A: DTC P0026 INTAKE VALVE CONTROL SOLENOID CIRCUIT RANGE/PER-FORMANCE (BANK 1)

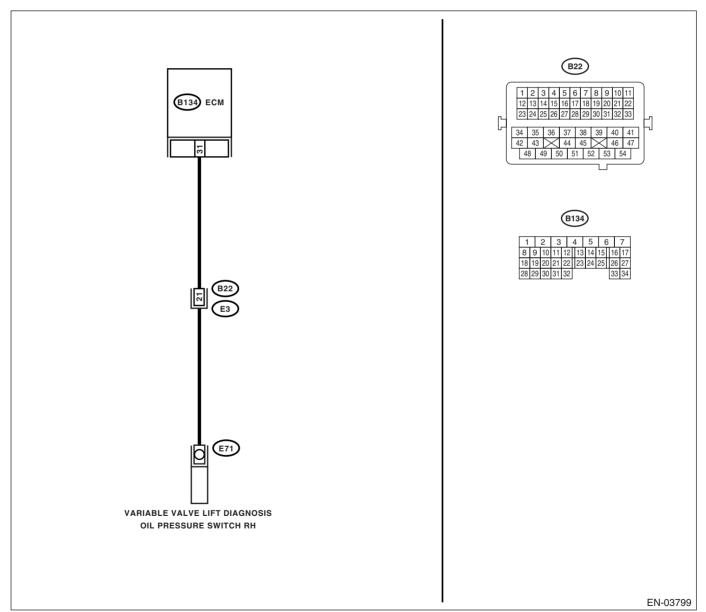
DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-8, DTC P0026 INTAKE VALVE CONTROL SOLENOID CIRCUIT RANGE/PERFORMANCE (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK HARNESS BETWEEN ECM AND VARIABLE VALVE LIFT DIAGNOSIS OIL PRESSURE SWITCH CONNECTOR. 1) Warm up the engine. 2) Turn the ignition switch to OFF. 3) Disconnect the connectors from ECM and variable valve lift diagnosis oil pressure switch connector. 4) Measure the resistance of harness between variable valve lift diagnosis oil pressure switch connector and engine ground. Connector & terminal (E71) No. 1 — Engine ground:	Is the resistance more than 1 M Ω ?	Go to step 3.	Repair the ground short circuit of har- ness between ECM and variable valve lift diagnosis oil pressure switch connector.
3	CHECK HARNESS BETWEEN ECM AND VARIABLE VALVE LIFT DIAGNOSIS OIL PRESSURE SWITCH CONNECTOR. Measure the resistance of harness between ECM and variable valve lift diagnosis oil pressure switch connector. Connector & terminal (B134) No. 31 — (E71) No. 1:	Is the resistance less than 1 Ω ?	Replace the variable valve lift diagnosis oil pressure switch. <ref. diagnosis="" fu(h4so)-34,="" lift="" oil="" pressure="" switch.="" to="" valve="" variable=""> Go to step 4.</ref.>	Repair the open circuit of harness between ECM and variable valve lift diagnosis oil pressure switch connector.
4	CHECK DTC. 1) Erase the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) After idling the engine, check the DTC.</ref.>	Is DTC displayed?	Replace the oil switching solenoid valve. <ref. me(h4so)-85,="" oil="" solenoid="" switching="" to="" valve.=""> Go to step 5.</ref.>	END.
5	CHECK DTC. 1) Erase the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) After idling the engine, check the DTC.</ref.>	Is DTC displayed?	Check the oil flow path. Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.	

B: DTC P0028 INTAKE VALVE CONTROL SOLENOID CIRCUIT RANGE/PER-FORMANCE (BANK 2)

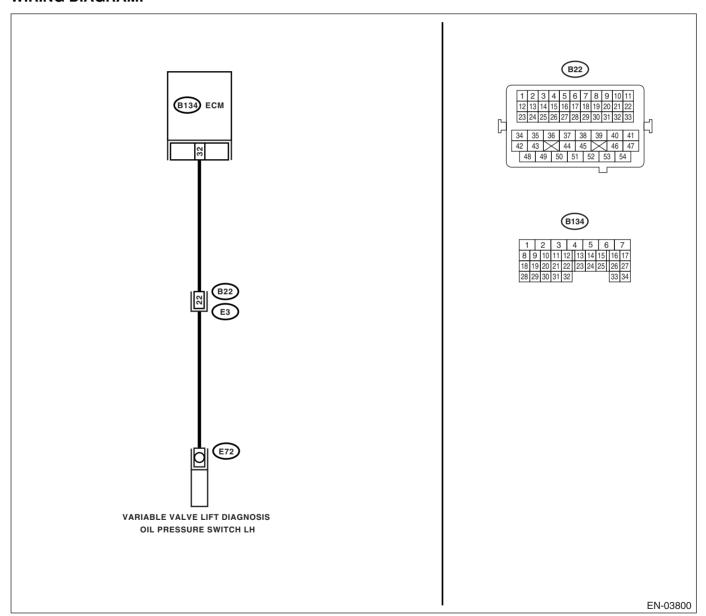
DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-10, DTC P0028 INTAKE VALVE CONTROL SOLENOID CIRCUIT RANGE/PERFORMANCE (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



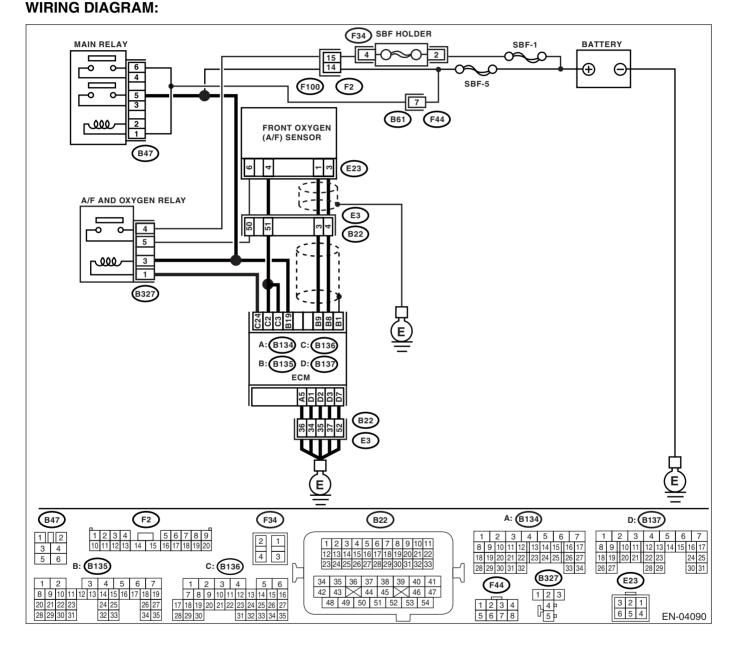
	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK HARNESS BETWEEN ECM AND VARIABLE VALVE LIFT DIAGNOSIS OIL PRESSURE SWITCH CONNECTOR. 1) Warm up the engine. 2) Turn the ignition switch to OFF. 3) Disconnect the connectors from ECM and variable valve lift diagnosis oil pressure switch connector. 4) Measure the resistance of harness between variable valve lift diagnosis oil pressure switch connector and engine ground. Connector & terminal (E72) No. 1 — Engine ground:	Is the resistance more than 1 M Ω ?	Go to step 3.	Repair the ground short circuit of har- ness between ECM and variable valve lift diagnosis oil pressure switch connector.
3	CHECK HARNESS BETWEEN ECM AND VARIABLE VALVE LIFT DIAGNOSIS OIL PRESSURE SWITCH CONNECTOR. Measure the resistance of harness between ECM and variable valve lift diagnosis oil pressure switch connector. Connector & terminal (B134) No. 32 — (E72) No. 1:	Is the resistance less than 1 Ω ?	Replace the variable valve lift diagnosis oil pressure switch. <ref. diagnosis="" fu(h4so)-34,="" lift="" oil="" pressure="" switch.="" to="" valve="" variable=""> Go to step 4.</ref.>	Repair the open circuit of harness between ECM and variable valve lift diagnosis oil pressure switch connector.
4	CHECK DTC. 1) Erase the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) After idling the engine, check the DTC.</ref.>	Is DTC displayed?	Replace the oil switching solenoid valve. <ref. me(h4so)-85,="" oil="" solenoid="" switching="" to="" valve.=""> Go to step 5.</ref.>	END.
5	CHECK DTC. 1) Erase the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) After idling the engine, check the DTC.</ref.>	Is DTC displayed?	Check the oil flow path. Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.	

C: DTC P0030 HO2S HEATER CONTROL CIRCUIT (BANK 1 SENSOR 1) DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-11, DTC P0030 HO2S HEATER CONTROL CIRCUIT (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



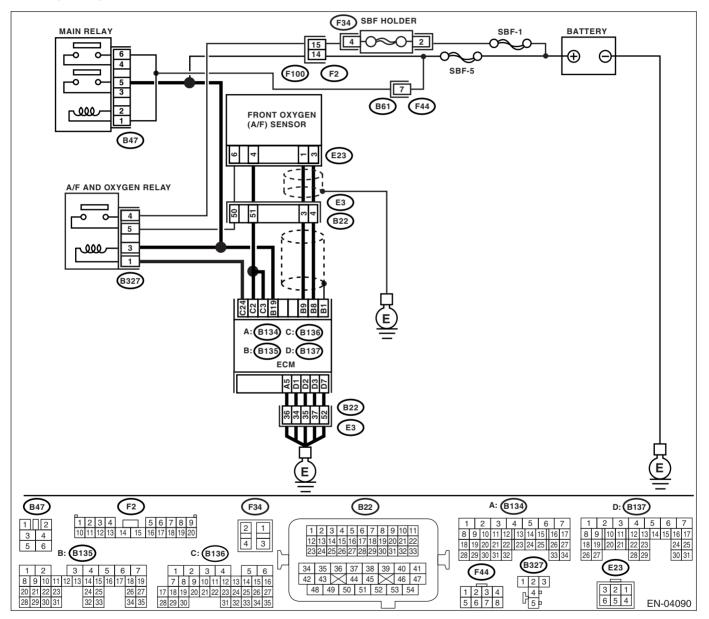
	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 2.	Repair the open
	FRONT OXYGEN (A/F) SENSOR CONNEC-	Ω ?		circuit of harness
	TOR.			between ECM and
	 Start and warm-up engine. 			front oxygen (A/F)
	Turn the ignition switch to OFF.			sensor connector.
	3) Disconnect the connectors from ECM and			
	front oxygen (A/F) sensor.			
	Measure the resistance of harness			
	between ECM and front oxygen (A/F) sensor			
	connector.			
	Connector & terminal			
	(B136) No. 2 — (E23) No. 4:			
	(B136) No. 3 — (E23) No. 4:			
2	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 3.	Repair the open
	FRONT OXYGEN (A/F) SENSOR CONNEC-	Ω ?		circuit of harness
	TOR.			between ECM and
	Measure the resistance of harness between			front oxygen (A/F)
	ECM and front oxygen (A/F) sensor connector.			sensor connector.
	Connector & terminal			
	(B135) No. 8 — (E23) No. 3:			
	(B135) No. 9 — (E23) No. 1:			
3	CHECK HARNESS BETWEEN A/F & OXY-	Is the resistance less than 1	Go to step 4.	Repair the open
	GEN SENSOR RELAY AND FRONT OXY-	Ω ?		circuit of harness
	GEN (A/F) SENSOR CONNECTOR.			between A/F &
	Measure the resistance of harness between			oxygen sensor
	main relay and front oxygen (A/F) sensor con-			relay and front
	nector.			oxygen (A/F) sen-
	Connector & terminal			sor connector.
	(B327) No. 5 — (E23) No. 6:			
4	CHECK FRONT OXYGEN (A/F) SENSOR.	Is the resistance less than 5	Go to step 5.	Replace the front
	, , , , , , , , , , , , , , , , , , ,	Ω ?		oxygen (A/F) sen-
	(A/F) sensor connector terminals.			sor. <ref. th="" to<=""></ref.>
	Terminals			FU(H4SO)-36,
	No. 1 — No. 4:			Front Oxygen (A/
				F) Sensor.>
5	CHECK POOR CONTACT.	•	Repair the poor	Replace the front
	Check the poor contact of ECM and front oxy-	front oxygen (A/F) sensor con-	contact of ECM	oxygen (A/F) sen-
	gen (A/F) sensor connector.	nector?	and front oxygen	sor. <ref. th="" to<=""></ref.>
			(A/F) sensor con-	FU(H4SO)-36,
			nector.	Front Oxygen (A/
				F) Sensor.>

D: DTC P0031 HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 1) DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-13, DTC P0031 HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
	Are DTC P0031 and P0037 displayed at the same time on the Subaru Select Monitor or general scan tool?	Go to step 2.	Go to step 5.

Step	Check	Yes	No
2 CHECK POWER SUPPLY TO FRONT OXY-GEN (A/F) SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from front oxyger (A/F) sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between front oxyger (A/F) sensor connector and engine ground. Connector & terminal (E23) No. 6 (+) — Engine ground (-):	ח		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 and oxygen relay and front oxygen (A/F) sensor connector • Poor contact in A/F and oxygen relay connector • Poor contact in coupling connector
3 CHECK GROUND CIRCUIT FOR ECM. Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 5 — Chassis ground: (B137) No. 1 — Chassis ground: (B137) No. 2 — Chassis ground: (B137) No. 3 — Chassis ground: (B137) No. 7 — 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 in harness between ECM and engine ground terminal • Poor contact in ECM connector • Poor contact in coupling connector
4 CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of front oxygen (A/F) senso heater current using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer t "READ CURRENT DATA FOR ENGINE". <re en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to th "General Scan Tool Instruction Manual".</re>	o f. i-	contact of connector. NOTE: In this case, repair the following item: • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector	Go to step 5.
5 CHECK INPUT SIGNAL OF ECM. 1) Start and idle the engine. 2) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 3 (+) — Chassis ground (-): (B136) No. 2 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 7.	Go to step 6.

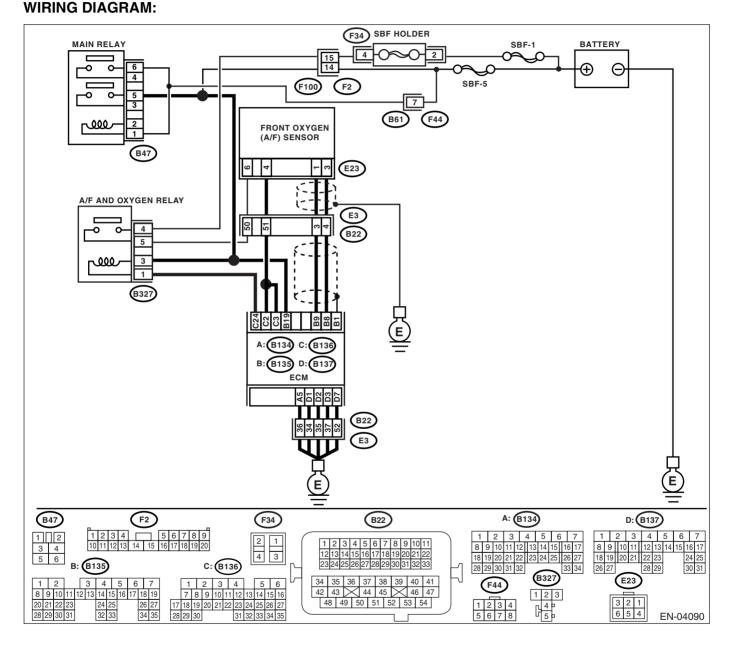
	Step	Check	Yes	No
6	CHECK OUTPUT SIGNAL OF ECM.	Does the voltage change by	Repair poor con-	Go to step 7.
١	Measure the voltage between ECM connector	shaking the ECM harness and	tact in ECM con-	do to step 7.
	and chassis ground.	connector?	nector.	
	Connector & terminal	Connector:	nicotor.	
	(B136) No. 3 (+) — Chassis ground (–):			
	(B136) No. 2 (+) — Chassis ground (-):			
7	CHECK FRONT OXYGEN (A/F) SENSOR.	Is the resistance less than 10	Repair the har-	Replace the front
'	` ,	Ω ?	ness and connec-	•
	Turn the ignition switch to OFF. Magazing the registering between front every	22?		oxygen (A/F) sen- sor. <ref. th="" to<=""></ref.>
	2) Measure the resistance between front oxy-		tor.	
	gen (A/F) sensor connector terminals.		NOTE:	FU(H4SO)-36,
	Terminals		In this case, repair	
	No. 4 — No. 6:			F) Sensor.>
			• Open or	
			ground short	
			circuit of har-	
			ness between	
			front oxygen (A/	
			F) sensor and	
			ECM connector	
			 Poor contact 	
			in front oxygen	
			(A/F) sensor	
			connector	
			 Poor contact 	
			in ECM connec-	
			tor	

E: DTC P0032 HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 1) DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-15, DTC P0032 HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



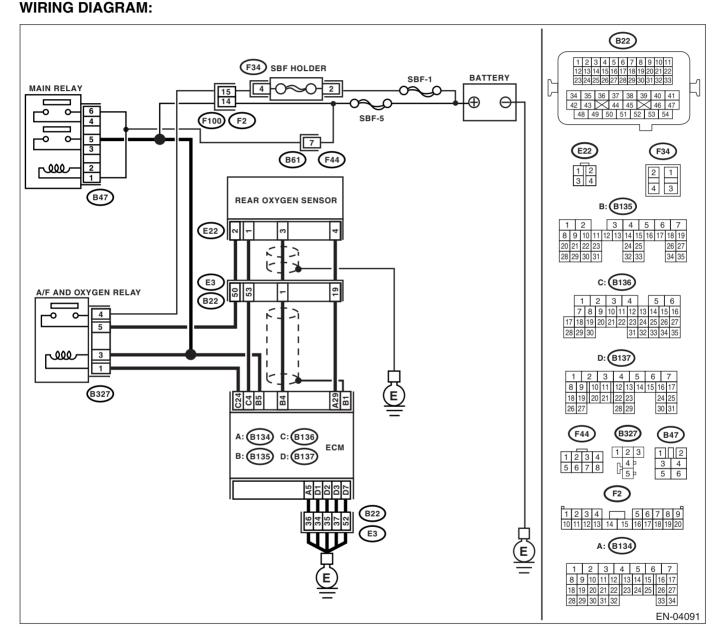
	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL OF ECM. 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 2 (+) — Chassis ground (-): (B136) No. 3 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 2.	Go to step 3.
2	CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT. 1) Turn the ignition switch to OFF. 2) Repair the battery short circuit of harness between ECM and front oxygen (A/F) sensor connector. 3) Turn the ignition switch to ON. 4) Read the data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	END.
3	CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 2 (+) — Chassis ground (-): (B136) No. 3 (+) — Chassis ground (-):	Does the voltage change by shaking the ECM harness and connector?	Repair the battery short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.	END.

F: DTC P0037 HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 2) DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-17, DTC P0037 HO2S HEATER CONTROL CIRCUIT LOW (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK GROUND CIRCUIT FOR ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 5 — Chassis ground: (B137) No. 1 — Chassis ground: (B137) No. 2 — Chassis ground: (B137) No. 3 — Chassis ground: (B137) No. 7 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 2.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and engine ground terminal • Poor contact in ECM connector • Poor contact in coupling connector
2	CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of rear oxygen (A/F) sensor heater current using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Repair the connector. NOTE: In this case, repair the following item: • Poor contact in rear oxygen sensor connector • Poor contact in rear oxygen sensor connecting harness connector • Poor contact in ECM connector	Go to step 3.
3	CHECK OUTPUT SIGNAL OF ECM. 1) Start and idle the engine. 2) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 4 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 6.	Go to step 4.
4	CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 4 (+) — Chassis ground (-):	Does the voltage change by shaking the ECM harness and connector?	Repair poor contact in ECM connector.	Go to step 5.
5	CHECK OUTPUT SIGNAL OF ECM. 1) Disconnect the connector from rear oxygen sensor. 2) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 4 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Repair the battery short circuit of harness between ECM and rear oxygen sensor connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>

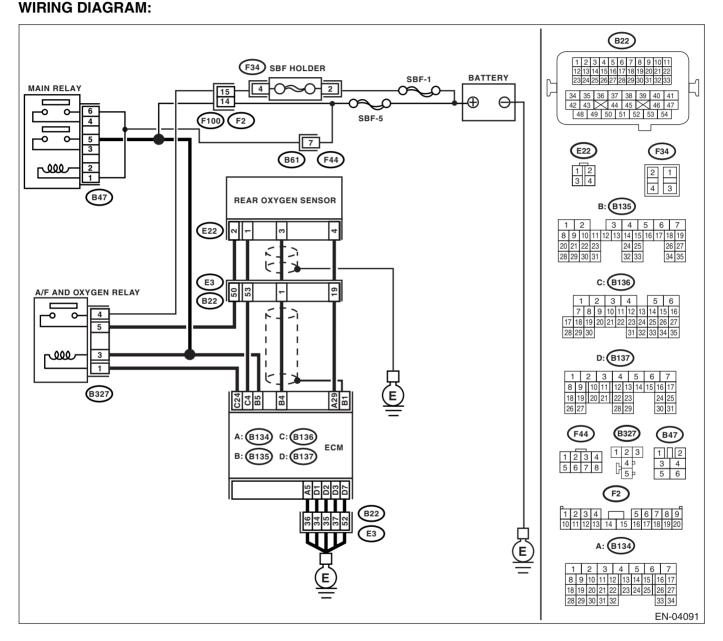
	Step	Check	Yes	No
GEN SI 1) Turn 2) Disc sensor. 3) Turn 4) Mea sensor of sis grou Conne	n the ignition switch to ON. sure the voltage between rear oxygen connector and engine ground or chas-	Is the voltage more than 10 V?	Go to step 7.	Repair the power supply line or replace the main relay. NOTE: In this case, repair the following item: Open circuit in harness between A/F and oxygen relay and rear oxygen sensor connector Poor contact in A/F and oxygen relay connector Poor contact in coupling connector
1) Turn 2) Mea gen (A/l <i>Termi</i>	REAR OXYGEN SENSOR. In the ignition switch to OFF. Itsure the resistance between rear oxy- F) sensor connector terminals. In als I — No. 2:	Is the resistance less than 30 Ω ?	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between rear oxygen sensor and ECM connector • Poor contact in rear oxygen sensor connector • Poor contact in ECM connector • Poor contact in coupling connector	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>

G: DTC P0038 HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 2) DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-19, DTC P0038 HO2S HEATER CONTROL CIRCUIT HIGH (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



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

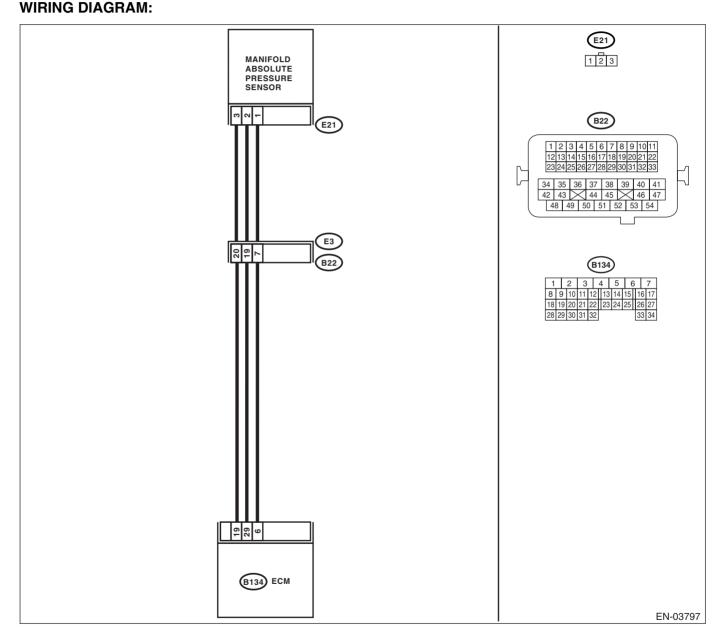
	Step	Check	Yes	No
2	CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Repair the battery short circuit of harness between ECM and rear oxygen sensor connector. 3) Turn the ignition switch to ON. 4) Read the data of rear oxygen (A/F) sensor heater current using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		<ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>	END.
3	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	END.

H: DTC P0068 MAP/MAF - THROTTLE POSITION CORRELATION DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-21, DTC P0068 MAP/MAF THROTTLE POSITION CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diagnostic="" en(h4so)(diag)-="" list="" of="" to="" trouble=""></ref.>	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	SENSOR. 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the select lever or shift lever in "P" or "N" range. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the data of intake manifold pressure sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the measured value 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 4.	Replace the manifold absolute pressure sensor. <ref. absolute="" fu(h4so)-27,="" manifold="" pressure="" sensor.="" to=""></ref.>
4	CHECK THROTTLE OPENING ANGLE. Read the data of throttle position signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the measured value less than 5% when throttle is fully closed?	Go to step 5.	Adjust or replace the throttle posi- tion sensor. <ref. to FU(H4SO)-26, Throttle Position Sensor.></ref.
5	CHECK THROTTLE OPENING ANGLE.	Is the measured value more than 85% when throttle is fully open?	to FU(H4SO)-27, Manifold Absolute	Replace the throt- tle position sen- sor. <ref. to<br="">FU(H4SO)-26, Throttle Position Sensor.></ref.>

I: DTC P0076 INTAKE VALVE CONTROL SOLENOID CIRCUIT LOW (BANK 1) DTC DETECTING CONDITION:

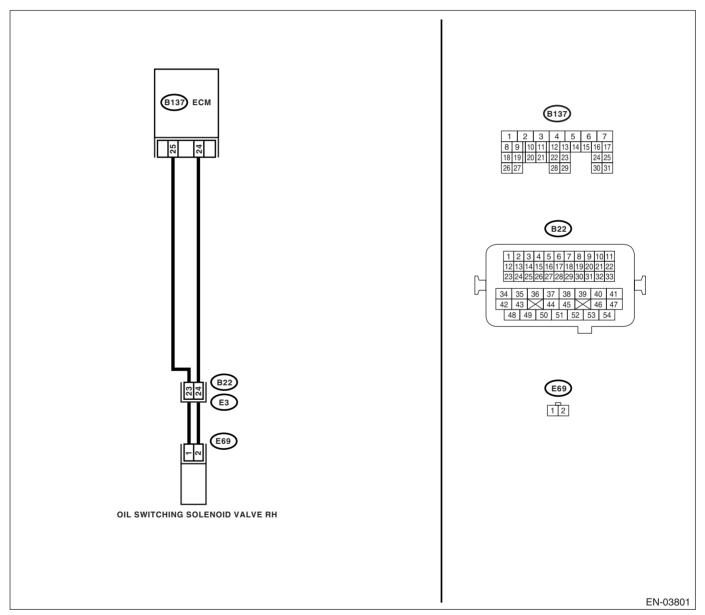
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-23, DTC P0076 INTAKE VALVE CONTROL SOLENOID CIRCUIT LOW (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND OIL SWITCHING SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and oil switching solenoid valve. 3) Measure the resistance between ECM and oil switching solenoid valve. Connector & terminal (B137) No. 25 — (E69) No. 1: (B137) No. 24 — (E69) No. 2:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit of harness between ECM and oil switching solenoid valve connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and oil switching solenoid valve connector • Poor contact in coupling connector
2	 CHECK OIL SWITCHING SOLENOID VALVE. 1) Remove the oil switching solenoid valve connector. 2) Measure the resistance between oil switching solenoid valve terminals. Terminals No. 1 — No. 2: 	Is the resistance between 6 and 12 Ω ?	Repair the poor contact of ECM and oil switching solenoid valve.	Replace the oil switching solenoid valve. <ref. to<br="">ME(H4SO)-85, Oil Switching Sole- noid Valve.></ref.>

J: DTC P0077 INTAKE VALVE CONTROL SOLENOID CIRCUIT HIGH (BANK 1) DTC DETECTING CONDITION:

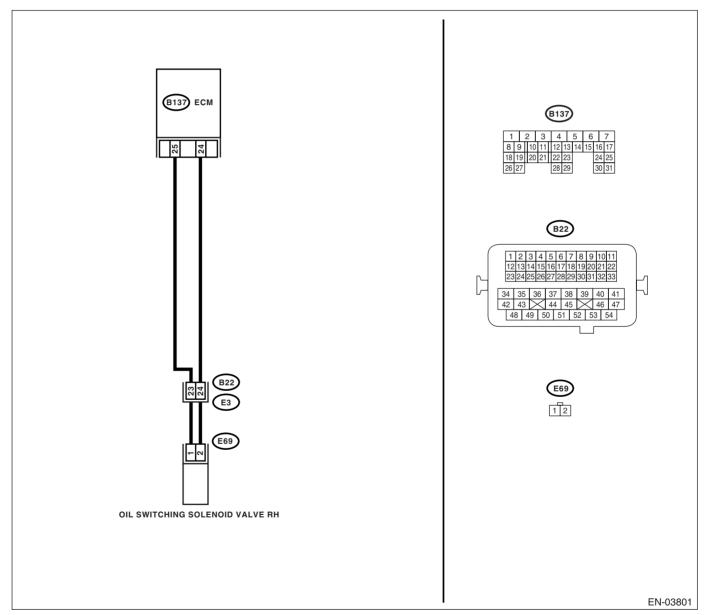
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-24, DTC P0077 INTAKE VALVE CONTROL SOLENOID CIRCUIT HIGH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND OIL SWITCHING SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and oil switching solenoid valve. 3) Measure the resistance between oil switching solenoid valve and engine ground. Connector & terminal (E69) No. 1 — Engine ground: (E69) No. 2 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 2.	Repair the short circuit between ECM and oil switching solenoid valve connector.
2	CHECK OIL SWITCHING SOLENOID VALVE. 1) Remove the oil switching solenoid valve connector. 2) Measure the resistance between oil switching solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 6 and 12 Ω ?	Repair the poor contact of ECM and oil switching solenoid valve.	Replace the oil switching solenoid valve. <ref. to<br="">ME(H4SO)-85, Oil Switching Sole- noid Valve.></ref.>

K: DTC P0082 INTAKE VALVE CONTROL SOLENOID CIRCUIT LOW (BANK 2) DTC DETECTING CONDITION:

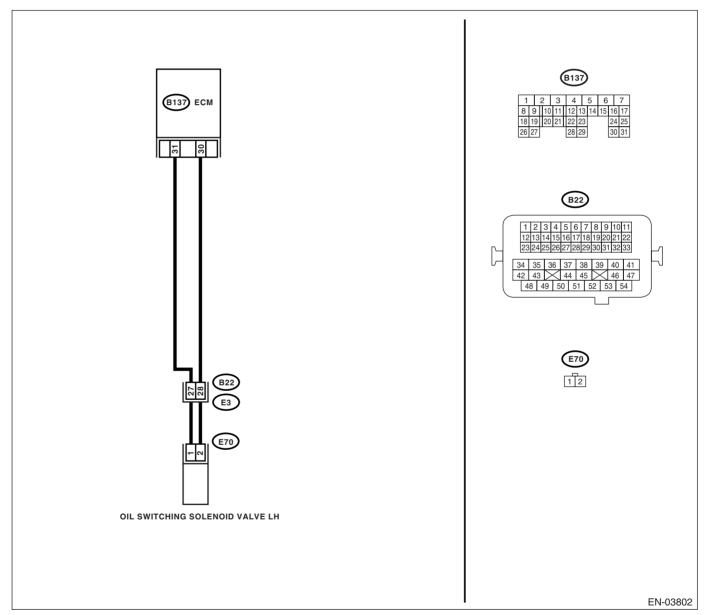
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-25, DTC P0082 INTAKE VALVE CONTROL SOLENOID CIRCUIT LOW (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND OIL SWITCHING SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and oil switching solenoid valve. 3) Measure the resistance between ECM and oil switching solenoid valve. Connector & terminal (B137) No. 31 — (E70) No. 1: (B137) No. 30 — (E70) No. 2:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit of harness between ECM and oil switching sole-noid valve connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and oil switching solenoid valve connector • Poor contact in coupling connector
2	 CHECK OIL SWITCHING SOLENOID VALVE. 1) Remove the oil switching solenoid valve connector. 2) Measure the resistance between oil switching solenoid valve terminals. Terminals No. 1 — No. 2: 	Is the resistance between 6 and 12 Ω ?	Repair the poor contact of ECM and oil switching solenoid valve.	Replace the oil switching solenoid valve. <ref. to<br="">ME(H4SO)-85, Oil Switching Sole- noid Valve.></ref.>

L: DTC P0083 INTAKE VALVE CONTROL SOLENOID CIRCUIT HIGH (BANK 2) DTC DETECTING CONDITION:

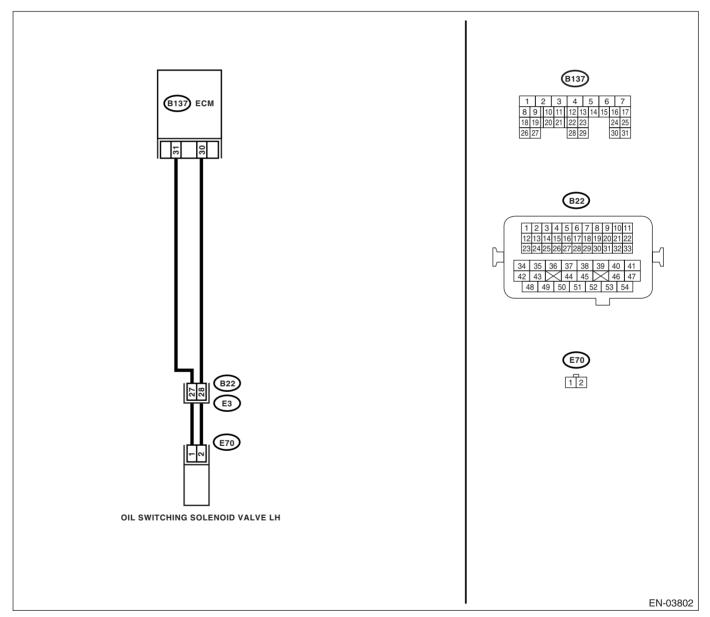
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-25, DTC P0083 INTAKE VALVE CONTROL SOLENOID CIRCUIT HIGH (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND OIL SWITCHING SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and oil switching solenoid valve. 3) Measure the resistance between oil switching solenoid valve and engine ground. Connector & terminal (E70) No. 1 — Engine ground: (E70) No. 2 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 2.	Repair the short circuit between ECM and oil switching solenoid valve connector.
2	 CHECK OIL SWITCHING SOLENOID VALVE. 1) Remove the oil switching solenoid valve connector. 2) Measure the resistance between oil switching solenoid valve terminals. Terminals No. 1 — No. 2: 	Is the resistance between 6 and 12 Ω ?	Repair the poor contact of ECM and oil switching solenoid valve.	Replace the oil switching solenoid valve. <ref. to<br="">ME(H4SO)-85, Oil Switching Sole- noid Valve.></ref.>

M: DTC P0101 MASS OR VOLUME AIR FLOW CIRCUIT RANGE/PERFOR-MANCE

DTC DETECTING CONDITION:

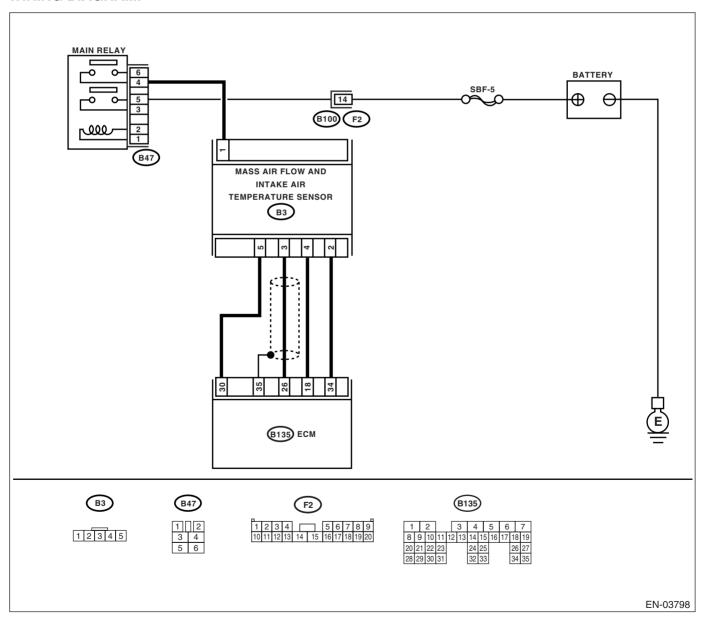
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-26, DTC P0101 MASS OR VOLUME AIR FLOW CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- · Engine stalls.
- · Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appro-	Replace the mass
		priate DTC using	air flow and intake
		the "List of Diag-	air temperature
		nostic Trouble	sensor. <ref. th="" to<=""></ref.>
		Code (DTC)".	FU(H4SO)-28,
		<ref. th="" to<=""><th>Mass Air Flow and</th></ref.>	Mass Air Flow and
		EN(H4SO)(diag)-	Intake Air Temper-
		65, List of Diag-	ature Sensor.>
		nostic Trouble	
		Code (DTC).>	
		NOTE:	
		In this case, it is	
		not necessary to	
		inspect DTC	
		P0101.	

N: DTC P0102 MASS OR VOLUME AIR FLOW CIRCUIT LOW INPUT DTC DETECTING CONDITION:

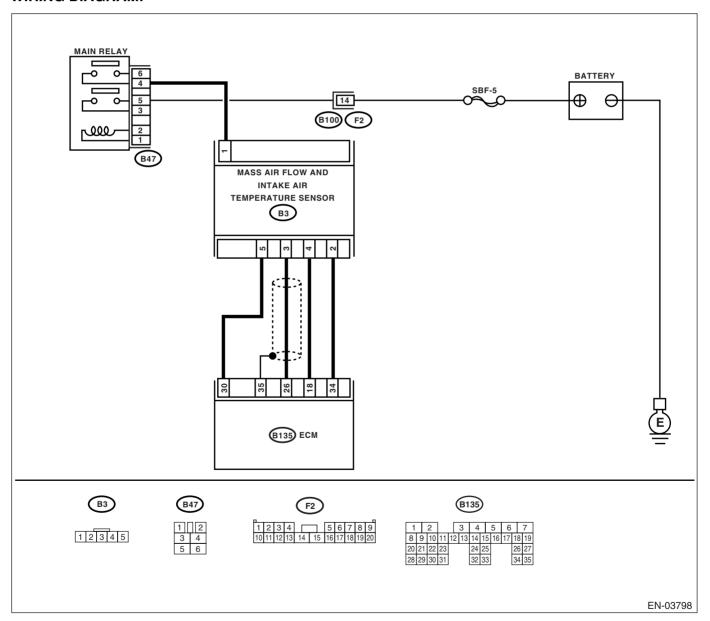
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-29, DTC P0102 MASS OR VOLUME AIR FLOW CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Ston	Chook	Voc	No
-	•			-
1	CONNECT SUBARU SELECT MONITOR OR THE GENERAL SCAN TOOL, AND READ THE DATA. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor or a general scan tool to data link connector. 3) Turn the ignition switch to ON, and the Subaru Select Monitor or general scan tool power switch to ON. 4) Start the engine. 5) Read the mass air flow sensor voltage using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Check Is the voltage 0.2 — 4.7 V?	Even if the malfunction indicator light illuminates, the circuit has returned to a normal condition at this time. Temporary poor contact of connector or harness may be the cause. Repair the harness or connector in mass air flow sensor. NOTE: In this case, repair the following item: • Open or ground short circuit in harness between mass air flow sensor and ECM connector • Poor contact	No Go to step 2.
2	CHECK INPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground while engine is idling. Connector & terminal	Is the voltage more than 0.2 V?	in mass air flow sensor or ECM connector	Go to step 3.
	(B135) No. 26 (+) — Chassis ground (–):			
3	SUBARU SELECT MONITOR). Measure the voltage between ECM connector	Does the voltage change by shaking the harness and con- nector of ECM while monitor- ing the value with Subaru Select Monitor?	Repair poor contact in ECM connector.	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.
4	CHECK POWER SUPPLY TO MASS AIR FLOW SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mass air flow sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between mass air flow sensor connector and chassis ground. Connector & terminal (B3) No. 1 (+) — Chassis ground (-):	Is the voltage more than 5 V?	Go to step 5.	Repair the open circuit between mass air flow sensor and main relay.

	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM and mass air flow sensor connector. Connector & terminal (B135) No. 26 — (B3) No. 3: (B135) No. 34 — (B3) No. 2: (B135) No. 30 — (B3) No. 5:	Is the resistance less than 1 Ω ?	Go to step 6.	Repair the open circuit between ECM and mass air flow sensor connector.
6	CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR. Measure the resistance of harness between ECM and chassis ground. Connector & terminal (B135) No. 26 — Chassis ground: (B135) No. 34 — Chassis ground: (B135) No. 30 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 7.	Repair the ground short circuit between ECM and mass air flow sen- sor connector.
7	CHECK POOR CONTACT. Check poor contact of mass air flow sensor connector.	Is there poor contact in mass air flow sensor connector?	Repair the poor contact of mass air flow sensor connector.	Replace the mass air flow and intake air temperature sensor. <ref. to<br="">FU(H4SO)-28, Mass Air Flow and Intake Air Temper- ature Sensor.></ref.>

O: DTC P0103 MASS OR VOLUME AIR FLOW CIRCUIT HIGH INPUT DTC DETECTING CONDITION:

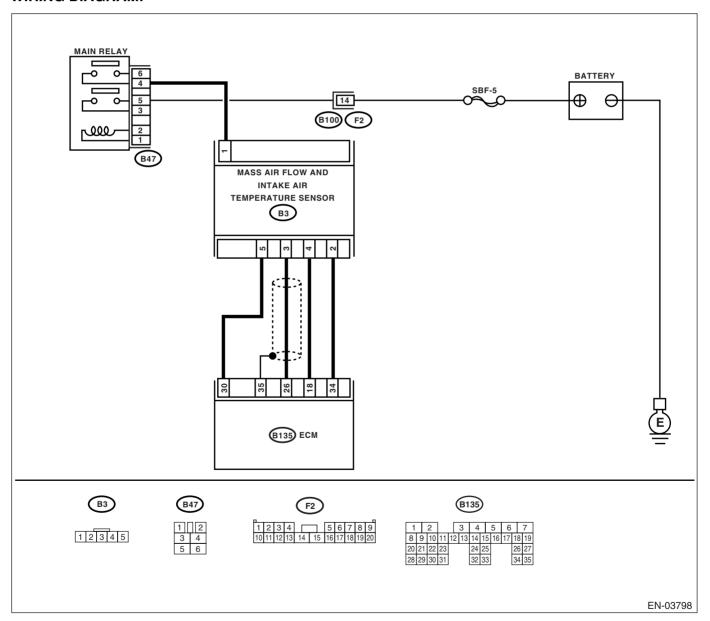
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-31, DTC P0103 MASS OR VOLUME AIR FLOW CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CONNECT SUBARU SELECT MONITOR OR THE GENERAL SCAN TOOL, AND READ THE DATA. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor or a general scan tool to data link connector. 3) Turn the ignition switch to ON, and the Subaru Select Monitor or general scan tool power switch to ON. 4) Start the engine. 5) Read the mass air flow sensor voltage using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the voltage 0.2 — 4.7 V?	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time.	Go to step 2.
2	CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from mass airflow sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between mass air flow sensor connector and chassis ground. Connector & terminal (B3) No. 3 (+) — Chassis ground (-):	Is the voltage more than 5 V?	Repair the battery short circuit of har- ness between mass air flow sen- sor connector and ECM connector.	Go to step 3.
3	CHECK HARNESS BETWEEN ECM AND MASS AIR FLOW SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM connector and mass air flow sensor connector. Connector & terminal (B3) No. 2 — (B135) No. 34:	Is the resistance less than 1 Ω ?	Replace the mass air flow sensor. <ref. to<br="">FU(H4SO)-28, Mass Air Flow and Intake Air Temper- ature Sensor.></ref.>	Repair the open circuit of harness between mass air flow sensor connector and ECM connector.

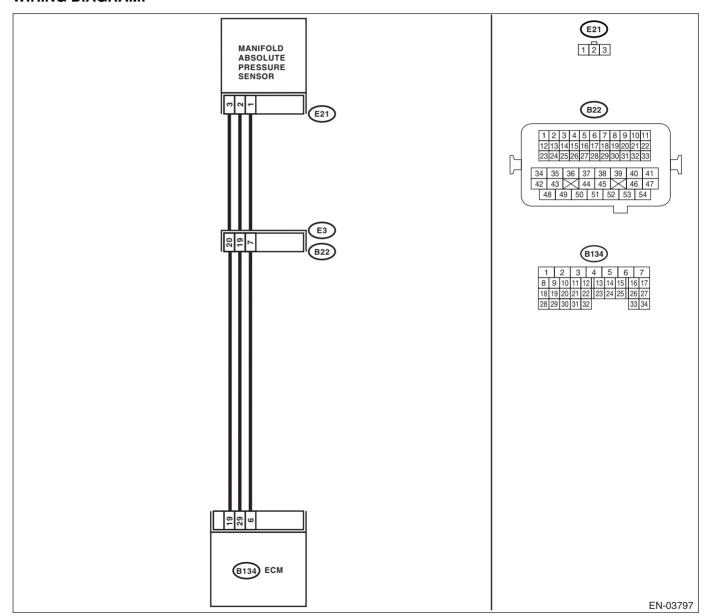
P: DTC P0107 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-33, DTC P0107 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the measured value less	Go to step 3.	Go to step 2.
1	Start the engine.	than 13.3 kPa (100 mmHg,	00 to stop 0 .	GO to stop 2.
	2) Read the data of intake manifold absolute	3.94 inHg)?		
	pressure signal using Subaru Select Monitor or	Joseph 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< th=""><th></th><th></th><th></th></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	 General scan tool 			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			
2	CHECK POOR CONTACT.		Repair the poor	Even if the mal-
	Check the poor contact in ECM and manifold	manifold pressure sensor con-		function indicator
	pressure sensor connector.	nector?	manifold pressure	light illuminates,
			sensor connector.	the circuit has
				returned to a nor-
				mal condition at
		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<u> </u>	this time.
3	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 4.5 V?	Go to step 5.	Go to step 4.
	Measure the voltage between ECM connector			
	and chassis ground.			
	Connector & terminal			
4	(B134) No. 19 (+) — Chassis ground (-): CHECK OUTPUT SIGNAL OF ECM.	Doos the veltage change by	Danair naor aon	Contact your COA
4	Measure the voltage between ECM connector	Does the voltage change by shaking the ECM harness and	Repair poor con- tact in ECM con-	Contact your SOA Service Center.
	and chassis ground.	connector?	nector.	NOTE:
	Connector & terminal		nector.	The probable
	(B134) No. 19 (+) — Chassis ground (–):			cause is consid-
	(2101) Not 10 (1) Chaoche greama ().			ered as the deteri-
				oration of multiple
				parts.
5	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.2 V?	Go to step 7.	Go to step 6 .
	Measure the voltage between ECM and chas-		г	1
	sis ground.			
	Connector & terminal			
	(B134) No. 29 (+) — Chassis ground (–):			
6	CHECK INPUT SIGNAL FOR ECM (USING	Is the measured value more	Repair poor con-	Go to step 7.
	SUBARU SELECT MONITOR).	than 13.3 kPa (100 mmHg,	tact in ECM con-	
	Read the data of atmospheric absolute pres-	3.94 inHg) when shaking the	nector.	
	sure signal using Subaru Select Monitor.	ECM harness and connector?		
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			

	Step	Check	Yes	No
7	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) 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 more than 4.5 V?	Go to step 8.	Repair the open circuit of harness between ECM and manifold absolute pressure sensor connector.
8	CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM and manifold absolute pressure sensor connector. Connector & terminal (B134) No. 6 — (E21) No. 1:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit of harness between ECM and manifold absolute pressure sensor connector.
9	CHECK POOR CONTACT. Check poor contact of manifold absolute pressure sensor connector.	Is there poor contact in manifold absolute pressure sensor connector?	Repair the poor contact of manifold absolute pressure sensor connector.	Replace the manifold absolute pressure sensor. <ref. absolute="" fu(h4so)-27,="" manifold="" pressure="" sensor.="" to=""></ref.>

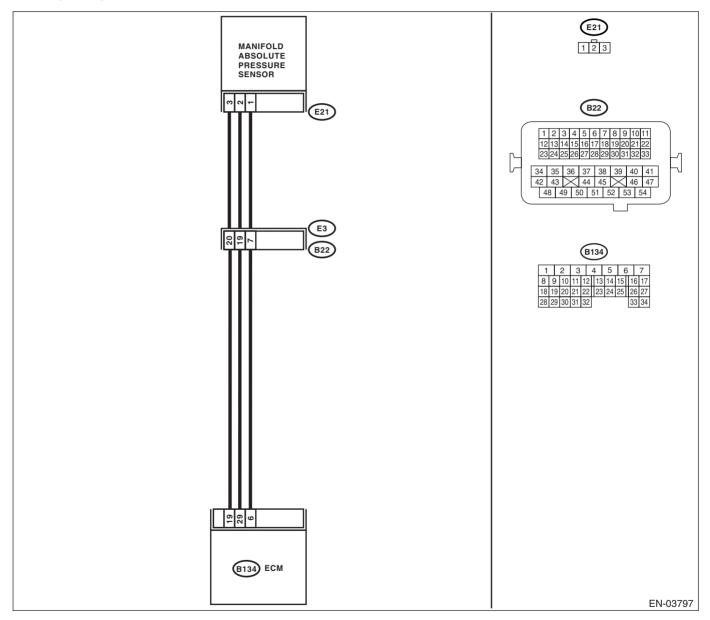
Q: DTC P0108 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-35, DTC P0108 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the measured value more	Go to step 10.	Go to step 2.
	 Start the engine. Read the data of intake manifold absolute 	than 119.5 kPa (896.5 mmHg, 35.29 inHg)?		
	pressure signal using Subaru Select Monitor or	100.20		
	general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedures, refer to the			
2	"General Scan Tool Instruction Manual". CHECK OUTPUT SIGNAL OF ECM.	In the voltage more than 4 F V2	Co to oton 4	Co to oton 2
-	Measure the voltage between ECM connector	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 3.
	and chassis ground.			
	Connector & terminal			
	(B134) No. 19 (+) — Chassis ground (–):			
3	CHECK OUTPUT SIGNAL OF ECM.	Does the voltage change by	Repair poor con-	Contact your SOA
	Measure the voltage between ECM connector	shaking the ECM harness and	tact in ECM con-	Service Center.
	and chassis ground.	connector?	nector.	NOTE:
	Connector & terminal			The probable
	(B134) No. 19 (+) — Chassis ground (–):			cause is consid-
				ered as the deteri-
				oration of multiple
4	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.2 V?	Go to step 6.	parts. Go to step 5 .
	Measure the voltage between ECM connector	is the voltage less than 6.2 v	αο το στορ σ .	do to stop o.
	and chassis ground.			
	Connector & terminal			
	(B134) No. 29 (+) — Chassis ground (–):			
5	CHECK INPUT SIGNAL FOR ECM (USING	Is the measured value more	Repair poor con-	Go to step 6.
	SUBARU SELECT MONITOR).	than 13.3 kPa (100 mmHg,	tact in ECM con-	
	Read the data of atmospheric absolute pres-	3.94 inHg) when shaking the	nector.	
	sure signal using Subaru Select Monitor.	ECM harness and connector?		
	NOTE: • Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td></td></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
6	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to step 7.	Repair the open
	MANIFOLD ABSOLUTE PRESSURE SEN-			circuit of harness
	SOR CONNECTOR.			between ECM and
	Turn the ignition switch to OFF. Disconnect the connector from manifold.			manifold absolute
	Disconnect the connector from manifold absolute pressure sensor.			pressure sensor connector.
	3) Turn the ignition switch to ON.			COTHICULOI.
	Measure the voltage between manifold			
	absolute pressure sensor connector and			
	engine ground.			
	Connector & terminal			
	(E21) No. 3 (+) — Engine ground (–):			

	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM and manifold absolute pressure sensor connector. Connector & terminal (B134) No. 29 — (E21) No. 2:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair the open circuit of harness between ECM and manifold absolute pressure sensor connector.
8	CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR. Measure the resistance of harness between ECM and manifold absolute pressure sensor connector. Connector & terminal (B134) No. 6 — (E21) No. 1:	Is the resistance less than 1 Ω ?	Go to step 9 .	Repair the open circuit of harness between ECM and manifold absolute pressure sensor connector.
9	CHECK POOR CONTACT. Check poor contact of manifold absolute pressure sensor connector.	Is there poor contact in manifold absolute pressure sensor connector?	absolute pressure	Replace the mani- fold absolute pres- sure sensor. <ref. to FU(H4SO)-27, Manifold Absolute Pressure Sensor.></ref.
10	CHECK HARNESS BETWEEN ECM AND MANIFOLD ABSOLUTE PRESSURE SENSOR CONNECTOR. 1) Turn the ignition switch to OFF and Subaru Select Monitor or the general scan tool switch to OFF. 2) Disconnect the connector from manifold absolute pressure sensor. 3) Turn the ignition switch to ON, and the Subaru Select Monitor or general scan tool power switch to ON. 4) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or general scan tool. NOTE: Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Repair the battery short circuit of harness between ECM and manifold absolute pressure sensor connector.	Replace the manifold absolute pressure sensor. <ref. absolute="" fu(h4so)-27,="" manifold="" pressure="" sensor.="" to=""></ref.>

R: DTC P0111 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT RANGE/PER-FORMANCE

DTC DETECTING CONDITION:

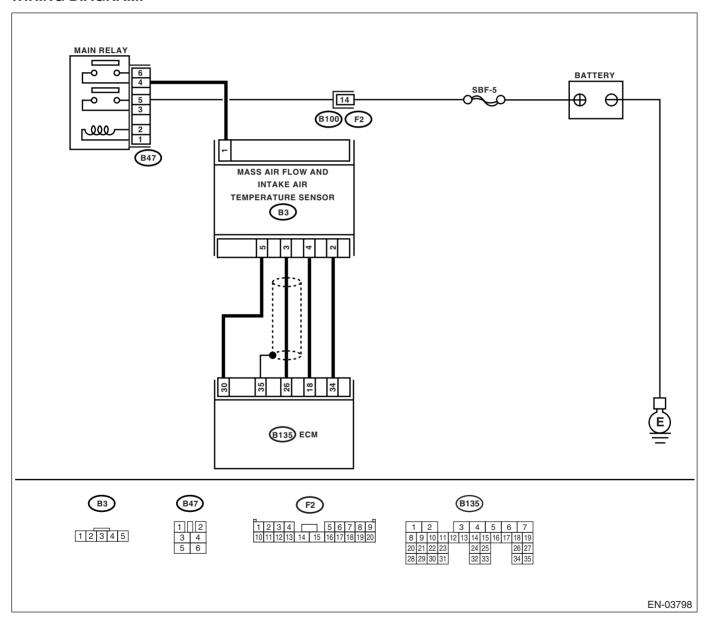
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-37, DTC P0111 INTAKE AIR TEMPERATURE SENSOR
 1 CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Trouble Code (DTC)". <ref. to<br="">EN(H4SO)(diag)- 65, List of Diag- nostic Trouble Code (DTC).></ref.>	Replace the intake air temperature sensor. <ref. to<br="">FU(H4SO)-28, Mass Air Flow and Intake Air Temper- ature Sensor.></ref.>
		NOTE: In this case, it is not necessary to inspect DTC P0111.	

S: DTC P0112 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT LOW DTC DETECTING CONDITION:

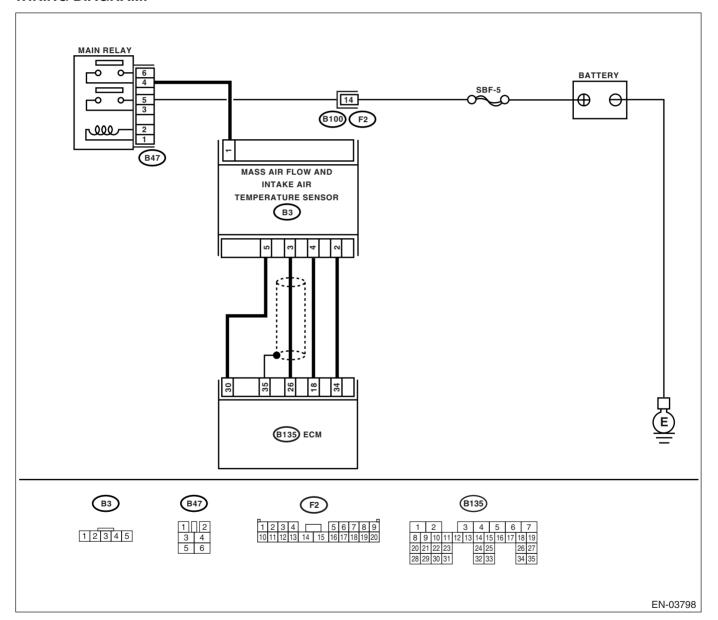
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-39, DTC P0112 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of intake air temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4SO)(diag)-26, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".	Is the intake air temperature above 120°C (248°F)?	Go to step 2.	Repair the poor contact. NOTE: In this case, repair the following item: • Poor contact in intake air temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from intake air temperature sensor. 3) Turn the ignition switch to ON. 4) Read the data of intake air temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the intake air temperature less than -40°C (-40°F)?		Repair the ground short circuit of harness between intake air temperature sensor and ECM connector.

ENGINE (DIAGNOSTICS)

T: DTC P0113 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT HIGH DTC DETECTING CONDITION:

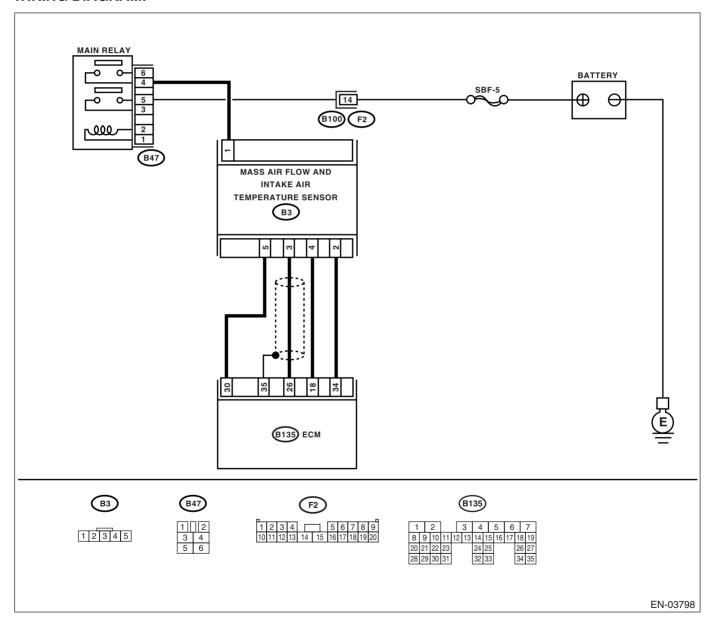
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-41, DTC P0113 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the intake air temperature	Go to step 2.	Repair the poor
	1) Start the engine.	less than -40°C (-40°F)?	The state of the s	contact.
	2) Read the data of intake air temperature			NOTE:
	sensor signal using Subaru Select Monitor or			In this case, repair
	general scan tool.			the following item:
	NOTE:			Poor contact
	Subaru Select Monitor To a detailed a possible presendure a refer to			in intake air
	For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". < Ref.			temperature sensor
	to EN(H4SO)(diag)-26, Subaru Select Moni-			Poor contact
	tor.>			in ECM
	General scan tool			 Poor contact
	For detailed operation procedures, refer to the			in coupling con-
	"General Scan Tool Instruction Manual".			nector
				• Poor contact
				in joint connector
2	CHECK HARNESS BETWEEN INTAKE AIR	Is the voltage more than 10 V?	Repair the battery	Go to step 3.
	TEMPERATURE SENSOR AND ECM CON-		short circuit of har-	
	NECTOR.		ness between	
	 Turn the ignition switch to OFF. 		intake air tempera-	
	2) Disconnect the connector from intake air		ture sensor and	
	temperature sensor.		ECM connector.	
	Measure the voltage between intake air temperature sensor connector and engine			
	ground.			
	Connector & terminal			
	(B3) No. 4 (+) — Engine ground (–):			
3	CHECK HARNESS BETWEEN INTAKE AIR	Is the voltage more than 10 V?	Repair the battery	Go to step 4.
	TEMPERATURE SENSOR AND ECM CON-		short circuit of har-	
	NECTOR.		ness between	
	 Turn the ignition switch to ON. Measure the voltage between intake air 		intake air tempera- ture sensor and	
	temperature sensor connector and engine		ECM connector.	
	ground.		Low commotion	
	Connector & terminal			
4	(B3) No. 4 (+) — Engine ground (–):	Le the welters were the second	Ca ta atam F	Danais tha has
4	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CON-	Is the voltage more than 3 V?	Go to step 5.	Repair the har- ness and connec-
	NECTOR.			tor.
	Measure the voltage between intake air tem-			NOTE:
	perature sensor connector and engine ground.			In this case, repair
	Connector & terminal			the following item:
	(B3) No. 4 (+) — Engine ground (–):			 Open circuit
				in harness be-
				tween intake air
				temperature sensor and
				ECM connector
				Poor contact
				in intake air
				temperature
				sensor
				Poor contact FCM
				in ECM • Poor contact
				in coupling con-
				nector
				Poor contact
				in joint connec-
				tor

Step	Check	Yes	No
5 CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between intake air temperature sensor connector and engine ground. Connector & terminal (B3) No. 5 — Engine ground:	Check Is the resistance less than 5 Ω?	Replace the intake air temperature sensor. <ref. air="" and="" flow="" fu(h4so)-28,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>	No Repair the harness and connector. NOTE: In this case, repair the following item:

U: DTC P0117 ENGINE COOLANT TEMPERATURE CIRCUIT LOW DTC DETECTING CONDITION:

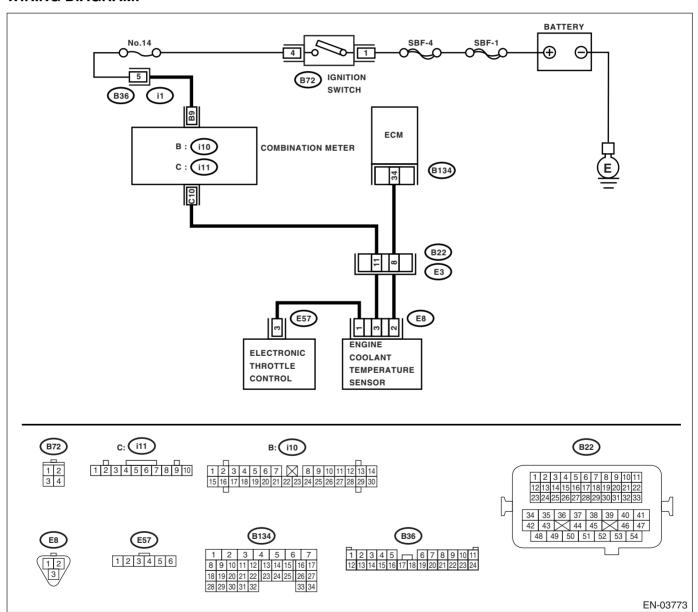
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-43, DTC P0117 ENGINE COOLANT TEMPERATURE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Hard to start
- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4SO)(diag)-26, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".		Go to step 2.	Repair the poor contact. NOTE: In this case, repair the following item: • Poor contact in engine coolant temperature sensor • Poor contact in ECM • Poor contact in coupling connector • Poor contact in joint connector
2	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the engine coolant temperature sensor. 3) Turn the ignition switch to ON. 4) Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-22,="" sensor.="" temperature="" to=""></ref.>	Repair the ground short circuit of harness between engine coolant temperature sensor and ECM connector.

V: DTC P0118 ENGINE COOLANT TEMPERATURE CIRCUIT HIGH DTC DETECTING CONDITION:

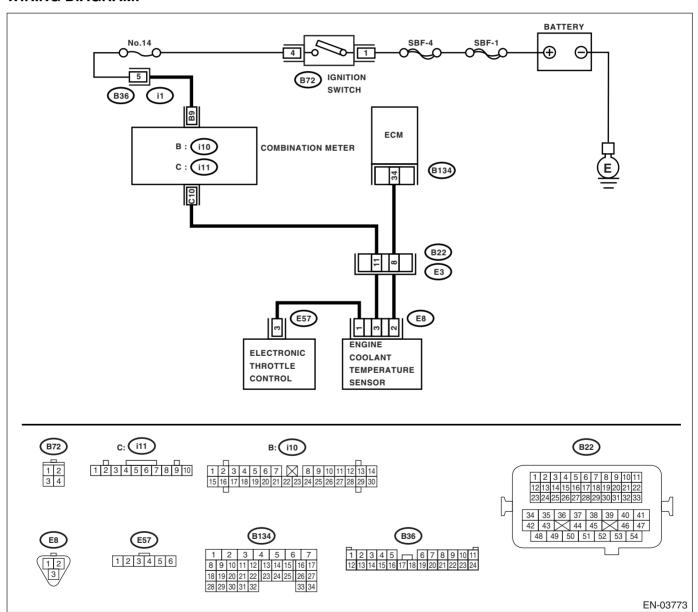
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-45, DTC P0118 ENGINE COOLANT TEMPERATURE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Hard to start
- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the engine coolant tempera-	Go to step 2.	Repair the poor
	 Start the engine. 	ture less than -40°C (-40°F)?		contact.
	Read the data of engine coolant tempera-			NOTE:
	ture sensor signal using Subaru Select Monitor			In this case, repair
	or general scan tool.			the following item:
	NOTE:			 Poor contact
	 Subaru Select Monitor 			in engine cool-
	For detailed operation procedures, refer to			ant tempera-
	"READ CURRENT DATA FOR ENGINE". < Ref.			ture sensor
	to EN(H4SO)(diag)-26, Subaru Select Moni-			 Poor contact
	tor.>			in ECM
	 General scan tool 			 Poor contact
	For detailed operation procedures, refer to the			in coupling con-
	"General Scan Tool Instruction Manual".			nector
				 Poor contact
				in joint connec-
				tor
2	CHECK HARNESS BETWEEN ENGINE	Is the voltage more than 10 V?	Repair the battery	Go to step 3.
	COOLANT TEMPERATURE SENSOR AND		short circuit of har-	
	ECM CONNECTOR.		ness between	
	 Turn the ignition switch to OFF. 		ECM and engine	
	2) Disconnect the connectors from the engine		coolant tempera-	
	coolant temperature sensor.		ture sensor con-	
	3) Measure the voltage between engine cool-		nector.	
	ant temperature sensor connector and engine			
	ground.			
	Connector & terminal			
	(E8) No. 2 (+) — Engine ground (–):			
3	CHECK HARNESS BETWEEN ENGINE	Is the voltage more than 10 V?	Repair the battery	Go to step 4.
	COOLANT TEMPERATURE SENSOR AND		short circuit of har-	
	ECM CONNECTOR.		ness between	
	1) Turn the ignition switch to ON.		ECM and engine	
	2) Measure the voltage between engine cool-		coolant tempera-	
	ant temperature sensor connector and engine		ture sensor con-	
	ground.		nector.	
	Connector & terminal			
	(E8) No. 2 (+) — Engine ground (–):			

Step	Check	Yes	No
Step 4 CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. Measure the voltage between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 2 (+) — Engine ground (-):	Check Is the voltage more than 4 V?	Yes Go to step 5.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and engine coolant temperature sensor connector • Poor contact in engine coolant temperature sensor connector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in coupling connector • Poor contact in joint connector
	Is the resistance less than 5 Ω ?	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-22,="" sensor.="" temperature="" to=""></ref.>	tor Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and engine coolant temperature sensor connector • Poor contact in engine coolant temperature sensor connector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in coupling connector • Poor contact in joint connector

W: DTC P0122 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT LOW

DTC DETECTING CONDITION:

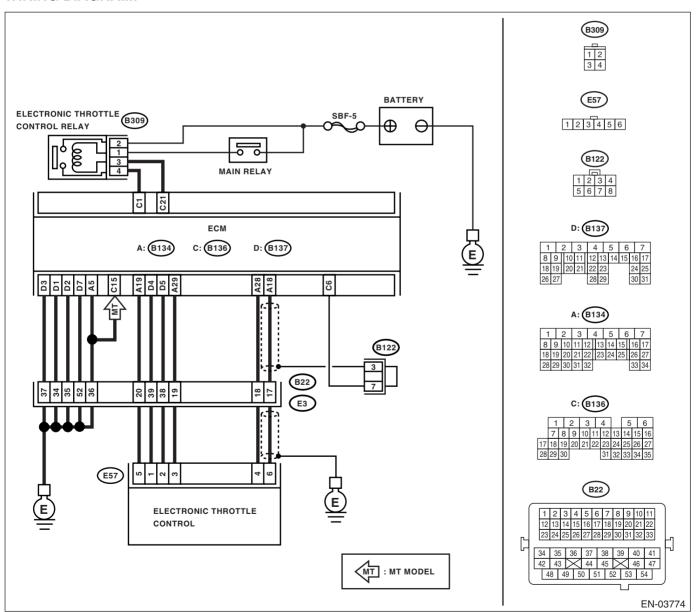
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-47, DTC P0122 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- · Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT. 1) Turn the ignition switch to ON. 2) Read the data of main throttle sensor signal using Subaru Select Monitor.	Is the voltage more than 0.4 V?	Go to step 2.	Go to step 3.
2	CHECK POOR CONTACT. Check poor contact in connector between ECM and electronic throttle control.	Is there poor contact in con- nector between ECM and elec- tronic throttle control?	Repair the poor contact.	Temporary poor contact occurred, but it is normal at present.
3	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Disconnect the connectors from electronic throttle control. 4) Measure the resistance between ECM connector and electronic throttle control connector. Connector & terminal (B134) No. 18 — (E57) No. 6: (B134) No. 19 — (E57) No. 5:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness connector.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. Measure the resistance between ECM connector and chassis ground. Connector & terminal (B134) No. 18 — Chassis ground: (B134) No. 19 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the chassis short circuit of harness.
5	CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL. 1) Connect the ECM connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 5 (+) — Engine ground (-):	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>
6	CHECK SHORT CIRCUIT INSIDE THE ECM. 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 6 — Engine ground:	Is the resistance more than 10Ω ?	Repair the poor contact of electronic throttle control connector. Replace the accelerator pedal position sensor if defective.	Repair poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>

X: DTC P0123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT HIGH

DTC DETECTING CONDITION:

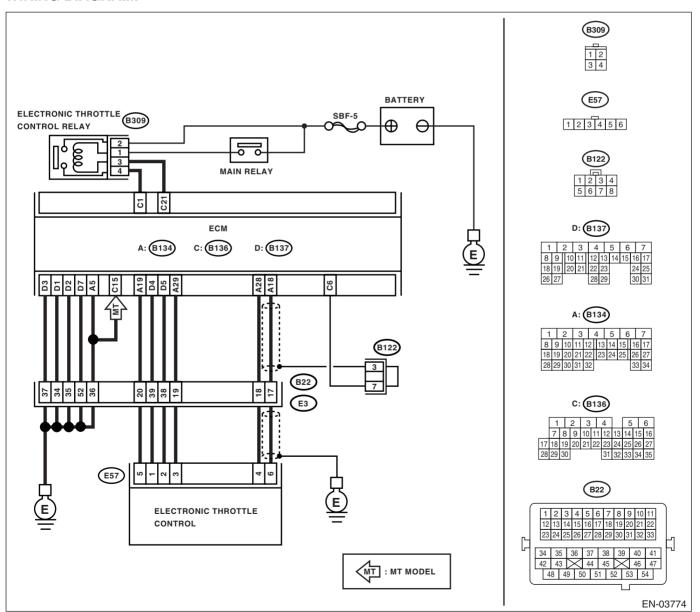
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-49, DTC P0123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- · Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT.1) Turn the ignition switch to ON.2) Read the data of main throttle sensor signal using Subaru Select Monitor.	Is the voltage less than 4.63 V?	Go to step 2.	Go to step 3.
2	CHECK POOR CONTACT. Check poor contact in connector between ECM and electronic throttle control.	Is there poor contact in con- nector between ECM and elec- tronic throttle control?	Repair the poor contact.	Temporary poor contact occurred, but it is normal at present.
3	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Disconnect the connectors from electronic throttle control. 4) Measure the resistance 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 4.	Repair the open circuit of harness connector.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. 1) Connect the ECM connector. 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 poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>
5	CHECK SENSOR OUTPUT POWER SUP- PLY. Measure the voltage between electronic throt- tle control connector and engine ground. Connector & terminal (E57) No. 6 (+) — Engine ground (-):	Is the voltage less than 10 V?	Replace the electronic throttle control. <ref. body.="" fu(h4so)-12,="" throttle="" to=""></ref.>	Repair the battery short circuit of harness between ECM connector and electronic throttle control connector.

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

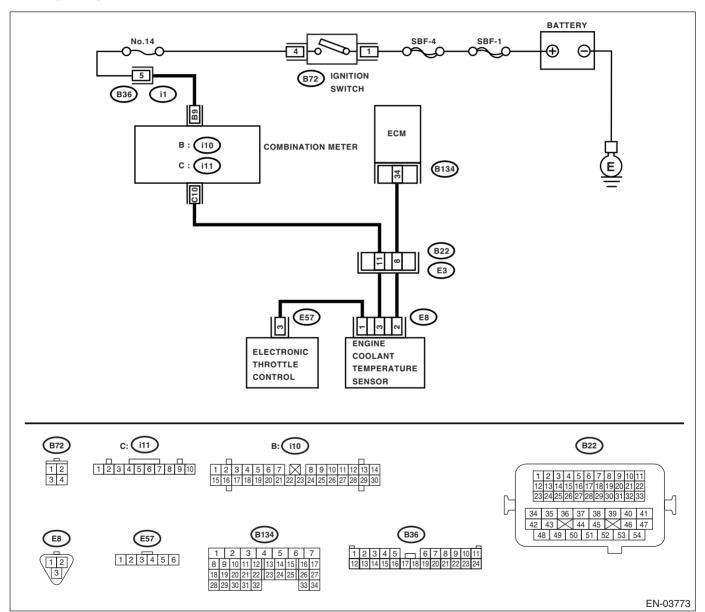
DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-51, 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 repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0125.</ref.>	
2	CHECK THERMOSTAT.	Does the thermostat remain opened?	Replace the ther- mostat. <ref. to<br="">CO(H4SO)-23, Thermostat.></ref.>	Replace the engine coolant temperature sen- sor. <ref. to<br="">FU(H4SO)-22, Engine Coolant Temperature Sen- sor.></ref.>

Z: DTC P0126 INSUFFICIENT ENGINE COOLANT TEMPERATURE FOR STA-BLE OPERATION

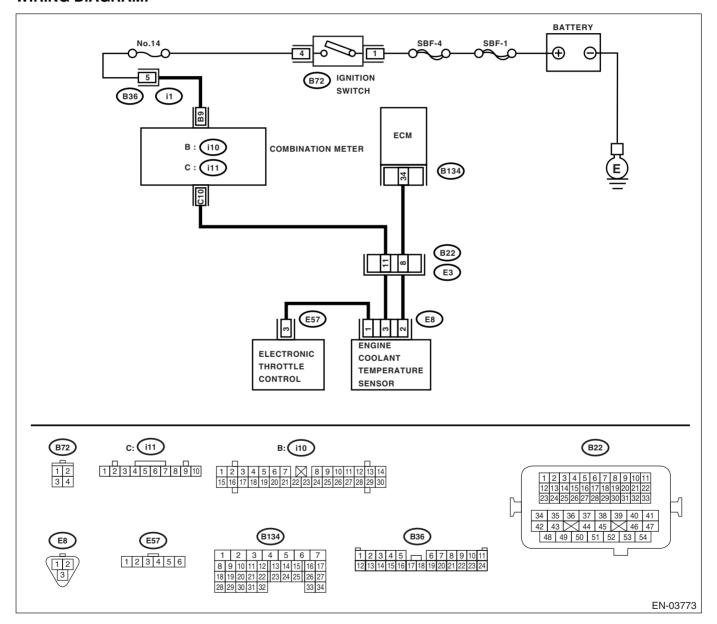
DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-54, DTC P0126 INSUFFICIENT ENGINE COOLANT TEMPERATURE FOR STABLE OPERATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

Engine does not return to idle.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK ENGINE COOLANT TEMPERATURE SENSOR. Measure the resistance between engine coolant temperature sensor terminals when engine is cold and warm up. Terminals No. 1 — No. 2:	Does the resistance change when engine is cold and warm up?		engine coolant temperature sen- sor. <ref. to<br="">FU(H4SO)-22, Engine Coolant</ref.>

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-56, DTC P0128 COOLANT THERMOSTAT (ENGINE COOLANT TEMPERATURE BELOW THERMOSTAT REGULATING TEMPERATURE), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Thermostat remains open.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

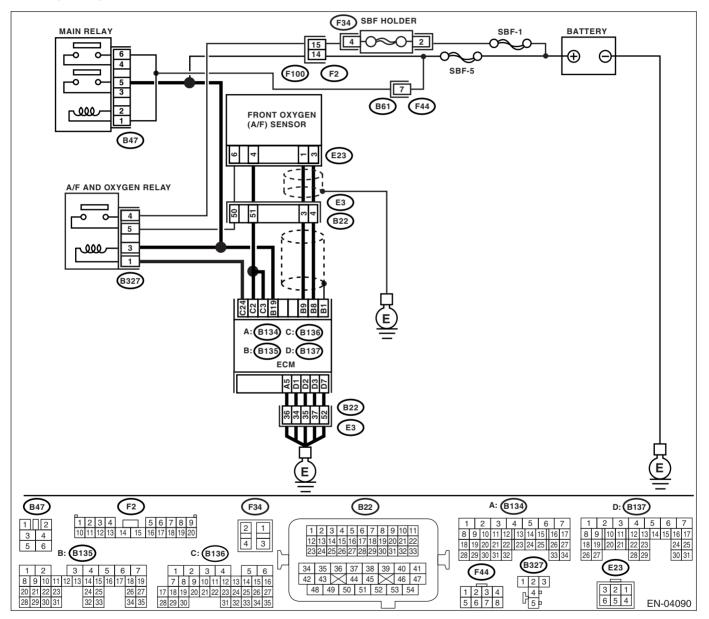
	Step	Check	Yes	No
1	CHECK VEHICLE CONDITION.	Was the vehicle driven or idled with the engine partially submerged under water?	In this case, it is not necessary to inspect DTC P0128.	Go to step 2.
2	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 3.
3	CHECK ENGINE COOLANT.	Are coolant level and mixture ratio of cooling water to anti-freeze solution correct?	Go to step 4.	Replace the engine coolant. <ref. co(h4so)-16,="" coolant.="" engine="" replacement,="" to=""></ref.>
4	CHECK RADIATOR FAN. 1) Start the engine. 2) Check the radiator fan operation.	Does the radiator fan continuously rotate for more than 3 minutes during idling?	Repair radiator fan circuit. <ref. and="" co(h4so)-32,="" fan="" main="" motor.="" radiator="" to=""> and <ref. and="" co(h4so)-39,="" fan="" motor.="" radiator="" sub="" to=""></ref.></ref.>	Replace the ther- mostat. <ref. to<br="">CO(H4SO)-23, Thermostat.></ref.>

AB:DTC P0131 O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 1) DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-58, DTC P0131 O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



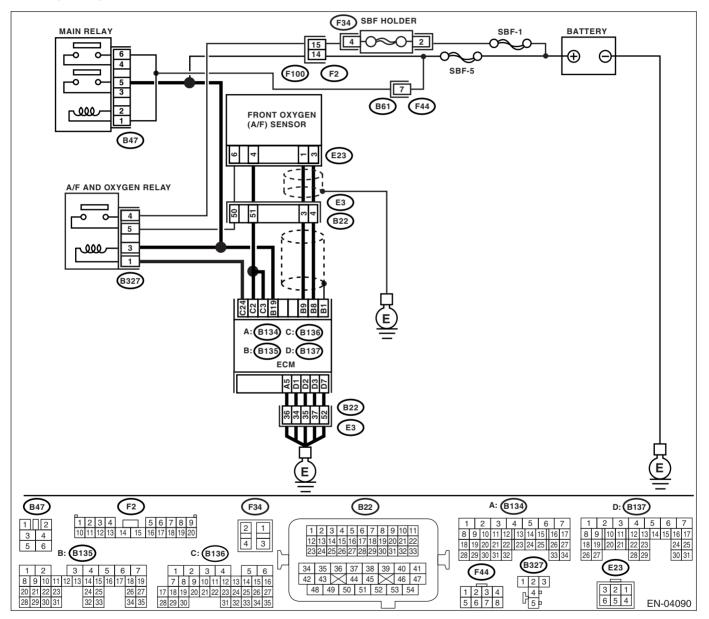
	Step	Check	Yes	No
1	CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	·
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and front oxygen (A/F) sensor connector. 3) Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B135) No. 8 — Chassis ground: (B135) No. 9 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	FU(H4SO)-36,	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.

AC:DTC P0132 O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 1) DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-60, DTC P0132 O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



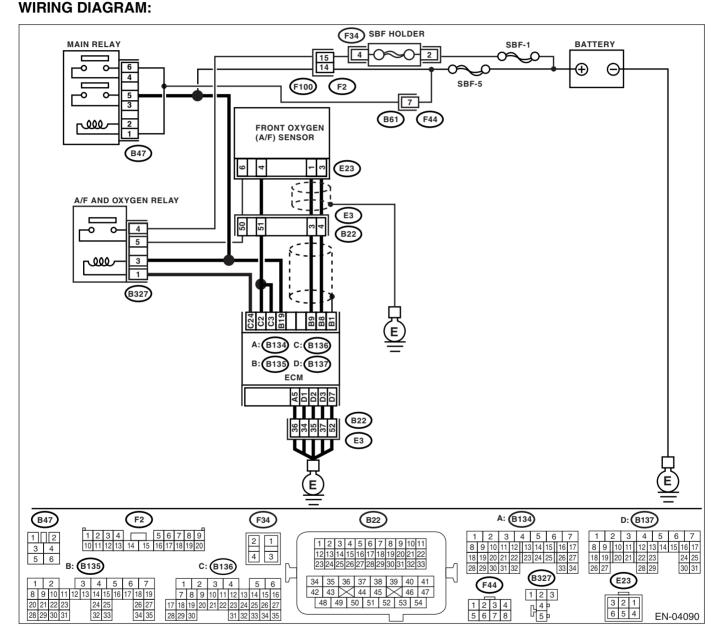
	Step	Check	Yes	No
1	CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	Go to step 2.
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. 1) Turn the ignition switch to ON. 2) Disconnect the connector from front oxygen (A/F) sensor. 3) Measure the voltage of harness between ECM connector and chassis ground. Connector & terminal (B135) No. 8 (+) — Chassis ground (-): (B135) No. 9 (+) — Chassis ground (-):	Is the voltage more than 8 V?	oxygen (A/F) sensor. <ref. fu(h4so)-36,<="" th="" to=""><th>Repair the battery short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.</th></ref.>	Repair the battery short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.

AD:DTC P0133 O2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 1) DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-62, DTC P0133 O2 SENSOR CIRCUIT SLOW RE-SPONSE (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0133.</ref.>	
2	CHECK EXHAUST SYSTEM. NOTE: Check the following items. Loose installation of front portion of exhaust pipe onto cylinder heads Loose connection between front exhaust pipe and front catalytic converter Damage of exhaust pipe resulting in a hole		Repair the exhaust system.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-36, Front Oxygen (A/ F) Sensor.></ref.>

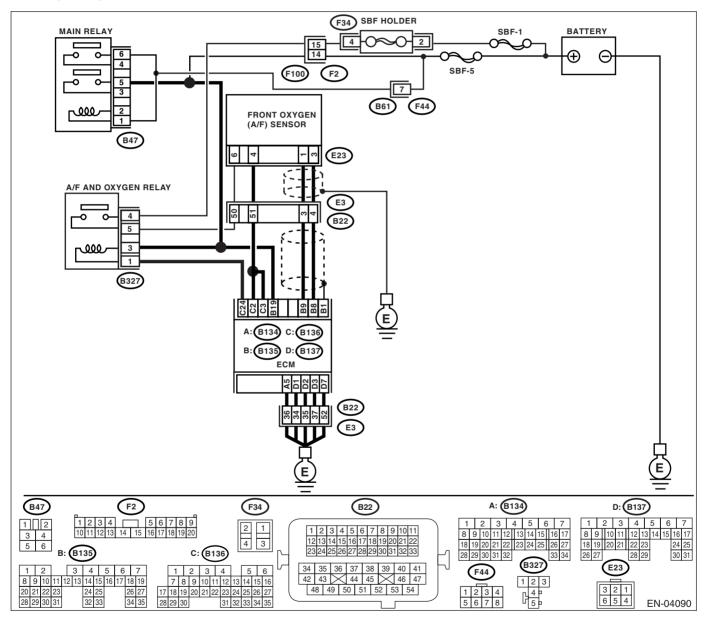
AE:DTC P0134 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SEN-SOR 1)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-65, DTC P0134 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



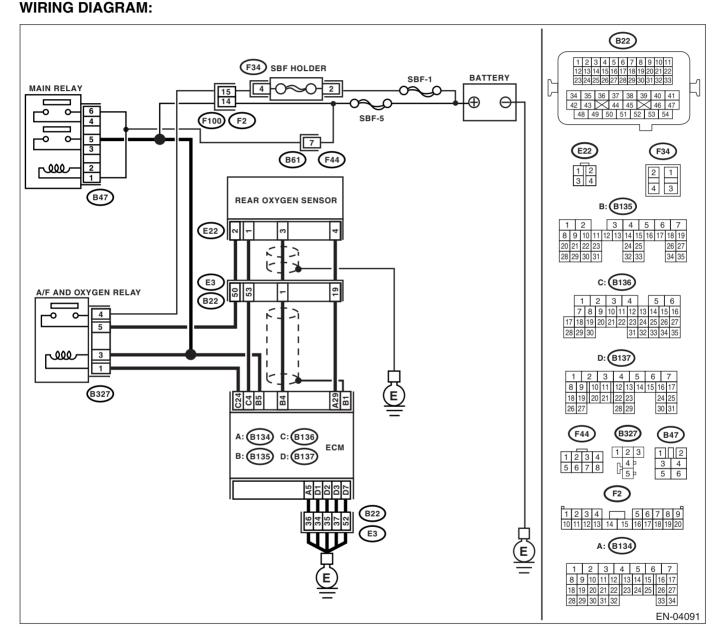
	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and front oxygen (A/F) sensor connector. 3) Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B135) No. 8 — (E23) No. 3: (B135) No. 9 — (E23) 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 and front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector
2	CHECK POOR CONTACT. Check poor contact of front oxygen (A/F) sensor connector.	Is there poor contact in front oxygen (A/F) sensor connector?	Repair the poor contact in front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-36, Front Oxygen (A/ F) Sensor.></ref.>

AF:DTC P0137 O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 2) DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-67, DTC P0137 O2 SENSOR CIRCUIT LOW VOLTAGE (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diagnostic="" en(h4so)(diag)-="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0137.</ref.>	Go to step 2.
2	CHECK REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and keep the engine speed at 3,000 rpm. (Max. 2 minutes) 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • For MT model, depress the clutch pedal. • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Go to step 6.	Go to step 3.
3	CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	Go to step 4.
4	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM and rear oxygen sensor connector. Connector & terminal (B135) No. 4 — (E22) No. 3: (B134) No. 29 — (E22) No. 4:	Is the resistance more than 3Ω ?	Repair the open circuit of harness between ECM and rear oxygen sensor connector.	Go to step 5.
5	CHECK HARNESS BETWEEN REAR OXY-GEN SENSOR AND ECM CONNECTOR. 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 harness connector and engine ground or chassis ground. Connector & terminal (E22) No. 3 (+) — Engine ground (-):	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between rear oxygen sensor and ECM connector Poor contact in rear oxygen sensor connector Poor contact in ECM connector

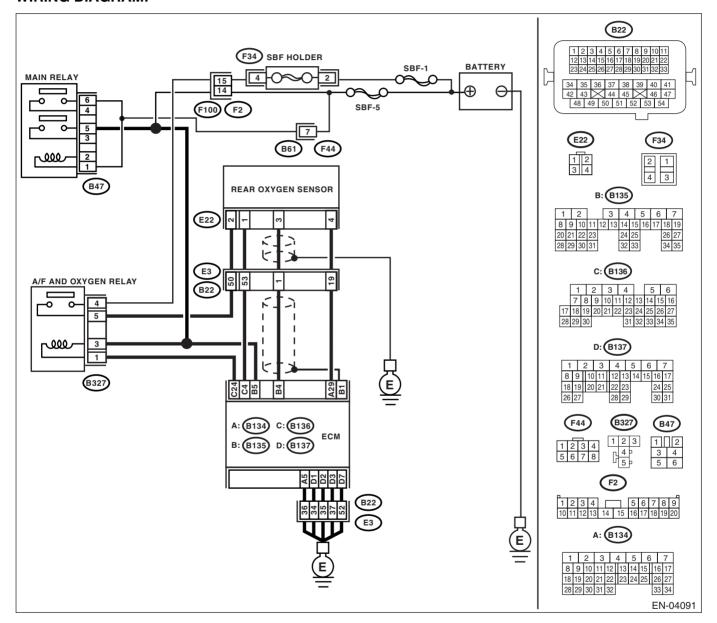
	Step	Check	Yes	No
6			Repair or replace faulty parts.	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>

AG:DTC P0138 O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 2) DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-70, DTC P0138 O2 SENSOR CIRCUIT HIGH VOLTAGE (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diagnostic="" en(h4so)(diag)-="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0138.</ref.>	
2	CHECK REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • For MT model, depress the clutch pedal. • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the voltage 250 mV or less?	Go to step 6.	Go to step 3.
3	CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	Go to step 4.
4	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM and rear oxygen sensor connector. Connector & terminal (B135) No. 4 — (E22) No. 3: (B134) No. 29 — (E22) No. 4:	Is the resistance more than 3Ω ?	Repair the open circuit of harness between ECM and rear oxygen sensor connector.	Go to step 5.
5	CHECK HARNESS BETWEEN REAR OXY-GEN SENSOR AND ECM CONNECTOR. 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 harness connector and engine ground or chassis ground. Connector & terminal (E22) No. 3 (+) — Engine ground (-):	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between rear oxygen sensor and ECM connector Poor contact in rear oxygen sensor connector Poor contact in ECM connector

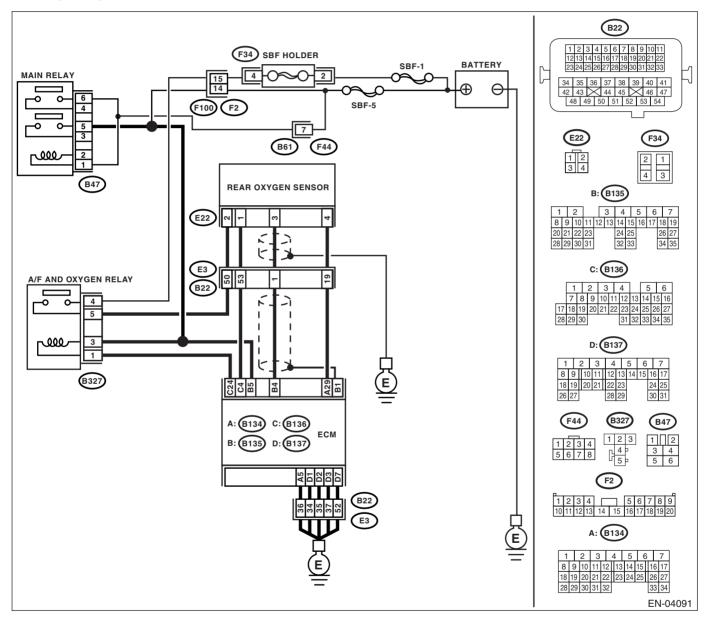
	Step	Check	Yes	No
6			faulty parts.	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>

AH:DTC P0139 O2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 2) DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-71, DTC P0139 O2 SENSOR CIRCUIT SLOW RESPONSE (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0139.</ref.>	
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 and rear oxygen sensor connector. Connector & terminal (B135) No. 4 — (E22) No. 3:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between ECM and rear oxygen sensor connector.
3	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. Measure the resistance between rear oxygen sensor harness connector and chassis ground. Connector & terminal (E22) No. 3 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 4.	Repair the chassis short circuit of harness.
4	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<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>	Temporary poor contact occurs. Check the poor contact of connector.

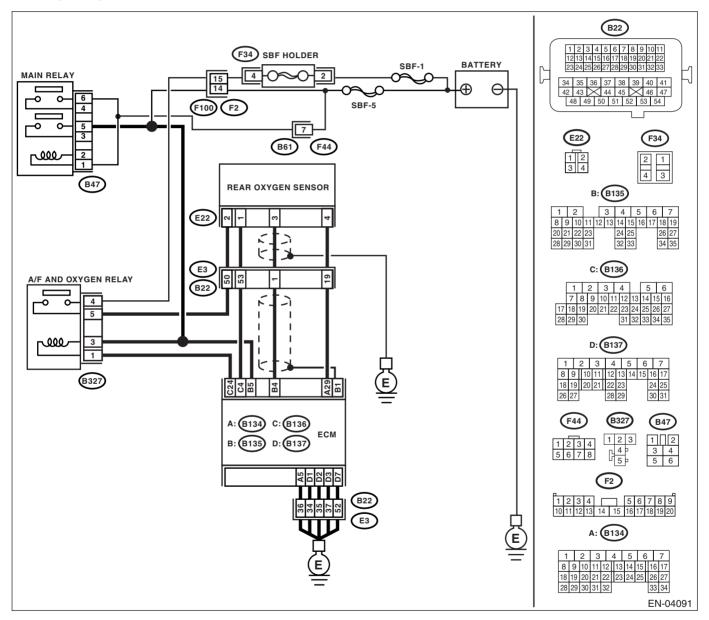
AI: DTC P0140 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK1 SENSOR2)

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-77, DTC P0140 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diagnostic="" en(h4so)(diag)-="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0140.</ref.>	Go to step 2.
	Is the voltage more than 490 mV?	Go to step 7.	Go to step 3.
3 CHECK REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and drop the engine speed suddenly from 3,000 rpm. 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • For MT model, depress the clutch pedal. • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the voltage 250 mV or less?	Go to step 7.	Go to step 4.
4 CHECK REAR OXYGEN SENSOR CONNEC-	Does water enter the connector?	Dry the water thoroughly.	Go to step 5.

ENGINE (DIAGNOSTICS)

	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM and rear oxygen sensor connector. Connector & terminal (B135) No. 4 — (E22) No. 3: (B134) No. 29 — (E22) No. 4:	Is the resistance more than 3Ω ?	Repair the open circuit of harness between ECM and rear oxygen sensor connector.	Go to step 6.
6	CHECK HARNESS BETWEEN REAR OXY-GEN SENSOR AND ECM CONNECTOR. 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 harness connector and chassis ground. Connector & terminal (E22) No. 3 (+) — Chassis ground (-):	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between rear oxygen sensor and ECM connector Poor contact in rear oxygen sensor connector Poor contact in ECM connector
7	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 • Looseness and improper fitting of parts 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<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>

AJ:DTC P0171 SYSTEM TOO LEAN (BANK 1)
Refer to DTC P0172 for diagnostic procedure. <Ref. to EN(H4SO)(diag)-151, DTC P0172 SYSTEM TOO RICH (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

ENGINE (DIAGNOSTICS)

AK:DTC P0172 SYSTEM TOO RICH (BANK 1)

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-81, DTC P0172 SYSTEM TOO RICH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, 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 FIRE" signs near the working area. • Be careful not to spill fuel. Measure the fuel pressure. <ref. fuel="" inspection,="" me(h4so)-26,="" pressure.="" to=""> WARNING: Release fuel pressure before removing the fuel pressure gauge.</ref.>		Go to step 4.	Repair the following item. Fuel pressure is too high:
4	CHECK ENGINE COOLANT TEMPERATURE SENSOR. 1) Start the engine and warm-up completely. 2) Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Go to step 5.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-22,="" sensor.="" temperature="" to=""></ref.>

	Step	Check	Yes	No
5	CHECK THE MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR. 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the select lever in "N" or "P" position. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Read the data of mass air flow and intake air temperature sensor signal using Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""></ref.>	Is the measured value 2.1 — 3.4 g/s (0.28 — 0.45 lb/m)?	Go to step 6.	Replace the mass air flow and intake air temperature sensor. <ref. to<br="">FU(H4SO)-28, Mass Air Flow and Intake Air Temper- ature Sensor.></ref.>
6	CHECK THE MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR. 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the shift lever in neutral position. 3) Turn the A/C switch to OFF. 4) Turn all the accessory switches to OFF. 5) Open the front hood. 6) Measure the ambient temperature. 7) Read the data of mass air flow and intake air temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>	Check the mass air flow and intake air temperature sensor. <ref. air="" and="" flow="" fu(h4so)-28,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>

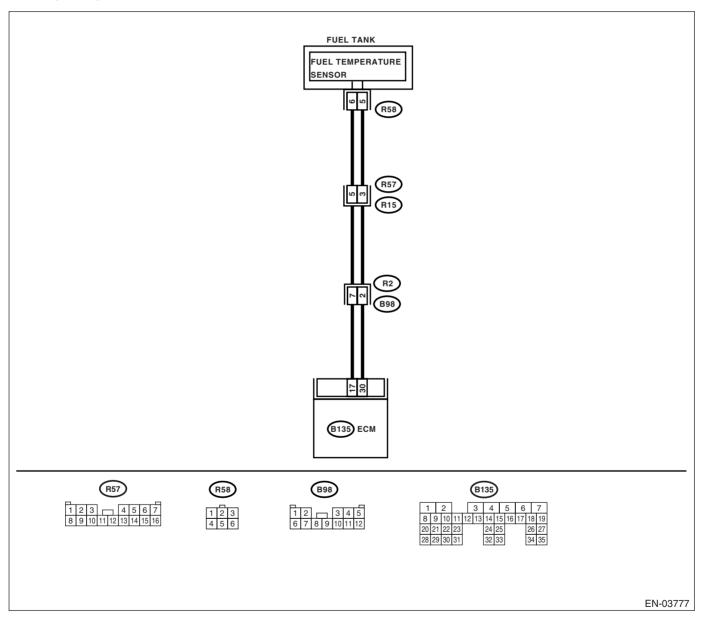
AL:DTC P0181 FUEL TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFOR-MANCE

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-83, DTC P0181 FUEL TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Replace the fuel temperature sen- sor. <ref. to<br="">EC(H4SO)-9, Fuel Temperature Sen- sor.></ref.>
			NOTE: In this case, it is not necessary to inspect DTC P0181.	

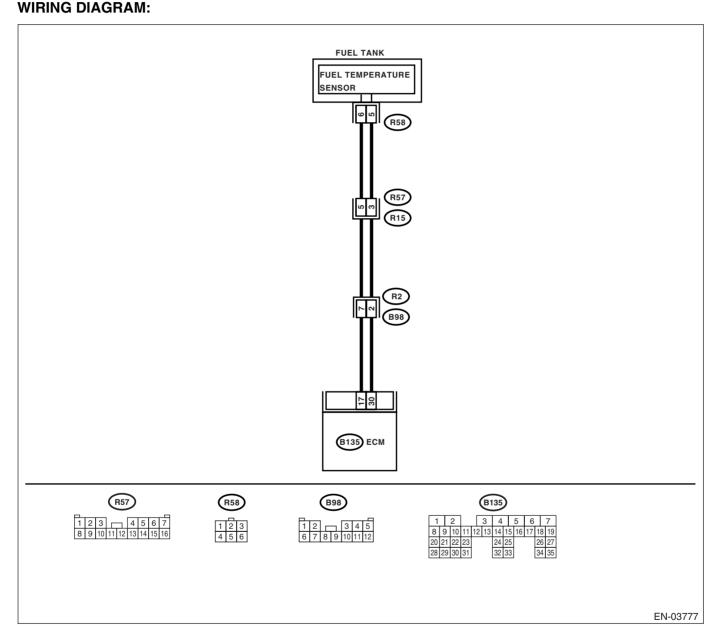
ENGINE (DIAGNOSTICS)

AM:DTC P0182 FUEL TEMPERATURE SENSOR "A" CIRCUIT LOW INPUT DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-86, DTC P0182 FUEL TEMPERATURE SENSOR "A" CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of fuel temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the fuel temperature above 150°C (302°F)?	Go to step 2.	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time.
2	CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Remove the access hole lid. 3) Disconnect the connector from fuel pump. 4) Turn the ignition switch to ON. 5) Read the data of fuel temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	Is the fuel temperature less than –40°C (–40°F)?	Replace the fuel temperature sen- sor. <ref. to<br="">EC(H4SO)-9, Fuel Temperature Sen- sor.></ref.>	Repair ground short circuit of harness between fuel pump and ECM connector.

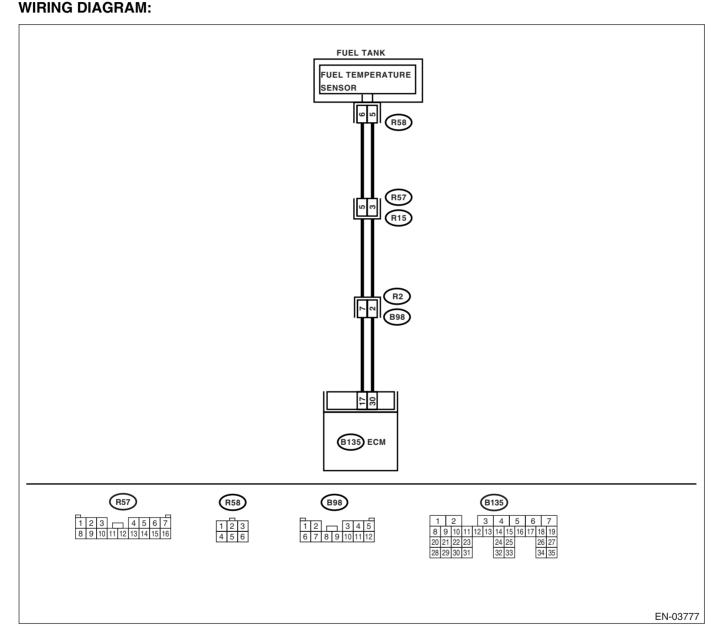
ENGINE (DIAGNOSTICS)

AN:DTC P0183 FUEL TEMPERATURE SENSOR "A" CIRCUIT HIGH INPUT DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-88, DTC P0183 FUEL TEMPERATURE SENSOR "A" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the fuel temperature less	Go to step 2.	Repair the poor
	1) Start the engine.	than -40°C (-40°F)?		contact.
	2) Read the data of fuel temperature sensor	, , ,		NOTE:
	signal using Subaru Select Monitor or general			In this case, repair
	scan tool.			the following item:
	NOTE:			Poor contact
	Subaru Select Monitor			in fuel pump
	For detailed operation procedures, refer to			connector
	"READ CURRENT DATA FOR ENGINE". < Ref.			 Poor contact
	to EN(H4SO)(diag)-26, Subaru Select Moni-			in ECM connec-
	tor.>			tor
	General scan tool			 Poor contact
	For detailed operation procedures, refer to the			in coupling con-
	"General Scan Tool Instruction Manual".			nector
				 Poor contact
				in joint connec-
				tor
2	CHECK HARNESS BETWEEN FUEL TEM-	Is the voltage more than 10 V?	Repair battery	Go to step 3.
	PERATURE SENSOR AND ECM CONNEC-		short circuit of har-	
	TOR.		ness between	
	 Turn the ignition switch to OFF. 		ECM and fuel	
	Remove the access hole lid.		pump connector.	
	Disconnect the connector from fuel pump.			
	4) Measure the voltage between fuel pump			
	connector and chassis ground.			
	Connector & terminal			
	(R58) No. 6 (+) — Chassis ground (–):			_
3	CHECK HARNESS BETWEEN FUEL TEM-	Is the voltage more than 10 V?	Repair battery	Go to step 4.
	PERATURE SENSOR AND ECM CONNEC-		short circuit of har-	
	TOR.		ness between	
	1) Turn the ignition switch to ON.		ECM and fuel	
	Measure the voltage between fuel pump		pump connector.	
	connector and chassis ground. Connector & terminal			
	(R58) No. 6 (+) — Chassis ground (–):			
4	CHECK HARNESS BETWEEN FUEL TEM-	Is the voltage more than 4 V?	Go to step 5.	Repair the har-
-	PERATURE SENSOR AND ECM CONNEC-	is the voltage more than + v:	do to stop o .	ness and connec-
	TOR.			tor.
	Measure the voltage between fuel pump con-			NOTE:
	nector and chassis ground.			In this case, repair
	Connector & terminal			the following item:
	(R58) No. 6 (+) — Chassis ground (–):			Open circuit
	(· · · · · · · · · · · · · · · · · · ·			in harness be-
				tween ECM and
				fuel pump con-
				nector
				Poor contact
				in fuel pump
				connector
				 Poor contact
				in ECM connec-
				tor
				 Poor contact
				in coupling con-
				nector

Step	Check	Yes	No
5 CHECK HARNESS BETWEEN FUEL TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between fuel pump connector and ECM. Connector & terminal (R58) No. 5 — (B135) No. 30:	Is the resistance less than 1 Ω ?	Replace the fuel temperature sensor. <ref. ec(h4so)-9,="" fuel="" sensor.="" temperature="" to=""></ref.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and fuel pump connector • Poor contact in fuel pump connector • Poor contact in ECM connector • Poor contact in coupling connector • Poor contact in coupling connector • Poor contact in coupling connector • Poor contact in joint connector

AO:DTC P0196 ENGINE OIL TEMPERATURE SENSOR CIRCUIT RANGE/PER-FORMANCE

DTC DETECTING CONDITION:

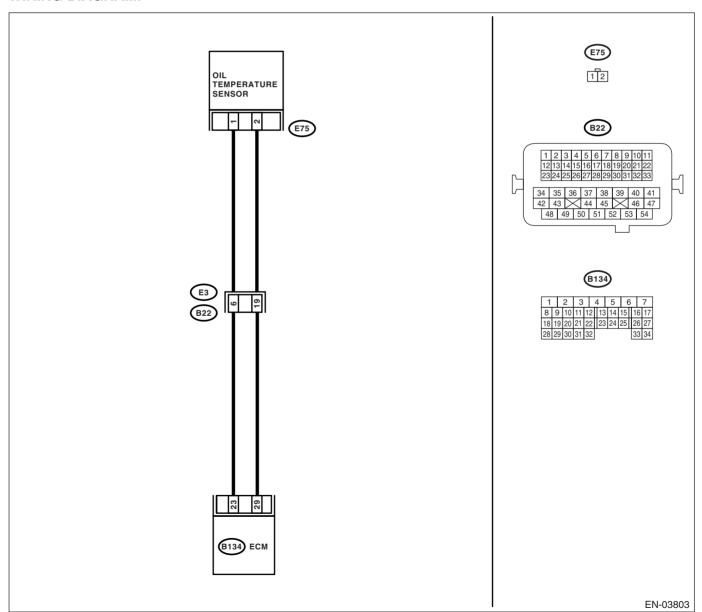
- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-90, DTC P0196 ENGINE OIL TEMPERATURE SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Hard to start
- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	"List of Diagnostic Trouble Code (DTC)". <ref. th="" to<=""><th>Replace the engine oil temperature sensor. <ref. fu(h4so)-35,="" oil="" sensor.="" temperature="" to=""></ref.></th></ref.>	Replace the engine oil temperature sensor. <ref. fu(h4so)-35,="" oil="" sensor.="" temperature="" to=""></ref.>
			NOTE: In this case, it is not necessary to inspect DTC P0196.	

AP:DTC P0197 ENGINE OIL TEMPERATURE SENSOR LOW

DTC DETECTING CONDITION:

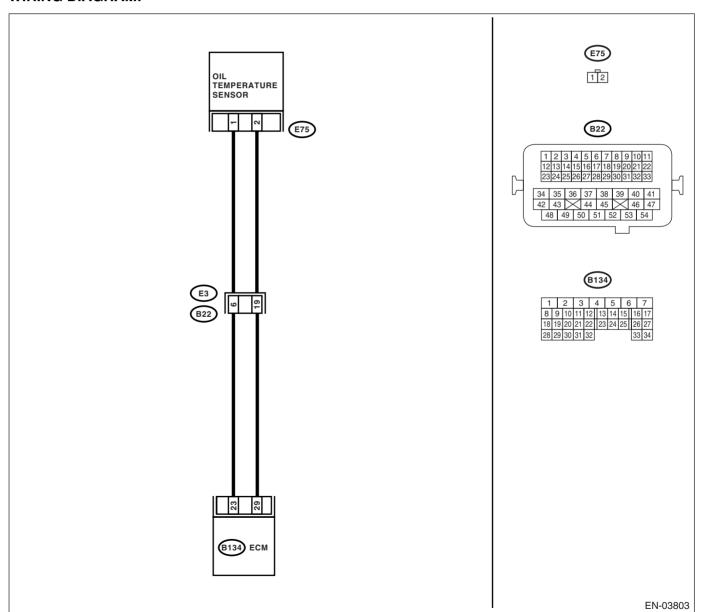
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-92, DTC P0197 ENGINE OIL TEMPERATURE SENSOR LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Hard to start
- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ENGINE OIL TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Disconnect the connector from ECM and engine oil temperature sensor. 2) Measure the resistance of harness between engine oil temperature sensor connector and engine ground. Connector & terminal (B134) No. 23 — Engine ground: (B134) No. 29 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 2.	Repair the ground short circuit between ECM and engine oil temper- ature sensor con- nector.
2	CHECK POOR CONTACT. Check poor contact of engine oil temperature sensor connector.	Is there poor contact in engine oil temperature sensor connector?		Replace the engine oil temper-ature sensor. <ref. fu(h4so)-35,="" oil="" sensor.="" temperature="" to=""></ref.>

ENGINE (DIAGNOSTICS)

AQ:DTC P0198 ENGINE OIL TEMPERATURE SENSOR HIGH DTC DETECTING CONDITION:

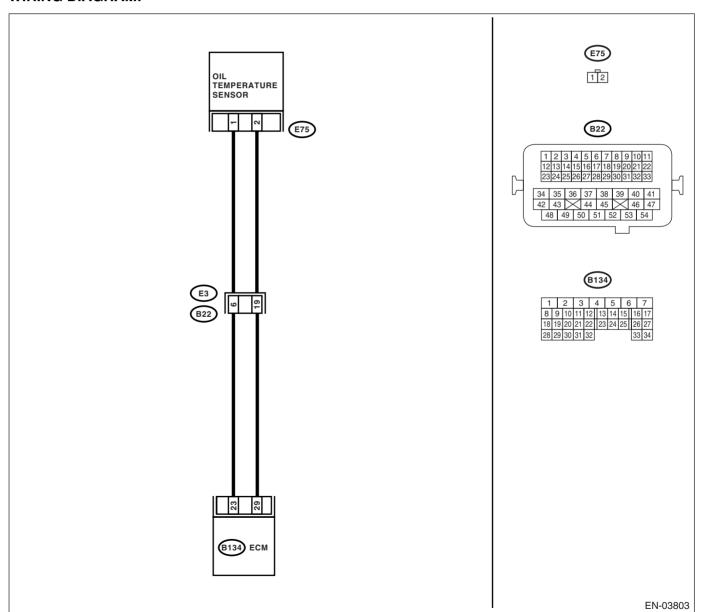
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-93, DTC P0198 ENGINE OIL TEMPERATURE SENSOR HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Hard to start
- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ENGINE OIL TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from engine oil temperature sensor. 3) Measure the voltage between the engine oil temperature sensor connector and engine ground. Connector & terminal (E75) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair battery short circuit of har- ness between ECM and engine oil temperature connector.	Go to step 2.
2	CHECK HARNESS BETWEEN ENGINE OIL TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between the engine oil temperature sensor connector and engine ground. Connector & terminal (E75) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair battery short circuit of har- ness between ECM and engine oil temperature connector.	Go to step 3.
3	CHECK HARNESS BETWEEN ENGINE OIL TEMPERATURE SENSOR AND ECM CONNECTOR. Measure the voltage between the engine oil temperature sensor connector and engine ground. Connector & terminal (E75) No. 2 (+) — Engine ground (-):	Is the voltage more than 4 V?	Go to step 4.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and engine oil temperature connector • Poor contact in engine oil temperature sensor connector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connector

	Step	Check	Yes	No
4	CHECK HARNESS BETWEEN ENGINE OIL	Is the resistance less than 5	Replace the	Repair the har-
	TEMPERATURE SENSOR AND ECM CON-	Ω?	engine oil temper-	ness and connec-
	NECTOR.		ature sensor.	tor.
	 Turn the ignition switch to OFF. 		<ref. td="" to<=""><td>NOTE:</td></ref.>	NOTE:
	Measure the resistance of harness		FU(H4SO)-35, Oil	In this case, repair
	between engine oil temperature sensor con-		Temperature Sen-	the following item:
	nector and engine ground.		sor.>	 Open circuit
	Connector & terminal			in harness be-
	(E75) No. 1 — Engine ground:			tween ECM and
				engine oil tem-
				perature con-
				nector
				 Poor contact
				in engine oil
				temperature
				sensor connec-
				tor
				 Poor contact
				in ECM connec-
				tor
				 Poor contact
				in coupling con-
				nector
				Poor contact
				in joint connec-
				tor

AR:DTC P0222 THROTTLE/PEDAL POSITION SENSOR/SWITCH "B" CIRCUIT LOW

DTC DETECTING CONDITION:

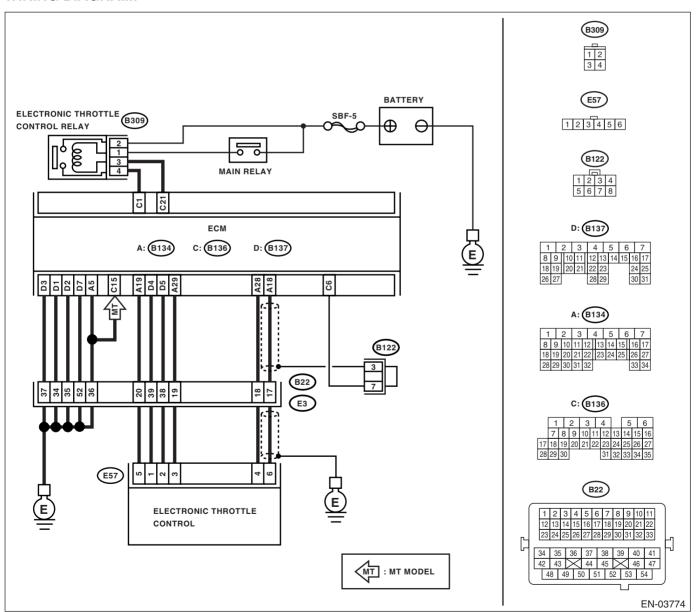
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-94, DTC P0222 THROTTLE/PEDAL POSITION SENSOR/SWITCH "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Erroneous idling
- Poor driving performance
- Engine stalls.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT. 1) Turn the ignition switch to ON. 2) Read the data of sub throttle sensor signal using Subaru Select Monitor.	Is the voltage more than 0.8 V?	Go to step 2.	Go to step 3.
2	CHECK POOR CONTACT. Check poor contact in connector between ECM and electronic throttle control.	Is there poor contact?	Repair the poor contact.	Temporary poor contact occurred, but it is normal at present.
3	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Disconnect the connectors from electronic throttle control. 4) Measure the resistance between ECM connector and electronic throttle control connector. Connector & terminal (B134) No. 28 — (E57) No. 4:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness connector.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. Measure the resistance between ECM connector and chassis ground. Connector & terminal (B134) No. 28 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the chassis short circuit of harness.
5	CHECK SENSOR POWER SUPPLY. 1) Connect the ECM connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 5 (+) — Engine ground (-):	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>
6	 CHECK SHORT CIRCUIT INSIDE THE ECM. 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 4 — Engine ground: 	Is the resistance more than 10Ω ?	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective.	Repair poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>

AS:DTC P0223 THROTTLE/PEDAL POSITION SENSOR/SWITCH "B" CIRCUIT HIGH

DTC DETECTING CONDITION:

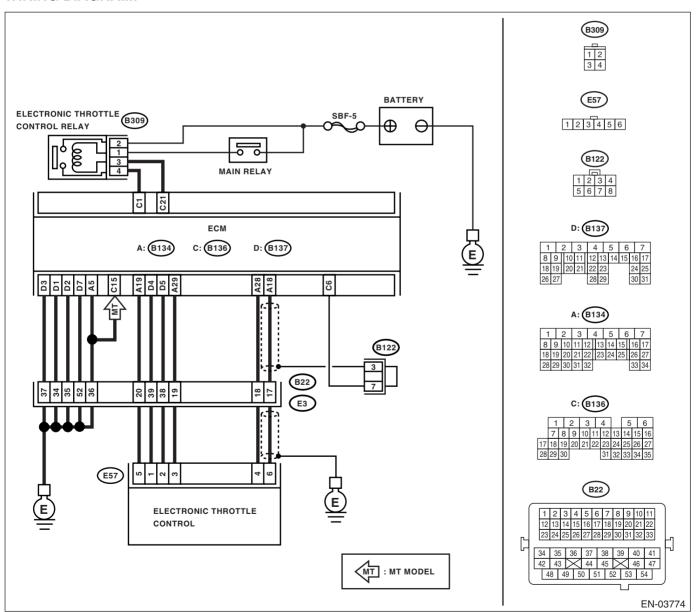
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-96, DTC P0223 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Erroneous idling
- Poor driving performance
- Engine stalls.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT.	Is the voltage less than 4.73	Go to step 2.	Go to step 3.
'	Turn the ignition switch to ON.	V?	do to step 2.	αο το step 3 .
	2) Read the data of sub throttle sensor signal	• .		
	using Subaru Select Monitor.			
2	CHECK POOR CONTACT.	Is there poor contact in con-	Repair the poor	Temporary poor
	Check poor contact in connector between	nector between ECM and elec-	contact.	contact occurred,
	ECM and electronic throttle control.	tronic throttle control?		but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 4.	Repair the open
	ELECTRONIC THROTTLE CONTROL.	Ω ?		circuit of harness
	 Turn the ignition switch to OFF. 			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B134) No. 28 — (E57) No. 4:			
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 5	Go to step 5.	Repair poor con-
	ELECTRONIC THROTTLE CONTROL.	Ω?		tact in ECM con-
	Connect the ECM connector.			nector. Replace
	2) Measure the resistance between electronic			the ECM if defec-
	throttle control connector and engine ground. Connector & terminal			tive. <ref. th="" to<=""></ref.>
				FU(H4SO)-40,
	(E57) No. 3 — Engine ground:			Engine Control Module (ECM).>
5	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 10 V?	Go to stop 6	Repair the battery
١	ELECTRONIC THROTTLE CONTROL.	is the voltage more than 10 v:	do to step o .	short circuit of har-
	Connect the ECM connector.			ness between
	Turn the ignition switch to ON.			ECM connector
	Measure the voltage between electronic			and electronic
	throttle control connector and engine ground.			throttle control
	Connector & terminal			connector.
	(E57) No. 5 (+) — Engine ground (–):			
6	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 7.	Repair the battery
	ELECTRONIC THROTTLE CONTROL.	-		short circuit of har-
	Measure the voltage between electronic throt-			ness between
	tle control connector and engine ground.			ECM connector
	Connector & terminal			and electronic
	(E57) No. 4 (+) — Engine ground (–):			throttle control
				connector.
7	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Repair the poor	Sensor power sup-
	ELECTRONIC THROTTLE CONTROL.	ΜΩ?	contact. Replace	ply circuit may be
	1) Turn the ignition switch to OFF.		the electronic	shorted.
	2) Disconnect the connectors from ECM.		throttle control.	
	3) Measure the resistance between connector			
	terminals.			
	Connector & terminal			
	(B134) No. 28 — (B134) No. 19:			

ENGINE (DIAGNOSTICS)

AT: DTC P0301 CYLINDER 1 MISFIRE DETECTED

NOTE

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4SO)(diag)-172, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AU:DTC P0302 CYLINDER 2 MISFIRE DETECTED

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4SO)(diag)-172, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AV:DTC P0303 CYLINDER 3 MISFIRE DETECTED

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4SO)(diag)-172, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

ENGINE (DIAGNOSTICS)

AW:DTC P0304 CYLINDER 4 MISFIRE DETECTED

DTC DETECTING CONDITION:

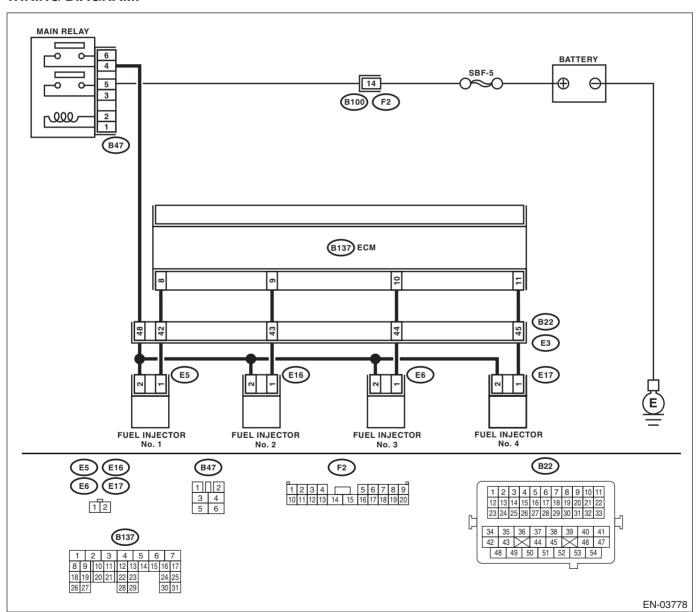
- Two consecutive driving cycles with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-103, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- · Erroneous idling
- · Rough driving

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using	Go to step 2.
			"List of Diagnostic	
			Trouble Code	
			(DTC)". <ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			65, List of Diag- nostic Trouble	
			Code (DTC).>	
			NOTE:	
			In this case, it is	
			not necessary to	
			inspect DTC	
			P0301, P0302,	
2	CHECK OUTPUT SIGNAL OF ECM.	le the veltage more than 10 1/2	P0303 and P0304.	Co to oton 2
2	Turn the ignition switch to ON.	Is the voltage more than 10 V?	Go to step 7.	Go to step 3.
	Measure the voltage between ECM con-			
	nector and chassis ground on faulty cylinders.			
	Connector & terminal			
	#1 (B137) No. 8 (+) — Chassis ground (-):			
	#2 (B137) No. 9 (+) — Chassis ground (-):			
	#3 (B137) No. 10 (+) — Chassis ground (-):			
3	#4 (B137) No. 11 (+) — Chassis ground (-): CHECK HARNESS BETWEEN FUEL INJEC-	Is the resistance more than 1	Go to step 4.	Repair the ground
	TOR AND ECM CONNECTOR.	$M\Omega$?	Go to step 4.	short circuit of har-
	Turn the ignition switch to OFF.			ness between fuel
	2) Disconnect the connector from fuel injector			injector and ECM
	on faulty cylinders.			connector.
	3) Measure the resistance between ECM con-			
	nector 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:			
4		Is the resistance less than 1	Go to step 5.	Repair the har-
		Ω?		ness and connec-
	Measure the resistance of harness connector between ECM connector and fuel injector on			tor.
	faulty cylinders.			NOTE: In this case, repair
	Connector & terminal			the following item:
	#1 (B137) No. 8 — (E5) No. 1:			Open circuit
	#2 (B137) No. 9 — (E16) No. 1:			in harness be-
	#3 (B137) No. 10 — (E6) No. 1:			tween ECM and
	#4 (B137) No. 11 — (E17) No. 1:			fuel injector
				connector
				 Poor contact in coupling con-
				nector
5	CHECK FUEL INJECTOR.	Is the resistance between 5	Go to step 6.	Replace the faulty
	Measure the resistance between fuel injector	and 20 Ω ?	•	fuel injector. <ref.< th=""></ref.<>
	terminals on faulty cylinder.			to FU(H4SO)-30,
	Terminals			Fuel Injector.>
	No. 1 — No. 2:			

	Step	Check	Yes	No
6	Step 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 (-):	Check Is the voltage more than 10 V?	Repair the poor contact of all connectors in fuel injector circuit.	No Repair the harness and connector. NOTE: In this case, repair the following item:
7	CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM 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 connector and chassis ground on faulty cylinders. Connector & terminal #1 (B137) No. 8 (+) — Chassis ground (-): #2 (B137) No. 10 (+) — Chassis ground (-): #4 (B137) No. 11 (+) — Chassis ground (-):		Repair the battery short circuit of harness between ECM and fuel injector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Go to step 8.
8	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 less than 1 Ω ?	Replace the faulty fuel injector <ref. to FU(H4SO)-30, Fuel Injector.> and ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.></ref. 	Go to step 9.
9	CHECK INSTALLATION OF CAMSHAFT PO- SITION SENSOR/CRANKSHAFT POSITION SENSOR.	Is the camshaft position sensor or crankshaft position sensor loosely installed?	Tighten the cam- shaft position sen- sor or crankshaft position sensor.	Go to step 10.
10	CHECK CRANK SPROCKET. Remove the timing belt cover.	Is the crank sprocket rusted or does it have broken teeth?	•	Go to step 11.
11	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn the crankshaft using ST, and align the alignment mark on crank sprocket with alignment mark on cylinder block. ST 499987500 CRANKSHAFT SOCKET	Is the timing belt dislocated from its proper position?	Repair the installation condition of timing belt. <ref. belt.="" me(h4so)-41,="" timing="" to=""></ref.>	Go to step 12.

	Step	Check	Yes	No
12	CHECK FUEL LEVEL.	Is the fuel meter indication higher than the "Lower" level?	Go to step 13.	Replenish fuel so fuel meter indica- tion is higher than the "Lower" level. After filling fuel, Go to step 13.
13	CHECK STATUS OF MALFUNCTION INDI- CATOR LIGHT. 1) Clear the memory using Subaru Select Monitor. <ref. clear<br="" en(h4so)(diag)-43,="" to="">Memory Mode.> 2) Start the engine, and drive the vehicle more than 10 minutes.</ref.>	Does the malfunction indicator light illuminate or blink?	Go to step 16.	Go to step 14.
14	CHECK CAUSE OF MISFIRE.	Was the cause of misfire identified when the engine is running? Ex. Disconnection of spark plug cord.	Finish diagnostics operation, if the engine has no abnormality.	Go to step 15.
15	CHECK POOR CONTACT.	Is there poor contact in the ignition coil, fuel injector, ECM and coupling connector?	Repair the poor contact.	Contact your SOA Service Center after checking fol- lowings. NOTE: In this case, check the following: • Condition of fuel • Fuel additive used or not • Visually check spark plug • Visually check spark plug • Visually check spark plug • Condition of engine oil
16	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 17.

	Step	Check	Yes	No
17	CHECK MISFIRE SYMPTOM. 1) Turn the ignition switch to ON.	Does the Subaru Select Monitor or general scan tool display only one DTC?	Go to step 22.	Go to step 18.
	2) Read the DTC.NOTE:Subaru Select Monitor	lonly one DTC?		
	For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Monitor.> • General scan tool			
	For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".			
18	CHECK DTC ON DISPLAY.	Are DTC P0301 and P0302 displayed?	Go to step 23.	Go to step 19.
19	CHECK DTC ON DISPLAY.	Are DTC P0303 and P0304 displayed?	Go to step 24.	Go to step 20.
20	CHECK DTC ON DISPLAY.	Are DTC P0301 and P0303 displayed?	Go to step 25.	Go to step 21.
21	CHECK DTC ON DISPLAY.	Are DTC P0302 and P0304 displayed?	Go to step 26.	Go to step 27.
22	ONLY ONE CYLINDER	Is there any fault in the cylinder?	Repair or replace faulty parts. NOTE:	Go to DTC P0171. <ref. to<br="">EN(H4SO)(diag)-</ref.>
			Check the following items.	150, DTC P0171 SYSTEM TOO
			Spark plug	LEAN (BANK 1), Diagnostic Proce-
			cord	dure with Diagnos-
			Fuel injectorCompression ratio	tic Trouble Code (DTC).>
23	GROUP OF #1 AND #2 CYLINDERS	Are there any faults in #1 and #2 cylinders?	Repair or replace faulty parts. NOTE:	Go to DTC P0171. <ref. to<br="">EN(H4SO)(diag)-</ref.>
			 Check the following items. 	150, DTC P0171 SYSTEM TOO
			Spark plugFuel injec-	LEAN (BANK 1), Diagnostic Proce-
			tor • Ignition	dure with Diagnos- tic Trouble Code
			coil	(DTC).>
			 Compression ratio 	
			 If any fault are not found, 	
			check the "IG-	
			NITION CON- TROL	
			SYSTEM" of #1 and #2 cylin-	
			ders side. <ref.< td=""><td></td></ref.<>	
			to EN(H4SO)(di-	
			ag)-57, IGNI- TION	
			CONTROL SYSTEM, Diag-	
			nostics for Engine Starting	
			Failure.>	

	Step	Check	Yes	No
24	GROUP OF #3 AND #4 CYLINDERS	Are there any faults in #3 and #4 cylinders?	lowing items. • Spark plug	
25	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 • Fuel injector • Skipping timing belt teeth	SYSTEM TOO LEAN (BANK 1), Diagnostic Proce-
26	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 • Fuel injector • Compression ratio • Skipping timing belt teeth	Go to DTC P0171. <ref. (bank="" 1),="" 150,="" code<="" diagnostic="" dtc="" en(h4so)(diag)-="" lean="" p0171="" procedure="" system="" th="" to="" too="" trouble="" with=""></ref.>
27	CYLINDER AT RANDOM	Is the engine idle rough?	Go to DTC P0171. <ref. (bank="" (dtc).="" 1),="" 150,="" code="" diagnostic="" dtc="" en(h4so)(diag)-="" lean="" p0171="" procedure="" system="" to="" too="" trouble="" with=""></ref.>	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Fuel injector • Compression ratio

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

DTC DETECTING CONDITION:

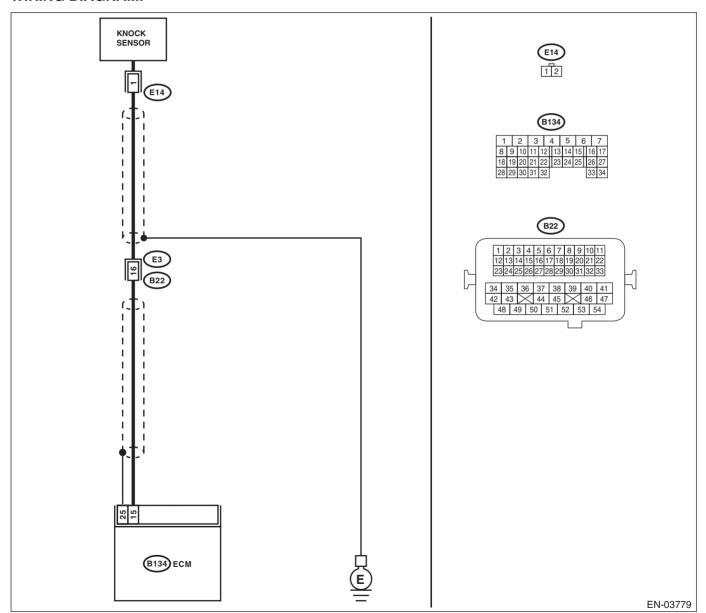
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-104, DTC P0327 KNOCK SENSOR 1 CIRCUIT LOW (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Poor driving performance
- · Knocking occurs.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance between ECM harness connector and chassis ground. Connector & terminal (B134) No. 15 — Chassis ground:	Is the resistance more than 700 k Ω ?	Go to step 2.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between knock sensor and ECM connector • Poor contact in knock sensor connector • Poor contact in coupling connector
2	 CHECK KNOCK SENSOR. 1) Disconnect the connector from knock sensor. 2) Measure the resistance between knock sensor connector terminal and engine ground. Terminals No. 1 — Engine ground: 	Is the resistance more than 700 k Ω ?	Go to step 3.	Repair the har- ness and connec- tor. NOTE: In this case, repair the following item: • Poor contact in knock sensor connector
3	CHECK INSTALLATION CONDITION OF KNOCK SENSOR	Is the knock sensor installation bolt tightened securely?	Replace the knock sensor. <ref. to<br="">FU(H4SO)-25, Knock Sensor.></ref.>	Tighten the knock sensor installation bolt securely.

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

DTC DETECTING CONDITION:

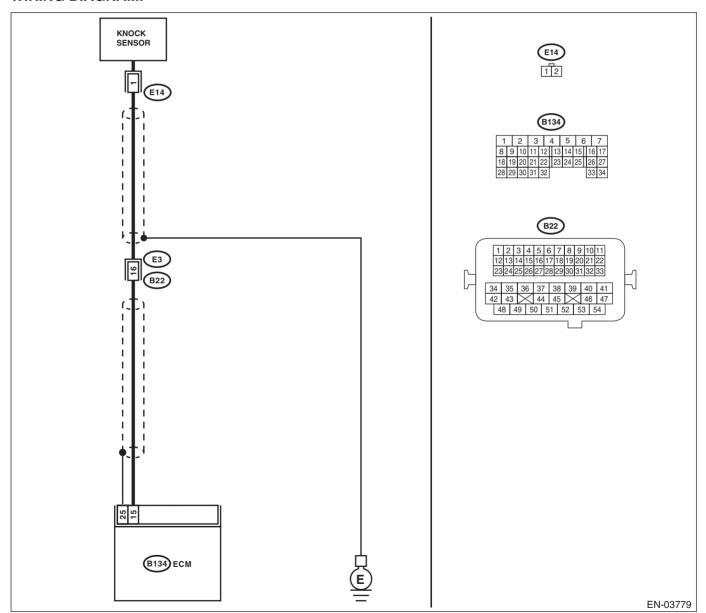
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-106, DTC P0328 KNOCK SENSOR 1 CIRCUIT HIGH (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Poor driving performance
- · Knocking occurs.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



_	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN KNOCK SEN- SOR AND ECM CONNECTOR. Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 15 — Chassis ground:	Is the resistance less than 400 k Ω ?	Go to step 2.	Go to step 3.
2	CHECK KNOCK SENSOR. 1) Disconnect the connector from knock sensor. 2) Measure the resistance between knock sensor connector terminal and engine ground. Terminals No. 1 — Engine ground:	Is the resistance less than 400 kΩ?	Replace the knock sensor. <ref. to<br="">FU(H4SO)-25, Knock Sensor.></ref.>	short circuit of harness between knock sensor connector and ECM connector. NOTE: The harness between both connectors is shielded. Repair the short circuit of harness covered with shield.
3	CHECK INPUT SIGNAL OF ECM. 1) Connect the connectors to ECM and knock sensor. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM and chassis ground. Connector & terminal (B134) No. 15 (+) — Chassis ground (-):	Is the voltage more than 2 V?	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time. (How- ever, the possibility of poor contact still remains.) NOTE: In this case, repair the following item: • Poor contact in knock sensor connector • Poor contact in ECM connec- tor • Poor contact in coupling con- nector	

AZ:DTC P0335 CRANKSHAFT POSITION SENSOR "A" CIRCUIT DTC DETECTING CONDITION:

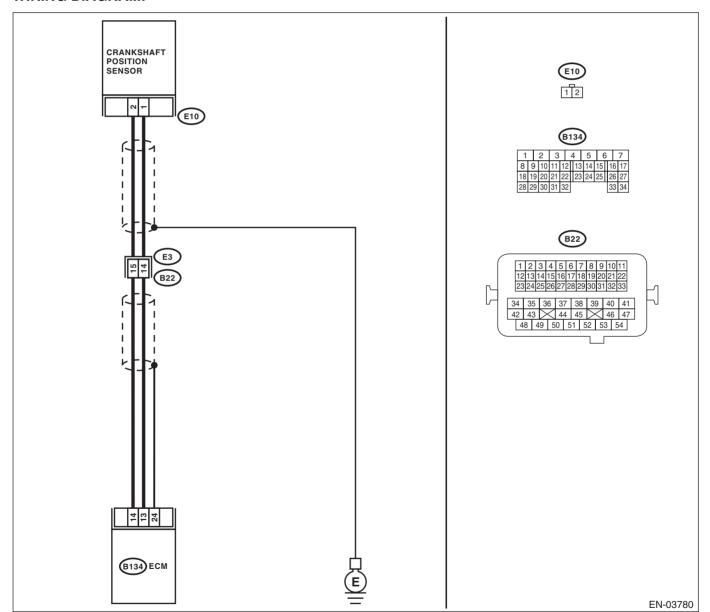
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-108, DTC P0335 CRANKSHAFT POSITION SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- · Failure of engine to start

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN CRANK-SHAFT POSITION SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from crankshaft position sensor. 3) Measure the resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 1 — Engine ground:	Is the resistance more than 100 k Ω ?	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between crankshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector	Go to step 2.
2	CHECK HARNESS BETWEEN CRANK-SHAFT POSITION SENSOR AND ECM CONNECTOR. Measure the resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 1 — Engine ground:	Is the resistance less than 10 Ω ?	Repair the ground short circuit of harness between crankshaft position sensor and ECM connector. NOTE: The harness between both connectors is shielded. Repair the ground short circuit of harness with shield.	Go to step 3.
3	CHECK HARNESS BETWEEN CRANK-SHAFT POSITION SENSOR AND ECM CONNECTOR. Measure the resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 2 — Engine ground:	Is the 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 crankshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector
4	CHECK CONDITION OF CRANKSHAFT PO- SITION SENSOR.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step 5.	Tighten the crank- shaft position sen- sor installation bolt securely.
5	 CHECK CRANKSHAFT POSITION SENSOR. 1) Remove the crankshaft position sensor. 2) Measure the resistance between connector terminals of crankshaft position sensor. Terminals No. 1 — No. 2: 	Is the resistance between 1 and 4 $\ensuremath{\mathrm{k}\Omega}\xspace?$	Repair the poor contact of crank-shaft position sensor connector.	Replace the crank- shaft position sen- sor. <ref. to<br="">FU(H4SO)-23, Crankshaft Posi- tion Sensor.></ref.>

BA:DTC P0336 CRANKSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PER-FORMANCE

DTC DETECTING CONDITION:

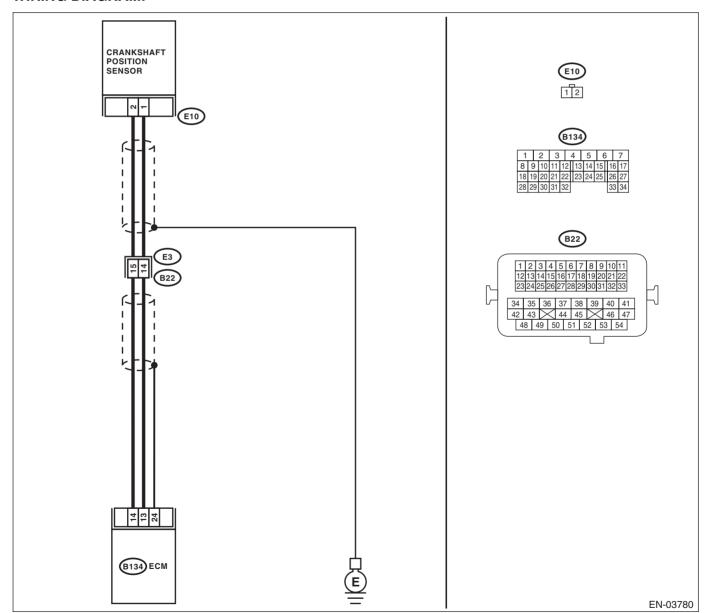
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-110, DTC P0336 CRANKSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- · Failure of engine to start

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK CONDITION OF CRANKSHAFT PO- SITION SENSOR. Turn the ignition switch to OFF.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step 3.	Tighten the crank- shaft position sen- sor installation bolt securely.
3	CHECK CRANK SPROCKET. Remove the timing belt cover.	Are crank sprocket teeth cracked or damaged?	Replace the crank sprocket. <ref. to<br="">ME(H4SO)-47, Crank Sprocket.></ref.>	Go to step 4.
4	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn the crankshaft using ST, and align the alignment mark on crank sprocket with alignment mark on cylinder block. ST 499987500 CRANKSHAFT SOCKET	Is the timing belt dislocated from its proper position?	Repair the installation condition of timing belt. <ref. belt.="" me(h4so)-41,="" timing="" to=""></ref.>	Replace the crank- shaft position sen- sor. <ref. to<br="">FU(H4SO)-23, Crankshaft Posi- tion Sensor.></ref.>

BB:DTC P0340 CAMSHAFT POSITION SENSOR "A" CIRCUIT (BANK 1 OR SINGLE SENSOR)

DTC DETECTING CONDITION:

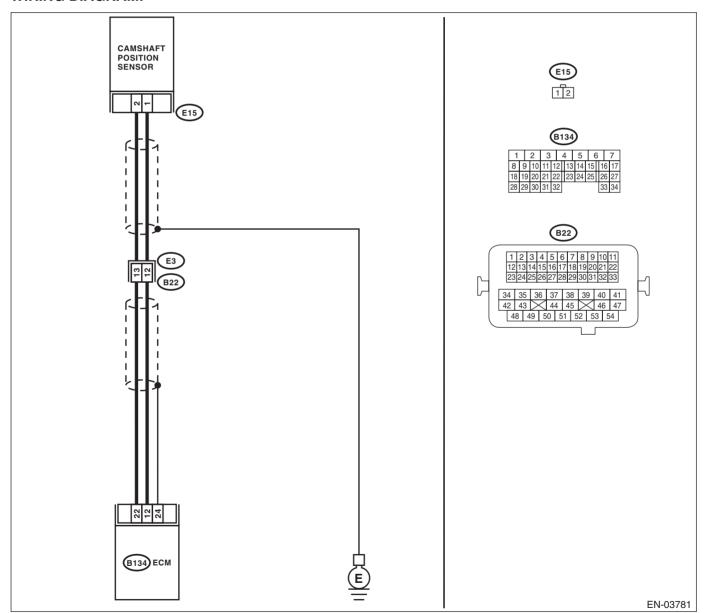
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-112, DTC P0340 CAMSHAFT POSITION SENSOR "A" CIRCUIT (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- · Failure of engine to start

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from camshaft position sensor. 3) Measure the resistance of harness between camshaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance more than 100 k Ω ?	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector	Go to step 2.
2	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR. Measure the resistance of harness between camshaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance less than 10 Ω ?	Repair the ground short circuit of harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors is shielded. Repair the ground short circuit of harness with shield.	Go to step 3.
3	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR. Measure the resistance of harness between camshaft position sensor connector and engine ground. Connector & terminal (E15) No. 2 — Engine ground:	Is the 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 camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connector
4	CHECK CONDITION OF CAMSHAFT POSITION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 5.	Tighten the cam- shaft position sen- sor installation bolt securely.
5	CHECK CAMSHAFT POSITION SENSOR. 1) Remove the camshaft position sensor. 2) Measure the resistance between connector terminals of camshaft position sensor. Terminals No. 1 — No. 2:	Is the resistance between 1 and 4 k Ω ?	Repair the poor contact of camshaft position sensor connector.	Replace the cam- shaft position sen- sor. <ref. to<br="">FU(H4SO)-24, Camshaft Position Sensor.></ref.>

BC:DTC P0341 CAMSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFOR-MANCE (BANK 1 OR SINGLE SENSOR)

DTC DETECTING CONDITION:

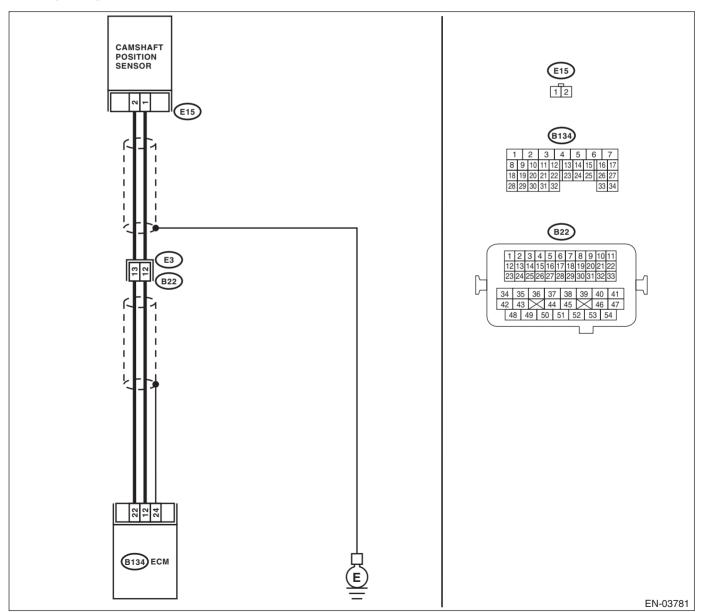
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-114, DTC P0341 CAMSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Engine stalls.
- Failure of engine to start

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step Check	Yes No
1 CHECK ANY OTHER DTC ON DISPLAY. Is any other DTC display	
	"List of Diagnostic
	Trouble Code
	(DTC)". <ref. th="" to<=""></ref.>
	EN(H4SO)(diag)-
	65, List of Diag-
	nostic Trouble
	Code (DTC).>
2 CHECK HARNESS BETWEEN CAMSHAFT Is the resistance more the	han Repair the har- Go to step 3.
POSITION SENSOR AND ECM CONNEC- 100 kΩ?	ness and connec-
TOR.	tor.
Turn the ignition switch to OFF.	NOTE:
Disconnect the connector from camshaft	In this case, repair
position sensor.	the following item:
Measure the resistance of harness	Open circuit
between camshaft position sensor connector	in harness be-
and engine ground.	tween cam-
Connector & terminal	shaft position
(E15) No. 1 — Engine ground:	sensor and
	ECM connector
	Poor contact
	in ECM connec-
	tor
	Poor contact
	in coupling con-
	nector
3 CHECK HARNESS BETWEEN CAMSHAFT Is the resistance less that	
POSITION SENSOR AND ECM CONNEC- Ω ?	short circuit of har-
TOR.	ness between
Measure the resistance of harness between	camshaft position
camshaft position sensor connector and	sensor and ECM
engine ground.	connector.
Connector & terminal	NOTE:
(E15) No. 1 — Engine ground:	The harness be-
	tween both con-
	nectors is
	shielded. Repair
	the ground short
	circuit of harness
A OUTOK HADNICO DETWEEN CANOHAET Hadra was to the	with shield.
4 CHECK HARNESS BETWEEN CAMSHAFT Is the resistance less the	
POSITION SENSOR AND ECM CONNECTOR. Ω ?	ness and connec-
	tor.
Measure the resistance of harness between	NOTE:
camshaft position sensor connector and engine ground.	In this case, repair
Connector & terminal	the following item: • Open circuit
(E15) No. 2 — Engine ground:	• Open circuit in harness be-
(E10) No. 2 Engine ground.	tween cam-
	shaft position
	snan position sensor and
	ECM connector
	Poor contact
	in ECM connec-
	tor
	• Poor contact
	in coupling con-

	Step	Check	Yes	No
5	CHECK CONDITION OF CAMSHAFT POSITION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 6.	Tighten the cam- shaft position sen- sor installation bolt securely.
6	CHECK CAMSHAFT POSITION SENSOR. 1) Remove the camshaft position sensor. 2) Measure the resistance between connector terminals of camshaft position sensor. Terminals No. 1 — No. 2:	Is the resistance between 1 and 4 k Ω ?	Go to step 7.	Replace the cam- shaft position sen- sor. <ref. to<br="">FU(H4SO)-24, Camshaft Position Sensor.></ref.>
7	CHECK CONDITION OF CAMSHAFT POSITION SENSOR. Turn the ignition switch to OFF.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 8.	Tighten the cam- shaft position sen- sor installation bolt securely.
8	CHECK CAM SPROCKET. Remove the timing belt cover. <ref. belt="" cover.="" me(h4so)-40,="" timing="" to=""></ref.>	Are cam sprocket teeth cracked or damaged?	Replace the cam sprocket. <ref. to<br="">ME(H4SO)-46, Cam Sprocket.></ref.>	Go to step 9.
9	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn the crankshaft using ST, and align alignment mark on cam sprocket with alignment mark on timing belt cover LH. ST 499987500 CRANKSHAFT SOCKET	Is the timing belt dislocated from its proper position?	Repair the installation condition of timing belt. <ref. belt.="" me(h4so)-41,="" timing="" to=""></ref.>	Replace the cam- shaft position sen- sor. <ref. to<br="">FU(H4SO)-24, Camshaft Position Sensor.></ref.>

BD:DTC P0400 EXHAUST GAS RECIRCULATION FLOW

DTC DETECTING CONDITION:

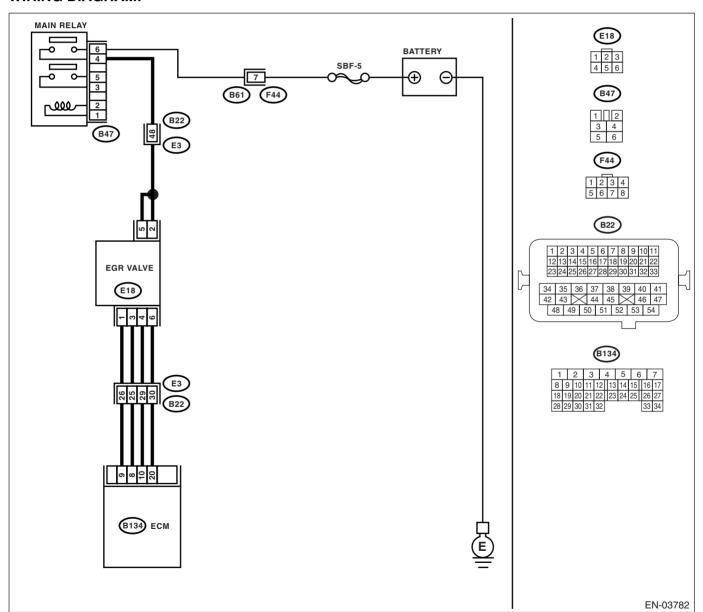
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-116, DTC P0400 EXHAUST GAS RECIRCULATION FLOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Movement performance problem when engine is low speed.
- Erroneous idling
- Movement performance problem

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	1) Start the engine. 2) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Make sure that the EGR valve, manifold absolute pressure sensor and throttle body are installed securely.	Go to step 3.
3	CHECK POWER SUPPLY OF EGR SOLE-NOID VALVE. 1) Disconnect the connector from EGR sole-noid valve. 2) Turn the ignition switch to ON. 3) Measure the voltage between EGR sole-noid valve and engine ground. Connector & terminal: (E18) No. 2 — Engine ground: (E18) No. 5 — Engine ground:	Is the voltage more than 10 V?	Go to step 4.	Repair the open circuit of harness between main relay and EGR solenoid valve connector.
4	CHECK EGR SOLENOID VALVE. Measure the resistance between EGR solenoid valve terminals. NOTE: Make sure there is no foreign material between EGR solenoid valve and valve seat. Terminals No. 1 — No. 2: No. 3 — No. 2: No. 4 — No. 5: No. 6 — No. 5:	Is the resistance between 20 and 30 Ω ?	Go to step 5.	Replace the EGR valve. <ref. to<br="">FU(H4SO)-29, EGR Valve.></ref.>
5	OUTPUT SIGNAL FROM ECM 1) Turn the ignition switch to OFF. 2) Connect the connector to ECM and EGR solenoid valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground. Connector & terminal: (B134) No. 10 (+) — Chassis ground (-): (B134) No. 9 (+) — Chassis ground (-): (B134) No. 8 (+) — Chassis ground (-): (B134) No. 20 (+) — Chassis ground (-):	Is the voltage 0 — 10 V?	Repair the poor contact portion of ECM connector.	Go to step 6.

	Step	Check	Yes	No
6	 Turn the ignition switch to OFF. Disconnect the connector from EGR solenoid valve and ECM. Measure the resistance of harness between EGR solenoid valve and ECM connector. Connector & terminal: (B134) No. 10 — (E18) No. 4: (B134) No. 9 — (E18) No. 1: (B134) No. 8 — (E18) No. 3: (B134) No. 20 — (E18) No. 6: 	Is the resistance less than 1 Ω ?	Go to step 7.	Repair the open circuit of harness between ECM and EGR solenoid valve connector.
7	CHECK HARNESS BETWEEN EGR SOLE-NOID VALVE AND ECM CONNECTOR. Measure the resistance of harness between EGR solenoid valve and chassis ground. Connector & terminal: (B134) No. 10 — Chassis ground: (B134) No. 9 — Chassis ground: (B134) No. 8 — Chassis ground: (B134) No. 20 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 8.	Repair the short circuit of harness between main relay and EGR solenoid valve connector.
8	CHECK POOR CONTACT. Check poor contact of ECM and EGR solenoid valve connectors.	Is there poor contact in ECM and EGR solenoid valve connectors?	Repair the poor contact of ECM and EGR solenoid valve connectors.	Even if the mal- function indicator light illuminates, the circuit has returned to the specified condi- tion at this time.

BE:DTC P0420 CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 1) DTC DETECTING CONDITION:

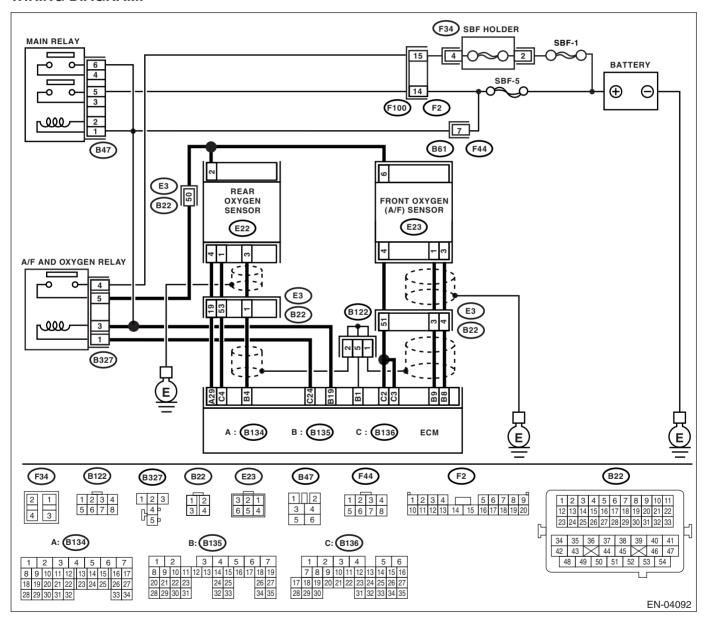
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-120, DTC P0420 CATALYST SYSTEM EFFICIENCY BE-LOW THRESHOLD (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1 CHECK ANY	OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0420.</ref.>	
Check for gas loose or dislot hole at exhaut NOTE: Check the folt Between of pipe Between from ic converter Between for catalytic converter Loose part	llowing positions. cylinder head and front exhaust ont exhaust pipe and front catalytront catalytic converter and rear		Repair or replace the exhaust sys- tem. <ref. to<br="">EX(H4SO)-2, Gen- eral Description.></ref.>	Go to step 3.
3 CHECK WAY SELECT MO 1) Drive the — 113 km/h 2) Keep the then read the	VEFORM DATA ON SUBARU NITOR (WHILE DRIVING). vehicle at a constant speed of 80 (50 — 70 MPH). condition of step 1) for 5 minutes, a waveform data in a driving condibaru Select Monitor.	Is normal waveform pattern displayed?	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.	Go to step 4.
A/F Sensor#1				
Rear O2 Sensor				
TIME(=)	EN-04680			

	Cton	Charle	Voc	N-
<u> </u>	Step Step Step Step Step Step Step Step	Check	Yes	No
4	CHECK WAVEFORM DATA ON SUBARU	Is normal waveform pattern	Go to step 10.	Go to step 5.
	SELECT MONITOR (WHILE IDLING).	displayed?		
	1) Idle the engine.			
	2) Under the condition of step 1), read the			
	waveform data using Subaru Select Monitor.			
	1			
	Rear 02			
	Sensor			
	TIME[S] 0 10 20 30 40			
	1 : : :			
	Rear 02			
	Sensor			
	TIME[S] Ø 1Ø 2Ø 3Ø 4Ø			
	EN-04681			
5	CHECK REAR OXYGEN SENSOR VOLT-	Is the voltage more than 490	Go to step 9.	Go to step 6.
	AGE.	mV?	·	•
	1) Warm-up the engine until engine coolant			
	temperature is above 70°C (158°F), and keep			
	the engine speed at 3,000 rpm. (Max. 2 min-			
	utes)			
	2) Read the voltage of rear oxygen sensor			
	using Subaru Select Monitor.			
	NOTE:			
	For MT model, depress the clutch pedal. Subary Select Maniter			
	Subaru Select Monitor For detailed energing procedure refer to			
	For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
6	CHECK REAR OXYGEN SENSOR CONNEC-	Does water enter the connec-	Dry the water thor-	Go to step 7.
	TOR AND COUPLING CONNECTOR.	tor?	oughly.	
7	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 3	Repair the open	Go to step 8.
	REAR OXYGEN SENSOR CONNECTOR.	Ω?	circuit of harness	•
	1) Turn the ignition switch to OFF.		between ECM and	
	2) Disconnect the connector from ECM and		rear oxygen sen-	
	rear oxygen sensor.		sor connector.	
	3) Measure the resistance of harness			
	between ECM and rear oxygen sensor con-			
	nector.			
	Connector & terminal			
	(B135) No. 4 — (E22) No. 3:			
	(B135) No. 29 — (E22) No. 4:			

	Step	Check	Yes	No
8	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between rear oxygen sensor connector and chassis ground. Connector & terminal (E22) No. 3 (+) — Chassis ground (-):	Is the voltage 0.2 — 0.5 V?	Go to step 11.	Repair the harness and connector. NOTE: Repair the following. Open circuit in harness between rear oxygen sensor and ECM connector Poor contact in rear oxygen sensor and ECM connector Poor contact in rear oxygen sensor and ECM connector Poor contact in ECM connector
9	CHECK REAR OXYGEN SENSOR VOLTAGE. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the voltage of rear oxygen sensor using Subaru Select Monitor. NOTE: • For MT model, depress the clutch pedal. • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""></ref.>	Is the voltage 250 mV or less?	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.	Go to step 6.
10	CHECK CATALYTIC CONVERTER.	Is the catalytic converter damaged?	Replace the catalytic converter. <ref. catalytic="" converter.="" ec(h4so)-3,="" front="" to=""></ref.>	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.
11	 CHECK REAR OXYGEN SENSOR SHIELD. Turn the ignition switch to OFF. Bare the harness sensor shield on the body side of rear oxygen sensor connector. Measure the resistance between sensor shield and chassis ground. 	Is resistance less than 1 Ω ?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-38, Rear Oxygen Sen- sor.></ref.>	Repair the open circuit of rear oxygen sensor harness.

BF:DTC P0442 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECT-ED (SMALL LEAK)

DTC DETECTING CONDITION:

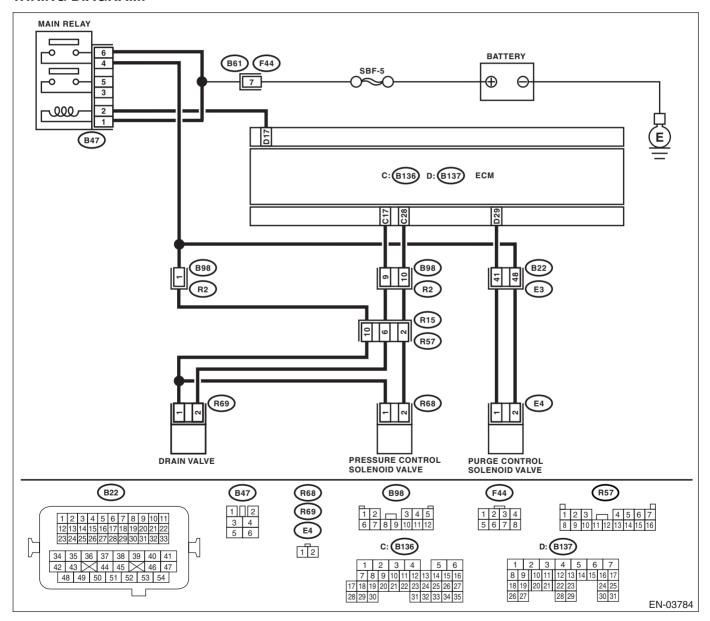
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-123, DTC P0442 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	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 was caught while tightening.		Go to step 3.	Securely install the fuel filler cap.
3	CHECK FUEL FILLER CAP.	Is the fuel filler cap genuine?	Go to step 4.	Replace with a genuine fuel filler cap.
4	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace the fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4SO)-48, Fuel Filler Pipe.></ref.>	Go to step 5.
5	CHECK DRAIN VALVE. 1) Connect the test mode connector. 2) Turn the ignition switch to ON. 3) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 6.	Replace the drain valve. <ref. to<br="">EC(H4SO)-17, Drain Valve.></ref.>
6	CHECK PURGE CONTROL SOLENOID VALVE. Operate the purge control solenoid valve. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>	Does the purge control sole- noid valve operate?	Go to step 7.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4SO)-7, Purge Control Solenoid Valve.></ref.>
7	CHECK PRESSURE CONTROL SOLENOID VALVE. Operate the pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 8.	Replace the pressure control sole- noid valve. <ref. to EC(H4SO)-12, Pressure Control Solenoid Valve.></ref.

	Step	Check	Yes	No
8	CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE. Turn the ignition switch to OFF.	Is there a hole of more than 1.0 mm (0.04 in) dia. in evaporation line?	Repair or replace the evaporation line. <ref. to<br="">FU(H4SO)-59, Fuel Delivery, Return and Evapo- ration Lines.></ref.>	Go to step 9.
9	CHECK CANISTER.	Is the canister damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace the canister. <ref. to EC(H4SO)-6, Canister.></ref. 	Go to step 10.
10	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4so)-45,="" fuel="" tank.="" to=""></ref.>	Is the fuel tank damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace the fuel tank. <ref. to FU(H4SO)-45, Fuel Tank.></ref. 	Go to step 11.
11	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Are there holes of more than 1.0 mm (0.04 in) dia., cracks, clogging, disconnections or bend of hoses or pipes in evaporative emission control system?	Repair or replace the hoses or pipes.	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.

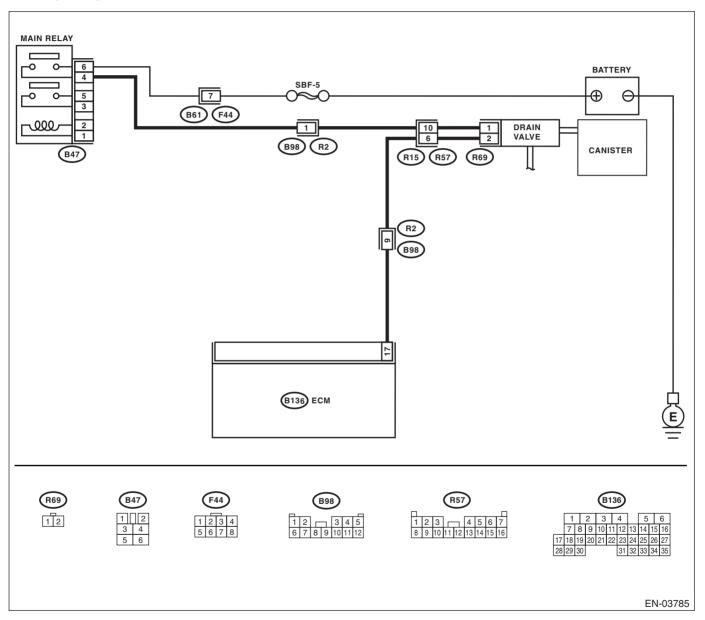
BG:DTC P0447 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT OPEN

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-137, DTC P0447 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 10 V?		Go to step 3.
 Turn the ignition switch to ON. 	, and the second	•	·
Measure the voltage between ECM and			
chassis ground.			
Connector & terminal			
(B136) No. 17 (+) — Chassis ground (-):			
2 CHECK POOR CONTACT.	Is there poor contact in ECM	Repair poor con-	Even if the mal-
Check poor contact of ECM connector.	connector?	tact in ECM connector.	function indicator light illuminates, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the following item: • Poor contact in drain valve connector
3 CHECK HARNESS BETWEEN DRAIN	Is the resistance more than 1	Go to step 4.	Poor contact in ECM connec- tor Poor contact in coupling con- nector Repair the ground
VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from drain valve and ECM. 3) Measure the resistance of harness between drain valve connector and chassis ground. Connector & terminal (R69) No. 2 — Chassis ground:	$M\Omega$?	GO to Step 4.	short circuit of har- ness between ECM and drain valve connector.
4 CHECK HARNESS BETWEEN DRAIN	Is the resistance less than 1	Go to step 5.	Repair the har-
VALVE AND ECM CONNECTOR. Measure the resistance of harness between ECM and drain valve connector. Connector & terminal (B136) No. 17 — (R69) No. 2:	Ω?		ness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and drain valve connector • Poor contact in coupling connector
5 CHECK DRAIN VALVE. Measure the resistance between drain valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 10 and 100 Ω ?	Go to step 6.	Replace the drain valve. <ref. to<br="">EC(H4SO)-17, Drain Valve.></ref.>

	Step	Check	Yes	No
6	CHECK POWER SUPPLY TO DRAIN VALVE. 1) Turn the ignition switch to ON. 2) Measure the voltage between drain valve and chassis ground. Connector & terminal (R69) No. 1 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 7.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between main relay and drain valve • Poor contact in coupling connector • Poor contact in main relay connector
7	CHECK POOR CONTACT. Check for poor contact in the drain valve connector.	Is there poor contact in drain valve connector?	Repair the poor contact of drain valve connector.	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.

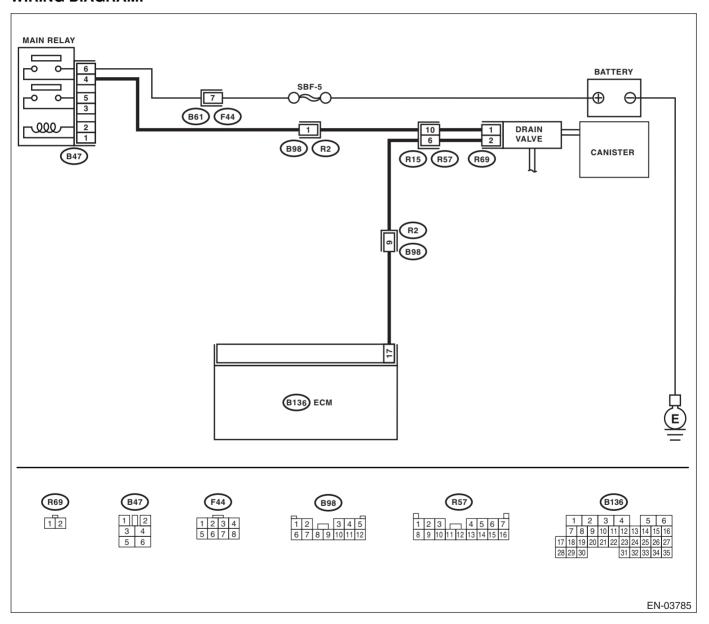
BH:DTC P0448 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT SHORTED

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-139, DTC P0448 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT SHORTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM. 1) Turn the ignition switch to OFF. 2) Connect the test mode connector at the lower portion of instrument panel (on the driver's side). 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground while operating the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""> Connector & terminal (B136) No. 17 (+) — Chassis ground (-):</ref.>		Go to step 2.	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time. In this case, repair the poor contact in ECM connector.
2	CHECK INPUT SIGNAL OF ECM. 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 17 (+) — Chassis ground (-):	Is the voltage more than 10 V?	·	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>
4	CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from drain valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 17 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of harness between ECM and drain valve connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Go to step 5.
5	CHECK DRAIN VALVE. 1) Turn the ignition switch to OFF. 2) Measure the resistance between drain valve terminals. Terminals No. 1 — No. 2:	Is the resistance less than 1 Ω ?	, ,	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>

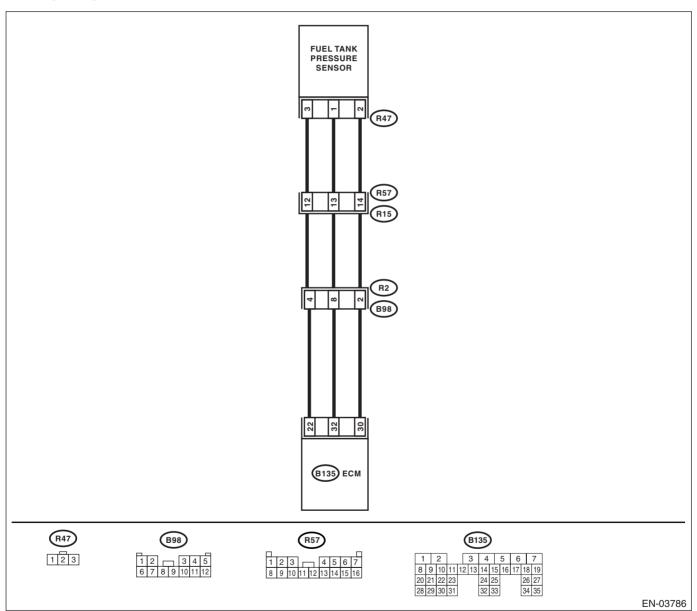
BI: DTC P0451 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SEN-SOR

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-141, DTC P0451 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK FUEL FILLER CAP. 1) Turn the ignition switch to OFF. 2) Open the fuel flap.	Is the fuel filler cap tightened securely?	Go to step 3.	Securely install the fuel filler cap.
3	CHECK PRESSURE/VACUUM LINE. NOTE: Check the following items. • Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank • Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank		Repair or replace the hoses and pipes.	Replace the fuel tank pressure sen- sor. <ref. to<br="">EC(H4SO)-11, Fuel Tank Pres- sure Sensor.></ref.>

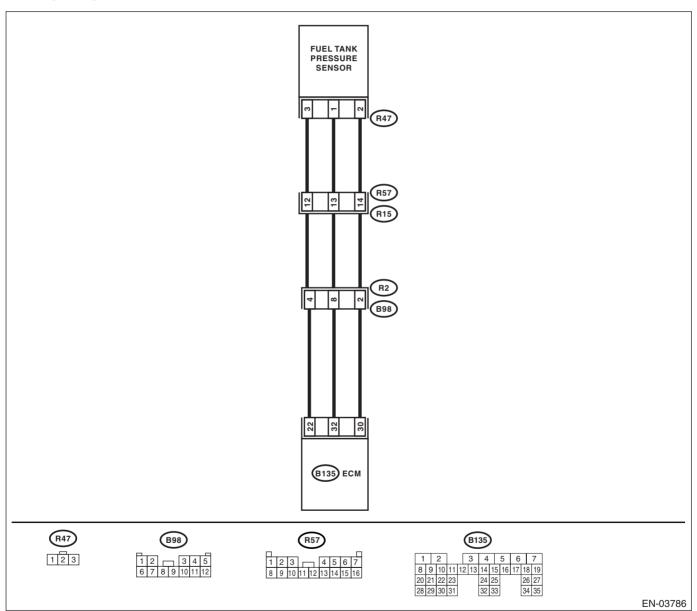
BJ:DTC P0452 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SEN-SOR LOW INPUT

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-143, DTC P0452 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the measured value less	Go to step 2.	Even if the mal-
	Turn the ignition switch to OFF.	than –2.8 kPa (–21.0 mmHg, –		function indicator
	2) Remove the fuel filler cap.	0.827 inHg)?		light illuminates,
	3) Install the fuel filler cap.	[5:5 <u> </u>		the circuit has
	4) Turn the ignition switch to ON.			returned to a nor-
	5) Read the data of fuel tank pressure sensor			mal condition at
	signal using Subaru Select Monitor or general			this time.
	scan tool.			uno umo.
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	to EN(1430)(diag)-20, Subaru Select Moni-			
	General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			
0		le the veltere mere their 4.5.1/2	Co to otom 4	Co to otom 2
2	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.	Is the voltage more than 4.5 V?	GO IO SIEP 4.	Go to step 3.
	Measure the voltage between ECM connector and chassis ground.			
	Connector & terminal			
2	(B135) No. 22 (+) — Chassis ground (-): CHECK POWER SUPPLY TO FUEL TANK	Door the veltere et	Donois	Contact
3		Does the voltage change by	Repair poor con-	Contact your SOA
	PRESSURE SENSOR.	shaking the ECM harness and	tact in ECM con-	Service Center.
	Measure the voltage between ECM connector	connector?	nector.	NOTE:
	and chassis ground.			The probable
	Connector & terminal			cause is consid-
	(B135) No. 22 (+) — Chassis ground (–):			ered as the deteri-
				oration of multiple
	OUTOK INDUT OLONAL OF FOM		0-1	parts.
4	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.2 V?	Go to step 6.	Go to step 5.
	Measure the voltage between ECM and chas-			
	sis ground.			
	Connector & terminal			
_	(B135) No. 32 (+) — Chassis ground (-):	Does the measured value	Danairanaaraan	Co to otom C
5	CHECK INPUT SIGNAL FOR ECM (USING		Repair poor con-	Go to step 6.
	SUBARU SELECT MONITOR).	change by shaking the ECM	tact in ECM con-	
	Read the data of fuel tank pressure sensor sig-	narness and connector?	nector.	
	nal using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< th=""><th></th><th></th><th></th></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<u> </u>	D
6	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to step 7.	Repair the har-
	COUPLING CONNECTOR IN REAR WIRING			ness and connec-
	HARNESS.			tor.
	Turn the ignition switch to OFF.			NOTE:
	2) Remove the rear seat cushion.			In this case, repair
	3) Separate rear wiring harness and fuel tank			the following item:
	cord.			Open circuit
•	Turn the ignition switch to ON.			in harness be-
	· ·			**************************************
	5) Measure the voltage between rear wiring			
	5) Measure the voltage between rear wiring harness connector and chassis ground.			rear wiring har-
	5) Measure the voltage between rear wiring harness connector and chassis ground. <i>Connector & terminal</i>			rear wiring har- ness connector
	5) Measure the voltage between rear wiring harness connector and chassis ground.			Poor contact
	5) Measure the voltage between rear wiring harness connector and chassis ground. <i>Connector & terminal</i>			rear wiring har- ness connector

	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM and rear wiring harness connector. Connector & terminal (B135) No. 30 — (R15) No. 14:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and rear wiring harness connector • Poor contact in coupling connector • Poor contact in joint connector
8	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. Measure the resistance of harness between rear wiring harness connector and chassis ground. Connector & terminal (R15) No. 14 (+) — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 9.	Repair the ground short circuit of har- ness between ECM and rear wir- ing harness con- nector.
9	CHECK FUEL TANK CORD. 1) Disconnect the connector from fuel tank pressure sensor. 2) Measure the resistance of fuel tank cord. Connector & terminal (R57) No. 12 — (R47) No. 3:	Is the resistance less than 1 Ω ?	Go to step 10.	Repair the open circuit in fuel tank cord.
10	CHECK FUEL TANK CORD. Measure the resistance of fuel tank cord. Connector & terminal (R57) No. 14 — (R47) No. 2:	Is the resistance less than 1 Ω ?	Go to step 11.	Repair the open circuit in fuel tank cord.
11	CHECK FUEL TANK CORD. Measure the resistance of harness between fuel tank pressure sensor connector and engine ground. Connector & terminal (R47) No. 1 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 12.	Repair the ground short circuit of fuel tank cord.
12	CHECK POOR CONTACT. Check for poor contact in fuel tank pressure sensor connector.	Is there poor contact in fuel tank pressure sensor connector?	Repair the poor contact in fuel tank pressure sensor connector.	Replace the fuel tank pressure sen- sor. <ref. to<br="">EC(H4SO)-11, Fuel Tank Pres- sure Sensor.></ref.>

ENGINE (DIAGNOSTICS)

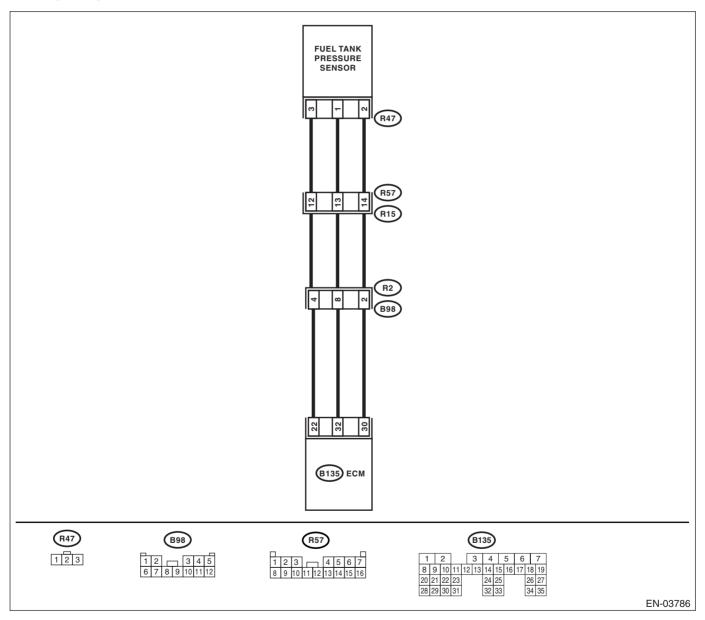
BK:DTC P0453 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-145, DTC P0453 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the measured value more	Go to step 11.	Go to step 2.
-	Turn the ignition switch to OFF.	than 2.8 kPa (21.0 mmHg,		
	2) Remove the fuel filler cap.	0.827 inHg)?		
	3) Install the fuel filler cap.	3 ,		
	4) Turn the ignition switch to ON.			
	5) Read the data of fuel tank pressure sensor			
	signal using Subaru Select Monitor or general			
	scan tool.			
	NOTE:			
	 Subaru Select Monitor 			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			
2	CHECK POWER SUPPLY TO FUEL TANK	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 3.
	PRESSURE SENSOR.			
	Measure the voltage between ECM connector			
	and chassis ground.			
	Connector & terminal			
_	(B135) No. 22 (+) — Chassis ground (-):			D 1 11 5014
3	CHECK POWER SUPPLY TO FUEL TANK	Does the voltage change by	Repair poor con-	Replace the ECM.
	PRESSURE SENSOR.	shaking the ECM harness and	tact in ECM con-	<ref. td="" to<=""></ref.>
	Measure the voltage between ECM connector	connector?	nector.	FU(H4SO)-40,
	and chassis ground. Connector & terminal			Engine Control
				Module (ECM).>
4	(B135) No. 22 (+) — Chassis ground (-): CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.2 V?	Go to stop 6	Go to stop F
[]	Measure the voltage between ECM and chas-	is the voltage less than 0.2 V?	Go to step 6.	Go to step 5.
	sis ground.			
	Connector & terminal			
	(B135) No. 32 (+) — Chassis ground (–):			
5	CHECK INPUT SIGNAL FOR ECM (USING	Does the measured value	Repair poor con-	Go to step 6.
1	SUBARU SELECT MONITOR).	change by shaking the ECM	tact in ECM con-	3.5 to 5.5p 5.
	•	harness and connector?	nector.	
	nal using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
6	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to step 7.	Repair the har-
	COUPLING CONNECTOR IN REAR WIRING			ness and connec-
	HARNESS.			tor.
	Turn the ignition switch to OFF.			NOTE:
	2) Remove the rear seat cushion.			In this case, repair
	3) Separate rear wiring harness and fuel tank			the following item:
	cord.			Open circuit
	4) Turn the ignition switch to ON.			in harness be-
	5) Measure the voltage between rear wiring			tween ECM and
	harness connector and chassis ground.			rear wiring har-
	Connector & terminal			ness connector
	(R15) No. 12 (+) — Chassis ground (−):			• Poor contact
				in coupling con-
				nector

	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM and rear wiring harness connector. Connector & terminal (B135) No. 32 — (R15) No. 13: (B135) No. 30 — (R15) No. 14:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between ECM and rear wiring harness connector Poor contact in coupling connector
8	CHECK FUEL TANK CORD. 1) Disconnect the connector from fuel tank pressure sensor. 2) Measure the resistance of fuel tank cord. Connector & terminal (R57) No. 13 — (R47) No. 1:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit in fuel tank cord.
9	CHECK FUEL TANK CORD. Measure the resistance of fuel tank cord. Connector & terminal (R57) No. 14 — (R47) No. 2:	Is the resistance less than 1 Ω ?	Go to step 10.	Repair the open circuit in fuel tank cord.
10	CHECK POOR CONTACT. Check for poor contact in fuel tank pressure sensor connector.	Is there poor contact in fuel tank pressure sensor connector?	Repair the poor contact in fuel tank pressure sensor connector.	Replace the fuel tank pressure sen- sor. <ref. to<br="">EC(H4SO)-11, Fuel Tank Pres- sure Sensor.></ref.>
11	CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel tank pressure sensor. 3) Turn the ignition switch to ON. 4) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	0.827 inHg)?	Repair battery short circuit of har- ness between ECM and fuel tank pressure sensor connector.	Replace the fuel tank pressure sen- sor. <ref. to<br="">EC(H4SO)-11, Fuel Tank Pres- sure Sensor.></ref.>

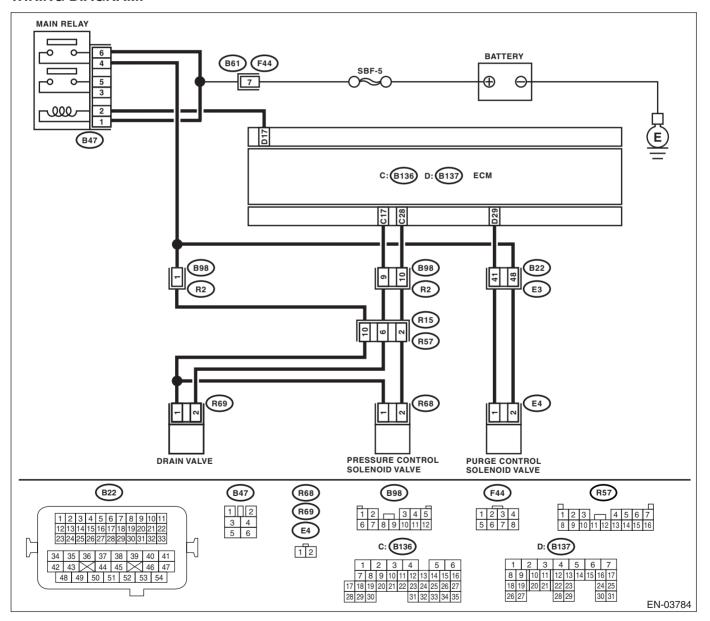
BL:DTC P0456 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECT-ED (VERY SMALL LEAK)

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-147, DTC P0456 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (VERY SMALL LEAK), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:
- · Fuel odor
- There is a hole of more than 0.5 mm (0.020 in) dia. in evaporation system or fuel tank.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	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 was caught while tightening.		Go to step 3.	Securely install the fuel filler cap.
3	CHECK FUEL FILLER CAP.	Is the fuel filler cap genuine?	Go to step 4.	Replace with a genuine fuel filler cap.
4	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace the fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4SO)-48, Fuel Filler Pipe.></ref.>	Go to step 5.
5	CHECK DRAIN VALVE. 1) Connect the test mode connector. 2) Turn the ignition switch to ON. 3) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 6.	Replace the drain valve. <ref. to<br="">EC(H4SO)-17, Drain Valve.></ref.>
6	CHECK PURGE CONTROL SOLENOID VALVE. Operate the purge control solenoid valve. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 7.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4SO)-7, Purge Control Solenoid Valve.></ref.>
7	CHECK PRESSURE CONTROL SOLENOID VALVE. Operate the pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 8.	Replace the pressure control sole- noid valve. <ref. to EC(H4SO)-12, Pressure Control Solenoid Valve.></ref.

	Step	Check	Yes	No
8	CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE. Turn the ignition switch to OFF.	Is there a hole of more than 0.5 mm (0.020 in) dia. in evaporation line?	Repair or replace the evaporation line. <ref. to<br="">FU(H4SO)-59, Fuel Delivery, Return and Evapo- ration Lines.></ref.>	Go to step 9.
9	CHECK CANISTER.	Is the canister damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace the canister. <ref. to EC(H4SO)-6, Canister.></ref. 	Go to step 10.
10	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4so)-45,="" fuel="" tank.="" to=""></ref.>	Is the fuel tank damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace the fuel tank. <ref. to FU(H4SO)-45, Fuel Tank.></ref. 	Go to step 11.
11	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Are there holes of more than 0.5 mm (0.020 in) dia., cracks, clogging, disconnections or bend of hoses or pipes in evaporative emission control system?	Repair or replace the hoses or pipes.	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.

BM:DTC P0457 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECT-ED (FUEL CAP LOOSE/OFF)

DTC DETECTING CONDITION:

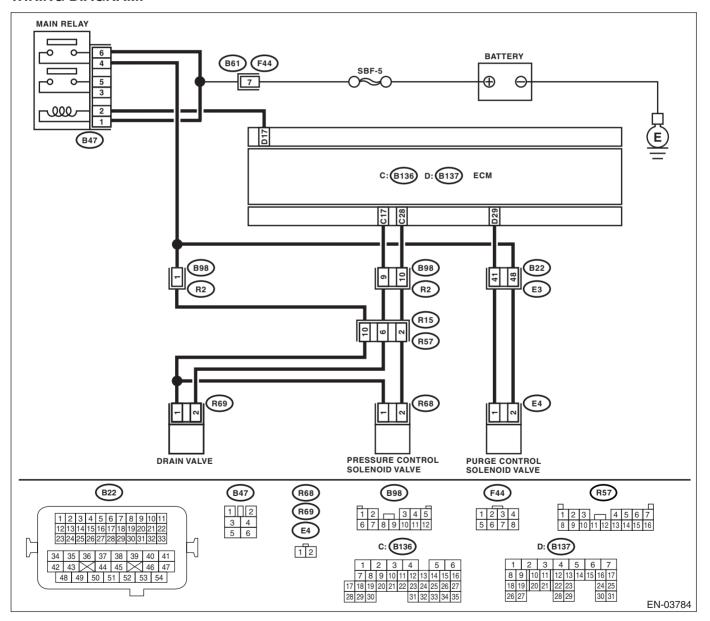
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-123, DTC P0442 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Fuel odor
- Fuel filler cap is loose or not installed.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	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 was caught while tightening.	Is the fuel filler cap tightened securely?	Go to step 3.	Securely install the fuel filler cap.
3	CHECK FUEL FILLER CAP.	Is the fuel filler cap genuine?	Go to step 4.	Replace with a genuine fuel filler cap.
4	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace the fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4SO)-48, Fuel Filler Pipe.></ref.>	Go to step 5.
5	CHECK DRAIN VALVE. 1) Connect the test mode connector. 2) Turn the ignition switch to ON. 3) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 6.	Replace the drain valve. <ref. to<br="">EC(H4SO)-17, Drain Valve.></ref.>
6	CHECK PURGE CONTROL SOLENOID VALVE. Operate the purge control solenoid valve. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 7.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4SO)-7, Purge Control Solenoid Valve.></ref.>
7	CHECK PRESSURE CONTROL SOLENOID VALVE. Operate the pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 8.	Replace the pressure control sole- noid valve. <ref. to EC(H4SO)-12, Pressure Control Solenoid Valve.></ref.
8	CHECK CANISTER.	Is the canister damaged?	Repair or replace the canister. <ref. to EC(H4SO)-6, Canister.></ref. 	Go to step 9.

	Step	Check	Yes	No
9	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4so)-45,="" fuel="" tank.="" to=""></ref.>	Is the fuel tank damaged?	Repair or replace the fuel tank. <ref. to FU(H4SO)-45, Fuel Tank.></ref. 	Go to step 10.
10	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Are there holes of more than 0.5 mm (0.020 in) dia., cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?	Repair or replace the hoses or pipes.	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.

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

DTC DETECTING CONDITION:

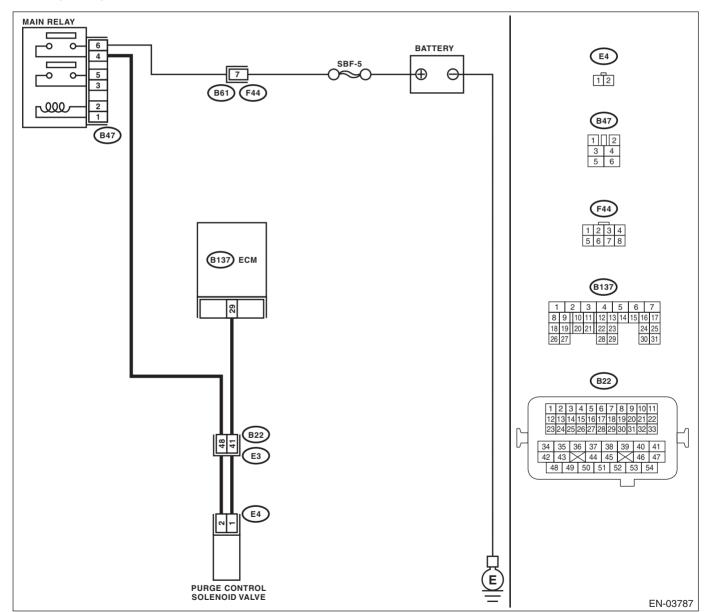
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-148, DTC P0458 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	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. Connector & terminal (B137) No. 29 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time. Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.	Go to step 2.
2	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from purge control solenoid valve and ECM. 3) Measure the resistance of harness between purge control solenoid valve connector and engine ground. Connector & terminal (E4) No. 2 — Engine ground:	ΜΩ?	Go to step 3.	Repair the ground short circuit of har- ness between ECM and purge control solenoid valve connector.
3	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. Measure the resistance of harness between ECM and purge control solenoid valve. Connector & terminal (B137) No. 29 — (E4) No. 1:	Ω?		Repair the open circuit of harness between ECM and purge control solenoid valve connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and purge control solenoid valve connector • Poor contact in coupling connector
4	CHECK PURGE CONTROL SOLENOID VALVE. 1) Remove the purge control solenoid valve. 2) Measure the resistance between purge control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 10 and 100 Ω ?	Go to step 5.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4SO)-7, Purge Control Solenoid Valve.></ref.>
5	CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE. 1) Turn the ignition switch to ON. 2) Measure the voltage between purge control solenoid valve and engine ground. Connector & terminal (E4) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 6 .	Repair the open circuit of harness between main relay and purge control solenoid valve connector.

	Step	Check	Yes	No
6	CHECK POOR CONTACT. Check poor contact of purge control solenoid valve connector.	Is there poor contact of purge control solenoid valve connec- tor?	Repair the poor contact of purge control solenoid valve connector.	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.

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

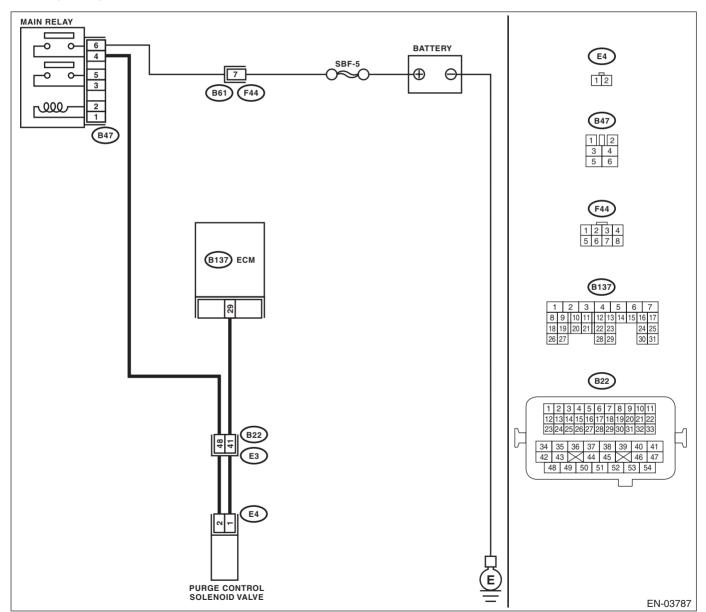
DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-150, DTC P0459 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



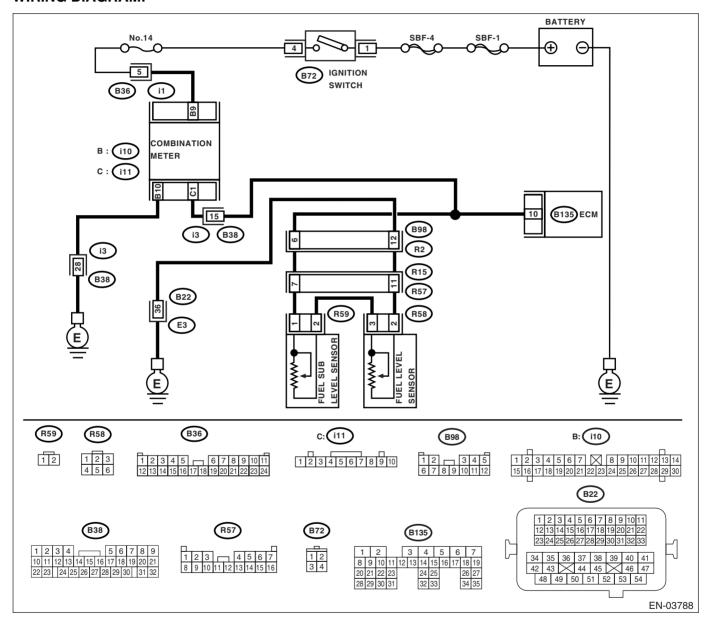
	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage 0 — 10 V?	Go to step 2.	Even if the mal-
	1) Turn the ignition switch to OFF.			function indicator
	2) Connect the test mode connector at the			light illuminates,
	lower portion of instrument panel (on the			the circuit has
	driver's side). 3) Turn the ignition switch to ON.			returned to a nor- mal condition at
	Measure the voltage between ECM and			this time. In this
	chassis ground while operating the purge con-			case, repair the
	trol solenoid valve.			poor contact in
	NOTE:			ECM connector.
	Purge control solenoid valve operation can be			
	executed using Subaru Select Monitor. For pro-			
	cedure, refer to "Compulsory Valve Operation			
	Check Mode". <ref. en(h4so)(diag)-44,<="" td="" to=""><td></td><td></td><td></td></ref.>			
	Compulsory Valve Operation Check Mode.>			
	Connector & terminal			
2	(B137) No. 29 (+) — Chassis ground (-): CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Go to step 4	Go to step 3.
-	Turn the ignition switch to ON.	is the voltage more than 10 v:	Go to step 4.	αο το στερ σ .
	Measure the voltage between ECM and			
	chassis ground.			
	Connector & terminal			
	(B137) No. 29 (+) — Chassis ground (–):			
3	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair poor con-	Replace the ECM.
	Check poor contact of ECM connector.	connector?	tact in ECM con-	<ref. td="" to<=""></ref.>
			nector.	FU(H4SO)-40, Engine Control
				Module (ECM).>
4	CHECK HARNESS BETWEEN PURGE CON-	Is the voltage more than 10 V?	Repair the battery	Go to step 5.
	TROL SOLENOID VALVE AND ECM CON-		short circuit of har-	
	NECTOR.		ness between	
	Turn the ignition switch to OFF.		ECM and purge	
	2) Disconnect the connector from purge con-		control solenoid	
	trol solenoid valve. 3) Turn the ignition switch to ON.		valve connector. After repair,	
	Measure the voltage between ECM and		replace the ECM.	
	chassis ground.		<ref. td="" to<=""><td></td></ref.>	
	Connector & terminal		FU(H4SO)-40,	
	(B137) No. 29 (+) — Chassis ground (–):		Engine Control	
			Module (ECM).>	
5	CHECK PURGE CONTROL SOLENOID	Is the resistance less than 1	Replace the purge	Go to step 6.
	VALVE. 1) Turn the ignition switch to OFF	Ω?	control solenoid valve <ref. td="" to<=""><td></td></ref.>	
	 Turn the ignition switch to OFF. Measure the resistance between purge 		EC(H4SO)-7,	
	control solenoid valve terminals.		Purge Control	
	Terminals		Solenoid Valve.>	
	No. 1 — No. 2:		and ECM <ref. td="" to<=""><td></td></ref.>	
			FU(H4SO)-40,	
			Engine Control	
			Module (ECM).>.	
6	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair poor con-	Replace the ECM.
	Check poor contact of ECM connector.	connector?	tact in ECM con-	<ref. td="" to<=""></ref.>
			nector.	FU(H4SO)-40, Engine Control
				Module (ECM).>
				IVIOGGIC (LOIVI).

BP:DTC P0461 FUEL LEVEL SENSOR "A" CIRCUIT RANGE/PERFORMANCE DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-152, DTC P0461 FUEL LEVEL SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	"List of Diagnostic Trouble Code (DTC)". <ref. to<br="">EN(H4SO)(diag)- 65, List of Diag- nostic Trouble</ref.>	

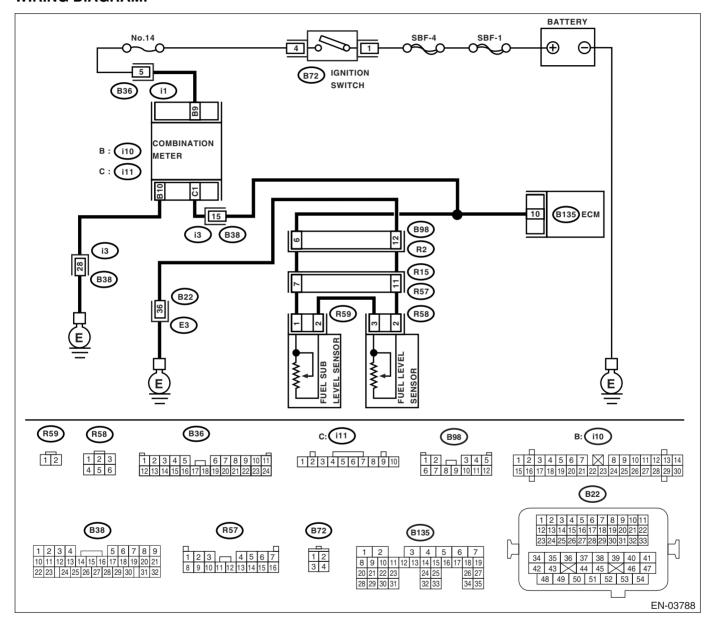
BQ:DTC P0462 FUEL LEVEL SENSOR "A" CIRCUIT LOW

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-154, DTC P0462 FUEL LEVEL SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
	Does the speedometer and tachometer operate normally?	·	Repair or replace the combination meter. <ref. idi-<br="" to="">3, Combination Meter System.></ref.>

	Step	Check	Yes	No
2	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.12	Go to step 4.	Go to step 3.
	1) Turn the ignition switch to ON. (Engine	V?		
	OFF)			
	Measure the voltage between ECM con-			
	nector and chassis ground.			
	Connector & terminal			
	(B135) No. 10 (+) — Chassis ground (–):			
3	CHECK INPUT SIGNAL FOR ECM (USING SUBARU SELECT MONITOR). Read the data of fuel level sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4SO)(diag)-26, Subaru Select Monitor.>		Repair poor contact in ECM connector.	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time. A tempo- rary poor contact of the connector may be the cause. NOTE: In this case, repair the following item: • Poor contact in combination meter connec- tor • Poor contact in ECM connec- tor
4	CHECK INPUT VOLTAGE OF ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the fuel tank cord connector (R57) and rear wiring harness connector (R15).	Is the voltage more than 0.12 V?	Go to step 5.	Poor contact in coupling con- nector Go to step 6.
	 3) Turn the ignition switch to ON. 4) Measure the voltage of harness between ECM connector and chassis ground. Connector & terminal (B135) No. 10 (+) — Chassis ground (-): 			
5	CHECK HARNESS BETWEEN ECM AND COMBINATION METER. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from connector (i12) and ECM connector. 3) Measure the resistance between ECM and chassis ground. Connector & terminal (B135) No. 10 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 7.	Repair the ground short circuit of harness between ECM and combination meter connector.
6	CHECK HARNESS BETWEEN ECM AND COMBINATION METER. Measure resistance between ECM and combination meter connector. Connector & terminal (B135) No. 10 — (i11) No. 1:	Is the resistance less than 10 Ω ?	Repair or replace the combination meter. <ref. idi-<br="" to="">3, Combination Meter System.></ref.>	Repair the open circuit between ECM and combination meter connector. NOTE: In this case, repair the following item: Poor contact in coupling connector

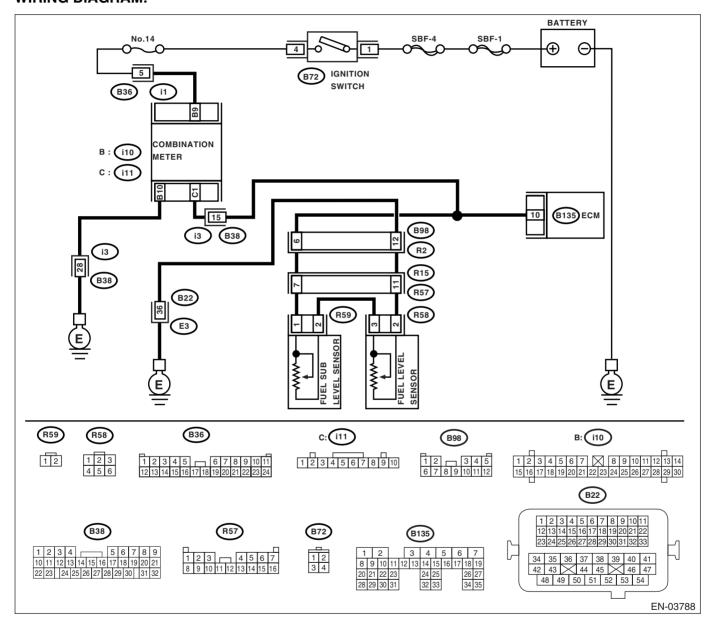
	Step	Check	Yes	No
7	CHECK FUEL TANK CORD. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel sub level sensor. 3) Measure the resistance between the fuel sub level sensor and chassis ground. Connector & terminal (R59) No. 1 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 8.	Repair the ground short circuit of fuel tank cord.
8	CHECK FUEL TANK CORD. 1) Disconnect the connector from fuel pump assembly. 2) Measure the resistance between the fuel pump assembly and chassis ground. Connector & terminal (R59) No. 2 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 9.	Repair the ground short circuit of fuel tank cord.
9	CHECK FUEL LEVEL SENSOR. 1) Remove the fuel pump assembly. <ref. fu(h4so)-52,="" fuel="" pump.="" to=""> 2) Measure the resistance between fuel level sensor and terminals with its float set to the full position. Terminals No. 3 — No. 2:</ref.>	Is the resistance between 0.5 and 2.5 Ω ?	Go to step 10.	Replace the fuel level sensor.
10	CHECK FUEL SUB LEVEL SENSOR. 1) Remove the fuel sub level sensor. <ref. fu(h4so)-55,="" fuel="" level="" sensor.="" sub="" to=""> 2) Measure the resistance between fuel sub level sensor and terminals with its float set to the full position. Terminals No. 1 — No. 2:</ref.>	Is the resistance between 0.5 and 2.5 Ω ?	Repair the poor contact in harness between ECM and combination meter connector.	Replace the fuel sub level sensor.

BR:DTC P0463 FUEL LEVEL SENSOR "A" CIRCUIT HIGH DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-156, DTC P0463 FUEL LEVEL SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SPEEDOMETER AND TACHOME-	Does the speedometer and	Go to step 2.	Repair or replace
	TER OPERATION IN COMBINATION	tachometer operate normally?		the combination
	METER.			meter. <ref. idi-<="" th="" to=""></ref.>
				3, Combination
				Meter System.>

	Step	Check	Yes	No
2	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 4.75	Go to step 3.	Even if the mal-
	 Turn the ignition switch to ON. (Engine OFF) Measure the voltage between ECM con- 	V?		function indicator light illuminates, the circuit has
	nector and chassis ground. Connector & terminal (B135) No. 10 (+) — Chassis ground (-):			returned to a nor- mal condition at this time. A tempo-
	(B133) No. 10 (+) — Chassis ground (-).			rary poor contact of the connector may be the cause.
				NOTE: In this case, repair the following item:
				connector • Poor contact in coupling connector
3	CHECK INPUT VOLTAGE OF ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the combination meter connector (i12) and ECM connector. 3) Turn the ignition switch to ON. 4) Measure the voltage of harness between ECM and chassis ground. Connector & terminal	Is the voltage more than 4.75 V?	Go to step 4.	Repair the battery short circuit between ECM and combination meter connector.
4	(B135) No. 10 (+) — Chassis ground (-): CHECK HARNESS BETWEEN ECM AND FUEL TANK CORD.	Is the resistance less than 5 Ω ?	Go to step 5.	Repair the open circuit between
	 Turn the ignition switch to OFF. Disconnect the fuel tank cord connector (R57) and rear wiring harness connector (R15). Measure the resistance between ECM and fuel tank cord. 			ECM and fuel tank cord.
	Connector & terminal (B135) No. 10 — (R15) No. 7:			
5	CHECK HARNESS BETWEEN FUEL TANK CORD AND CHASSIS GROUND. Measure the resistance between fuel tank cord and chassis ground. Connector & terminal (R15) No. 11 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 6.	Repair the open circuit between fuel tank cord and chassis ground. NOTE: In this case, repair
	. ,			the following item: Poor contact in coupling connector
6	CHECK FUEL TANK CORD. 1) Disconnect the connector from fuel level sensor. 2) Measure the resistance between fuel level sensor and coupling connector. Connector & terminal (R57) No. 11 — (R58) No. 2:	Is the resistance less than 10 Ω ?	Go to step 7.	Repair the open circuit between coupling connector and fuel level sensor.

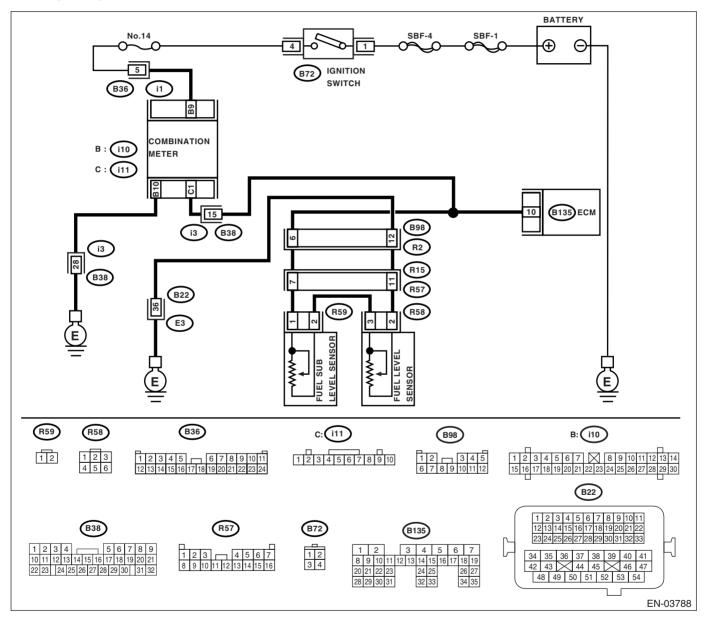
	Step	Check	Yes	No
7	CHECK FUEL TANK CORD.	Is the resistance less than 10		
'			Go to step 8.	Repair the open
	Disconnect the connector from fuel sub	Ω ?		circuit between
	level sensor.			fuel level sensor
	Measure the resistance between fuel level			and fuel sub level
	sensor and fuel sub level sensor.			sensor.
	Connector & terminal			
	(R58) No. 3 — (R59) No. 2:			
8	CHECK FUEL TANK CORD.	Is the resistance less than 10	Go to step 9.	Repair the open
	Measure the resistance between fuel level sen-	Ω?		circuit between
	sor and coupling connector.			coupling connector
	Connector & terminal			and fuel level sen-
	(R57) No. 7 — (R59) No. 1:			sor.
9	CHECK FUEL LEVEL SENSOR.	Is the resistance more than	Replace the fuel	Go to step 10.
	 Remove the fuel pump assembly. <ref. li="" to<=""> </ref.>	54.5Ω?	level sensor. <ref.< th=""><th></th></ref.<>	
	FU(H4SO)-52, Fuel Pump.>		to FU(H4SO)-54,	
	2) While moving the fuel level sensor float up		Fuel Level Sen-	
	and down, measure resistance between fuel		sor.>	
	level sensor terminals.			
	Terminals			
	No. 3 — No. 2:			
10	CHECK FUEL SUB LEVEL SENSOR.	Is the resistance more than	Replace the fuel	Replace the com-
	1) Remove the fuel sub level sensor. <ref. th="" to<=""><th>41.5Ω?</th><th>sub level sensor.</th><th>bination meter.</th></ref.>	41.5Ω?	sub level sensor.	bination meter.
	FU(H4SO)-55, Fuel Sub Level Sensor.>		<ref. th="" to<=""><th><ref. idi-10,<="" th="" to=""></ref.></th></ref.>	<ref. idi-10,<="" th="" to=""></ref.>
	2) While moving the fuel sub level sensor float		FU(H4SO)-55,	Combination
	up and down, measure resistance between		Fuel Sub Level	Meter.>
	fuel sub level sensor terminals.		Sensor.>	
	Terminals			
	No. 1 — No. 2:			

BS:DTC P0464 FUEL LEVEL SENSOR CIRCUIT INTERMITTENT DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-158, DTC P0464 FUEL LEVEL SENSOR CIRCUIT IN-TERMITTENT, Diagnostic Trouble Code (DTC) Detecting Criteria.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK FUEL LEVEL SENSOR. 1) Remove the fuel pump assembly. <ref. fu(h4so)-52,="" fuel="" pump.="" to=""> 2) While moving the fuel level sensor float up and down, make sure that the resistance between fuel level sensor terminals changes smoothly. Terminals No. 3 — No. 2:</ref.>	Does the resistance change smoothly?	Go to step 3.	Replace the fuel level sensor. <ref. to FU(H4SO)-54, Fuel Level Sen- sor.></ref.
3	CHECK FUEL SUB LEVEL SENSOR. 1) Remove the fuel sub level sensor. <ref. fu(h4so)-54,="" fuel="" level="" sensor.="" to=""> 2) While moving the fuel sub level sensor float up and down, make sure that the resistance between fuel level sensor terminals changes smoothly. Terminals No. 1 — No. 2:</ref.>	Does the resistance change smoothly?	Repair poor contact in ECM, combination meter and coupling connectors.	Replace the fuel sub level sensor. <ref. to<br="">FU(H4SO)-54, Fuel Level Sen- sor.></ref.>

ENGINE (DIAGNOSTICS)

BT:DTC P0483 FAN RATIONALITY CHECK

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-161, DTC P0483 FAN RATIONALITY CHECK, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Occurrence of noise
- Overheating

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

NOTE:

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

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appro-	Check the radiator
			priate DTC using	fan and fan motor.
			the "List of Diag-	<ref. th="" to<=""></ref.>
			nostic Trouble	CO(H4SO)-32,
			Code (DTC)".	Radiator Main Fan
			<ref. th="" to<=""><th>and Fan Motor.></th></ref.>	and Fan Motor.>
			EN(H4SO)(diag)-	and <ref. th="" to<=""></ref.>
			65, List of Diag-	CO(H4SO)-39,
			nostic Trouble	Radiator Sub Fan
			Code (DTC).>	and Fan Motor.>

BU:DTC P0502 VEHICLE SPEED SENSOR "A" CIRCUIT LOW INPUT

NOTE:

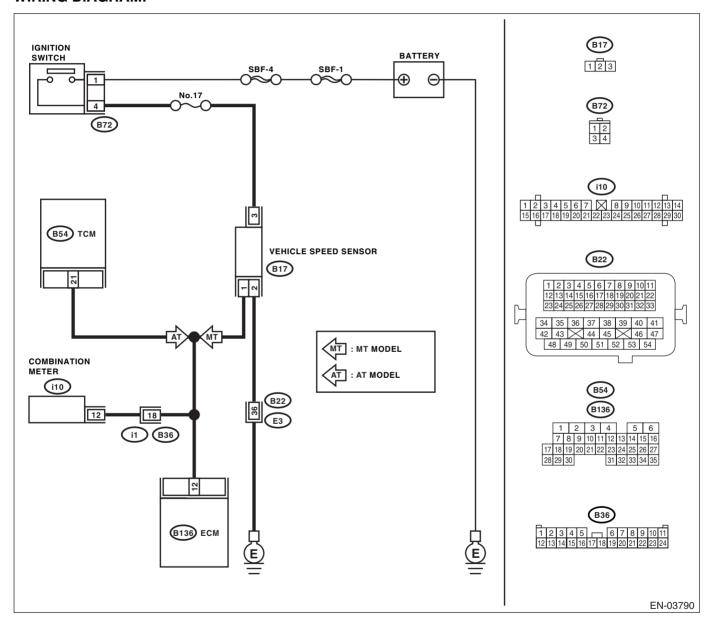
For the diagnostic procedure, refer to DTC P0503. <Ref. to EN(H4SO)(diag)-236, DTC P0503 VEHICLE SPEED SENSOR "A" INTERMITTENT/ERRATIC/HIGH, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BV:DTC P0503 VEHICLE SPEED SENSOR "A" INTERMITTENT/ERRATIC/HIGH DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-162, DTC P0502 VEHICLE SPEED SENSOR "A" CIR-CUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK TRANSMISSION TYPE.	Is the transmission type AT?	Go to step 2.	Go to step 3.
2	CHECK DTC P0720 ON DISPLAY.	Does the Subaru Select Monitor or general scan tool indicate DTC P0720?	Check the front vehicle speed sensor signal circuit. <ref. (dtc).="" 4at(d)(diag)-49,="" circuit,="" code="" diagnostic="" dtc="" out-put="" p0720="" procedure="" sensor="" speed="" to="" trouble="" with=""></ref.>	Go to step 3.
3	CHECK SPEEDOMETER OPERATION IN COMBINATION METER.	Does the speedometer operate normally?	Go to step 4.	Check the speed- ometer and vehicle speed sensor. <ref. idi-12,="" speedometer.="" to=""> <ref. 4at-52,="" front="" sensor.="" speed="" to="" vehicle=""> <ref. 4at-55,="" rear="" sensor.="" speed="" to="" vehicle=""> <ref. 4at-56,="" converter="" sensor.="" speed="" to="" torque="" turbine=""></ref.></ref.></ref.></ref.>
4	CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from combination meter. 3) Measure resistance between ECM and combination meter. Connector & terminal (B136) No. 12 — (i10) No. 12:	Is the resistance less than 10 Ω ?	Repair poor contact in ECM connector.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and combination meter connector • Poor contact in ECM connector • Poor contact in combination meter connector • Poor contact in combination meter connector

BW:DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED DTC DETECTING CONDITION:

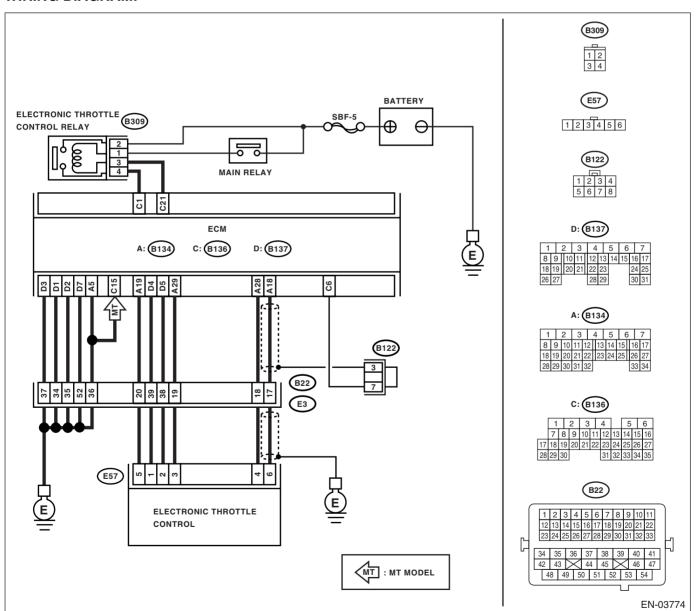
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-164, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine is difficult to start.
- · Engine does not start.
- Erroneous idling
- Engine stalls.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0506.</ref.>	
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<br="">IN(H4SO)-4, Air Cleaner Element.></ref.>	Go to step 3.
3	CHECK ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control. 3) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diagnosis of DTC P2101.

BX:DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED DTC DETECTING CONDITION:

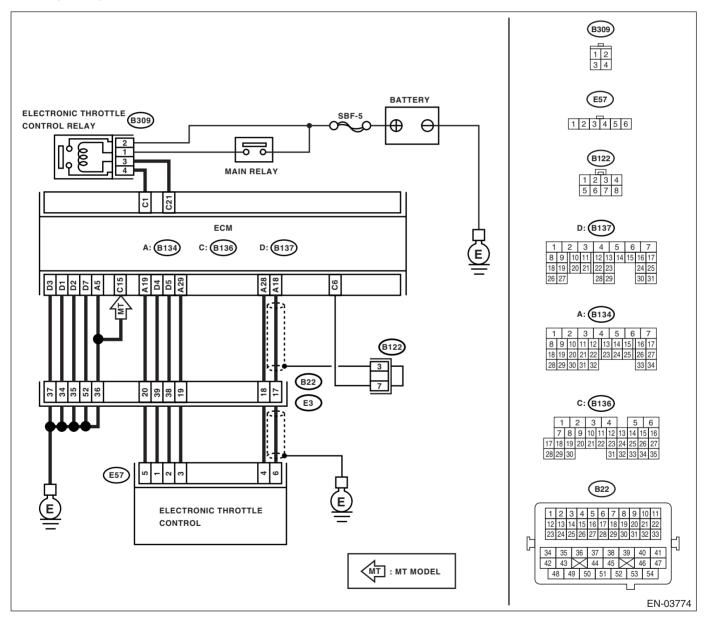
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-166, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Engine keeps running at higher speed than specified idle speed.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0507.</ref.>	
2	 CHECK AIR INTAKE SYSTEM. Turn the ignition switch to ON. Start and idle the engine. 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	TROL. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control. 3) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diagnosis of DTC P2101.

ENGINE (DIAGNOSTICS)

BY:DTC P0512 STARTER REQUEST CIRCUIT

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-168, DTC P0512 STARTER REQUEST CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

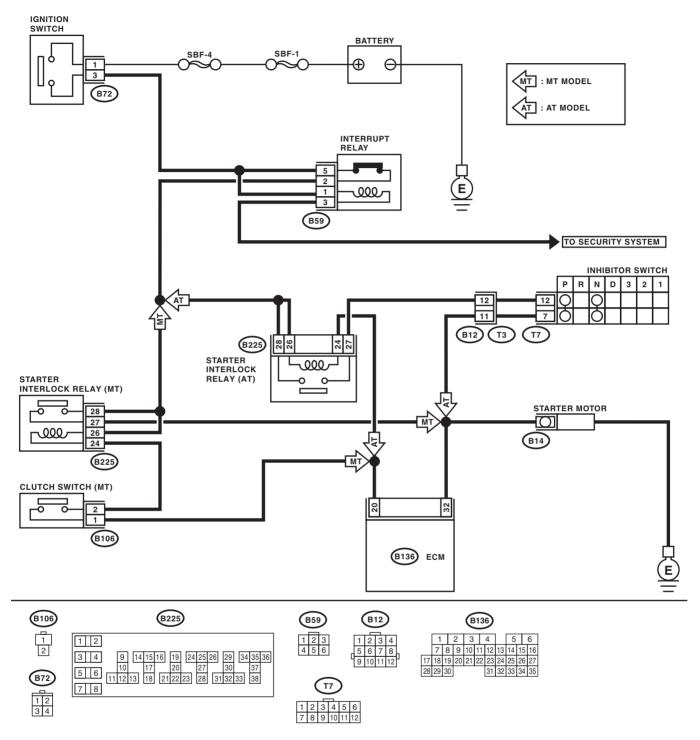
TROUBLE SYMPTOM:

Failure of engine to start

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:



EN-03791

Step	Check	Yes	No
CHECK OPERATION OF STARTER MOTOR. Turn the ignition switch to ON. NOTE: Place the inhibitor switch in each position. (AT model) Depress or release the clutch pedal. (MT model)	ate?	short circuit in starter motor circuit.	Check the starter motor circuit. <ref. circuit,="" diagnostics="" en(h4so)(diag)-51,="" engine="" failure.="" for="" motor="" starter="" starting="" to=""></ref.>

BZ:DTC P0519 IDLE AIR CONTROL SYSTEM PERFORMANCE

DTC DETECTING CONDITION:

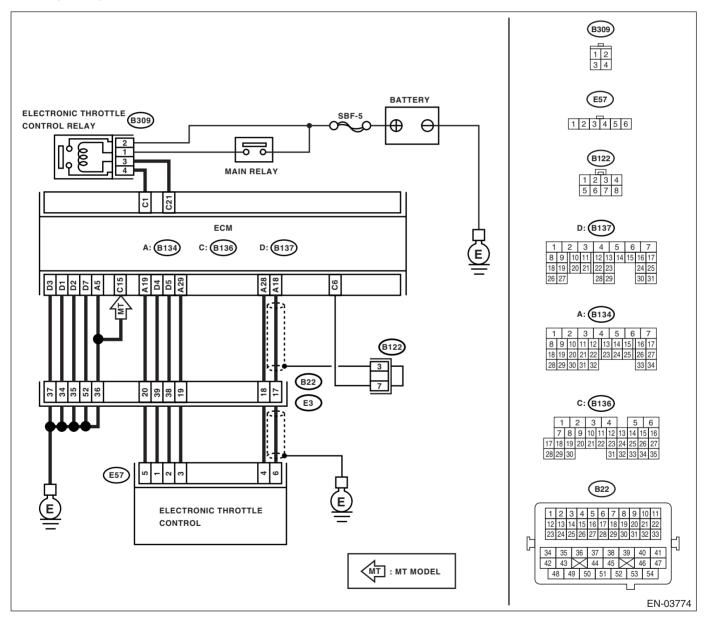
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-169, DTC P0519 IDLE AIR CONTROL SYSTEM PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Engine keeps running at higher speed than specified idle speed.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0519.</ref.>	Go to step 2.
2	CHECK AIR INTAKE SYSTEM. 1) Turn the ignition switch to ON. 2) Start and idle the engine. 3) 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. 3) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diagnosis of DTC P2101.

ENGINE (DIAGNOSTICS)

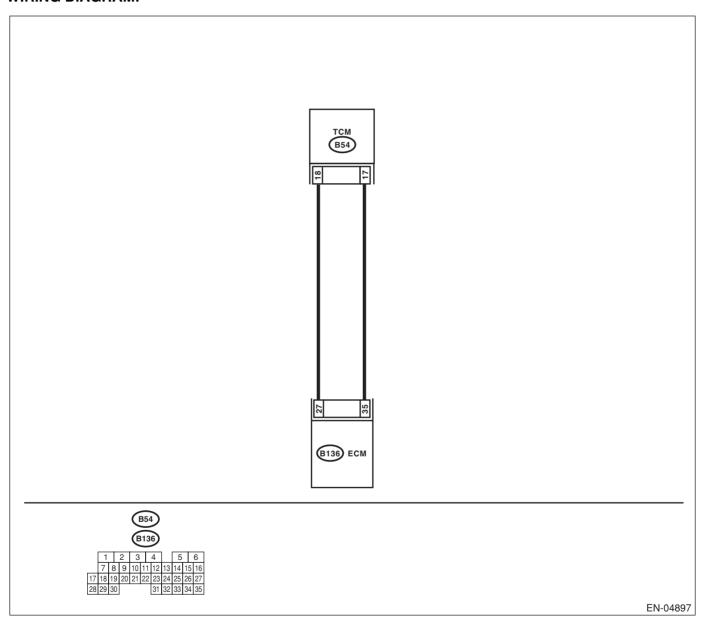
CA:DTC P0600 SERIAL COMMUNICATION LINK

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-170, DTC P0600 SERIAL COMMUNICATION LINK, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND TCM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Disconnect the connector from TCM. 4) Measure the resistance between the ECM and TCM connectors. Connector & terminal (B136) No. 27 — (B54) No. 18: (B136) No. 35 — (B54) No. 17:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the har- ness or connector.
2	CHECK HARNESS BETWEEN ECM AND TCM. Measure the resistance between ECM connector and chassis ground. Connector & terminal (B136) No. 27 — Chassis ground: (B136) No. 35 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 3.	Repair the har- ness or connector.
3	CHECK HARNESS BETWEEN ECM AND TCM. Check the resistance between ECM connectors. Connector & terminal (B136) No. 27 — (B136) No. 35:	Is the resistance more than 1 M Ω ?	Go to step 4.	Repair the har- ness or connector.
4	CHECK THE STATUS OF THE AT SYSTEM. Diagnose the AT using the Subaru Select Monitor. Check that trouble code 86 is displayed.	Is trouble code 86 displayed?	Check the AT system.	Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>

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

DTC DETECTING CONDITION:

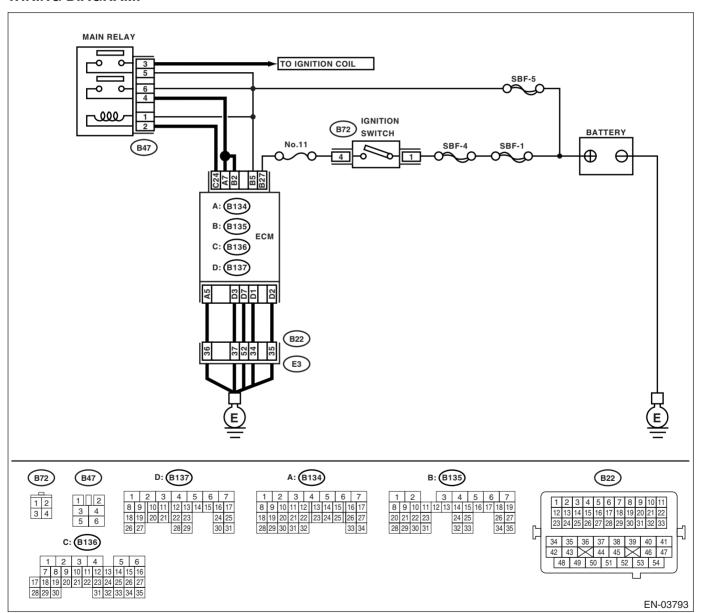
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-171, DTC P0604 INTERNAL CONTROL MODULE RAN-DOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine does not start.
- Engine stalls.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



ENGINE (DIAGNOSTICS)

Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.		Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)." <ref. (dtc).="" code="" diagnostic="" en(h4so)(diag)-65,="" list="" of="" to="" trouble=""></ref.>	Temporary poor contact occurs.

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

NOTE:

For the diagnostic procedure, refer to DTC P0607. <Ref. to EN(H4SO)(diag)-251, DTC P0607 CONTROL MODULE PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CD:DTC P0607 CONTROL MODULE PERFORMANCE

DTC DETECTING CONDITION:

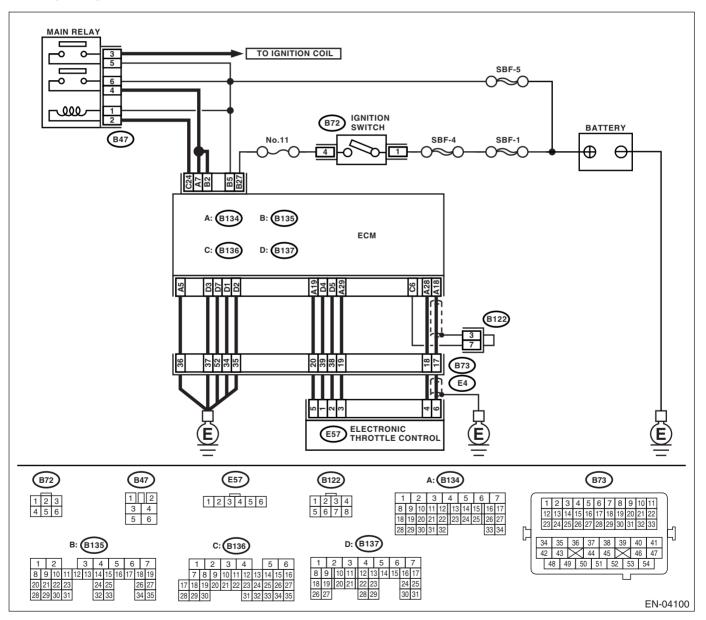
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-173, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> and <Ref. to GD(H4SO)-174, DTC P0607 CONTROL MODULE PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT VOLTAGE OF ECM.	Is the voltage 10 — 13 V?	Go to step 2.	Repair the open or
	 Turn the ignition switch to ON. 			ground short cir-
	Measure the voltage between ECM con-			cuit of power sup-
	nector and chassis ground.			ply circuit.
	Connector & terminal			
	(B134) No. 7 (+) — Chassis ground (–):			
	(B135) No. 2 (+) — Chassis ground (–):			
2	CHECK INPUT VOLTAGE OF ECM.	Is the voltage 13 — 15 V?	Go to step 3.	Repair the open or
	 Start the engine. 			ground short cir-
	Measure the voltage between ECM con-			cuit of power sup-
	nector and chassis ground.			ply circuit.
	Connector & terminal			
	(B134) No. 7 (+) — Chassis ground (–):			
	(B135) No. 2 (+) — Chassis ground (–):			
3	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 4.	Repair the open
	ELECTRONIC THROTTLE CONTROL.	Ω ?		circuit of harness
	 Turn the ignition switch to OFF. 			between ECM and
	Disconnect the connectors from ECM and			electronic throttle
	electronic throttle control.			control connector.
	Measure the resistance of harness			
	between ECM and electronic throttle control			
	connector.			
	Connector & terminal			
	(E57) No. 5 — (B134) No. 19:			
	(E57) No. 3 — (B134) No. 29:			
4	CHECK ECM GROUND HARNESS.	Is the voltage less than 1 V?	Replace the ECM.	Repair the follow-
	Measure the voltage between ECM connector		<ref. td="" to<=""><td>ing items.</td></ref.>	ing items.
	and chassis ground.		FU(H4SO)-40,	 Further tighten
	Connector & terminal		Engine Control	the engine ground
	(B134) No. 5 (+) — Chassis ground (–):		Module (ECM).>	terminals.
	(B137) No. 7 (+) — Chassis ground (–):			 Poor contact in
	(B137) No. 1 (+) — Chassis ground (–):			ECM connector
	(B137) No. 2 (+) — Chassis ground (–):			 Poor contact in
	(B137) No. 3 (+) — Chassis ground (–):			coupling connector

ENGINE (DIAGNOSTICS)

CE:DTC P0638 THROTTLE ACTUATOR CONTROL RANGE/PERFORMANCE (BANK 1)

NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4SO)(diag)-301, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CF:DTC P0691 FAN 1 CONTROL CIRCUIT LOW

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-180, DTC P0691 FAN 1 CONTROL CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.

TROUBLE SYMPTOM:

- · Radiator fan does not operate properly.
- Overheating

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1 CHECK ANY OTHER DT	TC ON DISPLAY.	Is DTC P0691 displayed?	Check the radiator	Temporary poor
			fan system. <ref.< th=""><th>contact occurs.</th></ref.<>	contact occurs.
			to CO(H4SO)-10,	
			Radiator Fan Sys-	
			tem.>	

CG:DTC P0692 FAN 1 CONTROL CIRCUIT HIGH

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-181, DTC P0692 FAN 1 CONTROL CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Radiator fan does not operate properly.
- Overheating

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is DTC P0692 displayed?	Check the radiator	Temporary poor
			fan system. <ref.< th=""><th>contact occurs.</th></ref.<>	contact occurs.
			to CO(H4SO)-10,	
			Radiator Fan Sys-	
			tem.>	

CH:DTC P0700 TRANSMISSION CONTROL SYSTEM (MIL REQUEST)

GENERAL DESCRIPTION <Ref. to GD(H4SO)-182, DTC P0700 TRANSMISSION CONTROL SYSTEM (MIL REQUEST), Diagnostic Trouble Code (DTC) Detecting Criteria.>

NOTE:

For the diagnostic procedure, refer to AT section. <Ref. to 4AT(D)(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

CI: DTC P0851 PARK/NEUTRAL SWITCH INPUT CIRCUIT LOW (AT MODEL) DTC DETECTING CONDITION:

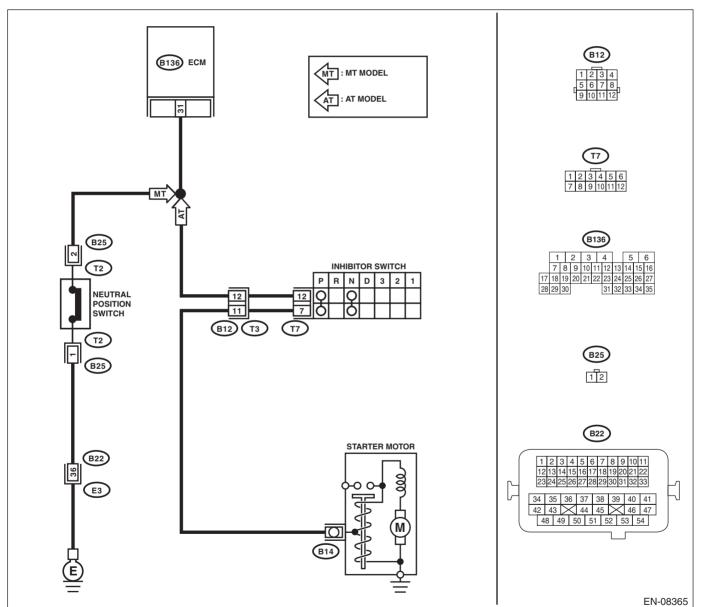
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-183, DTC P0851 PARK/NEUTRAL SWITCH INPUT CIRCUIT LOW (AT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK INPUT SIGNAL OF ECM. 1) Turn the ignition switch to ON. 2) Place the select lever other than "N" and "P" range. 3) Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 31 (+) — Chassis ground (-):	Is the voltage 4.5 — 5.5 V?	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time.	Go to step 3.
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 of harness between ECM connector and chassis ground. Connector & terminal (B136) No. 31 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 4.	Repair the ground short circuit of har- ness between ECM and trans- mission harness connector.
4	CHECK TRANSMISSION HARNESS CONNECTOR. 1) Disconnect the connector from inhibitor switch. 2) Measure the resistance of harness between transmission harness connector and engine ground. Connector & terminal (T3) No. 12 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the ground short circuit of harness between transmission harness connector and inhibitor switch connector.
5	CHECK INHIBITOR SWITCH. Measure the resistance between inhibitor switch connector receptacles terminals with select lever at other than "N" or "P" range. Terminals No. 7 — No. 12:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 6.	Replace the inhibitor switch. <ref. 4at-48,="" inhibitor="" switch.="" to=""></ref.>
6	CHECK SELECTOR CABLE CONNECTION.	Is there any fault in selector cable connection to inhibitor switch?	Repair the selector cable connection. <ref. cs-26,<br="" to="">INSPECTION, Select Cable.></ref.>	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.

CJ:DTC P0851 NEUTRAL SWITCH INPUT CIRCUIT LOW (MT MODEL) DTC DETECTING CONDITION:

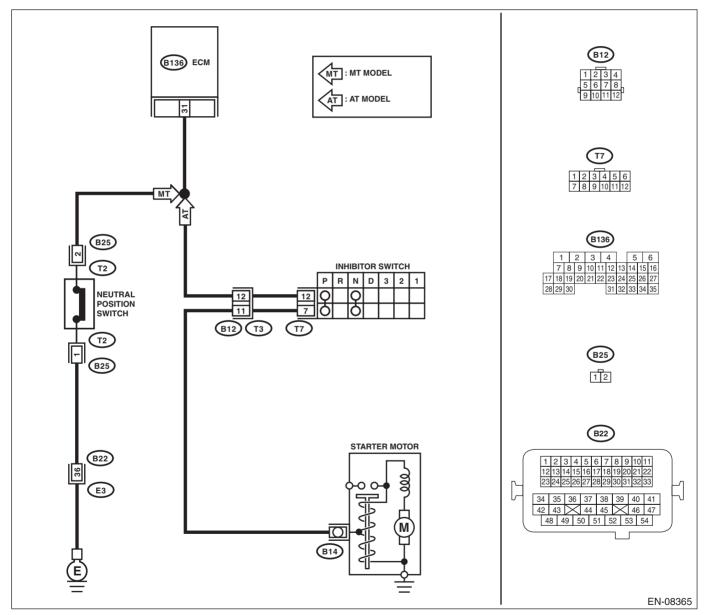
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-184, DTC P0851 NEUTRAL SWITCH INPUT CIRCUIT LOW (MT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 1 V?	Go to step 2.	Go to step 4.
	Turn the ignition switch to ON.	le are vehage lees alan i v.	Go to stop 2.	Go to stop 1.
	2) Place the shift lever in neutral.			
	3) Measure the voltage between ECM and			
	chassis ground.			
	Connector & terminal			
	(B136) No. 31 (+) — Chassis ground (–):			
2	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Go to step 3.	Go to step 4.
	1) Place the shift lever in a position except for			
	neutral.			
	Measure the voltage between ECM and			
	chassis ground.			
	Connector & terminal			
	(B136) No. 31 (+) — Chassis ground (–):			
3	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair poor con-	Contact your SOA
	Check poor contact of ECM connector.	connector?	tact in ECM con-	Service Center.
			nector.	NOTE:
				The probable
				cause is consid-
				ered as the deteri-
				oration of multiple
				parts.
4	CHECK NEUTRAL POSITION SWITCH.	Is the resistance less than 1	Go to step 5.	Repair the short
	 Turn the ignition switch to OFF. 	Ω ?		circuit in transmis-
	Disconnect the connector from transmis-			sion harness or
	sion harness.			replace neutral
	Place the shift lever in neutral.			position switch.
	4) Measure the resistance between transmis-			
	sion harness and connector terminals.			
	Connector & terminal			
	(T2) No. 1 — No. 2:			
5	CHECK NEUTRAL POSITION SWITCH.	Is the resistance more than 1	Go to step 6.	Repair the short
	Place the shift lever in a position except for	ΜΩ?		circuit in transmis-
	neutral.			sion harness or
	2) Measure the resistance between transmis-			replace neutral
	sion harness connector terminals.			position switch.
	Connector & terminal			
6	(T2) No. 1 — No. 2: CHECK HARNESS BETWEEN ECM AND	Is the registered mare them 1	Go to stop 7	Donair the ground
6	NEUTRAL POSITION SWITCH CONNEC-	Is the resistance more than 1 $M\Omega$?	Go to step 7.	Repair the ground short circuit of har-
	TOR.	IVIS 2 ?		
	Measure the resistance between ECM and			ness between ECM and trans-
	chassis ground.			mission harness
	Connector & terminal			connector.
	(B136) No. 31 — Chassis ground:			COLLIGECTOL.
7	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1 Ω ?	Go to stan 2	Repair the open
'	NEUTRAL POSITION SWITCH CONNEC-	is the resistance less than 1 12?	ωυ ιυ διέμ ο .	circuit of harness
	TOR.			between ECM and
	Disconnect the connectors from ECM.			transmission har-
	2) Measure the resistance of harness			ness connector.
	between ECM and transmission harness con-			TICOS COTITICOTO.
	nector.			
	Connector & terminal			
	(B136) No. 31 — (B25) No. 2:			
	(D 100) NO. 31 — (B20) NO. 2:			

	Step	Check	Yes	No
8	CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNECTOR. Measure the resistance of harness between transmission harness connector and engine ground. Connector & terminal (B25) No. 1 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 9.	Repair the open circuit between transmission harness connector and engine ground terminal.
9	CHECK POOR CONTACT. Check poor contact in transmission harness connector.	Is there poor contact in transmission harness connector?	Repair the poor contact in transmission harness connector.	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.

CK:DTC P0852 PARK/NEUTRAL SWITCH INPUT CIRCUIT HIGH (AT MODEL) DTC DETECTING CONDITION:

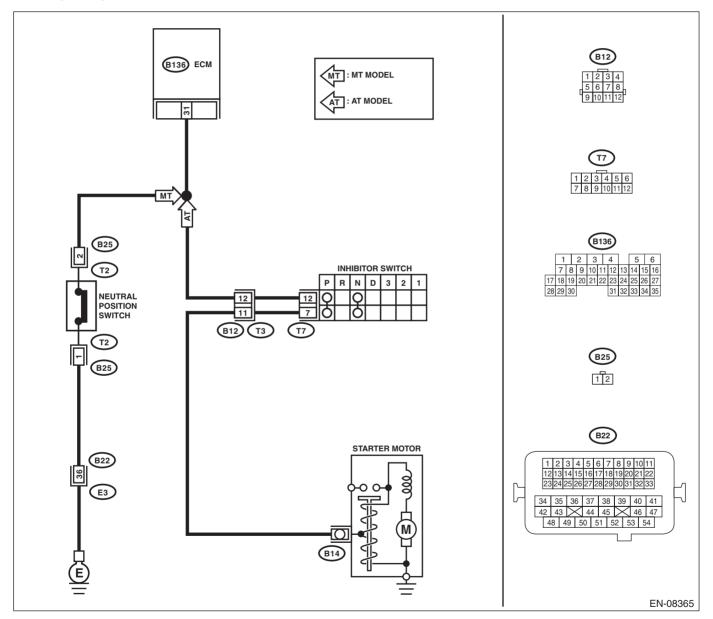
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-185, DTC P0852 PARK/NEUTRAL SWITCH INPUT CIRCUIT HIGH (AT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	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 "N" and "P" range. Connector & terminal (B136) No. 31 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 3.	Go to step 5.
3	CHECK INPUT SIGNAL OF ECM. Measure the voltage between ECM and chassis ground with select lever at other than "N" and "P" range. Connector & terminal (B136) No. 31 (+) — Chassis ground (-):	Is the voltage 4.5 — 5.5 V?	Go to step 4.	Go to step 5.
4	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.
5	CHECK INPUT SIGNAL OF ECM. Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 31 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of har- ness between ECM and inhibitor switch connector.	Go to step 6.
6		Is the resistance less than 1 Ω ?	Go to step 7.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and inhibitor switch connector • Poor contact in coupling connector • Poor contact in inhibitor switch connector • Poor contact in inhibitor switch connector • Poor contact in inhibitor switch connector • Poor contact in ECM connector

	Step	Check	Yes	No
7	CHECK INHIBITOR SWITCH GROUND LINE. Measure the resistance of harness between inhibitor switch connector and engine ground. Connector & terminal (T7) No. 12 — Engine ground:		Go to step 8.	Repair open circuit of harness between inhibitor switch connector and starter motor ground line. NOTE: In this case, repair the following item: • Open circuit in harness between inhibitor switch connector and starter motor ground line • Poor contact in starter motor connector • Poor contact in starter motor ground • Starter motor
8	CHECK INHIBITOR SWITCH. Measure the resistance between inhibitor switch connector receptacle's terminals with select lever at "N" and "P" range. Terminals No. 7 — No. 12:	Is the resistance less than 1 Ω ?	Go to step 9.	Replace the inhibitor switch. <ref. 4at-48,="" inhibitor="" switch.="" to=""></ref.>
9	CHECK SELECTOR CABLE CONNECTION.	Is there any fault in selector cable connection to inhibitor switch?	Repair the selector cable connection. <ref. cs-26,<br="" to="">INSPECTION, Select Cable.></ref.>	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.

CL:DTC P0852 NEUTRAL SWITCH INPUT CIRCUIT HIGH (MT MODEL) DTC DETECTING CONDITION:

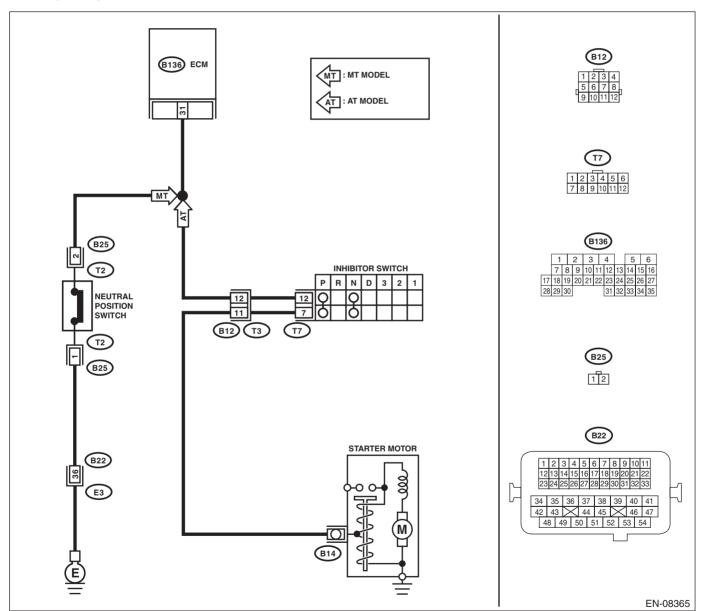
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-186, DTC P0852 NEUTRAL SWITCH INPUT CIRCUIT HIGH (MT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM. 1) Turn the ignition switch to ON.	Is the voltage more than 10 V?	Go to step 2.	Go to step 4.
	2) Place the shift lever in a position except for neutral.3) Measure the voltage between ECM and chassis ground.			
	Connector & terminal (B136) No. 31 (+) — Chassis ground (–):			
2	CHECK INPUT SIGNAL OF ECM. 1) Place the shift lever in neutral. 2) Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 31 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 3.	Go to step 5.
3	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.
4	 CHECK NEUTRAL SWITCH. 1) Place the shift lever in neutral. 2) Measure the resistance between transmission harness connector terminals. Connector & terminal (T2) No. 1 — No. 2: 	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit in transmission harness or replace neutral switch.
5	CHECK HARNESS BETWEEN ECM AND NEUTRAL SWITCH CONNECTOR. 1) Disconnect the connector from ECM. 2) Measure the resistance of harness between ECM and transmission harness connector. Connector & terminal (B136) No. 31 — (B25) No. 2:	Is the resistance less than 1 Ω ?	Go to step 6.	Repair open circuit of harness between ECM and transmission har- ness connector.
6	CHECK HARNESS BETWEEN ECM AND NEUTRAL SWITCH CONNECTOR. Measure the resistance of harness between transmission harness connector and engine ground. Connector & terminal (B25) No. 1 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 7.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between transmission harness connector and engine ground Poor contact in coupling connector
7	CHECK POOR CONTACT. Check poor contact in transmission harness connector.	Is there a poor contact in the transmission harness connector?	Repair the poor contact in transmission harness connector.	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.

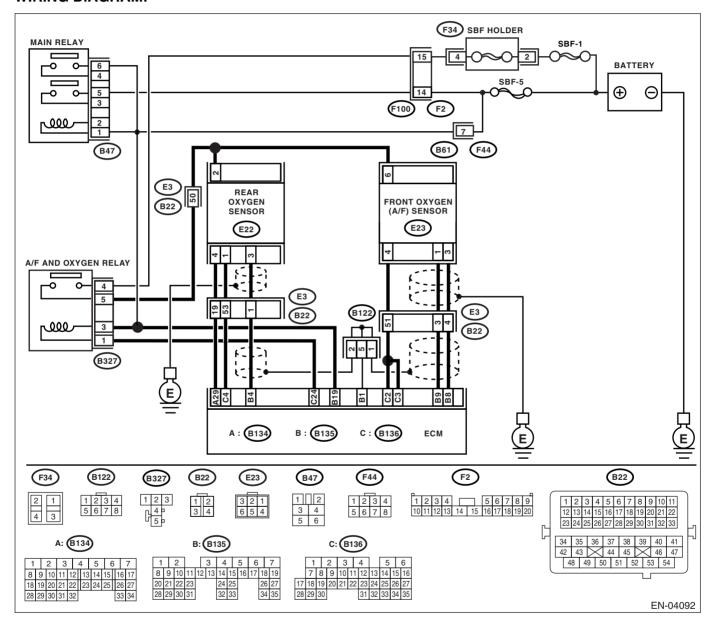
CM:DTC P1152 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (LOW) (BANK1 SENSOR1)

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-187, DTC P1152 O2 SENSOR CIRCUIT RANGE/PER-FORMANCE (LOW) (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNEC- TOR.	Does water enter the connector?	Dry the water thoroughly.	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 and front oxygen (A/F) sensor connector. 3) Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B135) No. 9 — (E23) No. 1: (B135) No. 8 — (E23) 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 and front oxygen (A/F) sensor connector Poor contact in front oxygen (A/F) sensor connector Poor contact in ECM connector
3	CHECK POOR CONTACT. Check poor contact of front oxygen (A/F) sensor connector.	Is there poor contact in front oxygen (A/F) sensor connector?	Repair the poor contact in front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-36, Front Oxygen (A/F) Sensor.></ref.>

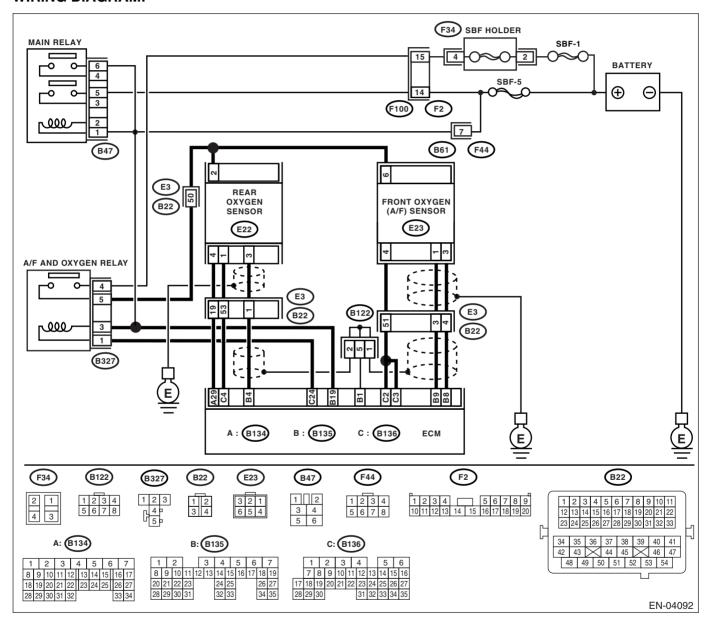
CN:DTC P1153 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK1 SENSOR1)

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-190, DTC P1153 O2 SENSOR CIRCUIT RANGE/PER-FORMANCE (HIGH) (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.		Dry the water thoroughly.	Go to step 2.

ENGINE (DIAGNOSTICS)

	Step	Check	Yes	No
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. 3) Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B135) No. 9 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.	Go to step 3.
3	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B135) No. 8 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.	Go to step 4.
4	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 (B135) No. 9 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?		Go to step 6.
5	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 9 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of harness between ECM and front oxygen (A/F) sensor connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Repair poor contact in ECM connector.
6	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 8 (+) — Chassis ground (-):	Is the voltage more than 4.95 V?	Go to step 7.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-36, Front Oxygen (A/F) Sensor.></ref.>
7	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 8 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of harness between ECM and front oxygen (A/F) sensor connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Repair poor contact in ECM connector.

CO:DTC P1160 RETURN SPRING FAILURE

NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4SO)(diag)-301, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

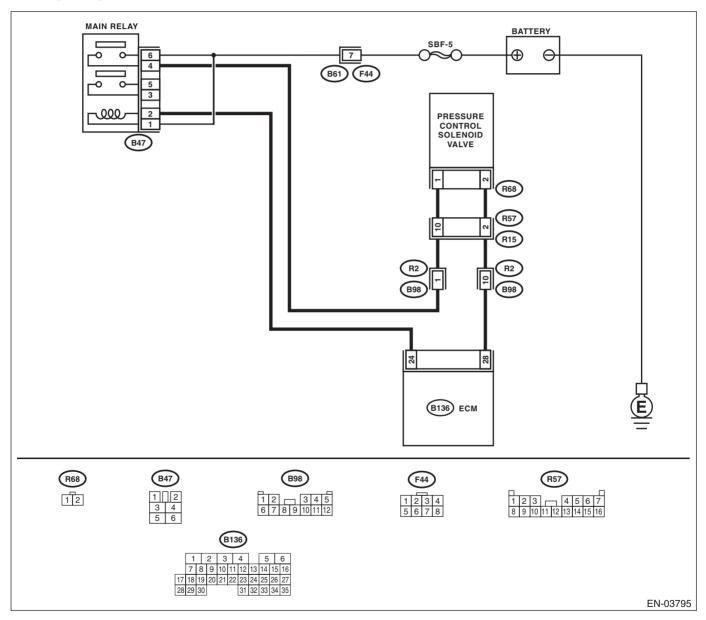
CP:DTC P1400 FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-195, DTC P1400 FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	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. Connector & terminal (B136) No. 28 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 2.	Go to step 3.
2	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.
3	CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from pressure control solenoid valve and ECM. 3) Measure the resistance of harness between pressure control solenoid valve connector and chassis ground. Connector & terminal (R68) No. 2 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair the ground short circuit of har- ness between ECM and pressure control solenoid valve connector.	Go to step 4.
4	CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. Measure the resistance of harness between ECM and pressure control solenoid valve connector. Connector & terminal (B136) No. 28 — (R68) 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 in harness between ECM and pressure control solenoid valve connector • Poor contact in coupling connector
5	CHECK PRESSURE CONTROL SOLENOID VALVE. Measure the resistance between pressure control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 10 and 100 Ω ?	Go to step 6.	Replace the pres- sure control sole- noid valve. <ref. to EC(H4SO)-12, Pressure Control Solenoid Valve.></ref.

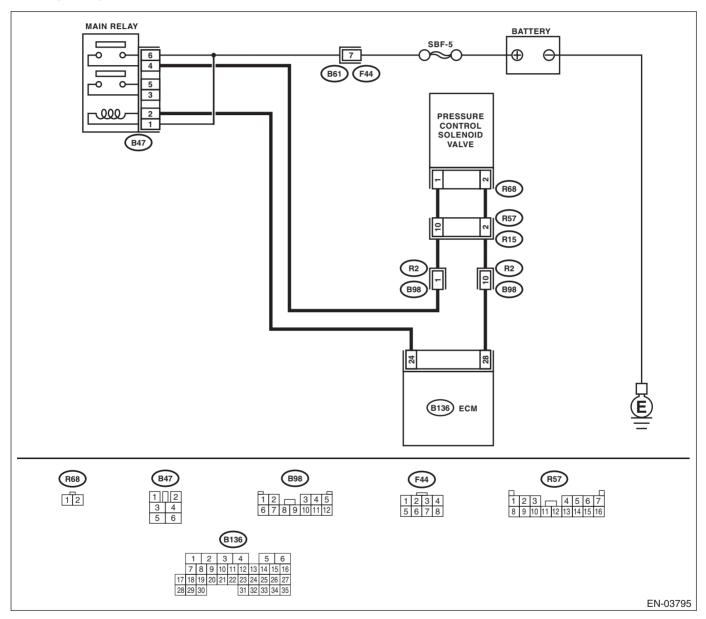
	Step	Check	Yes	No
6	CHECK POWER SUPPLY TO PRESSURE CONTROL SOLENOID VALVE. 1) Turn the ignition switch to ON. 2) Measure the voltage between pressure control solenoid valve and chassis ground. Connector & terminal (R68) No. 1 (+) — Chassis ground (-):	Check Is the voltage more than 10 V?		No Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between main relay and pressure control solenoid valve connector • Poor contact in coupling connector
7	CHECK POOR CONTACT. Check poor contact of pressure control solenoid valve connector.	Is there poor contact of pressure control solenoid valve connector?	Repair the poor contact of pressure control solenoid valve connector.	Poor contact in main relay connector Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.

CQ:DTC P1420 FUEL TANK PRESSURE CONTROL SOL. VALVE CIRCUIT HIGH DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-197, DTC P1420 FUEL TANK PRESSURE CONTROL SOL. VALVE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM. 1) Turn the ignition switch to OFF.	Is the voltage 0 — 10 V?	Go to step 2.	Even if the mal- function indicator
	 Connect the test mode connector at the lower portion of instrument panel (on the driver's side). Turn the ignition switch to ON. Measure the voltage between ECM and chassis ground while operating the pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Opera- 			light illuminates, the circuit has returned to a normal condition at this time. In this case, repair the poor contact in ECM connector.
	tion Check Mode". <ref. en(h4so)(diag)-<br="" to="">44, Compulsory Valve Operation Check Mode.> Connector & terminal (B136) No. 28 (+) — Chassis ground (-):</ref.>			
2	CHECK INPUT SIGNAL OF ECM. 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 28 (+) — Chassis ground (-):	Is the voltage more than 10 V?		Go to step 3.
3	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>
4	CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from pressure control solenoid valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 28 (+) — Chassis ground (-):		Repair the battery short circuit of harness between ECM and pressure control solenoid valve connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Go to step 5.
5	CHECK PRESSURE CONTROL SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Measure the resistance between pressure control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance less than 1 Ω ?	Replace the pressure control solenoid valve <ref. control="" ec(h4so)-12,="" pressure="" solenoid="" to="" valve.=""> and ECM <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to="">.</ref.></ref.>	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair poor contact in ECM connector.	Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>

CR:DTC P1443 VENT CONTROL SOLENOID VALVE FUNCTION PROBLEM DTC DETECTING CONDITION:

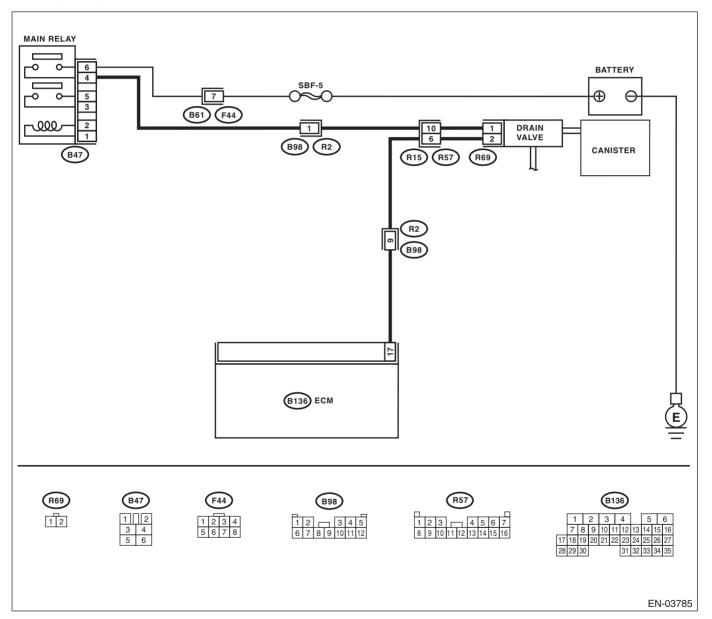
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-199, DTC P1443 VENT CONTROL SOLENOID VALVE FUNCTION PROBLEM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper fuel supply

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the relevant DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 65,="" code="" diagnostic="" en(h4so)(diag)-="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK DRAIN HOSE. Check the drain hose for clogging.	Is there clogging in the drain hose?	Replace the drain hose.	Go to step 3.
3	CHECK DRAIN VALVE OPERATION. 1) Turn the ignition switch to OFF. 2) Connect the test mode connector at the lower portion of instrument panel (on the driver's side). 3) Turn the ignition switch to ON. 4) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve=""></ref.>		Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.	Replace the drain valve. <ref. to<br="">EC(H4SO)-17, Drain Valve.></ref.>

CS:DTC P1491 POSITIVE CRANKCASE VENTILATION (BLOW-BY) FUNCTION PROBLEM

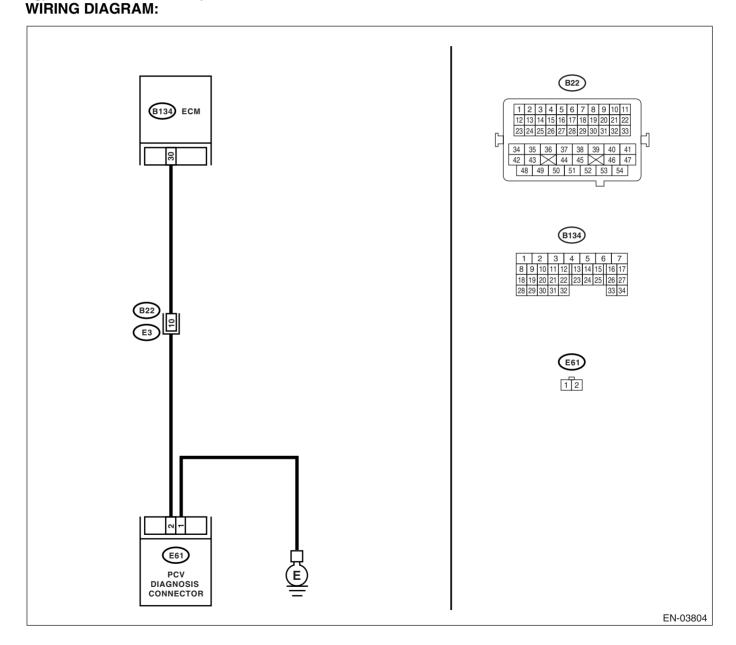
DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-201, DTC P1491 POSITIVE CRANKCASE VENTILA-TION (BLOW-BY) FUNCTION PROBLEM, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

Erroneous idling

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Ī	Step	Check	Yes	No
Ī	1 CHECK BLOW-BY HOSE.	Is there any disconnection or	Replace or repair	Go to step 2.
	Check the blow-by hose condition.	crack in blow-by hose?	the blow-by hose.	

	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN PCV DIAGNO-	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between PCV diagnosis connec- tor and ECM con- nector.
3	CHECK HARNESS BETWEEN PCV DIAGNO- SIS CONNECTOR AND ECM CONNECTOR. Measure the resistance of harness between PCV diagnosis connector and chassis ground. Connector & terminal (B134) No. 30 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 4.	Repair the ground short circuit of har- ness between PCV diagnosis connector and ECM connector.
4	CHECK GROUND CIRCUIT OF PCV DIAGNOSIS CONNECTOR. Measure the resistance of harness between PCV diagnosis connector and engine ground. Connector & terminal (E61) No. 1 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 5.	Repair ground circuit of PCV diagnosis connector.
5	CHECK PCV DIAGNOSIS CONNECTOR. Measure the resistance between PCV diagnosis connector terminals. Terminals No. 1 — No. 2:	Is the resistance less than 1 Ω ?	Repair the poor contact in ECM connector and PCV diagnosis connector.	Replace the PCV diagnosis connector.

ENGINE (DIAGNOSTICS)

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

NOTE:

For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4SO)(diag)-278, DTC P1498 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:

For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4SO)(diag)-281, DTC P1499 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:

For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4SO)(diag)-278, DTC P1498 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:

For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4SO)(diag)-281, DTC P1499 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:

For the diagnostic procedure, refer to DTC P1498. <Ref. to EN(H4SO)(diag)-278, DTC P1498 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:

For the diagnostic procedure, refer to DTC P1499. <Ref. to EN(H4SO)(diag)-281, DTC P1499 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

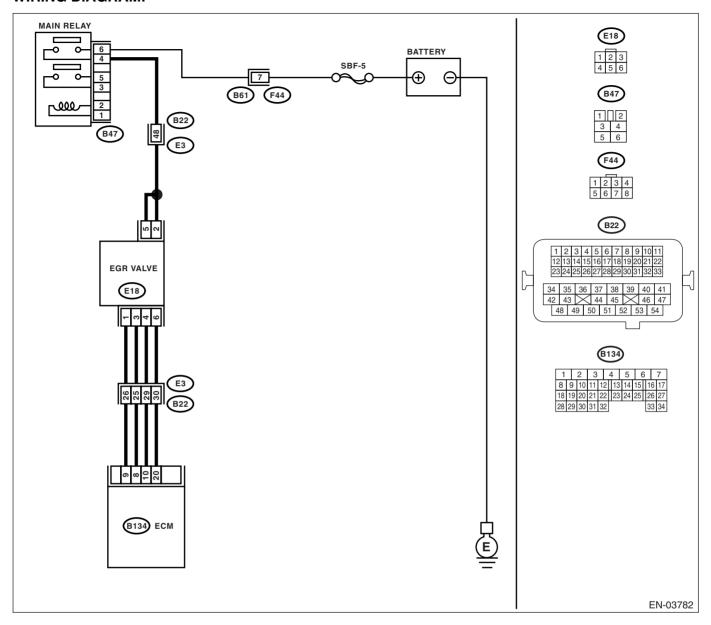
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-203, DTC P1492 EGR SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-207, DTC P1494 EGR SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-207, DTC P1496 EGR SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-207, DTC P1498 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance
- Engine breathing

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK POWER SUPPLY TO EGR SOLE-	Is the voltage more than 10 V?	Go to step 2.	Repair the har-
NOID VALVE.			ness and connec-
 Turn the ignition switch to OFF. 			tor.
Disconnect the connector from EGR sole-			NOTE:
noid valve.			In this case, repair
Turn the ignition switch to ON.			the following item:
 Measure the voltage between EGR sole- 			 Open circuit
noid valve connector and engine ground.			in harness be-
Connector & terminal			tween EGR so-
(E18) No. 2 (+) — Engine ground (–):			lenoid valve and
(E18) No. 5 (+) — Engine ground (–):			main relay con-
			nector
			 Poor contact
			in coupling con-
			nector

	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND EGR SOLENOID VALVE CONNECTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ECM and EGR solenoid valve connector. Connector & terminal DTC P1492; (B134) No. 10 — (E18) No. 1: DTC P1496; (B134) No. 8 — (E18) No. 3: DTC P1498; (B134) No. 20 — (E18) No. 6:		Go to step 3.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and EGR solenoid valve connector • Poor contact in coupling connector
3	CHECK HARNESS BETWEEN ECM AND EGR SOLENOID VALVE CONNECTOR. 1) Disconnect the connectors from ECM. 2) Measure the resistance between ECM connector and chassis ground. Connector & terminal DTC P1492; (B134) No. 10 — Chassis ground: DTC P1494; (B134) No. 9 — Chassis ground: DTC P1496; (B134) No. 8 — Chassis ground: DTC P1498; (B134) No. 20 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 4.	Repair the ground short in harness between ECM and EGR solenoid valve connector.
4	CHECK POOR CONTACT. Check poor contact in ECM connector and EGR solenoid valve connector.	Is there poor contact in ECM connector or EGR solenoid valve connector?	Repair the poor contact in ECM connector or EGR solenoid valve connector.	Replace the EGR solenoid valve. <ref. to<br="">FU(H4SO)-29, EGR Valve.></ref.>

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

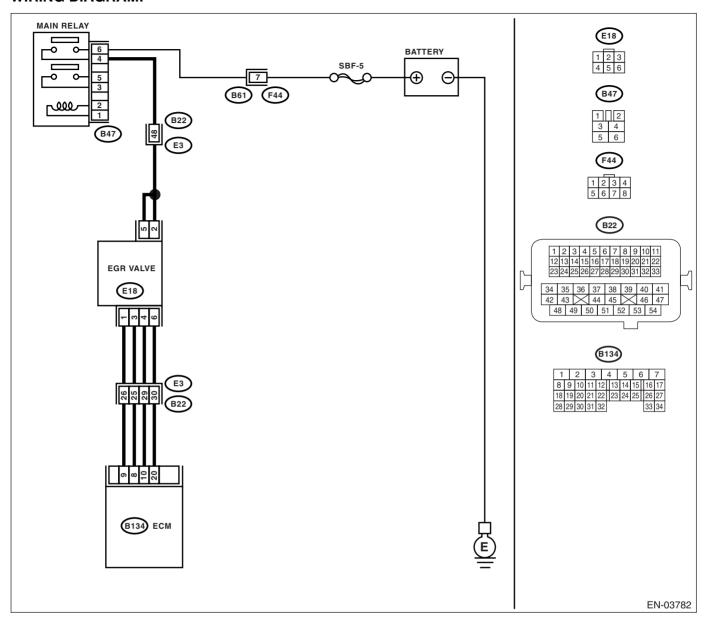
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-205, DTC P1493 EGR SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-207, DTC P1495 EGR SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-207, DTC P1497 EGR SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-207, DTC P1499 EGR SOLENOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance
- Engine breathing

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using	Go to step 2.
			"List of Diagnostic	
			Trouble Code	
			(DTC)". <ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			65, List of Diag-	
			nostic Trouble	
			Code (DTC).>	

	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 10 V?	Repair the battery	Replace the ECM.
	EGR SOLENOID VALVE CONNECTOR.	-	short in harness	<ref. td="" to<=""></ref.>
	 Turn the ignition switch to OFF. 		between ECM and	FU(H4SO)-40,
	2) Disconnect the connector from EGR sole-		EGR solenoid	Engine Control
	noid valve.		valve connector.	Module (ECM).>
	Turn the ignition switch to ON.		After repair,	
	4) Measure the voltage between ECM con-		replace the ECM.	
	nector and chassis ground.		<ref. td="" to<=""><td></td></ref.>	
	Connector & terminal		FU(H4SO)-40,	
	DTC P1493;		Engine Control	
	(B134) No. 10 — Chassis ground (–):		Module (ECM).>	
	DTC P1495;			
	(B134) No. 9 — Chassis ground (–):			
	DTC P1497;			
	(B134) No. 8 — Chassis ground (–):			
	DTC P1499;			
ĺ	(B134) No. 20 — Chassis ground (–):			

ENGINE (DIAGNOSTICS)

DB:DTC P1518 STARTER SWITCH CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-208, DTC P1518 STARTER SWITCH CIRCUIT LOW IN-PUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

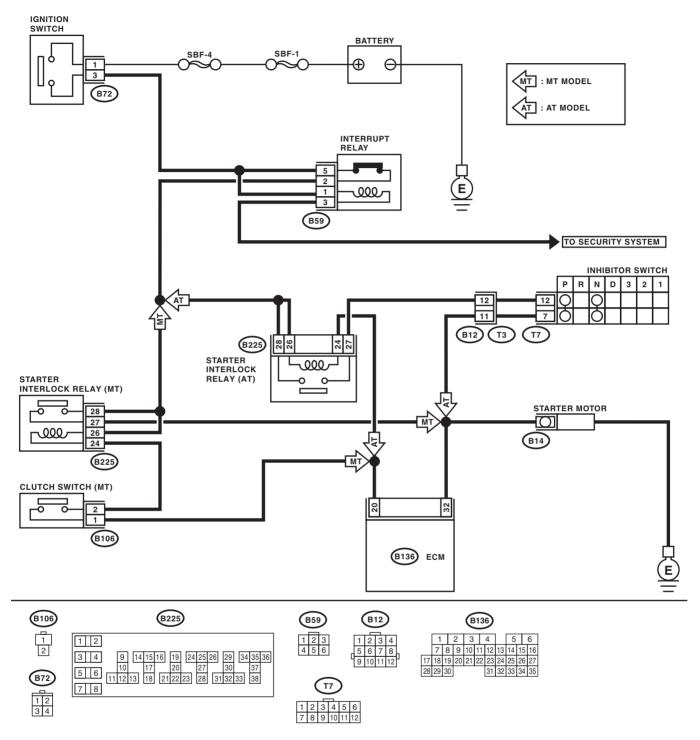
TROUBLE SYMPTOM:

Failure of engine to start

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

WIRING DIAGRAM:



EN-03791

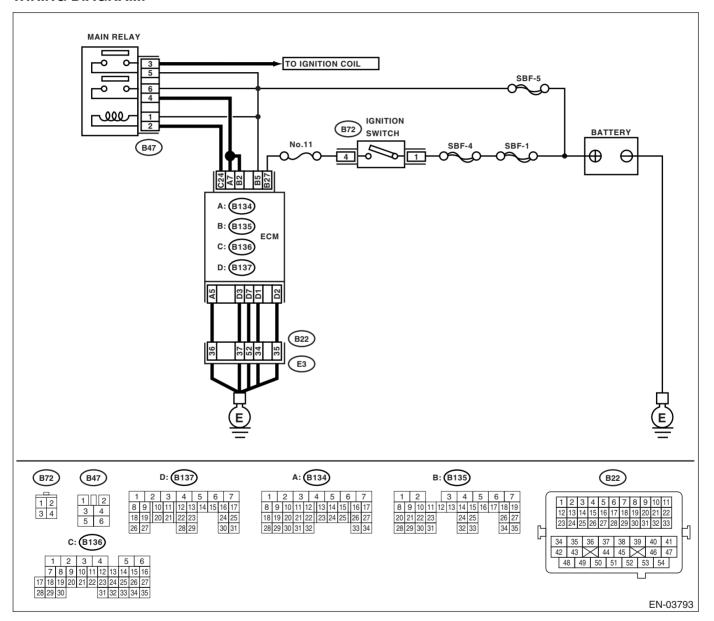
CHECK OPERATION OF STARTER MOTOR. Place the inhibitor switch in "P" or "N" range. (AT model) Depress the clutch pedal. (MT model) Depress the clutch pedal. (MT model) Depress the clutch pedal. (MT model) Does the starter motor operate when ignition switch is turned to "ST"? Does the starter motor operate when ignition switch is turned to "ST"? Repair the harness and connector. NOTE: In this case, repair the following item: Open or ground short circuit of harness between ECM and starter motor connector Place the inhibitor switch in "P" or "N" range. NOTE: In this case, repair the harness and connector. Open or ground short circuit of harness between ECM and starter motor operate when ignition switch is turned to "ST"?		Step	Check	Yes	No
I IN EC.IVI CONNEC-1	1	CHECK OPERATION OF STARTER MOTOR. Place the inhibitor switch in "P" or "N" range. (AT model)	Does the starter motor operate when ignition switch is turned	Repair the harness and connector. NOTE: In this case, repair the following item: • Open or ground short circuit of harness between ECM and starter motor connector	Check the starter motor circuit. <ref. circuit,="" diagnostics="" en(h4so)(diag)-51,="" engine="" failure.="" for="" motor="" starter="" starting="" to=""></ref.>

DC:DTC P1560 BACK-UP VOLTAGE CIRCUIT MALFUNCTION DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-209, DTC P1560 BACK-UP VOLTAGE CIRCUIT MAL-FUNCTION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Repair poor con-	Go to step 2.
	 Turn the ignition switch to OFF. 	_	tact in ECM con-	
	2) Measure the voltage between ECM and		nector.	
	chassis ground.			
	Connector & terminal			
	(B135) No. 5 (+) — Chassis ground (–):			

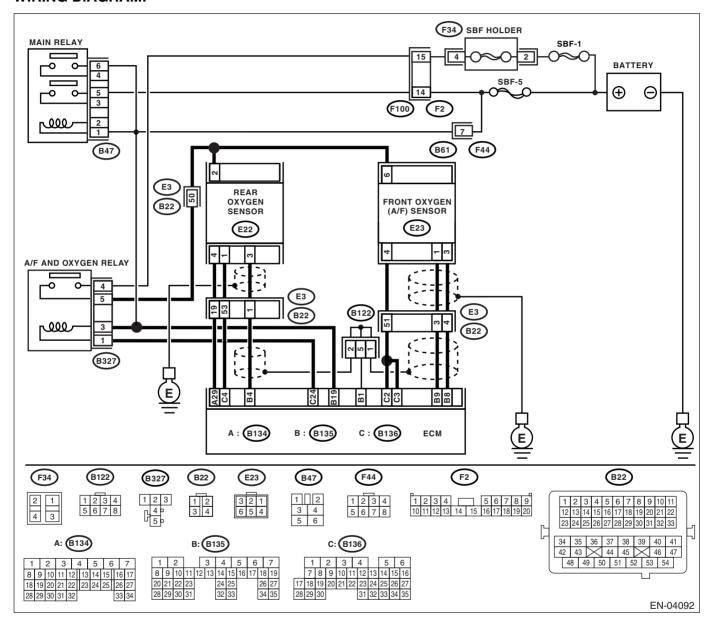
	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR. 1) Disconnect the connectors from ECM. 2) Measure the resistance of harness between ECM and chassis ground. Connector & terminal (B135) No. 5 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair the ground short circuit of harness between ECM connector and battery terminal.	Go to step 3.
3	CHECK FUSE SBF-5.	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 and battery Poor contact in ECM connector Poor contact in battery terminal

DD:DTC P2096 POST CATALYST FUEL TRIM SYSTEM TOO LEAN BANK 1 DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-210, DTC P2096 POST CATALYST FUEL TRIM SYSTEM TOO LEAN BANK 1, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



		· .	.,	
	Step STEP STEP STEP STEP STEP STEP STEP STEP	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic	Go to step 2.
			Trouble Code	
			(DTC)". <ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			65, List of Diag-	
			nostic Trouble	
			Code (DTC).>	
			NOTE: In this case, it is	
			not necessary to	
			inspect DTC	
			P2096.	
2	CHECK FRONT OXYGEN (A/F) SENSOR	Does water enter the connec-	Dry the water thor-	Go to step 3.
	CONNECTOR AND COUPLING CONNECTOR.	tor?	oughly.	
3	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 4.	Repair the har-
	FRONT OXYGEN (A/F) SENSOR CONNEC-	Ω?		ness and connec-
	TOR.			tor.
	Turn the ignition switch to OFF. Disconnect the connector from FCM and			NOTE:
	 Disconnect the connector from ECM and front oxygen (A/F) sensor connector. 			In this case, repair
	3) Measure the resistance of harness			the following item: Open circuit in
	between ECM and front oxygen (A/F) sensor			harness between
	connector.			ECM and front ox-
	Connector & terminal			ygen (A/F) sensor
	(B135) No. 9 — (E23) No. 1:			connector
	(B135) No. 8 — (E23) No. 3:			• Poor contact in
				front oxygen (A/F)
				sensor connector
				 Poor contact in
	OUTOV HADNEGO BETWEEN FOM AND		0-1	ECM connector
4	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC-	Is the resistance more than 1 $M\Omega$?	Go to step 5.	Repair the ground short circuit of har-
	TOR.	IVIS 2 :		ness between
	Measure the resistance of harness between			ECM and front
	ECM connector and chassis ground.			oxygen (A/F) sen-
	Connector & terminal			sor connector.
	(B135) No. 8 — Chassis ground:			
	(B135) No. 9 — Chassis ground:			
5	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 4.5 V?	Go to step 6.	Go to step 7.
	Connect the connector to ECM. Turn the ignition switch to CM.			
	2) Turn the ignition switch to ON.3) Measure the voltage between ECM con-			
	nector and chassis ground.			
	Connector & terminal			
	(B135) No. 9 (+) — Chassis ground (–):			
6	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 10 V?	Repair the battery	Repair poor con-
	Measure the voltage between ECM connector		short circuit of har-	
	and chassis ground.		ness between	nector.
	Connector & terminal		ECM and front	
	(B135) No. 9 (+) — Chassis ground (–):		oxygen (A/F) sen-	
			sor connector.	
			After repair,	
			replace the ECM. <ref. th="" to<=""><th></th></ref.>	
			<нет. to FU(H4SO)-40,	
			Engine Control	
			Module (ECM).>	

	Step	Check	Yes	No
7	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 8 (+) — Chassis ground (-):	Is the voltage more than 4.95 V?	Go to step 8.	Go to step 9.
8	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 8 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of harness between ECM and front oxygen (A/F) sensor connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Repair poor contact in ECM connector.
9	CHECK EXHAUST SYSTEM.	Are there holes or loose bolts on exhaust system?	Repair the exhaust system.	Go to step 10.
10	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 11.
11	CHECK FUEL PRESSURE. WARNING: • Place "NO FIRE" signs near the working area. • Be careful not to spill fuel. Measure the fuel pressure. <ref. fuel="" inspection,="" me(h4so)-26,="" pressure.="" to=""> WARNING: Release fuel pressure before removing the fuel pressure gauge.</ref.>	Is the measured value 339.5 — 360.5 kPa (3.5 — 3.7 kgf/cm ² , 49 — 52 psi)?	Go to step 12.	Repair the following item. Fuel pressure is too high: Clogged fuel line or bent hose Fuel pressure is too low: Improper fuel pump discharge Clogged fuel line
12	CHECK ENGINE COOLANT TEMPERATURE SENSOR. 1) Start the engine and warm-up completely. 2) Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	(140°F) ?	Go to step 13.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-22,="" sensor.="" temperature="" to=""></ref.>

	Step	Check	Yes	No
13		Is the measured value 2.1 —	Go to step 14.	Replace the mass
	AIR TEMPERATURE SENSOR.	3.4 g/s (0.28 — 0.45 lb/m)?	•	air flow and intake
	 Start the engine and warm-up engine until 			air temperature
	coolant temperature is greater than 60°C			sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-28,
	2) Place the shift lever in neutral position.			Mass Air Flow and
	3) Turn the A/C switch to OFF.			Intake Air Temper-
	4) Turn all the accessory switches to OFF.			ature Sensor.>
	5) Read the data of mass air flow and intake			
	air temperature sensor signal using Subaru			
	Select Monitor or general scan tool.			
	NOTE: • Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			
14	CHECK THE MASS AIR FLOW AND INTAKE	Subtract the ambient tempera-	Go to step 15.	Check the mass
	AIR TEMPERATURE SENSOR.	ture from intake air tempera-	•	air flow and intake
	1) Start the engine and warm-up engine until	ture. Is the obtained value -10		air temperature
	coolant temperature is greater than 60°C	— 50°C (–18 — 90°F)?		sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-28,
	2) Place the shift lever in neutral position.			Mass Air Flow and
	3) Turn the A/C switch to OFF.			Intake Air Temper-
	4) Turn all the accessory switches to OFF.			ature Sensor.>
	5) Open the front hood.			
	6) Measure the ambient temperature.7) Read the data of mass air flow and intake			
	air temperature sensor signal using Subaru			
	Select Monitor or general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td></td></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	 General scan tool 			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			
15	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage more than 490	Go to step 19.	Go to step 16.
	1) Warm-up the engine until engine coolant	mV?		
	temperature is above 70°C (158°F), and keep			
	the engine speed at 3,000 rpm. (Max. 2 min-			
	utes)			
	2) Read the data of rear oxygen sensor signal			
	using Subaru Select Monitor or general scan tool.			
	NOTE:			
	NOTE:For MT model, depress the clutch pedal.			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			

	Step	Check	Yes	No
16	CHECK REAR OXYGEN SENSOR CONNEC-	Does water enter the connec-	Dry the water thor-	Go to step 17.
	TOR AND COUPLING CONNECTOR.	tor?	oughly.	
17	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than	Repair the open	Go to step 18.
	REAR OXYGEN SENSOR CONNECTOR.	3Ω ?	circuit of harness	
	 Turn the ignition switch to OFF. 		between ECM and	
	Disconnect the connector from ECM and		rear oxygen sen-	
	rear oxygen sensor.		sor connector.	
	Measure the resistance of harness			
	between ECM and rear oxygen sensor con-			
	nector.			
	Connector & terminal			
	(B135) No. 4 — (E22) No. 3:			
	(B134) No. 29 — (E22) No. 4:			
18	CHECK HARNESS BETWEEN REAR OXY-	Is the voltage 0.2 — 0.5 V?	Replace the rear	Repair the har-
	GEN SENSOR AND ECM CONNECTOR.		oxygen sensor.	ness and connec-
	1) Turn the ignition switch to OFF.		<ref. td="" to<=""><td>tor.</td></ref.>	tor.
	2) Disconnect the connector from rear oxygen		FU(H4SO)-38,	NOTE:
	sensor.		Rear Oxygen Sen-	In this case, repair
	3) Turn the ignition switch to ON.		sor.>	the following item:
	Measure the voltage between rear oxygen			 Open circuit in
	sensor harness connector and engine ground			harness between
	or chassis ground.			rear oxygen sen-
	Connector & terminal			sor and ECM con-
	(E22) No. 3 (+) — Engine ground (–):			nector
				 Poor contact in
				rear oxygen sen-
				sor connector
				• Poor contact in
				ECM connector
19	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage 250 mV or less?	Go to step 20.	Go to step 16.
	1) Warm-up the engine until engine coolant			
	temperature is above 70°C (158°F), and rap-			
	idly reduce the engine speed from 3,000 rpm.			
	2) Read the data of rear oxygen sensor signal			
	using Subaru Select Monitor or general scan			
	tool.			
	NOTE:			
	For MT model, depress the clutch pedal. Subaru Salast Manitor			
	Subaru Select Monitor For detailed experition procedures refer to			
	For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.> • General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			

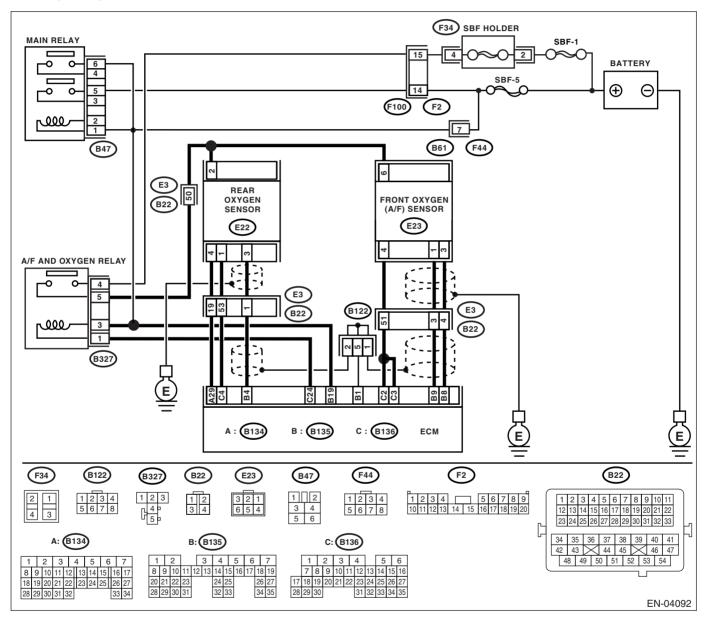
	Step	Check	Yes	No
20	CHECK FRONT OXYGEN (A/F) SENSOR AND REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and leave it for 5 minutes or more with idling. 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-36, Front Oxygen (A/F) Sensor.></ref.>	Go to step 17.

DE:DTC P2097 POST CATALYST FUEL TRIM SYSTEM TOO RICH BANK 1 DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-212, DTC P2097 POST CATALYST FUEL TRIM SYS-TEM TOO RICH BANK 1, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



				
	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic	Go to step 2.
			Trouble Code	
			(DTC)". <ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			65, List of Diag-	
			nostic Trouble	
			Code (DTC).>	
			NOTE:	
			In this case, it is	
			not necessary to	
			inspect DTC	
			P2097.	
2	CHECK FRONT OXYGEN (A/F) SENSOR	Does water enter the connec-	Dry the water thor-	Go to step 3.
	CONNECTOR AND COUPLING CONNECTOR.	tor?	oughly.	
3	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 4.	Repair the har-
	FRONT OXYGEN (A/F) SENSOR CONNEC-	Ω ?	•	ness and connec-
	TOR.			tor.
	 Turn the ignition switch to OFF. 			NOTE:
	2) Disconnect the connector from ECM and			In this case, repair
	front oxygen (A/F) sensor connector.			the following item:
	Measure the resistance of harness			Open circuit in
	between ECM and front oxygen (A/F) sensor			harness between
	connector.			ECM and front ox-
	Connector & terminal			ygen (A/F) sensor
	(B135) No. 9 — (E23) No. 1:			connector
	(B135) No. 8 — (E23) No. 3:			 Poor contact in
				front oxygen (A/F)
				sensor connector
				 Poor contact in
				ECM connector
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 5.	Repair the ground
	FRONT OXYGEN (A/F) SENSOR CONNECTOR.	ΜΩ?		short circuit of har-
				ness between
	Measure the resistance of harness between			ECM and front
	ECM connector and chassis ground.			oxygen (A/F) sen-
	Connector & terminal			sor connector.
	(B135) No. 8 — Chassis ground: (B135) No. 9 — Chassis ground:			
5	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 4.5 V?	Go to step 6	Go to step 7.
	Connect the connector to ECM.	lo the voltage more than 1.0 v.	Go to stop c .	ao to diop 7.
	Turn the ignition switch to ON.			
	Measure the voltage between ECM con-			
	nector and chassis ground.			
	Connector & terminal			
	(B135) No. 9 (+) — Chassis ground (–):			
6	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 10 V?	Repair the battery	Repair poor con-
	Measure the voltage between ECM connector		short circuit of har-	
	and chassis ground.		ness between	nector.
	Connector & terminal		ECM and front	
	(B135) No. 9 (+) — Chassis ground (–):		oxygen (A/F) sen-	
			sor connector.	
			After repair,	
			replace the ECM.	
			<ref. th="" to<=""><th></th></ref.>	
			FU(H4SO)-40,	
			Engine Control	
			Module (ECM).>	

	Step	Check	Yes	No
7	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 8 (+) — Chassis ground (-):	Is the voltage more than 4.95 V?	Go to step 8.	Go to step 9.
8	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 8 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of harness between ECM and front oxygen (A/F) sensor connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Repair poor contact in ECM connector.
9	CHECK EXHAUST SYSTEM.	Are there holes or loose bolts on exhaust system?	Repair the exhaust system.	Go to step 10.
10	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 11.
11	CHECK FUEL PRESSURE. WARNING: • Place "NO FIRE" signs near the working area. • Be careful not to spill fuel. Measure the fuel pressure. <ref. fuel="" inspection,="" me(h4so)-26,="" pressure.="" to=""> WARNING: Release fuel pressure before removing the fuel pressure gauge.</ref.>	Is the measured value 339.5 — 360.5 kPa (3.5 — 3.7 kgf/cm ² , 49 — 52 psi)?	Go to step 12.	Repair the following item. Fuel pressure is too high: Clogged fuel line or bent hose Fuel pressure is too low: Improper fuel pump discharge Clogged fuel line
12	CHECK ENGINE COOLANT TEMPERATURE SENSOR. 1) Start the engine and warm-up completely. 2) Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>	(140°F) ?	Go to step 13.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-22,="" sensor.="" temperature="" to=""></ref.>

	Step	Check	Yes	No
13		Is the measured value 2.1 —	Go to step 14.	Replace the mass
	AIR TEMPERATURE SENSOR.	3.4 g/s (0.28 — 0.45 lb/m)?	•	air flow and intake
	 Start the engine and warm-up engine until 			air temperature
	coolant temperature is greater than 60°C			sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-28,
	2) Place the shift lever in neutral position.			Mass Air Flow and
	3) Turn the A/C switch to OFF.			Intake Air Temper-
	4) Turn all the accessory switches to OFF.			ature Sensor.>
	5) Read the data of mass air flow and intake			
	air temperature sensor signal using Subaru			
	Select Monitor or general scan tool.			
	NOTE: • Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			
14	CHECK THE MASS AIR FLOW AND INTAKE	Subtract the ambient tempera-	Go to step 15.	Check the mass
	AIR TEMPERATURE SENSOR.	ture from intake air tempera-	•	air flow and intake
	1) Start the engine and warm-up engine until	ture. Is the obtained value -10		air temperature
	coolant temperature is greater than 60°C	— 50°C (–18 — 90°F)?		sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-28,
	2) Place the shift lever in neutral position.			Mass Air Flow and
	3) Turn the A/C switch to OFF.			Intake Air Temper-
	4) Turn all the accessory switches to OFF.			ature Sensor.>
	5) Open the front hood.			
	6) Measure the ambient temperature.7) Read the data of mass air flow and intake			
	air temperature sensor signal using Subaru			
	Select Monitor or general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td></td></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	 General scan tool 			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			
15	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage more than 490	Go to step 19.	Go to step 16.
	1) Warm-up the engine until engine coolant	mV?		
	temperature is above 70°C (158°F), and keep			
	the engine speed at 3,000 rpm. (Max. 2 min-			
	utes)			
	2) Read the data of rear oxygen sensor signal			
	using Subaru Select Monitor or general scan tool.			
	NOTE:			
	NOTE:For MT model, depress the clutch pedal.			
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			

	Step	Check	Yes	No
16	CHECK REAR OXYGEN SENSOR CONNEC-	Does water enter the connec-	Dry the water thor-	Go to step 17.
	TOR AND COUPLING CONNECTOR.	tor?	oughly.	
17	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than	Repair the open	Go to step 18.
	REAR OXYGEN SENSOR CONNECTOR.	3Ω?	circuit of harness	
	 Turn the ignition switch to OFF. 		between ECM and	
	Disconnect the connector from ECM and		rear oxygen sen-	
	rear oxygen sensor.		sor connector.	
	Measure the resistance of harness			
	between ECM and rear oxygen sensor con-			
	nector.			
	Connector & terminal			
	(B135) No. 4 — (E22) No. 3:			
	(B134) No. 29 — (E22) No. 4:			
18	CHECK HARNESS BETWEEN REAR OXY-	Is the voltage 0.2 — 0.5 V?	Replace the rear	Repair the har-
	GEN SENSOR AND ECM CONNECTOR.		oxygen sensor.	ness and connec-
	Turn the ignition switch to OFF.		<ref. td="" to<=""><td>tor.</td></ref.>	tor.
	2) Disconnect the connector from rear oxygen		FU(H4SO)-38,	NOTE:
	sensor.		Rear Oxygen Sen-	In this case, repair
	3) Turn the ignition switch to ON.		sor.>	the following item:
	 Measure the voltage between rear oxygen sensor harness connector and engine ground 			Open circuit in
	or chassis ground.			harness between
	Connector & terminal			rear oxygen sen- sor and ECM con-
	(E22) No. 3 (+) — Engine ground (–):			nector
	(222) No. 0 (1) Linguic ground ().			Poor contact in
				rear oxygen sen-
				sor connector
				Poor contact in
				ECM connector
19	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage 250 mV or less?	Go to step 20.	Go to step 16.
	1) Warm-up the engine until engine coolant		'	'
	temperature is above 70°C (158°F), and rap-			
	idly reduce the engine speed from 3,000 rpm.			
	2) Read the data of rear oxygen sensor signal			
	using Subaru Select Monitor or general scan			
	tool.			
	NOTE:			
	 For MT model, depress the clutch pedal. 			
	 Subaru Select Monitor 			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedures, refer to the			
	"General Scan Tool Instruction Manual".			

Step	Check	Yes	No
CHECK FRONT OXYGEN (A/F) SENSOR AND REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and leave it for 5 minutes or more with idling. 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedures, refer to the "General Scan Tool Instruction Manual".</ref.>		Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-36, Front Oxygen (A/F) Sensor.></ref.>	Go to step 17.

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

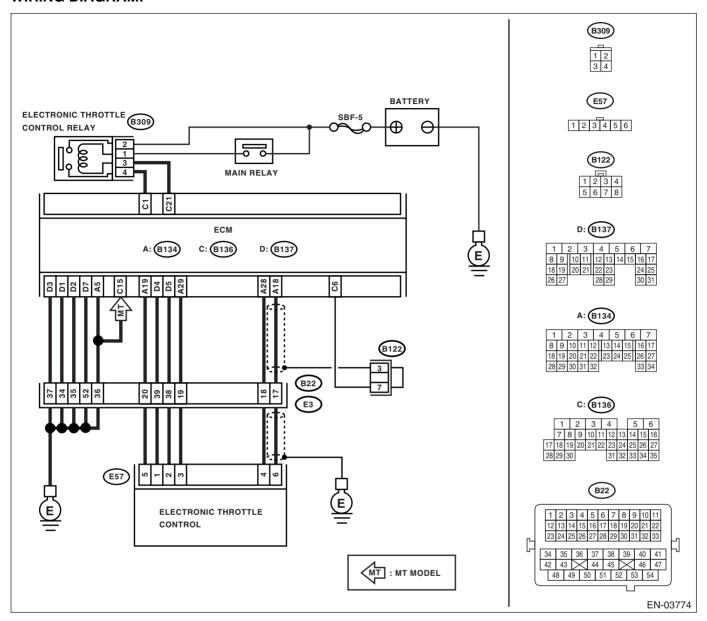
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-177, DTC P0638 THROTTLE ACTUATOR CONTROL RANGE/PERFORMANCE (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-193, DTC P1160 RETURN SPRING FAILURE, Diagnostic Trouble Code (DTC) Detecting Criteria.> or <Ref. to GD(H4SO)-214, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-220, DTC P2109 THROTTLE/PEDAL POSITION SENSOR "A" MINIMUM STOP PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance
- Engine stalls.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



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. 1 and No. 3 of electronic throttle control relay. 4) Measure the resistance between electronic throttle control relay terminals. Terminals No. 2 — No. 4:	Is the resistance less than 1 Ω ?	Go to step 2.	Replace the electronic throttle control relay.

	Step	Check	Yes	No
2	CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL RELAY. 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control relay connector and chassis ground. Connector & terminal (B309) No. 1 (+) — Chassis ground (-): (B309) No. 2 (+) — Chassis ground (-):	Is the voltage more than 5 V?	Go to step 3.	Repair the open or ground short cir- cuit of power sup- ply circuit.
3	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Turn the ignition switch to ON. 4) Measure the voltage between electronic throttle control relay connector and chassis ground. Connector & terminal (B309) No. 3 (+) — Chassis ground (-):	Is the voltage less than 5 V?	Go to step 4.	Repair the power supply short circuit of harness between ECM and electronic throttle control.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control relay connector and chassis ground. Connector & terminal (B309) No. 3 — Chassis ground: (B309) No. 4 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the ground short circuit of har- ness between ECM and elec- tronic throttle con- trol relay.
5	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. 1) Turn the ignition switch to OFF. 2) Measure the resistance between ECM connector and electronic throttle control relay connector. Connector & terminal (B136) No. 21 — (B309) No. 3: (B136) No. 1 — (B309) No. 4:	Is the resistance less than 1 Ω ?	Go to step 6.	Repair the open circuit of harness between ECM and electronic throttle control relay.
6	CHECK SENSOR OUTPUT. 1) Connect all the connectors. 2) Turn the ignition switch to ON. 3) Read the data of main throttle sensor signal using Subaru Select Monitor.	Is the voltage more than 0.4 V?	Go to step 7.	Go to step 9.
7	CHECK SENSOR OUTPUT. 1) Connect all the connectors. 2) Turn the ignition switch to ON. 3) Read the data of sub throttle sensor signal using Subaru Select Monitor.	Is the voltage more than 0.8 V?		Go to step 9.
8	CHECK POOR CONTACT. Check poor contact in connector between ECM and electronic throttle control.	Is there poor contact?	Repair the poor contact.	Go to step 13.

	Step	Check	Yes	No
9	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 10.	Repair the open
	ELECTRONIC THROTTLE CONTROL.	Ω ?	·	circuit of harness
	 Turn the ignition switch to OFF. 			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B134) No. 18 — (E57) No. 6:			
	(B134) No. 28 — (E57) No. 4:			
10	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 11.	Repair the ground
	ELECTRONIC THROTTLE CONTROL.	ΜΩ?		short circuit of har-
	Measure the resistance between ECM connec-			ness.
	tor and chassis ground.			
	Connector & terminal			
	(B134) No. 18 — Chassis ground:			
	(B134) No. 28 — Chassis ground:			
11	CHECK SENSOR POWER SUPPLY.	Is the voltage 4.5 — 5.5 V?	Go to step 12.	Repair poor con-
	 Connect the ECM connector. 			tact in ECM con-
	2) Turn the ignition switch to ON.			nector. Replace
	3) Measure the voltage between electronic			the ECM if defec-
	throttle control connector and engine ground.			tive. <ref. td="" to<=""></ref.>
	Connector & terminal			FU(H4SO)-40,
	(E57) No. 5 (+) — Engine ground (–):			Engine Control
	() ()			Module (ECM).>
12	CHECK SHORT CIRCUIT IN ECM.	Is the resistance more than	Go to step 13.	Repair poor con-
	1) Turn the ignition switch to OFF.	10Ω?		tact in ECM con-
	2) Measure the resistance between electronic			nector. Replace
	throttle control connector and engine ground.			the ECM if defec-
	Connector & terminal			tive. <ref. td="" to<=""></ref.>
	(E57) No. 6 — Engine ground:			FU(H4SO)-40,
	(E57) No. 4 — Engine ground:			Engine Control
	3 3 3 3 3			Module (ECM).>
13	CHECK SENSOR OUTPUT.	Is the voltage less than 4.63	Go to step 14.	Go to step 16.
	1) Connect all the connectors.	V?	·	•
	2) Turn the ignition switch to ON.			
	3) Read the data of main throttle sensor signal			
	using Subaru Select Monitor.			
14	CHECK SENSOR OUTPUT.	Is the voltage less than 4.73	Go to step 15.	Go to step 16.
	Read the data of sub throttle sensor signal	V?		,
	using Subaru Select Monitor.			
15	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Go to step 21.
	Check poor contact in connector between	·	contact.	,
	ECM and electronic throttle control.			
16	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 17.	Repair the open
	ELECTRONIC THROTTLE CONTROL.	Ω ?		circuit of harness
	1) Turn the ignition switch to OFF.			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B134) No. 18 — (E57) No. 6:			
	(B134) No. 28 — (E57) No. 4:			

	Step	Check	Yes	No
17	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 5	Go to step 18.	Repair poor con-
	ELECTRONIC THROTTLE CONTROL.	Ω?		tact in ECM con-
	 Connect the ECM connector. 			nector. Replace
	2) Measure the resistance between electronic			the ECM if defec-
	throttle control connector and engine ground.			tive. <ref. td="" to<=""></ref.>
	Connector & terminal			FU(H4SO)-40,
	(E57) No. 3 — Engine ground:			Engine Control
				Module (ECM).>
18	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 19.	Repair the battery
	ELECTRONIC THROTTLE CONTROL.			short circuit of har-
	Turn the ignition switch to ON.			ness between
	2) Measure the voltage between electronic			ECM connector
	throttle control connector and engine ground.			and electronic
	Connector & terminal			throttle control
	(E57) No. 5 (+) — Engine ground (-):			connector.
19	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 20.	Repair the short
	ELECTRONIC THROTTLE CONTROL.			circuit of harness
	Measure the voltage between electronic throt-			between ECM
	tle control connector and engine ground.			connector and
	Connector & terminal			electronic throttle
	(E57) No. 6 (+) — Engine ground (-):			control connector.
20	(E57) No. 4 (+) — Engine ground (-): CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Co to stop 21	Danair the abort
20	ELECTRONIC THROTTLE CONTROL.	$M\Omega$?	Go to step 21.	Repair the short circuit to sensor
	Turn the ignition switch to OFF.	IVIS 2 ?		
	2) Remove the ECM.			power supply.
	Measure the resistance between ECM con-			
	nectors.			
	Connector & terminal			
	(B134) No. 18 — (B134) No. 19:			
	(B134) No. 28 — (B134) No. 19:			
21	CHECK SENSOR OUTPUT.	Is the voltage 0.81 — 0.87 V?	Go to step 22.	Repair the poor
	1) Turn the ignition switch to OFF.			contact of elec-
	2) Connect the connectors except for electric			tronic throttle con-
	throttle control relay.			trol connector.
	3) Turn the ignition switch to ON.			Replace the elec-
	4) Read the data of main throttle sensor signal			tronic throttle con-
	using Subaru Select Monitor.			trol if defective.
22	CHECK SENSOR OUTPUT.	Is the voltage 1.64 — 1.70 V?	Go to step 23.	Repair poor con-
	Read the data of sub throttle sensor signal		,	tact in ECM con-
	using Subaru Select Monitor.			nector. Replace
	-			the electronic
				throttle control if
				defective.
23	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 24.	Repair the open
	ELECTRONIC THROTTLE CONTROL MO-	Ω?		circuit of harness
	TOR.			connector.
	Turn the ignition switch to OFF.			
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B137) No. 5 — (E57) No. 2:			
	(B137) No. 4 — (E57) No. 1:			

	Step	Check	Yes	No
24	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL MOTOR. 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 less than 5 V?	Go to step 25.	Repair the power supply short circuit of harness between ECM and electronic throttle control.
25	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL MOTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors 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 more than 1 $\mbox{M}\Omega ?$	Go to step 26.	Repair the short circuit of harness.
26	CHECK ELECTRONIC THROTTLE CONTROL MOTOR HARNESS. Measure the resistance between electronic throttle control connector terminals. Connector & terminal (E57) No. 2 — (E57) No. 1:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 27.	Repair the short circuit of harness.
27	CHECK ELECTRONIC THROTTLE CONTROL GROUND CIRCUIT. Measure the resistance between ECM connector and chassis ground. Connector & terminal (B136) No. 15 — Chassis ground:	Is the resistance less than 10 Ω ?	Go to step 28.	Repair the open circuit of harness.
28	CHECK ELECTRONIC THROTTLE CONTROL. Measure the resistance between electronic throttle control terminals. Terminals No. 1 — No. 2:	Is the resistance 50 Ω or less?	Go to step 29.	Replace the electronic throttle control.
29	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 poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Replace the electronic throttle control.

DG:DTC P2102 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW DTC DETECTING CONDITION:

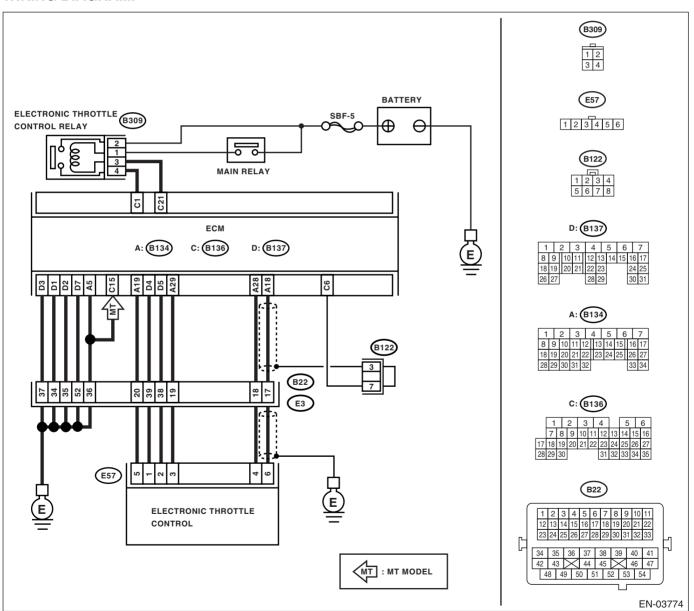
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-216, DTC P2102 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Erroneous idling
- · Poor driving performance
- · Engine stalls.

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



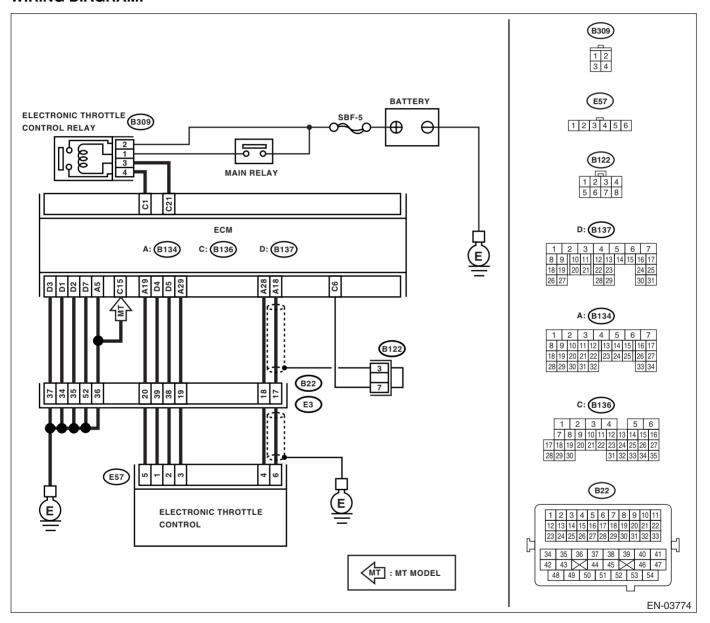
	Step	Check	Yes	No
1	CHECK ELECTRONIC THROTTLE CONTROL RELAY. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control relay. 3) Connect the battery to terminals No. 1 and No. 3 of electronic throttle control relay. 4) Measure the resistance between electronic throttle control terminals. Terminals No. 2 — No. 4:	Is the resistance less than 1 Ω ?	Go to step 2.	Replace the electronic throttle control relay.
2	CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL RELAY. 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control relay connector and chassis ground. Connector & terminal (B309) No. 1 (+) — Chassis ground (-): (B309) No. 2 (+) — Chassis ground (-):	Is the voltage more than 5 V?	Go to step 3.	Repair the open or ground short cir- cuit of power sup- ply circuit.
3	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Turn the ignition switch to ON. 4) Measure the voltage between electronic throttle control relay connector and chassis ground. Connector & terminal (B309) No. 3 (+) — Chassis ground (-):	Is the voltage less than 5 V?	Go to step 4.	Repair the power supply short cir- cuit of harness between ECM and electronic throttle control relay.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control relay connector and chassis ground. Connector & terminal (B309) No. 3 — Chassis ground: (B309) No. 4 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 5.	Repair the ground short circuit of har- ness between ECM and elec- tronic throttle con- trol relay.
5	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. Measure the resistance between ECM connector and electronic throttle control relay connector. Connector & terminal (B136) No. 21 — (B309) No. 3: (B136) No. 1 — (B309) No. 4:	Is the resistance less than 1 Ω ?	Repair poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Repair the open circuit of harness between ECM and electronic throttle control relay.

DH:DTC P2103 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-218, DTC P2103 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



ENGINE (DIAGNOSTICS)

	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	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 2.	Replace the electronic throttle control relay.
	throttle control relay terminals. Terminals No. 2 — No. 4:			
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 (B309) No. 4 (+) — Chassis ground (-):	Is the voltage more than 5 V?	Go to step 3.	Repair the power supply short cir- cuit of harness between ECM and electronic throttle control relay.
3	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance between ECM connector and engine ground. Connector & terminal (B136) No. 21 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair poor contact in ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>	Repair the ground short circuit of har- ness between ECM and elec- tronic throttle con- trol relay.

DI: DTC P2109 THROTTLE/PEDAL POSITION SENSOR "A" MINIMUM STOP PERFORMANCE

NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4SO)(diag)-301, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

DJ:DTC P2122 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

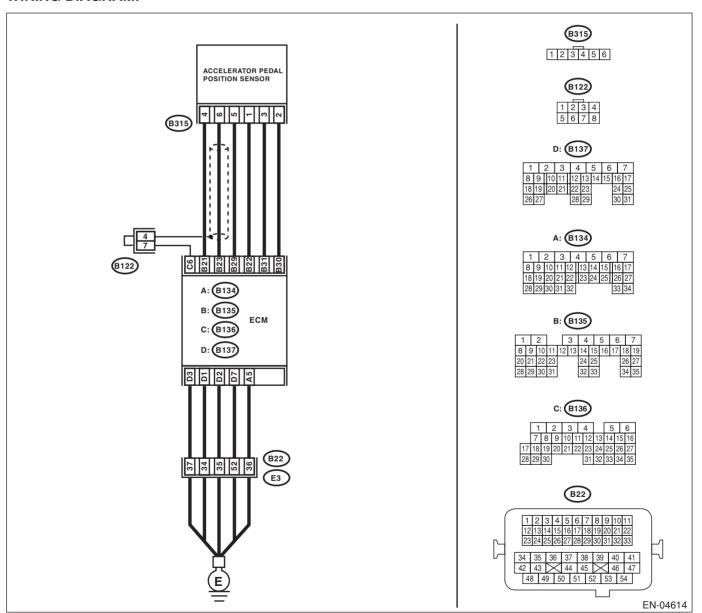
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-222, DTC P2122 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "D" CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION	Is the voltage more than 0.4 V?	Go to step 2.	Go to step 3.
	SENSOR OUTPUT.			
	 Turn the ignition switch to ON. 			
	2) Read the data of main accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 4.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.	Ω?		circuit of harness
	1) Turn the ignition switch to OFF.			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance of ECM connector			
	and accelerator pedal position sensor connec-			
	tor. Connector & terminal			
	(B135) No. 21 — (B315) No. 4:			
	(B135) No. 21 — (B315) No. 4. (B135) No. 23 — (B315) No. 6:			
4	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance more than 1	Go to step 5.	Repair the chas-
	CELERATOR PEDAL POSITION SENSOR.	ΜΩ?	•	sis short circuit of
	Measure the resistance between ECM connec-			harness.
	tor and chassis ground.			
	Connector & terminal			
	(B135) No. 21 — Chassis ground:			
	(B135) No. 23 — Chassis ground:			
5	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 5 Ω ?	Go to step 6.	Repair poor con-
	CELERATOR PEDAL POSITION SENSOR.			tact in ECM con-
	 Connect the ECM connector. 			nector. Replace
	2) Measure the resistance between accelera-			the ECM if defec-
	tor pedal position sensor connector and chas-			tive. <ref. td="" to<=""></ref.>
	sis ground.			FU(H4SO)-40,
	Connector & terminal			Engine Control
	(B315) No. 5 — Chassis ground:		<u> </u>	Module (ECM).>
6	CHECK POWER SUPPLY OF ACCELERA-	Is the voltage 4.5 — 5.5 V?	Replace the accel-	Repair poor con-
	TOR PEDAL POSITION SENSOR.		erator pedal posi-	tact in ECM con-
	Turn the ignition switch to ON. Management the college between accelerators.		tion sensor. <ref.< td=""><td>nector. Replace</td></ref.<>	nector. Replace
	2) Measure the voltage between accelerator		to SP(H4SO)-3,	the ECM if defec-
	pedal position sensor connector and chassis		Accelerator Pedal.>	tive. <ref. td="" to<=""></ref.>
	ground. Connector & terminal		reudi.>	FU(H4SO)-40,
				Engine Control
	(B315) No. 4 (+) — Chassis ground (–):			Module (ECM).>

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

DTC DETECTING CONDITION:

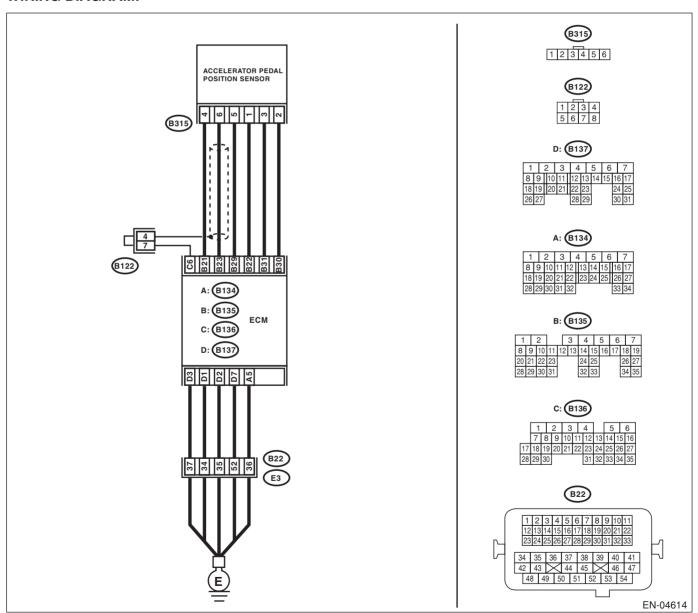
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-224, DTC P2123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION	Is the voltage less than 4.8 V?	Go to step 2.	Go to step 3.
	SENSOR OUTPUT.			
	 Turn the ignition switch to ON. 			
	2) Read the data of main accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 1	Go to step 4.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.	Ω ?		circuit of harness
	 Turn the ignition switch to OFF. 			connector.
	Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 21 — (B315) No. 4:			
	(B135) No. 29 — (B315) No. 5:			
	(B135) No. 23 — (B315) No. 6:			
4	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 5.	Repair poor con-
	CELERATOR PEDAL POSITION SENSOR.	Ω ?		tact in ECM con-
	Connect the ECM connector.			nector. Replace
	2) Measure the resistance between accelera-			the ECM if defec- tive. <ref. td="" to<=""></ref.>
	tor pedal position sensor connector and chassis ground.			FU(H4SO)-40,
	Connector & terminal			Engine Control
	(B315) No. 5 — Chassis ground:			Module (ECM).>
5	CHECK POWER SUPPLY OF ACCELERA-	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair the short
	TOR PEDAL POSITION SENSOR.	listific voltage 4.5 0.5 v :	Go to stop o .	circuit of harness
	Turn the ignition switch to ON.			between ECM
	Measure the voltage between accelerator			connector and
	pedal position sensor connector and chassis			accelerator pedal
	ground.			position sensor
	Connector & terminal			connector.
	(B315) No. 4 (+) — Chassis ground (–):			Replace the ECM
				if defective. <ref.< td=""></ref.<>
				to FU(H4SO)-40,
				Engine Control
				Module (ECM).>
6	CHECK HARNESS BETWEEN ECM AND AC-	Is the voltage less than 4.8 V?	Repair poor con-	Repair the poor
	CELERATOR PEDAL POSITION SENSOR.		tact in ECM con-	contact of acceler-
	 Turn the ignition switch to OFF. 		nector. Replace	ator pedal position
	2) Connect the accelerator pedal position sen-		the ECM if defec-	sensor connector.
	sor connector.		tive.	Replace the ECM
	Turn the ignition switch to ON.			if defective. <ref.< td=""></ref.<>
	4) Measure the voltage between ECM con-			to FU(H4SO)-40,
	nector and chassis ground.			Engine Control
	Connector & terminal			Module (ECM).>
	(B135) No. 23 (+) — Chassis ground (–):			

DL:DTC P2127 THROTTLE/PEDAL POSITION SENSOR/SWITCH "E" CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

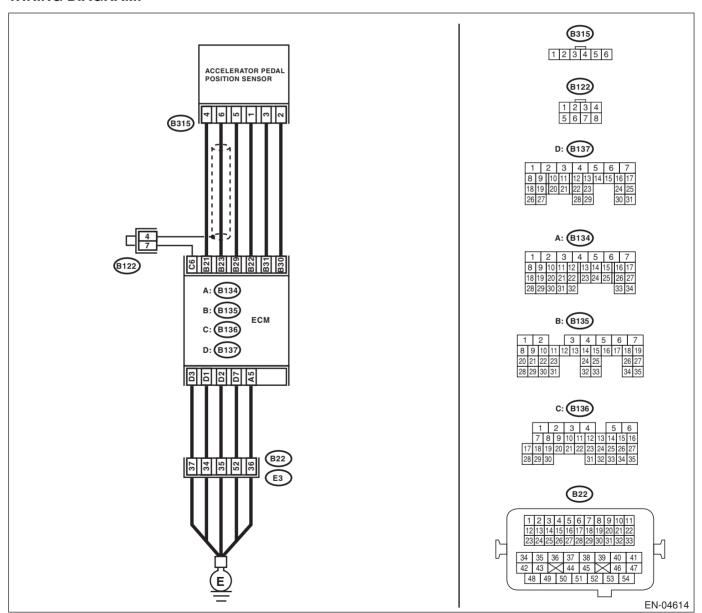
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-226, DTC P2127 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "E" CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION	Is the voltage more than 0.4 V?	Go to step 2.	Go to step 3.
	SENSOR OUTPUT.			
	 Turn the ignition switch to ON. 			
	Read the data of sub accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 4.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.	Ω ?		circuit of harness
	 Turn the ignition switch to OFF. 			connector.
	Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 22 — (B315) No. 1:			
	(B135) No. 31 — (B315) No. 3:			
4	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 5.	Repair the chas-
	CELERATOR PEDAL POSITION SENSOR.	ΜΩ?		sis short circuit of
	Measure the resistance between ECM connec-			harness.
	tor and chassis ground.			
	Connector & terminal			
	(B135) No. 22 — Chassis ground:			
	(B135) No. 31 — Chassis ground:		0 1 1 0	D .
5	CHECK HARNESS BETWEEN ECM AND AC-	is the resistance less than 5 Ω ?	Go to step b .	Repair poor con-
	CELERATOR PEDAL POSITION SENSOR.			tact in ECM con-
	 Connect the ECM connector. Measure the resistance between accelera- 			nector. Replace the ECM if defec-
	•			tive. <ref. td="" to<=""></ref.>
	tor pedal position sensor connector and chassis ground.			FU(H4SO)-40,
	Connector & terminal			Engine Control
6	(B315) No. 2 — Chassis ground: CHECK POWER SUPPLY OF ACCELERA-	Is the voltage 4.5 5.5 V2	Replace the accel-	Module (ECM).>
0	TOR PEDAL POSITION SENSOR.	Is the voltage 4.5 — 5.5 V?	erator pedal posi-	Repair poor con- tact in ECM con-
	Turn the ignition switch to ON.		tion sensor. <ref.< td=""><td>nector. Replace</td></ref.<>	nector. Replace
	2) Measure the voltage between accelerator		to SP(H4SO)-3,	the ECM if defec-
	pedal position sensor connector and chassis		Accelerator	tive. <ref. td="" to<=""></ref.>
	ground.		Pedal.>	FU(H4SO)-40,
	•		reual.>	, ,
	Connector & terminal			Engine Control
	(B315) No. 1 (+) — Chassis ground (–):			Module (ECM).>

DM:DTC P2128 THROTTLE/PEDAL POSITION SENSOR/SWITCH "E" CIRCUIT HIGH INPUT

DTC DETECTING CONDITION:

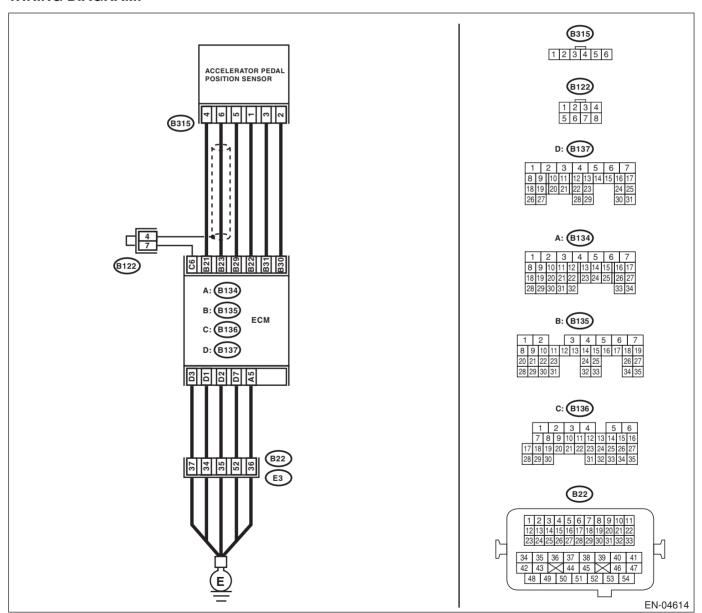
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-228, DTC P2128 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "E" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION	Is the voltage less than 4.8 V?	Go to step 2.	Go to step 3.
1	SENSOR OUTPUT.		·	- , p .
	Turn the ignition switch to ON.			
	2) Read the data of sub accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 1	Go to step 4.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.	Ω ?		circuit of harness
	 Turn the ignition switch to OFF. 			connector.
	Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 22 — (B315) No. 1:			
	(B135) No. 30 — (B315) No. 2:			
	(B135) No. 31 — (B315) No. 3:			
4	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 5.	Repair poor con-
	CELERATOR PEDAL POSITION SENSOR.	Ω?		tact in ECM con-
	 Connect the ECM connector. 			nector. Replace
	2) Measure the resistance between accelera-			the ECM if defec-
	tor pedal position sensor connector and chas-			tive. <ref. td="" to<=""></ref.>
	sis ground.			FU(H4SO)-40,
	Connector & terminal			Engine Control
	(B315) No. 2 — Chassis ground:		_	Module (ECM).>
5	CHECK POWER SUPPLY OF ACCELERA-	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair the short
	TOR PEDAL POSITION SENSOR.			circuit of harness
	1) Turn the ignition switch to ON.			between ECM
	2) Measure the voltage between accelerator			connector and
	pedal position sensor connector and chassis			accelerator pedal
	ground.			position sensor
	Connector & terminal			connector.
	(B315) No. 1 (+) — Chassis ground (–):			Replace the ECM if defective. <ref.< td=""></ref.<>
				to FU(H4SO)-40, Engine Control
				Module (ECM).>
6	CHECK HARNESS BETWEEN ECM AND AC-	ls the voltage loss than 4.9.1/2	Renair near con	Repair the poor
6	CELERATOR PEDAL POSITION SENSOR.	is the voltage less than 4.8 V?	Repair poor con- tact in ECM con-	contact of acceler-
	1) Turn the ignition switch to OFF.		nector. Replace	ator pedal position
	2) Connect the accelerator pedal position sen-		the ECM if defec-	sensor connector.
	sor connector.		tive. <ref. td="" to<=""><td>Replace the accel-</td></ref.>	Replace the accel-
	3) Turn the ignition switch to ON.		FU(H4SO)-40,	•
	Measure the voltage between ECM con-		Engine Control	erator pedal posi- tion sensor if
	nector and chassis ground.		Module (ECM).>	defective. <ref. td="" to<=""></ref.>
	Connector & terminal		INIOUUIE (ECIVI).>	SP(H4SO)-3,
	(B135) No. 31 (+) — Chassis ground (–):			Accelerator
	(D 133) No. 31 $(+)$ — Chassis ground $(-)$:			Pedal.>
				i Euai.>

DN:DTC P2135 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A"/"B" VOLT-AGE CORRELATION

DTC DETECTING CONDITION:

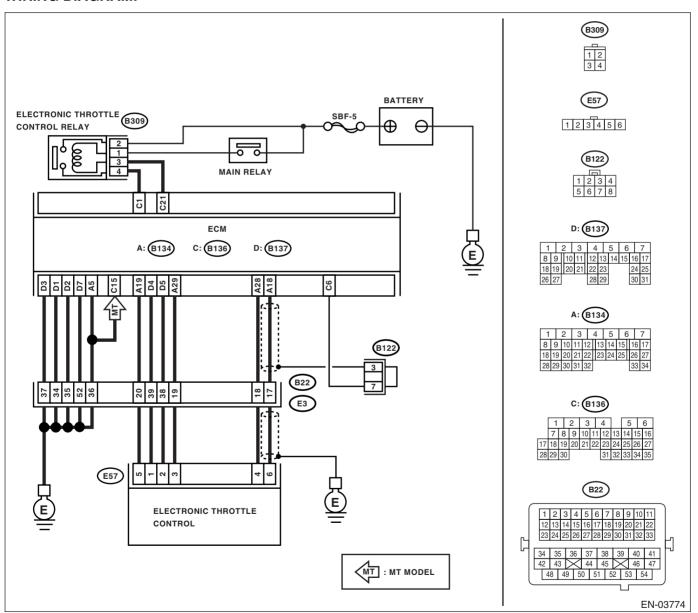
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-230, DTC P2135 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "A"/"B" VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT.	Is the voltage more than 0.4 V?	Go to step 2.	Go to step 4.
1	Turn the ignition switch to ON.	le are verage mere aran er v	Go to otop 2.	Go to stop 1.
	2) Read the data of main throttle sensor signal			
	using Subaru Select Monitor.			
2	CHECK SENSOR OUTPUT.	Is the voltage more than 0.8 V?	Go to step 3	Go to step 4.
<u> </u>	Read the data of sub throttle sensor signal	le are venage mere alar ele vi	Go to stop C.	Go to stop 1.
	using Subaru Select Monitor.			
3	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Go to step 14.
١	Check poor contact in connector between	lis there poor contact:	contact.	do to step 14.
	ECM and electronic throttle control.		Contact.	
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Co to oton F	Danair the anan
4		Ω ?	Go to step 5.	Repair the open circuit of harness
	ELECTRONIC THROTTLE CONTROL.	[227		
	Turn the ignition switch to OFF.			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B134) No. 18 — (E57) No. 6:			
	(B134) No. 28 — (E57) No. 4:			
5	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 6.	Repair the ground
	ELECTRONIC THROTTLE CONTROL.	ΜΩ?		short circuit of har-
	Measure the resistance between ECM connec-			ness.
	tor and chassis ground.			
	Connector & terminal			
	(B134) No. 18 — Chassis ground:			
	(B134) No. 28 — Chassis ground:			
6	CHECK SENSOR POWER SUPPLY.	Is the voltage 4.5 — 5.5 V?	Go to step 7.	Repair poor con-
	 Connect the ECM connector. 			tact in ECM con-
	Turn the ignition switch to ON.			nector. Replace
	Measure the voltage between electronic			the ECM if defec-
	throttle control connector and engine ground.			tive. <ref. td="" to<=""></ref.>
	Connector & terminal			FU(H4SO)-40,
	(E57) No. 5 (+) — Engine ground (–):			Engine Control
				Module (ECM).>
7	CHECK SHORT CIRCUIT IN ECM.	Is the resistance more than	Go to step 8.	Repair poor con-
	 Turn the ignition switch to OFF. 	10Ω?		tact in ECM con-
	2) Measure the resistance between electronic			nector. Replace
	throttle control connector and engine ground.			the ECM if defec-
	Connector & terminal			tive. <ref. td="" to<=""></ref.>
	(E57) No. 6 — Engine ground:			FU(H4SO)-40,
	(E57) No. 4 — Engine ground:			Engine Control
				Module (ECM).>
8	CHECK SENSOR OUTPUT.	Is the voltage less than 4.63	Go to step 9.	Go to step 11.
	1) Connect all the connectors.	V?		·
	 Turn the ignition switch to ON. 			
	3) Read the data of main throttle sensor signal			
	using Subaru Select Monitor.			
9	CHECK SENSOR OUTPUT.	Is the voltage less than 4.73	Go to step 10.	Go to step 11.
1	Read the data of sub throttle sensor signal	V?		
	using Subaru Select Monitor.			
10	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
'	Check poor contact in connector between	listre poor contact:	contact.	contact occurred,
	ECM and electronic throttle control.		oonaoi.	but it is normal at
	Low and distrolling throttie control.			
				present.

	Step	Check	Yes	No
11	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 12.	Repair the open
		Ω ?	'	circuit of harness
	1) Turn the ignition switch to OFF.			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B134) No. 18 — (E57) No. 6:			
	(B134) No. 28 — (E57) No. 4:			
12	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 5	Go to step 13.	Repair poor con-
		Ω ?	G.G. 16 G16 F 161	tact in ECM con-
	Connect the ECM connector.			nector. Replace
	2) Measure the resistance between electronic			the ECM if defec-
	throttle control connector and engine ground.			tive. <ref. td="" to<=""></ref.>
	Connector & terminal			FU(H4SO)-40,
	(E57) No. 3 — Engine ground:			Engine Control
	(201) No. 0 Lingino ground.			Module (ECM).>
13	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 14.	Repair the battery
	ELECTRONIC THROTTLE CONTROL.	le are remage rees aran re r r	0.0 10 010 0 1 11	short circuit of har-
	Connect the ECM connector.			ness between
	Turn the ignition switch to ON.			ECM connector
	3) Measure the voltage between electronic			and electronic
	throttle control connector and engine ground.			throttle control
	Connector & terminal			connector.
	(E57) No. 5 (+) — Engine ground (–):			connector.
14	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 15.	Repair the short
•	ELECTRONIC THROTTLE CONTROL.	le tre vertage lees than 10 v.	Go to stop 10.	circuit of harness
	Measure the voltage between electronic throt-			between ECM
	tle control connector and engine ground.			connector and
	Connector & terminal			electronic throttle
	(E57) No. 6 (+) — Engine ground (–):			control connector.
	(E57) No. 4 (+) — Engine ground (–):			
15	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 16.	Repair the short
."		$M\Omega$?	Go to stop 10.	circuit to sensor
	Turn the ignition switch to OFF.			power supply.
	Disconnect the ECM connector.			powor suppry.
	Measure the resistance between ECM con-			
	nectors.			
	Connector & terminal			
	(B134) No. 18 — (B134) No. 19:			
	(B134) No. 28 — (B134) No. 19:			
16	CHECK ELECTRONIC THROTTLE CON-	Is the resistance more than 1	Repair poor con-	Repair the short
	TROL HARNESS.	MΩ?	tact in ECM con-	circuit of harness.
	Disconnect the connectors from ECM.		nector. Replace	
	Disconnect the connectors from electronic		the ECM if defec-	
	throttle control.		tive. <ref. td="" to<=""><td></td></ref.>	
	Measure the resistance between electronic		FU(H4SO)-40,	
	throttle control connector terminals.		Engine Control	
	Connector & terminal		Module (ECM).>	
		1	, \ - • ,	i l

DO:DTC P2138 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D"/"E" VOLT-AGE CORRELATION

DTC DETECTING CONDITION:

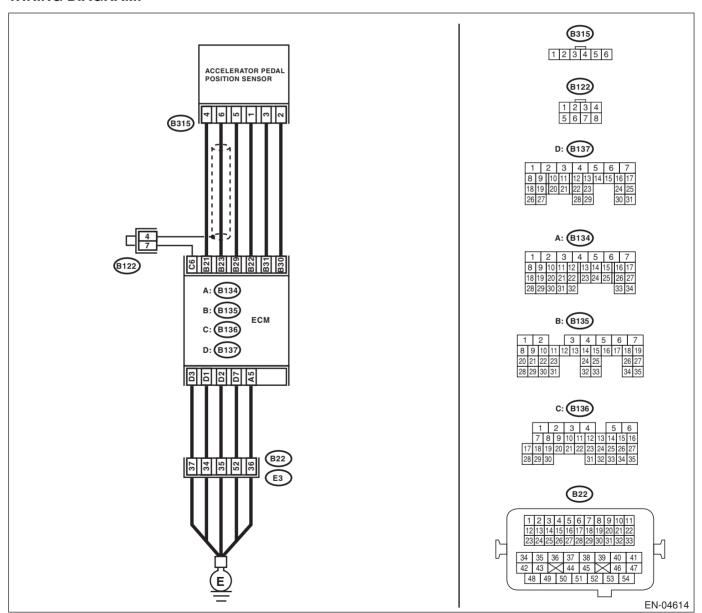
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-232, DTC P2138 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D"/"E" VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Erroneous idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT.	Is the voltage more than 0.4 V?	Go to step 2.	Go to step 4.
	1) Turn the ignition switch to ON.			
	2) Read the data of main accelerator pedal			
	position sensor signal and sub accelerator			
	pedal position sensor signal using Subaru			
	Select Monitor.			
	NOTE:			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td></td></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Monitor.>			
2	CHECK ACCELERATOR PEDAL POSITION	Is the voltage less than 4.8 V?	Go to step 3.	Go to step 4.
-	SENSOR OUTPUT.	is the voltage less than 4.0 v :	αο το <u>στ</u> ερ σ .	GO 10 316p 4.
	Turn the ignition switch to ON.			
	Read the data of main accelerator pedal			
	position sensor signal and sub accelerator			
	pedal position sensor signal using Subaru			
	Select Monitor.			
	NOTE:			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
3	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
4	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 1	Go to step 5.	Present. Repair the open
4	CELERATOR PEDAL POSITION SENSOR.	Ω ?	Go to step 3 .	circuit of harness
	Turn the ignition switch to OFF.	22:		connector.
	2) Disconnect the connectors from ECM.			
	Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 22 — (B315) No. 1:			
	(B135) No. 30 — (B315) No. 2:			
	(B135) No. 31 — (B315) No. 3: (B135) No. 21 — (B315) No. 4:			
	(B135) No. 21 — (B315) No. 4: (B135) No. 29 — (B315) No. 5:			
	(B135) No. 23 — (B315) No. 6:			
5	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance more than 1	Go to step 6.	Repair the ground
	CELERATOR PEDAL POSITION SENSOR.	$M\Omega$?		short circuit of har-
	Measure the resistance between ECM connec-			ness.
	tor and chassis ground.			
	Connector & terminal			
	(B135) No. 23 — Chassis ground:			
	(B135) No. 21 — Chassis ground:			
	(B135) No. 31 — Chassis ground:			
	(B135) No. 22 — Chassis ground:			

ENGINE (DIAGNOSTICS)

	Step	Check	Yes	No
6	CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Connect the ECM connector. 2) Measure the resistance between accelerator pedal position sensor connector and chassis ground. Connector & terminal (B315) No. 2 — Chassis ground: (B315) No. 5 — Chassis ground:	Ω?	Go to step 7.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>
7	CHECK POWER SUPPLY OF ACCELERATOR PEDAL POSITION SENSOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between accelerator pedal position sensor connector and chassis ground. Connector & terminal (B315) No. 1 (+) — Chassis ground (-): (B315) No. 4 (+) — Chassis ground (-):	Is the voltage 4.5 — 5.5 V?	Go to step 8.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-40,="" module="" to=""></ref.>
8	CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Connect the accelerator pedal position sensor connector. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 31 (+) — Chassis ground (-): (B135) No. 23 (+) — Chassis ground (-):	Is the voltage less than 4.8 V?	Go to step 9.	Repair the poor contact of accelerator pedal position sensor connector. Replace the accelerator pedal position sensor if defective. <ref. accelerator="" pedal.="" sp(h4so)-3,="" to=""></ref.>
9	CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between connector terminals of accelerator pedal position sensor. Connector & terminal (B135) No. 6 — (B315) No. 3:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the poor contact in ECM connector. Replace the ECM if defective. <ref. to FU(H4SO)-40, Engine Control Module (ECM).></ref. 	Repair the short circuit of harness between ECM connector and accelerator pedal position sensor connector.

DP:DTC P2227 BAROMETRIC PRESSURE CIRCUIT RANGE/PERFORMANCE DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-234, DTC P2227 BAROMETRIC PRESSURE CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

Step		Check	Yes	No
1 CHECK ANY OTHER D	TC ON DISPLAY.		"List of Diagnostic Trouble Code (DTC)". <ref. th="" to<=""><th>Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.></th></ref.>	Replace the ECM. <ref. to<br="">FU(H4SO)-40, Engine Control Module (ECM).></ref.>

ENGINE (DIAGNOSTICS)

DQ:DTC P2228 BAROMETRIC PRESSURE CIRCUIT LOW

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-235, DTC P2228 BAROMETRIC PRESSURE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	"List of Diagnostic Trouble Code (DTC)". <ref. th="" to<=""><th>FU(H4SO)-40, Engine Control Module (ECM).></th></ref.>	FU(H4SO)-40, Engine Control Module (ECM).>

DR:DTC P2229 BAROMETRIC PRESSURE CIRCUIT HIGH DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-236, DTC P2229 BAROMETRIC PRESSURE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CALITION:

After repairing or replacing the defective part, carry out the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. th="" to<=""><th>Replace the ECM.</th></ref.>	Replace the ECM.
			nostic Trouble Code (DTC).> NOTE: It is not necessary to inspect DTC P2229.	