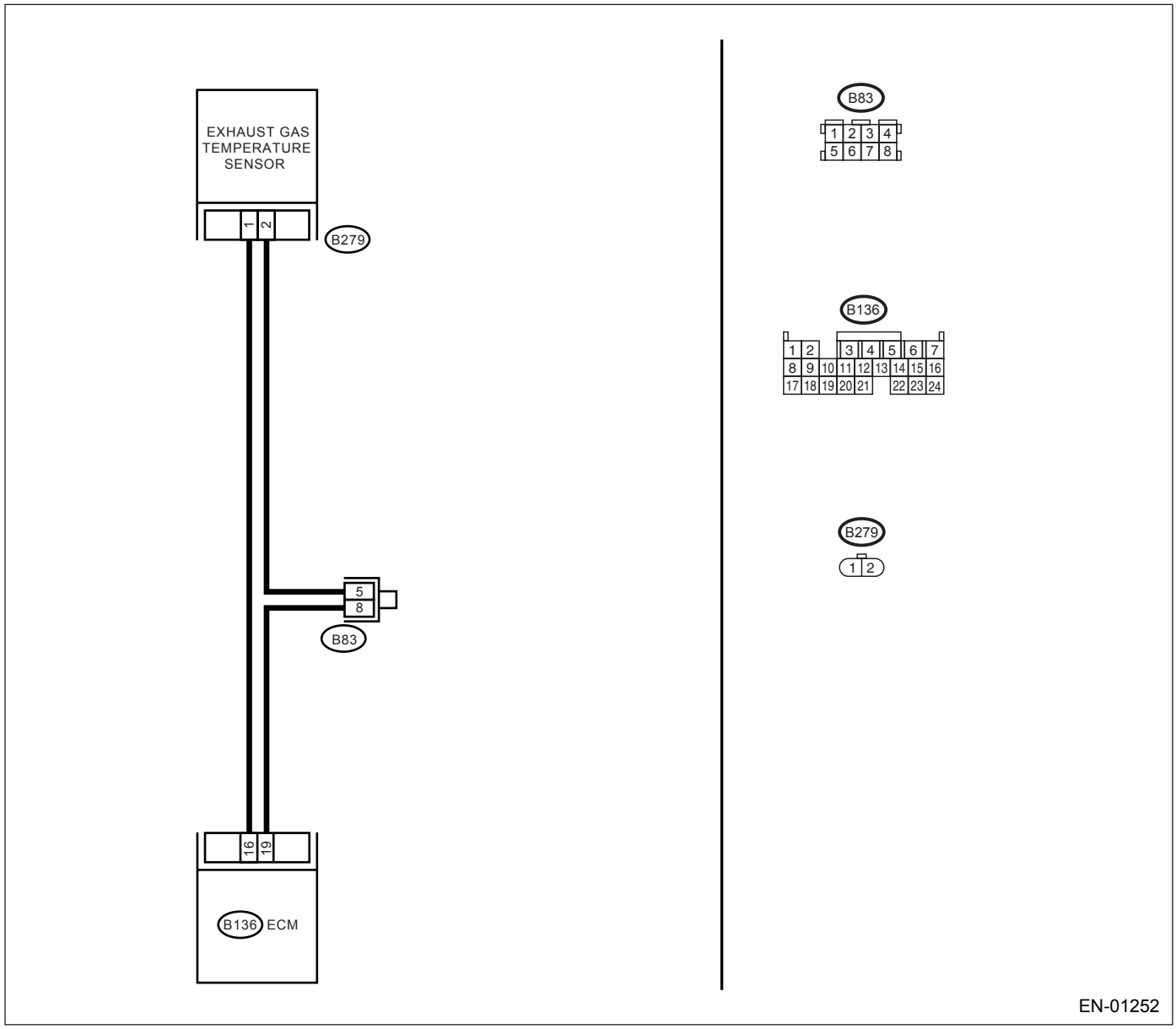
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of exhaust gas temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	1200°C (2192°F)	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in exhaust gas temperature sensor • Poor contact in ECM • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN EXHAUST GAS TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from exhaust gas temperature sensor. 3)Turn ignition switch to ON. 4)Read the data of exhaust gas temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	372°C (702°F)	Replace the exhaust gas temperature sensor. <Ref. to FU(H4DOTC)-49, Exhaust Temperature Sensor.>	Repair short circuit to ground in harness between exhaust gas temperature sensor and ECM connector.

BU:DTC P0546 — EXHAUST GAS TEMPERATURE SENSOR CIRCUIT HIGH-BANK 1 —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Hard to start
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of exhaust gas temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	372°C (702°F)	Go to step **2.**	Repair poor contact. NOTE: In this case, repair the following: • Poor contact in exhaust gas temperature sensor • Poor contact in ECM • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN EXHAUST GAS TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from exhaust gas temperature sensor. 3)Measure the voltage between exhaust gas temperature sensor connector and engine ground. ***Connector & terminal*** ***(B279) No. 1 (+) — Engine ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and exhaust gas temperature sensor connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN EXHAUST GAS TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to ON. 2)Measure the voltage between exhaust gas temperature sensor connector and engine ground. ***Connector & terminal*** ***(B279) No. 1 (+) — Engine ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and exhaust gas temperature sensor connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN EXHAUST GAS TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure the voltage between exhaust gas temperature sensor connector and engine ground. ***Connector & terminal*** ***(B279) No. 1 (+) — Engine ground (−):*** Is the measured value more than the specified value?	4 V	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and exhaust gas temperature sensor connector • Poor contact in exhaust gas temperature sensor connector • Poor contact in ECM connector • Poor contact in joint connector

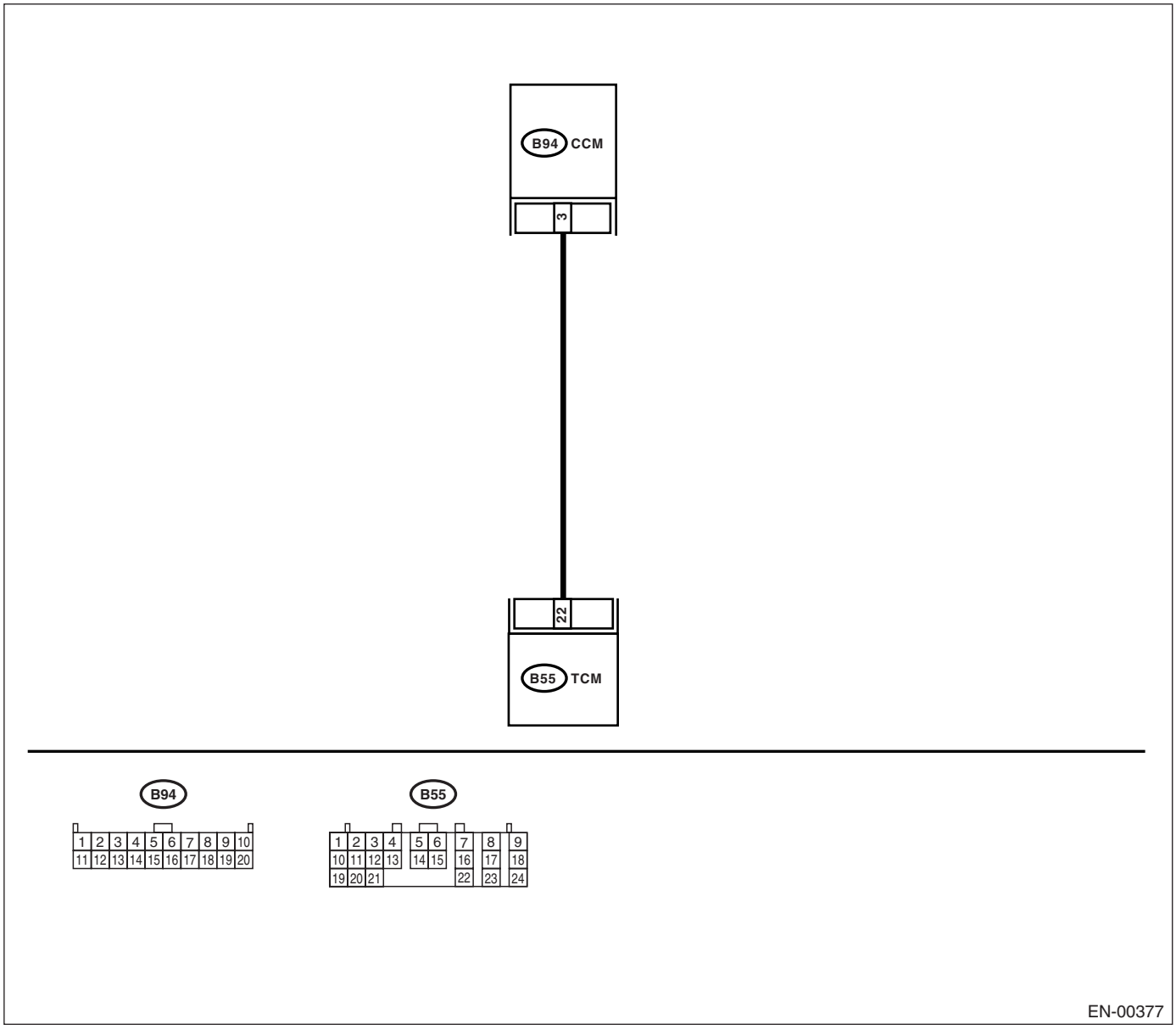
	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN EXHAUST GAS TEMPERATURE SENSOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance of harness between exhaust gas temperature sensor connector and engine ground. ***Connector & terminal*** ***(B279) No. 2 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Replace the exhaust gas temperature sensor. <Ref. to FU(H4DOTC)-49, Exhaust Temperature Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and exhaust gas temperature sensor connector • Poor contact in exhaust gas temperature sensor connector • Poor contact in ECM connector • Poor contact in joint connector

BV:DTC P0565 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AT —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



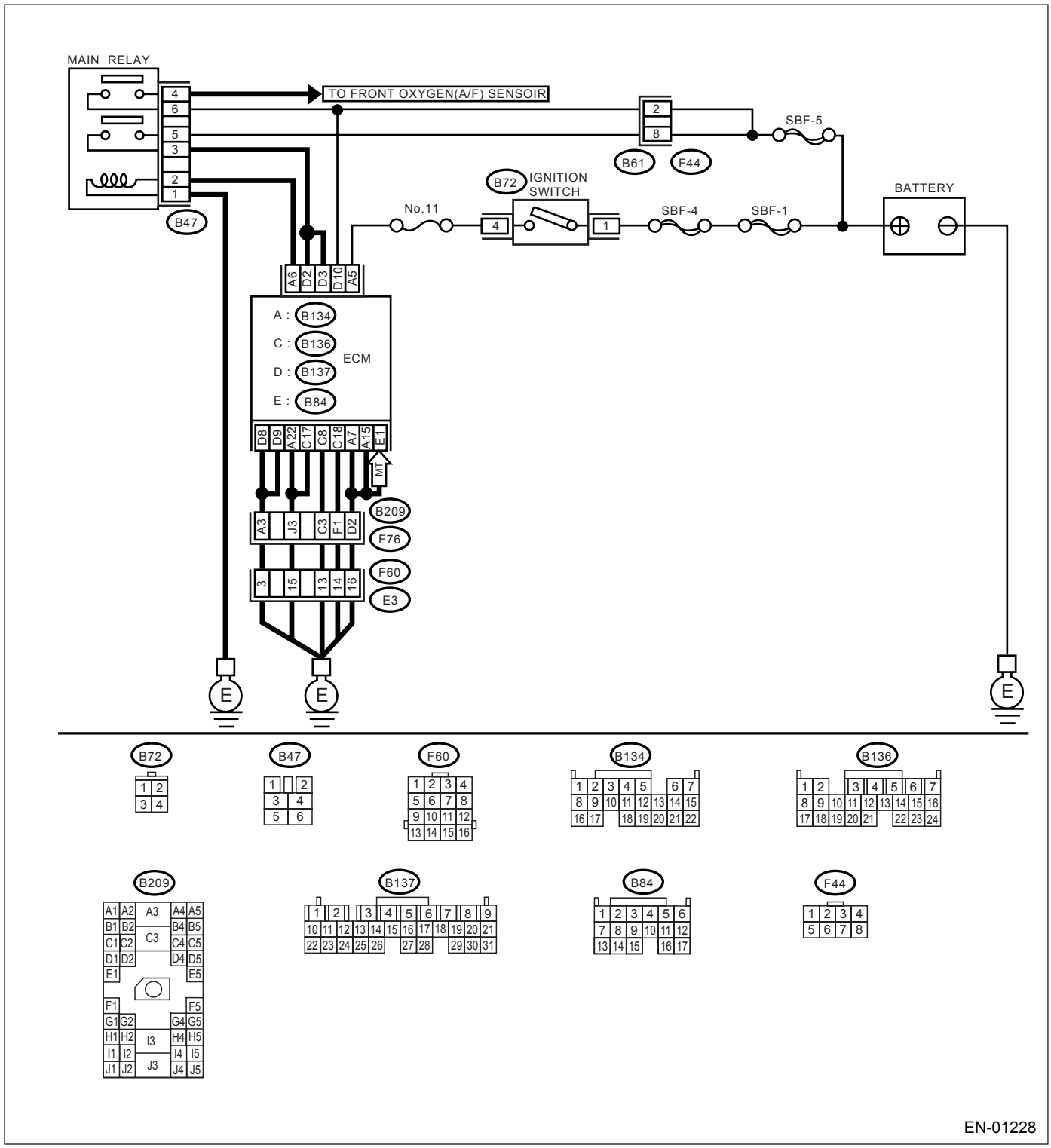
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from TCM and CCM. 3)Measure the resistance of harness between TCM and CCM connector. ***Connector & terminal*** ***(B55) No. 22 — (B94) No. 3:*** Is the measured value less than the specified value?	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 the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 22 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit in harness between TCM and CCM connector.	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the 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)Turn the cruise control main switch to ON. 5)Move selector lever to D and slowly increase vehicle speed to 50 km/h (31 MPH). 6)Turn the cruise control command switch to ON. 7)Measure the voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 22 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Go to step **4.**	Check cruise control command switch circuit. <Ref. to CC-7, INSPECTION, Cruise Control Command Switch.>
4	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine does not start.
  - Engine stalls

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



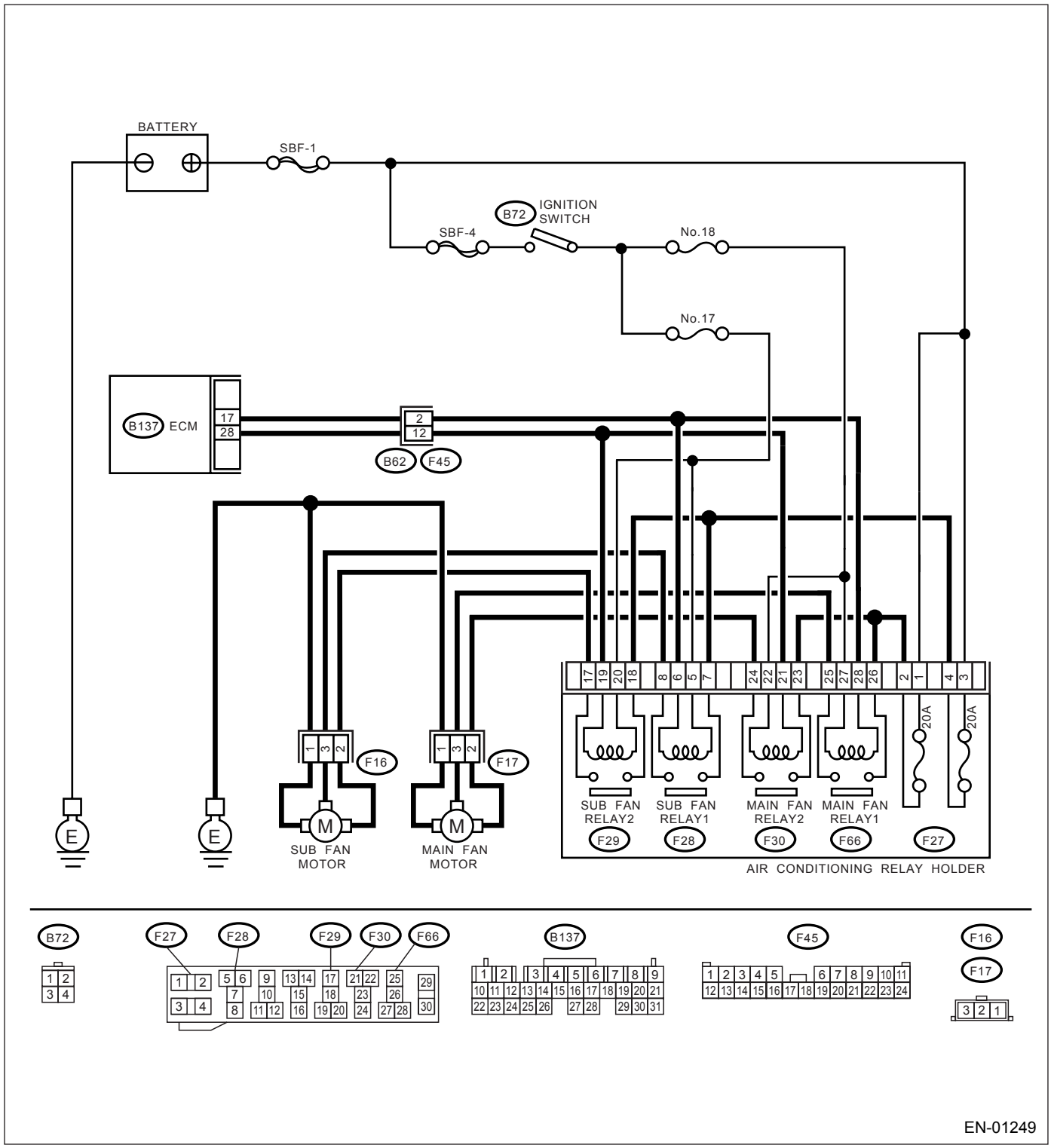
Step		Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0604?	DTC P0604 is indicated.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	There was a temporary poor contact.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Radiator fan does not operate properly.
  - Overheating

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to OFF. 2)Connect the test mode connector. 3)Turn ignition switch to ON. 4)While operating the radiator fan relay, measure voltage between ECM terminal and ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> ***Connector & terminal*** ***(B137) No. 17 (+) — Chassis ground (−):*** ***(B137) No. 28 (+) — Chassis ground (−):*** Does the measured value change within the specified range?	0 — 10 V	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK FOR SHORT CIRCUIT TO GROUND IN RADIATOR FAN RELAY CONTROL CIRCUIT.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM. 3)Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 17 (+) — Chassis ground (−):*** ***(B137) No. 28 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in radiator fan relay control circuit.	Go to step **3.**
3	**CHECK POWER SUPPLY FOR RELAY.** 1)Remove main fan relay 1 and main fan relay 2 from A/C relay holder. 2)Turn ignition switch to ON. 3)Measure the voltage between fuse and relay box (F/B) connector and chassis ground. ***Connector & terminal*** ***(F66) No. 27 (+) — Chassis ground (−):*** ***(F30) No. 22 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	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 the resistance between main fan relay terminals. ***Terminal*** ***No. 27 — No. 28: (Main fan relay 1)*** ***No. 22 — No. 21: (Main fan relay 2)*** Is the measured value within the specified range?	87 — 107 Ω	Go to step **5.**	Replace the main fan relay.

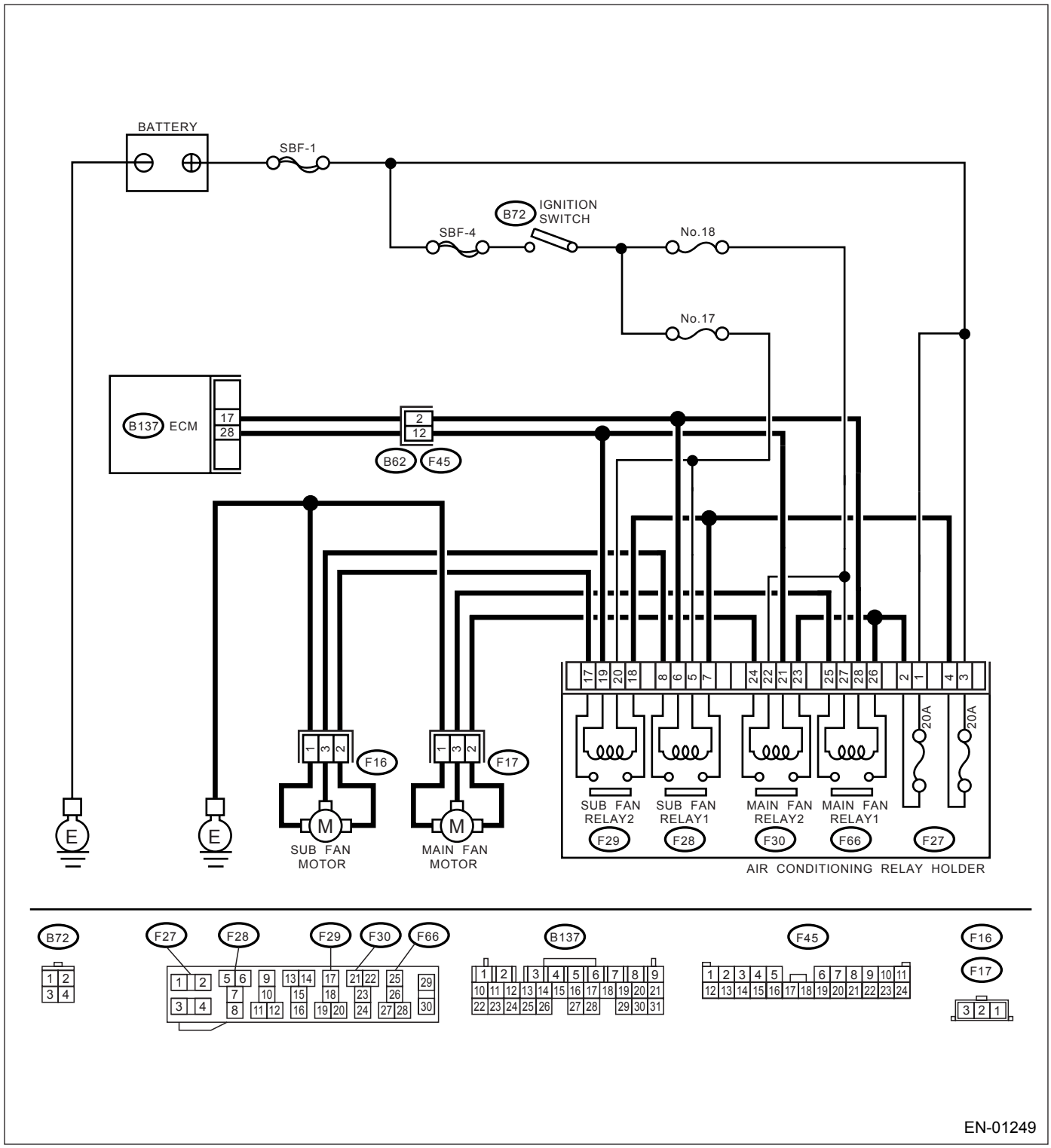
	Step	Check	Yes	No
5	**CHECK FOR OPEN CIRCUIT IN MAIN FAN RELAY CONTROL CIRCUIT.** Measure the resistance of harness between ECM and main fan relay connector. ***Connector & terminal*** ***(B137) No. 17 — (F66) No. 28:*** ***(B137) No. 28 — (F30) No. 21:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and fan relay connector • Poor contact in coupling connector
6	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM or fan relay connector. Is there poor contact in ECM or fan relay connector?	There is poor contact.	Repair poor contact in ECM or fan relay connector.	Contact SOA (distributor) service.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Radiator fan does not operate properly.
  - Overheating

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



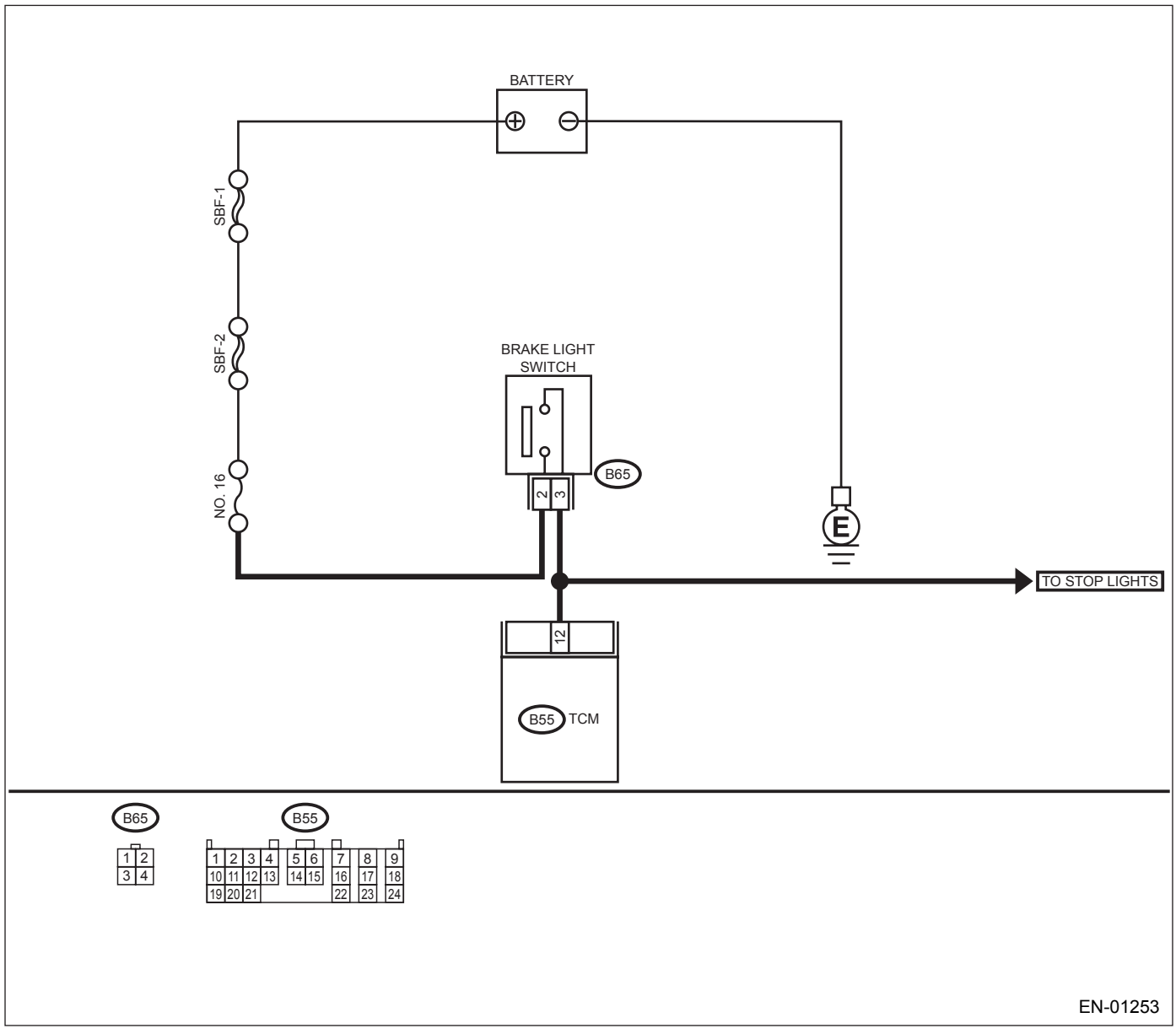
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to OFF. 2)Connect the test mode connector. 3)Turn ignition switch to ON. 4)While operating the radiator fan relay, measure voltage between ECM and chassis ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4DOTC)-50, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B137) No. 17 (+) — Chassis ground (−):*** ***(B137) No. 28 (+) — Chassis ground (−):*** Does the measured value change within the specified range?	0 — 10 V	The MIL may light up, however, the circuit is returned to the normal status at the moment. In this case, repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK FOR SHORT CIRCUIT IN RADIATOR FAN RELAY CONTROL CIRCUIT.** 1)Turn ignition switch to OFF. 2)Remove fan relay 1, fan relay 2 and fan mode relay. 3)Disconnect the test mode connector. 4)Turn ignition switch to ON. 5)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 17 (+) — Chassis ground (−):*** ***(B137) No. 28 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in radiator fan relay control circuit. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **3.**
3	**CHECK MAIN FAN RELAY.** 1)Turn ignition switch to OFF. 2)Remove the main fan relay. 3)Measure the resistance between main fan relay terminals. ***Terminal*** ***No. 25 — No. 26: (Main fan relay 1)*** ***No. 23 — No. 24: (Main fan relay 2)*** Is the measured value less than the specified value?	1 Ω	Replace fan relay and ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **4.**
4	**CHECK SUB FAN RELAY.** 1)Remove the sub fan relay. 2)Measure the resistance between sub fan relay terminals. ***Terminal*** ***No. 7 — No. 8: (Sub fan relay 1)*** ***No. 17 — No. 18: (Sub fan relay 2)*** Is the measured value less than the specified value?	1 Ω	Replace fan relay and ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **5.**
5	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



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

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.** 1)Disconnect the connectors from TCM and brake light switch. 2)Measure the resistance of harness between TCM and brake light switch connector. ***Connector & terminal*** ***(B55) No. 12 — (B65) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair or replace the 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 the resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 12 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit to ground in harness between TCM and brake light switch connector.
4	**CHECK INPUT SIGNAL FOR TCM.** 1)Connect the connectors to TCM and brake light switch. 2)Measure the voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 12 (+) — Chassis ground (−):*** Is the measured value less than the specified value when the brake pedal is released?	1 V	Go to step **5.**	Adjust or replace the brake light switch. <Ref. to LI-7, STOP LIGHT SWITCH, INSPECTION, Stop Light System.>
5	**CHECK INPUT SIGNAL FOR TCM.** Measure the voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 12 (+) — Chassis ground (−):*** Is the measured value more than the specified value when the brake pedal is depressed?	10 V	Go to step **6.**	Adjust or replace the brake light switch. <Ref. to LI-7, STOP LIGHT SWITCH, INSPECTION, Stop Light System.>
6	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

CA:DTC P0731 — GEAR 1 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4DOTC)-298, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CB:DTC P0732 — GEAR 2 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4DOTC)-298, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CC:DTC P0733 — GEAR 3 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4DOTC)-298, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CD:DTC P0734 — GEAR 4 INCORRECT RATIO —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **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 faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**

	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK THROTTLE POSITION SENSOR CIRCUIT.** Check throttle position sensor circuit. <Ref. to AT-54, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in throttle position sensor circuit?	There is a fault.	Repair or replace the throttle position sensor circuit.	Go to step **3.**
3	**CHECK FRONT VEHICLE SPEED SENSOR.** Inspect the front vehicle speed sensor circuit. <Ref. to AT-61, DTC 33 FRONT VEHICLE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in front vehicle speed sensor circuit?	There is a fault.	Repair or replace the front vehicle speed sensor circuit.	Go to step **4.**
4	**CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.** Check torque converter turbine speed sensor circuit. <Ref. to AT-66, DTC 36 TORQUE CONVERTER TURBINE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in torque converter turbine speed sensor circuit?	There is a fault.	Repair or replace the torque converter turbine speed sensor circuit.	Go to step **5.**
5	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Go to step **6.**
6	**CHECK FOR MECHANICAL TROUBLE.** Check for mechanical trouble in automatic transmission. Is there any mechanical trouble in automatic transmission?	There is mechanical trouble.	Repair or replace the automatic transmission. <Ref. to AT-32, INSPECTION, Road Test.>	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - No lockup (after engine warm-up)
  - No shift or excessive tight corner “braking”

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK LOCKUP DUTY SOLENOID CIRCUIT.** Check lockup duty solenoid circuit. <Ref. to AT-104, DTC 77 LOCK-UP DUTY SOLENOID, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in lockup duty solenoid circuit?	There is a fault.	Repair or replace the lockup duty solenoid circuit.	Go to step **3.**
3	**CHECK THROTTLE POSITION SENSOR CIRCUIT.** Check throttle position sensor circuit. <Ref. to AT-54, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in throttle position sensor circuit?	There is a fault.	Repair or replace the 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 AT-66, DTC 36 TORQUE CONVERTER TURBINE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in torque converter turbine speed sensor circuit?	There is a fault.	Repair or replace the torque converter turbine speed sensor circuit.	Go to step **5.**
5	**CHECK ENGINE SPEED INPUT CIRCUIT.** Check engine speed input circuit. <Ref. to AT-44, DTC 11 ENGINE SPEED SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in engine speed input circuit?	There is a fault.	Repair or replace the engine speed input circuit.	Go to step **6.**

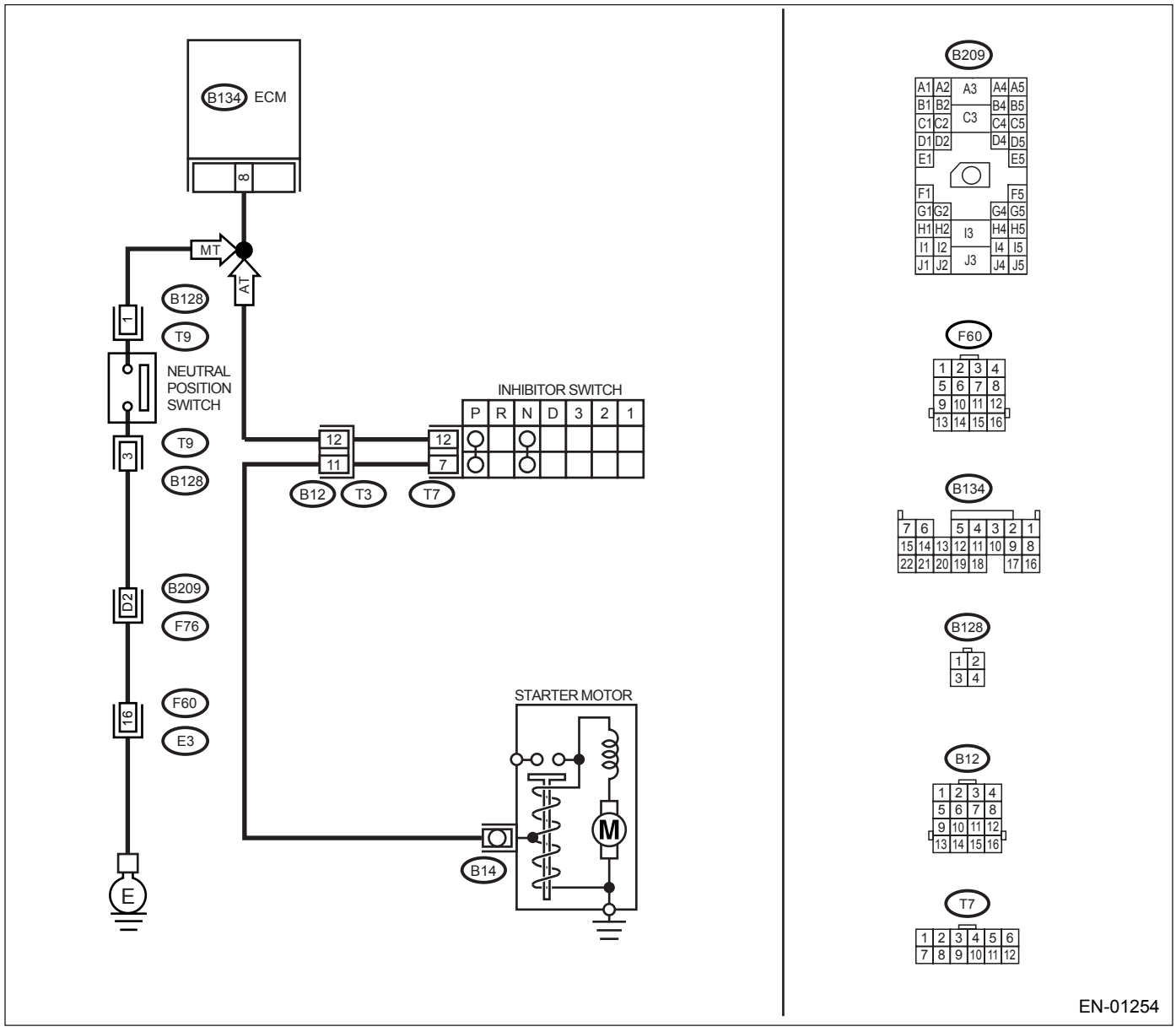
	Step	Check	Yes	No
6	**CHECK INHIBITOR SWITCH CIRCUIT.** Check inhibitor switch circuit. <Ref. to AT-127, CHECK INHIBITOR SWITCH., Diagnostic Procedure for No-Diagnostic Trouble Code (DTC).> Is there any trouble in inhibitor switch circuit?	There is a fault.	Repair or replace the inhibitor switch circuit.	Go to step **7.**
7	**CHECK BRAKE LIGHT SWITCH CIRCUIT.** Check brake light switch circuit. <Ref. to AT-125, CHECK BRAKE SWITCH., Diagnostic Procedure for No-Diagnostic Trouble Code (DTC).> Is there any trouble in brake light switch circuit?	There is a fault.	Repair or replace the brake light switch circuit.	Go to step **8.**
8	**CHECK ATF TEMPERATURE SENSOR CIRCUIT.** Check ATF temperature sensor circuit. <Ref. to AT-50, DTC 27 ATF TEMPERATURE SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in ATF temperature sensor circuit?	There is a fault.	Repair or replace the ATF temperature sensor circuit.	Go to step **9.**
9	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Go to step **10.**
10	**CHECK FOR MECHANICAL TROUBLE.** Check for mechanical trouble in automatic transmission. Is there any mechanical trouble in automatic transmission?	There is mechanical trouble.	Repair or replace the automatic transmission. <Ref. to AT-32, INSPECTION, Road Test.>	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



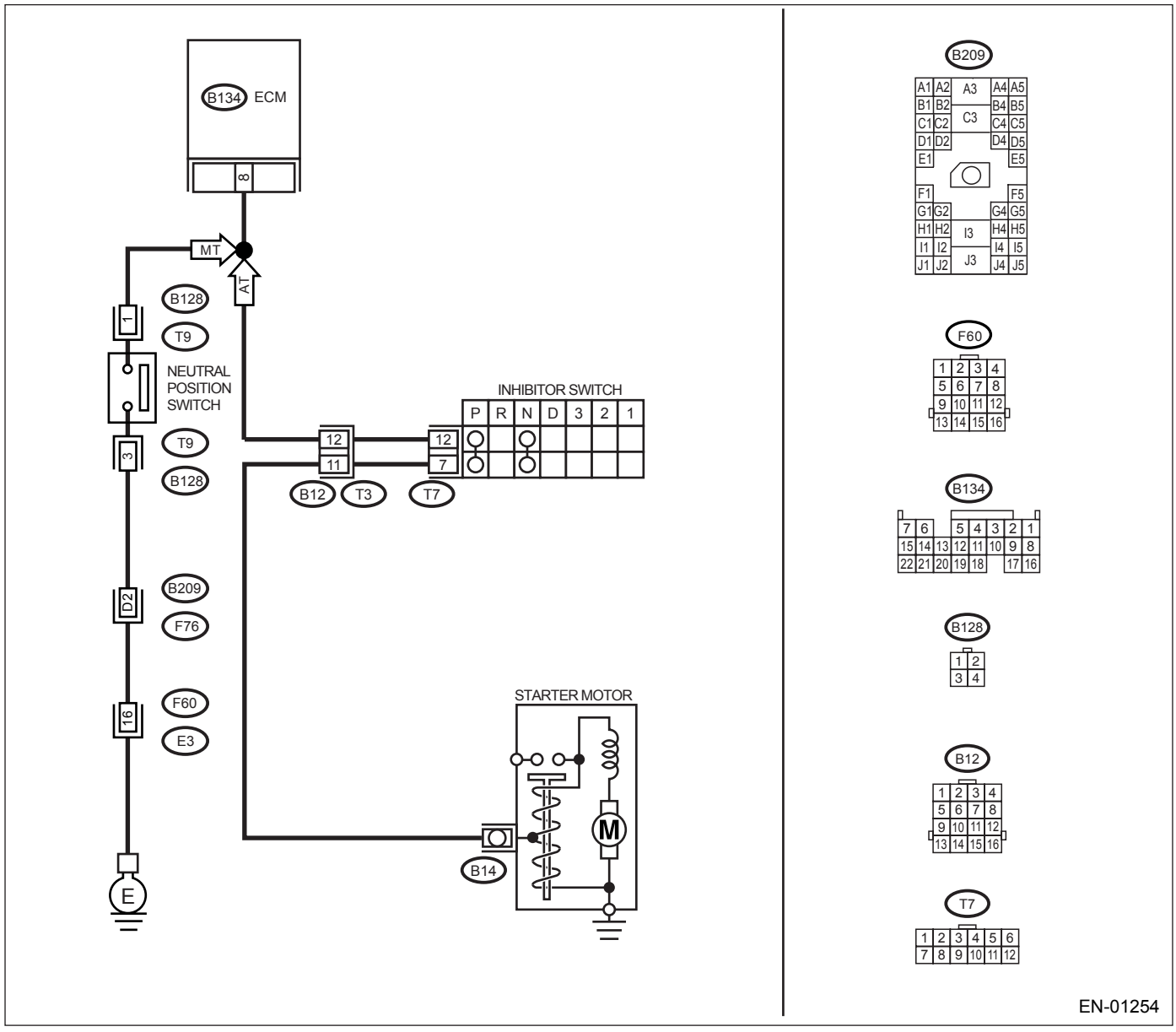
	Step	Check	Yes	No
1	**CHECK IF DTC P0705 IS INDICATED ON DISPLAY.** Is DTC P0705 indicated?	DTC P0705 is indicated.	Inspect DTC P0705 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. 2)Place the select lever to other than "N" and "P" positions. 3)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value within the specified range?	4.5 — 5.5 V	The MIL may light up, however, the circuit is returned to the normal status at the moment.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from ECM and transmission harness connector (T3). 3)Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 8 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit to ground in harness between ECM and transmission harness connector.
4	**CHECK TRANSMISSION HARNESS CONNECTOR.** 1)Disconnect the connector from inhibitor switch. 2)Measure the resistance of harness between transmission harness connector and engine ground. ***Connector & terminal*** ***(T3) No. 12 — Engine ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **5.**	Repair short circuit to ground in harness between transmission harness connector and inhibitor switch connector.
5	**CHECK INHIBITOR SWITCH.** Measure the resistance between inhibitor switch connector receptacle terminals with selector lever in a position other than"N". ***Terminal*** ***No. 7 — No. 12:*** Is the measured value more than the specified value?	1 MΩ	Go to step **6.**	Replace the inhibitor switch. <Ref. to AT-48, Inhibitor Switch.>
6	**CHECK SELECTOR CABLE CONNECTION.** Is there any fault in selector cable connection to inhibitor switch?	There is a fault.	Repair selector cable connection. <Ref. to CS-30, INSPECTION, Select Cable.>	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, 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. 3)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Place the shift lever in a position other than neutral. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Go to step **3.**	Go to step **4.**
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Contact SOA (distributor) service.
4	**CHECK NEUTRAL POSITION SWITCH.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from transmission harness. 3)Place the shift lever in neutral. 4)Measure the resistance between transmission harness and connector terminals. ***Connector & terminal*** ***(T9) No. 1 — No. 3:*** Is the measured value more than the specified value?	1 M Ω	Go to step **5.**	Repair short circuit in transmission harness or replace neutral position switch.
5	**CHECK NEUTRAL POSITION SWITCH.** 1)Place the shift lever in a position other than neutral. 2)Measure the resistance between transmission harness connector terminals. Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair short circuit in transmission harness or replace neutral position switch.
6	**CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.** Measure the resistance between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **7.**	Repair short circuit to ground in harness between ECM and transmission harness connector.
7	**CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.** 1)Disconnect the connector from ECM. 2)Measure the resistance of harness between ECM and transmission harness connector. ***Connector & terminal*** ***(B134) No. 8 — (B128) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **8.**	Repair open circuit in harness between ECM and transmission harness connector.

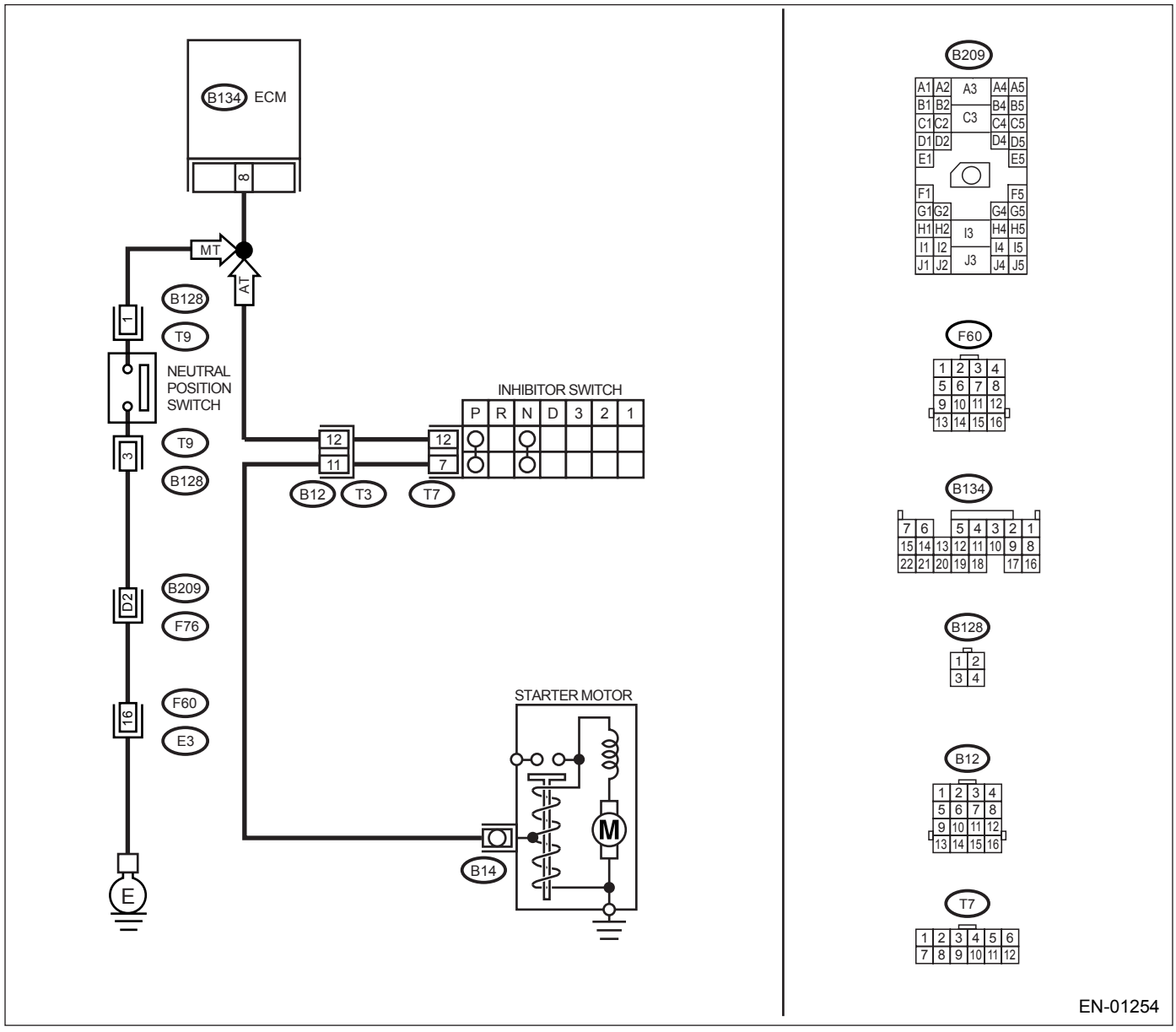
	Step	Check	Yes	No
8	**CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR.** Measure the resistance of harness between transmission harness connector and engine ground. ***Connector & terminal*** ***(B128) No. 1 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **9.**	Repair open circuit between transmission harness connector and engine ground terminal.
9	**CHECK FOR POOR CONTACT.** Check for poor contact in transmission harness connector. Is there poor contact in transmission harness connector?	There is poor contact.	Repair poor contact in transmission harness connector.	Contact SOA (distributor) service.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK IF DTC P0705 IS INDICATED ON DISPLAY.** Is DTC P0705 indicated?	DTC P0705 is indicated.	Inspect DTC P0705 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground with the selector lever in "N" and "P" positions. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Go to step **3.**	Go to step **5.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM and chassis ground with the selector lever in positions other than "N" and "P" positions. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value within the specified range?	4.5 — 5.5 V	Go to step **4.**	Go to step **5.**
4	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
5	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery 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 the connectors from ECM and inhibitor switch. 3)Measure the resistance of harness between ECM and inhibitor switch connector. ***Connector & terminal*** ***(B134) No. 8 — (T7) No. 12:*** Is the measured value less than the specified value?	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

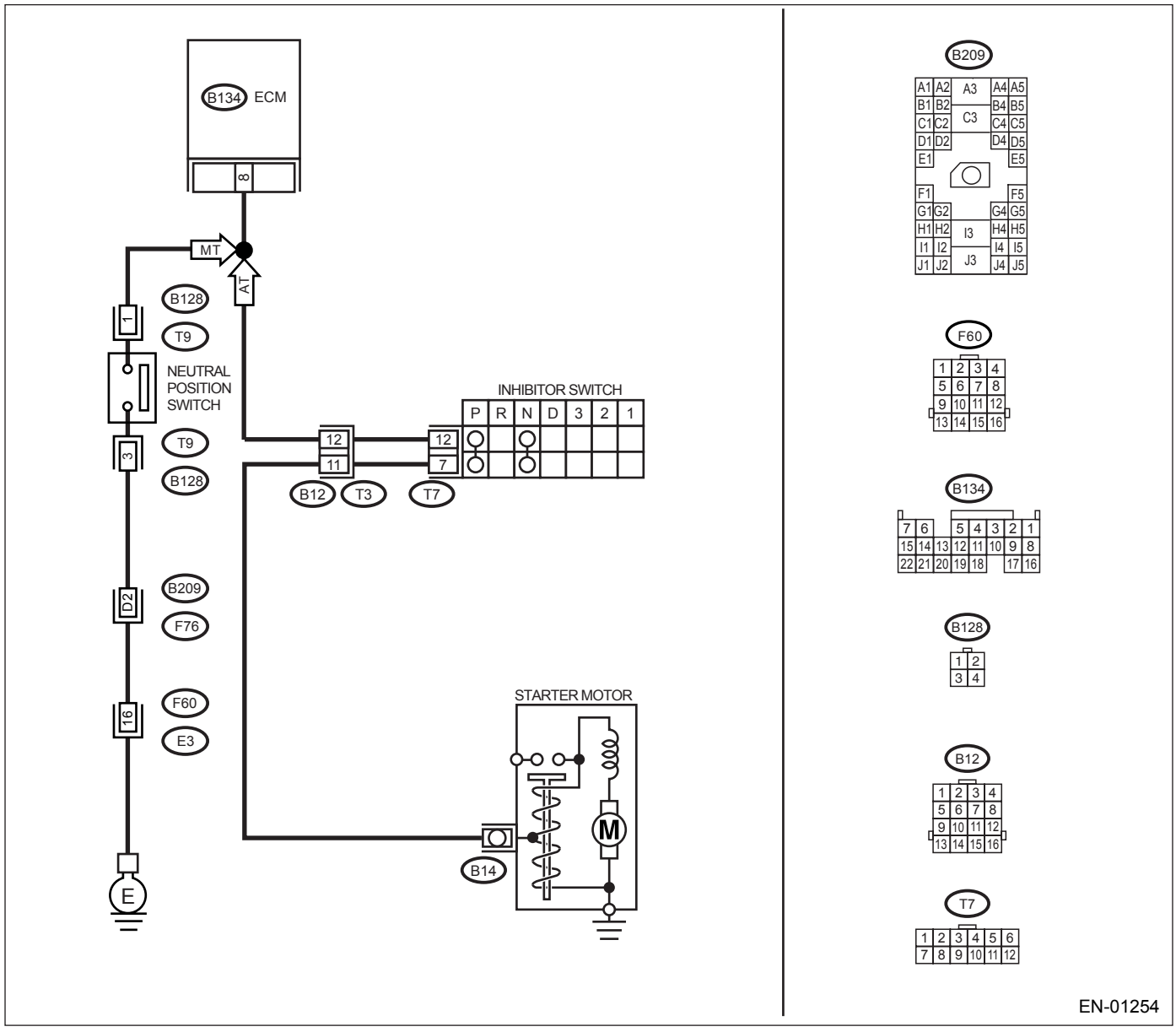
	Step	Check	Yes	No
7	**CHECK INHIBITOR SWITCH GROUND LINE.** Measure the resistance of harness between inhibitor switch connector and engine ground. ***Connector & terminal*** ***(T7) No. 7 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **8.**	Repair open circuit 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 ground line • Poor contact in starter motor connector • Poor contact in starter motor ground • Starter motor
8	**CHECK INHIBITOR SWITCH.** Measure the resistance between inhibitor switch connector receptacle's terminals with the selector lever in "N" and "P" positions. ***Terminal*** ***No. 7 — No. 12:*** Is the measured value less than the specified value?	1 Ω	Go to step **9.**	Replace the inhibitor switch. <Ref. to AT-48, Inhibitor Switch.>
9	**CHECK SELECTOR CABLE CONNECTION.** Is there any fault in selector cable connection to inhibitor switch?	There is a fault.	Repair selector cable connection. <Ref. to CS-30, INSPECTION, Select Cable.>	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, 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 a position other than neutral. 3)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Place the shift lever in neutral. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **3.**	Go to step **4.**
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Contact SOA (distributor) service.
4	**CHECK INPUT SIGNAL FOR ECM.** 1)Disconnect the connector from ECM. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and transmission harness connector.	Go to step **5.**
5	**CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from ECM and transmission harness connector (T9). 3)Measure the resistance of harness between ECM and neutral switch connector. ***Connector & terminal*** ***(B134) No. 8 — (B128) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **6.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and transmission harness connector • Poor contact in transmission harness connector • Poor contact in ECM connector
6	**CHECK NEUTRAL POSITION SWITCH GROUNDING LINE.** Measure the resistance of harness between transmission harness connector and engine ground. ***Connector & terminal*** ***(B128) No. 3 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **7.**	Repair open circuit in neutral position switch grounding line.

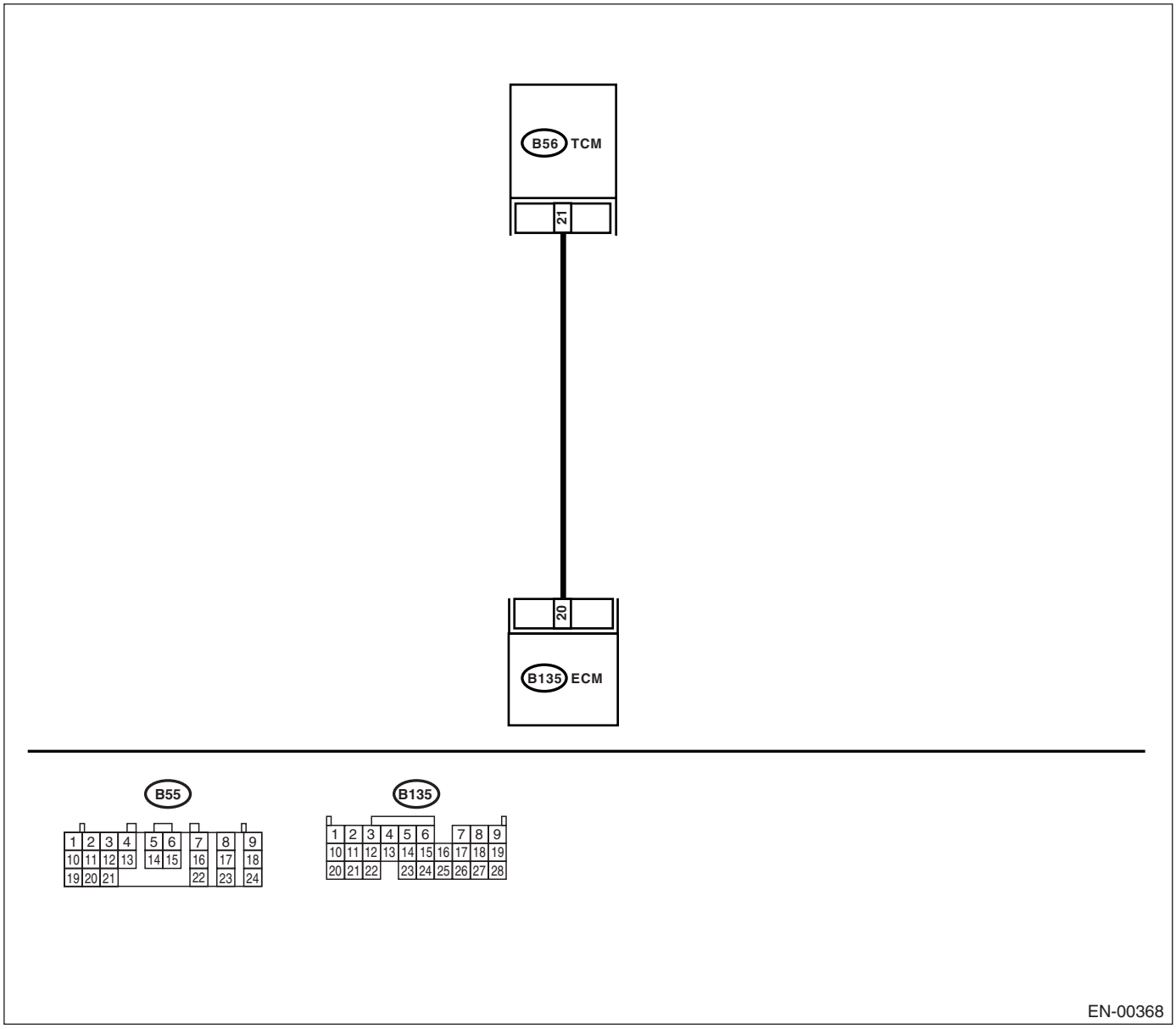
	Step	Check	Yes	No
7	**CHECK NEUTRAL POSITION SWITCH.** 1)Place the shift lever in a position other than neutral. 2)Measure the resistance between transmission harness connector receptacle terminals. ***Terminal*** ***No. 1 — No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **8.**	Replace the neutral position switch.
8	**CHECK FOR POOR CONTACT.** Check for poor contact in transmission harness connector. Is there poor contact in transmission harness connector?	There is poor contact.	Repair poor contact in transmission harness connector.	Contact SOA (distributor) service.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



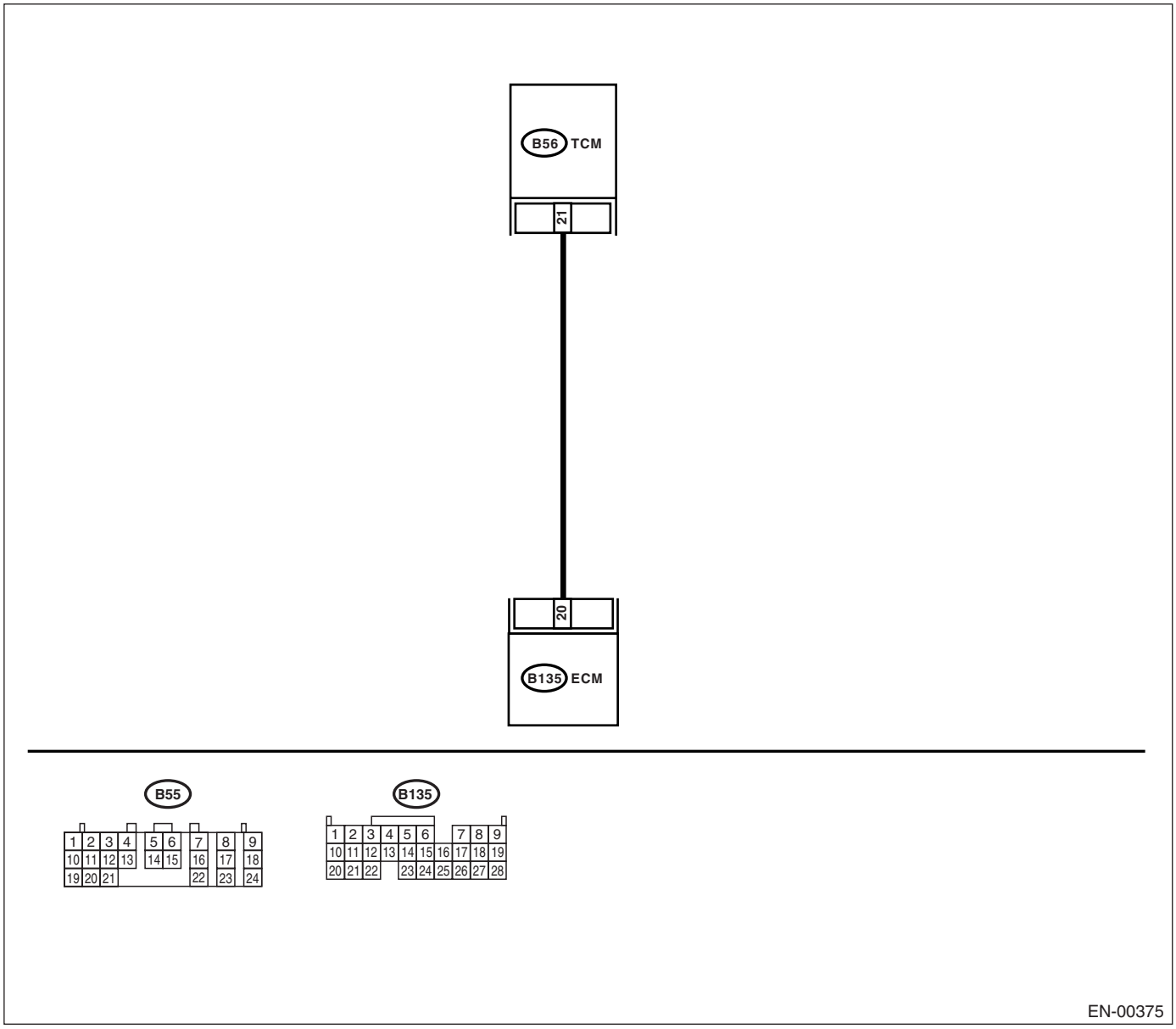
	Step	Check	Yes	No
1	**CHECK DRIVING CONDITION.** 1)Start and warm-up the engine until the radiator fan operates for a complete cycle. 2)Drive the vehicle. Is the AT shift control functioning properly?	Functioning properly.	Go to step **2.**	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>
2	**CHECK ACCESSORY.** Is a car phone or CB installed on the vehicle?	Installed.	Repair grounding line of car phone or CB system.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

CK:DTC P0865 — AT DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



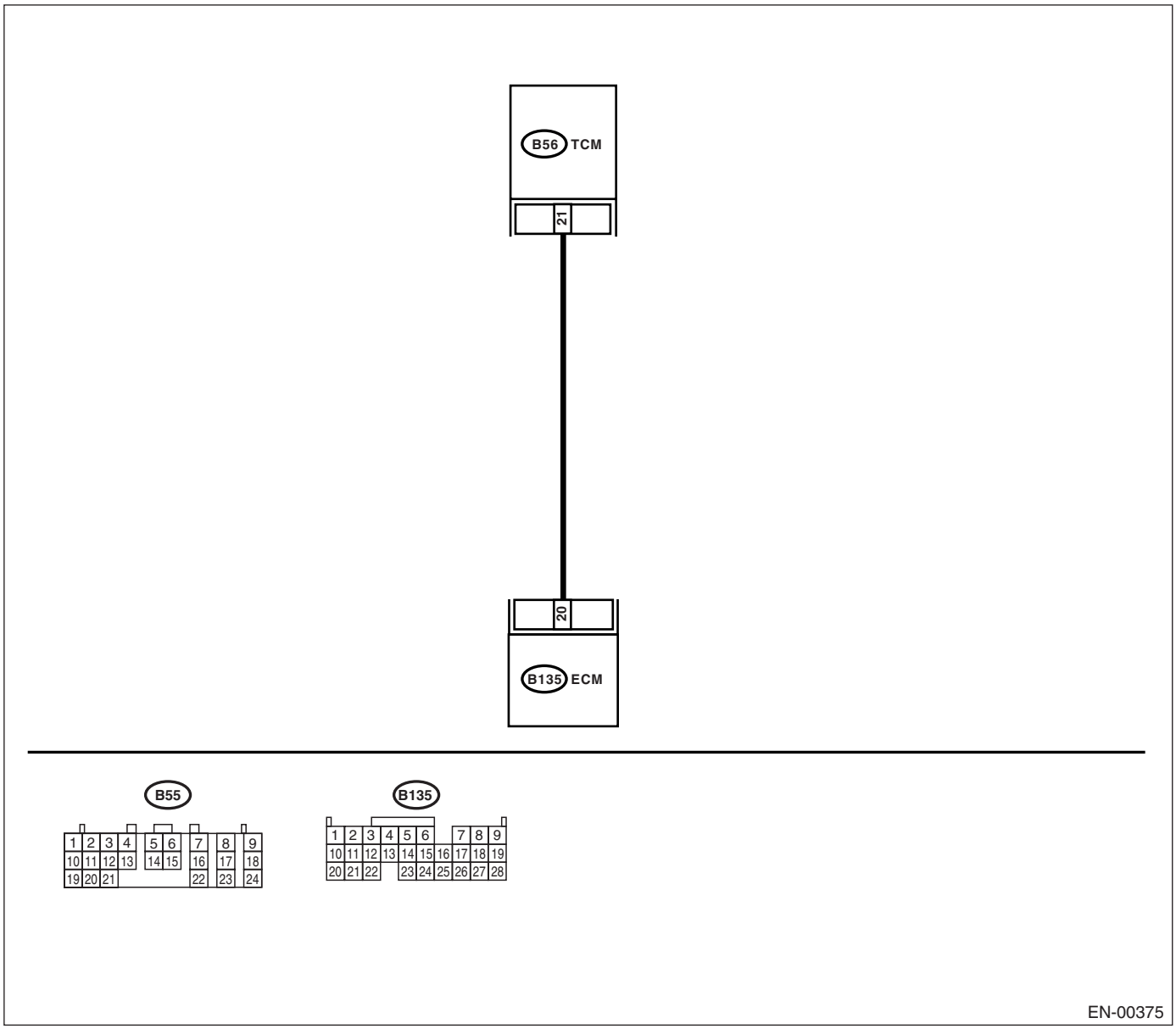
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. 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 the connector from ECM and TCM. 3)Measure the resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK OUTPUT SIGNAL FOR ECM.** 1)Connect the connector to ECM. 2)Turn ignition switch to ON. 3)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	5 V	Go to step **4.**	Repair poor contact in ECM connector.
4	**CHECK DTC FOR AUTOMATIC TRANSMISSION.** Read the DTC for automatic transmission. <Ref. to AT-24, Read Diagnostic Trouble Code (DTC).> Is the DTC for automatic transmission indicated?	DTC for automatic transmission is indicated.	Inspect DTC for automatic transmission. <Ref. to AT-44, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

CL:DTC P0866 — AT DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



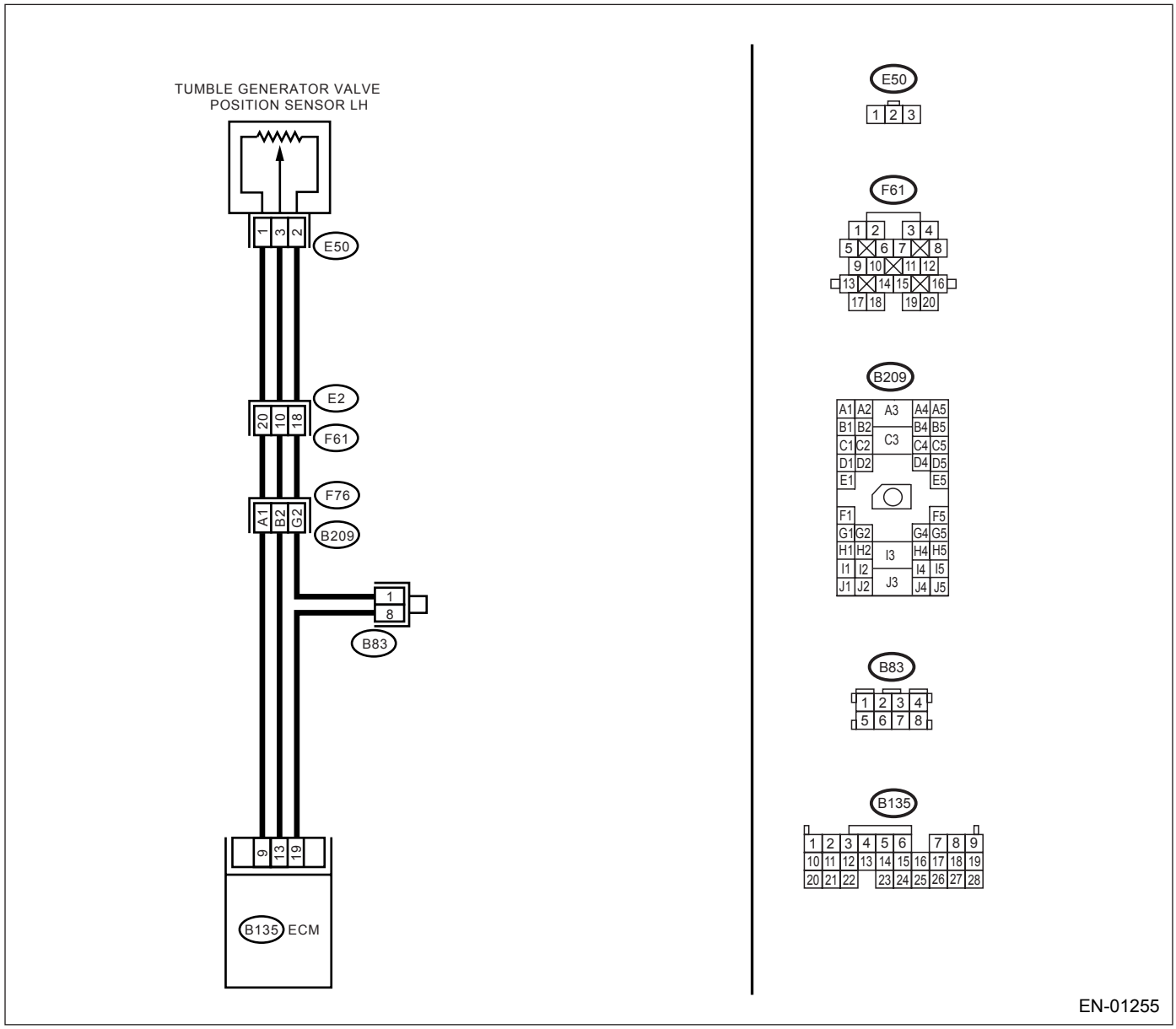
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and TCM connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4 V	Go to step **5.**	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	1 V	Repair poor contact in ECM connector.	Go to step **4.**
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (−):*** Does the voltage variance stay within the specified range while monitoring the value on a voltmeter?	1 V — 4 V	The MIL may light up, however, the circuit is returned to the normal status at the moment. NOTE: In this case, repair the following: • Poor contact in ECM connector • Poor contact in TCM connector	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
5	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure the voltage between TCM and chassis ground. ***Connector & terminal*** ***(B56) No. 20 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4 V	Go to step **6.**	Repair open circuit in harness between ECM and TCM connector.
6	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Check TCM power supply line and grounding line.

CM: DTC P1086 — TUMBLE GENERATED VALVE POSITION SENSOR 2 CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.1 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. 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 the voltage between ECM connector and chassis ground while throttle valve is fully closed. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	4.5 V	Repair poor contact in ECM connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 13 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	0.1 V	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Measure the voltage between ECM connector and chassis ground. Does the voltage variance exceed the specified value while monitoring the Subaru Select Monitor and shaking the ECM harness and connector ?	0.1 V	Repair poor contact in ECM connector.	Go to step **6.**

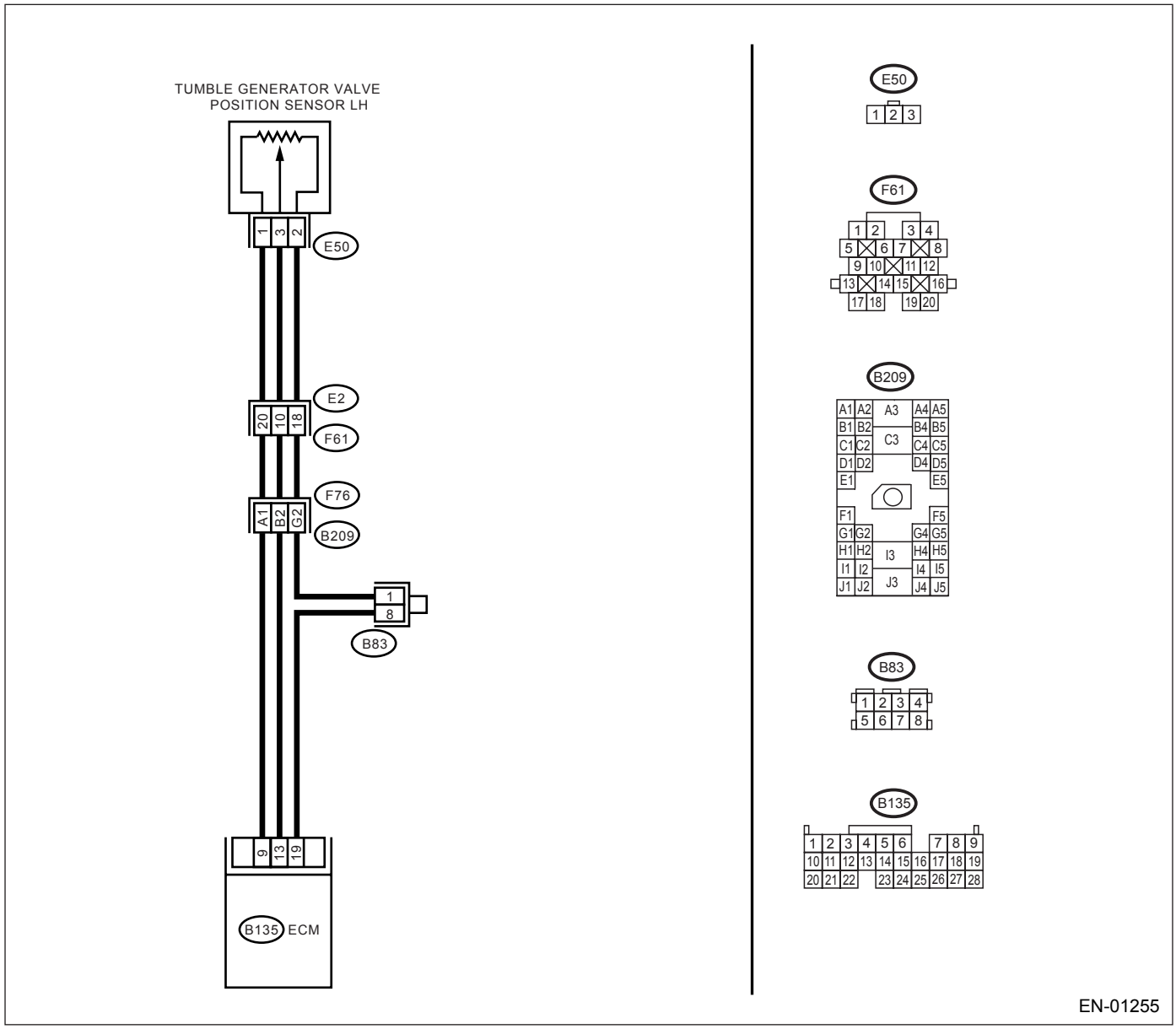
	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from tumble generator valve position sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between tumble generator valve position sensor connector and engine ground. ***Connector & terminal*** ***(E50) No. 1 (+) — Engine ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between tumble generator valve position sensor and ECM connector • Poor contact in tumble generator valve position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in joint connector
7	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance of harness between ECM connector and tumble generator valve position sensor connector. ***Connector & terminal*** ***(B135) No. 13 — (E50) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **8.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between tumble generator valve position sensor and ECM connector • Poor contact in ECM connector • Poor contact in tumble generator valve position sensor connector • Poor contact in coupling connector
8	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR.** Measure the resistance of harness between tumble generator valve position sensor connector and engine ground. ***Connector & terminal*** ***(E50) No. 3 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between tumble generator valve position sensor and ECM connector.	Go to step **9.**
9	**CHECK FOR POOR CONTACT.** Check for poor contact in tumble generator valve position sensor connector. Is there poor contact in tumble generator valve position sensor connector?	There is poor contact.	Repair poor contact in tumble generator valve position sensor connector.	Replace the tumble generator valve position sensor. <Ref. to FU(H4DOTC)-43, Tumble Generator Valve Position Sensor.>

CN:DTC P1087 — TUMBLE GENERATED VALVE POSITION SENSOR 2 CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



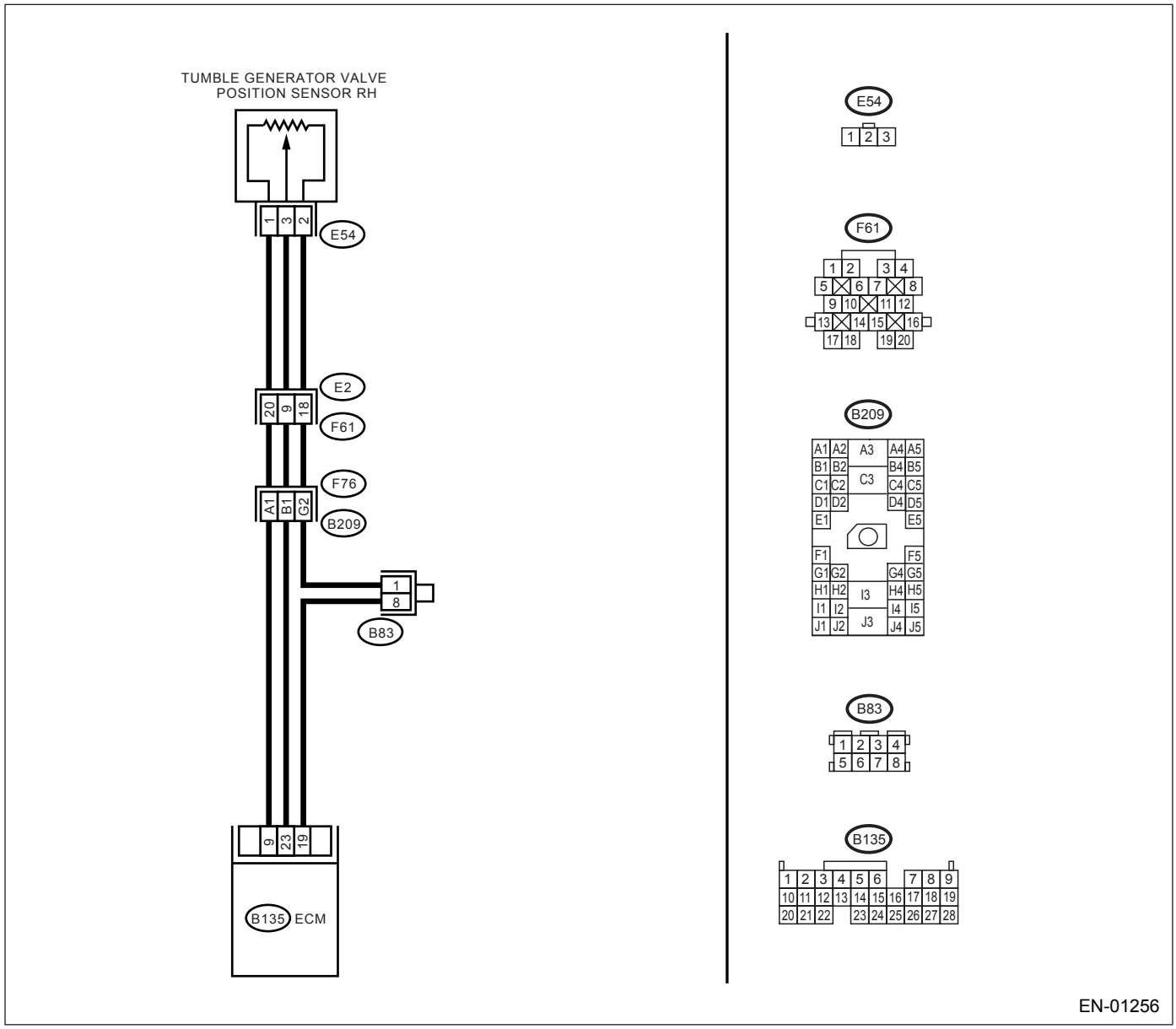
	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	4.9 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in tumble generator valve position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK HARNESS BETWEEN TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from throttle position sensor. 3)Measure the resistance of harness between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E50) No. 2 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between tumble generator valve 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 the voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E50) No. 3 (+) — Engine ground (−):*** Is the measured value more than the specified value?	4.9 V	Repair short circuit to battery in harness between tumble generator valve position sensor and ECM connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Replace the tumble generator valve position sensor. <Ref. to FU(H4DOTC)-43, Tumble Generator Valve Position Sensor.>

CO: DTC P1088 — TUMBLE GENERATED VALVE POSITION SENSOR 1 CIRCUIT LOW —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of tumble generator valve position sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.1 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in tumble generator valve position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground while throttle valve is fully closed. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (−):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	4.5 V	Repair poor contact in ECM connector.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 23 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	0.1 V	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)** Measure the voltage between ECM connector and chassis ground. Does the voltage variance exceed the specified value while monitoring the Subaru Select Monitor and shaking the ECM harness and connector ?	0.1 V	Repair poor contact in ECM connector.	Go to step **6.**

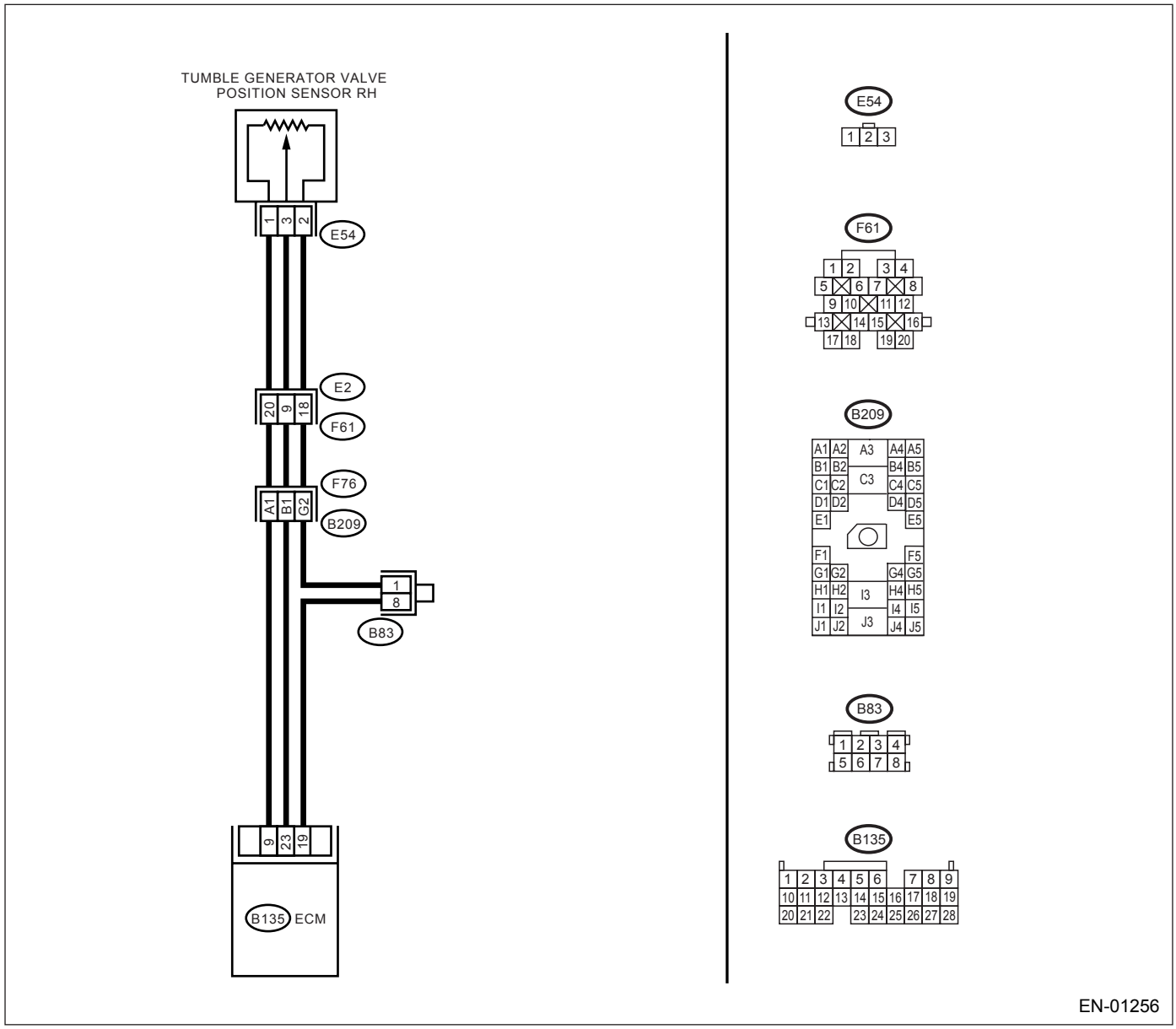
	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from throttle position sensor. 3)Turn ignition switch to ON. 4)Measure the voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E54) No. 1 (+) — Engine ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **7.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between tumble generator valve 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 TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Measure the resistance of harness between ECM connector and throttle position sensor connector. ***Connector & terminal*** ***(B135) No. 23 — (E54) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **8.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between tumble generator valve position sensor and ECM connector • Poor contact in ECM connector • Poor contact in tumble generator valve position sensor connector • Poor contact in coupling connector
8	**CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.** Measure the resistance of harness between tumble generator valve position sensor connector and engine ground. ***Connector & terminal*** ***(E54) No. 3 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between tumble generator valve position sensor and ECM connector.	Go to step **9.**
9	**CHECK FOR POOR CONTACT.** Check for poor contact in tumble generator valve position sensor connector. Is there poor contact in tumble generator valve position sensor connector?	There is poor contact.	Repair poor contact in tumble generator valve position sensor connector.	Replace the tumble generator valve position sensor. <Ref. to FU(H4DOTC)-43, Tumble Generator Valve Position Sensor.>

CP:DTC P1089 — TUMBLE GENERATED VALVE POSITION SENSOR 1 CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1)Start the engine. 2)Read the data of tumble generator valve position sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value more than the specified value? NOTE: •Subaru Select Monitor For detailed operation procedures, refer to READ CURRENT DATA FOR ENGINE. <Ref. to EN(H4DOTC)-33, Subaru Select Monitor.> •OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	4.9 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in tumble generator valve position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK HARNESS BETWEEN TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from throttle position sensor. 3)Measure the resistance of harness between tumble generator valve position sensor connector and engine ground. ***Connector & terminal*** ***(E54) No. 2 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between tumble generator valve position sensor and ECM connector • Poor contact in coupling connector • Poor contact in joint connector
3	**CHECK HARNESS BETWEEN TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR AND ECM CONNECTOR.** 1)Turn ignition switch to ON. 2)Measure the voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E54) No. 3 (+) — Engine ground (−):*** Is the measured value more than the specified value?	4.9 V	Repair short circuit to battery in harness between tumble generator valve position sensor and ECM connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Replace the tumble generator valve position sensor. <Ref. to FU(H4DOTC)-43, Tumble Generator Valve Position Sensor.>

CQ:DTC P1090 — TUMBLE GENERATED VALVE SYSTEM 1 (VALVE OPEN) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK TUMBLE GENERATOR VALVE RH.** 1)Remove tumble generator valve assembly. 2)Check the tumble generator valve body. Does the tumble generator valve move smoothly? (not dirty nor clogged with foreign particles)	Moves smoothly.	Replace the tumble generator valve assembly. <Ref. to FU(H4DOTC)-41, Tumble Generator Valve Assembly.>	Clean the tumble generator valve.

CR:DTC P1091 — TUMBLE GENERATED VALVE SYSTEM 1 (VALVE CLOSE) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK TUMBLE GENERATOR VALVE RH.** 1)Remove tumble generator valve assembly. 2)Check the tumble generator valve body. Does the tumble generator valve move smoothly? (not dirty nor clogged with foreign particles)	Moves smoothly.	Replace the tumble generator valve assembly. <Ref. to FU(H4DOTC)-41, Tumble Generator Valve Assembly.>	Clean the tumble generator valve.

CS:DTC P1092 — TUMBLE GENERATED VALVE SYSTEM 2 (VALVE OPEN) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK TUMBLE GENERATOR VALVE RH.** 1)Remove tumble generator valve assembly. 2)Check the tumble generator valve body. Does the tumble generator valve move smoothly? (not dirty nor clogged with foreign particles)	Moves smoothly.	Replace the tumble generator valve assembly. <Ref. to FU(H4DOTC)-41, Tumble Generator Valve Assembly.>	Clean the tumble generator valve.

CT:DTC P1093 — TUMBLE GENERATED VALVE SYSTEM 2 (VALVE CLOSE) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

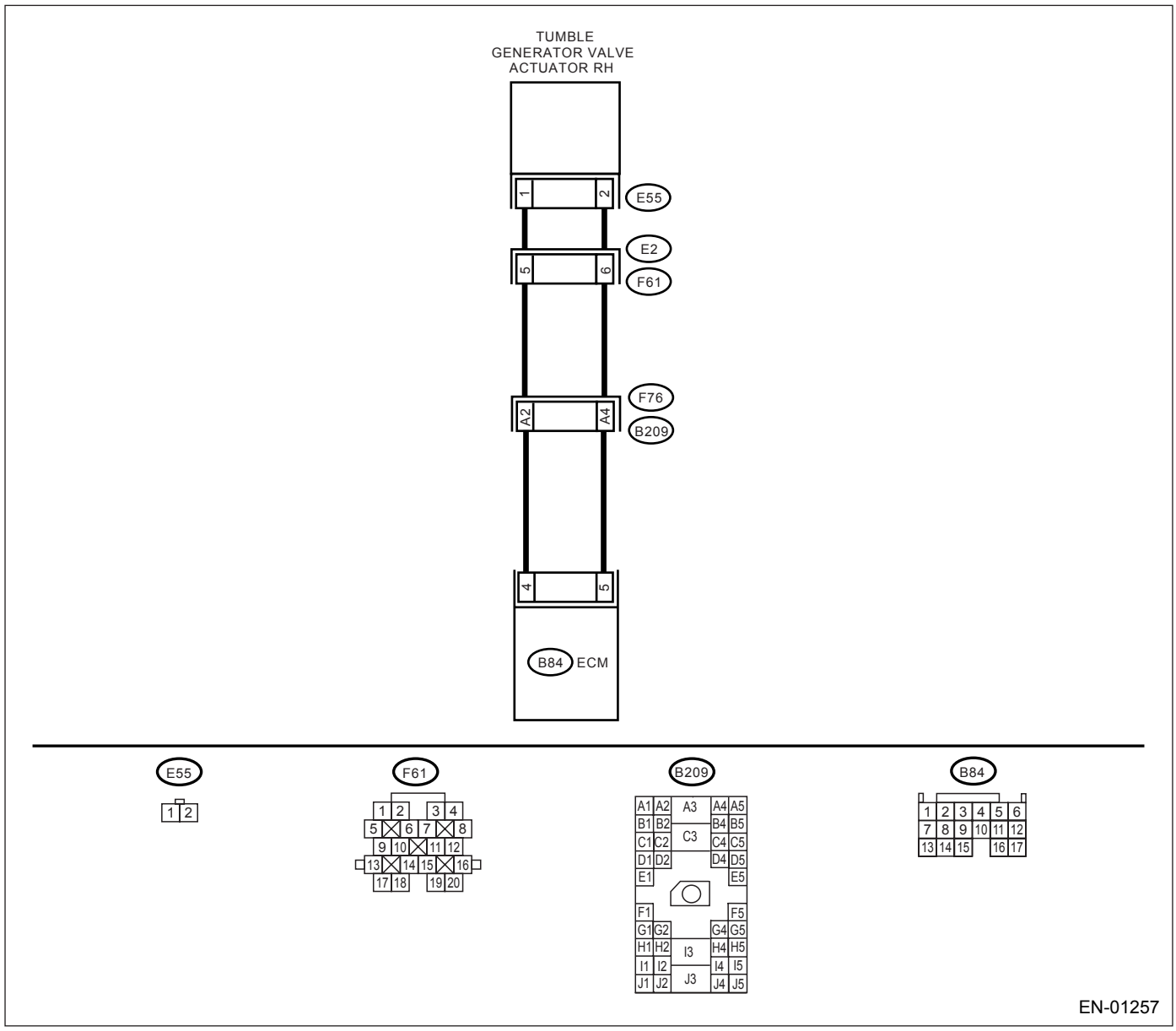
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK TUMBLE GENERATOR VALVE RH.** 1)Remove tumble generator valve assembly. 2)Check the tumble generator valve body. Does the tumble generator valve move smoothly? (not dirty nor clogged with foreign particles)	Moves smoothly.	Replace the tumble generator valve assembly. <Ref. to FU(H4DOTC)-41, Tumble Generator Valve Assembly.>	Clean the tumble generator valve.

CU:DTC P1094 — TUMBLE GENERATED VALVE SIGNAL 1 CIRCUIT MALFUNCTION (OPEN) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



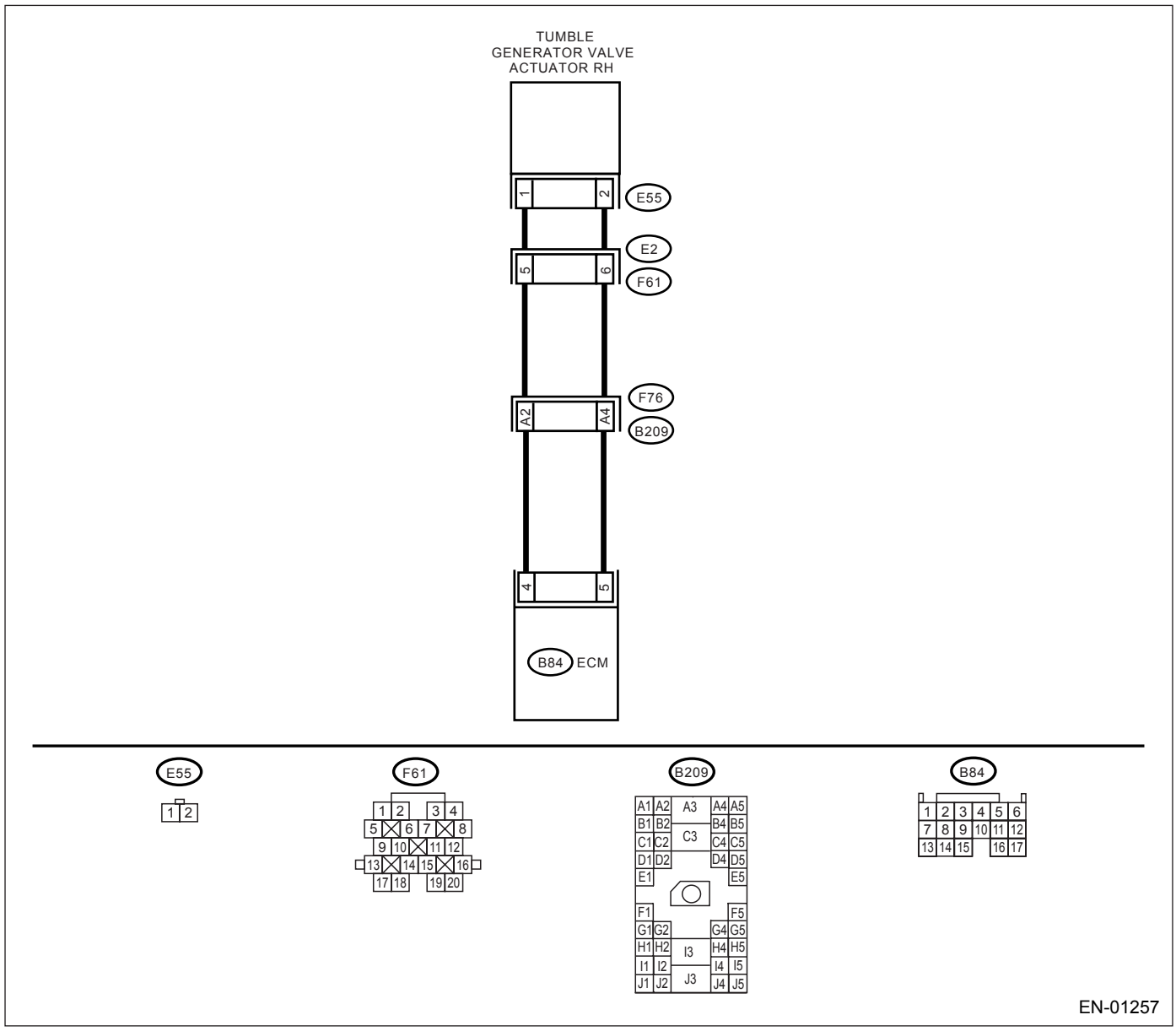
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect connectors from tumble generator valve and ECM connector. 3)Measure the resistance between tumble generator valve actuator and ECM connector. ***Connector & terminal*** ***(E55) No. 1 — (B84) No. 4:*** ***(E55) No. 2 — (B84) No. 5:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in between ECM and tumble generator valve connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and tumble generator valve actuator connector • Poor contact in coupling connector
2	**CHECK FOR POOR CONTACT.** Check for poor contact in tumble generator valve actuator connector. Is there poor contact in tumble generator valve actuator connector?	There is poor contact.	Repair poor contact in tumble generator valve actuator connector.	Replace the tumble generator valve actuator. <Ref. to FU(H4DOTC)-42, Tumble Generator Valve Actuator.>

CV:DTC P1095 — TUMBLE GENERATED VALVE SIGNAL 1 CIRCUIT MALFUNCTION (SHORT) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



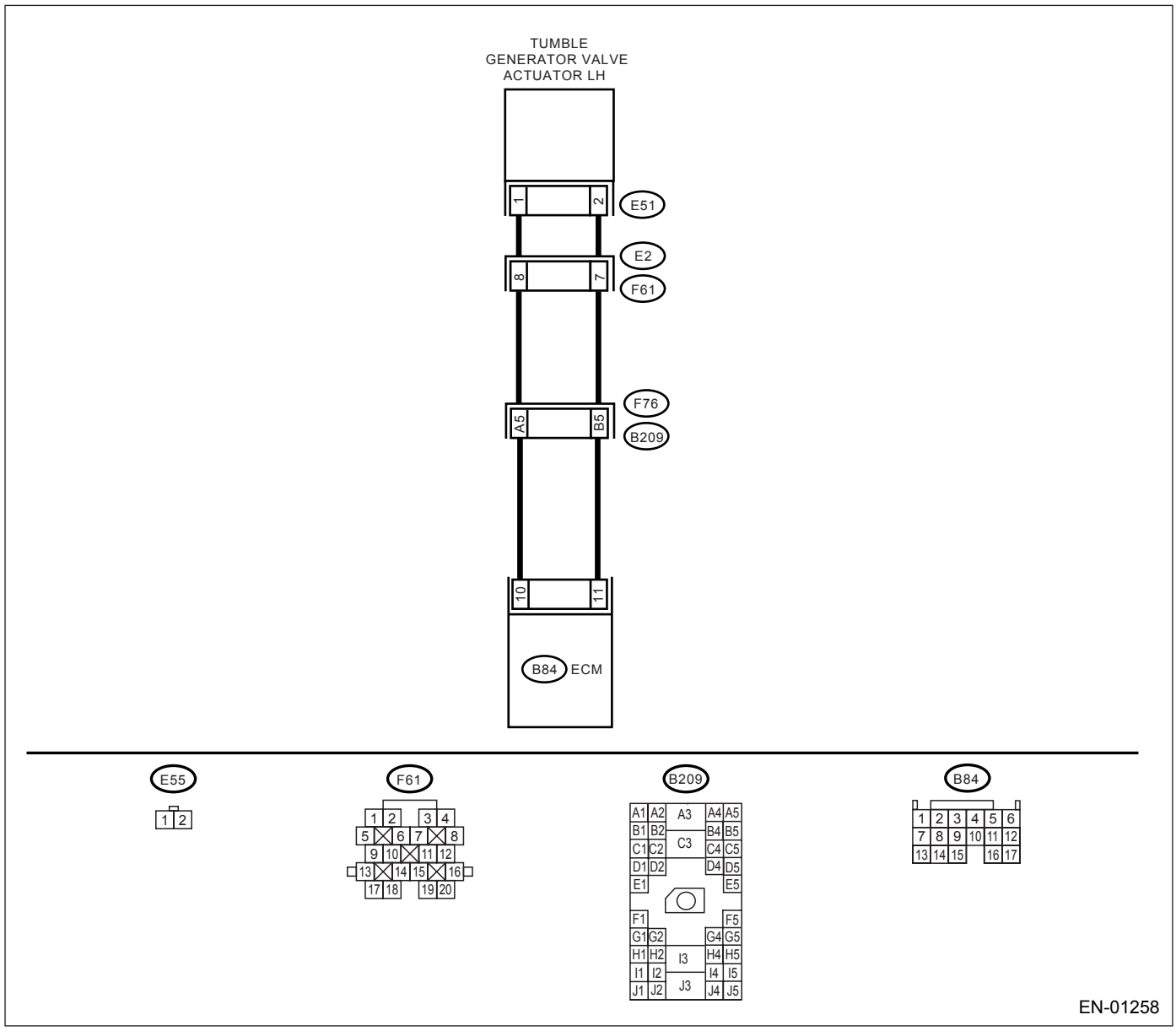
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from tumble generator valve connector. 3)Measure the voltage between tumble generator valve actuator and chassis ground. ***Connector & terminal*** ***(E55) No. 1 (+) — Chassis ground (−):*** ***(E55) No. 2 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	5 V	Replace the tumble generator valve actuator. <Ref. to FU(H4DOTC)-42, Tumble Generator Valve Actuator.>	Repair short circuit to battery in between ECM and tumble generator valve actuator.

CW:DTC P1096 — TUMBLE GENERATED VALVE SIGNAL 2 CIRCUIT MALFUNCTION (OPEN) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



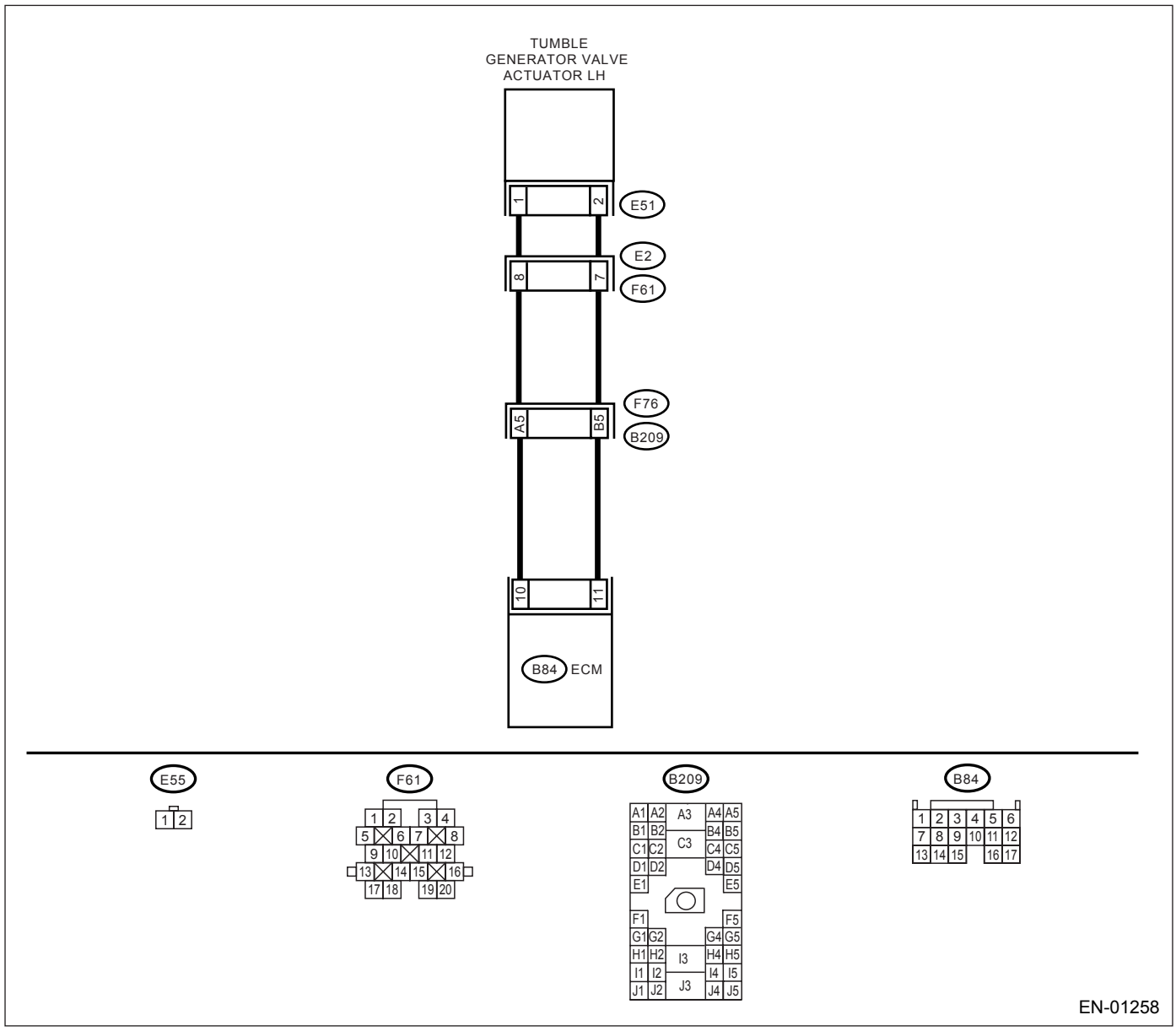
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect connectors from tumble generator valve and ECM connector. 3)Measure the resistance between tumble generator valve actuator and ECM connector. ***Connector & terminal*** ***(E51) No. 1 — (B84) No. 10:*** ***(E51) No. 2— (B84) No. 11:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit in between ECM and tumble generator valve connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and tumble generator valve actuator connector • Poor contact in coupling connector
2	**CHECK FOR POOR CONTACT.** Check for poor contact in tumble generator valve actuator connector. Is there poor contact in tumble generator valve actuator connector?	There is poor contact.	Repair poor contact in tumble generator valve actuator connector.	Replace the tumble generator valve actuator. <Ref. to FU(H4DOTC)-42, Tumble Generator Valve Actuator.>

CX:DTC P1097 — TUMBLE GENERATED VALVE SIGNAL 2 CIRCUIT MALFUNCTION (SHORT) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from tumble generator valve connector. 3)Measure the voltage between tumble generator valve actuator and chassis ground. ***Connector & terminal*** ***(E51) No. 1 (+) — Chassis ground (−):*** ***(E51) No. 2 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	5 V	Replace the tumble generator valve actuator. <Ref. to FU(H4DOTC)-42, Tumble Generator Valve Actuator.>	Repair short circuit to battery in between ECM and tumble generator valve actuator.

CY:DTC P1110 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT MALFUNCTION (LOW INPUT) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1110?	DTC P1110 is indicated.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.> NOTE: The barometric pressure sensor is incorporated in the ECM.	There was a temporary poor contact.

CZ:DTC P1111 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT MALFUNCTION (HIGH INPUT) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

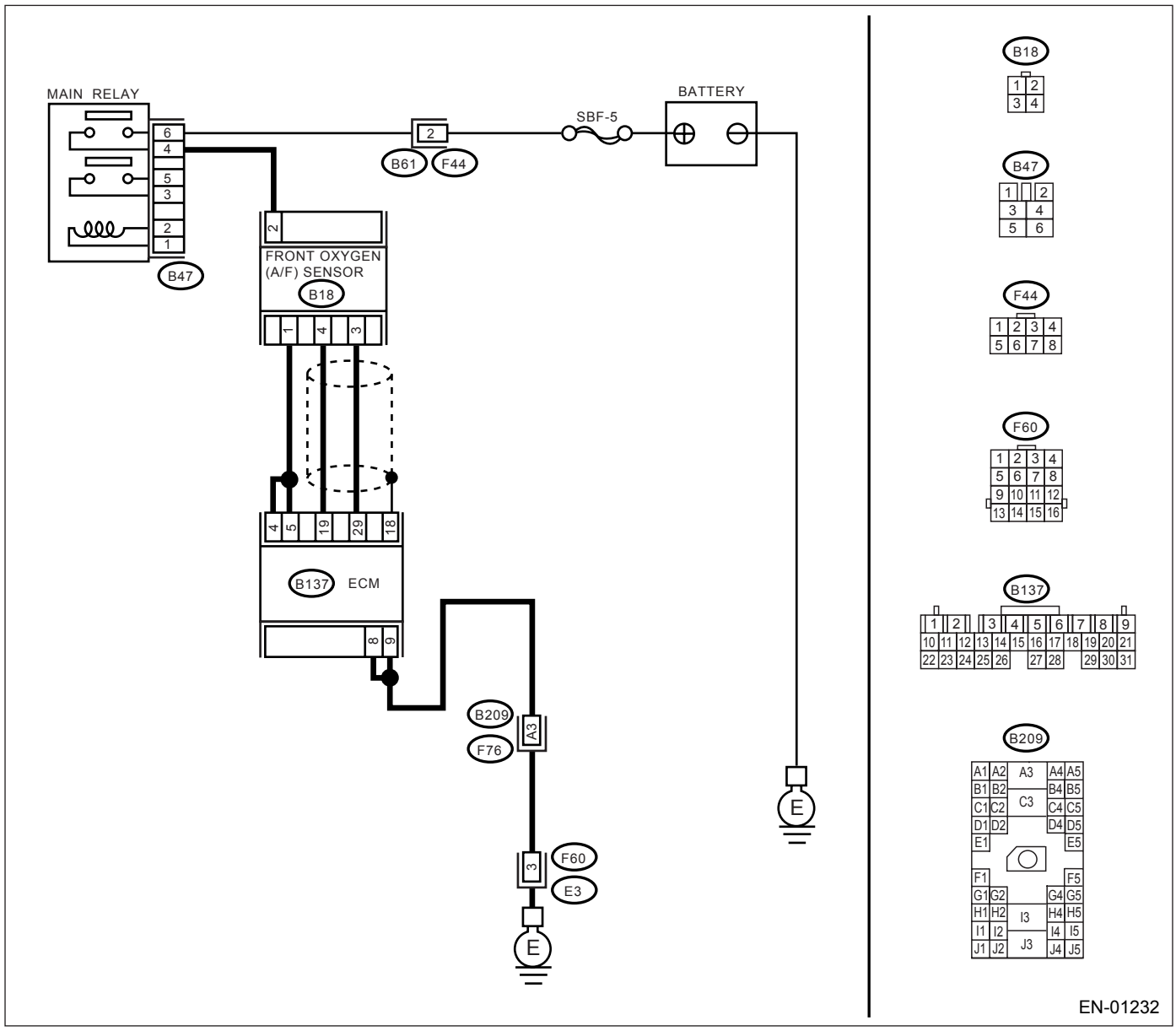
Step		Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1111?	DTC P1111 is indicated.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.> NOTE: The barometric pressure sensor is incorporated in the ECM.	There was a temporary poor contact.

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



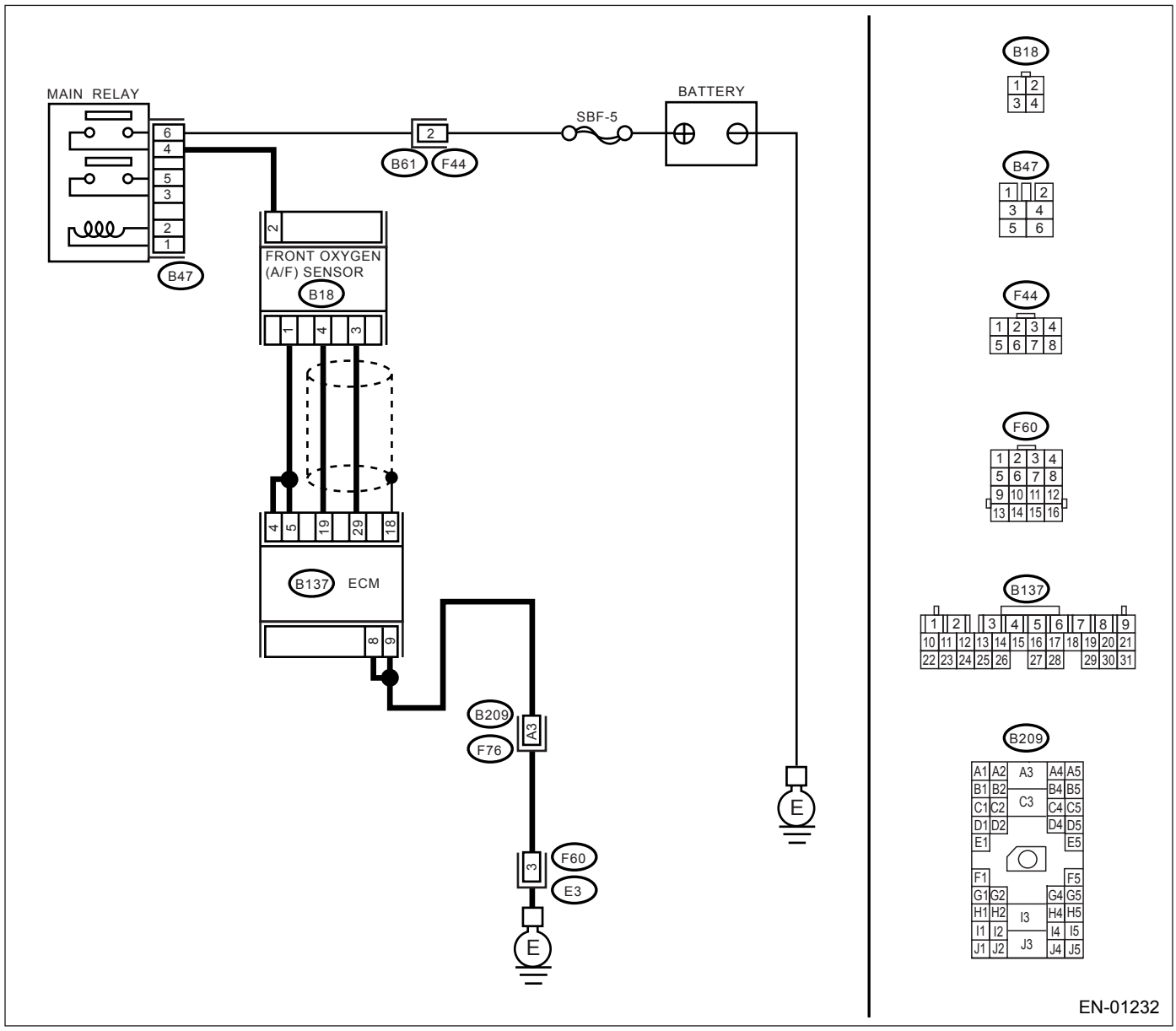
Step		Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1134?	DTC P1134 is indicated.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	There was a temporary poor contact.

DB:DTC P1152 — O_2 SENSOR CIRCUIT RANGE/PERFORMANCE (LOW) (BANK1 SENSOR1) —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



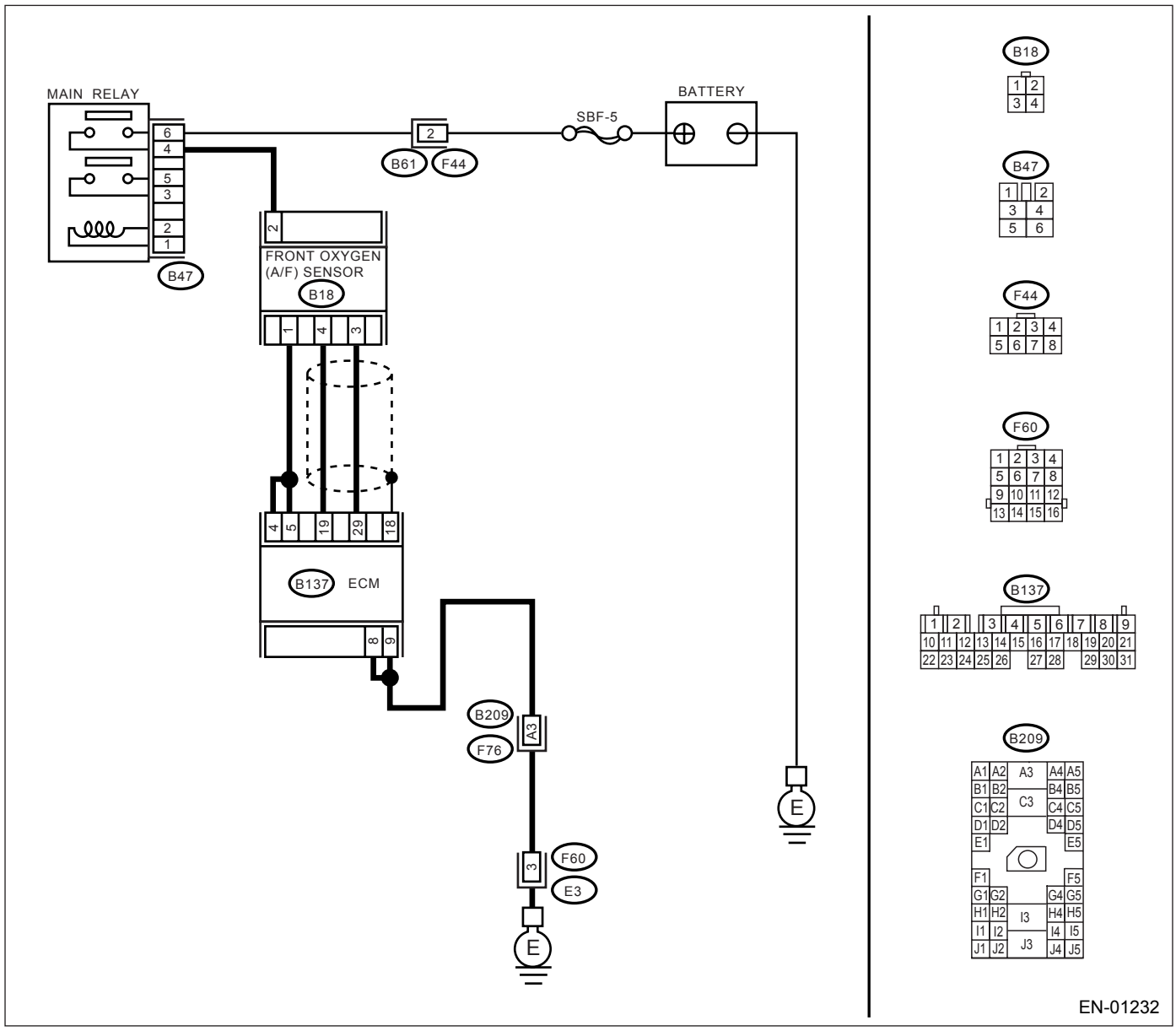
	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM and front oxygen (A/F) sensor connector. 3)Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 29 — (B18) No. 3:*** ***(B137) No. 19 — (B18) No. 4:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector
2	**CHECK FOR POOR CONTACT.** Check for poor contact in front oxygen (A/F) sensor connector. Is there poor contact in front oxygen (A/F) sensor connector?	There is poor contact.	Repair poor contact in front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-45, Front Oxygen (A/F) Sensor.>

DC:DTC P1153 — O_2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK1 SENSOR1) —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, 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 the connector from ECM. 3)Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 19 — Chassis ground:*** Is the measured value more than the specified value?	10 Ω	Go to step **2.**	Repair the short circuit to ground in harness between ECM and front oxygen (A/F) sensor connector.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 29 — Chassis ground:*** Is the measured value more than the specified value?	10 Ω	Go to step **3.**	Repair the short circuit to ground in harness between ECM and front oxygen (A/F) sensor connector.
3	**CHECK OUTPUT SIGNAL FOR ECM.** 1)Connect the connector to ECM. 2)Turn ignition switch to ON. 3)Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **4.**	Go to step **5.**
4	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair the short circuit to battery in harness between ECM and front oxygen (A/F) sensor connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Repair poor contact in ECM connector.
5	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 29 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.95 V	Go to step **6.**	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DOTC)-45, Front Oxygen (A/F) Sensor.>

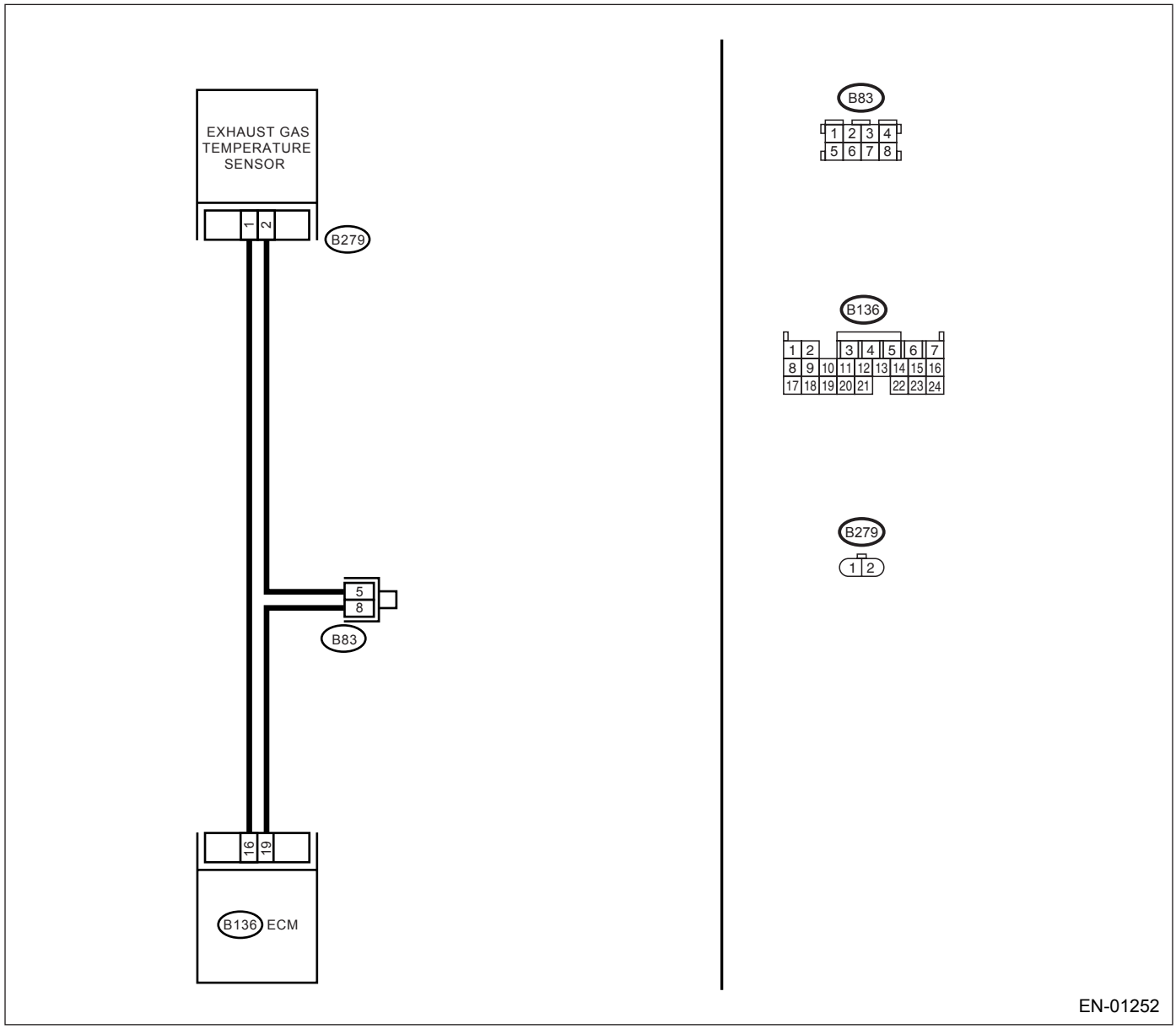
	Step	Check	Yes	No
6	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 29 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair the short circuit to battery in harness between ECM and front oxygen (A/F) sensor connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Repair poor contact in ECM connector.

DD:DTC P1301 — MISFIRE DITECTED (HIGH TEMPERATURE EXHAUST GAS) —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Engine stalls
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



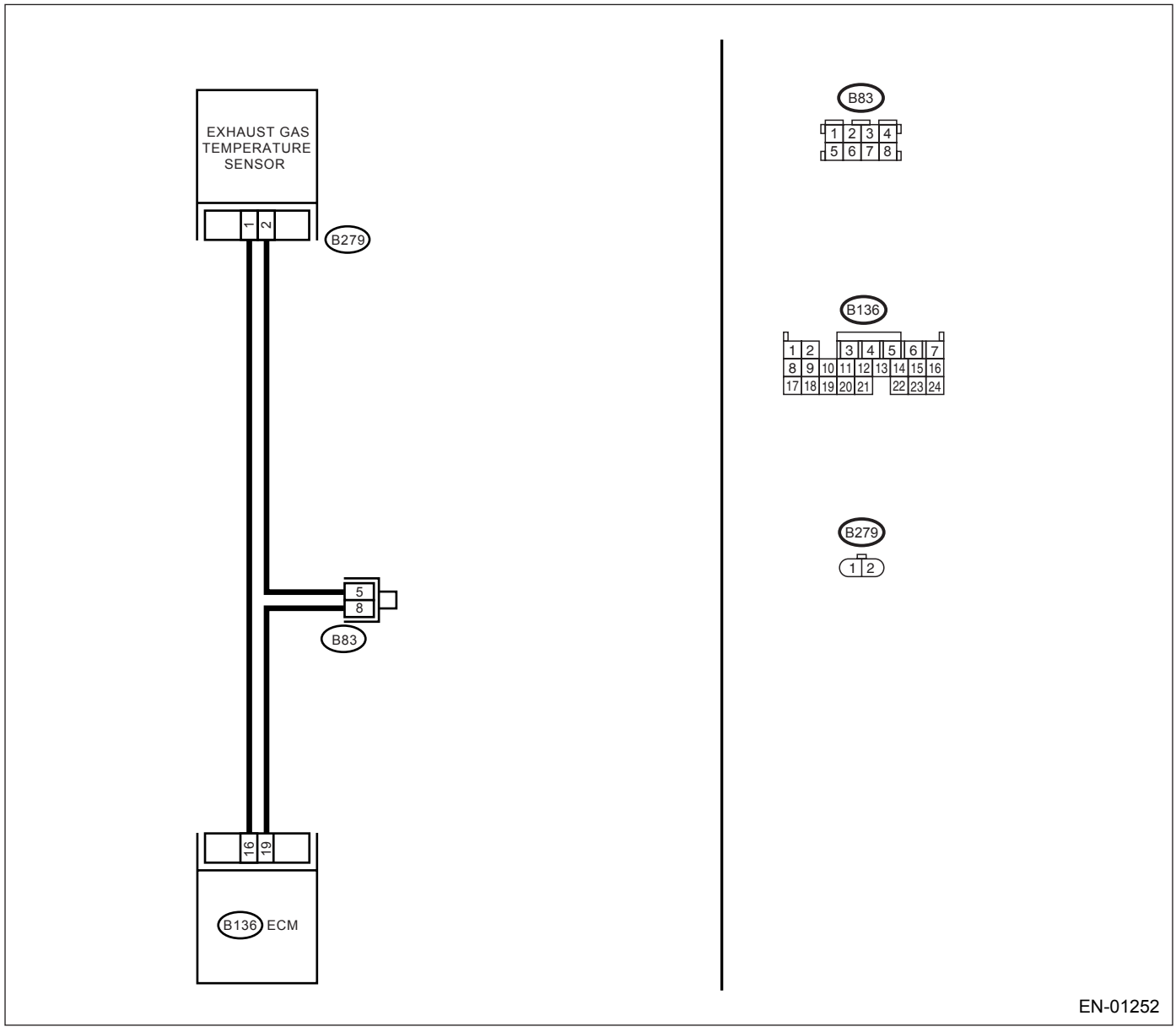
	Step	Check	Yes	No
1	**CHECK DIAGNOSTIC TROUBLE CODE (DTC).** Carry out troubleshooting for DTC P0301, P0302, P0303 or P0304. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> Does a fault which need repair or replacement exist?	Exists.	Repair or replace faulty parts and replace the pre-catalytic converter.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

DE:DTC P1312 — EXHAUST GAS TEMPERATURE SENSOR MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



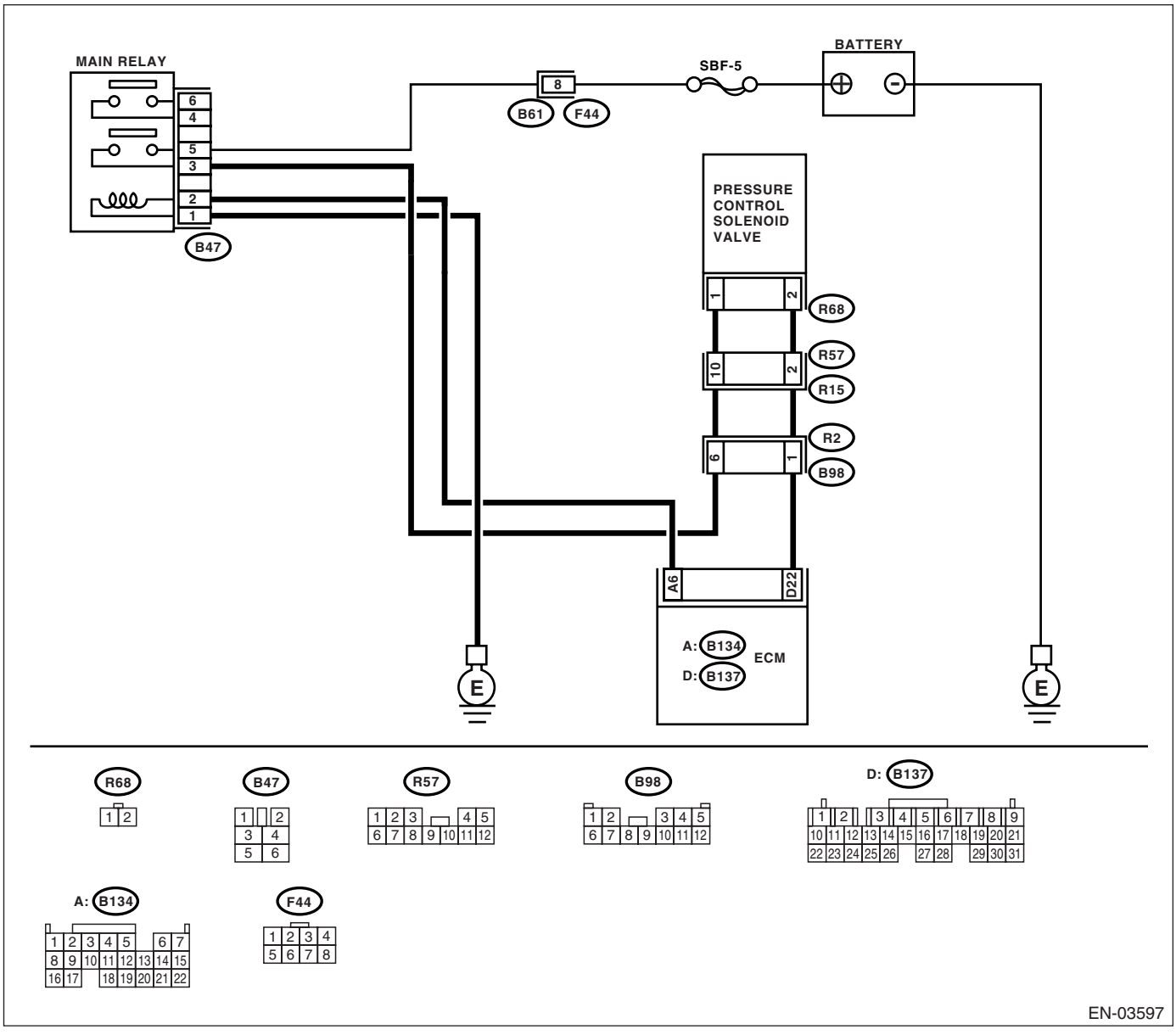
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P1312.	Replace the exhaust gas temperature sensor. <Ref. to FU(H4DOTC)-49, Exhaust Temperature Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 22 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **2.**	Go to step **3.**
2	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	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 the connectors from pressure control solenoid valve and ECM. 3)Measure the resistance of harness between pressure control solenoid valve connector and chassis ground. ***Connector & terminal*** ***(R68) No. 2 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and pressure control solenoid valve connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** Measure the resistance of harness between ECM and pressure control solenoid valve connector. ***Connector & terminal*** ***(B137) No. 22 — (R68) No. 2:*** Is the measured value less than the specified value?	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 connector
5	**CHECK PRESSURE CONTROL SOLENOID VALVE.** Measure the resistance between pressure control solenoid valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	10 — 100 Ω	Go to step **6.**	Replace the pressure control solenoid valve. <Ref. to EC(H4DOTC)-13, Pressure Control Solenoid Valve.>

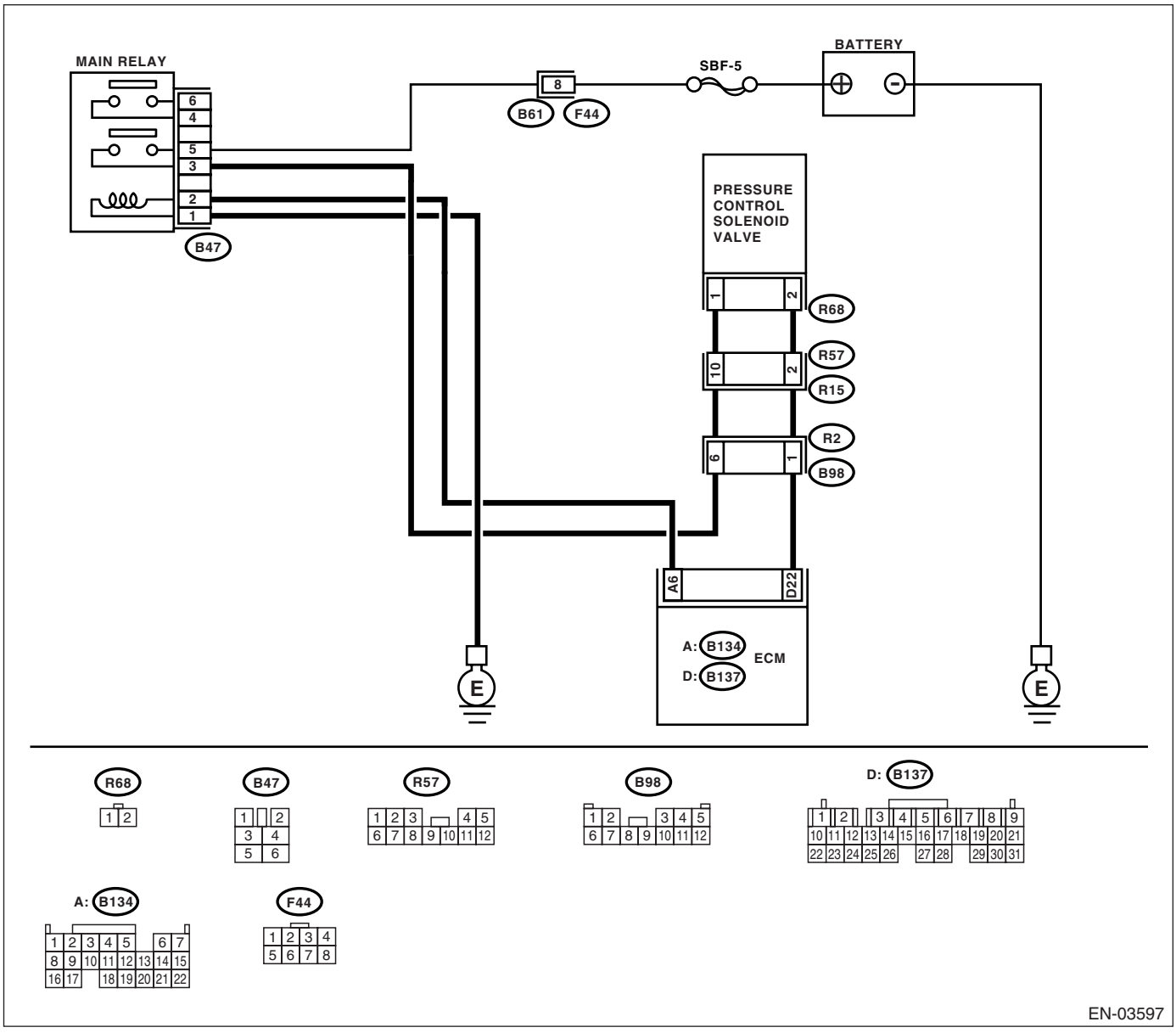
	Step	Check	Yes	No
6	**CHECK POWER SUPPLY TO PRESSURE CONTROL SOLENOID VALVE.** 1)Turn ignition switch to ON. 2)Measure the voltage between pressure control solenoid valve and chassis ground. ***Connector & terminal*** ***(R68) No. 1 (+) — Chassis ground (−):*** Is the measured value more than the specified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

DG:DTC P1420 — FUEL TANK PRESSURE CONTROL SOL. VALVE CIRCUIT HIGH —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to OFF. 2)Connect the test mode connector at the lower portion of instrument panel (on the driver's side). 3)Turn ignition switch to ON. 4)While operating the pressure control solenoid valve, measure voltage between ECM and chassis ground. NOTE: Pressure control solenoid valve operation can be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H4DOTC)-50, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B137) No. 22 (+) — Chassis ground (−):*** Does the measured value change within the specified range?	0 — 10 V	Go to step **2.**	The MIL may light up, however, the circuit is returned to the normal status at the moment. In this case, repair poor contact in ECM connector.
2	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 22 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **4.**	Go to step **3.**
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
4	**CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from pressure control solenoid valve. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 22 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and pressure control solenoid valve connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **5.**
5	**CHECK PRESSURE CONTROL SOLENOID VALVE.** 1)Turn ignition switch to OFF. 2)Measure the resistance between pressure control solenoid valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace the pressure control solenoid valve <Ref. to EC(H4DOTC)-13, Pressure Control Solenoid Valve.> and the ECM <Ref. to FU(H4DOTC)-50, Engine Control Module.>.	Go to step **6.**

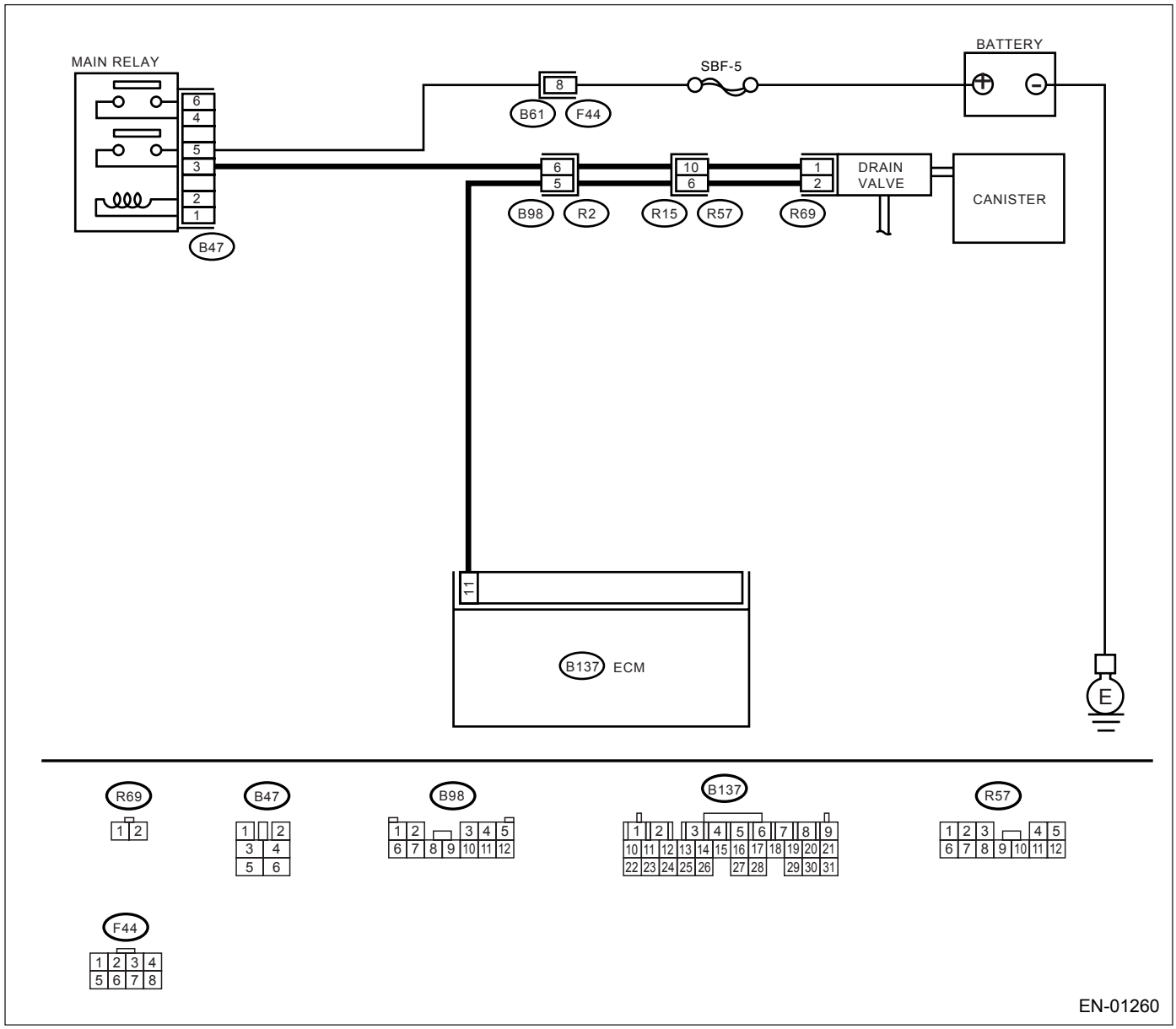
	Step	Check	Yes	No
6	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>

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

- **DTC DETECTING CONDITION:**
  - Immediately after fault occurrence
- **TROUBLE SYMPTOM:**
  - Improper fuel supply

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



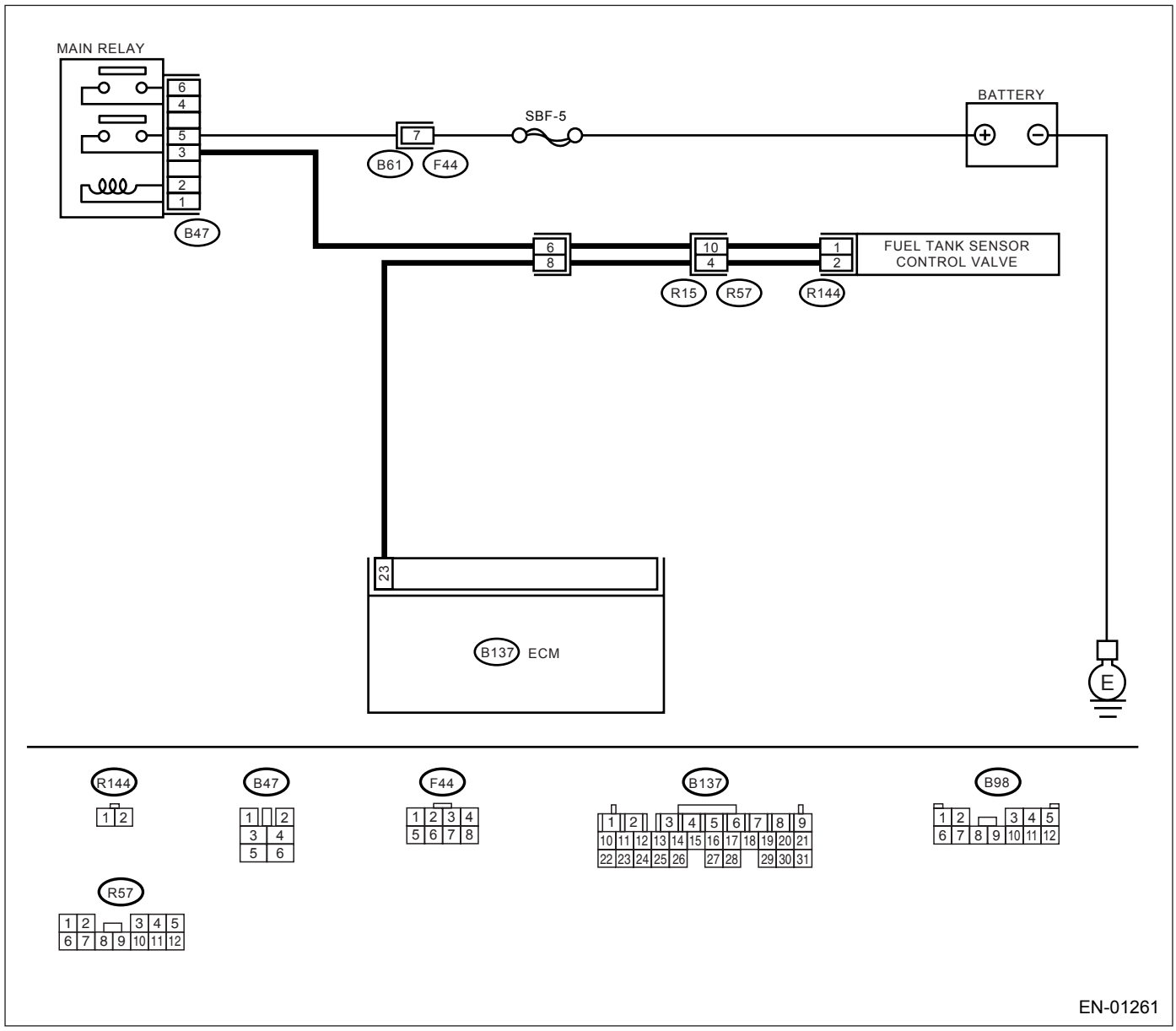
	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK VENT LINE HOSES.** Check the following items. •Clogging of vent hoses between canister and drain valve •Clogging of vent hose between drain valve and air filter •Clogging of drain filter Is there a fault in vent line?	There is a fault.	Repair or replace faulty parts.	Go to step **3.**
3	**CHECK DRAIN VALVE OPERATION.** 1)Turn ignition switch to OFF. 2)Connect the test mode connector at the lower portion of instrument panel (on the driver's side). 3)Turn ignition switch to ON. 4)Operate the drain valve. Does the drain valve operate? 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(H4DOTC)-50, Compulsory Valve Operation Check Mode.>	Starter operates.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Replace the drain valve. <Ref. to EC(H4DOTC)-19, Drain Valve.>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 23 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **2.**	Go to step **3.**
2	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	The MIL may light up, however, the circuit is returned to the normal status at the moment. (However, the possibility of poor contact still remains.)j 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 connector
3	**CHECK HARNESS BETWEEN FUEL TANK SENSOR CONTROL VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connectors from fuel tank sensor control valve and ECM. 3)Measure the resistance of harness between fuel tank sensor control valve connector and chassis ground. ***Connector & terminal*** ***(R144) No. 2 — Chassis ground:*** Is the measured value more than the specified value?	1 MΩ	Go to step **4.**	Repair short circuit to ground in harness between ECM and fuel tank sensor control valve connector.
4	**CHECK HARNESS BETWEEN FUEL TANK SENSOR CONTROL VALVE AND ECM CONNECTOR.** Measure the resistance of harness between ECM and fuel tank sensor control valve connector. ***Connector & terminal*** ***(B137) No. 23 — (R144) No. 2:*** Is the measured value less than the specified value?	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 connector

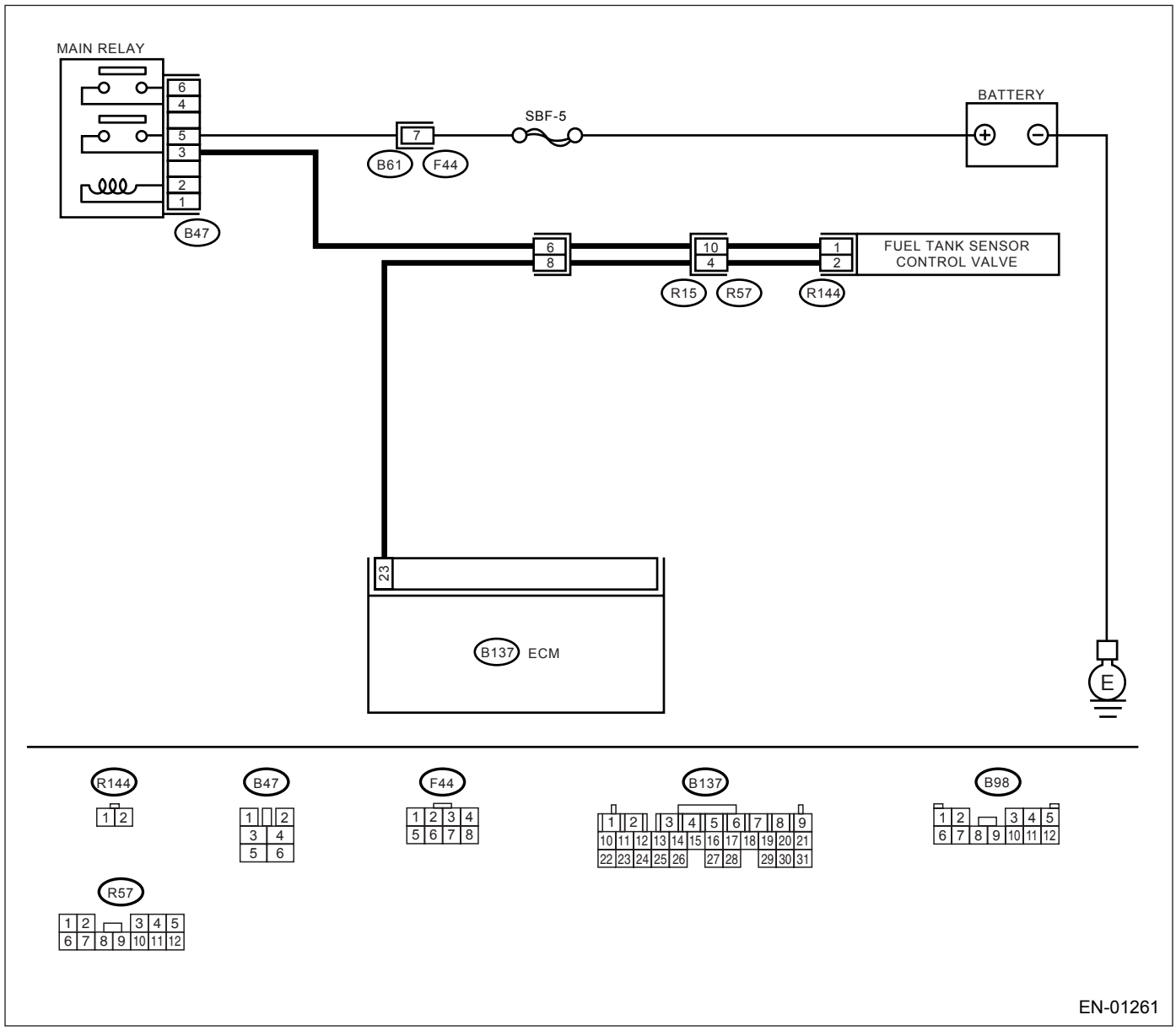
	Step	Check	Yes	No
5	**CHECK FUEL TANK SENSOR CONTROL VALVE.** Measure the resistance between fuel tank sensor control valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	10 — 100 Ω	Go to step **6.**	Replace the fuel tank sensor control valve. <Ref. to EC(H4DOTC)-19, Drain Valve.>
6	**CHECK POWER SUPPLY TO FUEL TANK SENSOR CONTROL VALVE.** 1)Turn ignition switch to ON. 2)Measure the voltage between fuel tank sensor control valve and chassis ground. ***Connector & terminal*** ***(R144) No. 1 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	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 connector • Poor contact in main relay connector
7	**CHECK FOR POOR CONTACT.** Check for poor contact in fuel tank sensor control valve connector. Is there poor contact in fuel tank sensor control valve connector?	There is poor contact.	Repair poor contact in fuel tank sensor control valve connector.	Contact with SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



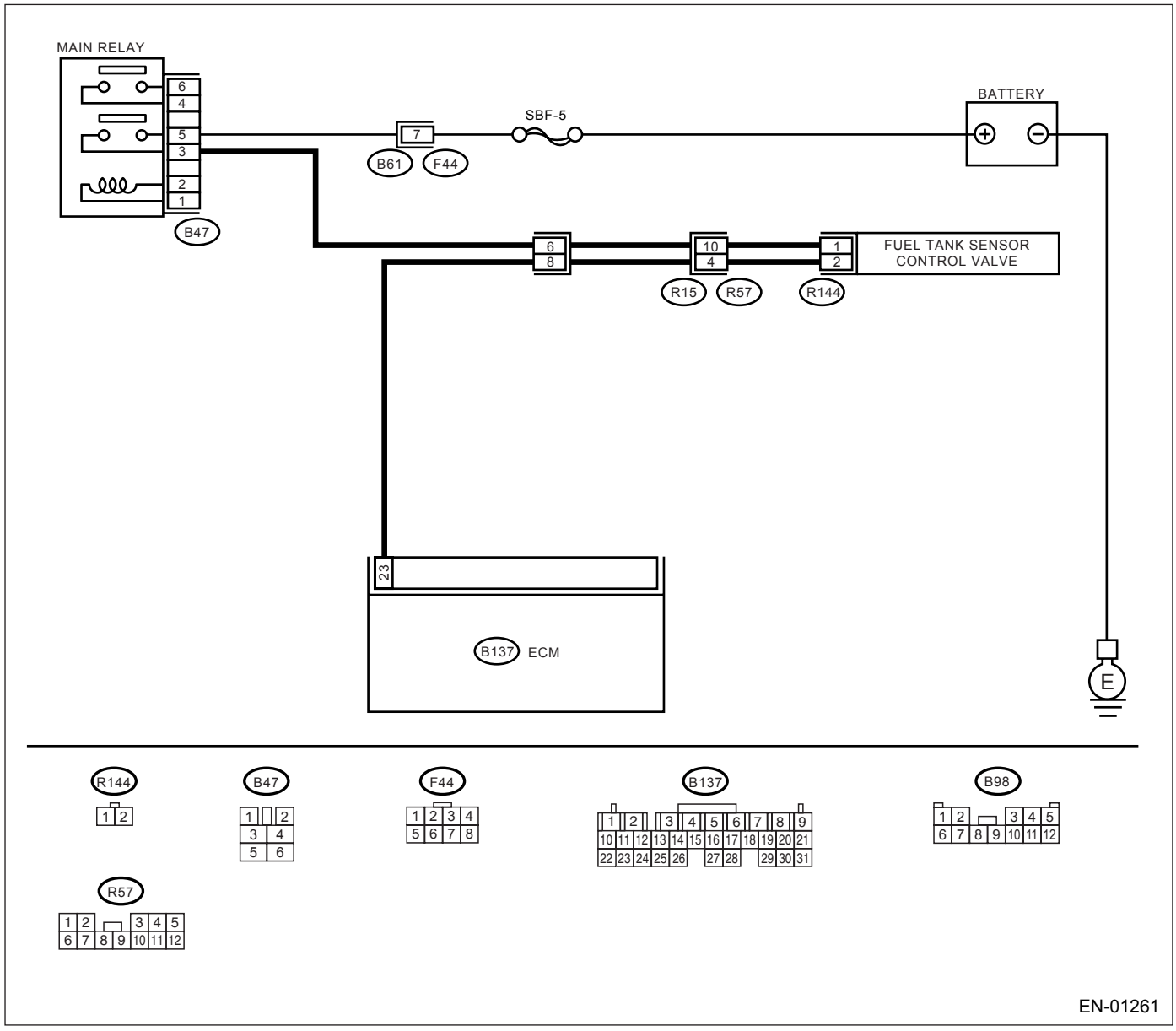
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 23 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Go to step **3.**	Go to step **2.**
2	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
3	**CHECK HARNESS BETWEEN FUEL TANK SENSOR CONTROL VALVE AND ECM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from fuel tank sensor control valve. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 23 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and fuel tank sensor control valve connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Go to step **4.**
4	**CHECK FUEL TANK SENSOR CONTROL VALVE.** 1)Turn ignition switch to OFF. 2)Measure the resistance between fuel tank sensor control valve terminals. ***Terminal*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace the fuel tank sensor control valve <Ref. to EC(H4DOTC)-12, Fuel Tank Sensor Control Valve.> and the ECM <Ref. to FU(H4DOTC)-50, Engine Control Module.>.	Go to step **5.**
5	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>

DK:DTC P1448 — FUEL TANK SENSOR CONTROL VALVE RANGE/PERFORMANCE —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



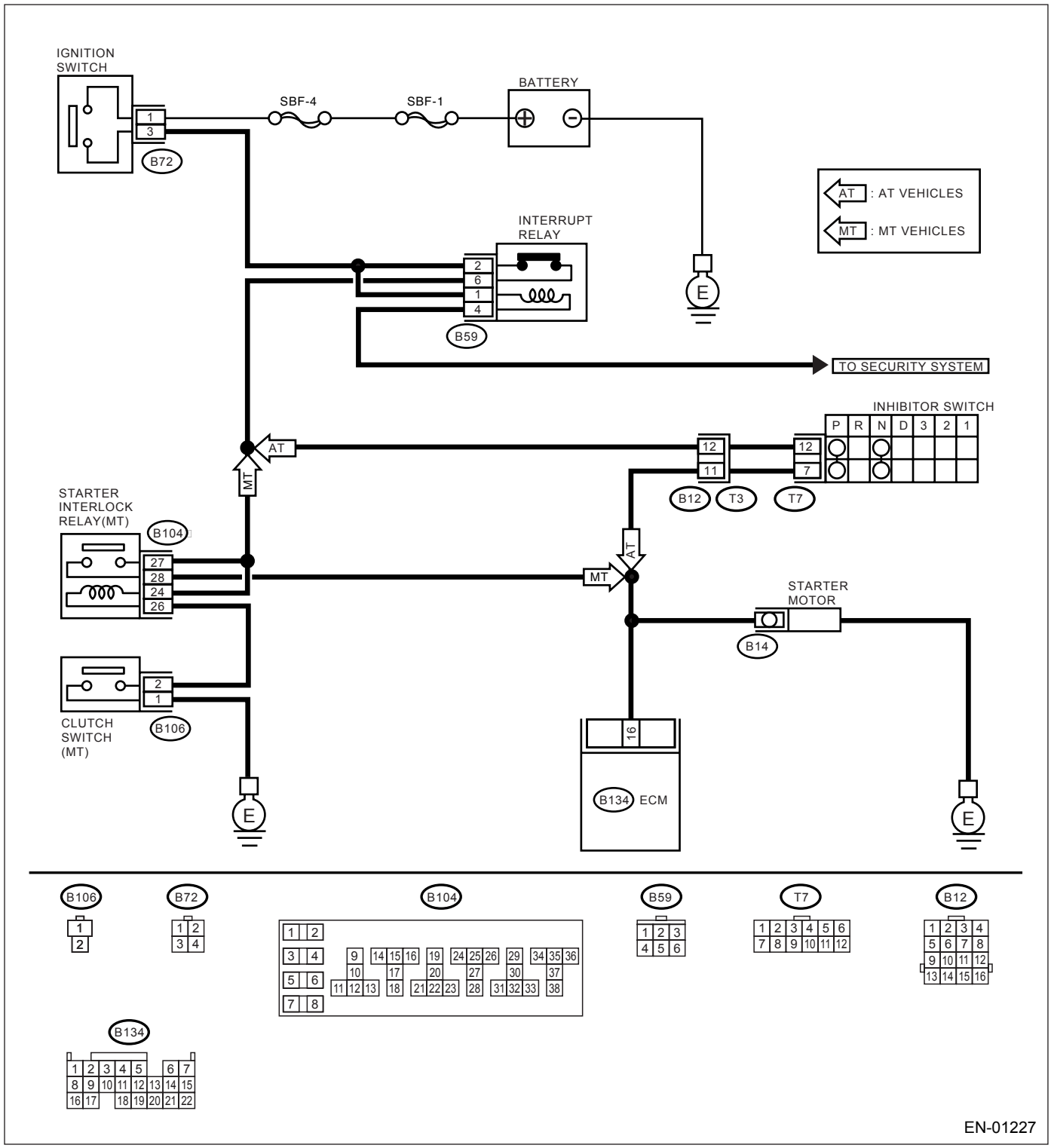
	Step	Check	Yes	No
1	**CHECK FOR OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the “List of Diagnostic Trouble Codes (DTC)”. <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).>	Go to step **2.**
2	**CHECK FUEL FILLER CAP.** 1)Turn ignition switch to OFF. 2)Open the fuel flap. Is the fuel filler cap tightened securely?	Cap is tightened securely.	Go to step **3.**	Tighten fuel filler cap securely.
3	**CHECK EVAPORATIVE EMISSION LINE.** Is there any trouble in evaporative emission line? NOTE: Check the following items. •Disconnection, leakage and clogging of hoses between fuel tank pressure sensor and fuel tank. •Disconnection, leakage and clogging of hoses and pipes between fuel filler pipe and fuel tank.	There is trouble in evaporative emission line.	Repair the hoses and pipes.	Replace the fuel tank pressure sensor.

DL:DTC P1518 — STARTER SWITCH CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



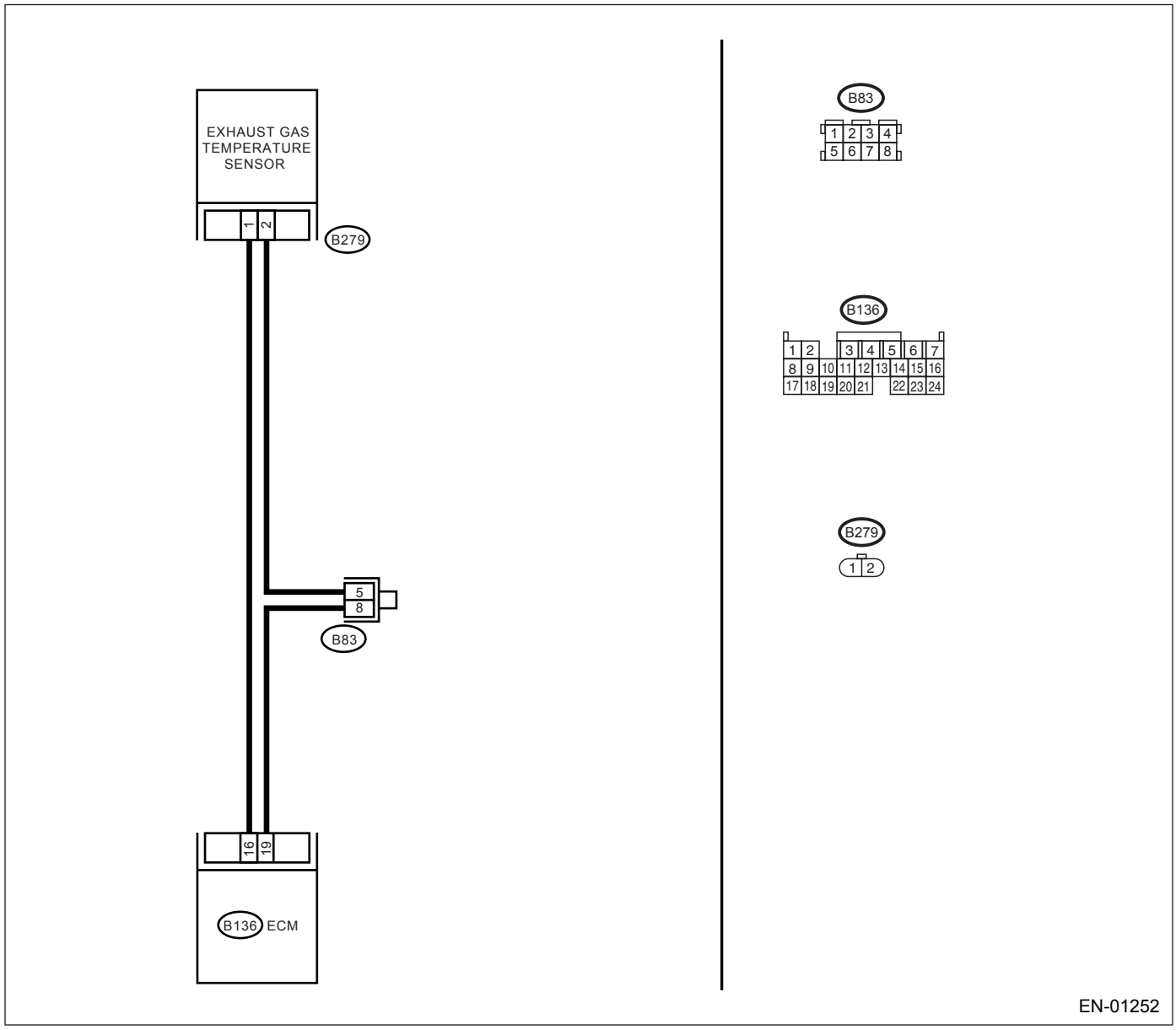
	Step	Check	Yes	No
1	**CHECK OPERATION OF STARTER MOTOR.** Does the starter motor operate when ignition switch is turned to ST?	Starter operates.	Repair harness and connector. NOTE: In this case, repair the following: • Open or short circuit to ground in harness between ECM and starter motor connector. • Poor contact in ECM connector	Check starter motor circuit. <Ref. to EN(H4DOTC)-62, STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.>

DM:DTC P1544 — EXHAUST GAS TEMPERATURE TOO HIGH —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



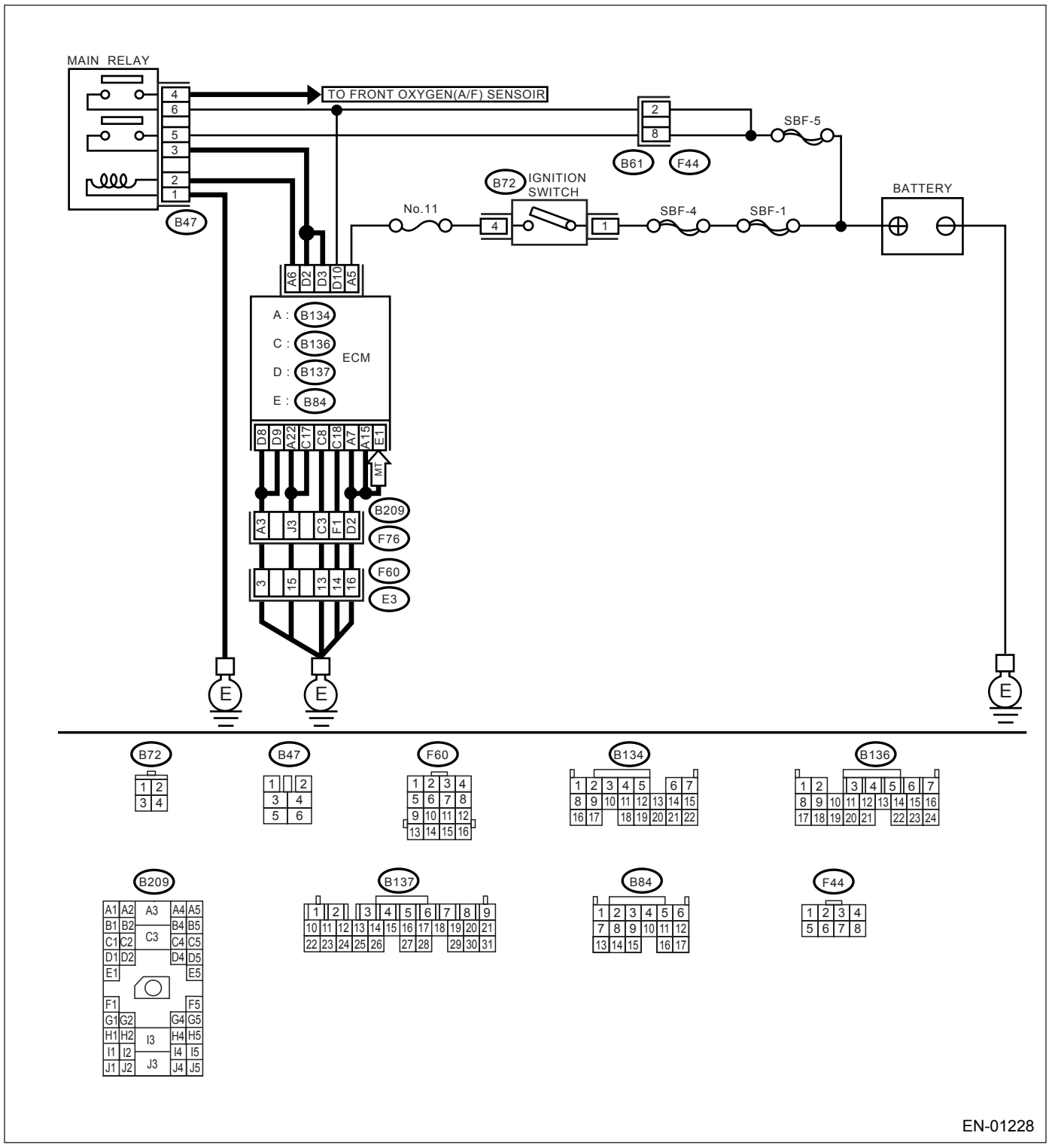
	Step	Check	Yes	No
1	**CHECK FOR OTHER DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Is any other DTC displayed?	Other DTC is displayed.	Inspect the relevant DTC using the "List of Diagnostic Trouble Codes (DTC)". <Ref. to EN(H4DOTC)-81, List of Diagnostic Trouble Codes (DTC).> NOTE: In this case, it is not necessary to inspect DTC P1544.	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. •Loosened installation of exhaust manifold. •Crack or hole in exhaust manifold •Loosened installation of front oxygen (A/F) sensor Is there a fault in exhaust system?	There is a fault.	Repair or replace faulty parts and replace the pre-catalytic converter.	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01228

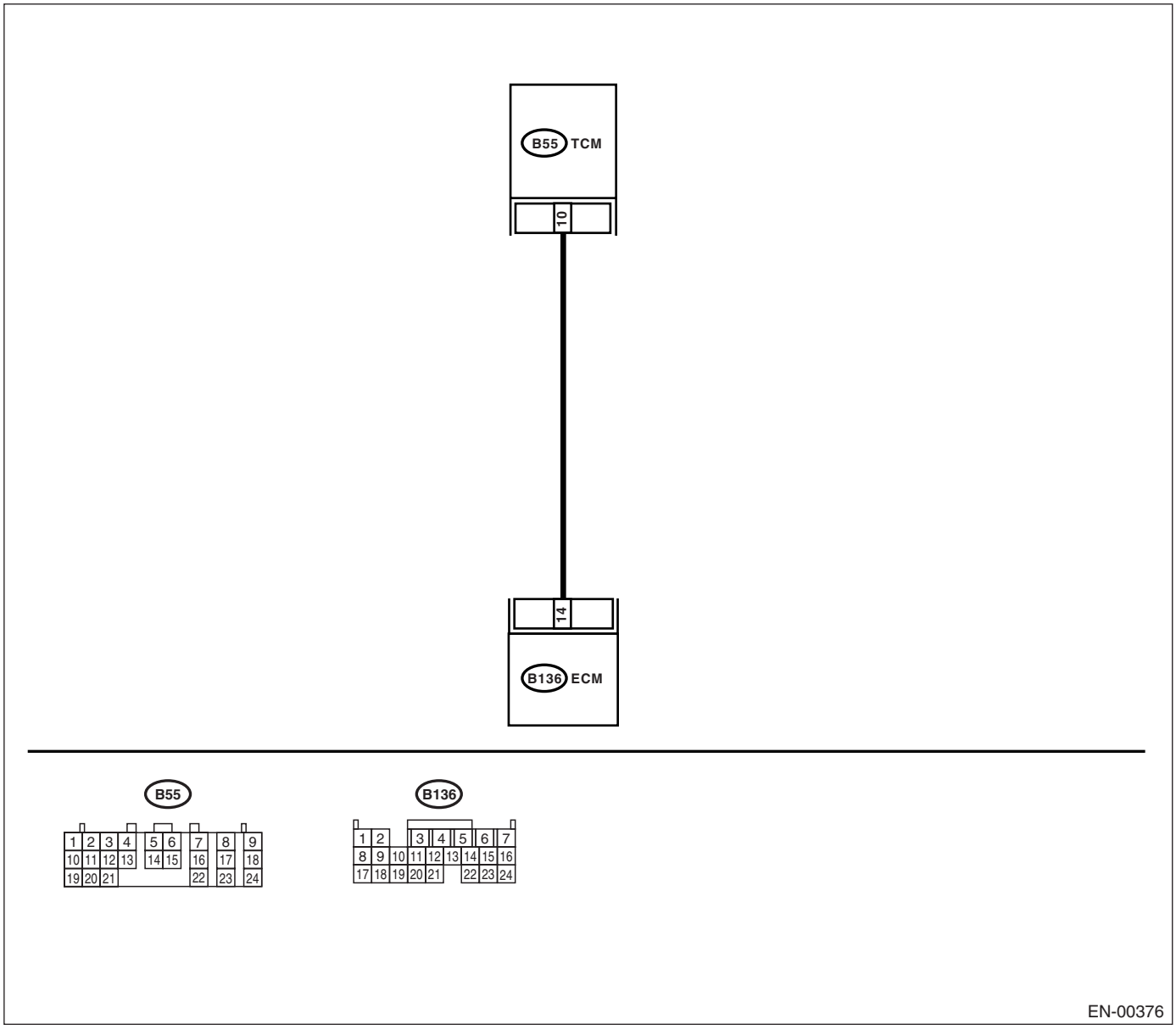
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to OFF. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 10 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.** 1)Disconnect the connector from ECM. 2)Measure the resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 10 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM connector and battery terminal.	Go to step **3.**
3	**CHECK FUSE SBF-5.** Is the fuse blown?	Fuse is blown out.	Replace the 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

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



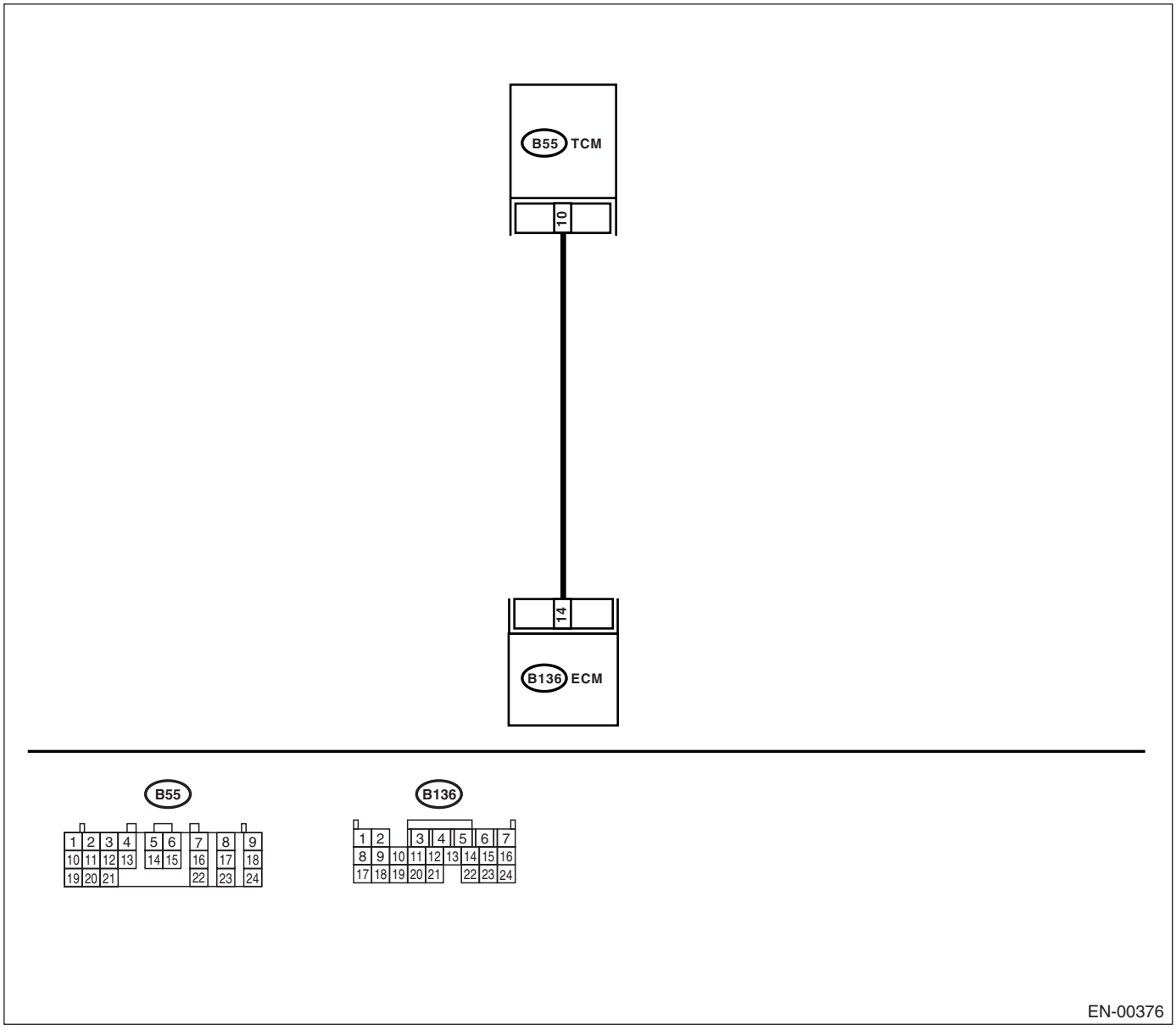
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Start and warm-up the engine. 2)Turn ignition switch to OFF. 3)Turn ignition switch to ON. 4)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 14 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	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 the connector from ECM and TCM. 3)Measure the resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 14 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure the resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B136) No. 14 — (B55) No. 20:*** Is the measured value less than the specified value?	1 Ω	Repair poor contact in ECM or TCM connector.	Repair open circuit in harness between ECM and TCM connector.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



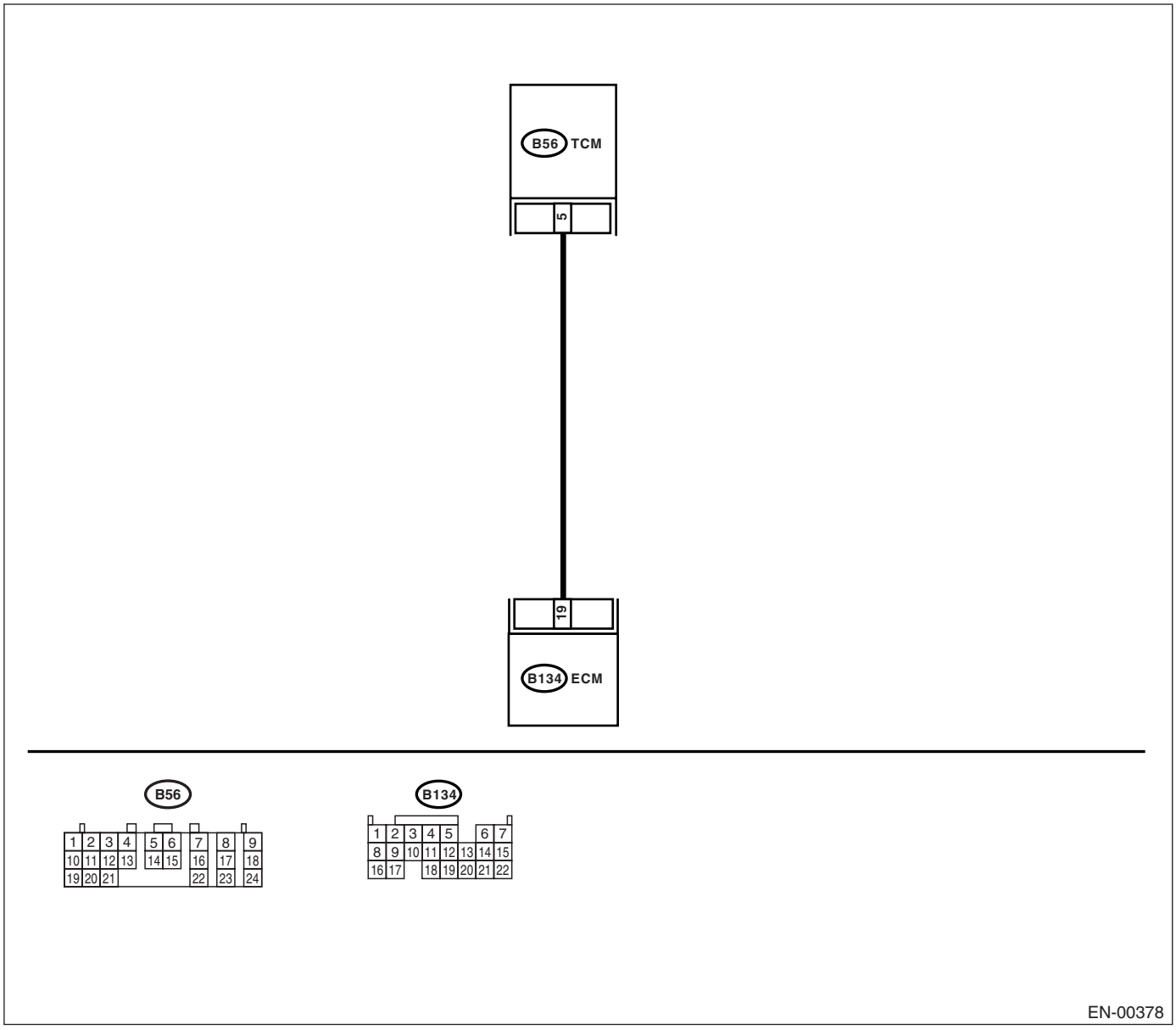
	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1)Start and warm-up the engine. 2)Turn ignition switch to OFF. 3)Disconnect the connector from TCM. 4)Turn ignition switch to ON. 5)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 14 (+) — Chassis ground (−):*** Is the measured value less than the specified value?	3 V	Go to step **2.**	Repair short circuit to battery in harness between ECM and TCM connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 14 (+) — Chassis ground (−):*** Does the voltage variance exceed the specified value while monitoring the voltmeter and shaking the ECM harness and connector ?	10 V	Repair short circuit to battery in harness between ECM and TCM connector. After repair, replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>	Contact SOA (distributor) service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Excessive shift shock

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



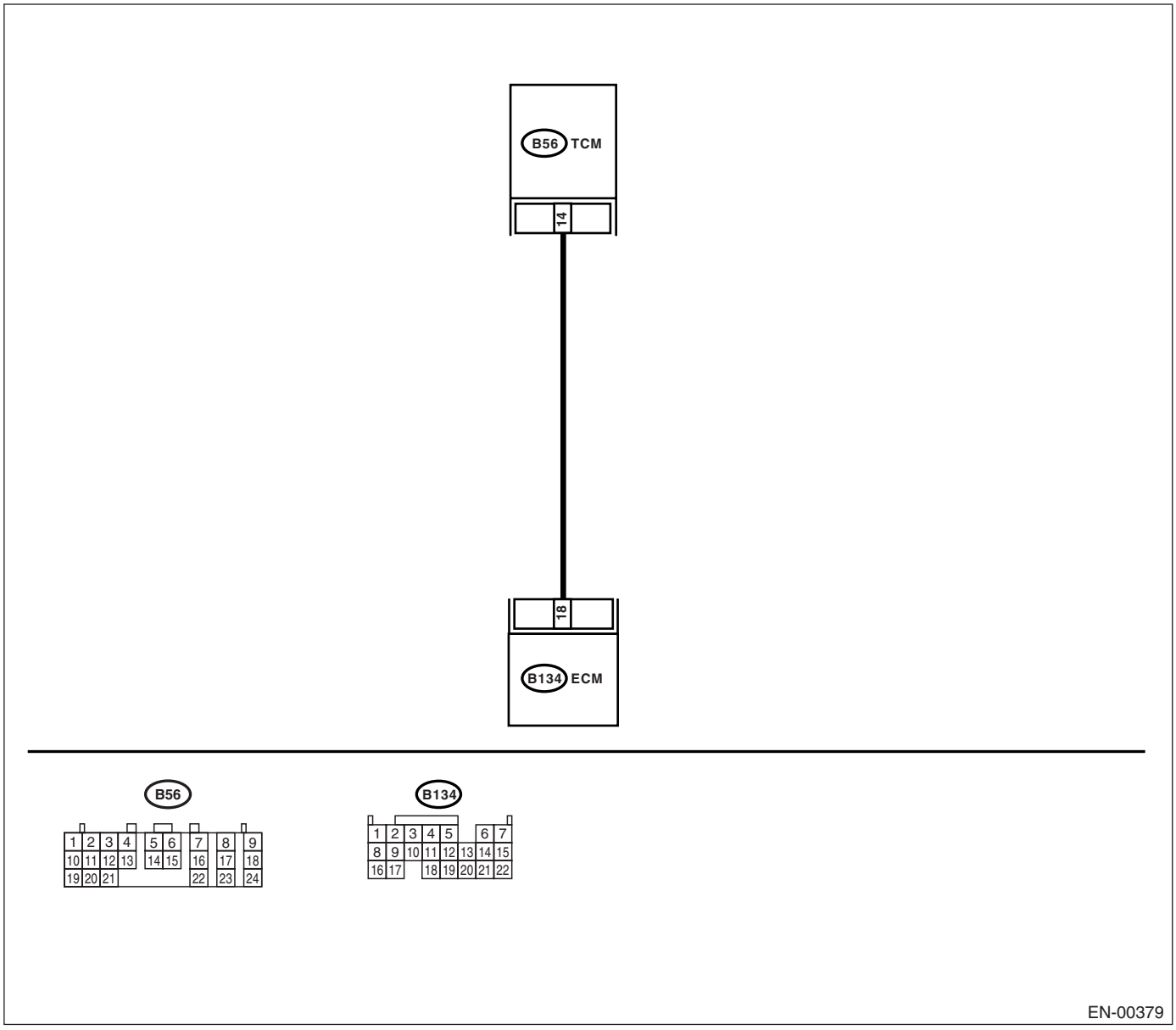
	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 19 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 19 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
4	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM and TCM. 3)Measure the resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B134) No. 19 — (B56) No. 5:*** Is the measured value less than the specified value?	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 the resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 19 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and TCM connector.	Go to step **6.**
6	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>

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

- **DTC DETECTING CONDITION:**
  - Fault occurs in two consecutive driving cycles
- **TROUBLE SYMPTOM:**
  - Excessive shift shock

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4DOTC)-49, OPERATION, Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4DOTC)-41, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1)Turn ignition switch to ON. 2)Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 18 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	4.5 V	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure the voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 18 (+) — Chassis ground (−):*** Is the measured value more than the specified value?	10 V	Repair short circuit to battery in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK FOR POOR CONTACT.** Check for poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace the ECM. <Ref. to FU(H4DOTC)-50, Engine Control Module.>
4	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1)Turn ignition switch to OFF. 2)Disconnect the connector from ECM and TCM. 3)Measure the resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B134) No. 18 — (B56) No. 4:*** Is the measured value less than the specified value?	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 the resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 18 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair short circuit to ground in harness between ECM and TCM connector.	Go to step **6.**
6	**CHECK FOR POOR CONTACT.** Check for poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace the TCM. <Ref. to AT-71, Transmission Control Module (TCM).>