ENGINE SECTION 2

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.
This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.
Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

ENGINE (DIAGNOSTICS)

EN(H6DO)

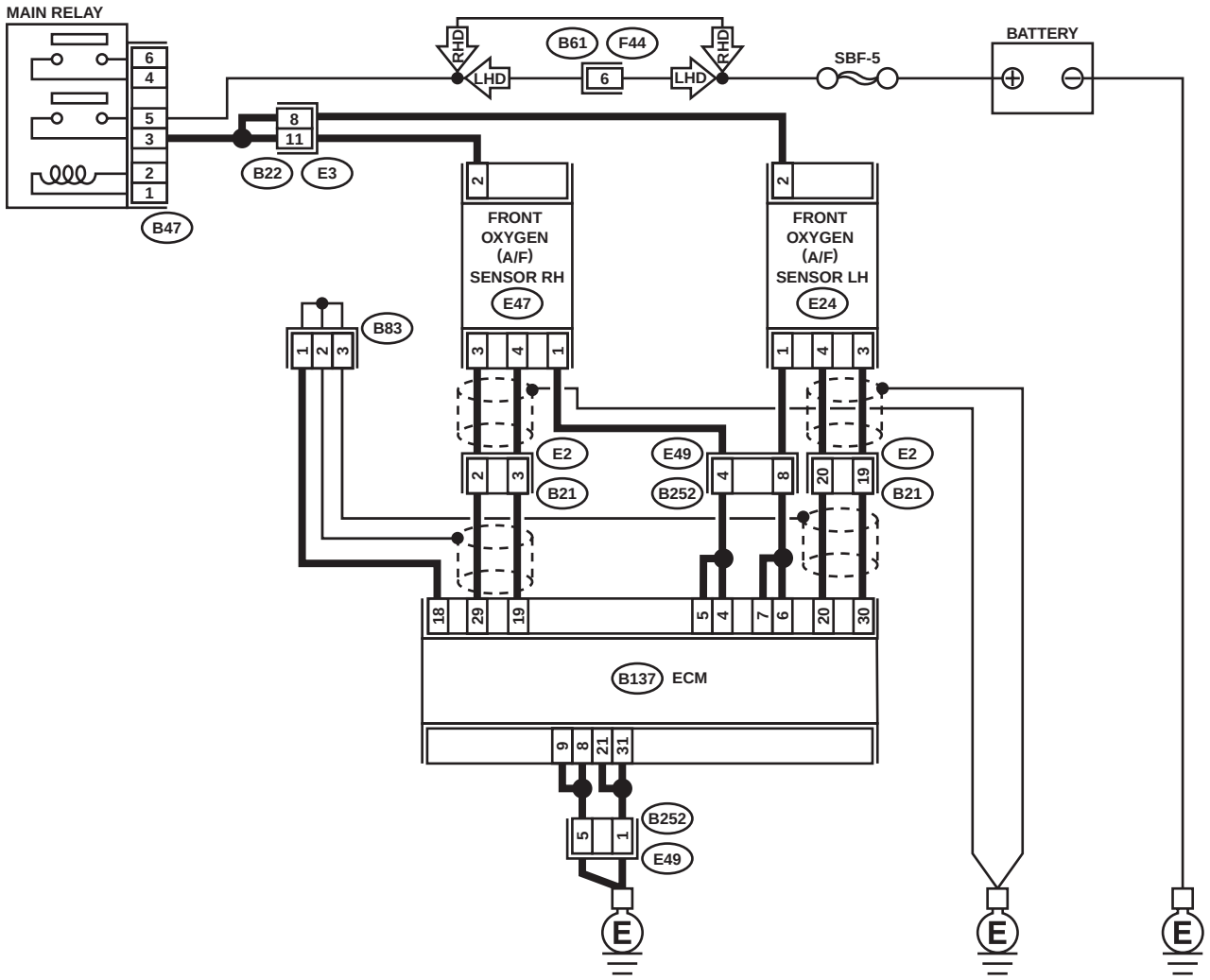
19.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

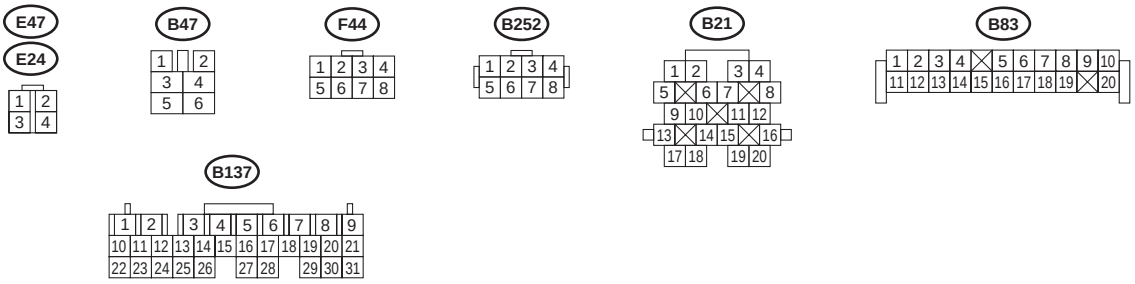
A: DTC P0030 — HO2S HEATER CONTROL CIRCUIT (BANK 1 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Disconnect connectors from ECM and front oxygen (A/F) sensor. 4) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 4 — (E47) No. 1:*** ***(B137) No. 5 — (E47) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair 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 resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 19 — (E47) No. 4:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair 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 resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 29 — (E47) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.
4	**CHECK FRONT OXYGEN (A/F) SENSOR.** Measure resistance between front oxygen (A/F) sensor connector terminals. ***Terminals*** ***No. 2 — No. 1:*** Is the measured value less than the specified value?	5 Ω	Go to step **5.**	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>
5	**CHECK POOR CONTACT.** Check poor contact in ECM and front oxygen (A/F) sensor connector. Is there poor contact in ECM or front oxygen (A/F) sensor connector?	There is poor contact.	Repair poor contact in ECM or front oxygen (A/F) sensor connector.	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

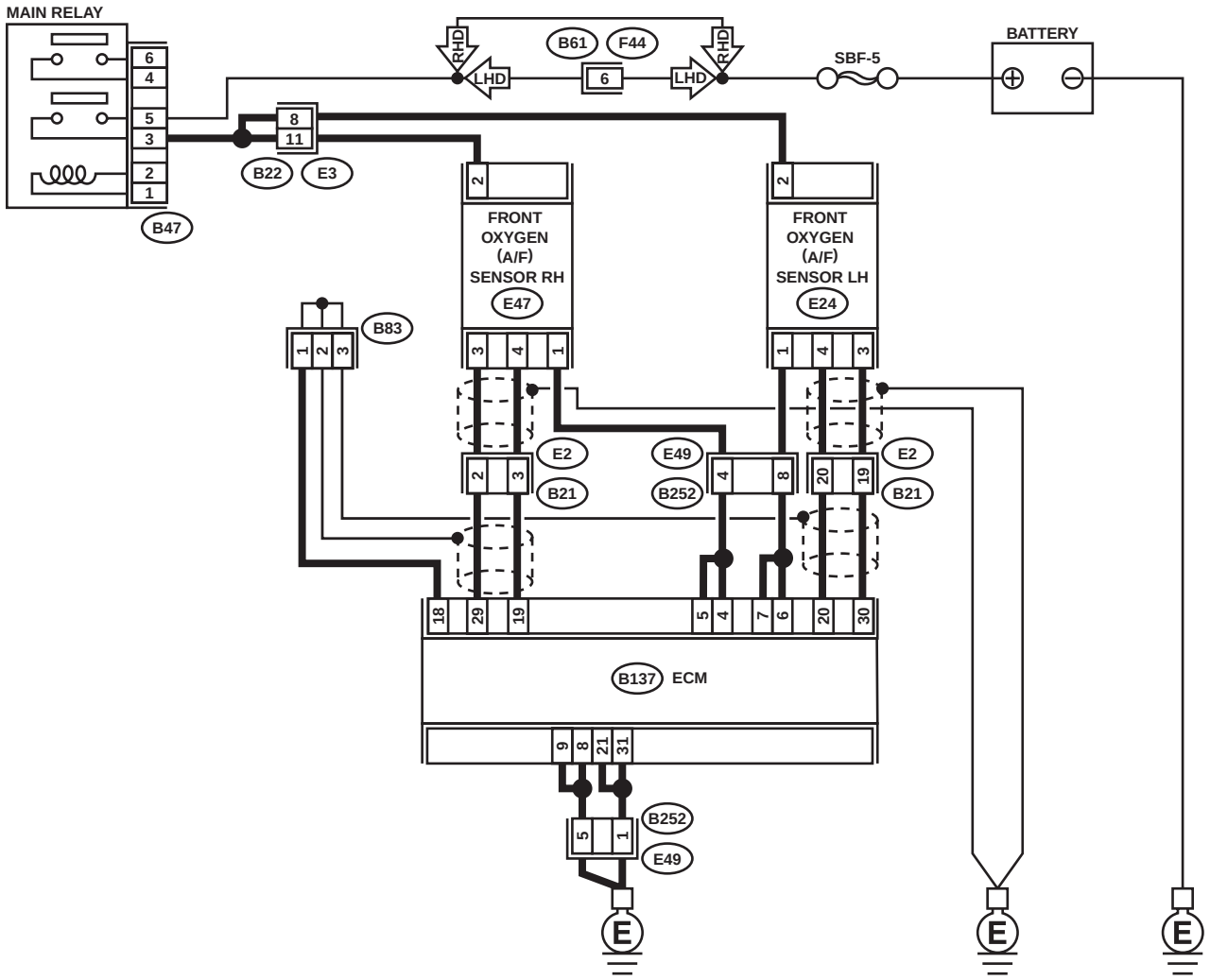
MEMO:

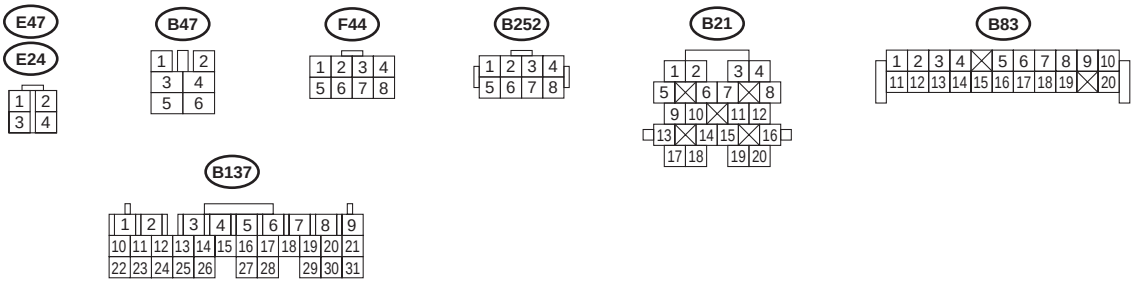
B: DTC P0031 — HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





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	Step	Value	Yes	No
1	**CHECK GROUND CIRCUIT OF ECM.** Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 31 — Chassis ground:*** ***(B137) No. 21 — Chassis ground:*** ***(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 terminal • Poor contact in ECM connector Poor contact in coupling connector
2	**CHECK CURRENT DATA.** 1) Start engine 2) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II 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 **3.**
3	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start and idle the engine. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1.0 V	Go to step **5.**	Go to step **4.**
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (–):*** Does the voltage change less than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	1.0 V	Repair poor contact in ECM connector.	Go to step **5.**
5	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 5 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1.0 V	Go to step **7.**	Go to step **6.**

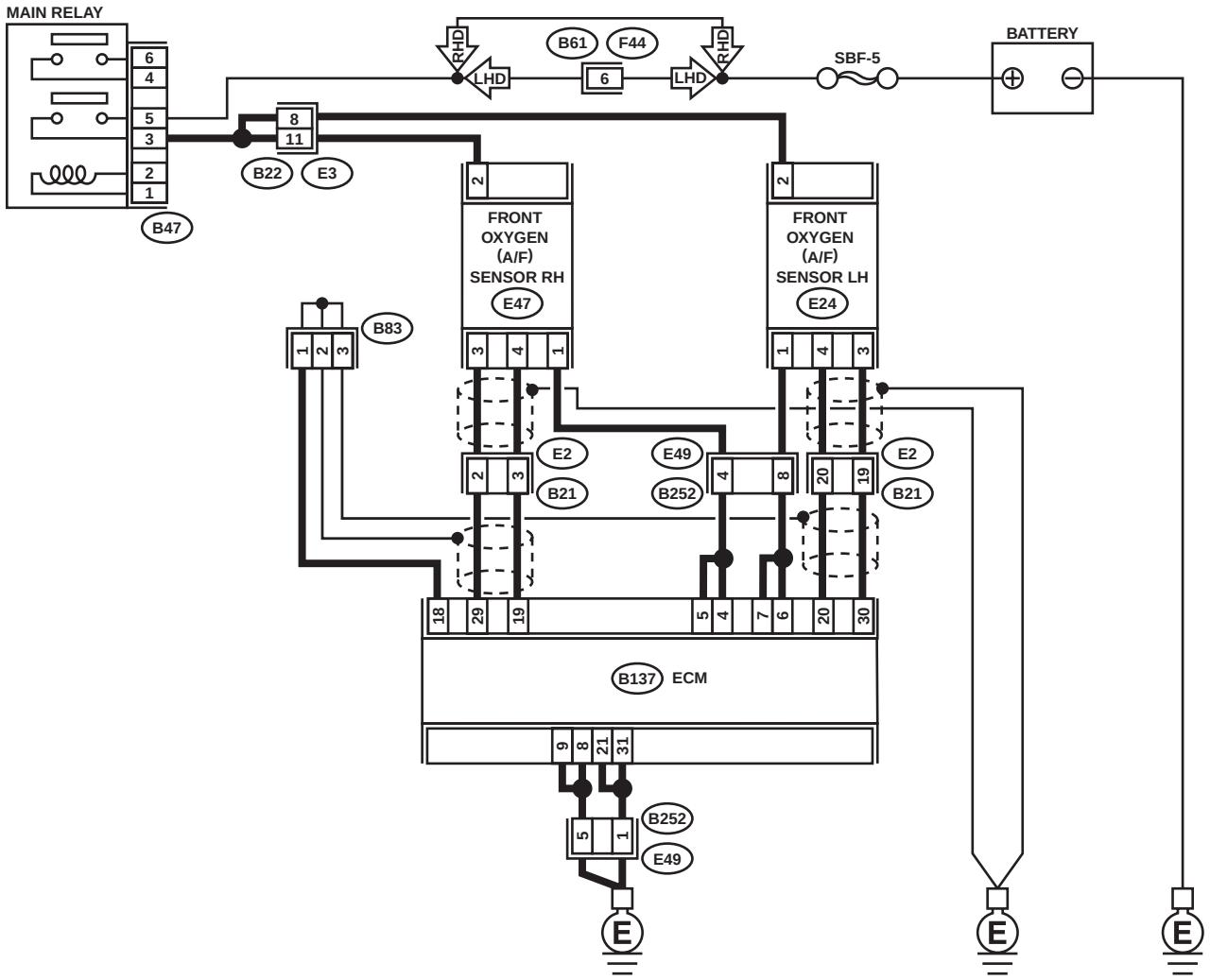
	Step	Value	Yes	No
6	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 5 (+) — Chassis ground (–):*** Does the voltage change less than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	1.0 V	Repair poor contact in ECM connector.	Go to step **7.**
7	**CHECK POWER SUPPLY TO FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from front oxygen (A/F) sensor. 3) Turn ignition switch to ON. 4) Measure voltage between front oxygen (A/F) sensor connector and engine ground. ***Connector & terminal*** ***(E47) No. 2 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10 V	Go to step **8.**	Repair power supply line. NOTE: In this case, repair the following: • Open circuit in harness between main relay and front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in main relay connector
8	**CHECK FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between front oxygen (A/F) sensor connector terminals. ***Terminals*** ***No. 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 ground short circuit in harness between front oxygen (A/F) sensor and ECM connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

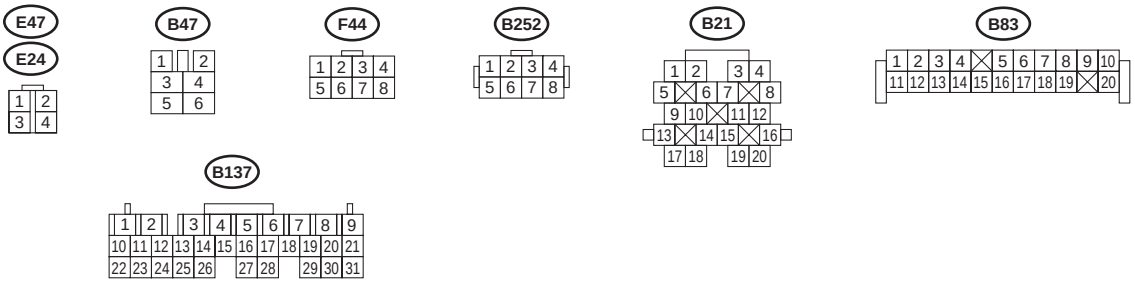
C: DTC P0032 — HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





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	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	8 V	Go to step **3.**	Go to step **2.**
2	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 5 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	8 V	Go to step **3.**	Go to step **4.**
3	**CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT.** 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. 3) Turn ignition switch to ON. 4) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or the OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	2.3 A	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	END
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 4 (+) — Chassis ground (–):*** Does the voltage change more than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	8 V	Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.	Go to step **5.**
5	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 5 (+) — Chassis ground (–):*** Does the voltage change more than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	8 V	Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.	END

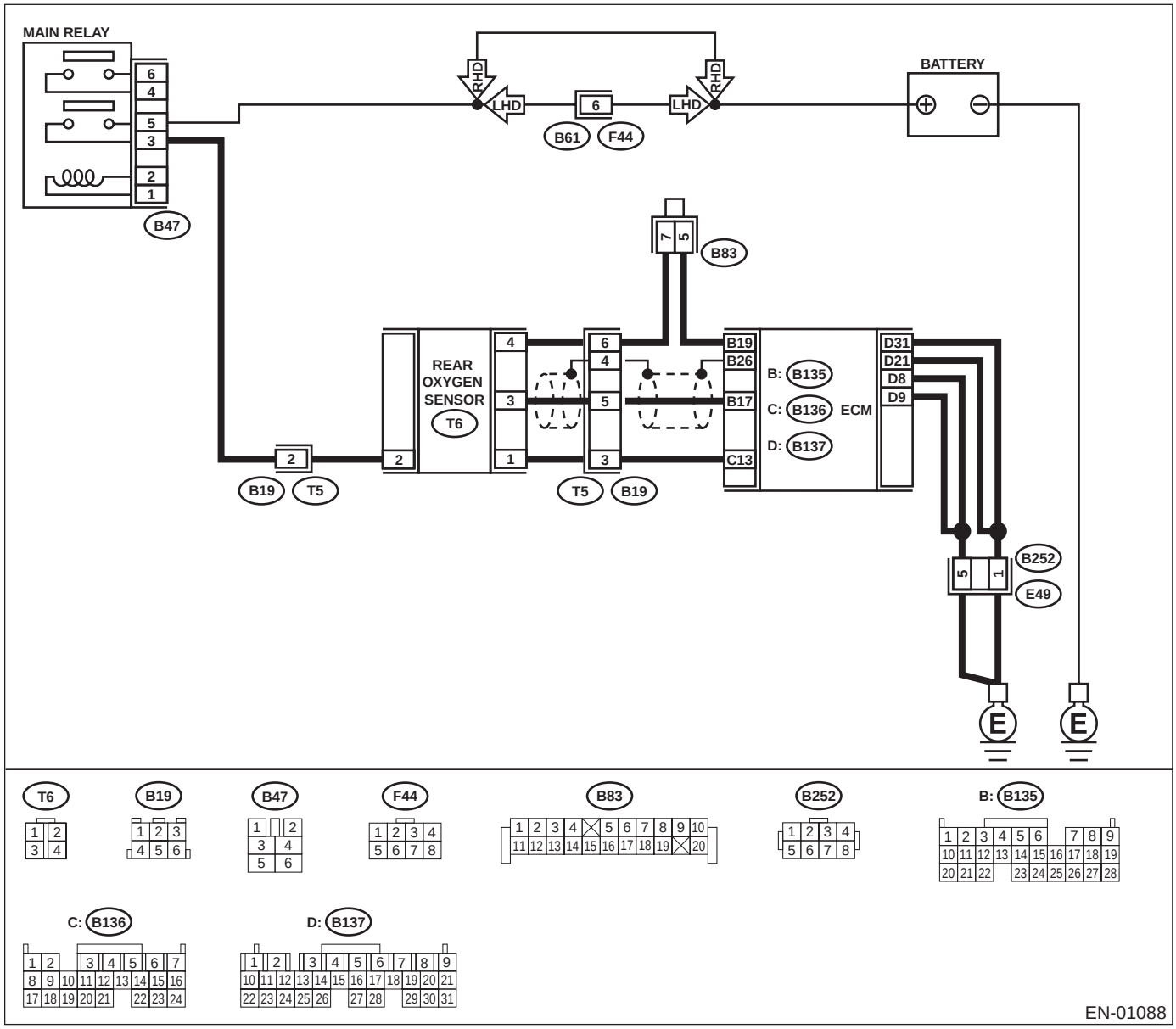
MEMO:

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK GROUND CIRCUIT OF ECM.** 1) Turn ignition switch to OFF. 2) Disconnect ECM connector. 3) Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 31 — Chassis ground:*** ***(B137) No. 21 — Chassis ground:*** ***(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 terminal • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of rear oxygen sensor heater current using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	0.2 A	Repair connector. NOTE: In this case, repair the following: • Poor contact in rear oxygen sensor connector • Poor contact in rear oxygen sensor connecting harness connector • Poor contact in ECM connector	Go to step **3.**
3	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start and idle the engine. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 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 voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 13 (+) — Chassis ground (–):*** Does the voltage change less than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	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 connector from rear oxygen sensor. 3) Measure 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	Contact SUARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Repair battery short circuit in harness between ECM and rear oxygen sensor connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>

	Step	Value	Yes	No
6	**CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from rear oxygen sensor. 3) Turn ignition switch to ON. 4) Measure voltage between rear oxygen sensor connector and engine ground or chassis ground. ***Connector & terminal*** ***(T6) No. 2 (+) — Chassis ground (–):*** Does the measured value exceed 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 rear oxygen sensor connector • Poor contact in coupling connector
7	**CHECK REAR OXYGEN SENSOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between rear oxygen sensor connector terminals. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value less than 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 rear oxygen sensor. <Ref. to FU(H6DO)-45, Rear Oxygen Sensor.>

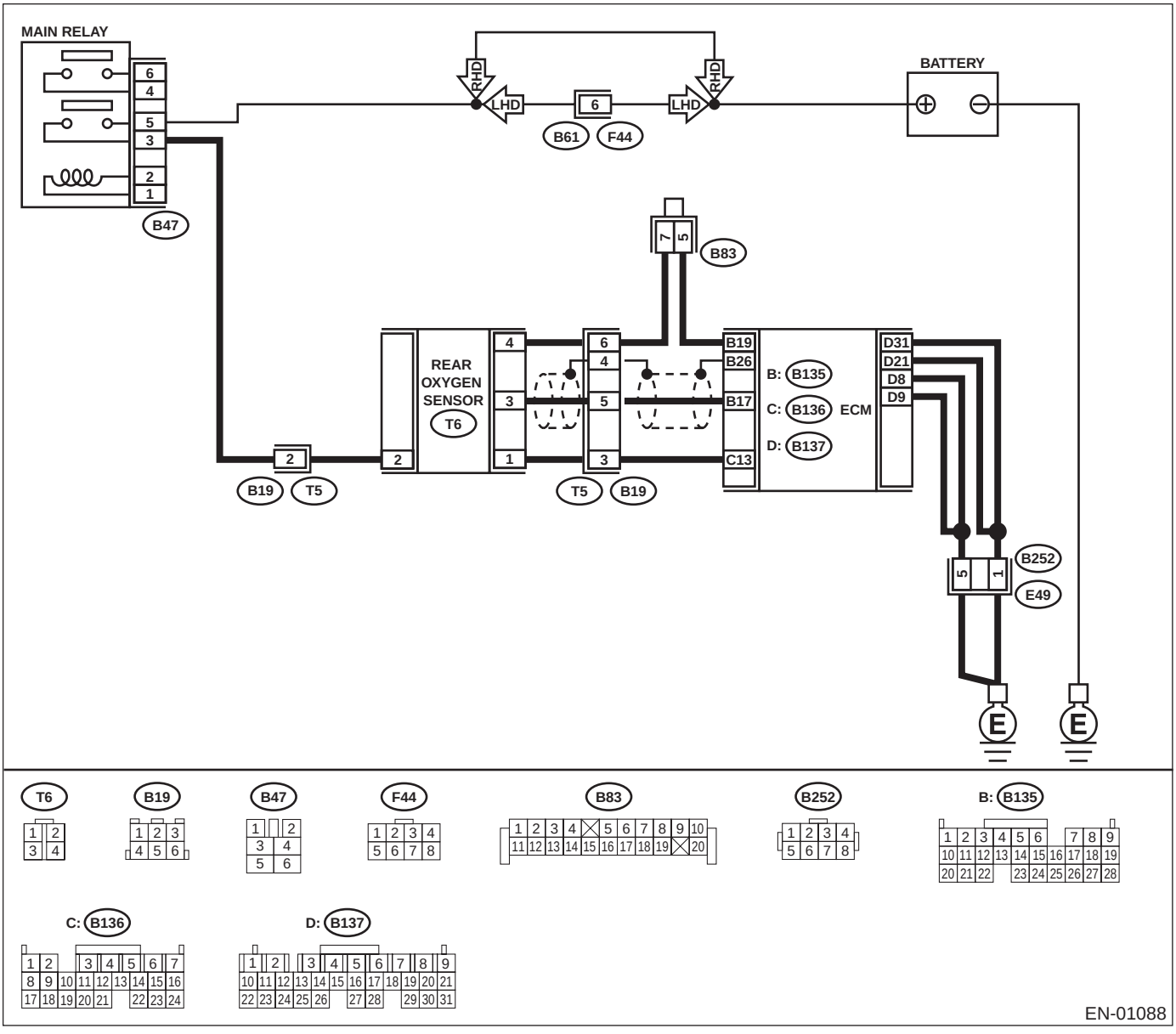
MEMO:

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01088

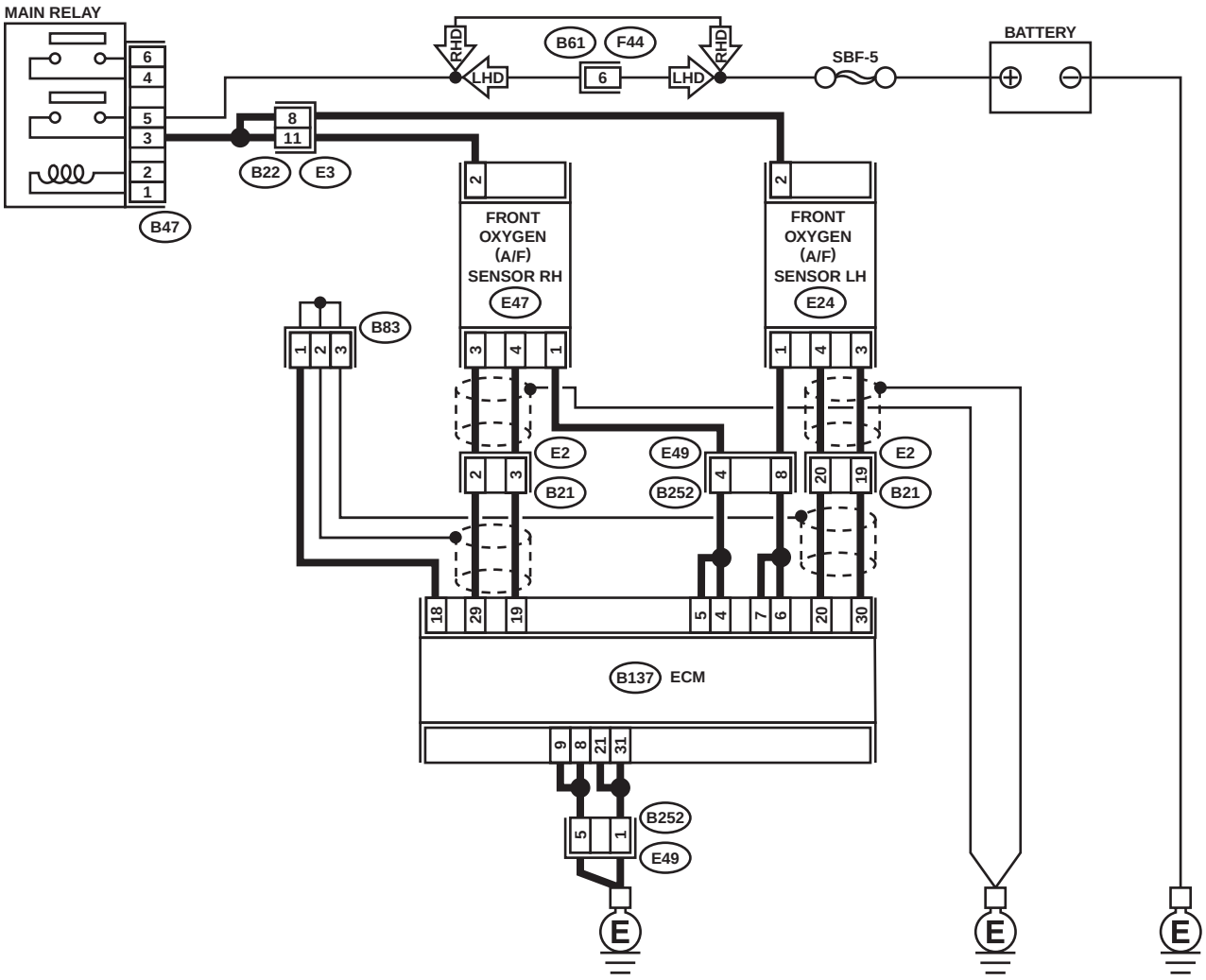
	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 13 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	8 V	Go to step **2.**	Go to step **3.**
2	**CHECK CURRENT DATA.** 1) Repair battery short circuit in harness between ECM and rear oxygen sensor connector. 2) Turn ignition switch to ON. 3) Read data of rear oxygen sensor heater current using Subaru Select Monitor or the OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	7 A	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	END
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	END

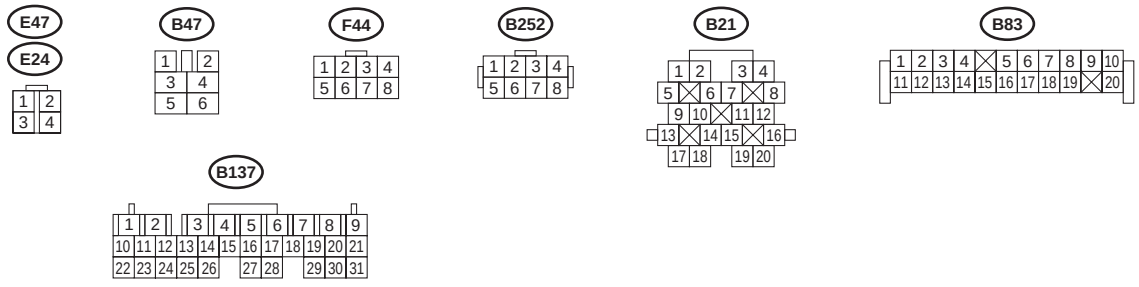
F: DTC P0050 — HO2S HEATER CONTROL CIRCUIT (BANK 2 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

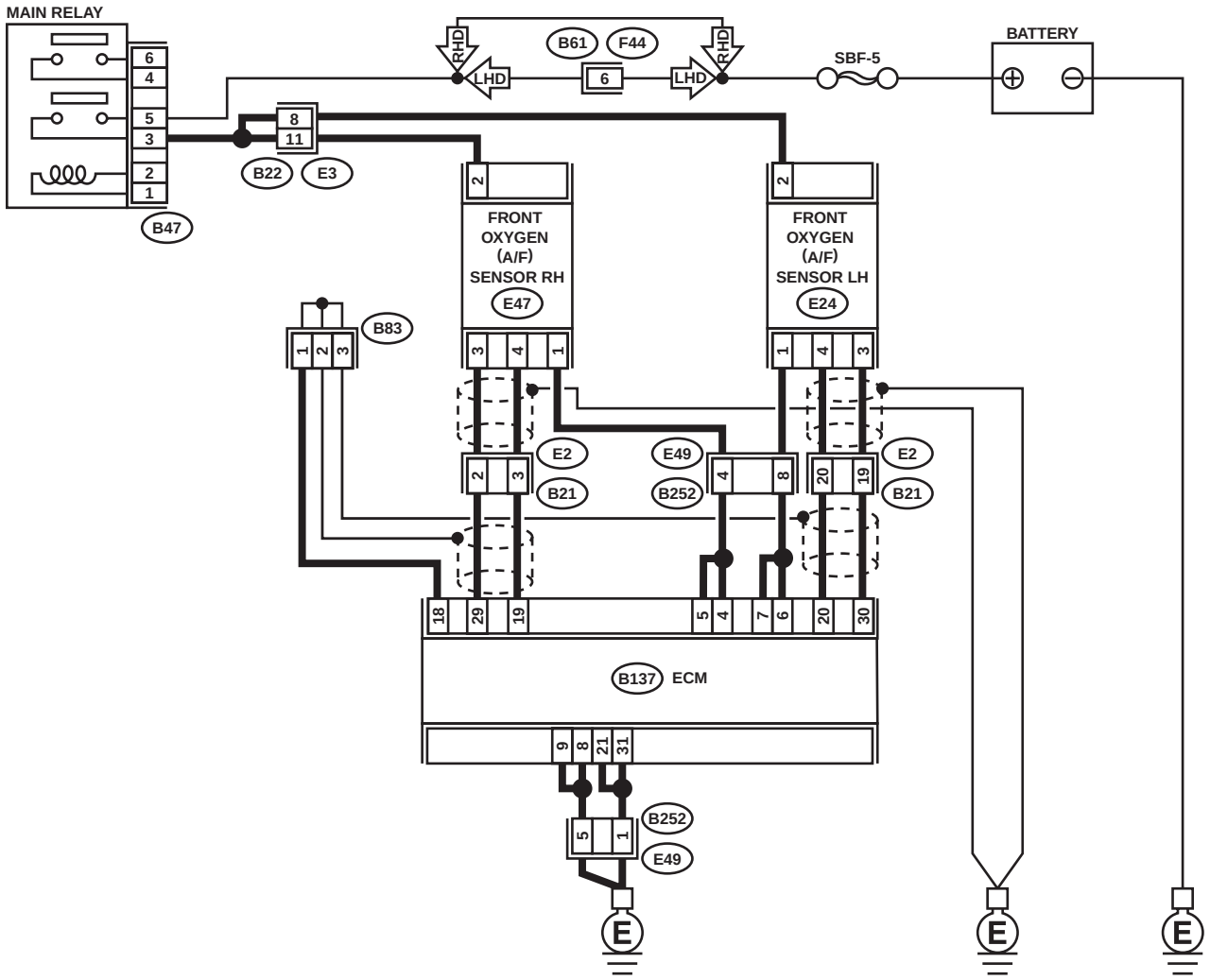
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Disconnect connectors from ECM and front oxygen (A/F) sensor. 4) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 6 — (E24) No. 1:*** ***(B137) No. 7 — (E24) No. 1:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair 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 resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 20 — (E24) No. 4:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair 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 resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 30 — (E24) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair open circuit in harness between ECM and front oxygen (A/F) sensor connector.
4	**CHECK FRONT OXYGEN (A/F) SENSOR.** Measure resistance between front oxygen (A/F) sensor connector terminals. ***Terminals*** ***No. 2 — No. 1:*** Is the measured value less than the specified value?	5 Ω	Go to step **5.**	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>
5	**CHECK POOR CONTACT.** Check poor contact in ECM and front oxygen (A/F) sensor connector. Is there poor contact in ECM or front oxygen (A/F) sensor connector?	There is poor contact.	Repair poor contact in ECM or front oxygen (A/F) sensor connector.	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

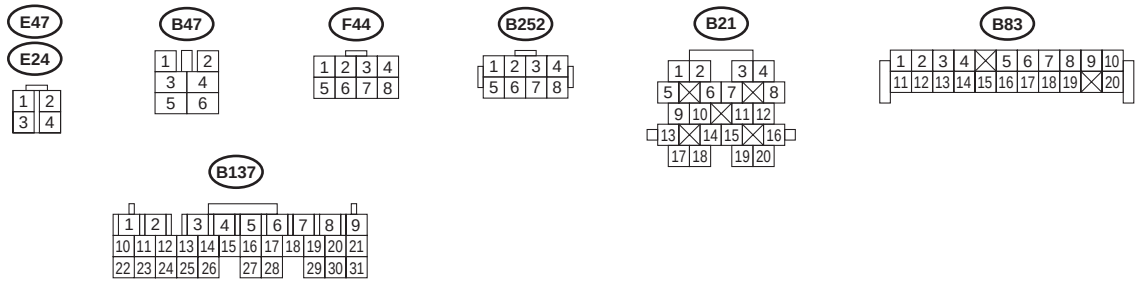
G: DTC P0051 — HO2S HEATER CONTROL CIRCUIT LOW (BANK 2 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK GROUND CIRCUIT OF ECM.** Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 31 — Chassis ground:*** ***(B137) No. 21 — Chassis ground:*** ***(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 terminal • Poor contact in ECM connector Poor contact in coupling connector
2	**CHECK CURRENT DATA.** 1) Start engine 2) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II 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 **3.**
3	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start and idle the engine. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 7 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1.0 V	Go to step **5.**	Go to step **4.**
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 7 (+) — Chassis ground (–):*** Does the voltage change less than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	1.0 V	Repair poor contact in ECM connector.	Go to step **5.**
5	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 6 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1.0 V	Go to step **7.**	Go to step **6.**

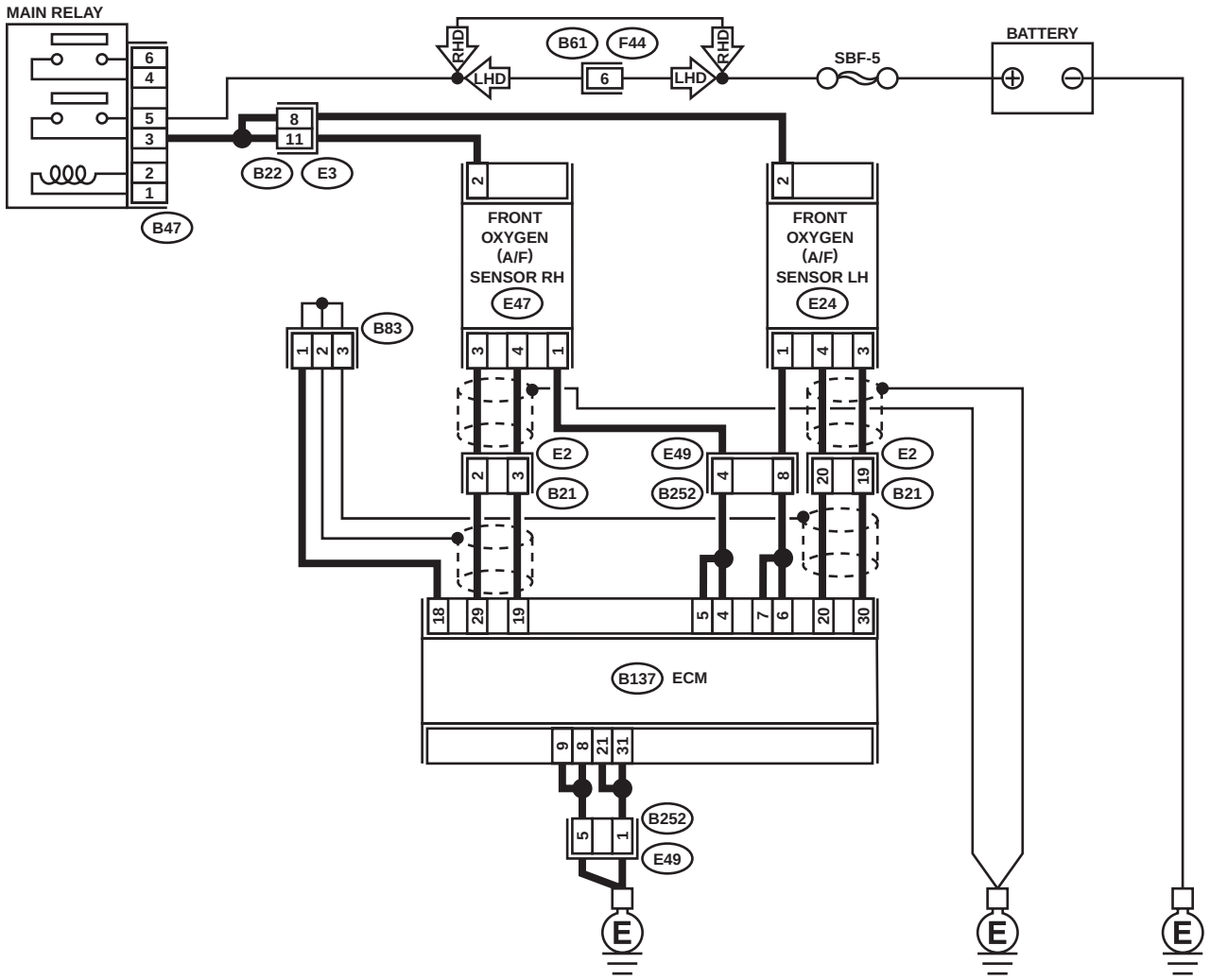
	Step	Value	Yes	No
6	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 6 (+) — Chassis ground (–):*** Does the voltage change less than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	1.0 V	Repair poor contact in ECM connector.	Go to step **7.**
7	**CHECK POWER SUPPLY TO FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from front oxygen (A/F) sensor. 3) Turn ignition switch to ON. 4) Measure voltage between front oxygen (A/F) sensor connector and engine ground. ***Connector & terminal*** ***(E24) No. 2 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10 V	Go to step **8.**	Repair power supply line. NOTE: In this case, repair the following: • Open circuit in harness between main relay and front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in main relay connector
8	**CHECK FRONT OXYGEN (A/F) SENSOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between front oxygen (A/F) sensor connector terminals. ***Terminals*** ***No. 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 ground short circuit in harness between front oxygen (A/F) sensor and ECM connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

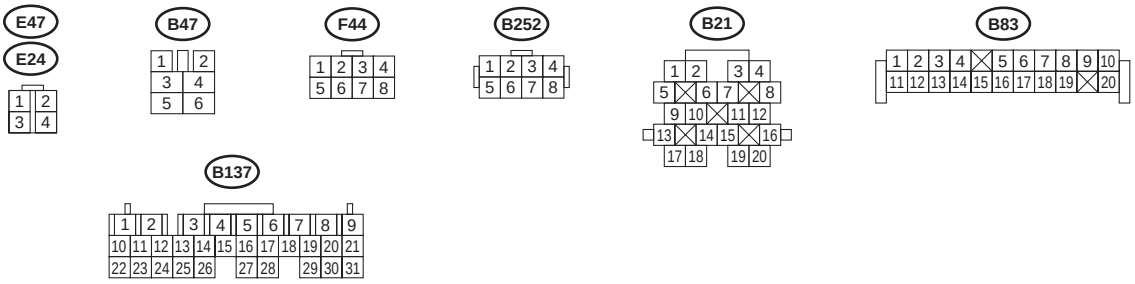
H: DTC P0052 — HO2S HEATER CONTROL CIRCUIT HIGH (BANK 2 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 6 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	8 V	Go to step **3.**	Go to step **2.**
2	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 7 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	8 V	Go to step **3.**	Go to step **4.**
3	**CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT.** 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. 3) Turn ignition switch to ON. 4) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or the OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	2.3 A	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	END
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 6 (+) — Chassis ground (–):*** Does the voltage change more than the specified value shaking harness and connector of ECM while monitoring the value with voltage meter?	8 V	Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.	Go to step **5.**
5	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 7 (+) — Chassis ground (–):*** Does the voltage change more than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	8 V	Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector.	END

MEMO:

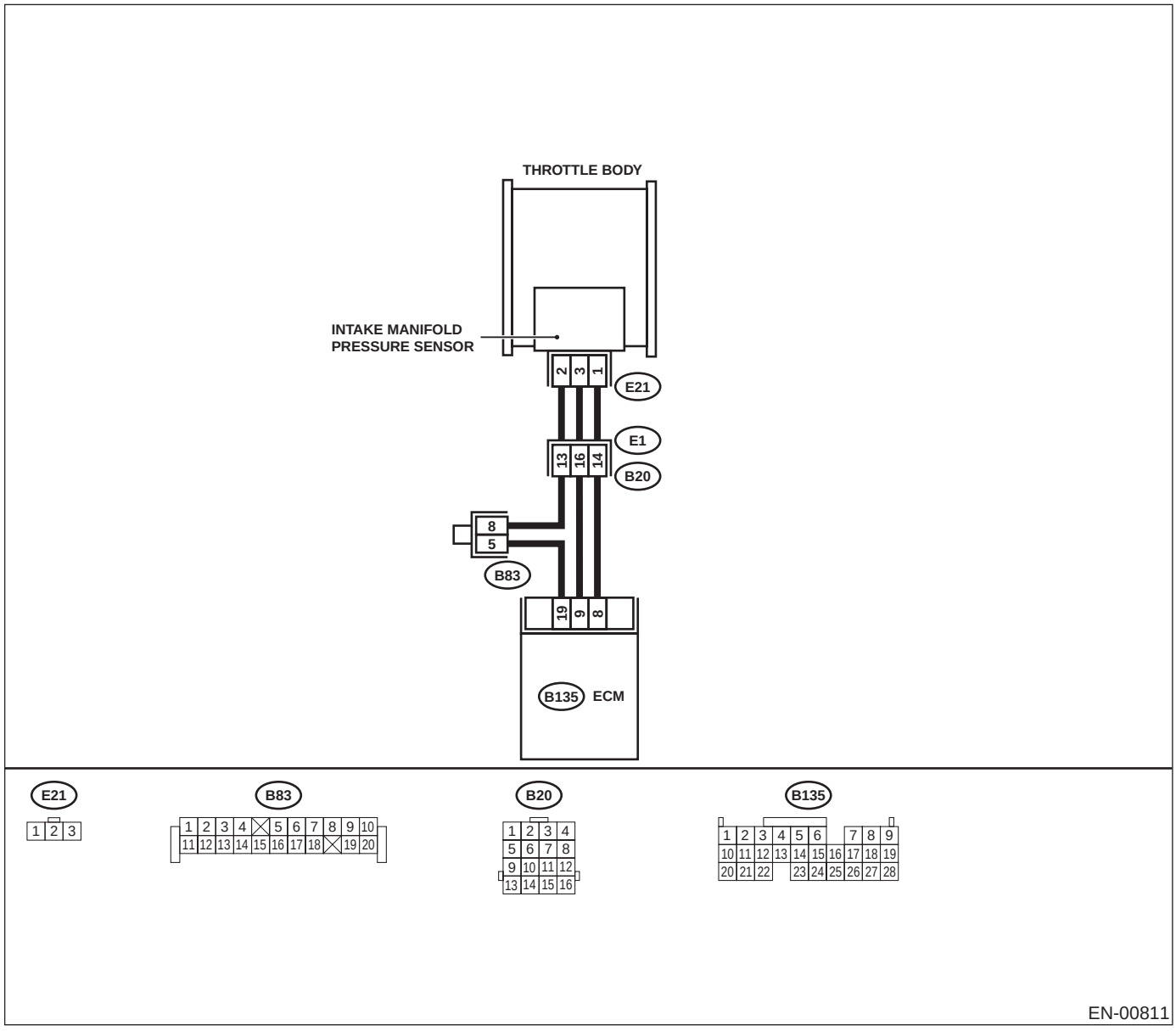
I: DTC P0068 — MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT RANGE/PERFORMANCE —

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

- **TROUBLE SYMPTOM**
  - Erroneous idling

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



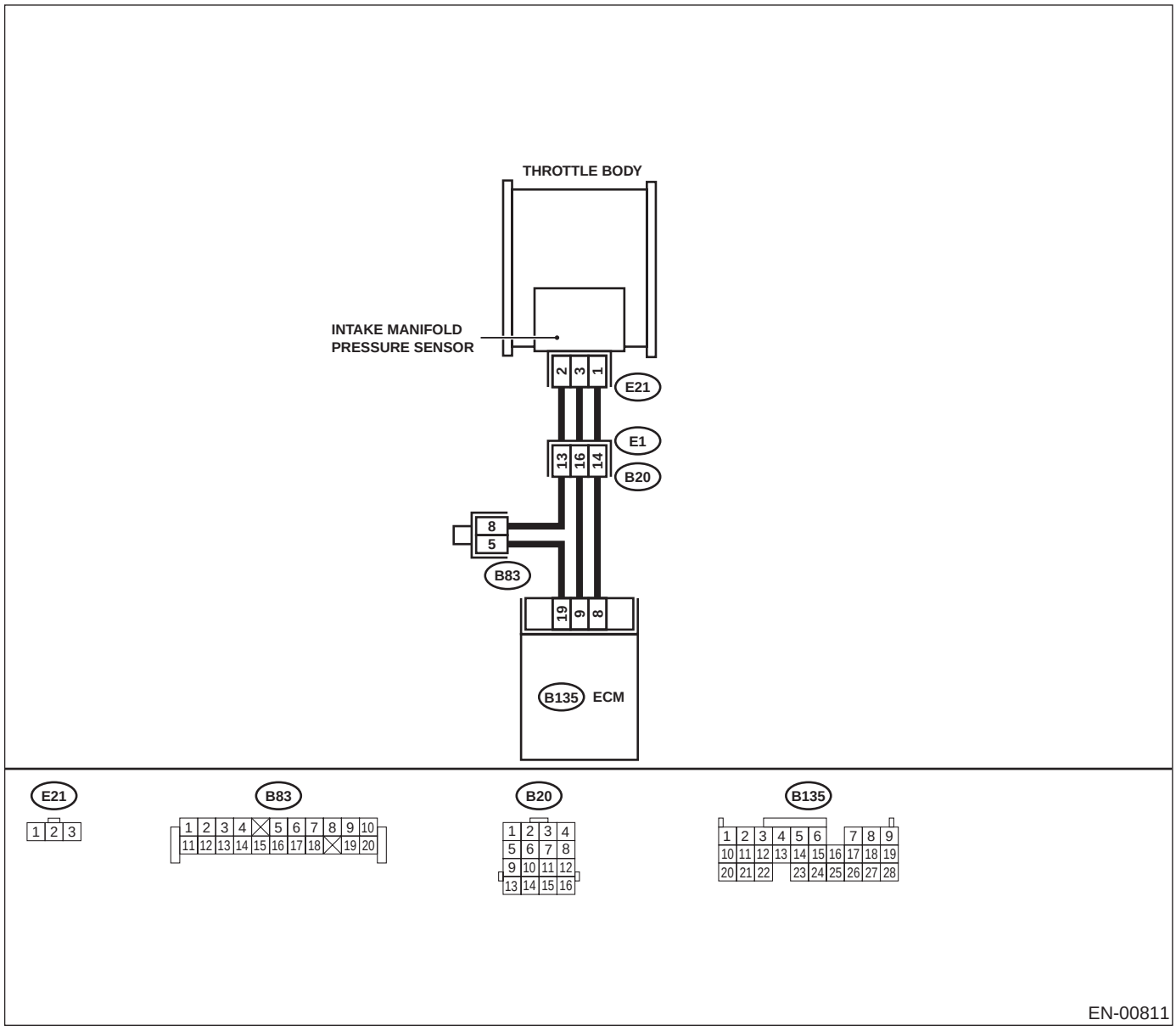
	Step	Value	Yes	No
1	**CHECK IDLE SWITCH SIGNAL.** 1) Turn ignition switch to ON. 2) Operate the LED operation mode for engine using Subaru Select Monitor. Does the LED of {Idle Switch Signal} come on? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.>	LED comes on.	Go to step **2.**	Check throttle position sensor circuit. <Ref. to EN(H6DO)-148, 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 ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (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 intake manifold pressure sensor installation bolt tightened securely?	Tightened securely.	Go to step **4.**	Tighten intake manifold pressure sensor installation bolt securely.
4	**CHECK CONDITION OF THROTTLE BODY.** Is the throttle body installation bolt tightened securely?	Tightened securely.	Go to step **5.**	Tighten throttle body installation bolt securely.
5	**CHECK CONDITION OF EGR VALVE.** Is there any foreign object caught between EGR solenoid valve and intake manifold?	There is a foreign object.	Completely remove foreign object, and install EGR solenoid valve securely to the intake manifold.	Replace intake manifold pressure sensor. <Ref. to FU(H6DO)-34, Intake Manifold Pressure Sensor.>

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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read the data of intake manifold absolute pressure 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 procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	1.7 kPa (13 mmHg, 0.51 inHg)	Go to step **3.**	Go to step **2.**
2	**CHECK POOR CONTACT.** Check poor contact in ECM and pressure sensor connector. Is there poor contact in ECM or pressure sensor connector?	There is poor contact.	Repair poor contact in ECM or pressure sensor connector.	Even if MI lights up, the circuit has returned to a normal condition at this time.
3	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4.5 V	Go to step **5.**	Go to step **4.**
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Does the voltage change more than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	4.5 V	Repair poor contact in ECM connector.	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
5	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.7 V	Go to step **7.**	Go to step **6.**
6	**CHECK INPUT SIGNAL FOR ECM.** Read data of intake manifold atmospheric absolute pressure signal using Subaru Select Monitor. Does the value change more than the specified value by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.>	1.7 kPa (13 mmHg, 0.51 inHg)	Repair poor contact in ECM connector.	Go to step **7.**

	Step	Value	Yes	No
7	**CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from intake manifold pressure sensor. 3) Turn ignition switch to ON. 4) Measure voltage between intake manifold pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 3 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	4.5 V	Go to step **8.**	Repair open circuit in harness between ECM and intake manifold pressure sensor connector.
8	**CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure 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 **9.**	Repair open circuit in harness between ECM and intake manifold pressure sensor connector.
9	**CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.** Measure resistance of harness between intake manifold pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 1 — Engine ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **10.**	Repair ground short circuit in harness between ECM and intake manifold pressure sensor connector.
10	**CHECK POOR CONTACT.** Check poor contact in intake manifold pressure sensor connector. Is there poor contact in intake manifold pressure sensor connector?	There is poor contact.	Repair poor contact in intake manifold pressure sensor connector.	Replace intake manifold pressure sensor. <Ref. to FU(H6DO)-34, Intake Manifold Pressure Sensor.>

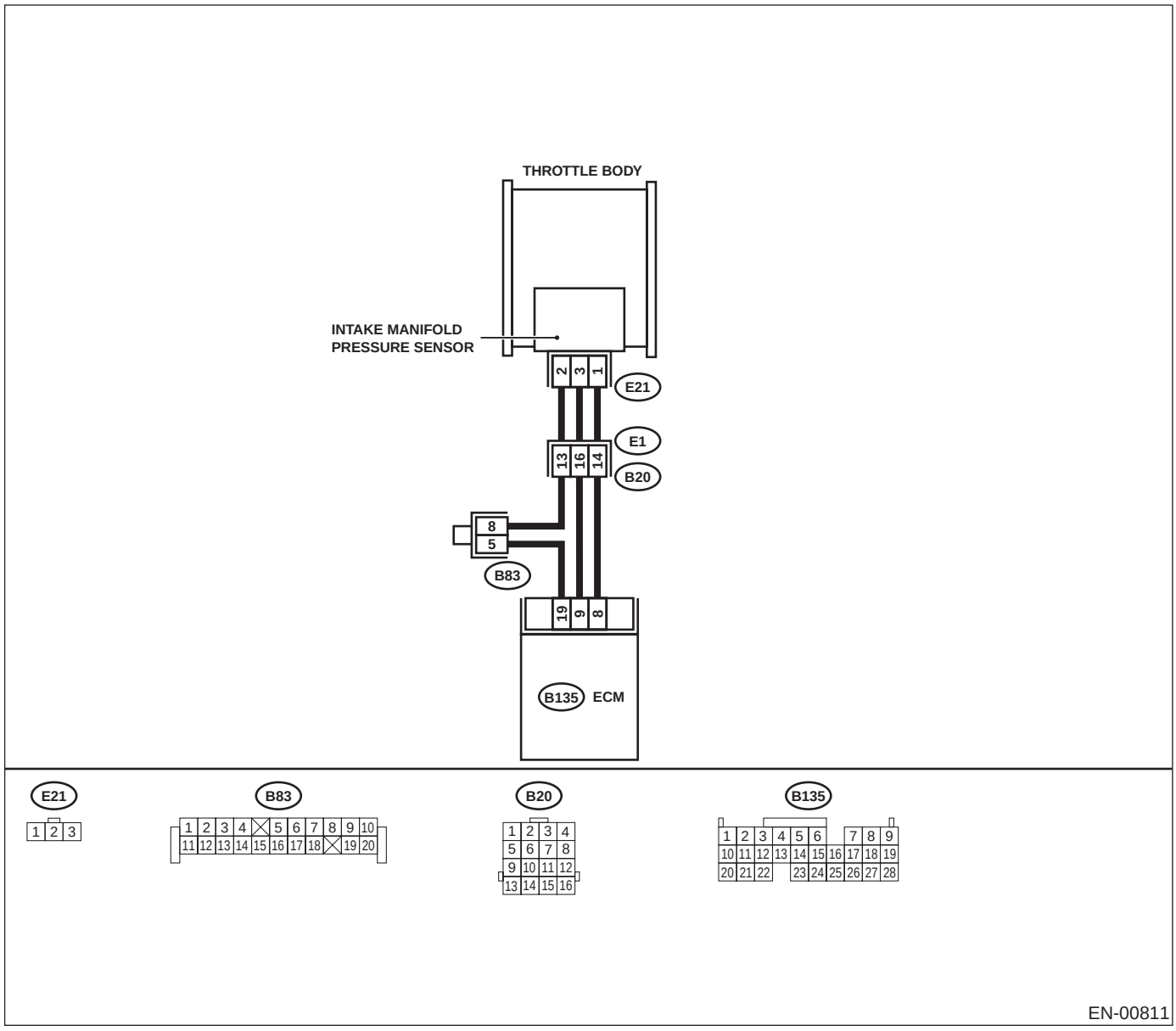
MEMO:

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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	130 kPa (975 mmHg, 38.39 inHg)	Go to step **10.**	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4.5 V	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — Chassis ground (–):*** Does the voltage change more than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	4.5 V	Repair poor contact in ECM connector.	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 8 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	0.7 V	Go to step **6.**	Go to step **5.**
5	**CHECK INPUT SIGNAL FOR ECM.** Read data of intake manifold atmospheric absolute pressure signal using Subaru Select Monitor. Does the value change more than the specified value by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.>	1.7 kPa (13 mmHg, 0.51 inHg)	Repair poor contact in ECM connector.	Go to step **6.**

	Step	Value	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from intake manifold pressure sensor. 3) Turn ignition switch to ON. 4) Measure voltage between intake manifold pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 3 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	4.5 V	Go to step **7.**	Repair open circuit in harness between ECM and intake manifold pressure sensor connector.
7	**CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and intake manifold 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 **8.**	Repair open circuit in harness between ECM and intake manifold pressure sensor connector.
8	**CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR.** Measure 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 **9.**	Repair open circuit in harness between ECM and intake manifold pressure sensor connector.
9	**CHECK POOR CONTACT.** Check poor contact in intake manifold pressure sensor connector. Is there poor contact in intake manifold pressure sensor connector?	There is poor contact.	Repair poor contact in intake manifold pressure sensor connector.	Replace intake manifold pressure sensor. <Ref. to FU(H6DO)-34, Intake Manifold Pressure Sensor.>

	Step	Value	Yes	No
10	**CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.** 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF. 2) Disconnect connector from pressure sensor. 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON. 4) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	130 kPa (975 mmHg, 38.39 inHg)	Repair battery short circuit in harness between ECM and intake manifold pressure sensor connector.	Replace intake manifold pressure sensor. <Ref. to FU(H6DO)-34, Intake Manifold Pressure Sensor.>

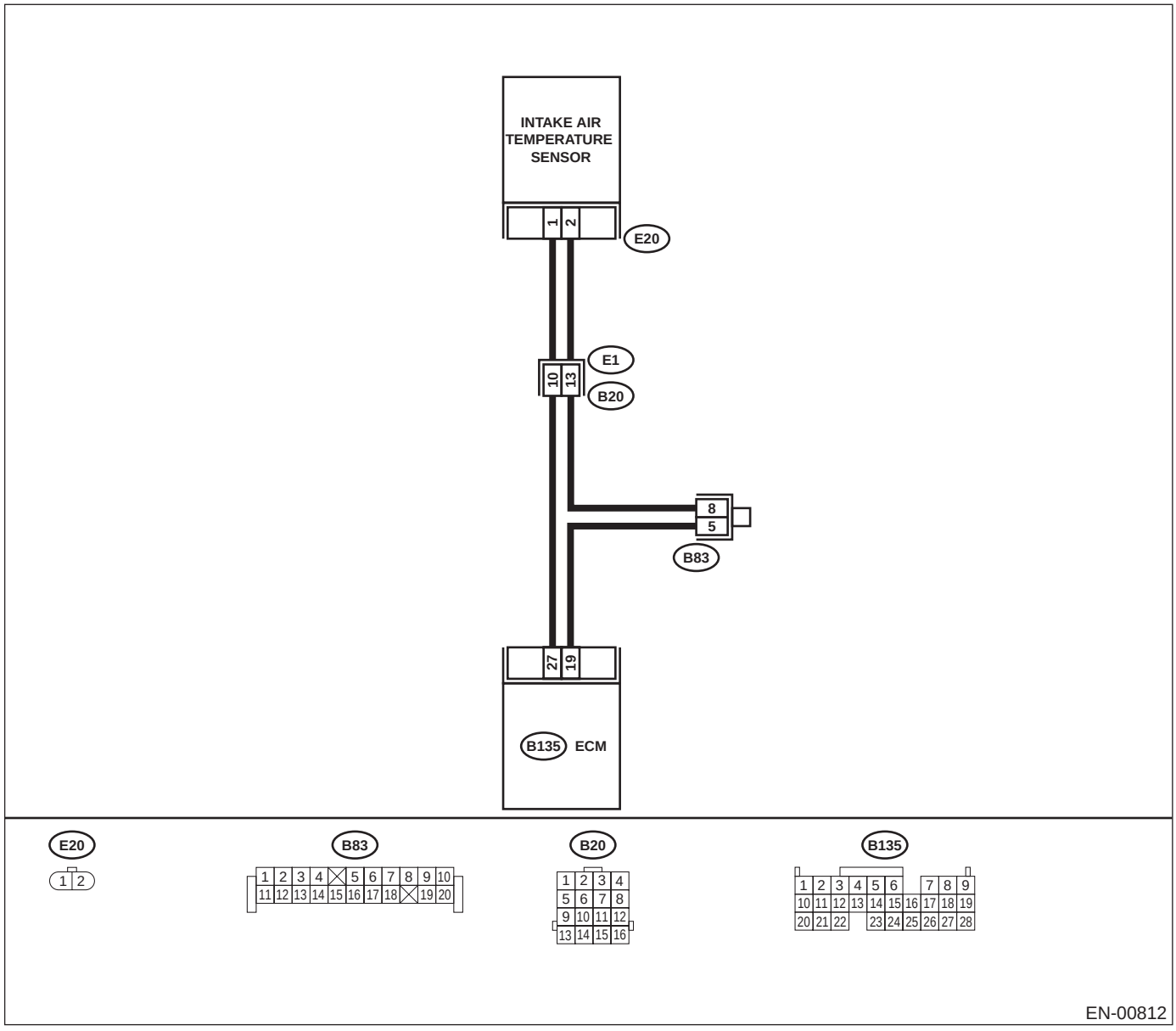
L: DTC P0111 — INTAKE AIR TEMPERATURE CIRCUIT RANGE/PERFORMANCE —

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

- **TROUBLE SYMPTOM:**
  - Erroneous idling
  - Poor driving performance

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0111.	Replace intake air temperature sensor. <Ref. to FU(H6DO)-35, Intake Air Temperature Sensor.>

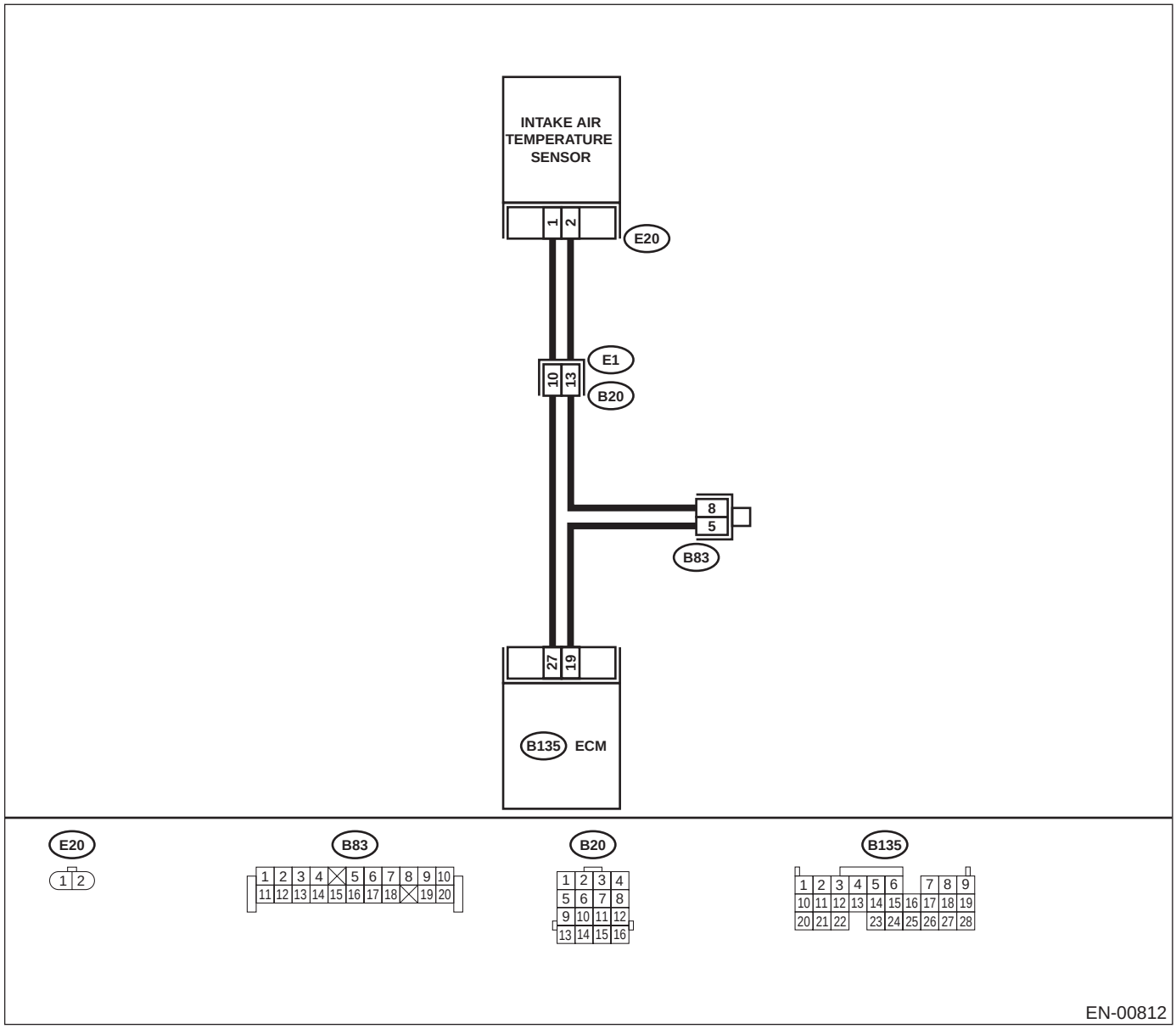
M: DTC P0112 — INTAKE AIR TEMPERATURE CIRCUIT LOW INPUT —

- **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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, 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 intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air temperature sensor. 3) Turn ignition switch to ON. 4) Read data of intake air temperature 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 procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	–40°C (–40°F)	Replace intake air temperature sensor. <Ref. to FU(H6DO)-35, Intake Air Temperature Sensor.>	Repair ground short circuit in harness between intake air temperature sensor and ECM connector.

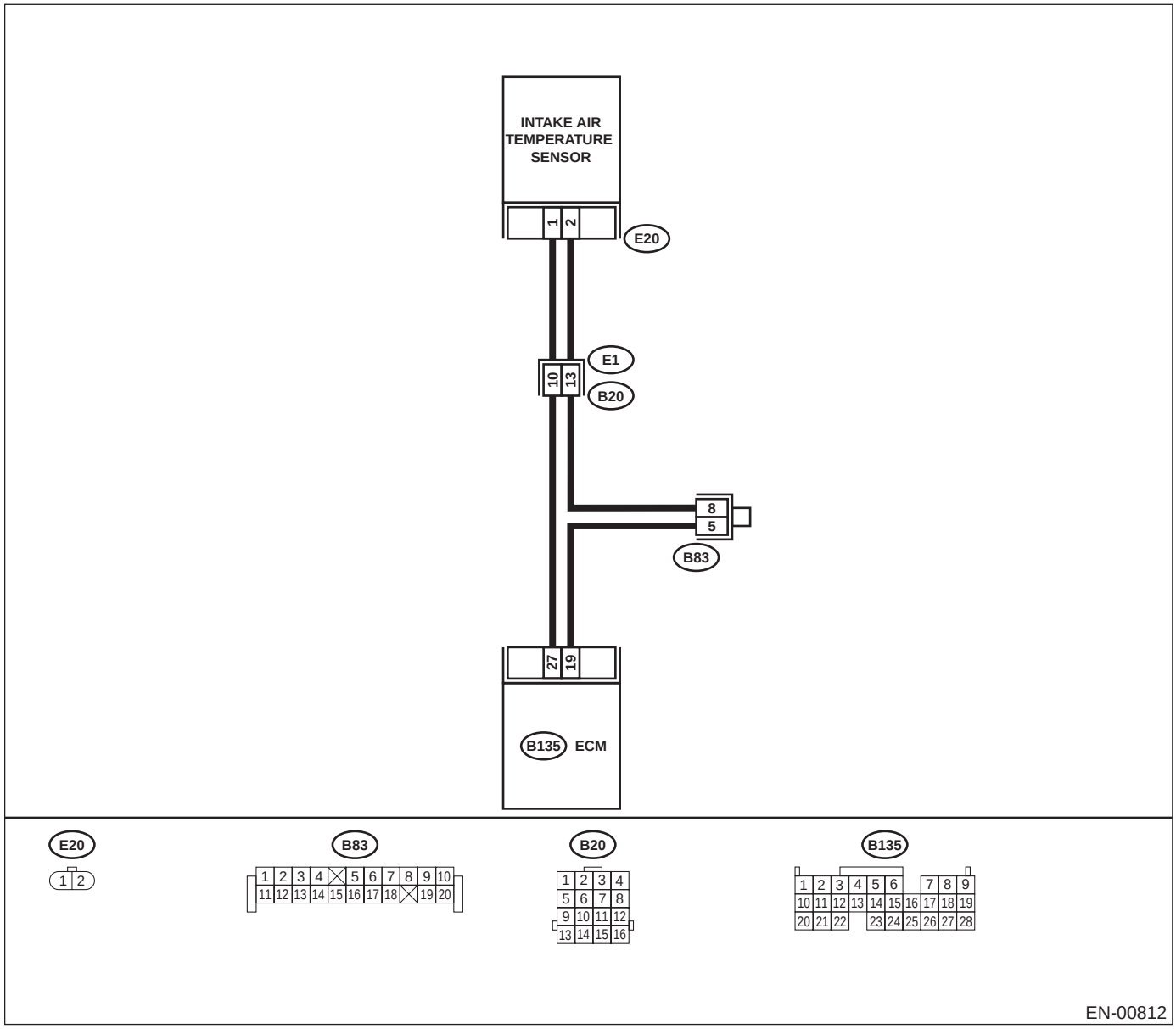
N: DTC P0113 — INTAKE AIR TEMPERATURE CIRCUIT HIGH INPUT —

- **DTC DETECTING CONDITION:**
  - 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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Turn ignition switch to ON. 2) Start engine. 3) Read data of intake air temperature 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 procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, 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 intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air temperature sensor. 3) Measure voltage between intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 1 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between intake air temperature sensor and ECM connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 1 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between intake air temperature sensor and ECM connector.	Go to step **4.**
4	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure voltage between intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 1 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	3 V	Go to step **5.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between intake air temperature sensor and ECM connector • Poor contact in intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector

Step		Value	Yes	No
5	**CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness between intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(E20) No. 2 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Replace intake air temperature sensor. <Ref. to FU(H6DO)-35, Intake Air Temperature Sensor.>	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between intake air temperature sensor and ECM connector • Poor contact in intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector

MEMO:

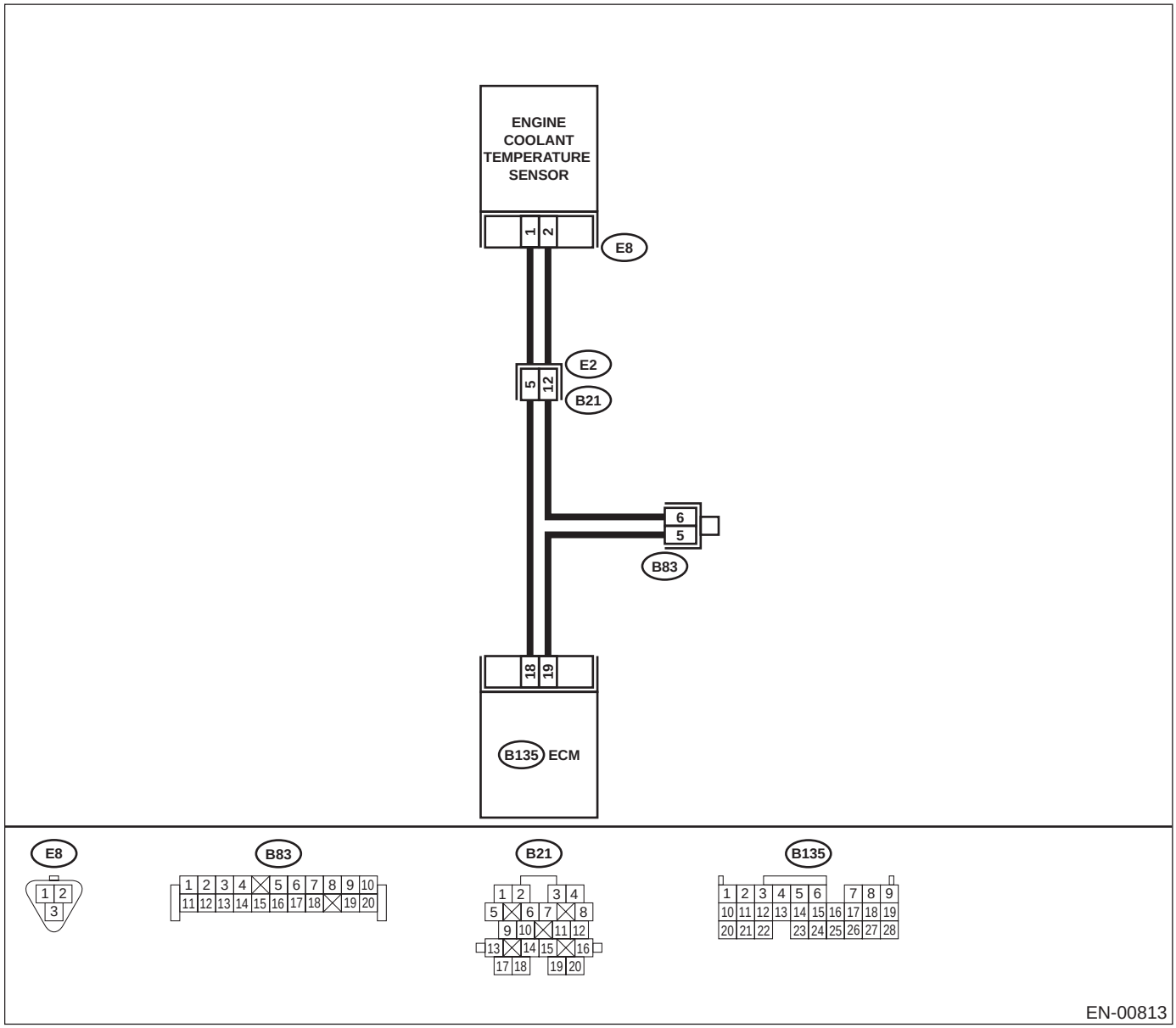
O: DTC P0117 — ENGINE COOLANT TEMPERATURE CIRCUIT LOW INPUT —

- **DTC DETECTING CONDITION:**
  - 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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



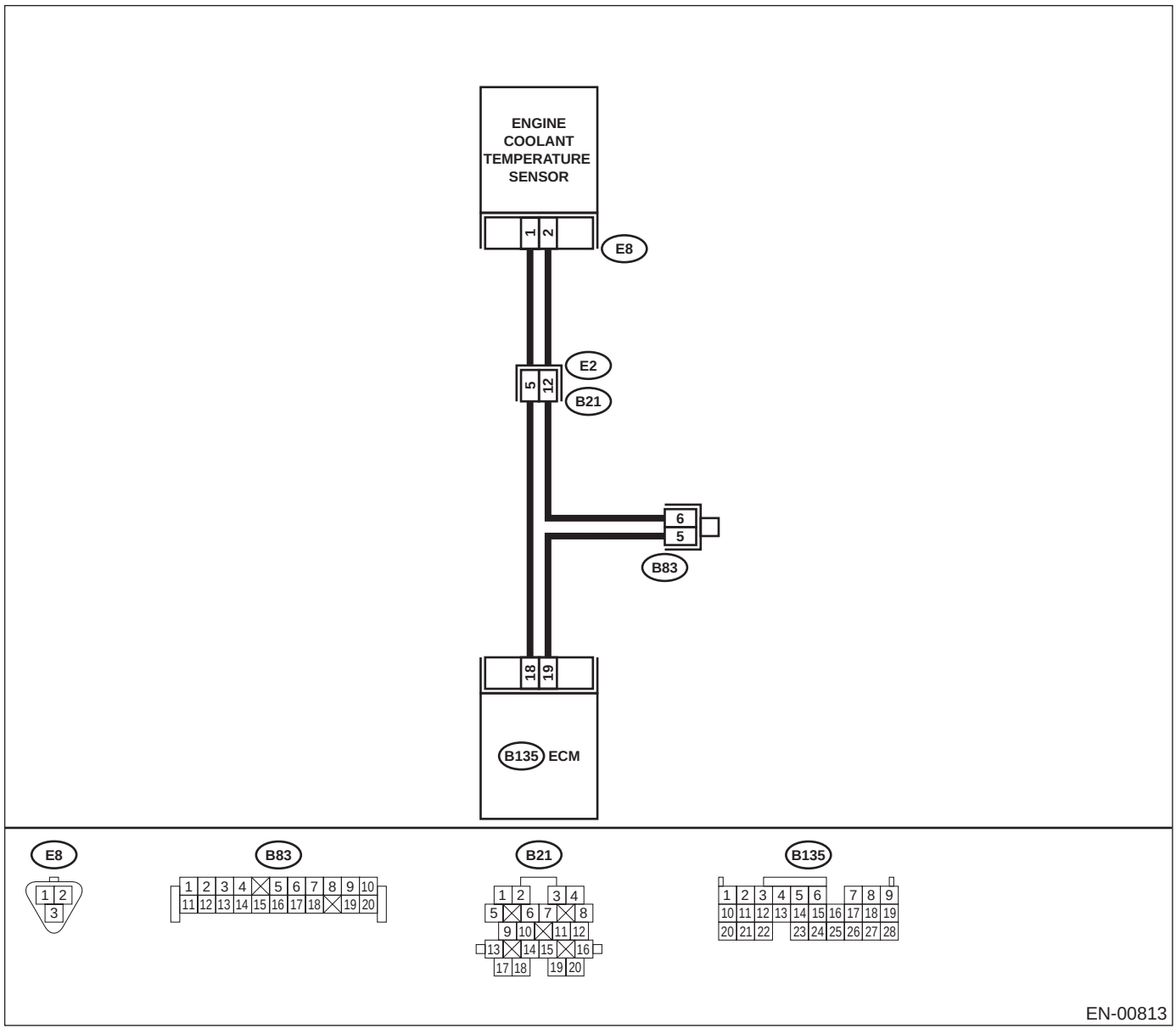
	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, 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 connector from engine coolant temperature sensor. 3) Turn ignition switch to ON. 4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value less than the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, 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 engine coolant temperature sensor. <Ref. to FU(H6DO)-29, Engine Coolant Temperature Sensor.>	Repair ground short circuit in harness between engine coolant temperature sensor and ECM connector.

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

- **DTC DETECTING CONDITION:**
  - 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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read 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 procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, 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 connector from engine coolant temperature sensor. 3) Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and engine coolant temperature sensor connector.	Go to step **4.**

Step		Value	Yes	No
4	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** Measure voltage between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 1 (+) — Engine ground (–):*** Does the measured value exceed 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
5	**CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground. ***Connector & terminal*** ***(E8) No. 2 — Engine ground:*** Is the measured value less than the specified value?	5 Ω	Replace engine coolant temperature sensor. <Ref. to FU(H6DO)-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

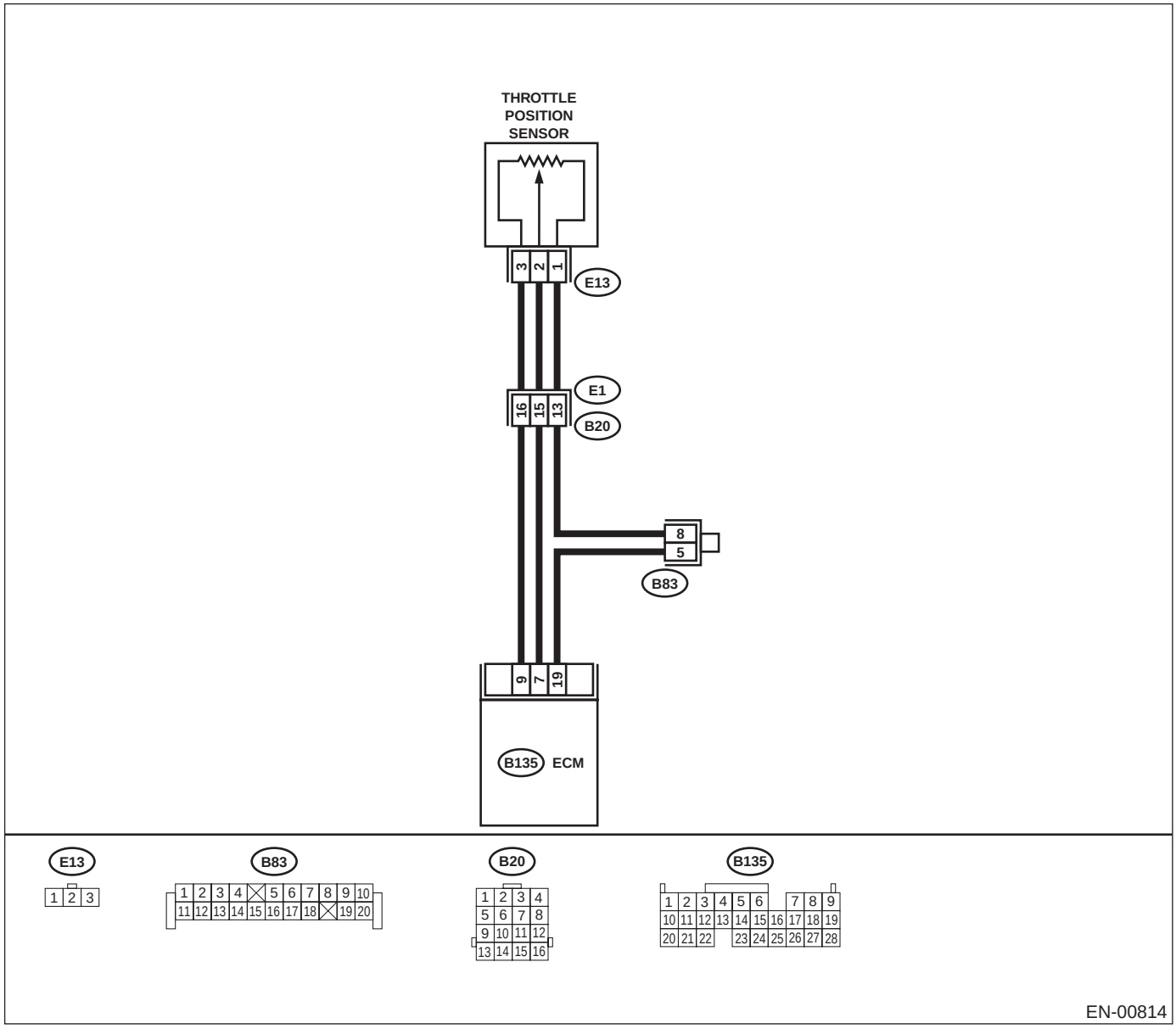
MEMO:

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0121.	Replace throttle position sensor. <Ref. to FU(H6DO)-33, Throttle Position Sensor.>

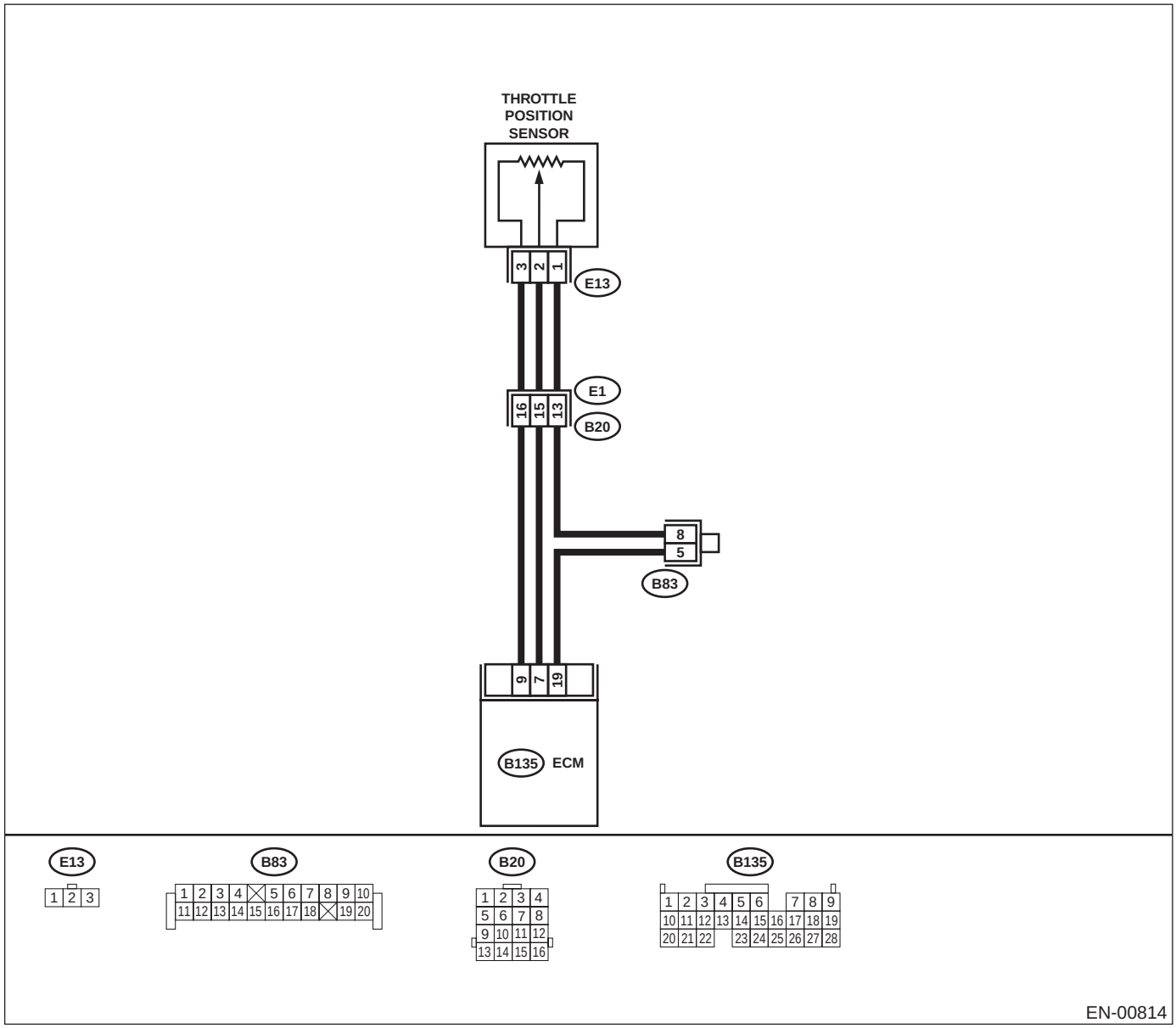
R: DTC P0122 — THROTTLE/PEDAL POSITION SENSOR/SWITCH “A” CIRCUIT LOW INPUT —

- **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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read 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 procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, 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.**	Even if MI lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground while throttle valve is fully closed. ***Connector & terminal*** ***(B135) No. 7 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4.5 V	Go to step **4.**	Go to step **3.**
3	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 7 (+) — Chassis ground (–):*** Does the voltage change more than the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	4.5 V	Repair poor contact in ECM connector.	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 9 (+) — 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 voltage between ECM connector and chassis ground. Does the voltage change more than the specified value by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?	0.1 V	Repair poor contact in ECM connector.	Go to step **6.**

	Step	Value	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from throttle position sensor. 3) Turn ignition switch to ON. 4) Measure voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 1 (+) — Engine ground (–):*** Does the measured value exceed 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 resistance of harness between ECM connector and throttle position sensor connector. ***Connector & terminal*** ***(B135) No. 9 — (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 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 ground short circuit in harness between throttle position sensor and ECM connector.	Go to step **9.**
9	**CHECK POOR CONTACT.** Check 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 throttle position sensor. <Ref. to FU(H6DO)-33, Throttle Position Sensor.>

MEMO:

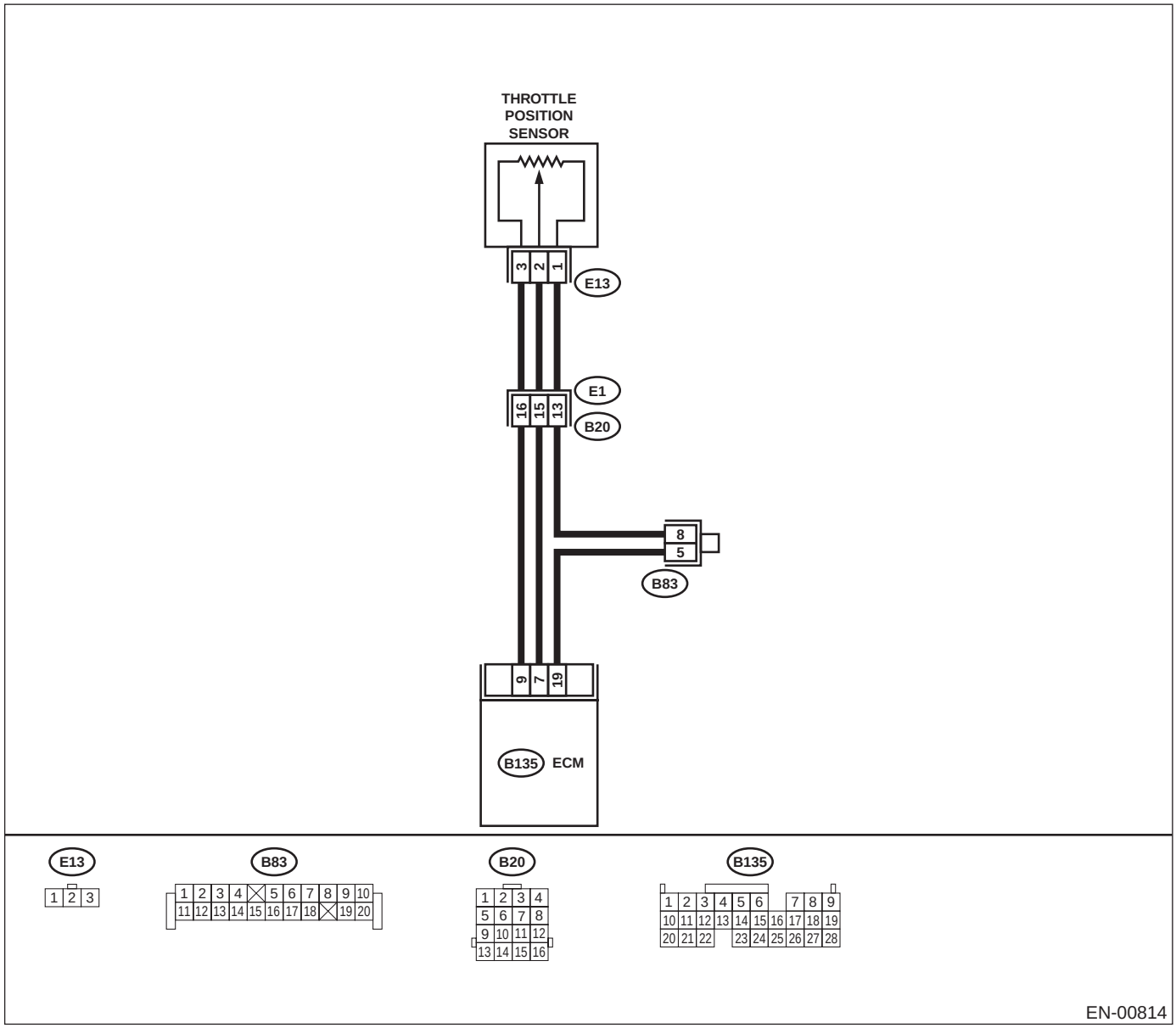
S: DTC P0123 — THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT HIGH INPUT —

- **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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



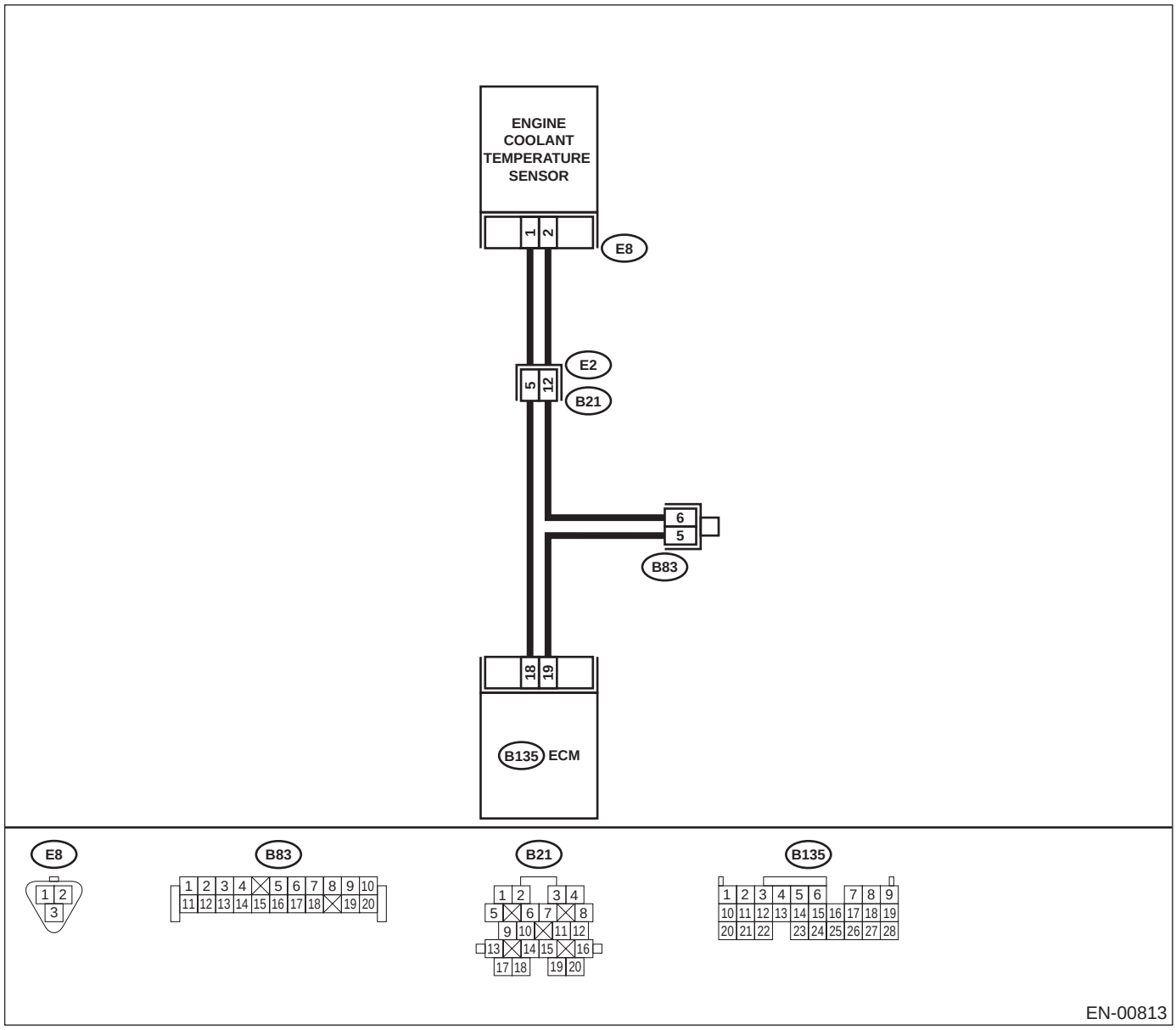
	Step	Value	Yes	No
1	**CHECK CURRENT DATA.** 1) Start engine. 2) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	4.75 V	Go to step **2.**	Even if MI lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connector
2	**CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from throttle position sensor. 3) Measure resistance of harness between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 2 — Engine ground:*** Is the measured value less than 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 voltage between throttle position sensor connector and engine ground. ***Connector & terminal*** ***(E13) No. 3 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	4.9 V	Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Replace throttle position sensor. <Ref. to FU(H6DO)-33, Throttle Position Sensor.>

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine does not return to idle.

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0125.	Go to step **2.**
2	**CHECK TIRE SIZE.** Is the tire size the same as designated tire and four-wheel tire?	Same.	Go to step **3.**	Replace tire.
3	**CHECK ENGINE COOLANT.** Check the following items. • Engine coolant volume • Engine coolant freezing • Contamination in engine coolant Is the engine coolant normal?	Normal.	Go to step **4.**	Refill or replace coolant. <Ref. to CO(H6DO)-23, INSPECTION, Engine Coolant.>
4	**CHECK THERMOSTAT.** Does thermostat remain open?	Remains open.	Replace thermostat. <Ref. to CO(H6DO)-25, Thermostat.>	Replace engine coolant temperature sensor. <Ref. to FU(H6DO)-29, Engine Coolant Temperature Sensor.>

U: DTC P0129 — BAROMETRIC PRESSURE TOO LOW —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.> NOTE: Atmospheric pressure sensor is built into ECM.

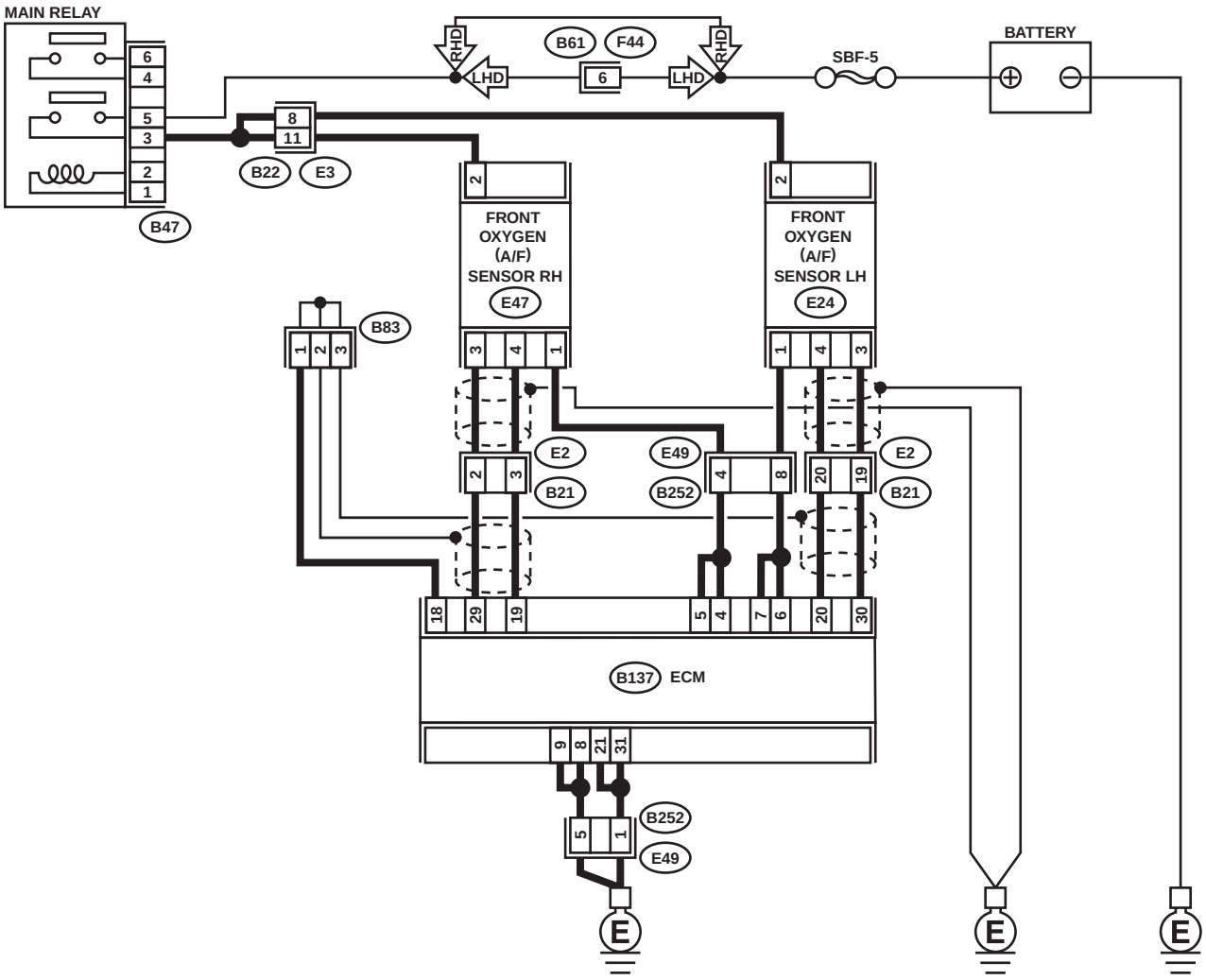
MEMO:

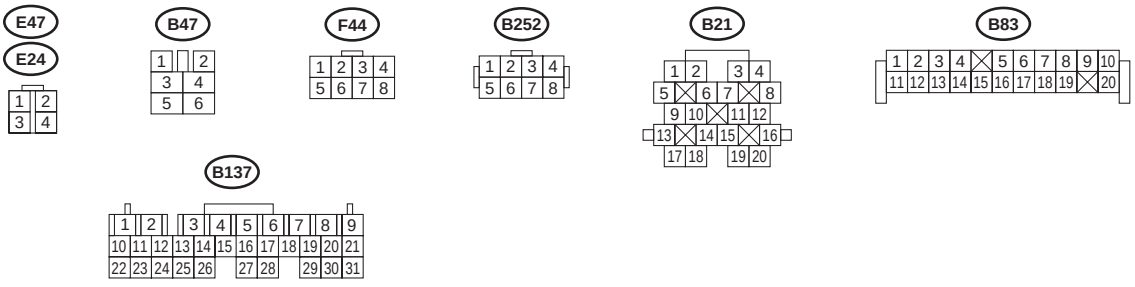
V: DTC P0130 — O2 SENSOR CIRCUIT (BANK 1 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

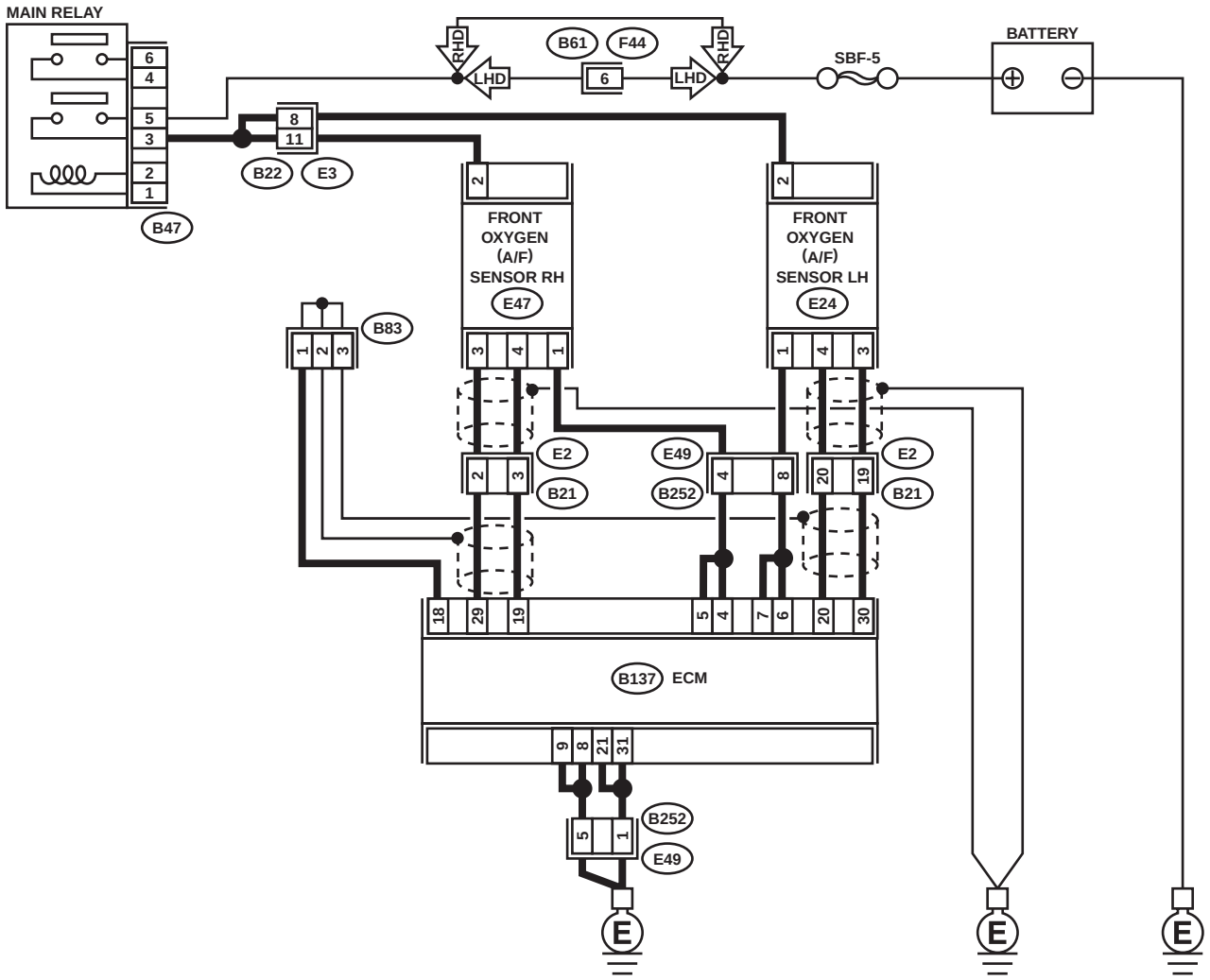
	Step	Value	Yes	No
1	**CHECK DTC ON DISPLAY.** Are P0130 and P0134 displayed at the same time?	Δισπλαψεδ	Go to step **3.**	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND FRONT O2 (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and front O2 (A/F) sensor. 3) Measure resistance of harness between ECM connectors. ***Connector & terminal*** ***(B137) No. 29 — (B137) No. 19:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Repair ground short circuit in harness between ECM and front oxygen O2 (A/F) sensor connector.
3	**CHECK INPUT SIGNAL FOR ECM.** 1) Connect ECM and front O2 (A/F) sensor connector. 2) Turn ignition switch to ON. 3) After warming up engine, idle engine. 4) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 29 (+) — Chassis ground (–):*** Is the measured value within the specified range?	3.5 — 4.5 V	Go to step **4.**	Repair power short circuit in harness, when 4.5 V or more. Repair ground short circuit in harness, when 3.5 V or less.
4	**CHECK ECM INPUT VOLTAGE.** Measure voltage between ECM connector and body ground. ***Connector & terminal*** ***(B137) No. 19 (+) — Chassis ground (–):*** Is the measured value within the specified range?	2.5 — 4.95 V	Replace front O2 (A/F) sensor.	Repair power short circuit in harness, when 4.95 V or more. Repair ground short circuit in harness, when 2.5 V or less.

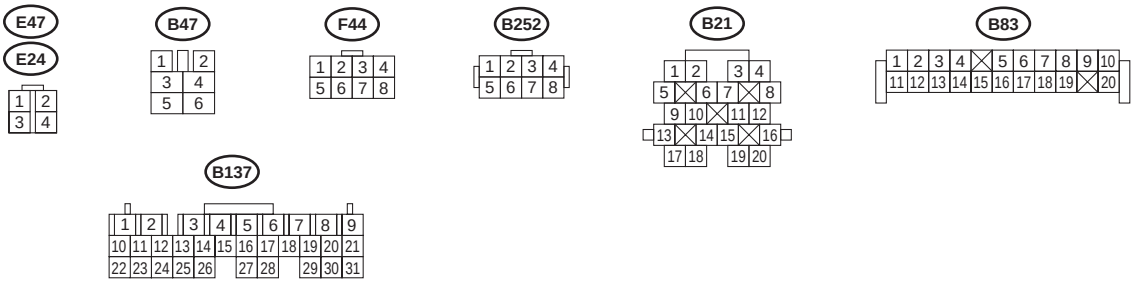
W: DTC P0133 — O2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0133.	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.** NOTE: Check the following items. • Loose installation of front portion of exhaust pipe onto cylinder heads • Loose connection between front exhaust pipe and front catalytic converter (RH side) • Damage of exhaust pipe resulting in a hole Is there a fault in exhaust system?	There is a malfunction.	Repair exhaust system.	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

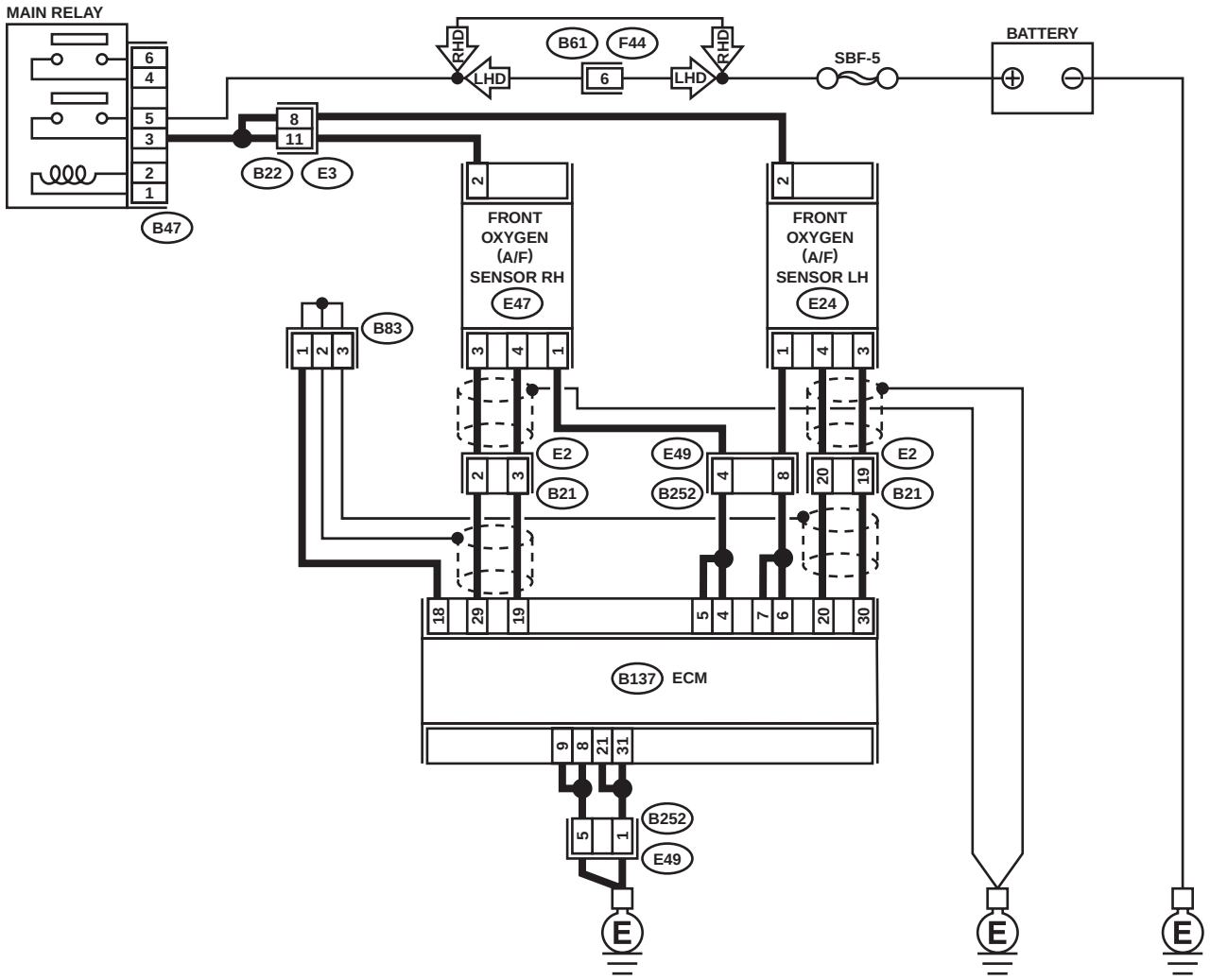
MEMO:

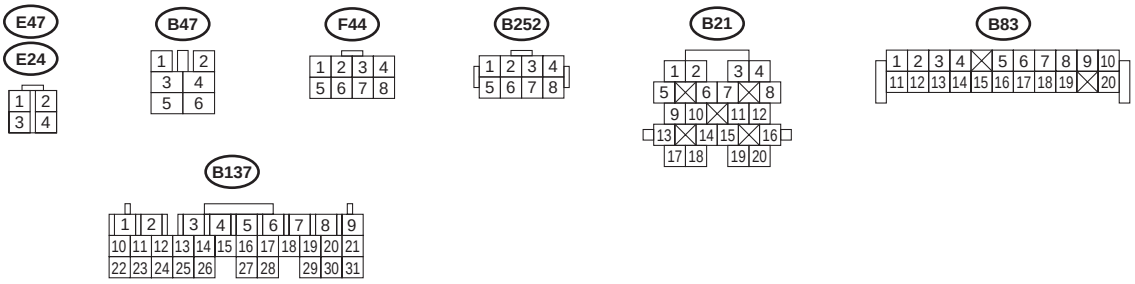
X: DTC P0134 — O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 19 — (E47) 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 HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 29 — (E47) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	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
3	**CHECK POOR CONTACT.** Check 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 front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

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

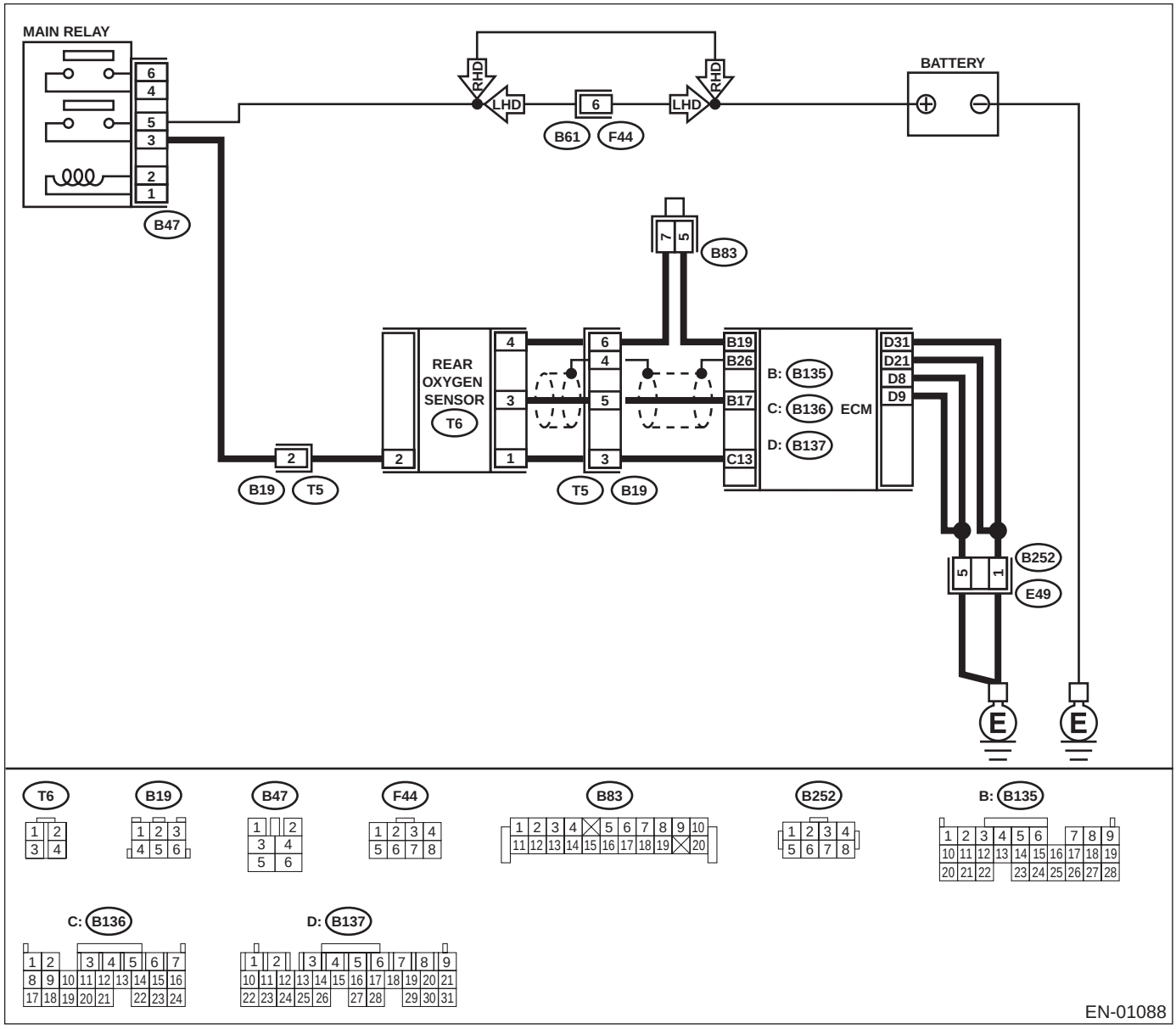
NOTE:
For diagnostic procedure, refer to DTC P0138.
<Ref. to EN(H6DO)-170, DTC P0138 — O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 2) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC is displayed?	Another DTC is displayed.	Check the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (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 rpm to 3,000 rpm for two minutes. 2) Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool. Does the value fluctuate? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	Value fluctuates.	Go to step **6.**	Go to step **3.**
3	**CHECK REAR OXYGEN SENSOR DATA.** Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II General Scan Tool. Is the measured value within the specified range?	Output maximum value 0.49 V or more and output minimum value 0.25 V or less.	Go to step **4.**	Replace rear oxygen sensor. <Ref. to FU(H6DO)-45, Rear Oxygen Sensor.>
4	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and rear oxygen sensor. 3) Measure resistance of harness between ECM and rear oxygen sensor connector. ***Connector & terminal*** ***(B135) No. 19 — (T6) No. 4:*** Does the measured value exceed 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 connector from rear oxygen sensor. 3) Turn ignition switch to ON. 4) Measure voltage between rear oxygen sensor harness connector and engine ground or chassis ground. ***Connector & terminal*** ***(T6) No. 3 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	0.2 V	Replace rear oxygen sensor. <Ref. to FU(H6DO)-45, 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		Value	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 trouble.	Repair or replace faulty parts.	Replace rear oxygen sensor. <Ref. to FU(H6DO)-45, Rear Oxygen Sensor.>

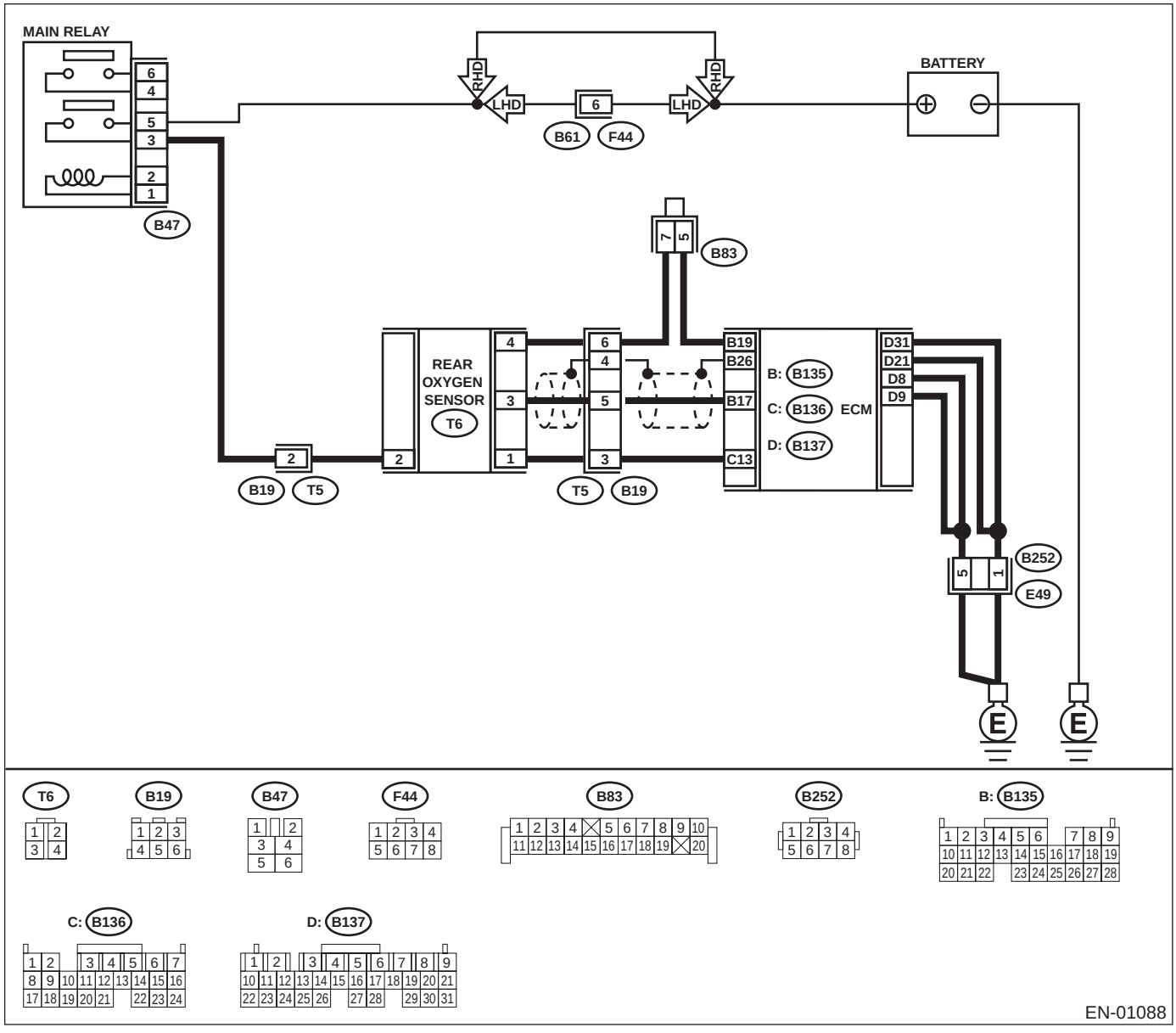
MEMO:

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01088

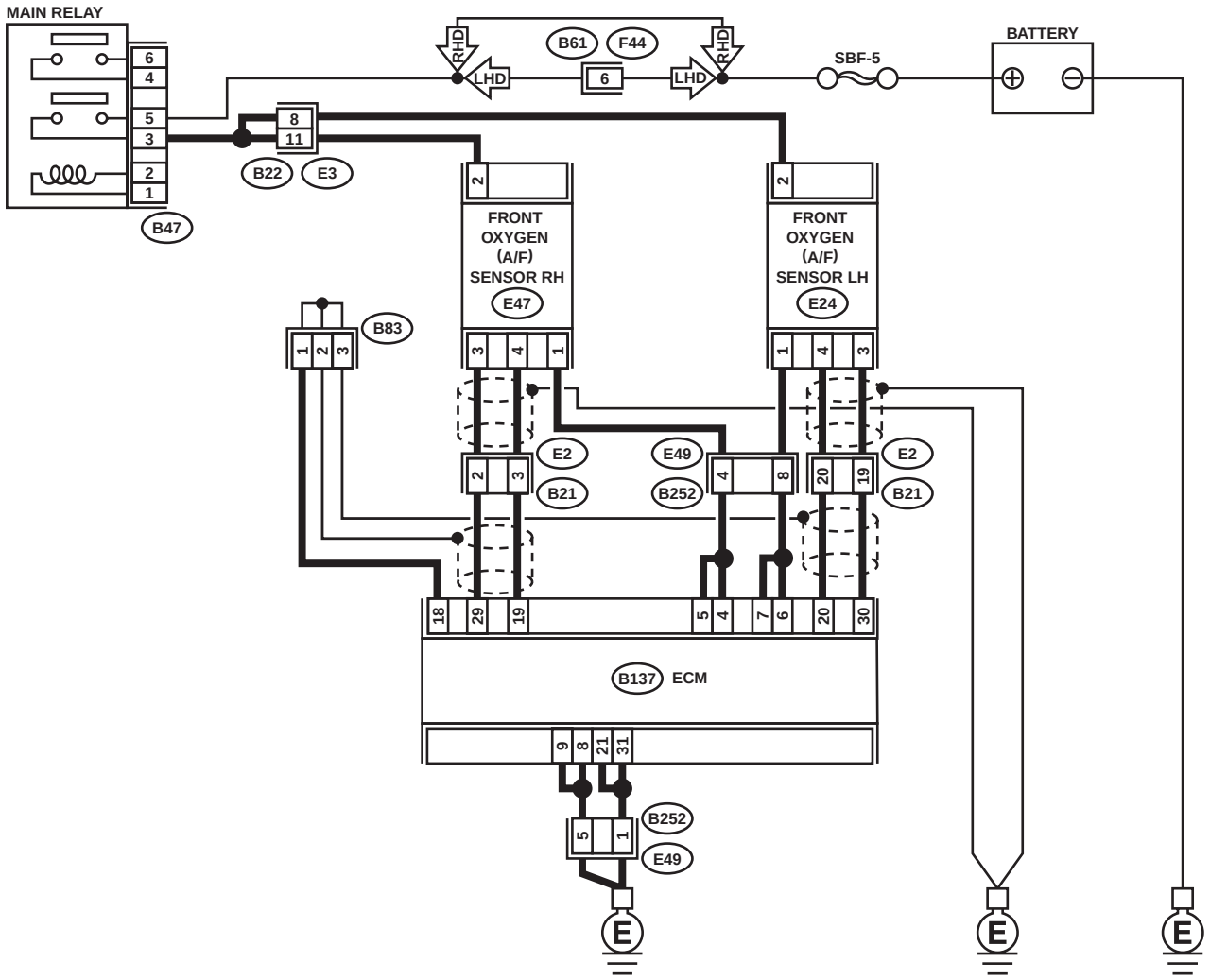
Step		Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0139.	Replace rear oxygen sensor. <Ref. to FU(H6DO)-45, Rear Oxygen Sensor.>

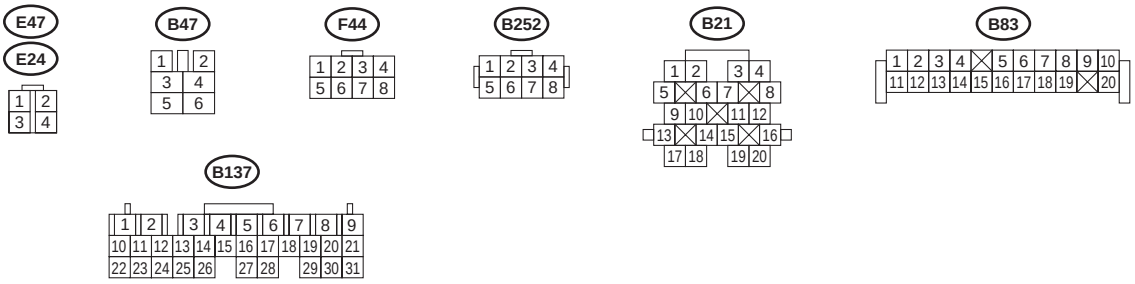
AB:DTC P0150 — O2 SENSOR CIRCUIT (BANK 2 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

Step		Value	Yes	No
1	**CHECK DTC ON DISPLAY.** Are P0150 and P0154 displayed at the same time?	Displayed	Go to step **3.**	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND FRONT O2 (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and front O2 (A/F) sensor. 3) Measure resistance of harness between ECM connectors. ***Connector & terminal*** ***(B137) No. 30 — (B137) No. 20:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Repair ground short circuit in harness between ECM and front oxygen O2 (A/F) sensor connector.
3	**CHECK INPUT SIGNAL FOR ECM.** 1) Connect ECM and front O2 (A/F) sensor connector. 2) Turn ignition switch to ON. 3) After warming up engine, idle engine. 4) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 30 (+) — Chassis ground (–):*** Is the measured value within the specified value?	3.5 — 4.5 V	Go to step **4.**	Repair power short circuit in harness , when 4.5 V or more. Repair ground short circuit in harness, when 3.5 V or less.
4	**CHECK ECM INPUT VOLTAGE.** Measure voltage between ECM connector and body ground. ***Connector & terminal*** ***(B137) No. 20 (+) — Chassis ground (–):*** Is the measured value within the specified value?	2.5 — 4.95 V	Replace front O2 (A/F) sensor.	Repair power short circuit in harness, when 4.95 V or more. Repair ground short circuit in harness, when 2.5 V or less.

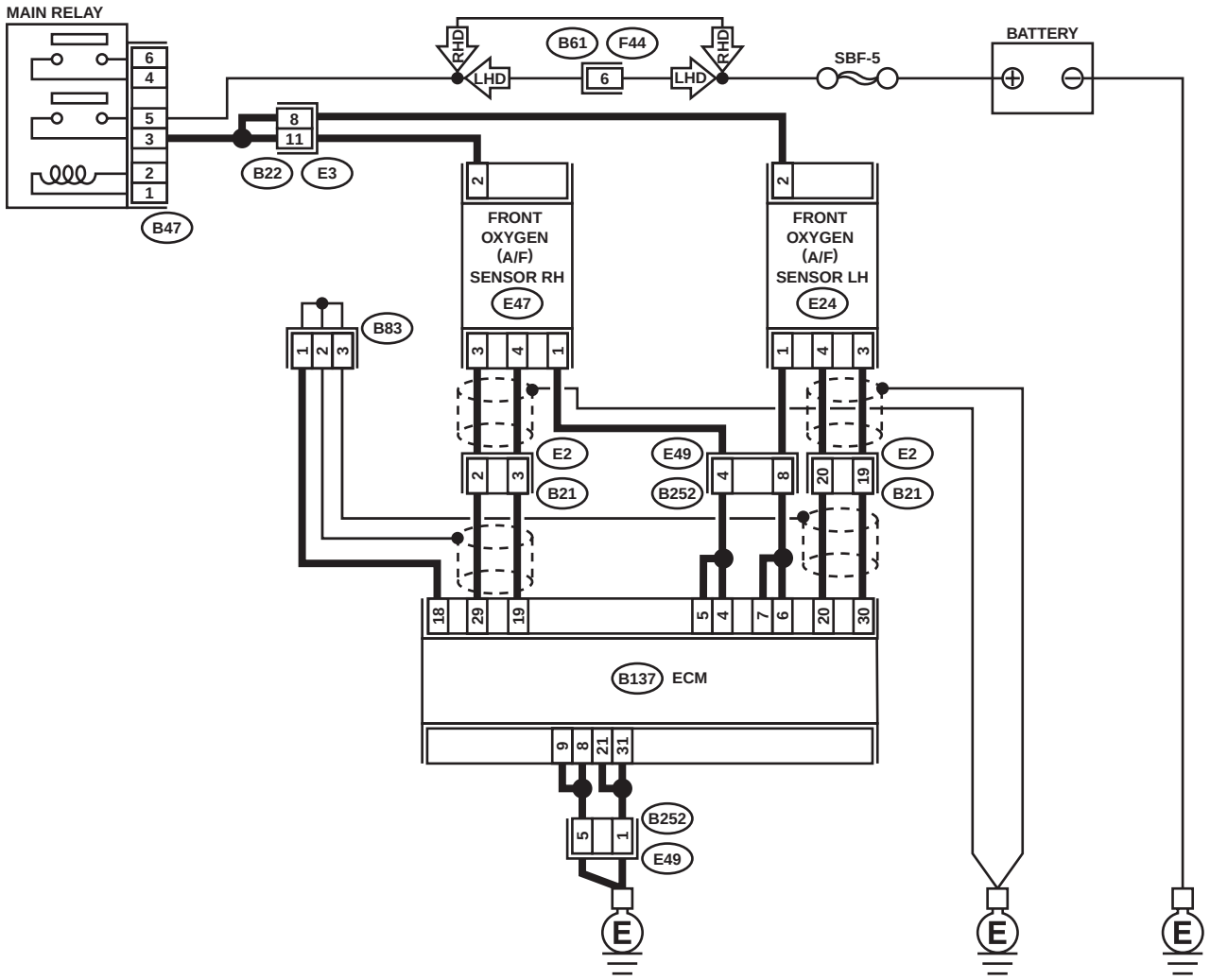
MEMO:

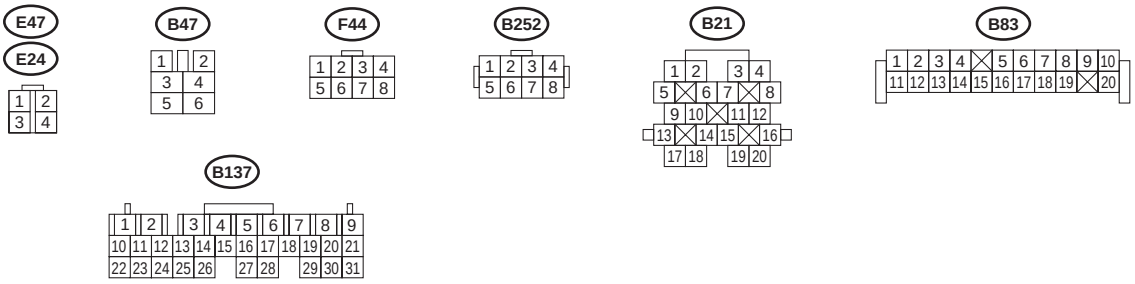
AC:DTC P0153 — O2 SENSOR CIRCUIT SLOW RESPONSE (BANK 2 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0153.	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 (RH side) • Damage of exhaust pipe resulting in a hole Is there a fault in exhaust system?	There is a trouble.	Repair exhaust system.	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

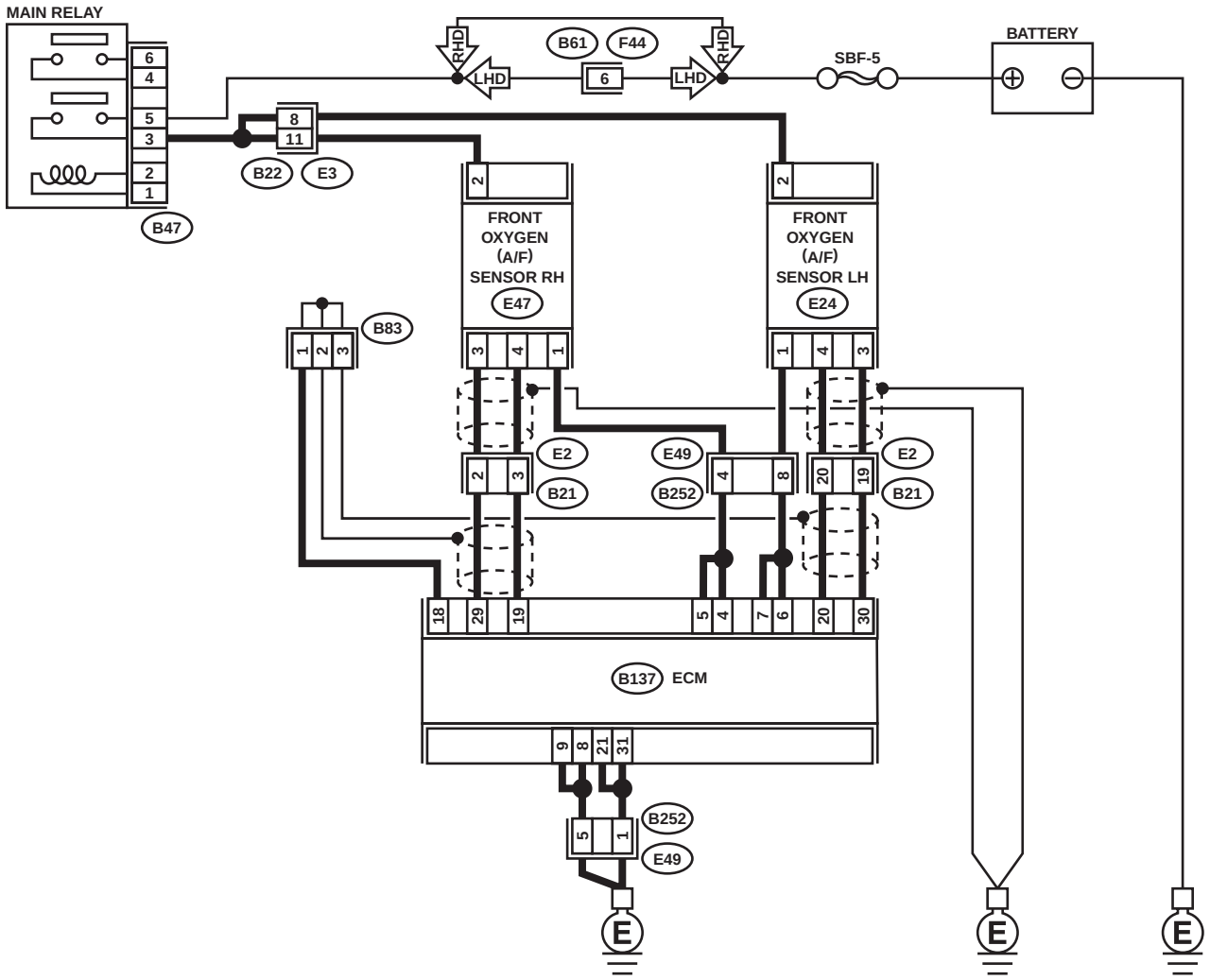
MEMO:

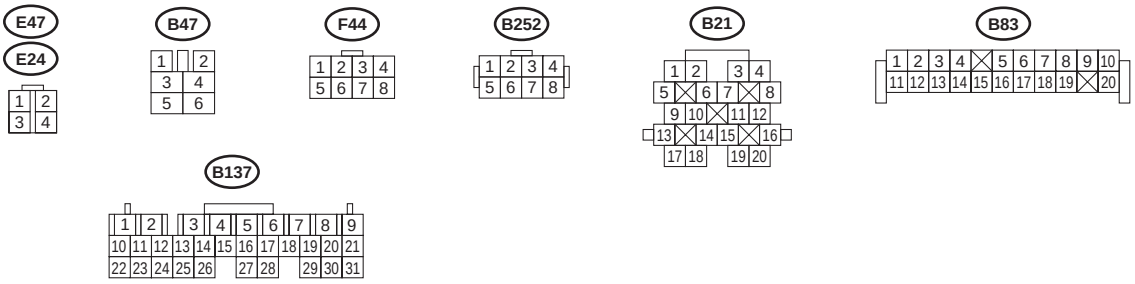
AD:DTC P0154 — O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 2 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 20 — (E24) 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 HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B137) No. 30 — (E24) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	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
3	**CHECK POOR CONTACT.** Check 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 front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

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

NOTE:
For the diagnostic procedure, refer to DTC P0172. <Ref. to EN(H6DO)-188, DTC P0172 — SYSTEM TOO RICH (BANK 1) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.** Are there holes or loose bolts on exhaust system?	Holes or loose bolts are found.	Repair exhaust system.	Go to step **3.**
3	**CHECK AIR INTAKE SYSTEM.** Are there holes, loose bolts or disconnection of hose on air intake system?	Holes, loose bolts or disconnection of hose is found.	Repair air intake system.	Go to step **4.**
4	**CHECK FUEL PRESSURE.** **Warning:** **• Place "NO FIRE" signs near the working area.** **• Be careful not to spill fuel on the floor.** 1) Lower fuel pressure. (1) Disconnect connector from fuel pump relay. (2) Start the engine and run it until it stalls. (3) After the engine stalls, crank it for five more seconds. (4) Turn ignition switch to OFF. 2) Connect connector to fuel pump relay. 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4) Install fuel filler cap. 5) Start the engine and idle while gear position is neutral. 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. Is the measured value within the specified range? **Warning:** **Before removing fuel pressure gauge, lower 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 **5.**	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	Value	Yes	No
5	**CHECK FUEL PRESSURE.** After connecting pressure regulator vacuum hose, measure fuel pressure. Is the measured value within the specified range? **Warning:** **Before removing fuel pressure gauge, lower fuel pressure.** NOTE: • If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. • If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.	206 — 235 kPa (2.1 — 2.4 kg/cm^2, 30 — 34 psi)	Go to step **6.**	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
6	**CHECK FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Remove right bank fuel injector. <Ref. to FU(H6DO)-39, REMOVAL, Fuel Injector.> 3) Check fuel injector Is fuel injector clogged?	Fuel injector is clogged.	Replace fuel injector. <Ref. to FU(H6DO)-39, Fuel Injector.>	Go to step **7.**
7	**CHECK FUEL INJECTOR.** Measure resistance between terminals of fuel injector. ***Terminals*** ***No. 1 — No. 2*** Is the measured value within the specified range?	5 — 20 Ω	Go to step **8.**	Replace fuel injector. <Ref. to FU(H6DO)-39, Fuel Injector.>
8	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm-up completely. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	75°C (167°F)	Go to step **9.**	Replace engine coolant temperature sensor. <Ref. to FU(H6DO)-29, Engine Coolant Temperature Sensor.>

	Step	Value	Yes	No
9	**CHECK INTAKE MANIFOLD PRESSURE SENSOR.** 1) Start the engine and warm-up engine until coolant temperature is greater than 75°C (167°F). 2) Place the shift lever in neutral position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	Ignition 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 **10.**	Replace intake manifold pressure sensor. <Ref. to FU(H6DO)-34, Intake Manifold Pressure Sensor.>
10	**CHECK INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm-up engine until coolant temperature is greater than 75°C (167°F). 2) Place the shift lever in neutral position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Open front hood. 6) Measure ambient temperature. 7) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is value within the specified range when ambient temperature is subtracted from intake air temperature greater than –10°C (14°F) and less than 50°C (122°F)? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	–10 — 50°C (14 — 122°F)	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Check intake air temperature sensor. <Ref. to FU(H6DO)-35, Intake Air Temperature Sensor.>

AG:DTC P0174 — SYSTEM TOO LEAN (BANK 2) —

NOTE:
For the diagnostic procedure, refer to DTC P0175. <Ref. to EN(H6DO)-192, DTC P0175 — SYSTEM TOO RICH (BANK 2) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AH:DTC P0175 — SYSTEM TOO RICH (BANK 2) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.** Are there holes or loose bolts on exhaust system?	Holes or loose bolts are found.	Repair exhaust system.	Go to step **3.**
3	**CHECK AIR INTAKE SYSTEM.** Are there holes, loose bolts or disconnection of hose on air intake system?	Holes, loose bolts or disconnection of hose is found.	Repair air intake system.	Go to step **4.**
4	**CHECK FUEL PRESSURE.** **Warning:** **• Place "NO FIRE" signs near the working area.** **• Be careful not to spill fuel on the floor.** 1) Lower fuel pressure. (1) Disconnect connector from fuel pump relay. (2) Start the engine and run it until it stalls. (3) After the engine stalls, crank it for five more seconds. (4) Turn ignition switch to OFF. 2) Connect connector to fuel pump relay. 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4) Install fuel filler cap. 5) Start the engine and idle while gear position is neutral. 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. Is the measured value within the specified range? **Warning:** **Before removing fuel pressure gauge, lower 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 **5.**	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	Value	Yes	No
5	**CHECK FUEL PRESSURE.** After connecting pressure regulator vacuum hose, measure fuel pressure. Is the measured value within the specified range? **Warning:** **Before removing fuel pressure gauge, lower fuel pressure.** NOTE: • If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. • If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.	206 — 235 kPa (2.1 — 2.4 kg/cm^2, 30 — 34 psi)	Go to step **6.**	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
6	**CHECK FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Remove left bank fuel injector. <Ref. to FU(H6DO)-39, REMOVAL, Fuel Injector.> 3) Check fuel injector. Is fuel injector clogged?	Fuel injector is clogged.	Replace fuel injector. <Ref. to FU(H6DO)-39, Fuel Injector.>	Go to step **7.**
7	**CHECK FUEL INJECTOR.** Measure resistance between terminals of fuel injector. ***Terminals*** ***No. 1 — No. 2*** Is the measured value within the specified range?	5 — 20 Ω	Go to step **8.**	Replace fuel injector. <Ref. to FU(H6DO)-39, Fuel Injector.>
8	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm-up completely. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	75°C (167°F)	Go to step **9.**	Replace engine coolant temperature sensor. <Ref. to FU(H6DO)-29, Engine Coolant Temperature Sensor.>

	Step	Value	Yes	No
9	**CHECK INTAKE MANIFOLD PRESSURE SENSOR.** 1) Start the engine and warm-up engine until coolant temperature is greater than 75°C (167°F). 2) Place the shift lever in neutral position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	Ignition 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 **10.**	Replace intake manifold pressure sensor. <Ref. to FU(H6DO)-34, Intake Manifold Pressure Sensor.>
10	**CHECK INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm-up engine until coolant temperature is greater than 75°C (167°F). 2) Place the shift lever in neutral position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Open front hood. 6) Measure ambient temperature. 7) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is value the specified range when ambient temperature is subtracted from intake air temperature? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual.	–10 — 50°C (14 — 122°F)	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Check intake air temperature sensor. <Ref. to FU(H6DO)-35, Intake Air Temperature Sensor.>

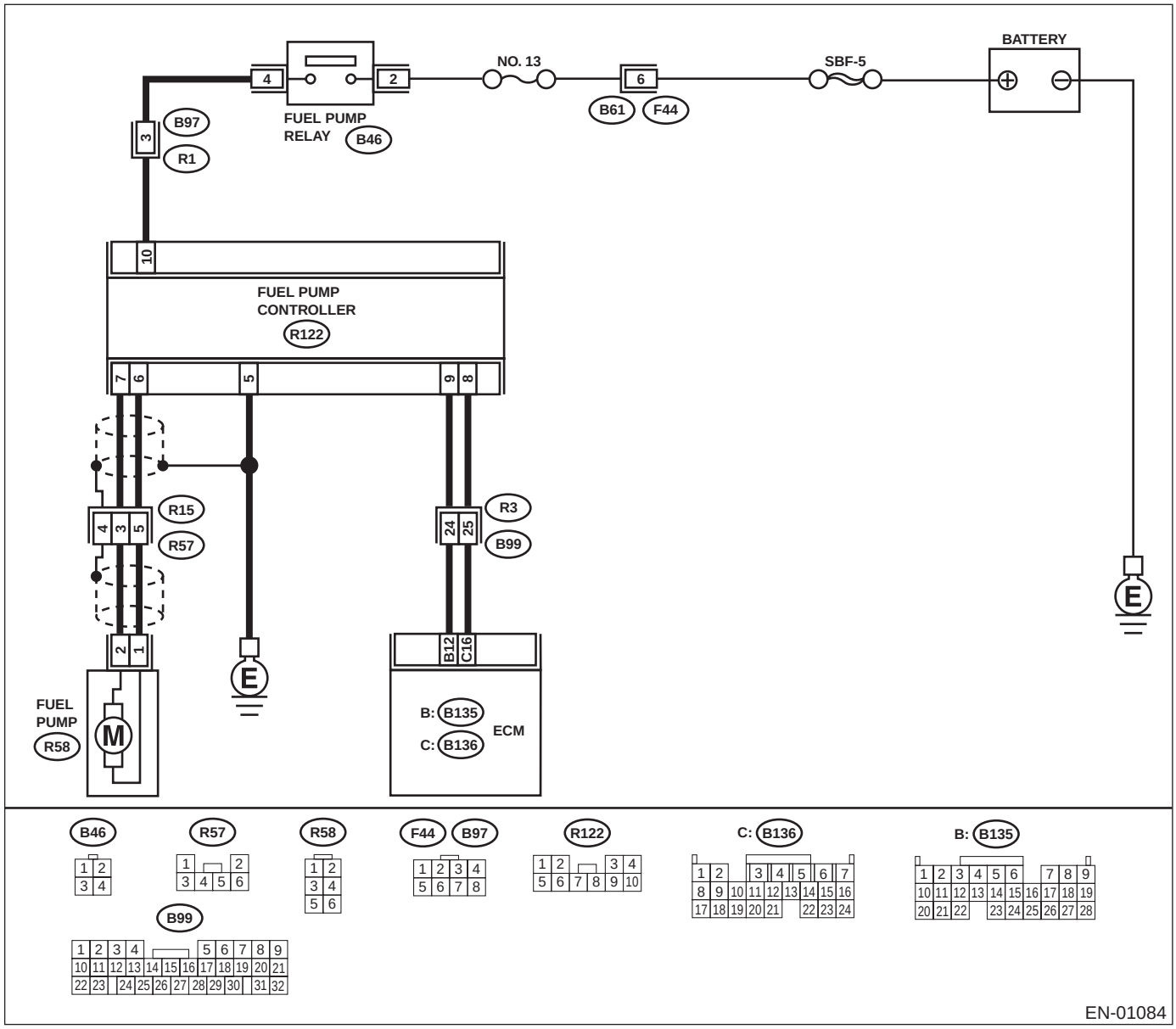
MEMO:

AI: DTC P0230 — FUEL PUMP PRIMARY CIRCUIT —

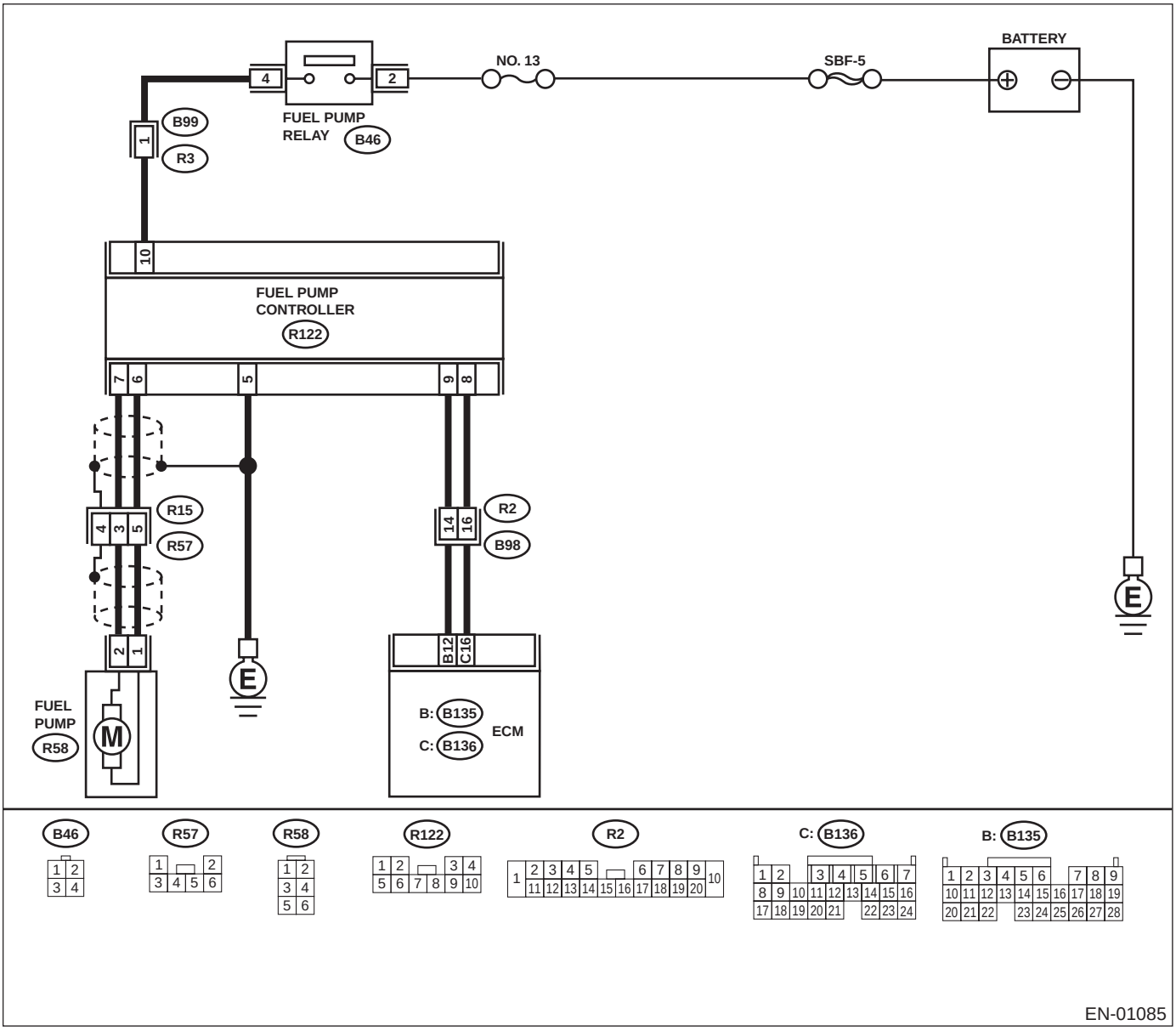
- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, Inspection Mode.>.

- **WIRING DIAGRAM:**
- LHD model



- RHD model


BATTERY
NO. 13
SBF-5
4
2
FUEL PUMP
RELAY
B46
1
B99
R3
10
FUEL PUMP
CONTROLLER
R122
7
6
5
9
8
R15
4
3
5
R57
R2
14
16
B98
E
2
1
B12
C16
FUEL
PUMP
R58
M
E
B: B135
C: B136
ECM
B46
R57
R58
R122
R2
C: B136
B: B135
EN-01085

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

	Step	Value	Yes	No
5	**CHECK HARNESS BETWEEN FUEL PUMP CONTROLLER AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between fuel pump controller and ECM connector. ***Connector & terminal*** ***(R122) No. 9 — (B135) No. 12:*** ***(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 between fuel pump controller and ECM. • Poor contact in fuel pump controller and ECM connector.
6	**CHECK HARNESS BETWEEN FUEL PUMP CONTROLLER AND ECM CONNECTOR.** Measure resistance of harness between fuel pump controller and chassis ground. ***Connector & terminal*** ***(R122) No. 9 — Chassis ground:*** ***(R122) No. 8 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **7.**	Repair ground short circuit between fuel pump controller and ECM.
7	**CHECK POOR CONTACT.** Check poor contact in ECM and fuel pump controller connector. Is there poor contact in ECM and fuel pump controller connector.	There is poor contact.	Repair poor contact in ECM and fuel pump controller.	Replace fuel pump controller. <Ref. to FU(H6DO)-49, Fuel Pump Controller.>

AJ:DTC P0301 — CYLINDER 1 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0306. <Ref. to EN(H6DO)-202, DTC P0306 — CYLINDER 6 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AK:DTC P0302 — CYLINDER 2 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0306. <Ref. to EN(H6DO)-202, DTC P0306 — CYLINDER 6 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AL:DTC P0303 — CYLINDER 3 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0306. <Ref. to EN(H6DO)-202, DTC P0306 — CYLINDER 6 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AM:DTC P0304 — CYLINDER 4 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0306. <Ref. to EN(H6DO)-202, DTC P0306 — CYLINDER 6 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AN:DTC P0305 — CYLINDER 5 MISFIRE DETECTED —

NOTE:
For the diagnostic procedure, refer to DTC P0306. <Ref. to EN(H6DO)-202, DTC P0306 — CYLINDER 6 MISFIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

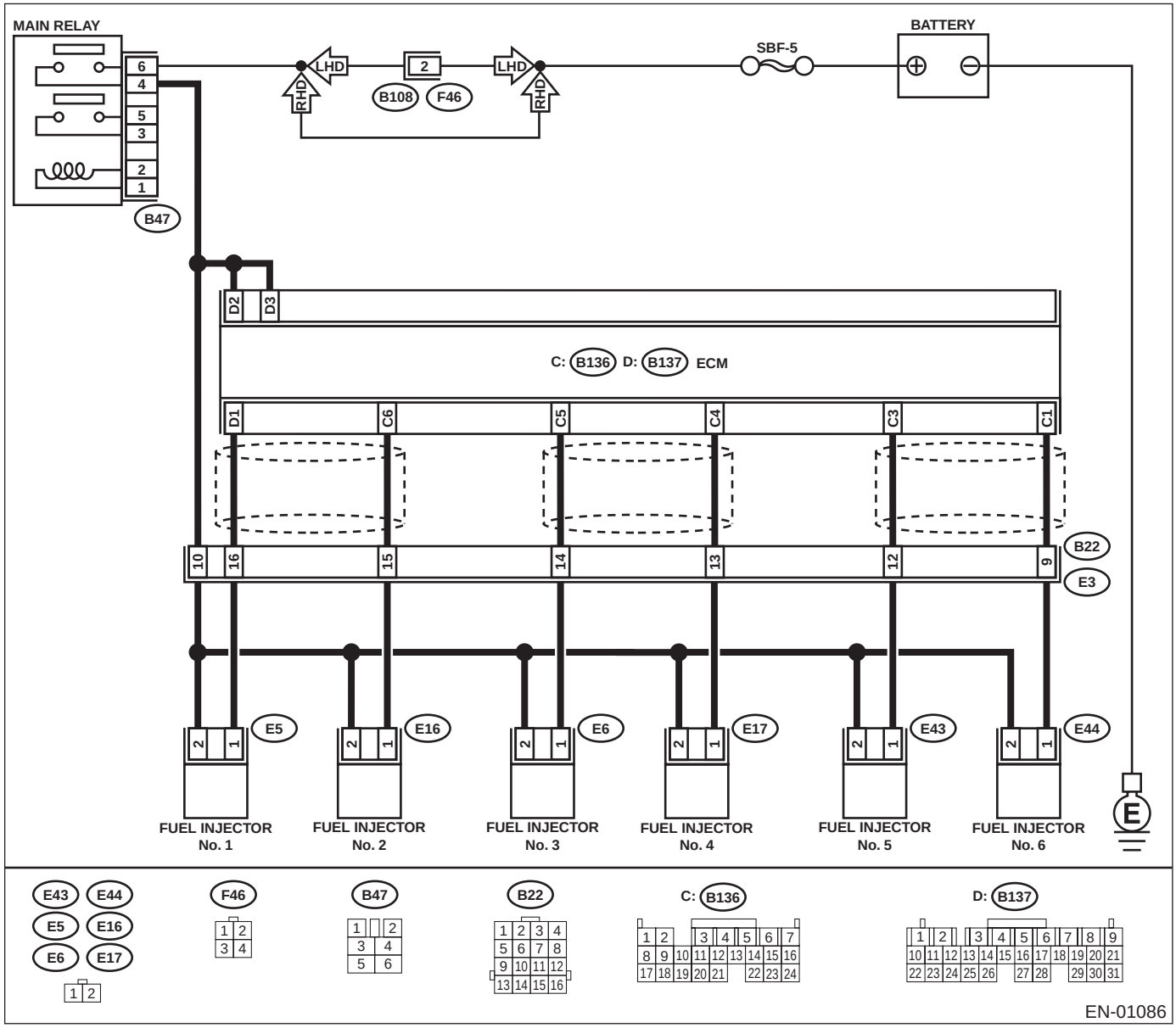
MEMO:

AO:DTC P0306 — CYLINDER 6 MISFIRE DETECTED —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
  - Immediately at fault recognition (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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0301, P0302, P0303, P0304, P0305 and P0306.	Go to step **2.**
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground on 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 (–):*** ***#5 (B136) No. 3 (+) — Chassis ground (–):*** ***#6 (B136) No. 1 (+) — Chassis ground (–):*** Does the measured value exceed 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 connector from fuel injector on faulty cylinders. 3) Measure 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:*** ***#5 (E43) No. 1 — Engine ground:*** ***#6 (E44) No. 1 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair ground short circuit in harness between fuel injector and ECM connector.	Go to step **4.**

	Step	Value	Yes	No
4	**CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.** Measure 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:*** ***#5 (B136) No. 3 — (E43) No. 1:*** ***#6 (B136) No. 1 — (E44) 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 resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	5 — 20 Ω	Go to step **6.**	Replace faulty fuel injector. <Ref. to FU(H6DO)-39, Fuel Injector.>
6	**CHECK POWER SUPPLY LINE.** 1) Turn ignition switch to ON. 2) Measure 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 (–):*** ***#5 (E43) No. 2 (+) — Engine ground (–):*** ***#6 (E44) No. 2 (+) — Engine ground (–):*** Does the measured value exceed 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

	Step	Value	Yes	No
7	**CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on faulty cylinder. 3) Turn ignition switch to ON. 4) Measure 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 (–):*** ***#5 (B136) No. 3 (+) — Chassis ground (–):*** ***#6 (B136) No. 1 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Go to step **8.**
8	**CHECK FUEL INJECTOR.** 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace faulty fuel injector <Ref. to FU(H6DO)-39, Fuel Injector.> and ECM <Ref. to FU(H6DO)-46, Engine Control Module.>.	Go to step **9.**
9	**CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.** Is camshaft position sensor or crankshaft position sensor loosely installed?	Loosely installed.	Tighten camshaft position sensor or crankshaft position sensor.	Go to step **10.**
10	**CHECK CRANKSHAFT PLATE.** Is crankshaft plate rusted or does it have broken teeth?	Rusted or teeth is broken.	Replace crankshaft plate.	Go to step **11.**
11	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark. ST 18252AA000 CRANKSHAFT SOCKET Is timing chain dislocated from its proper position?	Dislocated from proper position.	Repair installation condition of timing chain. <Ref. to ME(H6DO)-41, Timing Chain Assembly.>	Go to step **12.**
12	**CHECK FUEL LEVEL.** Is the fuel meter indication lower than the “Lower” level?	The indication is lower.	Replenish fuel so fuel meter indication is higher than the “Lower” level. After replenishing fuel, Go to step **13.**	Go to step **13.**

	Step	Value	Yes	No
13	**CHECK STATUS OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MI).** 1) Clear memory using Subaru Select Monitor. <Ref. to EN(H6DO)-54, Clear Memory Mode.> 2) Start engine, and drive the vehicle more than 10 minutes. Is the MI coming on or blinking?	Comes on or blinking.	Go to step **15.**	Go to step **14.**
14	**CHECK CAUSE OF MISFIRE DIAGNOSED.** Was the cause of misfire diagnosed when the engine is running?	Diagnosed.	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 malfunction.	Repair air intake system. NOTE: Check the following items: • Are there air leaks or air suction caused by loose or dislocated nuts and bolts? • Are there cracks or any disconnection of hoses?	Go to step **16.**
16	**CHECK MISFIRE SYMPTOM.** 1) Turn ignition switch to ON. 2) Read diagnostic trouble code (DTC) using the Subaru Select Monitor or OBD-II general scan tool. • Subaru Select Monitor <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Operation Manual. Does the Subaru Select Monitor or OBD-II general scan tool indicate only one DTC?	Only one DTC is indicated.	Go to step **22.**	Go to step **17.**
17	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0302?	Indicated.	Go to step **23.**	Go to step **18.**

Step		Value	Yes	No
18	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0303 and P0304?	Indicated.	Go to step **24.**	Go to step **19.**
19	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0305 and P0306?	Indicated.	Go to step **25.**	Go to step **20.**
20	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301, P0303 and P0305?	Indicated.	Go to step **26.**	Go to step **21.**
21	**CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0302, P0304 and P0306?	Indicated.	Go to step **27.**	Go to step **28.**
22	**ONLY ONE CYLINDER** Is there a fault in that cylinder?	There is a malfunction.	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Fuel injector • Compression ratio	Inspect DTC P0171, P0172, P0174 or P0175 using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>
23	**GROUP OF #1 AND #2 CYLINDERS** Are there faults in #1 and #2 cylinders?	There is a malfunction.	Repair or replace faulty parts. NOTE: • Check the following items. Spark plugs Fuel injectors Ignition coil Compression ratio • If no abnormality is discovered, check for “IGNITION CONTROL SYSTEM” of #1 and #2 cylinders side. <Ref. to EN(H6DO)-80, IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	Inspect DTC P0171, P0172, P0174 or P0175 using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>

Step		Value	Yes	No
24	**GROUP OF #3 AND #4 CYLINDERS** Are there faults in #3 and #4 cylinders?	There is a malfunction.	Repair or replace faulty parts. NOTE: • Check the following items. Spark plugs Fuel injectors Ignition coil • If no abnormality is discovered, check for "17. D: IGNITION CONTROL SYSTEM" of #3 and #4 cylinders side. <Ref. to EN(H6DO)-80, IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	Inspect DTC P0171, P0172, P0174 or P0175 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>
25	**GROUP OF #5 AND #6 CYLINDERS** Are there faults in #5 and #6 cylinders?	There is a malfunction.	Repair or replace faulty parts. NOTE: • Check the following items: Spark plugs, fuel injector, ignition coil and compression ratio • If no abnormality is discovered, check for "17. IGNITION CONTROL SYSTEM" of #5 and #6 cylinders side. <Ref. to EN(H6DO)-80, IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	Inspect DTC P0171, P0172, P0174 or P0175 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>
26	**GROUP OF #1, #3 AND #5 CYLINDERS** Are there faults in #1, #3 and #5 cylinders?	There is a malfunction.	Repair or replace faulty parts. NOTE: Check the following items. • Spark plugs • Fuel injectors • Skipping timing chain	Inspect DTC P0171, P0172, P0174 or P0175 using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>

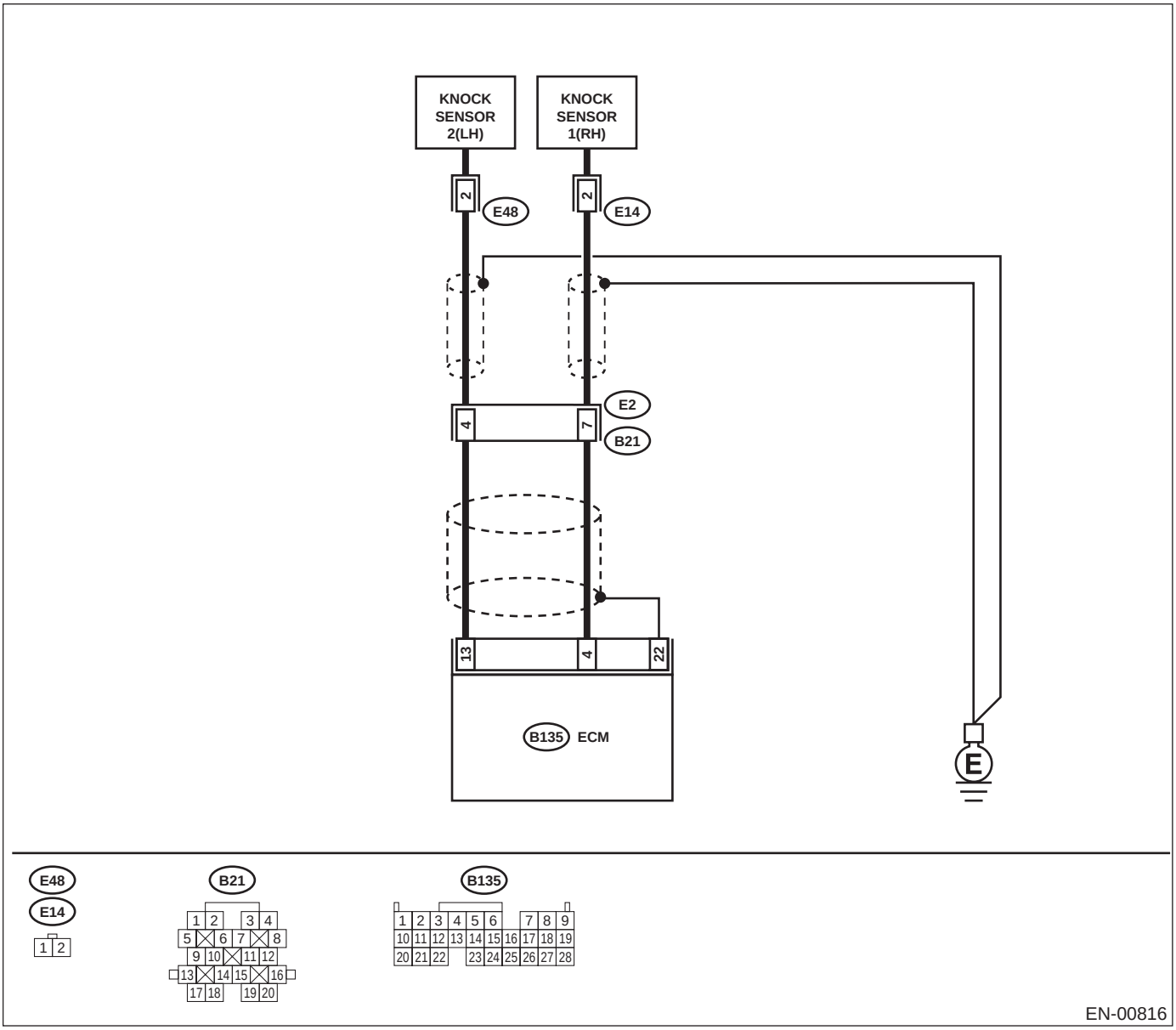
Step		Value	Yes	No
27	**GROUP OF #2, #4 AND #6 CYLINDERS** Are there faults in #2, #4 and #6 cylinders?	There is a malfunction.	Repair or replace faulty parts. NOTE: Check the following items. • Spark plugs • Fuel injectors • Compression ratio • Skipping timing chain	Inspect DTC P0171, P0172, P0174 or P0175 using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>
28	**CYLINDER AT RANDOM** Is the engine idle unstable?	Engine idle is unstable.	Inspect DTC P0171, P0172, P0174 or P0175 using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Repair or replace faulty parts. NOTE: Check the following items. • Spark plugs • Fuel injectors • Compression ratio

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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



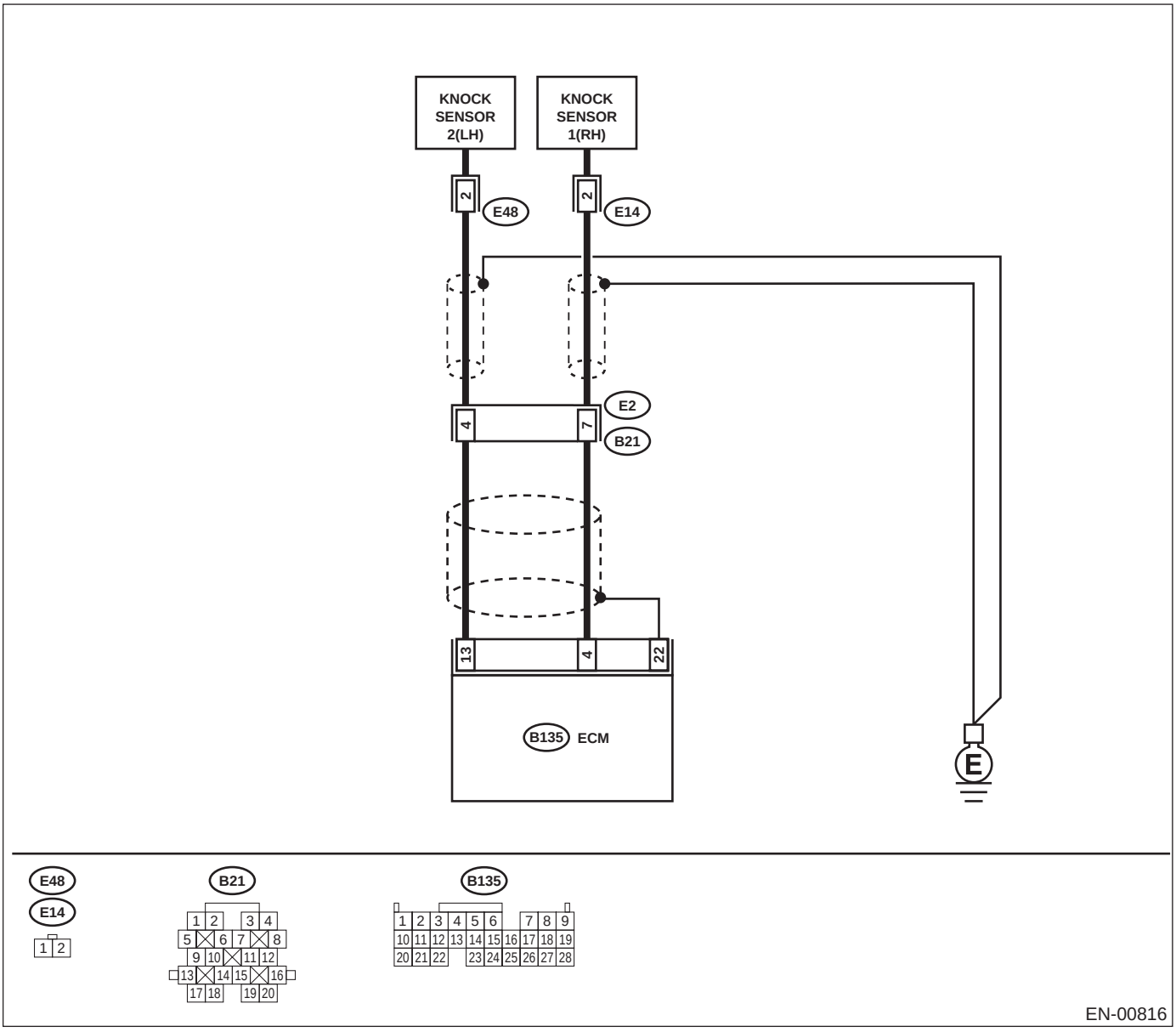
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR 1 AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance between ECM harness connector and chassis ground. ***Connector & terminal*** ***(B135) No. 4 — Chassis ground:*** Does the measured value exceed 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 1 (RH) and ECM connector • Poor contact in knock sensor 1 (RH) connector • Poor contact in coupling connector
2	**CHECK KNOCK SENSOR 1 (RH).** 1) Disconnect connector from knock sensor 1 (RH). 2) Measure resistance between knock sensor connector terminal and engine ground. ***Terminal*** ***No. 2 — Engine ground:*** Does the measured value exceed the specified value?	700 kΩ	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between knock sensor 1 (RH) and ECM connector • Poor contact in knock sensor 1 (RH) connector • Poor contact in coupling connector
3	**CHECK CONDITION OF KNOCK SENSOR 1 (RH) INSTALLATION.** Is the knock sensor 1 (RH) installation bolt tightened securely?	Tightened securely.	Replace knock sensor 1 (RH). <Ref. to FU(H6DO)-32, Knock Sensor.>	Tighten knock sensor 1 (RH) 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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



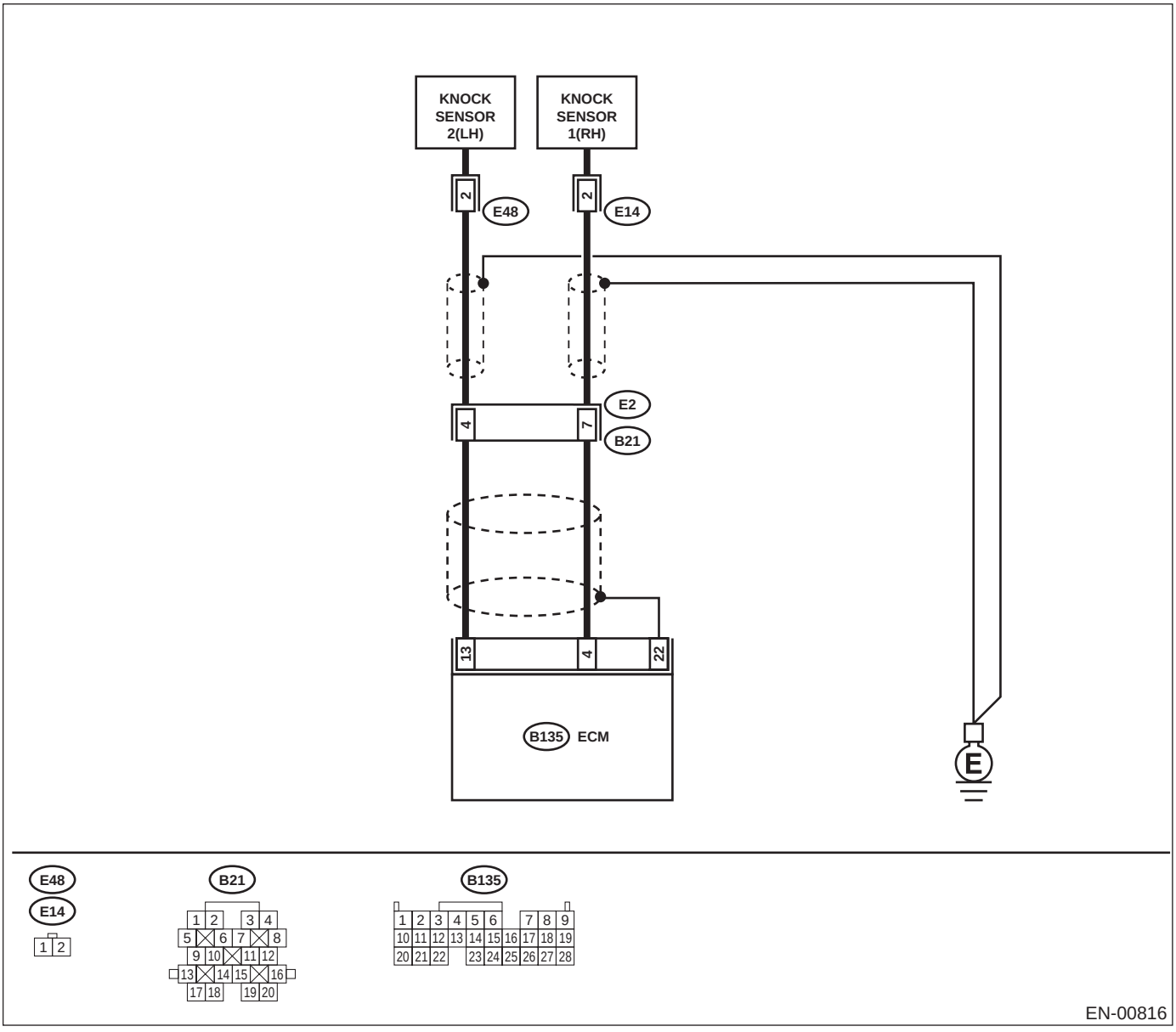
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR 1 (RH) AND ECM CONNECTOR.** Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 4 — Chassis ground:*** Is the measured value less than the specified value?	400 kΩ	Go to step **2.**	Go to step **3.**
2	**CHECK KNOCK SENSOR 1 (RH).** 1) Disconnect connector from knock sensor 1 (RH). 2) Measure 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 knock sensor 1 (RH). <Ref. to FU(H6DO)-32, Knock Sensor.>	Repair ground short circuit in harness between knock sensor 1 (RH) connector and ECM connector. NOTE: The harness between both connectors is shielded. Repair short circuit of harness together with shield.
3	**CHECK INPUT SIGNAL FOR ECM.** 1) Connect connectors to ECM and knock sensor 1 (RH). 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 4 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	2 V	Even if MI lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the following: • Poor contact in knock sensor 1 (RH) connector • Poor contact in ECM connector • Poor contact in coupling connector	Repair poor contact in ECM connector.

AR:DTC P0332 — KNOCK SENSOR 2 CIRCUIT LOW INPUT (BANK 2) —

- **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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



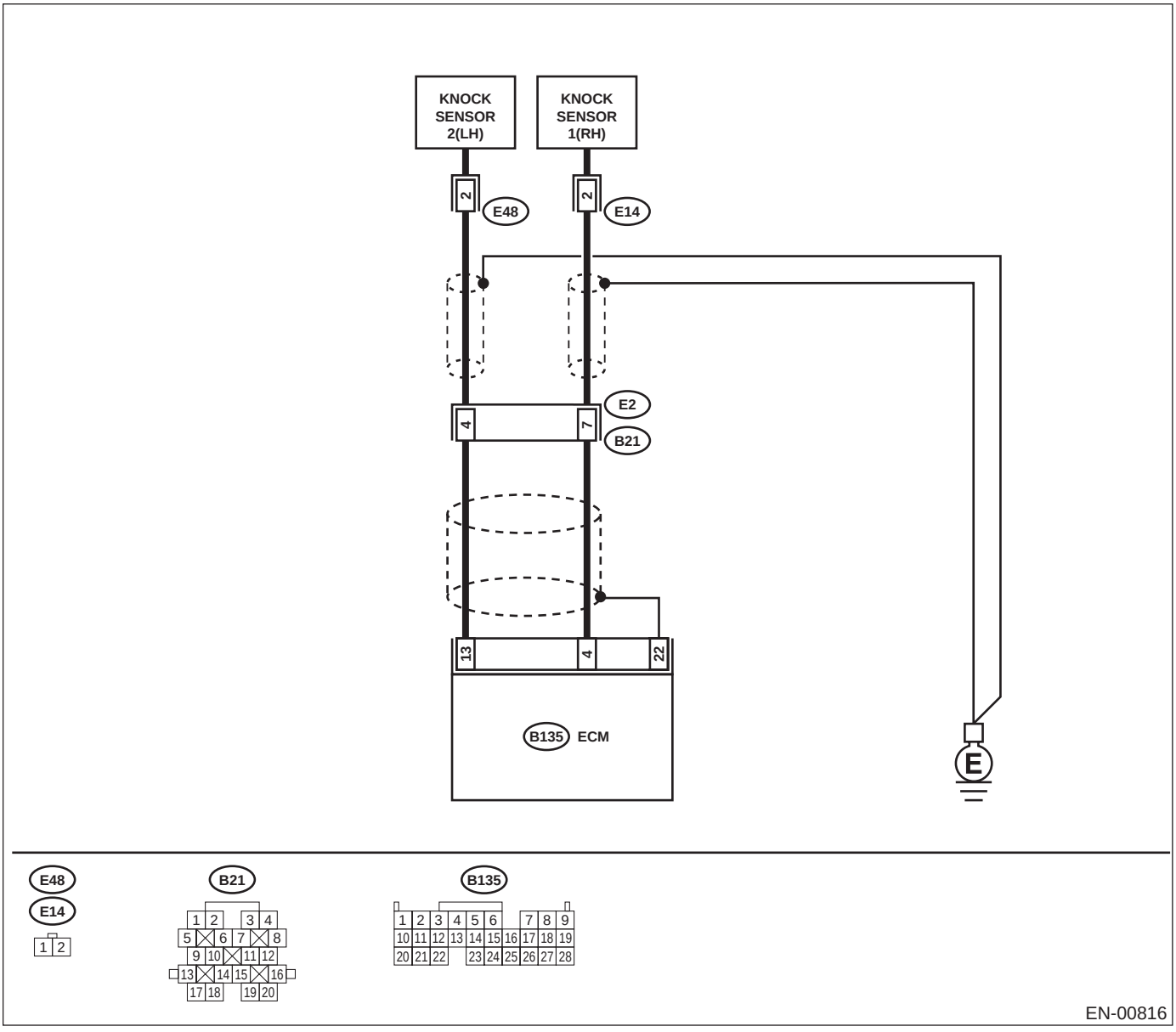
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR 2 (LH) AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance between ECM harness connector and chassis ground. ***Connector & terminal*** ***(B135) No. 13 — Chassis ground:*** Does the measured value exceed 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 2 (LH) and ECM connector • Poor contact in knock sensor 2 (LH) connector • Poor contact in coupling connector
2	**CHECK KNOCK SENSOR 2 (LH).** 1) Disconnect connector from knock sensor 2 (LH). 2) Measure resistance between knock sensor 2 (LH) connector terminal and engine ground. ***Terminal*** ***No. 2 — Engine ground:*** Does the measured value exceed the specified value?	700 kΩ	Go to step **3.**	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between knock sensor 2 (LH) and ECM connector • Poor contact in knock sensor 2 (LH) connector • Poor contact in coupling connector
3	**CHECK CONDITION OF KNOCK SENSOR 2 (LH) INSTALLATION.** Is the knock sensor 2 (LH) installation bolt tightened securely?	Tightened securely.	Replace knock sensor 2 (LH). <Ref. to FU(H6DO)-32, Knock Sensor.>	Tighten knock sensor 2 (LH) installation bolt securely.

AS:DTC P0333 — KNOCK SENSOR 2 CIRCUIT HIGH INPUT (BANK 2) —

- **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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



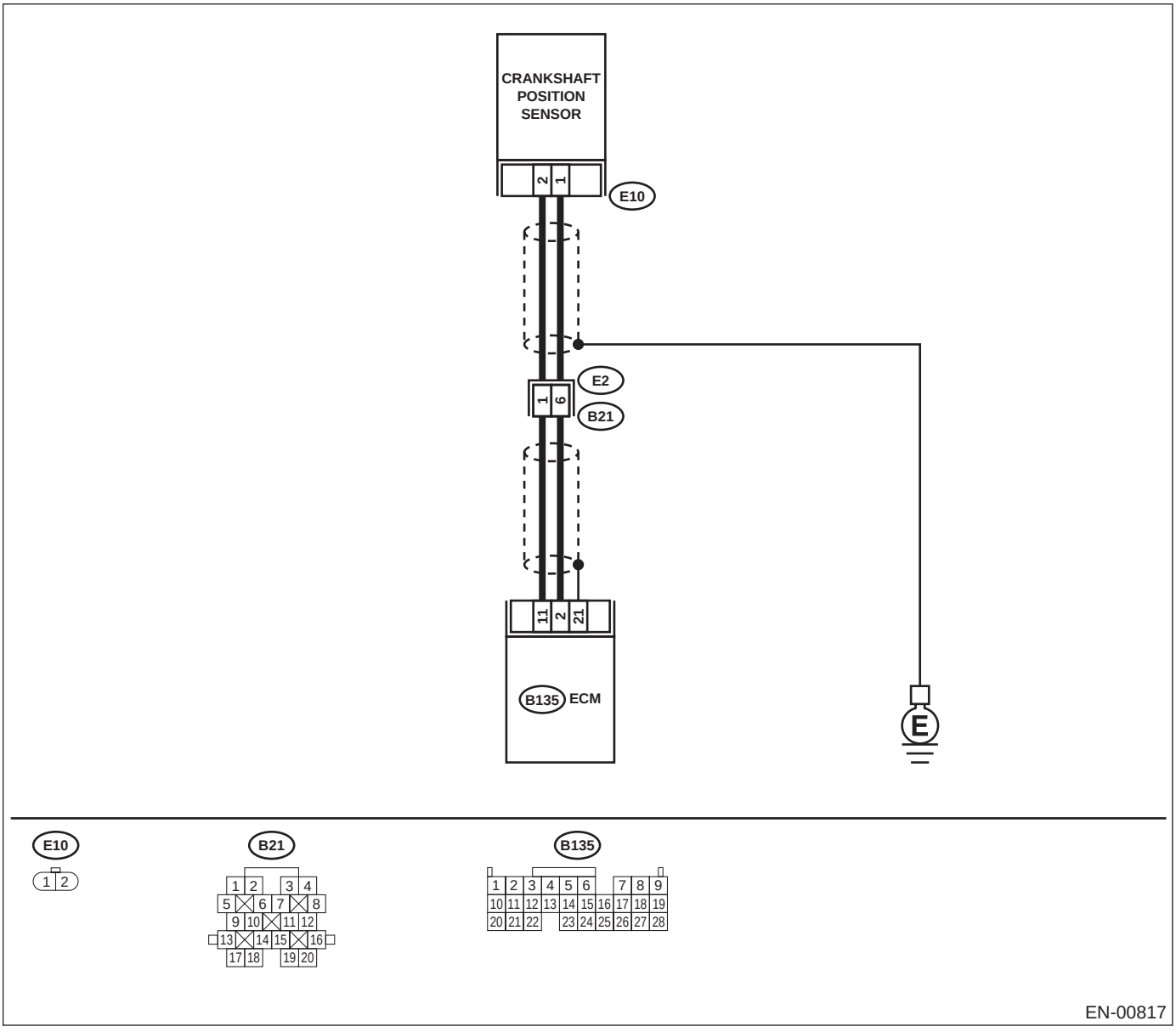
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN KNOCK SENSOR 2 (LH) AND ECM CONNECTOR.** Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 13 — Chassis ground:*** Is the measured value less than the specified value?	400 kΩ	Go to step **2.**	Go to step **3.**
2	**CHECK KNOCK SENSOR 2 (LH).** 1) Disconnect connector from knock sensor 2 (LH). 2) Measure resistance between knock sensor 2 (LH) connector terminal and engine ground. ***Terminal*** ***No. 2 — Engine ground:*** Is the measured value less than the specified value?	400 kΩ	Replace knock sensor 2 (LH). <Ref. to FU(H6DO)-32, Knock Sensor.>	Repair ground short circuit in harness between knock sensor 2 (LH) connector and ECM connector. NOTE: The harness between both connectors is shielded. Repair short circuit of harness together with shield.
3	**CHECK INPUT SIGNAL FOR ECM.** 1) Connect connectors to ECM and knock sensor 2 (LH). 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 13 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	2 V	Even if MI lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the following: • Poor contact in knock sensor connector 2 (LH) • Poor contact in ECM connector • Poor contact in coupling connector	Repair poor contact in ECM connector.

AT: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



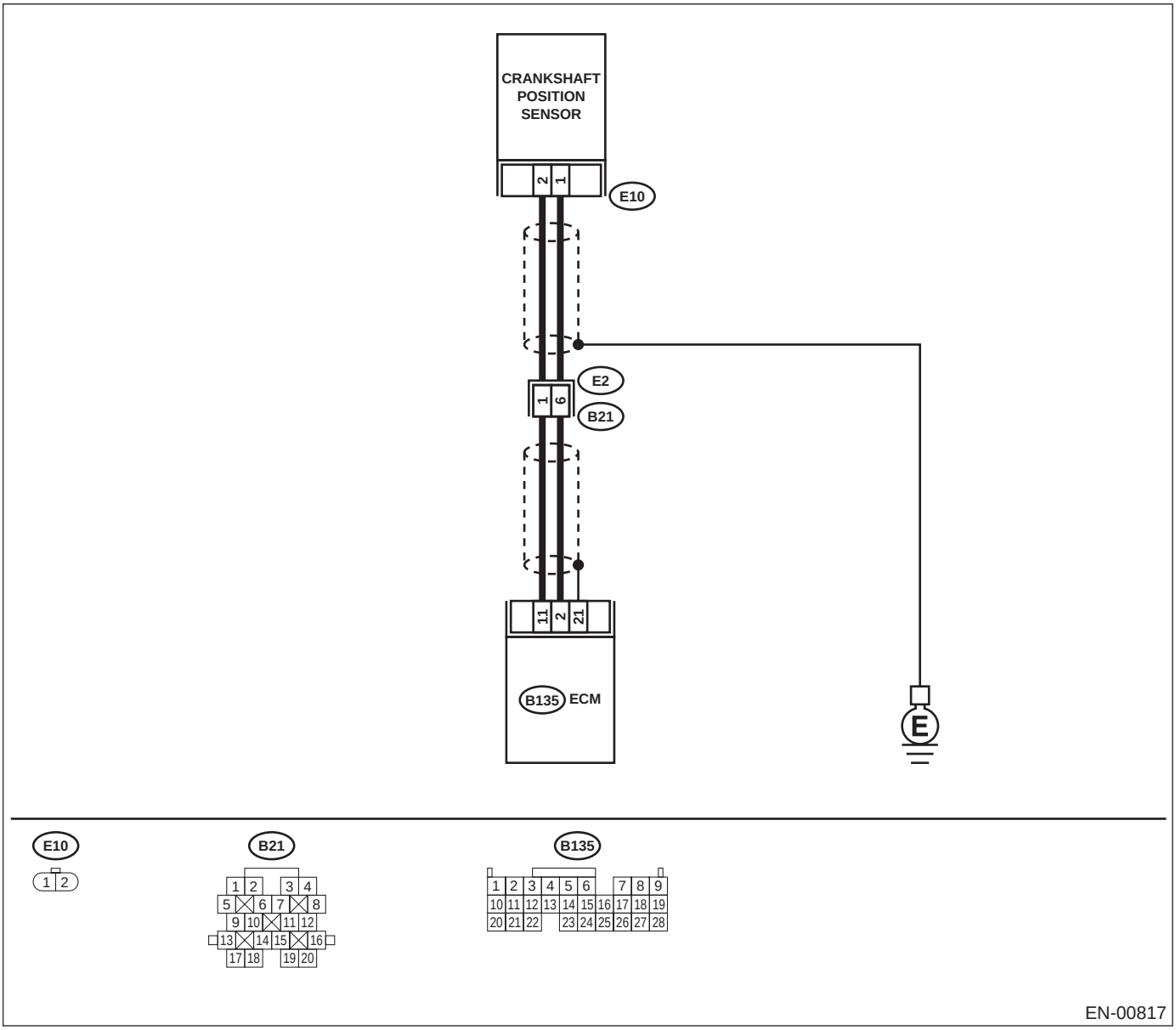
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance between crankshaft position sensor and ECM. ***Connector & terminal*** ***(E10) No. 1 — (B135) No. 2:*** ***(E10) No. 2 — (B135) No. 11:*** Is the measured value less than the specified value?	1 Ω	Go to step **2.**	Repair open circuit between crankshaft position sensor and ECM.
2	**CHECK HARNESS BETWEEN CRANKSHAFT POSITION SENSOR AND ECM.** Measure resistance between crankshaft position sensor and engine ground. ***Connector & terminal*** ***(E10) No. 1 — Engine ground:*** ***(E10) No. 2 — Engine ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Repair ground short circuit between crankshaft position sensor and ECM.
3	**CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.** Is the crankshaft position sensor installation bolt tightened securely?	Tightened securely.	Go to step **4.**	Tighten crankshaft position sensor installation bolt securely.
4	**CHECK CRANKSHAFT POSITION SENSOR.** 1) Turn ignition switch to OFF. 2) Remove crankshaft position sensor. 3) Measure resistance between connector terminals of crankshaft position sensor. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	800 — 1300 kΩ	Go to step **5.**	Replace crankshaft position sensor. <Ref. to FU(H6DO)-30, REMOVAL, Crankshaft Position Sensor.>
5	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>

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

- **DTC DETECTING CONDITION:**
  - Tow consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



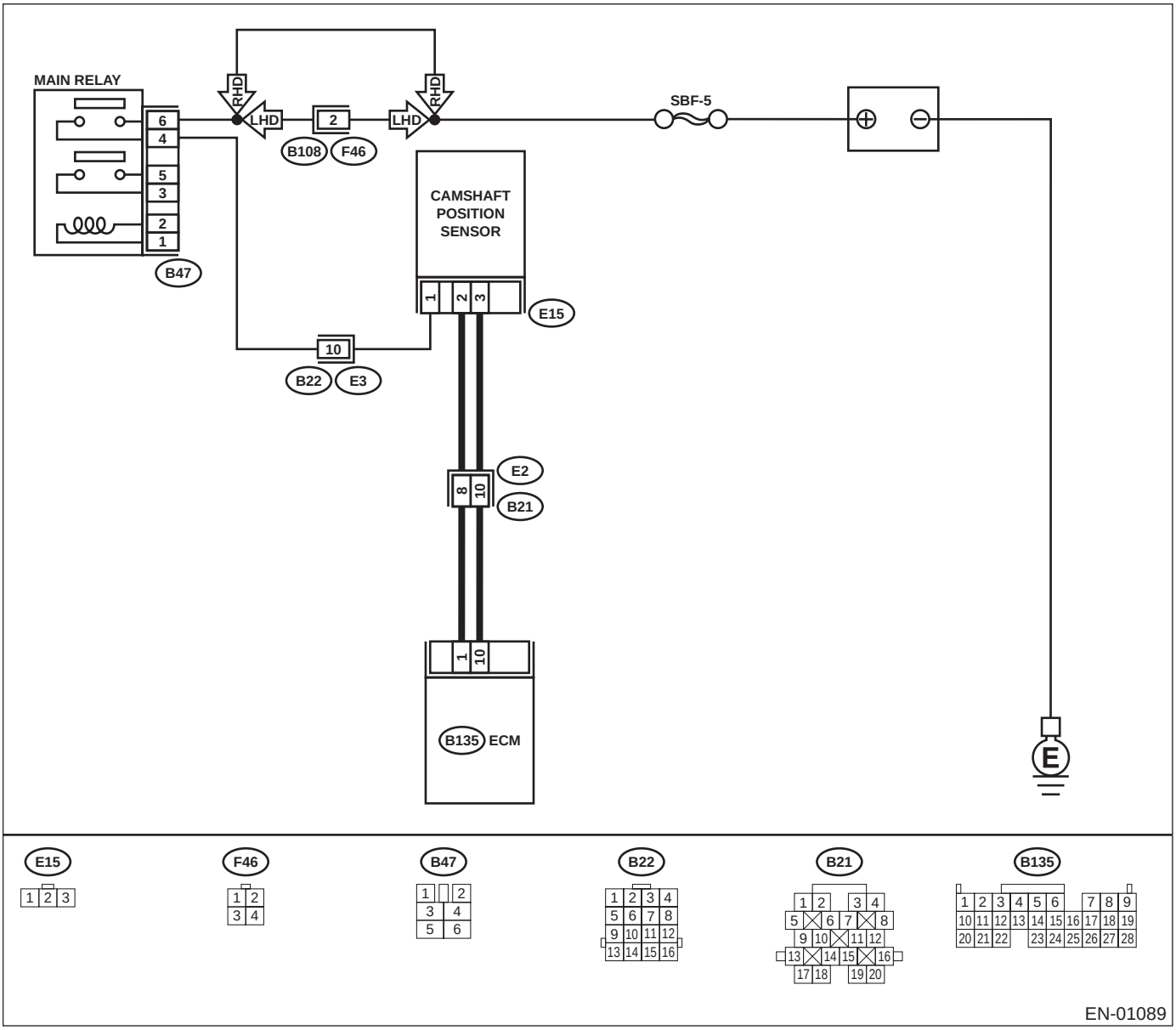
Step		Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect DTC P0335 using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.** Turn ignition switch to OFF. Is the crankshaft position sensor installation bolt tightened securely?	Tightened securely.	Go to step **3.**	Tighten crankshaft position sensor installation bolt securely.
3	**CHECK CRANKSHAFT PLATE.** Are crankshaft plate teeth cracked or damaged?	Cracked or damaged.	Replace crankshaft plate.	Go to step **4.**
4	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block. ST 18252AA000 CRANKSHAFT SOCKET Is timing chain dislocated from its proper position?	Dislocated from proper position.	Repair installation condition of timing chain. <Ref. to ME(H6DO)-41, Timing Chain Assembly.>	Replace crankshaft position sensor. <Ref. to FU(H6DO)-30, Crankshaft Position Sensor.>

AV: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



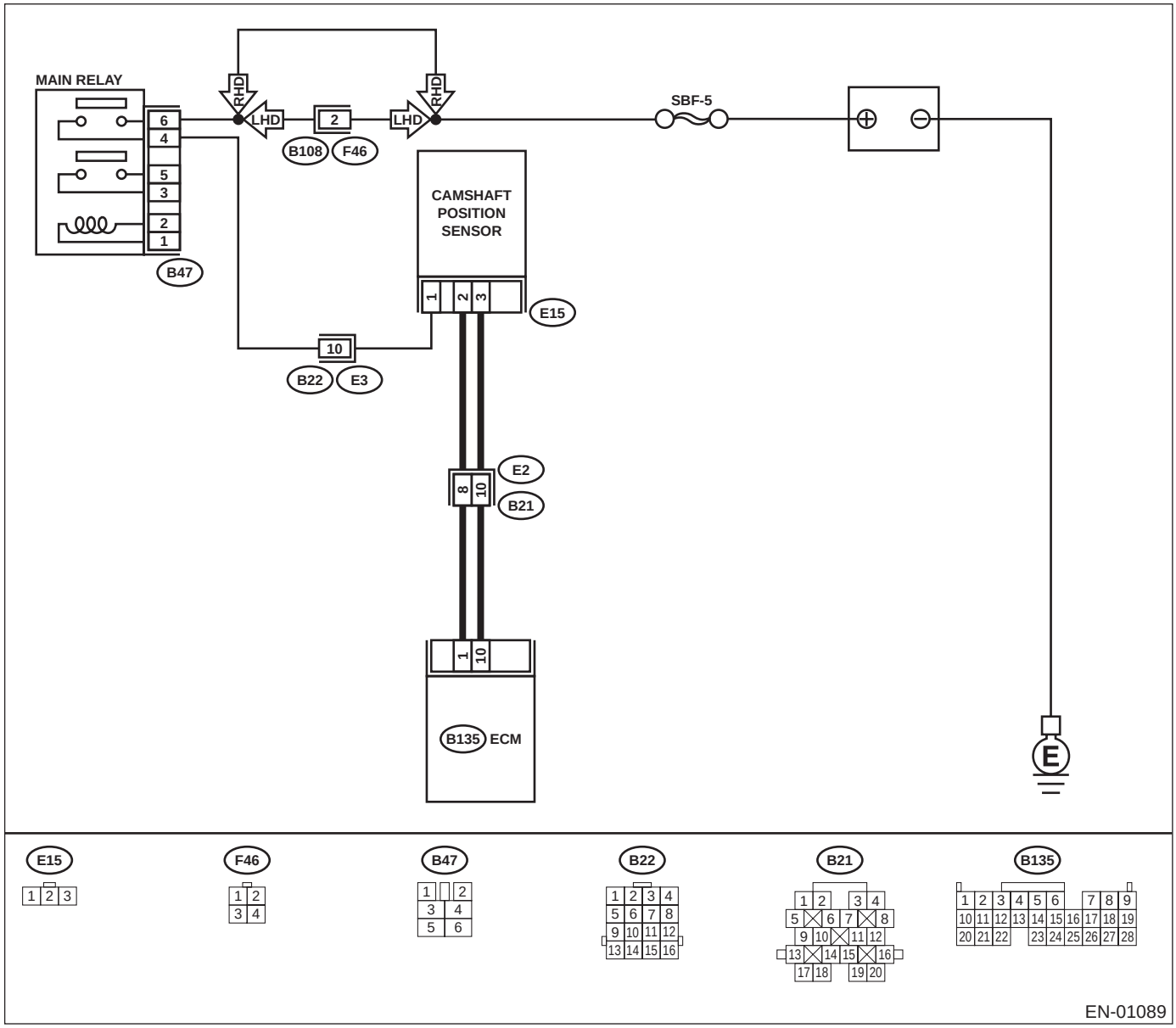
	Step	Value	Yes	No
1	**CHECK POWER SUPPLY TO CAMSHAFT POSITION SENSOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from camshaft position sensor. 3) Measure voltage between camshaft position sensor and engine ground. ***Connector & terminal*** ***(E15) No. 1 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10V	Repair ground short circuit between main relay connector and camshaft position sensor connector.	Go to step **2.**
2	**CHECK POWER SUPPLY TO CAMSHAFT POSITION SENSOR.** 1) Turn ignition switch to ON. 2) Measure voltage between camshaft position sensor and engine ground. ***Connector & terminal*** ***(E15) No. 1 (+) — Engine ground (–):*** Does the measured value exceed the specified value?	10V	Go to step **3.**	Repair open or ground short circuit between main relay connector and camshaft position sensor connector.
3	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance between camshaft position sensor and ECM. ***Connector & terminal*** ***(E15) No. 2 — (B135) No. 1:*** ***(E15) No. 3 — (B135) No. 10:*** Is the measured value less than the specified value?	1 Ω	Go to step **4.**	Repair open circuit between camshaft position sensor and ECM.
4	**CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM.** Measure resistance between camshaft position sensor and engine ground. ***Connector & terminal*** ***(E15) No. 2 — Engine ground:*** ***(E15) No. 3 — Engine ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **5.**	Repair ground short circuit between camshaft position sensor and ECM.
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.
6	**CHECK CAMSHAFT POSITION SENSOR.** Check camshaft position sensor wave form. <Ref. to EN(H6DO)-28, WAVEFORM, MEASUREMENT, Engine Control Module (ECM) I/O Signal.> Is any abnormality found in waveform?	Normal waveform.	Go to step **7.**	Replace camshaft position sensor. <Ref. to FU(H6DO)-31, Camshaft Position Sensor.>
7	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>

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

- **DTC DETECTING CONDITION:**
  - Tow consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine stalls.
  - Failure of engine to start

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect DTC P0340 using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.** Is the camshaft position sensor installation bolt tightened securely?	Tightened securely.	Go to step **3.**	Tighten camshaft position sensor installation bolt securely.
3	**CHECK CAMSHAFT SPROCKET.** Remove front chain cover. <Ref. to ME(H6DO)-39, Front Chain Cover.> Are camshaft sprocket teeth cracked or damaged?	Cracked or damaged.	Replace camshaft sprocket. <Ref. to ME(H6DO)-46, Camshaft Sprocket.>	Go to step **4.**
4	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn crankshaft using ST, and align alignment mark on camshaft sprocket with alignment mark. ST 18252AA000 CRANKSHAFT SOCKET Is timing chain dislocated from its proper position?	Dislocated from proper position.	Repair installation condition of timing chain. <Ref. to ME(H6DO)-41, Timing Chain Assembly.>	Replace camshaft position sensor. <Ref. to FU(H6DO)-31, Camshaft Position Sensor.>

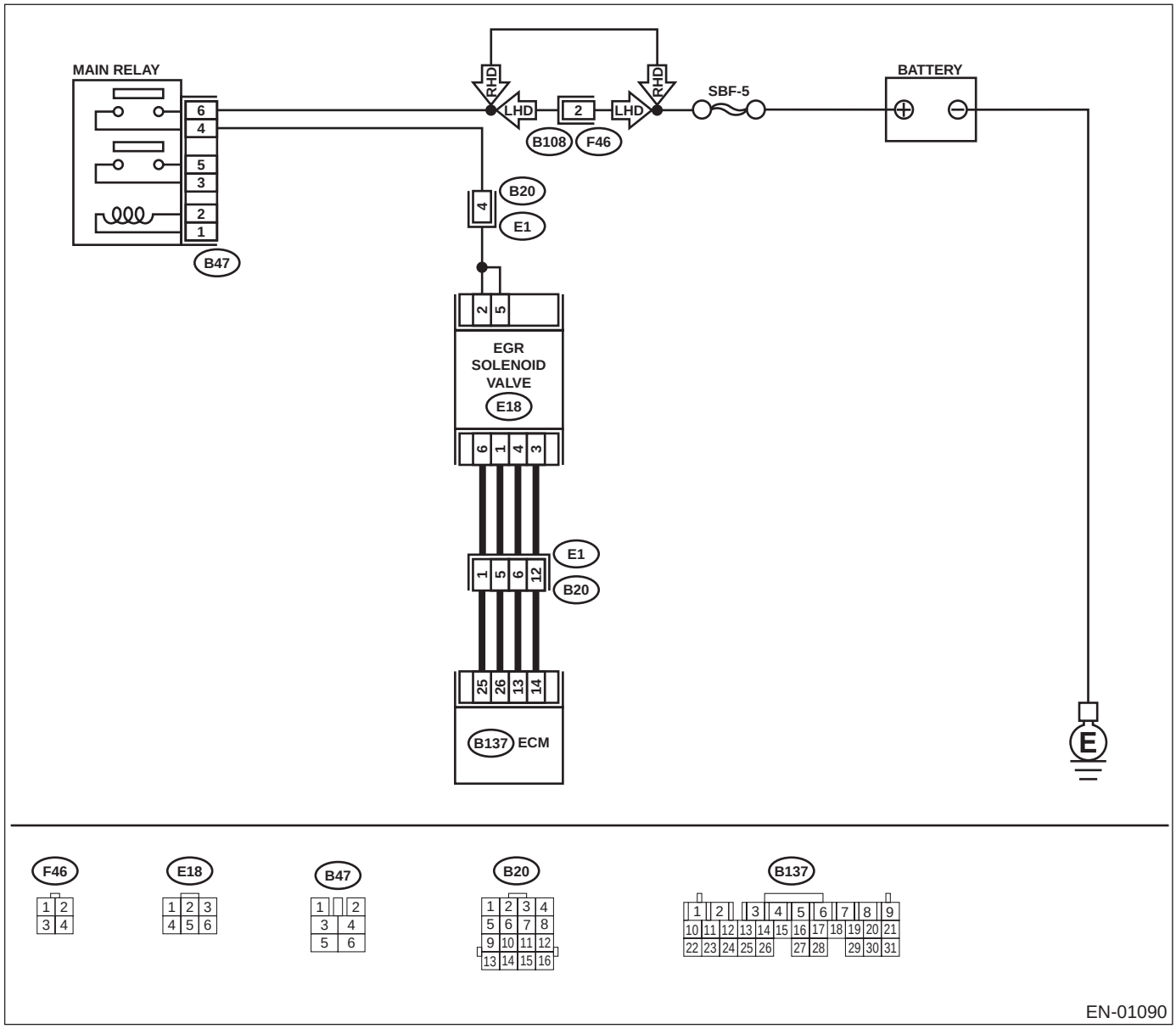
AX:DTC P0400 — EXHAUST GAS RECIRCULATION FLOW —

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

- **TROUBLE SYMPTOM:**
  - Poor driving performance on low engine speed
  - Erroneous idling
  - Poor driving performance.

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK CURRENT DATA.** 1) Start engine. 2) Rear the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. Does the measured value exceed the specified value? NOTE: • Subaru Select Monitor <Ref. to EN(H6DO)-34, Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	53.3 kPa (400 mmHg, 15.75 inHg)	Check if EGR valve, intake manifold pressure sensor and throttle body are securely installed.	Go to step **3.**
3	**CHECK POWER SUPPLY TO EGR SOLENOID VALVE.** 1) Disconnect connector from EGR solenoid valve. 2) Turn ignition switch to ON. 3) Measure voltage between EGR solenoid valve and engine ground. ***Connector & terminal*** ***(E18) No. 2 — Engine ground:*** ***(E18) No. 5 — Engine ground:*** Does the measured value exceed the specified value?	10 V	Go to step **4.**	Repair open circuit in harness between main relay and EGR solenoid valve connector.
4	**CHECK EGR SOLENOID VALVE.** Measure resistance between EGR solenoid valve terminals. NOTE: Make sure there are no foreign objects caught between EGR solenoid valve and valve seat. ***Terminals*** ***No. 1 — No. 2:*** ***No. 3 — No. 2:*** ***No. 4 — No. 5:*** ***No. 6 — No. 5:*** Is the measured value within the specified range?	20 — 30 Ω	Go to step **5.**	Replace EGR solenoid valve. <Ref. to EC(H6DO)-10, EGR Valve.>

	Step	Value	Yes	No
5	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect connectors to ECM and EGR solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 25 — Chassis ground:*** ***(B137) No. 26 — Chassis ground:*** ***(B137) No. 13 — Chassis ground:*** ***(B137) No. 14 — Chassis ground:*** Does the measured value fluctuate within the specified range?	0 — 10 V	Repair poor contact in ECM connector.	Go to step **6.**
6	**CHECK HARNESS BETWEEN EGR SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from EGR solenoid valve and ECM. 3) Measure resistance of harness between EGR solenoid valve and ECM connector. ***Connector & terminal*** ***(B137) No. 25 — (E18) No. 6:*** ***(B137) No. 26 — (E18) No. 1:*** ***(B137) No. 13 — (E18) No. 4:*** ***(B137) No. 14 — (E18) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **7.**	Repair open circuit in harness between ECM and EGR solenoid valve connector.
7	**CHECK HARNESS BETWEEN EGR SOLENOID VALVE AND ECM CONNECTOR.** Measure resistance of harness between EGR solenoid valve and chassis ground. ***Connector & terminal*** ***(B137) No. 25 — Chassis ground:*** ***(B137) No. 26 — Chassis ground:*** ***(B137) No. 13 — Chassis ground:*** ***(B137) No. 14 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **8.**	Repair short circuit in harness between main relay and EGR solenoid valve connector.
8	**CHECK POOR CONTACT.** Check poor contact in ECM and EGR solenoid valve connector. Is there poor contact in ECM and EGR solenoid valve connector?	There is poor contact.	Repair poor contact in ECM and EGR solenoid valve connector.	Even if MI lights up, the circuit has returned to a normal condition at this time.

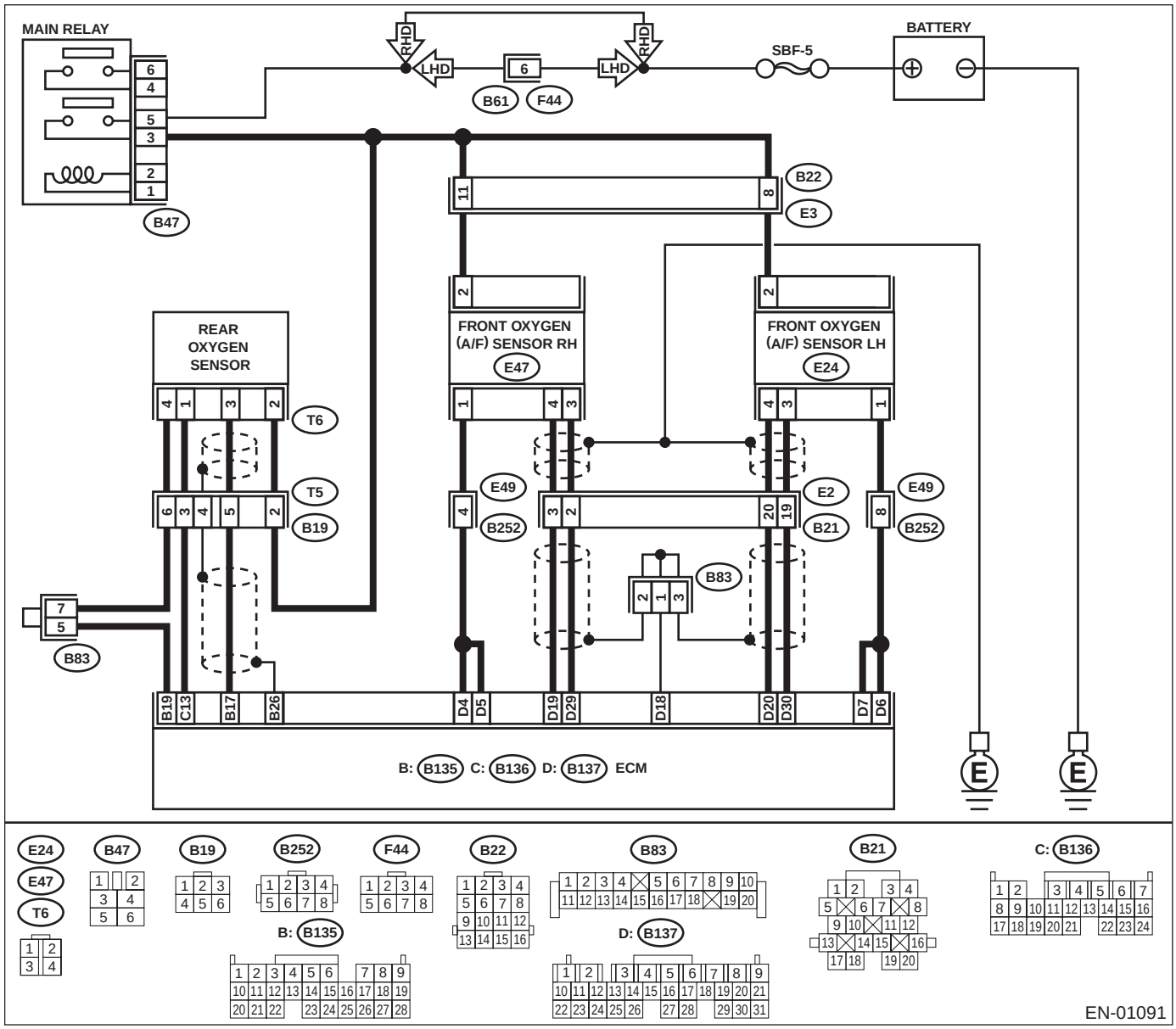
MEMO:

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



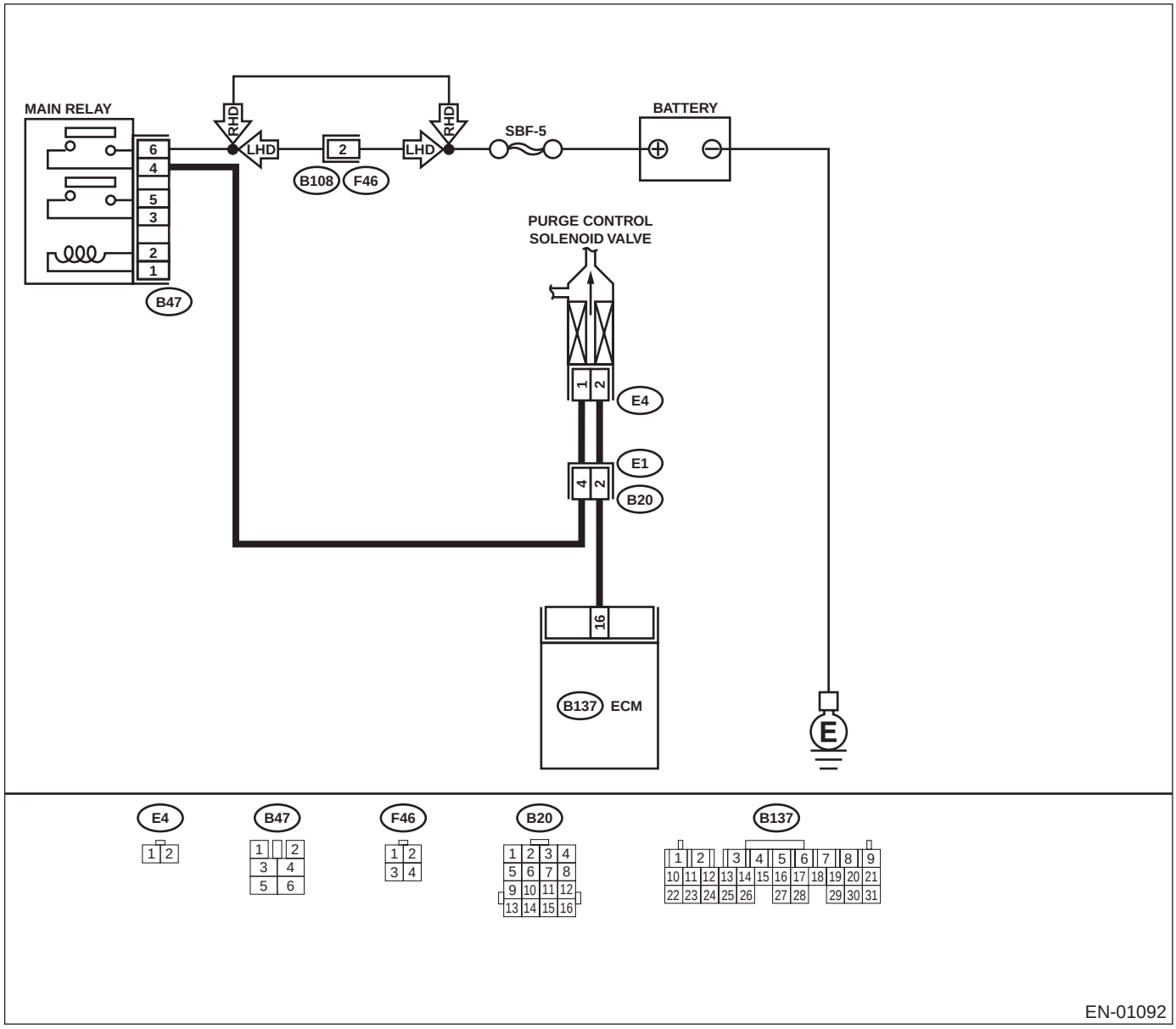
	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0420.	Go to step **2.**
2	**CHECK EXHAUST SYSTEM.** Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes. NOTE: Check the following positions. • Between cylinder head and front exhaust pipe • Between front exhaust pipe and front catalytic converter • Between front catalytic converter and rear catalytic converter Is there a fault in exhaust system?	There is a malfunction.	Repair or replace exhaust system.	Go to step **3.**
3	**CHECK REAR CATALYTIC CONVERTER.** Separate rear catalytic converter from rear exhaust pipe. Is there damage at rear face of rear catalyst?	There is damage.	Replace front catalytic converter <Ref. to EC(H6DO)-3, Front Catalytic Converter.> and rear catalytic converter <Ref. to EC(H6DO)-6, Rear Catalytic Converter.>.	Go to step **4.**
4	**CHECK FRONT CATALYTIC CONVERTER.** Remove front catalytic converter. Is there damage at rear face or front face of front catalyst?	There is damage.	Replace front catalytic converter. <Ref. to EC(H6DO)-3, Front Catalytic Converter.>	Contact SUBRU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Even if MI lights up, the circuit has returned to a normal condition at this time. Contact SUBARU 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 connectors from purge control solenoid valve and ECM. 3) Measure resistance of harness between purge control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E4) No. 2 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair ground short circuit 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 resistance of harness between ECM and purge control solenoid valve of harness connector. ***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 purge control solenoid valve. 2) Measure resistance between purge control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	10 — 100 Ω	Go to step **5.**	Replace purge control solenoid valve. <Ref. to EC(H6DO)-8, Purge Control Solenoid Valve.>

	Step	Value	Yes	No
5	**CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between purge control solenoid valve and engine ground. ***Connector & terminal*** ***(E4) No. 1 (+) — Engine ground (–):*** Does the measured value exceed 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 POOR CONTACT.** Check 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 SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

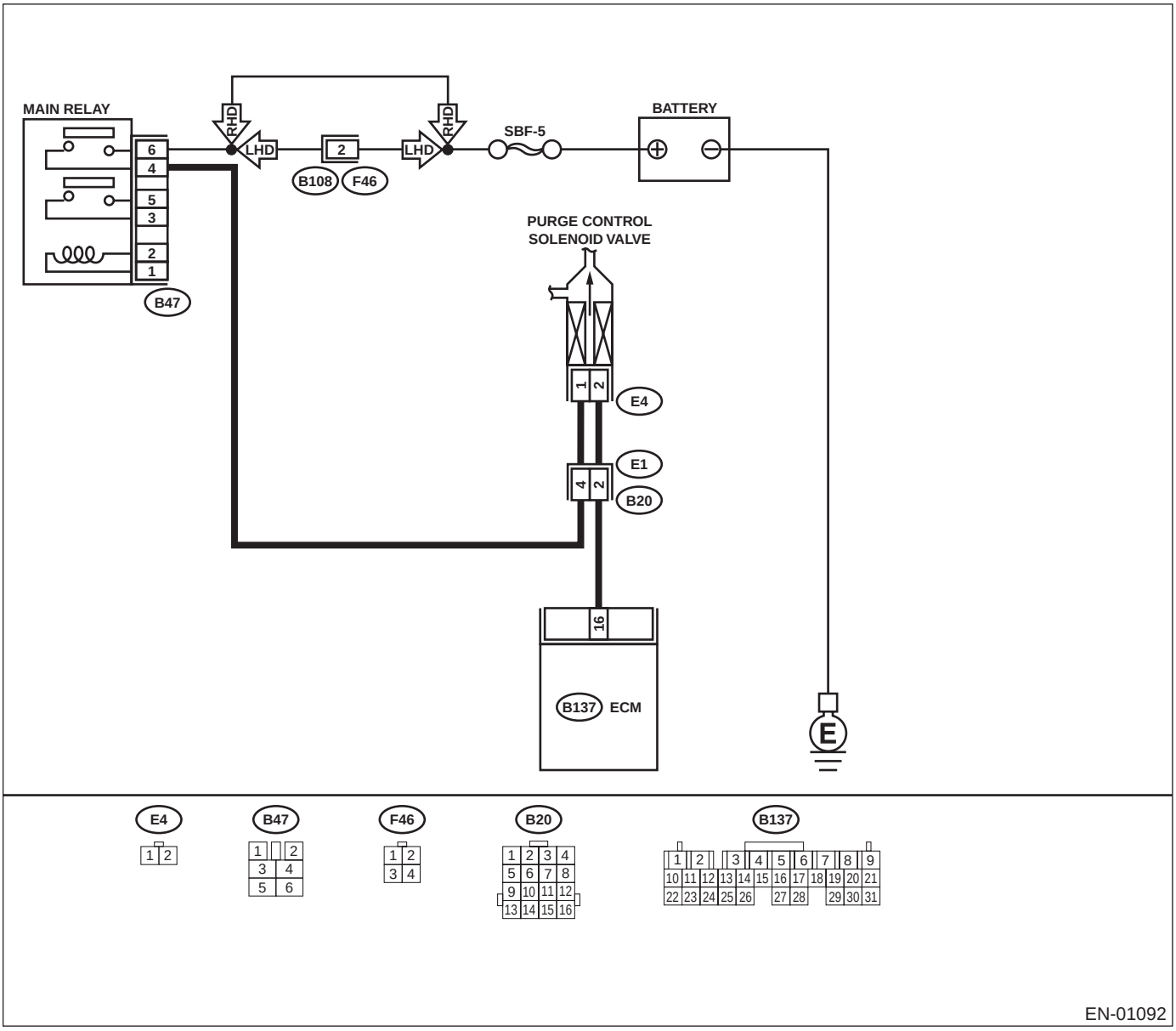
MEMO:

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



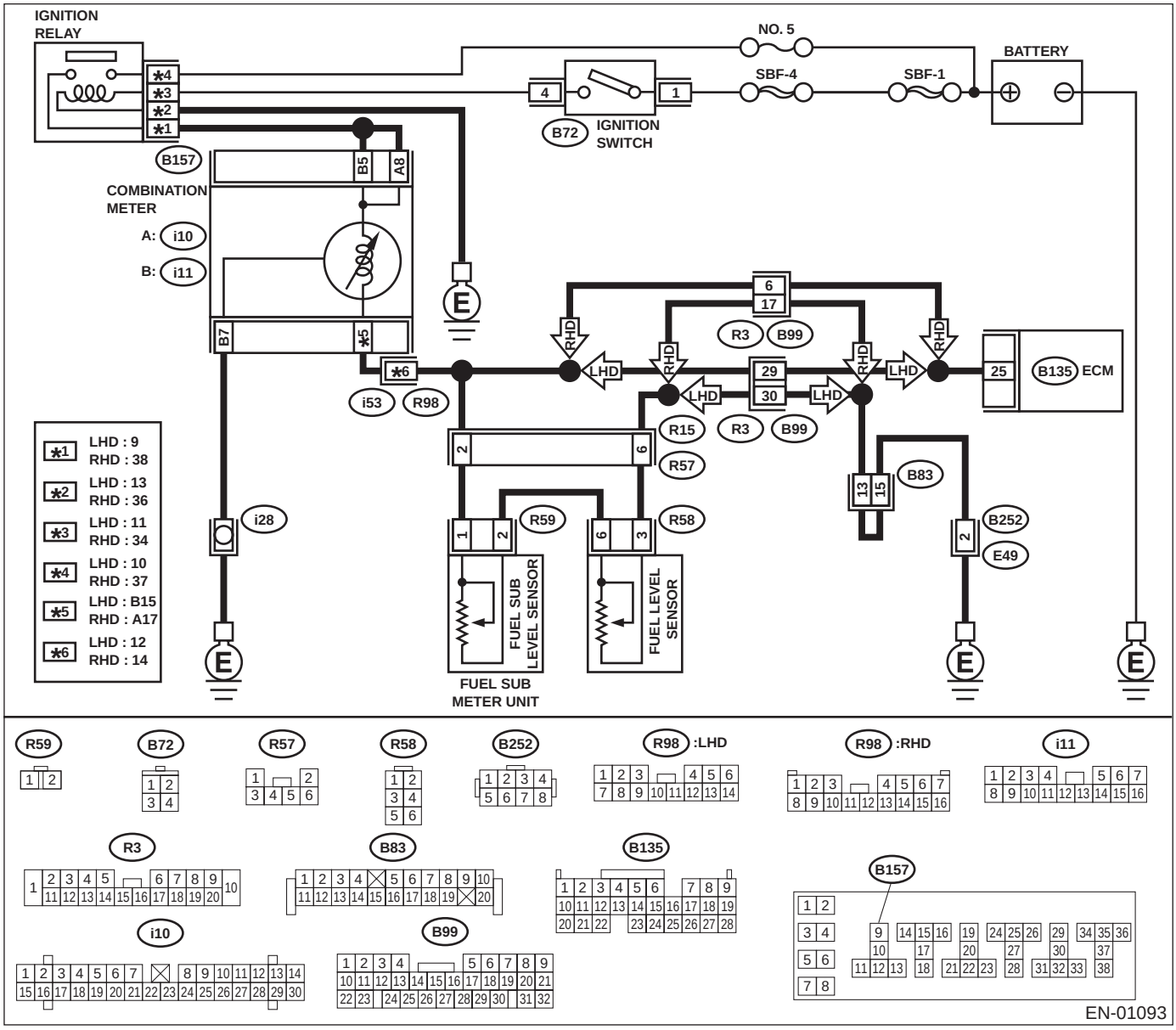
	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector. 3) Turn ignition switch to ON. 4) While operating purge control solenoid valve, measure voltage between ECM and chassis ground. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <Ref. to EN(H6DO)-55, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (–):*** Does the measured value change within the specified range?	0 — 10 V	Go to step **2.**	Even if MI lights up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (–):*** Is the measured value within the specified range?	10 V	Go to step **4.**	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>
4	**CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from purge control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Go to step **5.**
5	**CHECK PURGE CONTROL SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Measure resistance between purge control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace purge control solenoid valve <Ref. to EC(H6DO)-8, Purge Control Solenoid Valve.> and ECM <Ref. to FU(H6DO)-46, Engine Control Module.>	Go to step **6.**
6	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



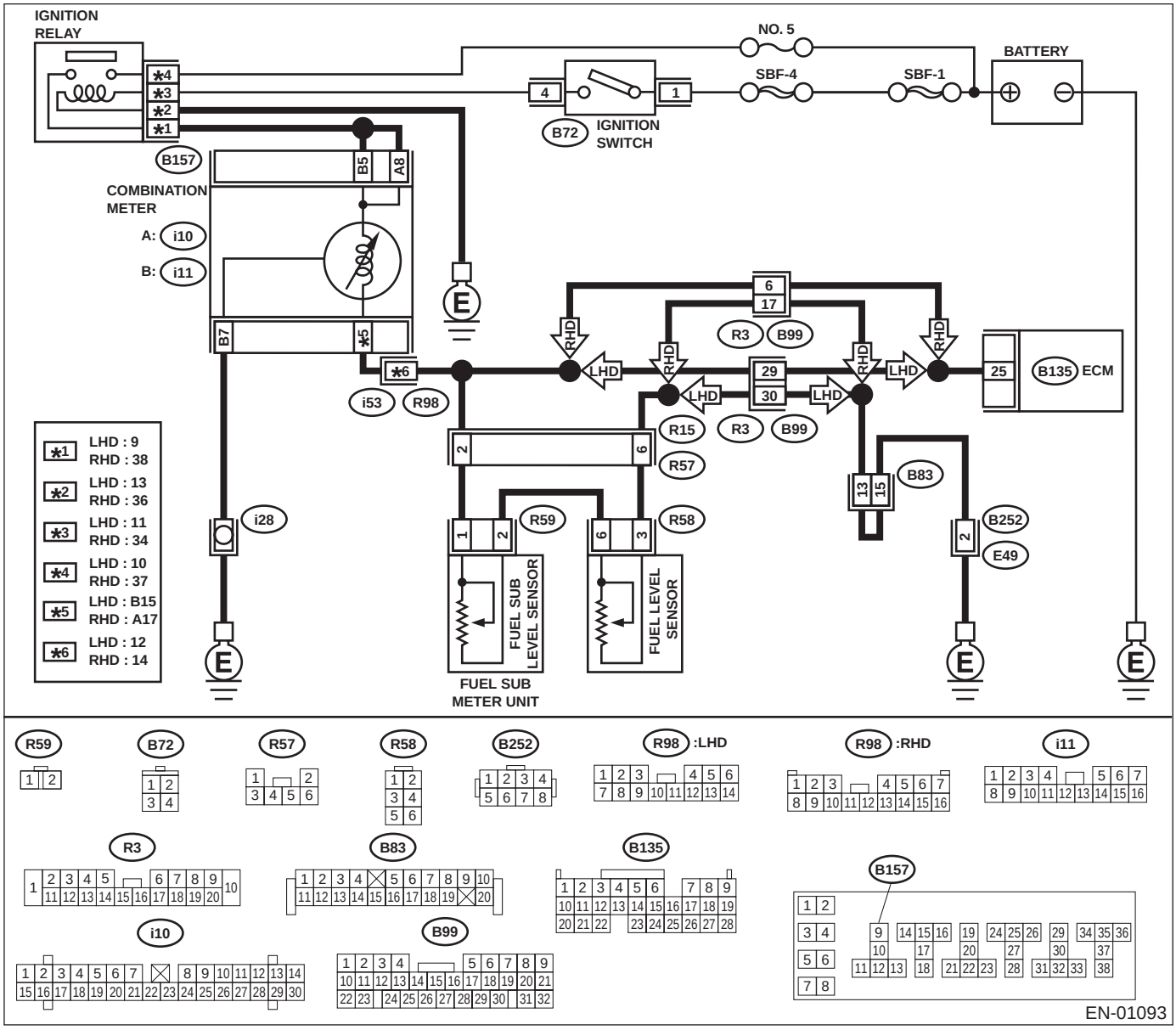
	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect this trouble.	Replace fuel level sensor <Ref. to FU(H6DO)-67, Fuel Level Sensor.> and fuel sub level sensor <Ref. to FU(H6DO)-68, Fuel Sub Level Sensor.>.

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.** Does speedometer and tachometer operate normally?	Operates properly.	Go to step **2.**	Repair or replace combination meter. <Ref. to IDI-14, Combination Meter Assembly.>
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. (Engine OFF) 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (–):*** Is the measured value less than 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 data of fuel level sensor signal using Subaru Select Monitor. Does the value change less than the specified value by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.>	0.12 V	Repair poor contact in ECM connector.	Even if MI lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in combination meter connector • Poor contact in ECM connector • Poor contact in coupling connectors
4	**CHECK INPUT VOLTAGE OF ECM.** 1) Turn ignition switch to OFF. 2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). 3) Turn ignition switch to ON. 4) Measure voltage of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	0.12 V	Go to step **5.**	Go to step **7.**
5	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER.** 1) Turn ignition switch to OFF. 2) Disconnect connector from connector (i10) and ECM connector. 3) Measure resistance between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 25 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **6.**	Repair ground short circuit in harness between ECM and combination meter connector.

	Step	Value	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER.** Measure resistance between ECM and combination meter connector. ***Connector & terminal*** ***LHD*** ***(B135) No. 25 — (i10) No. 15:*** ***RHD*** ***(B135) No. 25 — (i10) No. 17:*** Is the measured value less than the specified value?	10 Ω	Repair or replace combination meter. <Ref. to IDI-14, Combination Meter Assembly.>	Repair open circuit between ECM and combination meter connector. NOTE: In this case, repair the following: Poor contact in coupling connector
7	**CHECK FUEL TANK CORD.** 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel sub level sensor. 3) Measure resistance between fuel sub level sensor and chassis ground. ***Connector & terminal*** ***(R59) No. 1 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **8.**	Repair ground short circuit in fuel tank cord.
8	**CHECK FUEL TANK CORD.** 1) Disconnect connector from fuel pump assembly. 2) Measure resistance between fuel pump assembly and chassis ground. ***Connector & terminal*** ***(R59) No. 2 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **9.**	Repair ground short circuit in fuel tank cord.
9	**CHECK FUEL LEVEL SENSOR.** 1) Remove fuel pump assembly. <Ref. to FU(H6DO)-65, Fuel Pump.> 2) Measure resistance between fuel level sensor and terminals with its float set to the full position. ***Terminals*** ***No. 3 — No. 6:*** Is the measured value within the specified range?	0.5 — 2.5 Ω	Go to step **10.**	Replace fuel level sensor.
10	**CHECK FUEL SUB LEVEL SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel sub level sensor. <Ref. to FU(H6DO)-68, Fuel Sub Level Sensor.> 2) Measure resistance between fuel sub level sensor and terminals with its float set to the full position. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	0.5 — 2.5 Ω	Repair poor contact in harness between ECM and combination meter connector.	Replace fuel sub level sensor.

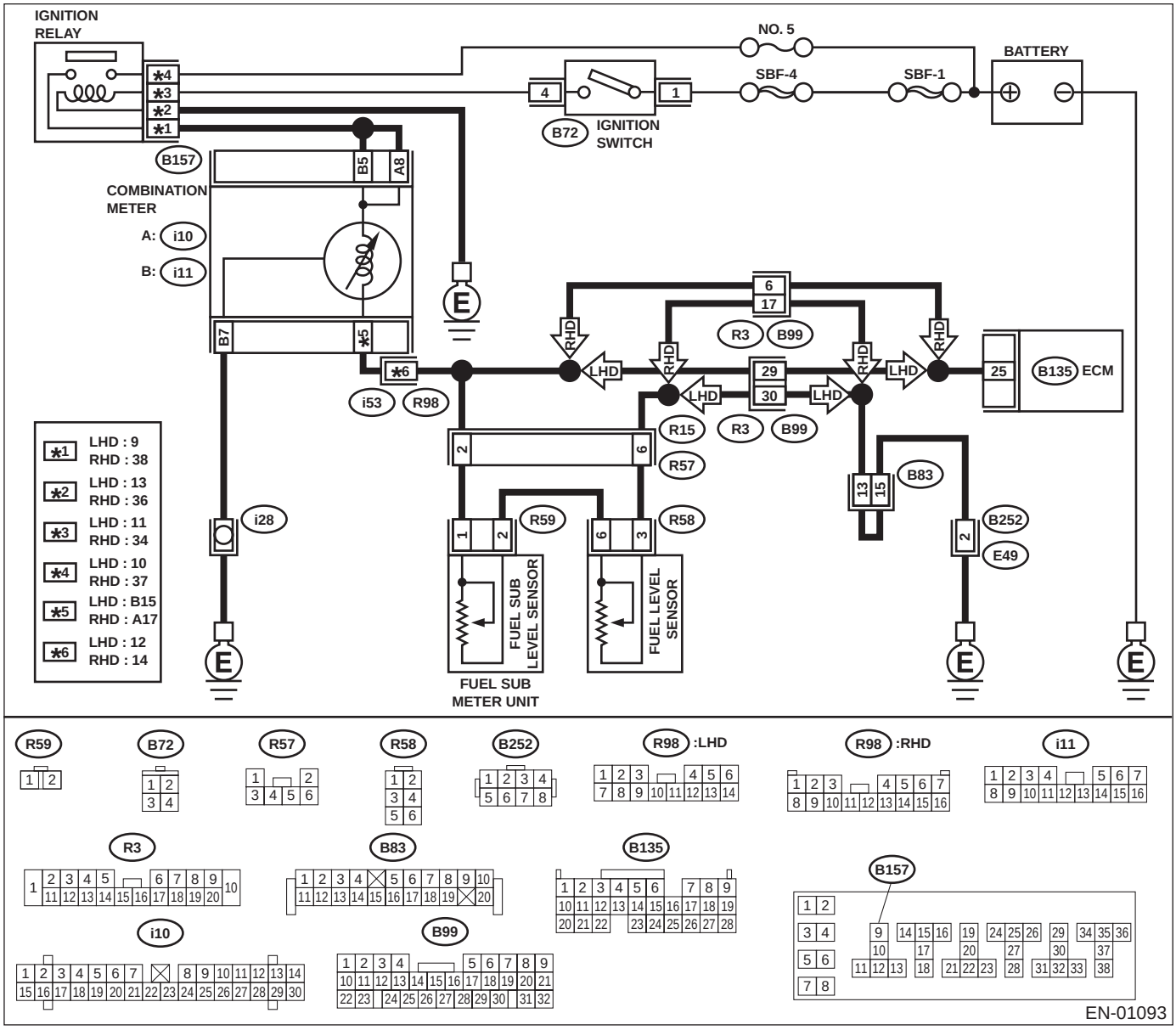
MEMO:

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK SPEEDOMETER AND TACHOMETER OPERATION IN COMBINATION METER.** Does speedometer and tachometer operate normally?	Operates properly.	Go to step **2.**	Repair or replace combination meter. <Ref. to IDI-14, Combination Meter Assembly.>
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. (Engine OFF) 2) Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4.75 V	Go to step **3.**	Even if MI lights up, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following: • Poor contact in fuel pump connector • Poor contact in coupling connector
3	**CHECK INPUT VOLTAGE OF ECM.** 1) Turn ignition switch to OFF. 2) Disconnect combination meter connector (i10) and ECM connector. 3) Turn ignition switch to ON. 4) Measure voltage of harness between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 25 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4.75 V	Go to step **4.**	Repair battery short circuit between ECM and combination meter connector.
4	**CHECK HARNESS BETWEEN ECM AND FUEL TANK CORD.** 1) Turn ignition switch to OFF. 2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). 3) Measure resistance between ECM and fuel tank cord. ***Connector & terminal*** ***(B135) No. 25 — (R15) No. 2:*** 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 resistance between fuel tank cord and chassis ground. ***Connector & terminal*** ***(R15) No. 6 — 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 connectors

	Step	Value	Yes	No
6	**CHECK FUEL TANK CORD.** 1) Disconnect connector from fuel level sensor. 2) Measure resistance between fuel level sensor and coupling connector. ***Connector & terminal*** ***(R57) No. 6 — (R58) No. 3:*** 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 connector from fuel sub level sensor. 2) Measure resistance between fuel level sensor and fuel sub level sensor. ***Connector & terminal*** ***(R58) No. 6 — (R59) No. 2:*** Is the measured value less than 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 resistance between fuel sub level sensor and coupling connector. ***Connector & terminal*** ***(R57) No. 2 — (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.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel pump assembly. <Ref. to FU(H6DO)-65, Fuel Pump.> 2) While moving fuel level sensor float up and down, measure resistance between fuel level sensor terminals. ***Terminals*** ***No. 3 — No. 6:*** Does the measured value exceed the specified value?	54.5 Ω	Replace fuel level sensor. <Ref. to FU(H6DO)-67, Fuel Level Sensor.>	Go to step **10.**
10	**CHECK FUEL SUB LEVEL SENSOR.** **Warning:** **During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill.** 1) Remove fuel sub level sensor. <Ref. to FU(H6DO)-68, Fuel Sub Level Sensor.> 2) While moving fuel sub level sensor float up and down, measure resistance between fuel sub level sensor terminals. ***Terminals*** ***No. 1 — No. 2:*** Does the measured value exceed the specified value?	41.5 Ω	Replace fuel sub level sensor. <Ref. to FU(H6DO)-68, Fuel Sub Level Sensor.>	Replace combination meter. <Ref. to IDI-14, Combination Meter Assembly.>

MEMO:

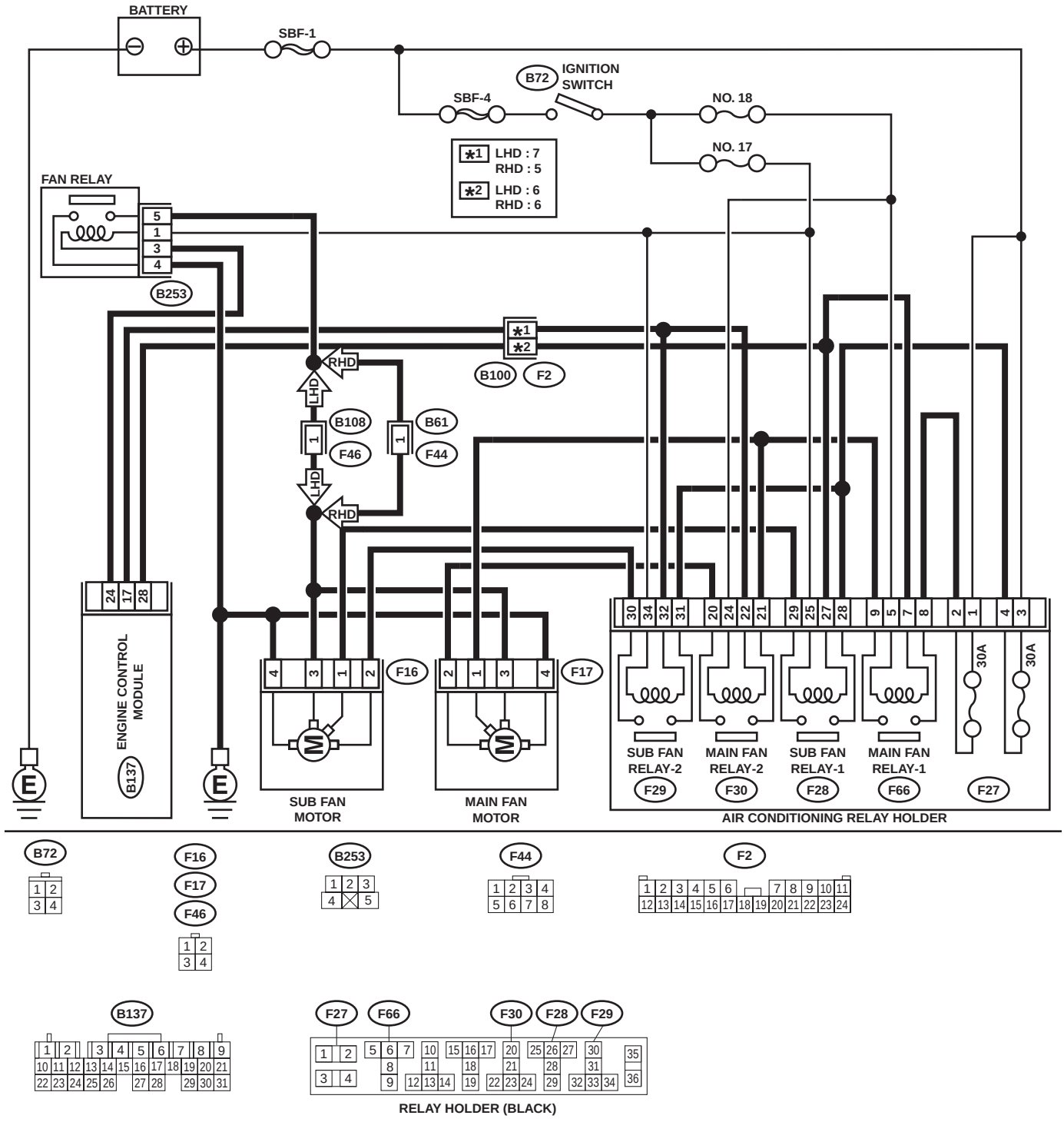
BE:DTC P0483 — COOLING FAN RATIONALITY CHECK —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

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

- **WIRING DIAGRAM:**



CO-00167

Step		Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Check radiator fan and fan motor. <Ref. to CO(H6DO)-7, INSPECTION, Radiator Main Fan System.> and <Ref. to CO(H6DO)-15, INSPECTION, Radiator Sub Fan System.>

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

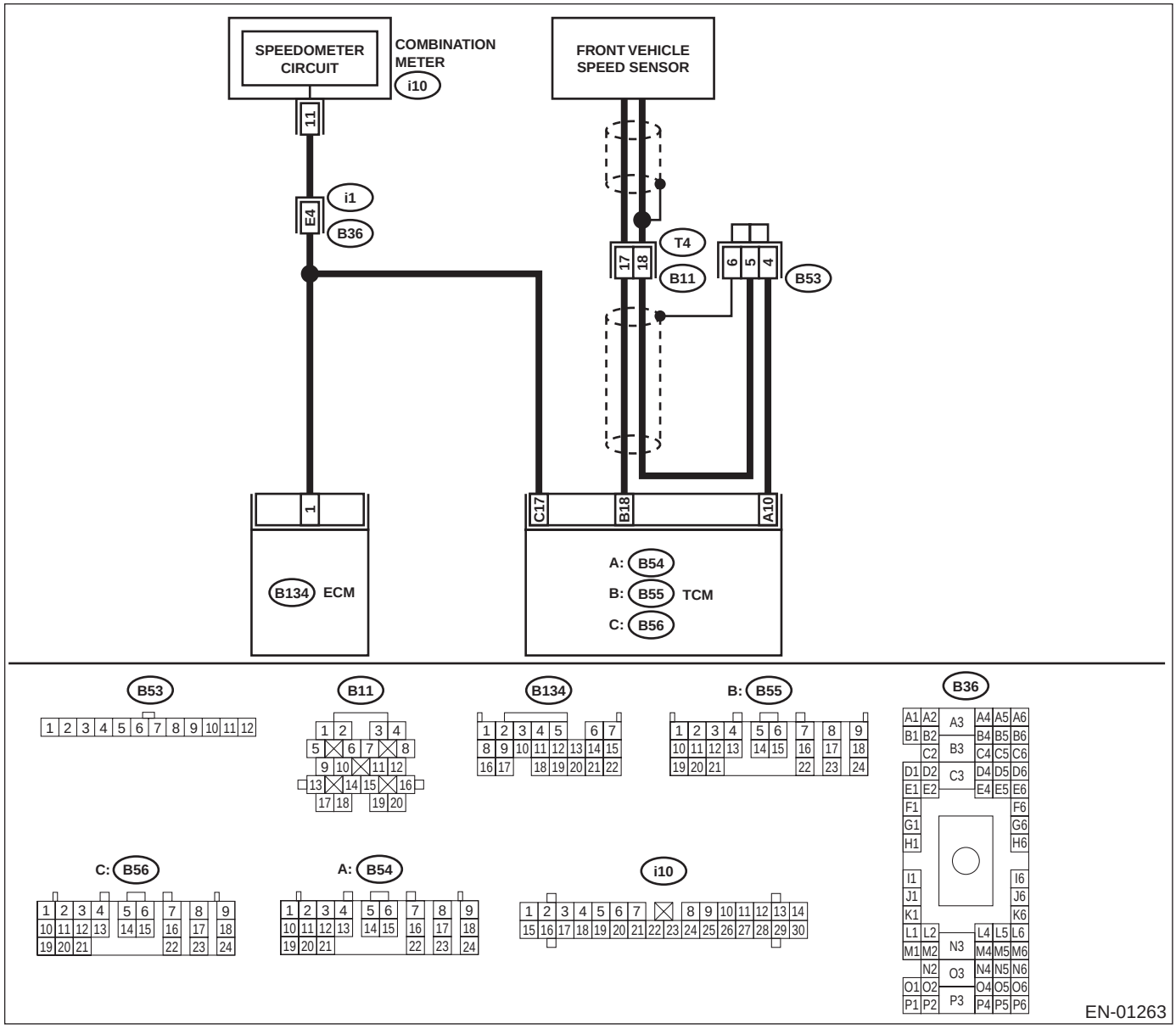
NOTE:
For the diagnostic procedure, refer to DTC P0503. <Ref. to EN(H6DO)-252, DTC P0503 — VEHICLE SPEED SENSOR INTERMITTENT/ERRATIC/HIGH —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BG: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



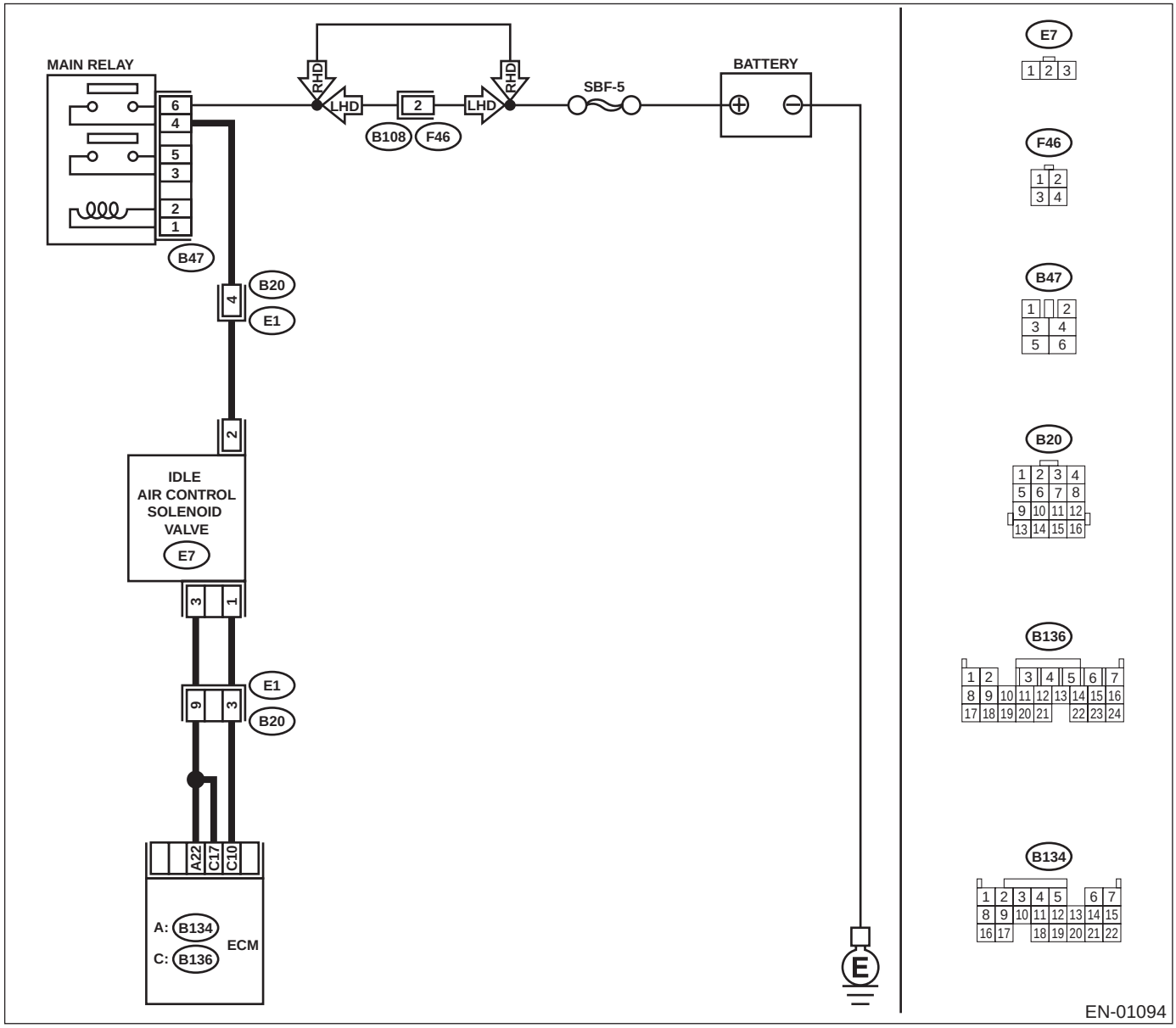
	Step	Value	Yes	No
1	**CHECK DTC P0720 ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?	DTC P0720 is indicated.	Check front vehicle speed sensor signal circuit. <Ref. to AT-58, DTC 33 FRONT VEHICLE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK SPEEDOMETER OPERATION IN COMBINATION METER.** Does speedometer operate normally?	Operates properly.	Go to step **3.**	Check speedometer and vehicle speed sensor. <Ref. to IDI-18, Speedometer.>, <Ref. to AT-54, Front Vehicle Speed Sensor.>, <Ref. to AT-58, Rear Vehicle Speed Sensor.> and <Ref. to AT-59, Torque Converter Turbine Speed Sensor.>
3	**CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from combination meter. 3) Measure resistance between ECM and combination meter. ***Connector & terminal*** ***(B134) No. 1 — (i10) No. 11:*** 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

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



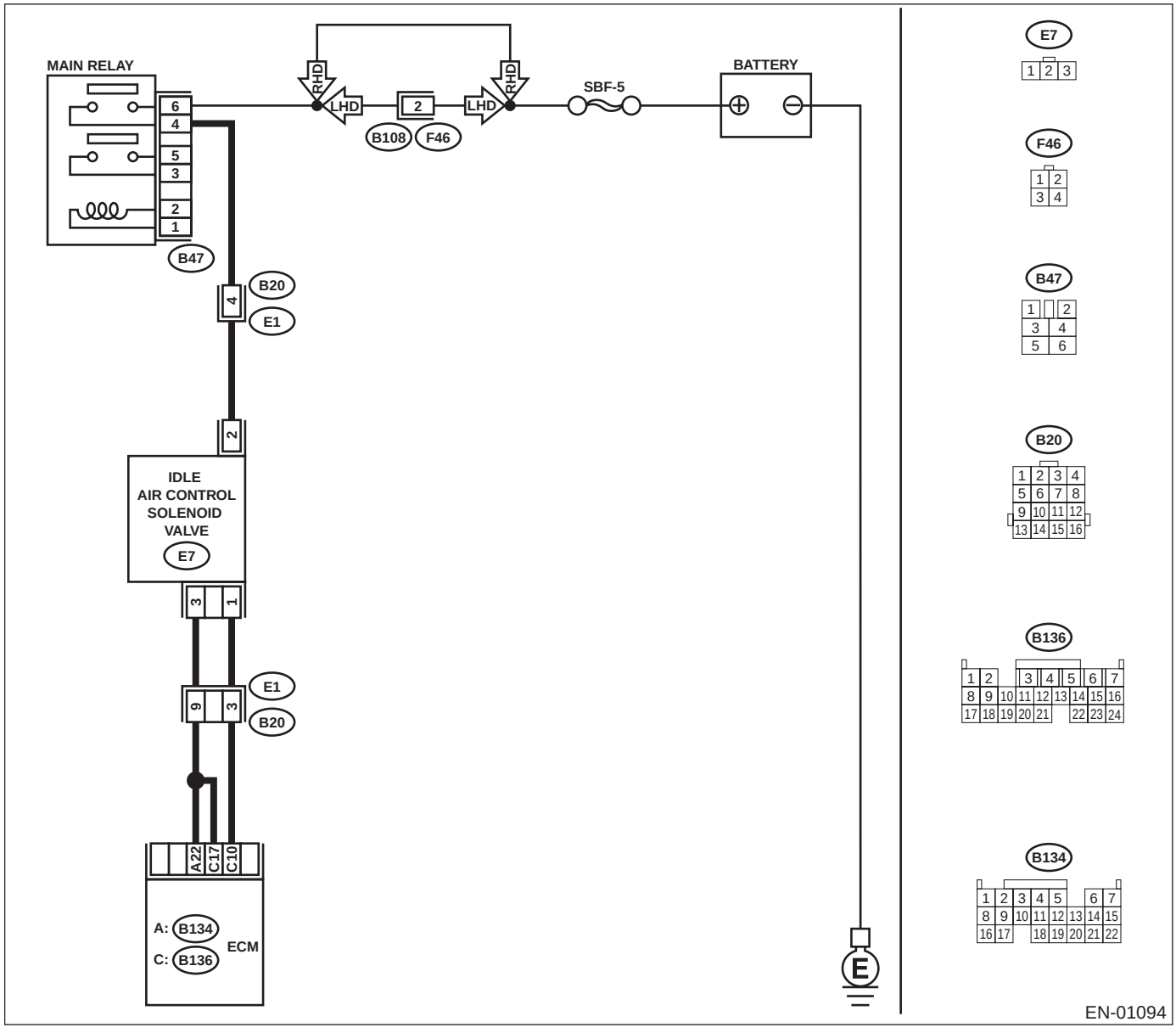
	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0506.	Go to step **2.**
2	**CHECK AIR BY-PASS LINE.** 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <Ref. to FU(H6DO)-36, Idle Air Control Solenoid Valve.> 3) Remove throttle body from intake manifold. <Ref. to FU(H6DO)-16, Throttle Body.> 4) Using an air gun, force air into idle air control solenoid valve installation area. Confirm that forced air subsequently escapes from throttle body interior. Does air flow out?	Air flows out.	Replace idle air control solenoid valve. <Ref. to FU(H6DO)-36, Idle Air Control Solenoid Valve.>	Replace throttle body. <Ref. to FU(H6DO)-16, Throttle Body.>

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Engine does not return to normal idle speed.

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



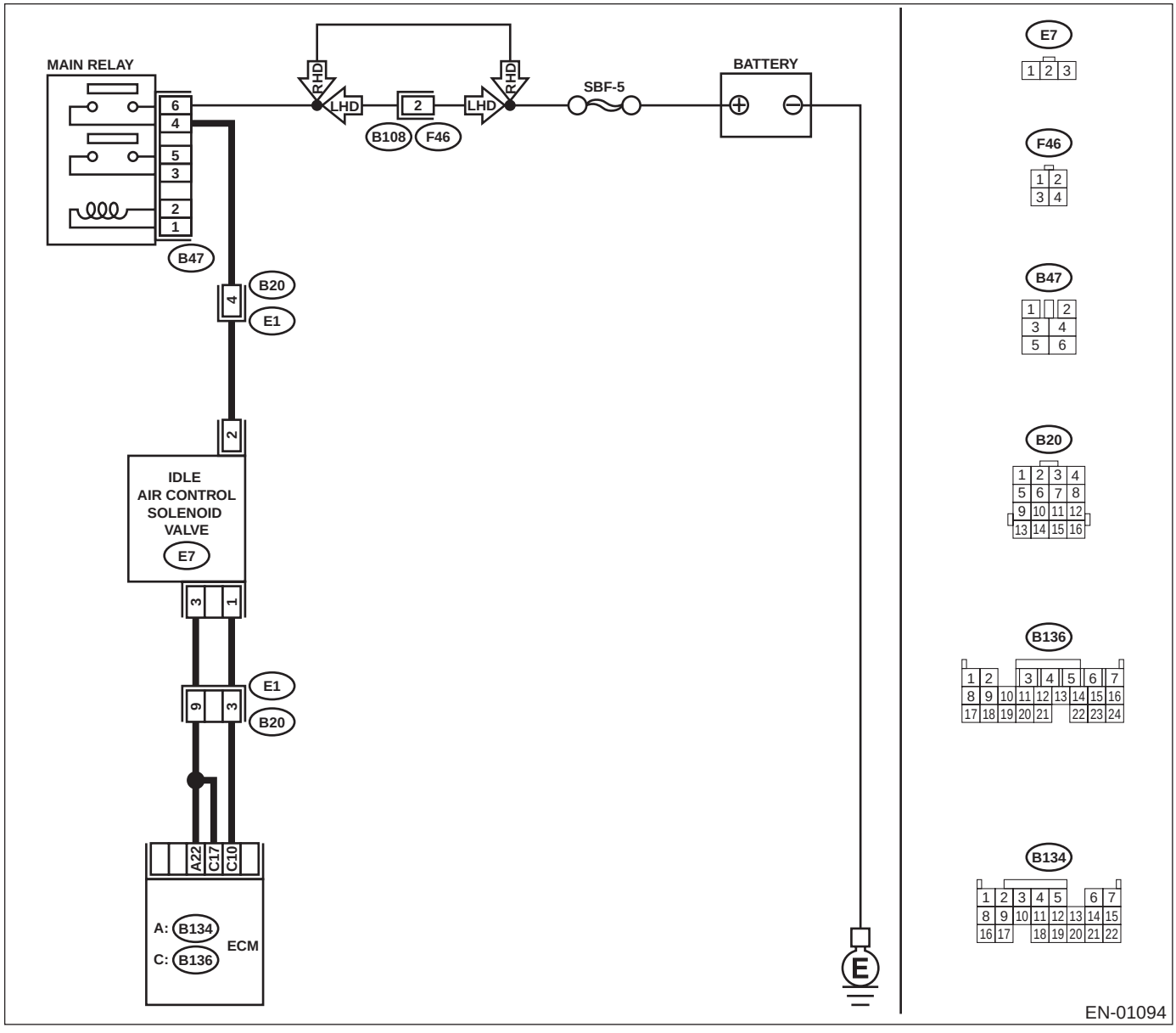
	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0507.	Go to step **2.**
2	**CHECK AIR INTAKE SYSTEM.** 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. •Loose installation of intake manifold, idle air control solenoid valve and throttle body •Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket •Disconnections of vacuum hoses Is there a fault in air intake system?	There is a fault.	Repair air suction and leaks.	Go to step **3.**
3	**CHECK THROTTLE CABLE.** Does throttle cable have play for adjustment?	Throttle cable has a play.	Go to step **4.**	Adjust throttle cable. <Ref. to SP(H6DO)-8, Accelerator Control Cable.>
4	**CHECK AIR BY-PASS LINE.** 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <Ref. to FU(H6DO)-36, Idle Air Control Solenoid Valve.> 3) Confirm that there are no foreign particles in by-pass air line. Are foreign particles in by-pass air line?	Foreign particles are in by-pass air line.	Remove foreign particles from by-pass air line.	Replace idle air control solenoid valve. <Ref. to FU(H6DO)-36, Idle Air Control Solenoid Valve.>

BJ: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



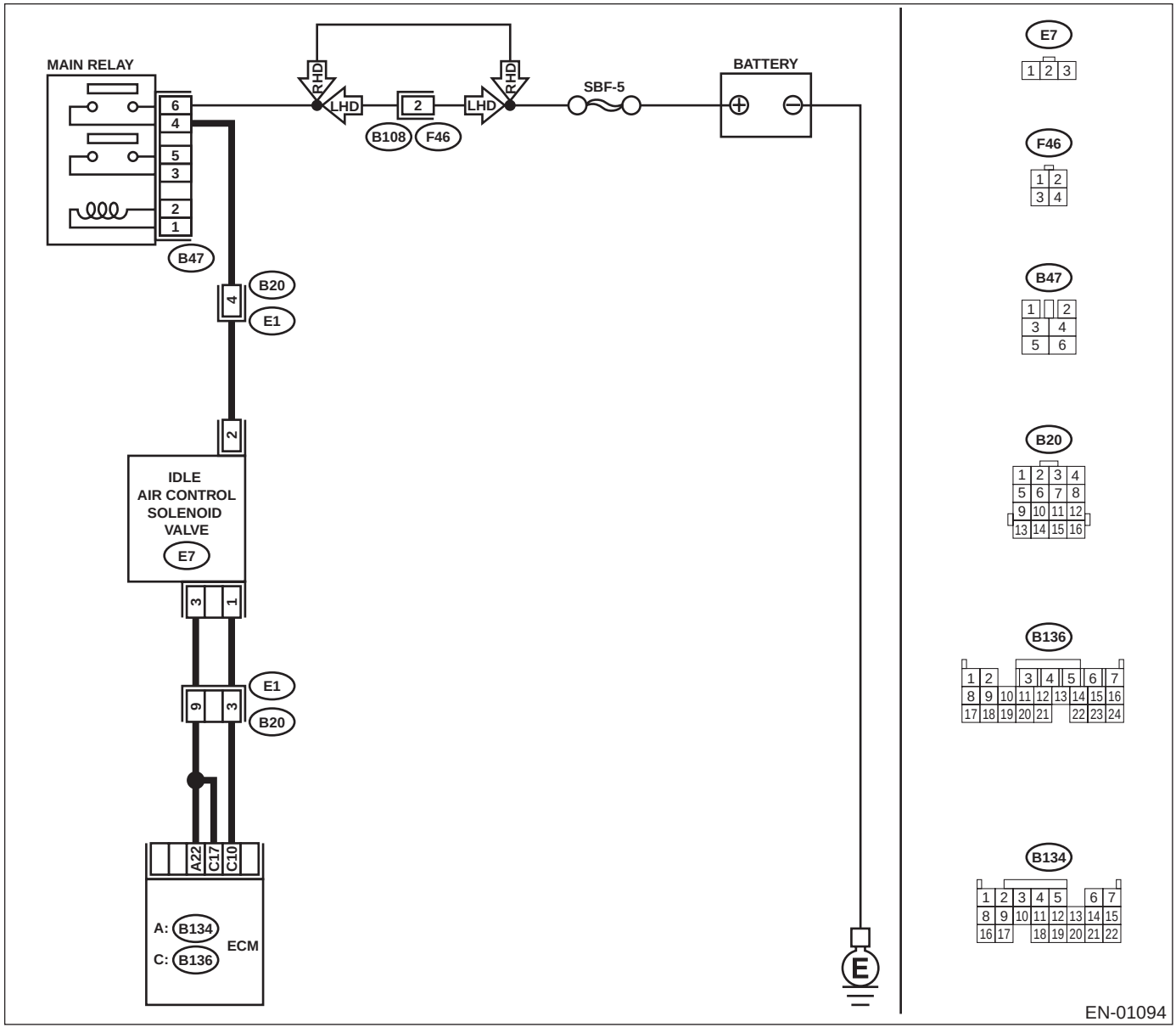
	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	3 V	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Disconnect connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between idle air control solenoid valve and engine ground. ***Connector & terminal*** ***(E7) No. 2 (+) — Engine ground (–):*** Does the measured value exceed 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 connector from ECM. 3) Measure 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 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 ground short circuit 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 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 ground terminal.
6	**CHECK POOR CONTACT.** Check poor contact in ECM and idle air control solenoid valve connectors. Is there poor contact in ECM and idle air control solenoid valve connectors?	There is poor contact.	Repair poor contact in ECM and idle air control solenoid valve connectors.	Replace idle air control solenoid valve. <Ref. to FU(H6DO)-36, Idle Air Control Solenoid Valve.>

BK: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



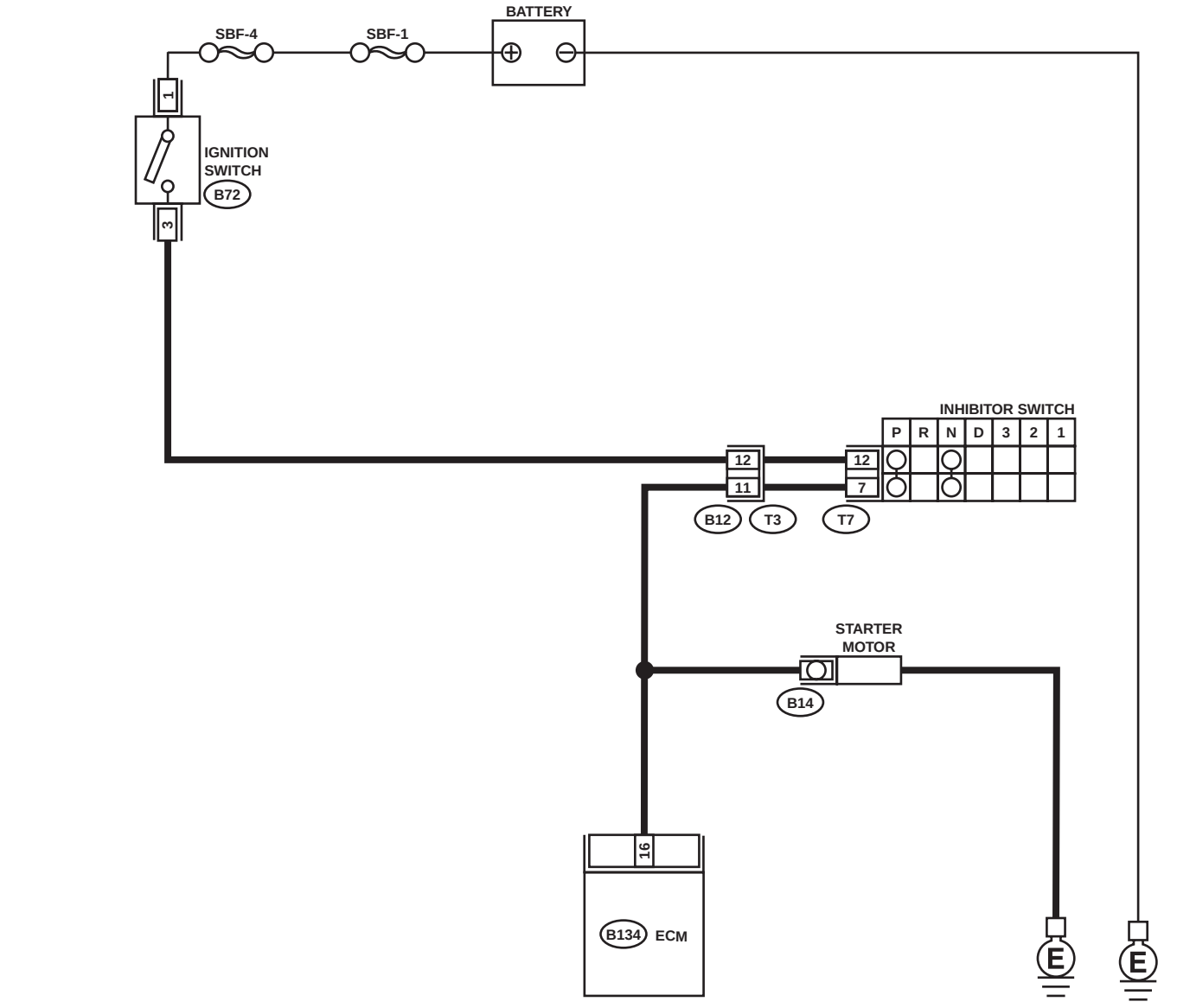
	Step	Value	Yes	No
1	**CHECK THROTTLE CABLE.** Does throttle cable have play for adjustment?	Throttle cable has play for adjustment.	Go to step **2.**	Adjust throttle cable. <Ref. to SP(H6DO)-8, Accelerator Control Cable.>
2	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (–):*** Does the measured value exceed 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 connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Replace idle air control solenoid valve <Ref. to FU(H6DO)-36, Idle Air Control Solenoid Valve.> and ECM <Ref. to FU(H6DO)-46, Engine Control Module.>.
4	**CHECK OUTPUT SIGNAL FROM ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 10 (+) — Chassis ground (–):*** Does the voltage change exceed the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	10 V	Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

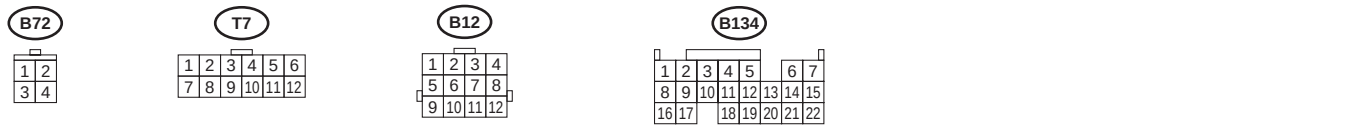
BL:DTC P0512 — STARTER REQUEST CIRCUIT —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01082

	Step	Value	Yes	No
1	**CHECK OPERATION OF STARTER MOTOR.** NOTE: Place the inhibitor switch in each position. Does starter motor operate when ignition switch to “ON”?	Starter motor operates.	Repair battery short circuit in starter motor circuit.	Check starter motor circuit. <Ref. to EN(H6DO)-71, Diagnostics for Engine Starting Failure.>

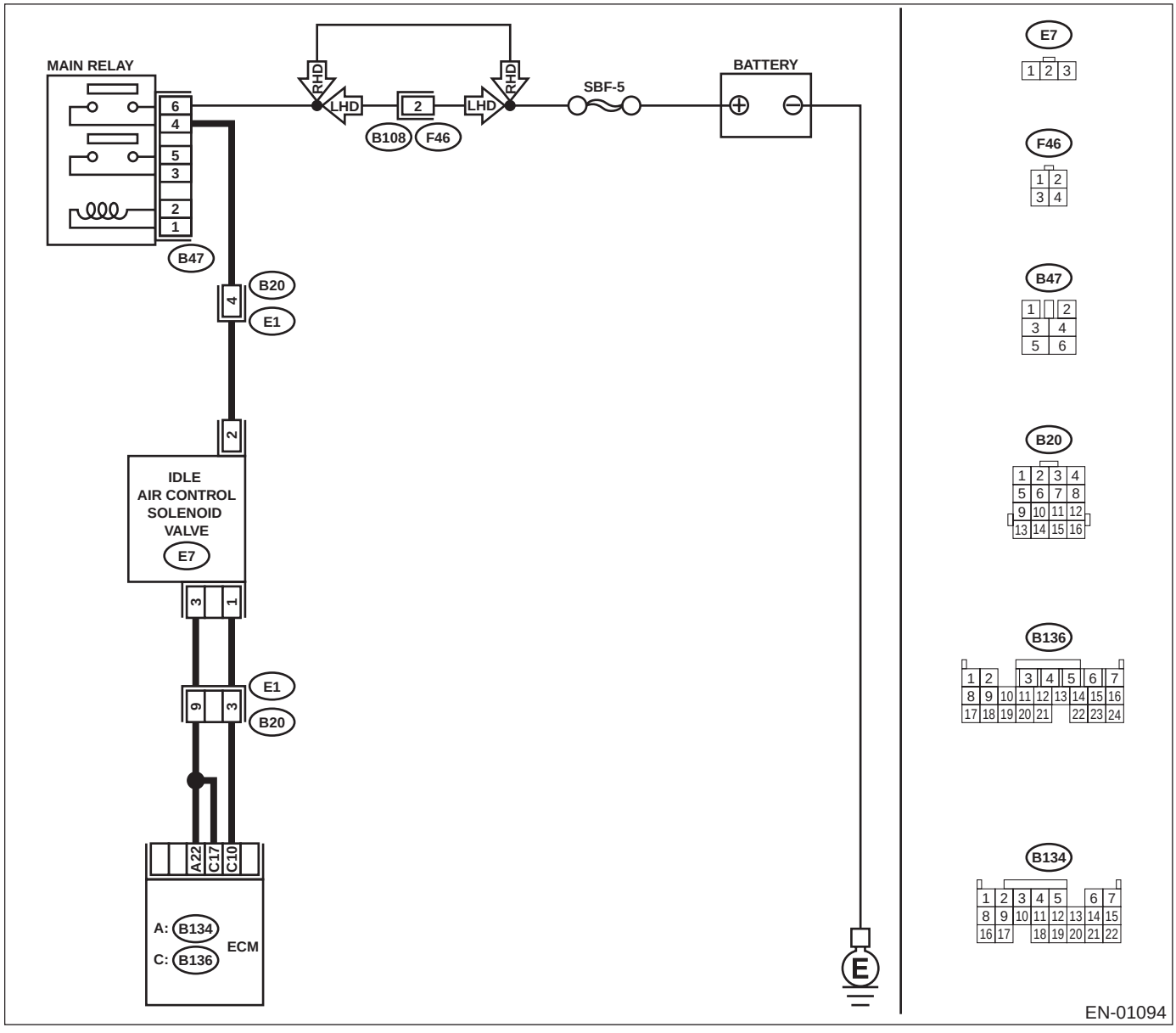
MEMO:

BM:DTC P0519 — IDLE AIR CONTROL CIRCUIT SYSTEM PERFORMACE —

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition
- **TROUBLE SYMPTOM:**
  - Engine does not return to normal idle speed.

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P1507.	Go to step **2.**
2	**CHECK THROTTLE CABLE.** Does throttle cable have play for adjustment?	Throttle cable has a play.	Go to step **3.**	Adjust throttle cable. <Ref. to SP(H6DO)-8, Accelerator Control Cable.>
3	**CHECK AIR INTAKE SYSTEM.** 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. • Loose installation of intake manifold, idle air control solenoid valve and throttle body • Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket • Disconnections of vacuum hoses Is there a fault in air intake system?	There is a fault.	Repair air suction and leaks.	Replace idle air control solenoid valve. <Ref. to FU(H6DO)-36, Idle Air Control Solenoid Valve.>

BN:DTC P0558 — ALTERNATOR CIRCUIT LOW INPUT —

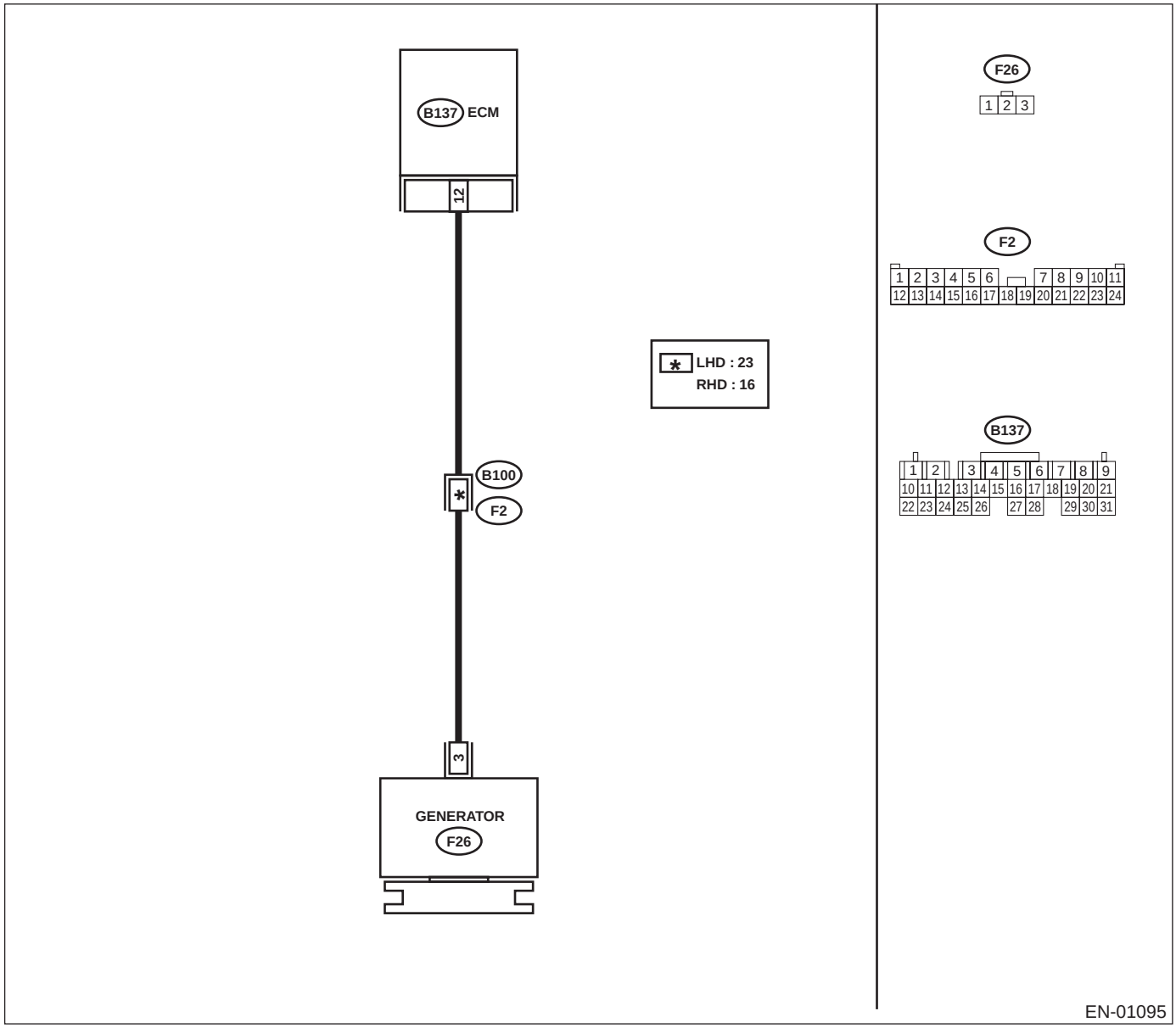
NOTE:
For the diagnostic procedure, refer to DTC P0559. <Ref. to EN(H6DO)-268, DTC P0559 — ALTERNATOR CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BO:DTC P0559 — ALTERNATOR 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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



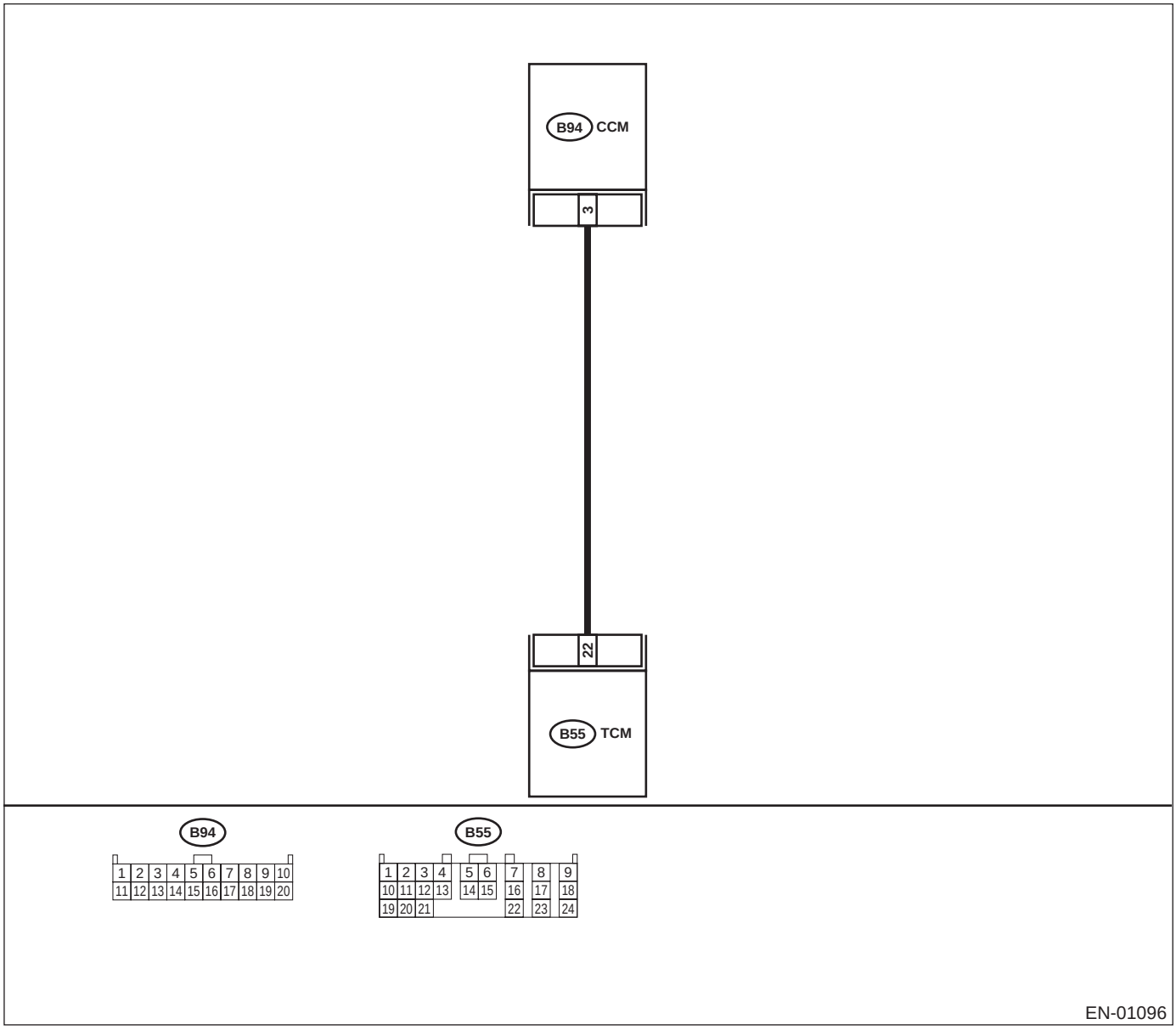
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN GENERATOR AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect the connectors from generator and ECM. 3) Measure the resistance of harness between generator connector and engine ground. ***Connector & terminal*** ***(F26) No. 3 — Engine ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **2.**	Repair the short circuit in harness between ECM and generator connector.
2	**CHECK HARNESS BETWEEN GENERATOR AND ECM CONNECTOR.** Measure the resistance of harness between ECM and generator of harness connector. ***Connector & terminal*** ***(B137) No. 12 — (F26) No. 3:*** Is the measured value less than the specified value?	1 Ω	Repair poor contact in connector.	Repair the open circuit in harness between ECM and generator connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and generator connector • Poor contact in coupling connector

BP:DTC P0565 — CRUISE CONTROL ON SIGNAL —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



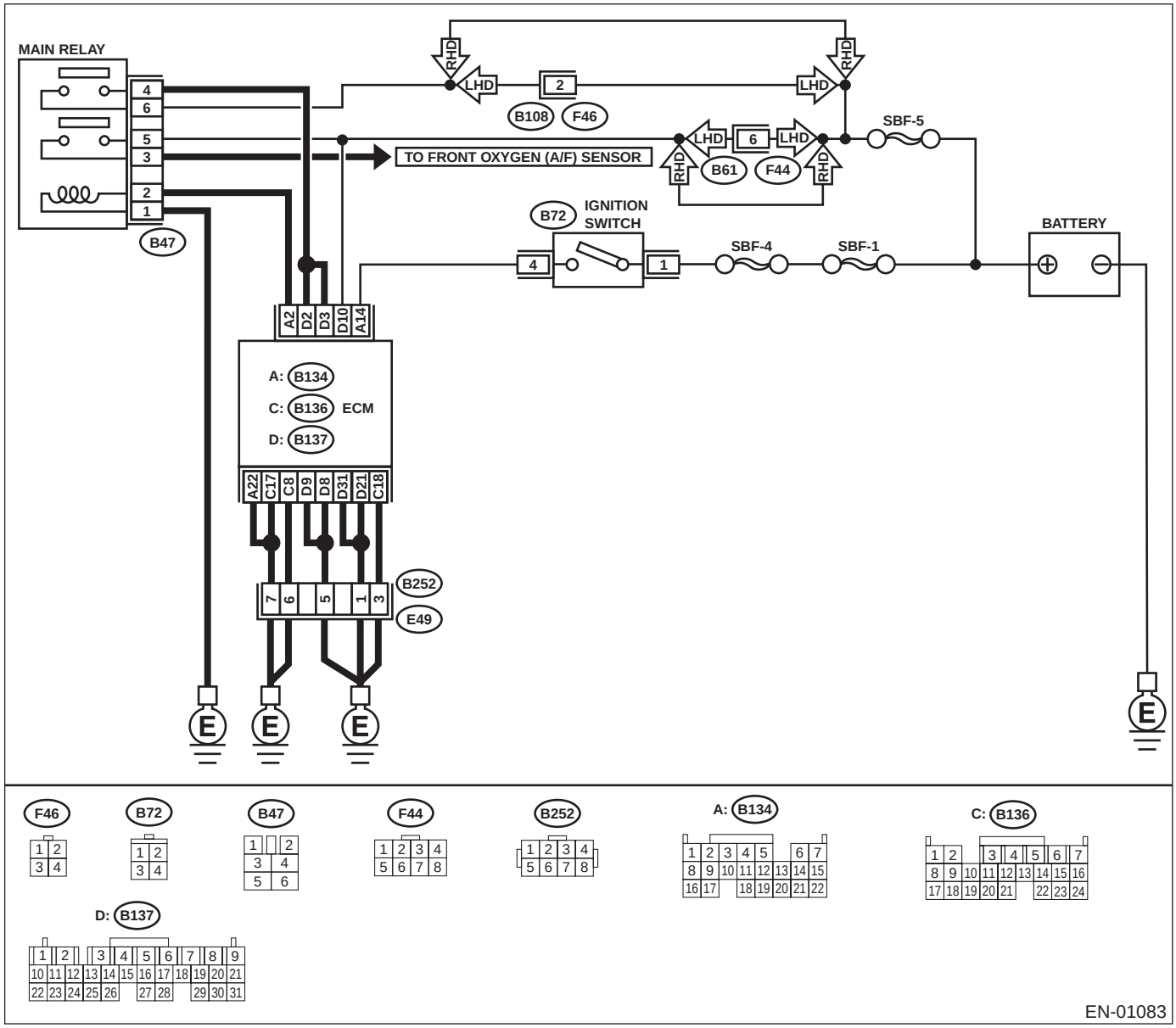
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from TCM and CCM. 3) Measure resistance of harness between TCM and CCM connector. ***Connector & terminal*** ***(B55) No. 22 — (B94) No. 3:*** Is the measured value less than 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 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 connector to TCM and CCM. 2) Lift-up the vehicle or set the vehicle on free rollers. **CAUTION:** **On AWD models, raise all wheels off ground.** 3) Start the engine. 4) Cruise control main switch to ON. 5) Move selector lever to “D” and slowly increase vehicle speed to 50 km/h (31 MPH). 6) Cruise control command switch to ON. 7) Measure voltage between TCM and chassis ground. ***Connector & terminal*** ***(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-8, Cruise Control Command Switch.>
4	**CHECK POOR CONTACT.** Check poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

BQ: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



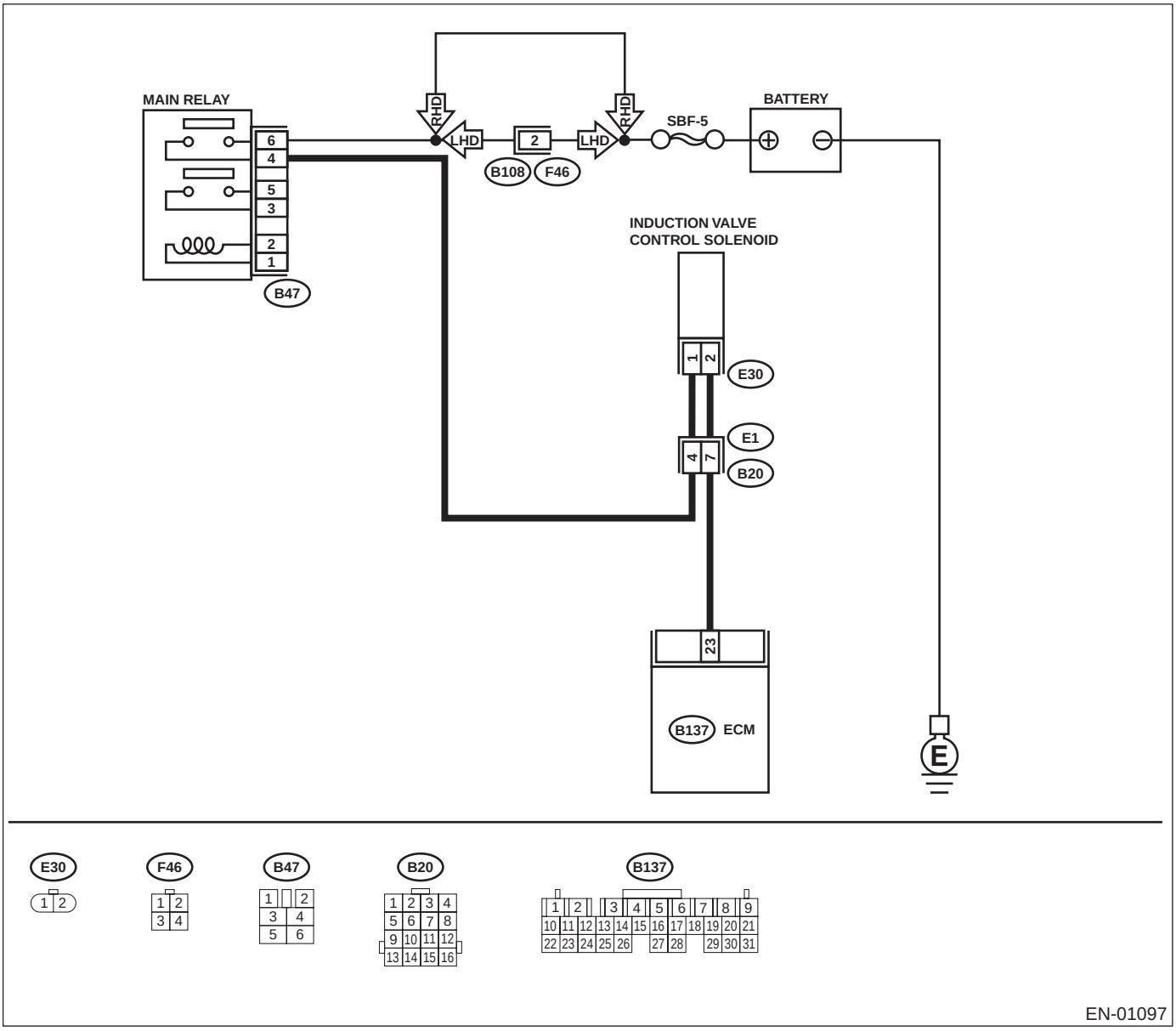
	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0604?	DTC P0604 is indicated.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	It is not necessary to inspect DTC P0604.

BR:DTC P0661 — INTAKE MANIFOLD TUNING VALVE CONTROL CIRCUIT LOW - BANK 1 —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK INPUT SIGNAL OF ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 23 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Even if MI lights up, the circuit has returned to a normal condition at this time. Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.	Go to step **2.**
2	**CHECK HARNESS BETWEEN INDUCTION CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from induction control solenoid valve and ECM. 3) Measure resistance of harness between induction control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E30) No. 2 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair ground short circuit in harness between ECM and induction control solenoid valve connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN INDUCTION CONTROL SOLENOID VALVE AND ECM CONNECTOR.** Measure resistance of harness between ECM and induction control solenoid valve of harness connector. ***Connector & terminal*** ***(B137) No. 23 — (E30) 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 induction control solenoid valve connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and induction control solenoid valve connector • Poor contact in coupling connector
4	**CHECK INDUCTION CONTROL SOLENOID VALVE.** 1) Remove induction control solenoid valve. 2) Measure resistance between induction control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value within the specified range?	37 — 44 Ω	Go to step **5.**	Replace induction control solenoid valve. <Ref. to FU(H6DO)-38, Induction Valve Control Solenoid.>

	Step	Value	Yes	No
5	**CHECK POWER SUPPLY TO INDUCTION CONTROL SOLENOID VALVE.** 1) Turn ignition switch to ON. 2) Measure voltage between induction control solenoid valve and engine ground. ***Connector & terminal*** ***(E30) No. 1 (+) — Engine ground (–):*** Is the measured value within the specified range?	10 V	Go to step **6.**	Repair open circuit in harness between main relay and induction control solenoid valve connector.
6	**CHECK POOR CONTACT.** Check poor contact in induction control solenoid valve connector. Is there poor contact in induction control solenoid valve connector?	There is poor contact.	Repair poor contact in induction control solenoid valve connector.	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

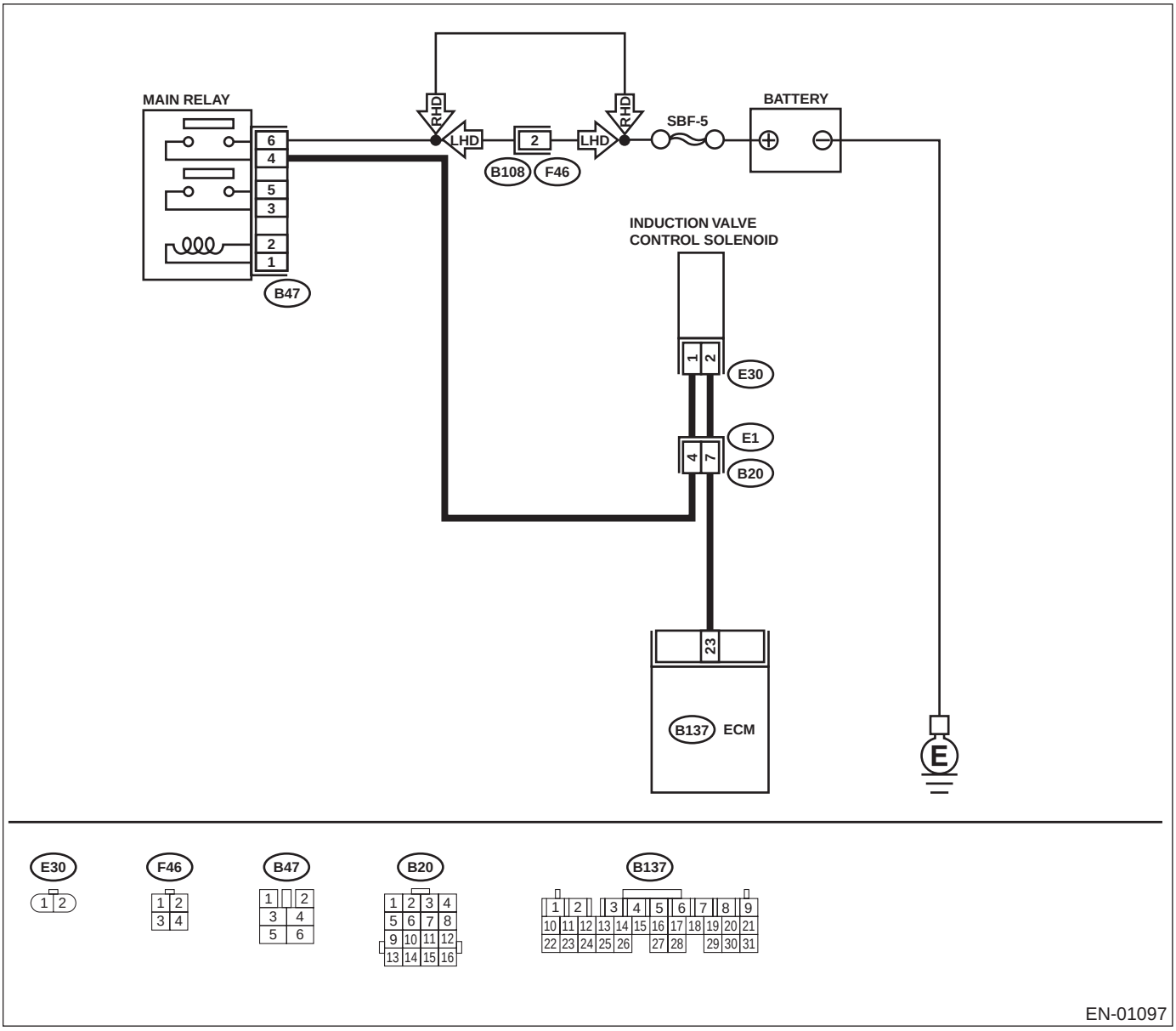
MEMO:

BS:DTC P0662 — INTAKE MANIFOLD TUNING VALVE CONTROL CIRCUIT HIGH - BANK 1 —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



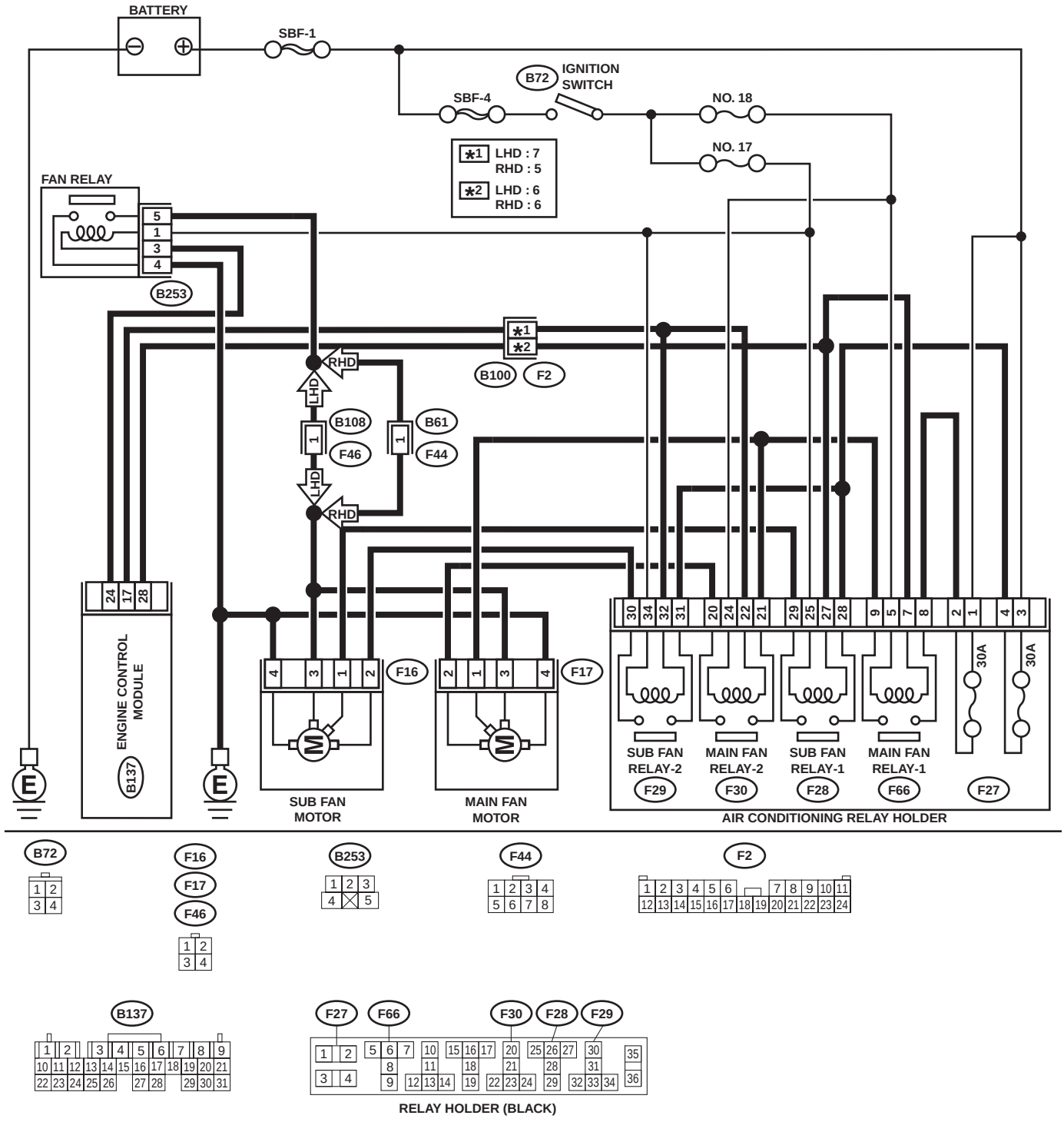
	Step	Value	Yes	No
1	**CHECK INPUT SIGNAL OF ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 23 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Go to step **3.**	Go to step **2.**
2	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>
3	**CHECK HARNESS BETWEEN INDUCTION CONTROL SOLENOID VALVE AND ECM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from induction control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 23 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and induction control solenoid valve connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Go to step **4.**
4	**CHECK INDUCTION CONTROL SOLENOID VALVE.** 1) Turn ignition switch to OFF. 2) Measure resistance between induction control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:*** Is the measured value less than the specified value?	1 Ω	Replace induction control solenoid valve <Ref. to FU(H6DO)-38, Induction Valve Control Solenoid.> and ECM <Ref. to FU(H6DO)-46, Engine Control Module.>	Go to step **5.**
5	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



CO-00167

	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector. 3) Turn ignition switch to ON. 4) While operating radiator fan relay, measure voltage between ECM terminal and ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H6DO)-34, Subaru Select Monitor.> ***Connector & terminal*** ***(B137) No. 28 (+) — Chassis ground (–):*** ***(B137) No. 17 (+) — 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 GROUND SHORT CIRCUIT IN RADIATOR FAN RELAY 1 CONTROL CIRCUIT.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and remove main fan relays from A/C relay holder. 3) Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 28 — Chassis ground:*** ***(B137) No. 17 — Chassis ground:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **3.**	Repair ground short circuit in radiator fan relay 1 control circuit.
3	**CHECK POWER SUPPLY FOR RELAY.** 1) Turn ignition switch to ON. 2) Measure voltage between fuse and relay box (F/B) connector and chassis ground. ***Connector & terminal*** ***(F66) No. 5 (+) — Chassis ground (–):*** ***(F30) No. 24 (+) — Chassis ground (–):*** Does the measured value exceed 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 RELAYS.** 1) Turn ignition switch to OFF. 2) Measure resistance between main fan relay terminals. ***Terminal*** ***(F66) No. 5 — No. 7:*** ***(F30) No. 22 — No. 24:*** Is the measured value within the specified range?	87 — 107 Ω	Go to step **5.**	Replace main fan relay.
5	**CHECK OPEN CIRCUIT IN MAIN FAN RELAY CONTROL CIRCUIT.** Measure resistance of harness between ECM and main fan relay connector. ***Connector & terminal*** ***(B137) No. 28 — (F66) No. 7:*** ***(B137) No. 17 — (F30) No. 22:*** 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 main fan relay connector • Poor contact in coupling connector

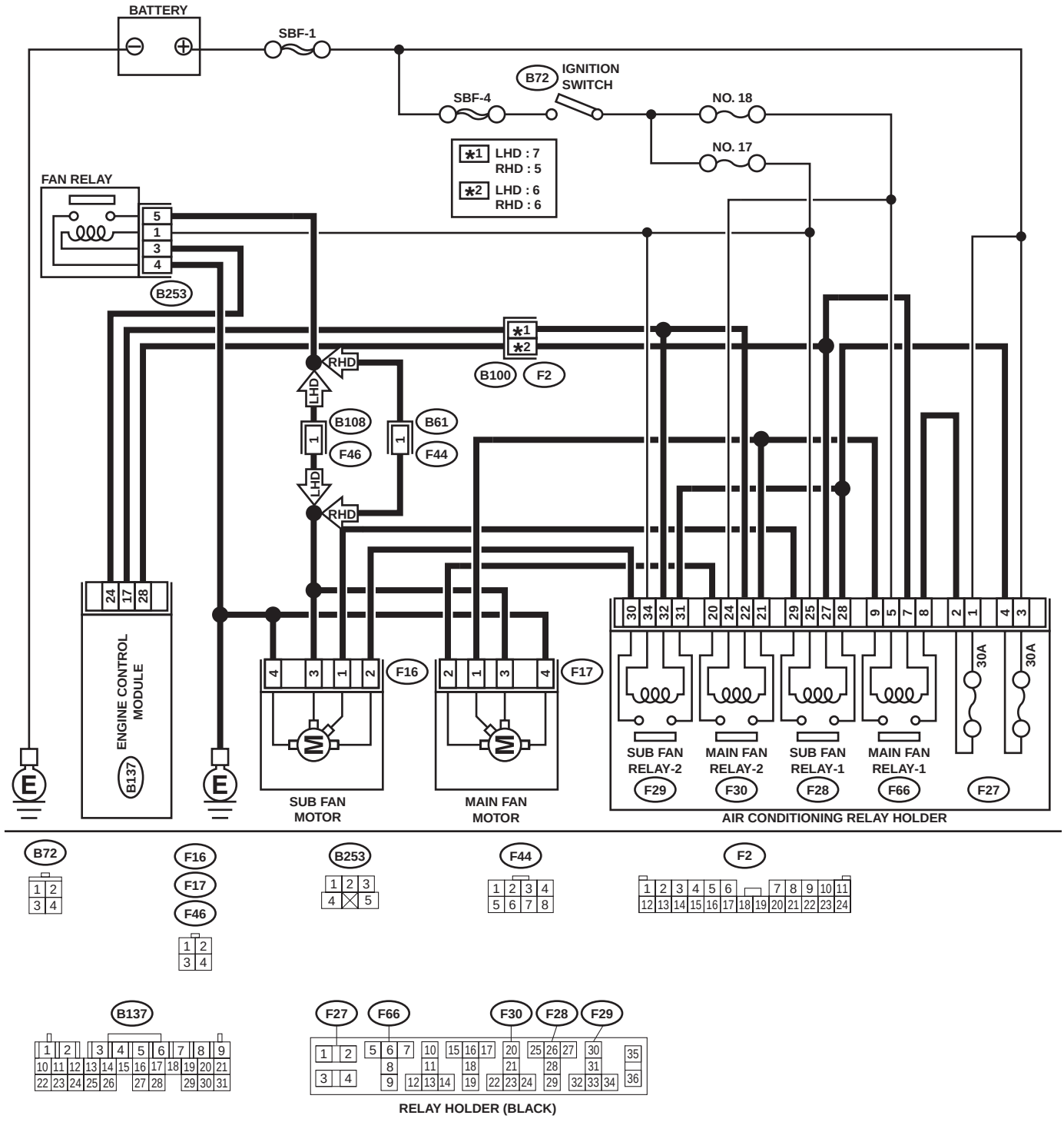
Step		Value	Yes	No
6	**CHECK POOR CONTACT.** Check poor contact in ECM or main fan relay connector. Is there poor contact in ECM or main fan relay connector?	There is poor contact.	Repair poor contact in ECM or main fan relay connector.	Contact SUBARU distributor service.

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



CO-00167

	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Turn ignition switch to OFF. 2) Connect test mode connector. 3) Turn ignition switch to ON. 4) While operating radiator fan relay, measure voltage between ECM and chassis ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode".<Ref. to EN(H6DO)-55, Compulsory Valve Operation Check Mode.> ***Connector & terminal*** ***(B137) No. 28 (+) — Chassis ground (–):*** ***(B137) No. 17 (+) — Chassis ground (–):*** Does the measured value change within the specified range?	0 — 10 V	Even if MI lights up, the circuit has returned to a normal condition at this time. In this case, repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY CONTROL CIRCUIT.** 1) Turn ignition switch to OFF. 2) Remove main fan relay and sub fan relay. (with A/C models) 3) Disconnect test mode connector. 4) Turn ignition switch to ON. 5) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 28 (+) — Chassis ground (–):*** ***(B137) No. 17 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in radiator fan relay control circuit.	Go to step **3.**
3	**CHECK MAIN FAN RELAY.** 1) Turn ignition switch to OFF. 2) Remove main fan relay. 3) Measure resistance between main fan relay terminals. ***Terminal*** ***(F66) No. 5 — No. 7:*** ***(F30) No. 22 — No. 24:*** Is the measured value less than the specified value?	1 Ω	Replace main fan relay.	Go to step **4.**
4	**CHECK SUB FAN RELAY.** 1) Remove sub fan relay. 2) Measure resistance between sub fan relay terminals. ***Terminal*** ***(F28) No. 25 — No. 27:*** ***(F29) No. 32 — No. 34:*** Is the measured value less than the specified value?	1 Ω	Replace sub fan relay.	Go to step **5.**
5	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>

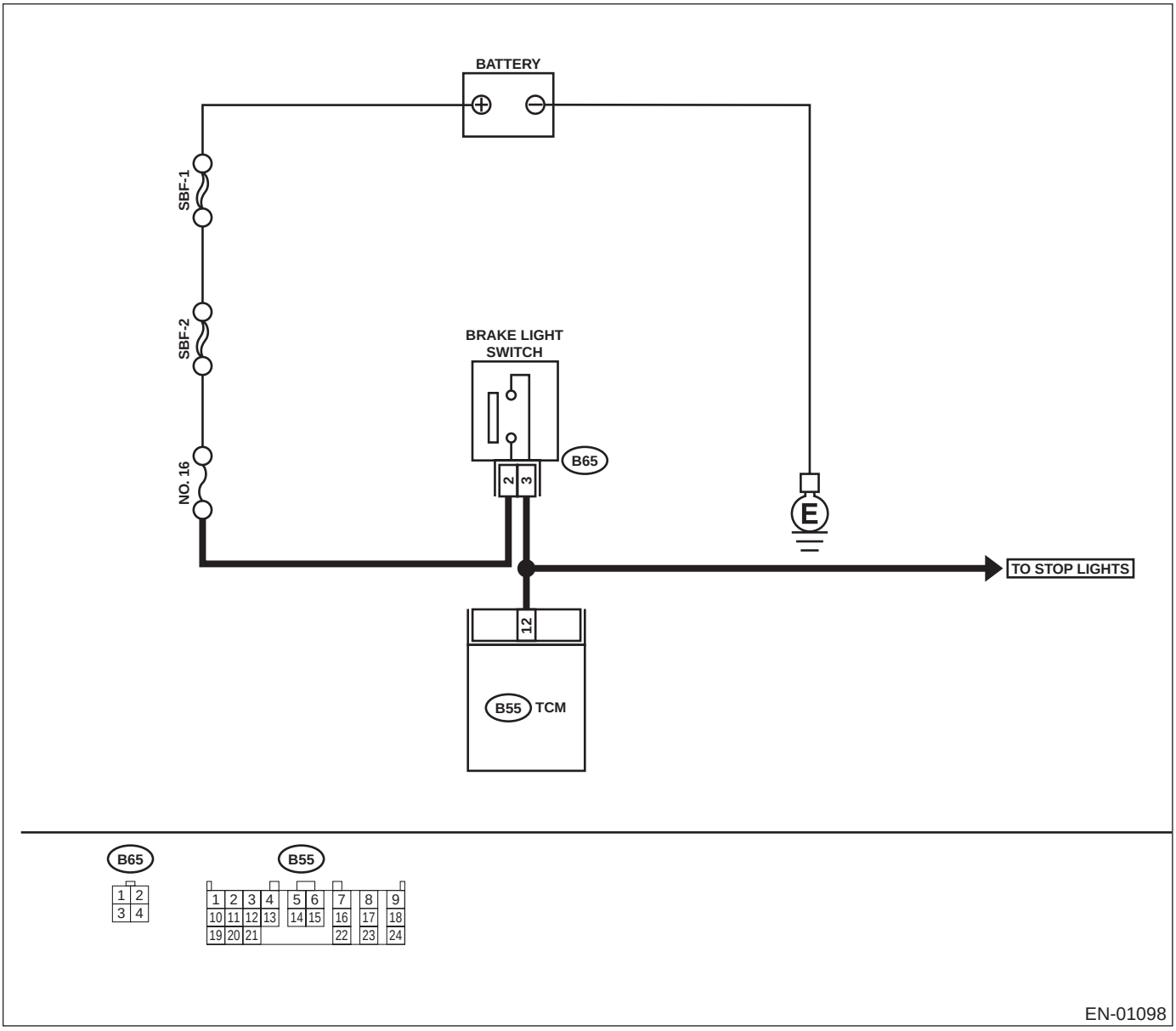
MEMO:

BV:DTC P0703 — TORQUE CONVERTER/BRAKE SWITCH “B” CIRCUIT —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK OPERATION OF BRAKE LIGHT.** Does brake light come on when depressing the brake pedal?	Comes on.	Go to step **2.**	Repair or replace brake light circuit.
2	**CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.** 1) Disconnect connectors from TCM and brake light switch. 2) Measure resistance of harness between TCM and brake light switch connector. ***Connector & terminal*** ***(B55) No. 12 — (B65) No. 3:*** Is the measured value less than the specified value?	1 Ω	Go to step **3.**	Repair or replace harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between TCM and brake light switch connector • Poor contact in TCM connector • Poor contact in brake light switch connector
3	**CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR.** Measure resistance of harness between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 12 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	1 MΩ	Go to step **4.**	Repair ground short circuit in harness between TCM and brake light switch connector.
4	**CHECK INPUT SIGNAL FOR TCM.** 1) Connect connectors to TCM and brake light switch. 2) Measure voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 12 (+) — Chassis ground (–):*** Is the measured value less than the specified value when releasing the brake pedal?	1 V	Go to step **5.**	Adjust or replace brake light switch. <Ref. to LI-8, INSPECTION, Stop Light System.>
5	**CHECK INPUT SIGNAL FOR TCM.** Measure voltage between TCM and chassis ground. ***Connector & terminal*** ***(B55) No. 12 (+) — Chassis ground (–):*** Does the measured value exceed the specified value when depressing the brake pedal?	10 V	Go to step **6.**	Adjust or replace brake light switch. <Ref. to LI-8, INSPECTION, Stop Light System.>
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

BW:DTC P0731 — GEAR 1 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H6DO)-291, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BX:DTC P0732 — GEAR 2 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H6DO)-291, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BY:DTC P0733 — GEAR 3 INCORRECT RATIO —

NOTE:
For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H6DO)-291, DTC P0734 — GEAR 4 INCORRECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BZ:DTC P0734 — GEAR 4 INCORRECT RATIO —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Shift point too high or too low; engine brake not effective 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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect relevant DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK THROTTLE POSITION SENSOR CIRCUIT.** Check throttle position sensor circuit. <Ref. to AT-52, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in throttle position sensor circuit?	There is a malfunction.	Repair or replace throttle position sensor circuit.	Go to step **3.**
3	**CHECK FRONT VEHICLE SPEED SENSOR CIRCUIT.** Check front vehicle speed sensor circuit. <Ref. to AT-58, DTC 33 FRONT VEHICLE SPEED SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in front throttle position sensor circuit?	There is a malfunction.	Repair or replace 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-64, 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 malfunction.	Repair or replace torque converter turbine speed sensor circuit.	Go to step **5.**
5	**CHECK POOR CONTACT.** Check poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Go to step **6.**
6	**CHECK MECHANICAL TROUBLE.** Check mechanical trouble in automatic transmission. Is there any mechanical trouble in automatic transmission?	There is a malfunction.	Repair or replace automatic transmission.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

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

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - No lock-up (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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK LOCK-UP DUTY SOLENOID CIRCUIT.** Check lock-up duty solenoid circuit. <Ref. to AT-96, DTC 77 LOCK-UP DUTY SOLENOID, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in lock-up duty solenoid circuit?	There is a malfunction.	Repair or replace lock-up duty solenoid circuit.	Go to step **3.**
3	**CHECK THROTTLE POSITION SENSOR CIRCUIT.** Check throttle position sensor circuit. <Ref. to AT-52, DTC 31 THROTTLE POSITION SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in throttle position sensor circuit?	There is a malfunction.	Repair or replace throttle position sensor circuit.	Go to step **4.**
4	**CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT.** Check torque converter turbine speed sensor circuit. <Ref. to AT-64, 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 malfunction.	Repair or replace torque converter turbine speed sensor circuit.	Go to step **5.**
5	**CHECK ENGINE SPEED INPUT CIRCUIT.** Check engine speed input circuit. <Ref. to AT-42, DTC 11 ENGINE SPEED SIGNAL, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in engine speed input circuit?	There is a malfunction.	Repair or replace engine speed input circuit.	Go to step **6.**

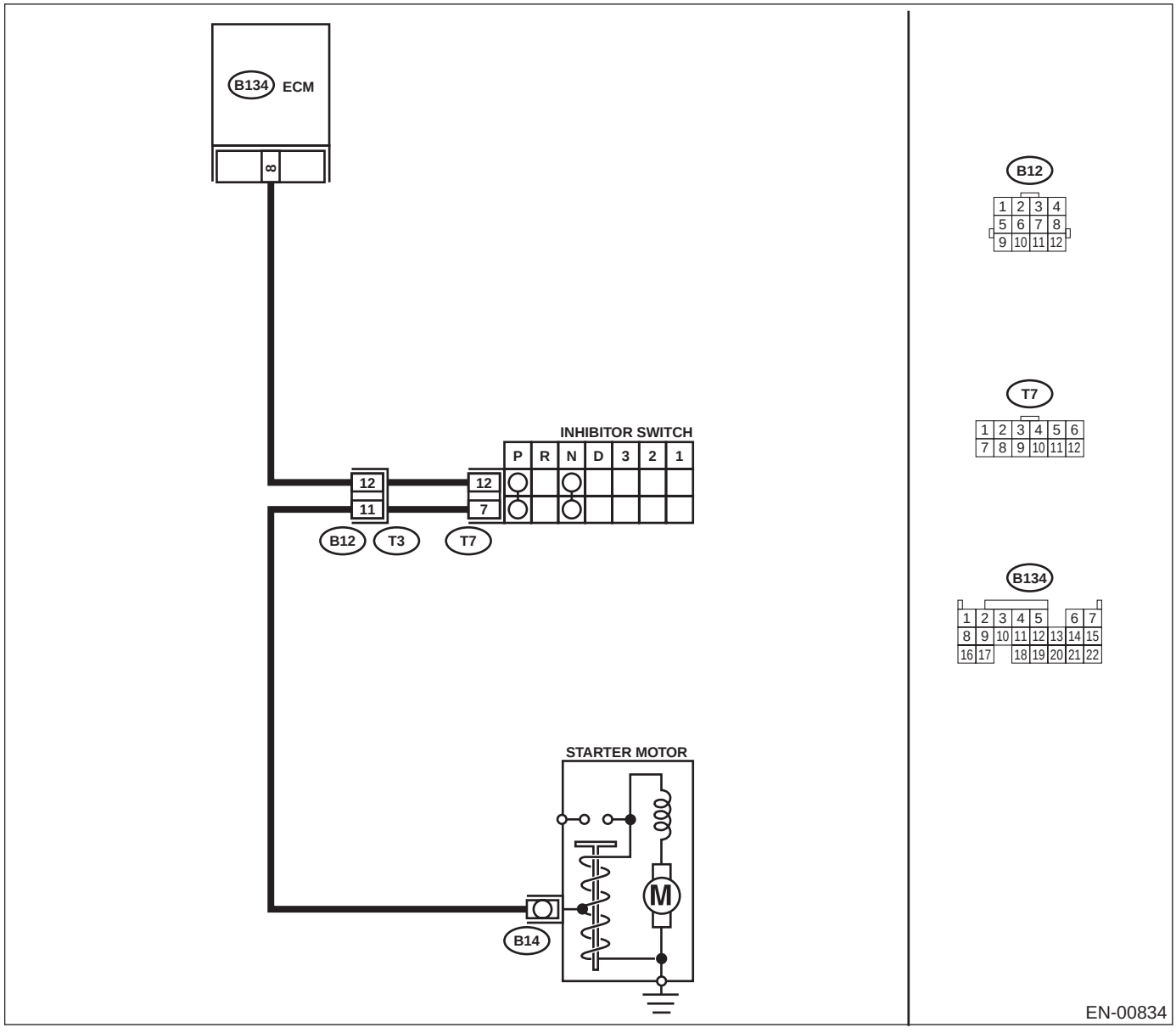
Step		Value	Yes	No
6	**CHECK INHIBITOR SWITCH CIRCUIT.** Check inhibitor switch circuit. <Ref. to AT-132, CHECK INHIBITOR SWITCH., Diagnostic Procedure for No-diagnostic Trouble Code (DTC).> Is there any trouble in inhibitor switch circuit?	There is a malfunction.	Repair or replace inhibitor switch circuit.	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 malfunction.	Repair or replace brake light switch circuit.	Go to step **8.**
8	**CHECK ATF TEMPERATURE SENSOR CIRCUIT.** Check ATF temperature sensor circuit. <Ref. to AT-48, DTC 27 ATF TEMPERATURE SENSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).> Is there any trouble in ATF temperature sensor circuit?	There is a malfunction.	Repair or replace ATF temperature sensor circuit.	Go to step **9.**
9	**CHECK POOR CONTACT.** Check poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Go to step **10.**
10	**CHECK MECHANICAL TROUBLE.** Check mechanical trouble in automatic transmission. Is there any mechanical trouble in automatic transmission?	There is a malfunction.	Repair or replace automatic transmission.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

CB:DTC P0851 — NEUTRAL SWITCH INPUT CIRCUIT LOW —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



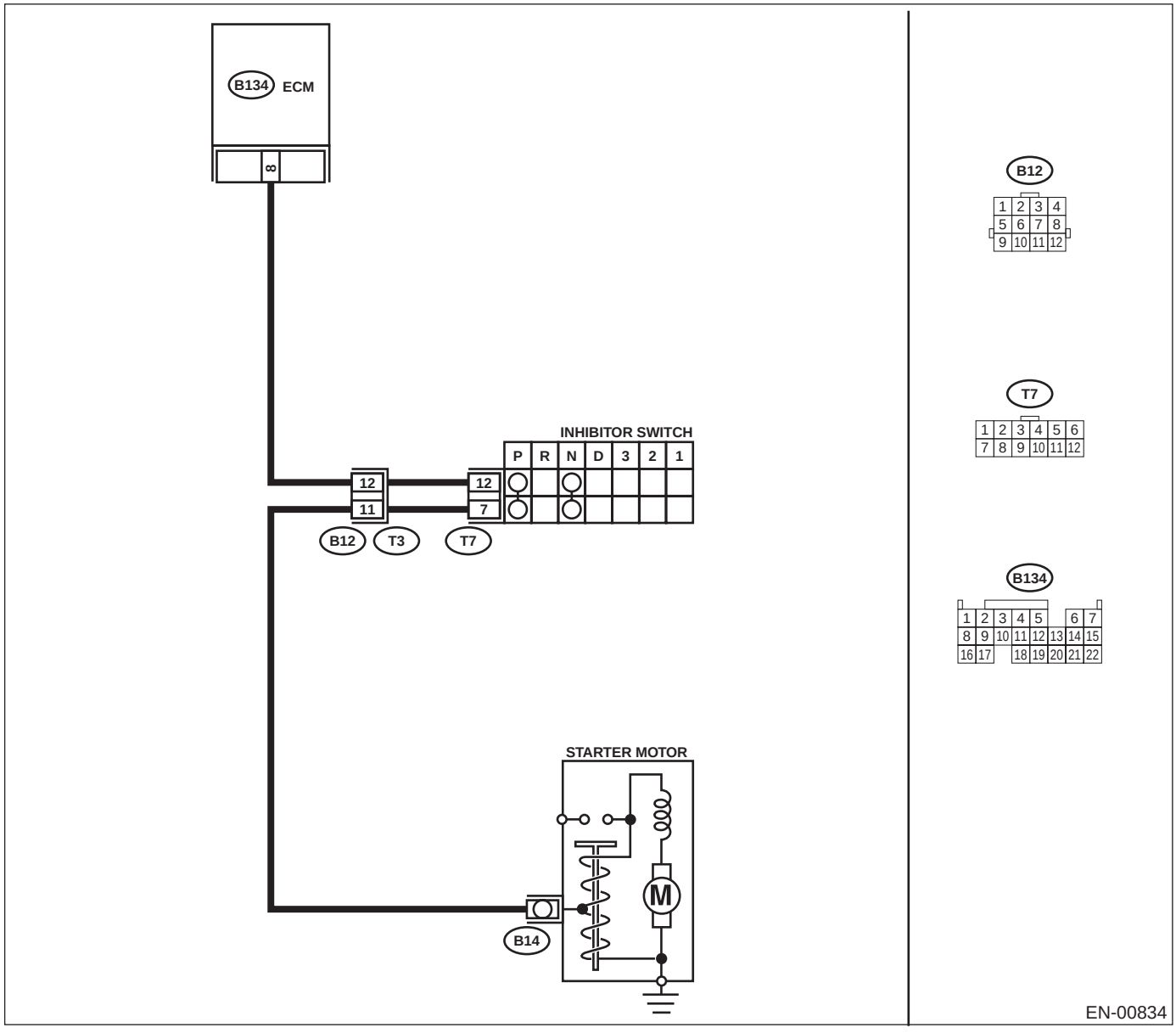
	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Move select lever to any position except for "N" and "P". 3) Measure 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	Even if MI lights up, the circuit has returned to a normal condition at this time.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and transmission harness connector (T3). 3) Measure resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 8 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair ground short circuit in harness between ECM and transmission harness connector.	Go to step **4.**
4	**CHECK TRANSMISSION HARNESS CONNECTOR.** 1) Disconnect connector from inhibitor switch. 2) Measure resistance of harness between transmission harness connector and engine ground. ***Connector & terminal*** ***(T3) No. 12 — Engine ground:*** Is the measured value less than the specified value?	10 Ω	Repair ground short circuit in harness between transmission harness and inhibitor switch connector.	Go to step **5.**
5	**CHECK INHIBITOR SWITCH.** By moving select lever any position except for "N" and "P", measure resistance between inhibitor switch connector socket terminals. ***Terminals*** ***No. 7 — No. 12:*** Does the measured value exceed the specified value?	1 MΩ	Go to step **6.**	Replace inhibitor switch. <Ref. to AT-49, Inhibitor Switch.>
6	**CHECK SELECTOR CABLE CONNECTION.** Is there any fault in selector cable connection to inhibitor switch?	There is a malfunction.	Repair selector cable connection. <Ref. to CS-12, Select Cable.>	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CC:DTC P0852 — NEUTRAL SWITCH INPUT CIRCUIT HIGH —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Move select lever to "N" and "P" positions. 3) Measure 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 **5.**
3	**CHECK INPUT SIGNAL FOR ECM.** By moving select lever to any position except for "N" and "P", measure ECM and chassis ground. ***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 POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
5	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 8 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit 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 connectors from ECM and inhibitor switch. 3) Measure 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	Value	Yes	No
7	**CHECK INHIBITOR SWITCH GROUND LINE.** Measure resistance of harness between inhibitor switch connector and engine ground. ***Connector & terminal*** ***(T7) No. 12 — 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.** By moving select lever to “N” and “P” positions, measure resistance between inhibitor switch connector socket terminal. ***Terminals*** ***No. 7 — No. 12:*** Is the measured value less than the specified value?	1 Ω	Go to step **9.**	Replace inhibitor switch. <Ref. to AT-49, Inhibitor Switch.>
9	**CHECK SELECTOR CABLE CONNECTION.** Is there any fault in selector cable connection to inhibitor switch?	There is a malfunction.	Repair selector cable connection. <Ref. to CS-12, Select Cable.>	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

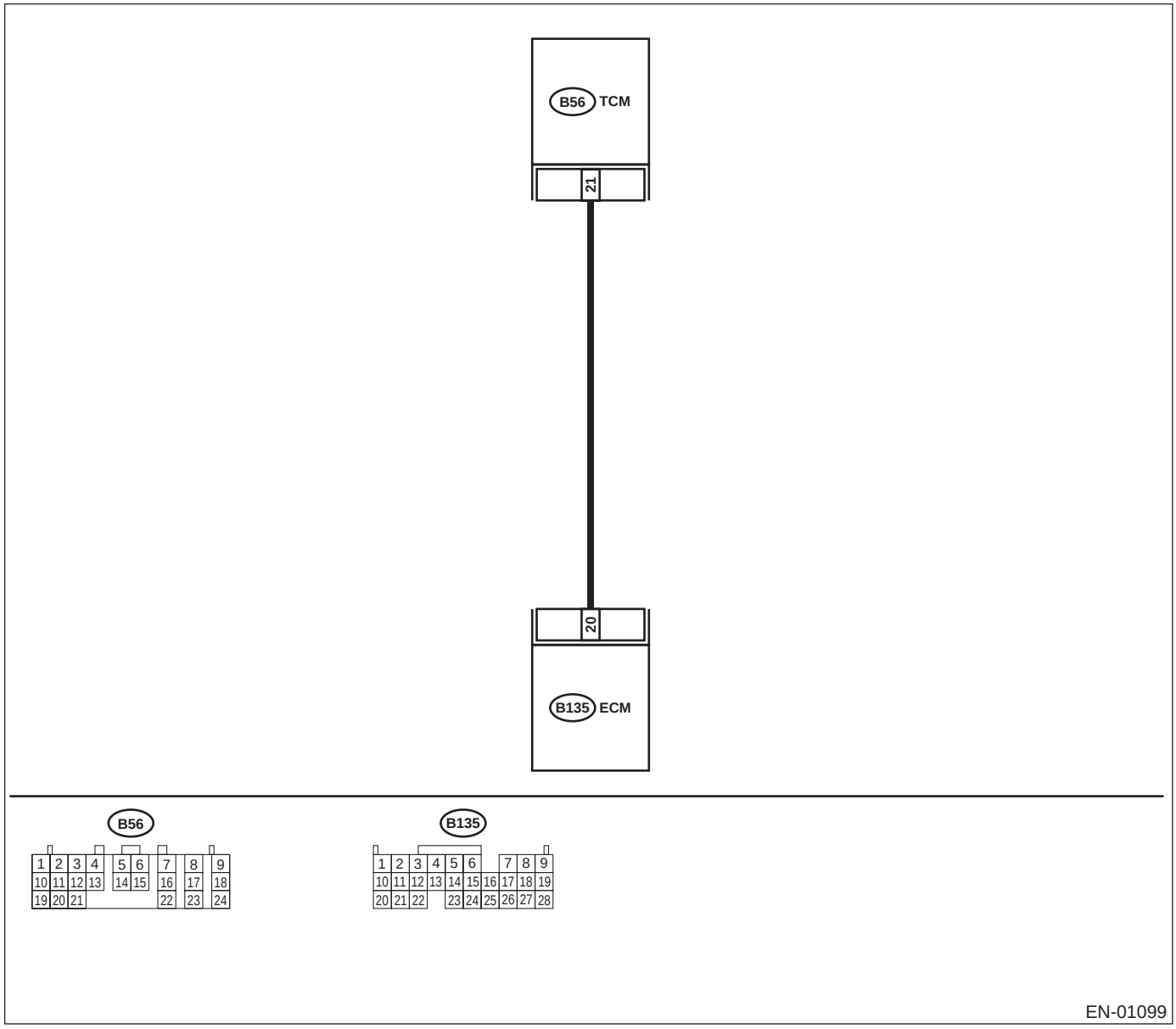
MEMO:

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



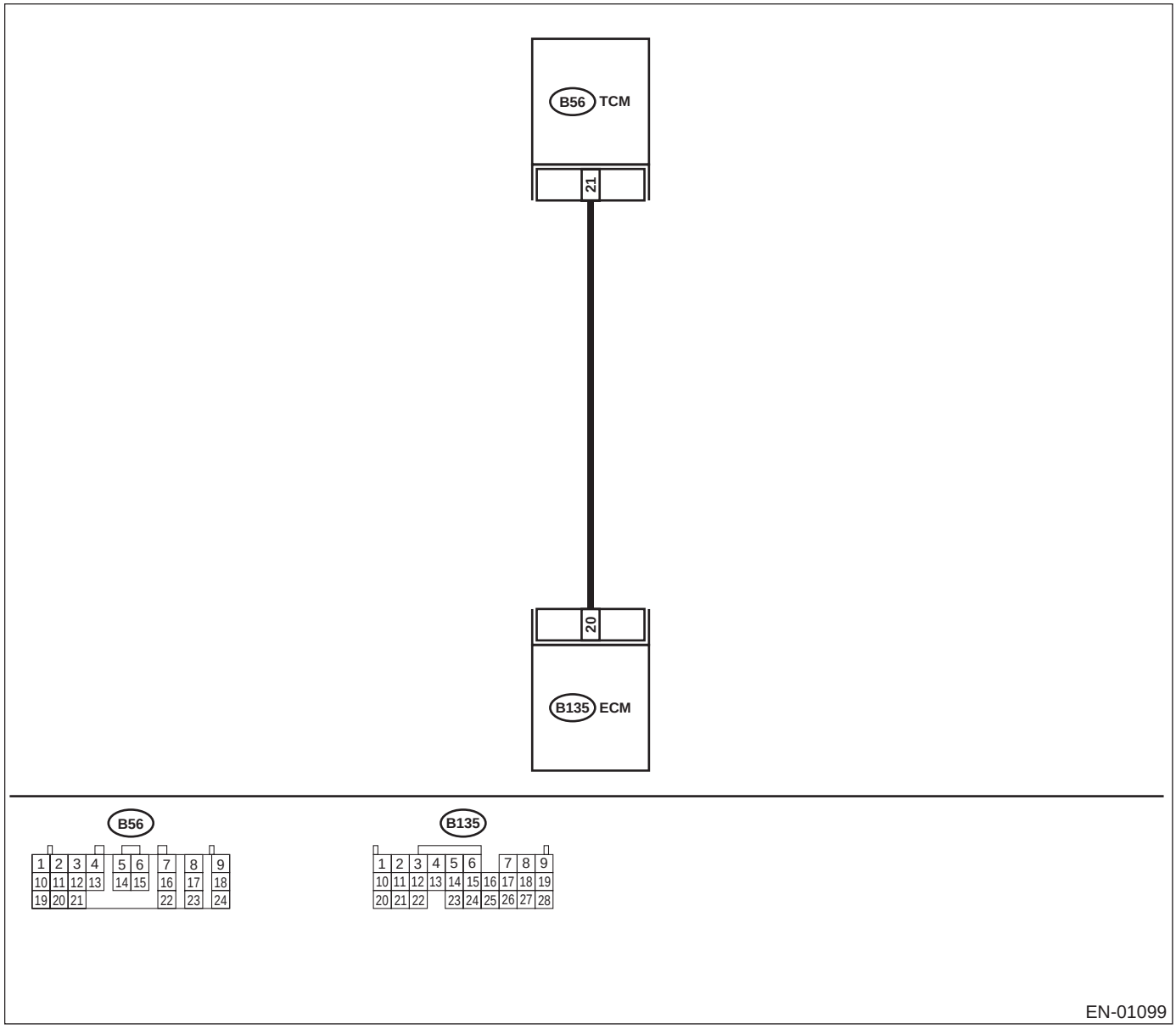
	Step	Value	Yes	No
1	**CHECK DRIVING CONDITION.** 1) Start and warm-up the engine until the radiator fan makes one complete rotation. 2) Drive the vehicle. Is AT shift control functioning properly?	Operates properly.	Go to step **2.**	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>
2	**CHECK ACCESSORY.** Are car phone and/or CB installed on vehicle?	Equipped.	Repair grounding line of car phone or CB system.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

CE:DTC P0865 — TCM COMMUNICATION CIRCUIT LOW —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01099

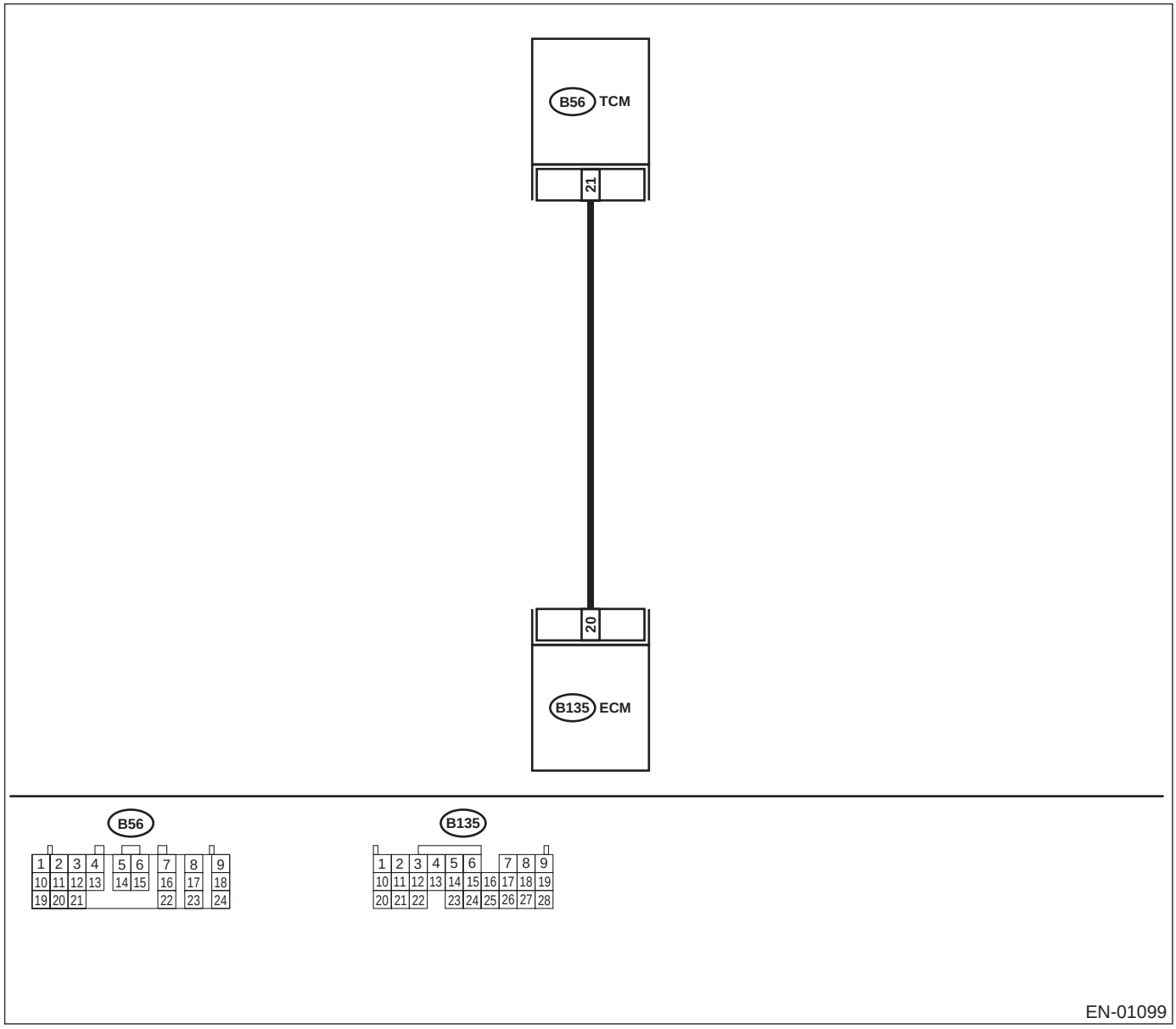
	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	1 V	Go to step **2.**	Even if MI lights up, the circuit has returned to a normal condition at this time. NOTE: In this case, repair the following: • Poor contact in ECM connector • Poor contact in TCM connector
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and TCM. 3) Measure resistance of harness between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 — Chassis ground:*** Is the measured value less than the specified value?	10 Ω	Repair ground short circuit in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK OUTPUT SIGNAL FOR ECM.** 1) Connect connector to ECM. 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	5 V	Go to step **4.**	Repair poor contact in ECM connector.
4	**CHECK TROUBLE CODE FOR AUTOMATIC TRANSMISSION.** Read trouble code for automatic transmission. <Ref. to AT-24, Read Diagnostic Trouble Code (DTC).> Does trouble code appear for automatic transmission?	Trouble code for automatic transmission is indicated.	Inspect trouble code for automatic transmission.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

CF:DTC P0866 — TCM COMMUNICATION CIRCUIT HIGH —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01099

	Step	Value	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and TCM connector.	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4 V	Go to step **5.**	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(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 voltage between ECM and chassis ground. ***Connector & terminal*** ***(B135) No. 20 (+) — Chassis ground (–):*** Does the measured value change within the specified range?	1 V — 4 V	Even if MI lights up, the circuit has returned to a normal condition at this time. NOTE: In this case, repair the following: • Poor contact in ECM connector • Poor contact in TCM connector	Contact SUBARU 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 voltage between TCM and chassis ground. ***Connector & terminal*** ***(B56) No. 21 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4 V	Go to step **6.**	Repair open circuit in harness between ECM and TCM connector.
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Check TCM power supply line and grounding line.

CG: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1110?	DTC P1110 is indicated.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.> NOTE: Atmospheric pressure sensor is built into ECM.	It is not necessary to inspect DTC P1110.

CH: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

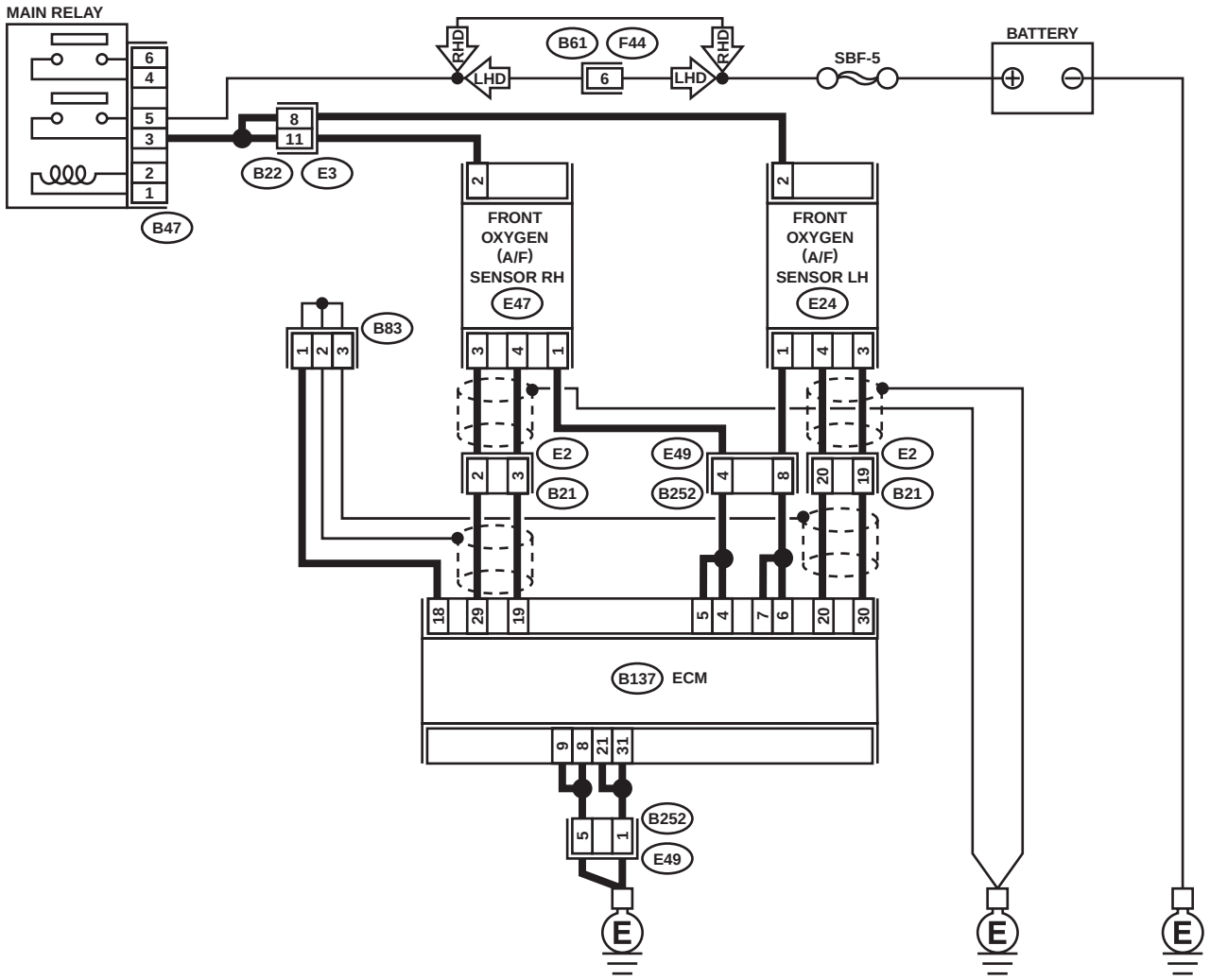
	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1111?	DTC P1111 is indicated.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.> NOTE: Atmospheric pressure sensor is built into ECM.	It is not necessary to inspect DTC P1111.

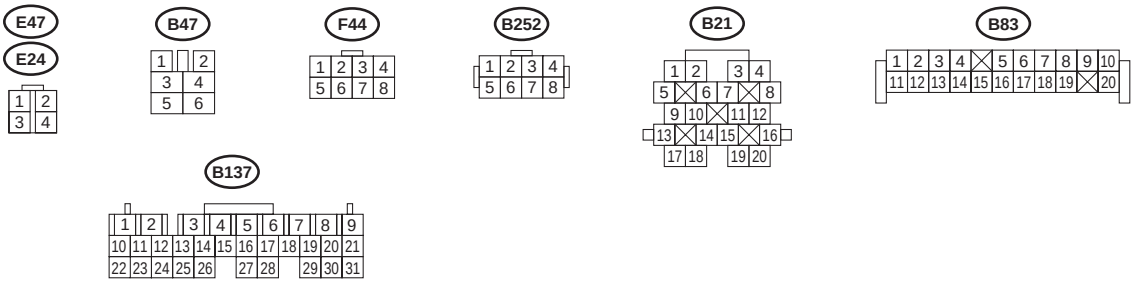
CI: DTC P1134 — A/F SENSOR MICRO-COMPUTER PROBLEM —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1134?	DTC P1134 is indicated.	Replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	It is not necessary to inspect DTC P1134.

CJ:DTC P1152 — O2 SENSOR CIRCUIT RANGE/PERFORMANCE (LOW) (BANK 1 SENSOR 1) —

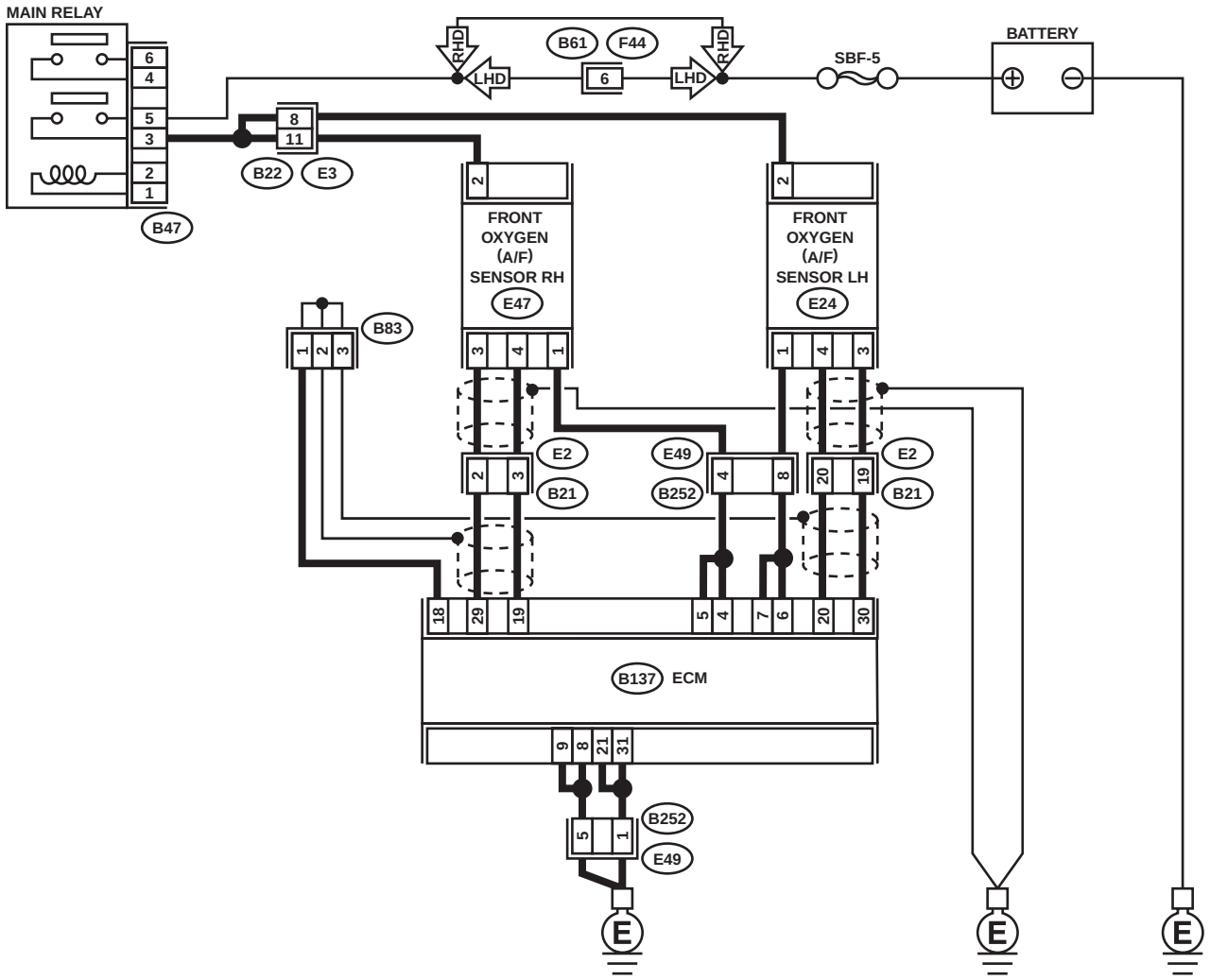
NOTE:
For the diagnostic procedure, refer to DTC P1153. <Ref. to EN(H6DO)-310, DTC P1153 — O2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK 1 SENSOR 1) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

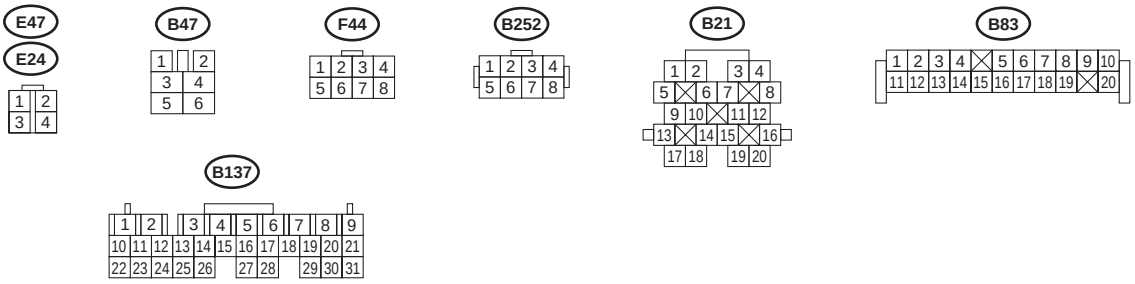
CK:DTC P1153 — O2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK 1 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FRONT (A/F) OXYGEN SENSOR DATA.** 1) Start engine. 2) While observing the Subaru Select Monitor or OBD-II general scan tool screen, warm-up the engine until coolant temperature is above 75°C (167°F). If the engine is already warmed-up, operate at idle speed for at least 1 minute. 3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range at idle? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, 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	Go to step **3.**	Go to step **4.**
3	**CHECK REAR OXYGEN SENSOR SIGNAL.** 1) Race engine at speeds 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) Operate the LED operation mode for engine. Does the LED of {Rear O2 Rich Signal} blink? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.>	LED blinks.	Repair poor contact in front oxygen (A/F) sensor and rear oxygen sensor connector.	Check rear oxygen sensor circuit. <Ref. to FU(H6DO)-45, Rear Oxygen Sensor.>

	Step	Value	Yes	No
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 malfunction.	Repair or replace faulty parts.	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

CL: DTC P1154 — O2 SENSOR CIRCUIT RANGE/PERFORMANCE (LOW) (BANK 2 SENSOR 1) —

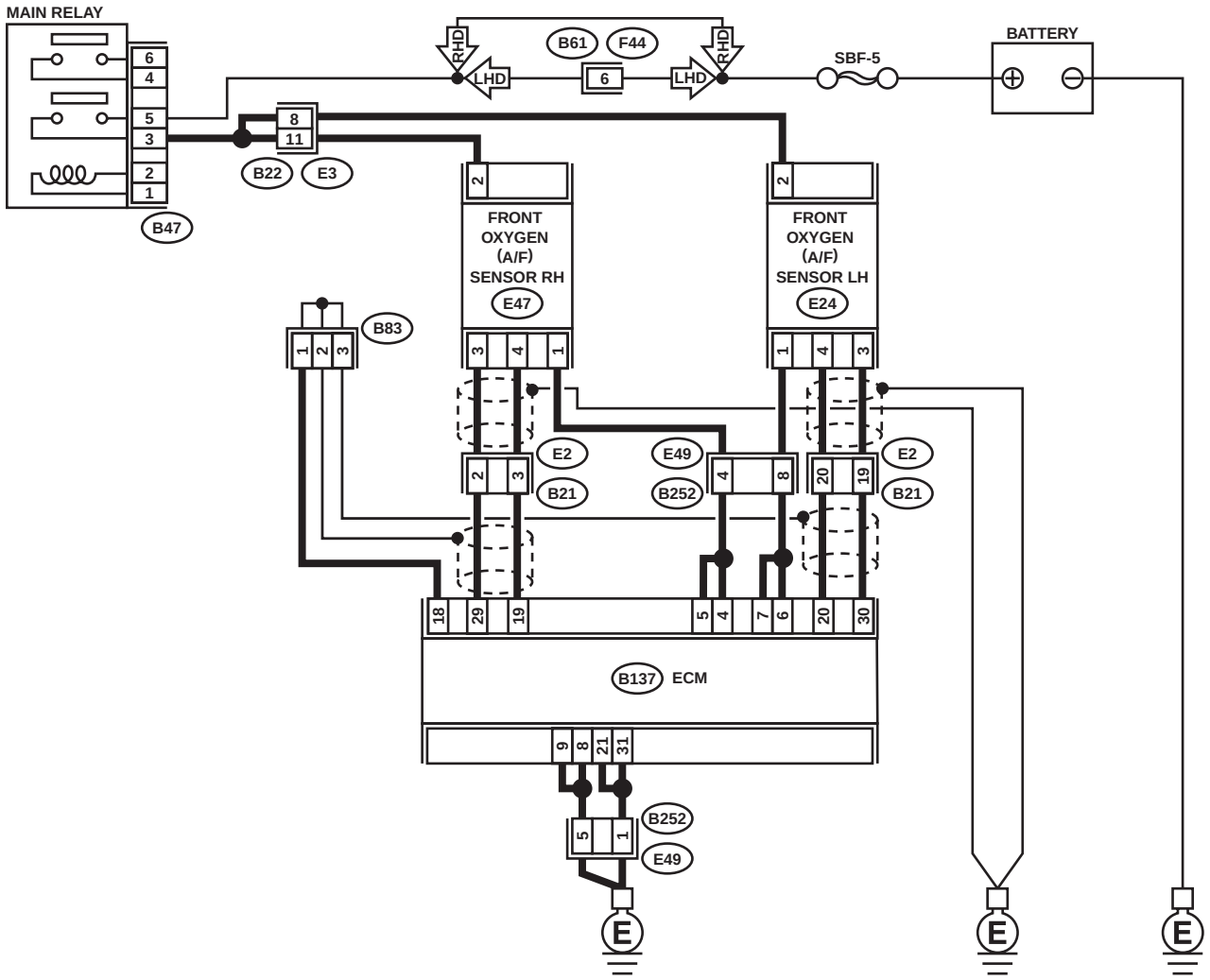
NOTE:
For the diagnostic procedure, refer to DTC P1155. <Ref. to EN(H6DO)-314, DTC P1155 — O2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK 2 SENSOR 1) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

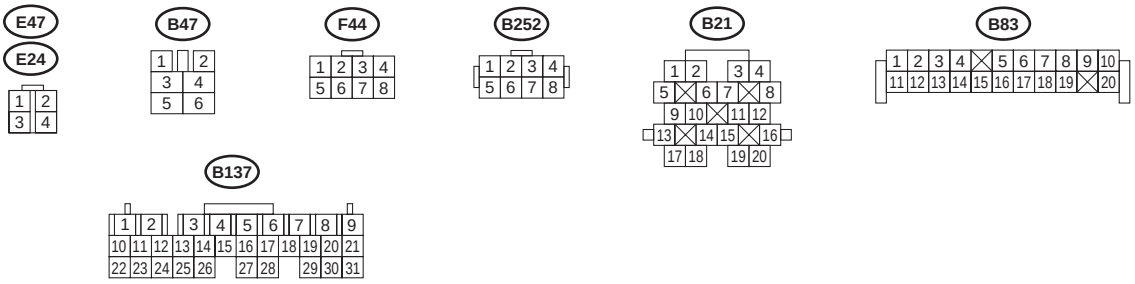
CM:DTC P1155 — O2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK 2 SENSOR 1) —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**





EN-01087

	Step	Value	Yes	No
1	**CHECK ANY OTHER DTC ON DISPLAY.** Is any other DTC displayed?	Another DTC is displayed.	Inspect the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H6DO)-89, List of Diagnostic Trouble Code (DTC).>	Go to step **2.**
2	**CHECK FRONT (A/F) OXYGEN SENSOR DATA.** 1) Start engine. 2) While observing the Subaru Select Monitor or OBD-II general scan tool screen, warm-up the engine until coolant temperature is above 75°C (167°F). If the engine is already warmed-up, operate at idle speed for at least 1 minute. 3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or OBD-II general scan tool. Is the measured value within the specified range at idle? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H6DO)-34, 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	Go to step **3.**	Go to step **4.**
3	**CHECK REAR OXYGEN SENSOR SIGNAL.** 1) Race engine at speeds 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) Operate the LED operation mode for engine. Does the LED of {Rear O2 Rich Signal} blink? NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <Ref. to EN(H6DO)-34, Subaru Select Monitor.>	LED blinks.	Repair poor contact in front oxygen (A/F) sensor and rear oxygen sensor connector.	Check rear oxygen sensor circuit. <Ref. to FU(H6DO)-45, Rear Oxygen Sensor.>

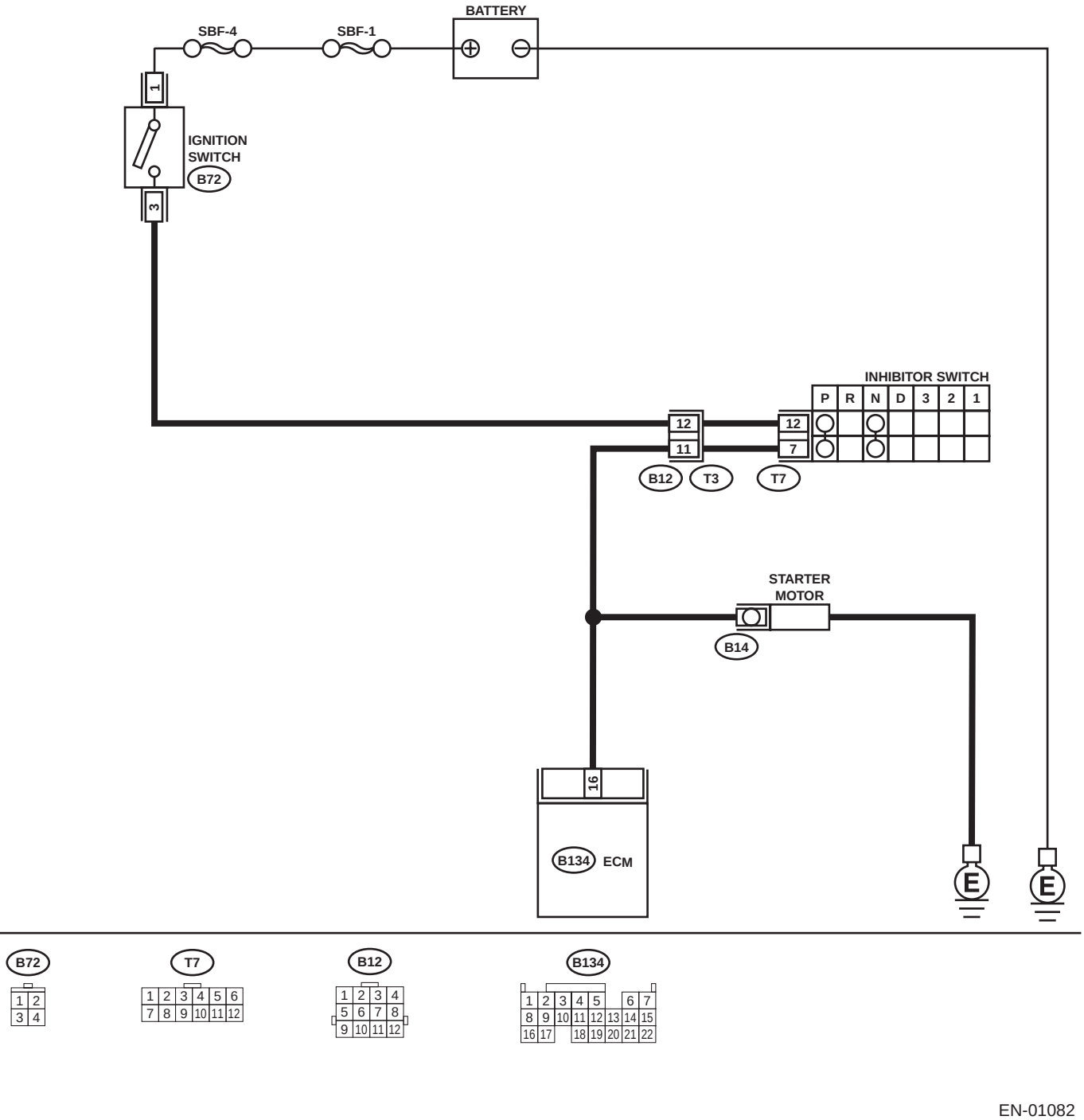
	Step	Value	Yes	No
4	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. • Loose installation of portions • Damage (crack, hole etc.) of parts • Looseness of front oxygen (A/F) sensor • Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor Is there a fault in exhaust system?	There is a malfunction.	Repair or replace faulty parts.	Replace front oxygen (A/F) sensor. <Ref. to FU(H6DO)-43, Front Oxygen (A/F) Sensor.>

CN:DTC P1518 — STARTER SWITCH CIRCUIT LOW INPUT —

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



EN-01082

	Step	Value	Yes	No
1	**CHECK OPERATION OF STARTER MOTOR.** Place the select lever in the “P” or “N” range. Does starter motor operate when turning ignition switch to “ST”?	Starter motor operates.	Repair harness and connector. NOTE: In this case, repair the following: • Open or ground short circuit in harness between ECM and starter motor connector. • Poor contact in ECM connector.	Check starter motor circuit. <Ref. to EN(H6DO)-72, STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.>

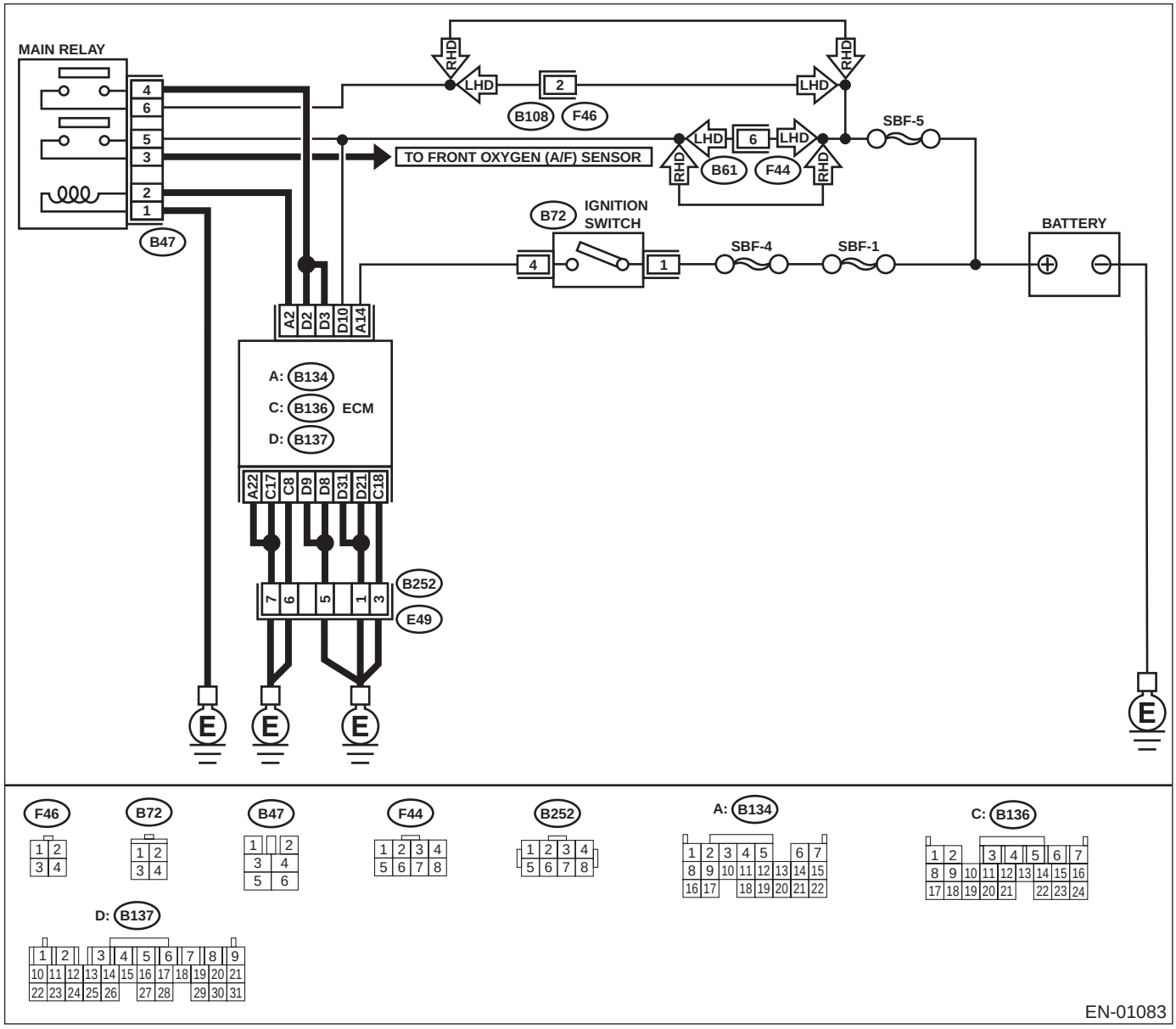
MEMO:

CO: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(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



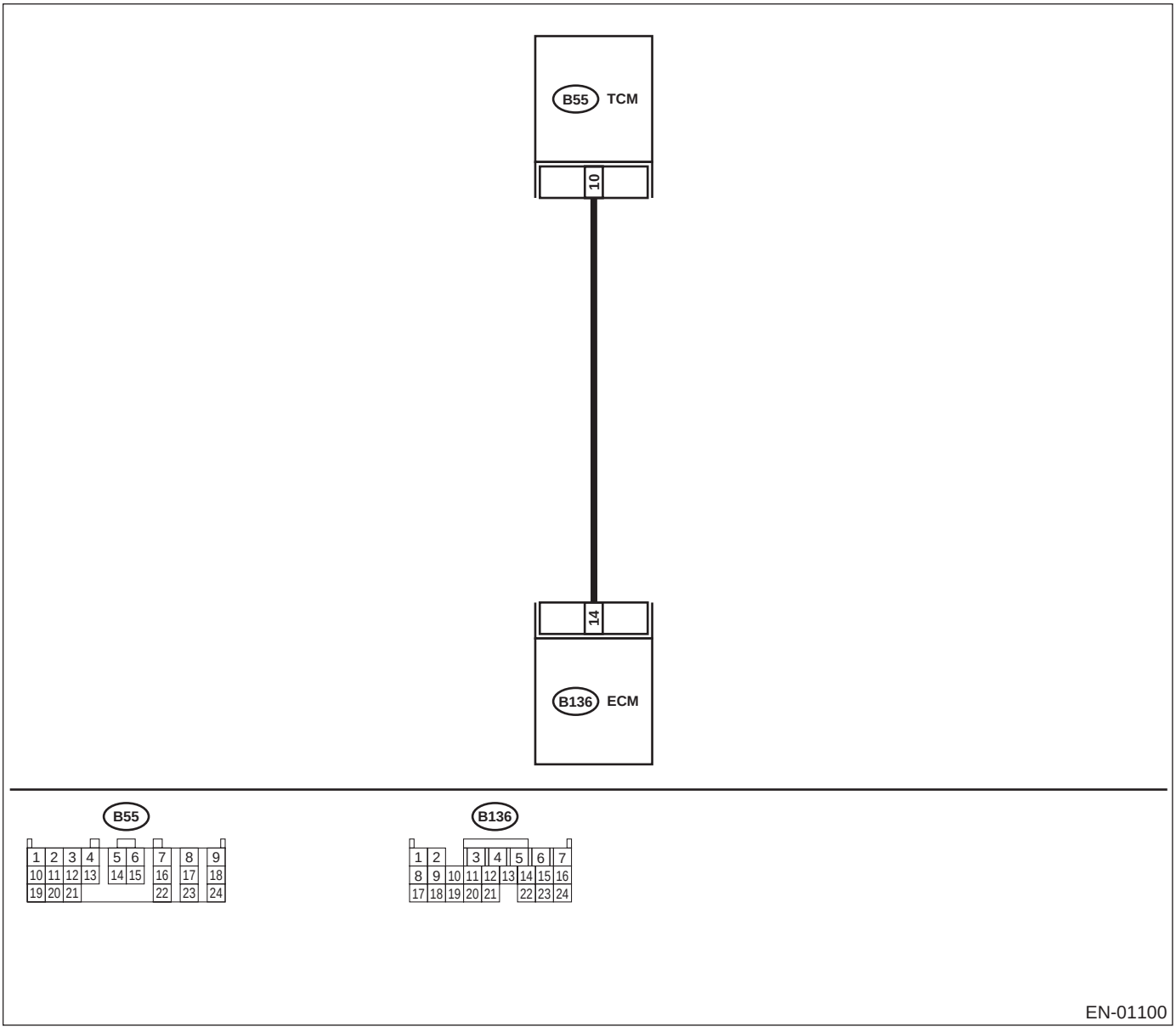
	Step	Value	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to OFF. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B137) No. 10 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair poor contact in ECM connector.	Go to step **2.**
2	**CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.** 1) Disconnect connector from ECM. 2) Measure 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 ground short circuit in harness between ECM connector and battery terminal.	Go to step **3.**
3	**CHECK FUSE SBF-5.** Is fuse blown?	Fuse blown out.	Replace fuse.	Repair harness and connector. NOTE: In this case, repair the following: • Open circuit in harness between ECM and battery • Poor contact in ECM connector • Poor contact in battery terminal

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



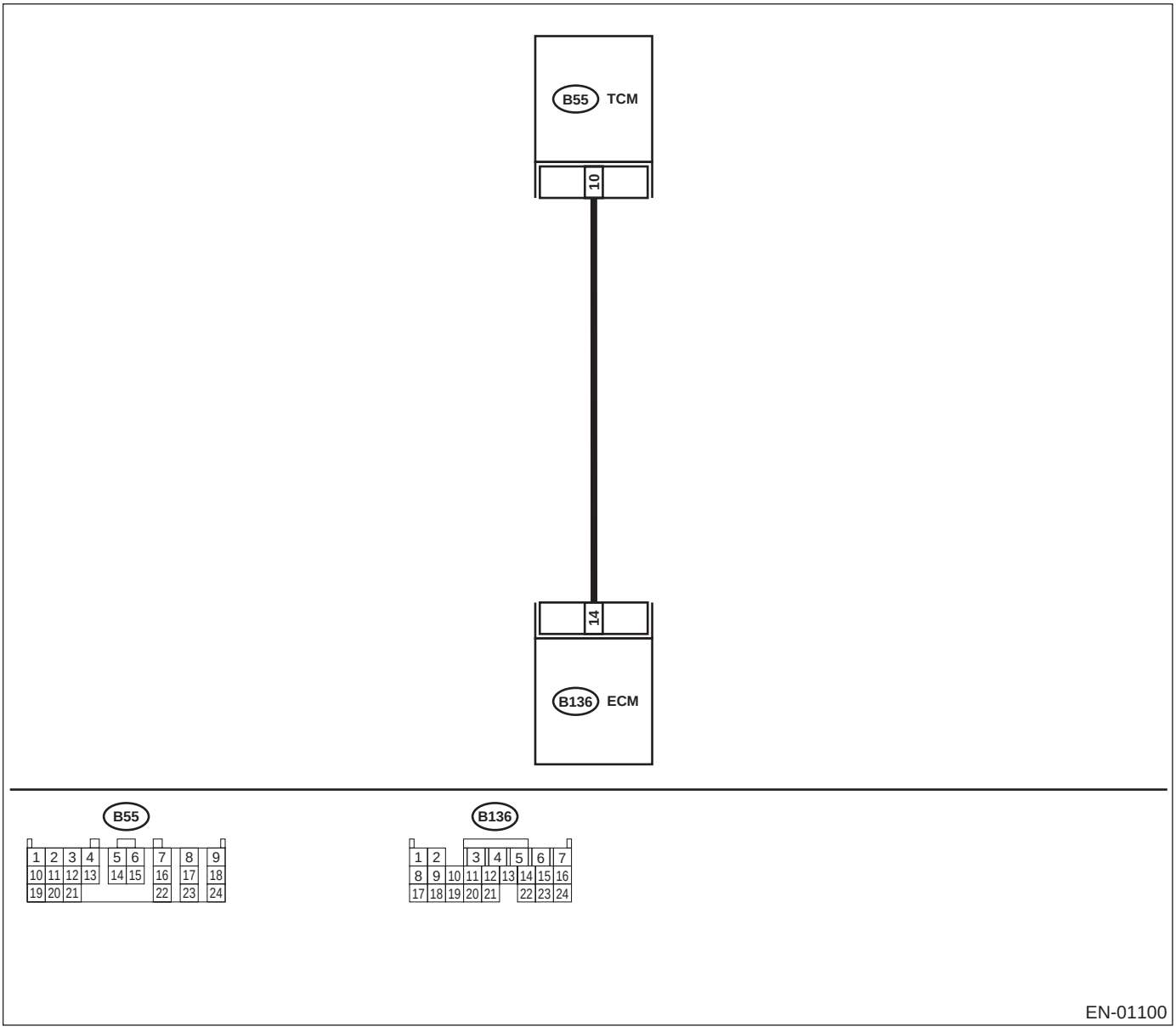
	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 14 (+) — Chassis ground (–):*** Does the measured value exceed 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 connectors from ECM and TCM. 3) Measure 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 ground short circuit in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** Measure resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B136) No. 14 — (B55) No. 10:*** 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.

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



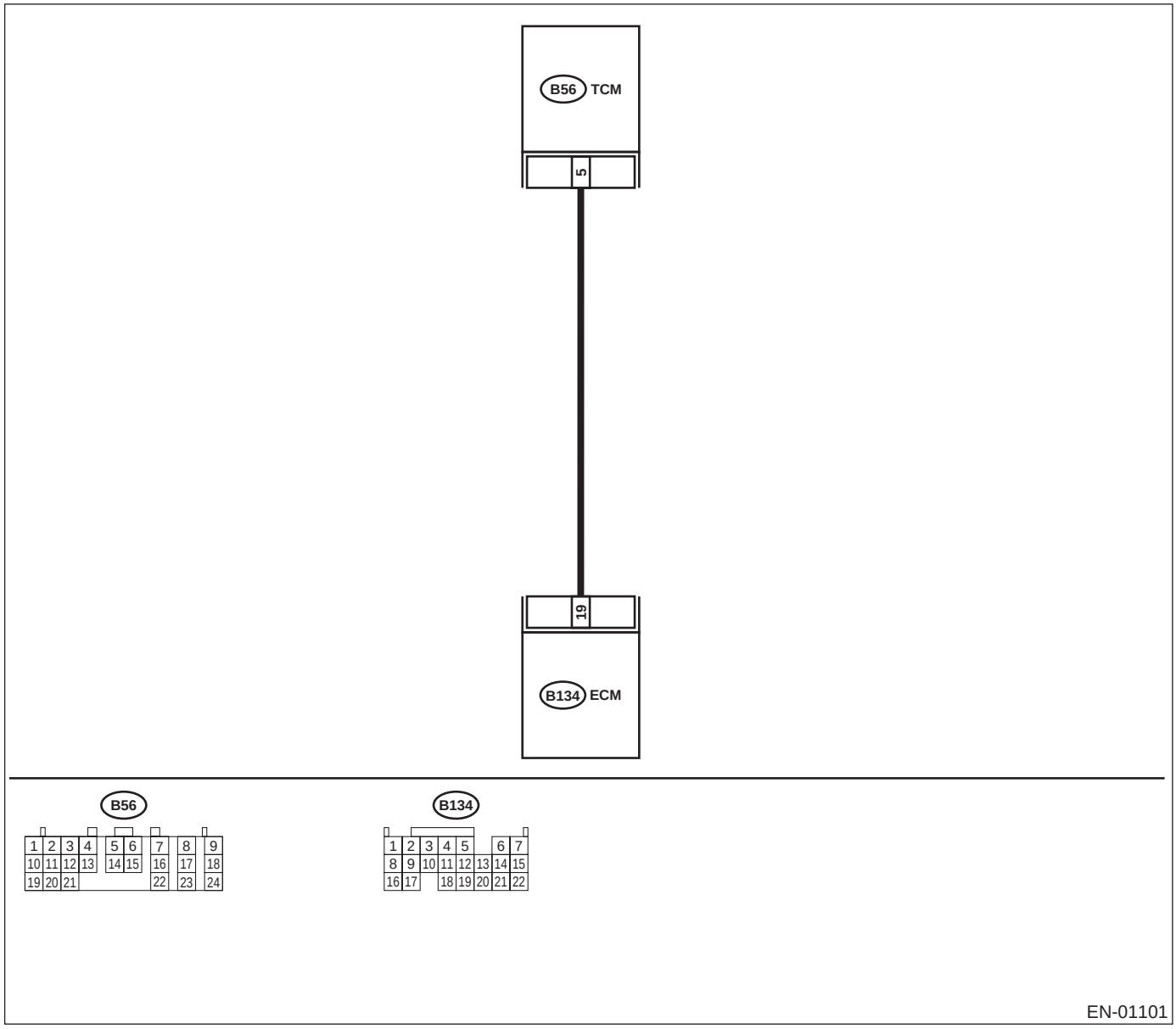
	Step	Value	Yes	No
1	**CHECK OUTPUT SIGNAL FROM ECM.** 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Disconnect connector from TCM. 4) Turn ignition switch to ON. 5) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 14 (+) — Chassis ground (–):*** Is the measured value less than the specified value?	3 V	Go to step **2.**	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>
2	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B136) No. 14 (+) — Chassis ground (–):*** Does the voltage change exceed the specified value by shaking harness and connector of ECM while monitoring the value with voltage meter?	10 V	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <Ref. to FU(H6DO)-46, Engine Control Module.>	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



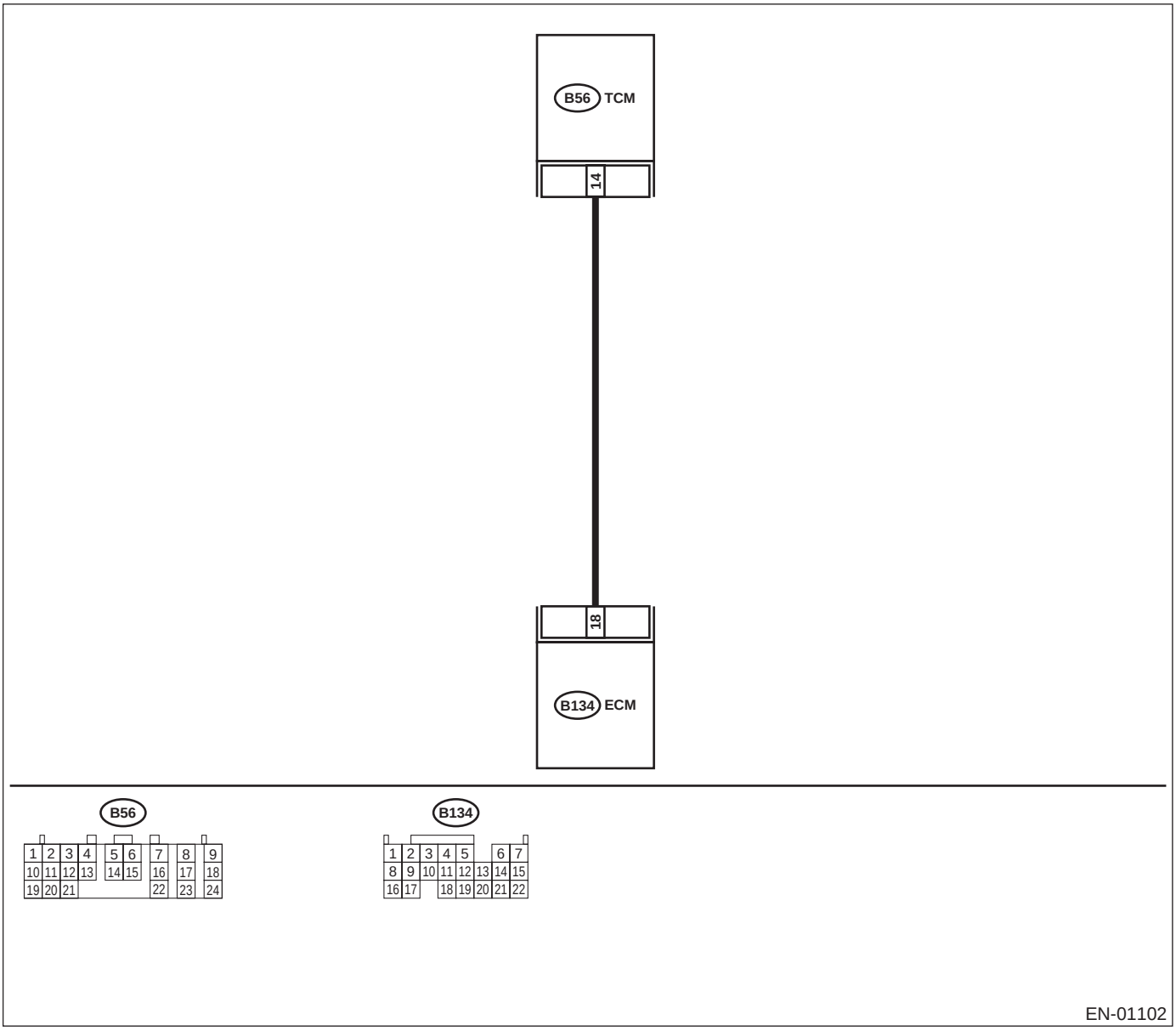
	Step	Value	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 19 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4.5 V	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 19 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(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 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 ground short circuit in harness between ECM and TCM connector.	Go to step **6.**
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

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

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

CAUTION:
After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H6DO)-54, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H6DO)-47, OPERATION, Inspection Mode.>.

- **WIRING DIAGRAM:**



	Step	Value	Yes	No
1	**CHECK INPUT SIGNAL FOR ECM.** 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 18 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	4.5 V	Go to step **2.**	Go to step **4.**
2	**CHECK INPUT SIGNAL FOR ECM.** Measure voltage between ECM and chassis ground. ***Connector & terminal*** ***(B134) No. 18 (+) — Chassis ground (–):*** Does the measured value exceed the specified value?	10 V	Repair battery short circuit in harness between ECM and TCM connector.	Go to step **3.**
3	**CHECK POOR CONTACT.** Check poor contact in ECM connector. Is there poor contact in ECM connector?	There is poor contact.	Repair poor contact in ECM connector.	Contact SUBARU distributor service. NOTE: Inspection by DTM is required, because probable cause is deterioration of multiple parts.
4	**CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR.** 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and TCM connector. ***Connector & terminal*** ***(B134) No. 18 — (B56) No. 14:*** 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 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 ground short circuit in harness between ECM and TCM connector.	Go to step **6.**
6	**CHECK POOR CONTACT.** Check poor contact in TCM connector. Is there poor contact in TCM connector?	There is poor contact.	Repair poor contact in TCM connector.	Replace TCM. <Ref. to AT-76, Transmission Control Module (TCM).>

20.General Diagnostic Table

A: INSPECTION

1. ENGINE

NOTE:
Malfunction of parts other than those listed is also possible. <Ref. to ME(H6DO)-74, Engine Trouble in General.>

Symptom	Problem parts
1. Engine stalls during idling.	1) Idle air control solenoid valve 2) Intake manifold pressure sensor 3) Intake air temperature sensor 4) Ignition parts (*1) 5) Engine coolant temperature sensor (*2) 6) Crankshaft position sensor (*3) 7) Camshaft position sensor (*3) 8) Fuel injection parts (*4) 9) EGR valve
2. Rough idling	1) Idle air control solenoid valve 2) Intake manifold pressure sensor 3) Intake air temperature sensor 4) Engine coolant temperature sensor (*2) 5) Ignition parts (*1) 6) Air intake system (*5) 7) Fuel injection parts (*4) 8) Throttle position sensor 9) Crankshaft position sensor (*3) 10) Camshaft position sensor (*3) 11) Oxygen sensor 12) Fuel pump and fuel pump relay 13) EGR valve
3. Engine does not return to idle.	1) Idle air control solenoid valve 2) Engine coolant temperature sensor 3) Accelerator cable (*6) 4) Throttle position sensor 5) Intake manifold pressure sensor 6) Intake air temperature sensor 7) EGR valve
4. Poor acceleration	1) Intake manifold pressure sensor 2) Intake air temperature sensor 3) Throttle position sensor 4) Fuel injection parts (*4) 5) Fuel pump and fuel pump relay 6) Engine coolant temperature sensor (*2) 7) Crankshaft position sensor (*3) 8) Camshaft position sensor (*3) 9) A/C switch and A/C cut relay 10) Engine torque control signal circuit 11) Ignition parts (*1) 12) EGR valve
5. Engine stalls or engine sags or hesitates at acceleration.	1) Intake manifold pressure sensor 2) Intake air temperature sensor 3) Engine coolant temperature sensor (*2) 4) Crankshaft position sensor (*3) 5) Camshaft position sensor (*3) 6) Purge control solenoid valve 7) Fuel injection parts (*4) 8) Throttle position sensor 9) Fuel pump and fuel pump relay 10) EGR valve

Symptom	Problem parts
6. Surge	1) Intake manifold pressure sensor 2) Intake air temperature sensor 3) Engine coolant temperature sensor (*2) 4) Crankshaft position sensor (*3) 5) Camshaft position sensor (*3) 6) Fuel injection parts (*4) 7) Throttle position sensor 8) Fuel pump and fuel pump relay 9) EGR valve
7. Spark knock	1) Intake manifold pressure sensor 2) Intake air temperature sensor 3) Engine coolant temperature sensor 4) Knock sensor 5) Fuel injection parts (*4) 6) Fuel pump and fuel pump relay
8. After burning in exhaust system	1) Intake manifold pressure sensor 2) Intake air temperature sensor 3) Engine coolant temperature sensor (*2) 4) Fuel injection parts (*4) 5) Fuel pump and fuel pump relay

*1: Check ignition coil & ignitor assembly and spark plug.
*2: Indicate the symptom occurring only in cold temperatures.
*3: Ensure the secure installation.
*4: Check fuel injector, fuel pressure regulator and fuel filter.
*5: Inspect air leak in air intake system.
*6: Adjust accelerator cable.

2. AUTOMATIC TRANSMISSION

NOTE:
Check general diagnostics table with non-conformity symptom for automatic transmission. <Ref. to AT-2, Basic Diagnostic Procedure.>

MEMO: