18.Diagnostic Procedure with Diagnostic Trouble Code (DTC)

A: DTC P000A A CAMSHAFT POSITION SLOW RESPONSE (BANK 1)

NOTE:
For the diagnostic procedure, refer to DTC P0011. <Ref. to EN(H4DO HEV)(diag)-105, DTC P0011 INTAKE CAMSHAFT POSITION - TIMING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

B: DTC P000B B CAMSHAFT POSITION SLOW RESPONSE (BANK 1)

NOTE:
For the diagnostic procedure, refer to DTC P0014. <Ref. to EN(H4DO HEV)(diag)-109, DTC P0014 EXHAUST AVCS SYSTEM 1 (RANGE/PERFORMANCE), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

C: DTC P000C A CAMSHAFT POSITION SLOW RESPONSE (BANK 2)

NOTE:
For the diagnostic procedure, refer to DTC P0021. <Ref. to EN(H4DO HEV)(diag)-120, DTC P0021 INTAKE CAMSHAFT POSITION - TIMING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 2), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

D: DTC P000D B CAMSHAFT POSITION SLOW RESPONSE (BANK 2)

NOTE:
For the diagnostic procedure, refer to DTC P0024. <Ref. to EN(H4DO HEV)(diag)-124, DTC P0024 EXHAUST AVCS SYSTEM 2 (RANGE/PERFORMANCE), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

E: DTC P0010 "A" CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 1)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-15, DTC P0010 "A" CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

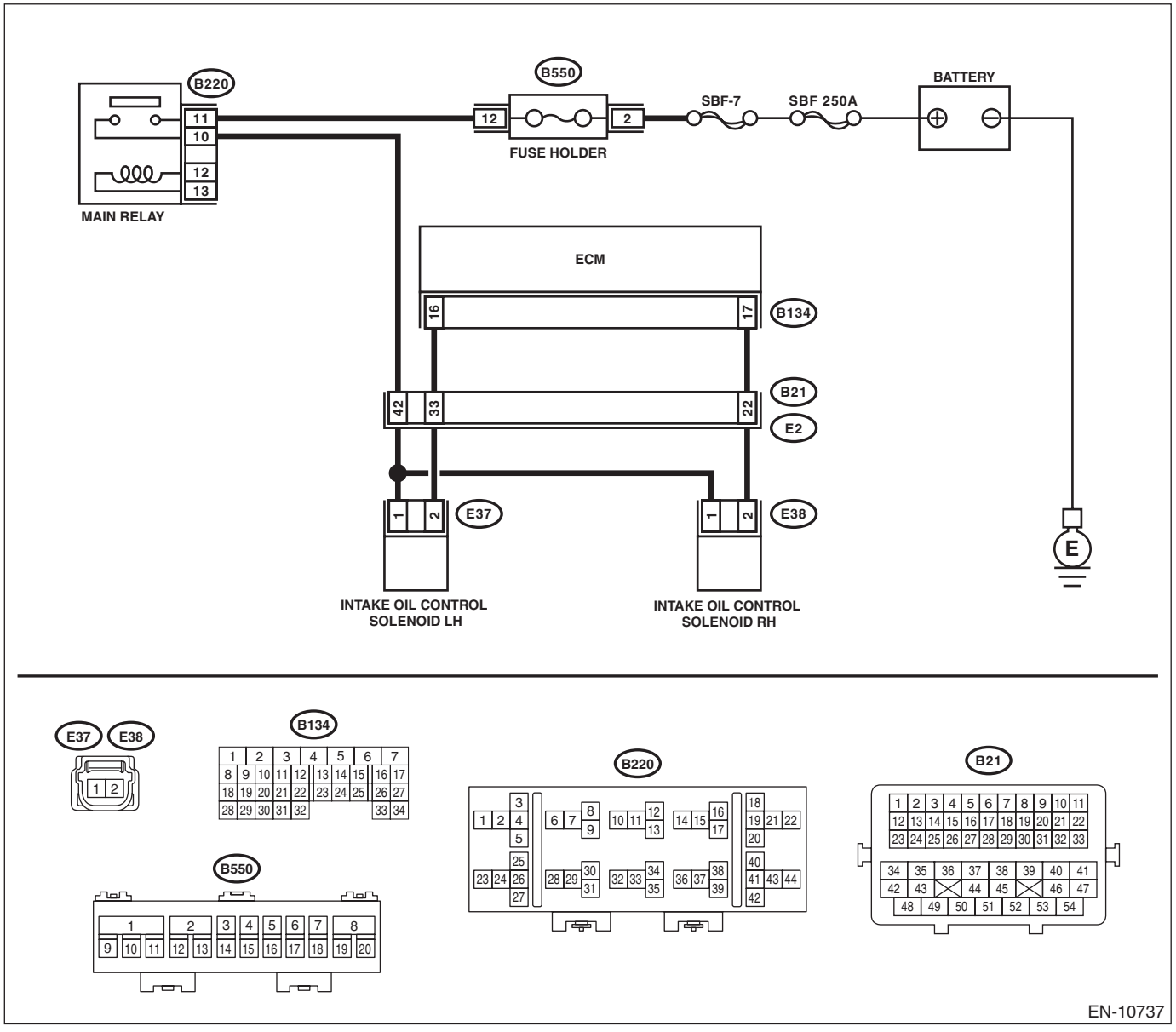
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 17 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Go to step **3**.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
3	**CHECK POWER SUPPLY TO THE INTAKE OIL CONTROL SOLENOID RH.** Measure the voltage between intake oil control solenoid RH connector and engine ground. ***Connector & terminal*** ***(E38) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the power supply circuit.
4	**CHECK HARNESS BETWEEN ECM AND INTAKE OIL CONTROL SOLENOID RH CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the ECM and intake oil control solenoid RH. 3) Measure the resistance between intake oil control solenoid RH connector and engine ground. ***Connector & terminal*** ***(E38) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and intake oil control solenoid RH connector.
5	**CHECK HARNESS BETWEEN ECM AND INTAKE OIL CONTROL SOLENOID RH CONNECTOR.** Measure the resistance of harness between ECM connector and intake oil control solenoid RH. ***Connector & terminal*** ***(B134) No. 17 — (E38) No. 2:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and intake oil control solenoid RH connector • Poor contact of coupling connector
6	**CHECK INTAKE OIL CONTROL SOLENOID RH.** Measure the resistance between intake oil control solenoid RH terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 6 — 12 Ω?	Repair the poor contact of intake oil control solenoid RH connector.	Replace the intake oil control solenoid RH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>

F: DTC P0011 INTAKE CAMSHAFT POSITION - TIMING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 1)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-16, DTC P0011 INTAKE CAMSHAFT POSITION - TIMING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine and let it idle. 2) Read the value of «VVT Adv. Ang. Amount R» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «VVT Adv. Ang. Amount R» approx. 0 deg?	Go to step **2**.	Check the following item and repair or replace if necessary. • Intake cam sprocket (clog or dirt of oil routing, setting of spring) • Intake camshaft (dirt, damage of camshaft)
2	**CHECK CURRENT DATA.** 1) Drive with acceleration and deceleration at 80 km/h (50 MPH) or less. NOTE: Drive to an extent that the duty output of oil flow control solenoid valve increases. 2) Read the values of «OCV Duty R» and «VVT Adv. Ang. Amount R» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	When the value of «OCV Duty R» increases more than 10%, is the value of «VVT Adv. Ang. Amount R» approx. 0 deg?	Check the following item and repair or replace if necessary. • Intake cam sprocket (clog or dirt of oil routing, setting of spring) • Intake camshaft (dirt, damage of camshaft)	Perform the following procedures, and clean the oil routing. Replace the engine oil and idle the engine for 5 minutes, and then replace the oil filter and engine oil. <Ref. to LU(H4DO(w/o HEV))-13, REPLACEMENT, Engine Oil.> <Ref. to LU(H4DO(w/o HEV))-29, Engine Oil Filter.>

G: DTC P0013 B CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 1)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-17, DTC P0013 B CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

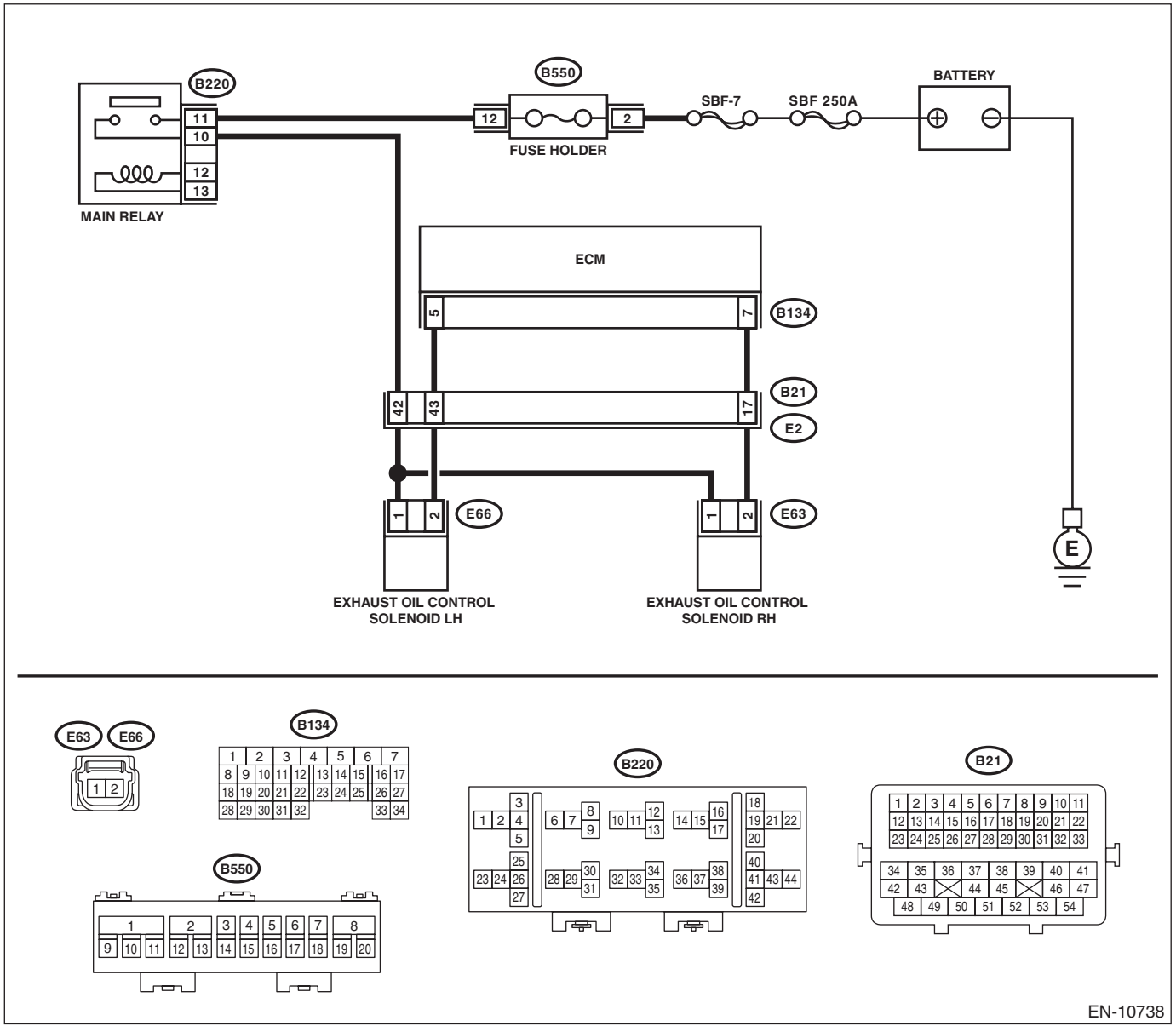
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 7 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Go to step **3**.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
3	**CHECK POWER SUPPLY TO THE EXHAUST OIL CONTROL SOLENOID RH.** Measure the voltage between exhaust oil control solenoid RH connector and engine ground. ***Connector & terminal*** ***(E63) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the power supply circuit.
4	**CHECK HARNESS BETWEEN ECM AND EXHAUST OIL CONTROL SOLENOID RH CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and exhaust oil control solenoid RH. 3) Measure the resistance between exhaust oil control solenoid RH connector and engine ground. ***Connector & terminal*** ***(E63) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and exhaust oil control solenoid RH connector.
5	**CHECK HARNESS BETWEEN ECM AND EXHAUST OIL CONTROL SOLENOID RH CONNECTOR.** Measure the resistance of harness between ECM connector and exhaust oil control solenoid RH. ***Connector & terminal*** ***(B134) No. 7 — (E63) No. 2:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and exhaust oil control solenoid RH connector • Poor contact of coupling connector

Step		Check	Yes	No
6	**CHECK EXHAUST OIL CONTROL SOLENOID RH.** Measure the resistance between exhaust oil control solenoid RH terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 6 — 12 Ω?	Repair the poor contact of exhaust oil control solenoid RH connector.	Replace the exhaust oil control solenoid RH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>

H: DTC P0014 EXHAUST AVCS SYSTEM 1 (RANGE/PERFORMANCE)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-18, DTC P0014 EXHAUST AVCS SYSTEM 1 (RANGE/PERFORMANCE), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine and let it idle. 2) Read the value of «Exh. VVT Retard Ang. R» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Exh. VVT Retard Ang. R» approx. 0 deg?	Go to step **2**.	Check the following item and repair or replace if necessary. • Exhaust cam sprocket (clog or dirt of oil routing, setting of spring) • Exhaust camshaft (dirt, damage of camshaft)
2	**CHECK CURRENT DATA.** 1) Drive with acceleration and deceleration at 80 km/h (50 MPH) or less. NOTE: Drive to an extent that the duty output of oil flow control solenoid valve increases. 2) Read the values of «Exh. OCV Duty R» and «Exh. VVT Retard Ang. R» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	When the value of «Exh. OCV Duty R» increases more than 10%, is the value of «Exh. VVT Retard Ang. R» approx. 0 deg?	Check the following item and repair or replace if necessary. • Exhaust cam sprocket (clog or dirt of oil routing, setting of spring) • Exhaust camshaft (dirt, damage of camshaft)	Perform the following procedures, and clean the oil routing. Replace the engine oil and idle the engine for 5 minutes, and then replace the oil filter and engine oil. <Ref. to LU(H4DO(w/o HEV))-13, REPLACEMENT, Engine Oil.> <Ref. to LU(H4DO(w/o HEV))-29, Engine Oil Filter.>

I: DTC P0016 CRANKSHAFT POSITION - CAMSHAFT POSITION CORRELATION (BANK1)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-19, DTC P0016 CRANKSHAFT POSITION - CAMSHAFT POSITION CORRELATION (BANK1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Are DTCs other than P0016, P0017, P0018 or P0019 displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK INTAKE OIL CONTROL SOLENOID RH.** Check the intake oil control solenoid RH. <Ref. to FU(H4DO(HEV))-58, INSPECTION, Oil Control Solenoid.>	Is intake oil control solenoid RH normal?	Go to step **3**.	Replace the intake oil control solenoid RH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>
3	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Using ST and by turning the crankshaft, align the alignment marks of crank sprocket, intake cam sprocket and exhaust cam sprocket. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.> ST 18252AA000 CRANKSHAFT SOCKET	Is timing chain installed to the appropriate position?	Go to step **4**.	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>
4	**CHECK CAM CARRIER FILTER.** Check the filter installed to cam carrier. <Ref. to ME(H4DO(w/o HEV))-257, INSPECTION, Cam Carrier.>	Is filter of cam carrier normal?	Replace the intake cam sprocket RH. <Ref. to ME(H4DO(w/o HEV))-191, Cam Sprocket.> After the operation is complete, go to the next step. Go to step **5**.	Replace the filter of cam carrier. <Ref. to ME(H4DO(w/o HEV))-220, Cam Carrier.>

	Step	Check	Yes	No
5	**CHECK CURRENT DATA.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Start the engine and warm up completely. 3) Using Subaru Select Monitor, read the value of «VVT Initial Position Learning Value #1» and «VVT Adv. Ang. Amount R» when idling condition is stable for 30 seconds or more. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> 4) Calculate the read value according to the following formula. At this time, ignore the unit. |«VVT Initial Position Learning Value #1» – (60 + «VVT Adv. Ang. Amount R»)|	Is the calculation result less than 10?	Go to step **6**.	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>
6	**CHECK DTC.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Perform drive cycle N. <Ref. to EN(H4DO HEV)(diag)-64, DRIVE CYCLE N, PROCEDURE, Drive Cycle.>	Is the same DTC as current diagnosis displayed?	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	End.

J: DTC P0017 CRANK AND CAM TIMING B SYSTEM FAILURE (BANK 1)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-20, DTC P0017 CRANK AND CAM TIMING B SYSTEM FAILURE (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Are DTCs other than P0016, P0017, P0018 or P0019 displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK EXHAUST OIL CONTROL SOLENOID RH.** Check the exhaust oil control solenoid RH. <Ref. to FU(H4DO(HEV))-58, INSPECTION, Oil Control Solenoid.>	Is exhaust oil control solenoid RH normal?	Go to step **3**.	Replace the exhaust oil control solenoid RH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>
3	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Using ST and by turning the crankshaft, align the alignment marks of crank sprocket, intake cam sprocket and exhaust cam sprocket. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.> ST 18252AA000 CRANKSHAFT SOCKET	Is timing chain installed to the appropriate position?	Go to step **4**.	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>
4	**CHECK CAM CARRIER FILTER.** Check the filter installed to cam carrier. <Ref. to ME(H4DO(w/o HEV))-257, INSPECTION, Cam Carrier.>	Is filter of cam carrier normal?	Replace the exhaust cam sprocket RH. <Ref. to ME(H4DO(w/o HEV))-191, Cam Sprocket.> After the operation is complete, go to the next step. Go to step **5**.	Replace the filter of cam carrier. <Ref. to ME(H4DO(w/o HEV))-220, Cam Carrier.>

	Step	Check	Yes	No
5	**CHECK CURRENT DATA.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Start the engine and warm up completely. 3) Using Subaru Select Monitor, read the value of «VVT Ex Initial Position Learning Value #1» and «Exh. VVT Retard Ang. R» when idling condition is stable for 30 seconds or more. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> 4) Calculate the read value according to the following formula. At this time, ignore the unit. |«VVT Ex Initial Position Learning Value #1» – (90 – «Exh. VVT Retard Ang. R»)|	Is the calculation result less than 10?	Go to step **6**.	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>
6	**CHECK DTC.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Perform drive cycle N. <Ref. to EN(H4DO HEV)(diag)-64, DRIVE CYCLE N, PROCEDURE, Drive Cycle.>	Is the same DTC as current diagnosis displayed?	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	End.

K: DTC P0018 CRANKSHAFT POSITION - CAMSHAFT POSITION CORRELATION (BANK2)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-21, DTC P0018 CRANKSHAFT POSITION - CAMSHAFT POSITION CORRELATION (BANK2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Are DTCs other than P0016, P0017, P0018 or P0019 displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK INTAKE OIL CONTROL SOLENOID LH.** Check the intake oil control solenoid LH. <Ref. to FU(H4DO(HEV))-58, INSPECTION, Oil Control Solenoid.>	Is intake oil control solenoid LH normal?	Go to step **3**.	Replace the intake oil control solenoid LH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>
3	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Using ST and by turning the crankshaft, align the alignment marks of crank sprocket, intake cam sprocket and exhaust cam sprocket. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.> ST 18252AA000 CRANKSHAFT SOCKET	Is timing chain installed to the appropriate position?	Go to step **4**.	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>
4	**CHECK CAM CARRIER FILTER.** Check the filter installed to cam carrier. <Ref. to ME(H4DO(w/o HEV))-257, INSPECTION, Cam Carrier.>	Is filter of cam carrier normal?	Replace the intake cam sprocket LH. <Ref. to ME(H4DO(w/o HEV))-191, Cam Sprocket.> After the operation is complete, go to the next step. Go to step **5**.	Replace the filter of cam carrier. <Ref. to ME(H4DO(w/o HEV))-220, Cam Carrier.>

	Step	Check	Yes	No
5	**CHECK CURRENT DATA.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Start the engine and warm up completely. 3) Using Subaru Select Monitor, read the value of «VVT Initial Position Learning Value #2» and «VVT Adv. Ang. Amount L» when idling condition is stable for 30 seconds or more. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> 4) Calculate the read value according to the following formula. At this time, ignore the unit. |«VVT Initial Position Learning Value #2» – (60 + «VVT Adv. Ang. Amount L»)|	Is the calculation result less than 10?	Go to step **6**.	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>
6	**CHECK DTC.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Perform drive cycle N. <Ref. to EN(H4DO HEV)(diag)-64, DRIVE CYCLE N, PROCEDURE, Drive Cycle.>	Is the same DTC as current diagnosis displayed?	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	End.

L: DTC P0019 CRANK AND CAM TIMING B SYSTEM FAILURE (BANK 2)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-21, DTC P0019 CRANK AND CAM TIMING B SYSTEM FAILURE (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Are DTCs other than P0016, P0017, P0018 or P0019 displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK EXHAUST OIL CONTROL SOLENOID LH.** Check the exhaust oil control solenoid LH. <Ref. to FU(H4DO(HEV))-58, INSPECTION, Oil Control Solenoid.>	Is exhaust oil control solenoid LH normal?	Go to step **3**.	Replace the exhaust oil control solenoid LH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>
3	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Using ST and by turning the crankshaft, align the alignment marks of crank sprocket, intake cam sprocket and exhaust cam sprocket. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.> ST 18252AA000 CRANKSHAFT SOCKET	Is timing chain installed to the appropriate position?	Go to step **4**.	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>
4	**CHECK CAM CARRIER FILTER.** Check the filter installed to cam carrier. <Ref. to ME(H4DO(w/o HEV))-257, INSPECTION, Cam Carrier.>	Is filter of cam carrier normal?	Replace the exhaust cam sprocket LH. <Ref. to ME(H4DO(w/o HEV))-191, Cam Sprocket.> After the operation is complete, go to the next step. Go to step **5**.	Replace the filter of cam carrier. <Ref. to ME(H4DO(w/o HEV))-220, Cam Carrier.>

	Step	Check	Yes	No
5	**CHECK CURRENT DATA.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Start the engine and warm up completely. 3) Using Subaru Select Monitor, read the value of «VVT Ex Initial Position Learning Value #2» and «Exh. VVT Retard Ang. L» when idling condition is stable for 30 seconds or more. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> 4) Calculate the read value according to the following formula. At this time, ignore the unit. |«VVT Ex Initial Position Learning Value #2» – (90 – «Exh. VVT Retard Ang. L»)|	Is the calculation result less than 10?	Go to step **6**.	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>
6	**CHECK DTC.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.> 2) Perform drive cycle N. <Ref. to EN(H4DO HEV)(diag)-64, DRIVE CYCLE N, PROCEDURE, Drive Cycle.>	Is the same DTC as current diagnosis displayed?	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	End.

M: DTC P0020 "A" CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 2)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-21, DTC P0020 "A" CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

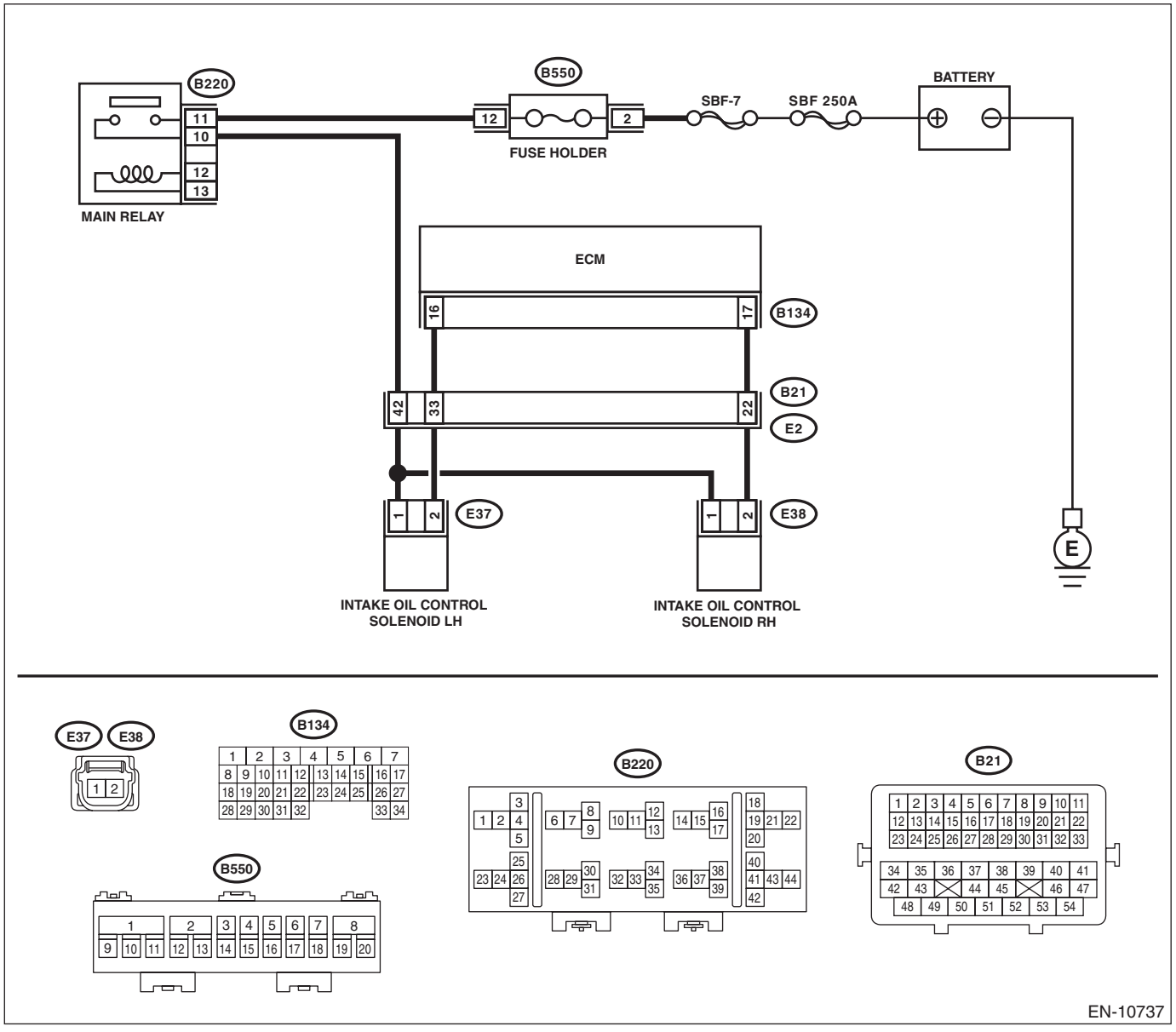
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 16 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Go to step **3**.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
3	**CHECK POWER SUPPLY TO THE INTAKE OIL CONTROL SOLENOID LH.** Measure the voltage between intake oil control solenoid LH connector and engine ground. ***Connector & terminal*** ***(E37) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the power supply circuit.
4	**CHECK HARNESS BETWEEN ECM AND INTAKE OIL CONTROL SOLENOID LH CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and intake oil control solenoid LH. 3) Measure the resistance between intake oil control solenoid LH connector and engine ground. ***Connector & terminal*** ***(E37) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and intake oil control solenoid LH connector.
5	**CHECK HARNESS BETWEEN ECM AND INTAKE OIL CONTROL SOLENOID LH CONNECTOR.** Measure the resistance of harness between ECM connector and intake oil control solenoid LH. ***Connector & terminal*** ***(B134) No. 16 — (E37) No. 2:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and intake oil control solenoid LH connector • Poor contact of coupling connector
6	**CHECK INTAKE OIL CONTROL SOLENOID LH.** Measure the resistance between intake oil control solenoid LH terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 6 — 12 Ω?	Repair the poor contact of intake oil control solenoid LH connector.	Replace the intake oil control solenoid LH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>

N: DTC P0021 INTAKE CAMSHAFT POSITION - TIMING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 2)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-21, DTC P0021 INTAKE CAMSHAFT POSITION - TIMING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine and let it idle. 2) Read the value of «VVT Adv. Ang. Amount L» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «VVT Adv. Ang. Amount L» approx. 0 deg?	Go to step **2**.	Check the following item and repair or replace if necessary. • Intake cam sprocket (clog or dirt of oil routing, setting of spring) • Intake camshaft (dirt, damage of camshaft)
2	**CHECK CURRENT DATA.** 1) Drive with acceleration and deceleration at 80 km/h (50 MPH) or less. NOTE: Drive to an extent that the duty output of oil flow control solenoid valve increases. 2) Read the values of «OCV Duty L» and «VVT Adv. Ang. Amount L» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	When the value of «OCV Duty L» increases more than 10%, is the value of «VVT Adv. Ang. Amount L» approx. 0 deg?	Check the following item and repair or replace if necessary. • Intake cam sprocket (clog or dirt of oil routing, setting of spring) • Intake camshaft (dirt, damage of camshaft)	Perform the following procedures, and clean the oil routing. Replace the engine oil and idle the engine for 5 minutes, and then replace the oil filter and engine oil. <Ref. to LU(H4DO(w/o HEV))-13, REPLACEMENT, Engine Oil.> <Ref. to LU(H4DO(w/o HEV))-29, Engine Oil Filter.>

O: DTC P0023 B CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 2)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-21, DTC P0023 B CAMSHAFT POSITION ACTUATOR CIRCUIT/OPEN (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

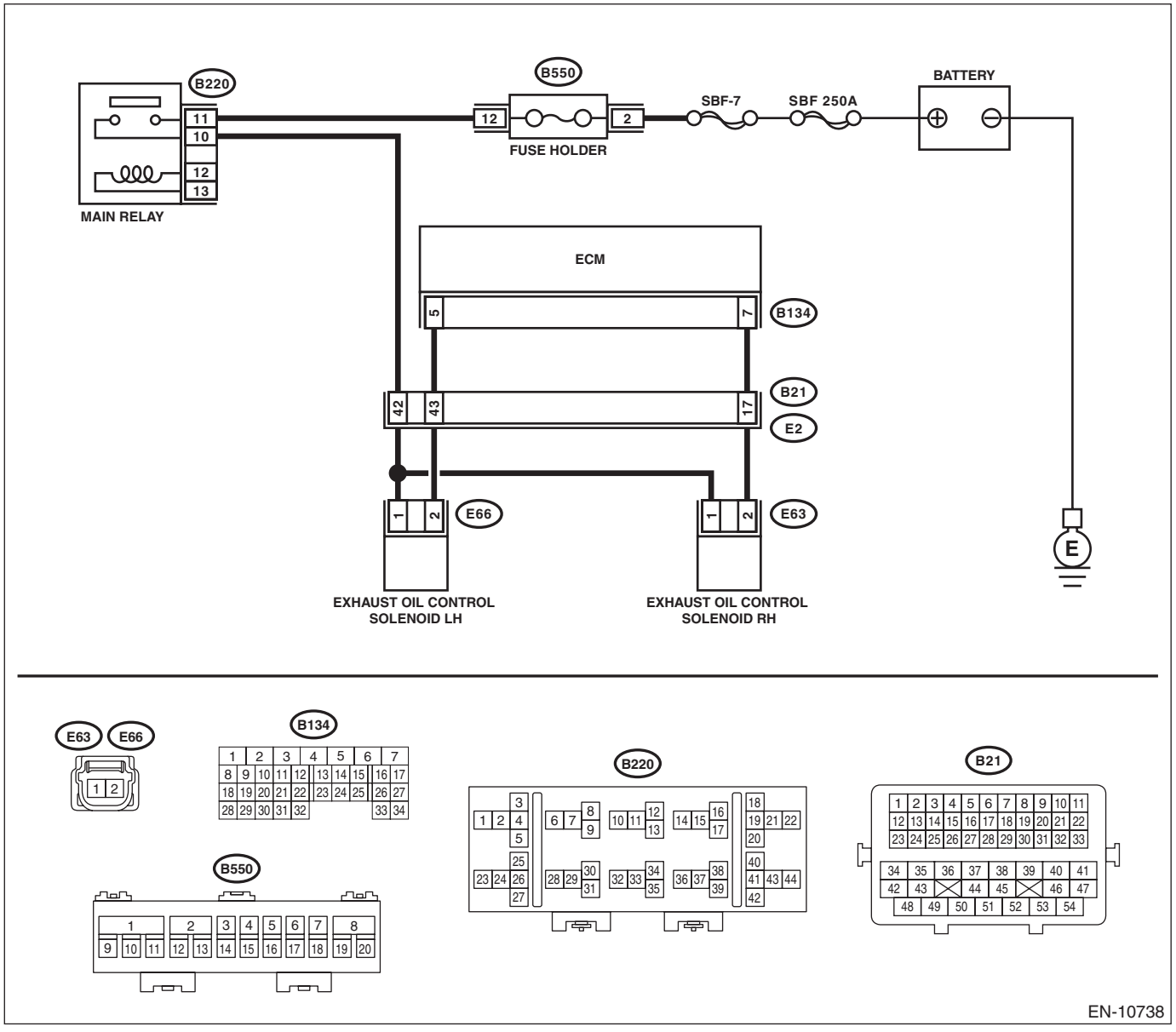
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 5 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Go to step **3**.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
3	**CHECK POWER SUPPLY TO THE EXHAUST OIL CONTROL SOLENOID LH.** Measure the voltage between exhaust oil control solenoid LH connector and engine ground. ***Connector & terminal*** ***(E66) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the power supply circuit.
4	**CHECK HARNESS BETWEEN ECM AND EXHAUST OIL CONTROL SOLENOID LH CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and exhaust oil control solenoid LH. 3) Measure the resistance between exhaust oil control solenoid LH connector and engine ground. ***Connector & terminal*** ***(E66) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and exhaust oil control solenoid LH connector.
5	**CHECK HARNESS BETWEEN ECM AND EXHAUST OIL CONTROL SOLENOID LH CONNECTOR.** Measure the resistance of harness between ECM connector and exhaust oil control solenoid LH. ***Connector & terminal*** ***(B134) No. 5 — (E66) No. 2:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and exhaust oil control solenoid LH connector • Poor contact of coupling connector

	Step	Check	Yes	No
6	**CHECK EXHAUST OIL CONTROL SOLENOID LH.** Measure the resistance between exhaust oil control solenoid LH terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 6 — 12 Ω?	Repair the poor contact of exhaust oil control solenoid LH connector.	Replace the exhaust oil control solenoid LH. <Ref. to FU(H4DO(HEV))-56, Oil Control Solenoid.>

P: DTC P0024 EXHAUST AVCS SYSTEM 2 (RANGE/PERFORMANCE)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-21, DTC P0024 EXHAUST AVCS SYSTEM 2 (RANGE/PERFORMANCE), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine and let it idle. 2) Read the value of «Exh. VVT Retard Ang. L» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Exh. VVT Retard Ang. L» approx. 0 deg?	Go to step **2**.	Check the following item and repair or replace if necessary. • Exhaust cam sprocket (clog or dirt of oil routing, setting of spring) • Exhaust camshaft (dirt, damage of camshaft)
2	**CHECK CURRENT DATA.** 1) Drive with acceleration and deceleration at 80 km/h (50 MPH) or less. NOTE: Drive to an extent that the duty output of oil flow control solenoid valve increases. 2) Read the values of «Exh. OCV Duty L» and «Exh. VVT Retard Ang. L» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	When the value of «Exh. OCV Duty L» increases more than 10%, is the value of «Exh. VVT Retard Ang. L» approx. 0 deg?	Check the following item and repair or replace if necessary. • Exhaust cam sprocket (clog or dirt of oil routing, setting of spring) • Exhaust camshaft (dirt, damage of camshaft)	Perform the following procedures, and clean the oil routing. Replace the engine oil and idle the engine for 5 minutes, and then replace the oil filter and engine oil. <Ref. to LU(H4DO(w/o HEV))-13, REPLACEMENT, Engine Oil.> <Ref. to LU(H4DO(w/o HEV))-29, Engine Oil Filter.>

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

DTC DETECTING CONDITION:

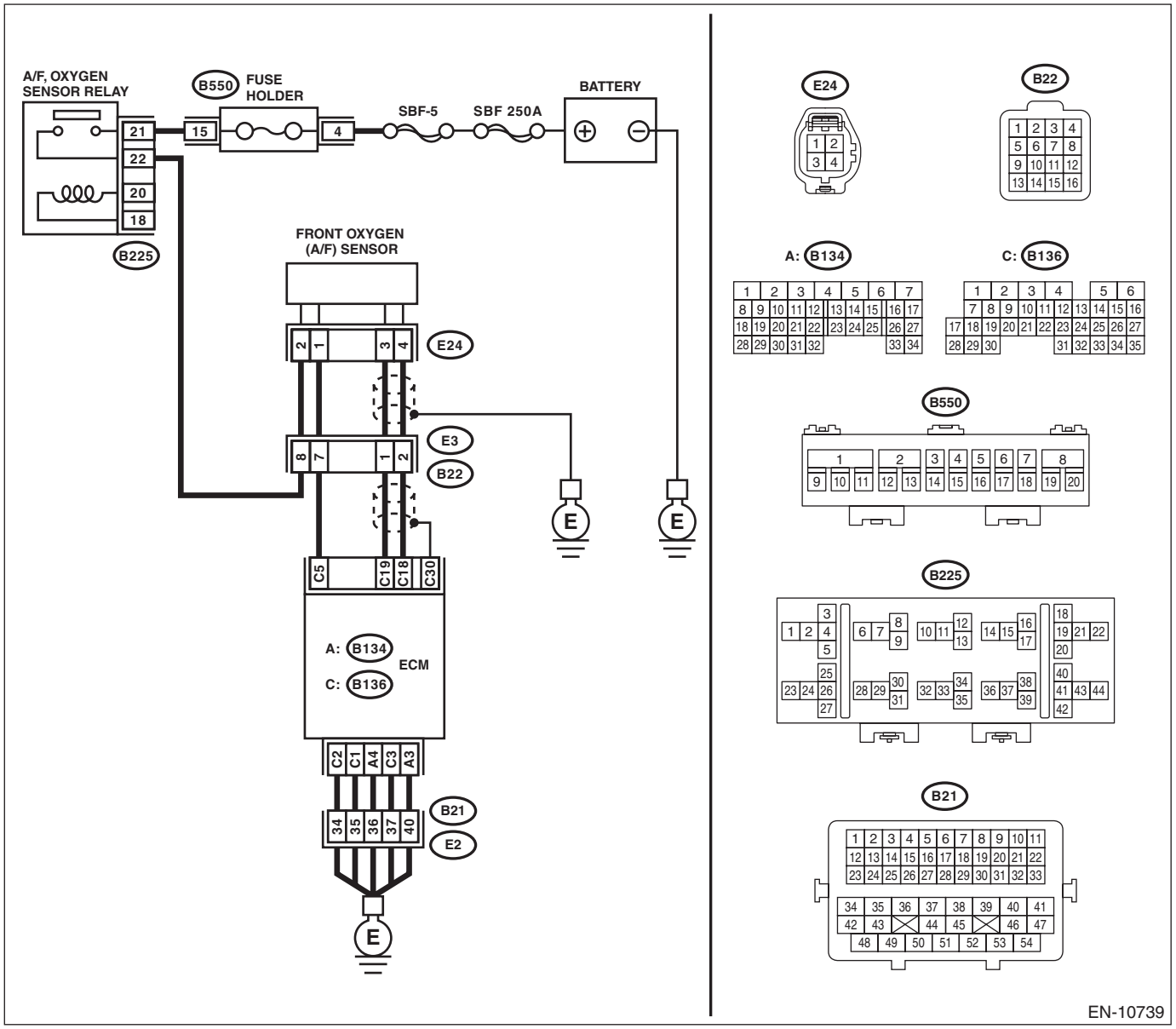
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-22, DTC P0030 HO2S HEATER CONTROL CIRCUIT (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Start and warm up the engine. 2) Turn the ignition switch to OFF. 3) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 4) Measure the resistance of harness between ECM connector and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 5 — (E24) No. 1:*** ***(B136) No. 19 — (E24) No. 3:*** ***(B136) No. 18 — (E24) No. 4:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and front oxygen (A/F) sensor connector • Poor contact of coupling connector
2	**CHECK FRONT OXYGEN (A/F) SENSOR.** Measure the resistance between front oxygen (A/F) sensor terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 1.8 — 2.2 Ω?	Go to step **3**.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>
3	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM and front oxygen (A/F) sensor connector.	Is there poor contact of ECM or front oxygen (A/F) sensor connector?	Repair the poor contact of ECM or front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>

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

DTC DETECTING CONDITION:

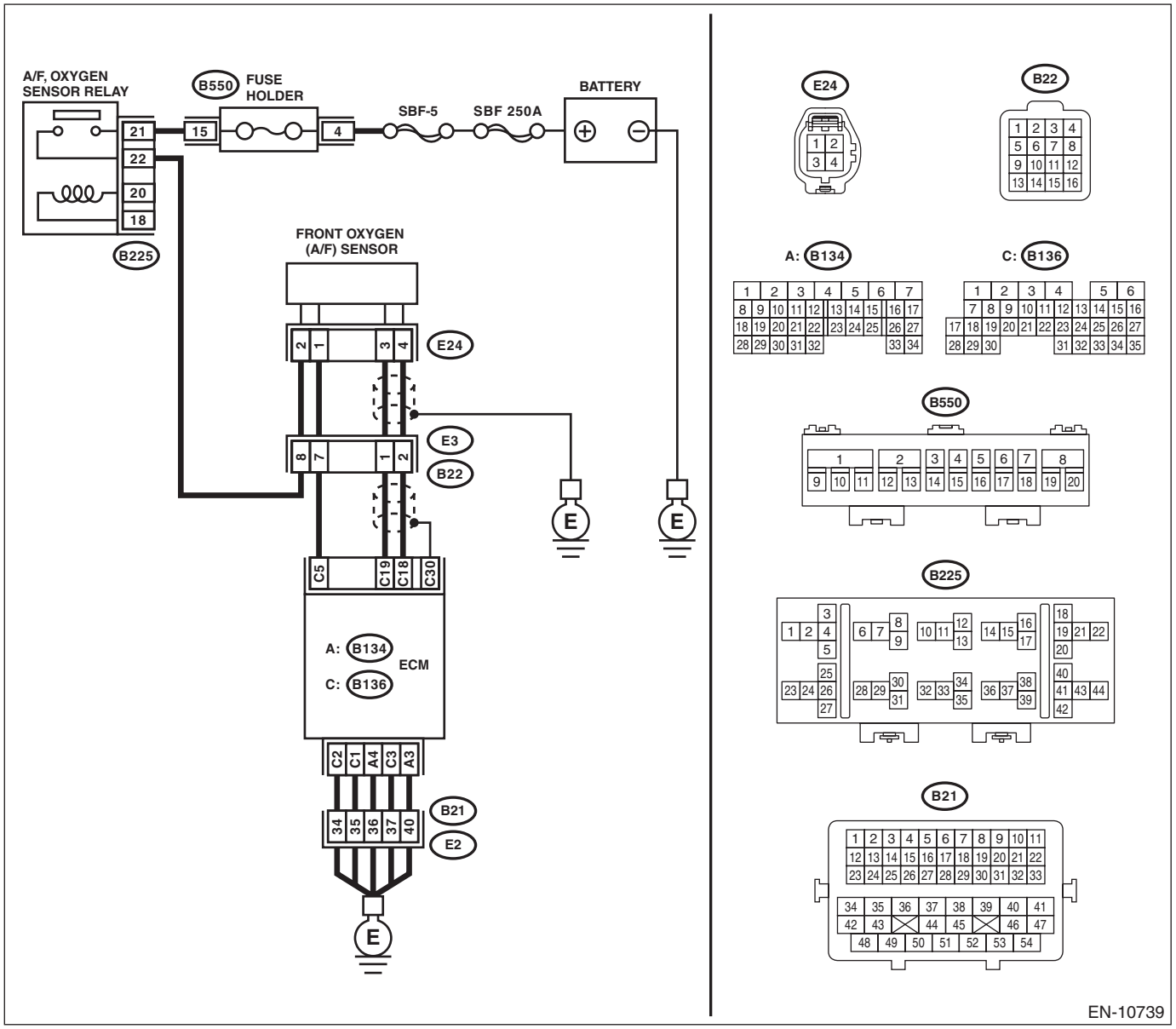
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-23, DTC P0031 HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY TO FRONT OXYGEN (A/F) SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from front oxygen (A/F) sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between front oxygen (A/F) sensor connector and engine ground. ***Connector & terminal*** ***(E24) No. 2 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the power supply line. NOTE: In this case, repair the following item: • Open circuit in harness between A/F, oxygen sensor relay connector and front oxygen (A/F) sensor connector • Poor contact of A/F, oxygen sensor relay connector • Poor contact of coupling connector • Malfunction of A/F, oxygen sensor relay
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 5 — (E24) No. 1:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and front oxygen (A/F) sensor connector • Poor contact of coupling connector
3	**CHECK GROUND CIRCUIT FOR ECM.** Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 3 — Chassis ground:*** ***(B134) No. 4 — Chassis ground:*** ***(B136) No. 1 — Chassis ground:*** ***(B136) No. 2 — Chassis ground:*** ***(B136) No. 3 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of coupling connector
4	**CHECK FRONT OXYGEN (A/F) SENSOR.** Measure the resistance between front oxygen (A/F) sensor terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 1.8 — 2.2 Ω?	Repair the poor contact of ECM connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>

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

DTC DETECTING CONDITION:

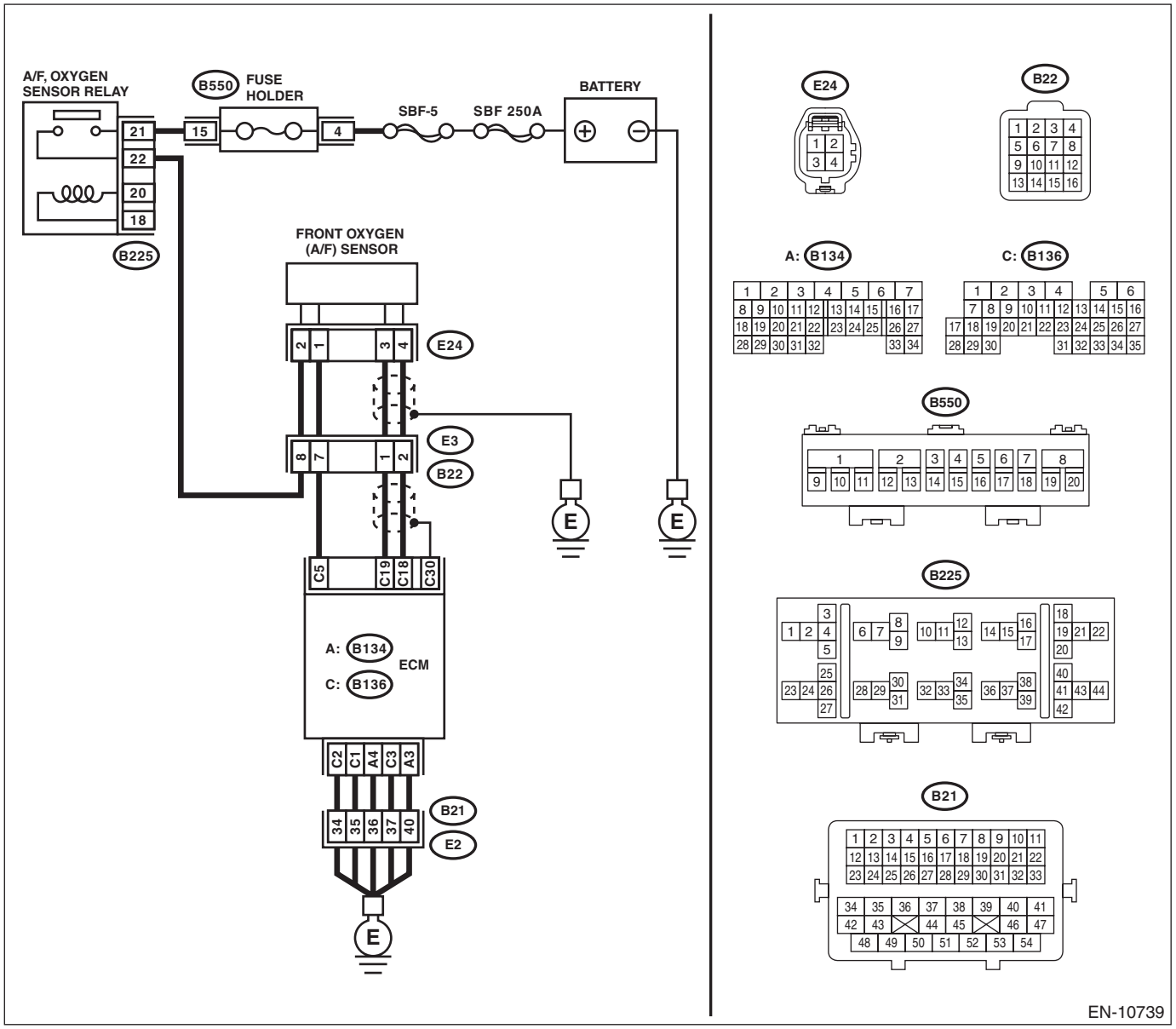
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-24, DTC P0032 HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 5 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in the harness between ECM connector and front oxygen (A/F) sensor connector.	Go to step **2**.
2	**CHECK GROUND CIRCUIT FOR ECM.** 1) Disconnect the connector from ECM. 2) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 3 — Chassis ground:*** ***(B134) No. 4 — Chassis ground:*** ***(B136) No. 1 — Chassis ground:*** ***(B136) No. 2 — Chassis ground:*** ***(B136) No. 3 — Chassis ground:***	Is the resistance less than 5 Ω?	Repair the poor contact of ECM connector.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of coupling connector

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

DTC DETECTING CONDITION:

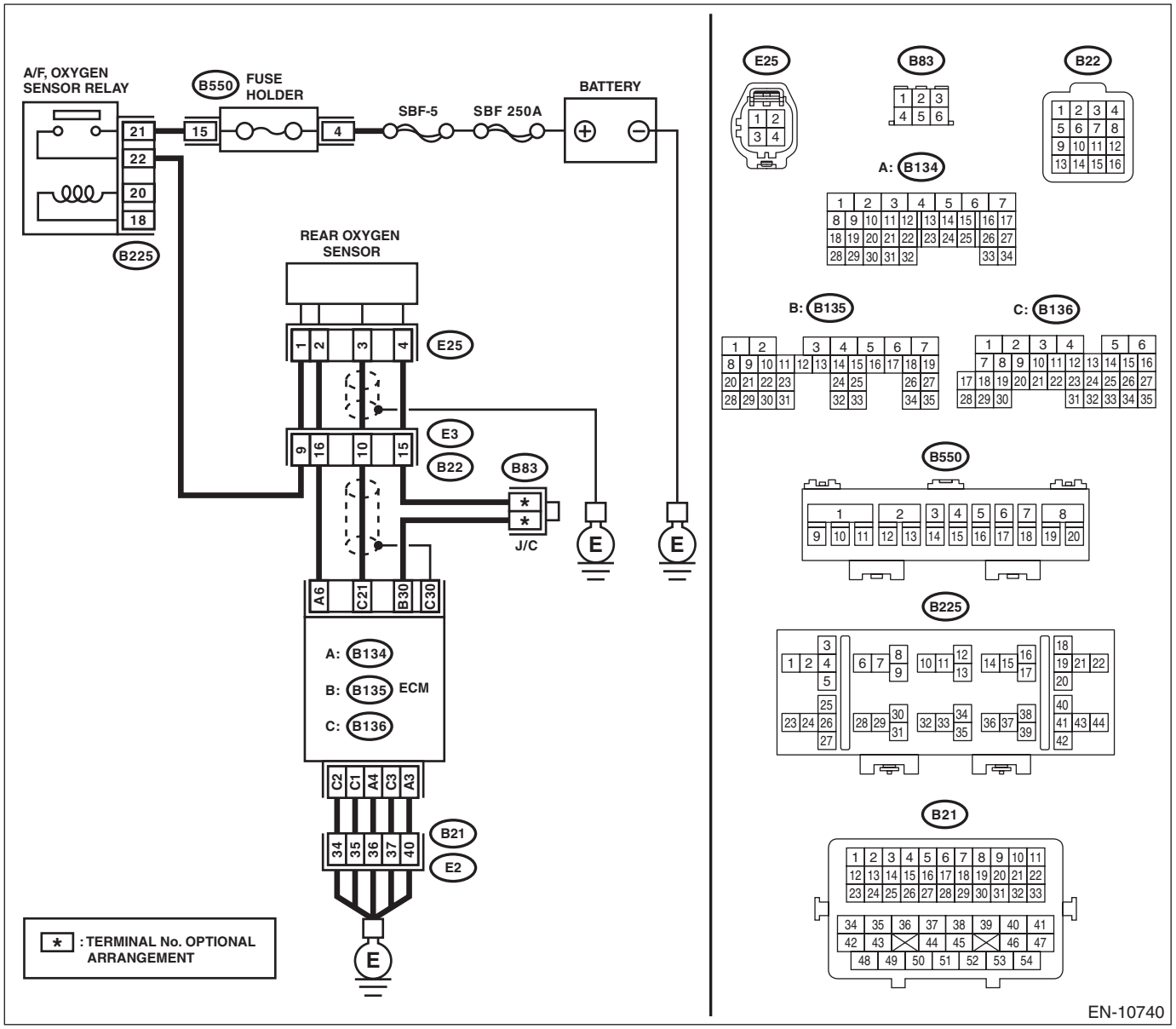
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-25, DTC P0037 HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY TO REAR OXYGEN SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from rear oxygen sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between rear oxygen sensor connector and engine ground. ***Connector & terminal*** ***(E25) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the power supply line. Or replace the main relay. NOTE: In this case, repair the following item: • Open circuit in harness between A/F, oxygen sensor relay connector and rear oxygen sensor connector • Poor contact of A/F, oxygen sensor relay connector • Poor contact of coupling connector • Malfunction of A/F, oxygen sensor relay
2	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and oxygen sensor connector. ***Connector & terminal*** ***(B134) No. 6 — (E25) No. 2:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
3	**CHECK GROUND CIRCUIT FOR ECM.** Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 3 — Chassis ground:*** ***(B134) No. 4 — Chassis ground:*** ***(B136) No. 1 — Chassis ground:*** ***(B136) No. 2 — Chassis ground:*** ***(B136) No. 3 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of coupling connector
4	**CHECK REAR OXYGEN SENSOR.** Measure the resistance between rear oxygen sensor terminals. ***Terminals*** ***No. 2 — No. 1:***	Is the resistance 5 — 6.4 Ω?	Repair the poor contact of ECM connector.	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>

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

DTC DETECTING CONDITION:

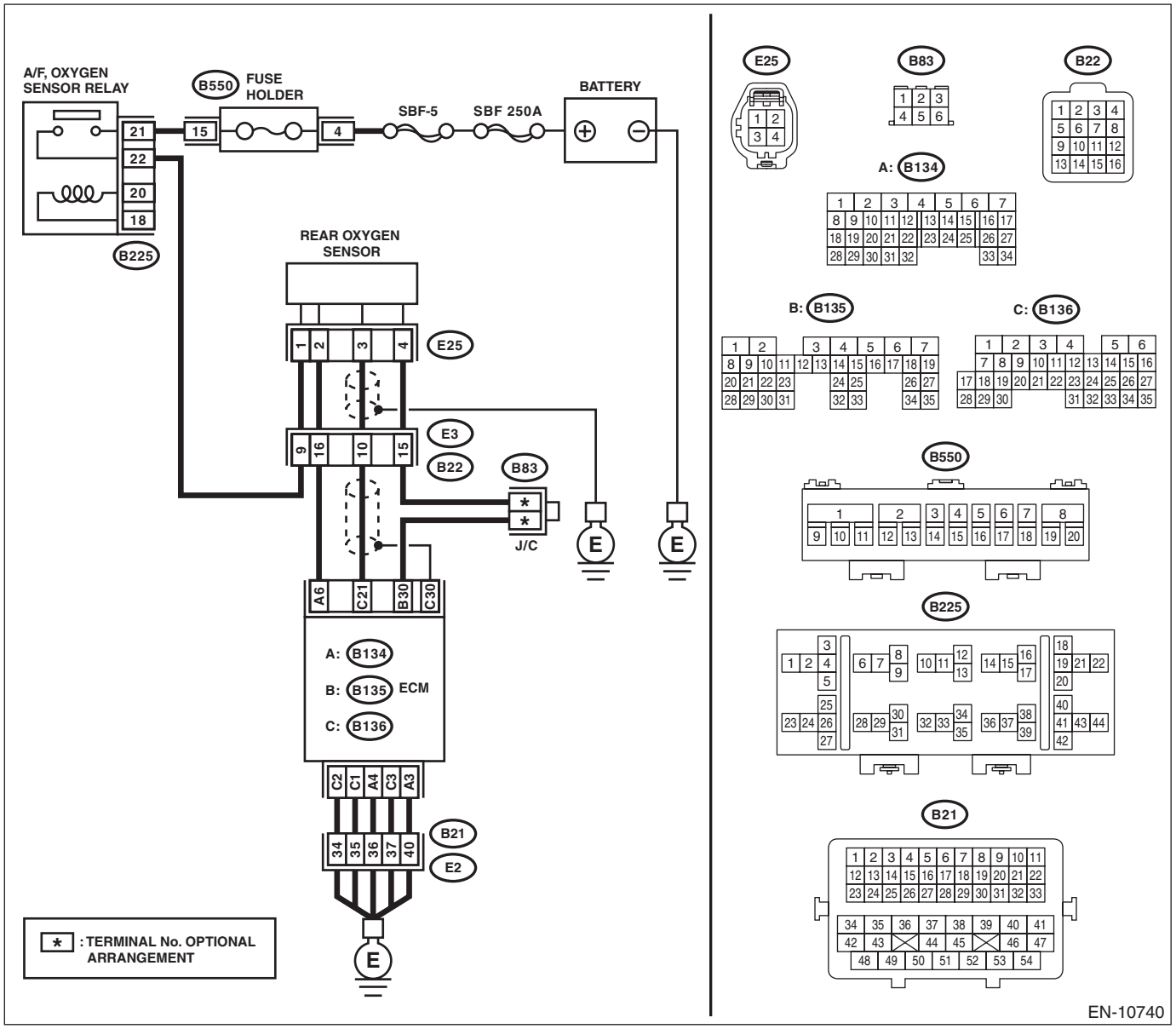
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-26, DTC P0038 HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 6 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in the harness between ECM connector and rear oxygen sensor connector.	Go to step **2**.
2	**CHECK GROUND CIRCUIT FOR ECM.** 1) Disconnect the connector from ECM. 2) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 3 — Chassis ground:*** ***(B134) No. 4 — Chassis ground:*** ***(B136) No. 1 — Chassis ground:*** ***(B136) No. 2 — Chassis ground:*** ***(B136) No. 3 — Chassis ground:***	Is the resistance less than 5 Ω?	Repair the poor contact of ECM connector.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of coupling connector

V: DTC P0068 MAP/MAF - THROTTLE POSITION CORRELATION

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-27, DTC P0068 MAP/MAF - THROTTLE POSITION CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair the air intake system.	Go to step **2**.
2	**CHECK MANIFOLD ABSOLUTE PRESSURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in “P” range or “N” range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the value of «Mani. Absolute Pressure» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the “General Scan Tool Instruction Manual”.	Is the value in «Mani. Absolute Pressure» 73.3 — 106.6 kPa (550 — 800 mmHg, 21.65 — 31.50 inHg) when the ignition is turned ON, and 20.0 — 46.7 kPa (150 — 350 mmHg, 5.91 — 13.78 inHg) during idling?	Go to step **3**.	Replace the manifold absolute pressure sensor. <Ref. to FU(H4DO(HEV))-66, Manifold Absolute Pressure Sensor.>
3	**CHECK THROTTLE OPENING ANGLE.** Using the Subaru Select Monitor or a general scan tool, read the value in «Throttle Opening Angle». NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the “General Scan Tool Instruction Manual”.	Is the value in «Throttle Opening Angle» with the throttle fully closed less than 5%?	Go to step **4**.	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>
4	**CHECK THROTTLE OPENING ANGLE.**	Is the value in «Throttle Opening Angle» with the throttle fully open 85% or more?	Replace the manifold absolute pressure sensor. <Ref. to FU(H4DO(HEV))-66, Manifold Absolute Pressure Sensor.>	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>

W: DTC P0071 AMBIENT TEMPERATURE SENSOR CIRCUIT "A" RANGE/PERFORMANCE

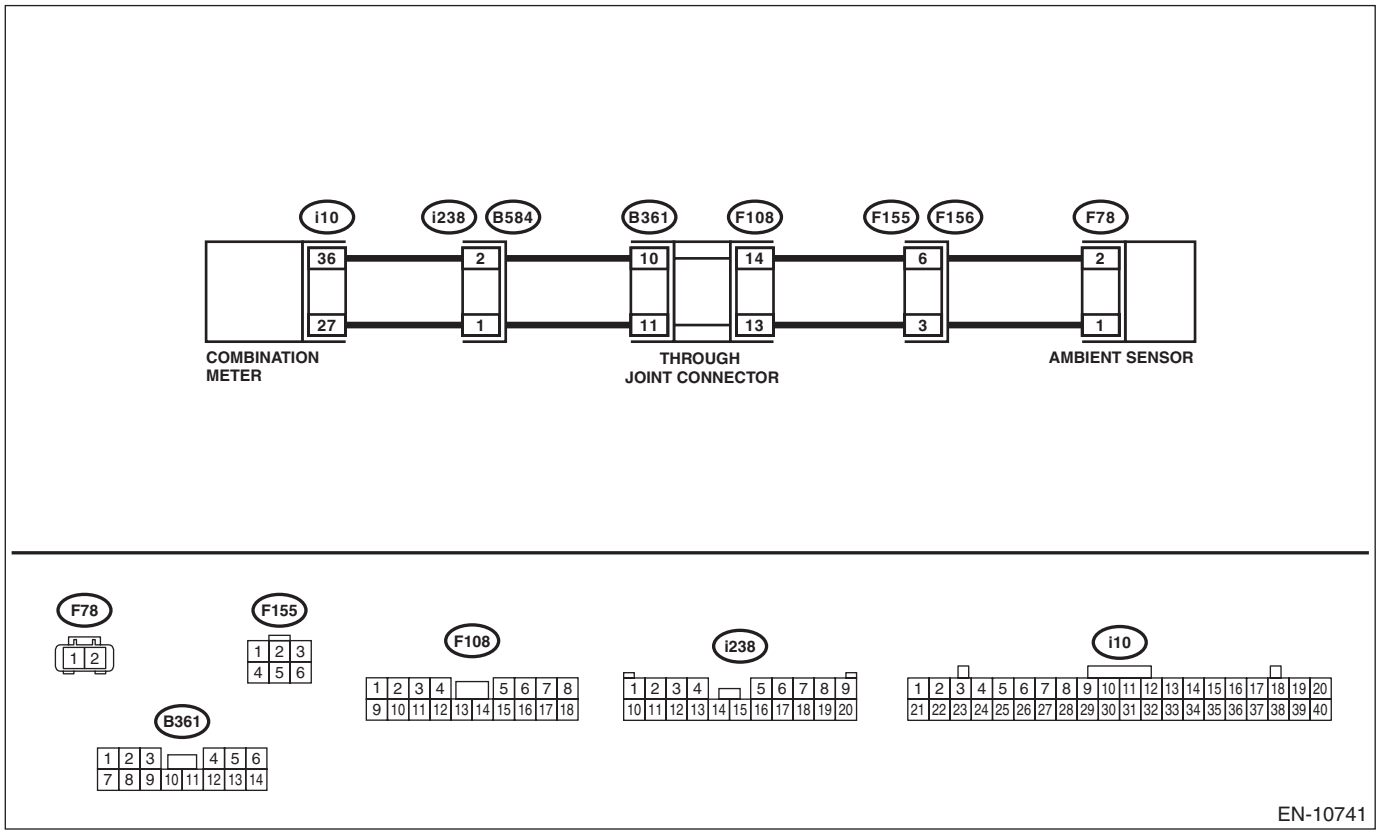
DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-29, DTC P0071 AMBIENT TEMPERATURE SENSOR CIRCUIT "A" RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Air conditioning system <Ref. to WI(HEV)-56, WIRING DIAGRAM, Air Conditioning System.>



Step	Check	Yes	No
1 **CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK AMBIENT SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ambient sensor. 3) Measure the resistance between ambient sensor terminals while heating and cooling the ambient sensor using a hair drier. **CAUTION:** **Do not heat the part to the temperature where you cannot touch it with your bare hand in order to prevent burning yourself and protect the part.** ***Terminals*** ***No. 1 — No. 2:***	Is the resistance of ambient sensor different between during heating and during cooling?	Repair the poor contact of ECM connector.	Replace the ambient sensor. <Ref. to AC-77, Ambient Sensor.>

X: DTC P0072 AMBIENT TEMPERATURE SENSOR CIRCUIT "A" LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-31, DTC P0072 AMBIENT TEMPERATURE SENSOR CIRCUIT "A" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK DTC.** Check for DTC. <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).>	Is DTC P0072 or P0073 displayed in «Present fault»?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK COMBINATION METER.** Check the combination meter system. <Ref. to IDI(diag)-2, Basic Diagnostic Procedure.>	Is combination meter system OK?	Replace the ambient sensor. <Ref. to AC-77, Ambient Sensor.>	Repair the combination meter system. <Ref. to IDI(diag)-2, Basic Diagnostic Procedure.>

Y: DTC P0073 AMBIENT TEMPERATURE SENSOR CIRCUIT "A" HIGH

NOTE:
For the diagnostic procedure, refer to DTC P0072. <Ref. to EN(H4DO HEV)(diag)-138, DTC P0072 AMBIENT TEMPERATURE SENSOR CIRCUIT "A" LOW, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-33, DTC P0101 MASS OR VOLUME AIR FLOW CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

AA:DTC P0102 MASS OR VOLUME AIR FLOW CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-35, DTC P0102 MASS OR VOLUME AIR FLOW CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

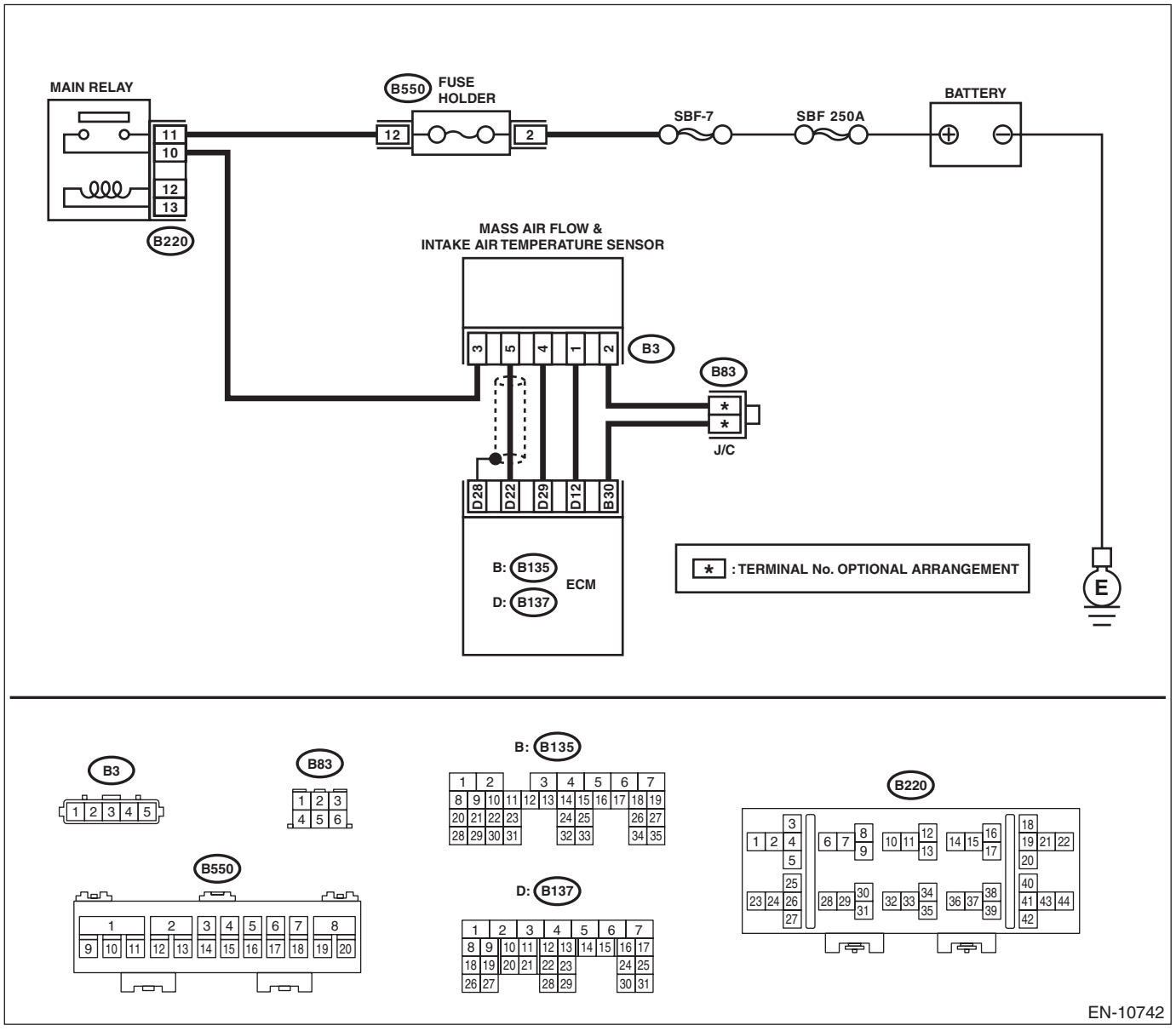
- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Air Flow Sensor Voltage» using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Air Flow Sensor Voltage» less than 0.2 V?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK POWER SUPPLY OF MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the mass air flow and intake air temperature sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between mass air flow and intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(B3) No. 3 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between main relay and mass air flow and intake air temperature sensor connector • Poor contact of main relay connector
3	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance of harness between ECM connector and the mass air flow and intake air temperature sensor connector. ***Connector & terminal*** ***(B137) No. 22 — (B3) No. 5:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the open circuit of harness between ECM connector and the mass air flow and intake air temperature sensor connector.
4	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR CONNECTOR.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 22 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the ground short circuit of harness between ECM connector and the mass air flow and intake air temperature sensor connector.
5	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM and mass air flow and intake air temperature sensor connector.	Is there poor contact of ECM or mass air flow and intake air temperature sensor connector?	Repair the poor contact of ECM or mass air flow and intake air temperature sensor connector.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

AB:DTC P0103 MASS OR VOLUME AIR FLOW CIRCUIT HIGH INPUT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-36, DTC P0103 MASS OR VOLUME AIR FLOW CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

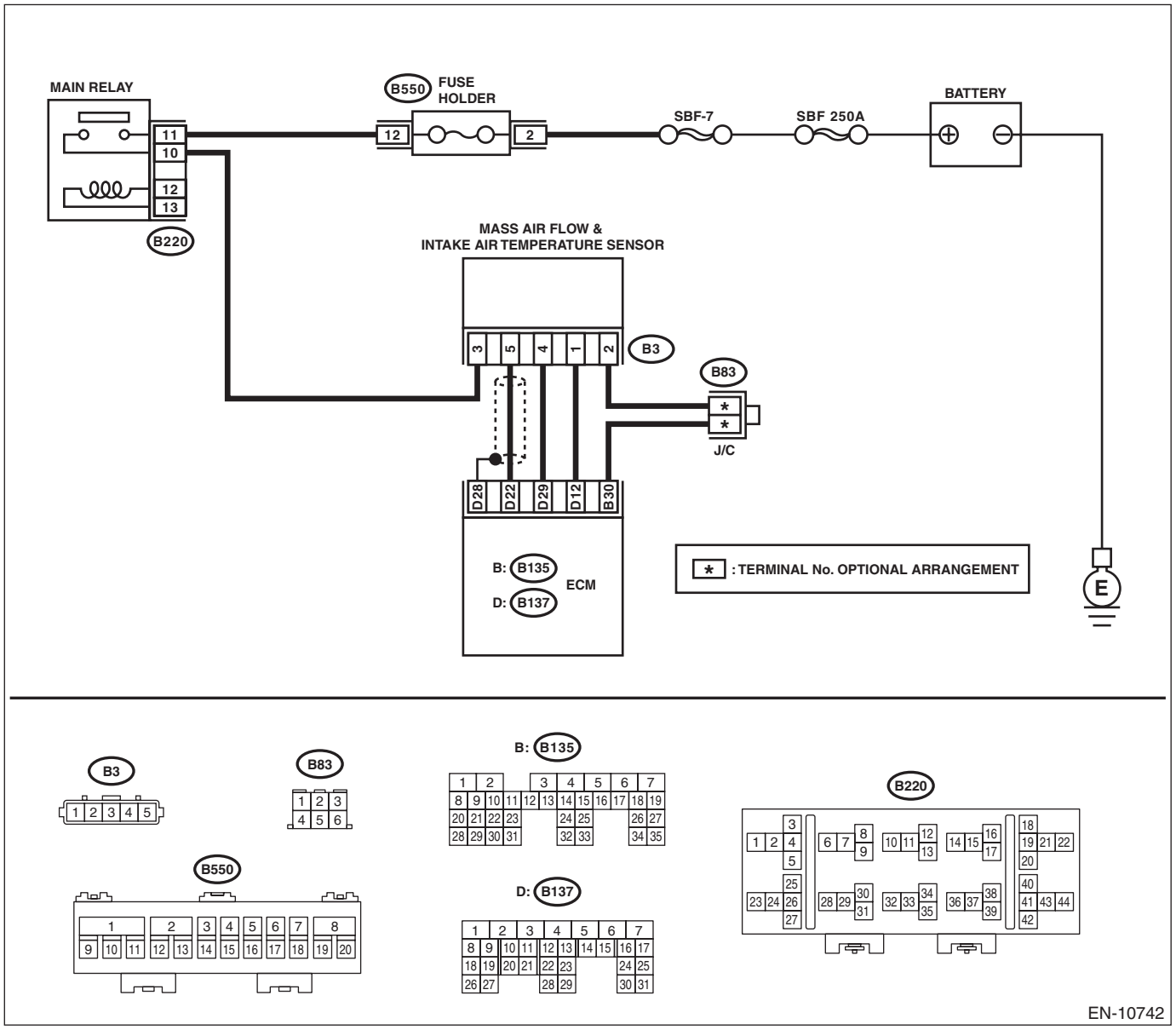
TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Air Flow Sensor Voltage» using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Air Flow Sensor Voltage» 5 V or more?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the mass air flow and intake air temperature sensor. 3) Start the engine. 4) Read the value of «Air Flow Sensor Voltage» using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Air Flow Sensor Voltage» 5 V or more?	Repair the short circuit of harness to power supply between ECM connector and the mass air flow and intake air temperature sensor connector.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between mass air flow and intake air temperature sensor connector and engine ground. ***Connector & terminal*** ***(B3) No. 4 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the mass air flow and intake air temperature sensor connector • Poor contact of ECM connector
4	**CHECK FOR POOR CONTACT.** Check for poor contact of mass air flow and intake air temperature sensor connector.	Is there poor contact of mass air flow and intake air temperature sensor connector?	Repair the poor contact of mass air flow and intake air temperature sensor connector.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

AC:DTC P0107 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

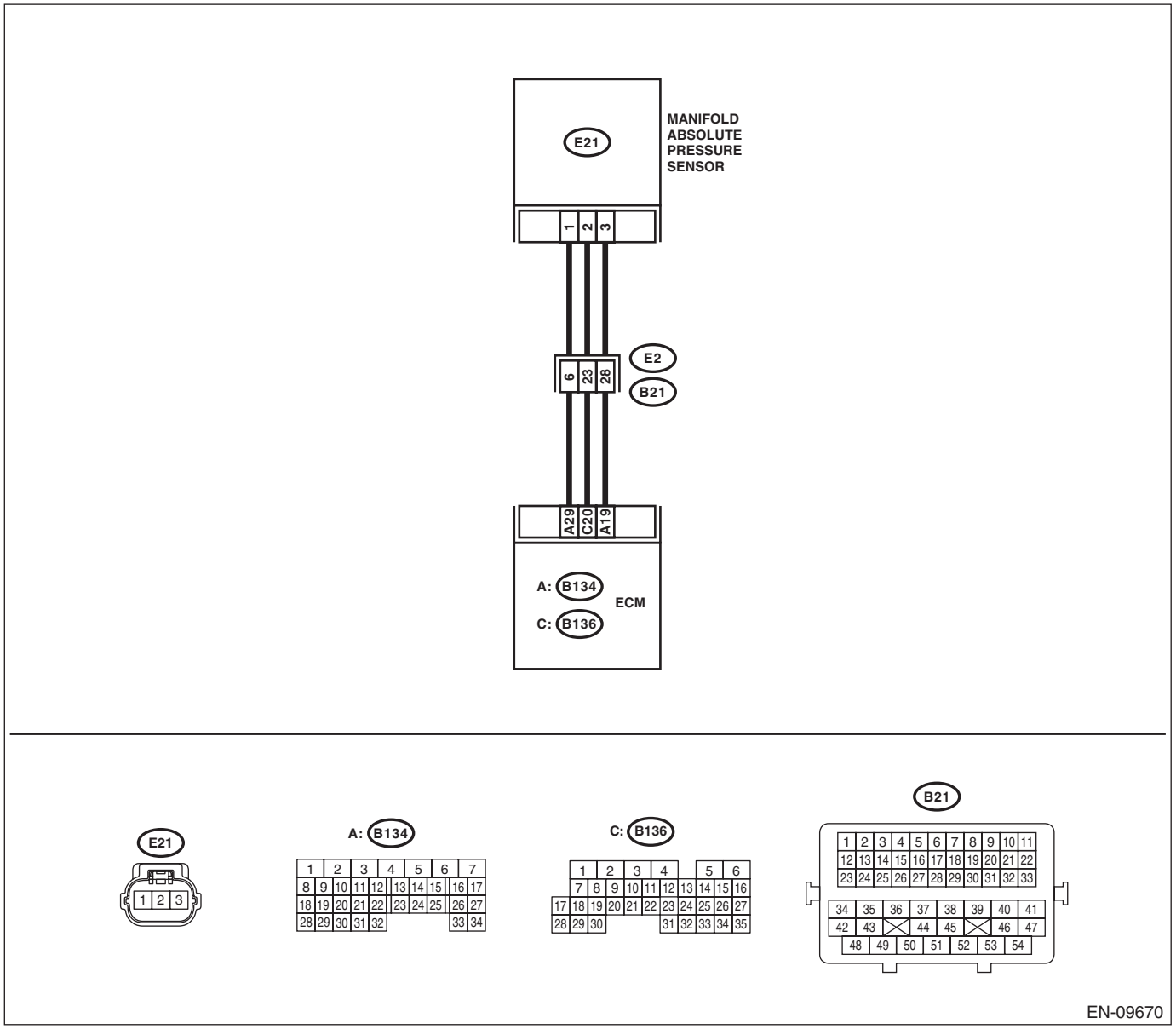
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-37, DTC P0107 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



EN-09670

	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Mani. Absolute Pressure» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".	Is the value of «Mani. Absolute Pressure» less than 13.3 kPa (100 mmHg, 3.94 inHg)?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK POWER SUPPLY OF MANIFOLD ABSOLUTE PRESSURE SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from manifold absolute pressure sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between manifold absolute pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 3 (+) — Engine ground (–):***	Is the voltage 4.5 V or more?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and manifold absolute pressure sensor connector • Poor contact of ECM connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance of harness between ECM connector and manifold absolute pressure sensor connector. ***Connector & terminal*** ***(B136) No. 20 — (E21) No. 2:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and manifold absolute pressure sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 20 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair short circuit to ground in harness between ECM connector and manifold absolute pressure sensor connector.
5	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM and manifold absolute pressure sensor connector.	Is there poor contact of ECM or manifold absolute pressure sensor connector?	Repair the poor contact of ECM or manifold absolute pressure sensor connector.	Replace the manifold absolute pressure sensor. <Ref. to FU(H4DO(HEV))-66, Manifold Absolute Pressure Sensor.>

AD:DTC P0108 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT

DTC DETECTING CONDITION:

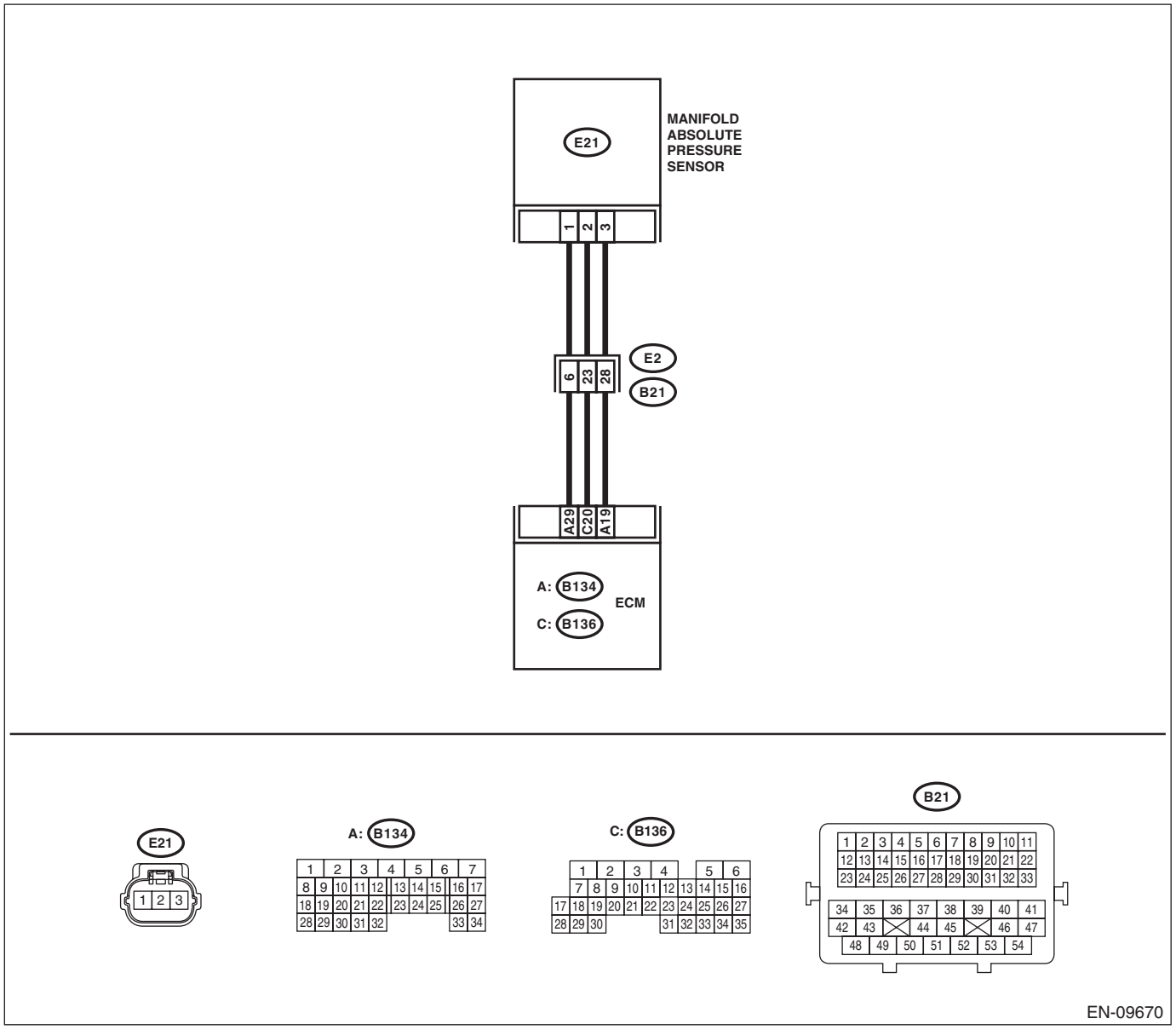
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-38, DTC P0108 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Mani. Absolute Pressure» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".	Is the value of «Mani. Absolute Pressure» 119.5 kPa (896.5 mmHg, 35.29 inHg) or more?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from manifold absolute pressure sensor. 3) Start the engine. 4) Read the value of «Mani. Absolute Pressure» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".	Is the value of «Mani. Absolute Pressure» 119.5 kPa (896.5 mmHg, 35.29 inHg) or more?	Repair the short circuit to power in harness between ECM connector and manifold absolute pressure sensor connector.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between manifold absolute pressure sensor connector and engine ground. ***Connector & terminal*** ***(E21) No. 1 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and manifold absolute pressure sensor connector • Poor contact of ECM connector • Poor contact of coupling connector
4	**CHECK FOR POOR CONTACT.** Check for poor contact of manifold absolute pressure sensor connector.	Is there poor contact of manifold absolute pressure sensor connector?	Repair the poor contact of manifold absolute pressure sensor connector.	Replace the manifold absolute pressure sensor. <Ref. to FU(H4DO(HEV))-66, Manifold Absolute Pressure Sensor.>

AE:DTC P0111 INTAKE AIR TEMPERATURE SENSOR RANGE/PERFORMANCE PROBLEM

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-39, DTC P0111 INTAKE AIR TEMPERATURE SENSOR RANGE/PERFORMANCE PROBLEM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

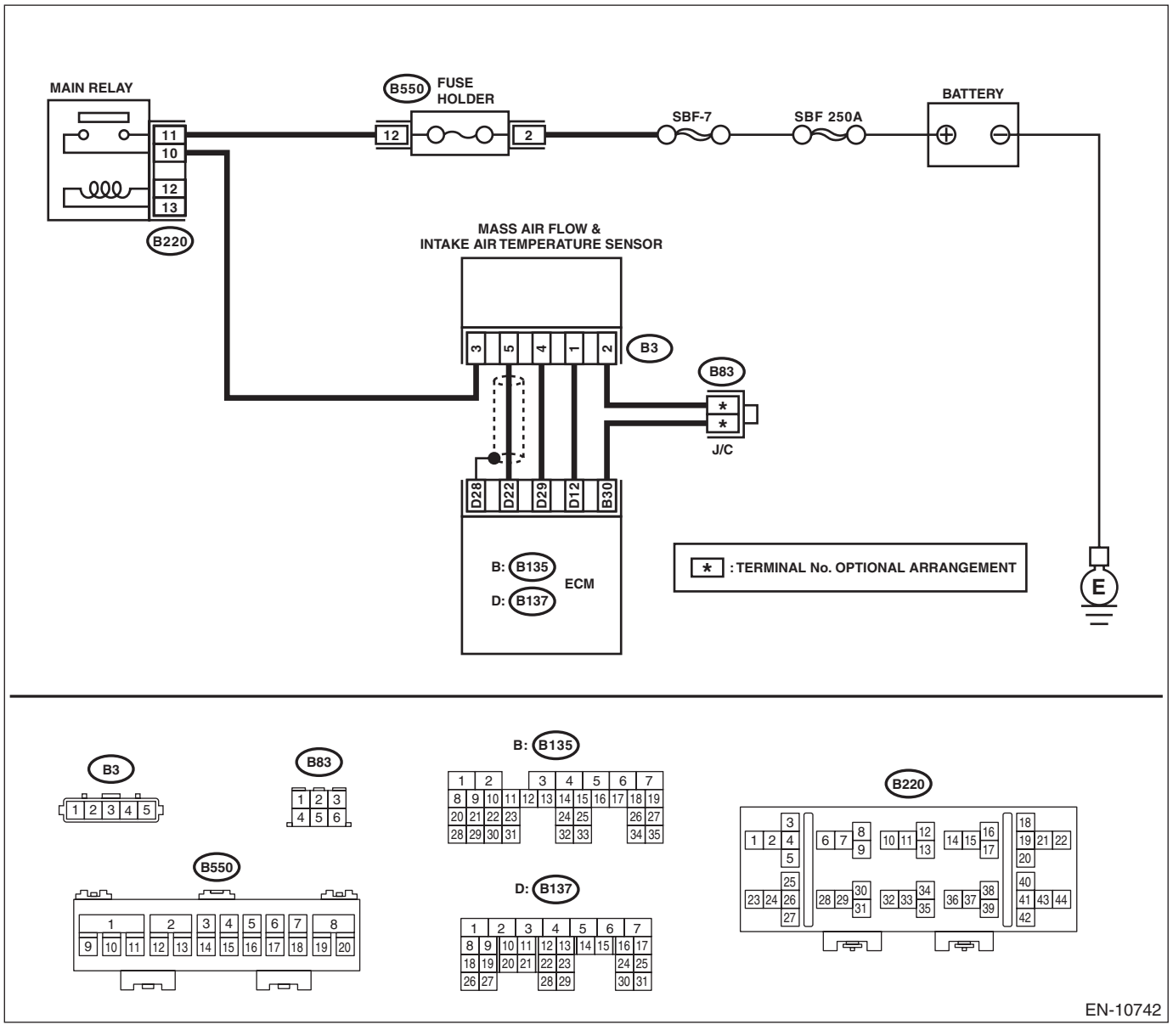
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Disconnect the connectors from the mass air flow and intake air temperature sensor. 2) Measure the resistance between mass air flow and intake air temperature sensor terminals when the engine coolant is cold and after warmed up. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance of mass air flow and intake air temperature sensor different between when engine coolant is cold and after warmed up?	Repair the poor contact of ECM connector.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

AF:DTC P0112 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-42, DTC P0112 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

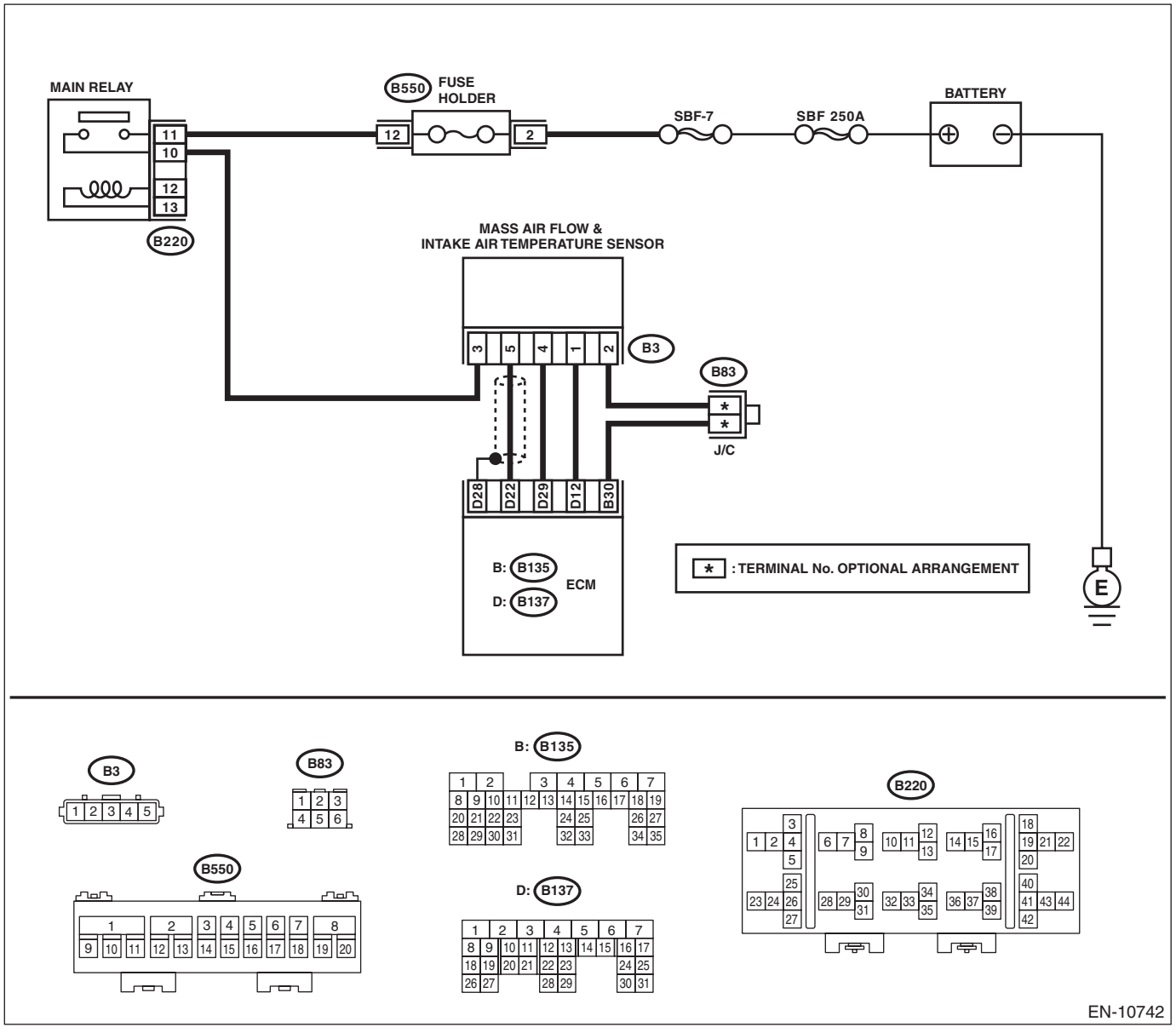
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Intake Air Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Intake Air Temp.» 120°C (248°F) or more?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and the mass air flow and intake air temperature sensor. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 12 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>	Repair the ground short circuit of harness between ECM connector and the mass air flow and intake air temperature sensor connector.

AG:DTC P0113 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT HIGH

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-43, DTC P0113 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

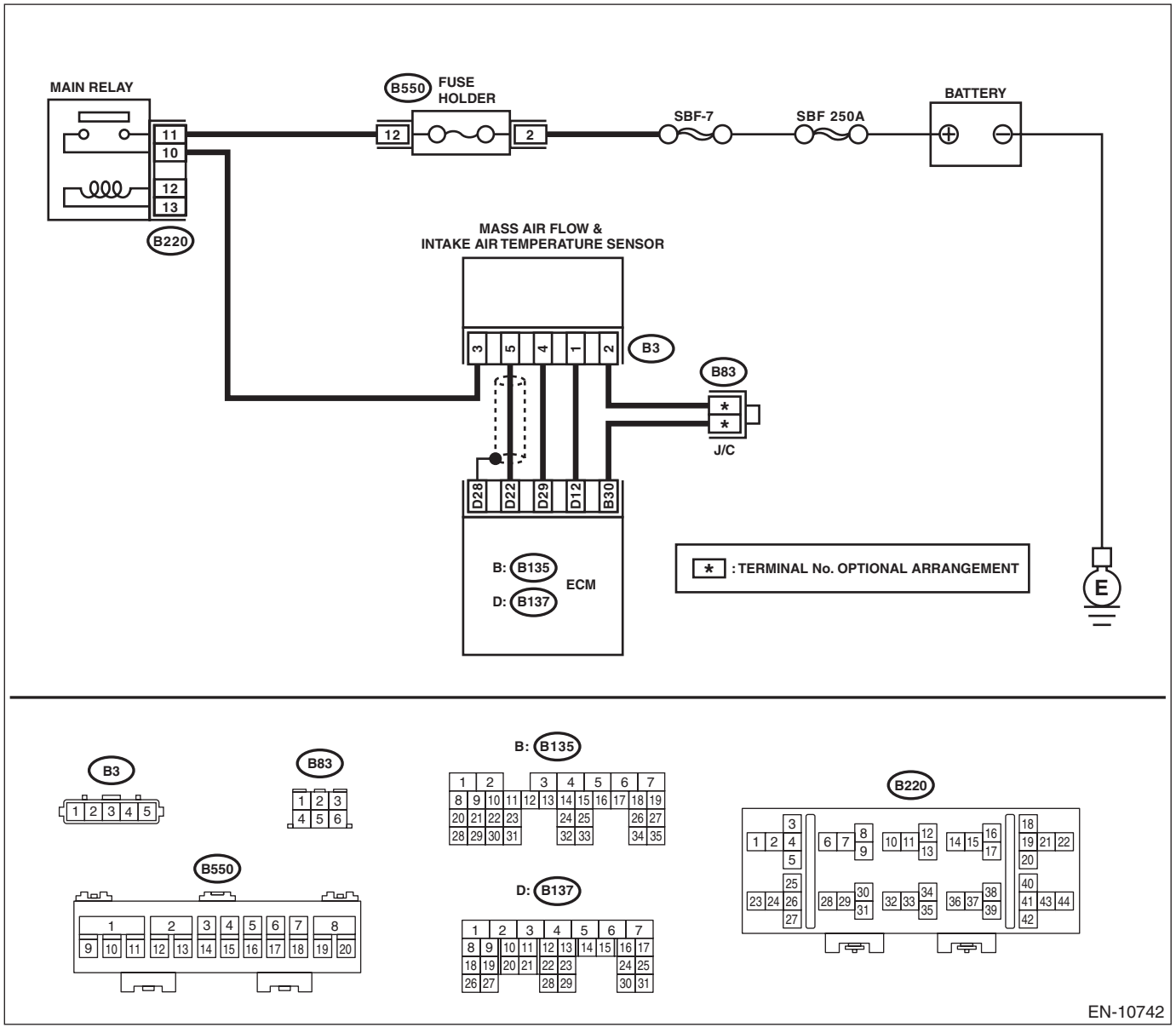
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Intake Air Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Intake Air Temp.» –40°C (–40°F) or less?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM and mass air flow and intake air temperature sensor connector.	Is there poor contact of ECM or mass air flow and intake air temperature sensor connector?	Repair the poor contact of ECM or mass air flow and intake air temperature sensor connector.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and the mass air flow and intake air temperature sensor. 3) Measure the resistance of harness between ECM connector and the mass air flow and intake air temperature sensor connector. ***Connector & terminal*** ***(B137) No. 12 — (B3) No. 1:*** ***(B135) No. 30 — (B3) No. 2:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the mass air flow and intake air temperature sensor connector • Poor contact of joint connector
4	**CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR CONNECTOR.** 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 12 (+) — Chassis ground (–):***	Is the voltage 5 V or more?	Repair the short circuit of harness to power supply between ECM connector and the mass air flow and intake air temperature sensor connector.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

AH:DTC P0116 ENGINE COOLANT TEMPERATURE SENSOR 1 CIRCUIT RANGE/PERFORMANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-44, DTC P0116 ENGINE COOLANT TEMPERATURE SENSOR 1 CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

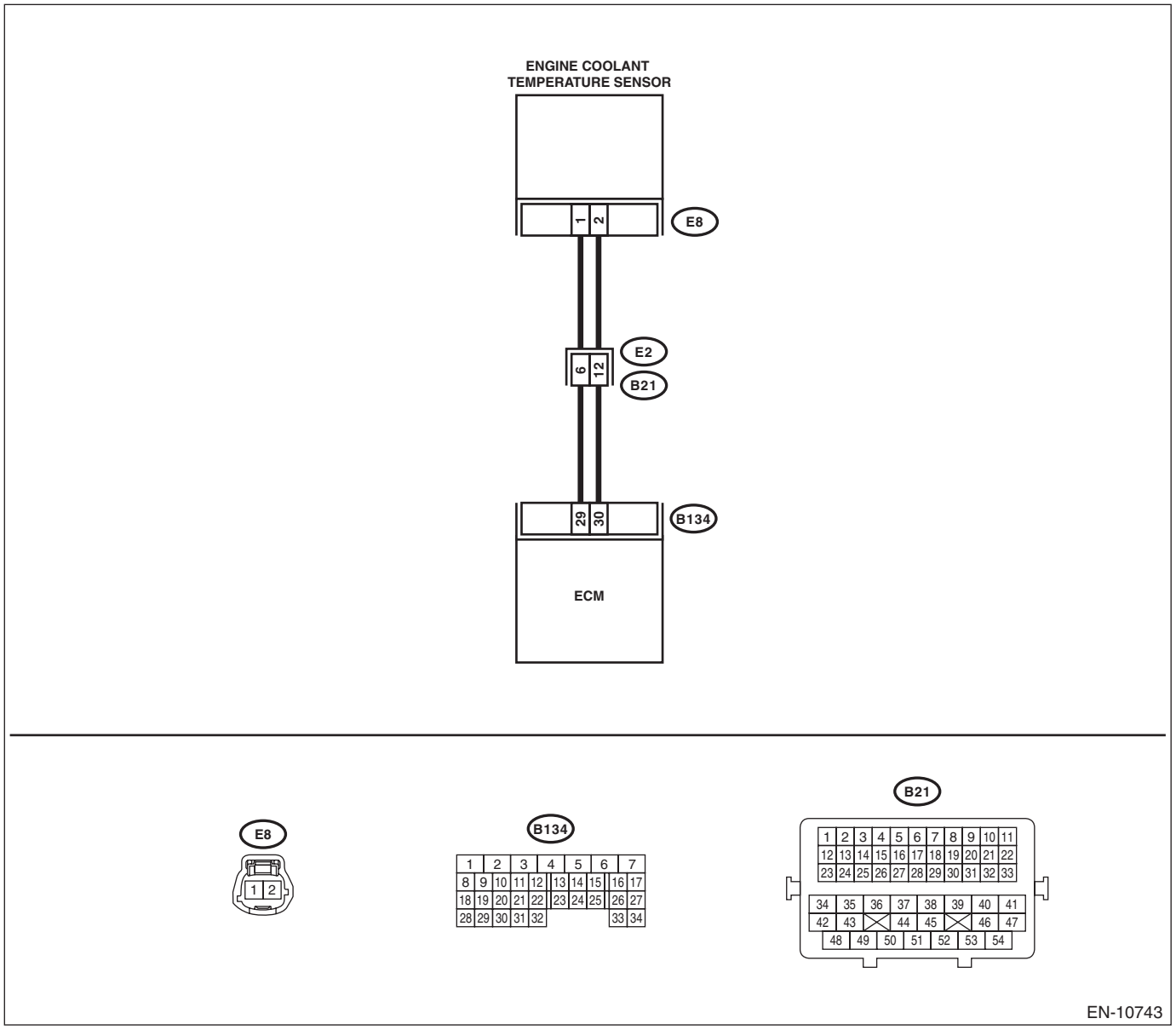
- Hard to start
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Disconnect the connectors from the engine coolant temperature sensor. 2) Measure the resistance between engine coolant temperature sensor terminals when the engine coolant is cold and after warmed up. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance of engine coolant temperature sensor different between when engine coolant is cold and after warmed up?	Repair the poor contact of ECM connector.	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>

AI: DTC P0117 ENGINE COOLANT TEMPERATURE CIRCUIT LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-46, DTC P0117 ENGINE COOLANT TEMPERATURE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

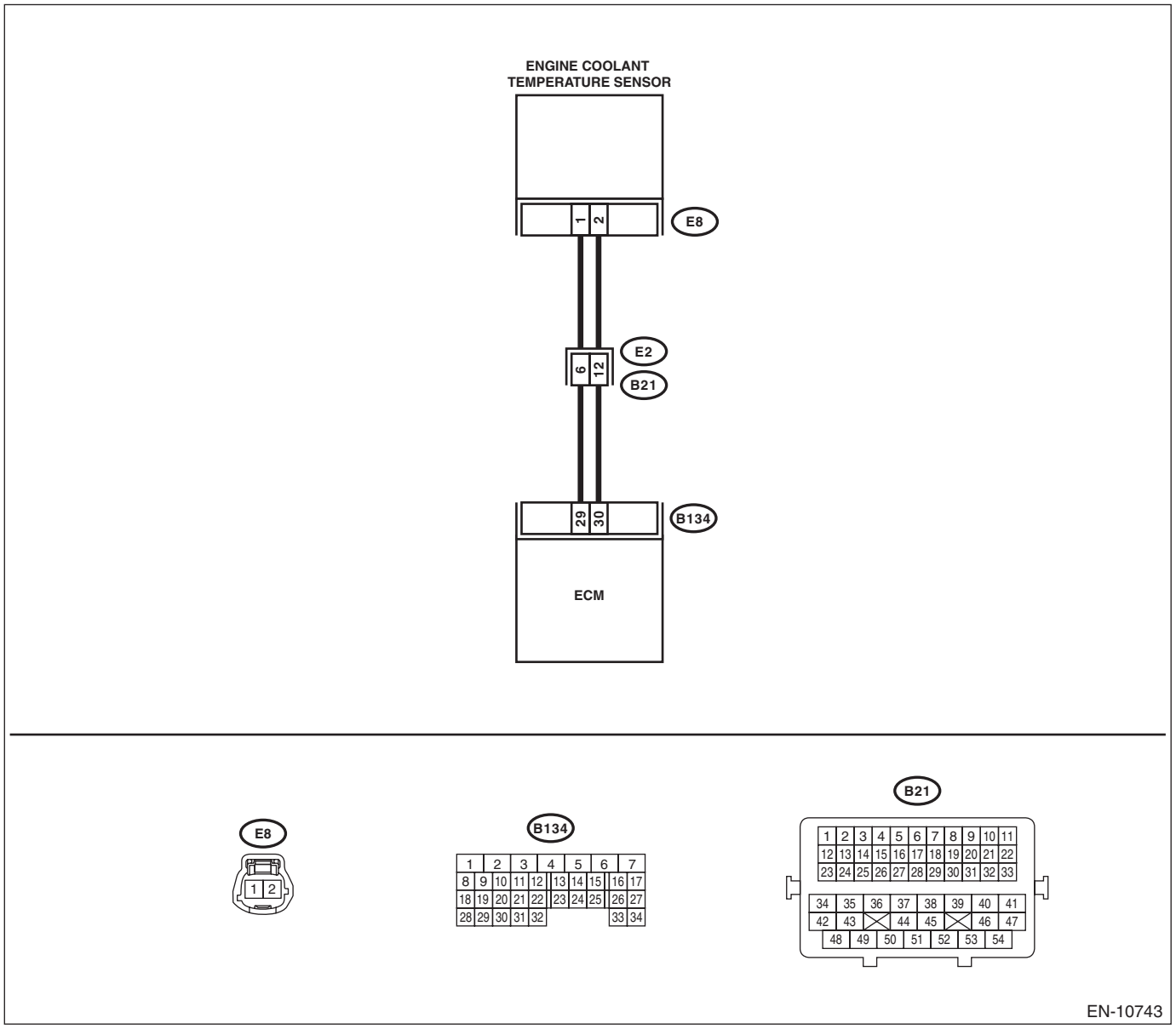
TROUBLE SYMPTOM:

- Hard to start
- Improper idling
- Poor driving performance

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Coolant Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Coolant Temp.» 120°C (248°F) or more?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK HARNESS BETWEEN ECM AND ENGINE COOLANT TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and engine coolant temperature sensor. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 30 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>	Repair the short circuit to ground in harness between ECM connector and engine coolant temperature sensor connector.

AJ:DTC P0118 ENGINE COOLANT TEMPERATURE CIRCUIT HIGH

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-47, DTC P0118 ENGINE COOLANT TEMPERATURE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

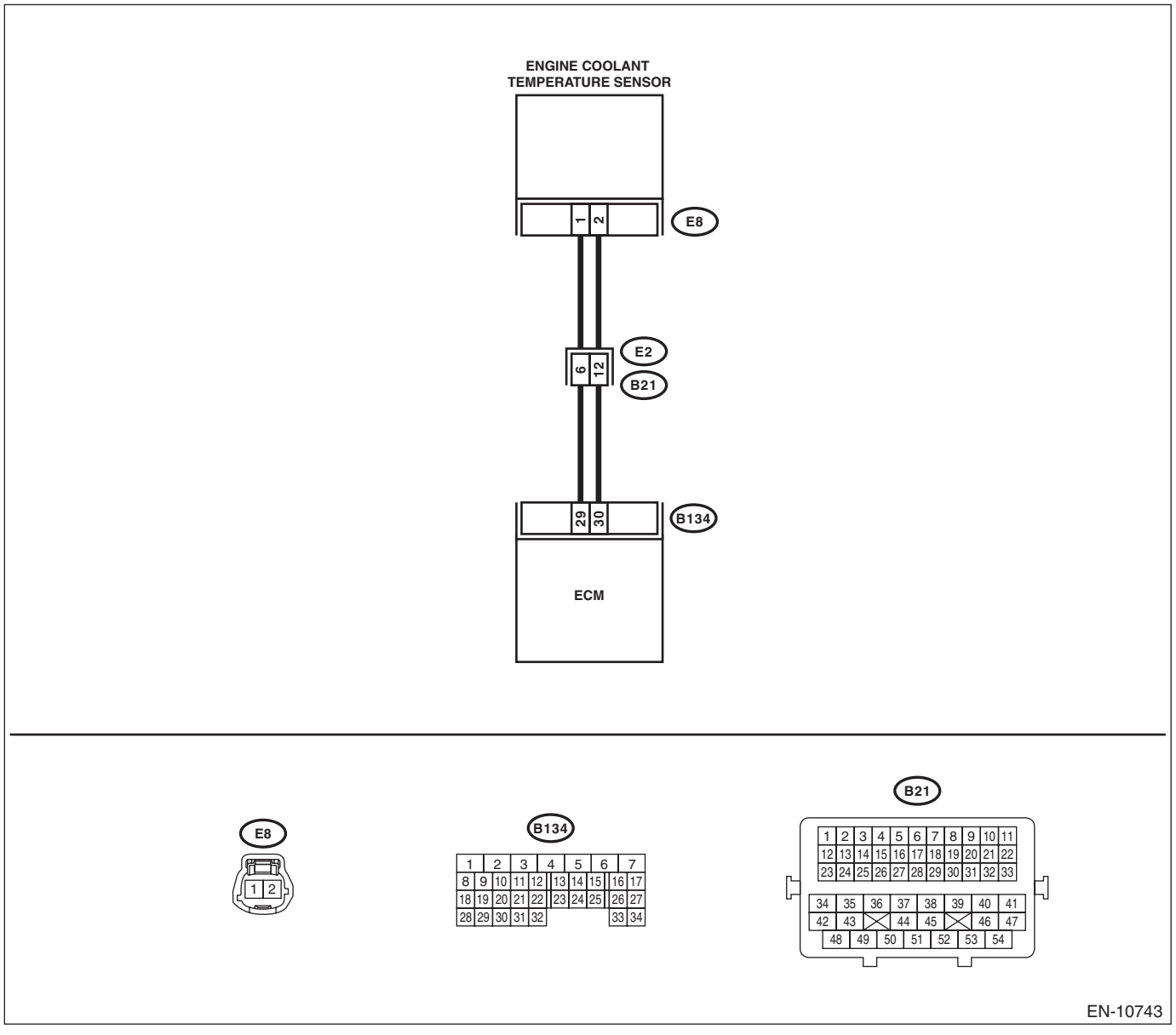
TROUBLE SYMPTOM:

- Hard to start
- Improper idling
- Poor driving performance

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Coolant Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Coolant Temp.» –40°C (–40°F) or less?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM and engine coolant temperature sensor connector.	Is there poor contact of ECM or engine coolant temperature sensor connector?	Repair the poor contact of ECM or engine coolant temperature sensor connector.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND ENGINE COOLANT TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and engine coolant temperature sensor. 3) Measure the resistance of harness between ECM connector and engine coolant temperature sensor connector. ***Connector & terminal*** ***(B134) No. 29 — (E8) No. 1:*** ***(B134) No. 30 — (E8) No. 2:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and engine coolant temperature sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND ENGINE COOLANT TEMPERATURE SENSOR CONNECTOR.** 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 30 (+) — Chassis ground (–):***	Is the voltage 5 V or more?	Repair the short circuit of harness to power supply between ECM connector and engine coolant temperature sensor connector.	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>

AK:DTC P0122 THROTTLE/PEDAL POSITION SENSOR/SWITCH “A” CIRCUIT LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-48, DTC P0122 THROTTLE/PEDAL POSITION SENSOR/SWITCH “A” CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

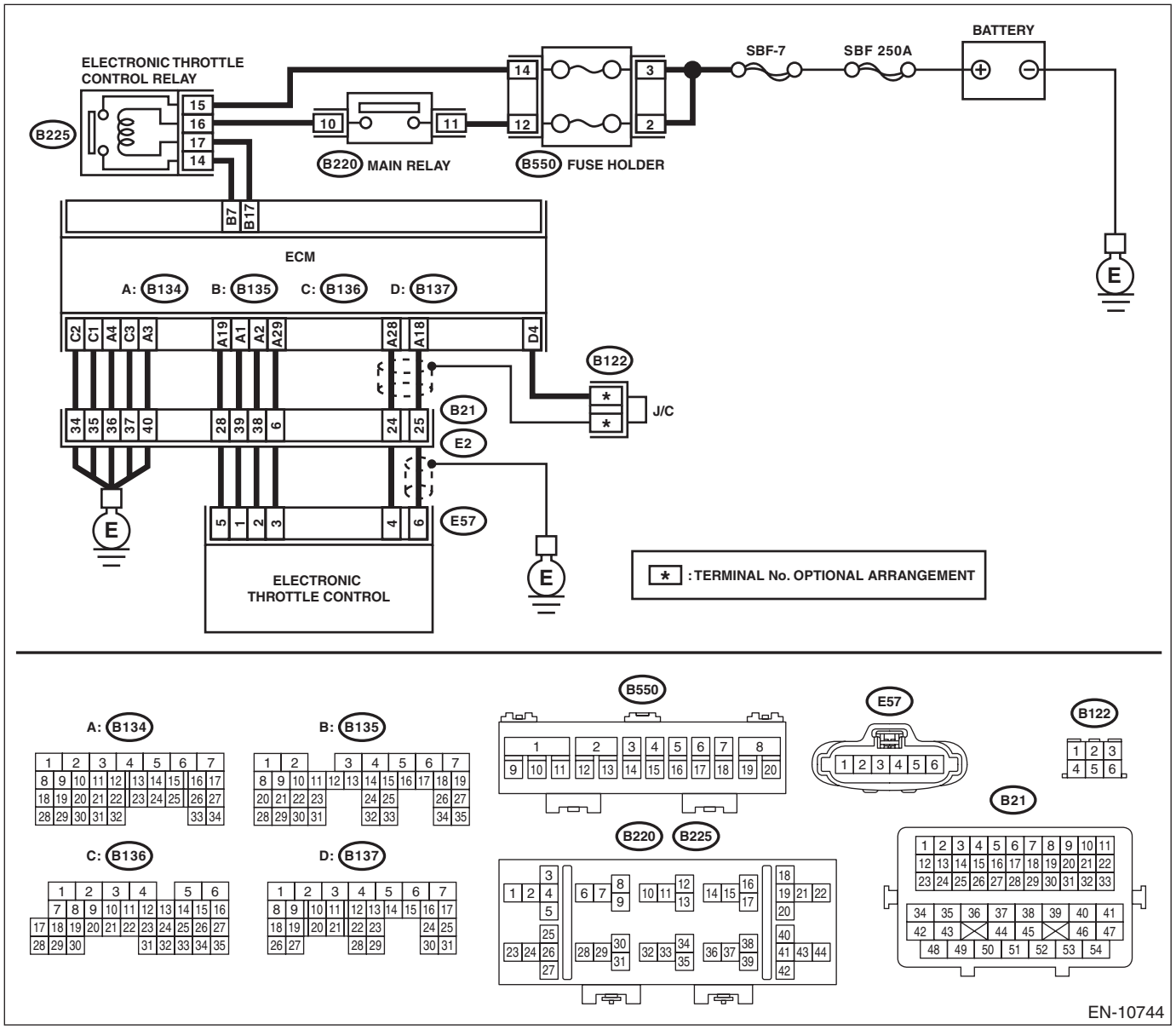
- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 19 — Chassis ground:*** ***(B134) No. 18 — Chassis ground:*** ***(B134) No. 18 — (B137) No. 4:***	Is the resistance 1 MΩ or more?	Go to step **2**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector.

Step		Check	Yes	No
2	**CHECK SHORT CIRCUIT INSIDE THE ECM.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 — Engine ground:***	Is the resistance 1 MΩ or more?	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector. Replace the ECM if defective. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>

AL:DTC P0123 THROTTLE/PEDAL POSITION SENSOR/SWITCH “A” CIRCUIT HIGH

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-49, DTC P0123 THROTTLE/PEDAL POSITION SENSOR/SWITCH “A” CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

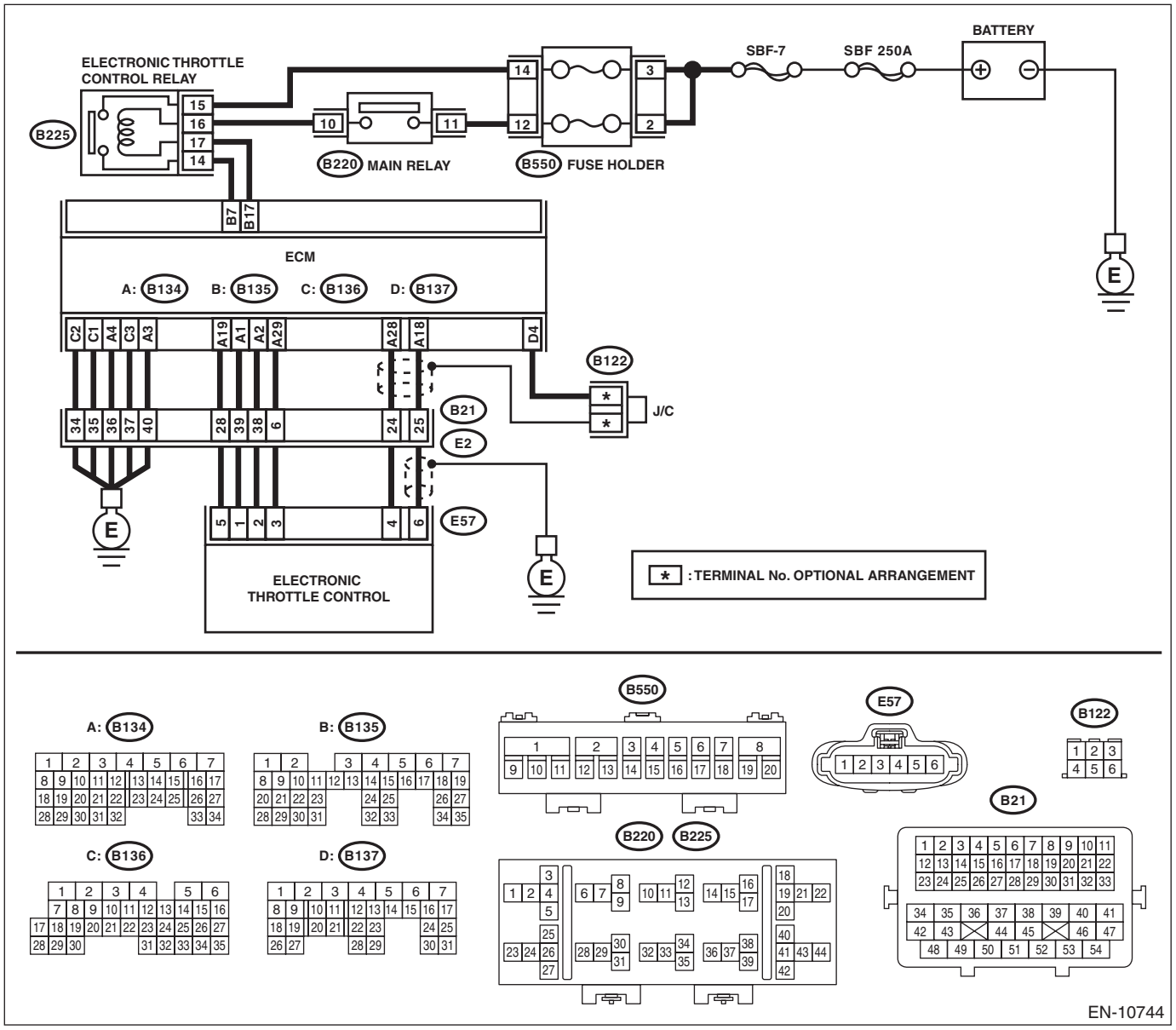
- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance of harness between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 18 — (E57) No. 6:*** ***(B134) No. 29 — (E57) No. 3:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 3 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.	Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B134) No. 19 — (B134) No. 18:***	Is the resistance 1 MΩ or more?	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.

AM:DTC P0125 INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-50, DTC P0125 INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Engine does not return to idle.

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK TIRE SIZE.**	Is the tire size as specified and the same size as three other wheels?	Go to step **2**.	Replace the tire.
2	**CHECK ENGINE COOLANT.** Check the following items: • Amount of engine coolant • Engine coolant freeze • Contamination of engine coolant	Is the engine coolant normal?	Go to step **3**.	Fill or replace the engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, REPLACEMENT, Engine Coolant.>
3	**CHECK THERMOSTAT.**	Does the thermostat remain opened?	Replace the thermostat. <Ref. to CO(H4DO(w/o HEV))-64, Thermostat.>	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>

AN:DTC P0128 COOLANT THERMOSTAT (ENGINE COOLANT TEMPERATURE BELOW THERMOSTAT REGULATING TEMPERATURE)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-51, DTC P0128 COOLANT THERMOSTAT (ENGINE COOLANT TEMPERATURE BELOW THERMOSTAT REGULATING TEMPERATURE), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Thermostat remains open.

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK ENGINE COOLANT.**	Is the engine coolant amount normal?	Go to step **3**.	Refill the engine coolant. <Ref. to CO(H4DO(w/o HEV))-16, Engine Coolant.>
3	**CHECK RADIATOR FAN.** 1) Start the engine. 2) Check the radiator fan operation.	Does the radiator fan continuously rotate for 3 minutes or more during idling?	Repair radiator fan circuit. <Ref. to CO(H4DO(w/o HEV))-89, Radiator Main Fan and Fan Motor.> and <Ref. to CO(H4DO(w/o HEV))-93, Radiator Sub Fan and Fan Motor.>	Replace the thermostat. <Ref. to CO(H4DO(w/o HEV))-64, Thermostat.>

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

DTC DETECTING CONDITION:

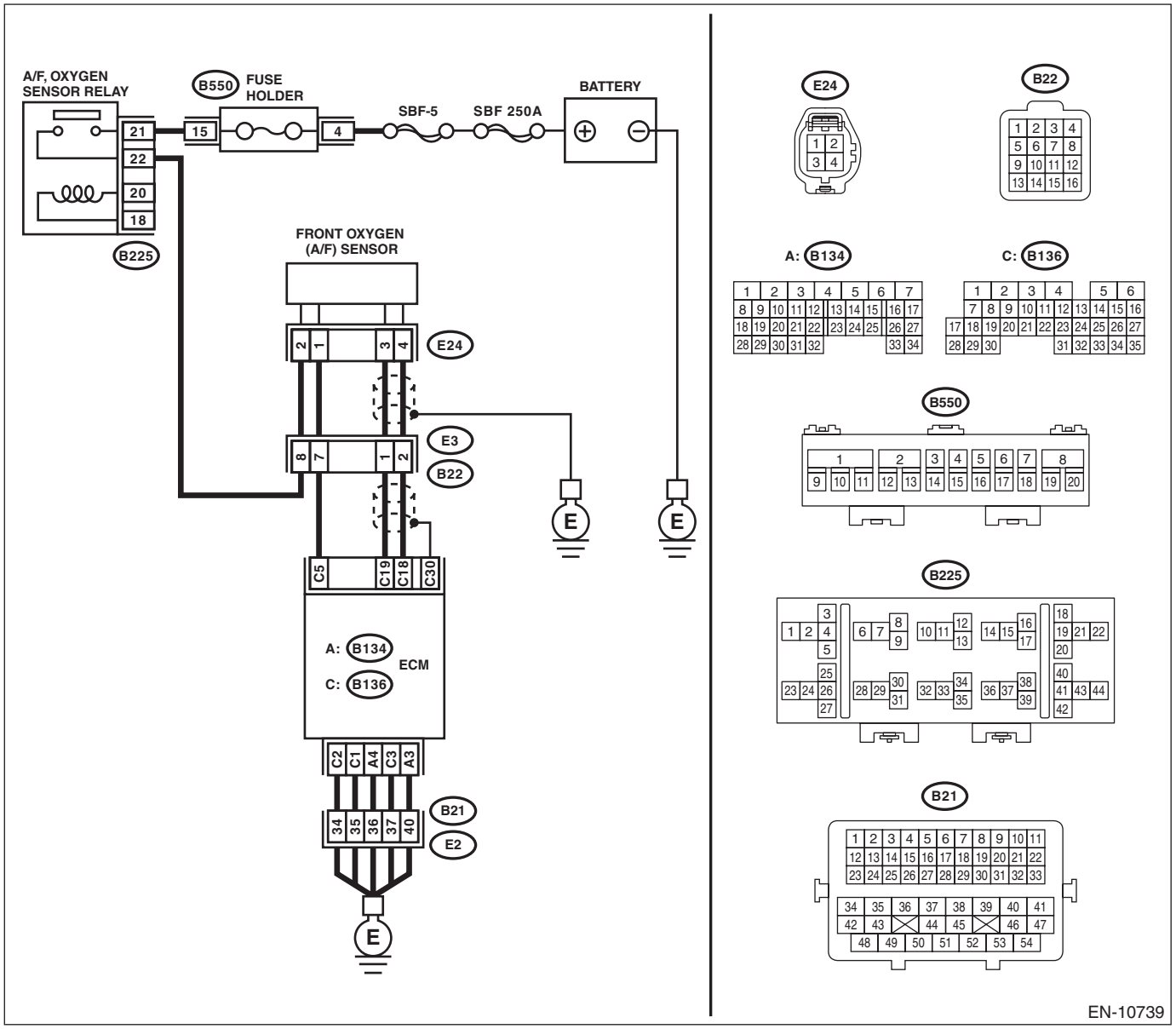
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-54, DTC P0131 O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 18 — Chassis ground:*** ***(B136) No. 19 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit to ground in harness between ECM connector and front oxygen (A/F) sensor connector.
3	**CHECK FOR POOR CONTACT.** Check for poor contact of the front oxygen (A/F) sensor connector.	Is there poor contact of front oxygen (A/F) sensor connector?	Repair the poor contact of front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>

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

DTC DETECTING CONDITION:

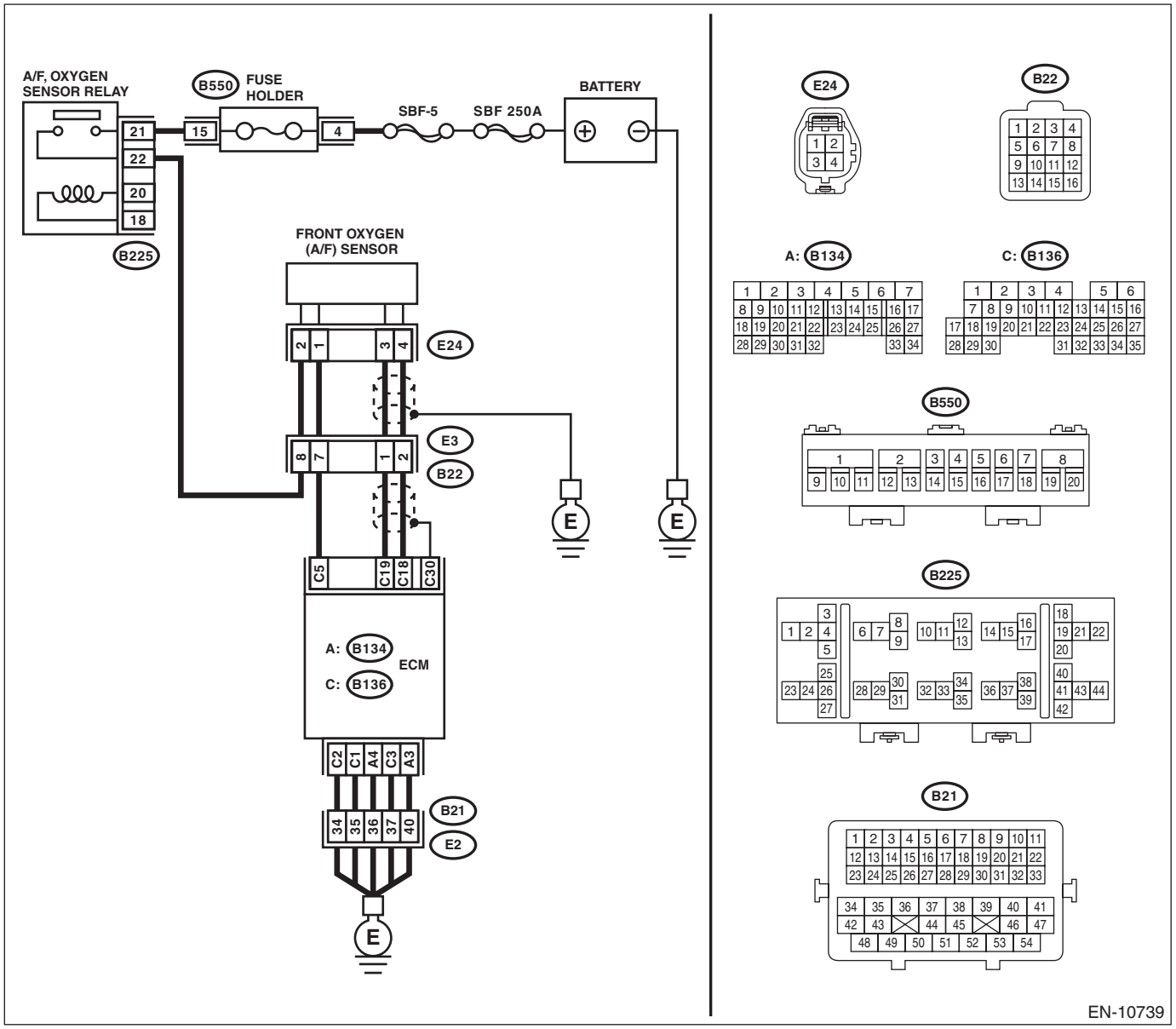
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-55, DTC P0132 O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from front oxygen (A/F) sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 18 (+) — Chassis ground (–):*** ***(B136) No. 19 (+) — Chassis ground (–):***	Is the voltage 8 V or more?	Repair the short circuit to power in the harness between ECM connector and front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>

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

DTC DETECTING CONDITION:

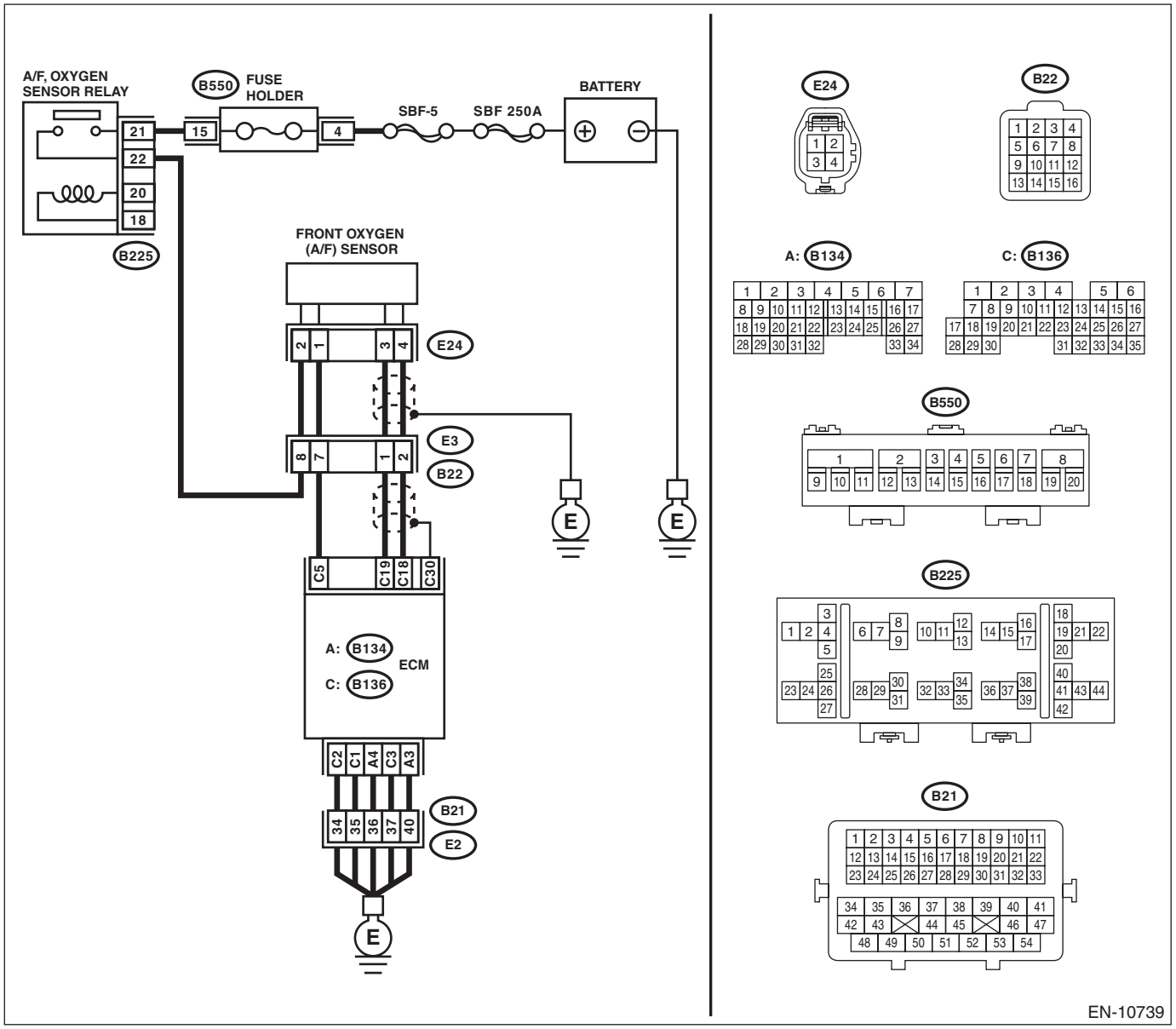
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-56, DTC P0134 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 3) Measure the resistance of harness between ECM connector and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 19 — (E24) No. 3:*** ***(B136) No. 18 — (E24) No. 4:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and front oxygen (A/F) sensor connector • Poor contact of coupling connector
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM and front oxygen (A/F) sensor connector.	Is there poor contact of ECM or front oxygen (A/F) sensor connector?	Repair the poor contact of ECM or front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>

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

DTC DETECTING CONDITION:

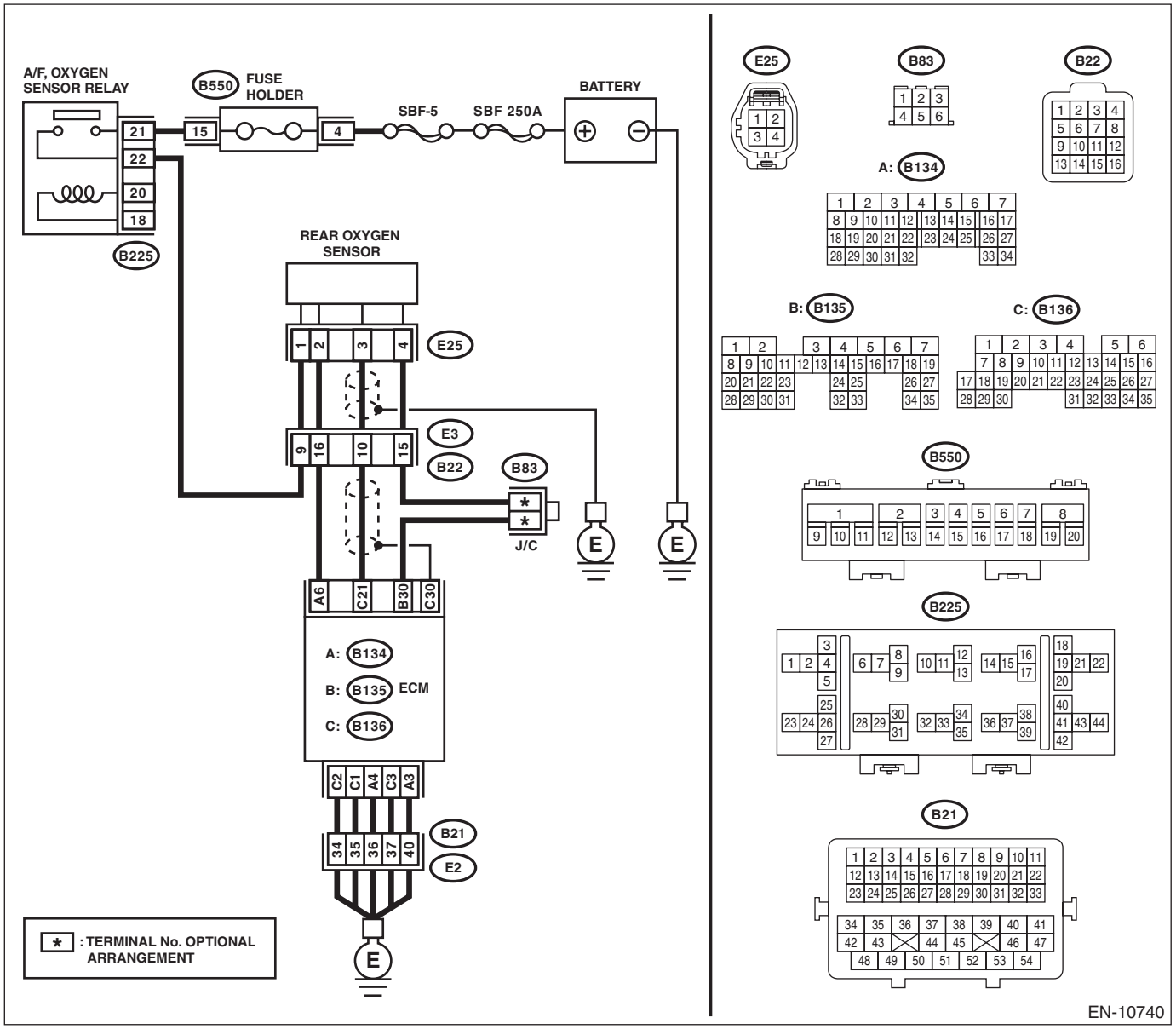
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-57, DTC P0137 O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and keep the engine speed at 3,000 rpm. (2 minutes maximum) 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.490 V or more?	Go to step **5**.	Go to step **2**.
2	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 21 — (E25) No. 3:*** ***(B135) No. 30 — (E25) No. 4:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(E25) No. 3 (+) — Chassis ground (–):***	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector • Poor contact of ECM connector
5	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. • Looseness and improper fitting of exhaust system parts • Damage (crack, hole etc.) of parts • Loose part and improper installation between front oxygen (A/F) sensor and rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace faulty parts.	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>

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

DTC DETECTING CONDITION:

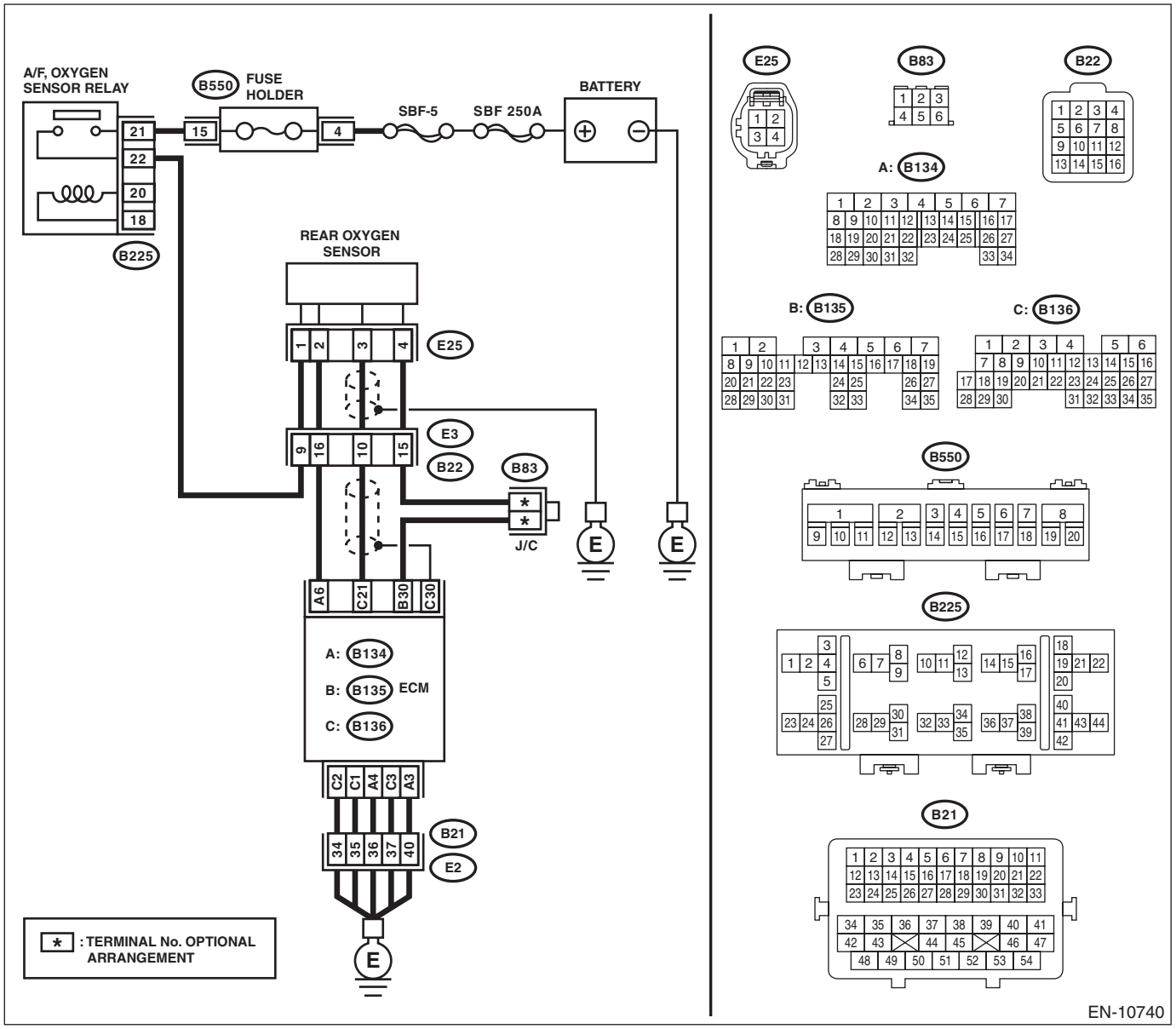
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-58, DTC P0138 O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.250 V or less?	Go to step **5**.	Go to step **2**.
2	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 21 — (E25) No. 3:*** ***(B135) No. 30 — (E25) No. 4:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(E25) No. 3 (+) — Chassis ground (–):***	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector • Poor contact of ECM connector
5	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. • Looseness and improper fitting of exhaust system parts • Damage (crack, hole etc.) of parts • Loose part and improper installation between front oxygen (A/F) sensor and rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace faulty parts.	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>

AT:DTC P013A O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 2)

DTC DETECTING CONDITION:

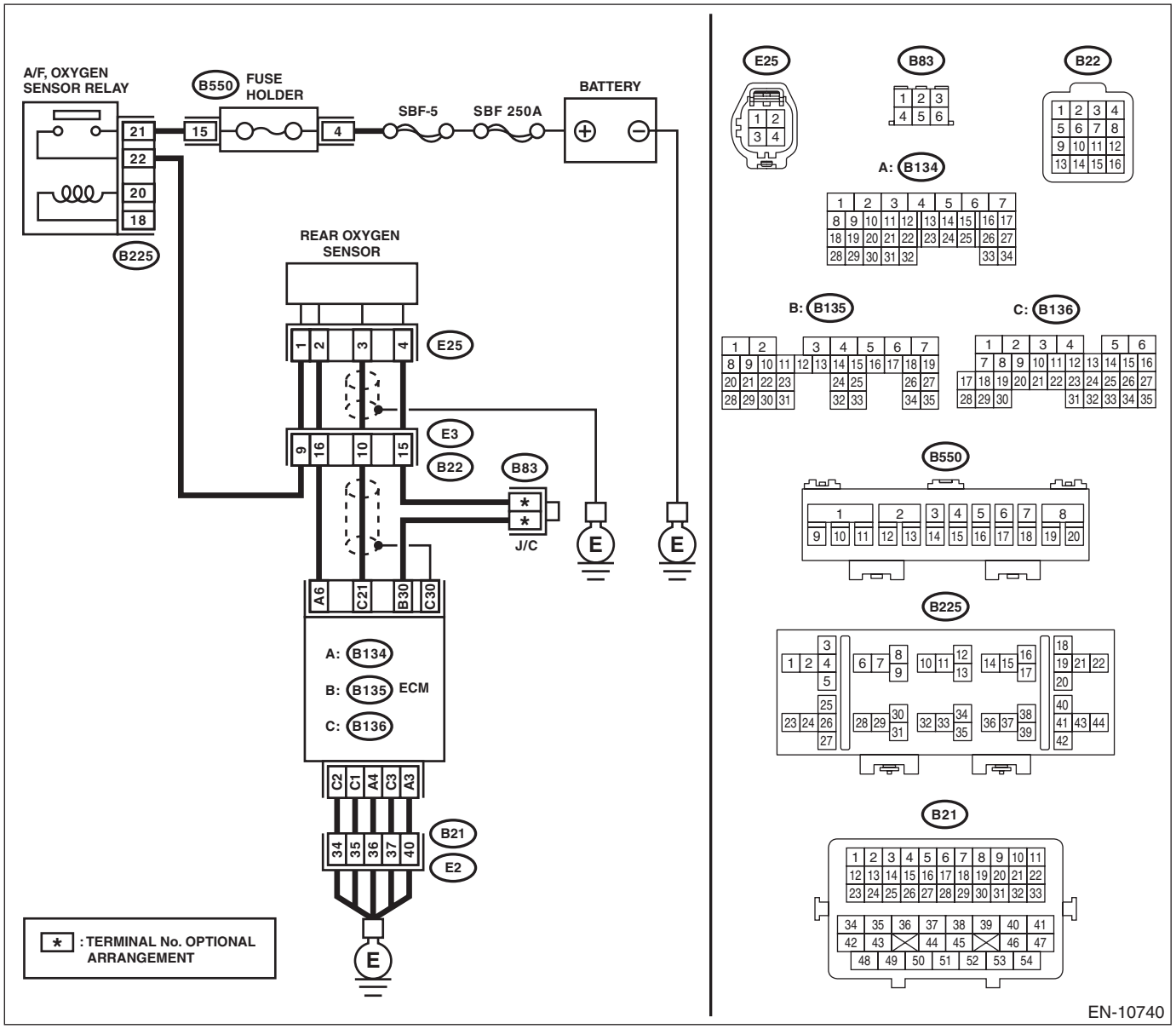
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-59, DTC P013A O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 21 — (E25) No. 3:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
2	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** Measure the resistance between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(E25) No. 3 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit to ground in harness between ECM connector and rear oxygen sensor connector.
3	**CHECK REAR OXYGEN SENSOR.** Measure the resistance between rear oxygen sensor terminals. ***Terminals*** ***No. 3 — No. 4***	Is the resistance less than 1 Ω?	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.

AU:DTC P013B O2 SENSOR SLOW RESPONSE - LEAN TO RICH (BANK 1 SENSOR 2)

NOTE:
For the diagnostic procedure, refer to DTC P013A. <Ref. to EN(H4DO HEV)(diag)-179, DTC P013A O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 2), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AV:DTC P013E O2 SENSOR DELAYED RESPONSE - RICH TO LEAN (BANK 1 SENSOR 2)

NOTE:
For the diagnostic procedure, refer to DTC P013A. <Ref. to EN(H4DO HEV)(diag)-179, DTC P013A O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 2), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AW:DTC P013F O2 SENSOR DELAYED RESPONSE - LEAN TO RICH (BANK 1 SENSOR 2)

NOTE:
For the diagnostic procedure, refer to DTC P013A. <Ref. to EN(H4DO HEV)(diag)-179, DTC P013A O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 2), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AX:DTC P0141 O2 SENSOR HEATER CIRCUIT (BANK1 SENSOR2)

Refer to DTC P0037 for diagnostic procedure. <Ref. to EN(H4DO HEV)(diag)-131, DTC P0037 HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 2), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AY:DTC P014C O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 1)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-68, DTC P014C O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK EXHAUST SYSTEM.** NOTE: Check the following items. • Loose installation of front portion of exhaust pipe onto cylinder heads • Loose connection between front exhaust pipe and front catalytic converter • Damage of exhaust pipe resulting in a hole	Is there any fault in exhaust system?	Repair the exhaust system.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>

AZ:DTC P014D O2 SENSOR SLOW RESPONSE - LEAN TO RICH (BANK 1 SENSOR 1)

NOTE:
For the diagnostic procedure, refer to DTC P014C. <Ref. to EN(H4DO HEV)(diag)-182, DTC P014C O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BA:DTC P015A O2 SENSOR DELAYED RESPONSE - RICH TO LEAN (BANK 1 SENSOR 1)

NOTE:
For the diagnostic procedure, refer to DTC P014C. <Ref. to EN(H4DO HEV)(diag)-182, DTC P014C O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BB:DTC P015B O2 SENSOR DELAYED RESPONSE - LEAN TO RICH (BANK 1 SENSOR 1)

NOTE:
For the diagnostic procedure, refer to DTC P014C. <Ref. to EN(H4DO HEV)(diag)-182, DTC P014C O2 SENSOR SLOW RESPONSE - RICH TO LEAN (BANK 1 SENSOR 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BC:DTC P0171 SYSTEM TOO LEAN (BANK 1)

Refer to DTC P0172 for diagnostic procedure. <Ref. to EN(H4DO HEV)(diag)-183, DTC P0172 SYSTEM TOO RICH (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BD:DTC P0172 SYSTEM TOO RICH (BANK 1)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-75, DTC P0172 SYSTEM TOO RICH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK EXHAUST SYSTEM.**	Are there holes or loose bolts on exhaust system?	Repair the exhaust system.	Go to step **2**.
2	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair the air intake system.	Go to step **3**.
3	**CHECK FUEL PRESSURE.** **WARNING:** **Place "NO OPEN FLAMES" signs near the working area.** **CAUTION:** **Be careful not to spill fuel.** Measure the fuel pressure. <Ref. to ME(H4DO(w/o HEV))-35, INSPECTION, Fuel Pressure.> **CAUTION:** **Release fuel pressure before removing the fuel pressure gauge.**	Is the measured value 340 — 400 kPa (3.5 — 4.1 kg/cm^2, 49 — 58 psi)?	Go to step **4**.	Check the fuel pump and fuel delivery line. <Ref. to FU(H4DO(HEV))-127, INSPECTION, Fuel Pump.> <Ref. to FU(H4DO(HEV))-157, INSPECTION, Fuel Delivery and Evaporation Lines.>
4	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm up completely. 2) Read the value of «Coolant Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Coolant Temp.» 75°C (167°F) or more?	Go to step **5**.	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>

	Step	Check	Yes	No
5	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in “P” range or “N” range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the value of «Mass Air Flow» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Mass Air Flow» 1.0 — 5.0 g/s (0.13 — 0.66 lb/m)?	Go to step **6**.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>
6	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in “P” range or “N” range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Open the front hood. 6) Measure the ambient temperature. 7) Read the value of «Intake Air Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Subtract ambient temperature from «Intake Air Temp.». Is the obtained value –10 — 50°C (–18 — 90°F)?	Repair the poor contact of ECM connector.	Check the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

BE:DTC P0196 ENGINE OIL TEMPERATURE SENSOR CIRCUIT RANGE/PERFORMANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-76, DTC P0196 ENGINE OIL TEMPERATURE SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

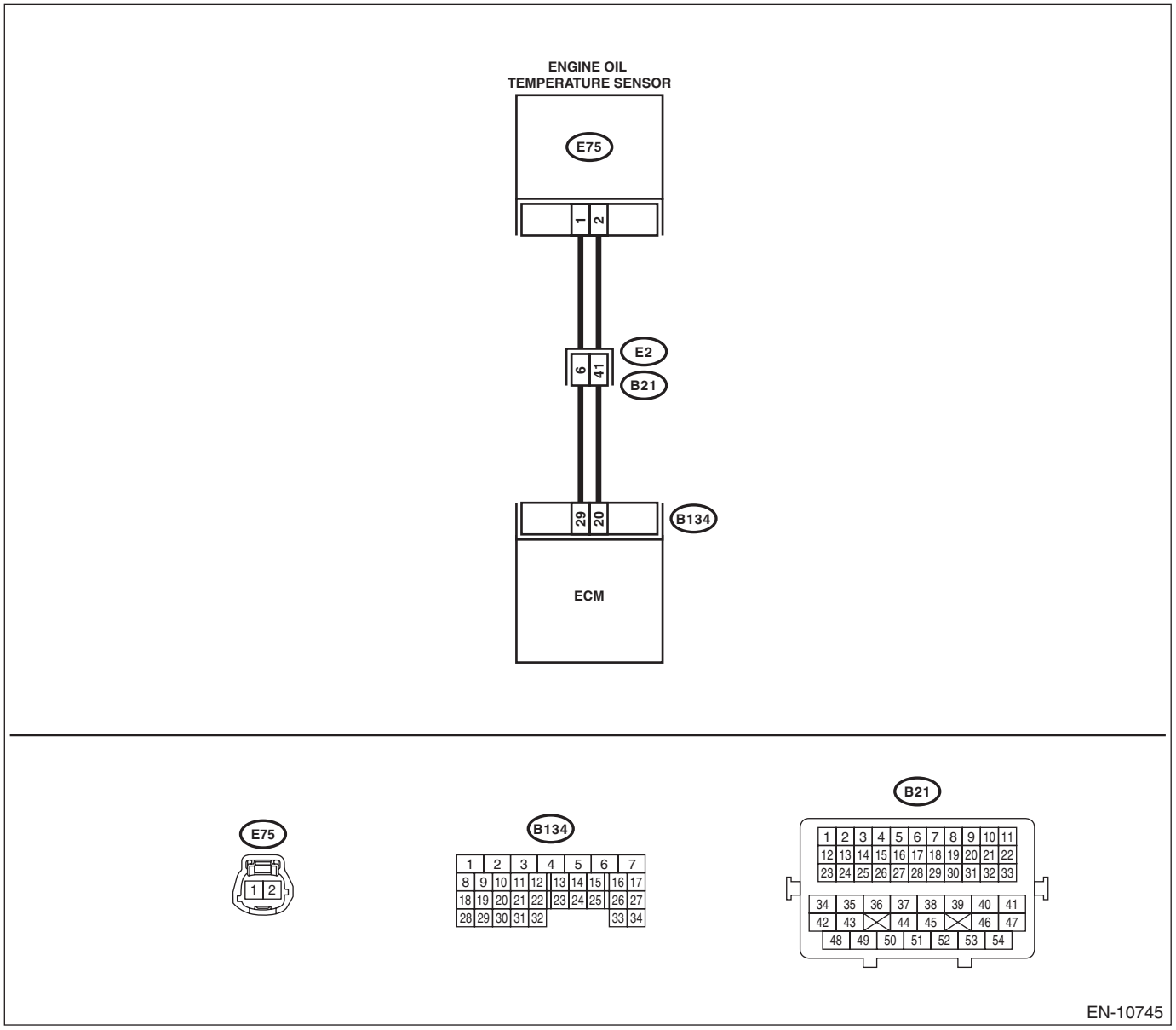
- Hard to start
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step	Check	Yes	No
1 **CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK ENGINE OIL TEMPERATURE SENSOR.** 1) Disconnect the connectors from the engine oil temperature sensor. 2) Measure the resistance between engine oil temperature sensor terminals when the engine coolant is cold and after warmed up. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance of engine oil temperature sensor different between when engine coolant is cold and after warmed up?	Repair the poor contact of ECM connector.	Replace the engine oil temperature sensor. <Ref. to FU(H4DO(HEV))-44, Engine Oil Temperature Sensor.>

BF:DTC P0197 ENGINE OIL TEMPERATURE SENSOR LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-78, DTC P0197 ENGINE OIL TEMPERATURE SENSOR LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

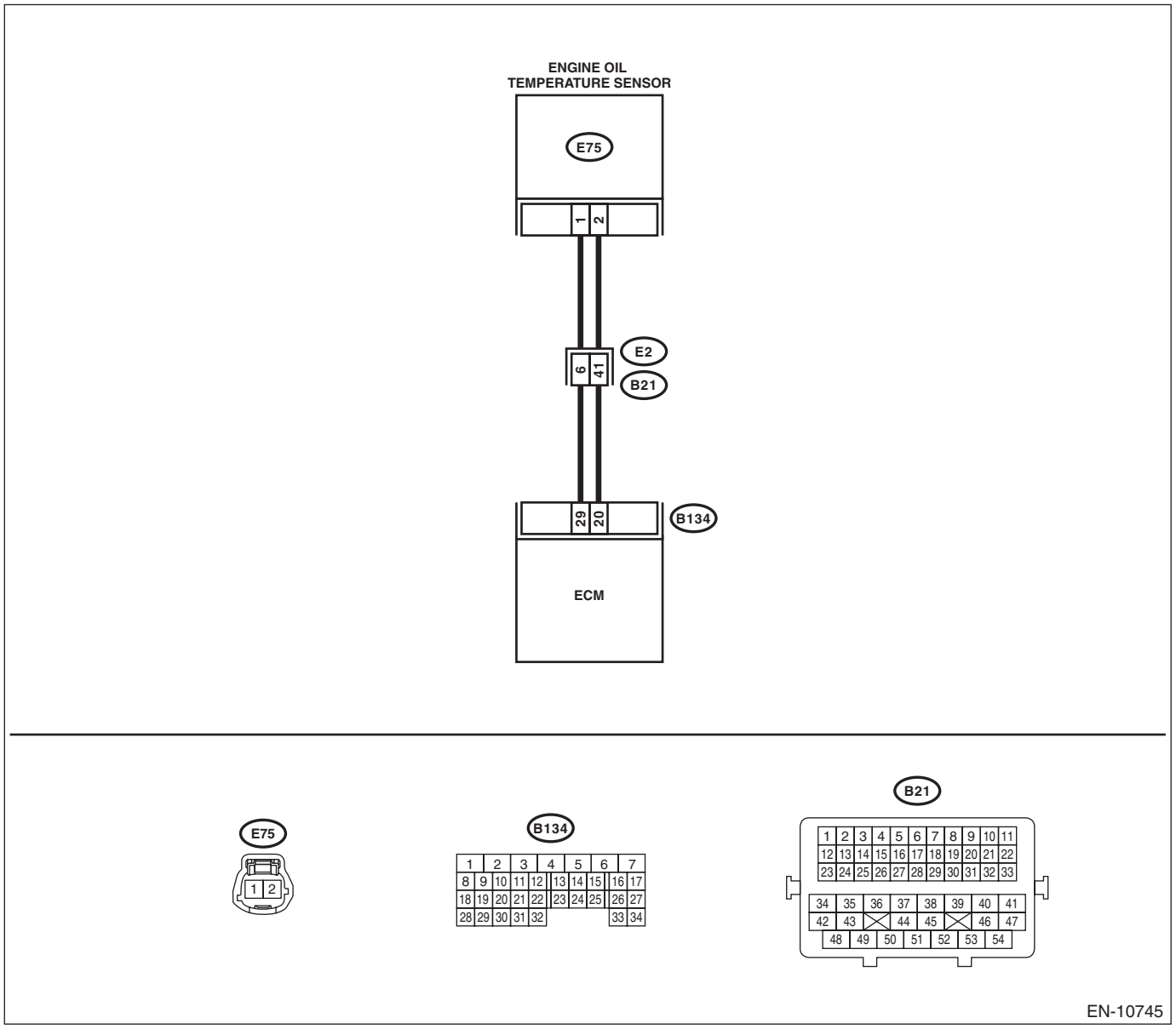
TROUBLE SYMPTOM:

- Hard to start
- Improper idling
- Poor driving performance

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Oil Temperature» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oil Temperature» 150°C (302°F) or more?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK HARNESS BETWEEN ECM AND ENGINE OIL TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the ECM and engine oil temperature sensor. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 20 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the engine oil temperature sensor. <Ref. to FU(H4DO(HEV))-44, Engine Oil Temperature Sensor.>	Repair the short circuit to ground in the harness between the ECM connector and engine oil temperature sensor connector.

BG:DTC P0198 ENGINE OIL TEMPERATURE SENSOR HIGH

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-79, DTC P0198 ENGINE OIL TEMPERATURE SENSOR HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

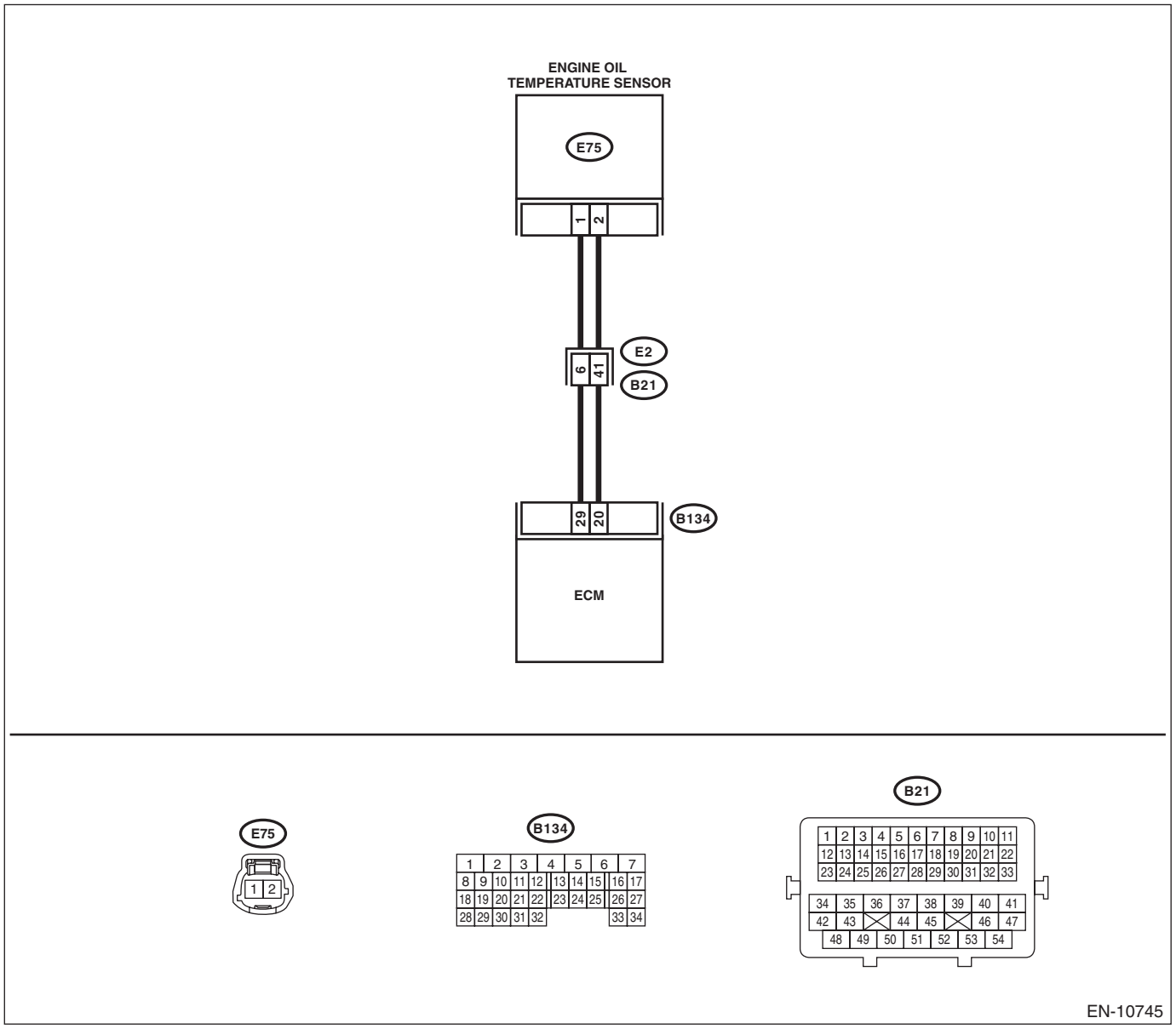
TROUBLE SYMPTOM:

- Hard to start
- Improper idling
- Poor driving performance

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Oil Temperature» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oil Temperature» –40°C (–40°F) or less?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK FOR POOR CONTACT.** Check for poor contact between the ECM and engine oil temperature sensor connectors.	Is there poor contact of the ECM or engine oil temperature sensor connectors?	Repair the poor contact of ECM or engine oil temperature sensor connector.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND ENGINE OIL TEMPERATURE SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the ECM and engine oil temperature sensor. 3) Measure the resistance of the harness between the ECM connector and engine oil temperature sensor connector. ***Connector & terminal*** ***(B134) No. 29 — (E75) No. 1:*** ***(B134) No. 20 — (E75) No. 2:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and engine oil temperature sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND ENGINE OIL TEMPERATURE SENSOR CONNECTOR.** 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 20 (+) — Chassis ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in harness between ECM connector and engine oil temperature sensor connector.	Replace the engine oil temperature sensor. <Ref. to FU(H4DO(HEV))-44, Engine Oil Temperature Sensor.>

BH:DTC P0201 INJECTOR #1

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-80, DTC P0201 INJECTOR #1, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

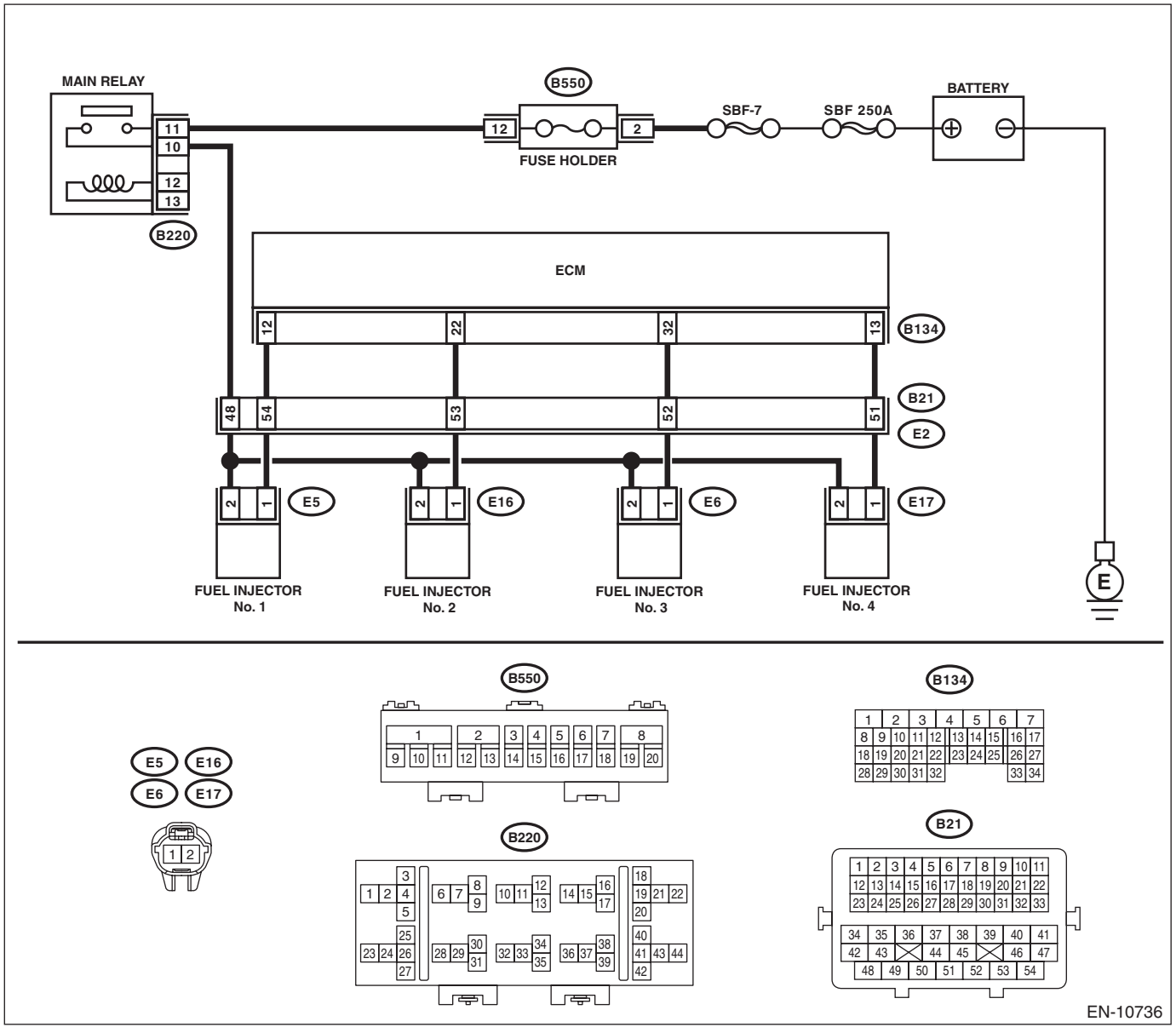
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY TO FUEL INJECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector. 3) Turn the ignition switch to ON. 4) Measure the voltage between fuel injector connector and the engine ground. ***Connector & terminal*** ***DTC P0201; (E5) No. 2 (+) — Engine ground (–):*** ***DTC P0202; (E16) No. 2 (+) — Engine ground (–):*** ***DTC P0203; (E6) No. 2 (+) — Engine ground (–):*** ***DTC P0204; (E17) No. 2 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between main relay and fuel injector connector • Poor contact of main relay connector • Poor contact of coupling connector
2	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between fuel injector connector and engine ground. ***Connector & terminal*** ***DTC P0201; (E5) No. 1 — Engine ground:*** ***DTC P0202; (E16) No. 1 — Engine ground:*** ***DTC P0203; (E6) No. 1 — Engine ground:*** ***DTC P0204; (E17) No. 1 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit to ground in harness between ECM connector and fuel injector connector.
3	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure the resistance of harness between ECM connector and fuel injector connector. ***Connector & terminal*** ***DTC P0201; (B134) No. 12 — (E5) No. 1:*** ***DTC P0202; (B134) No. 22 — (E16) No. 1:*** ***DTC P0203; (B134) No. 32 — (E6) No. 1:*** ***DTC P0204; (B134) No. 13 — (E17) No. 1:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and fuel injector connector • Poor contact of coupling connector
4	**CHECK FUEL INJECTOR.** Measure the resistance between fuel injector terminals on the corresponding cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **5**.	Replace the fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
5	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Go to step **6**.

	Step	Check	Yes	No
6	**CHECK FUEL INJECTOR OPERATION.** 1) Connect all connectors. 2) Start the engine. 3) Check if the corresponding fuel injector emits operating sound. NOTE: Use a sound scope to check the operating sound.	Does the fuel injector emit operating sound?	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.	Repair the poor contact of fuel injector connector.

BI: DTC P0202 INJECTOR #2

NOTE:
For the diagnostic procedure, refer to DTC P0201. <Ref. to EN(H4DO HEV)(diag)-192, DTC P0201 INJECTOR #1, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BJ:DTC P0203 INJECTOR #3

NOTE:
For the diagnostic procedure, refer to DTC P0201. <Ref. to EN(H4DO HEV)(diag)-192, DTC P0201 INJECTOR #1, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BK:DTC P0204 INJECTOR #4

NOTE:
For the diagnostic procedure, refer to DTC P0201. <Ref. to EN(H4DO HEV)(diag)-192, DTC P0201 INJECTOR #1, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BL:DTC P0222 THROTTLE/PEDAL POSITION SENSOR/SWITCH “B” CIRCUIT LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-81, DTC P0222 THROTTLE/PEDAL POSITION SENSOR/SWITCH “B” CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

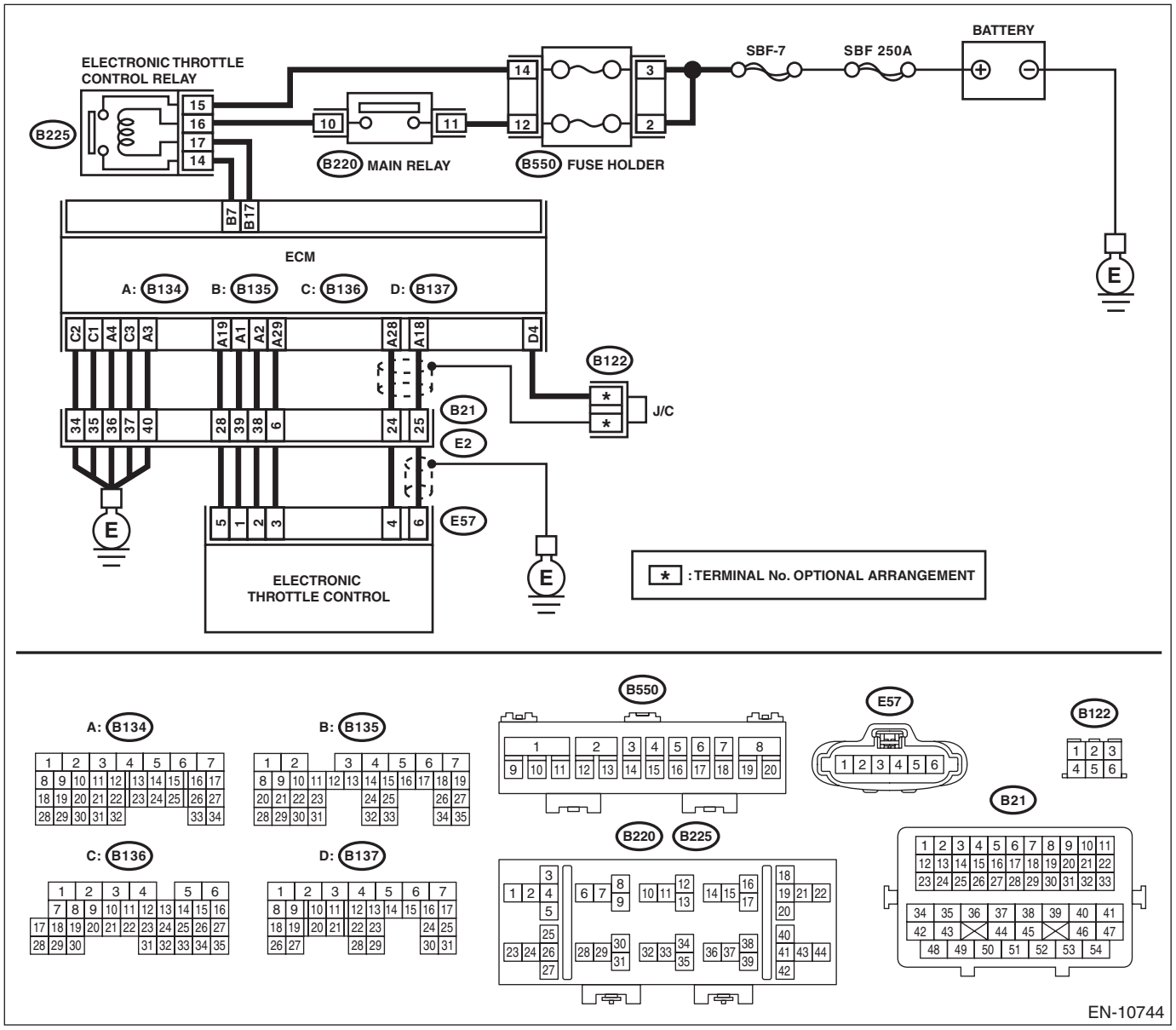
TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance
- Engine stalls.

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 19 — Chassis ground:*** ***(B134) No. 28 — Chassis ground:*** ***(B134) No. 28 — (B137) No. 4:***	Is the resistance 1 MΩ or more?	Go to step **2**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector.

	Step	Check	Yes	No
2	**CHECK SHORT CIRCUIT INSIDE THE ECM.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 4 — Engine ground:***	Is the resistance 1 MΩ or more?	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector. Replace the ECM if defective. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>

BM:DTC P0223 THROTTLE/PEDAL POSITION SENSOR/SWITCH “B” CIRCUIT HIGH

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-82, DTC P0223 THROTTLE/PEDAL POSITION SENSOR/SWITCH “B” CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

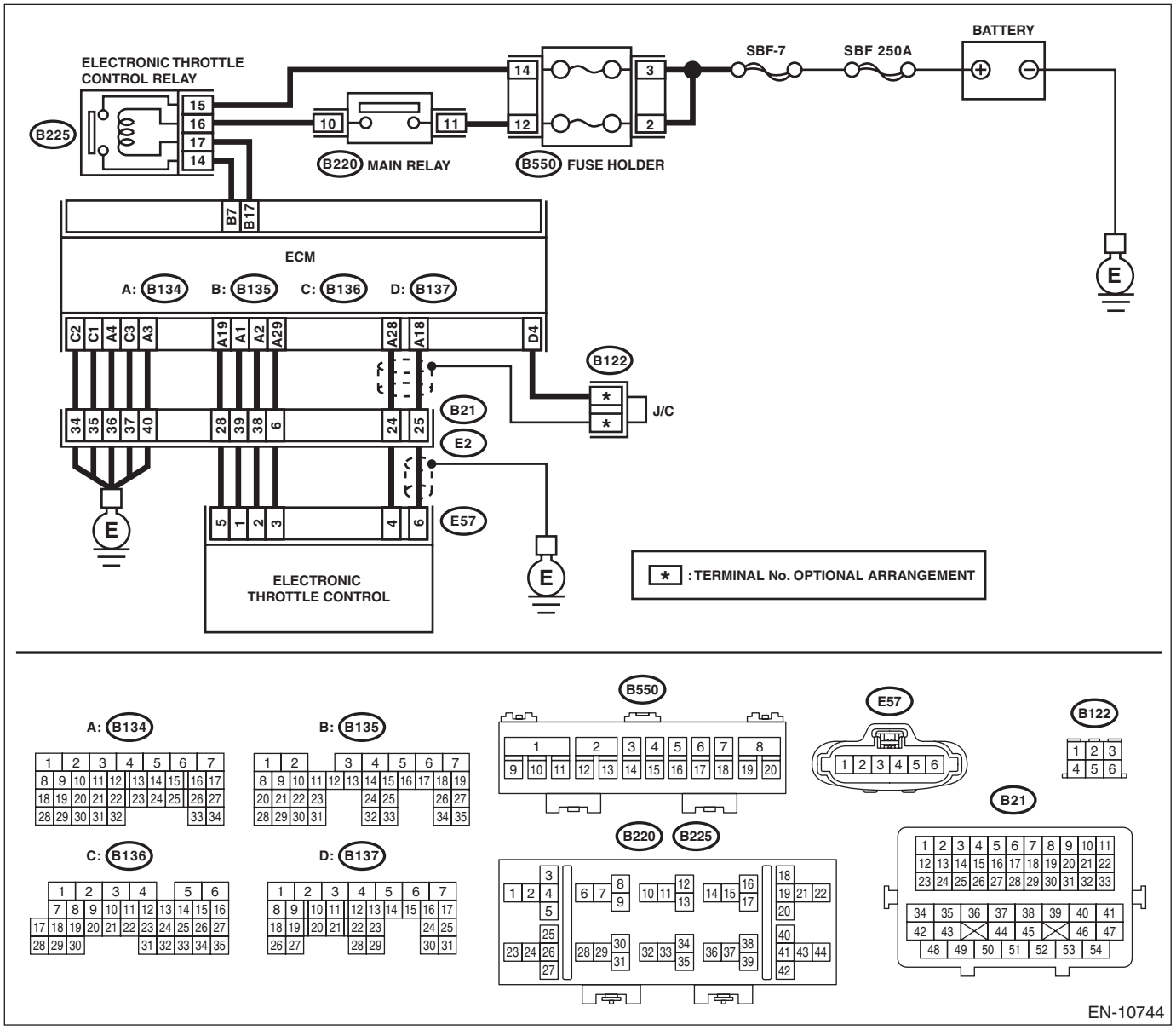
- Improper idling
- Poor driving performance
- Engine stalls.

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance of harness between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 28 — (E57) No. 4:*** ***(B134) No. 29 — (E57) No. 3:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 3 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 4 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.	Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B134) No. 19 — (B134) No. 28:***	Is the resistance 1 MΩ or more?	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.

BN:DTC P0300 RANDOM/MULTIPLE CYLINDER MISFIRE DETECTED

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-82, DTC P0300 RANDOM/MULTIPLE CYLINDER MISFIRE DETECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

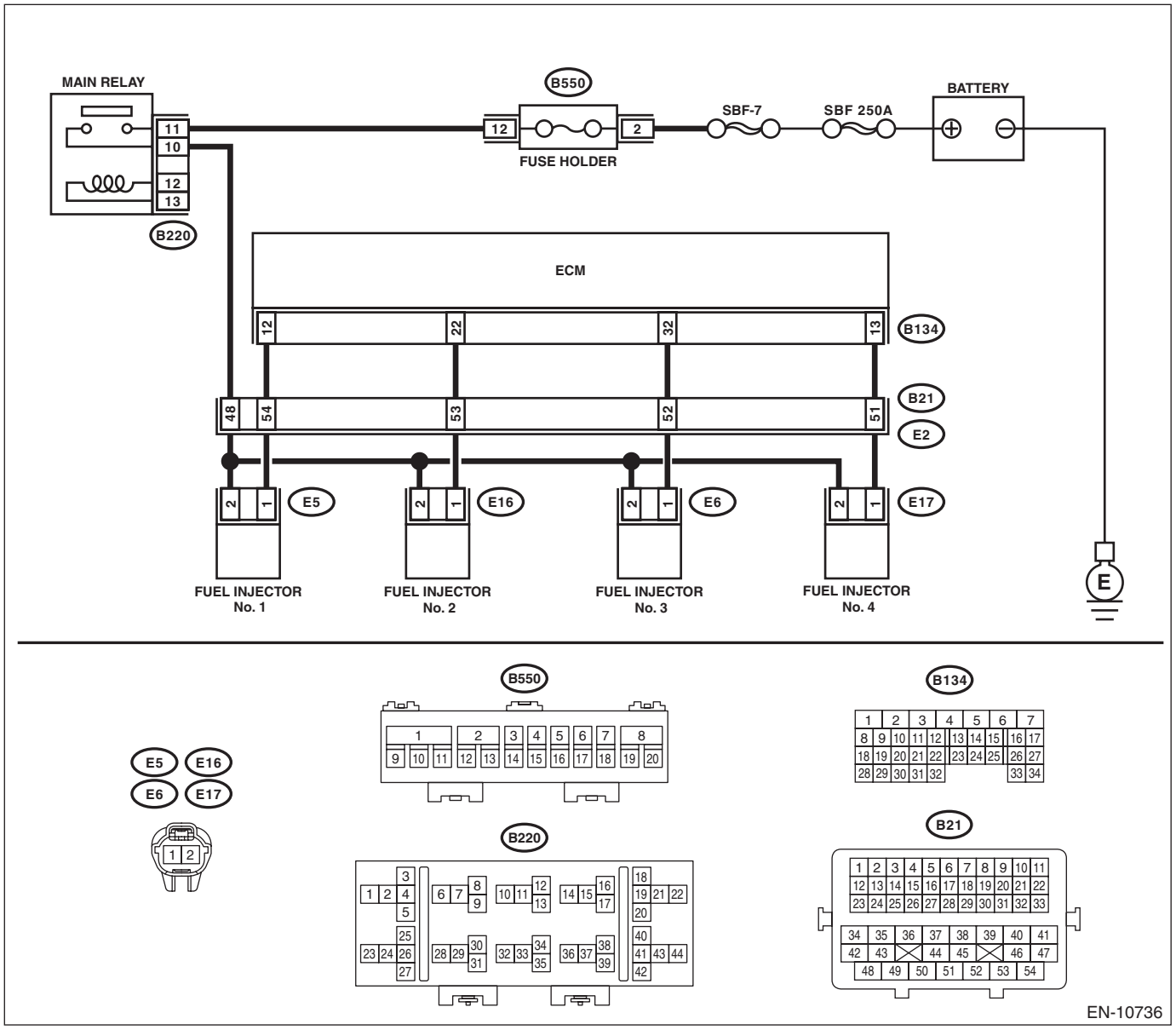
- Engine stalls.
- Improper idling
- Rough driving

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM and chassis ground on all cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **6**.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from all fuel injectors. 3) Measure the resistance between all fuel injector connectors and engine ground. ***Connector & terminal*** ***#1 (E5) No. 1 — Engine ground:*** ***#2 (E16) No. 1 — Engine ground:*** ***#3 (E6) No. 1 — Engine ground:*** ***#4 (E17) No. 1 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit to ground in harness between ECM connector and fuel injector connector.
3	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure the resistance of harness between ECM and fuel injector connector on all cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 — (E5) No. 1:*** ***#2 (B134) No. 22 — (E16) No. 1:*** ***#3 (B134) No. 32 — (E6) No. 1:*** ***#4 (B134) No. 13 — (E17) No. 1:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and fuel injector connector • Poor contact of coupling connector
4	**CHECK FUEL INJECTOR.** Measure the resistance between all fuel injector terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **5**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
5	**CHECK POWER SUPPLY LINE.** 1) Turn the ignition switch to ON. 2) Measure the voltage between all fuel injector connectors and the engine ground. ***Connector & terminal*** ***#1 (E5) No. 2 (+) — Engine ground (–):*** ***#2 (E16) No. 2 (+) — Engine ground (–):*** ***#3 (E6) No. 2 (+) — Engine ground (–):*** ***#4 (E17) No. 2 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Repair the poor contact of all connectors in fuel injector circuit.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between main relay connector and fuel injector connector • Poor contact of coupling connector • Poor contact of main relay connector
6	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from all fuel injectors. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground on all cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in harness between ECM connector and fuel injector connectors.	Go to step **7**.

	Step	Check	Yes	No
7	**CHECK FUEL INJECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between all fuel injector terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **8**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
8	**CHECK INSTALLATION CONDITION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.**	Is the camshaft position sensor or crankshaft position sensor loosely installed?	Tighten the camshaft position sensor or crankshaft position sensor. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.> <Ref. to FU(H4DO(HEV))-48, INSTALLATION, Crankshaft Position Sensor.>	Go to step **9**.
9	**CHECK CRANKSHAFT POSITION SENSOR PLATE.**	Is the crankshaft position sensor plate rusted or does it have broken teeth?	Replace the crankshaft position sensor plate. <Ref. to ME(H4DO(w/o HEV))-304, Cylinder Block.>	Go to step **10**.
10	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn the crankshaft using ST, and align the alignment mark on crank sprocket with alignment mark on cylinder block. ST 18252AA000 CRANKSHAFT SOCKET	Is the timing chain dislocated from its proper position?	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>	Go to step **11**.
11	**CHECK FUEL LEVEL.**	Is the fuel meter indication higher than the “Lower” level?	Go to step **12**.	Refill the fuel so that the fuel meter indication is higher than the “Lower” level, and proceed to the next step. Go to step **12**.
12	**CHECK STATUS OF MALFUNCTION INDICATOR LIGHT.** 1) Clear the memory using the Subaru Select Monitor. <Ref. to EN(H4DO HEV)(diag)-66, Clear Memory Mode.> 2) Start the engine, and drive the vehicle 10 minutes or more.	Does the malfunction indicator light illuminate or blink?	Go to step **14**.	Go to step **13**.

Step		Check	Yes	No
13	CHECK CAUSE OF MISFIRE.	Was the cause of misfire identified when the engine is running?	Finish diagnostics operation, if the engine has no abnormality.	Repair the poor contact of connector. NOTE: In this case, repair the following item: • Poor contact of ignition coil connector • Poor contact of fuel injector connector on faulty cylinders • Poor contact of ECM connector • Poor contact of coupling connector
14	CHECK AIR INTAKE SYSTEM.	Is there any fault in air intake system?	Repair the 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 **15**.
15	CHECK ALL CYLINDERS.	Is there a fault in any cylinder?	Repair or replace the faulty part of the faulty cylinder. NOTE: Check the following items. • Spark plug • Ignition coil • Fuel injector • Compression ratio • Skipping timing chain teeth	Go to DTC P0171. <Ref. to EN(H4DO HEV)(diag)-182, DTC P0171 SYSTEM TOO LEAN (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BO:DTC P0301 CYLINDER 1 MISFIRE DETECTED

NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DO HEV)(diag)-206, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BP:DTC P0302 CYLINDER 2 MISFIRE DETECTED

NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DO HEV)(diag)-206, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BQ:DTC P0303 CYLINDER 3 MISFIRE DETECTED

NOTE:
For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DO HEV)(diag)-206, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BR:DTC P0304 CYLINDER 4 MISFIRE DETECTED

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-89, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

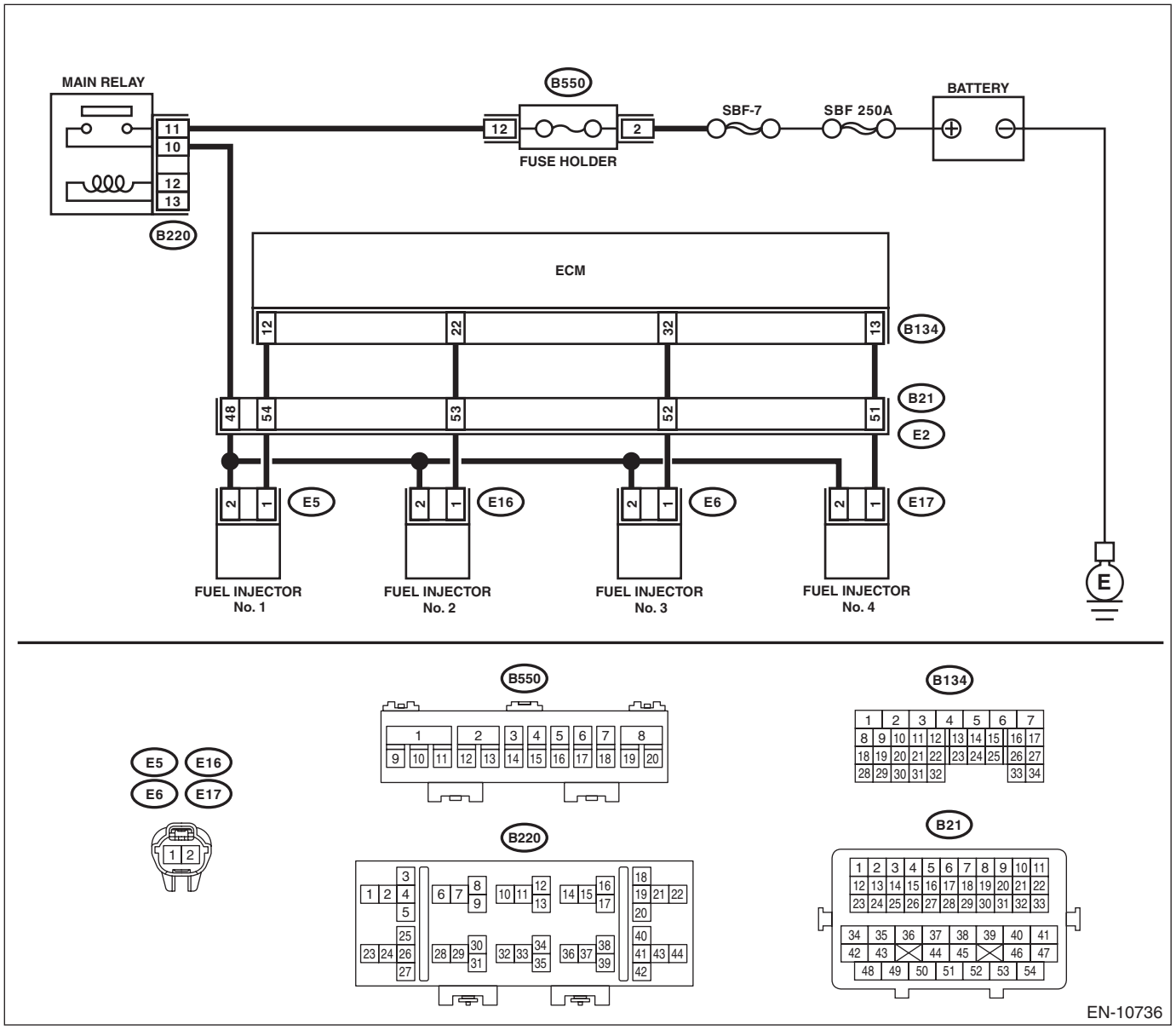
- Engine stalls.
- Improper idling
- Rough driving

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **6**.	Go to step **2**.

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Measure the resistance between fuel injector connector and engine ground on faulty cylinders. ***Connector & terminal*** ***#1 (E5) No. 1 — Engine ground:*** ***#2 (E16) No. 1 — Engine ground:*** ***#3 (E6) No. 1 — Engine ground:*** ***#4 (E17) No. 1 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit to ground in harness between ECM connector and fuel injector connector.
3	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure the resistance of harness between ECM and fuel injector connector on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 — (E5) No. 1:*** ***#2 (B134) No. 22 — (E16) No. 1:*** ***#3 (B134) No. 32 — (E6) No. 1:*** ***#4 (B134) No. 13 — (E17) No. 1:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and fuel injector connector • Poor contact of coupling connector
4	**CHECK FUEL INJECTOR.** Measure the resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **5**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
5	**CHECK POWER SUPPLY LINE.** 1) Turn the ignition switch to ON. 2) Measure the voltage between fuel injector and engine ground on faulty cylinders. ***Connector & terminal*** ***#1 (E5) No. 2 (+) — Engine ground (–):*** ***#2 (E16) No. 2 (+) — Engine ground (–):*** ***#3 (E6) No. 2 (+) — Engine ground (–):*** ***#4 (E17) No. 2 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Repair the poor contact of all connectors in fuel injector circuit.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between the main relay connector and fuel injector connector on faulty cylinders • Poor contact of coupling connector • Poor contact of main relay connector
6	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in harness between ECM connector and fuel injector connectors.	Go to step **7**.

	Step	Check	Yes	No
7	**CHECK FUEL INJECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **8**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
8	**CHECK INSTALLATION CONDITION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.**	Is the camshaft position sensor or crankshaft position sensor loosely installed?	Tighten the camshaft position sensor or crankshaft position sensor. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.> <Ref. to FU(H4DO(HEV))-48, INSTALLATION, Crankshaft Position Sensor.>	Go to step **9**.
9	**CHECK CRANKSHAFT POSITION SENSOR PLATE.**	Is the crankshaft position sensor plate rusted or does it have broken teeth?	Replace the crankshaft position sensor plate. <Ref. to ME(H4DO(w/o HEV))-304, Cylinder Block.>	Go to step **10**.
10	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn the crankshaft using ST, and align the alignment mark on crank sprocket with alignment mark on cylinder block. ST 18252AA000 CRANKSHAFT SOCKET	Is the timing chain dislocated from its proper position?	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>	Go to step **11**.
11	**CHECK FUEL LEVEL.**	Is the fuel meter indication higher than the “Lower” level?	Go to step **12**.	Refill the fuel so that the fuel meter indication is higher than the “Lower” level, and proceed to the next step. Go to step **12**.
12	**CHECK STATUS OF MALFUNCTION INDICATOR LIGHT.** 1) Clear the memory using the Subaru Select Monitor. <Ref. to EN(H4DO HEV)(diag)-66, Clear Memory Mode.> 2) Start the engine, and drive the vehicle 10 minutes or more.	Does the malfunction indicator light illuminate or blink?	Go to step **14**.	Go to step **13**.

Step		Check	Yes	No
13	CHECK CAUSE OF MISFIRE.	Was the cause of misfire identified when the engine is running?	Finish diagnostics operation, if the engine has no abnormality.	Repair the poor contact of connector. NOTE: In this case, repair the following item: • Poor contact of ignition coil connector • Poor contact of fuel injector connector on faulty cylinders • Poor contact of ECM connector • Poor contact of coupling connector
14	CHECK AIR INTAKE SYSTEM.	Is there any fault in air intake system?	Repair the 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 **15**.
15	CHECK CYLINDER.	Is there any fault in the cylinder?	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Ignition coil • Fuel injector • Compression ratio • Skipping timing chain teeth	Go to DTC P0171. <Ref. to EN(H4DO HEV)(diag)-182, DTC P0171 SYSTEM TOO LEAN (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BS:DTC P0327 KNOCK SENSOR 1 CIRCUIT LOW (BANK 1 OR SINGLE SENSOR)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-90, DTC P0327 KNOCK SENSOR 1 CIRCUIT LOW (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

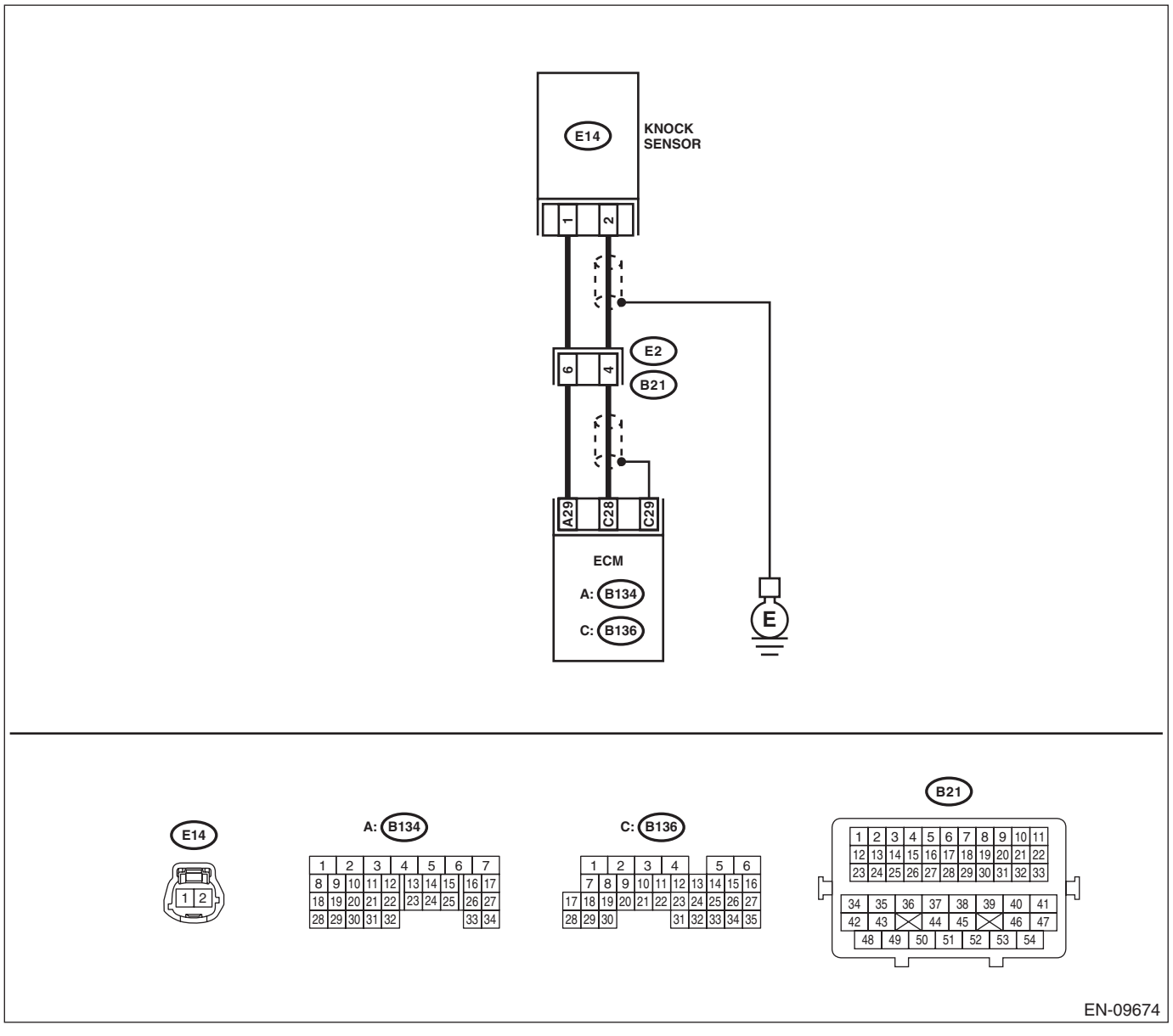
- Poor driving performance
- Knocking occurs

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND KNOCK SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B136) No. 28 — (B134) No. 29:***	Is the resistance less than 500 kΩ?	Go to step **2**.	Go to step **3**.
2	**CHECK KNOCK SENSOR.** 1) Disconnect the connector from the knock sensor. 2) Measure the resistance between knock sensor terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance less than 500 kΩ?	Replace the knock sensor. <Ref. to FU(H4DO(HEV))-59, Knock Sensor.>	Repair the short circuit to ground in harness between ECM connector and knock sensor connector. NOTE: The harness between both connectors are shielded. Remove the shield and repair the short circuit of harness.
3	**CHECK INPUT SIGNAL OF ECM.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 28 (+) — Chassis ground (–):***	Is the voltage 2 V or more?	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.	Repair the short circuit to ground in harness between ECM connector and knock sensor connector. NOTE: The harness between both connectors are shielded. Remove the shield and repair the short circuit of harness.

BT:DTC P0328 KNOCK SENSOR 1 CIRCUIT HIGH (BANK 1 OR SINGLE SENSOR)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-91, DTC P0328 KNOCK SENSOR 1 CIRCUIT HIGH (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

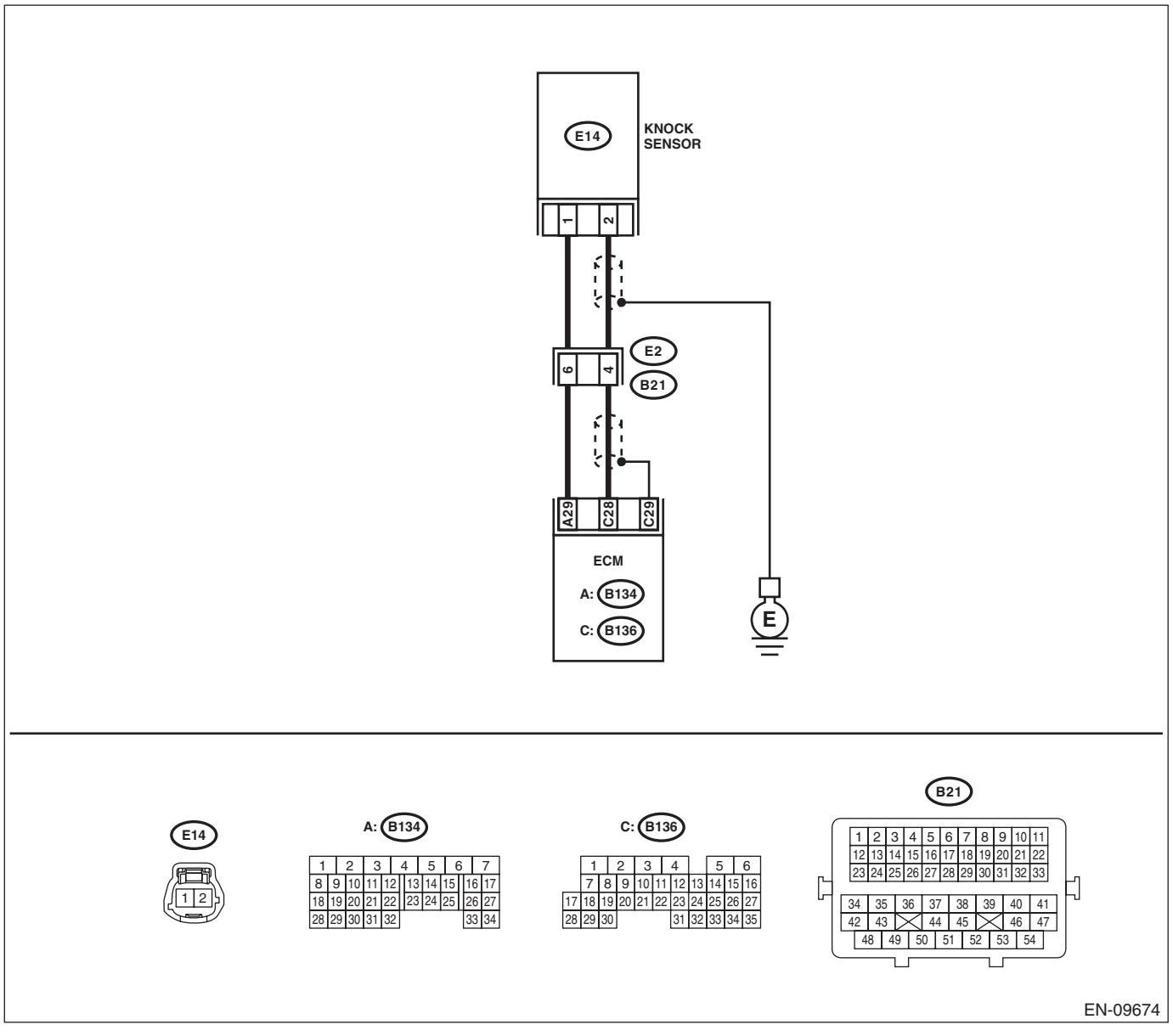
- Poor driving performance
- Knocking occurs

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND KNOCK SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B136) No. 28 — (B134) No. 29:***	Is the resistance 600 kΩ or more?	Go to step **2**.	Repair the poor contact of ECM connector.
2	**CHECK KNOCK SENSOR.** 1) Disconnect the connector from the knock sensor. 2) Measure the resistance between knock sensor terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 600 kΩ or more?	Replace the knock sensor. <Ref. to FU(H4DO(HEV))-59, Knock Sensor.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and knock sensor connector • Poor contact of knock sensor connector • Poor contact of coupling connector

BU:DTC P0335 CRANKSHAFT POSITION SENSOR “A” CIRCUIT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-92, DTC P0335 CRANKSHAFT POSITION SENSOR “A” CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

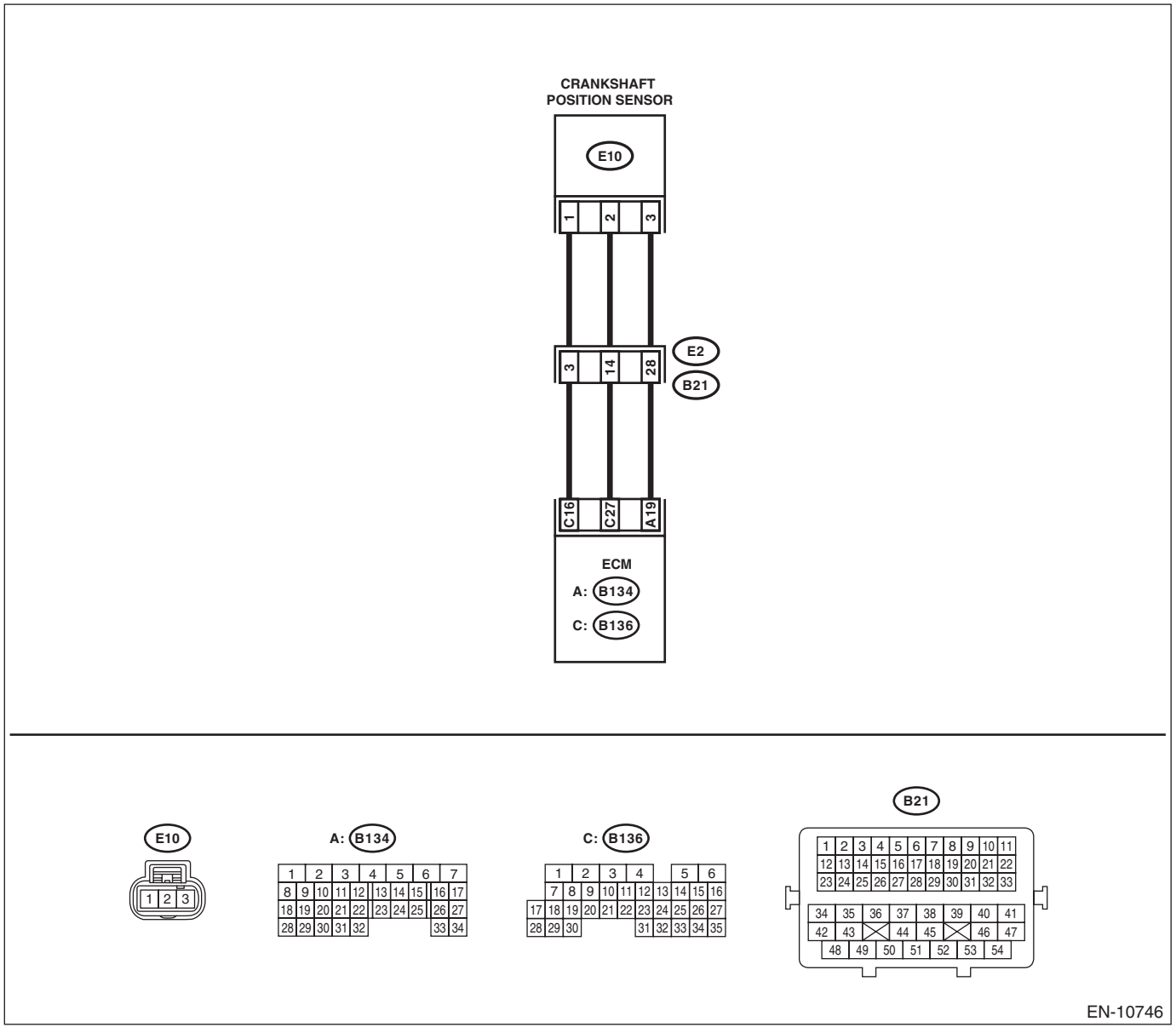
- Engine stalls.
- Failure of engine to start

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.**	Is the crankshaft position sensor installation bolt tightened securely?	Go to step **2**.	Tighten the crankshaft position sensor installation bolt securely. <Ref. to FU(H4DO(HEV))-48, INSTALLATION, Crankshaft Position Sensor.>
2	**CHECK POWER SUPPLY OF CRANKSHAFT POSITION SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the crankshaft position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 3 (+) — Engine ground (–):***	Is the voltage 4.5 V or more?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and crankshaft position sensor connector • Poor contact of ECM connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND CRANKSHAFT POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and crankshaft position sensor connector. ***Connector & terminal*** ***(B136) No. 16 — (E10) No. 1:*** ***(B136) No. 27 — (E10) No. 2:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and crankshaft position sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND CRANKSHAFT POSITION SENSOR CONNECTOR.** Measure the resistance between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 1 — Engine ground:*** ***(E10) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair short circuit to ground in harness between ECM connector and crankshaft position sensor connector.
5	**CHECK HARNESS BETWEEN ECM AND CRANKSHAFT POSITION SENSOR CONNECTOR.** Measure the voltage between crankshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E10) No. 1 (+) — Engine ground (–):*** ***(E10) No. 2 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and crankshaft position sensor connector.	Go to step **6**.

	Step	Check	Yes	No
6	**CHECK CRANKSHAFT POSITION SENSOR.** Check waveform of crankshaft position sensor. <Ref. to EN(H4DO HEV)(diag)-19, Control Module I/O Signal.>	Is there any abnormality in waveform?	Replace the crankshaft position sensor. <Ref. to FU(H4DO(HEV))-46, Crankshaft Position Sensor.>	Repair the following item. • Poor contact of ECM connector • Poor contact of crankshaft position sensor connector • Poor contact of coupling connector

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

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-94, DTC P0336 CRANKSHAFT POSITION SENSOR “A” CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Failure of engine to start

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.** Turn the ignition switch to OFF.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step **2**.	Tighten the crankshaft position sensor installation bolt securely. <Ref. to FU(H4DO(HEV))-48, INSTALLATION, Crankshaft Position Sensor.>
2	**CHECK CRANKSHAFT POSITION SENSOR PLATE.**	Is there crack or damage in the crankshaft position sensor plate teeth?	Replace the crankshaft position sensor plate. <Ref. to ME(H4DO(w/o HEV))-304, Cylinder Block.>	Go to step **3**.
3	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn the crankshaft, and align alignment mark on crank sprocket with alignment mark on cylinder block. ST 18252AA000 CRANKSHAFT SOCKET	Is the timing chain dislocated from its proper position?	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>	Replace the crankshaft position sensor. <Ref. to FU(H4DO(HEV))-46, Crankshaft Position Sensor.>

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

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-96, DTC P0340 CAMSHAFT POSITION SENSOR “A” CIRCUIT (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

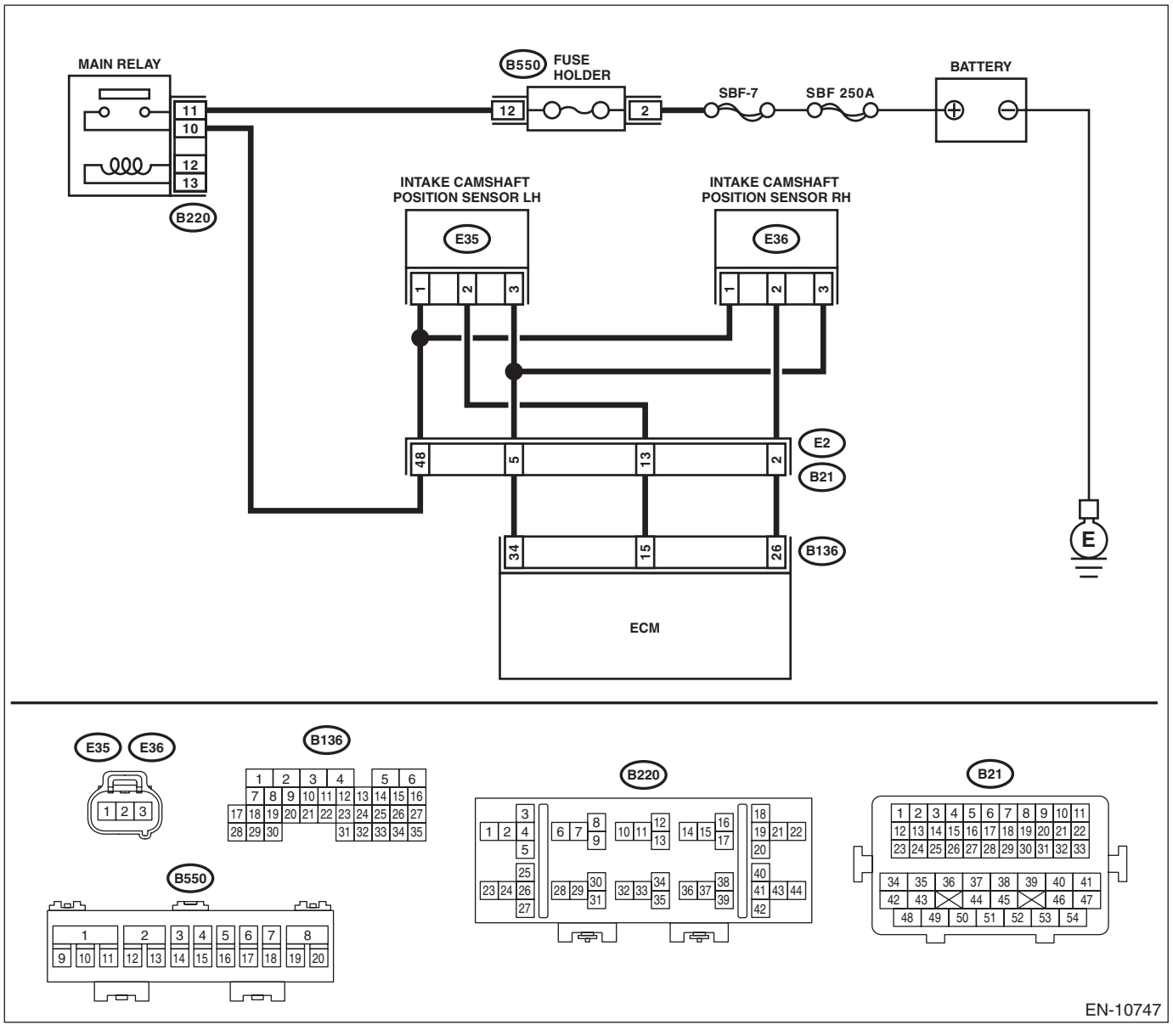
- Engine stalls.
- Failure of engine to start

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from camshaft position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E36) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit or short circuit to ground in harness between main relay connector and camshaft position sensor connector • Poor contact of coupling connector
2	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and camshaft position sensor connector. ***Connector & terminal*** ***(B136) No. 26 — (E36) No. 2:*** ***(B136) No. 34 — (E36) No. 3:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and camshaft position sensor connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the resistance between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E36) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair short circuit to ground in harness between ECM connector and camshaft position sensor connector.
4	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E36) No. 2 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and camshaft position sensor connector.	Go to step **5**.
5	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.**	Is the camshaft position sensor installation bolt tightened securely?	Go to step **6**.	Tighten the camshaft position sensor installation bolt securely. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.>
6	**CHECK CAMSHAFT POSITION SENSOR.** Check the waveform of the camshaft position sensor. <Ref. to EN(H4DO HEV)(diag)-19, ENGINE CONTROL MODULE (ECM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>	Is there any abnormality in waveform?	Replace the camshaft position sensor. <Ref. to FU(H4DO(HEV))-52, Camshaft Position Sensor.>	Repair the following item. • Poor contact of ECM connector • Poor contact of camshaft position sensor connector • Poor contact of coupling connector

BX:DTC P0341 CAMSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE (BANK 1 OR SINGLE SENSOR)

NOTE:
For the diagnostic procedure, refer to DTC P0340. <Ref. to EN(H4DO HEV)(diag)-219, DTC P0340 CAMSHAFT POSITION SENSOR “A” CIRCUIT (BANK 1 OR SINGLE SENSOR), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BY:DTC P0345 CAMSHAFT POSITION SENSOR “A” CIRCUIT (BANK 2)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-99, DTC P0345 CAMSHAFT POSITION SENSOR “A” CIRCUIT (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

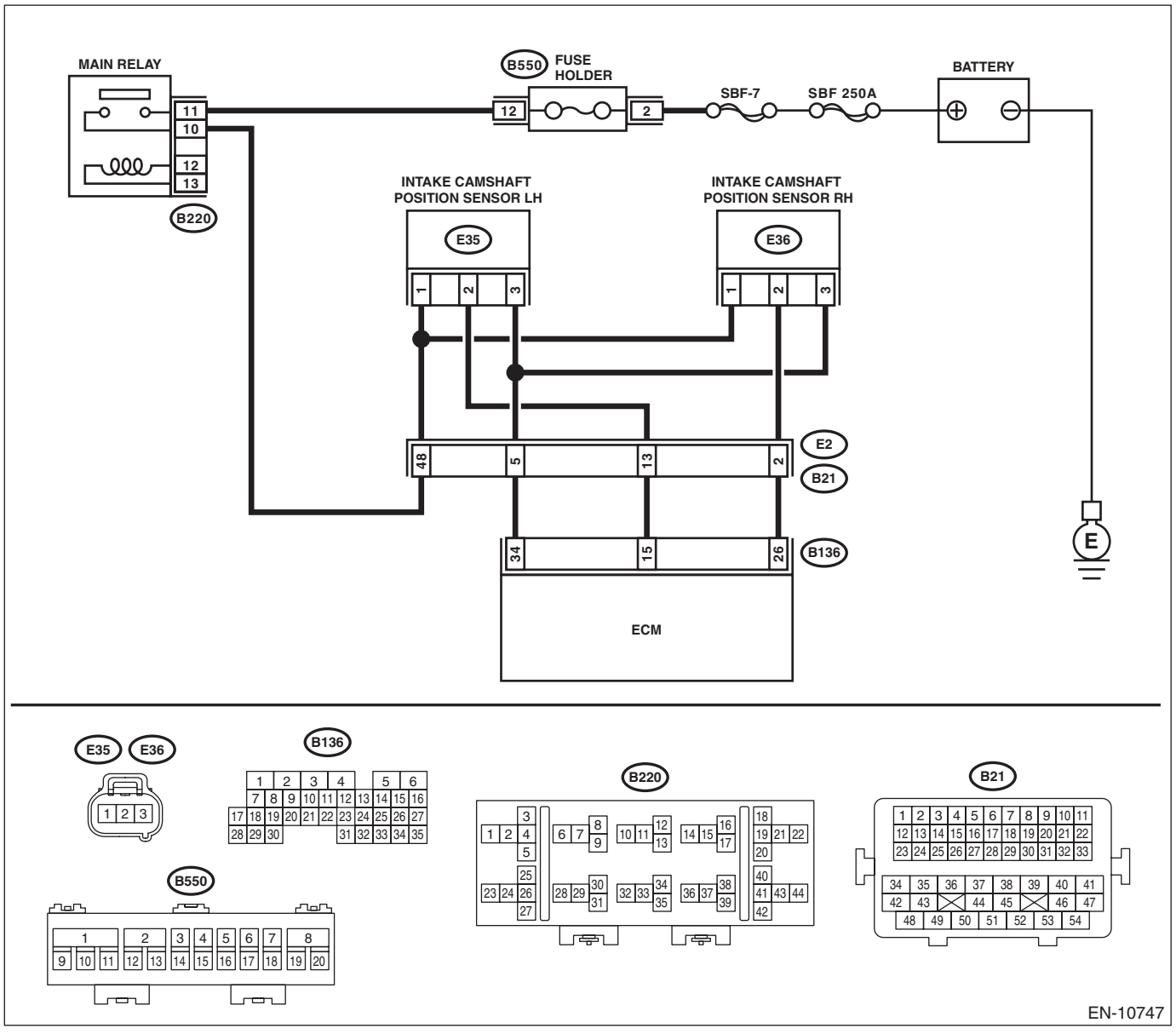
- Engine stalls.
- Failure of engine to start

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from camshaft position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E35) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit or short circuit to ground in harness between main relay connector and camshaft position sensor connector • Poor contact of coupling connector
2	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and camshaft position sensor connector. ***Connector & terminal*** ***(B136) No. 15 — (E35) No. 2:*** ***(B136) No. 34 — (E35) No. 3:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and camshaft position sensor connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the resistance between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E35) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair short circuit to ground in harness between ECM connector and camshaft position sensor connector.
4	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E35) No. 2 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and camshaft position sensor connector.	Go to step **5**.
5	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.**	Is the camshaft position sensor installation bolt tightened securely?	Go to step **6**.	Tighten the camshaft position sensor installation bolt securely. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.>
6	**CHECK CAMSHAFT POSITION SENSOR.** Check the waveform of the camshaft position sensor. <Ref. to EN(H4DO HEV)(diag)-19, ENGINE CONTROL MODULE (ECM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>	Is there any abnormality in waveform?	Replace the camshaft position sensor. <Ref. to FU(H4DO(HEV))-52, Camshaft Position Sensor.>	Repair the following item. • Poor contact of ECM connector • Poor contact of camshaft position sensor connector • Poor contact of coupling connector

BZ:DTC P0346 CAMSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE (BANK 2)

NOTE:
For the diagnostic procedure, refer to DTC P0345. <Ref. to EN(H4DO HEV)(diag)-222, DTC P0345 CAMSHAFT POSITION SENSOR “A” CIRCUIT (BANK 2), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CA:DTC P0351 IGNITION COIL A PRIMARY/SECONDARY CIRCUIT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-100, DTC P0351 IGNITION COIL A PRIMARY/SECONDARY CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

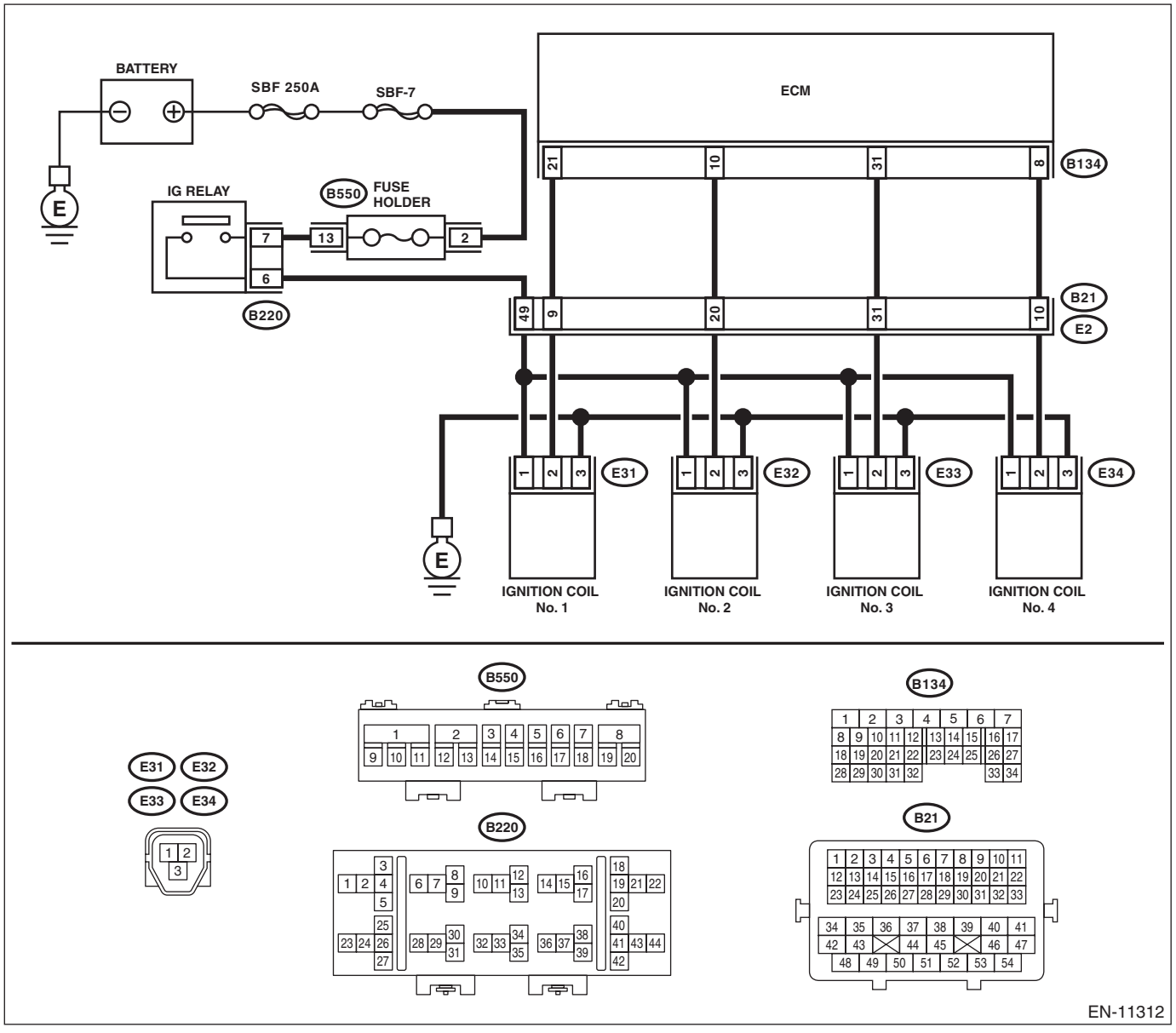
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK IGNITION COIL POWER SUPPLY CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ignition coil. 3) Turn the ignition switch to ON. 4) Measure the voltage between ignition coil connector and engine ground. ***Connector & terminal*** ***DTC P0351; (E31) No. 1 (+) — Engine ground (–):*** ***DTC P0352; (E32) No. 1 (+) — Engine ground (–):*** ***DTC P0353; (E33) No. 1 (+) — Engine ground (–):*** ***DTC P0354; (E34) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit or short circuit to ground in harness of power supply circuit • Blown out of fuse • Poor contact of IG relay connector • Poor contact of coupling connector • Faulty IG relay
2	**CHECK HARNESS OF IGNITION COIL GROUND CIRCUIT.** 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between ignition coil connector and engine ground. ***Connector & terminal*** ***DTC P0351; (E31) No. 3 — Engine ground:*** ***DTC P0352; (E32) No. 3 — Engine ground:*** ***DTC P0353; (E33) No. 3 — Engine ground:*** ***DTC P0354; (E34) No. 3 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **3**.	Repair the open circuit in harness between ignition coil connector and engine grounding terminal.
3	**CHECK HARNESS BETWEEN ECM AND IGNITION COIL CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance between ignition coil connector and engine ground. ***Connector & terminal*** ***DTC P0351; (E31) No. 2 — Engine ground:*** ***DTC P0352; (E32) No. 2 — Engine ground:*** ***DTC P0353; (E33) No. 2 — Engine ground:*** ***DTC P0354; (E34) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair the ground short circuit of harness between ECM connector and ignition coil connector.
4	**CHECK HARNESS BETWEEN ECM AND IGNITION COIL CONNECTOR.** Measure the resistance of harness between ECM connector and ignition coil connector. ***Connector & terminal*** ***DTC P0351; (B134) No. 21 — (E31) No. 2:*** ***DTC P0352; (B134) No. 10 — (E32) No. 2:*** ***DTC P0353; (B134) No. 31 — (E33) No. 2:*** ***DTC P0354; (B134) No. 8 — (E34) No. 2:***	Is the resistance less than 1 Ω?	Go to step **5**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and the ignition coil connector • Poor contact of coupling connector
5	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Go to step **6**.
6	**CHECK SPARK PLUG CONDITION.** 1) Remove the spark plug of the corresponding cylinder. <Ref. to IG(H4DO(w/o HEV))-4, REMOVAL, Spark Plug.> 2) Check the spark plug condition. <Ref. to IG(H4DO(w/o HEV))-7, INSPECTION, Spark Plug.>	Is the spark plug condition normal?	Replace the ignition coil. <Ref. to IG(H4DO(w/o HEV))-12, Ignition Coil.>	Replace the spark plug. <Ref. to IG(H4DO(w/o HEV))-4, Spark Plug.>

CB:DTC P0352 IGNITION COIL B PRIMARY/SECONDARY CIRCUIT

NOTE:
For the diagnostic procedure, refer to DTC P0351. <Ref. to EN(H4DO HEV)(diag)-225, DTC P0351 IGNITION COIL A PRIMARY/SECONDARY CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CC:DTC P0353 IGNITION COIL C PRIMARY/SECONDARY CIRCUIT

NOTE:
For the diagnostic procedure, refer to DTC P0351. <Ref. to EN(H4DO HEV)(diag)-225, DTC P0351 IGNITION COIL A PRIMARY/SECONDARY CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CD:DTC P0354 IGNITION COIL D PRIMARY/SECONDARY CIRCUIT

NOTE:
For the diagnostic procedure, refer to DTC P0351. <Ref. to EN(H4DO HEV)(diag)-225, DTC P0351 IGNITION COIL A PRIMARY/SECONDARY CIRCUIT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CE:DTC P0365 CAMSHAFT POSITION SENSOR “B” CIRCUIT (BANK 1)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-101, DTC P0365 CAMSHAFT POSITION SENSOR “B” CIRCUIT (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

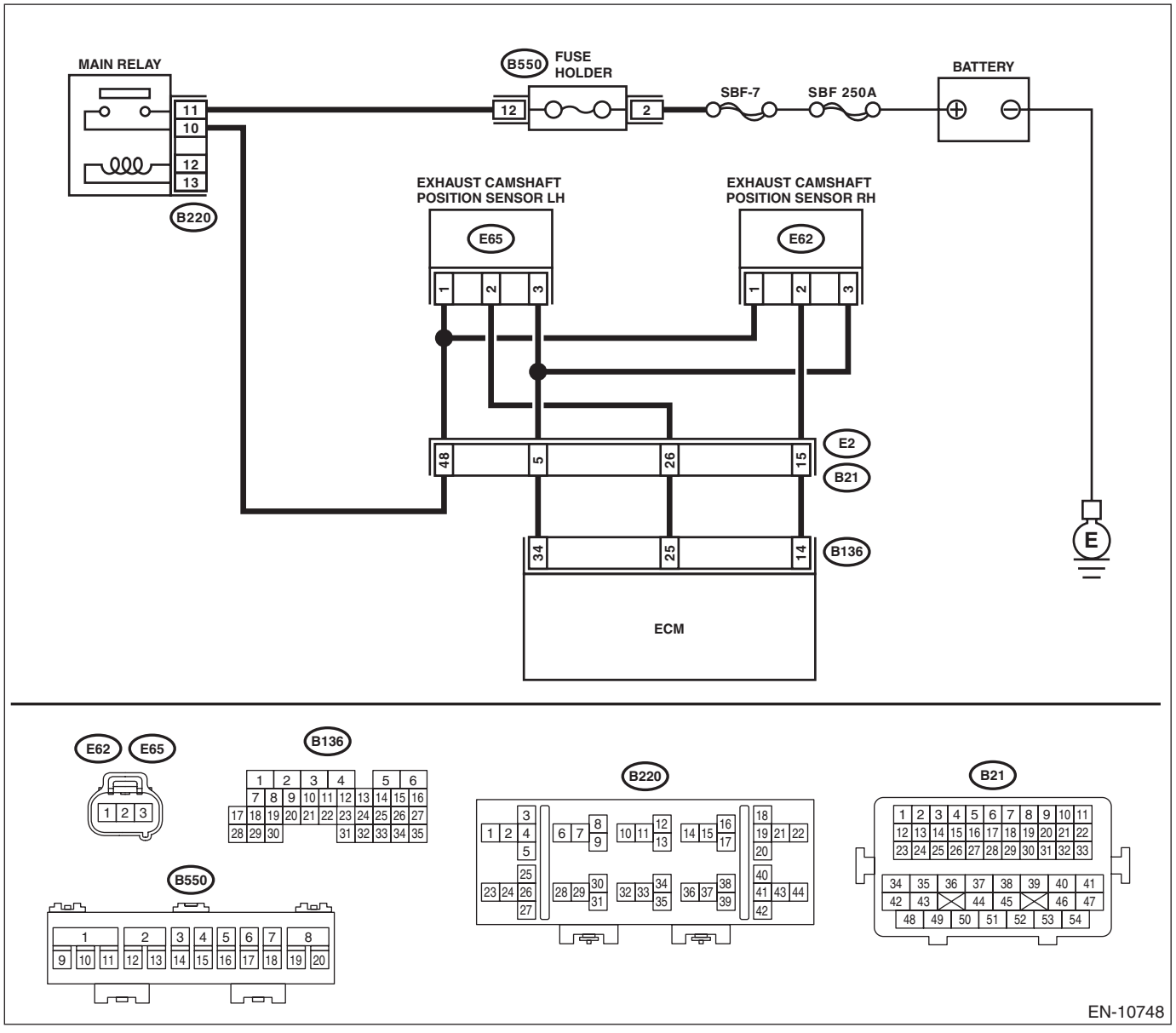
- Engine stalls.
- Failure of engine to start

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from camshaft position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E62) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit or short circuit to ground in harness between main relay connector and camshaft position sensor connector • Poor contact of coupling connector
2	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and camshaft position sensor connector. ***Connector & terminal*** ***(B136) No. 14 — (E62) No. 2:*** ***(B136) No. 34 — (E62) No. 3:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and camshaft position sensor connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the resistance between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E62) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair short circuit to ground in harness between ECM connector and camshaft position sensor connector.
4	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E62) No. 2 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and camshaft position sensor connector.	Go to step **5**.
5	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.**	Is the camshaft position sensor installation bolt tightened securely?	Go to step **6**.	Tighten the camshaft position sensor installation bolt securely. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.>
6	**CHECK CAMSHAFT POSITION SENSOR.** Check the waveform of the camshaft position sensor. <Ref. to EN(H4DO HEV)(diag)-19, ENGINE CONTROL MODULE (ECM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>	Is there any abnormality in waveform?	Replace the camshaft position sensor. <Ref. to FU(H4DO(HEV))-52, Camshaft Position Sensor.>	Repair the following item. • Poor contact of ECM connector • Poor contact of camshaft position sensor connector • Poor contact of coupling connector

CF:DTC P0366 CAMSHAFT POSITION SENSOR B CIRCUIT RANGE/PERFORMANCE (BANK 1)

NOTE:
For the diagnostic procedure, refer to DTC P0365. <Ref. to EN(H4DO HEV)(diag)-228, DTC P0365 CAMSHAFT POSITION SENSOR “B” CIRCUIT (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CG:DTC P0390 CAMSHAFT POSITION SENSOR “B” CIRCUIT (BANK 2)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-103, DTC P0390 CAMSHAFT POSITION SENSOR “B” CIRCUIT (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

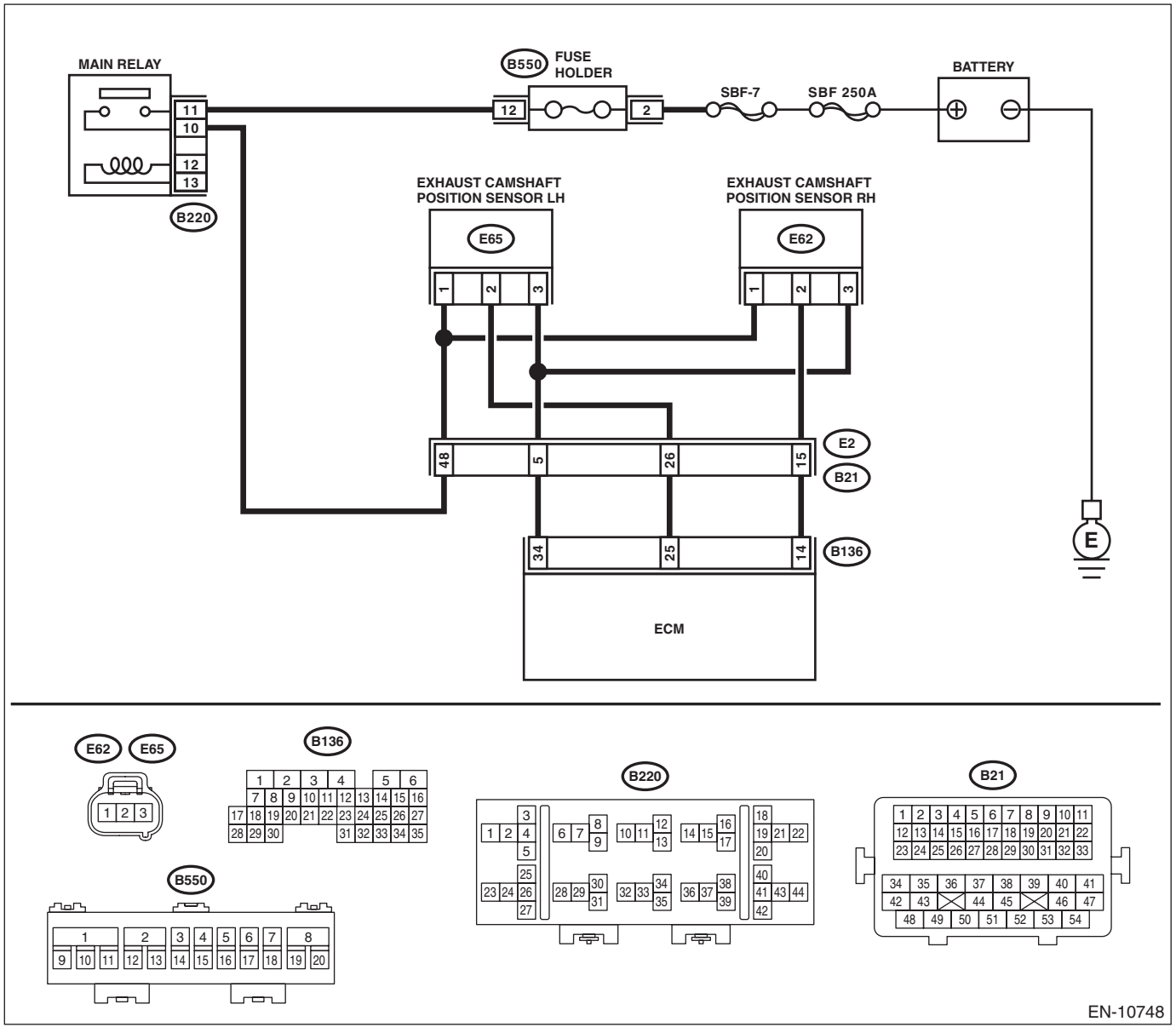
- Engine stalls.
- Failure of engine to start

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from camshaft position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E65) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit or short circuit to ground in harness between main relay connector and camshaft position sensor connector • Poor contact of coupling connector
2	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and camshaft position sensor connector. ***Connector & terminal*** ***(B136) No. 25 — (E65) No. 2:*** ***(B136) No. 34 — (E65) No. 3:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and camshaft position sensor connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the resistance between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E65) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair short circuit to ground in harness between ECM connector and camshaft position sensor connector.
4	**CHECK HARNESS BETWEEN ECM AND CAMSHAFT POSITION SENSOR CONNECTOR.** Measure the voltage between camshaft position sensor connector and engine ground. ***Connector & terminal*** ***(E65) No. 2 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and camshaft position sensor connector.	Go to step **5**.
5	**CHECK CONDITION OF CAMSHAFT POSITION SENSOR.**	Is the camshaft position sensor installation bolt tightened securely?	Go to step **6**.	Tighten the camshaft position sensor installation bolt securely. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.>
6	**CHECK CAMSHAFT POSITION SENSOR.** Check the waveform of the camshaft position sensor. <Ref. to EN(H4DO HEV)(diag)-19, ENGINE CONTROL MODULE (ECM), ELECTRICAL SPECIFICATION, Control Module I/O Signal.>	Is there any abnormality in waveform?	Replace the camshaft position sensor. <Ref. to FU(H4DO(HEV))-52, Camshaft Position Sensor.>	Repair the following item. • Poor contact of ECM connector • Poor contact of camshaft position sensor connector • Poor contact of coupling connector

CH:DTC P0391 CAMSHAFT POSITION SENSOR B CIRCUIT RANGE/PERFORMANCE (BANK 2)

NOTE:
For the diagnostic procedure, refer to DTC P0390. <Ref. to EN(H4DO HEV)(diag)-231, DTC P0390 CAMSHAFT POSITION SENSOR “B” CIRCUIT (BANK 2), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CI: DTC P0400 EXHAUST GAS RECIRCULATION FLOW

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-104, DTC P0400 EXHAUST GAS RECIRCULATION FLOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Movement performance problem when engine is low speed
- Improper idling
- Movement performance problem

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Start the engine. 2) Read the value of «Mani. Absolute Pressure» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Mani. Absolute Pressure» 53.3 kPa (400 mmHg, 15.75 inHg) or more?	Make sure that the EGR control valve, manifold absolute pressure sensor and throttle body are installed securely.	Go to step **2**.
2	**CHECK EGR CONTROL VALVE.** Remove the EGR control valve.	Are there any holes, clogged lines or foreign matters in the EGR system?	Repair the EGR system.	Replace EGR control valve. <Ref. to EC(H4DO(HEV))-26, EGR Control Valve.>

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

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-106, DTC P0420 CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

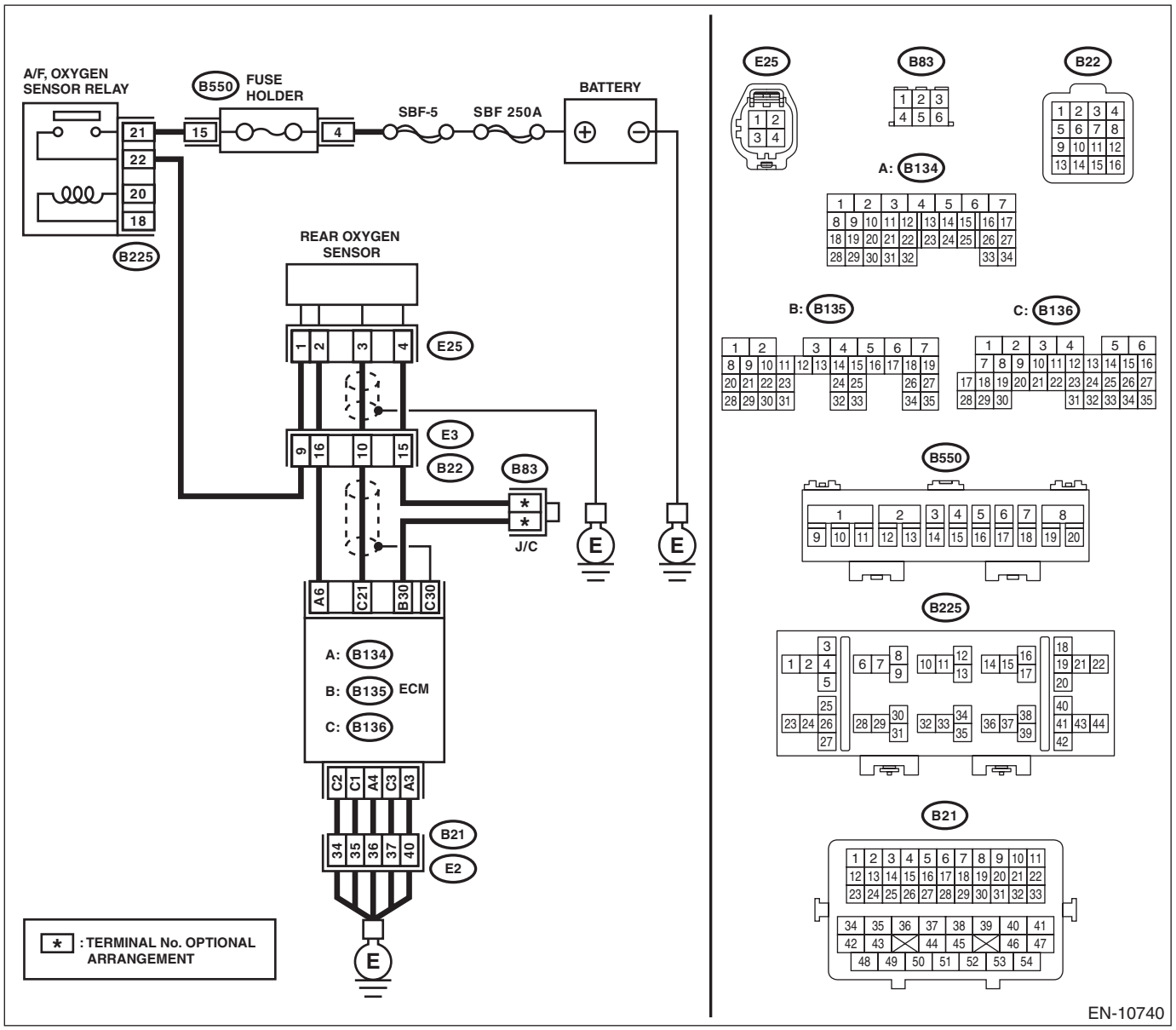
- Engine stalls.
- Idle mixture is out of specifications.

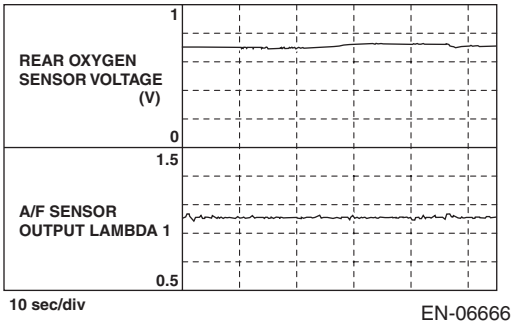
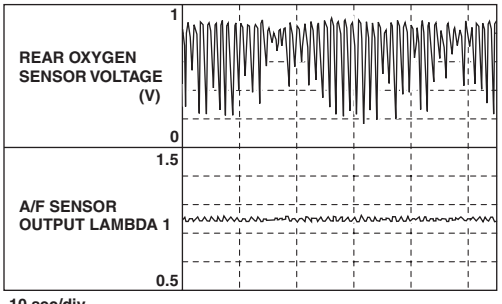
CAUTION:

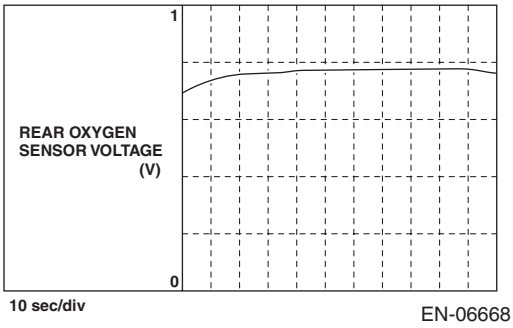
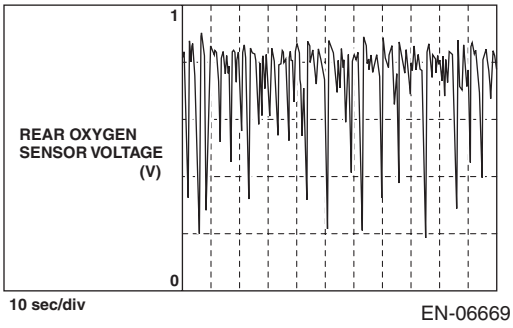
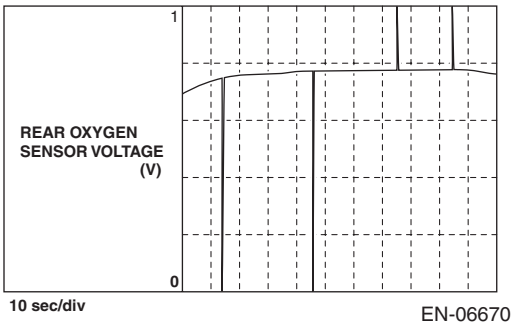
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK EXHAUST SYSTEM.** Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes. NOTE: Check the following positions. • Between cylinder head and front exhaust pipe • Between front exhaust pipe and front catalytic converter • Between front catalytic converter and rear catalytic converter • Loose or improperly attached front oxygen (A/F) sensor or rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace the exhaust system. <Ref. to EX(H4DO(w/o HEV))-2, General Description.>	Go to step **2**.
2	**CHECK WAVEFORM DATA ON THE SUBARU SELECT MONITOR (WHILE DRIVING).** 1) Drive at a constant speed between 80 — 112 km/h (50 — 70 MPH). 2) After 5 minutes have elapsed in the condition of step 1), use the Subaru Select Monitor while still driving to read the waveform data. • At normal condition  EN-06666 • At abnormal condition (numerous inversion)  EN-06667	Is a normal waveform displayed?	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK WAVEFORM DATA ON THE SUBARU SELECT MONITOR (WHILE IDLING).** 1) Run the engine at idle. 2) In the condition of step 1), use the Subaru Select Monitor to read the waveform data. • At normal condition  EN-06668 • At abnormal condition 1 (numerous inversion)  EN-06669 • At abnormal condition 2 (noise input)  EN-06670	Is a normal waveform displayed?	Go to step **4**.	• The waveform is displayed at abnormal condition 1: Go to step **4**. • The waveform is displayed at abnormal condition 2: Go to step **5**.
4	**CHECK CATALYTIC CONVERTER.**	Is the catalytic converter damaged?	Replace the catalytic converter. <Ref. to EC(H4DO(HEV))-6, Front Catalytic Converter.>	Go to step **5**.
5	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **6**.

	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 21 — (E25) No. 3:*** ***(B135) No. 30 — (E25) No. 4:***	Is the resistance less than 1 Ω?	Go to step **7**.	Repair the harness and connector. NOTE: Repair the following locations. • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
7	**CHECK REAR OXYGEN SENSOR SHIELD.** 1) Turn the ignition switch to OFF. 2) Expose the rear oxygen sensor connector body side harness sensor shield. 3) Measure the resistance between sensor shield and chassis ground.	Is the resistance less than 1 Ω?	Go to step **8**.	Repair the open circuit of rear oxygen sensor harness.
8	**CHECK ENGINE OIL AMOUNT AND EXHAUST GAS.** 1) Check the engine oil amount. <Ref. to LU(H4DO(w/o HEV))-12, INSPECTION, Engine Oil.> 2) Check exhaust gas during idling.	Does the engine oil amount drop or white smoke emit from the muffler?	Check the engine, and repair the defective part. <Ref. to ME(H4DO(w/o HEV))-421, INSPECTION, Engine Trouble in General.> After repairing the engine, replace the front catalytic converter. <Ref. to EX(H4DO(w/o HEV))-6, Front Exhaust Pipe.> After the catalytic converter is replaced, perform step 2 to check the normal waveform is displayed, and then exit the procedure.	Go to step **9**.
9	**CHECK IGNITION SYSTEM.** 1) Check the spark plug. <Ref. to IG(H4DO(w/o HEV))-7, INSPECTION, Spark Plug.> 2) Check the status of the ignition coil connector and the spark plug terminal.	Is there any fault in the ignition system?	After repairing the ignition system, replace the front catalytic converter. <Ref. to EX(H4DO(w/o HEV))-6, Front Exhaust Pipe.> After the catalytic converter is replaced, perform step 2 to check the normal waveform is displayed, and then exit the procedure.	Go to step **10**.

	Step	Check	Yes	No
10	**CHECK FUEL SYSTEM.** 1) Refer to and check the items in “Insufficient fuel supply to fuel injector (except for “a. Fuel pump does not operate.”)” and “Leakage or blow out of fuel”. <Ref. to FU(H4DO(HEV))-158, INSPECTION, Fuel System Trouble in General.> 2) Check throttle body. <Ref. to FU(H4DO(HEV))-17, INSPECTION, Throttle Body.> 3) Check intake manifold. <Ref. to FU(H4DO(HEV))-33, INSPECTION, Intake Manifold.>	Is there any fault in the fuel system?	After repairing the fuel system, replace the front catalytic converter. <Ref. to EX(H4DO(w/o HEV))-6, Front Exhaust Pipe.> After the catalytic converter is replaced, perform step 2 to check the normal waveform is displayed, and then exit the procedure.	Go to step **11**.
11	**CHECK DTC.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).> After checking the DTC, replace the front catalytic converter. <Ref. to EX(H4DO(w/o HEV))-6, Front Exhaust Pipe.> After the catalytic converter is replaced, perform step 2 to check the normal waveform is displayed, and then exit the procedure.	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>

CK:DTC P0441 EVAPORATIVE EMISSION CONT. SYS. INCORRECT PURGE FLOW

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-108, DTC P0441 EVAPORATIVE EMISSION CONT. SYS. INCORRECT PURGE FLOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK PURGE CONTROL SOLENOID VALVE.** Operate the purge control solenoid valve using the Subaru Select Monitor. NOTE: For detailed procedures, refer to “System Operation Check Mode”. <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>	Does the purge control solenoid valve operate?	Go to step **3**.	Replace the purge control solenoid valve. <Ref. to EC(H4DO(HEV))-21, Purge Control Solenoid Valve.>
3	**CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.** Turn the ignition switch to OFF.	Are there holes, cracks, clogging, or disconnection, misconnection of hoses or pipes in evaporative emission control system?	Repair or replace the hoses or pipes.	Repair the poor contact of ECM connector.

CL:DTC P0451 EVAPORATIVE EMISSION SYSTEM PRESSURE SENSOR/ SWITCH RANGE/PERFORMANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-111, DTC P0451 EVAPORATIVE EMISSION SYSTEM PRESSURE SENSOR/SWITCH RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK CURRENT DATA.** 1) Turn the ignition switch to ON (engine OFF). 2) Using the Subaru Select Monitor or general scan tool, read the value in «Absolute Evap Sys. Pressure» and «Mani. Absolute Pressure», and compare them with the actual atmospheric pressure. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual. • To read the actual atmospheric pressure, connect the Subaru Select Monitor or general scan tool to the other known good vehicle.	Is the difference with the actual atmospheric pressure 2.4 kPa (17.8 mmHg, 0.7 inHg) or more?	Replace the part that showed larger deviation from the actual atmospheric pressure than the other. • If deviations in value for «Absolute Evap Sys. Pressure» is larger: Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.> • If deviations in value for «Mani. Absolute Pressure» is larger: Replace the manifold absolute pressure sensor. <Ref. to FU(H4DO(HEV))-66, Manifold Absolute Pressure Sensor.>	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.

CM:DTC P0452 EVAPORATIVE EMISSION SYSTEM PRESSURE SENSOR/ SWITCH LOW

DTC DETECTING CONDITION:

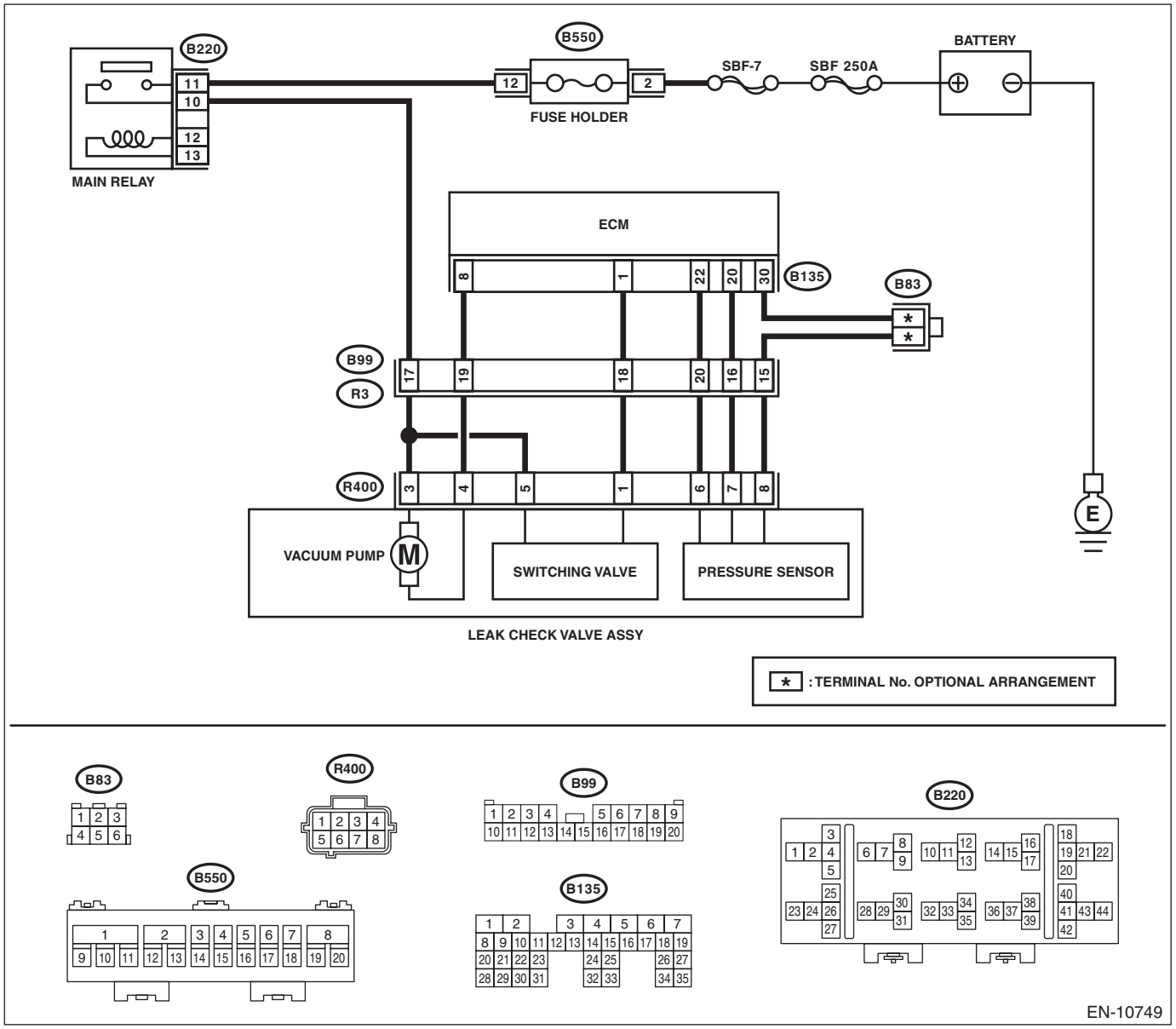
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-113, DTC P0452 EVAPORATIVE EMISSION SYSTEM PRESSURE SENSOR/SWITCH LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Turn the ignition switch to ON. 2) Read the value of «Atmosphere Pressure» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value in «Atmosphere Pressure» 34 kPa (255 mmHg, 10 inHg) or less?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK POWER SUPPLY OF LEAK CHECK VALVE ASSEMBLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the leak check valve assembly. 3) Turn the ignition switch to ON. 4) Measure the voltage between the leak check valve assembly connector and chassis ground. ***Connector & terminal*** ***(R400) No. 6 (+) — Chassis ground (–):***	Is the voltage 4.5 V or more?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the leak check valve assembly connector • Poor contact of ECM connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 20 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair the short circuit to ground in harness between ECM connector and leak check valve assembly connector.
4	**CHECK FOR POOR CONTACT.** Check for poor contact of leak check valve assembly connector.	Is there poor contact in the leak check valve assembly connector?	Repair the poor contact in the leak check valve assembly connector.	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>

CN:DTC P0453 EVAPORATIVE EMISSION SYSTEM PRESSURE SENSOR/ SWITCH HIGH

DTC DETECTING CONDITION:

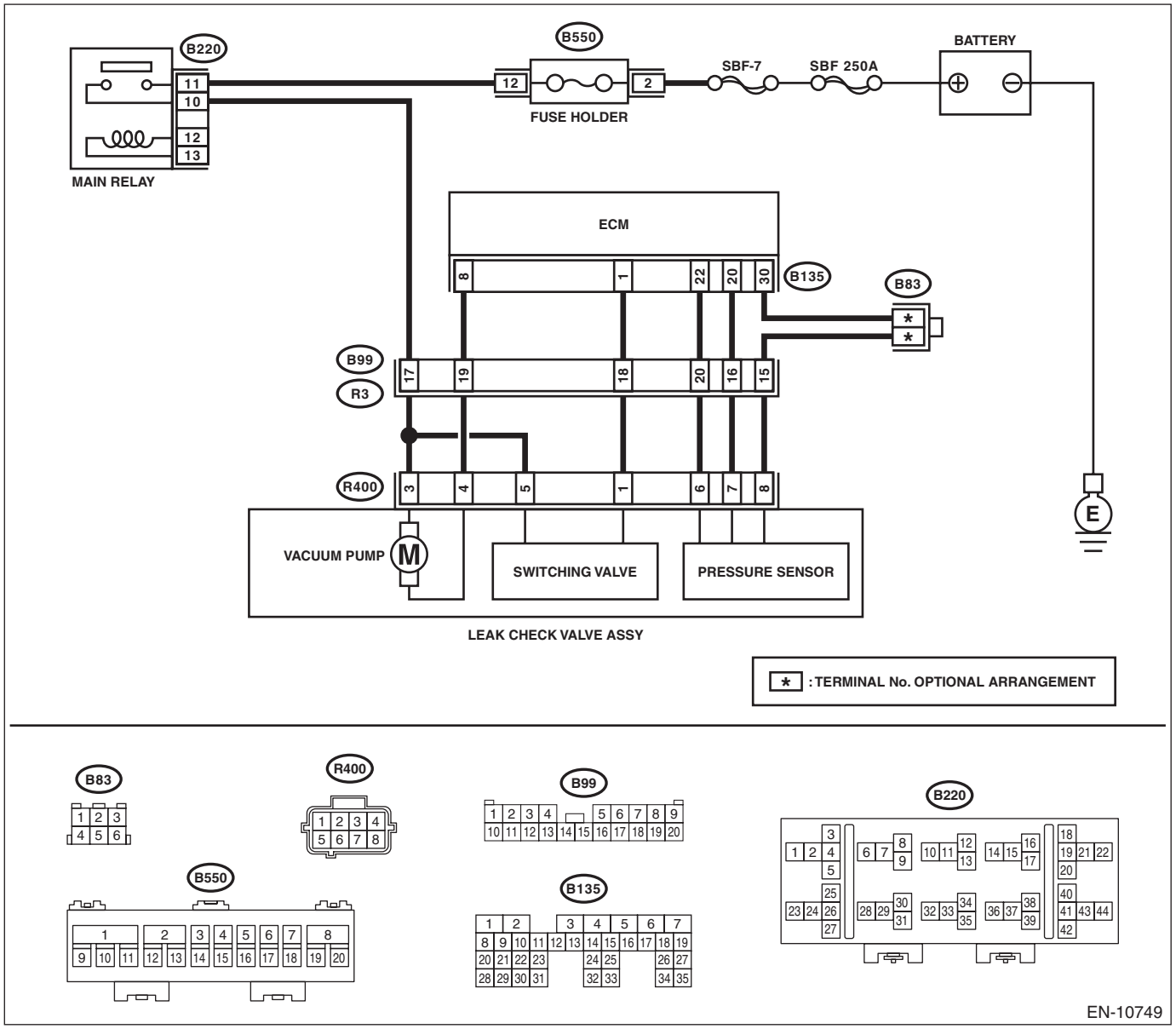
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-114, DTC P0453 EVAPORATIVE EMISSION SYSTEM PRESSURE SENSOR/SWITCH HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK CURRENT DATA.** 1) Turn the ignition switch to ON. 2) Read the value of «Atmosphere Pressure» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value in «Atmosphere Pressure» 125 kPa (938 mmHg, 36.9 inHg) or more?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
2	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and the leak check valve assembly. 3) Measure the resistance of harness between ECM connector and the leak check valve assembly connector. ***Connector & terminal*** ***(B135) No. 20 — (R400) No. 7:*** ***(B135) No. 30 — (R400) No. 8:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the leak check valve assembly connector • Poor contact of coupling connector • Poor contact of joint connector
3	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM and the leak check valve assembly connector.	Is there poor contact in ECM and the leak check valve assembly connector?	Repair the poor contact of ECM and the leak check valve assembly connector.	Go to step **4**.
4	**CHECK LEAK CHECK VALVE ASSEMBLY.** Check the pressure sensor of the leak check valve assembly. <Ref. to EC(H4DO(HEV))-49, CHECK PRESSURE SENSOR, INSPECTION, Leak Check Valve Assembly.>	Is the pressure sensor of the leak check valve assembly OK?	Repair the short circuit to power in harness between ECM connector and leak check valve assembly connector.	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>

CO:DTC P0455 EVAPORATIVE EMISSION SYSTEM LEAK DETECTED (LARGE LEAK)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-115, DTC P0455 EVAPORATIVE EMISSION SYSTEM LEAK DETECTED (LARGE LEAK), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Fuel odor
- There is a hole of more than 1.0 mm (0.04 in) dia. in evaporation system or fuel tank.
- Fuel filler cap loose or lost

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FUEL FILLER CAP.** 1) Turn the ignition switch to OFF. 2) Check the fuel filler cap. NOTE: The DTC is stored in memory if fuel filler cap is or was loose or if the cap chain has caught while tightening.	Is the fuel filler cap tightened securely?	Go to step **2**.	Tighten fuel filler cap securely.
2	**CHECK FUEL FILLER CAP.**	Is the fuel filler cap genuine?	Go to step **3**.	Replace with a genuine fuel filler cap.
3	**CHECK FUEL FILLER PIPE GASKET.**	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace the fuel filler cap and fuel filler pipe. <Ref. to FU(H4DO(HEV))-118, Fuel Filler Pipe.>	Go to step **4**.
4	**CHECK PURGE CONTROL SOLENOID VALVE.** Check air-tightness of the purge control solenoid valve. <Ref. to EC(H4DO(HEV))-24, INSPECTION, Purge Control Solenoid Valve.>	Is the purge control solenoid valve OK?	Go to step **5**.	Replace the purge control solenoid valve. <Ref. to EC(H4DO(HEV))-21, Purge Control Solenoid Valve.>
5	**CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.**	Are there holes on the evaporation line?	Repair or replace the evaporation line. <Ref. to FU(H4DO(HEV))-149, Fuel Delivery and Evaporation Lines.>	Go to step **6**.
6	**CHECK CANISTER.**	Are there holes on the canister?	Replace the canister. <Ref. to EC(H4DO(HEV))-8, Canister.>	Go to step **7**.
7	**CHECK LEAK CHECK VALVE ASSEMBLY.**	Are there damage or holes on the leak check valve assembly?	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>	Go to step **8**.

	Step	Check	Yes	No
8	**CHECK FUEL TANK.** Remove the fuel tank. <Ref. to FU(H4DO(HEV))-105, Fuel Tank.>	Are there damage or holes on the fuel tank?	Repair or replace the fuel tank. <Ref. to FU(H4DO(HEV))-105, Fuel Tank.>	Go to step **9**.
9	**CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.**	Are there holes, cracks, clogging, or disconnection, misconnection of hoses or pipes in evaporative emission control system?	Repair or replace the hoses or pipes.	Repair the poor contact of ECM connector.

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

NOTE:
For the diagnostic procedure, refer to DTC P0455. <Ref. to EN(H4DO HEV)(diag)-246, DTC P0455 EVAPORATIVE EMISSION SYSTEM LEAK DETECTED (LARGE LEAK), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CQ:DTC P0458 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT LOW

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-121, DTC P0458 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

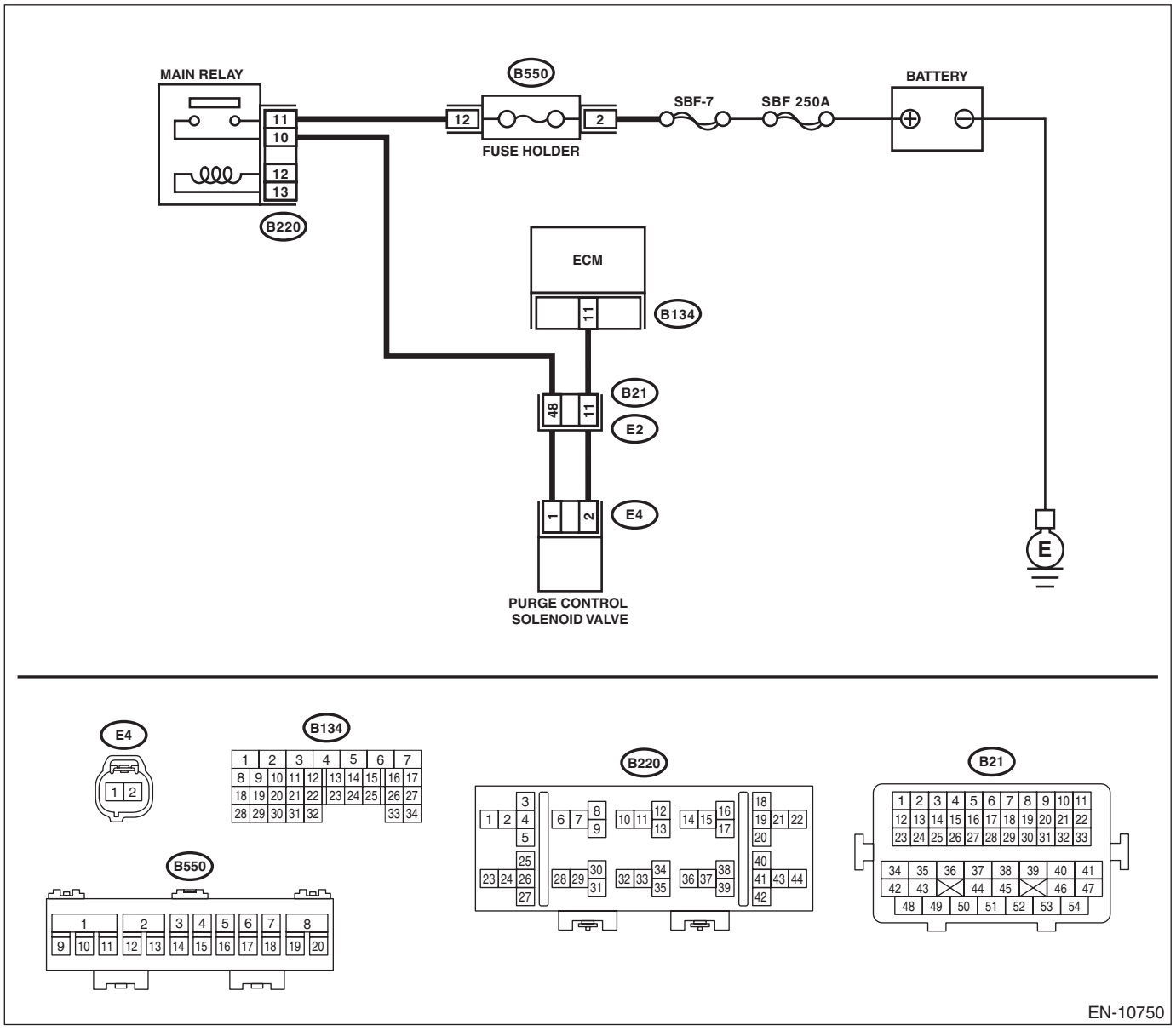
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 11 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Go to step **3**.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
3	**CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE.** Measure the voltage between purge control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E4) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the power supply circuit.
4	**CHECK HARNESS BETWEEN ECM AND PURGE CONTROL SOLENOID VALVE CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and purge control solenoid valve. 3) Measure the resistance between the purge control solenoid valve connector and engine ground. ***Connector & terminal*** ***(E4) No. 2 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and purge control solenoid valve connector.
5	**CHECK HARNESS BETWEEN ECM AND PURGE CONTROL SOLENOID VALVE CONNECTOR.** Measure the resistance of harness between ECM connector and purge control solenoid valve. ***Connector & terminal*** ***(B134) No. 11 — (E4) No. 2:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and purge control solenoid valve connector • Poor contact of coupling connector

Step		Check	Yes	No
6	**CHECK PURGE CONTROL SOLENOID VALVE.** 1) Remove the purge control solenoid valve. 2) Measure the resistance between purge control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 10 — 100 Ω?	Repair the poor contact of purge control solenoid valve connector.	Replace the purge control solenoid valve. <Ref. to EC(H4DO(HEV))-21, Purge Control Solenoid Valve.>

CR:DTC P0459 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-122, DTC P0459 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

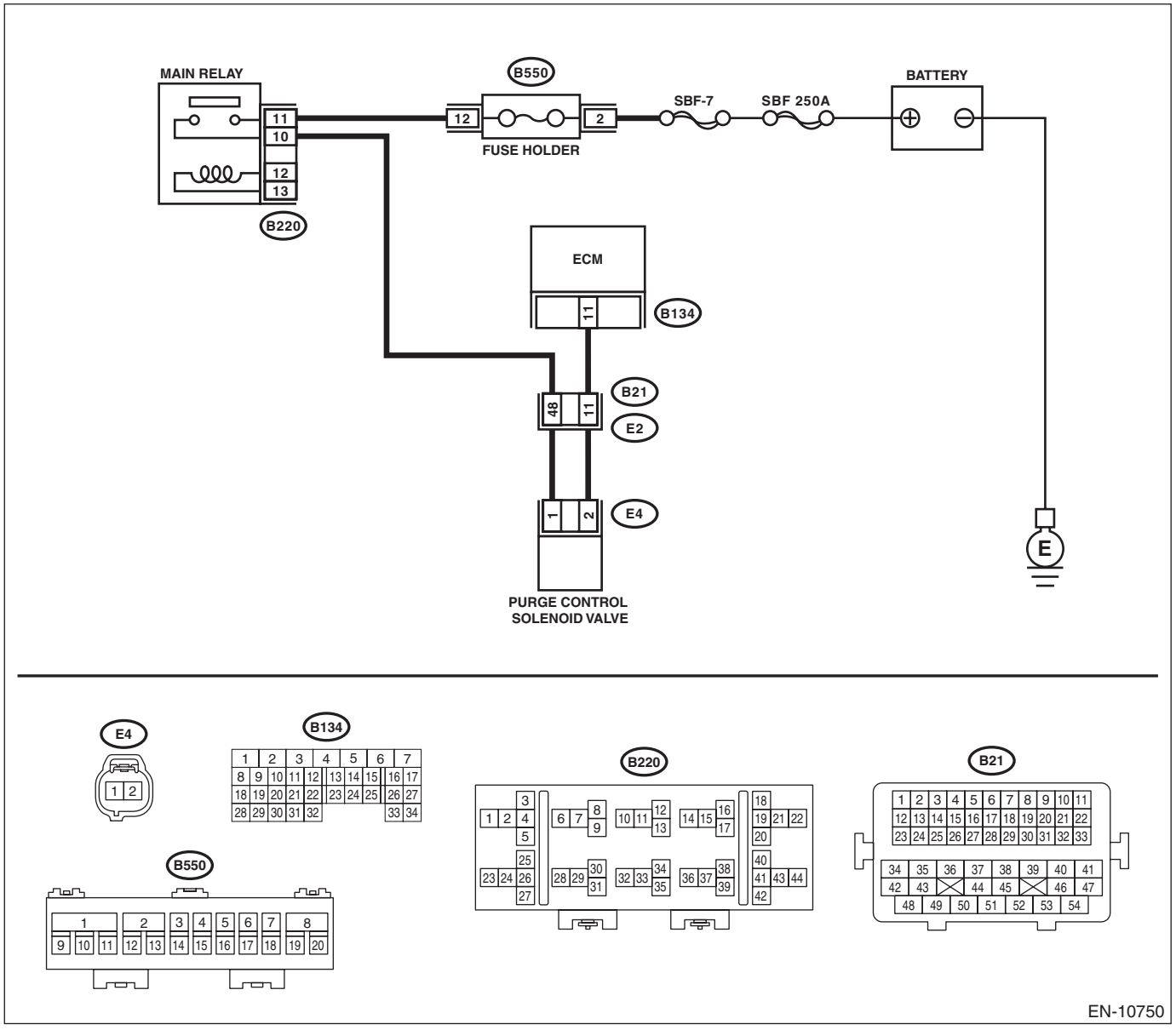
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND PURGE CONTROL SOLENOID VALVE CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and purge control solenoid valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 11 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in the harness between ECM connector and purge control solenoid valve connector.	Go to step **2**.
2	**CHECK PURGE CONTROL SOLENOID VALVE.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between purge control solenoid valve terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance less than 1 Ω?	Replace the purge control solenoid valve. <Ref. to EC(H4DO(HEV))-21, Purge Control Solenoid Valve.>	Repair the poor contact of ECM connector.

CS:DTC P0461 FUEL LEVEL SENSOR “A” CIRCUIT RANGE/PERFORMANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-123, DTC P0461 FUEL LEVEL SENSOR “A” CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Replace the fuel level sensor and fuel sub level sensor. <Ref. to FU(H4DO(HEV))-128, Fuel Level Sensor.> <Ref. to FU(H4DO(HEV))-131, Fuel Sub Level Sensor.>

CT:DTC P0462 FUEL LEVEL SENSOR “A” CIRCUIT LOW

NOTE:
For the diagnostic procedure, refer to DTC P0463. <Ref. to EN(H4DO HEV)(diag)-254, DTC P0463 FUEL LEVEL SENSOR “A” CIRCUIT HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CU:DTC P0463 FUEL LEVEL SENSOR “A” CIRCUIT HIGH

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-125, DTC P0463 FUEL LEVEL SENSOR “A” CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is DTC P0462 or P0463 displayed on the Subaru Select Monitor?	Check the combination meter. <Ref. to IDI(diag)-2, Basic Diagnostic Procedure.>	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.

CV:DTC P0500 VEHICLE SPEED SENSOR “A”

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-126, DTC P0500 VEHICLE SPEED SENSOR “A”, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1	**CHECK DTC OF VDC.** Check DTC of VDC.	Is DTC of VDC displayed?	Perform the diagnosis according to DTC. <Ref. to VDC(diag)-40, List of Diagnostic Trouble Code (DTC).>	Repair the poor contact of ECM connector.

CW:DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-127, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Hard to start the engine.
- Engine does not start.
- Improper idling
- Engine stalls.

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK AIR CLEANER ELEMENT.** 1) Turn the ignition switch to OFF. 2) Check the air cleaner element.	Is there excessive clogging on air cleaner element?	Replace the air cleaner element. <Ref. to IN(H4DO(HEV))-4, Air Cleaner Element.>	Go to step **3**.
3	**CHECK ELECTRONIC THROTTLE CONTROL.** 1) Remove the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, REMOVAL, Throttle Body.> 2) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from electronic throttle control.	Perform the diagnosis of DTC P2101. <Ref. to EN(H4DO HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CX:DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-128, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Engine keeps running at higher speed than specified idle speed.

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK AIR INTAKE SYSTEM.** 1) Start and idle the engine. 2) Check the following items. • Loose installation of intake manifold and throttle body • Cracks of intake manifold gasket and throttle body gasket • Disconnection of vacuum hoses	Is there any fault in air intake system?	Repair air suction and leaks.	Go to step **3**.
3	**CHECK ELECTRONIC THROTTLE CONTROL.** 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, REMOVAL, Throttle Body.> 3) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from electronic throttle control.	Perform the diagnosis of DTC P2101. <Ref. to EN(H4DO HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CY:DTC P050A COLD START IDLE AIR CONTROL SYSTEM PERFORMANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-129, DTC P050A COLD START IDLE AIR CONTROL SYSTEM PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

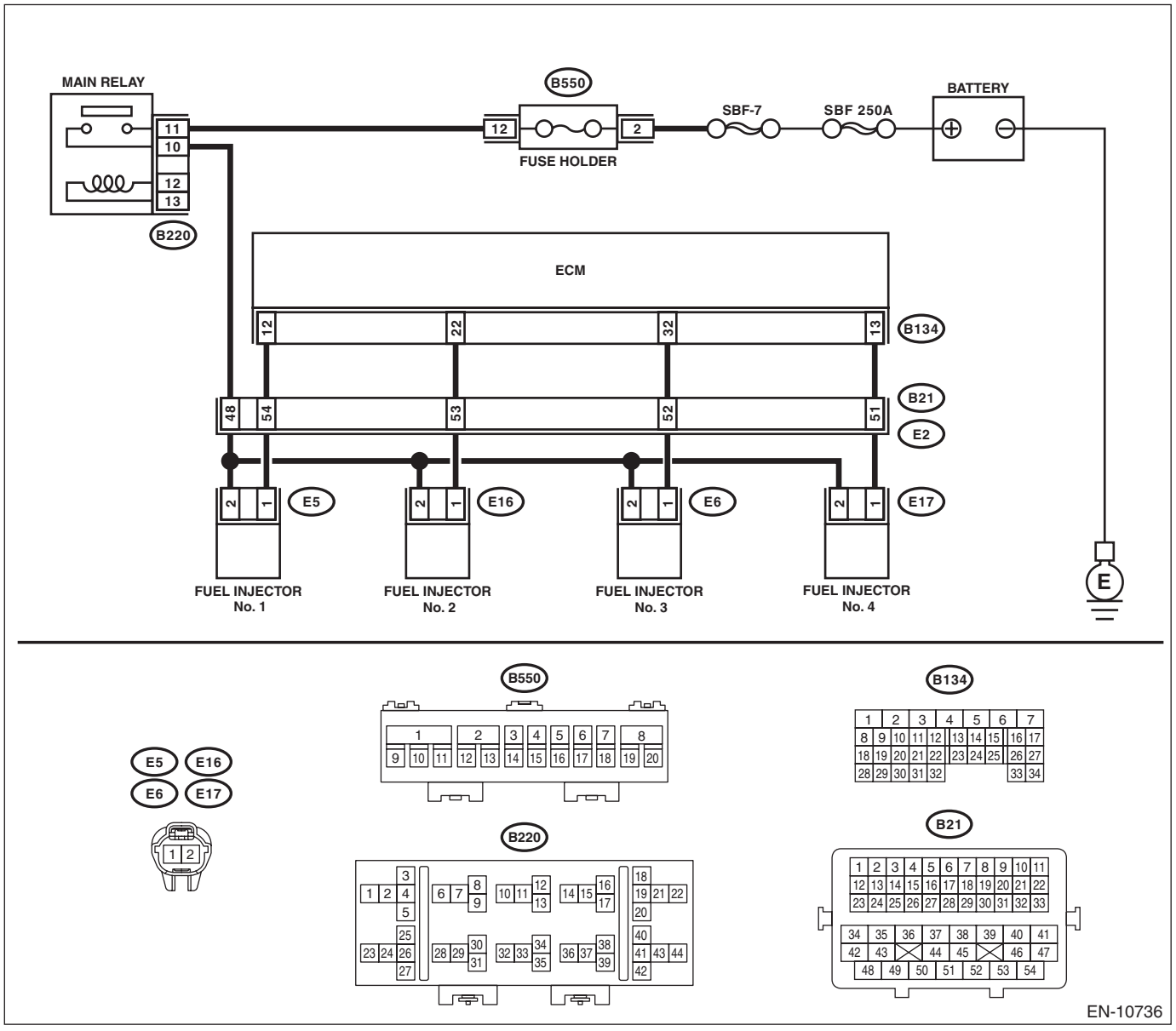
- Engine keeps running at higher speed than specified idle speed.
- Engine keeps running at a lower speed than the specified idle speed.
- Engine stalls.

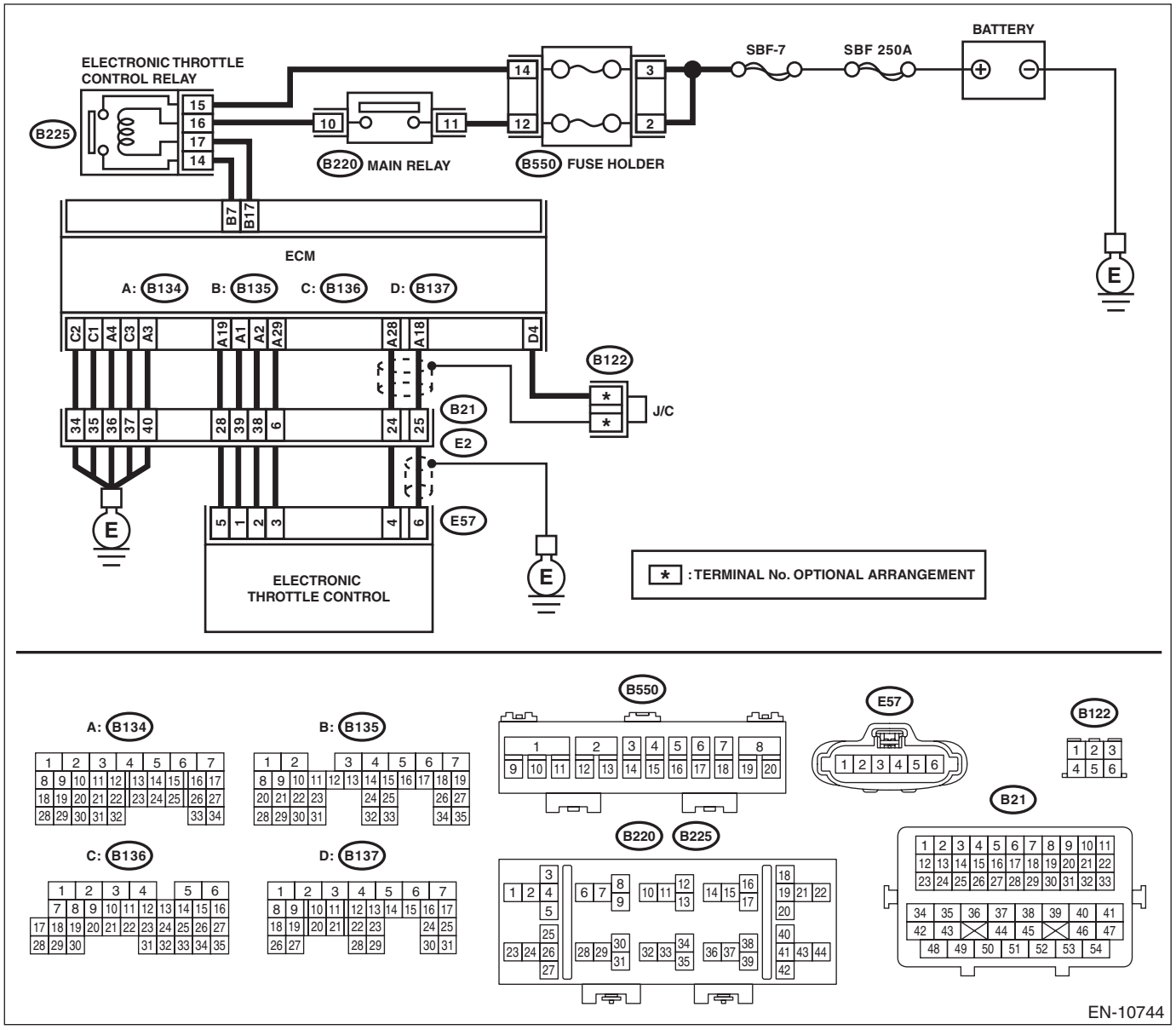
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





Step		Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK ENGINE OIL.**	Is there a proper amount of engine oil?	Go to step **3**.	Replace engine oil. <Ref. to LU(H4DO(w/o HEV))-13, REPLACEMENT, Engine Oil.>
3	**CHECK EXHAUST SYSTEM.**	Are there holes or loose bolts on exhaust system?	Repair the exhaust system.	Go to step **4**.

	Step	Check	Yes	No
4	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair the air intake system.	Go to step **5**.
5	**CHECK FUEL PRESSURE.** **WARNING:** **Place "NO OPEN FLAMES" signs near the working area.** **CAUTION:** **Be careful not to spill fuel.** Measure the fuel pressure. <Ref. to ME(H4DO(w/o HEV))-35, INSPECTION, Fuel Pressure.> **CAUTION:** **Release fuel pressure before removing the fuel pressure gauge.**	Is the measured value 340 — 400 kPa (3.5 — 4.1 kg/cm^2, 49 — 58 psi)?	Go to step **6**.	Check the fuel pump and fuel delivery line. <Ref. to FU(H4DO(HEV))-127, INSPECTION, Fuel Pump.> <Ref. to FU(H4DO(HEV))-157, INSPECTION, Fuel Delivery and Evaporation Lines.>
6	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm up completely. 2) Read the value of «Coolant Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Coolant Temp.» 75°C (167°F) or more?	Go to step **7**.	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>
7	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in "P" range or "N" range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the value of «Mass Air Flow» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Mass Air Flow» 2.0 — 5.0 g/s (0.26 — 0.66 lb/m)?	Go to step **8**.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

	Step	Check	Yes	No
8	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in "P" range or "N" range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Open the front hood. 6) Measure the ambient temperature. 7) Read the value of «Intake Air Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Subtract ambient temperature from «Intake Air Temp.». Is the obtained value –10 — 50°C (–18 — 90°F)?	Go to step **9**.	Check the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>
9	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **14**.	Go to step **10**.
10	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Measure the resistance between fuel injector connector and engine ground on faulty cylinders. ***Connector & terminal*** ***#1 (E5) No. 1 — Engine ground:*** ***#2 (E16) No. 1 — Engine ground:*** ***#3 (E6) No. 1 — Engine ground:*** ***#4 (E17) No. 1 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **11**.	Repair the short circuit to ground in harness between ECM connector and fuel injector connector.
11	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure the resistance of harness between ECM and fuel injector connector on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 — (E5) No. 1:*** ***#2 (B134) No. 22 — (E16) No. 1:*** ***#3 (B134) No. 32 — (E6) No. 1:*** ***#4 (B134) No. 13 — (E17) No. 1:***	Is the resistance less than 1 Ω?	Go to step **12**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and fuel injector connector • Poor contact of coupling connector

	Step	Check	Yes	No
12	**CHECK FUEL INJECTOR.** Measure the resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **13**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
13	**CHECK POWER SUPPLY LINE.** 1) Turn the ignition switch to ON. 2) Measure the voltage between fuel injector and engine ground on faulty cylinders. ***Connector & terminal*** ***#1 (E5) No. 2 (+) — Engine ground (–):*** ***#2 (E16) No. 2 (+) — Engine ground (–):*** ***#3 (E6) No. 2 (+) — Engine ground (–):*** ***#4 (E17) No. 2 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Repair the poor contact of all connectors in fuel injector circuit.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between the main relay connector and fuel injector connector on faulty cylinders • Poor contact of coupling connector • Poor contact of main relay connector
14	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in harness between ECM connector and fuel injector.	Go to step **15**.
15	**CHECK FUEL INJECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **16**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
16	**CHECK INSTALLATION CONDITION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.**	Is the camshaft position sensor or crankshaft position sensor loosely installed?	Tighten the camshaft position sensor or crankshaft position sensor. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.> <Ref. to FU(H4DO(HEV))-48, INSTALLATION, Crankshaft Position Sensor.>	Go to step **17**.
17	**CHECK CRANKSHAFT POSITION SENSOR PLATE.**	Is the crankshaft position sensor plate rusted or does it have broken teeth?	Replace the crankshaft position sensor plate. <Ref. to ME(H4DO(w/o HEV))-304, Cylinder Block.>	Go to step **18**.

	Step	Check	Yes	No
18	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn the crankshaft using ST, and align the alignment mark on crank sprocket with alignment mark on cylinder block. ST 18252AA000 CRANKSHAFT SOCKET	Is the timing chain dislocated from its proper position?	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>	Go to step **19**.
19	**CHECK ELECTRONIC THROTTLE CONTROL RELAY.** 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control relay. 3) Connect the battery to terminals No. 16 and No. 17 of electronic throttle control relay. 4) Measure the resistance between electronic throttle control relay terminals. ***Terminals*** ***No. 14 — No. 15:***	Is the resistance less than 1 Ω?	Go to step **20**.	Replace the electronic throttle control relay. <Ref. to FU(H4DO(HEV))-94, Electronic Throttle Control Relay.>
20	**CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL RELAY.** Measure the voltage between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 15 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **21**.	Repair the open or ground short circuit of power supply circuit.
21	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** 1) Disconnect the connector from ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 17 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control relay connector.	Go to step **22**.
22	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 14 — Chassis ground:*** ***(B225) No. 17 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **23**.	Repair the short circuit to ground in harness between ECM connector and electronic throttle control relay connector.
23	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** Measure the resistance of harness between ECM connector and electronic throttle control relay connector. ***Connector & terminal*** ***(B135) No. 17 — (B225) No. 17:*** ***(B135) No. 7 — (B225) No. 14:***	Is the resistance less than 1 Ω?	Go to step **24**.	Repair the open circuit in harness between ECM connector and electronic throttle control relay connector.

	Step	Check	Yes	No
24	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 19 — Chassis ground:*** ***(B134) No. 18 — Chassis ground:*** ***(B134) No. 18 — (B137) No. 4:*** ***(B134) No. 28 — Chassis ground:*** ***(B134) No. 28 — (B137) No. 4:***	Is the resistance 1 MΩ or more?	Go to step **25**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector.
25	**CHECK SHORT CIRCUIT INSIDE THE ECM.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 — Engine ground:*** ***(E57) No. 4 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **26**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector. Replace the ECM if defective. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>
26	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance of harness between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 18 — (E57) No. 6:*** ***(B134) No. 28 — (E57) No. 4:*** ***(B134) No. 29 — (E57) No. 3:***	Is the resistance less than 1 Ω?	Go to step **27**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector
27	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 3 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **28**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of coupling connector

	Step	Check	Yes	No
28	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 (+) — Engine ground (–):*** ***(E57) No. 4 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.	Go to step **29**.
29	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B134) No. 19 — (B134) No. 18:*** ***(B134) No. 19 — (B134) No. 28:***	Is the resistance 1 MΩ or more?	Go to step **30**.	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.
30	**CHECK SENSOR OUTPUT.** 1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Read the value of «Main-Throttle Sensor» using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Main-Throttle Sensor» 0.81 — 0.87 V?	Go to step **31**.	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>
31	**CHECK SENSOR OUTPUT.** Read the value of «Sub-Throttle Sensor» using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Sub-Throttle Sensor» 1.64 — 1.70 V?	Go to step **32**.	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>
32	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 2 — (E57) No. 2:*** ***(B134) No. 1 — (E57) No. 1:***	Is the resistance less than 1 Ω?	Go to step **33**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector

	Step	Check	Yes	No
33	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 2 (+) — Engine ground (–):*** ***(E57) No. 1 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.	Go to step **34**.
34	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 2 — Engine ground:*** ***(E57) No. 1 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **35**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector.
35	**CHECK HARNESS BETWEEN ELECTRONIC THROTTLE CONTROL CONNECTOR.** Measure the resistance between electronic throttle control connectors. ***Connector & terminal*** ***(E57) No. 2 — (E57) No. 1:***	Is the resistance 1 MΩ or more?	Go to step **36**.	Repair the short circuit in harness between ECM connector and electronic throttle control connector.
36	**CHECK ELECTRONIC THROTTLE CONTROL GROUND CIRCUIT.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 3 — Chassis ground:*** ***(B134) No. 4 — Chassis ground:*** ***(B136) No. 1 — Chassis ground:*** ***(B136) No. 2 — Chassis ground:*** ***(B136) No. 3 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **37**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of coupling connector
37	**CHECK ELECTRONIC THROTTLE CONTROL.** Measure the resistance between electronic throttle control terminals. ***Terminals*** ***No. 2 — No. 1:***	Is the resistance 50 Ω or less?	Go to step **38**.	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>
38	**CHECK ELECTRONIC THROTTLE CONTROL.** Move the throttle valve to the fully open and fully closed positions with fingers. Check that the valve returns to the specified position when releasing fingers.	Does the valve return to the specified position? Standard value: 3 mm (0.12 in) from fully closed position	Repair the poor contact of ECM connector.	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>

CZ:DTC P050B COLD START IGNITION TIMING PERFORMANCE

NOTE:
For the diagnostic procedure, refer to DTC P050A. <Ref. to EN(H4DO HEV)(diag)-257, DTC P050A COLD START IDLE AIR CONTROL SYSTEM PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DA:DTC P0512 STARTER REQUEST CIRCUIT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-132, DTC P0512 STARTER REQUEST CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

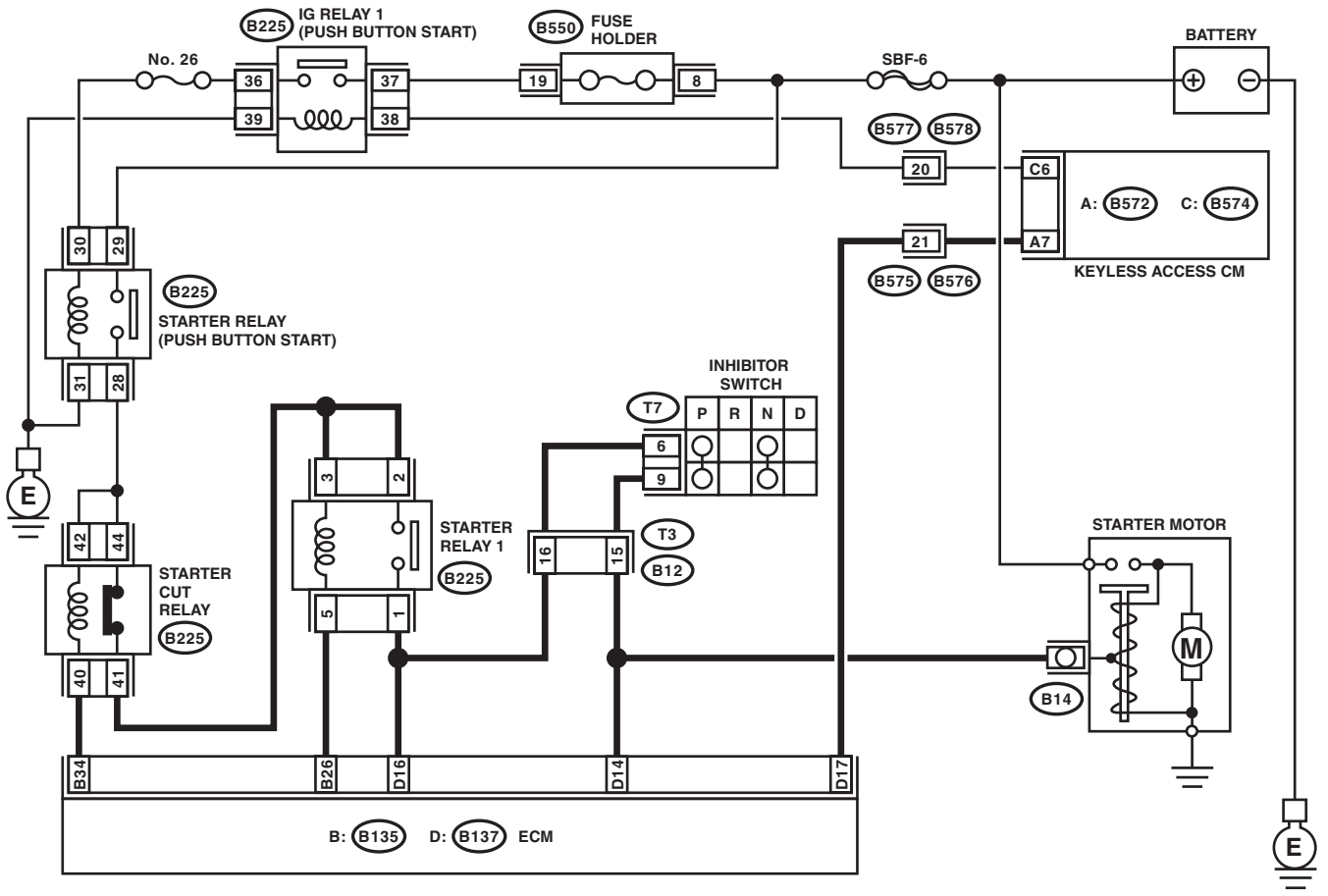
Failure of engine to start

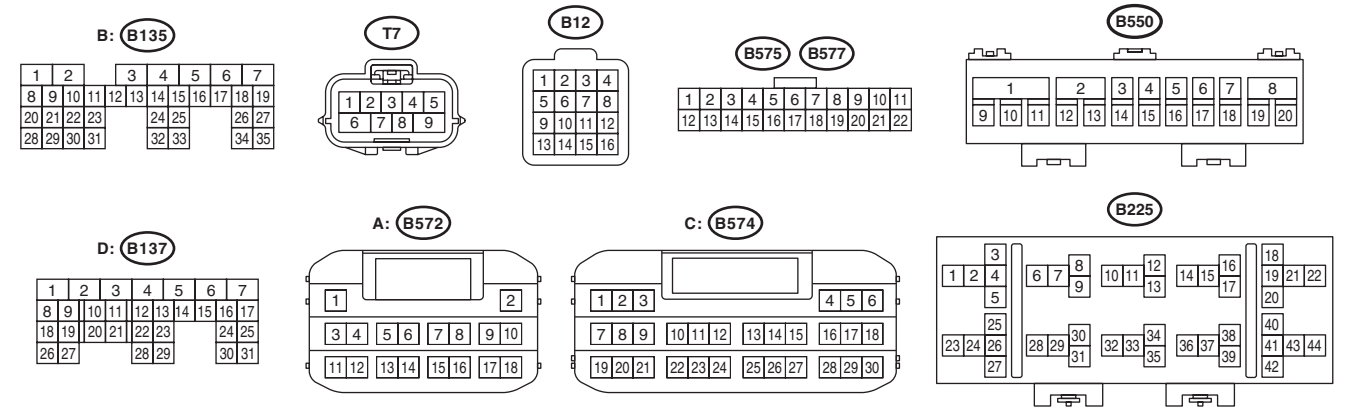
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





EN-10732

	Step	Check	Yes	No
1	**CHECK PUSH BUTTON IGNITION SWITCH.** Operate the push button ignition switch.	Does it operate smoothly without catch?	Go to step **2**.	Replace the push button ignition switch. <Ref. to SL-114, Push Button Ignition Switch.>
2	**CHECK DTC.** 1) Clear the memory using the Subaru Select Monitor. <Ref. to EN(H4DO HEV)(diag)-66, Clear Memory Mode.> 2) Start and idle the engine for three minutes or more.	Is the same DTC as current diagnosis output?	Go to step **3**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.
3	**CHECK HARNESS BETWEEN ECM AND KEYLESS ACCESS CM.** 1) Turn the ignition to OFF. 2) Disconnect the connector from ECM. 3) Turn the ignition to ON. 4) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 17 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power supply in harness between ECM connector and keyless access CM connector.	Repair the poor contact of ECM connector.

DB:DTC P0560 SYSTEM VOLTAGE

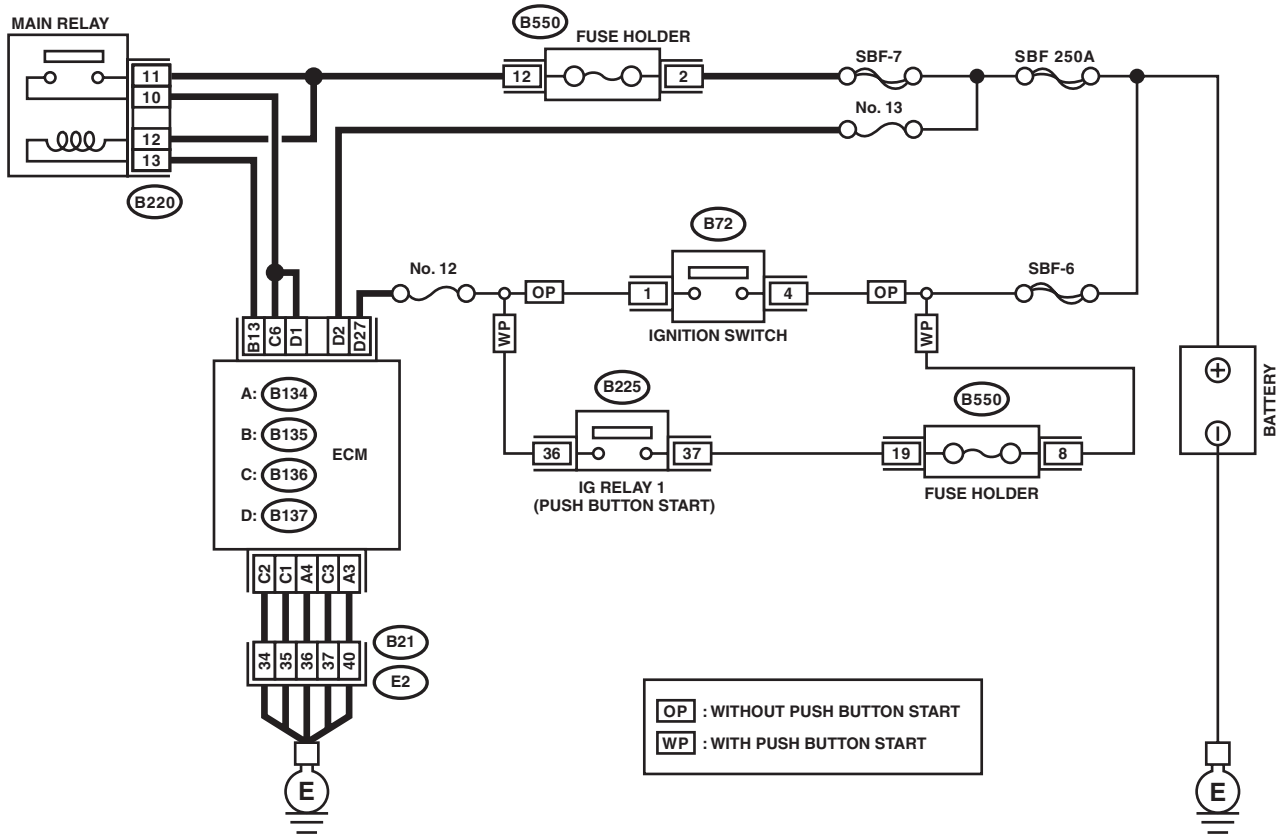
DTC DETECTING CONDITION:

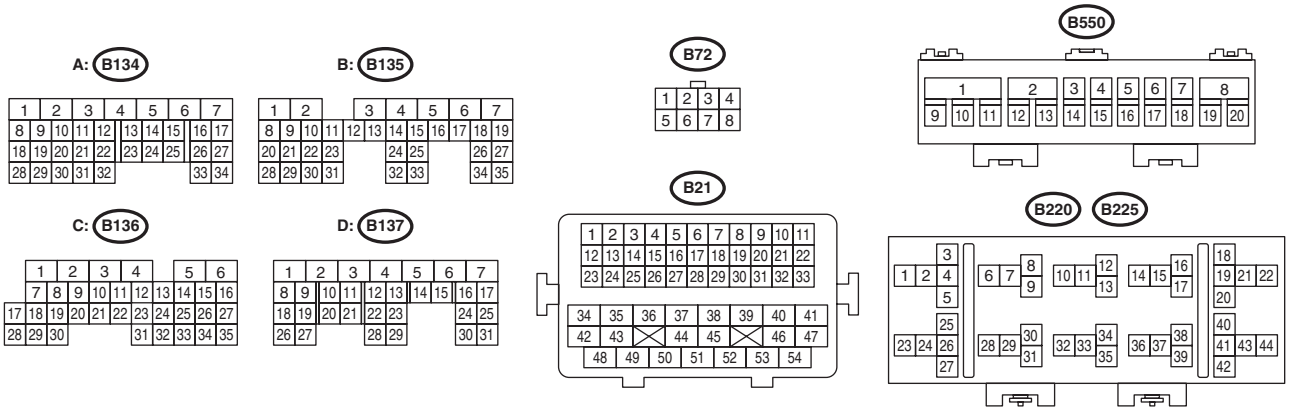
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-133, DTC P0560 SYSTEM VOLTAGE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





EN-10733

	Step	Check	Yes	No
1	**CHECK INPUT SIGNAL OF ECM.** 1) Turn the ignition switch to OFF. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 2 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the poor contact of ECM connector.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 2 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit to ground in harness between ECM connector and 12 volt auxiliary battery terminal.
3	**CHECK FUSE NO. 13 (MAIN FUSE BOX).**	Is the fuse blown out?	Replace the fuse.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and 12 volt auxiliary battery • Poor contact of ECM connector • Poor contact of 12 volt auxiliary battery terminal

DC:DTC P059A ACTIVE GRILLE SHUTTER "A" POSITION SENSOR CIRCUIT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-134, DTC P059A ACTIVE GRILLE SHUTTER "A" POSITION SENSOR CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK ACTIVE GRILLE SHUTTER.** 1) Turn the ignition switch to OFF and then wait for around 30 seconds. 2) Turn the ignition switch to ON. 3) Perform operation check for the active grille shutter using the Subaru Select Monitor. NOTE: For detailed procedures, refer to “System Operation Check Mode”. <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>	Are the closing and opening operations finished normally?	Even if DTC is detected, it has returned to a normal condition at this time. NOTE: In this case, the possible causes are the tentative adhering and biting of foreign matter to the active grille shutter or freezing.	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>

DD:DTC P059F ACTIVE GRILLE SHUTTER "A" PERFORMANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-135, DTC P059F ACTIVE GRILLE SHUTTER "A" PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK DTC.** Check for DTC. <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).>	Is DTC P059F displayed in «Present fault»?	Go to step **2**.	Even if DTC is detected, it has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, the possible causes are the tentative adhering and biting of foreign matter to the active grille shutter or freezing.
2	**CHECK ACTIVE GRILLE SHUTTER.** Check the louver area of active grille shutter, louver link area and actuator part.	Is there any trouble such as foreign matter adhesion, biting or freezing?	Remove the foreign matter from active grille shutter and go to the next step. Go to step **3**.	Go to step **3**.
3	**CHECK ACTIVE GRILLE SHUTTER.** 1) Turn the ignition switch to ON (engine OFF). 2) Perform the active grille shutter operation check using Subaru Select Monitor to measure the time required for closing and opening operations. NOTE: For detailed procedures, refer to “System Operation Check Mode”. <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>	Is the time less than 15 seconds?	Even if DTC is detected, it has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.	Go to step **4**.
4	**CHECK CURRENT DATA.** Using the Subaru Select Monitor, read the value of «Active Grille Shutter Voltage Error Status». NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is «Normal» displayed?	Go to step **5**.	Check the power supply circuit. Replace the active grille shutter if the power supply circuit is normal. <Ref. to HEV-77, Active Grille Shutter.>

	Step	Check	Yes	No
5	**CHECK CURRENT DATA.** 1) Cool down the engine sufficiently after turning the ignition switch OFF. NOTE: Cool until you do not feel heat when touching the engine body. 2) Turn the ignition switch to ON. 3) Using the Subaru Select Monitor, read the value of «Active Grille Shutter Temperature Error Status». NOTE: For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is «Normal» displayed?	Even if DTC is detected, it has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again.	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>

DE:DTC P05A0 ACTIVE GRILLE SHUTTER "A" STUCK

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-136, DTC P05A0 ACTIVE GRILLE SHUTTER "A" STUCK, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK ACTIVE GRILLE SHUTTER.** Check the louver area of active grille shutter, louver link area and actuator part.	Is there any trouble such as foreign matter adhesion, biting or freezing?	Remove the foreign matter from active grille shutter.	Go to step **2**.
2	**CHECK ACTIVE GRILLE SHUTTER.** Check the louver area of active grille shutter, louver link area and actuator part.	Is each part of active grille shutter damaged?	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>	Go to step **3**.
3	**CHECK ACTIVE GRILLE SHUTTER.** 1) Turn the ignition switch to OFF and then wait for around 30 seconds. 2) Turn the ignition switch to ON. 3) Perform operation check for the active grille shutter using the Subaru Select Monitor. NOTE: For detailed procedures, refer to “System Operation Check Mode”. <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>	Are the closing and opening operations finished normally?	Even if DTC is detected, it has returned to a normal condition at this time. NOTE: In this case, the possible causes are the tentative adhering and biting of foreign matter to the active grille shutter or freezing.	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>

DF:DTC P05A1 ACTIVE GRILLE SHUTTER "A" RANGE OVER

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-137, DTC P05A1 ACTIVE GRILLE SHUTTER "A" RANGE OVER, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK ACTIVE GRILLE SHUTTER.** Check the louver area of active grille shutter, louver link area and actuator part.	Is there any trouble such as foreign matter adhesion, biting or freezing?	Remove the foreign matter from active grille shutter.	Go to step **2**.
2	**CHECK ACTIVE GRILLE SHUTTER.** Check the louver area of active grille shutter, louver link area and actuator part.	Is each part of active grille shutter damaged?	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>	Go to step **3**.
3	**CHECK ACTIVE GRILLE SHUTTER.** 1) Turn the ignition switch to OFF and then wait for around 30 seconds. 2) Turn the ignition switch to ON. 3) Perform operation check for the active grille shutter using the Subaru Select Monitor. NOTE: For detailed procedures, refer to “System Operation Check Mode”. <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>	Are the closing and opening operations finished normally?	Even if DTC is detected, it has returned to a normal condition at this time. NOTE: In this case, the possible causes are the tentative adhering and biting of foreign matter to the active grille shutter or freezing.	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>

DG:DTC P05A2 ACTIVE GRILLE SHUTTER "A" CONTROL CIRCUIT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-138, DTC P05A2 ACTIVE GRILLE SHUTTER "A" CONTROL CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK DTC.** 1) Turn the ignition switch to OFF and then wait for around 30 seconds. 2) Turn the ignition switch to ON. 3) Check for DTC. <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).>	Is DTC P05A2 displayed in «Present fault» or «Past faults»?	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>	Perform the active grille shutter operation check using Subaru Select Monitor to confirm that closing and opening operations finish normally. NOTE: For detailed procedures, refer to “System Operation Check Mode”. <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>

DH:DTC P05A6 ACTIVE GRILLE SHUTTER "A" SUPPLY VOLTAGE CIRCUIT/ OPEN

DTC DETECTING CONDITION:

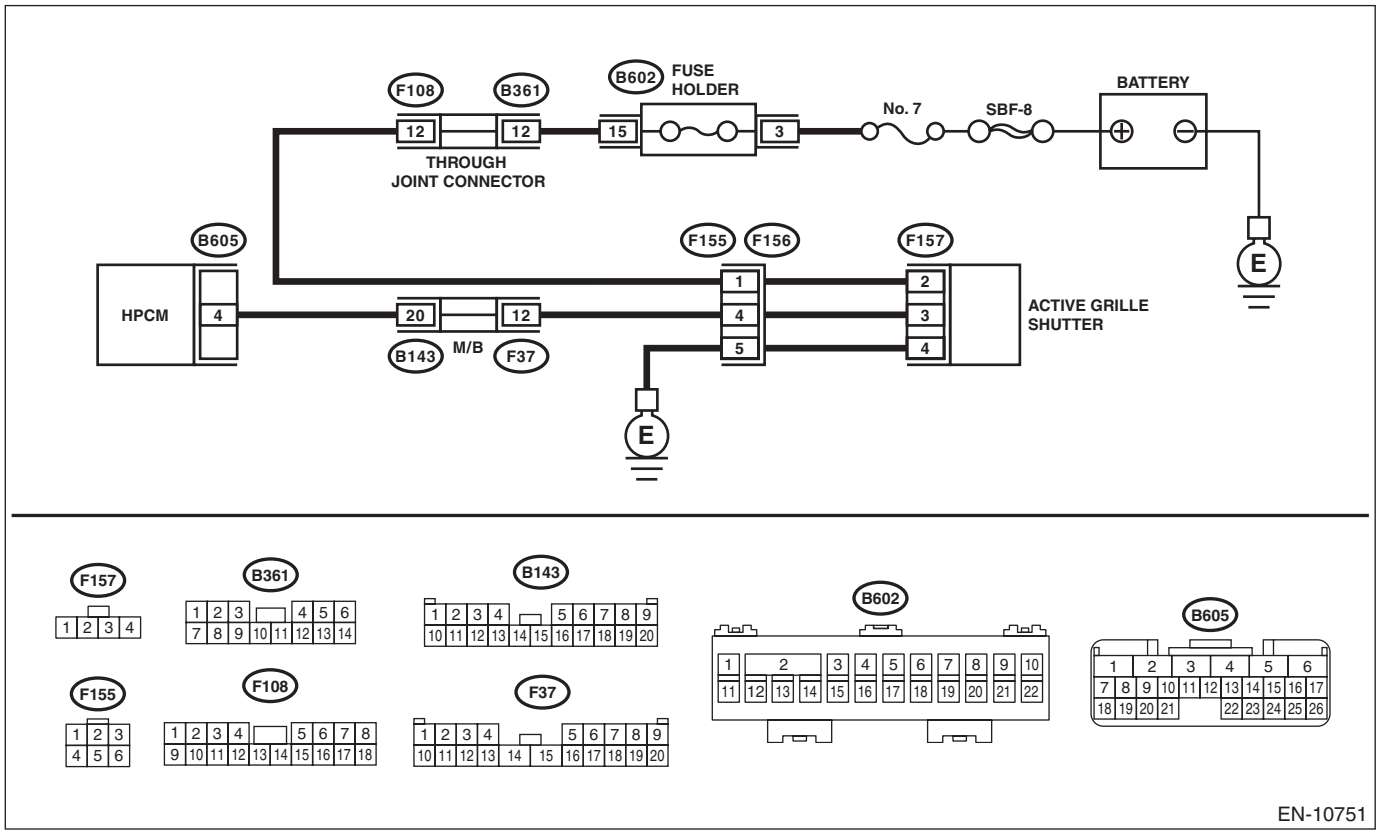
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-140, DTC P05A6 ACTIVE GRILLE SHUTTER "A" SUPPLY VOLTAGE CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Active grille shutter <Ref. to WI(HEV)-50, Active Grille Shutter.>



	Step	Check	Yes	No
1	**CHECK DTC.** 1) Turn the ignition switch to OFF and then wait for around 30 seconds. 2) Turn the ignition switch to ON. 3) Check for DTC. <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).>	Is DTC P05A6 displayed in «Present fault»?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary battery voltage drop, temporary poor contact of connector or temporary open or short circuit of harness or may be the cause.
2	**CHECK 12 VOLT AUXILIARY BATTERY.** Check the battery. <Ref. to SC(H4DO(HEV))-39, Battery.>	Is the battery OK?	Go to step **3**.	Charge or replace the battery. <Ref. to SC(H4DO(HEV))-39, Battery.>
3	**CHECK ACTIVE GRILLE SHUTTER POWER SUPPLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the 12 volt auxiliary battery. <Ref. to NT-5, BATTERY, NOTE, Note.> 3) Disconnect the connector from the active grille shutter. 4) Measure the voltage between active grille shutter connector and chassis ground. ***Connector & terminal*** ***(F157) No. 2 (+) — Chassis ground (–):***	Is the voltage 9 V or more?	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>	Repair the power supply circuit.

DI: DTC P05C0 ACTIVE GRILLE SHUTTER "A" OVER TEMPERATURE

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-141, DTC P05C0 ACTIVE GRILLE SHUTTER "A" OVER TEMPERATURE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK DTC.** 1) Cool down the engine sufficiently after turning the ignition switch OFF. NOTE: Cool until you do not feel heat when touching the engine body. 2) Turn the ignition switch to ON. 3) Check for DTC. <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).>	Is DTC P05C0 displayed in «Present fault»?	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>	Even if DTC is detected, it has returned to a normal condition at this time. NOTE: In this case, temporary temperature rise in engine compartment may be the cause.

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

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-142, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine does not start.
- Engine stalls.

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1	CHECK FOR ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.

DK:DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR

NOTE:
For the diagnostic procedure, refer to DTC P0606. <Ref. to EN(H4DO HEV)(diag)-282, DTC P0606 CONTROL MODULE PROCESSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DL:DTC P0606 CONTROL MODULE PROCESSOR

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-144, DTC P0606 CONTROL MODULE PROCESSOR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

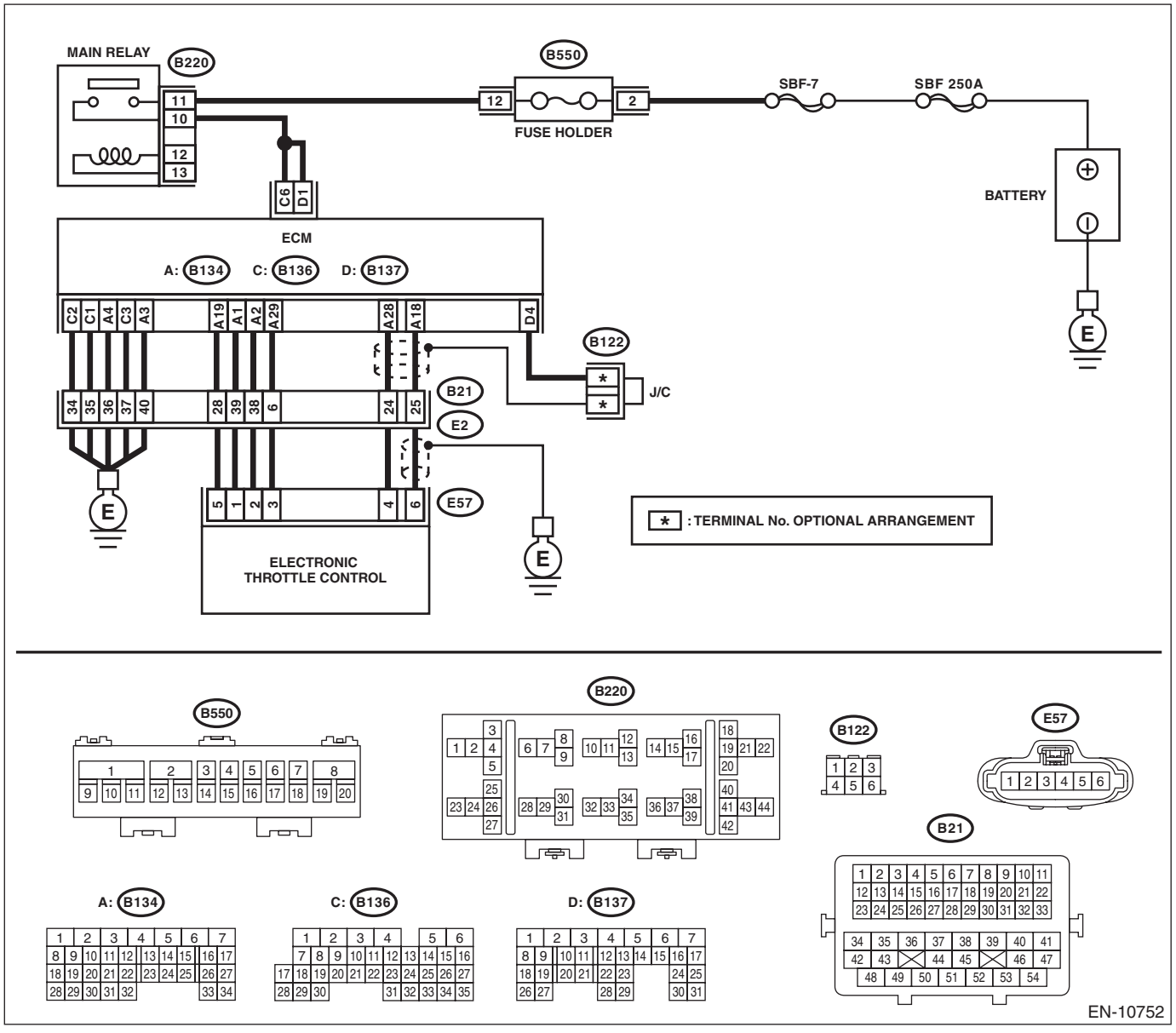
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK INPUT VOLTAGE OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 6 (+) — Chassis ground (–):*** ***(B137) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 — 13 V?	Go to step **2**.	Repair the open or ground short circuit of power supply circuit.
2	**CHECK INPUT VOLTAGE OF ECM.** 1) Start the engine. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 6 (+) — Chassis ground (–):*** ***(B137) No. 1 (+) — Chassis ground (–):***	Is the voltage 13 — 15 V?	Go to step **3**.	Repair the open or ground short circuit of power supply circuit.
3	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance of harness between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 19 — (E57) No. 5:*** ***(B134) No. 29 — (E57) No. 3:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector
4	**CHECK ECM GROUND HARNESS.** 1) Connect all connectors. 2) Turn the ignition to ON. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 3 (+) — Chassis ground (–):*** ***(B134) No. 4 (+) — Chassis ground (–):*** ***(B136) No. 1 (+) — Chassis ground (–):*** ***(B136) No. 2 (+) — Chassis ground (–):*** ***(B136) No. 3 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Check the connector for poor contact and check the harness. Replace the ECM if no fault is found. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in ground circuit • Loose engine ground terminal • Poor contact of coupling connector

DM:DTC P060A INTERNAL CONTROL MODULE MONITORING PROCESSOR PERFORMANCE

NOTE:
For the diagnostic procedure, refer to DTC P0606. <Ref. to EN(H4DO HEV)(diag)-282, DTC P0606 CONTROL MODULE PROCESSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DN:DTC P060B INTERNAL CONTROL MODULE A/D PROCESSING PERFORMANCE

NOTE:
For the diagnostic procedure, refer to DTC P0606. <Ref. to EN(H4DO HEV)(diag)-282, DTC P0606 CONTROL MODULE PROCESSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DO:DTC P0616 STARTER RELAY CIRCUIT LOW

1. MODEL WITHOUT PUSH BUTTON START

DTC DETECTING CONDITION:

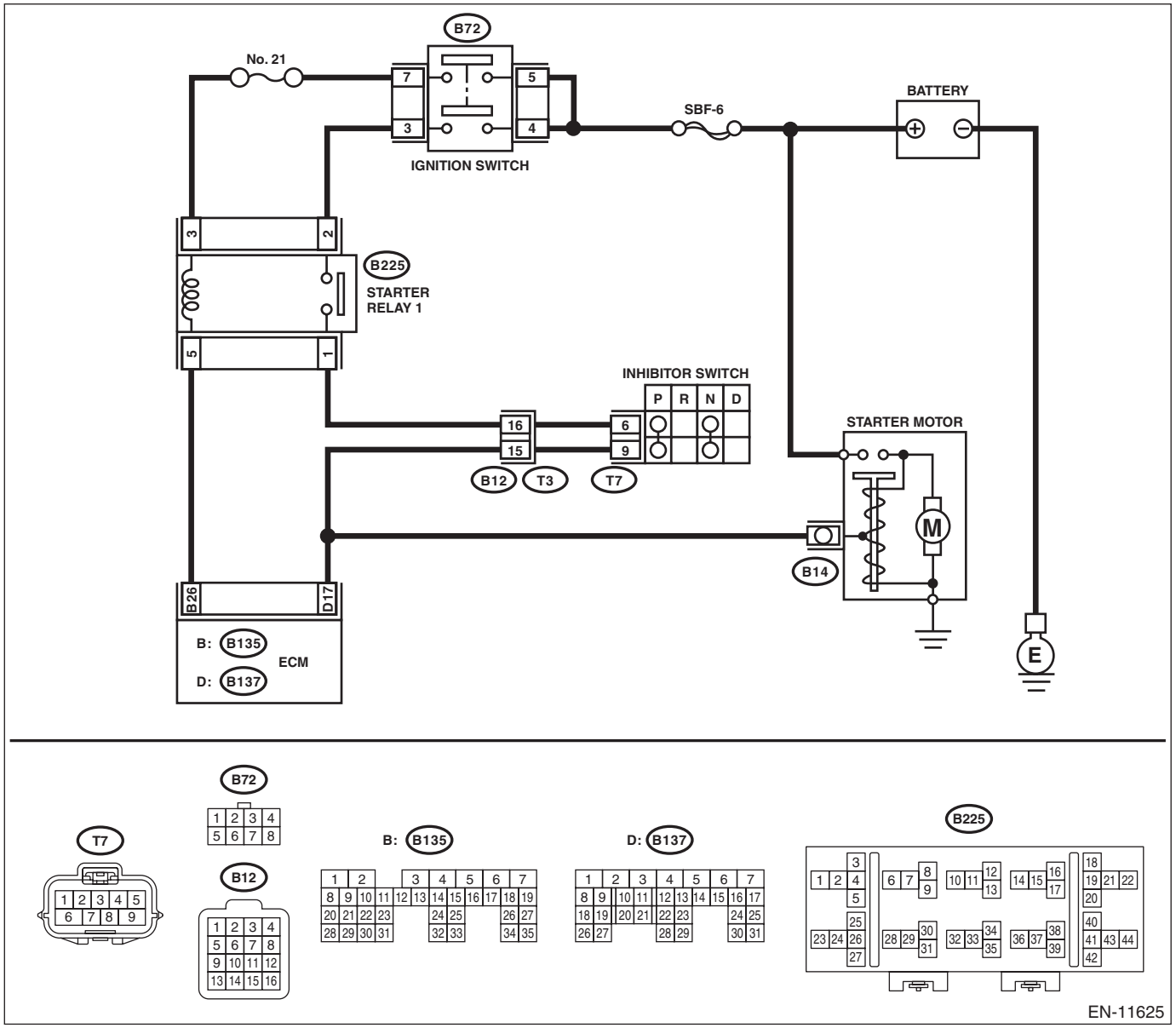
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-150, DTC P0616 STARTER RELAY CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND STARTER RELAY 1 CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Remove the starter relay 1. 3) Disconnect the connectors from ECM and starter motor. 4) Measure the resistance of harness between ECM connector and starter relay 1 connector. ***Connector & terminal*** ***(B137) No. 17 — (B225) No. 1:*** NOTE: Place the select lever in "P" range or "N" range.	Is the resistance less than 1 Ω?	Go to step **3**.	NOTE: Check the following item and repair or replace if necessary. • Open circuit of harness between ECM connector and starter relay 1 connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND STARTER RELAY 1 CONNECTOR.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 17 — Chassis ground:***	Is the resistance 1 MΩ or more?	Repair the poor contact of ECM connector.	Repair the short circuit to ground in harness between ECM connector and starter relay 1 connector.

2. MODEL WITH PUSH BUTTON START

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-150, DTC P0616 STARTER RELAY CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

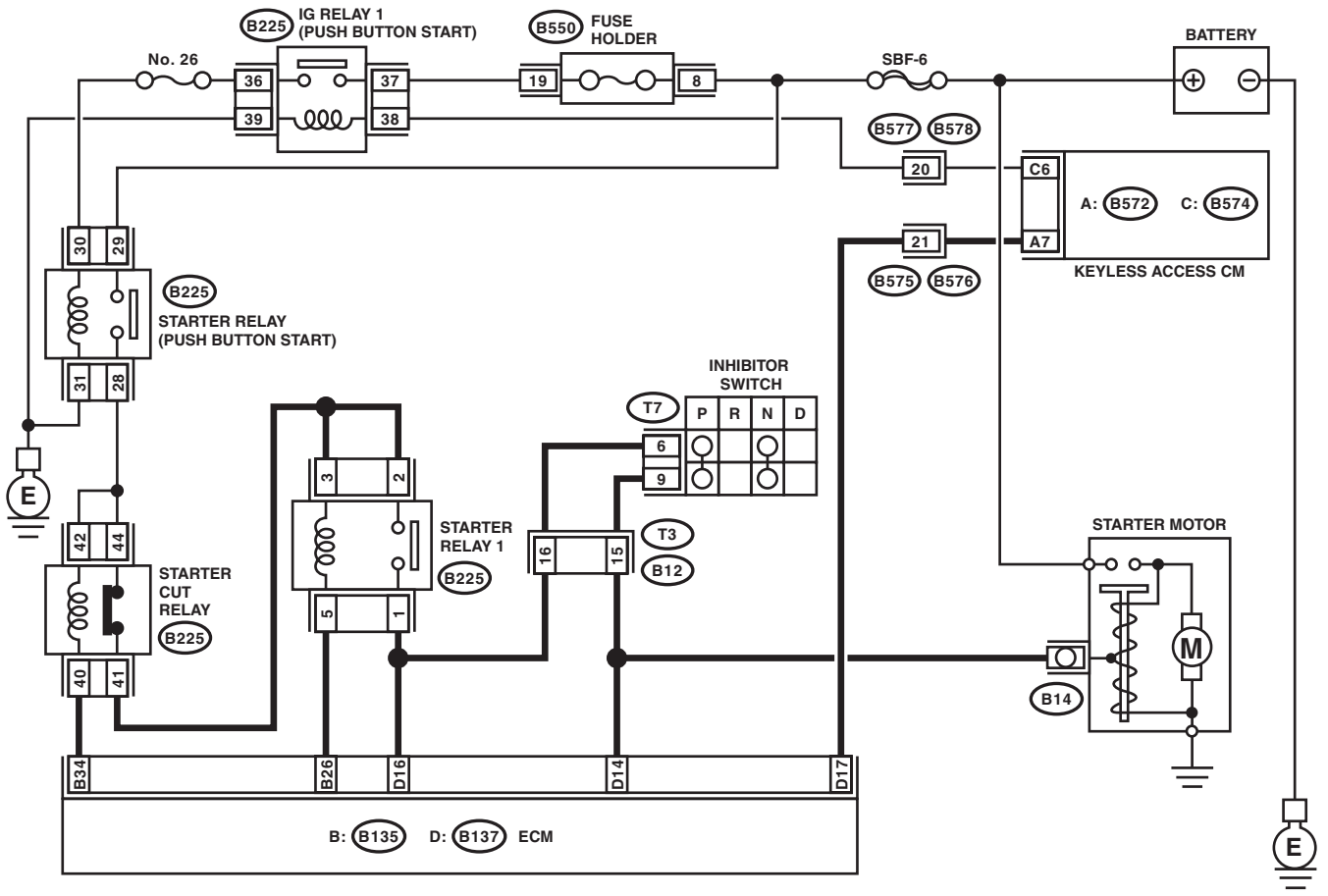
Failure of engine to start

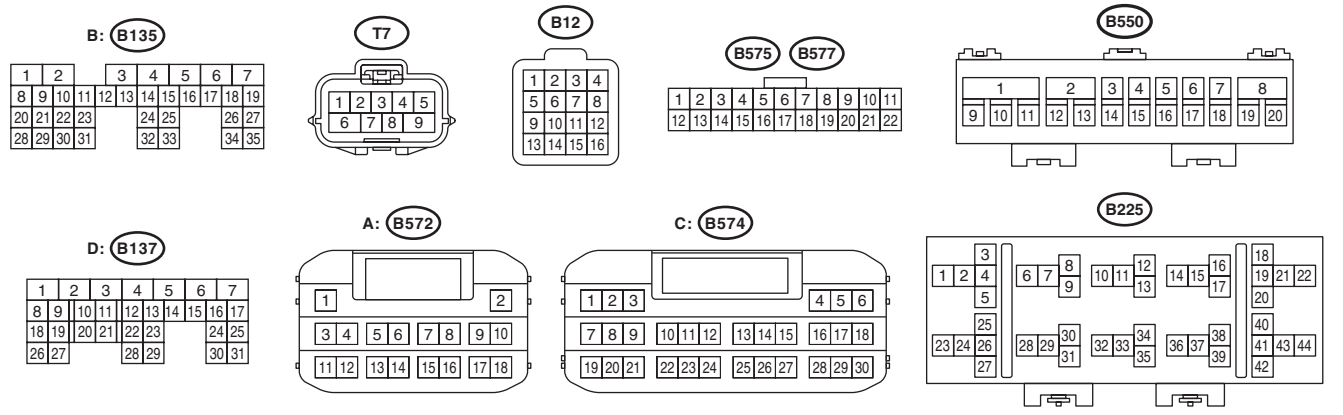
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





EN-10732

	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND STARTER RELAY 1 CONNECTOR.** 1) Turn the ignition to OFF. 2) Disconnect the connector from ECM. 3) Remove the starter relay 1. 4) Measure the resistance of harness between ECM connector and starter relay 1 connector. NOTE: Place the select lever in “P” range or “N” range. ***Connector & terminal*** ***(B137) No. 14 — (B225) No. 1:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and starter relay 1 connector • Poor contact of coupling connector
2	**CHECK HARNESS BETWEEN ECM AND STARTER RELAY 1 CONNECTOR.** 1) Disconnect the connector from starter motor. 2) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 14 — Chassis ground:***	Is the resistance 1 MΩ or more?	Repair the poor contact of ECM connector.	Repair the short circuit to ground in harness between ECM connector and starter relay 1 connector.

DP:DTC P0617 STARTER RELAY CIRCUIT HIGH

1. MODEL WITHOUT PUSH BUTTON START

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-151, DTC P0617 STARTER RELAY CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

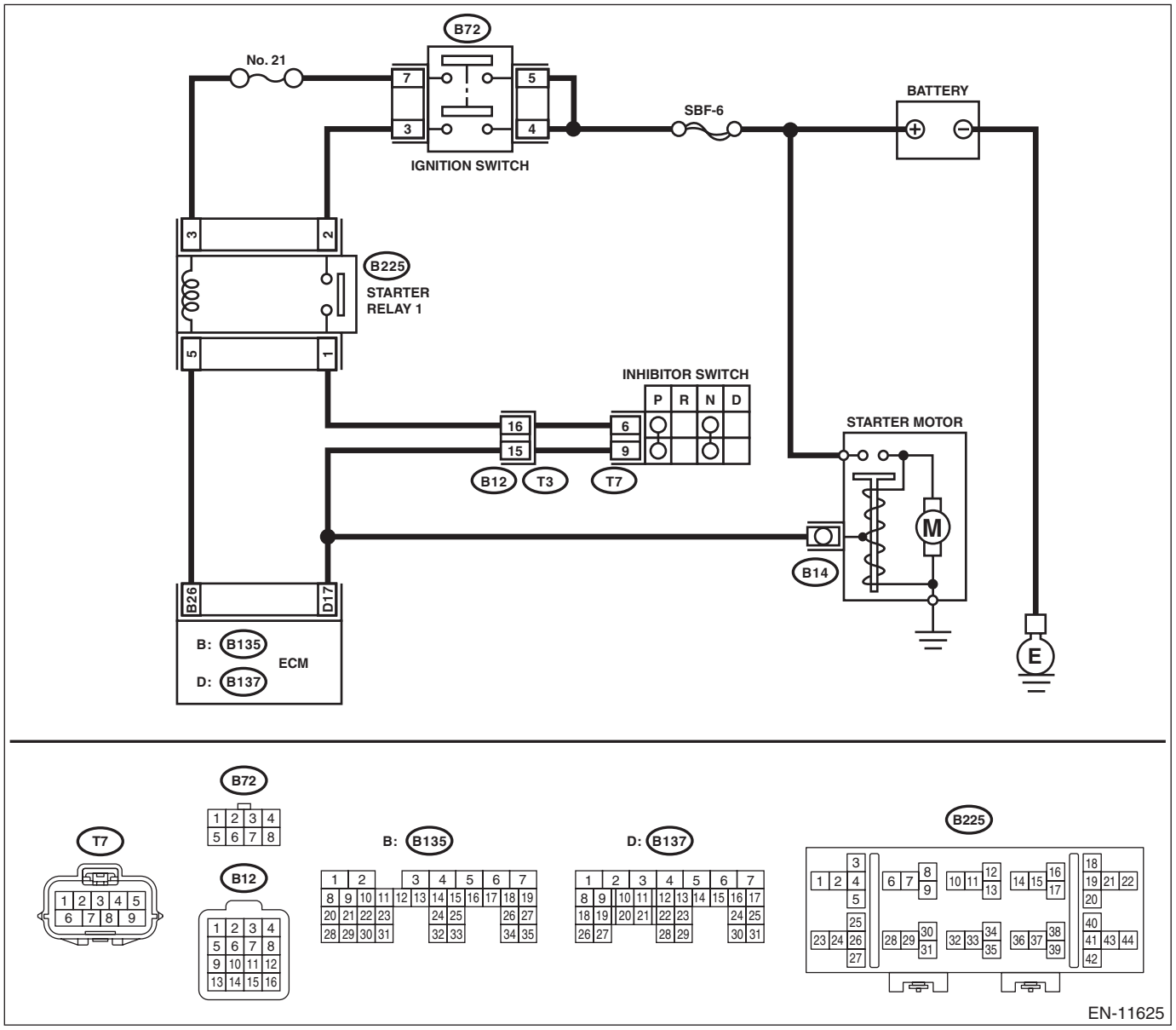
Failure of engine to start

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND STARTER RELAY 1 CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 17 (+) — Chassis ground (–):*** NOTE: Place the select lever in “P” range or “N” range.	Is the voltage 10 V or more?	Repair the short circuit to power in harness between ECM connector and starter relay 1 connector.	Repair the poor contact of ECM connector.

2. MODEL WITH PUSH BUTTON START

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-151, DTC P0617 STARTER RELAY CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

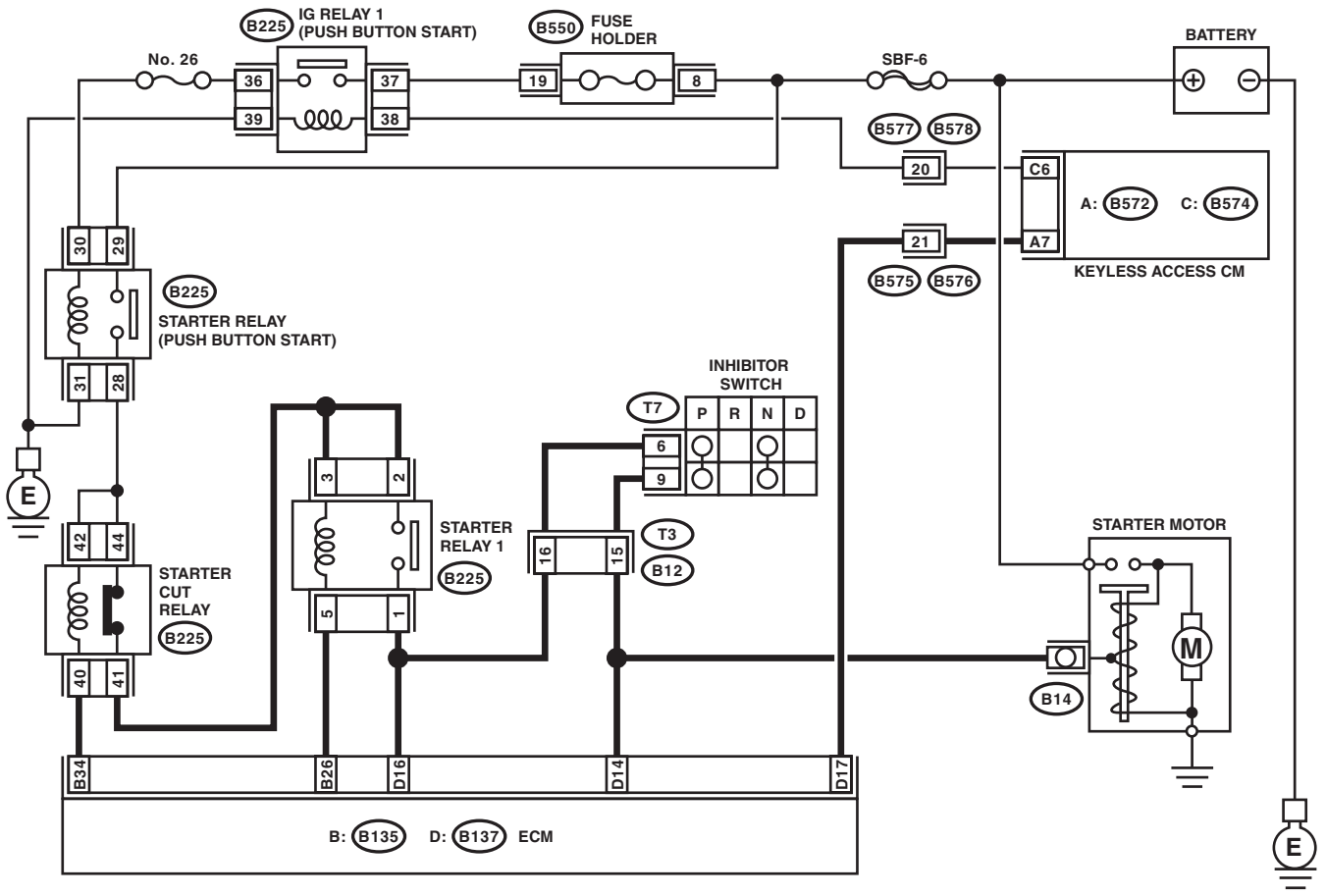
Failure of engine to start

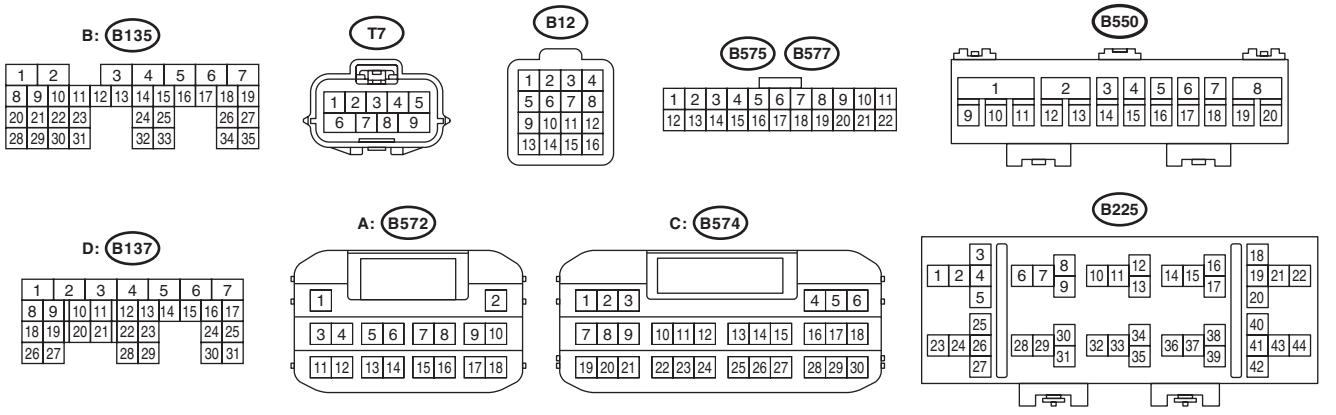
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





EN-10732

	Step	Check	Yes	No
1	**CHECK STARTER MOTOR.** 1) Turn the ignition to ON. 2) Check the starter motor condition.	Is the starter motor rotating?	Go to step **2**.	Repair the short circuit to power supply. NOTE: In this case, repair the following harnesses: • Short circuit to power supply in harness between ECM connector and starter relay 1 connector • Short circuit to power supply in harness between ECM connector and starter motor • Short circuit to power supply in harness between starter relay 1 connector and starter motor
2	**CHECK HARNESS BETWEEN STARTER CUT RELAY CONNECTOR AND STARTER RELAY 1 CONNECTOR.** 1) Turn the ignition to OFF. 2) Disconnect the connector from starter motor. 3) Remove the starter cut relay and starter relay 1. 4) Turn the ignition to ON. 5) Measure the voltage between starter relay 1 connector and chassis ground. ***Connector & terminal*** ***(B225) No. 2 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in harness between starter cut relay connector and starter relay 1 connector.	Go to step **3**.
3	**CHECK STARTER CUT RELAY.** 1) Connect the battery to starter cut relay terminals No. 40 and No. 42. 2) Measure the resistance between starter cut relay terminals. ***Terminals*** ***No. 41 — No. 44:***	Is the resistance 1 MΩ or more?	Go to step **6**.	Replace the starter cut relay. <Ref. to SL-124, Starter Cut Relay.> Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND STARTER RELAY 1 CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 26 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and starter relay 1 connector.
5	**CHECK STARTER RELAY 1.** Measure the resistance between starter relay 1 terminals. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 1 MΩ or more?	Go to step **6**.	Replace the starter relay 1. <Ref. to EN(H4DO HEV)(diag)-9, LOCATION, Electrical Component Location.>

	Step	Check	Yes	No
6	**CHECK HARNESS BETWEEN ECM, STARTER RELAY 1 CONNECTOR AND STARTER MOTOR.** 1) Disconnect the connector from ECM. 2) Turn the ignition to ON. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 14 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power supply. NOTE: In this case, repair the following harnesses: • Short circuit to power supply in harness between ECM connector and starter relay 1 connector • Short circuit to power supply in harness between ECM connector and starter motor • Short circuit to power supply in harness between starter relay 1 connector and starter motor	Repair the poor contact of ECM connector.

DQ:DTC P062F INTERNAL CONTROL MODULE EEPROM ERROR

NOTE:
For the diagnostic procedure, refer to DTC P0606. <Ref. to EN(H4DO HEV)(diag)-282, DTC P0606 CONTROL MODULE PROCESSOR, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DR:DTC P0685 ECM/PCM POWER RELAY CONTROL CIRCUIT/OPEN

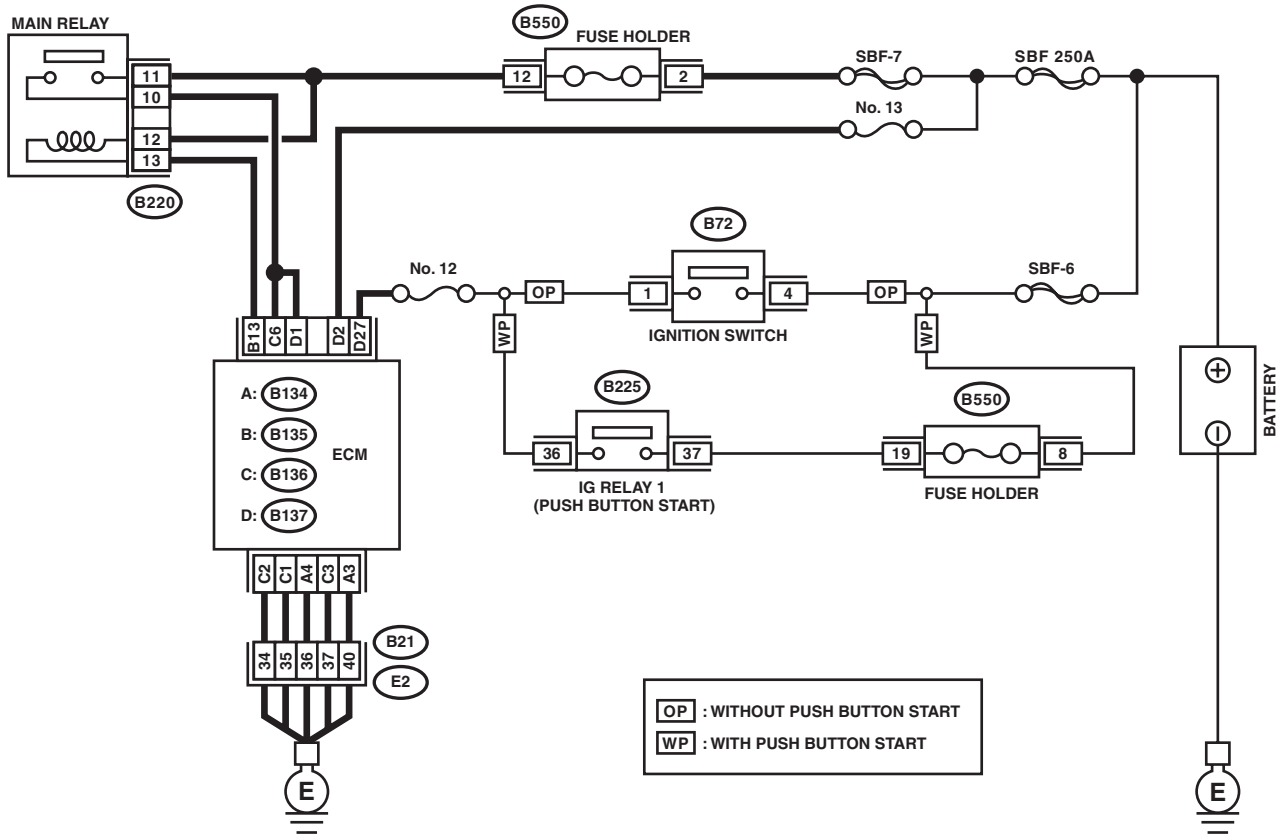
DTC DETECTING CONDITION:

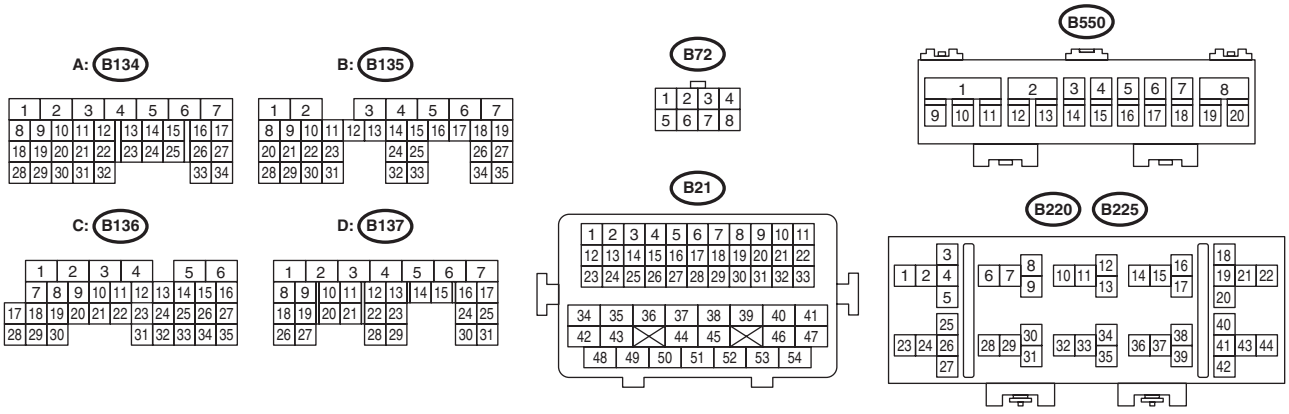
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-153, DTC P0685 ECM/PCM POWER RELAY CONTROL CIRCUIT/OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





EN-10733

Step		Check	Yes	No
1	**CHECK ECM CONNECTOR.** Check the connecting condition of ECM connector.	Is the ECM connector correctly connected?	Go to step **2**.	Connect the ECM connector correctly.

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN ECM AND MAIN RELAY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the voltage between ECM connector and engine ground. ***Connector & terminal*** ***(B136) No. 6 (+) — Engine ground (–):*** ***(B137) No. 1 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Repair the harness and connector. NOTE: In this case, repair the following item: • Short circuit to power supply in harness between ECM connector and main relay connector • Defective main relay	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND MAIN RELAY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Remove the main relay. 3) Disconnect the connector from ECM. 4) Measure the resistance between the ECM connector and engine ground. ***Connector & terminal*** ***(B135) No. 13 — Engine ground:***	Is the resistance 1 MΩ or more?	Repair the poor contact of ECM connector.	Repair the short circuit to ground in harness between ECM connector and main relay connector.

DS:DTC P0700 TRANSMISSION CONTROL SYSTEM (MIL REQUEST)

NOTE:
For the diagnostic procedure, refer to CVT section. <Ref. to CVT(w/o HEV)(diag)-2, Basic Diagnostic Procedure.>

DT:DTC P081A STARTER DISABLE CIRCUIT LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-155, DTC P081A STARTER DISABLE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

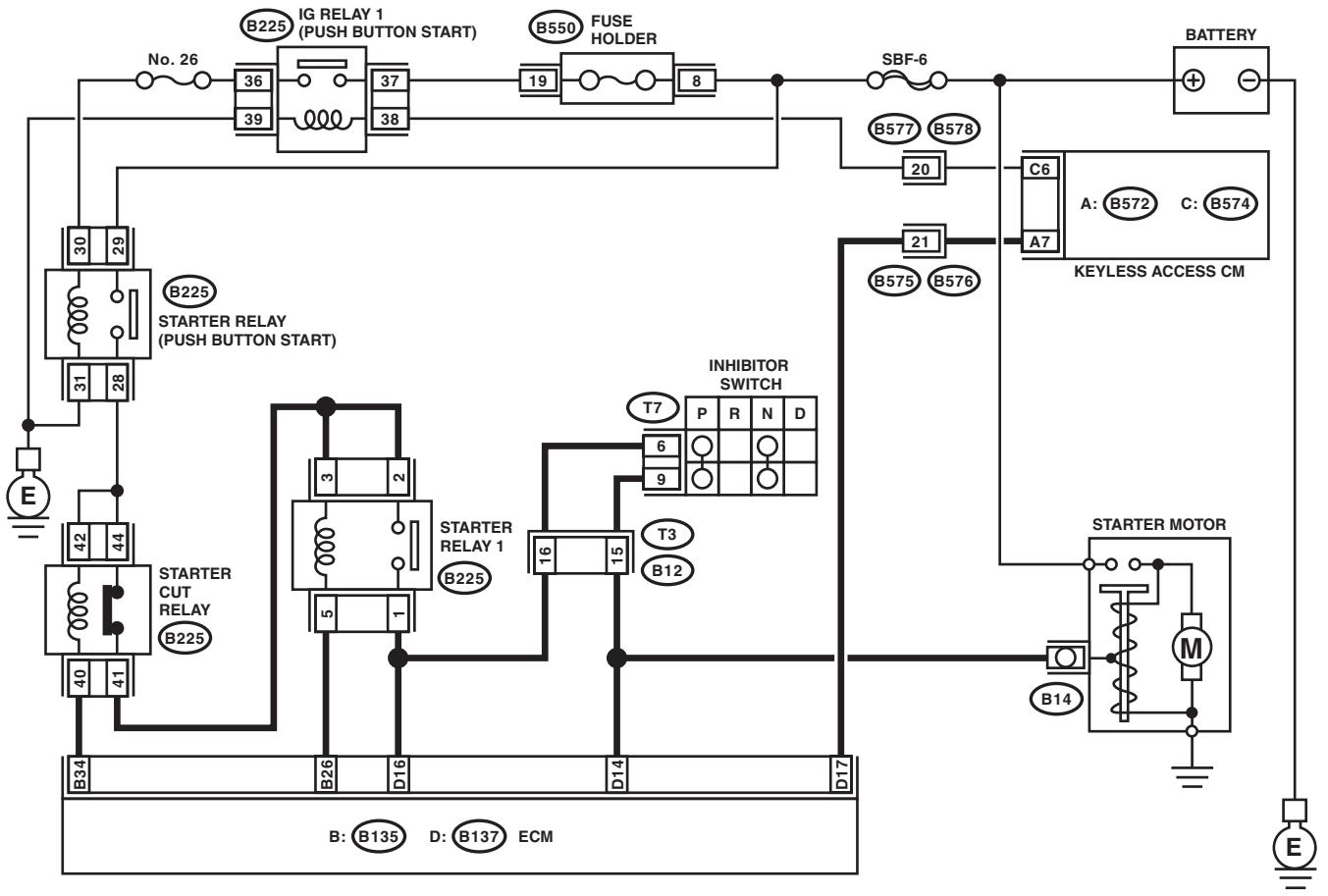
Failure of engine to start

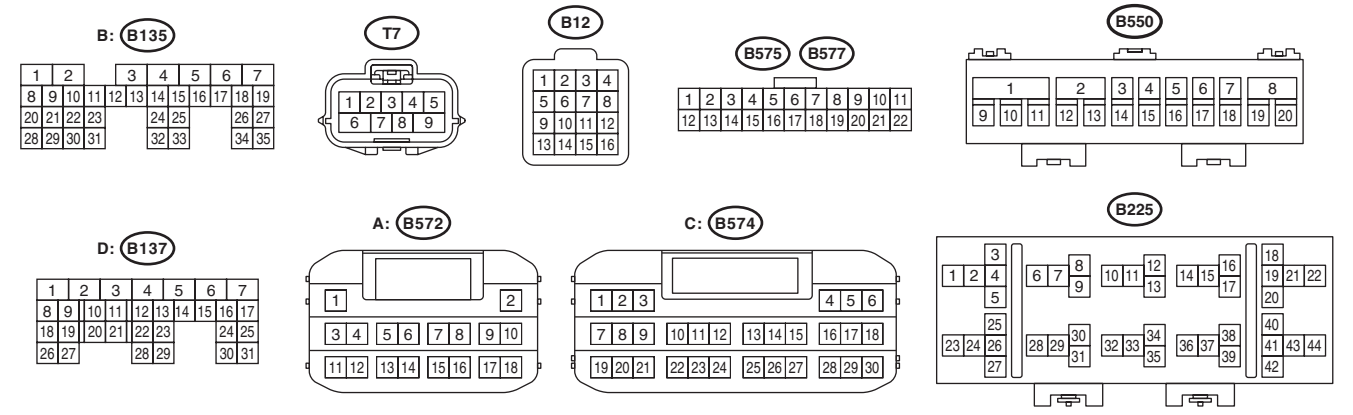
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





EN-10732

	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN STARTER RELAY (PUSH BUTTON START) CONNECTOR AND STARTER CUT RELAY CONNECTOR.** 1) Turn the ignition to OFF. 2) Remove the starter relay (push button start) and starter cut relay. 3) Measure the resistance of harness between starter relay (push button start) connector and starter cut relay connector. ***Connector & terminal*** ***(B225) No. 28 — (B225) No. 42:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the open circuit in harness between starter relay (push button start) connector and starter cut relay connector.
2	**CHECK HARNESS BETWEEN ECM AND STARTER CUT RELAY CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance of harness between ECM connector and starter cut relay connector. ***Connector & terminal*** ***(B135) No. 34 — (B225) No. 40:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the open circuit of harness between ECM connector and starter cut relay connector.
3	**CHECK STARTER CUT RELAY.** 1) Connect the battery to starter cut relay terminals No. 40 and No. 42. 2) Measure the resistance between starter cut relay terminals. ***Terminals*** ***No. 41 — No. 44:***	Is the resistance 1 MΩ or more?	Repair the poor contact of ECM connector.	Replace the starter cut relay. <Ref. to SL-124, Starter Cut Relay.>

DU:DTC P0851 PARK/NEUTRAL SWITCH INPUT CIRCUIT LOW (AT MODEL)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-156, DTC P0851 PARK/NEUTRAL SWITCH INPUT CIRCUIT LOW (AT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

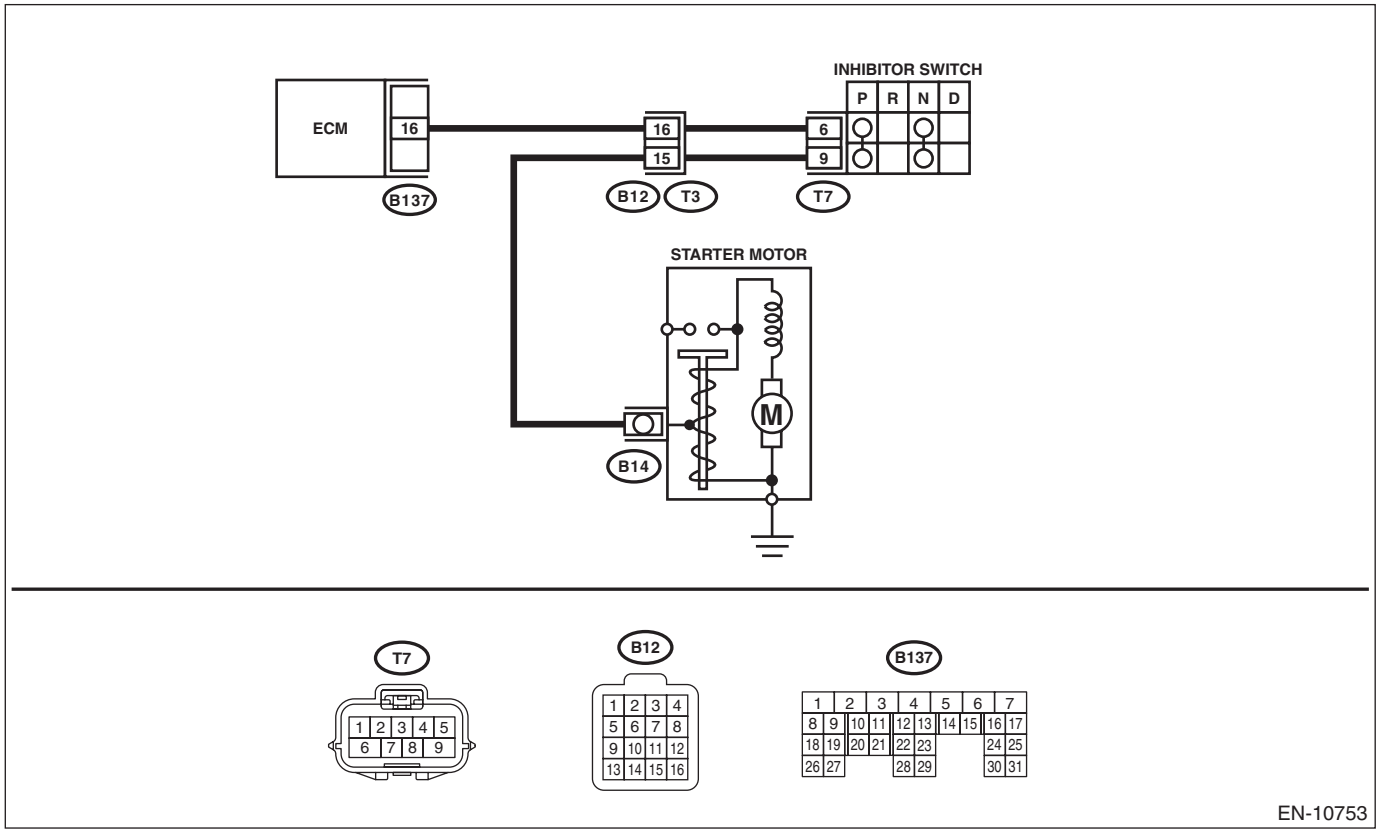
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK SELECT CABLE.**	Is there any fault in select cable?	Repair or adjust the select cable. <Ref. to CS-51, Select Cable.>	Go to step **2**.
2	**CHECK INPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Place the select lever in other than "P" range and "N" range. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the poor contact of ECM connector.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and transmission harness connector (T3). 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B137) No. 16 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair the short circuit to ground in harness between ECM connector and transmission harness connector.
4	**CHECK TRANSMISSION HARNESS CONNECTOR.** 1) Disconnect the connector from inhibitor switch. 2) Measure the resistance between transmission harness connector and engine ground. ***Connector & terminal*** ***(T3) No. 16 — Engine ground:***	Is the resistance 1 MΩ or more?	Replace the inhibitor switch. <Ref. to CVT(TH58A)-97, Inhibitor Switch.>	Repair short circuit to ground in harness between transmission harness connector and inhibitor switch connector.

DV:DTC P0852 PARK/NEUTRAL SWITCH INPUT CIRCUIT HIGH (AT MODEL)

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-157, DTC P0852 PARK/NEUTRAL SWITCH INPUT CIRCUIT HIGH (AT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

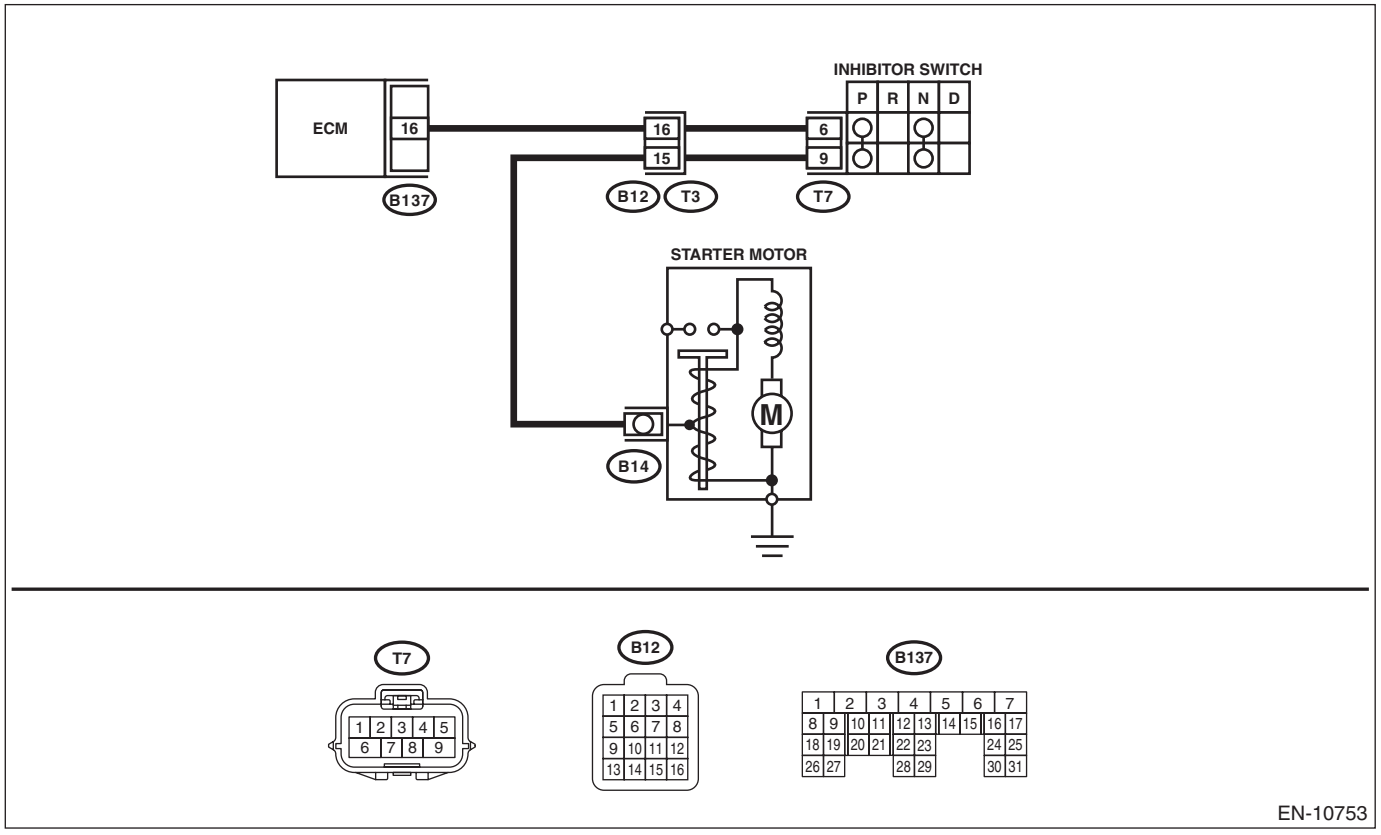
Improper idling

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK SELECT CABLE.**	Is there any fault in select cable?	Repair or adjust the select cable. <Ref. to CS-51, Select Cable.>	Go to step **2**.
2	**CHECK INPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM and chassis ground with select lever at "P" range and "N" range. ***Connector & terminal*** ***(B137) No. 16 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Repair the poor contact of ECM connector.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK HARNESS BETWEEN ECM AND INHIBITOR SWITCH CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and inhibitor switch. 3) Measure the resistance of harness between ECM connector and inhibitor switch connector. ***Connector & terminal*** ***(B137) No. 16 — (T7) No. 6:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and inhibitor switch connector • Poor contact of coupling connector
4	**CHECK INHIBITOR SWITCH GROUND LINE.** Measure the resistance of harness between inhibitor switch connector and engine ground. ***Connector & terminal*** ***(T7) No. 9 — Engine ground:***	Is the resistance less than 5 Ω?	Replace the inhibitor switch. <Ref. to CVT(TH58A)-97, Inhibitor Switch.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between inhibitor switch connector and starter motor ground line • Poor contact of coupling connector • Poor contact of starter motor connector • Poor contact of starter motor ground • Starter motor

DW:DTC P0A7B BATTERY ENERGY CONTROL MODULE REQUEST MIL ILLUMINATION

NOTE:
Refer to HEV section for diagnostic procedure. <Ref. to HEV(diag)-2, Basic Diagnostic Procedure.>

DX:DTC P0AC4 HYBRID POWERTRAIN CONTROL MODULE REQUEST MIL ILLUMINATION

NOTE:
Refer to HEV section for diagnostic procedure. <Ref. to HEV(diag)-2, Basic Diagnostic Procedure.>

DY:DTC P0CA1 DRIVE MOTOR CONTROL MODULE REQUEST MIL ILLUMINATION

NOTE:
Refer to HEV section for diagnostic procedure. <Ref. to HEV(diag)-2, Basic Diagnostic Procedure.>

DZ:DTC P1160 RETURN SPRING FAILURE

NOTE:
For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4DO HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

EA:DTC P1449 EVAPORATIVE EMISSION CONT. SYS. AIR FILTER CLOG

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-162, DTC P1449 EVAPORATIVE EMISSION CONT. SYS. AIR FILTER CLOG, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1	CHECK FOR ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	CHECK DRAIN FILTER AND DRAIN TUBE.	Is the drain filter or drain tube clogged?	Replace the drain filter. <Ref. to EC(H4DO(HEV))-38, Drain Filter.>	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>

EB:DTC P1451 EVAPORATIVE EMISSION CONT. SYS.

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-163, DTC P1451 EVAPORATIVE EMISSION CONT. SYS., Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK DRAIN TUBE BETWEEN CANISTER AND LEAK CHECK VALVE ASSEMBLY.**	Is the drain tube between canister and leak check valve assembly clogged?	Replace the drain tube between the canister and leak check valve assembly. <Ref. to EC(H4DO(HEV))-8, Canister.> <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>	Go to step **2**.
2	**CHECK HOSES BETWEEN CANISTER AND FUEL TANK.**	Are the hoses between the canister and fuel tank clogged?	Replace the hoses between the canister and fuel tank. <Ref. to EC(H4DO(HEV))-8, Canister.> <Ref. to FU(H4DO(HEV))-105, Fuel Tank.>	Replace the canister. <Ref. to EC(H4DO(HEV))-8, Canister.> After the operation is complete, go to the next step. Go to step **3**.
3	**CHECK EVAPORATIVE EMISSION CONTROL SYSTEM.** Perform drive cycle I. <Ref. to EN(H4DO HEV)(diag)-62, DRIVE CYCLE I, PROCEDURE, Drive Cycle.>	Is DTC P1451 displayed on the display?	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>	End.

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

NOTE:
For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4DO HEV)(diag)-309, DTC P1498 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:
For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4DO HEV)(diag)-312, DTC P1499 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:
For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4DO HEV)(diag)-309, DTC P1498 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:
For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4DO HEV)(diag)-312, DTC P1499 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:
For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4DO HEV)(diag)-309, DTC P1498 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:
For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4DO HEV)(diag)-312, DTC P1499 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-166, DTC P1498 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

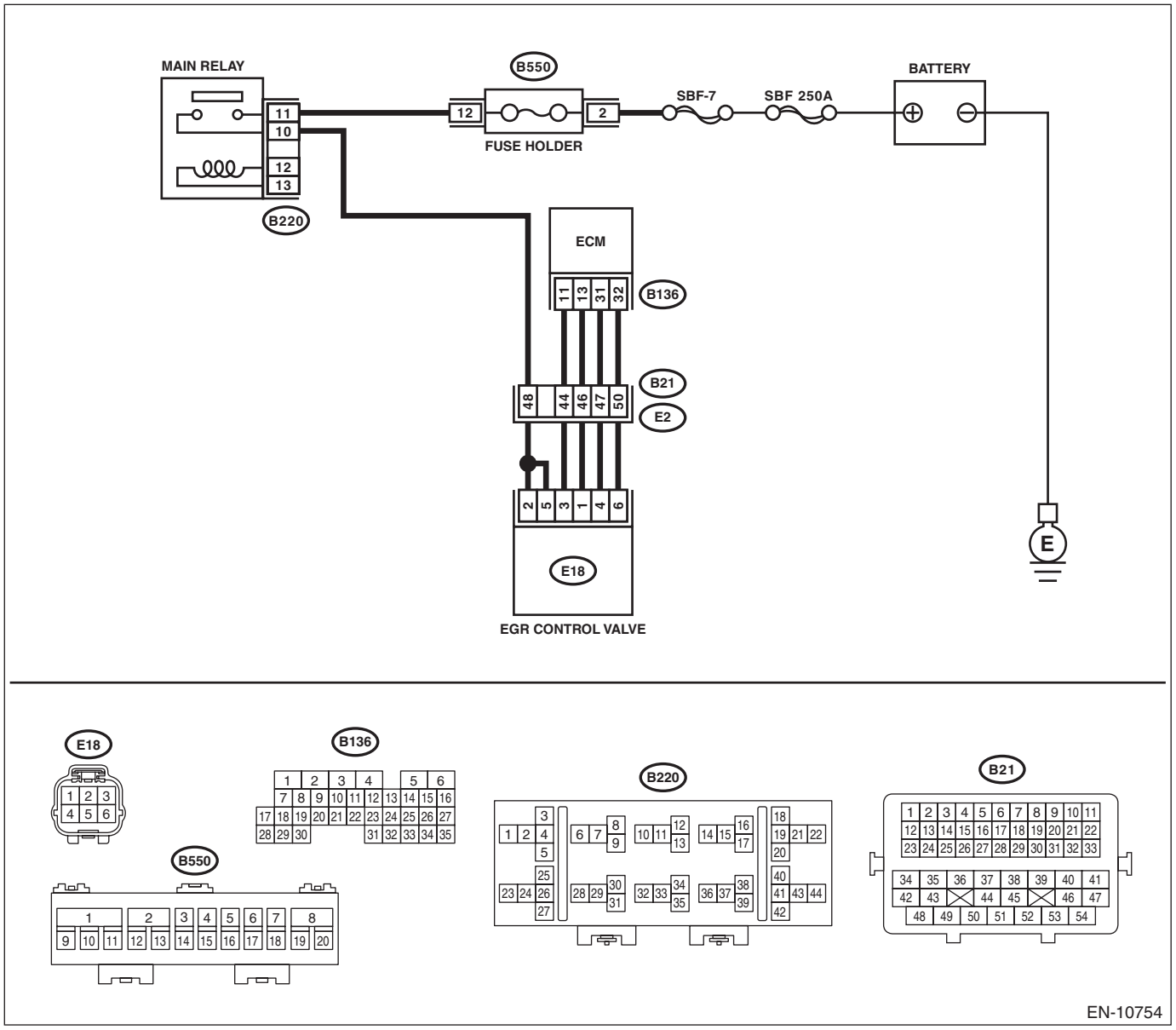
- Improper idling
- Poor driving performance
- Engine breathing

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK POWER SUPPLY TO EGR CONTROL VALVE.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the EGR control valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between EGR control valve connector and engine ground. ***Connector & terminal*** ***(E18) No. 2 (+) — Engine ground (–):*** ***(E18) No. 5 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between EGR control valve and main relay connector • Poor contact of coupling connector

	Step	Check	Yes	No
2	**CHECK HARNESS BETWEEN ECM AND EGR CONTROL VALVE CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and EGR control valve connector. ***Connector & terminal*** ***DTC P1492; (B136) No. 11 — (E18) No. 3:*** ***DTC P1494; (B136) No. 13 — (E18) No. 1:*** ***DTC P1496; (B136) No. 31 — (E18) No. 4:*** ***DTC P1498; (B136) No. 32 — (E18) No. 6:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and EGR control valve connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND EGR CONTROL VALVE CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***DTC P1492; (B136) No. 11 — Chassis ground:*** ***DTC P1494; (B136) No. 13 — Chassis ground:*** ***DTC P1496; (B136) No. 31 — Chassis ground:*** ***DTC P1498; (B136) No. 32 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair ground short circuit of harness between ECM connector and EGR control valve connector.
4	**CHECK FOR POOR CONTACT.** Check for poor contact between ECM connector and EGR control valve connector.	Is there poor contact in ECM or EGR control valve connector?	Repair the poor contact of ECM or EGR control valve connector.	Replace EGR control valve. <Ref. to EC(H4DO(HEV))-26, EGR Control Valve.>

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

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-166, DTC P1499 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.>

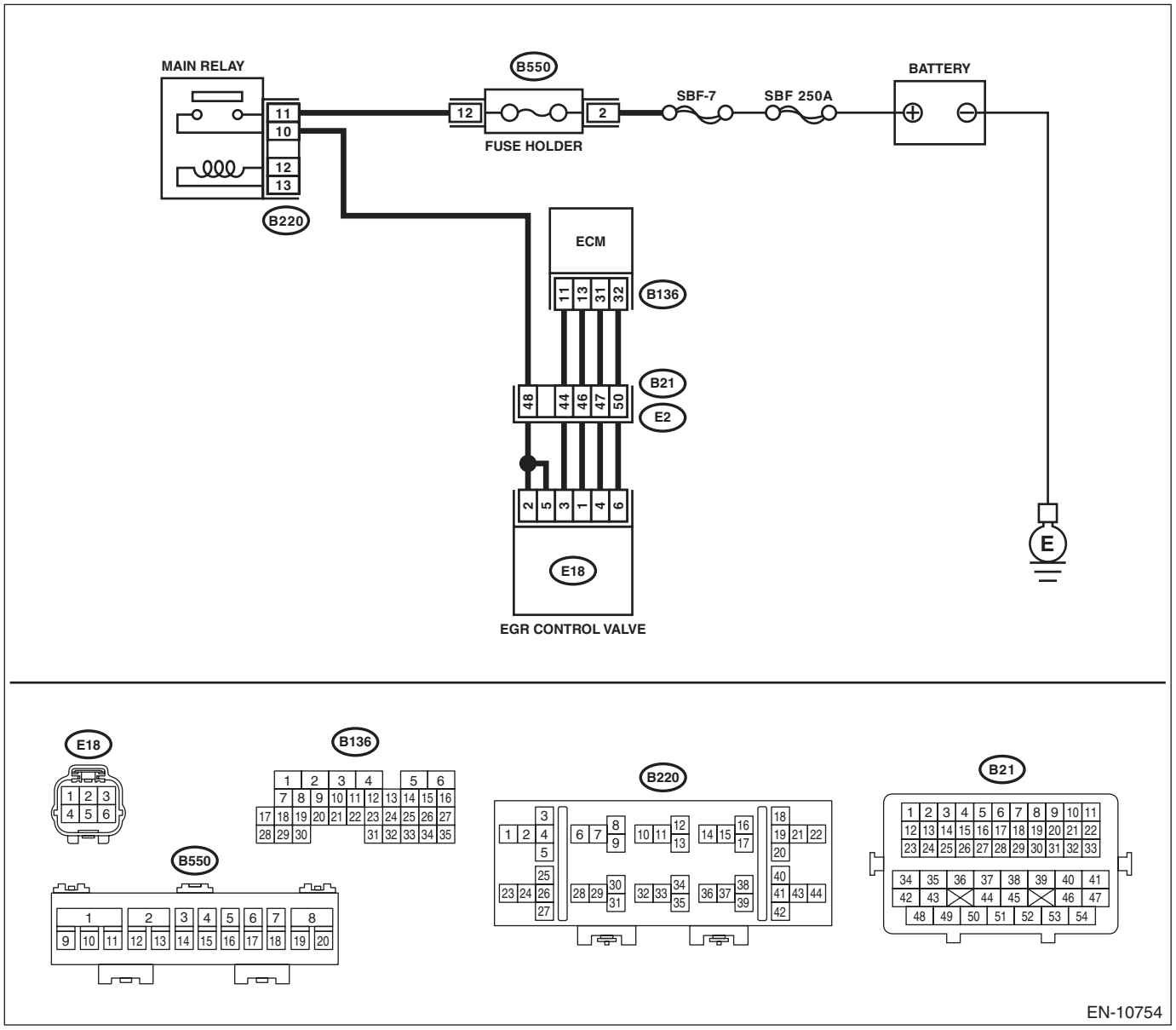
TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance
- Engine breathing

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND EGR CONTROL VALVE CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and EGR control valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***DTC P1493; (B136) No. 11 (+) — Chassis ground (–):*** ***DTC P1495; (B136) No. 13 (+) — Chassis ground (–):*** ***DTC P1497; (B136) No. 31 (+) — Chassis ground (–):*** ***DTC P1499; (B136) No. 32 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power supply in the harness between the ECM connector and EGR control valve connector.	Go to step **2**.
2	**CHECK EGR CONTROL VALVE.** Measure the resistance between EGR control valve terminals. ***Terminals*** ***DTC P1493; No. 2 — No. 3:*** ***DTC P1495; No. 2 — No. 1:*** ***DTC P1497; No. 5 — No. 4:*** ***DTC P1499; No. 5 — No. 6:***	Is the resistance 20 Ω or more?	Repair the poor contact of ECM connector.	Replace EGR control valve. <Ref. to EC(H4DO(HEV))-26, EGR Control Valve.>

EK:DTC P2004 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 1)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-167, DTC P2004 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK TUMBLE GENERATOR VALVE RH.** 1) Remove the tumble generator valve assembly RH. 2) Check the tumble generator valve.	Is there any dirt or clogging with foreign objects in the tumble generator valve?	Clean the tumble generator valve.	Replace the tumble generator valve RH. <Ref. to FU(H4DO(HEV))-73, Tumble Generator Valve Assembly.>

EL:DTC P2005 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 2)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-168, DTC P2005 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the “List of Diagnostic Trouble Code (DTC)”. <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK TUMBLE GENERATOR VALVE LH.** 1) Remove the tumble generator valve assembly LH. 2) Check the tumble generator valve.	Is there any dirt or clogging with foreign objects in the tumble generator valve?	Clean the tumble generator valve.	Replace the tumble generator valve LH. <Ref. to FU(H4DO(HEV))-73, Tumble Generator Valve Assembly.>

EM:DTC P2006 INTAKE MANIFOLD RUNNER CONTROL STUCK CLOSED (BANK 1)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-169, DTC P2006 INTAKE MANIFOLD RUNNER CONTROL STUCK CLOSED (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK TUMBLE GENERATOR VALVE RH.** 1) Remove the tumble generator valve assembly RH. 2) Check the tumble generator valve.	Is there any dirt or clogging with foreign objects in the tumble generator valve?	Clean the tumble generator valve.	Replace the tumble generator valve RH. <Ref. to FU(H4DO(HEV))-73, Tumble Generator Valve Assembly.>

EN:DTC P2007 INTAKE MANIFOLD RUNNER CONTROL STUCK CLOSED (BANK 2)

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-170, DTC P2007 INTAKE MANIFOLD RUNNER CONTROL STUCK CLOSED (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK TUMBLE GENERATOR VALVE LH.** 1) Remove the tumble generator valve assembly LH. 2) Check the tumble generator valve.	Is there any dirt or clogging with foreign objects in the tumble generator valve?	Clean the tumble generator valve.	Replace the tumble generator valve LH. <Ref. to FU(H4DO(HEV))-73, Tumble Generator Valve Assembly.>

EO:DTC P2009 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 1)

DTC DETECTING CONDITION:

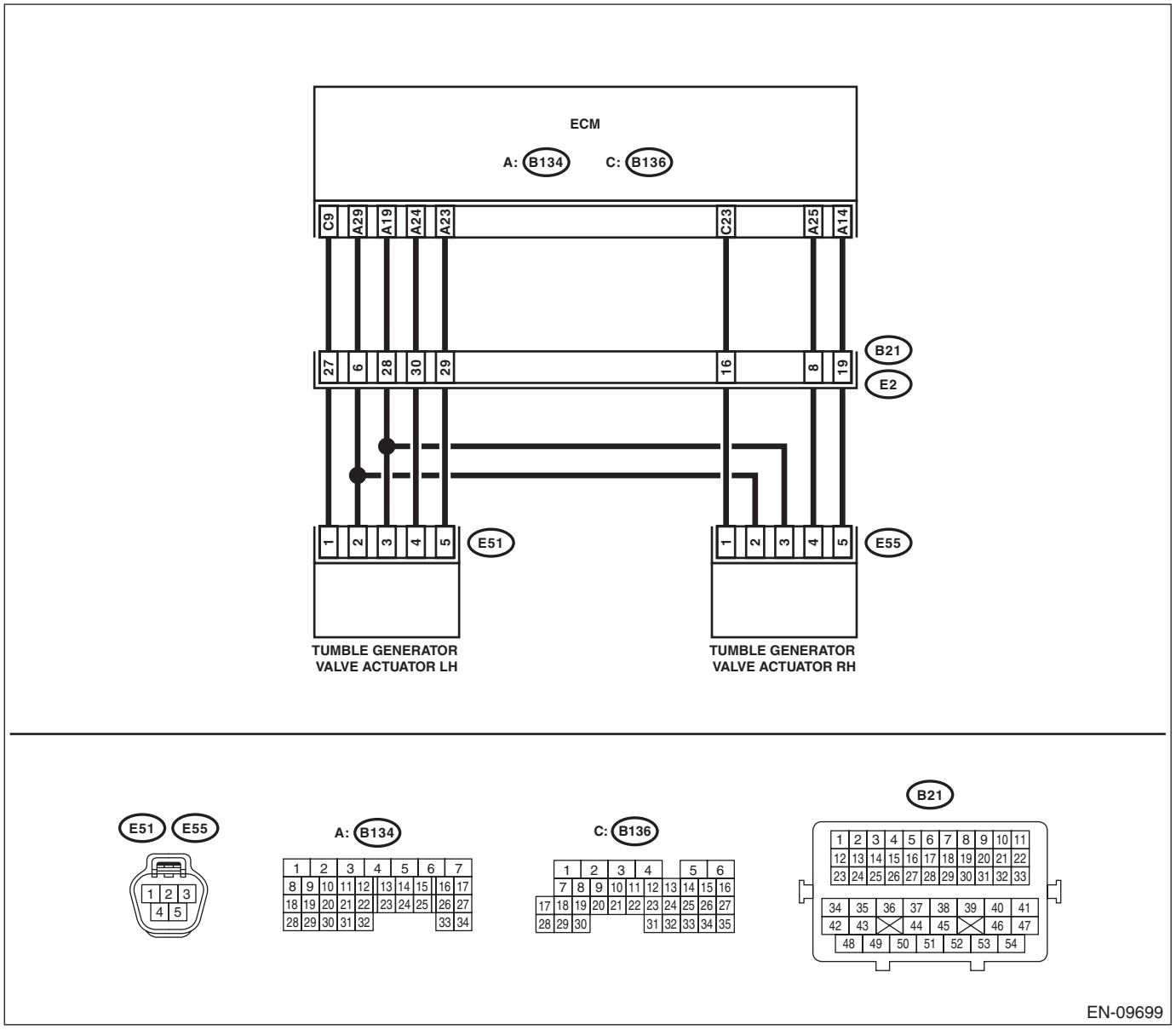
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-171, DTC P2009 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR RH CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 25 (+) — Chassis ground (–):*** ***(B134) No. 14 (+) — Chassis ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in harness between ECM connector and tumble generator valve actuator RH connector.	Replace the tumble generator valve actuator RH. <Ref. to FU(H4DO(HEV))-76, Tumble Generator Valve Actuator.>

EP:DTC P2012 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 2)

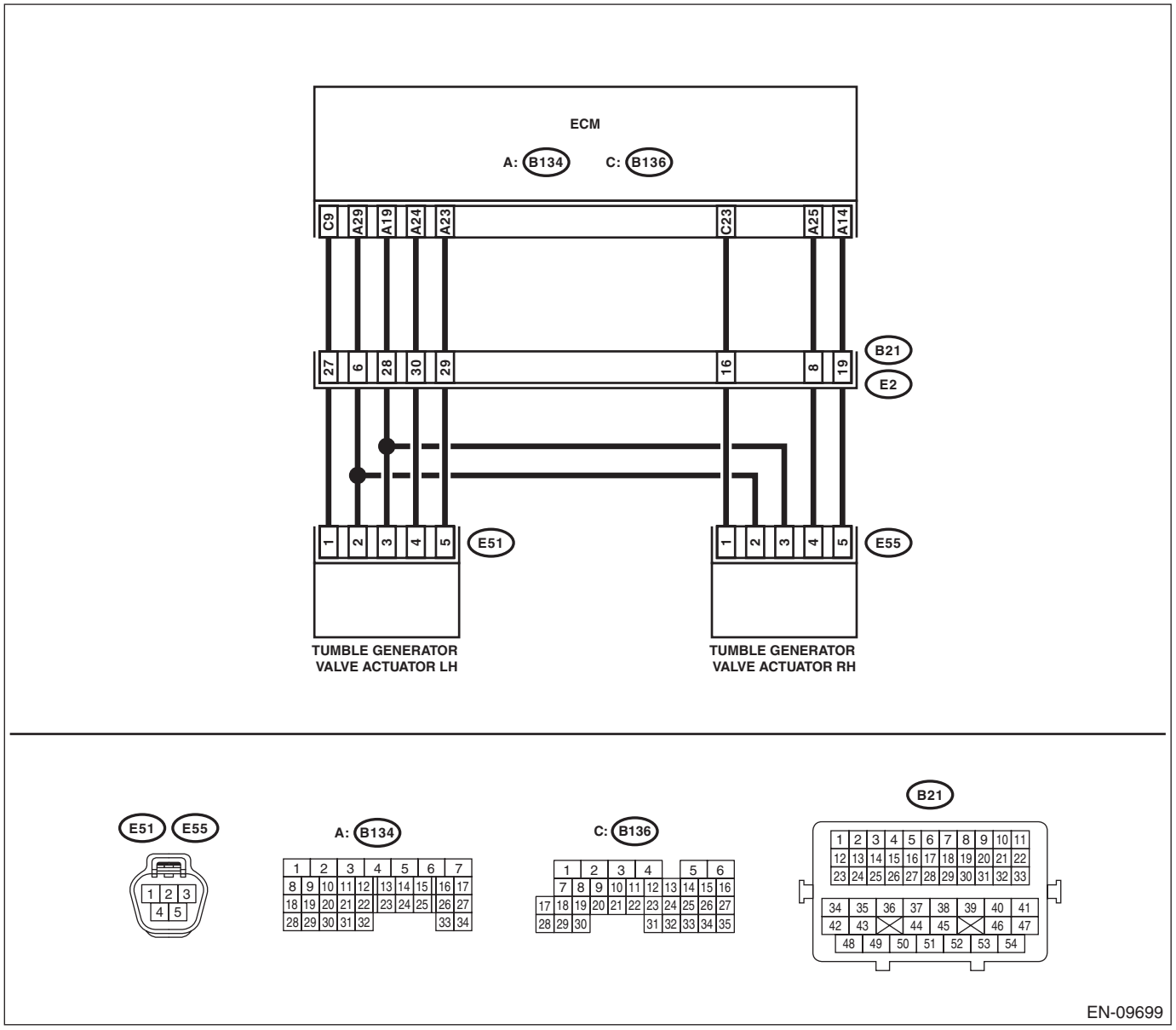
DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-171, DTC P2012 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR LH CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 23 (+) — Chassis ground (–):*** ***(B134) No. 24 (+) — Chassis ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in harness between ECM connector and tumble generator valve actuator LH connector.	Replace the tumble generator valve actuator LH. <Ref. to FU(H4DO(HEV))-76, Tumble Generator Valve Actuator.>

EQ:DTC P2096 POST CATALYST FUEL TRIM SYSTEM TOO LEAN (BANK 1)

DTC DETECTING CONDITION:

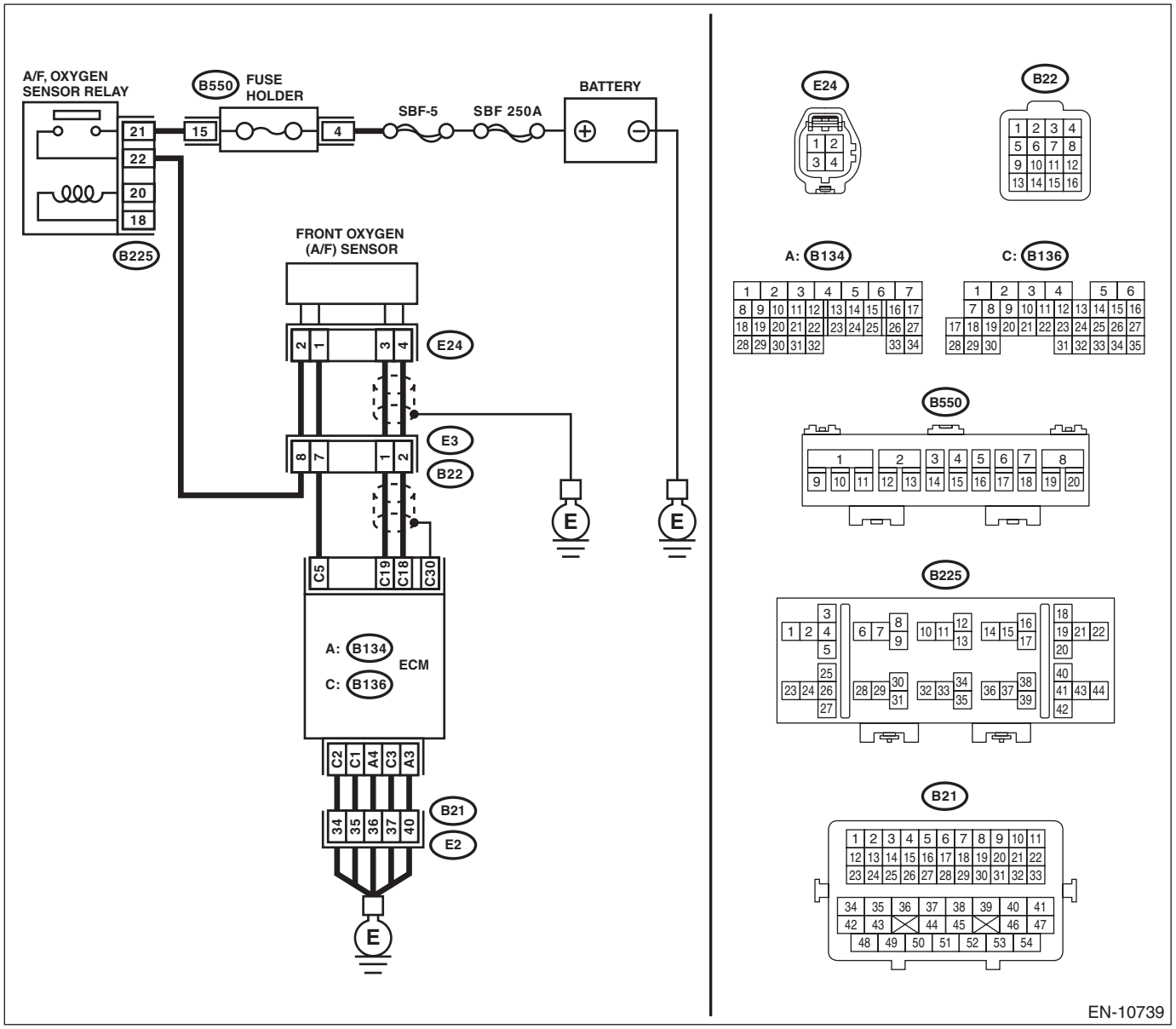
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-172, DTC P2096 POST CATALYST FUEL TRIM SYSTEM TOO LEAN (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

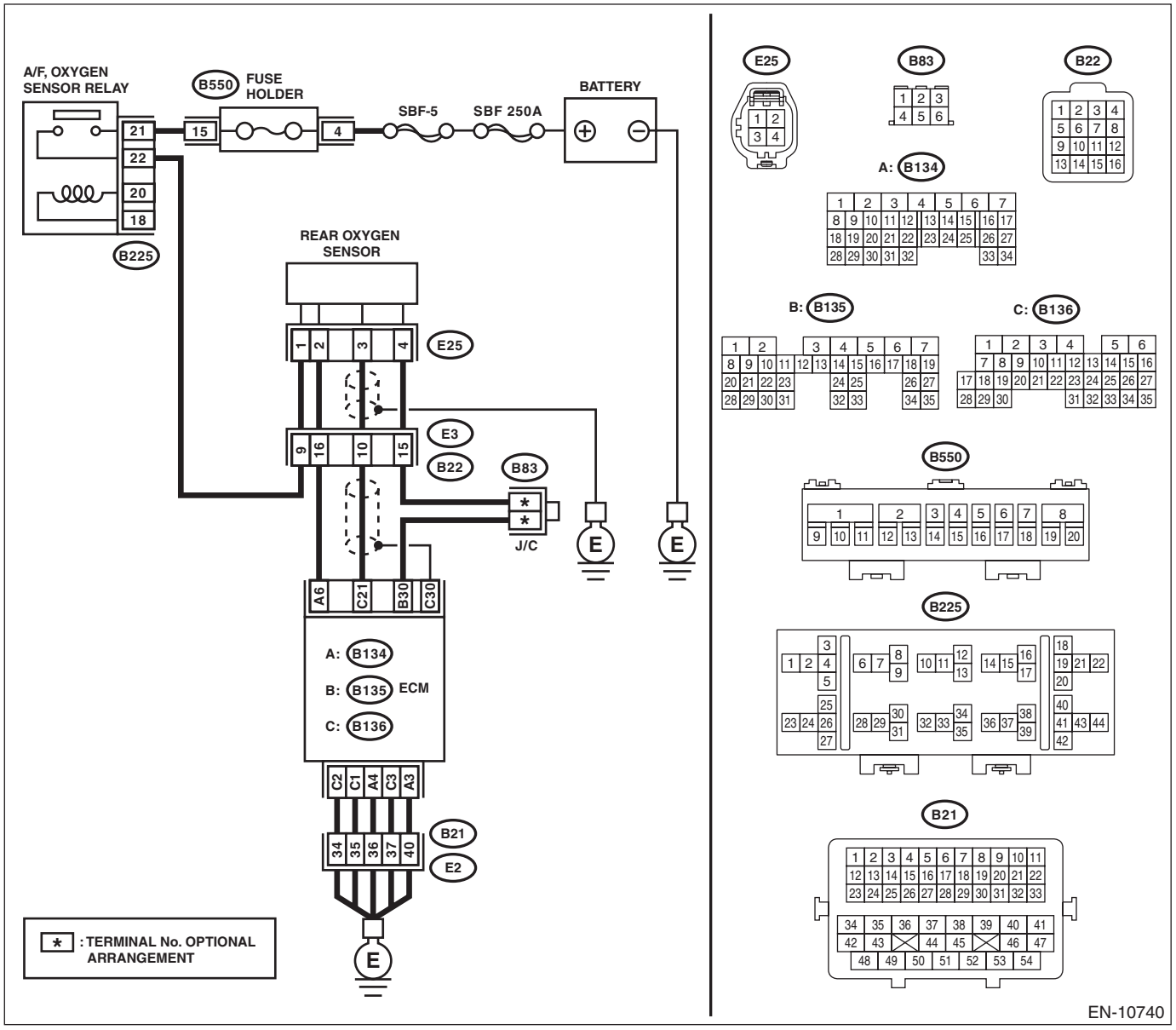
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





Step		Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 3) Measure the resistance of harness between ECM connector and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 19 — (E24) No. 3:*** ***(B136) No. 18 — (E24) No. 4:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and front oxygen (A/F) sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 19 — Chassis ground:*** ***(B136) No. 18 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and front oxygen (A/F) sensor connector.
5	**CHECK OUTPUT SIGNAL FOR ECM.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 3 (+) — Chassis ground (–):***	Is the voltage 4.5 V or more?	Go to step **7**.	Go to step **6**.
6	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 4 (+) — Chassis ground (–):***	Is the voltage 4.95 V or more?	Go to step **7**.	Go to step **8**.
7	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 3 (+) — Chassis ground (–):*** ***(E24) No. 4 (+) — Chassis ground (–):***	Is the voltage 8 V or more?	Repair the short circuit to power in the harness between ECM connector and front oxygen (A/F) sensor connector. After repair, replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	Repair the poor contact of ECM connector.
8	**CHECK EXHAUST SYSTEM.**	Are there holes or loose bolts on exhaust system?	Repair the exhaust system.	Go to step **9**.
9	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair the air intake system.	Go to step **10**.

	Step	Check	Yes	No
10	**CHECK FUEL PRESSURE.** **WARNING:** **Place "NO OPEN FLAMES" signs near the working area.** **CAUTION:** **Be careful not to spill fuel.** 1) Connect the front oxygen (A/F) sensor connector. 2) Measure the fuel pressure. <Ref. to ME(H4DO(w/o HEV))-35, INSPECTION, Fuel Pressure.> **CAUTION:** **Release fuel pressure before removing the fuel pressure gauge.**	Is the measured value 340 — 400 kPa (3.5 — 4.1 kg/cm^2, 49 — 58 psi)?	Go to step **11**.	Check the fuel pump and fuel delivery line. <Ref. to FU(H4DO(HEV))-127, INSPECTION, Fuel Pump.> <Ref. to FU(H4DO(HEV))-157, INSPECTION, Fuel Delivery and Evaporation Lines.>
11	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm up completely. 2) Read the value of «Coolant Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Coolant Temp.» 75°C (167°F) or more?	Go to step **12**.	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>
12	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in "P" range or "N" range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the value of «Mass Air Flow» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Mass Air Flow» 2.0 — 5.0 g/s (0.26 — 0.66 lb/m)?	Go to step **13**.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

	Step	Check	Yes	No
13	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in “P” range or “N” range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Open the front hood. 6) Measure the ambient temperature. 7) Read the value of «Intake Air Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Subtract ambient temperature from «Intake Air Temp.». Is the obtained value –10 — 50°C (–18 — 90°F)?	Go to step **14**.	Check the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>
14	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and keep the engine speed at 3,000 rpm. (2 minutes maximum) 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.490 V or more?	Go to step **15**.	Go to step **16**.
15	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.250 V or less?	Go to step **17**.	Go to step **16**.
16	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **18**.

	Step	Check	Yes	No
17	**CHECK FRONT OXYGEN (A/F) SENSOR USING REAR OXYGEN SENSOR SIGNAL.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), then keep the engine idling for 5 minutes or more. 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.250 V or less for 5 minutes or more?	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>	Go to step **18**.
18	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 21 — (E25) No. 3:*** ***(B135) No. 30 — (E25) No. 4:***	Is the resistance less than 1 Ω?	Go to step **19**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
19	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(E25) No. 3 (+) — Chassis ground (–):***	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of ECM connector • Poor contact of coupling connector

ER:DTC P2097 POST CATALYST FUEL TRIM SYSTEM TOO RICH (BANK 1)

DTC DETECTING CONDITION:

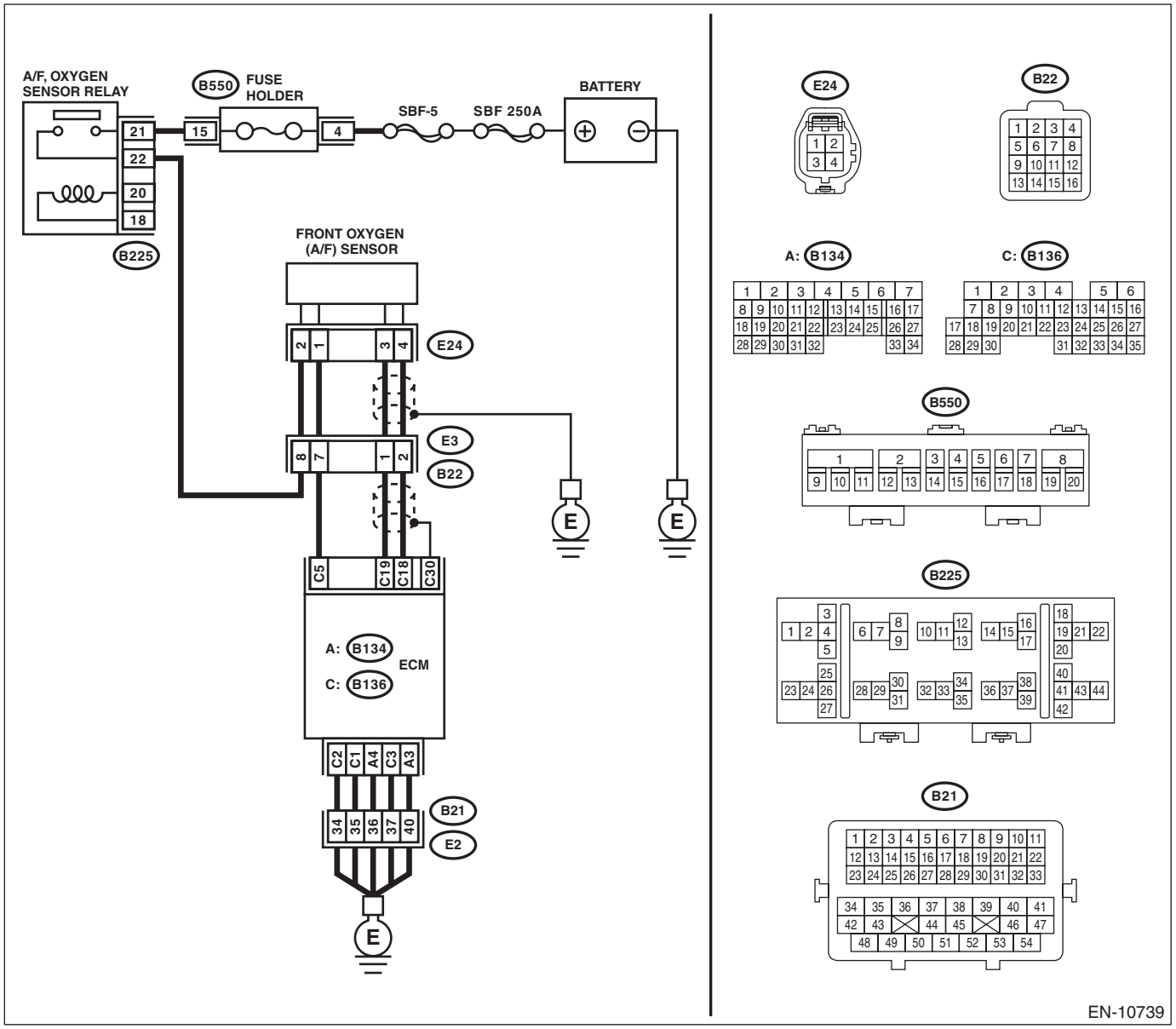
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-173, DTC P2097 POST CATALYST FUEL TRIM SYSTEM TOO RICH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

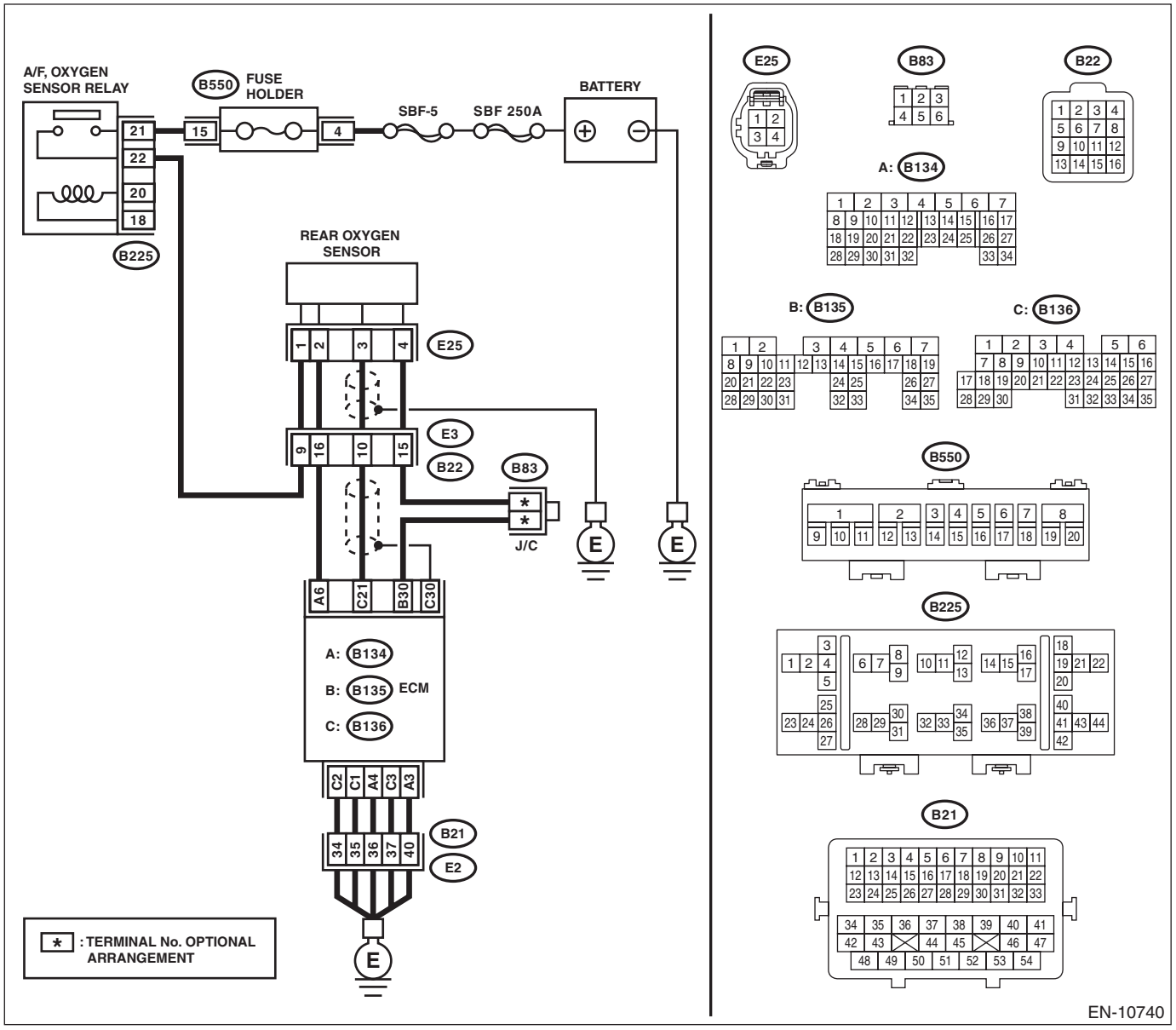
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





Step		Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **3**.

	Step	Check	Yes	No
3	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 3) Measure the resistance of harness between ECM connector and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 19 — (E24) No. 3:*** ***(B136) No. 18 — (E24) No. 4:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and front oxygen (A/F) sensor connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 19 — Chassis ground:*** ***(B136) No. 18 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and front oxygen (A/F) sensor connector.
5	**CHECK OUTPUT SIGNAL FOR ECM.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 3 (+) — Chassis ground (–):***	Is the voltage 4.5 V or more?	Go to step **7**.	Go to step **6**.
6	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 4 (+) — Chassis ground (–):***	Is the voltage 4.95 V or more?	Go to step **7**.	Go to step **8**.
7	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 3 (+) — Chassis ground (–):*** ***(E24) No. 4 (+) — Chassis ground (–):***	Is the voltage 8 V or more?	Repair the short circuit to power in the harness between ECM connector and front oxygen (A/F) sensor connector. After repair, replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	Repair the poor contact of ECM connector.
8	**CHECK EXHAUST SYSTEM.**	Are there holes or loose bolts on exhaust system?	Repair the exhaust system.	Go to step **9**.
9	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair the air intake system.	Go to step **10**.

	Step	Check	Yes	No
10	**CHECK FUEL PRESSURE.** **WARNING:** **Place "NO OPEN FLAMES" signs near the working area.** **CAUTION:** **Be careful not to spill fuel.** 1) Connect the front oxygen (A/F) sensor connector. 2) Measure the fuel pressure. <Ref. to ME(H4DO(w/o HEV))-35, INSPECTION, Fuel Pressure.> **CAUTION:** **Release fuel pressure before removing the fuel pressure gauge.**	Is the measured value 340 — 400 kPa (3.5 — 4.1 kg/cm^2, 49 — 58 psi)?	Go to step **11**.	Check the fuel pump and fuel delivery line. <Ref. to FU(H4DO(HEV))-127, INSPECTION, Fuel Pump.> <Ref. to FU(H4DO(HEV))-157, INSPECTION, Fuel Delivery and Evaporation Lines.>
11	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm up completely. 2) Read the value of «Coolant Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Coolant Temp.» 75°C (167°F) or more?	Go to step **12**.	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>
12	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in "P" range or "N" range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the value of «Mass Air Flow» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Mass Air Flow» 2.0 — 5.0 g/s (0.26 — 0.66 lb/m)?	Go to step **13**.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

	Step	Check	Yes	No
13	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in “P” range or “N” range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Open the front hood. 6) Measure the ambient temperature. 7) Read the value of «Intake Air Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Subtract ambient temperature from «Intake Air Temp.». Is the obtained value –10 — 50°C (–18 — 90°F)?	Go to step **14**.	Check the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>
14	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and keep the engine speed at 3,000 rpm. (2 minutes maximum) 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.490 V or more?	Go to step **15**.	Go to step **16**.
15	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to “Current Data Display For Engine”. <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.250 V or less?	Go to step **17**.	Go to step **16**.
16	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **18**.

	Step	Check	Yes	No
17	**CHECK FRONT OXYGEN (A/F) SENSOR USING REAR OXYGEN SENSOR SIGNAL.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), then keep the engine idling for 5 minutes or more. 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.8 V or more for 5 minutes or more?	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>	Go to step **18**.
18	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 21 — (E25) No. 3:*** ***(B135) No. 30 — (E25) No. 4:***	Is the resistance less than 1 Ω?	Go to step **19**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
19	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(E25) No. 3 (+) — Chassis ground (–):***	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of ECM connector • Poor contact of coupling connector

ES:DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/ PERFORMANCE

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-174, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

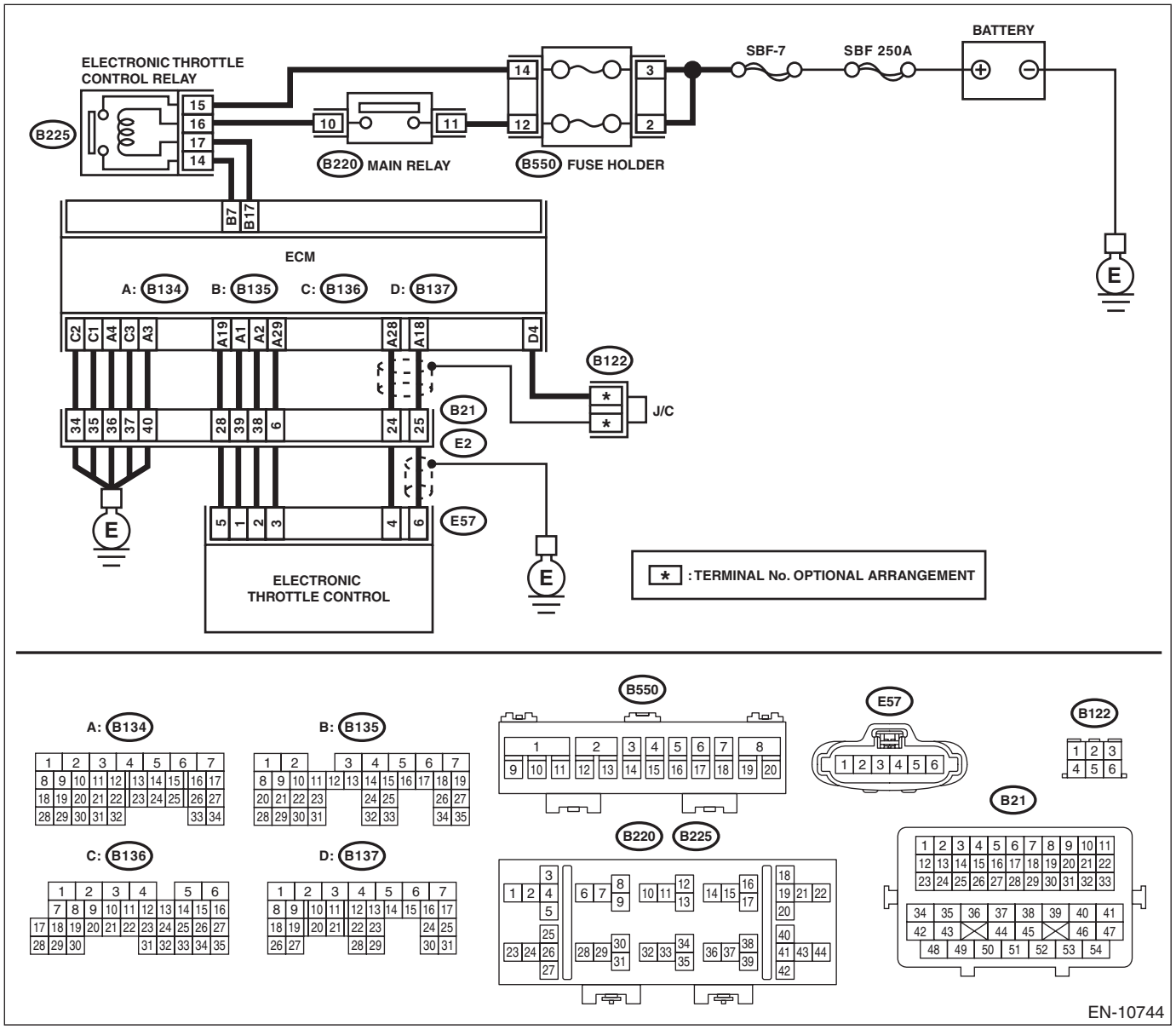
TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance
- Engine stalls.

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



Step		Check	Yes	No
1	**CHECK ELECTRONIC THROTTLE CONTROL RELAY.** 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control relay. 3) Connect the battery to terminals No. 16 and No. 17 of electronic throttle control relay. 4) Measure the resistance between electronic throttle control relay terminals. ***Terminals*** ***No. 14 — No. 15:***	Is the resistance less than 1 Ω?	Go to step **2**.	Replace the electronic throttle control relay. <Ref. to FU(H4DO(HEV))-94, Electronic Throttle Control Relay.>

	Step	Check	Yes	No
2	**CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL RELAY.** Measure the voltage between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 15 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **3**.	Repair the open or ground short circuit of power supply circuit.
3	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** 1) Disconnect the connector from ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 17 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control relay connector.	Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 14 — Chassis ground:*** ***(B225) No. 17 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and electronic throttle control relay connector.
5	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** Measure the resistance between ECM connector and electronic throttle control relay connector. ***Connector & terminal*** ***(B135) No. 7 — (B225) No. 14:*** ***(B135) No. 17 — (B225) No. 17:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the open circuit in harness between ECM connector and electronic throttle control relay connector.
6	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from electronic throttle control. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 19 — Chassis ground:*** ***(B134) No. 18 — Chassis ground:*** ***(B134) No. 18 — (B137) No. 4:*** ***(B134) No. 28 — Chassis ground:*** ***(B134) No. 28 — (B137) No. 4:***	Is the resistance 1 MΩ or more?	Go to step **7**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector.

Step		Check	Yes	No
7	**CHECK SHORT CIRCUIT INSIDE THE ECM.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 — Engine ground:*** ***(E57) No. 4 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **8**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector. Replace the ECM if defective. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>
8	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance of harness between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 18 — (E57) No. 6:*** ***(B134) No. 28 — (E57) No. 4:*** ***(B134) No. 29 — (E57) No. 3:***	Is the resistance less than 1 Ω?	Go to step **9**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector
9	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 3 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **10**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of coupling connector
10	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 (+) — Engine ground (–):*** ***(E57) No. 4 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.	Go to step **11**.
11	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B134) No. 19 — (B134) No. 18:*** ***(B134) No. 19 — (B134) No. 28:***	Is the resistance 1 MΩ or more?	Go to step **12**.	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.

	Step	Check	Yes	No
12	**CHECK SENSOR OUTPUT.** 1) Connect all connectors. 2) Start the engine and warm up completely. 3) Stop the engine, and then turn the ignition switch to ON (engine OFF). 4) Read the value of «Main-Throttle Sensor» using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Main-Throttle Sensor» 0.81 — 0.87 V?	Go to step **13**.	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>
13	**CHECK SENSOR OUTPUT.** Read the value of «Sub-Throttle Sensor» using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.>	Is the value of «Sub-Throttle Sensor» 1.64 — 1.70 V?	Go to step **14**.	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>
14	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 2 — (E57) No. 2:*** ***(B134) No. 1 — (E57) No. 1:***	Is the resistance less than 1 Ω?	Go to step **15**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector
15	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 2 (+) — Engine ground (–):*** ***(E57) No. 1 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.	Go to step **16**.
16	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 2 — Engine ground:*** ***(E57) No. 1 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **17**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector.

	Step	Check	Yes	No
17	**CHECK ELECTRONIC THROTTLE CONTROL CONNECTOR HARNESS.** Measure the resistance between electronic throttle control connectors. ***Connector & terminal*** ***(E57) No. 2 — (E57) No. 1:***	Is the resistance 1 MΩ or more?	Go to step **18**.	Repair the short circuit in harness between ECM connector and electronic throttle control connector.
18	**CHECK ELECTRONIC THROTTLE CONTROL GROUND CIRCUIT.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 3 — Chassis ground:*** ***(B134) No. 4 — Chassis ground:*** ***(B136) No. 1 — Chassis ground:*** ***(B136) No. 2 — Chassis ground:*** ***(B136) No. 3 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **19**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of coupling connector
19	**CHECK ELECTRONIC THROTTLE CONTROL.** Measure the resistance between electronic throttle control terminals. ***Terminals*** ***No. 2 — No. 1:***	Is the resistance 50 Ω or less?	Go to step **20**.	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>
20	**CHECK ELECTRONIC THROTTLE CONTROL.** Move the throttle valve to the fully open and fully closed positions with fingers. Check that the valve returns to the specified position when releasing fingers.	Does the valve return to the specified position? Standard value: 3 mm (0.12 in) from fully closed position	Repair the poor contact of ECM connector.	Replace the electronic throttle control. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>

ET:DTC P2102 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-175, DTC P2102 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

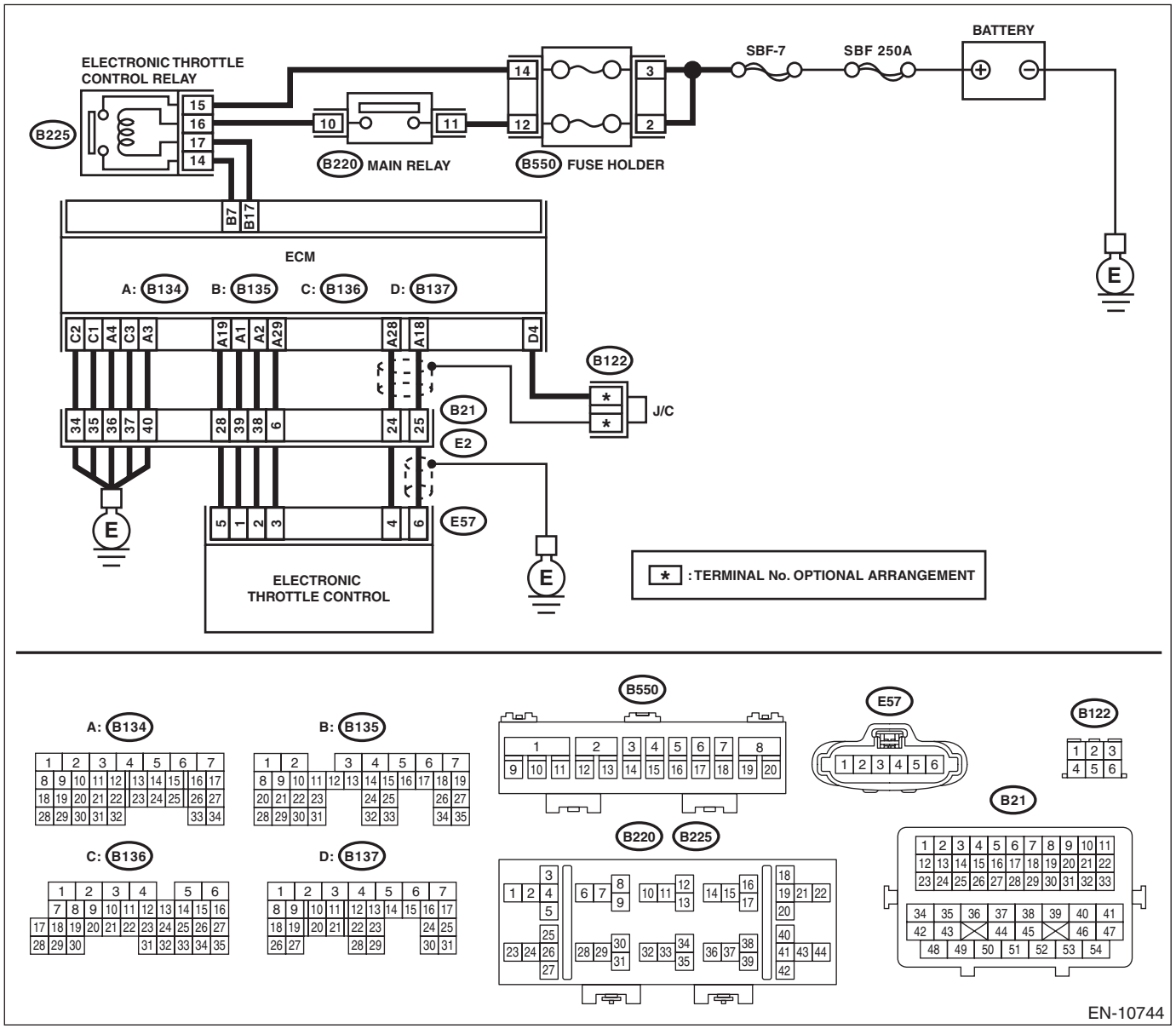
- Improper idling
- Poor driving performance
- Engine stalls.

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK ELECTRONIC THROTTLE CONTROL RELAY.** 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control relay. 3) Connect the battery to terminals No. 16 and No. 17 of electronic throttle control relay. 4) Measure the resistance between electronic throttle control relay terminals. ***Terminals*** ***No. 14 — No. 15:***	Is the resistance less than 1 Ω?	Go to step **2**.	Replace the electronic throttle control relay. <Ref. to FU(H4DO(HEV))-94, Electronic Throttle Control Relay.>
2	**CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL RELAY.** Measure the voltage between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 15 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **3**.	Repair the open or ground short circuit of power supply circuit.
3	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** 1) Disconnect the connector from ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 17 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control relay connector.	Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 14 — Chassis ground:*** ***(B225) No. 17 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and electronic throttle control relay connector.
5	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** Measure the resistance between ECM connector and electronic throttle control relay connector. ***Connector & terminal*** ***(B135) No. 7 — (B225) No. 14:*** ***(B135) No. 17 — (B225) No. 17:***	Is the resistance less than 1 Ω?	Repair the poor contact of ECM connector.	Repair the open circuit in harness between ECM connector and electronic throttle control relay connector.

EU:DTC P2103 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH

DTC DETECTING CONDITION:

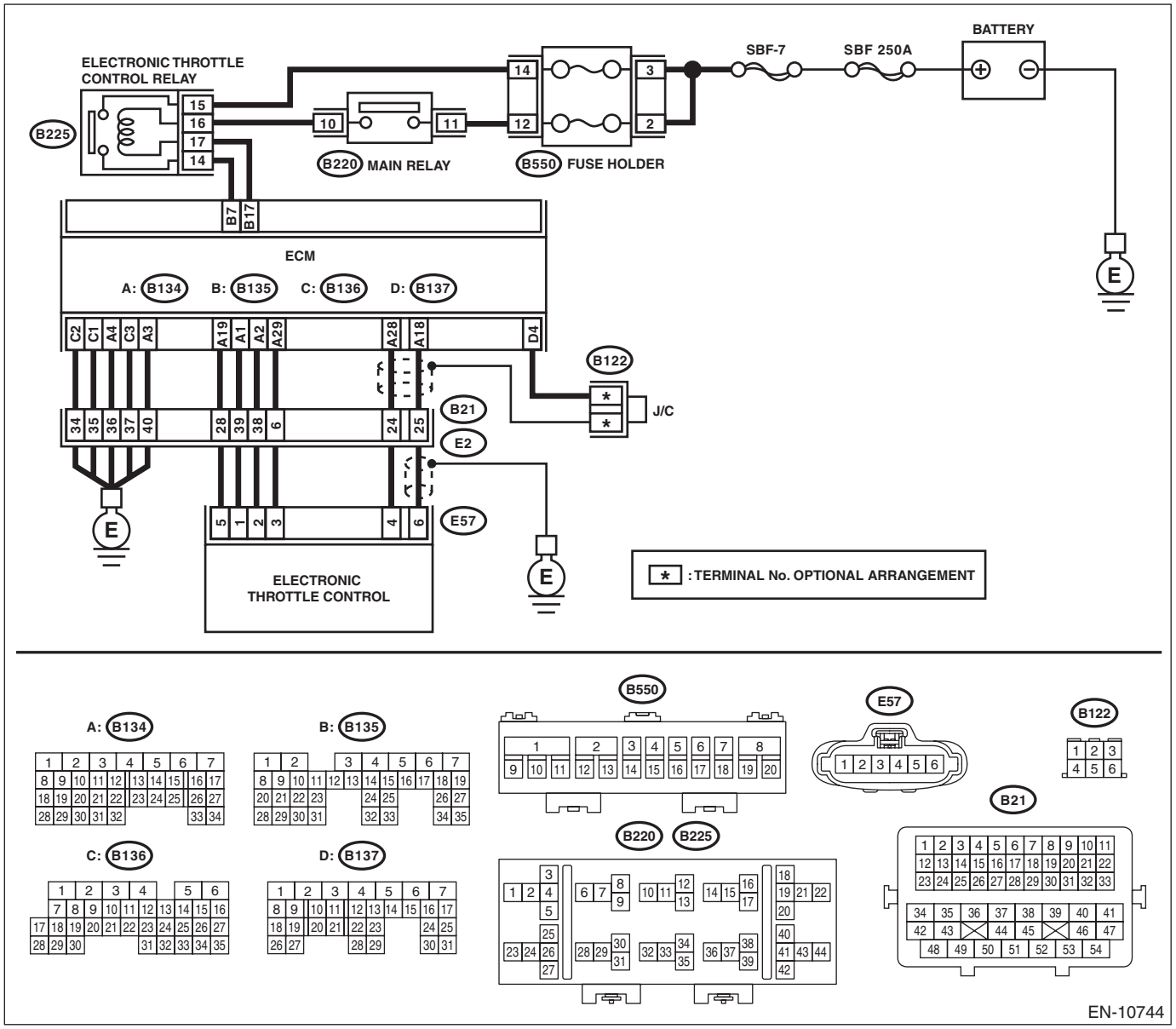
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-176, DTC P2103 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK ELECTRONIC THROTTLE CONTROL RELAY.** 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control relay. 3) Measure the resistance between electronic throttle control relay terminals. ***Terminals*** ***No. 14 — No. 15:***	Is the resistance 1 MΩ or more?	Go to step **2**.	Replace the electronic throttle control relay. <Ref. to FU(H4DO(HEV))-94, Electronic Throttle Control Relay.>
2	**CHECK SHORT CIRCUIT OF ELECTRONIC THROTTLE CONTROL RELAY POWER SUPPLY.** 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control relay connector and chassis ground. ***Connector & terminal*** ***(B225) No. 14 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control relay connector.	Go to step **3**.
3	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RELAY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 17 — Chassis ground:***	Is the resistance 1 MΩ or more?	Repair the poor contact of ECM connector.	Repair the short circuit to ground in harness between ECM connector and electronic throttle control relay connector.

EV:DTC P2109 THROTTLE/PEDAL POSITION SENSOR “A” MINIMUM STOP PERFORMANCE

NOTE:
For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4DO HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

EW:DTC P2119 THROTTLE ACTUATOR CONTROL THROTTLE BODY RANGE/PERFORMANCE

NOTE:
For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4DO HEV)(diag)-335, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

EX:DTC P2122 THROTTLE/PEDAL POSITION SENSOR/SWITCH “D” CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-180, DTC P2122 THROTTLE/PEDAL POSITION SENSOR/SWITCH “D” CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

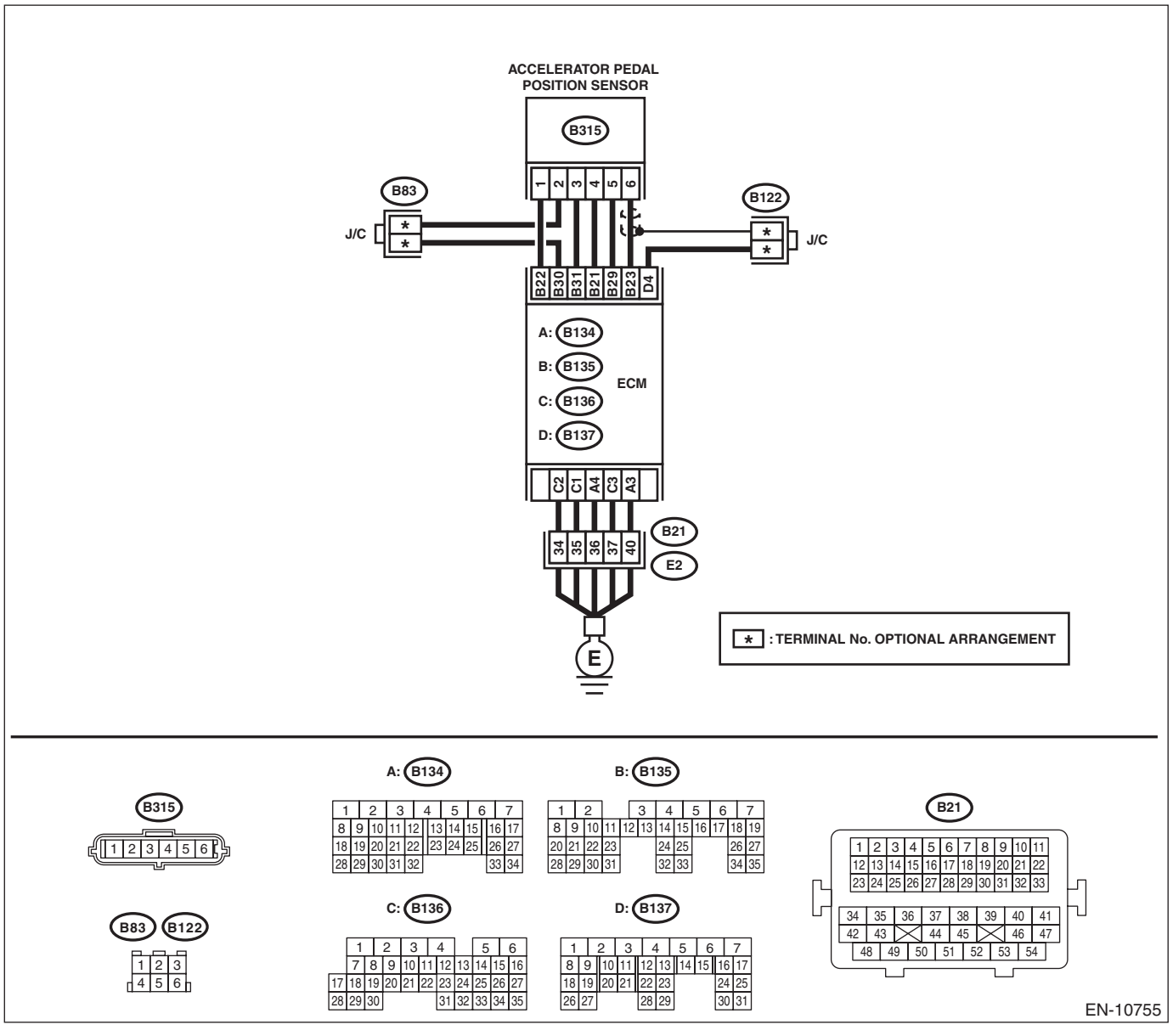
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and accelerator pedal position sensor. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 21 — Chassis ground:*** ***(B135) No. 23 — Chassis ground:*** ***(B135) No. 23 — (B137) No. 4:***	Is the resistance 1 MΩ or more?	Go to step **2**.	Repair the short circuit to ground in harness between ECM connector and accelerator pedal position sensor connector.
2	**CHECK SHORT CIRCUIT INSIDE THE ECM.** 1) Connect the connector to ECM. 2) Measure the resistance between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 6 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the accelerator pedal. <Ref. to SP(H4DO(w/o HEV))-4, Accelerator Pedal.>	Repair the short circuit to ground in harness between ECM connector and accelerator pedal position sensor connector. Replace the ECM if defective. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>

EY:DTC P2123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT HIGH INPUT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-181, DTC P2123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

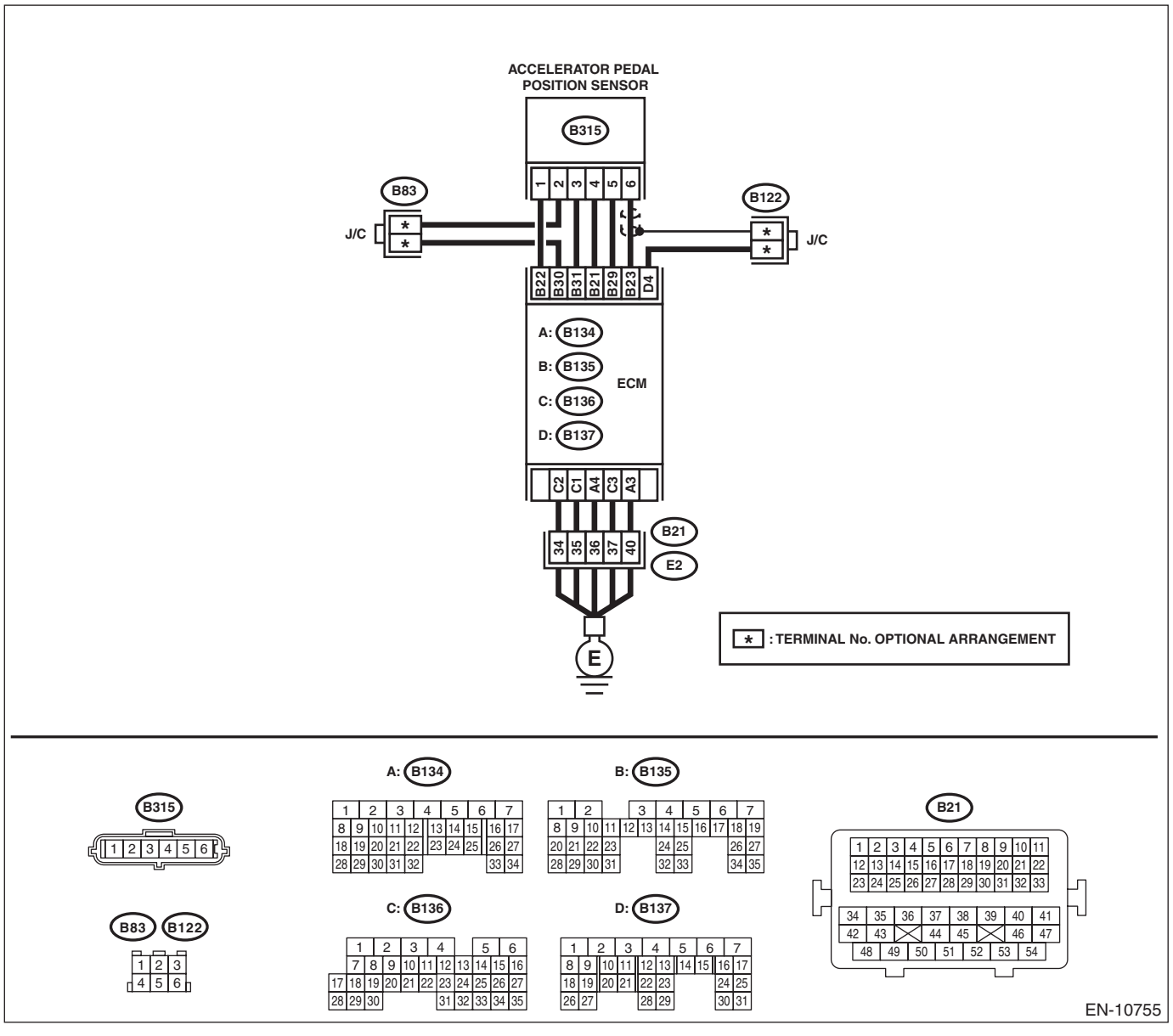
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and accelerator pedal position sensor. 3) Measure the resistance of harness between ECM connector and accelerator pedal position sensor connector. ***Connector & terminal*** ***(B135) No. 23 — (B315) No. 6:*** ***(B135) No. 29 — (B315) No. 5:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the open circuit of harness between ECM connector and accelerator pedal position sensor connector.
2	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Measure the resistance between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 5 — Chassis ground:***	Is the resistance less than 5 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 6 (+) — Chassis ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power supply in harness between ECM connector and accelerator pedal position sensor connector.	Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B135) No. 21 — (B135) No. 23:***	Is the resistance 1 MΩ or more?	Repair the poor contact of accelerator pedal position sensor connector. Replace the accelerator pedal if defective. <Ref. to SP(H4DO(w/o HEV))-4, Accelerator Pedal.>	Repair the short circuit to power supply in harness between ECM connector and accelerator pedal position sensor connector.

EZ:DTC P2127 THROTTLE/PEDAL POSITION SENSOR/SWITCH “E” CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-182, DTC P2127 THROTTLE/PEDAL POSITION SENSOR/SWITCH “E” CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

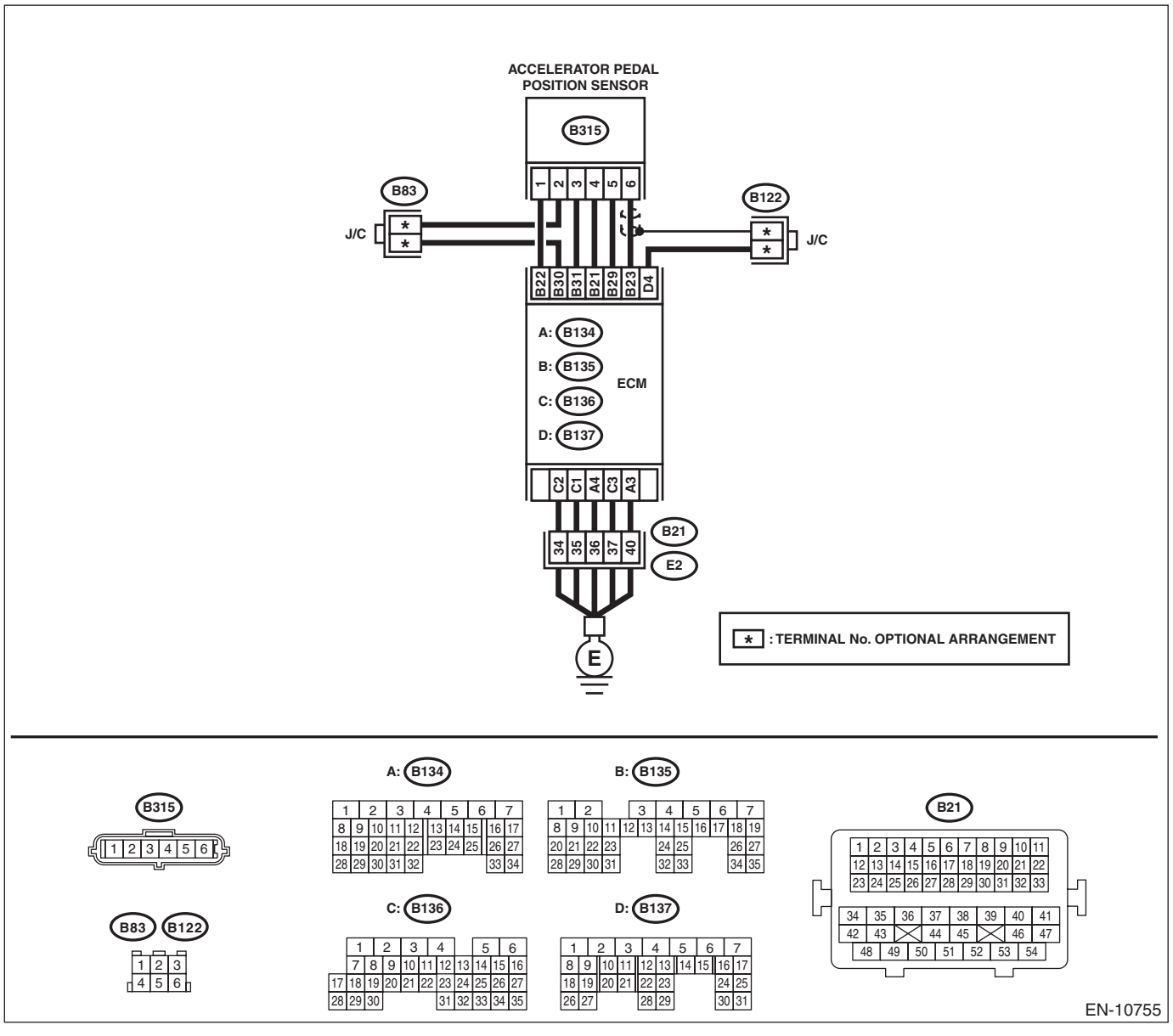
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and accelerator pedal position sensor. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 22 — Chassis ground:*** ***(B135) No. 31 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **2**.	Repair the short circuit to ground in harness between ECM connector and accelerator pedal position sensor connector.
2	**CHECK SHORT CIRCUIT INSIDE THE ECM.** 1) Connect the connector to ECM. 2) Measure the resistance between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 3 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the accelerator pedal. <Ref. to SP(H4DO(w/o HEV))-4, Accelerator Pedal.>	Repair the short circuit to ground in harness between ECM connector and accelerator pedal position sensor connector. Replace the ECM if defective. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>

FA:DTC P2128 THROTTLE/PEDAL POSITION SENSOR/SWITCH “E” CIRCUIT HIGH INPUT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-183, DTC P2128 THROTTLE/PEDAL POSITION SENSOR/SWITCH “E” CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

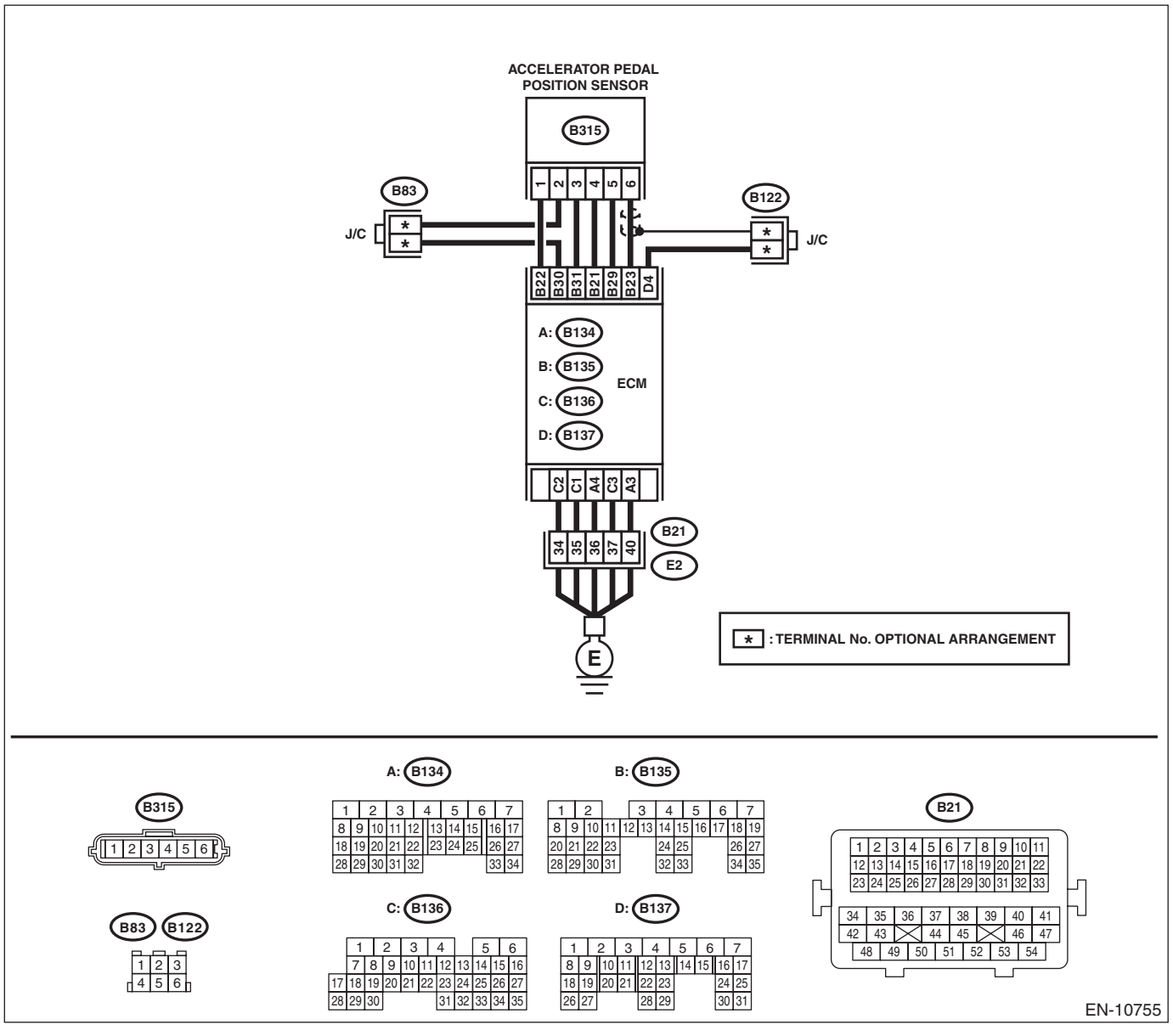
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and accelerator pedal position sensor. 3) Measure the resistance of harness between ECM connector and accelerator pedal position sensor connector. ***Connector & terminal*** ***(B135) No. 31 — (B315) No. 3:*** ***(B135) No. 30 — (B315) No. 2:***	Is the resistance less than 1 Ω?	Go to step **2**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and accelerator pedal position sensor connector • Poor contact of joint connector
2	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Measure the resistance between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 2 — Chassis ground:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of coupling connector
3	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 3 (+) — Chassis ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power supply in harness between ECM connector and accelerator pedal position sensor connector.	Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B135) No. 22 — (B135) No. 31:***	Is the resistance 1 MΩ or more?	Repair the poor contact of accelerator pedal position sensor connector. Replace the accelerator pedal if defective. <Ref. to SP(H4DO(w/o HEV))-4, Accelerator Pedal.>	Repair the short circuit to power supply in harness between ECM connector and accelerator pedal position sensor connector.

FB:DTC P2135 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A"/"B" VOLTAGE CORRELATION

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-184, DTC P2135 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A"/"B" VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

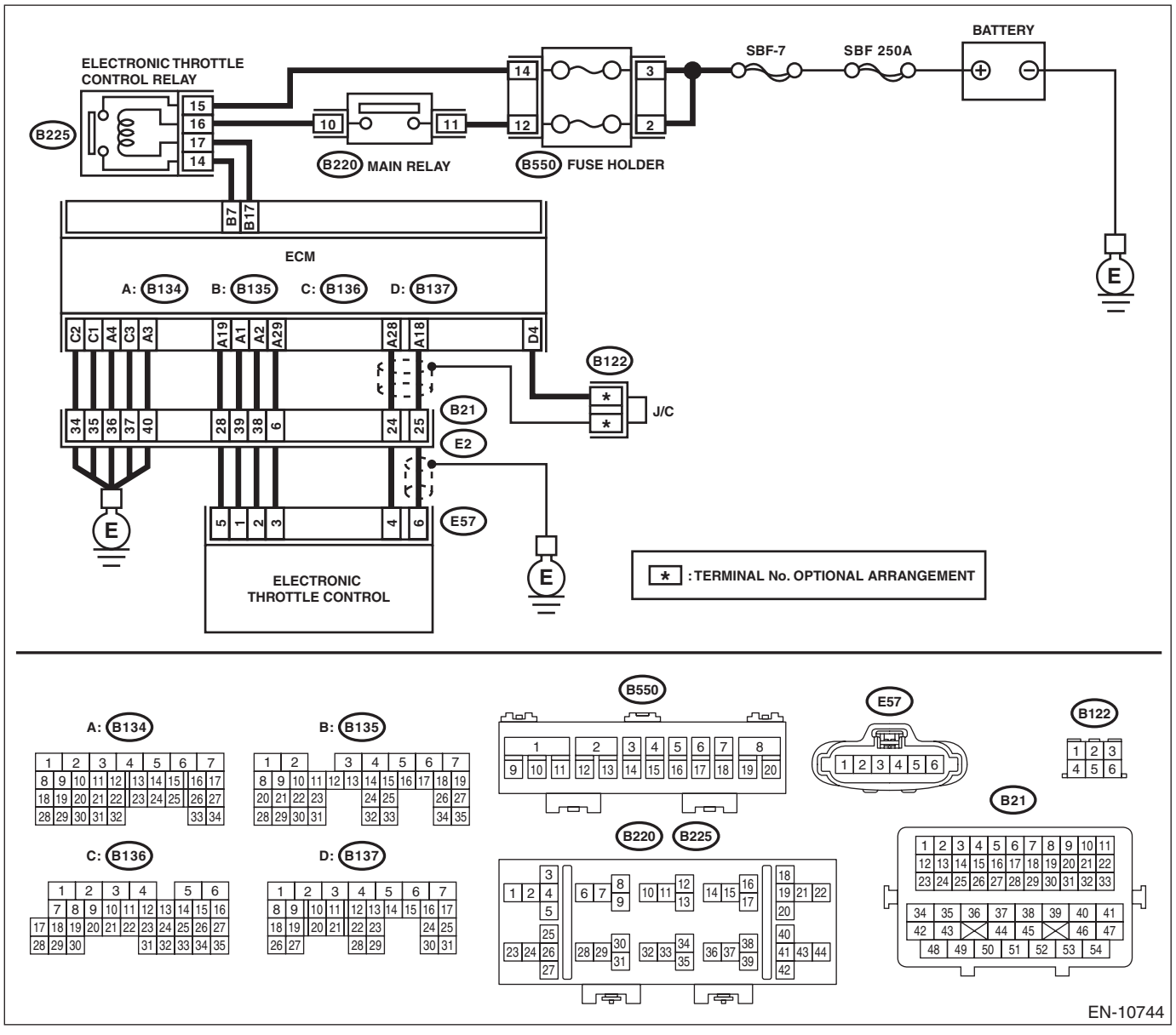
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and electronic throttle control. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B134) No. 19 — Chassis ground:*** ***(B134) No. 18 — Chassis ground:*** ***(B134) No. 18 — (B137) No. 4:*** ***(B134) No. 28 — Chassis ground:*** ***(B134) No. 28 — (B137) No. 4:***	Is the resistance 1 MΩ or more?	Go to step **2**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector.
2	**CHECK SHORT CIRCUIT INSIDE THE ECM.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 — Engine ground:*** ***(E57) No. 4 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the ground short circuit of harness between ECM connector and electronic throttle control connector. Replace the ECM if defective. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>
3	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Disconnect the connector from ECM. 2) Measure the resistance of harness between ECM connector and electronic throttle control connector. ***Connector & terminal*** ***(B134) No. 18 — (E57) No. 6:*** ***(B134) No. 28 — (E57) No. 4:*** ***(B134) No. 29 — (E57) No. 3:***	Is the resistance less than 1 Ω?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and electronic throttle control connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Connect the connector to ECM. 2) Measure the resistance between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 3 — Engine ground:***	Is the resistance less than 5 Ω?	Go to step **5**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of coupling connector

	Step	Check	Yes	No
5	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control connector and engine ground. ***Connector & terminal*** ***(E57) No. 6 (+) — Engine ground (–):*** ***(E57) No. 4 (+) — Engine ground (–):***	Is the voltage 5 V or more?	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.	Go to step **6**.
6	**CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connectors. ***Connector & terminal*** ***(B134) No. 19 — (B134) No. 18:*** ***(B134) No. 19 — (B134) No. 28:***	Is the resistance 1 MΩ or more?	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective. <Ref. to FU(H4DO(HEV))-14, Throttle Body.>	Repair the short circuit to power in the harness between ECM connector and electronic throttle control connector.

FC:DTC P2138 THROTTLE/PEDAL POSITION SENSOR/SWITCH “D”/“E” VOLTAGE CORRELATION

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-186, DTC P2138 THROTTLE/PEDAL POSITION SENSOR/SWITCH “D”/“E” VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

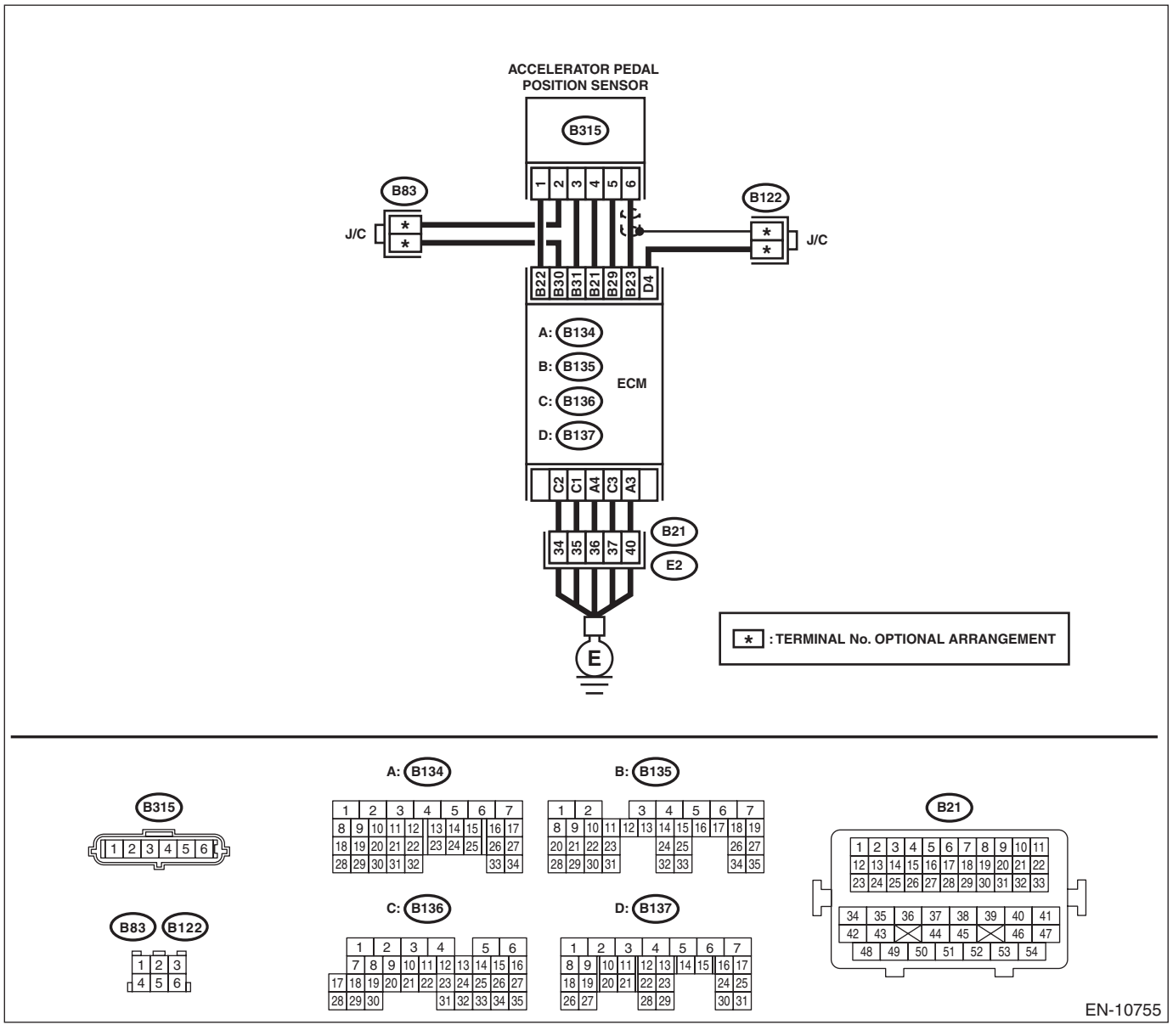
- Improper idling
- Poor driving performance

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***Main accelerator pedal position sensor signal*** ***(B135) No. 23 (+) — Chassis ground (–):*** ***Sub accelerator pedal position sensor signal*** ***(B135) No. 31 (+) — Chassis ground (–):***	Is the difference in measured values for the main accelerator pedal position sensor signal and the sub accelerator pedal position sensor signal 0 V?	Go to step **3**.	Go to step **2**.
2	**CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT.** 1) Measure the voltage between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 6 (+) — Chassis ground (–):*** ***(B315) No. 3 (+) — Chassis ground (–):***	Is the difference in measured values for the main accelerator pedal position sensor signal and the sub accelerator pedal position sensor signal 0 V?	Replace the accelerator pedal. <Ref. to SP(H4DO(w/o HEV))-4, Accelerator Pedal.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and accelerator pedal position sensor connector • Short circuit to ground in harness between ECM connector and accelerator pedal position sensor connector
3	**CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR CONNECTOR.** Measure the resistance of harness between accelerator pedal position sensor connector and chassis ground. ***Connector & terminal*** ***(B315) No. 5 — Chassis ground:*** ***(B315) No. 2 — Chassis ground:***	Is the resistance less than 5 Ω?	Repair the poor contact of ECM connector.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM connector and accelerator pedal position sensor connector • Open circuit of harness between ECM connector and engine ground • Poor contact of ECM connector • Poor contact of joint connector

FD:DTC P2195 O2 SENSOR SIGNAL BIASED/STUCK LEAN (BANK 1 SENSOR 1)

DTC DETECTING CONDITION:

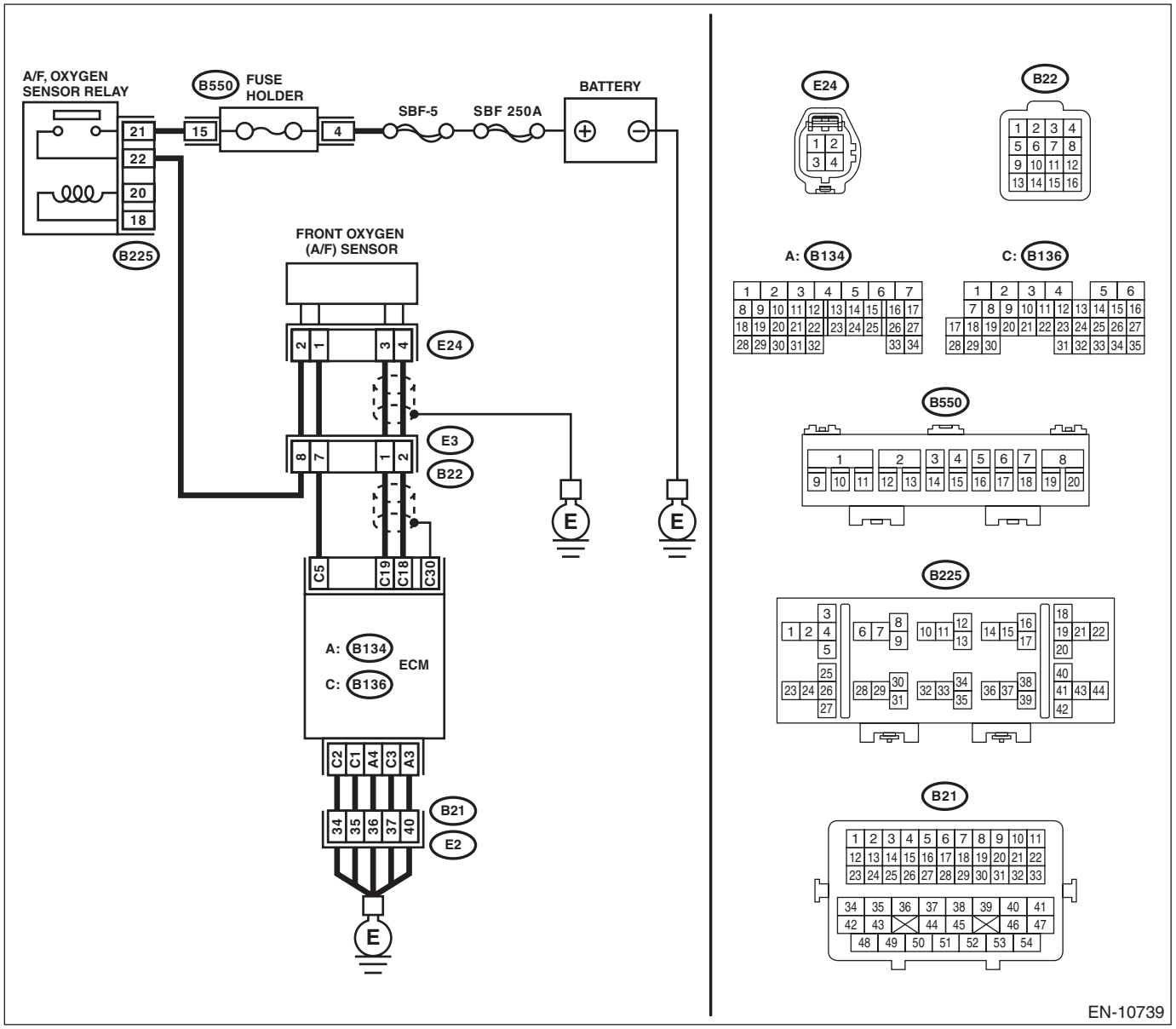
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-188, DTC P2195 O2 SENSOR SIGNAL BIASED/ STUCK LEAN (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 3) Measure the resistance of harness between ECM connector and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 19 — (E24) No. 3:*** ***(B136) No. 18 — (E24) No. 4:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and front oxygen (A/F) sensor connector • Poor contact of coupling connector
3	**CHECK FOR POOR CONTACT.** Check for poor contact of the front oxygen (A/F) sensor connector.	Is there poor contact of front oxygen (A/F) sensor connector?	Repair the poor contact of front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>

FE:DTC P2196 O2 SENSOR SIGNAL BIASED/STUCK RICH (BANK 1 SENSOR 1)

DTC DETECTING CONDITION:

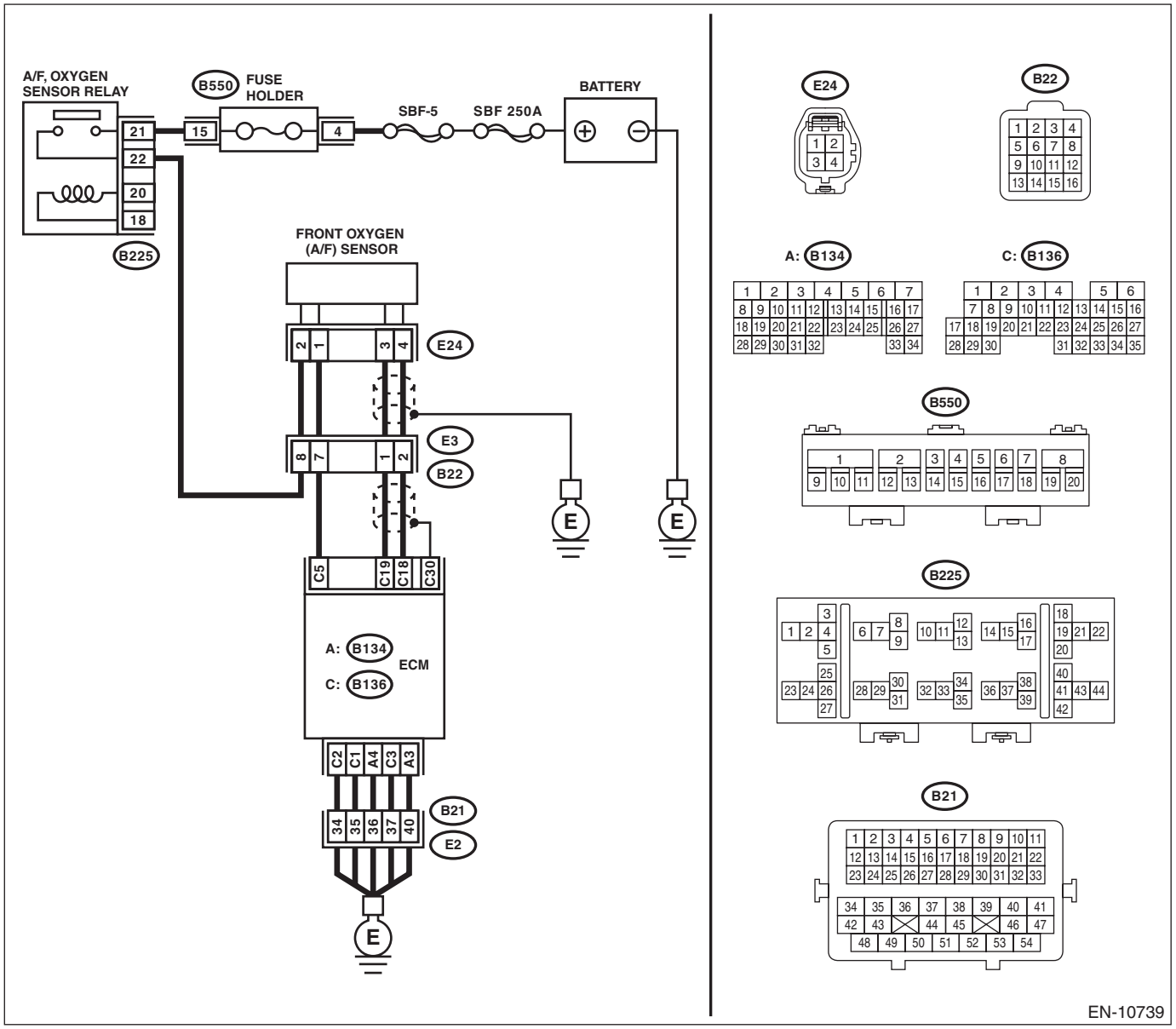
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-190, DTC P2196 O2 SENSOR SIGNAL BIASED/ STUCK RICH (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 19 — Chassis ground:*** ***(B136) No. 18 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **3**.	Repair the short circuit to ground in harness between ECM connector and front oxygen (A/F) sensor connector.
3	**CHECK OUTPUT SIGNAL FOR ECM.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 19 (+) — Chassis ground (–):***	Is the voltage 4.5 V or more?	Go to step **5**.	Go to step **4**.
4	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 18 (+) — Chassis ground (–):***	Is the voltage 4.95 V or more?	Go to step **5**.	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>
5	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 19 (+) — Chassis ground (–):*** ***(B136) No. 18 (+) — Chassis ground (–):***	Is the voltage 8 V or more?	Repair the short circuit to power in the harness between ECM connector and front oxygen (A/F) sensor connector. After repair, replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	Repair the poor contact of ECM connector.

FF: DTC P219A BANK 1 AIR-FUEL RATIO IMBALANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-192, DTC P219A BANK 1 AIR-FUEL RATIO IMBALANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

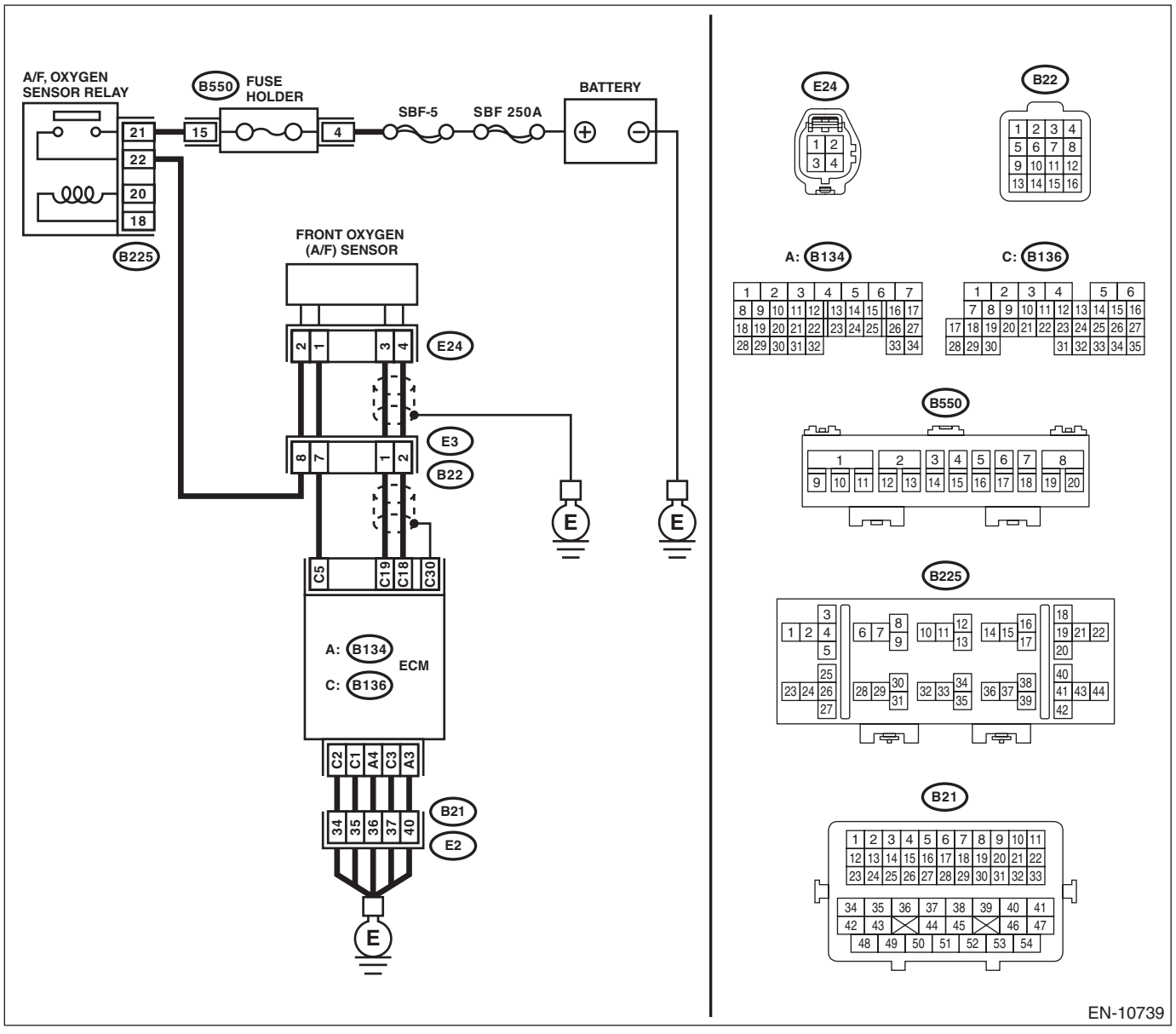
- Engine stalls.
- Improper idling

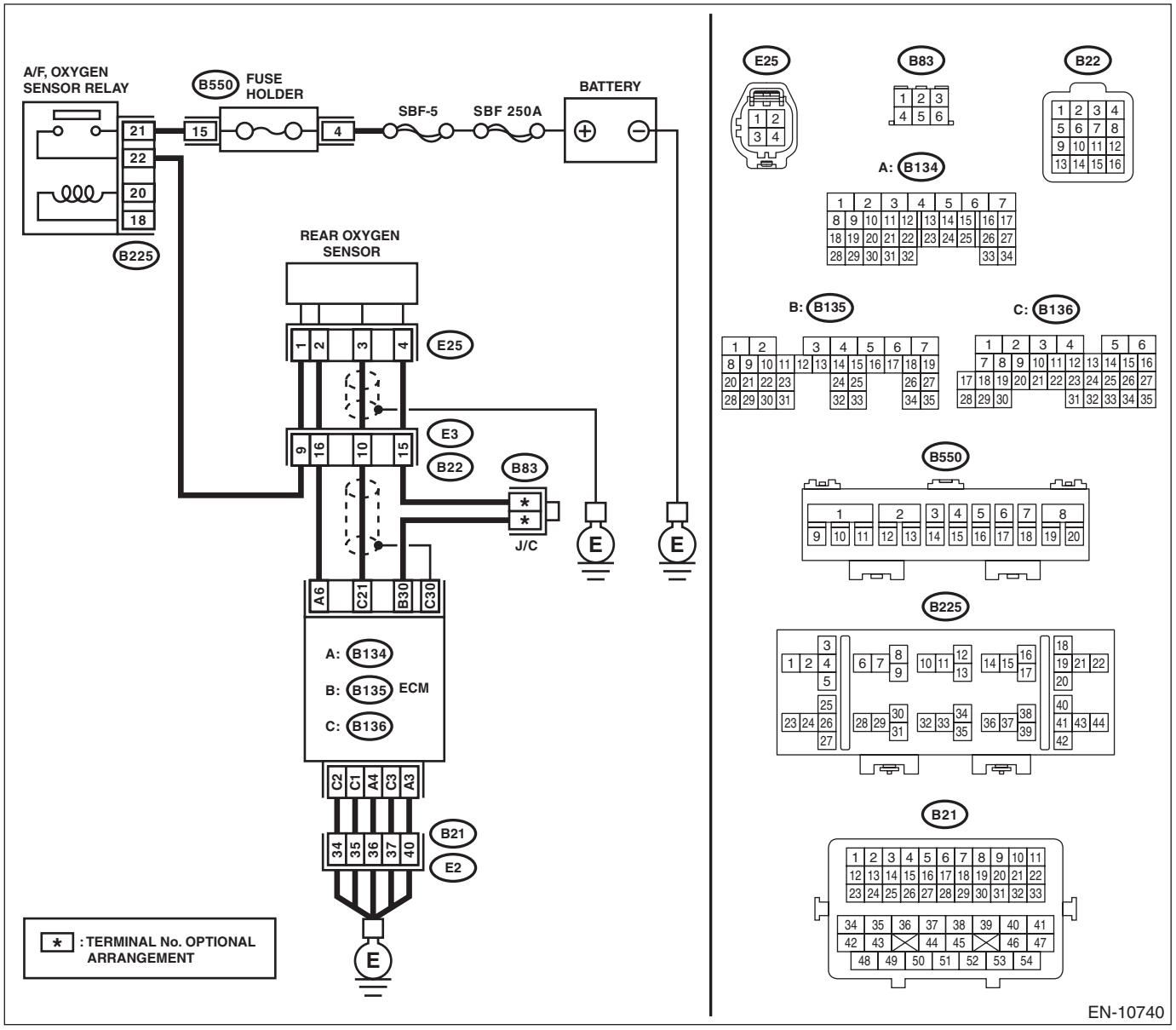
CAUTION:

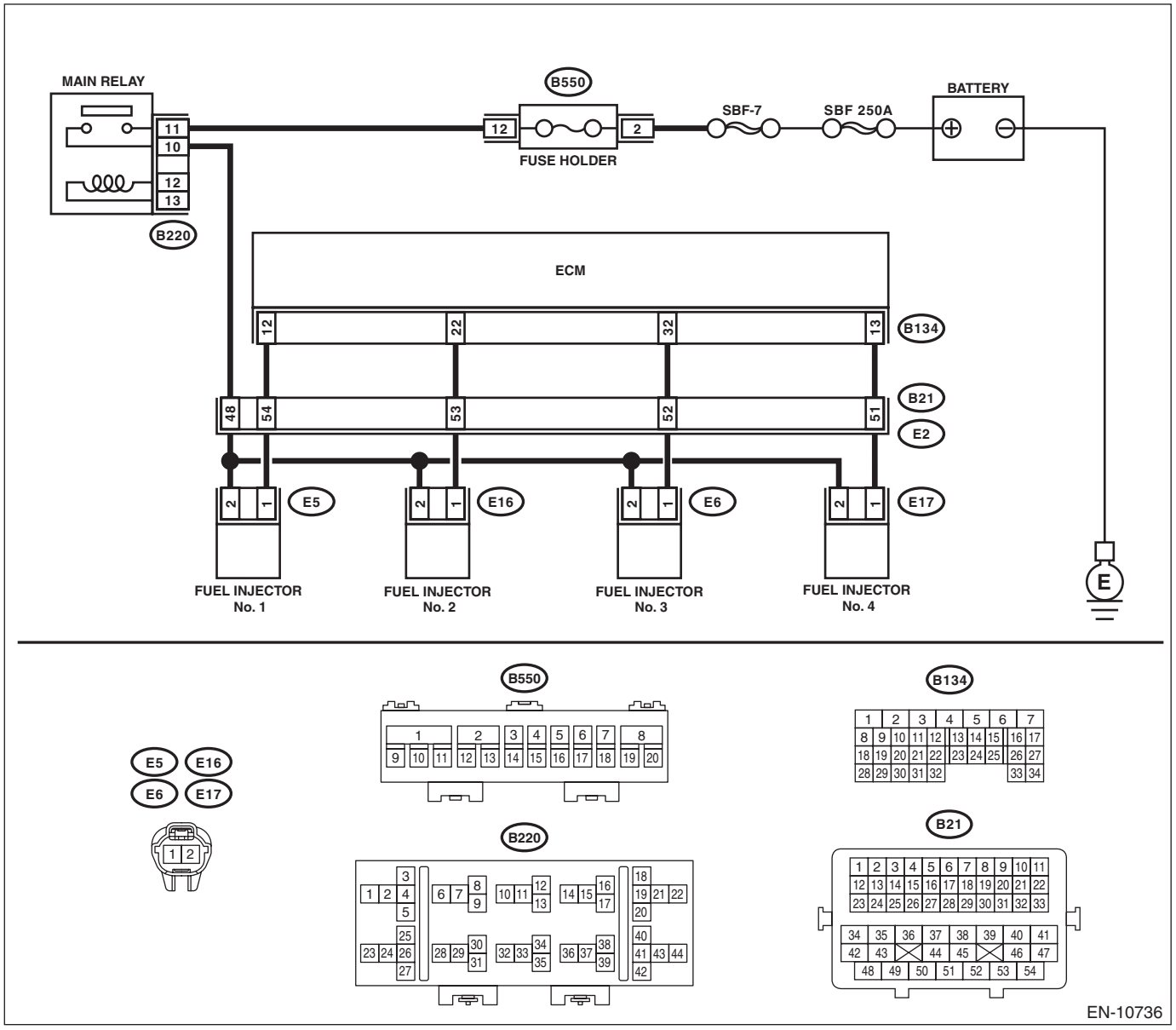
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>




A/F, OXYGEN SENSOR RELAY
B550
FUSE HOLDER
BATTERY
SBF-5
SBF 250A
21
22
20
18
15
4
B225
REAR OXYGEN SENSOR
E25
E3
B22
B83
J/C
A6
C21
B30
C30
A: B134
B: B135
C: B136
ECM
C2
C1
A4
C3
A3
B21
E2
34
35
36
37
40
E
: TERMINAL No. OPTIONAL ARRANGEMENT
B550
B225
B21
EN-10740



Step		Check	Yes	No
1	**CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 3) Measure the resistance of harness between ECM connector and front oxygen (A/F) sensor connector. ***Connector & terminal*** ***(B136) No. 19 — (E24) No. 3:*** ***(B136) No. 18 — (E24) No. 4:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and front oxygen (A/F) sensor connector • Poor contact of coupling connector

	Step	Check	Yes	No
3	**CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.** Measure the resistance between ECM connector and chassis ground. ***Connector & terminal*** ***(B136) No. 19 — Chassis ground:*** ***(B136) No. 18 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair the short circuit to ground in harness between ECM connector and front oxygen (A/F) sensor connector.
4	**CHECK OUTPUT SIGNAL FOR ECM.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 3 (+) — Chassis ground (–):***	Is the voltage 4.5 V or more?	Go to step **6**.	Go to step **5**.
5	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 4 (+) — Chassis ground (–):***	Is the voltage 4.95 V or more?	Go to step **6**.	Go to step **7**.
6	**CHECK OUTPUT SIGNAL FOR ECM.** Measure the voltage between front oxygen (A/F) sensor connector and chassis ground. ***Connector & terminal*** ***(E24) No. 3 (+) — Chassis ground (–):*** ***(E24) No. 4 (+) — Chassis ground (–):***	Is the voltage 8 V or more?	Repair the short circuit to power in the harness between ECM connector and front oxygen (A/F) sensor connector. After repair, replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).>	Repair the poor contact of ECM connector.
7	**CHECK EXHAUST SYSTEM.**	Are there holes or loose bolts on exhaust system?	Repair the exhaust system.	Go to step **8**.
8	**CHECK AIR INTAKE SYSTEM.**	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair the air intake system.	Go to step **9**.
9	**CHECK FUEL PRESSURE.** **WARNING:** **Place "NO OPEN FLAMES" signs near the working area.** **CAUTION:** **Be careful not to spill fuel.** 1) Connect the front oxygen (A/F) sensor connector. 2) Measure the fuel pressure. <Ref. to ME(H4DO(w/o HEV))-35, INSPECTION, Fuel Pressure.> **CAUTION:** **Release fuel pressure before removing the fuel pressure gauge.**	Is the measured value 340 — 400 kPa (3.5 — 4.1 kg/cm^2, 49 — 58 psi)?	Go to step **10**.	Check the fuel pump and fuel delivery line. <Ref. to FU(H4DO(HEV))-127, INSPECTION, Fuel Pump.> <Ref. to FU(H4DO(HEV))-157, INSPECTION, Fuel Delivery and Evaporation Lines.>

	Step	Check	Yes	No
10	**CHECK ENGINE COOLANT TEMPERATURE SENSOR.** 1) Start the engine and warm up completely. 2) Read the value of «Coolant Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Coolant Temp.» 75°C (167°F) or more?	Go to step **11**.	Replace the engine coolant temperature sensor. <Ref. to FU(H4DO(HEV))-41, Engine Coolant Temperature Sensor.>
11	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in "P" range or "N" range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the value of «Mass Air Flow» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Mass Air Flow» 2.0 — 5.0 g/s (0.26 — 0.66 lb/m)?	Go to step **12**.	Replace the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>
12	**CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.** 1) Start the engine and warm up engine until coolant temperature is higher than 75°C (167°F). 2) Place the select lever in "P" range or "N" range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Open the front hood. 6) Measure the ambient temperature. 7) Read the value of «Intake Air Temp.» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Subtract ambient temperature from «Intake Air Temp.». Is the obtained value –10 — 50°C (–18 — 90°F)?	Go to step **13**.	Check the mass air flow and intake air temperature sensor. <Ref. to FU(H4DO(HEV))-63, Mass Air Flow and Intake Air Temperature Sensor.>

	Step	Check	Yes	No
13	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and keep the engine speed at 3,000 rpm. (2 minutes maximum) 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.490 V or more?	Go to step **14**.	Go to step **15**.
14	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.250 V or less?	Go to step **16**.	Go to step **15**.
15	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **17**.
16	**CHECK FRONT OXYGEN (A/F) SENSOR USING REAR OXYGEN SENSOR SIGNAL.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), then keep the engine idling for 5 minutes or more. 2) Read the value of «Oxygen sensor #12» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(H4DO HEV)(diag)-36, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Oxygen sensor #12» 0.250 V or less for 5 minutes or more?	Replace the front oxygen (A/F) sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>	Go to step **17**.

	Step	Check	Yes	No
17	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 21 — (E25) No. 3:*** ***(B135) No. 30 — (E25) No. 4:***	Is the resistance less than 1 Ω?	Go to step **18**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and rear oxygen sensor connector • Poor contact of coupling connector
18	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(E25) No. 3 (+) — Chassis ground (–):***	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-78, Front Oxygen (A/F) Sensor.>	Go to step **19**.
19	**CHECK OUTPUT SIGNAL OF ECM.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **24**.	Go to step **20**.
20	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Measure the resistance between fuel injector connector and engine ground on faulty cylinders. ***Connector & terminal*** ***#1 (E5) No. 1 — Engine ground:*** ***#2 (E16) No. 1 — Engine ground:*** ***#3 (E6) No. 1 — Engine ground:*** ***#4 (E17) No. 1 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **21**.	Repair the short circuit to ground in harness between ECM connector and fuel injector connector.
21	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** Measure the resistance of harness between ECM and fuel injector connector on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 — (E5) No. 1:*** ***#2 (B134) No. 22 — (E16) No. 1:*** ***#3 (B134) No. 32 — (E6) No. 1:*** ***#4 (B134) No. 13 — (E17) No. 1:***	Is the resistance less than 1 Ω?	Go to step **22**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and fuel injector connector • Poor contact of coupling connector
22	**CHECK FUEL INJECTOR.** Measure the resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **23**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>

	Step	Check	Yes	No
23	**CHECK POWER SUPPLY LINE.** 1) Turn the ignition switch to ON. 2) Measure the voltage between fuel injector connector of faulty cylinders and engine ground. ***Connector & terminal*** ***#1 (E5) No. 2 (+) — Engine ground (–):*** ***#2 (E16) No. 2 (+) — Engine ground (–):*** ***#3 (E6) No. 2 (+) — Engine ground (–):*** ***#4 (E17) No. 2 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Repair the poor contact of all connectors in fuel injector circuit.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between the main relay and fuel injector connector on faulty cylinders • Poor contact of coupling connector • Poor contact of main relay connector
24	**CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground on faulty cylinders. ***Connector & terminal*** ***#1 (B134) No. 12 (+) — Chassis ground (–):*** ***#2 (B134) No. 22 (+) — Chassis ground (–):*** ***#3 (B134) No. 32 (+) — Chassis ground (–):*** ***#4 (B134) No. 13 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in harness between ECM connector and fuel injector connectors.	Go to step **25**.
25	**CHECK FUEL INJECTOR.** 1) Turn the ignition switch to OFF. 2) Measure the resistance between fuel injector terminals on faulty cylinder. ***Terminals*** ***No. 1 — No. 2:***	Is the resistance 5 — 20 Ω?	Go to step **26**.	Replace the faulty fuel injector. <Ref. to FU(H4DO(HEV))-69, Fuel Injector.>
26	**CHECK INSTALLATION CONDITION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR.**	Is the camshaft position sensor or crankshaft position sensor loosely installed?	Tighten the camshaft position sensor or crankshaft position sensor. <Ref. to FU(H4DO(HEV))-53, INSTALLATION, Camshaft Position Sensor.> <Ref. to FU(H4DO(HEV))-48, INSTALLATION, Crankshaft Position Sensor.>	Go to step **27**.
27	**CHECK CRANKSHAFT POSITION SENSOR PLATE.**	Is the crankshaft position sensor plate rusted or does it have broken teeth?	Replace the crankshaft position sensor plate. <Ref. to ME(H4DO(w/o HEV))-304, Cylinder Block.>	Go to step **28**.

	Step	Check	Yes	No
28	**CHECK INSTALLATION CONDITION OF TIMING CHAIN.** Turn the crankshaft using ST, and align the alignment mark on crank sprocket with alignment mark on cylinder block. ST 18252AA000 CRANKSHAFT SOCKET	Is the timing chain dislocated from its proper position?	Correct the installation condition of timing chain. <Ref. to ME(H4DO(w/o HEV))-169, Timing Chain Assembly.>	Go to step **29**.
29	**CHECK FUEL LEVEL.**	Is the fuel meter indication higher than the “Lower” level?	Go to step **30**.	Refill the fuel so that the fuel meter indication is higher than the “Lower” level, and proceed to the next step. Go to step **30**.
30	**CHECK STATUS OF MALFUNCTION INDICATOR LIGHT.** 1) Clear the memory using the Subaru Select Monitor or general scan tool. <Ref. to EN(H4DO HEV)(diag)-66, Clear Memory Mode.> 2) Start the engine, and drive the vehicle 10 minutes or more.	Does the malfunction indicator light illuminate or blink?	Go to step **32**.	Go to step **31**.
31	**CHECK CAUSE OF MISFIRE.**	Was the cause of misfire identified when the engine is running?	Finish diagnostics operation, if the engine has no abnormality.	Repair the poor contact of connector. NOTE: In this case, repair the following item: • Poor contact of ignition coil connector • Poor contact of fuel injector connector on faulty cylinders • Poor contact of ECM connector • Poor contact of coupling connector
32	**CHECK AIR INTAKE SYSTEM.**	Is there any fault in air intake system?	Repair the 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 **33**.
33	**CHECK MISFIRE SYMPTOM.** 1) Turn the ignition switch to ON. 2) Check for DTC. <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).>	Does the Subaru Select Monitor or general scan tool indicate only one DTC?	Go to step **36**.	Go to step **34**.
34	**CHECK DTC.**	Is DTC P0301 and P0303 displayed on the Subaru Select Monitor or general scan tool?	Go to step **37**.	Go to step **35**.

Step		Check	Yes	No
35	CHECK DTC.	Is DTC P0302 and P0304 displayed on the Subaru Select Monitor or general scan tool?	Go to step **38**.	Go to step **39**.
36	ONLY ONE CYLINDER.	Is there any fault in the cylinder?	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Ignition coil • Fuel injector • Compression ratio	Go to DTC P0171. <Ref. to EN(H4DO HEV)(diag)-182, DTC P0171 SYSTEM TOO LEAN (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
37	GROUP OF #1 AND #3 CYLINDERS.	Are there any faults in #1 and #3 cylinders?	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Ignition coil • Fuel injector • Compression ratio • Skipping timing chain teeth	Go to DTC P0171. <Ref. to EN(H4DO HEV)(diag)-182, DTC P0171 SYSTEM TOO LEAN (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
38	GROUP OF #2 AND #4 CYLINDERS.	Are there any faults in #2 and #4 cylinders?	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Ignition coil • Fuel injector • Compression ratio • Skipping timing chain teeth	Go to DTC P0171. <Ref. to EN(H4DO HEV)(diag)-182, DTC P0171 SYSTEM TOO LEAN (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>
39	CYLINDER AT RANDOM.	Is the engine idle rough?	Go to DTC P0171. <Ref. to EN(H4DO HEV)(diag)-182, DTC P0171 SYSTEM TOO LEAN (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Ignition coil • Fuel injector • Compression ratio

FG:DTC P2270 O2 SENSOR SIGNAL BIASED/STUCK LEAN (BANK 1 SENSOR 2)

DTC DETECTING CONDITION:

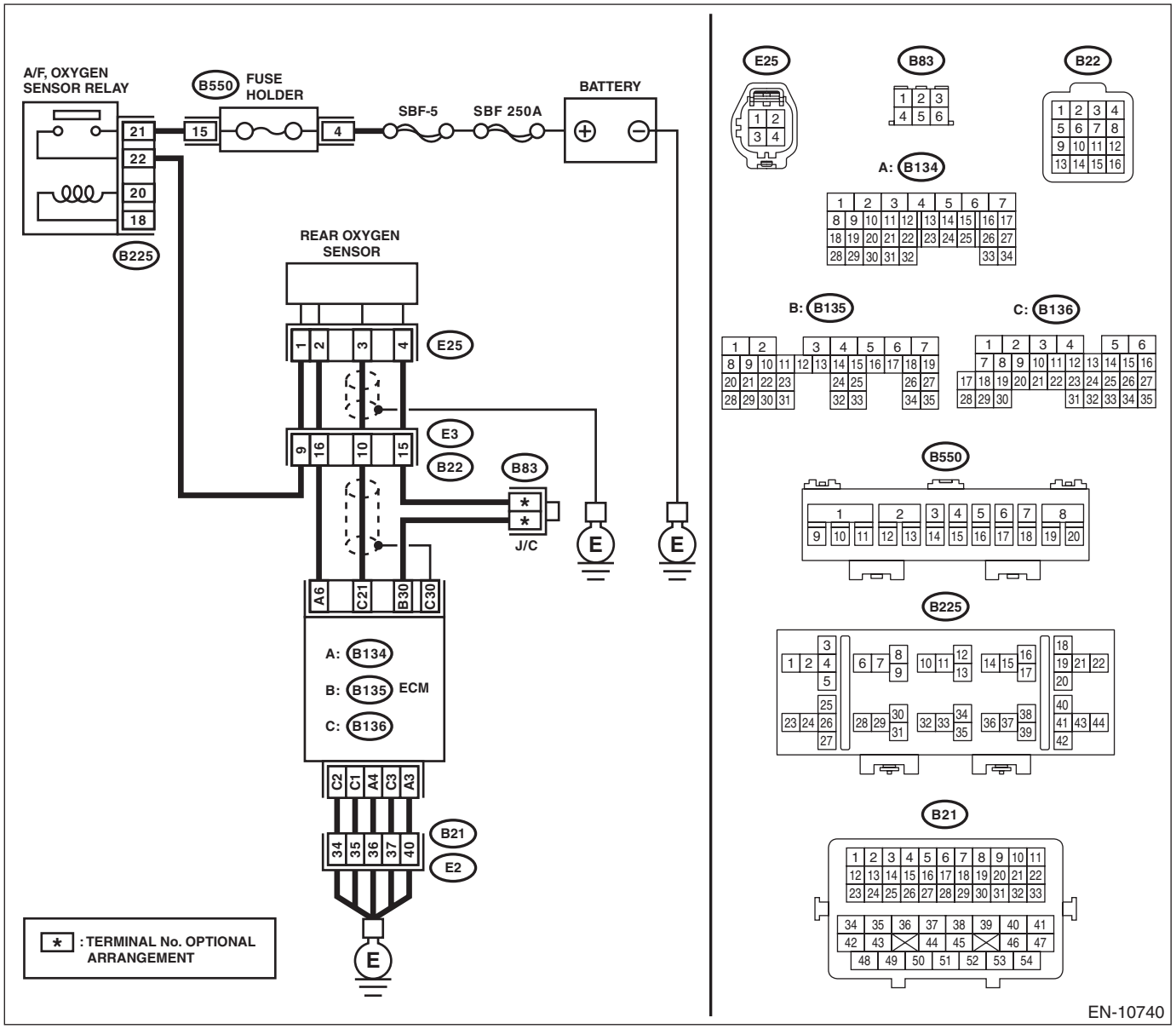
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-197, DTC P2270 O2 SENSOR SIGNAL BIASED/ STUCK LEAN (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK REAR OXYGEN SENSOR CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 30 — (E25) No. 4:*** ***(B135) No. 21 — (E25) No. 3:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the open circuit of harness between ECM connector and rear oxygen sensor connector.
3	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and engine ground. ***Connector & terminal*** ***(E25) No. 3 (+) — Engine ground (–):***	Is the voltage 0.15 V or more?	Repair the short circuit to power in the harness between ECM connector and rear oxygen sensor connector.	Go to step **4**.
4	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. • Looseness and improper fitting of exhaust system parts • Damage (crack, hole etc.) of parts • Damage (crack, hole etc.) between front oxygen (A/F) sensor and rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace faulty parts.	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>

FH:DTC P2271 O2 SENSOR SIGNAL BIASED/STUCK RICH (BANK 1 SENSOR 2)

DTC DETECTING CONDITION:

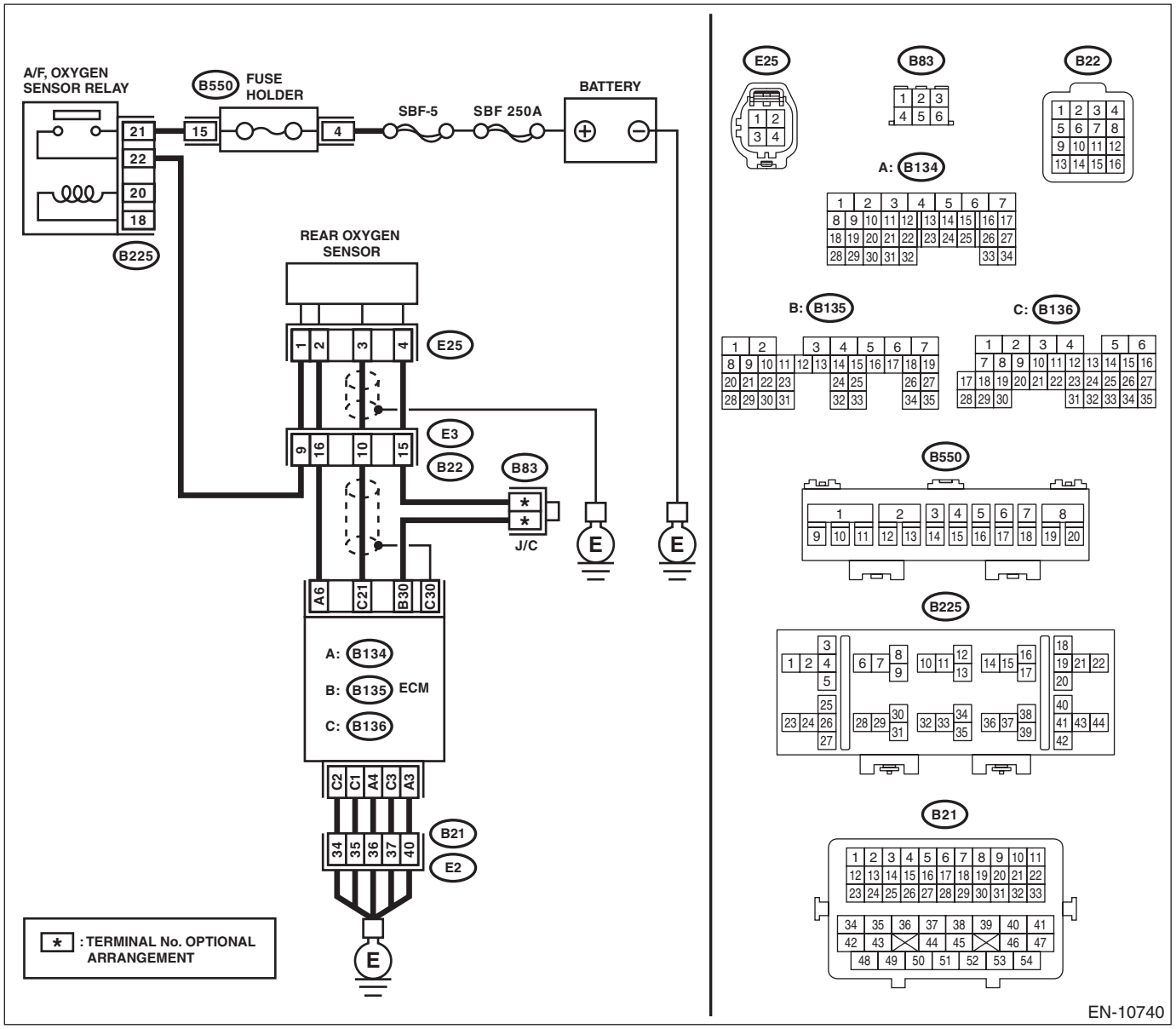
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-199, DTC P2271 O2 SENSOR SIGNAL BIASED/ STUCK RICH (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK REAR OXYGEN SENSOR CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **2**.
2	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM connector and rear oxygen sensor connector. ***Connector & terminal*** ***(B135) No. 30 — (E25) No. 4:*** ***(B135) No. 21 — (E25) No. 3:***	Is the resistance less than 1 Ω?	Go to step **3**.	Repair the open circuit of harness between ECM connector and rear oxygen sensor connector.
3	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** Measure the resistance between the ECM connector and engine ground. ***Connector & terminal*** ***(B135) No. 30 — Engine ground:***	Is the resistance 1 MΩ or more?	Go to step **4**.	Repair the short circuit to ground in harness between ECM connector and rear oxygen sensor connector.
4	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. • Looseness and improper fitting of exhaust system parts • Damage (crack, hole etc.) of parts • Damage (crack, hole etc.) between front oxygen (A/F) sensor and rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace faulty parts.	Replace the rear oxygen sensor. <Ref. to FU(H4DO(HEV))-82, Rear Oxygen Sensor.>

FI: DTC P2401 EVAPORATIVE EMISSION SYSTEM LEAK DETECTION PUMP CONTROL CIRCUIT LOW

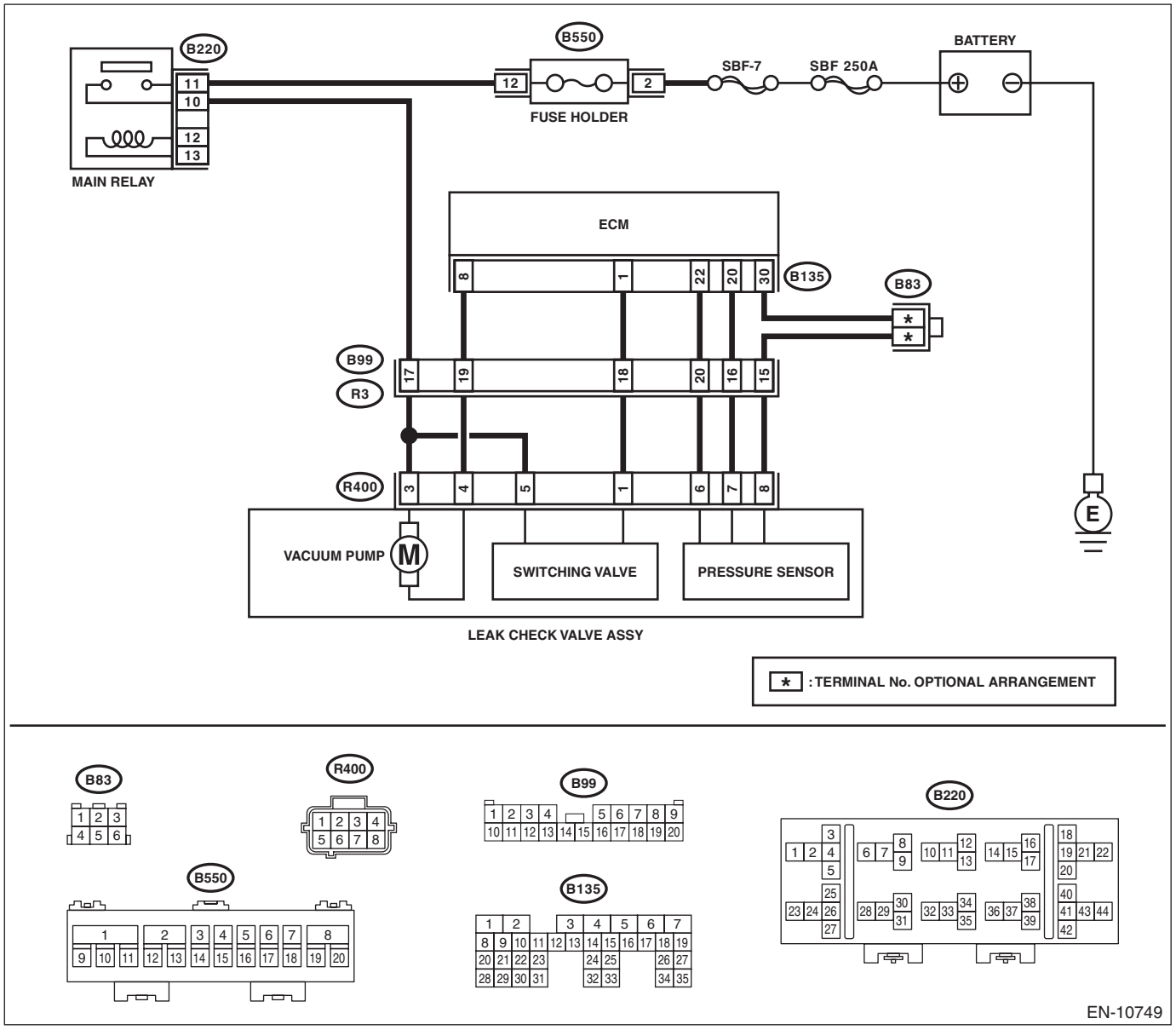
DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-200, DTC P2401 EVAPORATIVE EMISSION SYSTEM LEAK DETECTION PUMP CONTROL CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 8 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Go to step **3**.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary open or short circuit of harness or temporary poor contact of connector may be the cause.
3	**CHECK POWER SUPPLY TO LEAK CHECK VALVE ASSEMBLY.** Measure the voltage between the leak check valve assembly connector and engine ground. ***Connector & terminal*** ***(R400) No. 3 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the power supply circuit.
4	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and the leak check valve assembly. 3) Measure the resistance between leak check valve assembly and chassis ground. ***Connector & terminal*** ***(R400) No. 4 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and leak check valve assembly connector.
5	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** Measure the resistance of harness between ECM connector and the leak check valve assembly connector. ***Connector & terminal*** ***(B135) No. 8 — (R400) No. 4:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the leak check valve assembly connector • Poor contact of coupling connector

Step		Check	Yes	No
6	**CHECK LEAK CHECK VALVE ASSEMBLY.** Check the vacuum pump of the leak check valve assembly. <Ref. to EC(H4DO(HEV))-48, CHECK VACUUM PUMP, INSPECTION, Leak Check Valve Assembly.>	Is the vacuum pump of the leak check valve assembly OK?	Repair the poor contact in the leak check valve assembly connector.	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>

FJ: DTC P2402 EVAPORATIVE EMISSION SYSTEM LEAK DETECTION PUMP CONTROL CIRCUIT HIGH

DTC DETECTING CONDITION:

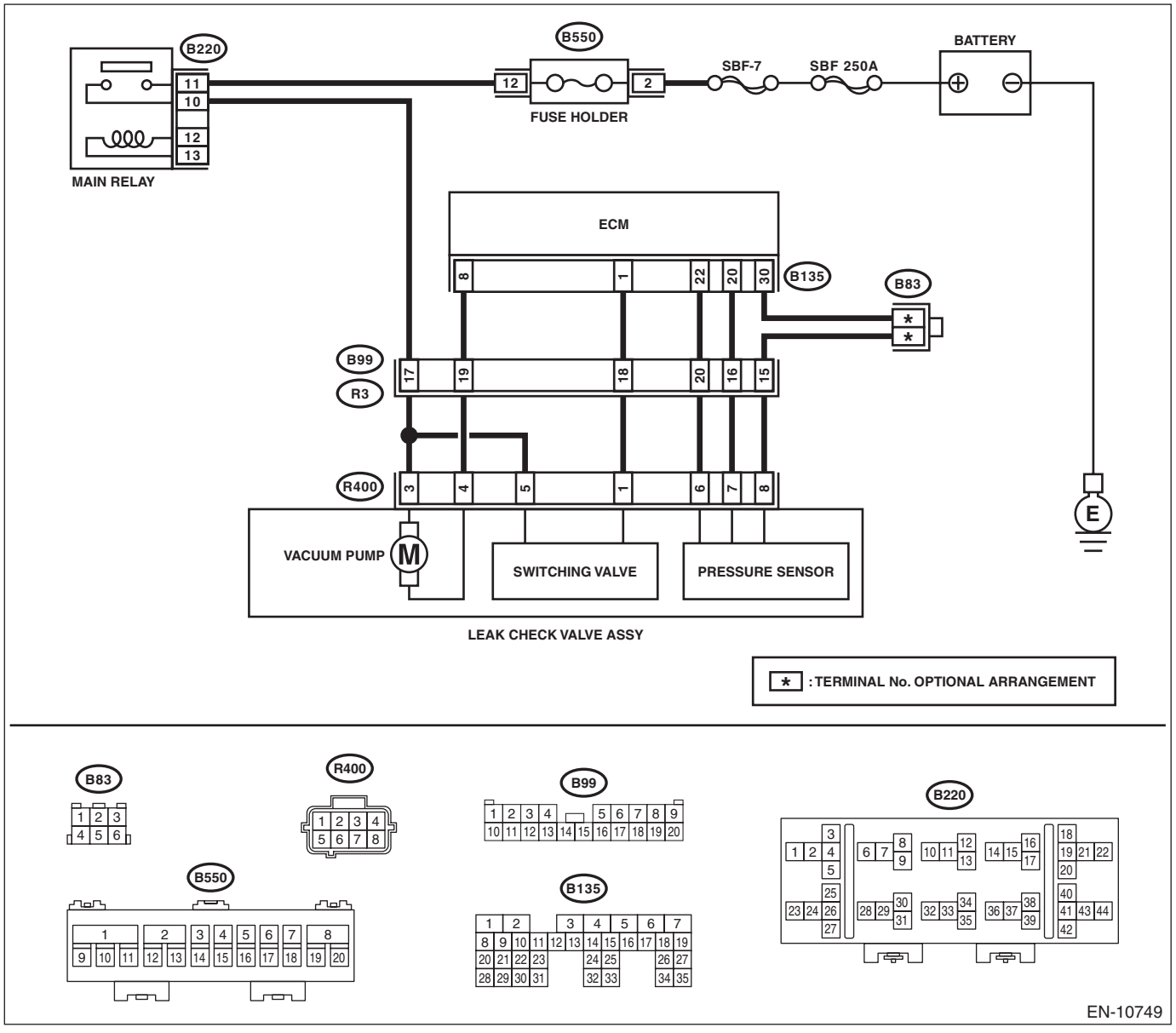
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-201, DTC P2402 EVAPORATIVE EMISSION SYSTEM LEAK DETECTION PUMP CONTROL CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the leak check valve assembly. 3) Turn the ignition switch to ON. 4) Measure the voltage between leak check valve assembly and chassis ground. ***Connector & terminal*** ***(R400) No. 4 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in harness between ECM connector and leak check valve assembly connector.	Go to step **2**.
2	**CHECK LEAK CHECK VALVE ASSEMBLY.** 1) Turn the ignition switch to OFF. 2) Check the vacuum pump of the leak check valve assembly. <Ref. to EC(H4DO(HEV))-48, CHECK VACUUM PUMP, INSPECTION, Leak Check Valve Assembly.>	Is the vacuum pump of the leak check valve assembly OK?	Repair the poor contact in the leak check valve assembly connector.	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>

FK:DTC P2404 EVAPORATIVE EMISSION SYSTEM LEAK DETECTION PUMP SENSE CIRCUIT RANGE/PERFORMANCE

DTC DETECTING CONDITION:

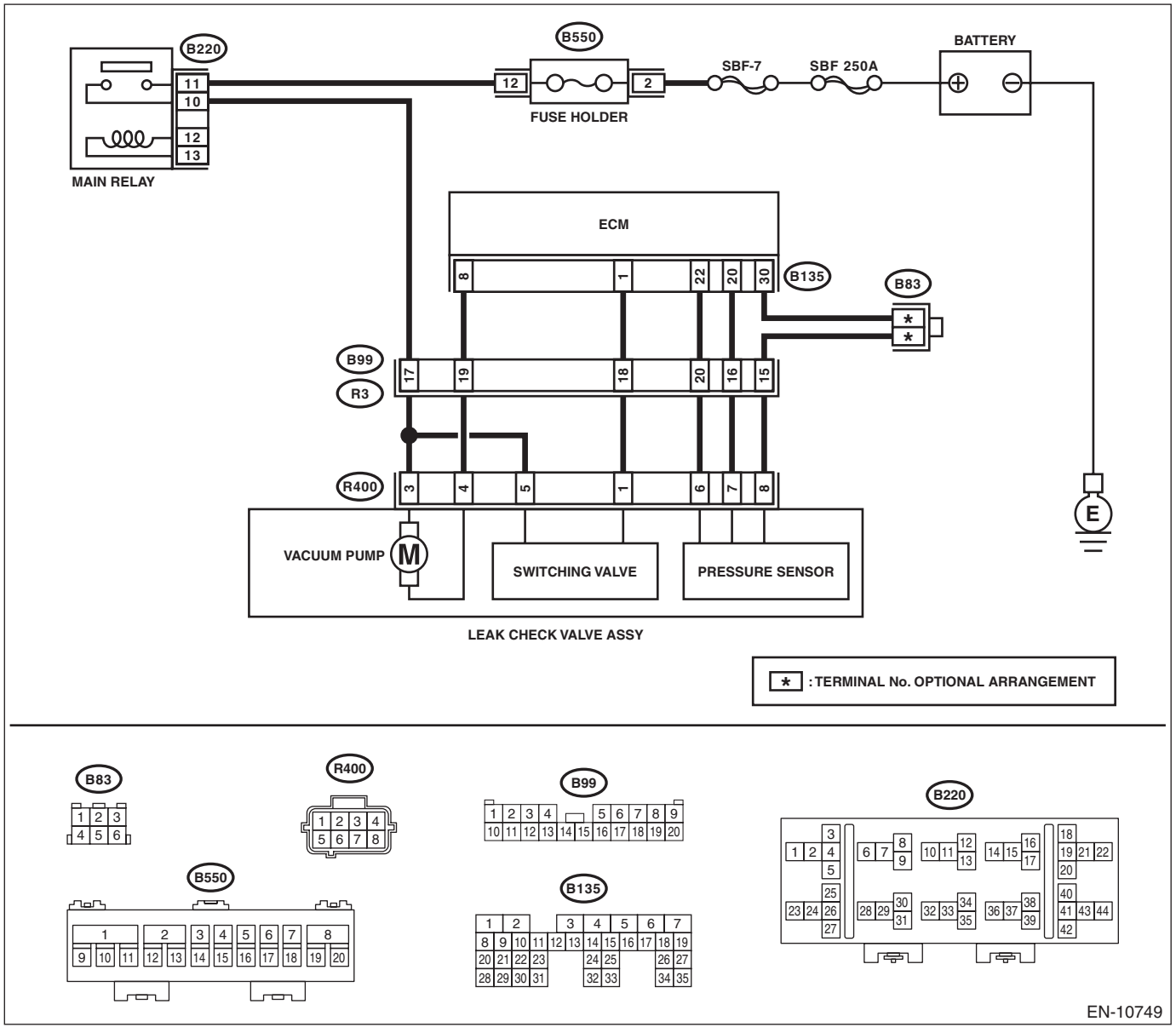
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-202, DTC P2404 EVAPORATIVE EMISSION SYSTEM LEAK DETECTION PUMP SENSE CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **2**.
2	**CHECK ELCM PUMP.** Operate the ELCM pump using the Subaru Select Monitor. NOTE: For detailed procedures, refer to "System Operation Check Mode". <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>	Does the ELCM pump operate?	Go to step **6**.	Go to step **3**.
3	**CHECK POWER SUPPLY OF LEAK CHECK VALVE ASSEMBLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the leak check valve assembly. 3) Turn the ignition switch to ON. 4) Measure the voltage between the leak check valve assembly connector and chassis ground. ***Connector & terminal*** ***(R400) No. 3 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between the main relay and the leak check valve assembly connector • Poor contact of main relay connector • Poor contact of coupling connector
4	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance of harness between ECM connector and the leak check valve assembly connector. ***Connector & terminal*** ***(B135) No. 8 — (R400) No. 4:***	Is the resistance less than 1 Ω?	Go to step **5**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the leak check valve assembly connector • Poor contact of coupling connector
5	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 8 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>	Repair the short circuit to ground in harness between ECM connector and leak check valve assembly connector.

	Step	Check	Yes	No
6	**CHECK ELCM SWITCHING VALVE.** Operate the ELCM switching valve using the Subaru Select Monitor. NOTE: For detailed procedures, refer to "System Operation Check Mode". <Ref. to EN(H4DO HEV)(diag)-67, System Operation Check Mode.>	Does the ELCM switching valve operate?	Go to step **10**.	Go to step **7**.
7	**CHECK POWER SUPPLY OF LEAK CHECK VALVE ASSEMBLY.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the leak check valve assembly. 3) Turn the ignition switch to ON. 4) Measure the voltage between the leak check valve assembly connector and chassis ground. ***Connector & terminal*** ***(R400) No. 5 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **8**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between the main relay and the leak check valve assembly connector • Poor contact of main relay connector • Poor contact of coupling connector
8	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance of harness between ECM connector and the leak check valve assembly connector. ***Connector & terminal*** ***(B135) No. 1 — (R400) No. 1:***	Is the resistance less than 1 Ω?	Go to step **9**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the leak check valve assembly connector • Poor contact of coupling connector
9	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Measure the resistance of harness between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 1 — Chassis ground:***	Is the resistance 1 MΩ or more?	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>	Repair the short circuit to ground in harness between ECM connector and leak check valve assembly connector.

Step		Check	Yes	No
10	**CHECK EVAPORATIVE EMISSION CONTROL SYSTEM.** Perform drive cycle I. <Ref. to EN(H4DO HEV)(diag)-62, DRIVE CYCLE I, PROCEDURE, Drive Cycle.>	Is DTC P2404 displayed on the display?	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.

FL: DTC P2419 EVAPORATIVE EMISSION SYSTEM SWITCHING VALVE CONTROL CIRCUIT LOW

DTC DETECTING CONDITION:

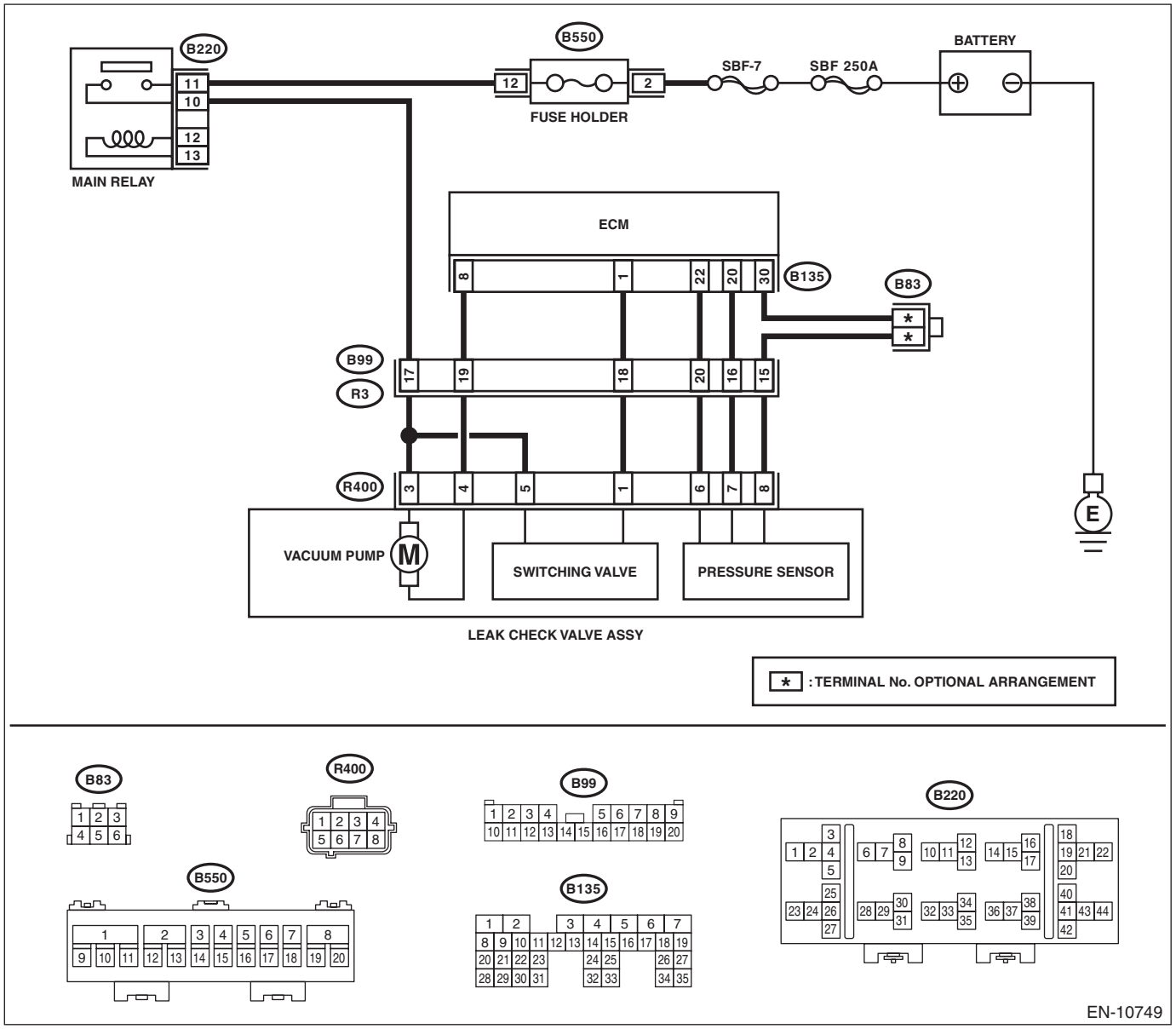
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-203, DTC P2419 EVAPORATIVE EMISSION SYSTEM SWITCHING VALVE CONTROL CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. ***Connector & terminal*** ***(B135) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Go to step **2**.	Go to step **3**.
2	**CHECK FOR POOR CONTACT.** Check for poor contact of ECM connector.	Is there poor contact of ECM connector?	Repair the poor contact of ECM connector.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary open or short circuit of harness or temporary poor contact of connector may be the cause.
3	**CHECK POWER SUPPLY TO LEAK CHECK VALVE ASSEMBLY.** Measure the voltage between the leak check valve assembly connector and engine ground. ***Connector & terminal*** ***(R400) No. 5 (+) — Engine ground (–):***	Is the voltage 10 V or more?	Go to step **4**.	Repair the power supply circuit.
4	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and the leak check valve assembly. 3) Measure the resistance between leak check valve assembly and chassis ground. ***Connector & terminal*** ***(R400) No. 1 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between ECM connector and leak check valve assembly connector.
5	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** Measure the resistance of harness between ECM connector and the leak check valve assembly connector. ***Connector & terminal*** ***(B135) No. 1 — (R400) No. 1:***	Is the resistance less than 1 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM connector and the leak check valve assembly connector • Poor contact of coupling connector

Step		Check	Yes	No
6	**CHECK LEAK CHECK VALVE ASSEMBLY.** Check the switching valve of the leak check valve assembly. <Ref. to EC(H4DO(HEV))-47, CHECK SWITCHING VALVE, INSPECTION, Leak Check Valve Assembly.>	Is the switching valve of the leak check valve assembly OK?	Repair the poor contact in the leak check valve assembly connector.	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>

FM:DTC P2420 EVAPORATIVE EMISSION SYSTEM SWITCHING VALVE CONTROL CIRCUIT HIGH

DTC DETECTING CONDITION:

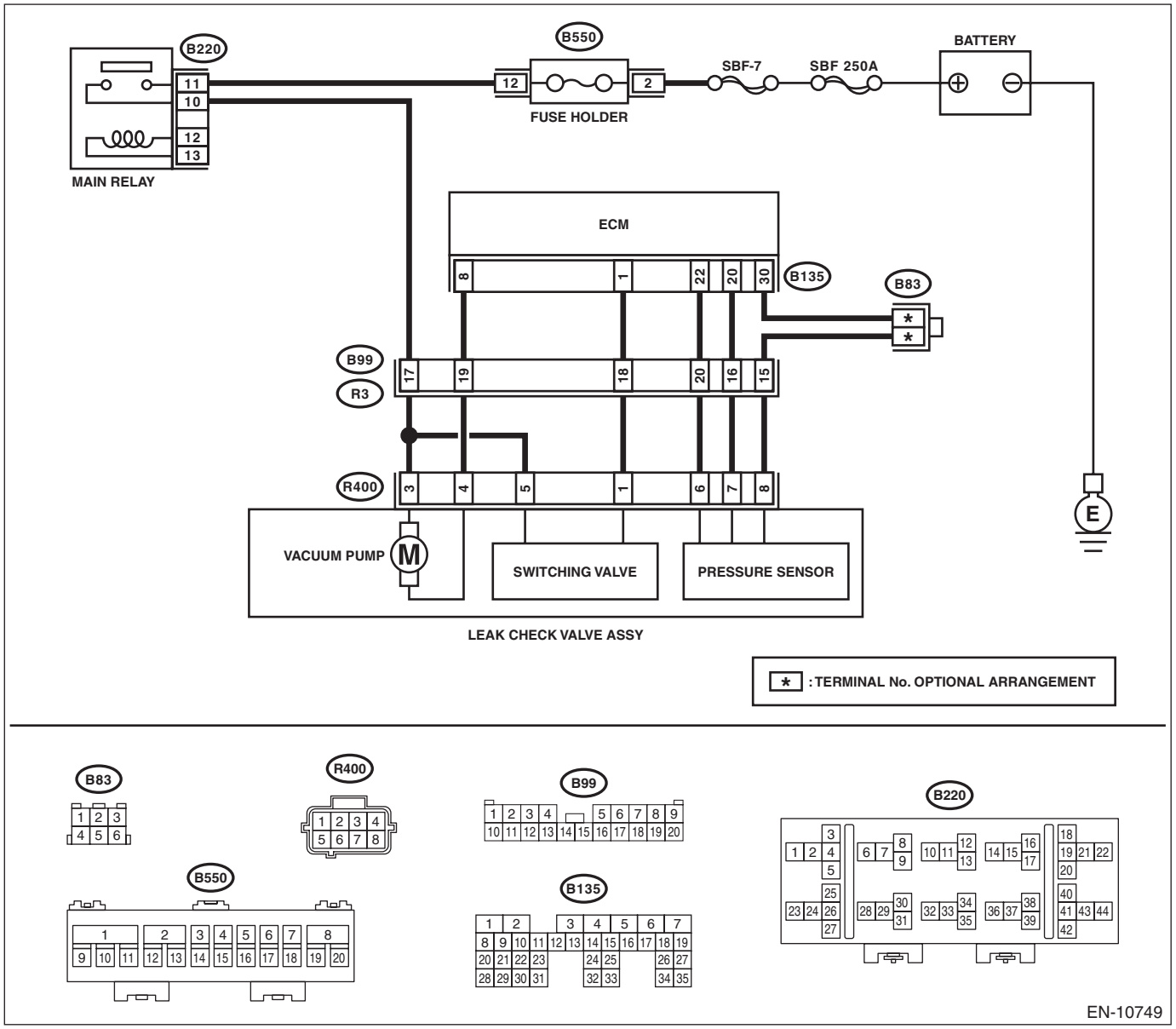
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-204, DTC P2420 EVAPORATIVE EMISSION SYSTEM SWITCHING VALVE CONTROL CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>



	Step	Check	Yes	No
1	**CHECK HARNESS BETWEEN ECM AND LEAK CHECK VALVE ASSEMBLY CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the leak check valve assembly. 3) Turn the ignition switch to ON. 4) Measure the voltage between leak check valve assembly and chassis ground. ***Connector & terminal*** ***(R400) No. 1 (+) — Chassis ground (–):***	Is the voltage 10 V or more?	Repair the short circuit to power in harness between ECM connector and leak check valve assembly connector.	Go to step **2**.
2	**CHECK LEAK CHECK VALVE ASSEMBLY.** 1) Turn the ignition switch to OFF. 2) Check the switching valve of the leak check valve assembly. <Ref. to EC(H4DO(HEV))-47, CHECK SWITCHING VALVE, INSPECTION, Leak Check Valve Assembly.>	Is the switching valve of the leak check valve assembly OK?	Repair the poor contact in the leak check valve assembly connector.	Replace the leak check valve assembly. <Ref. to EC(H4DO(HEV))-39, Leak Check Valve Assembly.>

FN:DTC P2530 IGNITION SWITCH RUN POSITION CIRCUIT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-205, DTC P2530 IGNITION SWITCH RUN POSITION CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

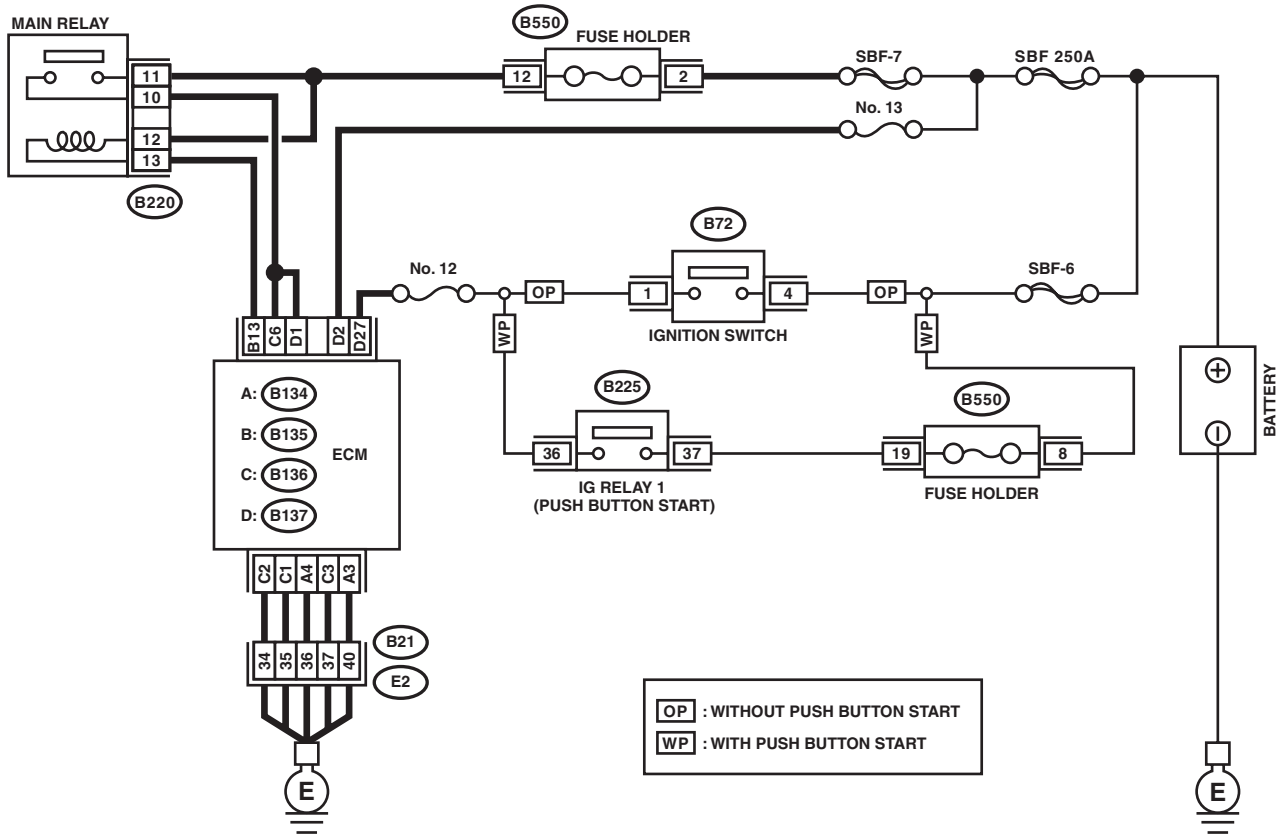
Improper idling

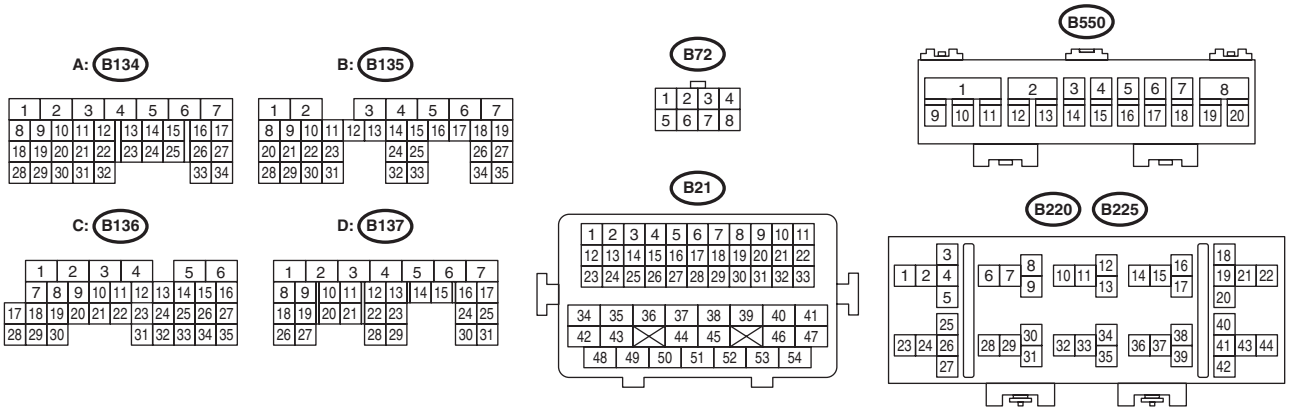
CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

- Engine electrical system (without push button start) <Ref. to WI(HEV)-100, WITHOUT PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>
- Engine electrical system (with push button start) <Ref. to WI(HEV)-114, WITH PUSH BUTTON START, WIRING DIAGRAM, Engine Electrical System.>





EN-10733

Step		Check	Yes	No
1	**CHECK ECM CONNECTOR.** Check the connecting condition of ECM connector.	Is the ECM connector correctly connected?	Go to step **2**.	Connect the ECM connector correctly.

	Step	Check	Yes	No
2	**CHECK INPUT VOLTAGE OF ECM.** 1) Turn the ignition switch to ON. 2) Connect the check board. ST 18460AA050 CHECK BOARD 3) Measure the voltage between ECM connector and engine ground while wiggling the harness between ECM connector and F/B connector. ***Connector & terminal*** ***(B137) No. 2 (+) — Engine ground (–):***	Is the voltage 8 V or more all the time?	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, the following items may be the cause of fault. • Open circuit or short circuit to ground in harness between ECM connector and F/B connector • Poor contact of fuse (F/B No. 5) • Poor contact of IG2 relay connector • Poor contact of IG2 relay	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit or short circuit to ground in harness between ECM connector and F/B connector • Poor contact of fuse (F/B No. 5) • Poor contact of IG2 relay connector • Poor contact of IG2 relay

FO:DTC P2610 ECM/PCM INTERNAL ENGINE OFF TIMER PERFORMANCE

DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-206, DTC P2610 ECM/PCM INTERNAL ENGINE OFF TIMER PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:
After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

Step	Check	Yes	No
1 **CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Replace the ECM. <Ref. to FU(H4DO(HEV))-85, Engine Control Module (ECM).> NOTE: The soak timer IC is built into the ECM.

FP:DTC U0073 CONTROL MODULE COMMUNICATION BUS OFF

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FQ:DTC U0075 CONTROL MODULE COMMUNICATION BUS "PU-CAN" OFF

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FR:DTC U0101 LOST COMMUNICATION WITH TCM

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FS:DTC U0122 LOST COMMUNICATION WITH VEHICLE DYNAMICS CONTROL MODULE

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FT:DTC U0155 LOST COMMUNICATION WITH INSTRUMENT PANEL CLUSTER (IPC) CONTROL MODULE

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FU:DTC U0284 LOST COMMUNICATION WITH ACTIVE GRILLE SHUTTER MODULE "A"

DTC DETECTING CONDITION:

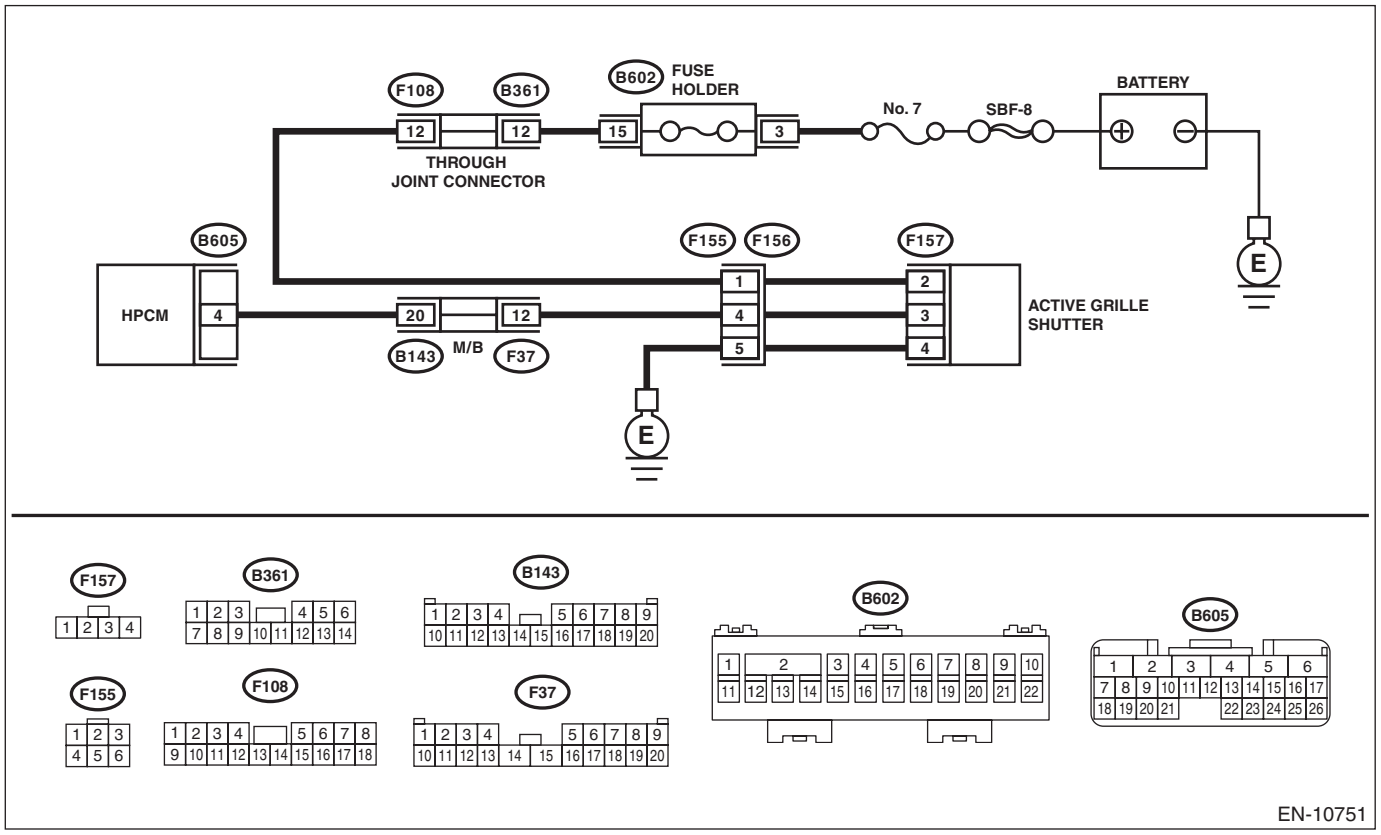
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DO HEV)-218, DTC U0284 LOST COMMUNICATION WITH ACTIVE GRILLE SHUTTER MODULE "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After servicing or replacing faulty parts, perform Clear Memory Mode <Ref. to EN(H4DO HEV)(diag)-66, OPERATION, Clear Memory Mode.>, and Inspection Mode <Ref. to EN(H4DO HEV)(diag)-52, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:

Active grille shutter <Ref. to WI(HEV)-50, Active Grille Shutter.>



Step		Check	Yes	No
1	**CHECK DTC.** Check for DTC. <Ref. to EN(H4DO HEV)(diag)-51, Read Diagnostic Trouble Code (DTC).>	Is DTC U0284 displayed in «Present fault»?	Go to step **2**.	Even if DTC is detected, the circuit has returned to a normal condition at this time. Reproduce the failure, and then perform the diagnosis again. NOTE: In this case, temporary poor contact of connector, temporary open or short circuit of harness may be the cause.

	Step	Check	Yes	No
2	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC of engine control system displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to EN(H4DO HEV)(diag)-92, List of Diagnostic Trouble Code (DTC).>	Go to step **3**.
3	**CHECK DTC OF HYBRID POWERTRAIN CONTROL SYSTEM, DRIVE MOTOR CONTROL SYSTEM AND BATTERY ENERGY CONTROL SYSTEM.** Check DTC of hybrid powertrain control system, drive motor control system and battery energy control system.	Are DTCs of hybrid powertrain control system, drive motor control system or battery energy control system displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <Ref. to HEV(diag)-74, List of Diagnostic Trouble Code (DTC).>	Go to step **4**.
4	**CHECK HARNESS BETWEEN HPCM AND ACTIVE GRILLE SHUTTER CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the 12 volt auxiliary battery. <Ref. to NT-5, BATTERY, NOTE, Note.> 3) Disconnect the connector from HPCM and active grille shutter. 4) Measure the resistance between active grille shutter connector and chassis ground. ***Connector & terminal*** ***(F157) No. 3 — Chassis ground:***	Is the resistance 1 MΩ or more?	Go to step **5**.	Repair the short circuit to ground in harness between HPCM and active grille shutter connector.
5	**CHECK HARNESS BETWEEN HPCM AND ACTIVE GRILLE SHUTTER CONNECTOR.** Measure the resistance between HPCM and active grille shutter connector. ***Connector & terminal*** ***(B605) No. 4 — (F157) No. 3:***	Is the resistance less than 10 Ω?	Go to step **6**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between HPCM and active grille shutter connector • Poor contact of coupling connector
6	**CHECK ACTIVE GRILLE SHUTTER POWER SUPPLY.** 1) Connect the 12 volt auxiliary battery. <Ref. to NT-5, BATTERY, NOTE, Note.> 2) Measure the voltage between active grille shutter connector and chassis ground. ***Connector & terminal*** ***(F157) No. 2 (+) — Chassis ground (–):***	Is the voltage 9 V or more?	Go to step **7**.	Repair the power supply circuit.

Step		Check	Yes	No
7	**CHECK HARNESS BETWEEN ACTIVE GRILLE SHUTTER CONNECTOR AND CHASSIS GROUND.** Measure the resistance of harness between active grille shutter connector and chassis ground. ***Connector & terminal*** ***(F157) No. 4 — Chassis ground:***	Is the resistance less than 10 Ω?	Replace the active grille shutter. <Ref. to HEV-77, Active Grille Shutter.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between active grille shutter connector and chassis ground • Poor contact of coupling connector

FV:DTC U0293 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FW:DTC U0402 INVALID DATA RECEIVED FROM TCM

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FX:DTC U0416 INVALID DATA RECEIVED FROM VEHICLE DYNAMICS CONTROL MODULE

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FY:DTC U0423 INVALID DATA RECEIVED FROM INSTRUMENT PANEL CLUSTER CONTROL MODULE

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

FZ:DTC U0594 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

GA:DTC U1101 LOST COMMUNICATION WITH TCM PU-CAN

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

GB:DTC U1293 LOST COMMUNICATION WITH HYBRID POWERTRAIN CONTROL MODULE PU-CAN

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

GC:DTC U1402 INVALID DATA RECEIVED FROM TCM PU-CAN

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>

GD:DTC U1594 INVALID DATA RECEIVED FROM HYBRID POWERTRAIN CONTROL MODULE PU-CAN

NOTE:
For the diagnostic procedure, refer to LAN section. <Ref. to LAN(HEV)(diag)-2, Basic Diagnostic Procedure.>