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

#### **DTC DETECTING CONDITION:**

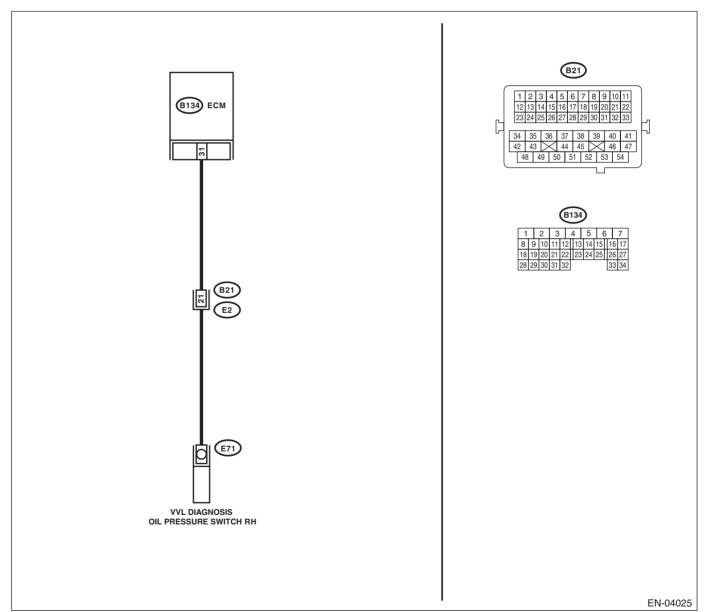
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-8, DTC P0026 INTAKE VALVE CONTROL SOLENOID CIRCUIT RANGE/PERFORMANCE (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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).="" 70,="" 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 $\mbox{M}\Omega ?$	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 $\Omega$ ?	Replace the variable valve lift diagnosis oil pressure switch. <ref. diagnosis="" fu(h4so)-30,="" 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) Clear the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) Check the DTC after idling the engine.</ref.>	Is DTC displayed?	Replace the oil switching solenoid valve. <ref. me(h4so)-83,="" oil="" solenoid="" switching="" to="" valve.=""> Go to step 5.</ref.>	END
5	CHECK DTC.  1) Clear the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) Check the DTC after idling the engine.</ref.>	Is DTC displayed?	Check for oil routing. Contact your SOA Service Center.	END

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

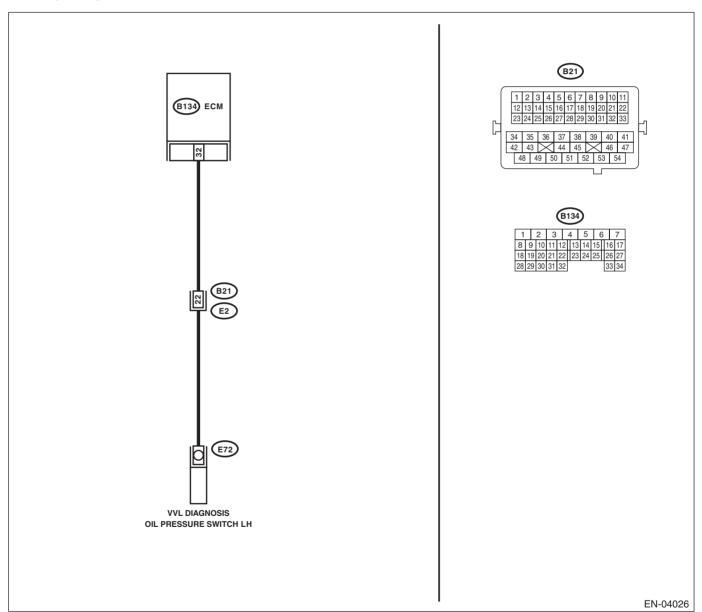
#### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-9, 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, perform 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.>.



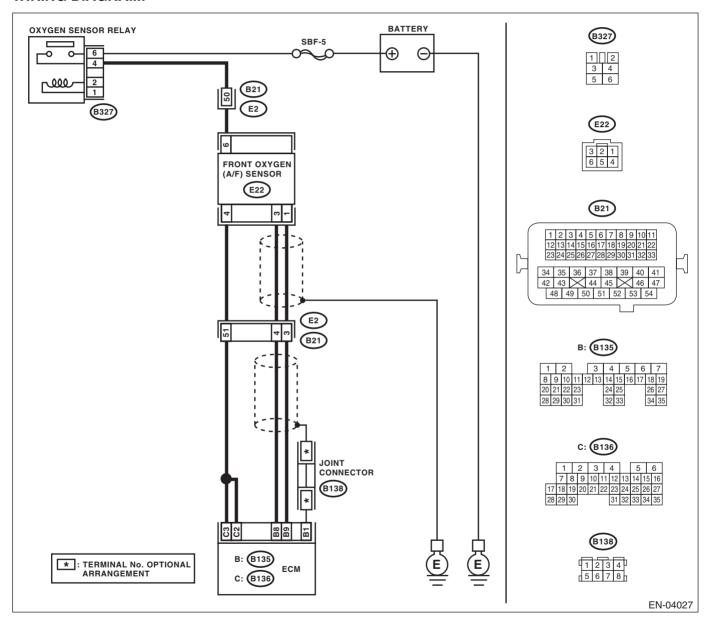
	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 70,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
2	PRESSURE SWITCH CONNECTOR.  1) Warm-up the 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 $\mbox{M}\Omega ?$	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 $\Omega$ ?	Replace the variable valve lift diagnosis oil pressure switch. <ref. diagnosis="" fu(h4so)-30,="" 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) Clear the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) Check the DTC after idling the engine.</ref.>	Is DTC displayed?	Replace the oil switching solenoid valve. <ref. me(h4so)-83,="" oil="" solenoid="" switching="" to="" valve.=""> Go to step 5.</ref.>	END
5	CHECK DTC.  1) Clear the memory. <ref. clear="" en(h4so)(diag)-43,="" memory="" mode.="" to=""> 2) Check the DTC after idling the engine.</ref.>	Is DTC displayed?	Check for oil routing. Contact your SOA Service Center.	END

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-10, DTC P0030 HO2S HEATER CONTROL CIRCUIT (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



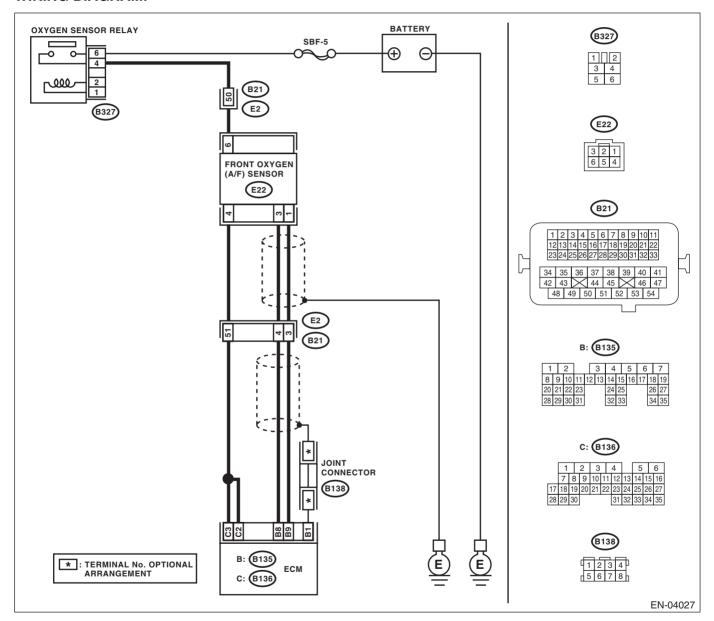
	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.  1) Start and warm-up the engine. 2) Turn the ignition switch to OFF. 3) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 4) Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector.  Connector & terminal (B136) No. 2 — (E22) No. 4: (B136) No. 3 — (E22) No. 4:	Is the resistance less than 1 $\Omega$ ?	Go to step 2.	Repair the open circuit of harness between ECM and front oxygen (A/F) sensor connector.
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.  Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector.  Connector & terminal  (B135) No. 9 — (E22) No. 1:  (B135) No. 8 — (E22) No. 3:	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit of harness between ECM and front oxygen (A/F) sensor connector.
3	CHECK HARNESS BETWEEN OXYGEN SENSOR RELAY AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.  Measure the resistance of harness between oxygen sensor relay and front oxygen (A/F) sensor connector.  Connector & terminal (B327) No. 4 — (E22) No. 6:	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Repair the open circuit of harness between oxygen sensor relay and front oxygen (A/F) sensor connector.
4	CHECK FRONT OXYGEN (A/F) SENSOR.  Measure the resistance between front oxygen (A/F) sensor connector terminals.  Terminals  No. 4 — No. 6:	Is the resistance less than 5 $\Omega$ ?	Go to step 5.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/ F) Sensor.&gt;</ref.>
5	CHECK POOR CONTACT. Check poor contact of ECM and front oxygen (A/F) sensor connector.	Is there poor contact in ECM or front oxygen (A/F) sensor con- nector?	Repair the poor contact of ECM or front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/ F) Sensor.&gt;</ref.>

# 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)-12, 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, perform 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		the Subaru Select Monitor and	Go to step 2.	Go to step 3.
		general scan tool?		

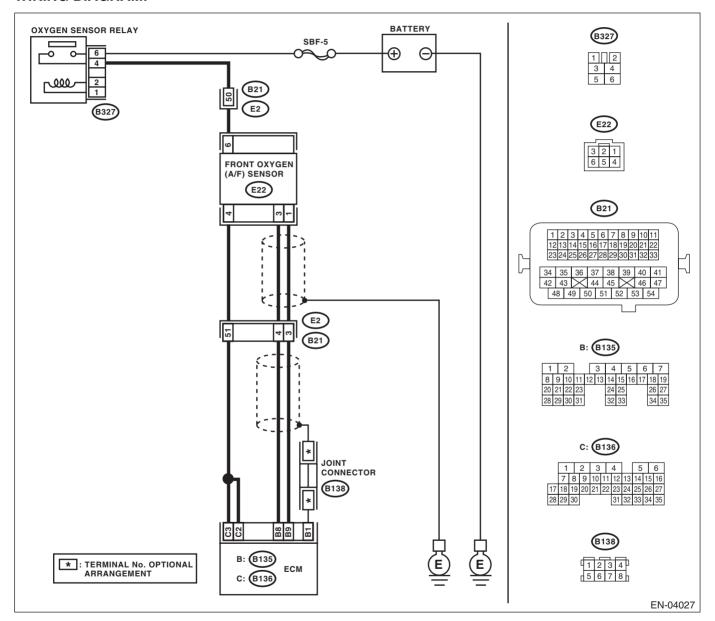
	Step	Check	Yes	No
2	CHECK POWER SUPPLY TO FRONT OXY-GEN (A/F) SENSOR.  1) Turn the ignition switch to OFF.  2) Disconnect the connector from front oxygen (A/F) sensor.  3) Turn the ignition switch to ON.  4) Measure the voltage between front oxygen (A/F) sensor connector and engine ground.  Connector & terminal  (E22) No. 6 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 3.	Repair the power supply line or replace the main relay.  NOTE: In this case, repair the following item:  Open circuit in harness between oxygen sensor relay and front oxygen (A/F) sensor connector  Poor contact in oxygen sensor relay connector  Poor contact in coupling connector
3	CHECK CURRENT DATA.  1) Start the engine. 2) Read the data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or general scan tool.  NOTE: • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Repair the poor 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 4.
4	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 6.	Go to step 5.
5	CHECK OUTPUT SIGNAL OF ECM.  Measure the voltage between ECM connector and chassis ground.  Connector & terminal  (B136) No. 3 (+) — Chassis ground (-):  (B136) No. 2 (+) — Chassis ground (-):	connector?	connector.	Go to step 6.
6	CHECK FRONT OXYGEN (A/F) SENSOR.  1) Turn the ignition switch to OFF.  2) Measure the resistance between front oxygen (A/F) sensor connector terminals.  Terminals  No. 4 — No. 6:	Is the resistance less than 10 $\Omega$ ?	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open or ground short circuit of harness between front oxygen (A/F) sensor and ECM connector  Poor contact in front oxygen (A/F) sensor connector  Poor contact in ECM connector	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/F) Sensor.&gt;</ref.>

# 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)-14, 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, perform 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.>.



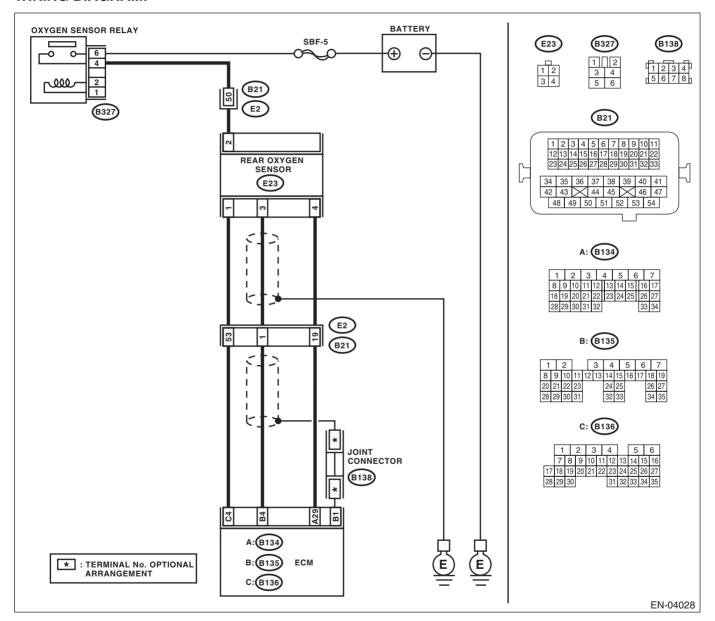
	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL OF ECM.  1) Turn the ignition switch to ON.  2) Measure the voltage between ECM connector and chassis ground.  Connector & terminal  (B136) No. 2 (+) — Chassis ground (-):  (B136) No. 3 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 2.	Go to 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" 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:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-16, 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, perform 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 current more than 0.2 A?		Go to step 2.
-	1) Start the engine.	lo the darront more than 6.2 /t.	nector.	Go to stop 2.
	2) Read the data of rear oxygen (A/F) sensor		NOTE:	
	heater current using Subaru Select Monitor or		In this case, repair	
	general scan tool.		the following item:	
	-		Poor contact of	
	NOTE:  • Subaru Select Monitor		the rear oxygen	
	For detailed operation procedure, refer to		sensor connector	
	"READ CURRENT DATA FOR ENGINE". <ref.< th=""><th></th><th>Poor contact in</th><th></th></ref.<>		Poor contact in	
	to EN(H4SO)(diag)-26, Subaru Select Moni-		rear oxygen sensor	
	tor.>		, , ,	
	General scan tool		connecting harness connector	
	For detailed operation procedure, refer to the		Poor contact in	
_	general scan tool operation manual.	1 1 1 1 1 1 1 1 1	ECM connector	0
2	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage less than 1 V?	Go to step 5.	Go to step 3.
	Start and idle the engine.     Massure the velters between FCM con-			
	Measure the voltage between ECM con- nector and chaosis ground			
	nector and chassis ground.			
	Connector & terminal			
	(B136) No. 4 (+) — Chassis ground (-):	Dana da a contra da	Danain Ha	0-44
3	CHECK OUTPUT SIGNAL OF ECM.	Does the voltage change by	Repair the poor	Go to step 4.
	Measure the voltage between ECM connector	shaking the ECM harness and	contact of ECM	
	and chassis ground.	connector?	connector.	
	Connector & terminal			
	(B136) No. 4 (+) — Chassis ground (-):		D 1 11 5014	D
4	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage less than 1 V?		Repair the battery
	Disconnect the connector from the rear		<ref. th="" to<=""><th>short circuit of har-</th></ref.>	short circuit of har-
	oxygen sensor.		FU(H4SO)-36,	ness between
	2) Measure the voltage between ECM con-		Engine Control	ECM and rear oxy-
	nector and chassis ground.		Module (ECM).>	gen sensor con-
	Connector & terminal			nector. After
	(B136) No. 4 (+) — Chassis ground (–):			repair, replace the ECM. <ref. th="" to<=""></ref.>
				FU(H4SO)-36,
				Engine Control
_	CHECK POWER SUPPLY TO REAR OXY-	le the veltage mayo then 10 V2	Co to stop 6	Module (ECM).> Repair the power
5	GEN SENSOR.	Is the voltage more than 10 V?	Go to step <b>6</b> .	
	1) Turn the ignition switch to OFF.			supply line or
	<ul><li>2) Disconnect the connector from the rear</li></ul>			replace the main relay.
	oxygen sensor.			I
	3) Turn the ignition switch to ON.			NOTE:
	4) Measure the voltage between rear oxygen			In this case, repair
	sensor connector and engine ground or chas-			the following item:
	sis ground.			<ul> <li>Open circuit in harness between</li> </ul>
	Connector & terminal			oxygen sensor re-
	(E23) No. 2 (+) — Chassis ground (–):			
	(220) 110. 2 (T) Onussis ground (3).			lay and rear oxygen sensor connector
				Poor contact in
				oxygen sensor re- lay connector
				Poor contact of
				coupling connector

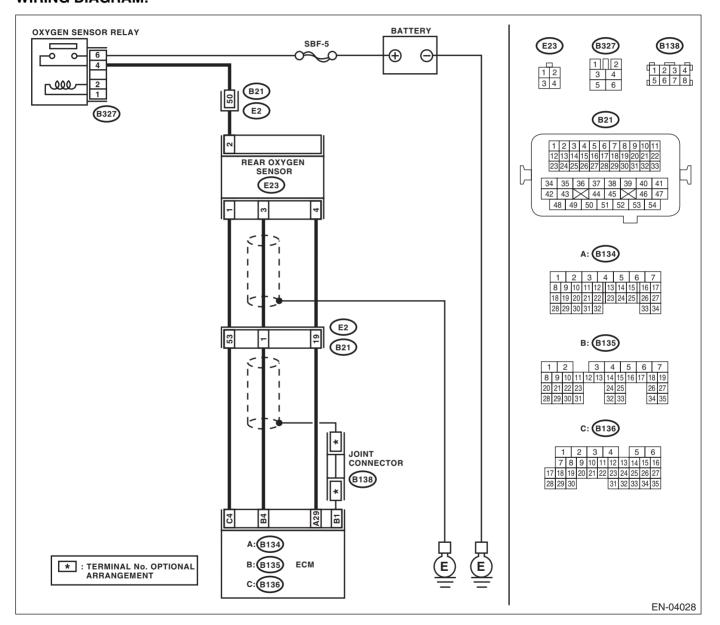
	Step	Check	Yes	No
6	CHECK REAR OXYGEN SENSOR.	Is the resistance less than 30	Repair the har-	Replace the rear
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>	$\Omega$ ?	ness and connec-	oxygen sensor.
	2) Measure the resistance between rear oxy-		tor.	<ref. th="" to<=""></ref.>
	gen (A/F) sensor connector terminals.			FU(H4SO)-34,
	Terminals		In this case, repair	Rear Oxygen Sen-
	No. 1 — No. 2:		the following item:	
			<ul> <li>Open circuit of</li> </ul>	
			harness between	
			rear oxygen sen-	
			sor and ECM con-	
			nector	
			<ul> <li>Poor contact of</li> </ul>	
			the rear oxygen	
			sensor connector	
			<ul> <li>Poor contact in</li> </ul>	
			ECM connector	
			<ul> <li>Poor contact of</li> </ul>	
			coupling connector	

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-18, 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, perform 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.  Measure the voltage between ECM connector and chassis ground.  Connector & terminal  (B136) No. 4 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 2.	Go to step 3.
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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" module="" to=""></ref.>	END
3	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair the poor contact of ECM connector.	END

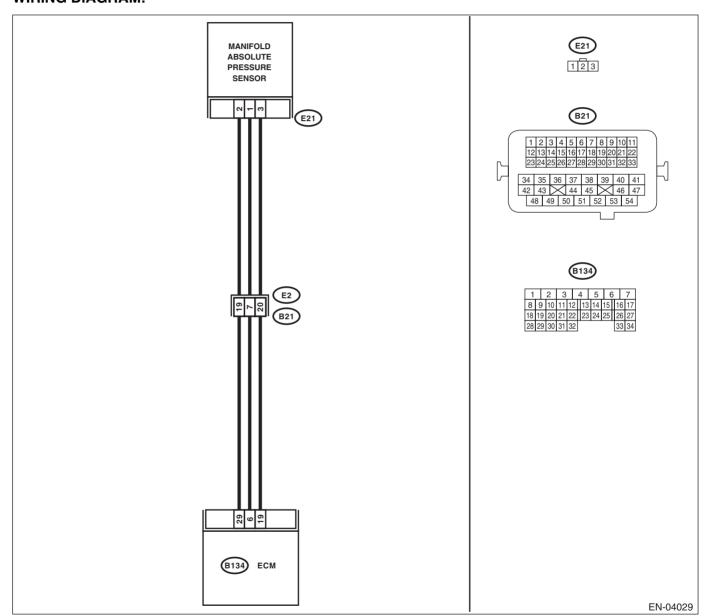
**ENGINE (DIAGNOSTICS)** 

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-20, DTC P0068 MAP/MAF THROTTLE POSITION CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.
-		is any sais 2.0 displayed.	"List of Diagnostic	GG 10 010p <b>2</b> .
			Trouble Code	
			(DTC)". <ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			70, List of Diag-	
			nostic Trouble	
2	CHECK AIR INTAKE SYSTEM.	Are there holes, loose bolts or	Code (DTC).> Repair the air	Go to step 3.
2	CHECK AIR INTAKE STSTEM.	disconnection of hose on air	intake system.	Go to step 3.
		intake system?	make eyetem.	
3	CHECK MANIFOLD ABSOLUTE PRESSURE	Is the measured value 73.3 —	Go to step 4.	Replace the mani-
	SENSOR.	106.6 kPa (550 — 800 mmHg,		fold absolute pres-
	1) Start the engine and warm-up engine until	21.65 — 31.50 inHg) when the		sure sensor. <ref.< th=""></ref.<>
	coolant temperature is greater than 60°C	ignition is turned ON, and 20.0		to FU(H4SO)-24,
	(140°F).	— 46.7 kPa (150 — 350		Manifold Absolute
	2) Place the select lever or shift lever in "P" or "N" range.	mmHg, 5.91 — 13.78 inHg) during idling?		Pressure Sensor.>
	3) Turn the A/C switch to OFF.	during laining?		
	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 procedure, 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".			
4	CHECK THROTTLE OPENING ANGLE.	Is the measured value less	Go to step 5.	Adjust or replace
	Read the data of throttle position signal using	than 5% when throttle is fully		the throttle posi-
	Subaru Select Monitor or general scan tool.	closed?		tion sensor. <ref. fu(h4so)-23,<="" th="" to=""></ref.>
	NOTE:  • Subaru Select Monitor			Throttle Position
	For detailed operation procedure, refer to			Sensor.>
	"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			
<u> </u>	"General Scan Tool Instruction Manual".  CHECK THROTTLE OPENING ANGLE.	le the measured value mare	Poplace the man:	Donloop the thret
5	CHECK INKULLE OPENING ANGLE.	Is the measured value more than 85% when throttle is fully	Replace the manifold absolute pres-	Replace the throt- tle position sen-
		open?		sor. <ref. th="" to<=""></ref.>
		-	to FU(H4SO)-24,	FU(H4SO)-23,
			Manifold Absolute	Throttle Position
			Pressure Sensor.>	Sensor.>

**ENGINE (DIAGNOSTICS)** 

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

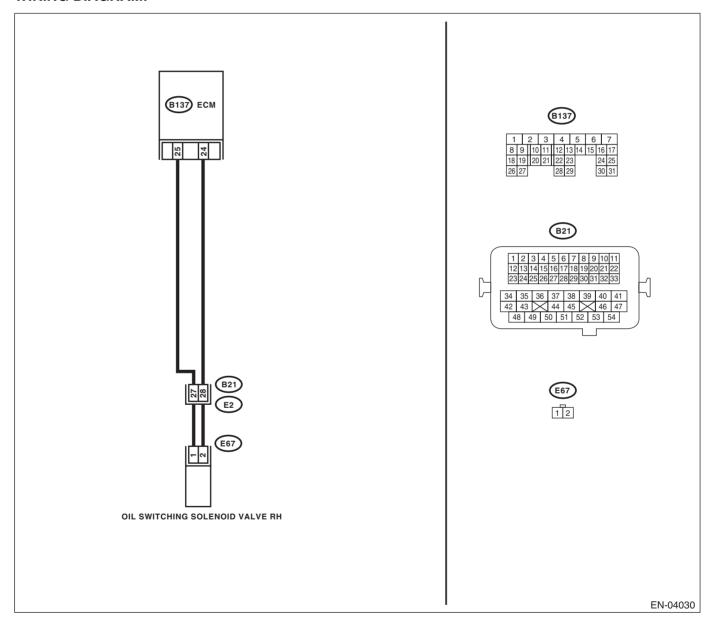
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-22, DTC P0076 INTAKE VALVE CONTROL SOLENOID CIRCUIT LOW (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 connector from ECM and oil switching solenoid valve.  3) Measure the resistance between ECM and oil switching solenoid valve.  Connector & terminal  (B137) No. 25 — (E67) No. 1:  (B137) No. 24 — (E67) No. 2:	Is the resistance less than 1 $\Omega$ ?	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 of harness between ECM and oil switching solenoid valve connector  • Poor contact of coupling connector
2	<ul> <li>CHECK OIL SWITCHING SOLENOID VALVE.</li> <li>1) Remove the oil switching solenoid valve connector.</li> <li>2) Measure the resistance between oil switching solenoid valve terminals.</li> <li>Terminals</li> <li>No. 1 — No. 2:</li> </ul>	Is the resistance between 6 and 12 $\Omega$ ?	Repair the poor contact of ECM and oil switching solenoid valve.	Replace the oil switching solenoid valve. <ref. to<br="">ME(H4SO)-83, Oil Switching Sole- noid Valve.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

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

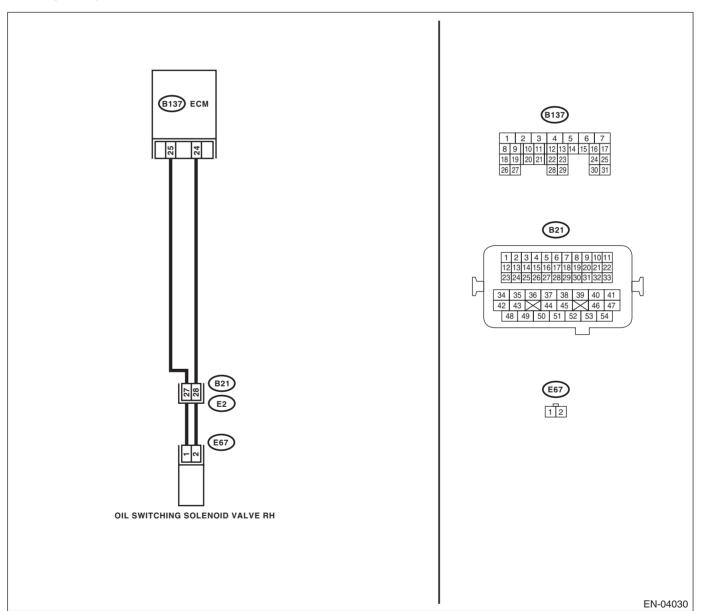
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-23, DTC P0077 INTAKE VALVE CONTROL SOLENOID CIRCUIT HIGH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 connector from ECM and oil switching solenoid valve.  3) Measure the resistance between oil switching solenoid valve and engine ground.  Connector & terminal  (E67) No. 1 — Engine ground:  (E67) 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	<ul> <li>CHECK OIL SWITCHING SOLENOID VALVE.</li> <li>1) Remove the oil switching solenoid valve connector.</li> <li>2) Measure the resistance between oil switching solenoid valve terminals.</li> <li>Terminals</li> <li>No. 1 — No. 2:</li> </ul>	Is the resistance between 6 and 12 $\Omega$ ?	Repair the poor contact of ECM and oil switching solenoid valve.	Replace the oil switching solenoid valve. <ref. to<br="">ME(H4SO)-83, Oil Switching Sole- noid Valve.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

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

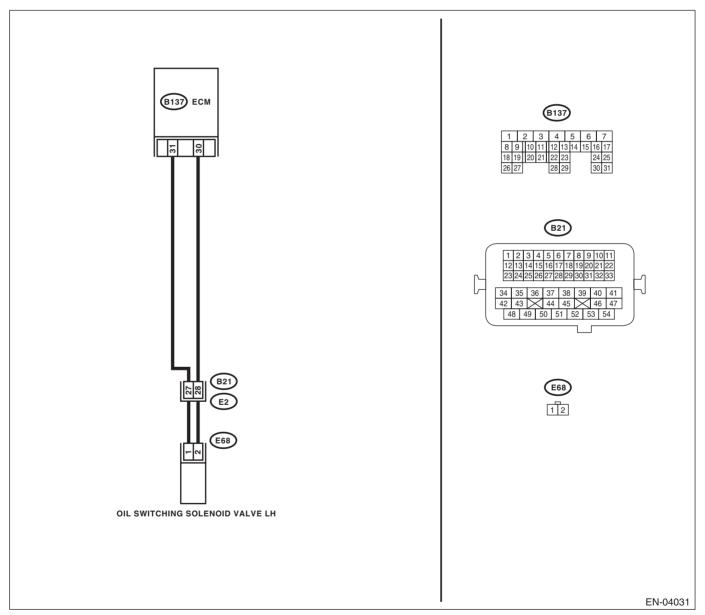
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-24, DTC P0082 INTAKE VALVE CONTROL SOLENOID CIRCUIT LOW (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 connector from ECM and oil switching solenoid valve.  3) Measure the resistance between ECM and oil switching solenoid valve.  Connector & terminal  (B137) No. 31 — (E68) No. 1:  (B137) No. 30 — (E68) No. 2:	Is the resistance less than 1 $\Omega$ ?	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 of harness between ECM and oil switching solenoid valve connector  • Poor contact of coupling connector
2	<ul> <li>CHECK OIL SWITCHING SOLENOID VALVE.</li> <li>1) Remove the oil switching solenoid valve connector.</li> <li>2) Measure the resistance between oil switching solenoid valve terminals.</li> <li>Terminals</li> <li>No. 1 — No. 2:</li> </ul>	Is the resistance between 6 and 12 $\Omega$ ?	Repair the poor contact of ECM and oil switching solenoid valve.	Replace the oil switching solenoid valve. <ref. to<br="">ME(H4SO)-83, Oil Switching Sole- noid Valve.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

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

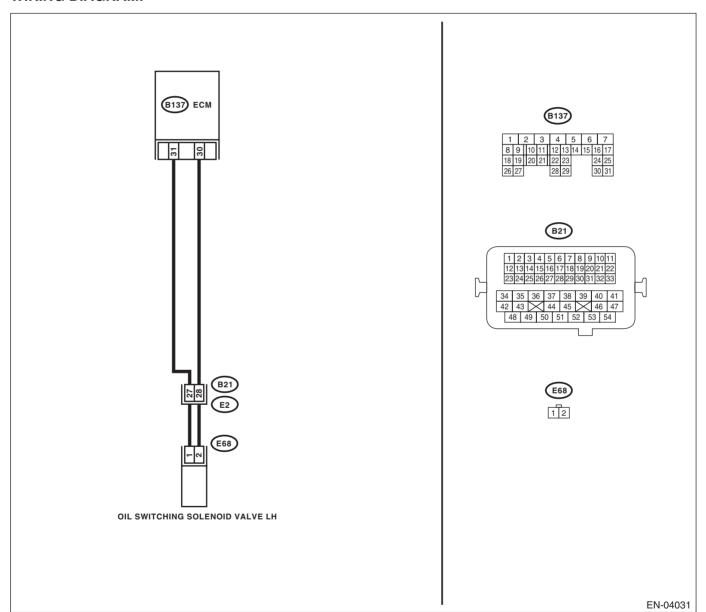
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-24, DTC P0083 INTAKE VALVE CONTROL SOLENOID CIRCUIT HIGH (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 connector from ECM and oil switching solenoid valve.  3) Measure the resistance between oil switching solenoid valve and engine ground.  Connector & terminal  (E68) No. 1 — Engine ground:  (E68) 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	<ul> <li>CHECK OIL SWITCHING SOLENOID VALVE.</li> <li>1) Remove the oil switching solenoid valve connector.</li> <li>2) Measure the resistance between oil switching solenoid valve terminals.</li> <li>Terminals</li> <li>No. 1 — No. 2:</li> </ul>	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)-83, Oil Switching Sole- noid Valve.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

# M: DTC P0101 MASS OR VOLUME AIR FLOW CIRCUIT RANGE/PERFORMANCE DTC DETECTING CONDITION:

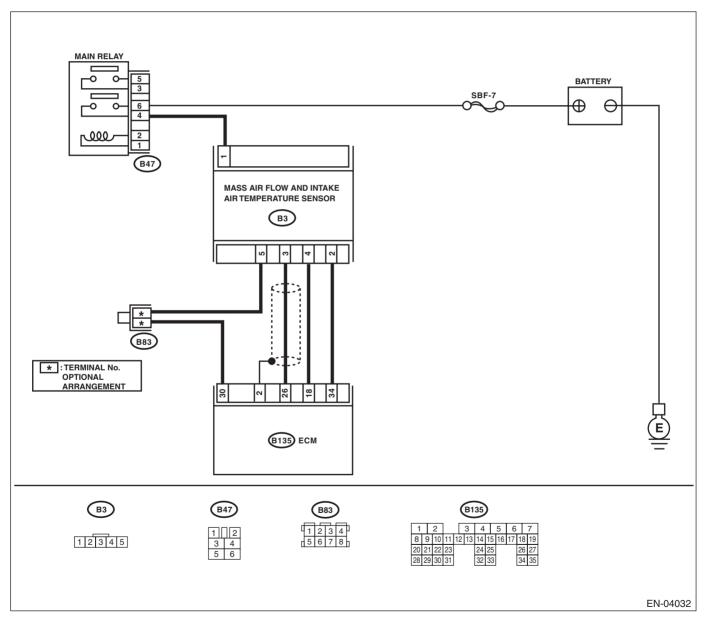
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-25, DTC P0101 MASS OR VOLUME AIR FLOW CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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?	the "List of Diag- nostic Trouble Code (DTC)". <ref. to<br="">EN(H4SO)(diag)-</ref.>	Replace the mass air flow and intake air temperature sensor. <ref. to<br="">FU(H4SO)-25, Mass Air Flow and Intake Air Temper- ature Sensor.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

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

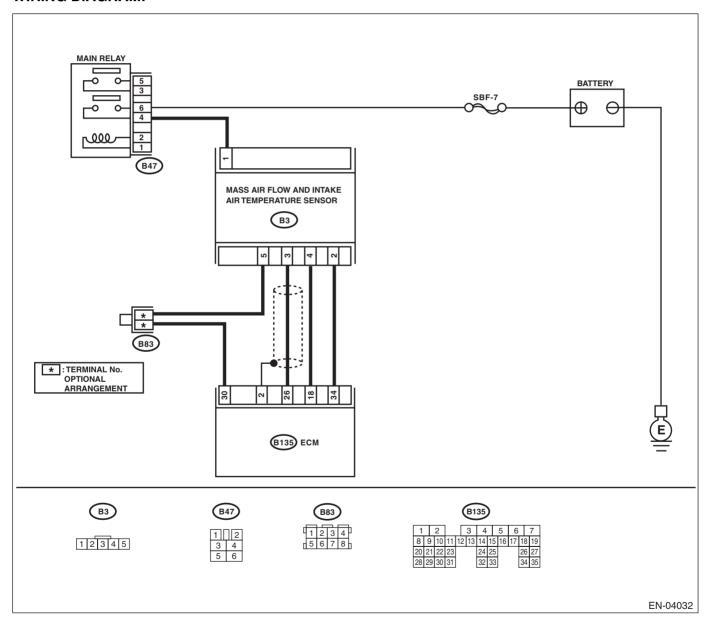
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-28, DTC P0102 MASS OR VOLUME AIR FLOW CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

- Erroneous idling
- Engine stalls.
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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	<u>-</u>	Is the voltage 0.2 — 4.7 V?	Even if the mal-	Go to step 2.
-	THE GENERAL SCAN TOOL, AND READ	is the relage oil in the	function indicator	GO 10 010P <b>2</b> .
	DATA.		light illuminates,	
	Turn the ignition switch to OFF.		the circuit has	
	Connect the Subaru Select Monitor or gen-		returned to a nor-	
	eral scan tool to data link connector.		mal condition at	
	3) Turn the ignition switch to ON, and the Sub-		this time. Tempo-	
	aru Select Monitor or general scan tool power		rary poor contact	
	switch to ON.		of connector or	
	4) Start the engine.		harness may be	
	5) Read the voltage of mass air flow sensor		the cause. Repair	
	using Subaru Select Monitor or general scan		the harness or	
	tool.		connector in mass	
	NOTE:		air flow sensor.	
	Subaru Select Monitor		NOTE:	
	For detailed operation procedure, refer to		In this case, repair	
	"READ CURRENT DATA FOR ENGINE". < Ref.		the following item:	
	to EN(H4SO)(diag)-70, List of Diagnostic Trou-		Open or ground	
	ble Code (DTC).>		short circuit of har-	
	General scan tool		ness between mass	
	For detailed operation procedure, refer to the		air flow sensor and	
	general scan tool operation manual.		ECM connector	
			<ul> <li>Poor contact of</li> </ul>	
			mass air flow sen-	
			sor or ECM con-	
			nector	
2	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 0.2 V?	Go to step 4.	Go to step 3.
	Measure the voltage between ECM connector			
	and chassis ground while engine is idling.			
	Connector & terminal			
_	(B135) No. 26 (+) — Chassis ground (-):			
3	CHECK INPUT SIGNAL FOR ECM (USING	Does the voltage change by	Repair the poor	Contact your SOA
	SUBARU SELECT MONITOR).	shaking the harness and con-	contact of ECM	Service Center.
	Measure the voltage between ECM connector	nector of ECM while monitor-	connector.	
	and chassis ground while engine is idling.	ing the value with Subaru Select Monitor?		
4	OUECK DOWED CURRING A TO MACO ALD		Co to star 5	Donois the series
4	CHECK POWER SUPPLY TO MASS AIR FLOW SENSOR.	Is the voltage more than 5 V?	Go to step 5.	Repair the open circuit between
	1) Turn the ignition switch to OFF.			mass air flow sen-
	Disconnect the connector from mass air			sor and main relay.
	flow sensor.			ou and maill leidy.
	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 (–):			
5	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 6.	Repair the open
1	MASS AIR FLOW SENSOR CONNECTOR.	$\Omega$ ?	3.0p <b>3</b> .	circuit between
	Turn the ignition switch to OFF.			ECM and mass air
	2) Disconnect the connectors from ECM.			flow sensor con-
	Measure the resistance of harness			nector.
	between ECM and mass air flow sensor con-			
	nector.			
	Connector & terminal			
	(B135) No. 26 — (B3) No. 3:			
	(B135) No. 34 — (B3) No. 2:			
	(B135) No. 30 — (B3) No. 5:			
	,, , 20,			

	Step	Check	Yes	No
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)-25, Mass Air Flow and Intake Air Temper- ature Sensor.&gt;</ref.>

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

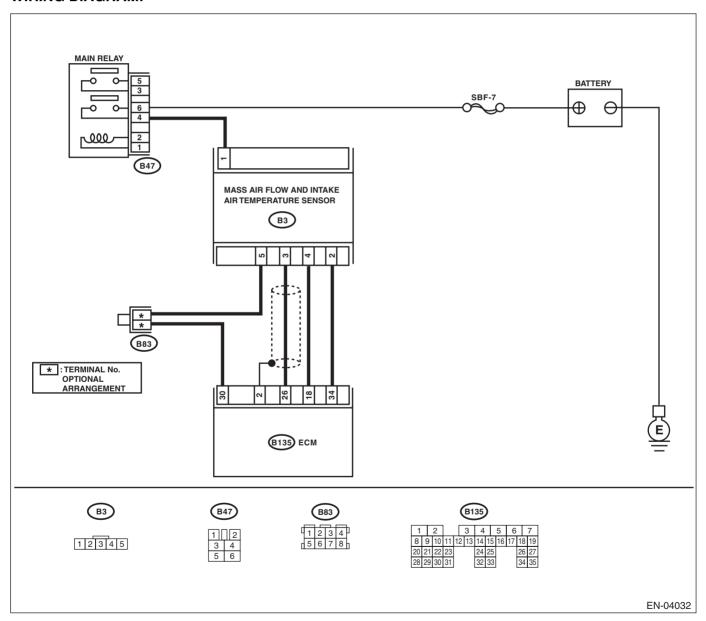
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-30, DTC P0103 MASS OR VOLUME AIR FLOW CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 DATA.  1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor or 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 voltage of mass air flow sensor using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation 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 $\Omega$ ?	Replace the mass air flow sensor. <ref. to<br="">FU(H4SO)-25, Mass Air Flow and Intake Air Temper- ature Sensor.&gt;</ref.>	Repair the open circuit of harness between mass air flow sensor connector and ECM connector.

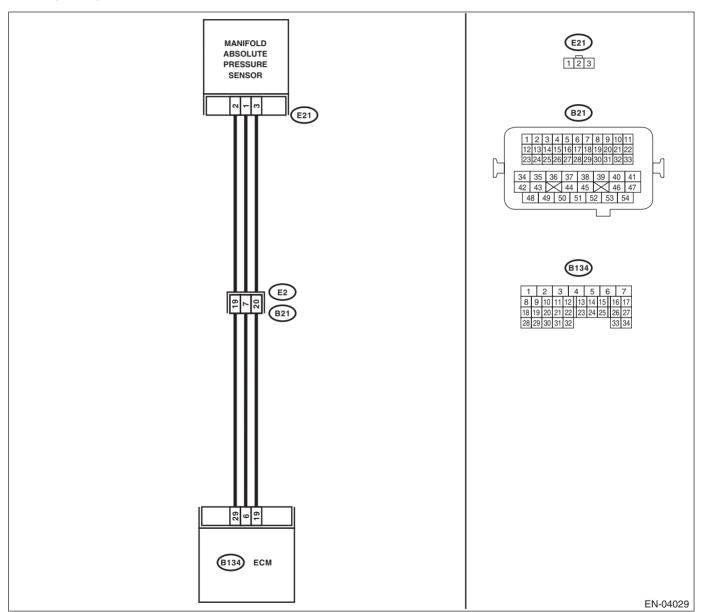
# P: DTC P0107 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT

#### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-32, DTC P0107 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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,	'	'
	2) Read the data of intake manifold absolute	3.94 inHg) ?		
	pressure signal using Subaru Select Monitor or	3,		
	general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	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 Moni-			
	tor.> • General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
2	CHECK POOR CONTACT.	Is there poor contact in ECM or	Repair the poor	Even if the mal-
	Check the poor contact in ECM and manifold	manifold absolute pressure	contact in ECM or	function indicator
	absolute pressure sensor connector.	sensor connector?	manifold absolute	light illuminates,
			pressure sensor	the circuit has
			connector.	returned to a nor-
				mal condition at
				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			
	(B134) No. 19 (+) — Chassis ground (–):			
4	CHECK OUTPUT SIGNAL OF ECM.	Does the voltage change by	Repair the poor	Contact the SOA
	Measure the voltage between ECM connector	shaking the ECM harness and	contact of ECM	service center.
	and chassis ground.	connector?	connector.	
	Connector & terminal			
	(B134) No. 19 (+) — Chassis ground (–):			
5	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.2 V?	Go to step 7.	Go to step 6.
١	Measure the voltage between ECM and chas-	lis the voltage less than 6.2 v	do to stop 7.	do to stop o.
	sis ground.			
	Connector & terminal			
	(B134) No. 6 (+) — Chassis ground (–):			
6	CHECK INPUT SIGNAL FOR ECM (USING	Is the measured value more	Repair the poor	Go to step 7.
0	SUBARU SELECT MONITOR).	than 13.3 kPa (100 mmHg,	contact of ECM	Go to step 7.
		l		
	Read the data of atmospheric absolute pres-	3.94 inHg) when shaking the	connector.	
	sure signal using Subaru Select Monitor.	ECM harness and connector?		
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
7	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to step 8.	Repair the open
	MANIFOLD ABSOLUTE PRESSURE SEN-			circuit of harness
	SOR CONNECTOR.			between ECM and
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>			manifold absolute
	2) Disconnect the connector from manifold			pressure sensor
	absolute pressure sensor.			connector.
	3) Turn the ignition switch to ON.			
	Measure the voltage between manifold			
	absolute pressure sensor connector and			
	engine ground.			
	Connector & terminal			
	(E21) No. 3 (+) — Engine ground (–):			
<u></u>	$(-2.7)$ (40. $\circ$ $(+)$ — Linguis ground $(-)$ .			

	Step	Check	Yes	No
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. 29 — (E21) No. 2:	Is the resistance less than 1 $\Omega$ ?	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 sensor connector.	Replace the manifold absolute pressure sensor. <ref. absolute="" fu(h4so)-24,="" manifold="" pressure="" sensor.="" to=""></ref.>

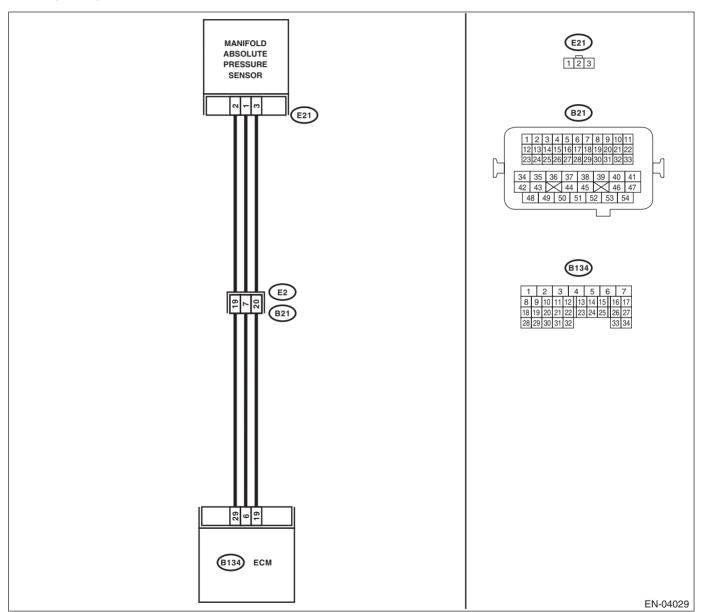
# Q: DTC P0108 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT

#### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-34, DTC P0108 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.
	1) Start the engine.	than 119.5 kPa (896.5 mmHg,	do lo siep 10.	Go to step 2.
	2) Read the data of intake manifold absolute	35.29 inHg) ?		
	pressure signal using Subaru Select Monitor or			
	general scan tool.			
	NOTE:  • Subaru Select Monitor			
	For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. to EN(H4SO)(diag)-26, Subaru Select Moni-</ref. 			
	tor.>			
	<ul> <li>General scan tool</li> </ul>			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
2	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 3.
	Measure the voltage between ECM connector			
	and chassis ground.			
	Connector & terminal			
	(B134) No. 19 (+) — Chassis ground (–):			
3	CHECK OUTPUT SIGNAL OF ECM.	Does the voltage change by	Repair the poor	Contact the SOA
	Measure the voltage between ECM connector	shaking the ECM harness and	contact of ECM	service center.
	and chassis ground.	connector?	connector.	
	Connector & terminal			
	(B134) No. 19 (+) — Chassis ground (–):			
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 connector			
	and chassis ground.			
	Connector & terminal			
_	(B134) No. 6 (+) — Chassis ground (-):			
5	CHECK INPUT SIGNAL FOR ECM (USING SUBARU SELECT MONITOR).	Is the measured value more than 13.3 kPa (100 mmHg,	Repair the poor contact of ECM	Go to step 6.
	Read the data of atmospheric absolute pressure signal using Subaru Select Monitor.	3.94 inHg) when shaking the ECM harness and connector?	connector.	
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Monitor.>			
6	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to stop 7	Repair the open
0	MANIFOLD ABSOLUTE PRESSURE SEN- SOR CONNECTOR.	is the voltage more than 4.5 v?	Go to step 7.	circuit of harness between ECM and
	Turn the ignition switch to OFF.			manifold absolute
	Disconnect the connector from manifold			pressure sensor
	absolute pressure sensor.			connector.
	3) Turn the ignition switch to ON.			CONTINUOTOI.
	Measure the voltage between manifold			
	absolute pressure sensor connector and			
	engine ground.			
	Connector & terminal			
	(E21) No. 3 (+) — Engine ground (–):			
L	(/			

	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. 6 — (E21) No. 1:	Is the resistance less than 1 $\Omega$ ?	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. 29 — (E21) No. 2:	Is the resistance less than 1 $\Omega$ ?	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 manifold absolute pressure sensor. <ref. absolute="" fu(h4so)-24,="" manifold="" pressure="" sensor.="" to=""></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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Repair the battery short circuit of harness between ECM and manifold absolute pressure sensor connector.	Replace the mani-

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

#### **DTC DETECTING CONDITION:**

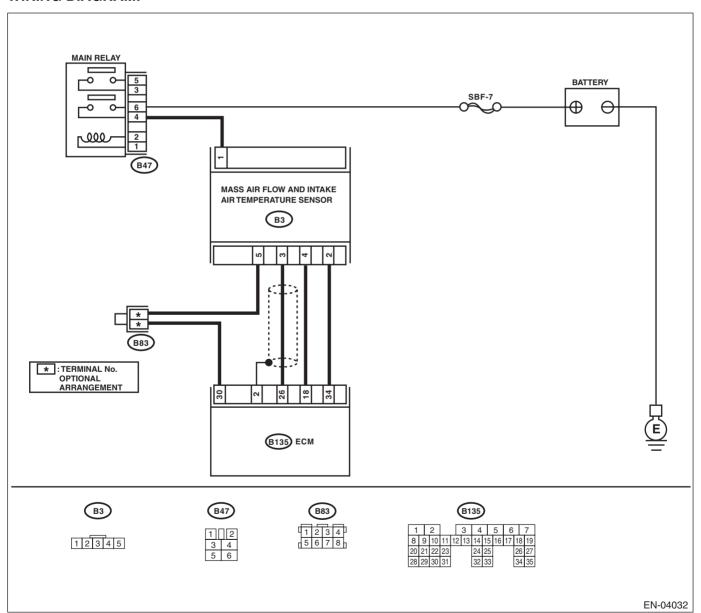
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-36, DTC P0111 INTAKE AIR TEMPERATURE SENSOR</li>
   1 CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

- Erroneous idling
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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)-</ref.>	sensor. <ref. to<br="">FU(H4SO)-25, Mass Air Flow and Intake Air Temper- ature Sensor.&gt;</ref.>

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

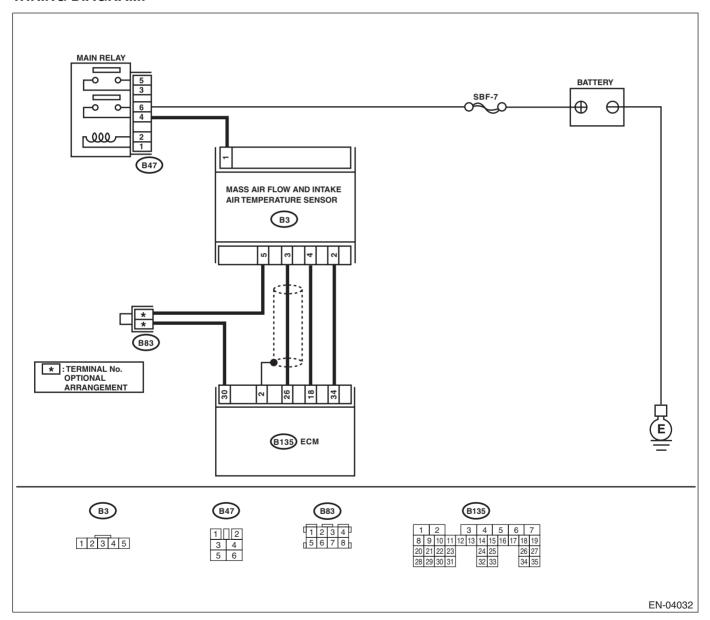
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-38, DTC P0112 INTAKE AIR TEMPERATURE SENSOR</li>
   1 CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.

#### **TROUBLE SYMPTOM:**

- Erroneous idling
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		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 of coupling connector Poor contact of ioint 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the intake air temperature less than -40°C (-40°F)?	Replace the intake air temperature sensor. <ref. to<br="">FU(H4SO)-25, Mass Air Flow and Intake Air Temper- ature Sensor.&gt;</ref.>	Repair the ground short circuit of harness between intake air temperature sensor and ECM connector.

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

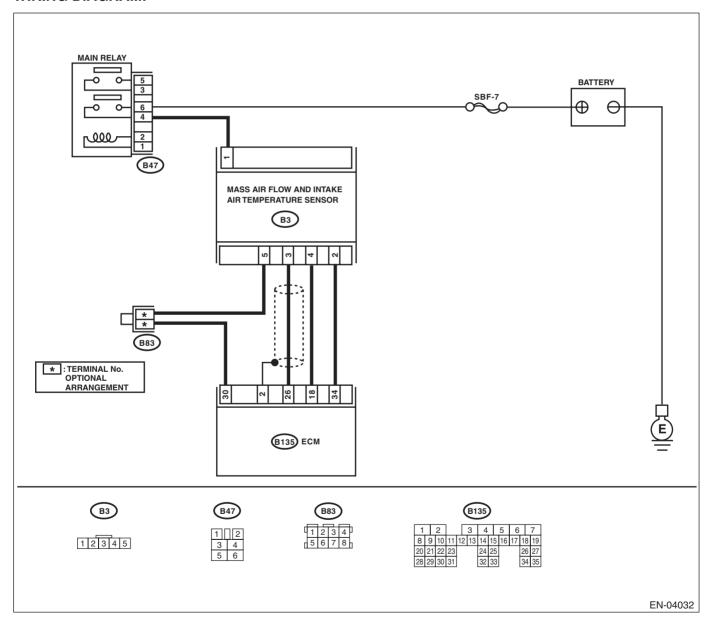
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-40, DTC P0113 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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
•	Start the engine.	less than –40°C (–40°F) ?	GO to Glop 2.	contact.
	<ul><li>2) Read the data of intake air temperature</li></ul>			NOTE:
	sensor signal using Subaru Select Monitor or			In this case, repair
	general scan tool.			
	-			the following item:  • Poor contact in
	NOTE:  • Subaru Select Monitor			
				intake air tempera-
	For detailed operation procedure, refer to			ture sensor
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td>• Poor contact in</td></ref.<>			• Poor contact in
	to EN(H4SO)(diag)-26, Subaru Select Moni-			ECM
	tor.>			Poor contact of
	General scan tool			coupling connector
	For detailed operation procedure, refer to the			Poor contact of
	general scan tool operation manual.			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	
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>		intake air tempera-	
	<ol><li>Disconnect the connector from intake air</li></ol>		ture sensor and	
	temperature sensor.		ECM connector.	
	<ol><li>Measure the voltage between intake air</li></ol>			
	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	
	<ol> <li>Turn the ignition switch to ON.</li> </ol>		intake air tempera-	
	<ol><li>Measure the voltage between intake air</li></ol>		ture sensor and	
	temperature sensor connector and engine		ECM connector.	
	ground.			
	Connector & terminal			
	(B3) No. 4 (+) — Engine ground (–):			
4	CHECK HARNESS BETWEEN INTAKE AIR	Is the voltage more than 3 V?	Go to step 5.	Repair the har-
	TEMPERATURE SENSOR AND ECM CON-			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 (–):			<ul> <li>Open circuit in</li> </ul>
				harness between
				intake air tempera-
				ture sensor and
				ECM connector
				<ul> <li>Poor contact in</li> </ul>
				intake air tempera-
				ture sensor
				Poor contact in
				ECM
				Poor contact of
				coupling connector
				Poor contact of
				joint connector
				Jon It CollineCtol

	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN INTAKE AIR	Is the resistance less than 5	Replace the intake	Repair the har-
	TEMPERATURE SENSOR AND ECM CON-	$\Omega$ ?	air temperature	ness and connec-
	NECTOR.		sensor. <ref. td="" to<=""><td>tor.</td></ref.>	tor.
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>		FU(H4SO)-25,	NOTE:
	2) Measure the resistance of harness		Mass Air Flow and	In this case, repair
i	between intake air temperature sensor con-			the following item:
	nector and engine ground.		ature Sensor.>	<ul> <li>Open circuit in</li> </ul>
	Connector & terminal			harness between
	(B3) No. 5 — Engine ground:			intake air tempera-
				ture sensor and
				ECM connector
				<ul> <li>Poor contact in</li> </ul>
				intake air tempera-
				ture sensor
				<ul> <li>Poor contact in</li> </ul>
				ECM
				<ul> <li>Poor contact of</li> </ul>
1				coupling connector
				<ul> <li>Poor contact of</li> </ul>
ĺ				joint connector

**ENGINE (DIAGNOSTICS)** 

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

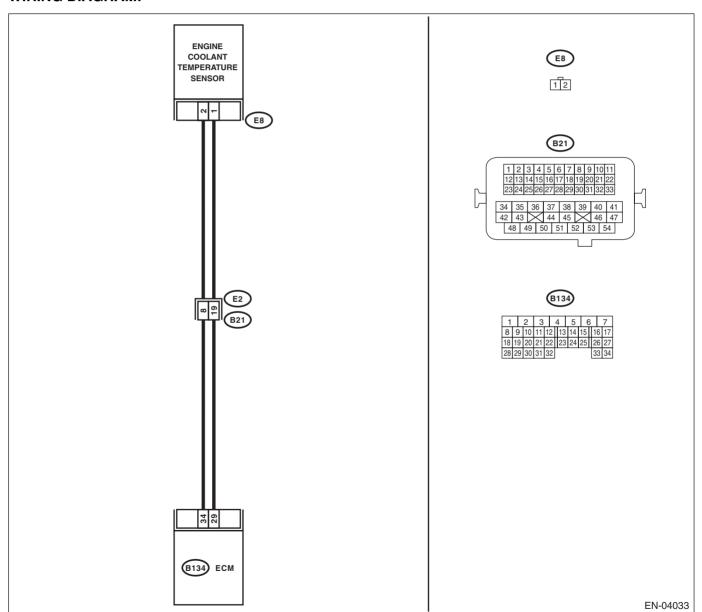
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-42, DTC P0117 ENGINE COOLANT TEMPERATURE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool procedure.</ref.>		Go to step 2.	Repair the poor contact.  NOTE: In this case, repair the following item: • Poor contact of engine coolant temperature sensor • Poor contact in ECM • Poor contact of coupling connector • Poor contact of ioint 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4SO)(diag)-26, Subaru Select Monitor.>  General scan tool For detailed operation procedure, refer to the general scan tool operation manual.		Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-19,="" sensor.="" temperature="" to=""></ref.>	Repair the ground short circuit of harness between engine coolant temperature sensor and ECM connector.

**ENGINE (DIAGNOSTICS)** 

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

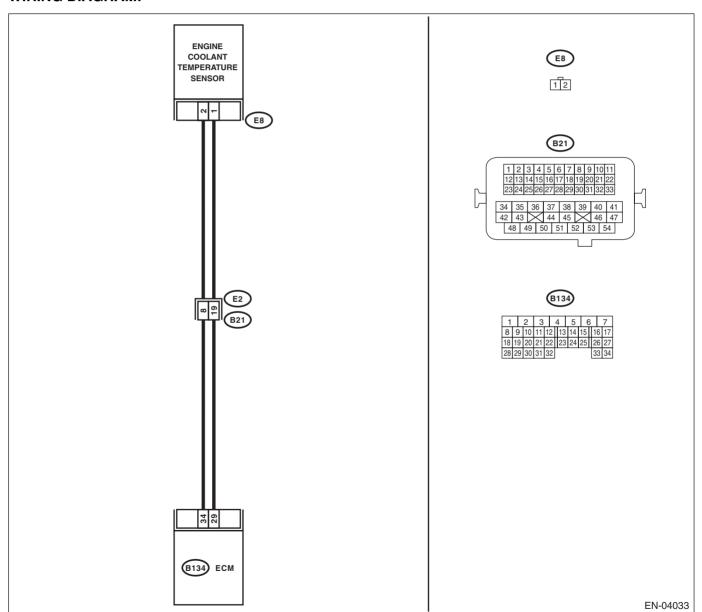
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-44, DTC P0118 ENGINE COOLANT TEMPERATURE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



		<u>.</u> .		1
	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the engine coolant tempera-	Go to step 2.	Repair the poor
	Start the engine.  O) Board the date of anxing applications are left to the date.	ture less than -40°C (-40°F)?		contact.
	2) 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 of
	Subaru Select Monitor			engine coolant tem-
	For detailed operation procedure, refer to			perature sensor
	"READ CURRENT DATA FOR ENGINE". < Ref.			Poor contact in
	to EN(H4SO)(diag)-26, Subaru Select Moni-			ECM
	tor.> • General scan tool			Poor contact of
				<ul><li>coupling connector</li><li>Poor contact of</li></ul>
	For detailed operation procedure, refer to the			
	general scan tool operation manual.	le the veltere may then 10 V/2	Damain tha hattami	joint connector
2	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND	Is the voltage more than 10 V?	Repair the battery short circuit of har-	Go to step 3.
	ECM CONNECTOR.		ness between	
	Turn the ignition switch to OFF.		ECM and engine	
	<ul><li>2) Disconnect the connectors from the engine</li></ul>		coolant tempera-	
	coolant temperature sensor.		ture sensor con-	
	<ul><li>3) Measure the voltage between engine cool-</li></ul>		nector.	
	ant temperature sensor connector and engine		nector.	
	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.
١	COOLANT TEMPERATURE SENSOR AND	is the voltage more than to v:	short circuit of har-	GO 10 310P 4.
	ECM CONNECTOR.		ness between	
	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 (–):			
4	CHECK HARNESS BETWEEN ENGINE	Is the voltage more than 4 V?	Go to step 5.	Repair the har-
	COOLANT TEMPERATURE SENSOR AND			ness and connec-
	ECM CONNECTOR.			tor.
	Measure the voltage between engine coolant			NOTE:
	temperature sensor connector and engine			In this case, repair
	ground.			the following item:
	Connector & terminal			<ul> <li>Open circuit of</li> </ul>
	(E8) No. 2 (+) — Engine ground (–):			harness between
				ECM and engine
				coolant tempera-
				ture sensor con-
1				nector
				<ul> <li>Poor contact of</li> </ul>
				engine coolant tem-
				perature sensor
1				connector
1				<ul> <li>Poor contact in</li> </ul>
				ECM connector
				<ul> <li>Poor contact of</li> </ul>
1				coupling connector
1				<ul> <li>Poor contact of</li> </ul>
				joint connector

Step		Check	Yes	No
5 CHECK HARNESS BETWEEN	ENGINE	Is the resistance less than 5	Replace the	Repair the har-
COOLANT TEMPERATURE SE	NSOR AND	$\Omega$ ?	engine coolant	ness and connec-
ECM CONNECTOR.			temperature sen-	tor.
<ol> <li>Turn the ignition switch to OF</li> </ol>	F.		sor. <ref. th="" to<=""><th>NOTE:</th></ref.>	NOTE:
<ol><li>Measure the resistance of ha</li></ol>	rness		FU(H4SO)-19,	In this case, repair
between engine coolant tempera	ture sensor		Engine Coolant	the following item:
connector and engine ground.			Temperature Sen-	<ul> <li>Open circuit of</li> </ul>
Connector & terminal			sor.>	harness between
(E8) No. 1 — Engine ground	l:			ECM and engine
				coolant tempera-
				ture sensor con-
				nector
				<ul> <li>Poor contact of</li> </ul>
				engine coolant
				temperature sen-
				sor connector
				<ul> <li>Poor contact in</li> </ul>
				ECM connector
				<ul> <li>Poor contact of</li> </ul>
				coupling connector
				<ul> <li>Poor contact of</li> </ul>
				joint connector

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

#### **DTC DETECTING CONDITION:**

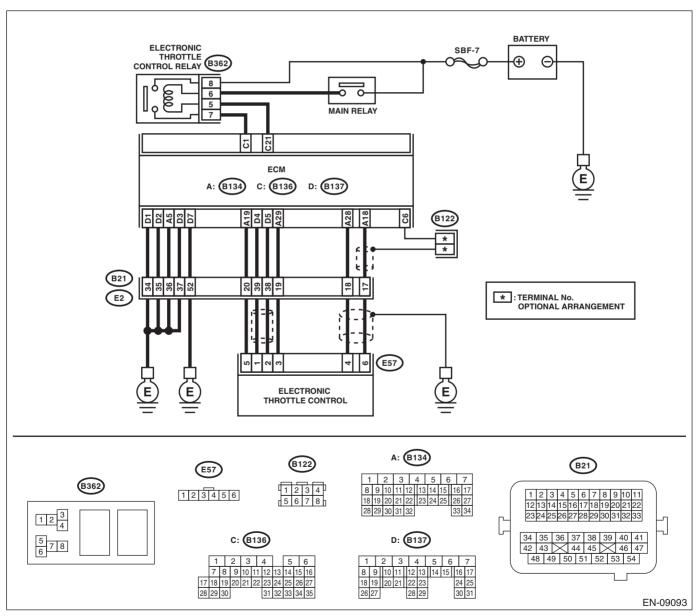
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-46, DTC P0122 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.  NOTE: 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 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	<ol> <li>Turn the ignition switch to OFF.</li> <li>Disconnect the connectors from ECM.</li> <li>Disconnect the connectors from electronic throttle control.</li> <li>Measure the resistance between ECM connector and electronic throttle control connector.         Connector &amp; terminal         (B134) No. 18 — (E57) No. 6:         (B134) No. 19 — (E57) No. 5:     </li> </ol>	Is the resistance less than 1 $\Omega$ ?	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 (-):	·	Go to step 6.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. to FU(H4SO)-36, Engine Control Module (ECM).&gt;</ref. 
6		Is the resistance more than 10 $\Omega$ ?	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" module="" to=""></ref.>

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

#### **DTC DETECTING CONDITION:**

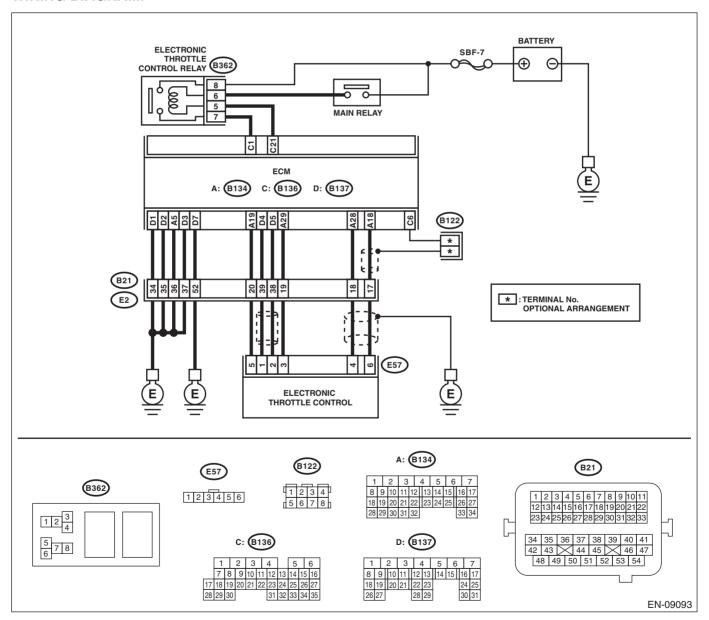
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-48, DTC P0123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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
4	CHECK SENSOR OUTPUT.			
1	1) Turn the ignition switch to ON. 2) Read the data of main throttle sensor signal using Subaru Select Monitor.  NOTE: 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 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 $\Omega$ ?	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 1 $\Omega$ ?	Go to step 5.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. to FU(H4SO)-36, Engine Control Module (ECM).&gt;</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?	Go to step <b>6</b> .	Repair the battery short circuit of har- ness between ECM connector and electronic throttle control connector.
6	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL.  1) Turn the ignition switch to OFF.  2) Disconnect the connectors from ECM.  3) Measure the resistance between ECM connectors.  Connector & terminal  (B134) No. 18 — (B134) No. 19:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the poor contact of har- ness. Replace the electronic throttle control.	Repair the short circuit to sensor power supply.

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

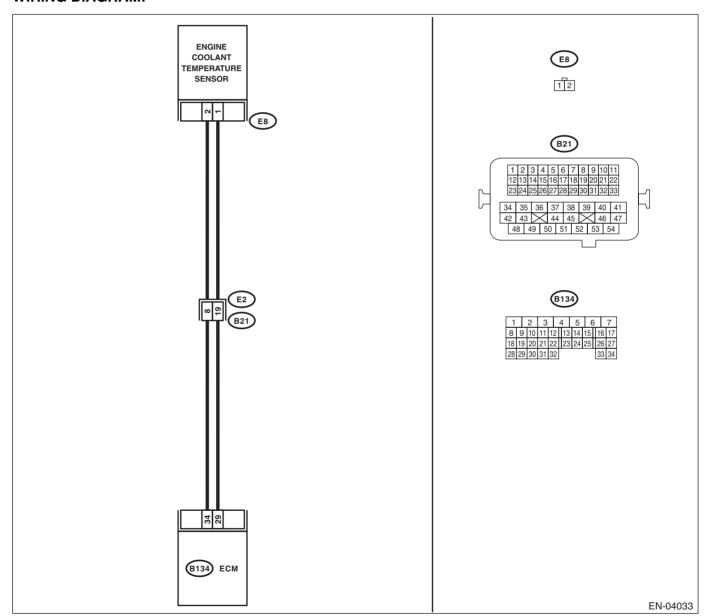
#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-50, DTC P0125 INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

Engine does not return to idle.

#### **CAUTION:**

After repairing or replacing the defective part, perform 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).="" 70,="" 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)-17, Thermostat.&gt;</ref.>	Replace the engine coolant temperature sen- sor. <ref. to<br="">FU(H4SO)-19, Engine Coolant Temperature Sen- sor.&gt;</ref.>

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

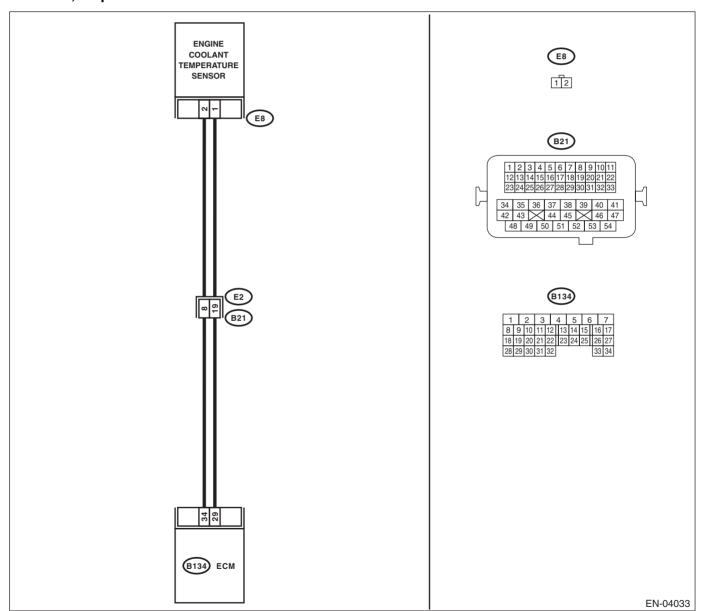
#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-53, 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, perform 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)-70,="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK ENGINE COOLANT TEMPERATURE SENSOR.  Measure the resistance between engine coolant temperature sensor terminals when the engine coolant is cold and after warmed-up.  Terminals  No. 1 — No. 2:	Is the resistance of engine coolant temperature sensor different between when engine coolant is cold and after warmed-up?	•	Replace the engine coolant temperature sen- sor. <ref. to<br="">FU(H4SO)-19, Engine Coolant Temperature Sen- sor.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

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

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-55, 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, perform 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.>.

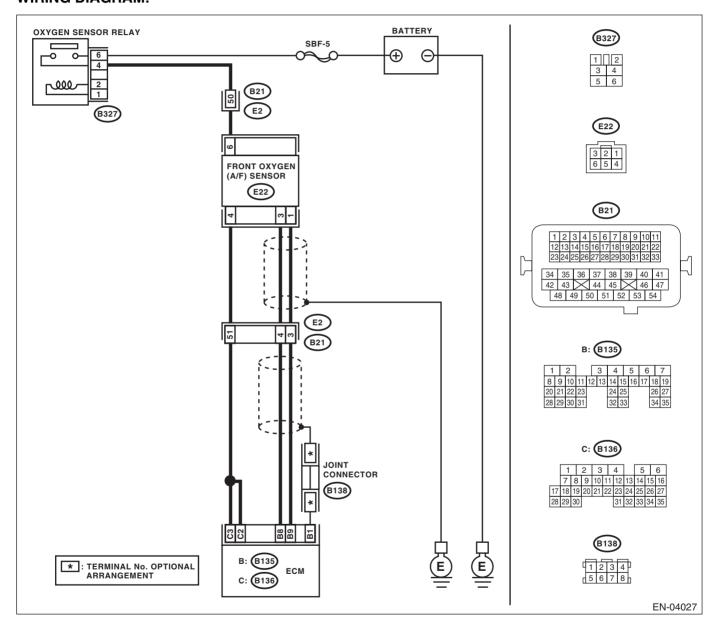
	Step	Check	Yes	No
1	CHECK VEHICLE.	Was the vehicle driven or idled with the engine partially submerged under water?	In this case, it is not necessary to inspect DTC P0128.	Go to step 2.
2	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 70,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 3.
3	CHECK ENGINE COOLANT.	Are the engine coolant level and mixture ratio of cooling water to antifreeze solution correct?	Go to step 4.	Replace the engine coolant. <ref. co(h4so)-12,="" 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)-23,="" fan="" main="" motor.="" radiator="" to=""> and <ref. and="" co(h4so)-25,="" fan="" motor.="" radiator="" sub="" to=""></ref.></ref.>	Replace the ther- mostat. <ref. to<br="">CO(H4SO)-17, Thermostat.&gt;</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)-57, 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, perform 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.>.



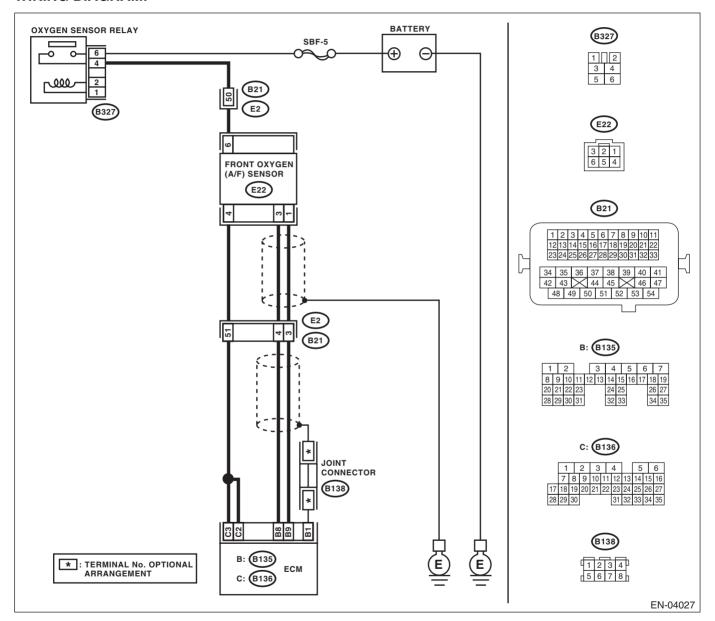
	Step	Check	Yes	No
1	CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	Go to step 2.
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.  1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM 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 — Chassis ground: (B135) No. 8 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/F) Sensor.&gt;</ref.>	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)-59, 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, perform 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.>.



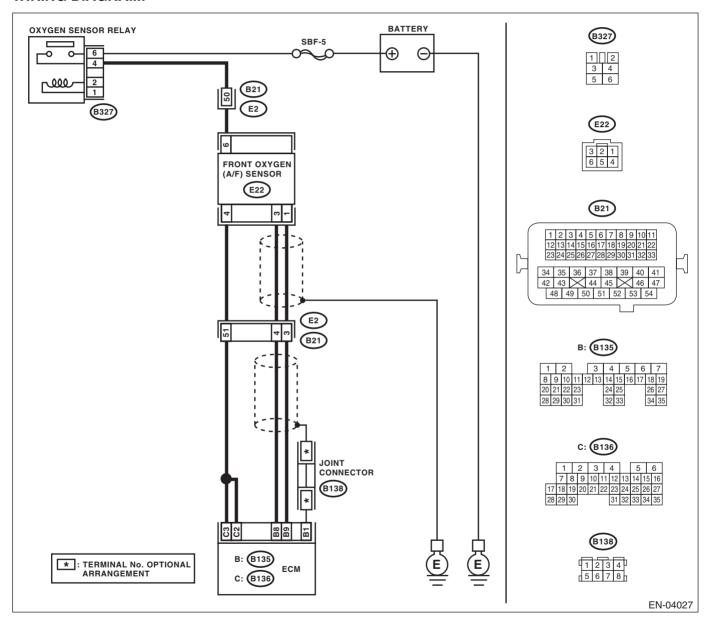
	Step	Check	Yes	No
1	CHECK FRONT OXYGEN (A/F) SENSOR	Does water enter the connec-	Dry the water thor-	Go to step 2.
	CONNECTOR AND COUPLING CONNECTOR.	tor?	oughly.	
2	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 8 V?	Replace the front	Repair the battery
	FRONT OXYGEN (A/F) SENSOR CONNEC-		oxygen (A/F) sen-	short circuit of har-
	TOR.		sor. <ref. th="" to<=""><th>ness between</th></ref.>	ness between
	<ol> <li>Turn the ignition switch to ON.</li> </ol>		FU(H4SO)-32,	ECM and front
	2) Disconnect the connector from front oxygen		Front Oxygen (A/	oxygen (A/F) sen-
	(A/F) sensor.		F) Sensor.>	sor connector.
	<ol><li>Measure the voltage of harness between</li></ol>			
	ECM connector and chassis ground.			
	Connector & terminal			
	(B135) No. 9 (+) — Chassis ground (–):			
	(B135) No. 8 (+) — Chassis ground (–):			

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-61, 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, perform 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).="" 70,="" code="" diagnostic="" en(h4so)(diag)-="" list="" 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)-32, Front Oxygen (A/F) Sensor.&gt;</ref.>

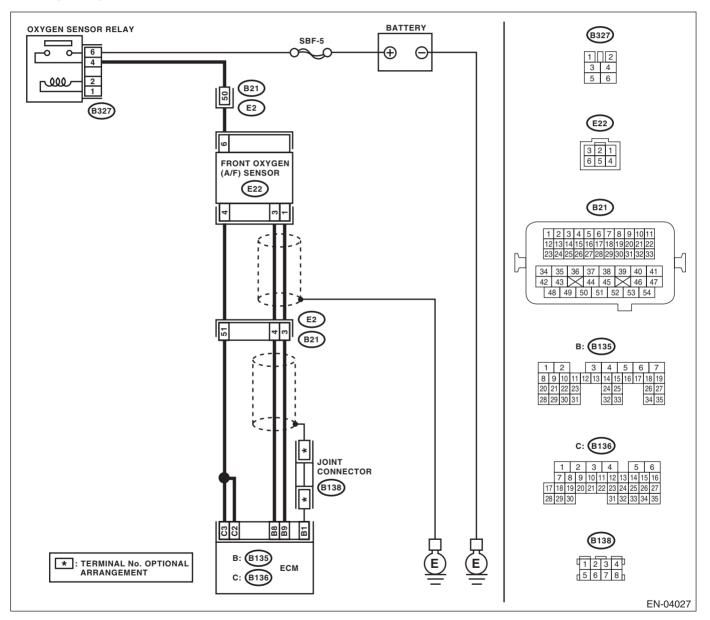
### AE:DTC P0134 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SEN-SOR 1)

#### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-64, 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, perform 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.>.



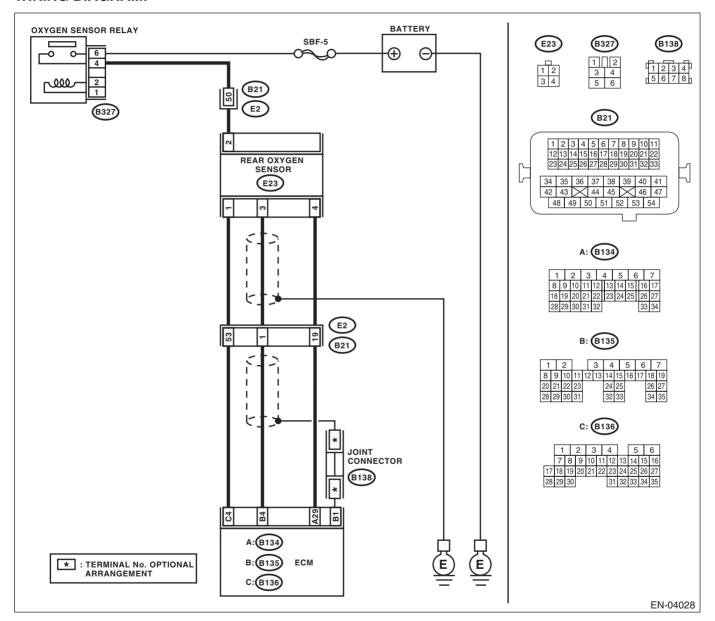
	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.  1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and front oxygen (A/F) sensor connector. 3) Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector.  Connector & terminal (B135) No. 9 — (E22) No. 1: (B135) No. 8 — (E22) No. 3:	Is the resistance less than 1 $\Omega$ ?	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 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 of the front oxygen (A/F) sensor connector.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/ F) Sensor.&gt;</ref.>

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-66, 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, perform 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).="" 70,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation 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 — (E23) No. 3:  (B134) No. 29 — (E23) No. 4:	Is the resistance more than 3 $\Omega$ ?	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 the 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  (E23) No. 3 (+) — Engine ground (-):	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-34, Rear Oxygen Sen- sor.&gt;</ref.>	Repair the har- ness and connec- tor.  NOTE: In this case, repair the following item:  Open circuit of harness between rear oxygen sen- sor and ECM con- nector Poor contact of the rear oxygen sensor connector Poor contact in ECM connector

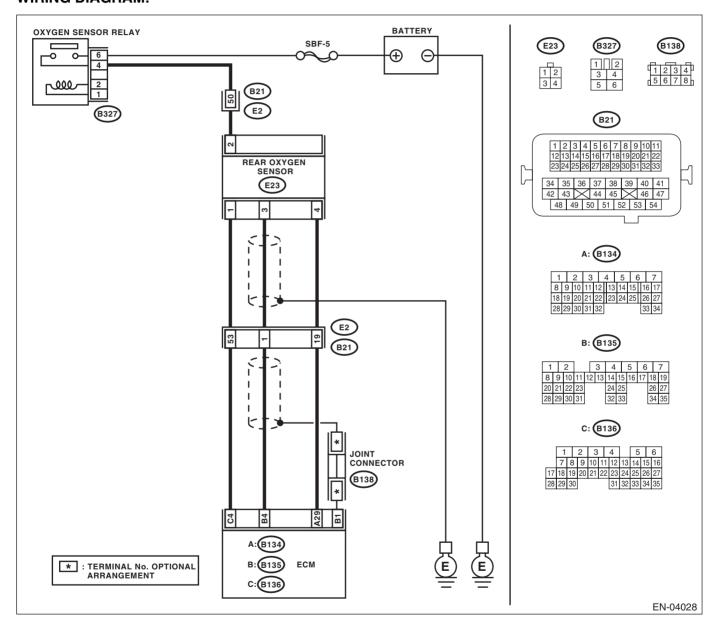
	Step	Check	Yes	No
6			Repair or replace faulty parts.	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-34, Rear Oxygen Sen- sor.&gt;</ref.>

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-68, 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, perform 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).="" code="" diagnostic="" en(h4so)(diag)-70,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0138.</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 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation 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 — (E23) No. 3:  (B134) No. 29 — (E23) No. 4:	Is the resistance more than 3 $\Omega$ ?	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 the 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  (E23) No. 3 (+) — Engine ground (-):	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-34, Rear Oxygen Sen- sor.&gt;</ref.>	Repair the har- ness and connec- tor.  NOTE: In this case, repair the following item:  Open circuit of harness between rear oxygen sen- sor and ECM con- nector Poor contact of the rear oxygen sensor connector Poor contact in ECM connector

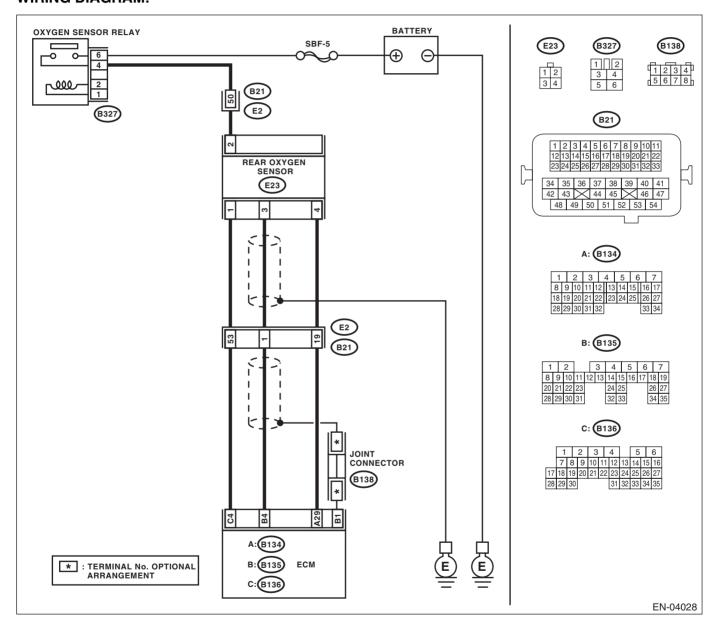
	Step	Check	Yes	No
6			faulty parts.	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-34, Rear Oxygen Sen- sor.&gt;</ref.>

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-69, DTC P0139 O2 SENSOR CIRCUIT SLOW RE-SPONSE (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.

#### **CAUTION:**

After repairing or replacing the defective part, perform 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).="" 70,="" 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 — (E23) No. 3:	Is the resistance less than 1 $\Omega$ ?	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  (E23) No. 3 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 4.	Repair the chassis short circuit of harness.
4	CHECK REAR OXYGEN SENSOR.  Measure the resistance between the rear oxygen sensor connectors.  Terminals  No. 3 — No. 4:	Is the resistance less than 1 $\Omega$ ?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-34, Rear Oxygen Sen- sor.&gt;</ref.>	Temporary poor contact occurs. Check poor contact of connector.

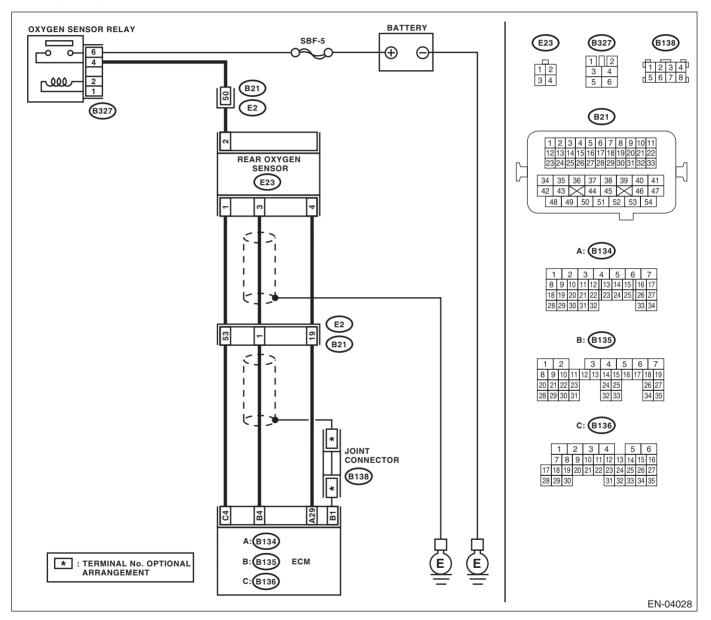
# AI: DTC P0140 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK1 SENSOR2)

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-69, DTC P0139 O2 SENSOR CIRCUIT SLOW RE-SPONSE (BANK 1 SENSOR 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



			T	T
	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).="" code="" diagnostic="" en(h4so)(diag)-70,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0140.</ref.>	
	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 minites)  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 more than 490 mV?	Go to step 7.	Go to step 3.
	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?	Go to step 7.	Go to step 4.
4	CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	Go to step 5.

	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 — (E23) No. 3:  (B134) No. 29 — (E23) No. 4:	Is the resistance more than $3\Omega$ ?	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  (E23) No. 3 (+) — Chassis ground (-):	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-34, Rear Oxygen Sen- sor.&gt;</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)-34, Rear Oxygen Sen- sor.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

### **AJ:DTC P0171 SYSTEM TOO LEAN (BANK 1)**

Refer to DTC P0172 for diagnostic procedure. <Ref. to EN(H4SO)(diag)-154, DTC P0172 SYSTEM TOO RICH (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### **AK:DTC P0172 SYSTEM TOO RICH (BANK 1)**

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-79, 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, perform 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)-25,="" 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: Clogged fuel line or bent hose Fuel pressure is too low: Improper fuel pump discharge Clogged fuel line
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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Go to step 5.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-19,="" sensor.="" temperature="" to=""></ref.>

	Step	Check	Yes	No
5	CHECK MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR.  1) Start the engine and warm-up engine until coolant temperature is 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 or general scan tool.  NOTE:  • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool For detailed operation procedure, refer to the</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. air="" and="" flow="" fu(h4so)-25,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>
6	CHECK 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" module="" to=""></ref.>	Check the mass air flow and intake air temperature sensor. <ref. to<br="">FU(H4SO)-25, Mass Air Flow and Intake Air Temper- ature Sensor.&gt;</ref.>

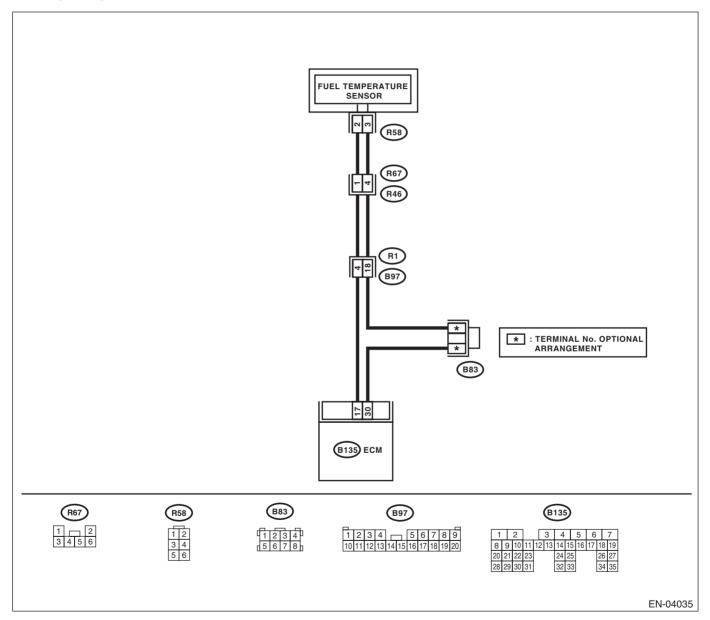
# AL:DTC P0181 FUEL TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFOR-MANCE

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-81, DTC P0181 FUEL TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



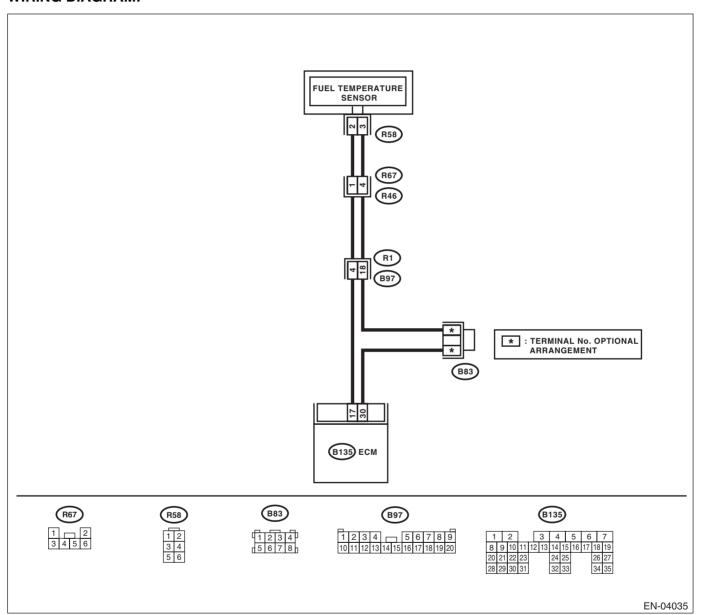
	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	"List of Diagnostic Trouble Code	sor. <ref. th="" to<=""></ref.>
			(DTC)". <ref. to<br="">EN(H4SO)(diag)- 70, List of Diag- nostic Trouble Code (DTC).&gt;</ref.>	EC(H4SO)-9, Fuel Temperature Sen- sor.>
			NOTE: In this case, it is not necessary to inspect DTC P0181.	

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-84, DTC P0182 FUEL TEMPERATURE SENSOR "A" CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



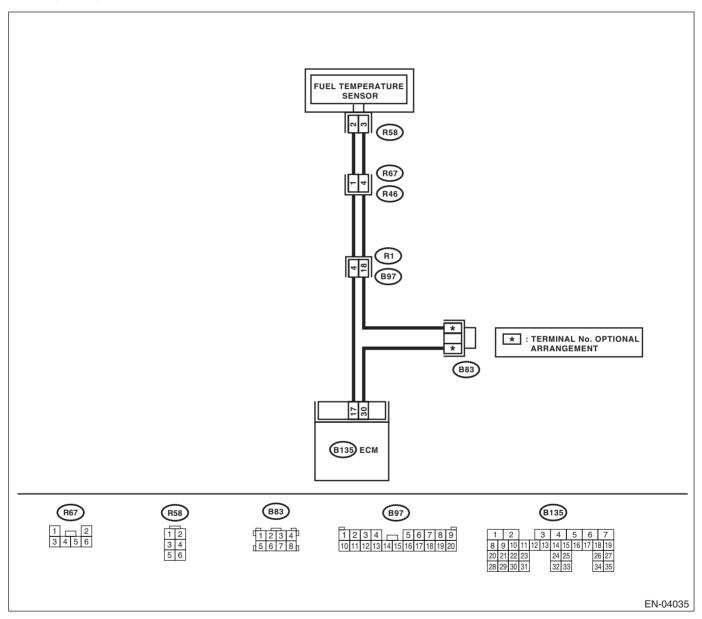
	Step	Check	Yes	No
1	CHECK CURRENT DATA.  1) Start the engine.  2) Read the data of fuel temperature sensor signal using Subaru Select Monitor.  NOTE: Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""></ref.>	Is the 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.  NOTE:  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 fuel temperature less than –40°C (–40°F) ?		Repair the ground short circuit of the harness between fuel injector and ECM connector.

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-86, DTC P0183 FUEL TEMPERATURE SENSOR "A" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.  NOTE: 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 fuel temperature less than –40°C (–40°F) ?	Go to step 2.	Repair the poor contact.  NOTE: In this case, repair the following item: • Poor contact in fuel pump connector • Poor contact in ECM connector • Poor contact of coupling connector • Poor contact of joint connector
2	CHECK HARNESS BETWEEN FUEL TEM-PERATURE SENSOR AND ECM CONNECTOR.  1) Turn the ignition switch to OFF. 2) Remove the access hole lid. 3) Disconnect the connector from fuel pump. 4) Measure the voltage between fuel pump connector and chassis ground.  Connector & terminal  (R58) No. 2 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of har- ness between ECM and fuel pump connector.	Go to step 3.
3	CHECK HARNESS BETWEEN FUEL TEM-PERATURE SENSOR AND ECM CONNECTOR.  1) Turn the ignition switch to ON. 2) Measure the voltage between fuel pump connector and chassis ground.  Connector & terminal  (R58) No. 2 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of har- ness between ECM and fuel pump connector.	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL TEM-PERATURE SENSOR AND ECM CONNECTOR.  Measure the voltage between fuel pump connector and chassis ground.  Connector & terminal  (R58) No. 2 (+) — Chassis ground (-):	Is the voltage more than 4 V?	Go to step 5.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between ECM and fuel pump connector Poor contact in fuel pump connector Poor contact in ECM connector Poor contact of coupling connector

	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN FUEL TEM-	Is the resistance less than 1	Replace the fuel	Repair the har-
	PERATURE SENSOR AND ECM CONNEC-	$\Omega$ ?	temperature sen-	ness and connec-
	TOR.		sor. <ref. td="" to<=""><td>tor.</td></ref.>	tor.
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>		EC(H4SO)-9, Fuel	NOTE:
	<ol><li>Disconnect the connectors from ECM.</li></ol>		Temperature Sen-	In this case, repair
	<ol><li>Measure the resistance of harness</li></ol>		sor.>	the following item:
	between fuel pump connector and ECM.			<ul> <li>Open circuit of</li> </ul>
	Connector & terminal			harness between
	(R58) No. 3 — (B135) No. 30:			ECM and fuel
				pump connector
				<ul> <li>Poor contact in</li> </ul>
				fuel pump connec-
				tor
				<ul> <li>Poor contact in</li> </ul>
				ECM connector
				<ul> <li>Poor contact of</li> </ul>
				coupling connector
				<ul> <li>Poor contact of</li> </ul>
l				joint connector

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

#### **DTC DETECTING CONDITION:**

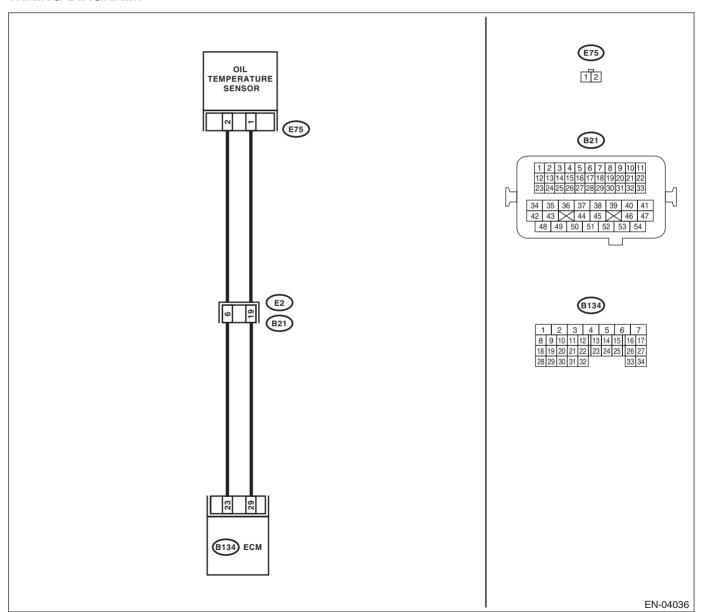
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-88, DTC P0196 ENGINE OIL TEMPERATURE SENSOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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. td="" to<=""><td>Replace the oil temperature sen- sor. <ref. to<br="">FU(H4SO)-31, Oil Temperature Sen- sor.&gt;</ref.></td></ref.>	Replace the oil temperature sen- sor. <ref. to<br="">FU(H4SO)-31, Oil Temperature Sen- sor.&gt;</ref.>
			NOTE: In this case, it is not necessary to inspect DTC P0196.	

**ENGINE (DIAGNOSTICS)** 

## AP:DTC P0197 ENGINE OIL TEMPERATURE SENSOR LOW DTC DETECTING CONDITION:

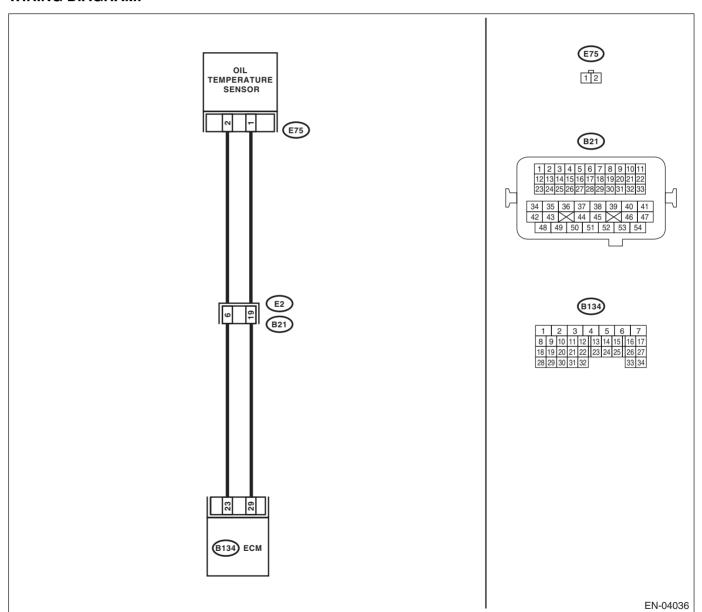
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-90, DTC P0197 ENGINE OIL TEMPERATURE SENSOR LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 OIL TEMPER-ATURE SENSOR AND ECM CONNECTOR.  1) Disconnect the ECM connector and oil temperature sensor connector.  2) Measure the resistance of harness between 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 oil temperature sensor connector.
2	CHECK POOR CONTACT.  Check poor contact of oil temperature sensor connector.	Is there poor contact in oil tem- perature sensor connector?	contact.	Replace the oil temperature sen- sor. <ref. to<br="">FU(H4SO)-31, Oil Temperature Sen- sor.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

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

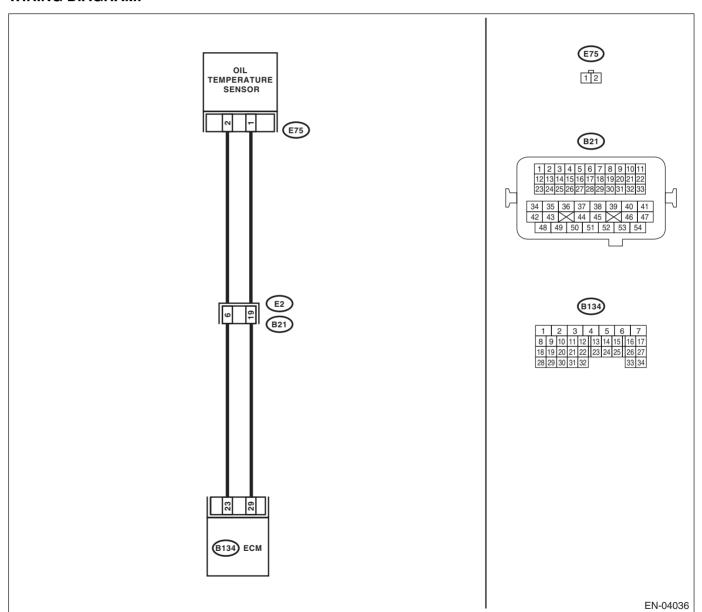
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-91, DTC P0198 ENGINE OIL TEMPERATURE SENSOR HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 OIL TEMPER-		Repair the battery	Go to step 2.
	ATURE SENSOR AND ECM CONNECTOR.  1) Turn the ignition switch to OFF.  2) Disconnect the connector from the oil temperature sensor.  3) Measure the voltage between oil tempera-	is the voltage more than 10 v:	short circuit of har- ness between ECM and oil tem- perature sensor connector.	do to step 2.
	ture sensor connector and engine ground.  Connector & terminal  (E75) No. 2 (+) — Engine ground (-):			
2	CHECK HARNESS BETWEEN OIL TEMPER- ATURE SENSOR AND ECM CONNECTOR.  1) Turn the ignition switch to ON. 2) Measure the voltage between oil tempera- ture sensor connector and engine ground.  Connector & terminal	Is the voltage more than 10 V?	Repair the battery short circuit of har- ness between ECM and oil tem- perature sensor connector.	Go to step 3.
3	(E75) No. 2 (+) — Engine ground (-):  CHECK HARNESS BETWEEN OIL TEMPER- ATURE SENSOR AND ECM CONNECTOR.  Measure the voltage between 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 of harness between ECM and oil temperature sensor connector  • Poor contact of oil temperature sensor connector  • Poor contact in ECM connector  • Poor contact of coupling connector
4	CHECK HARNESS BETWEEN OIL TEMPER-ATURE SENSOR AND ECM CONNECTOR.  1) Turn the ignition switch to OFF.  2) Measure the resistance of harness between oil temperature sensor connector and engine ground.  Connector & terminal  (E75) No. 1 — Engine ground:	Is the resistance less than 5 $\Omega$ ?		Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between ECM and oil temperature sensor connector  Poor contact of oil temperature sensor connector  Poor contact in ECM connector  Poor contact of coupling connector  Poor contact of coupling connector

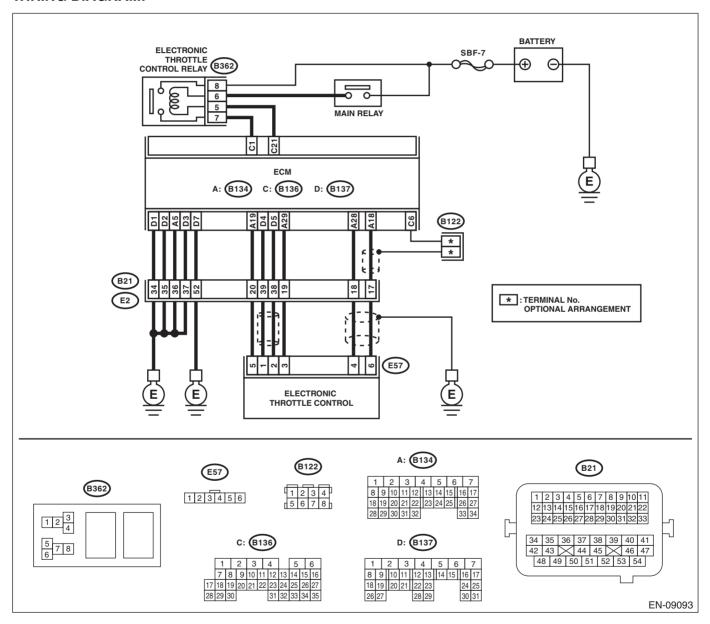
# AR:DTC P0222 THROTTLE/PEDAL POSITION SENSOR/SWITCH "B" CIRCUIT LOW

#### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-92, DTC P0222 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT.	Is the voltage more than 0.8 V?		Go to step 3.
	Turn the ignition switch to ON.	l and remage more arms ere in		See 12 232   P 21
	2) Read the data of sub throttle sensor signal			
	using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
_	tor.>			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact in connector between		contact.	contact occurred,
	ECM and electronic throttle control.			but it is normal at
	OUTON HADNESS DETWEEN FOR AND	la the marietament land the second	Co to oto:- 4	present.
3	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL.	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Repair the open circuit of harness
		[22]		connector.
	<ol> <li>Turn the ignition switch to OFF.</li> <li>Disconnect the connectors from ECM.</li> </ol>			connector.
	<ul><li>3) Disconnect the connectors from electronic</li></ul>			
	throttle control.			
	Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B134) No. 28 — (E57) No. 4:			
	(B134) No. 19 — (E57) No. 5:			
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 5.	Repair the chas-
	ELECTRONIC THROTTLE CONTROL.	ΜΩ?		sis short circuit of
	Measure the resistance between ECM connec-			harness.
	tor and chassis ground.			
	Connector & terminal (B134) No. 28 — Chassis ground:			
	(B134) No. 19 — Chassis ground: (B134) No. 19 — Chassis ground:			
5	CHECK SENSOR POWER SUPPLY.	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair the poor
ا ا	Connect the ECM connector.	10 the voltage 4.0 — 5.0 v :	αο το στορ <b>σ</b> .	contact of ECM
	Turn the ignition switch to ON.			connector.
	Measure the voltage between electronic			Replace the ECM
	throttle control connector and engine ground.			if defective. <ref.< th=""></ref.<>
	Connector & terminal			to FU(H4SO)-36,
	(E57) No. 5 (+) — Engine ground (–):			Engine Control
				Module (ECM).>
6	CHECK SHORT CIRCUIT INSIDE THE ECM.	Is the resistance more than 10	Repair the poor	Repair the poor
	Turn the ignition switch to OFF.	Ω?	contact of elec-	contact of ECM
	2) Measure the resistance between electronic		tronic throttle con-	connector.
	throttle control connector and engine ground.		trol connector.	Replace the ECM
	Connector & terminal		Replace the elec-	if defective. <ref.< th=""></ref.<>
	(E57) No. 4 — Engine ground:		tronic throttle con-	to FU(H4SO)-36,
			trol if defective.	Engine Control
				Module (ECM).>

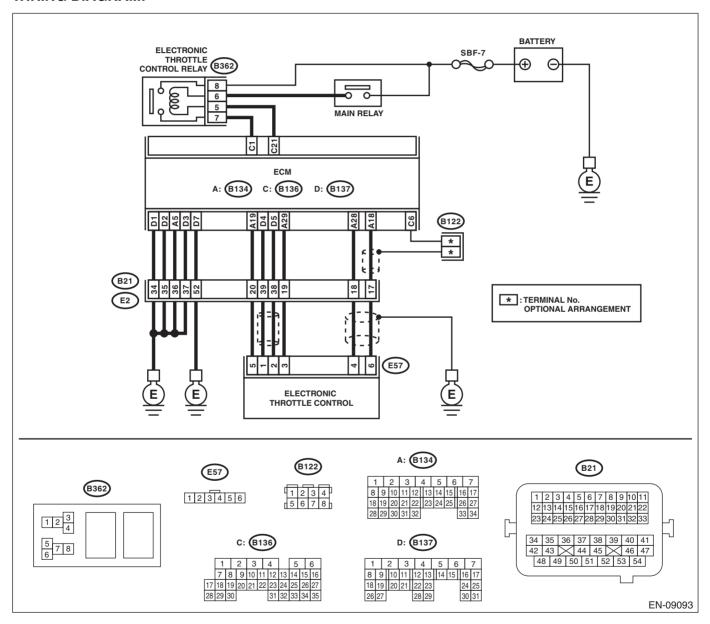
# AS:DTC P0223 THROTTLE/PEDAL POSITION SENSOR/SWITCH "B" CIRCUIT HIGH

#### **DTC DETECTING CONDITION:**

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-94, DTC P0223 THROTTLE/PEDAL POSITION SENSOR/SWITCH "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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



	Step	Check	Yes	No
1 01150	•			
1) Tur 2) Rea using S NOTE: Subaru For de "READ	K SENSOR OUTPUT. In the ignition switch to ON. ad the data of sub throttle sensor signal Subaru Select Monitor.  U Select Monitor etailed operation procedure, refer to CURRENT DATA FOR ENGINE". < Ref. (H4SO)(diag)-26, Subaru Select Moni-	Is the voltage less than 4.73 V?	Go to step 2.	Go to step 3.
2 CHEC Check	K POOR CONTACT. poor contact in connector between 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.
ELECT 1) Tur 2) Dis 3) Dis throttle 4) Me nector Cont (B1	K HARNESS BETWEEN ECM AND TRONIC THROTTLE CONTROL. In the ignition switch to OFF. Iconnect the connectors from ECM. Iconnect the connectors from electronic e control. In assure the resistance between ECM control electronic throttle control connector. In and electronic throttle control connector. In a control electronic throttle electronic throttle control connector. In a control electronic throttle electron	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Repair the open circuit of harness connector.
ELECT 1) Con 2) Me throttle Con	K HARNESS BETWEEN ECM AND TRONIC THROTTLE CONTROL.  nnect the ECM connector.  assure the resistance between electronic e control connector and engine ground.  nector & terminal  17) No. 3 — Engine ground:	Is the resistance less than 5 $\Omega$ ?	Go to step 5.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. to FU(H4SO)-36, Engine Control Module (ECM).&gt;</ref. 
ELECT Measu tle con Conn (E5	K HARNESS BETWEEN ECM AND TRONIC THROTTLE CONTROL. ure the voltage between electronic throttrol connector and engine ground. nector & terminal (7) No. 4 (+) — Engine ground (-):	Is the voltage less than 10 V?	Go to step <b>6</b> .	Repair the battery short circuit of har- ness between ECM connector and electronic throttle control connector.
ELECT 1) Tur 2) Dis 3) Me termina Cont	K HARNESS BETWEEN ECM AND TRONIC THROTTLE CONTROL. In the ignition switch to OFF. In the connectors from ECM. In the resistance between connector als. In the connector & terminal In the connector &	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the poor contact. Replace the electronic throttle control.	Sensor power sup- ply circuit may be shorted.

**ENGINE (DIAGNOSTICS)** 

#### AT: DTC P0301 CYLINDER 1 MISFIRE DETECTED

#### NOTE

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4SO)(diag)-174, 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)-174, 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)-174, 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:**

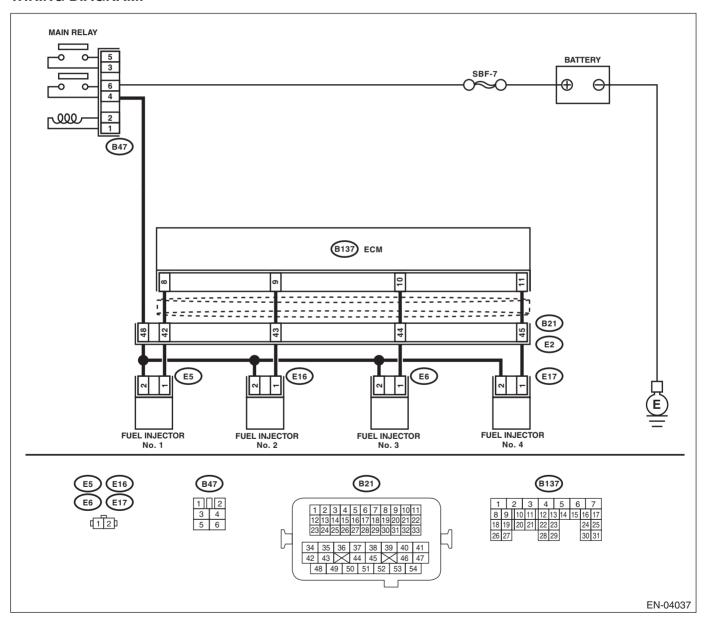
- Detected when two consecutive driving cycles with fault occur.
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-101, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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)-	
			70, List of Diag-	
			nostic Trouble	
			Code (DTC).>	
			NOTE:	
			In this case, it is	
			not necessary to	
			inspect DTC P0301, P0302, P0303 and	
			P0304.	
2	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 10 V?		Go to step 3.
	Turn the ignition switch to ON.		<b></b>	
	2) 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 (-):			
	#4 (B137) No. 11 (+) — Chassis ground (-):	1		
3	CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.	Is the resistance more than 1 $M\Omega$ ?	Go to step 4.	Repair the ground
	Tor AND ECM CONNECTOR.  1) Turn the ignition switch to OFF.	IVIS 2 ?		short circuit of har- ness between fuel
	<ul><li>2) Disconnect the connector from fuel injector</li></ul>			injector and ECM
	on faulty cylinders.			connector.
	Measure the resistance between ECM con-			001111001011
	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:		<u> </u>	
4		Is the resistance less than 1	Go to step 5.	Repair the har-
	TOR AND ECM CONNECTOR.  Measure the resistance of harness connector	Ω?		ness and connec-
	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 of
	#2 (B137) No. 9 — (E16) No. 1:			harness between
	#3 (B137) No. 10 — (E6) No. 1:			ECM and fuel in-
	#4 (B137) No. 11 — (E17) No. 1:			jector connector
				<ul> <li>Poor contact of</li> </ul>
				coupling connector
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)-27,
	Terminals			Fuel Injector.>
	No. 1 — No. 2:			

	Step	Check	Yes	No
6	CHECK POWER SUPPLY LINE.	Is the voltage more than 10 V?	Repair the poor	Repair the har-
	<ol> <li>Turn the ignition switch to ON.</li> </ol>		contact of all con-	ness and connec-
	2) Measure the voltage between fuel injector		nectors in fuel	tor.
	and engine ground on faulty cylinders.		injector circuit.	NOTE:
	Connector & terminal			In this case, repair
	#1 (E5) No. 2 (+) — Engine ground (-):			the following item:
	#2 (E16) No. 2 (+) — Engine ground (-):			Open circuit in
	#3 (E6) No. 2 (+) — Engine ground (–): #4 (E17) No. 2 (+) — Engine ground (–):			harness between
	#4 (£17) No. 2 (+) — Engine ground (-).			main relay and fuel injector connector
				on faulty cylinders
				Poor contact of
				coupling connector
				<ul> <li>Poor contact of</li> </ul>
				main relay connec-
				tor
				<ul> <li>Poor contact of</li> </ul>
				fuel injector con-
				nector on faulty
				cylinders
7	CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.	Is the voltage more than 10 V?	Repair the battery	Go to step 8.
			short circuit of har- ness between	
	<ol> <li>Turn the ignition switch to OFF.</li> <li>Disconnect the connector from fuel injector</li> </ol>		ECM and fuel	
	on faulty cylinders.		injector. After	
	3) Turn the ignition switch to ON.		repair, replace the	
	Measure the voltage between ECM con-		ECM. <ref. th="" to<=""><th></th></ref.>	
	nector and chassis ground on faulty cylinders.		FU(H4SO)-36,	
	Connector & terminal		Engine Control	
	#1 (B137) No. 8 (+) — Chassis ground (–):		Module (ECM).>	
	#2 (B137) No. 9 (+) — Chassis ground (-):			
	#3 (B137) No. 10 (+) — Chassis ground (-):			
	#4 (B137) No. 11 (+) — Chassis ground (-): CHECK FUEL INJECTOR.	la tha vasiatawaa laas thay 1	Dania aa dha facdha	Co to oton 0
8	1) Turn the ignition switch to OFF.	Is the resistance less than 1 $\Omega$ ?	Replace the faulty fuel injector <ref.< th=""><th>Go to step 9.</th></ref.<>	Go to step 9.
	<ul><li>2) Measure the resistance between fuel injec-</li></ul>	22:	to FU(H4SO)-27,	
	tor terminals on faulty cylinder.		Fuel Injector.> and	
	Terminals		ECM. <ref. th="" to<=""><th></th></ref.>	
	No. 1 — No. 2:		FU(H4SO)-36,	
			Engine Control	
			Module (ECM).>	
9	CHECK INSTALLATION OF CAMSHAFT PO-	Is the camshaft position sensor	Tighten the cam-	Go to step 10.
	SITION SENSOR/CRANKSHAFT POSITION	or crankshaft position sensor	shaft position sen-	
	SENSOR.	loosely installed?	sor or crankshaft	
10	CHECK CRANK SPROCKET.	le the grank enrocket rusted or	position sensor.  Replace the crank	Go to step 11.
10	Remove the timing belt cover.	Is the crank sprocket rusted or does it have damaged teeth?	sprocket. <ref. td="" to<=""><td>au iu siep 11.</td></ref.>	au iu siep 11.
	nomove the timing beit cover.	doos it have damaged teetil!	ME(H4SO)-46,	
			Crank Sprocket.>	
11	CHECK INSTALLATION CONDITION OF	Is the timing belt dislocated	Repair the installa-	Go to step 12.
	TIMING BELT.	from its proper position?	tion condition of	
	Turn the crankshaft, and align alignment mark		timing belt. <ref.< th=""><th>   </th></ref.<>	
	on crank sprocket with alignment mark on cyl-		to ME(H4SO)-40,	
	inder block.		Timing Belt.>	
12	CHECK FUEL LEVEL.	Is the fuel meter indication	Go to step 13.	Refill the fuel so
		higher than the "Lower" level?		that fuel meter
				indication is higher
				than the "Lower" level. After filling
				fuel, Go to step <b>13</b> .
I				idei, de le siep 13.

	Step	Check	Yes	No
13	CHECK STATUS OF MALFUNCTION INDI- CATOR LIGHT.  1) Clear the memory using Subaru Select Monitor. <ref. clear="" en(h4so)(diag)-43,="" memory<br="" to="">Mode.&gt;  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.	Has the cause of misfire been detected while running the engine? 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 cord • Condition of en- gine 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.
17	CHECK MISFIRE SYMPTOM.  1) Turn the ignition switch to ON.  2) Read the DTC.  NOTE:  • Subaru Select Monitor  For detailed operation procedure, refer to  "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation manual.  • Perform the diagnosis according to following items.</ref.>		Go to step 22.	Go to step 18.
18	CHECK DTC.	Are DTCs P0301 and P0302 displayed on the Subaru Select Monitor or general scan tool?	Go to step 23.	Go to step 19.

	Step	Check	Yes	No
19	CHECK DTC.	Are DTCs P0303 and P0304 displayed on the Subaru Select Monitor or general scan tool?	Go to step 24.	Go to step 20.
20	CHECK DTC.	Are DTCs P0301 and P0303 displayed on the Subaru Select Monitor or general scan tool?	Go to step 25.	Go to step 21.
21	CHECK DTC.	Are DTCs P0302 and P0304 displayed on the Subaru Select Monitor or general scan tool?	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: Check the following items.  • Spark plug  • Spark plug cord  • Fuel injector  • Compression ratio	SYSTEM TOO LEAN (BANK 1), Diagnostic Proce- dure with Diagnos-
23	GROUP OF #1 AND #2 CYLINDERS.	Are there any faults in #1 and #2 cylinders?	Repair or replace faulty parts.  NOTE:  Check the following items.  Spark plug Fuel injector Ignition coil Compression ratio If any fault are not found, check the "IGNITION CONTROL SYSTEM" of #1 and #2 cylinders side.  Ref. to EN(H4SO) (diag)-62, IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	SYSTEM TOO LEAN (BANK 1), Diagnostic Proce- dure with Diagnos- tic Trouble Code (DTC).>

	Step	Check	Yes	No
24	GROUP OF #3 AND #4 CYLINDERS.	Are there any faults in #3 and #4 cylinders?	Repair or replace faulty parts.  NOTE: Check the following items. Spark plug Fuel injector Ignition coil If any fault are not found, check the "IGNITION CONTROL SYSTEM" of #3 and #4 cylinders side. Ref. to EN(H4SO) (diag)-62, IGNITION CONTROL SYSTEM, Diagnostics for Engine Starting Failure.>	SYSTEM TOO LEAN (BANK 1), Diagnostic Proce- dure with Diagnos- tic Trouble Code (DTC).>
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	Go to DTC P0171. <ref. (bank="" (dtc).="" 1),="" 154,="" code="" diagnostic="" dtc="" en(h4so)(diag)-="" lean="" p0171="" procedure="" system="" to="" too="" trouble="" with=""></ref.>
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	SYSTEM TOO LEAN (BANK 1), Diagnostic Proce- dure with Diagnos- tic Trouble Code
27	CYLINDER AT RANDOM.	Is the engine idle rough?		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:

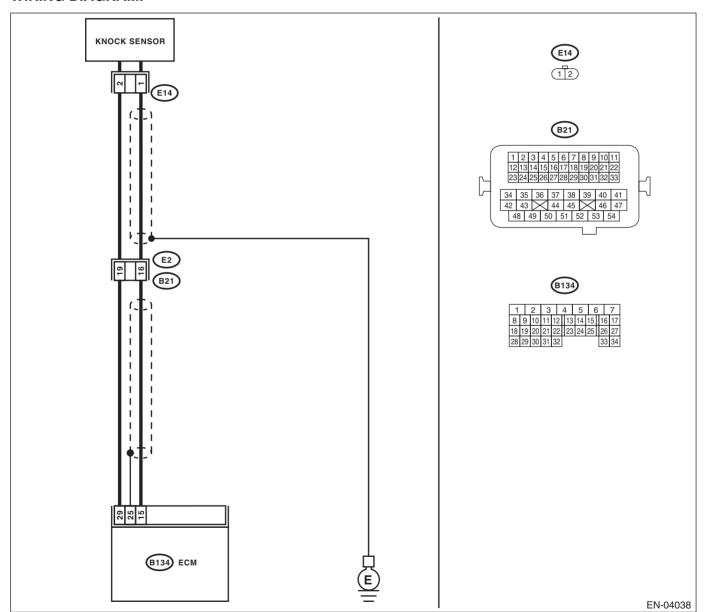
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-102, DTC P0327 KNOCK SENSOR 1 CIRCUIT LOW (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

- · Poor driving performance
- Knocking occurs.

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 KNOWN SOR AND ECM CONNECTOR.  1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM 3) Measure the resistance between EXEST ness connector and chassis ground.  Connector & terminal  (B134) No. 15 — Chassis ground	700 kΩ? CM. CM har-	Go to step 2.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between knock sensor and ECM connector  Poor contact of knock sensor connector  Poor contact of coupling connector
2 CHECK HARNESS BETWEEN KNOO SOR AND ECM CONNECTOR. Measure the resistance between ECN knock sensor connector. Connector & terminal (B134) No. 15 — (E14) No. 1: (B134) No. 29 — (E14) No. 2:	$\Omega$ ?	Go to step 3.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between knock sensor and ECM connector Poor contact of knock sensor connector Poor contact of coupling connector
<ul> <li>3 CHECK KNOCK SENSOR.</li> <li>1) Disconnect the connector from knosor.</li> <li>2) Measure the resistance between k sensor connector terminals.</li> <li>Terminals</li> <li>No. 1 — No. 2:</li> </ul>		Replace the knock sensor. <ref. to<br="">FU(H4SO)-22, Knock Sensor.&gt;</ref.>	Repair the har- ness and connec- tor. NOTE: In this case, repair the following item: • Poor contact of knock sensor con- nector

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

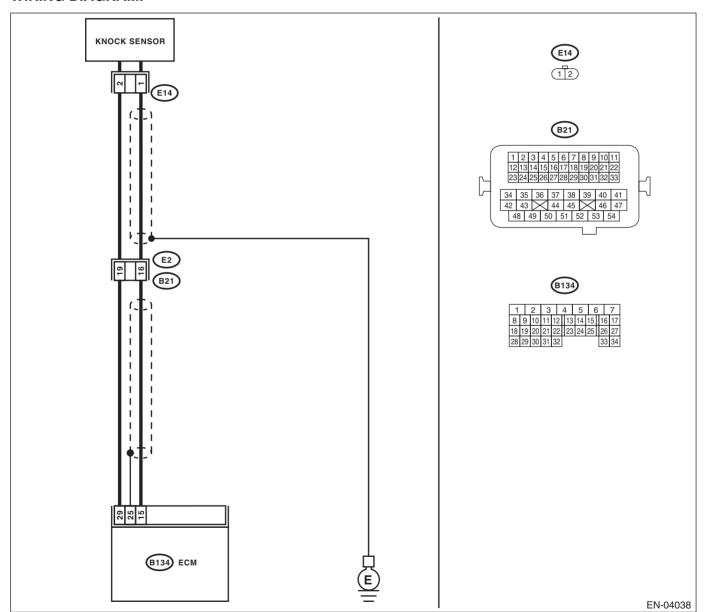
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-104, DTC P0328 KNOCK SENSOR 1 CIRCUIT HIGH (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

- Poor driving performance
- · Knocking occurs.

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 $\mbox{k}\Omega$ ?	Go to step 2.	Go to step 3.
2 CHECK KNOCK SENSOR.	Is the resistance less than 400 $\mbox{k}\Omega ?$	Replace the knock sensor. <ref. to<br="">FU(H4SO)-22, Knock Sensor.&gt;</ref.>	Repair the ground short circuit of harness between knock sensor connector and ECM connector.  NOTE: The harness between both connectors are 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 malfunction 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 of knock sensor connector  Poor contact in ECM connector  Poor contact of coupling connector	

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

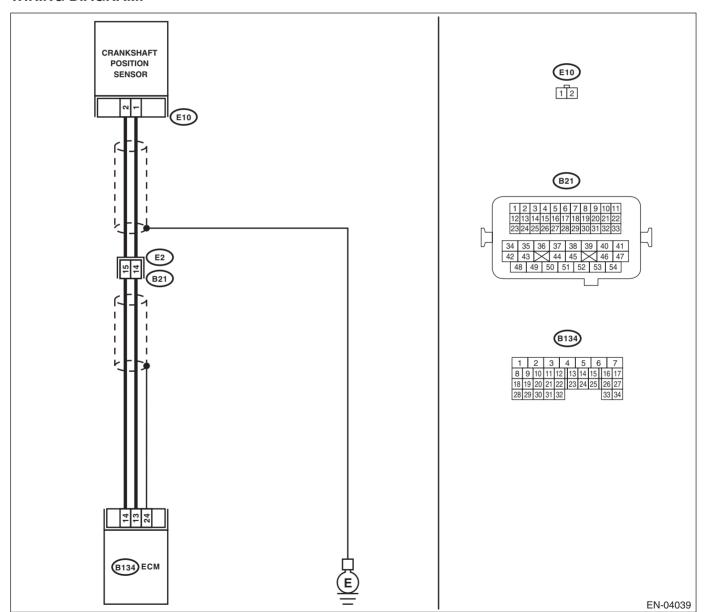
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-106, DTC P0335 CRANKSHAFT POSITION SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

- Engine stalls.
- · Failure of engine to start

#### **CAUTION:**

After repairing or replacing the defective part, perform 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-	Is the resistance more than 100 kΩ?	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between crankshaft position sensor and ECM connector Poor contact in ECM connector Poor contact of	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 $\Omega$ ?	coupling connector Repair the ground short circuit of har- ness between crankshaft posi- tion sensor and ECM connector. NOTE: The harness be- tween both connec- tors are shielded. Repair the ground short circuit of har- ness 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 $\Omega$ ?	Go to step 4.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between crankshaft position sensor and ECM connector Poor contact in ECM connector Poor contact of 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	<ul> <li>CHECK CRANKSHAFT POSITION SENSOR.</li> <li>1) Remove the crankshaft position sensor.</li> <li>2) Measure the resistance between connector terminals of crankshaft position sensor.</li> <li>Terminals</li> <li>No. 1 — No. 2:</li> </ul>	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)-20, Crankshaft Posi- tion Sensor.&gt;</ref.>

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

### **DTC DETECTING CONDITION:**

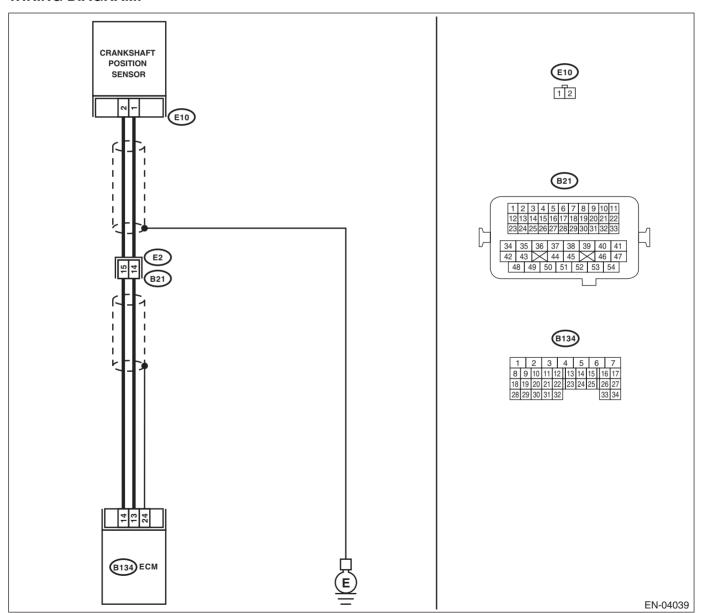
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-108, DTC P0336 CRANKSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

- Engine stalls.
- · Failure of engine to start

#### **CAUTION:**

After repairing or replacing the defective part, perform 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).="" 70,="" 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)-46, Crank Sprocket.&gt;</ref.>	Go to step 4.
4	CHECK INSTALLATION CONDITION OF TIMING BELT.  Turn the crankshaft, and align alignment mark on crank sprocket with alignment mark on cylinder block.	Is the timing belt dislocated from its proper position?	Repair the installation condition of timing belt. <ref. belt.="" me(h4so)-40,="" timing="" to=""></ref.>	Replace the crank- shaft position sen- sor. <ref. to<br="">FU(H4SO)-20, Crankshaft Posi- tion Sensor.&gt;</ref.>

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

### **DTC DETECTING CONDITION:**

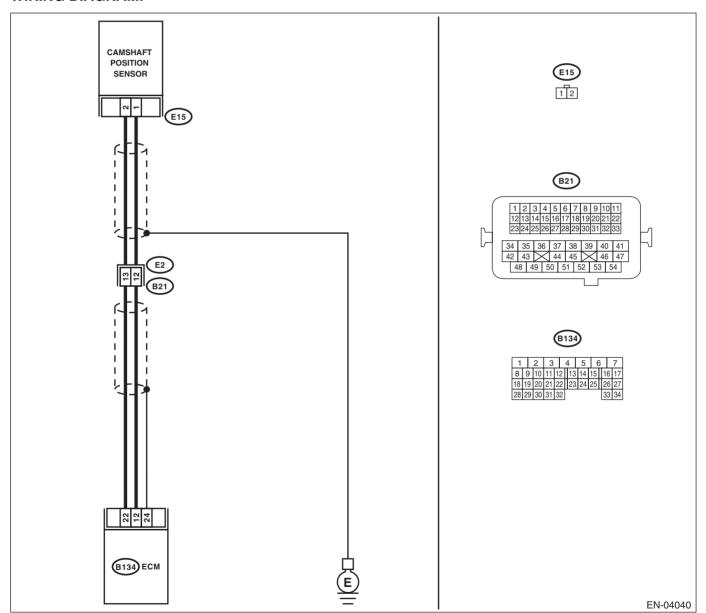
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-110, DTC P0340 CAMSHAFT POSITION SENSOR "A" CIRCUIT (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

### TROUBLE SYMPTOM:

- Engine stalls.
- · Failure of engine to start

#### **CAUTION:**

After repairing or replacing the defective part, perform 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	Is the resistance more than	Repair the har-	Go to step 2.
	POSITION SENSOR AND ECM CONNECTOR.  1) Turn the ignition switch to OFF.	100 kΩ?	ness and connector. NOTE:	G0 10 010p 2.
	Disconnect the connector from camshaft		In this case, repair	
	position sensor.		the following item:	
	Measure the resistance of harness between camshaft position sensor connector		<ul> <li>Open circuit in harness between</li> </ul>	
	and engine ground.		camshaft position	
	Connector & terminal		sensor and ECM	
	(E15) No. 1 — Engine ground:		connector	
			<ul> <li>Poor contact in</li> </ul>	
			ECM connector	
			Poor contact of	
0	OUTON HARNESS BETWEEN CAMSHAET	Is the resistance less than 10	coupling connector	Co to oton 2
2	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC-	$\Omega$ ?	Repair the ground short circuit of har-	Go to step 3.
	TOR.		ness between	
	Measure the resistance of harness between		camshaft position	
	camshaft position sensor connector and		sensor and ECM	
	engine ground.		connector.	
	Connector & terminal (E15) No. 1 — Engine ground:		NOTE: The harness be-	
	(E19) No. 1 — Engine ground.		tween both connec-	
			tors are shielded.	
			Repair the ground	
			short circuit of har-	
			ness with shield.	
3	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC-	Is the resistance less than 5 $\Omega$ ?	Go to step 4.	Repair the har- ness and connec-
	TOR.	22:		tor.
	Measure the resistance of harness between			NOTE:
	camshaft position sensor connector and			In this case, repair
	engine ground.			the following item:
	Connector & terminal			Open circuit in
	(E15) No. 2 — Engine ground:			harness between camshaft position
				sensor and ECM
				connector
				<ul> <li>Poor contact in</li> </ul>
				ECM connector
				Poor contact of
4	CHECK CONDITION OF CAMEHAET BOOK	In the complete position course	Co to oton F	coupling connector
4	CHECK CONDITION OF CAMSHAFT POSI- TION SENSOR.	Is the camshaft position sensor installation bolt tightened	Go to step 5.	Tighten the cam- shaft position sen-
	Hon othorn	securely?		sor installation bolt
		- ,		securely.
5	CHECK CAMSHAFT POSITION SENSOR.	Is the resistance between 1	Repair the poor	Replace the cam-
	Remove the camshaft position sensor.	and 4 kΩ?	contact of cam-	shaft position sen-
	<ol><li>Measure the resistance between connector terminals of camshaft position sensor.</li></ol>		•	sor. <ref. to<br="">FU(H4SO)-21,</ref.>
	Terminals of camsnaft position sensor.		sor connector.	Camshaft Position
	No. 1 — No. 2:			Sensor.>
		Į		

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

#### **DTC DETECTING CONDITION:**

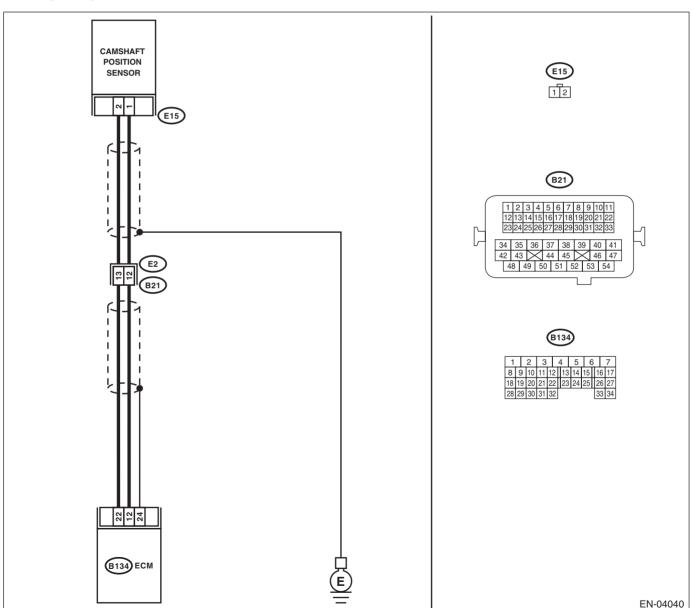
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-112, DTC P0341 CAMSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

- · Engine stalls.
- Failure of engine to start

#### **CAUTION:**

After repairing or replacing the defective part, perform 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	6.6 to 6.6p =.
			Trouble Code	
			(DTC)". <ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			70, List of Diag-	
			nostic Trouble	
			Code (DTC).>	
2	CHECK HARNESS BETWEEN CAMSHAFT	Is the resistance more than	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:	
	2) Disconnect the connector from camshaft		In this case, repair	
	position sensor.		the following item:	
	3) Measure the resistance of harness		Open circuit in	
	between camshaft position sensor connector		harness between	
	and engine ground.  Connector & terminal		camshaft position	
	(E15) No. 1 — Engine ground:		sensor and ECM	
	(L13) No. 1 — Engine ground.		<ul><li>connector</li><li>Poor contact in</li></ul>	
			ECM connector	
			Poor contact of	
			coupling connector	
3	CHECK HARNESS BETWEEN CAMSHAFT	Is the resistance less than 10		Go to step 4.
ľ	POSITION SENSOR AND ECM CONNEC-	$\Omega$ ?	short circuit of har-	as to stop in
	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 connec-	
			tors are shielded.	
			Repair the ground	
			short circuit of har-	
	OUEOK HADNEGO DETWEEN OAMOHAET	la tha maintain a lang than 5	ness with shield.	Daniel de la co
4	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC-	Is the resistance less than 5	Go to step 5.	Repair the har-
	TOR.	Ω?		ness and connector.
	Measure the resistance of harness between			
	camshaft position sensor connector and			NOTE: In this case, repair
	engine ground.			the following item:
	Connector & terminal			Open circuit in
	(E15) No. 2 — Engine ground:			harness between
				camshaft position
				sensor and ECM
				connector
				<ul> <li>Poor contact in</li> </ul>
				ECM connector
				<ul> <li>Poor contact of</li> </ul>
			_	coupling connector
5	CHECK CONDITION OF CAMSHAFT POSI-	•	Go to step 6.	Tighten the cam-
	TION SENSOR.	installation bolt tightened		shaft position sen-
		securely?		sor installation bolt
				securely.

	Step	Check	Yes	No
6	CHECK CAMSHAFT POSITION SENSOR.  1) Remove the camshaft position sensor.  2) Measure the resistance between connector terminals of camshaft position sensor.  Terminals  No. 1 — No. 2:	Is the resistance between 1 and 4 $k\Omega$ ?	Go to step 7.	Replace the cam- shaft position sen- sor. <ref. to<br="">FU(H4SO)-21, Camshaft Position Sensor.&gt;</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)-39,="" timing="" to=""></ref.>	Are cam sprocket teeth cracked or damaged?	Replace the cam- shaft position sen- sor. <ref. to<br="">ME(H4SO)-45, Cam Sprocket.&gt;</ref.>	Go to step 9.
9	CHECK INSTALLATION CONDITION OF TIMING BELT.  Turn the crankshaft, and align alignment marks on cam sprocket and timing belt cover LH.	Is the timing belt dislocated from its proper position?	Repair the installation condition of timing belt. <ref. belt.="" me(h4so)-40,="" timing="" to=""></ref.>	Replace the cam- shaft position sen- sor. <ref. to<br="">FU(H4SO)-21, Camshaft Position Sensor.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

### **BD:DTC P0400 EXHAUST GAS RECIRCULATION FLOW**

#### DTC DETECTING CONDITION:

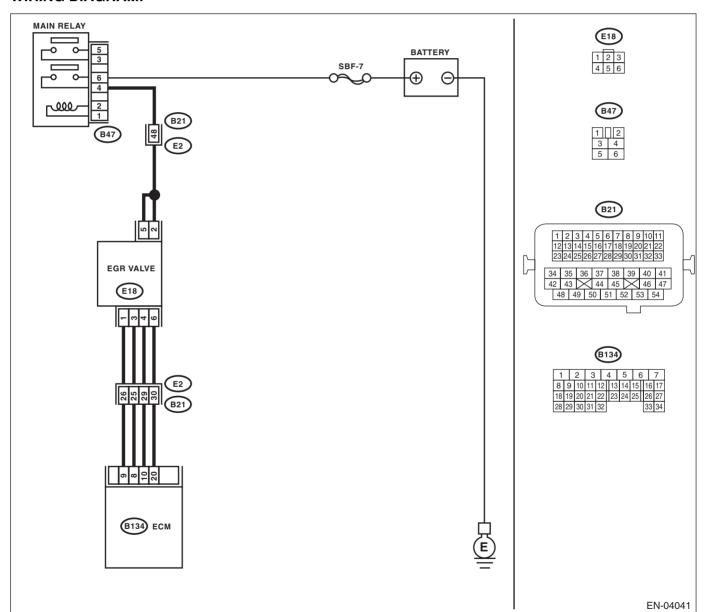
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-114, DTC P0400 EXHAUST GAS RECIRCULATION FLOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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-	Go to step 2.
'	CHECK ANT OTHER DIC ON DISPEAT.	lis any other DTO displayed:	priate DTC using	do to step 2.
			the "List of Diag-	
			nostic Trouble	
			Code (DTC)".	
			<ref. td="" to<=""><td></td></ref.>	
			EN(H4SO)(diag)-	
			43, Clear Memory	
	CHECK CURRENT DATA	le the recognition will be the	Mode.>	Co to oton 0
2	CHECK CURRENT DATA.	Is the measured value more		Go to step 3.
	Start the engine.	than 53.3 kPa (400 mmHg,	EGR valve, mani-	
	2) Read data of intake manifold absolute pres-	15.75 inHg)?	fold absolute pres-	
	sure signal using Subaru Select Monitor or		sure sensor and	
	general scan tool.		throttle body are	
	NOTE:		installed securely.	
	Subaru Select Monitor			
	For detailed operation procedures, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-43, Clear Memory Mode.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
3	CHECK POWER SUPPLY OF EGR VALVE.	Is the voltage more than 10 V?	Go to step 4.	Repair the open
	<ol> <li>Disconnect the connector from EGR valve.</li> </ol>			circuit of harness
	<ol><li>Turn the ignition switch to ON.</li></ol>			between main
	3) Measure the voltage between EGR valve			relay and EGR
	connector and engine ground.			valve connector.
	Connector & terminal:			
	(E18) No. 2 — Engine ground:			
	(E18) No. 5 — Engine ground:			
4	CHECK EGR VALVE.	Is the resistance between 20	Go to step 5.	Replace the EGR
	Measure the resistance between EGR valve	and 30 Ω?		valve. <ref. td="" to<=""></ref.>
	terminals.			FU(H4SO)-26,
	NOTE:			EGR Valve.>
	Make sure there is no foreign material between			
	EGR valve and valve seat.			
	Terminals			
	No. 1 — No. 2:			
	No. 3 — No. 2:			
	No. 4 — No. 5:			
	No. 6 — No. 5:			
5	CHECK OUTPUT SIGNAL FROM ECM.	Is the voltage 0 — 10 V?	Repair the poor	Go to step 6.
	1) Turn the ignition switch to OFF.		contact portion of	
	2) Connect the connector to ECM and EGR		ECM connector.	
	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 (–):			

	Step	Check	Yes	No
6	CHECK HARNESS BETWEEN EGR VALVE AND ECM CONNECTOR.  1) Turn the ignition switch to OFF.  2) Disconnect the connector from EGR valve and ECM.  3) Measure the resistance of harness between EGR valve and ECM connector.  Connector & terminal:  (B134) No. 10 — (E18) No. 4:  (B134) No. 9 — (E18) No. 1:  (B134) No. 9 — (E18) No. 3:  (B134) No. 20 — (E18) No. 6:	Is the resistance less than 1 $\Omega$ ?	Go to step 7.	Repair the open circuit of harness between ECM and EGR valve connector. <ref. egr="" fu(h4so)-26,="" to="" valve.=""></ref.>
7	CHECK HARNESS BETWEEN EGR VALVE AND ECM CONNECTOR.  Measure the resistance of harness between EGR 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 $\mbox{M}\Omega\mbox{?}$	Go to step 8.	Repair the short circuit of harness between main relay and EGR valve connector.
8	CHECK POOR CONTACT. Check poor contact of ECM and EGR valve connectors.	Is there poor contact in ECM and EGR valve connector?	Repair the poor contact of ECM and EGR 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:

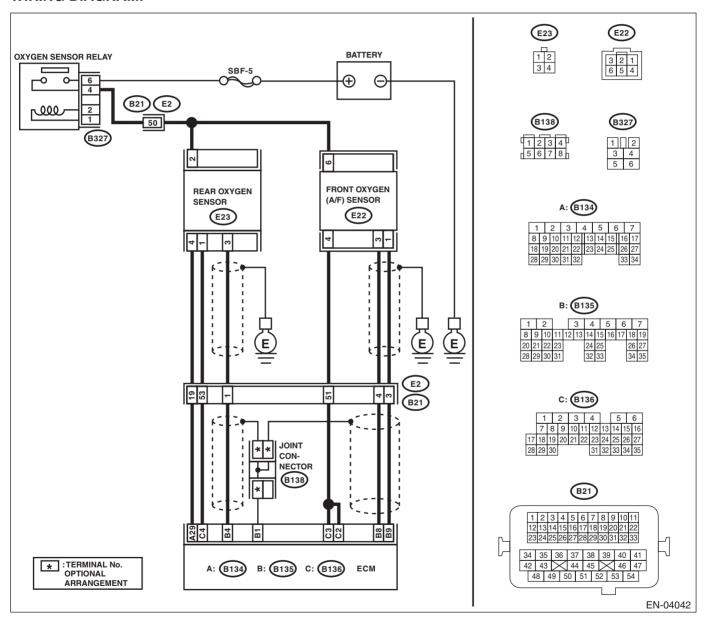
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-118, DTC P0420 CATALYST SYSTEM EFFICIENCY BE-LOW THRESHOLD (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.

#### TROUBLE SYMPTOM:

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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)-70,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0420.</ref.>	Go to step 2.
pipe  Between front exhausic converter Between front catal catalytic converter	rair suction caused by its and bolts, and open ositions. The and front exhaust out pipe and front catalytic converter and rear or oper installation of front	Is there any fault in exhaust system?	Repair or replace the exhaust sys- tem. <ref. to<br="">EX(H4SO)-2, Gen- eral Description.&gt;</ref.>	Go to step 3.
3 CHECK WAVEFORM SELECT MONITOR (V 1) Drive the vehicle at — 112 km/h (50 — 70 2) Keep the condition	DATA ON SUBARU WHILE DRIVING). ta constant speed of 80 MPH). of step 1) for 5 minutes, m data in a driving condi-	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  TIME[S] Ø 10	20 30 40			
Rear O2 Sensor				
A/F Sensor#1	ngrasmontantaraprametry meserca			
	EN-04680			

	Ctore	Obsale	Vaa	N <sub>2</sub>
<u> </u>	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?	G.G 1.6 G.GP G.	G. G. 1.G. G. G.
	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.			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< th=""><th></th><th></th><th></th></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Monitor.>			
6	CHECK REAR OXYGEN SENSOR CONNEC-	Does water enter the connec-	Dry the water thor-	Go to step 7
ا	TOR AND COUPLING CONNECTOR.	tor?	oughly.	ao io siep 1.
7	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 3	Repair the open	Go to step 8.
[	REAR OXYGEN SENSOR CONNECTOR.	$\Omega$ ?	circuit of harness	5.5 to 5top <b>5</b> .
	Turn the ignition switch to OFF.		between ECM and	
	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 — (E23) No. 3:			
	(B135) No. 29 — (E23) No. 4:			
	<u> </u>	i.		ı

	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  (E23) 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 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 consid- ered as the deteri- oration of multiple parts.
11	CHECK REAR OXYGEN SENSOR SHIELD.  1) Turn the ignition switch to OFF.  2) Bare the harness sensor shield on the body side of rear oxygen sensor connector.  3) Measure the resistance between sensor shield and chassis ground.	Is resistance less than 1 $\Omega$ ?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4SO)-34, Rear Oxygen Sen- sor.&gt;</ref.>	Repair the open circuit of rear oxygen sensor harness.

# BF:DTC P0442 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK)

#### **DTC DETECTING CONDITION:**

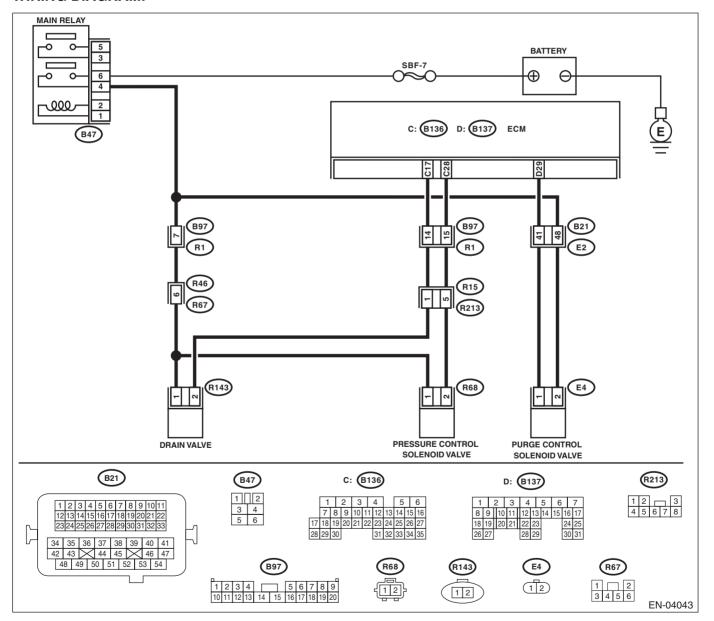
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-120, DTC P0442 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK), Diagnostic Trouble Code (DTC) Detecting Criteria.>

### 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, perform 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)-70,="" 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)-47, Fuel Filler Pipe.&gt;</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)-15, Drain Valve.&gt;</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)-6, Purge Control Solenoid Valve.&gt;</ref.>
7	CHECK PRESSURE CONTROL SOLENOID VALVE.  Operate the pressure control solenoid valve.  NOTE:  The pressure control solenoid valve operation can be executed using the 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.&gt;</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)-56, Fuel Delivery and Evaporation Lines.&gt;</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)-5, Canister.&gt;</ref. 	Go to step 10.
10	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4so)-41,="" 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)-41, Fuel Tank.&gt;</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 the SOA service center.

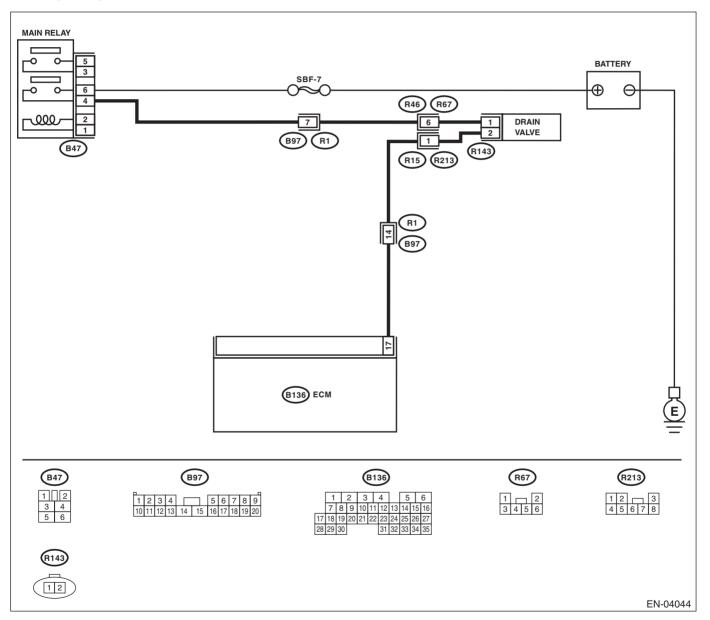
# BG:DTC P0447 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT OPEN

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-135, DTC P0447 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT OPEN, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.
1'	Turn the ignition switch to ON.	is the voltage more than 10 v:	do to step 2.	αο το step <b>3</b> .
	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 the poor	Even if the mal-
	Check poor contact of ECM connector.	connector?	contact of 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  Poor contact in ECM connector  Poor contact of coupling connector
3	CHECK HARNESS BETWEEN DRAIN	Is the resistance more than 1	Go to step 4.	Repair the ground
3	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	$M\Omega$ ?	Go to step 4.	short circuit of har- ness between ECM and drain valve connector.
	between drain valve connector and chassis			
	ground.			
	Connector & terminal			
	(R143) No. 2 — Chassis ground:			
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 — (R143) No. 2:	Ω?		ness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between ECM and drain valve connector Poor contact of coupling connector
5	CHECK DRAIN VALVE.	Is the resistance between 10	Go to step 6.	Replace the drain
	Measure the resistance between drain valve terminals.  Terminals  No. 1 — No. 2:	and 100 $\Omega$ ?	·	valve. <ref. to<br="">EC(H4SO)-15, Drain Valve.&gt;</ref.>
	······	1	1	1

	Step	Check	Yes	No
6	CHECK POWER SUPPLY TO DRAIN VALVE.	Is the voltage more than 10 V?	Go to step 7.	Repair the har-
	<ol> <li>Turn the ignition switch to ON.</li> </ol>			ness and connec-
	<ol><li>Measure the voltage between drain valve</li></ol>			tor.
	and chassis ground.			NOTE:
	Connector & terminal			In this case, repair
	(R143) No. 1 (+) — Chassis ground (–):			the following item:
				<ul> <li>Open circuit of</li> </ul>
				harness between
				main relay and
				drain valve
				<ul> <li>Poor contact of</li> </ul>
				coupling connector
				<ul> <li>Poor contact of</li> </ul>
				main relay connec-
				tor
7	CHECK POOR CONTACT.	Is there poor contact in drain	Repair poor con-	Contact the SOA
	Check poor contact in drain valve connector.	valve connector?	tact in drain valve	service center.
			connector.	

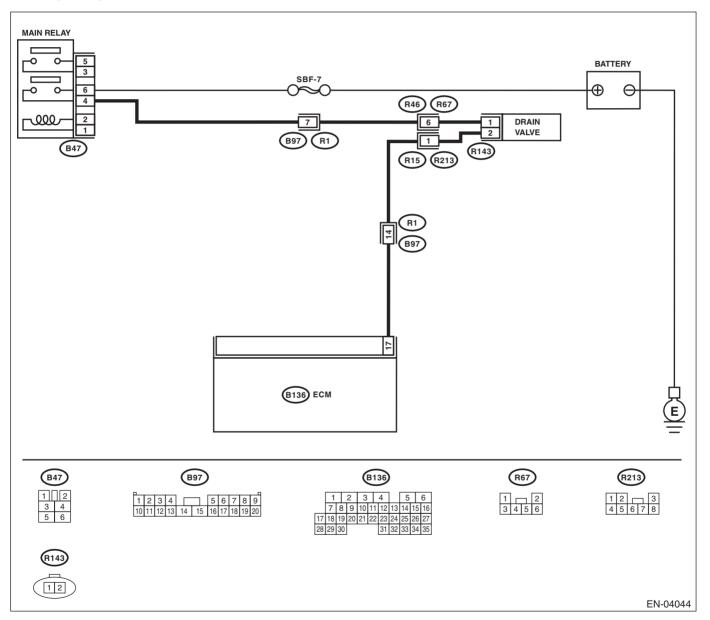
# BH:DTC P0448 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT SHORTED

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-137, DTC P0448 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT SHORTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



	Sten	Chook	Yes	No
<u></u>	Step CHECK INPUT SIGNAL OF ECM.	Check	Go to step 2.	No Even if the mal-
1	Turn the ignition switch to OFF.	Is the voltage 0 — 10 V?	Go to step 2.	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).			returned to a nor-
	<ol><li>Turn the ignition switch to ON.</li></ol>			mal condition at
	Measure the voltage between ECM and			this time. In this
	chassis ground while operating the drain valve.			case, repair the
	NOTE:			poor contact in
	Drain valve operation can be executed using			ECM connector.
	Subaru Select Monitor. For procedure, refer to			
	"Compulsory Valve Operation Check Mode".			
	<ref. compulsory<br="" en(h4so)(diag)-44,="" to="">Valve Operation Check Mode.&gt;</ref.>			
	Connector & terminal			
	(B136) No. 17 (+) — Chassis ground (–):			
2	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Go to step 4.	Go to step 3.
_	Turn the ignition switch to ON.	le are remage mere anam re vi	G. G. 1.G. G. G. F.	GIG TO GIGP GI
	2) Measure the voltage between ECM and			
	chassis ground.			
	Connector & terminal			
	(B136) No. 17 (+) — Chassis ground (–):			
3	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair the poor	Replace the ECM.
	Check poor contact of ECM connector.	connector?	contact of ECM	<ref. th="" to<=""></ref.>
			connector.	FU(H4SO)-36,
				Engine Control
	OUEOK HADNEGO DETWEEN DOAIN	1 1 10 10	D :	Module (ECM).>
4	CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.	Is the voltage more than 10 V?	Repair the battery	Go to step 5.
	Turn the ignition switch to OFF.		short circuit of har- ness between	
	<ul><li>2) Disconnect the connector from the drain</li></ul>		ECM and drain	
	valve.		valve connector.	
	3) Turn the ignition switch to ON.		After repair,	
	Measure the voltage between ECM and		replace the ECM.	
	chassis ground.		<ref. th="" to<=""><th></th></ref.>	
	Connector & terminal		FU(H4SO)-36,	
	(B136) No. 17 (+) — Chassis ground (–):		Engine Control	
			Module (ECM).>	
5	CHECK DRAIN VALVE.	Is the resistance less than 1	•	Go to step 6.
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>	Ω?	valve <ref. th="" to<=""><th></th></ref.>	
	2) Measure the resistance between drain		EC(H4SO)-15,	
	valve terminals.		Drain Valve.> and	
	Terminals		ECM <ref. th="" to<=""><th></th></ref.>	
	No. 1 — No. 2:		FU(H4SO)-36,	
			Engine Control Module (ECM).>.	
6	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair the poor	Replace the ECM.
ا	Check poor contact of ECM connector.	connector?	contact of ECM	<ref. th="" to<=""></ref.>
	Check poor contact or Low confidence.		connector.	FU(H4SO)-36,
				Engine Control
				Module (ECM).>

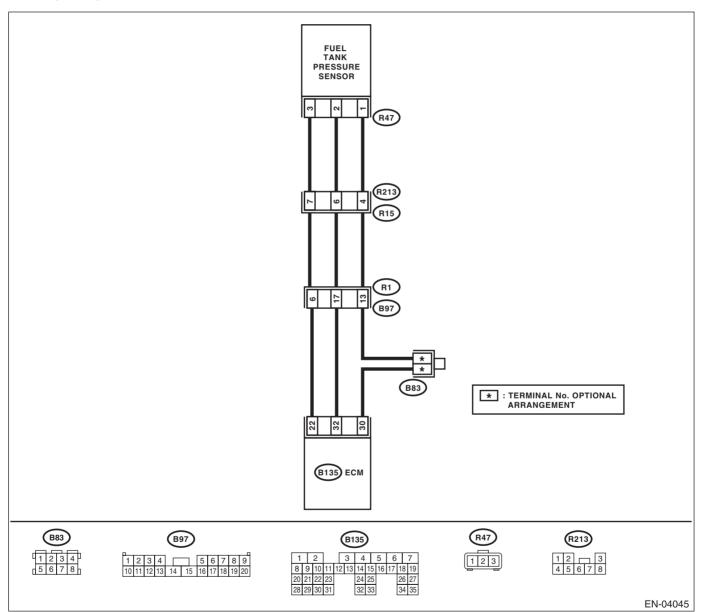
### BI: DTC P0451 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SEN-SOR

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-139, DTC P0451 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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)-70,="" 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 the 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.&gt;</ref.>

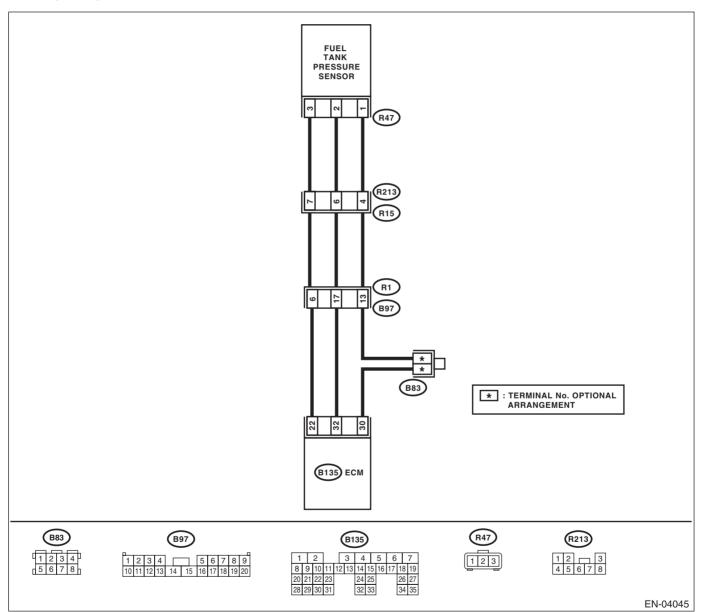
### BJ:DTC P0452 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SEN-SOR LOW INPUT

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-141, DTC P0452 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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) Turn the ignition switch to OFF.	Is the measured value less than -2.8 kPa (-21.0 mmHg, -	Go to step 2.	Even if the mal- function indicator
	<ul><li>2) Remove the fuel filler cap.</li></ul>	0.827 inHg)?		light illuminates,
	3) Install the fuel filler cap.	0.027 197.		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.			this time.
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, 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.>			
2	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 3.
	Measure the voltage between ECM connector			
	and chassis ground.			
	Connector & terminal			
	(B135) No. 22 (+) — Chassis ground (–):			
3	CHECK POWER SUPPLY TO FUEL TANK	Does the voltage change by	Repair the poor	Contact the SOA
	PRESSURE SENSOR.	shaking the ECM harness and	contact of ECM	service center.
	Measure the voltage between ECM connector	connector?	connector.	
	and chassis ground.			
	Connector & terminal			
	(B135) No. 22 (+) — Chassis ground (–):	1 11 11 11 11 11 11 11	0 1 : 5	0 1 5
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 (–):			
5	CHECK INPUT SIGNAL FOR ECM (USING	Does the measured value	Repair the poor	Go to step 6.
	SUBARU SELECT MONITOR).	change by shaking the ECM	contact of ECM	
	•		connector.	
	nal using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Monitor.>			
6		Is the voltage more than 4.5 V?	Go to step 7	Repair the har-
ľ	ECM AND FUEL TANK PRESSURE SEN-	is and voltage more than 4.0 V:	GO to Glop 1.	ness and connec-
	SOR.			tor.
	Turn the ignition switch to OFF.			NOTE:
	2) Remove the rear seat cushion.			In this case, repair
	3) Disconnect the connector (R15) and (R57).			the following item:
	4) Turn the ignition switch to ON.			<ul> <li>Open circuit of</li> </ul>
	5) Measure the voltage between the rear wir-			harness between
	ing harness connector and chassis ground.			ECM and rear wir-
	Connector & terminal			ing harness con-
	(R15) No. 7 (+) — Chassis ground (–):			nector
				Poor contact of
				coupling connector

	Step	Check	Yes	No
7	CHECK HARNESS CONNECTOR BETWEEN ECM AND FUEL TANK PRESSURE SENSOR.  1) Turn the ignition switch to OFF.  2) Disconnect the connectors from ECM.  3) Measure the resistance of harness between ECM and connector (R15).  Connector & terminal  (B135) No. 30 — (R15) No. 4:	Is the resistance less than 1 $\Omega$ ?	Go to step 8.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between ECM and rear wiring harness connector  Poor contact of coupling connector  Poor contact of joint connector
8	CHECK HARNESS CONNECTOR BETWEEN ECM AND FUEL TANK PRESSURE SENSOR.  Measure the resistance of harness between connector (R15) and chassis ground.  Connector & terminal  (R15) No. 4 (+) — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 9.	Repair the ground short circuit of harness between ECM and rear wiring harness connector.
9	CHECK FUEL TANK HARNESS.  1) Disconnect the connector from fuel tank pressure sensor.  2) Measure the resistance of fuel tank harness.  Connector & terminal  (R213) No. 7 — (R47) No. 3:	Is the resistance less than 1 $\Omega$ ?	Go to step 10.	Repair the open circuit in fuel tank cord.
10	CHECK FUEL TANK HARNESS.  Measure the resistance of fuel tank harness.  Connector & terminal  (R213) No. 4 — (R47) No. 1:	Is the resistance less than 1 $\Omega$ ?	Go to step 11.	Repair the open circuit in fuel tank cord.
11	CHECK FUEL TANK HARNESS.  Measure the resistance of harness between fuel tank pressure sensor connector and engine ground.  Connector & terminal  (R47) No. 2 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 12.	Repair the ground short circuit of fuel tank cord.
12	CHECK POOR CONTACT. Check poor contact in fuel tank pressure sensor connector.	Is there poor contact in fuel tank pressure sensor connec- tor?	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.&gt;</ref.>

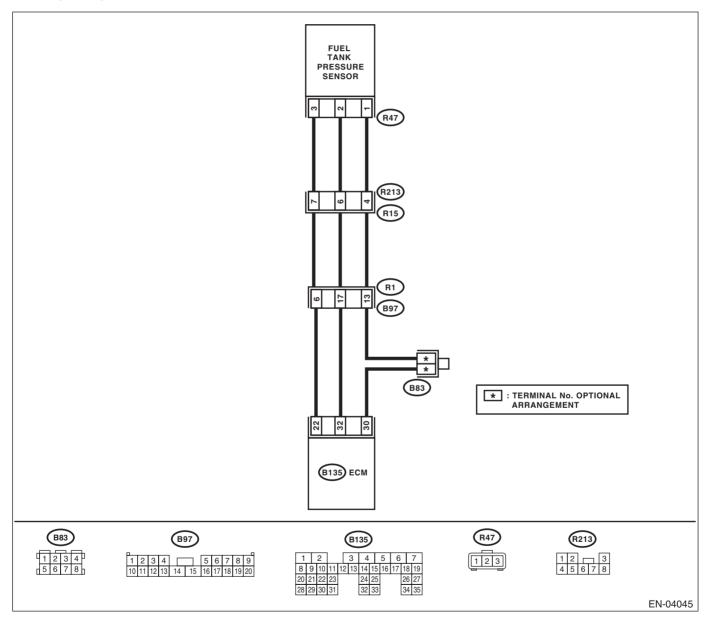
# BK:DTC P0453 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-143, DTC P0453 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 2.8 kPa	Go to step 11.	Go to step 2.
['	Turn the ignition switch to OFF.	(21.0 mmHg, 0.827 inHg) or	do to step 11.	do to step 2.
	2) Remove the fuel filler cap.	more?		
	3) Install the fuel filler cap.			
	4) Turn the ignition switch to ON.			
	5) Read the data of fuel tank pressure sensor			
	signal using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
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 (–):			
3	CHECK POWER SUPPLY TO FUEL TANK	Does the voltage change by	Repair the poor	Replace the ECM.
	PRESSURE SENSOR.	shaking the ECM harness and	contact of ECM	<ref. th="" to<=""></ref.>
	Measure the voltage between ECM connector	connector?	connector.	FU(H4SO)-36,
	and chassis ground.			Engine Control
	Connector & terminal			Module (ECM).>
	(B135) No. 22 (+) — Chassis ground (–):			
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 (–):			
5	CHECK INPUT SIGNAL FOR ECM (USING	Does the measured value	Repair the poor	Go to step 6.
	SUBARU SELECT MONITOR).	change by shaking the ECM	contact of ECM	
	Read the data of fuel tank pressure sensor sig-	harness and connector?	connector.	
	nal using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< th=""><th></th><th></th><th></th></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
6	tor.> CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to stop 7	Donair the her
ا	COUPLING CONNECTOR IN REAR WIRING	ns the voltage more than 4.5 V?	GO IO SIEP 7.	Repair the har- ness and connec-
	HARNESS.			tor.
	1) Turn the ignition switch to OFF.			
	<ul><li>2) Remove the rear seat cushion.</li></ul>			NOTE:
	<ul><li>3) Separate rear wiring harness and fuel tank</li></ul>			In this case, repair the following item:
	cord.			Open circuit of
	4) Turn the ignition switch to ON.			harness between
	<ul><li>5) Measure the voltage between the rear wir-</li></ul>			ECM and rear wir-
	ing harness connector and chassis ground.			ing harness con-
	Connector & terminal			nector
	(R15) No. 7 (+) — Chassis ground (–):			Poor contact of
	( )			coupling connector
				ocuping connector

	Step	Check	Yes	No
7	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. 6:  (B135) No. 30 — (R15) No. 4:	Is the resistance less than 1 $\Omega$ ?	Go to step 8.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between ECM and rear wiring harness connector  Poor contact of coupling connector
8	CHECK FUEL TANK HARNESS.  1) Disconnect the connector from the fuel tank pressure sensor.  2) Measure the resistance of fuel tank harness.  Connector & terminal  (R213) No. 6 — (R47) No. 2:	Is the resistance less than 1 $\Omega$ ?	Go to step 9.	Repair the open circuit in fuel tank cord.
9	CHECK FUEL TANK HARNESS.  Measure the resistance of fuel tank harness.  Connector & terminal  (R213) No. 4 — (R47) No. 1:	Is the resistance less than 1 $\Omega$ ?	Go to step 10.	Repair the open circuit in fuel tank cord.
10	CHECK POOR CONTACT. Check 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.&gt;</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.  NOTE: Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to=""></ref.>	more?	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.&gt;</ref.>

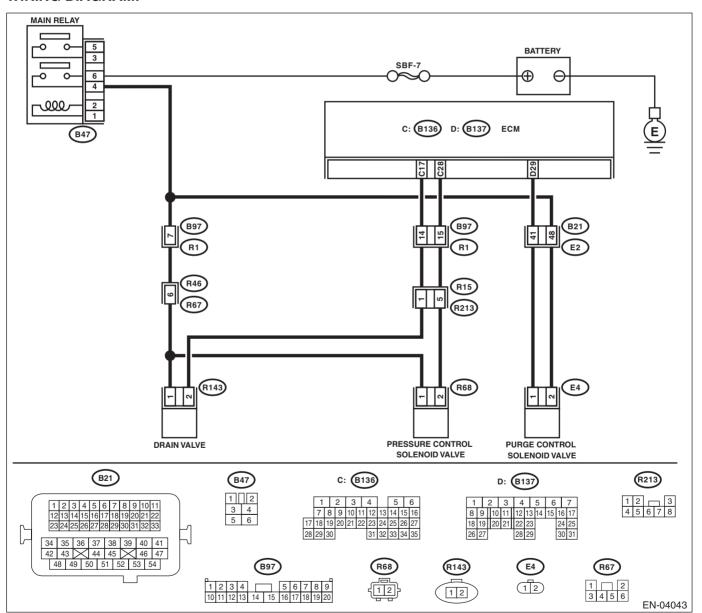
# BL:DTC P0456 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (VERY SMALL LEAK)

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-144, 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, perform 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)-70,="" 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)-47, Fuel Filler Pipe.&gt;</ref.>	Go to step 5.
5	CHECK DRAIN VALVE.  1) Connect the test mode connector.  2) Turn the ignition switch to ON.  3) Check 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)-15, Drain Valve.&gt;</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)-6, Purge Control Solenoid Valve.&gt;</ref.>
7	CHECK PRESSURE CONTROL SOLENOID VALVE.  Operate the pressure control solenoid valve.  NOTE:  The pressure control solenoid valve operation can be executed using the 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)-6, Purge Control Solenoid Valve.&gt;</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)-56, Fuel Delivery and Evaporation Lines.&gt;</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)-5, Canister.&gt;</ref. 	Go to step 10.
10	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4so)-41,="" 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)-41, Fuel Tank.&gt;</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 the SOA service center.

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

#### **DTC DETECTING CONDITION:**

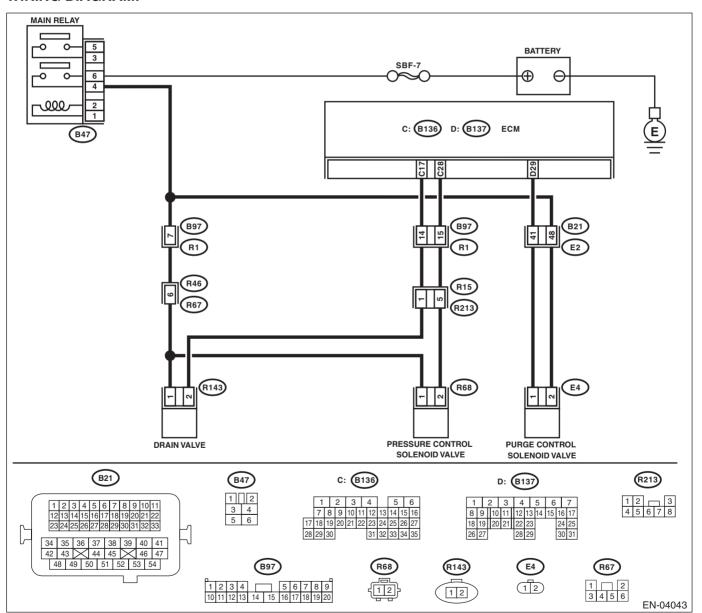
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-120, DTC P0442 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

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

#### CAUTION:

After repairing or replacing the defective part, perform 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)-70,="" 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)-47, Fuel Filler Pipe.&gt;</ref.>	Go to step 5.
5	CHECK DRAIN VALVE.  1) Connect the test mode connector.  2) Turn the ignition switch to ON.  3) Check 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)-15, Drain Valve.&gt;</ref.>
6	CHECK PURGE CONTROL SOLENOID		Go to step 7.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4SO)-6, Purge Control Solenoid Valve.&gt;</ref.>
7	CHECK PRESSURE CONTROL SOLENOID VALVE.  Operate the pressure control solenoid valve.  NOTE:  The pressure control solenoid valve operation can be executed using the 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)-6, Purge Control Solenoid Valve.&gt;</ref. 
8	CHECK CANISTER.	Is the canister damaged?	Repair or replace the canister. <ref. to EC(H4SO)-5, Canister.&gt;</ref. 	Go to step 9.

	Step	Check	Yes	No
9	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4so)-41,="" fuel="" tank.="" to=""></ref.>	Is the fuel tank damaged?	Repair or replace the fuel tank. <ref. to FU(H4SO)-41, Fuel Tank.&gt;</ref. 	Go to step 10.
10	BLE 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 the SOA service center.

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

#### **DTC DETECTING CONDITION:**

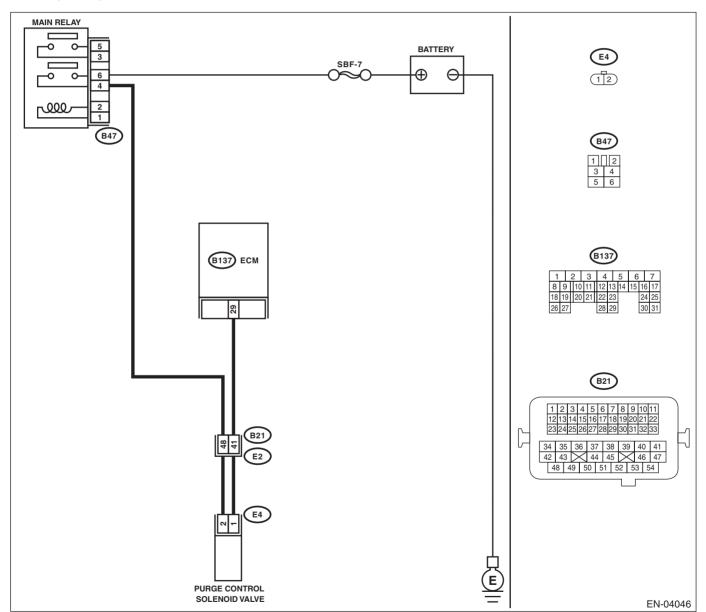
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-145, DTC P0458 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.	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. 1 — 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:	Is the resistance less than 1 $\Omega$ ?	Go to step 4.	Repair the open circuit of harness between ECM and purge control solenoid valve connector.  NOTE: In this case, repair the following item:  Open circuit of harness between ECM and purge control solenoid valve connector  Poor contact of 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 $\Omega$ ?	Go to step 5.	Replace the purge control solenoid valve. <ref. control="" ec(h4so)-6,="" purge="" solenoid="" to="" 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?		Repair the open circuit of harness between main relay and purge control solenoid valve connector.
6	CHECK POOR CONTACT. Check poor contact of purge control solenoid valve connector.	Is there poor contact of purge control solenoid valve connector?	Repair the poor contact of purge control solenoid valve connector.	Contact the SOA service center.

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

#### **DTC DETECTING CONDITION:**

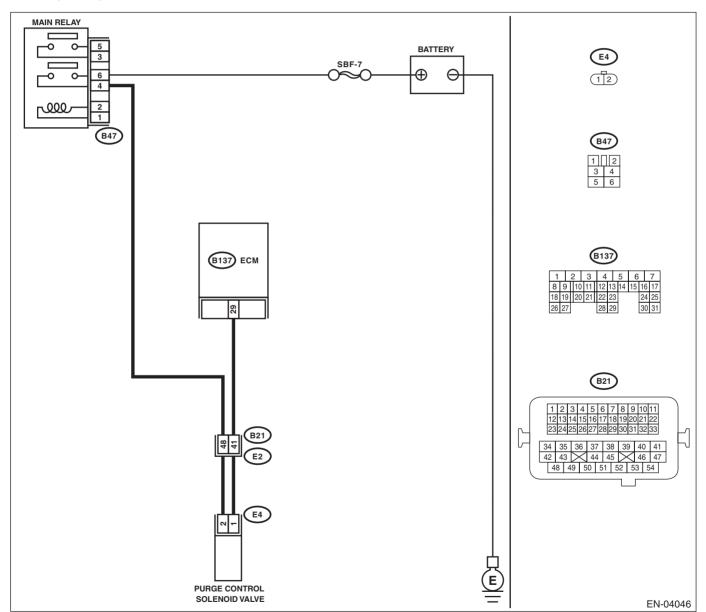
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-147, DTC P0459 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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, the circuit has
	lower portion of instrument panel (on the driver's side).			returned to a nor-
	3) Turn the ignition switch to ON.			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,<="" th="" to=""><th></th><th></th><th></th></ref.>			
	Compulsory Valve Operation Check Mode.>			
	Connector & terminal			
_	(B137) No. 29 (+) — Chassis ground (-): CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Co to stop 4	Co to oton 2
2	Turn the ignition switch to ON.	is the voltage more than 10 v?	Go to step 4.	Go to step 3.
	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 the poor	Replace the ECM.
	Check poor contact of ECM connector.	connector?	contact of ECM	<ref. th="" to<=""></ref.>
			connector.	FU(H4SO)-36,
				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.  1) Turn the ignition switch to OFF.		ness between ECM and purge	
	<ul><li>2) Disconnect the connector from purge con-</li></ul>		control solenoid	
	trol solenoid valve.		valve connector.	
	3) Turn the ignition switch to ON.		After repair,	
	4) Measure the voltage between ECM and		replace the ECM.	
	chassis ground.		<ref. th="" to<=""><th></th></ref.>	
	Connector & terminal		FU(H4SO)-36,	
	(B137) No. 29 (+) — Chassis ground (–):		Engine Control	
<u> </u>			Module (ECM).>	
5	CHECK PURGE CONTROL SOLENOID	Is the resistance less than 1		Go to step 6.
	VALVE.	Ω?	control solenoid valve <ref. td="" to<=""><td></td></ref.>	
	<ol> <li>Turn the ignition switch to OFF.</li> <li>Measure the resistance between purge</li> </ol>		EC(H4SO)-6,	
	control solenoid valve terminals.		Purge Control	
	Terminals		Solenoid Valve.>	
	No. 1 — No. 2:		and ECM <ref. th="" to<=""><th></th></ref.>	
	<del></del>		FU(H4SO)-36,	
			Engine Control	
			Module (ECM).>.	
6	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair the poor	Replace the ECM.
	Check poor contact of ECM connector.	connector?	contact of ECM	<ref. td="" to<=""></ref.>
			connector.	FU(H4SO)-36,
				Engine Control
				Module (ECM).>

**ENGINE (DIAGNOSTICS)** 

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-149, DTC P0461 FUEL LEVEL SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### NOTE:

For the diagnostic procedure, refer to DTC P0464. <Ref. to EN(H4SO)(diag)-226, DTC P0464 FUEL LEVEL SENSOR CIRCUIT INTERMITTENT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

## BQ:DTC P0462 FUEL LEVEL SENSOR "A" CIRCUIT LOW DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-151, DTC P0462 FUEL LEVEL SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### NOTE:

For the diagnostic procedure, refer to DTC P0464. <Ref. to EN(H4SO)(diag)-226, DTC P0464 FUEL LEVEL SENSOR CIRCUIT INTERMITTENT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-153, DTC P0463 FUEL LEVEL SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### NOTE:

For the diagnostic procedure, refer to DTC P0464. <Ref. to EN(H4SO)(diag)-226, DTC P0464 FUEL LEVEL SENSOR CIRCUIT INTERMITTENT, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-155, DTC P0464 FUEL LEVEL SENSOR CIRCUIT INTERMITTENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 P0461, P0462, P0463	Check the combi-	Temporary poor
		or P0464 displayed on the	nation meter.	contact occurs.
		Subaru Select Monitor?	<ref. idi-9,<="" th="" to=""><th></th></ref.>	
			CHECK FUEL	
			LEVEL SENSOR,	
			INSPECTION,	
			Combination	
			Meter System.>	

**ENGINE (DIAGNOSTICS)** 

#### **BT:DTC P0483 FAN RATIONALITY CHECK**

#### DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-158, 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, perform 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)-23,
			Code (DTC)".	Radiator Main Fan
			<ref. th="" to<=""><th>and Fan Motor.&gt;</th></ref.>	and Fan Motor.>
			EN(H4SO)(diag)-	and <ref. th="" to<=""></ref.>
			70, List of Diag-	CO(H4SO)-25,
			nostic Trouble	Radiator Sub Fan
			Code (DTC).>	and Fan Motor.>

### **BU:DTC P0500 VEHICLE SPEED SENSOR "A"**

#### DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-159, DTC P0500 VEHICLE SPEED SENSOR "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repair or replacement of faulty parts, perform the Clear Memory Mode <Ref. to EN(H4SO)(diag)-43, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4SO)(diag)-34, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK DTC OF ABS.	Is DTC of ABS displayed?	Perform the diag-	Repair the poor
	Check DTC of ABS.		nosis according to	contact of ECM.
			DTC. <ref. th="" to<=""><th></th></ref.>	
			ABS(diag)-34, List	
			of Diagnostic Trou-	
			ble Code (DTC).>	

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

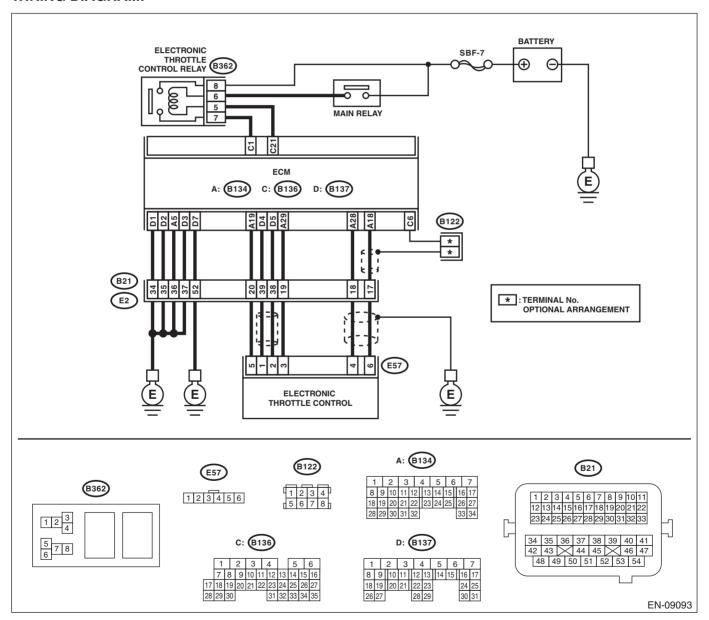
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-161, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

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

#### **CAUTION:**

After repairing or replacing the defective part, perform 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)-70,="" 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 the air cleaner element excessively clogged?	Replace the air cleaner element. <ref. air="" cleaner="" element.="" in(h4so)-4,="" to=""></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?		Perform the diag- nosis of DTC P2101.

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

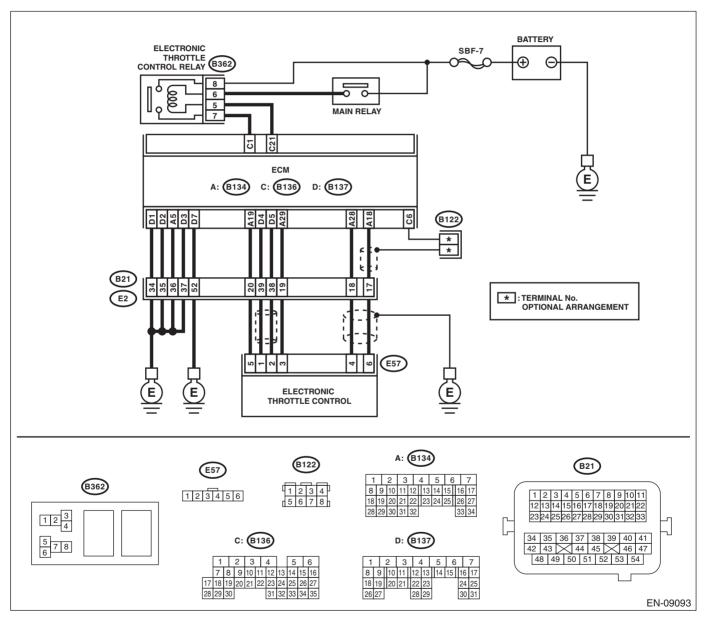
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-163, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

Engine keeps running at higher speed than specified idle speed.

#### **CAUTION:**

After repairing or replacing the defective part, perform 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-	Go to step 3.
'	CHECK ANT OTHER DIC ON DISPLAT.	is any other DTC displayed?		Go to step 3.
			priate DTC using the "List of Diag-	
			nostic Trouble	
			Code (DTC)".	
			<ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			70, List of Diag-	
			nostic Trouble	
			Code (DTC).>	
			NOTE:	
			In this case, it is	
			not necessary to	
	CHECK AIR INTAKE SYSTEM.	la thana any favilt in air intale	inspect DTC P0507.	
2		Is there any fault in air intake	Repair air suction and leaks.	Go to step 3.
	Turn the ignition switch to ON.     Start and idle the angine.	system?	and leaks.	
	<ul><li>2) Start and idle the engine.</li><li>3) Check the following items.</li></ul>			
	Loose installation of intake manifold and			
	throttle body			
	Cracks of intake manifold gasket and throttle			
	body gasket			
	Disconnection of vacuum hoses			
3	CHECK ELECTRONIC THROTTLE CON-	Are foreign matter found inside	Remove foreign	Perform the diag-
	TROL.	electronic throttle control?	matter from elec-	nosis of DTC
	Turn the ignition switch to OFF.			P2101.
	2) Remove the electronic throttle control.		trol.	
	3) Check the electronic throttle control.			

#### **BX:DTC P0512 STARTER REQUEST CIRCUIT**

#### **DTC DETECTING CONDITION:**

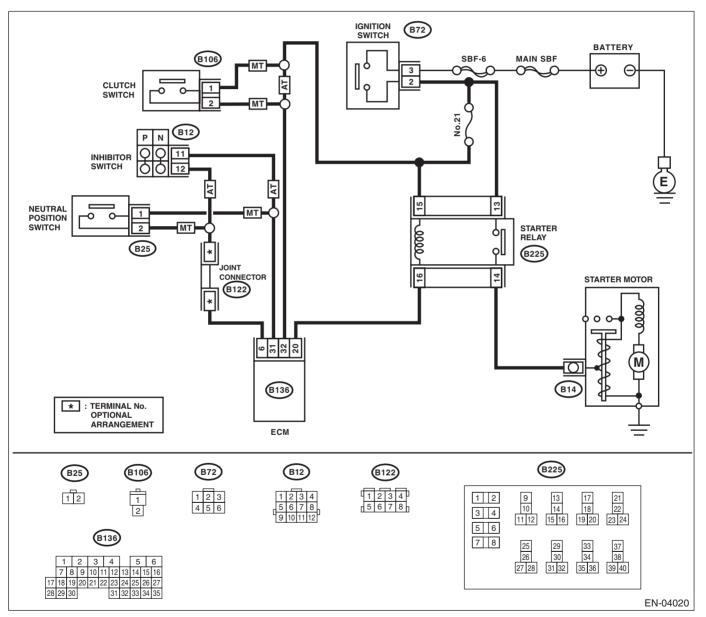
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-165, DTC P0512 STARTER REQUEST CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Failure of engine to start

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 OPERATION OF STARTER MOTOR. Turn the ignition switch to ON. NOTE: • Place the inhibitor switch in each position. (AT model) • Depress and release the clutch pedal. (MT model) • Check the security alarm is not sounding.	ate?	short circuit in starter motor circuit.	Check the starter motor circuit. <ref. circuit,="" diagnostics="" en(h4so)(diag)-56,="" engine="" failure.="" for="" motor="" starter="" starting="" to=""></ref.>

### **BY:DTC P0519 IDLE AIR CONTROL SYSTEM PERFORMANCE**

#### **DTC DETECTING CONDITION:**

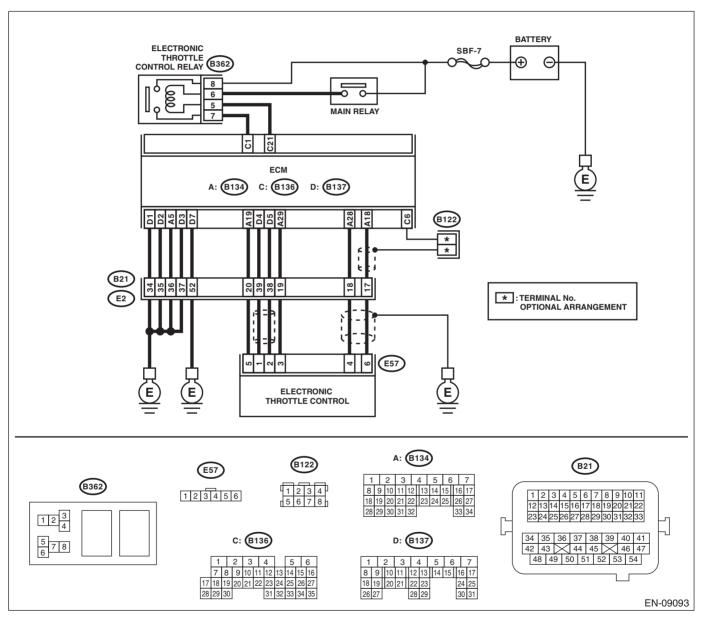
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-167, DTC P0519 IDLE AIR CONTROL SYSTEM PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

Engine keeps running at higher speed than specified idle speed.

#### **CAUTION:**

After repairing or replacing the defective part, perform 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-	Go to step 2.
	CHECK ANT OTHER DIC ON DISPLAT.	lis any other DTO displayed:	priate DTC using	do to step 2.
			the "List of Diag-	
			nostic Trouble	
			Code (DTC)".	
			<ref. th="" to<=""><th></th></ref.>	
			EN(H4SO)(diag)-	
			70, List of Diag-	
			nostic Trouble	
			Code (DTC).>	
			NOTE:	
			In this case, it is	
			not necessary to	
			inspect DTC P0519.	
2	CHECK AIR INTAKE SYSTEM.	Is there any fault in air intake	•	Go to step 3.
	<ol> <li>Turn the ignition switch to ON.</li> </ol>	system?	and leaks.	
	<ol><li>Start and idle the engine.</li></ol>			
	<ol><li>Check the following items.</li></ol>			
	Loose installation of intake manifold and			
	throttle body			
	Cracks of intake manifold gasket and throttle			
	body gasket			
	Disconnection of vacuum hoses		D ( )	D ( " "
3	CHECK ELECTRONIC THROTTLE CON-	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec-	Perform the diag- nosis of DTC
	<b>TROL.</b> 1) Turn the ignition switch to OFF.	electronic throttle control?		P2101.
	Remove the electronic throttle control.		trolle trirottie con-	FZIVI.
	3) Check the electronic throttle control.		uoi.	
	of Shook the electronic throttle control.			

**ENGINE (DIAGNOSTICS)** 

#### **BZ:DTC P0600 SERIAL COMMUNICATION LINK**

NOTE

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

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

#### DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-169, DTC P0604 INTERNAL CONTROL MODULE RANDOM ACCESS MEMORY (RAM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

- · Engine does not start.
- Engine stalls.

#### **CAUTION:**

After repairing or replacing the defective part, perform 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?		Temporary poor contact occurs.

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

NOTE:

For the diagnostic procedure, refer to DTC P0607. <Ref. to EN(H4SO)(diag)-237, DTC P0607 CONTROL MODULE PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

### CC:DTC P0607 CONTROL MODULE PERFORMANCE

#### **DTC DETECTING CONDITION:**

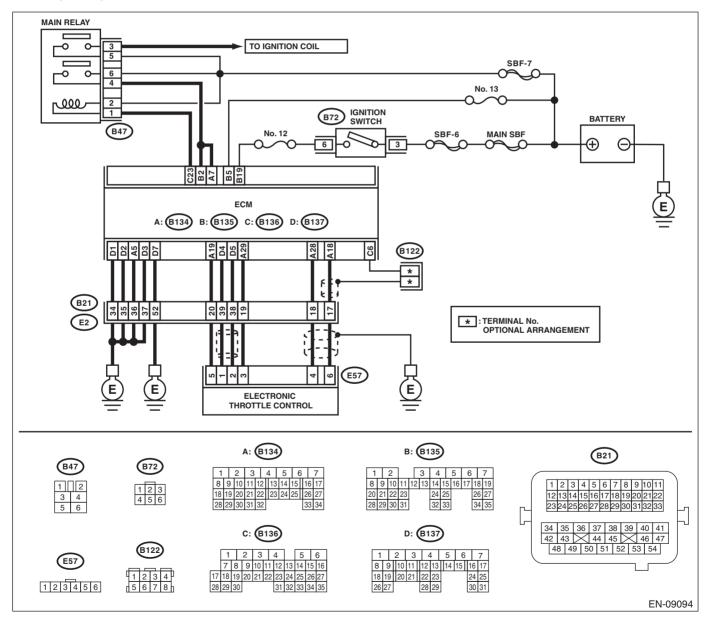
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-171, DTC P0605 INTERNAL CONTROL MODULE READ ONLY MEMORY (ROM) ERROR, Diagnostic Trouble Code (DTC) Detecting Criteria.> and <Ref. to GD(H4SO)-172, DTC P0607 CONTROL MODULE PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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
	<ol> <li>Turn the ignition switch to ON.</li> </ol>			ground short cir-
	<ol><li>Measure the voltage between ECM con-</li></ol>			cuit of power sup-
	nector and ground.			ply circuit.
	Connector & terminal			
	(B135) No. 2 (+) — Chassis ground (–):			
	(B134) No. 7 (+) — Chassis ground (–):			
2	CHECK INPUT VOLTAGE OF ECM.	Is the voltage 13 — 15 V?	Go to step 3.	Repair the open or
	<ol> <li>Start the engine.</li> </ol>			ground short cir-
	<ol><li>Measure the voltage between ECM con-</li></ol>			cuit of power sup-
	nector and ground.			ply circuit.
	Connector & terminal			
	(B135) No. 2 (+) — Chassis ground (–):			
	(B134) No. 7 (+) — Chassis ground (–):			
3	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 4.	Repair the open
	ELECTRONIC THROTTLE CONTROL.	$\Omega$ ?		circuit of harness
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>			between ECM and
	<ol><li>Disconnect the connectors from the ECM</li></ol>			electronic throttle
	and electronic throttle control.			control connector.
	<ol><li>Measure the resistance of harness</li></ol>			
	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?	•	Repair the follow-
	Measure the voltage between ECM connector		<ref. td="" to<=""><td>ing items.</td></ref.>	ing items.
	and ground.		FU(H4SO)-36,	<ul> <li>Further tighten</li> </ul>
	Connector & terminal		INSTALLATION,	the engine ground
	(B134) No. 5 (+) — Chassis ground (–):		Engine Control	terminals.
	(B137) No. 1 (+) — Chassis ground (–):		Module (ECM).>	<ul> <li>Poor contact in</li> </ul>
	(B137) No. 2 (+) — Chassis ground (–):			ECM connector
	(B137) No. 3 (+) — Chassis ground (–):			<ul> <li>Poor contact in</li> </ul>
	(B137) No. 7 (+) — Chassis ground (–):			coupling connector

**ENGINE (DIAGNOSTICS)** 

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

#### NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4SO)(diag)-285, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

#### CE:DTC P0691 FAN 1 CONTROL CIRCUIT LOW

#### DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION < Ref. to GD(H4SO)-178, 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, perform 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 P0691 displayed on the	Check the radiator	Temporary poor
		Subaru Select Monitor?	fan system. <ref.< th=""><th>contact occurs.</th></ref.<>	contact occurs.
			to CO(H4SO)-7,	
			Radiator Fan Sys-	
			tem.>	

### CF:DTC P0692 FAN 1 CONTROL CIRCUIT HIGH

#### DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-179, 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, perform 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 on the	Check the radiator	Temporary poor
		Subaru Select Monitor?	fan system. <ref.< th=""><th>contact occurs.</th></ref.<>	contact occurs.
			to CO(H4SO)-7,	
			Radiator Fan Sys-	
			tem.>	

### **CG:DTC P0700 TRANSMISSION CONTROL SYSTEM (MIL REQUEST)**

GENERAL DESCRIPTION <Ref. to GD(H4SO)-180, 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(diag)-2, PROCEDURE, Basic Diagnostic Procedure.>

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

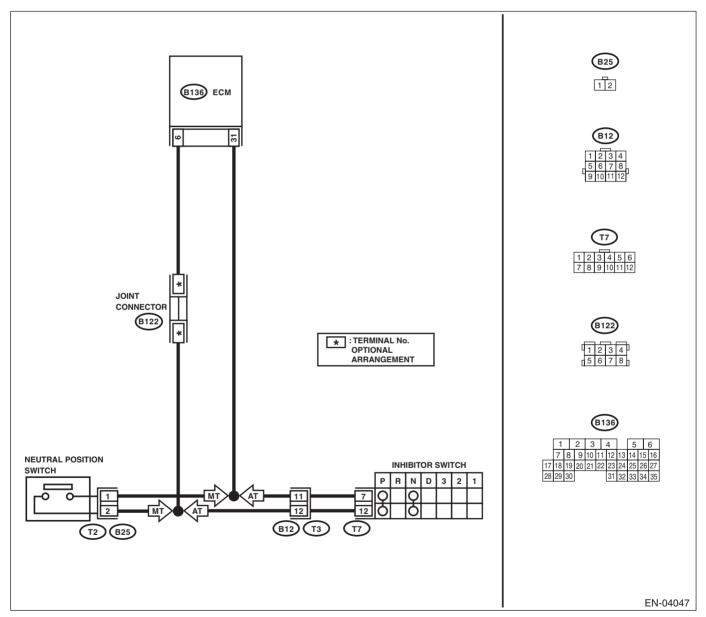
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-181, DTC P0851 PARK/NEUTRAL SWITCH INPUT CIRCUIT LOW (AT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 SELECT CABLE.	Is there any fault in the select cable?	Repair or adjust the select cable. <ref. cs-26,<br="" to="">INSPECTION, Select Cable.&gt;</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 more than 10 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:  (B136) No. 6 — 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 ECM and transmis- sion harness con- nector.
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. 11 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 5.	Repair the ground short circuit of har- ness between transmission har- ness 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 M $\Omega$ ?	Contact the SOA service center.	Replace the inhibitor switch. <ref. 4at-46,="" inhibitor="" switch.="" to=""></ref.>

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

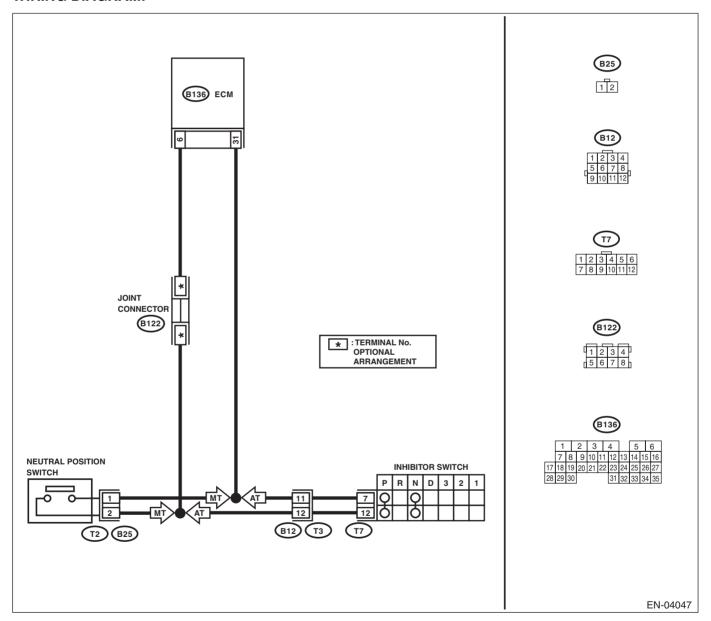
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-182, DTC P0851 NEUTRAL SWITCH INPUT CIRCUIT LOW (MT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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?	Go to step 2.	Go to step 4.
	<ol> <li>Turn the ignition switch to ON.</li> </ol>			
	<ol><li>Place the shift lever in neutral.</li></ol>			
	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 less than 1 V?	Go to step 3.	Go to step 4.
	<ol> <li>Place the shift lever except in neutral.</li> <li>Measure the voltage between ECM and</li> </ol>			
	chassis ground.			
	Connector & terminal			
	(B136) No. 31 (+) — Chassis ground (–):			
3	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair the poor	Contact the SOA
	Check poor contact of ECM connector.	connector?	contact of ECM	service center.
	Chook poor contact of 2011 continued.		connector.	
4	CHECK NEUTRAL POSITION SWITCH.	Is the resistance more than 1	Go to step 5.	Repair the short
1	Turn the ignition switch to OFF.	$M\Omega$ ?		circuit in transmis-
1	2) Disconnect the connector from the trans-			sion harness, or
	mission harness.			replace the neu-
	<ol><li>Place the shift lever in neutral.</li></ol>			tral 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 less than 1	Go to step 6.	Repair the short
	Place the shift lever except in neutral.	$\Omega$ ?		circuit in transmis-
	2) Measure the resistance between transmis-			sion harness, or
	sion harness connector terminals.  Connector & terminal			replace the neu-
	(T2) No. 1 — No. 2:			tral position switch.
6	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 7.	Repair the ground
ľ	NEUTRAL POSITION SWITCH CONNEC-	$M\Omega$ ?	do to step 1.	short circuit of har-
	TOR.	14132.		ness between
	Measure the resistance between ECM and			ECM and trans-
	chassis ground.			mission harness
	Connector & terminal			connector.
	(B136) No. 31 — Chassis ground:			
	(B136) No. 6 — Chassis ground:			
7	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 8.	Repair the open
	NEUTRAL POSITION SWITCH CONNEC-	$\Omega$ ?		circuit of harness
	TOR.			between ECM and
	Disconnect the connectors from ECM.			transmission har-
	Measure the resistance of harness between ECM and transmission harness con-			ness connector.
	nector.			
	Connector & terminal			
	(B136) No. 31 — (B25) No. 1:			
8	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 5	Go to step 9.	Repair the open
ľ	NEUTRAL POSITION SWITCH CONNEC-	$\Omega$ ?	30 to stop 3.	circuit between
	TOR.			transmission har-
	Measure the resistance of harness between			ness connector
	transmission harness connector and engine			and engine ground
	ground.			terminal.
	Connector & terminal			
	(B25) No. 2 — Engine ground:			
9	CHECK POOR CONTACT.	Is there poor contact in trans-	Repair the poor	Contact the SOA
	Check poor contact of transmission harness	mission harness connector?	contact of trans-	service center.
	connector.		mission harness	
			connector.	

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

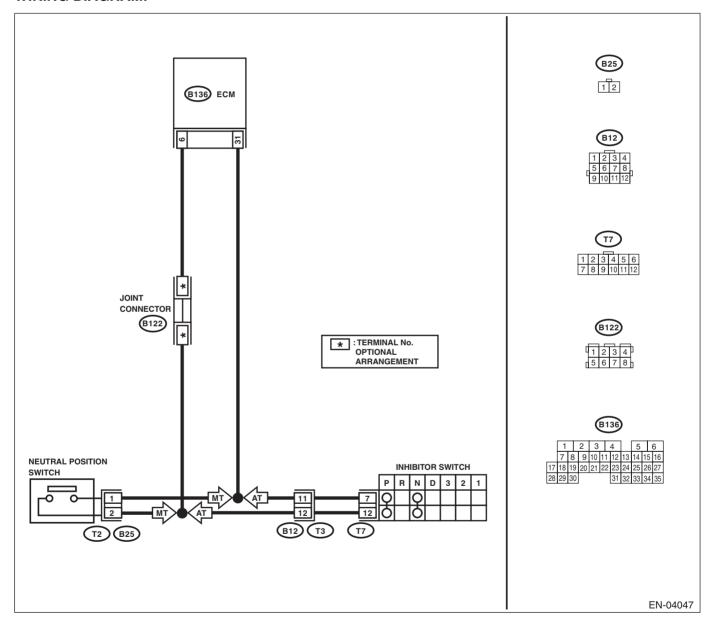
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-183, DTC P0852 PARK/NEUTRAL SWITCH INPUT CIR-CUIT HIGH (AT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 SELECT CABLE.	Is there any fault in the select cable?	Repair or adjust the select cable. <ref. cs-26,<br="" to="">INSPECTION, Select Cable.&gt;</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 more than 10 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 the poor contact of ECM connector.	Contact the SOA service center.
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	CHECK HARNESS BETWEEN ECM AND IN- HIBITOR SWITCH CONNECTOR.  1) Turn the ignition switch to OFF.  2) Disconnect the connectors from ECM and inhibitor switch.  3) Measure the resistance of harness between ECM and inhibitor switch connector.  Connector & terminal  (B136) No. 31 — (T7) No. 7:  (B136) No. 6 — (T7) No. 12:	Is the resistance less than 1 $\Omega$ ?	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 of coupling connector Poor contact of inhibitor switch connector Poor contact in ECM connector

Step	Check	Yes	No
7 CHECK INHIBITOR SWITCH GROUND LINE.	Is the resistance less than 5 $\Omega$ ?	Go to step 8.	Repair open circuit
Measure the resistance of harness between		'	of harness
inhibitor switch connector and engine ground.			between inhibitor
Connector & terminal			switch connector
(T7) No. 12 — Engine ground:			and starter motor
			ground line.
			NOTE:
			In this case, repair
			the following item:
			<ul> <li>Open circuit in</li> </ul>
			harness between
			inhibitor switch
			connector and
			starter motor
			ground line
			Poor contact in
			starter motor con-
			nector • Poor contact in
			starter motor
			ground
			Starter motor
8 CHECK INHIBITOR SWITCH.	Is the resistance less than 1 $\Omega$ ?	Contact the SOA	Replace the inhibi-
Measure the resistance between inhibitor	is the resistance less than 1 22!	service center.	tor switch. <ref. td="" to<=""></ref.>
switch connector receptacle's terminals with		Service certier.	4AT-46, Inhibitor
select lever at "N" and "P" range.			Switch.>
Terminals			O III IOI II A
No. 7 — No. 12:			

**ENGINE (DIAGNOSTICS)** 

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

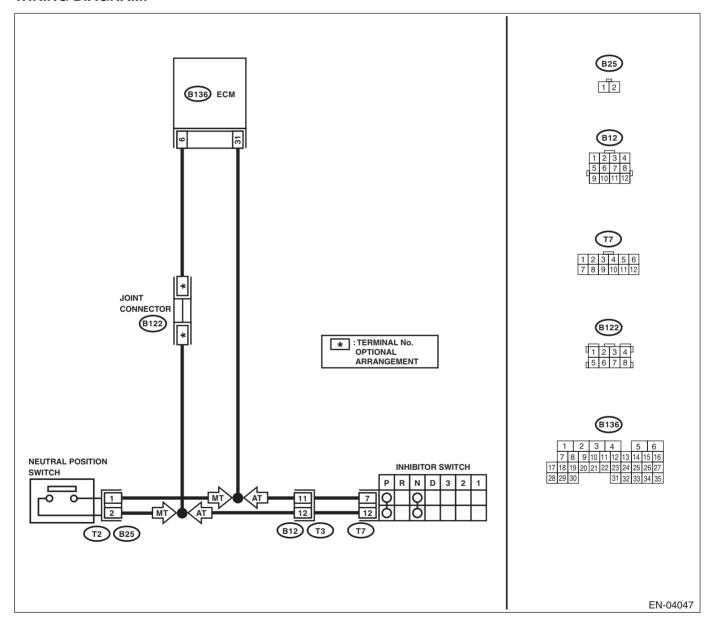
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-184, DTC P0852 NEUTRAL SWITCH INPUT CIRCUIT HIGH (MT MODEL), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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	<ol> <li>Turn the ignition switch to ON.</li> <li>Place the shift lever in neutral.</li> <li>Measure the voltage between ECM and chassis ground.</li> <li>Connector &amp; terminal</li> </ol>	Is the voltage more than 10 V?	Go to step 2.	Go to step 4.
	(B136) No. 31 (+) — Chassis ground (–):		_	
2	CHECK INPUT SIGNAL OF ECM.  1) Place the shift lever except 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 the poor contact of ECM connector.	Contact the SOA service center.
4	CHECK NEUTRAL SWITCH.  1) Place the shift lever except in neutral.  2) Measure the resistance between transmission harness connector terminals.  Connector & terminal  (T2) No. 1 — No. 2:	Is the resistance less than 1 $\Omega$ ?	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. 1: (B136) No. 6 — (B25) No. 2:	Is the resistance less than 1 $\Omega$ ?	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. 2 — Engine ground:	Is the resistance less than 5 $\Omega$ ?	Go to step 7.	Repair the har- ness and connec- tor.  NOTE: In this case, repair the following item: • Open circuit in harness between transmission har- ness connector and engine ground • Poor contact in coupling connector
7	CHECK POOR CONTACT.  Check poor contact of transmission harness connector.	Is there a poor contact in the transmission harness connector?	Repair the poor contact in transmission harness connector.	Contact the SOA service center.

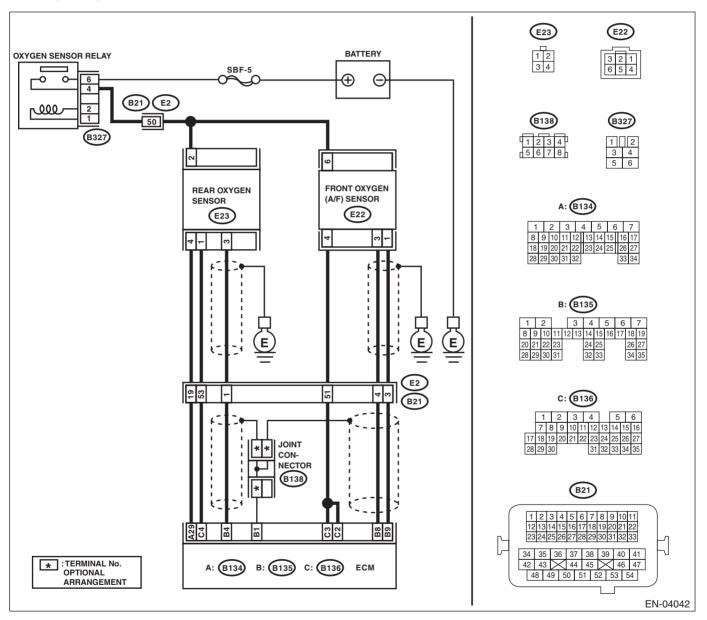
# CL:DTC P1152 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (LOW) (BANK1 SENSOR1)

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-185, DTC P1152 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (LOW) (BANK1 SENSOR1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 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 — (E22) No. 3: (B135) No. 9 — (E22) No. 1:	Is the resistance less than 1 $\Omega$ ?	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 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 the front oxygen (A/F) sensor connector?		Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/F) Sensor.&gt;</ref.>

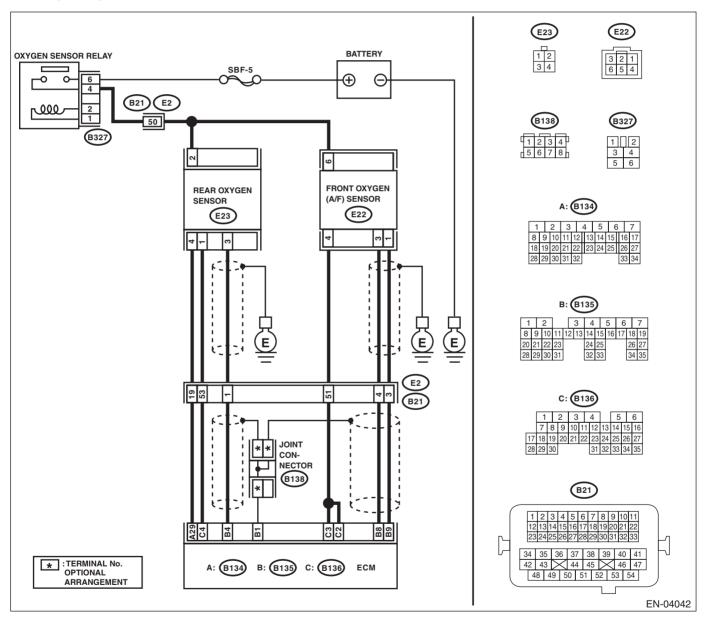
# CM:DTC P1153 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK1 SENSOR1)

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-188, DTC P1153 O2 SENSOR CIRCUIT RANGE/PER-FORMANCE (HIGH) (BANK1 SENSOR1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.

**ENGINE (DIAGNOSTICS)** 

	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Repair the ground	Go to step 3.
	FRONT OXYGEN (A/F) SENSOR CONNECTOR.	$M\Omega$ ?	short circuit of har- ness between	
	Turn the ignition switch to OFF.		ECM and front	
	2) Disconnect the connectors from ECM.		oxygen (A/F) sen-	
	3) Measure the resistance of harness		sor connector.	
	between ECM connector and chassis ground.			
	Connector & terminal			
	(B135) No. 8 — Chassis ground:			_
3	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1		Go to step 4.
	FRONT OXYGEN (A/F) SENSOR CONNECTOR.	ΜΩ?	short circuit of har-	
	Measure the resistance of harness between		ness between ECM and front	
	ECM connector and chassis ground.		oxygen (A/F) sen-	
	Connector & terminal		sor connector.	
	(B135) No. 9 — Chassis ground:			
4	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 4.5 V?	Go to step 5.	Go to step 6.
	1) Connect the connector to ECM.		ı	r
	2) Turn the ignition switch to ON.			
	<ol><li>Measure the voltage between ECM con-</li></ol>			
	nector and chassis ground.			
	Connector & terminal			
	(B135) No. 8 (+) — Chassis ground (-):	1 1 10 10	5 ' 11 1 11	D : "
5	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 10 V?	Repair the battery	Repair the poor contact of ECM
	Measure the voltage between ECM connector and chassis ground.		short circuit of har- ness between	connector.
	Connector & terminal		ECM and front	connector.
	(B135) No. 8 (+) — Chassis ground (–):		oxygen (A/F) sen-	
	(= 100) 1101 0 (1)		sor connector.	
			After repair,	
			replace the ECM.	
			<ref. td="" to<=""><td></td></ref.>	
			FU(H4SO)-36,	
			Engine Control	
	OUEOV OUTDUT OLOUGE FOR FOR	la the scale as a second of the second of th	Module (ECM).>	Dania and C
6	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 4.95 V?	Go to step 7.	Replace the front
	Measure the voltage between ECM connector and chassis ground.	V f		oxygen (A/F) sen- sor. <ref. td="" to<=""></ref.>
	Connector & terminal			FU(H4SO)-32,
	(B135) No. 9 (+) — Chassis ground (–):			Front Oxygen (A/F)
	( )			Sensor.>
7	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 10 V?	Repair the battery	Repair the poor
	Measure the voltage between ECM connector	_	short circuit of har-	contact of ECM
	and chassis ground.		ness between	connector.
	Connector & terminal		ECM and front	
	(B135) No. 9 (+) — Chassis ground (–):		oxygen (A/F) sen-	
			sor connector.	
			After repair,	
			replace the ECM. <ref. td="" to<=""><td></td></ref.>	
			FU(H4SO)-36,	
			Engine Control	
			Module (ECM).>	

### **CN:DTC P1160 RETURN SPRING FAILURE**

#### NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4SO)(diag)-285, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

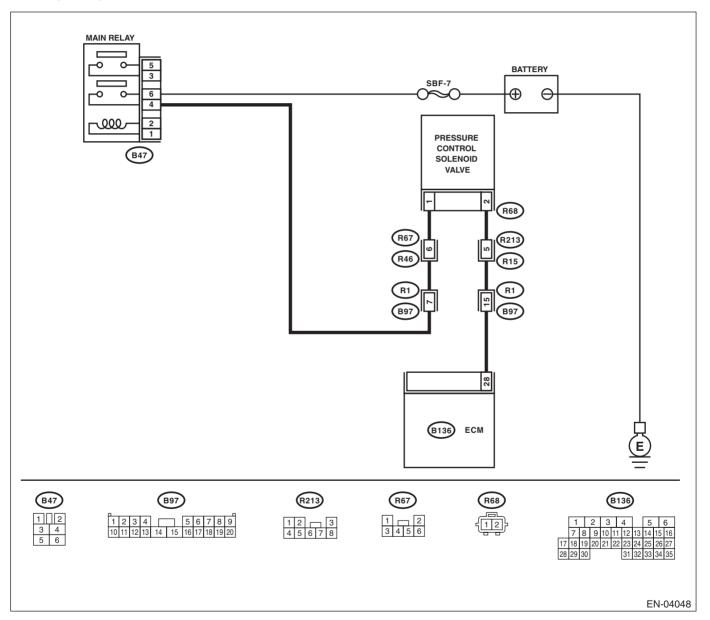
# CO:DTC P1400 FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW

#### **DTC DETECTING CONDITION:**

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-193, DTC P1400 FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.
	<ol> <li>Turn the ignition switch to ON.</li> <li>Measure the voltage between ECM and chassis ground.</li> <li>Connector &amp; terminal</li> </ol>			
	(B136) No. 28 (+) — Chassis ground (–):			
2	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair the poor contact of ECM connector.	Contact the SOA service center.
3		Is the resistance less than 10 $\Omega$ ?	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 $\Omega$ ?	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 of 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 $\Omega$ ?	Go to step 6.	Replace the pres- sure control sole- noid valve. <ref. to EC(H4SO)-12, Pressure Control Solenoid Valve.&gt;</ref. 
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 (-):	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 pressure control solenoid valve connector  Poor contact of coupling connector  Poor contact of main relay connector

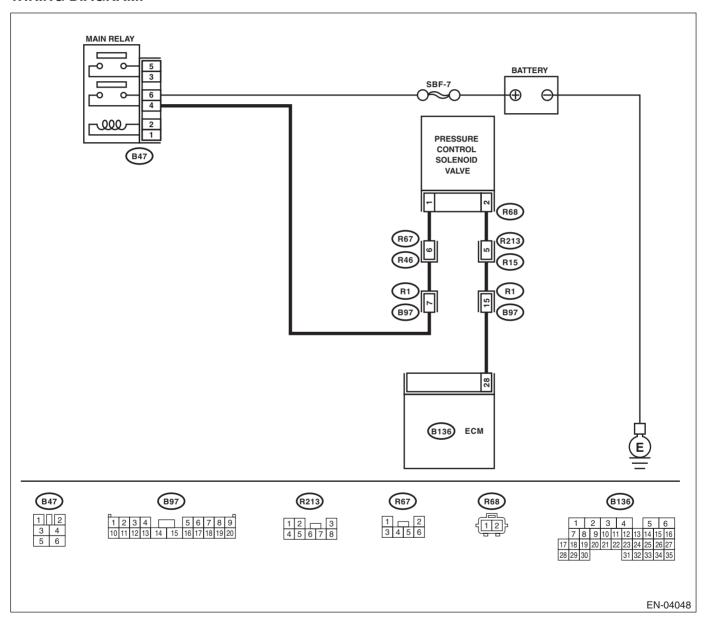
	Step	Check	Yes	No
7	CHECK POOR CONTACT.	Is there poor contact of the	Repair the poor	Contact the SOA
	Check poor contact of pressure control sole- noid valve connector.		sure control sole- noid valve	service center.
			connector.	

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-195, DTC P1420 FUEL TANK PRESSURE CONTROL SOL. VALVE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 pressure control solenoid valve.  NOTE: The pressure control solenoid valve operation can be executed using the Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4so)(diag)-44,="" mode.="" operation="" to="" valve="">  Connector &amp; terminal  (B136) No. 28 (+) — Chassis ground (-):</ref.>	Is the voltage 0 — 10 V?	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. 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 the poor contact of ECM connector.	Replace the ECM. <ref. to<br="">FU(H4SO)-36, Engine Control Module (ECM).&gt;</ref.>
4	CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.  1) Turn the ignition switch to OFF. 2) Disconnect the connector from the 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 (-):	Is the voltage more than 10 V?	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)-36,="" 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 $\Omega$ ?	Replace the pressure control sole- noid valve <ref. to<br="">EC(H4SO)-12, Pressure Control Solenoid Valve.&gt; and ECM <ref. to<br="">FU(H4SO)-36, Engine Control Module (ECM).&gt;.</ref.></ref.>	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair the poor contact of ECM connector.	Replace the ECM. <ref. to<br="">FU(H4SO)-36, Engine Control Module (ECM).&gt;</ref.>

## CQ:DTC P1443 VENT CONTROL SOLENOID VALVE FUNCTION PROBLEM DTC DETECTING CONDITION:

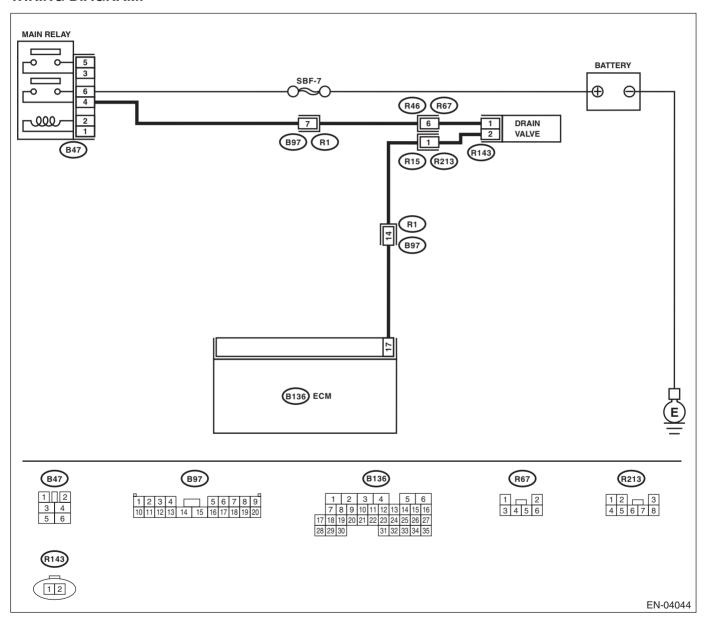
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-197, DTC P1443 VENT CONTROL SOLENOID VALVE FUNCTION PROBLEM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Improper fuel supply

#### **CAUTION:**

After repairing or replacing the defective part, perform 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).="" 70,="" 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) Check 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 the SOA service center.	Replace the drain valve. <ref. to<br="">EC(H4SO)-15, Drain Valve.&gt;</ref.>

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

#### **DTC DETECTING CONDITION:**

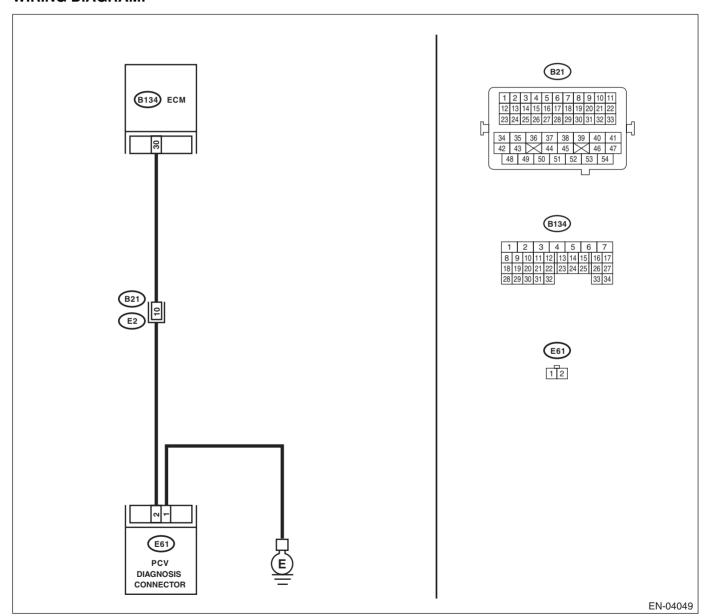
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-199, DTC P1491 POSITIVE CRANKCASE VENTILA-TION (BLOW-BY) FUNCTION PROBLEM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

Erroneous idling

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 BLOW-BY HOSE.	Is there any disconnection or	Replace or repair	Go to step 2.
	Check the condition of the blow-by hose.	crack in blow-by hose?	the blow-by hose.	
2	CHECK HARNESS BETWEEN PCV DIAGNOSIS CONNECTOR AND ECM CONNECTOR.  1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the PCV diagnosis connector and ECM. 3) Measure the resistance of harness between PCV diagnosis connector and ECM connector.  Connector & terminal	Is the resistance less than 1 $\Omega$ ?	Go to step 3.	Repair the open circuit of harness between PCV diagnosis connector and ECM connector.
3	(B134) No. 30 — (E61) No. 2:  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 $\mbox{M}\Omega ?$	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 $\Omega$ ?	Go to step 5.	Repair the 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 $\Omega$ ?	Repair the poor contact in ECM connector and PCV diagnosis connector.	Replace the PCV diagnosis connector.

**ENGINE (DIAGNOSTICS)** 

# CS: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)-263, DTC P1498 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# CT: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)-266, DTC P1499 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# CU: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)-263, DTC P1498 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# CV: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)-266, DTC P1499 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# CW: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)-263, DTC P1498 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

# CX: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)-266, DTC P1499 EGR SOLE-NOID VALVE SIGNAL #4 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

**ENGINE (DIAGNOSTICS)** 

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

#### **DTC DETECTING CONDITION:**

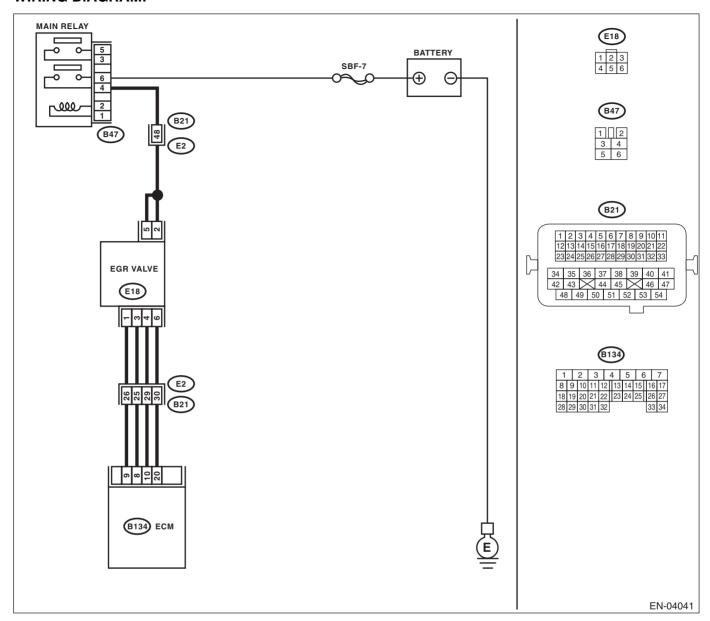
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-201, DTC P1492 EGR SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-205, DTC P1494 EGR SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-205, DTC P1496 EGR SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (LOW INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-205, 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, perform 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 VALVE.  1) Turn the ignition switch to OFF.  2) Disconnect the connector from EGR valve.  3) Turn the ignition switch to ON.  4) Measure the voltage between EGR valve connector 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 2.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit in harness between EGR valve and main relay connector  Poor contact of coupling connector
2	CHECK HARNESS BETWEEN ECM AND EGR VALVE CONNECTOR.  1) Turn the ignition switch to OFF.  2) Measure the resistance between ECM and EGR valve connector.  Connector & terminal  DTC P1492; (B134) No. 8 — (E18) No. 3:  DTC P1494; (B134) No. 9 — (E18) No. 1:  DTC P1496; (B134) No. 10 — (E18) No. 4:  DTC P1498; (B134) No. 20 — (E18) No. 6:	Is the resistance less than 1 $\Omega$ ?	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 valve connector  Poor contact of coupling connector
3	CHECK HARNESS BETWEEN ECM AND EGR VALVE CONNECTOR.  1) Disconnect the connectors from ECM.  2) Measure the resistance between ECM connector and chassis ground.  Connector & terminal  DTC P1492; (B134) No. 8 — Chassis ground:  DTC P1494; (B134) No. 9 — Chassis ground:  DTC P1496; (B134) No. 10 — 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 valve connector.
4	CHECK POOR CONTACT.  Check poor contact in ECM connector and EGR valve connector.	Is there poor contact in ECM connector or EGR valve connector?	Repair the poor contact in ECM connector or EGR alve connector.	Replace the EGR valve. <ref. to<br="">FU(H4SO)-26, EGR Valve.&gt;</ref.>

**ENGINE (DIAGNOSTICS)** 

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

#### **DTC DETECTING CONDITION:**

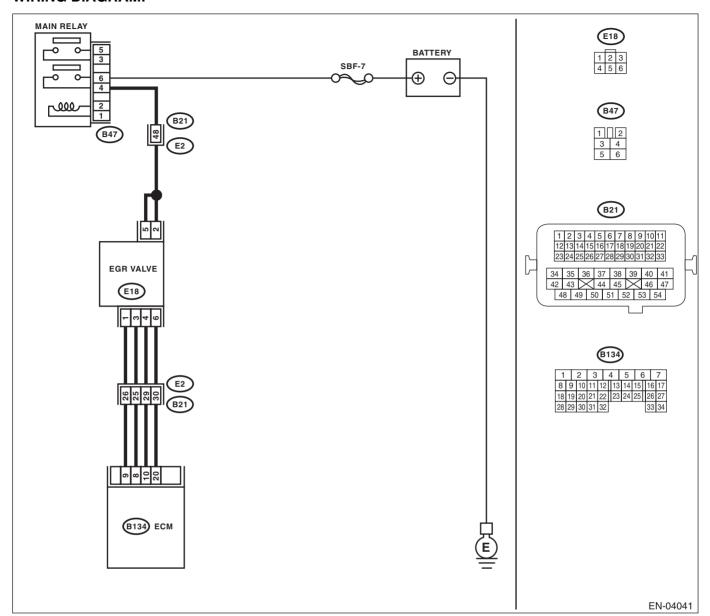
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-203, DTC P1493 EGR SOLENOID VALVE SIGNAL #1 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-205, DTC P1495 EGR SOLENOID VALVE SIGNAL #2 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-205, DTC P1497 EGR SOLENOID VALVE SIGNAL #3 CIRCUIT MALFUNCTION (HIGH INPUT), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-205, 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, perform 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 C	HECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" 70,="" code="" diag-="" en(h4so)(diag)-="" list="" nostic="" of="" to="" trouble=""></ref.>	Go to step 2.
E( 1) 2) 3) 4)	HECK HARNESS BETWEEN ECM AND GR VALVE CONNECTOR.  Turn the ignition switch to OFF. Disconnect the connector from EGR valve.  Turn the ignition switch to ON.  Measure the voltage between ECM concetor and chassis ground.  Connector & terminal  DTC P1493; (B134) No. 8 (+) — Chassis ground (-):  DTC P1495; (B134) No. 9 (+) — Chassis ground (-):  DTC P1497; (B134) No. 10 (+) — Chassis ground (-):  DTC P1499; (B134) No. 20 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short in harness between ECM and EGR valve connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" module="" to=""></ref.>	Replace the ECM. <ref. to<br="">FU(H4SO)-36, Engine Control Module (ECM).&gt;</ref.>

#### **DA:DTC P1518 STARTER SWITCH CIRCUIT LOW INPUT**

#### **DTC DETECTING CONDITION:**

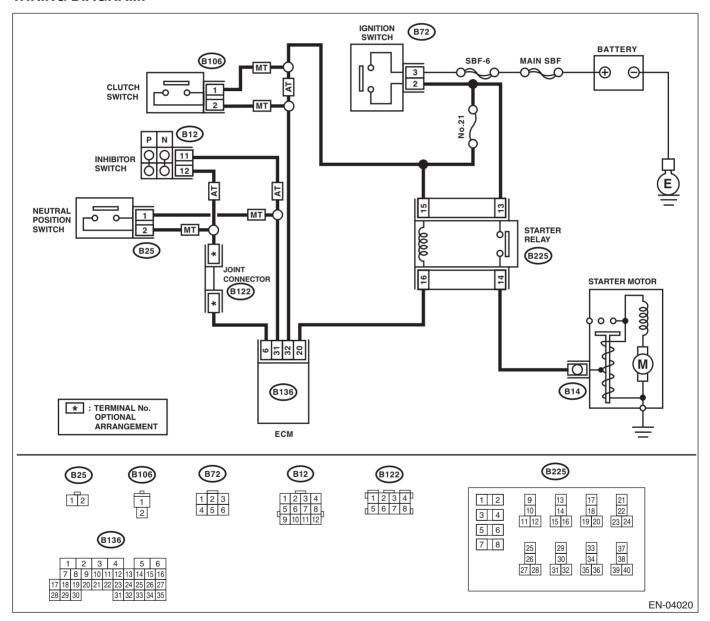
- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-206, DTC P1518 STARTER SWITCH CIRCUIT LOW IN-PUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### TROUBLE SYMPTOM:

Failure of engine to start

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



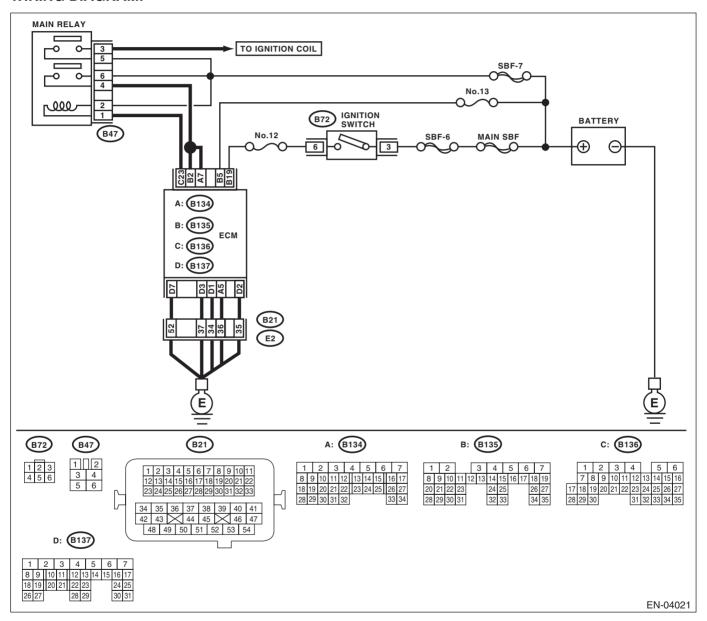
	Step	Check	Yes	No
1	<ul> <li>CHECK OPERATION OF STARTER MOTOR.</li> <li>Place the inhibitor switch in "P" or "N" range.</li> </ul>	*******	Repair the harness and connector. NOTE: In this case, repair the following item:  Open or ground short circuit of harness between	Check the starter motor circuit. <ref. circuit,="" diagnostics="" en(h4so)(diag)-56,="" engine="" failure.="" for="" motor="" starter="" starting="" to=""></ref.>
			ECM and starter motor connector • Poor contact in ECM connector	

## DB:DTC P1560 BACK-UP VOLTAGE CIRCUIT MALFUNCTION DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-207, DTC P1560 BACK-UP VOLTAGE CIRCUIT MAL-FUNCTION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



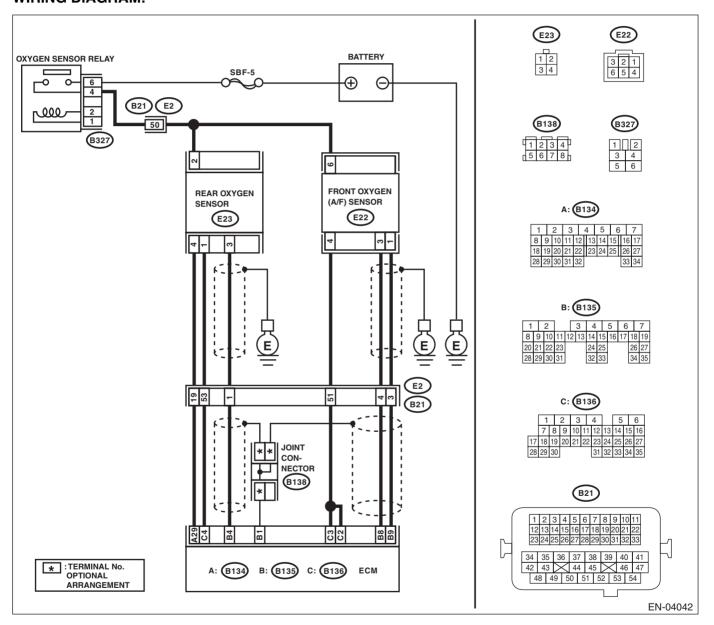
	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM.  1) Turn the ignition switch to OFF.  2) Measure the voltage between ECM and chassis ground.  Connector & terminal  (B135) No. 5 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the poor contact of ECM connector.	Go to step 2.
2	CHECK HARNESS 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 $\Omega$ ?	Repair the ground short circuit of har- ness between ECM connector and battery termi- nal.	Go to step 3.
3	CHECK FUSE No. 13.	Is the fuse blown out?	Replace the fuse.	Repair the harness and connector.  NOTE: In this case, repair the following item:  Open circuit of harness between ECM and battery Poor contact in ECM connector Poor contact of battery terminal

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-209, 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, perform 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.>.



		<del></del>		
	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 Trouble Code (DTC)". <ref. to<br="">EN(H4SO)(diag)-</ref.>	Go to step 2.
			70, 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 CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	Go to step 3.
4	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 — (E22) No. 3: (B135) No. 9 — (E22) No. 1:  CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR	Is the resistance less than 1 $\Omega$ ? Is the resistance more than 1 $M\Omega$ ?	Go to step 4.  Go to step 5.	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  Repair the ground short circuit of harness between
	TOR.  Measure the resistance of harness between ECM connector and chassis ground.  Connector & terminal  (B135) No. 8 — Chassis ground:  (B135) No. 9 — Chassis ground:			ness between ECM and front oxygen (A/F) sen- sor connector.
5	CHECK OUTPUT SIGNAL FOR ECM.  1) Connect the connector to ECM.  2) Turn the ignition switch to ON.  3) Measure the voltage between ECM connector and chassis ground.  Connector & terminal  (B135) No. 8 (+) — Chassis ground (-):  CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 4.5 V?		Go to step 7.
6	Measure the voltage between ECM connector and chassis ground.  Connector & terminal  (B135) No. 8 (+) — Chassis ground (-):	Is the voltage more than 10 V?	short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector. After repair, replace the ECM. <ref. to<br="">FU(H4SO)-36, Engine Control Module (ECM).&gt;</ref.>	Repair the poor contact of ECM connector.

	Step	Check	Yes	No
7	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 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. 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)-36,="" module="" to=""></ref.>	Repair the poor contact of 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)-25,="" 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/cm², 47 — 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	(140°F)?	Go to step 13.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-19,="" sensor.="" temperature="" to=""></ref.>

	Step	Check	Yes	No
13		Is the measured value 2.1 —	Go to step 14.	Replace the mass
	TEMPERATURE SENSOR.	3.4 g/s (0.28 — 0.45 lb/m)?	•	air flow and intake
	<ol> <li>Start the engine and warm-up engine until</li> </ol>			air temperature
	coolant temperature is greater than 60°C			sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-25,
	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 procedure, 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 procedure, refer to the			
	general scan tool operation manual.			
14	CHECK MASS AIR FLOW AND INTAKE AIR	Subtract ambient temperature	Go to step 15.	Check the mass
	TEMPERATURE SENSOR.	from intake air temperature. Is	'	air flow and intake
	1) Start the engine and warm-up engine until	the obtained value -10 — 50°C		air temperature
	coolant temperature is greater than 60°C	(-18 — 90°F)?		sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-25,
	<ol><li>Place the shift lever in neutral position.</li></ol>			Mass Air Flow and
	<ol><li>Turn the A/C switch to OFF.</li></ol>			Intake Air Temper-
	<ol> <li>Turn all the accessory switches to OFF.</li> </ol>			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 procedure, 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 procedure, refer to the			
	general scan tool operation manual.			
15	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage 490 mV or	Go to step 19.	Go to step 16.
	1) Warm-up the engine until engine coolant	more?	_	•
	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:			
	For MT model, depress the clutch pedal.     Subary Salast Maniter			
	Subaru Select Monitor  For detailed energtion procedure refer to			
	For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	to EN(H45O)(diag)-26, Subaru Select Moni- tor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
	ganara adan tadi operation mandan	<u>I</u>	<u>l</u>	

	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 3	Repair the open	Go to step 18.
	REAR OXYGEN SENSOR CONNECTOR.	$\Omega$ ?	circuit of harness	
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>		between ECM and	
	<ol><li>Disconnect the connector from ECM and</li></ol>		rear oxygen sen-	
	rear oxygen sensor.		sor connector.	
	<ol><li>Measure the resistance of harness</li></ol>			
	between ECM and rear oxygen sensor con-			
	nector.			
	Connector & terminal			
	(B135) No. 4 — (E23) No. 3:			
	(B134) No. 29 — (E23) 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 the rear		FU(H4SO)-34,	NOTE:
	oxygen sensor.		Rear Oxygen Sen-	In this case, repair
	<ul><li>3) Turn the ignition switch to ON.</li><li>4) Measure the voltage between rear oxygen</li></ul>		sor.>	the following item:
	sensor harness connector and engine ground			<ul> <li>Open circuit of harness between</li> </ul>
	or chassis ground.			
	Connector & terminal			rear oxygen sen- sor and ECM con-
	(E23) No. 3 (+) — Engine ground (–):			nector
	(==o) nore (r) =ngme greama ( ).			Poor contact of
				the rear oxygen
				sensor connector
				Poor contact in
				ECM connector
19	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage less than 250	Go to step 20.	Go to step 16.
	1) Warm-up the engine until engine coolant	mV?		·
	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:			
	<ul> <li>For MT model, depress the clutch pedal.</li> </ul>			
	<ul> <li>Subaru Select Monitor</li> </ul>			
	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 Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			

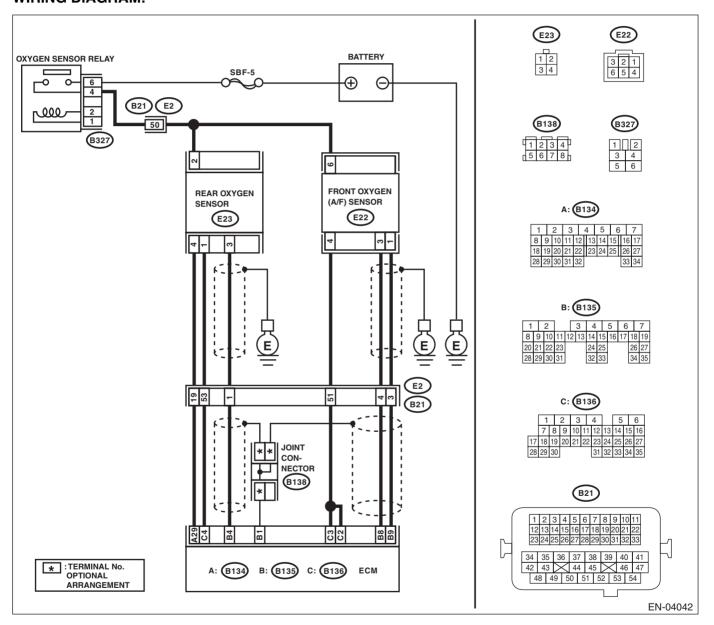
	Step	Check	Yes	No
20	CHECK FRONT OXYGEN (A/F) SENSOR AND REAR OXYGEN SENSOR DATA.  1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and leave it for 5 minutes or more with idling.  2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool.  NOTE:  • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	idling?	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/F) Sensor.&gt;</ref.>	Go to step 17.

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

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-211, DTC P2097 POST CATALYST FUEL TRIM SYSTEM TOO RICH BANK 1, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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.>.



		<del></del>		
	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code	Go to step 2.
			(DTC)". <ref. to<br="">EN(H4SO)(diag)-</ref.>	
			70, 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 $\Omega$ ?	Go to step 4.	Repair the har- ness and connec-
	FRONT OXYGEN (A/F) SENSOR CONNECTOR.	22:		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:
	<ol> <li>Measure the resistance of harness between ECM and front oxygen (A/F) sensor</li> </ol>			<ul> <li>Open circuit in harness between</li> </ul>
	connector.			ECM and front ox-
	Connector & terminal			ygen (A/F) sensor
	(B135) No. 8 — (E22) No. 3:			connector
	(B135) No. 9 — (E22) No. 1:			Poor contact in
				front oxygen (A/F) sensor connector
				Poor contact in
				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.			ness between
	Measure the resistance of harness between			ECM and front
	ECM connector and chassis ground.			oxygen (A/F) sen-
	Connector & terminal (B135) No. 8 — Chassis ground:			sor connector.
	(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.			
	<ul><li>2) Turn the ignition switch to ON.</li><li>3) Measure the voltage between ECM con-</li></ul>			
	nector and chassis ground.			
	Connector & terminal			
	(B135) No. 8 (+) — Chassis ground (–):			
6	CHECK OUTPUT SIGNAL FOR ECM.	Is the voltage more than 10 V?		Repair the poor
	Measure the voltage between ECM connector		short circuit of har-	
	and chassis ground.  Connector & terminal		ness between ECM and front	connector.
	(B135) No. 8 (+) — Chassis ground (–):		oxygen (A/F) sen-	
	. , (,		sor connector.	
			After repair,	
			replace the ECM.	
			<ref. to<br="">FU(H4SO)-36,</ref.>	
			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. 9 (+) — 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. 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)-36,="" module="" to=""></ref.>	Repair the poor contact of 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. 1) Measure the fuel pressure. <ref. fuel="" inspection,="" me(h4so)-25,="" pressure.="" to=""> WARNING: Release fuel pressure before removing the fuel pressure gauge.</ref.>		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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool  For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	(140°F)?	Go to step 13.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4so)-19,="" sensor.="" temperature="" to=""></ref.>

	Step	Check	Yes	No
13	CHECK MASS AIR FLOW AND INTAKE AIR	Is the measured value 2.1 —	Go to step 14.	Replace the mass
	TEMPERATURE SENSOR.	3.4 g/s (0.28 — 0.45 lb/m)?		air flow and intake
	<ol> <li>Start the engine and warm-up engine until</li> </ol>			air temperature
	coolant temperature is greater than 60°C			sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-25,
	2) Place the shift lever in neutral position.			Mass Air Flow and
	3) Turn the A/C switch to OFF.			Intake Air Temper-
	<ol> <li>Turn all the accessory switches to OFF.</li> </ol>			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:			
	<ul> <li>Subaru Select Monitor</li> </ul>			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	<ul> <li>General scan tool</li> </ul>			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
14	CHECK MASS AIR FLOW AND INTAKE AIR	Subtract ambient temperature	Go to step 15.	Check the mass
	TEMPERATURE SENSOR.	from intake air temperature. Is		air flow and intake
	1) Start the engine and warm-up engine until	the obtained value -10 — 50°C		air temperature
	coolant temperature is greater than 60°C	(-18 — 90°F)?		sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4SO)-25,
	<ol><li>Place the shift lever in neutral position.</li></ol>			Mass Air Flow and
	3) Turn the A/C switch to OFF.			Intake Air Temper-
	<ol><li>Turn all the accessory switches to OFF.</li></ol>			ature Sensor.>
	5) Open the front hood.			
	<ol><li>Measure the ambient temperature.</li></ol>			
	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 procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation 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:			
	For MT model, depress the clutch pedal.			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
	gonoral odan tool operation manual.	1	l .	

	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 3	Repair the open	Go to step 18.
	REAR OXYGEN SENSOR CONNECTOR.	$\Omega$ ?	circuit of harness	
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>		between ECM and	
	<ol><li>Disconnect the connector from ECM and</li></ol>		rear oxygen sen-	
	rear oxygen sensor.		sor connector.	
	<ol><li>Measure the resistance of harness</li></ol>			
	between ECM and rear oxygen sensor con-			
	nector.			
	Connector & terminal			
	(B135) No. 4 — (E23) No. 3:			
	(B134) No. 29 — (E23) 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.
	Disconnect the connector from the rear		FU(H4SO)-34,	NOTE:
	oxygen sensor.		Rear Oxygen Sen-	In this case, repair
	<ul><li>3) Turn the ignition switch to ON.</li><li>4) Measure the voltage between rear oxygen</li></ul>		sor.>	the following item:
	sensor harness connector and engine ground			<ul> <li>Open circuit of harness between</li> </ul>
	or chassis ground.			
	Connector & terminal			rear oxygen sen- sor and ECM con-
	(E23) No. 3 (+) — Engine ground (–):			nector
	(===) nore (r) = ngme greama ( )r			Poor contact of
				the rear oxygen
				sensor connector
				Poor contact in
				ECM connector
19	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage less than 250	Go to step 20.	Go to step 16.
	1) Warm-up the engine until engine coolant	mV?		
	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:			
	<ul> <li>For MT model, depress the clutch pedal.</li> </ul>			
	<ul> <li>Subaru Select Monitor</li> </ul>			
	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 Moni-			
	tor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation 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 procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4so)(diag)-26,="" monitor.="" select="" subaru="" to="">  • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4SO)-32, Front Oxygen (A/F) Sensor.&gt;</ref.>	Go to step 17.

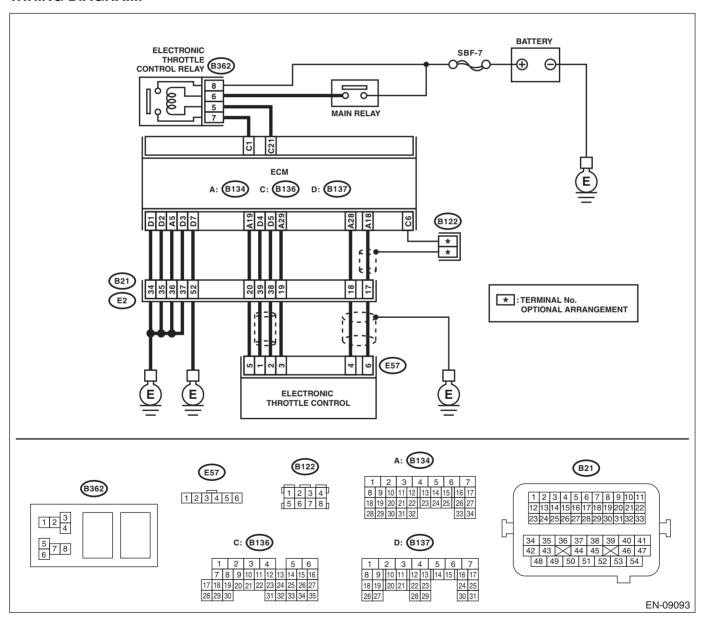
#### DE:DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/ PERFORMANCE

#### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-175, DTC P0638 THROTTLE ACTUATOR CONTROL RANGE/PERFORMANCE (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-191, DTC P1160 RETURN SPRING FAILURE, Diagnostic Trouble Code (DTC) Detecting Criteria.> or <Ref. to GD(H4SO)-213, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> <Ref. to GD(H4SO)-219, 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.



	Step	Check	Yes	No
1	CHECK ELECTRONIC THROTTLE CON-	Is the resistance less than 1	Go to step 2.	Replace the elec-
	TROL RELAY.	$\Omega$ ?		tronic throttle con-
	1) Turn the ignition switch to OFF.			trol relay.
	2) Remove the electronic throttle control relay.			
	3) Connect the battery to terminals No. 5 and			
	No. 6 of electronic throttle control relay.			
	4) Measure the resistance between electronic			
	throttle control relay terminals.			
	Terminals			
_	No. 8 — No. 7:  CHECK POWER SUPPLY OF ELECTRONIC	le the voltage more than 10 V/2	Co to oton 2	Repair the open or
2	THROTTLE CONTROL RELAY.	is the voltage more than 10 v?	Go to step <b>3</b> .	ground short cir-
	Turn the ignition switch to ON.			cuit of power sup-
	Measure the voltage between electronic			ply circuit.
	throttle control relay connector and chassis			7
	ground.			
	Connector & terminal			
	(B362) No. 8 (+) — Chassis ground (–):			
	(B362) No. 6 (+) — Chassis ground (–):			
3	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 10 V?	Repair the power	Go to step 4.
	ELECTRONIC THROTTLE CONTROL RE-		supply short circuit	
	LAY. 1) Turn the ignition switch to OFF.		of harness between ECM and	
	Disconnect the connectors from ECM.		electronic throttle	
	3) Turn the ignition switch to ON.		control.	
	Measure the voltage between electronic			
	throttle control relay connector and chassis			
	ground.			
	Connector & terminal			
	(B362) No. 5 (+) — Chassis ground (–):			
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-	Is the resistance more than 1 $M\Omega$ ?	Go to step 5.	Repair the ground
	LAY.	IVIS 2 ?		short circuit of har- ness between
	Turn the ignition switch to OFF.			ECM and elec-
	2) Measure the resistance between electronic			tronic throttle con-
	throttle control relay connector and chassis			trol relay.
	ground.			,
	Connector & terminal			
	(B362) No. 5 — Chassis ground:			
	(B362) No. 7 — Chassis ground:			
5	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 6.	Repair the open
	ELECTRONIC THROTTLE CONTROL RE- LAY.	$\Omega$ ?		circuit of harness between ECM and
	Measure the resistance between ECM connec-			electronic throttle
	tor and electronic throttle control relay connec-			control relay.
	tor.			,
	Connector & terminal			
	(B136) No. 21 — (B362) No. 5:			
	(B136) No. 1 — (B362) No. 7:			
6	CHECK SENSOR OUTPUT.	Is the voltage more than 0.4 V?	Go to step 7.	Go to step 9.
	Connect all connectors.      Turn the ignition switch to ON.			
	<ul><li>2) Turn the ignition switch to ON.</li><li>3) Read the data of main throttle sensor signal</li></ul>			
	using Subaru Select Monitor.			
	NOTE:			
	NOTE: Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			

	Step	Check	Yes	No
7	CHECK SENSOR OUTPUT.  1) Connect all connectors.	Is the voltage more than 0.8 V?	Go to step 8.	Go to step 9.
	2) Turn the ignition switch to ON.			
	3) Read the data of sub throttle sensor signal			
	using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
8	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Go to step 13.
	Check poor contact in connector between		contact.	
	ECM and electronic throttle control.			
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
	1) Turn the ignition switch to OFF.			connector.
	<ul><li>2) Disconnect the connectors from ECM.</li><li>3) Disconnect the connectors from electronic</li></ul>			
	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:			
	(B134) No. 19 — (E57) No. 5:			
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. 19 — Chassis ground: (B134) No. 19 — 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 the poor
	Connect the ECM connector.	li and remage me	от то отор так	contact of ECM
	2) Turn the ignition switch to ON.			connector.
	3) Measure the voltage between electronic			Replace the ECM
	throttle control connector and engine ground.			if defective. <ref.< td=""></ref.<>
	Connector & terminal			to FU(H4SO)-36,
	(E57) No. 5 (+) — Engine ground (–):			Engine Control
				Module (ECM).>
12	CHECK SHORT CIRCUIT IN ECM.	Is the resistance more than 10	Go to step 13.	Repair the poor
	Turn the ignition switch to OFF.      Macoure the registered between electronic.	$\Omega$ ?		contact of ECM
	Measure the resistance between electronic throttle control connector and engine ground			connector.
	throttle control connector and engine ground.  Connector & terminal			Replace the ECM if defective. <ref.< td=""></ref.<>
	(E57) No. 6 — Engine ground:			to FU(H4SO)-36,
	(E57) No. 6 — Engine ground: (E57) No. 4 — Engine ground:			Engine Control
	(201) Ho. 4 Linginic ground.			Module (ECM).>

	Step	Check	Yes	No
13	CHECK SENSOR OUTPUT.	Is the voltage less than 4.63	Go to step 14.	Go to step 16.
	1) Connect all connectors.	V?		
	<ol><li>Turn the ignition switch to ON.</li></ol>			
	3) Read the data of main throttle sensor signal			
	using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
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.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
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.
	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. 29 — (E57) No. 3:			
	(B134) No. 18 — (E57) No. 6:			
	(B134) No. 28 — (E57) No. 4:			
17	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 5	Go to step 18.	Repair the poor
.,	ELECTRONIC THROTTLE CONTROL.	$\Omega$ ?	do to stop 10.	contact of ECM
	Connect the ECM connector.			connector.
	Measure the resistance between electronic			Replace the ECM
	throttle control connector and engine ground.			if defective.
	Connector & terminal			
	(E57) No. 3 — Engine ground:			
18	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 19.	Repair the battery
	ELECTRONIC THROTTLE CONTROL.		r -	short circuit of har-
	1) Turn the ignition switch to ON.			ness between
	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.
	(E57) No. 4 (+) — Engine ground (–):			

	Step	Check	Yes	No
20	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL.  1) Turn the ignition switch to OFF.  2) Remove the ECM.  3) Measure the resistance between ECM connectors.  Connector & terminal (B134) No. 18 — (B134) No. 19: (B134) No. 28 — (B134) No. 19:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 21.	Repair the short circuit to sensor power supply.
21	CHECK SENSOR OUTPUT.  1) Turn the ignition switch to OFF.  2) Connect the connectors except for electric throttle control relay.  3) Turn the ignition switch to ON.  4) Read the data of main throttle sensor signal using Subaru Select Monitor.  NOTE:  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 0.81 — 0.87 V?	Go to step 22.	Repair the poor contact of electronic throttle control connector. Replace the electronic throttle control if defective.
22	CHECK SENSOR OUTPUT.  Read the data of sub throttle sensor signal using Subaru Select Monitor.  NOTE:  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 1.64 — 1.70 V?	Go to step 23.	Repair the poor contact of ECM connector. Replace the electronic throttle control if defective.
23	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL MOTOR.  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 (B137) No. 5 — (E57) No. 2: (B137) No. 4 — (E57) No. 1:	Is the resistance less than 1 $\Omega$ ?	Go to step 24.	Repair the open circuit of harness connector.
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.

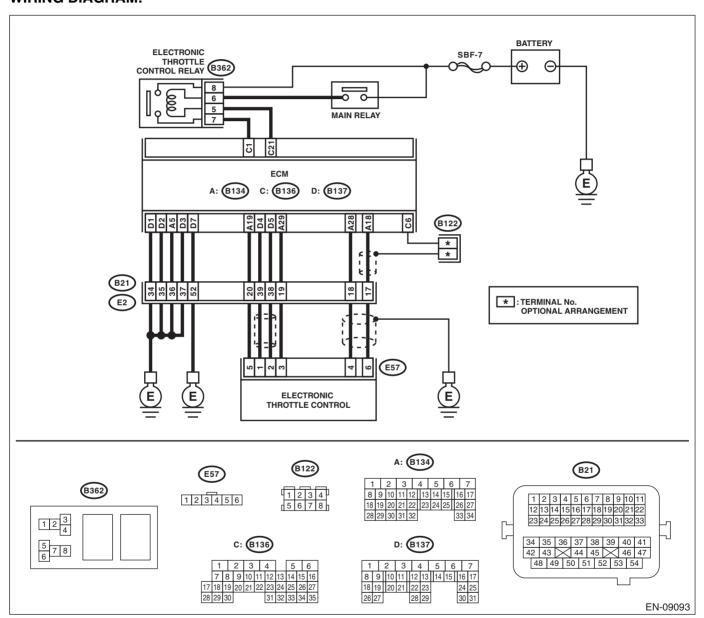
	Step	Check	Yes	No
25	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 26.	Repair the short
	ELECTRONIC THROTTLE CONTROL MO-	ΜΩ?		circuit of harness.
	TOR.			
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>			
	<ol><li>Disconnect the connectors from ECM.</li></ol>			
	3) Measure the resistance between electronic			
	throttle control connector and engine ground.			
	Connector & terminal			
	(E57) No. 2 — Engine ground:			
	(E57) No. 1 — Engine ground:			
26	CHECK ELECTRONIC THROTTLE CON-	Is the resistance more than 1	Go to step 27.	Repair the short
	TROL MOTOR HARNESS.	ΜΩ?		circuit of harness.
	Measure the resistance between electronic			
	throttle control connector terminals.			
	Connector & terminal			
	(E57) No. 2 — (E57) No. 1:			
27	CHECK ELECTRONIC THROTTLE CON-	Is the resistance less than 10	Go to step 28.	Repair the open
	TROL GROUND CIRCUIT.	Ω?		circuit of harness.
	Measure the resistance between ECM connec-			
	tor and chassis ground.			
	Connector & terminal			
	(B134) No. 5 — Chassis ground:			
	(B136) No. 15 — Chassis ground:			
	(B137) No. 1 — Chassis ground:			
	(B137) No. 2 — Chassis ground:			
	(B137) No. 3 — Chassis ground:			
	(B137) No. 7 — Chassis ground:			
28	CHECK ELECTRONIC THROTTLE CON-	Is the resistance 50 $\Omega$ or less?	Go to step 29.	Replace the elec-
	TROL.			tronic throttle con-
	Measure the resistance between electronic			trol.
	throttle control terminals.			
	Terminals			
	No. 1 — No. 2:	Describes well-superior to the	Danish Harris	Davida a dia ad
29	CHECK ELECTRONIC THROTTLE CON-	Does the valve return to the	Repair the poor	Replace the elec-
	TROL.	specified position? Standard	contact of ECM	tronic throttle con-
	Move the throttle valve to the fully open and	value: 3 mm (0.12 in) from fully	connector.	trol.
	fully closed positions with fingers.	closed position	Replace the ECM	
	Check that the valve returns to the specified		if defective. <ref.< td=""><td></td></ref.<>	
	position when releasing fingers.		to FU(H4SO)-36,	
			Engine Control	
			Module (ECM).>	

## DF:DTC P2102 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-215, DTC P2102 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **TROUBLE SYMPTOM:**

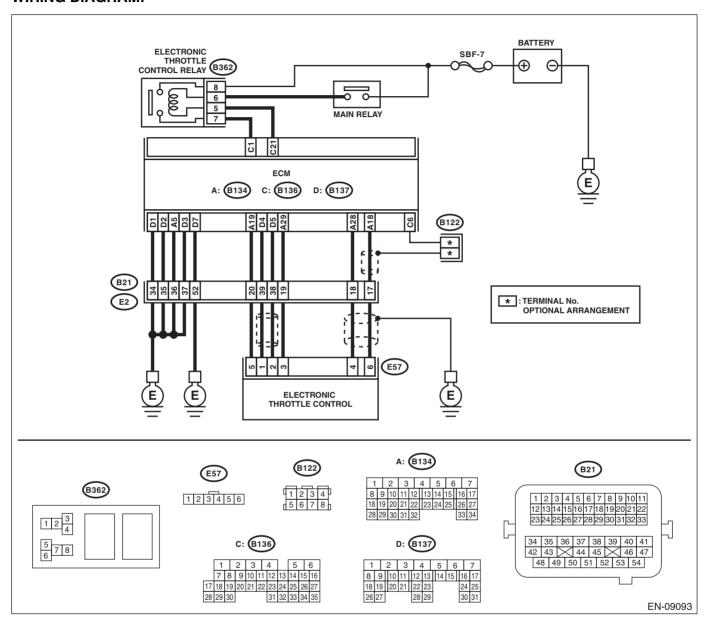
- Erroneous idling
- · Poor driving performance
- Engine stalls.



	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. 5 and No. 6 of electronic throttle control relay.  4) Measure the resistance between electronic throttle control terminals.  Terminals  No. 8 — No. 7:	Is the resistance less than 1 $\Omega$ ?	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  (B362) No. 8 (+) — Chassis ground (-):  (B362) No. 6 (+) — Chassis ground (-):	Is the voltage more than 10 V?		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  (B362) No. 5 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the power supply short circuit of harness between ECM and electronic throttle control relay.	Go to step 4.
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  (B362) No. 5 — Chassis ground:  (B362) No. 7 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step <b>5</b> .	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 — (B362) No. 5: (B136) No. 1 — (B362) No. 7:	Is the resistance less than 1 $\Omega$ ?	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" module="" to=""></ref.>	Repair the open circuit of harness between ECM and electronic throttle control relay.

## DG:DTC P2103 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-217, DTC P2103 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.> WIRING DIAGRAM:



**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 throttle control relay terminals.  Terminals	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 2.	Replace the electronic throttle control relay.
2	No. 8 — No. 7:  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  (B362) No. 7 (+) — Chassis ground (-):	Is the voltage more than 5 V?	Go to step 3.	Repair the power supply short circuit 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 $\mbox{M}\Omega\mbox{?}$	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. to FU(H4SO)-36, Engine Control Module (ECM).&gt;</ref. 	Repair the ground short circuit of har- ness between ECM and elec- tronic throttle con- trol relay.

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

### NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4SO)(diag)-285, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

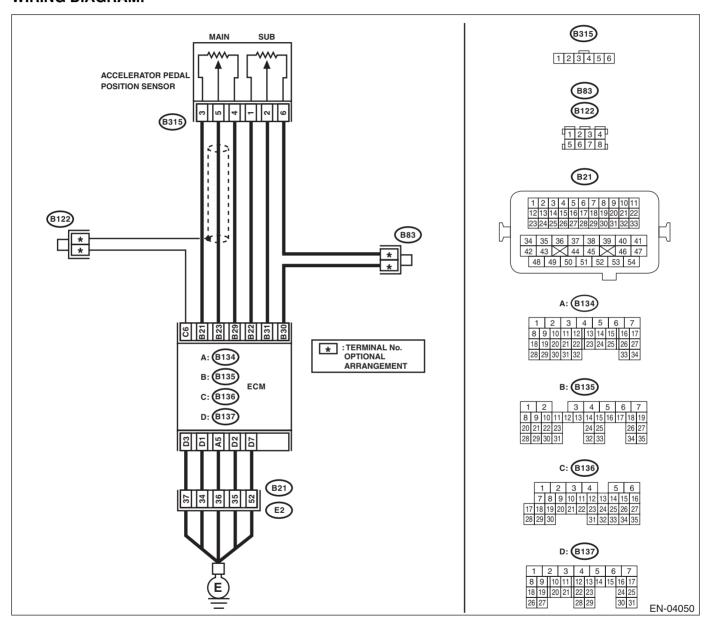
# DI: DTC P2122 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT LOW INPUT

### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-221, 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



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION	Is the voltage more than 0.4 V?		Go to step 3.
	SENSOR OUTPUT.			
	1) Turn the ignition switch to ON.			
	2) Read the data of main accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between	le more poor contact.	contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
	20.11 dina doconorator podda podition donidon			present.
3	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 1	Go to step 4.	Repair the open
1	CELERATOR PEDAL POSITION SENSOR.	$\Omega$ ?	· · ·	circuit of harness
	Turn the ignition switch to OFF.			connector.
	2) Disconnect the connectors from ECM.			
	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. 29 — (B315) No. 4:			
	(B135) No. 31 — (B315) No. 2:			
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. 29 — Chassis ground:			
	(B135) No. 31 — Chassis ground:			
5	CHECK POWER SUPPLY OF ACCELERA-	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair the poor
	TOR PEDAL POSITION SENSOR.			contact of ECM
	1) Connect the ECM connector.			connector.
	2) Turn the ignition switch to ON.			Replace the ECM
	3) Measure the voltage between accelerator			if defective. <ref.< td=""></ref.<>
	pedal position sensor connector and chassis			to FU(H4SO)-36,
	ground.			Engine Control
	Connector & terminal			Module (ECM).>
	(B315) No. 2 (+) — Chassis ground (–):			
6	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 1.2	Go to step 7.	Replace the accel-
	SENSOR.	and 4.8 kΩ?		erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor. <ref.< td=""></ref.<>
	position sensor.			to FU(H4SO)-36,
	Terminals			Engine Control
	No. 2 — No. 3:			Module (ECM).>
7	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.2	Go to step 8.	Replace the accel-
	SENSOR.	and 1.0 kΩ?		erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor. <ref.< td=""></ref.<>
	position sensor.			to FU(H4SO)-36,
	Terminals			Engine Control
	No. 4 — No. 3:			Module (ECM).>
	Check the measured value is within the specifi-			
	cation without depressing the accelerator			
	pedal.			
•				•

	Step	Check	Yes	No
8		Is the resistance between 0.5 and 2.5 k $\Omega$ ?	contact of ECM	Replace the accelerator pedal position sensor.

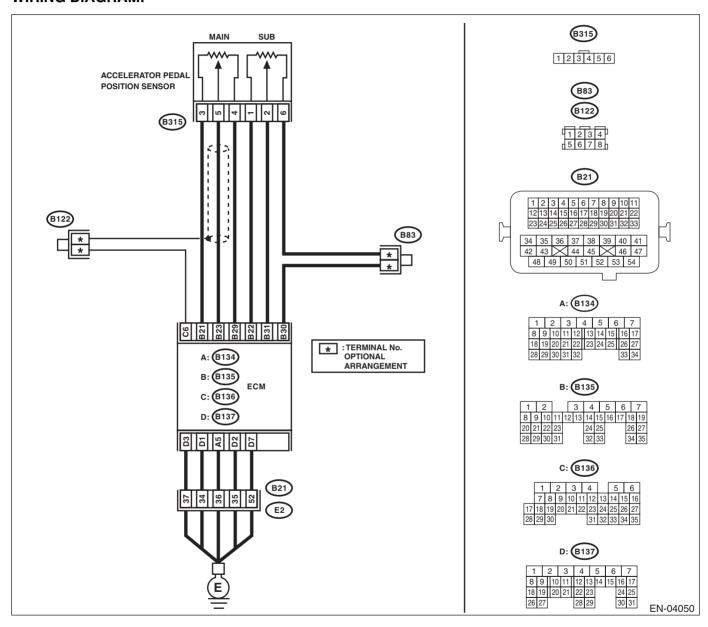
# DJ:DTC P2123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT HIGH INPUT

### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-223, DTC P2123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

### **TROUBLE SYMPTOM:**

- · Erroneous idling
- Poor driving performance



	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.	le are remage rece aran ric ri	G.5 15 515F	Gio to otop o.
	1) Turn the ignition switch to ON.			
	2) Read the data of main accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
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.	$\Omega$ ?		circuit of harness
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>			connector.
	<ol><li>Disconnect the connectors from ECM.</li></ol>			
	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. 3:		_	
4	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 5.	Repair the poor
	CELERATOR PEDAL POSITION SENSOR.	$\Omega$ ?		contact of ECM
	Connect the ECM connector.			connector.
	2) Measure the resistance between accelera-			Replace the ECM
	tor pedal position sensor connector and chas-			if defective. <ref.< td=""></ref.<>
	sis ground.			to FU(H4SO)-36,
	Connector & terminal			Engine Control
5	(B315) No. 3 — Chassis ground:	Is the voltage less than 6 V2	Go to stop 6	Module (ECM).>
5	CHECK HARNESS BETWEEN ECM AND AC- CELERATOR PEDAL POSITION SENSOR.	is the voltage less than 6 V?	Go to step 6.	Repair the battery short circuit of har-
	Connect the ECM connector.			ness between
	<ul><li>2) Turn the ignition switch to ON.</li></ul>			ECM connector
	3) Measure the voltage between accelerator			and accelerator
	pedal position sensor connector and chassis			pedal position sen-
	ground.			sor connector.
	Connector & terminal			331 33111301011
	(B315) No. 4 (+) — Chassis ground (–):			
6	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance more than 1	Repair the poor	Repair the short
	CELERATOR PEDAL POSITION SENSOR.	ΜΩ?	contact of acceler-	circuit to sensor
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>		ator pedal position	power supply.
	2) Disconnect the connectors from ECM.		sensor connector.	
	3) Measure the resistance between ECM con-		Replace the accel-	
	nectors.		erator pedal posi-	
	Connector & terminal		tion sensor if	
	(B135) No. 23 — (B135) No. 21:		defective.	
	(B135) No. 23 — (B135) No. 22:			

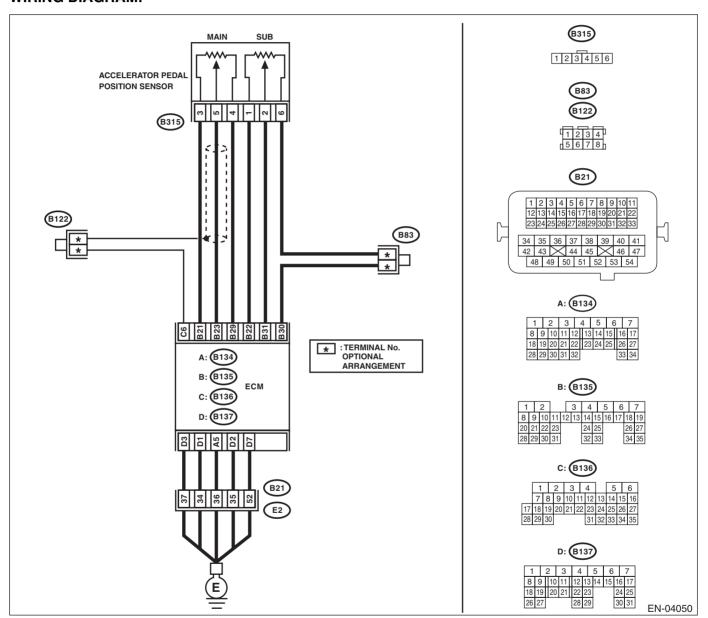
# DK:DTC P2127 THROTTLE/PEDAL POSITION SENSOR/SWITCH "E" CIRCUIT LOW INPUT

### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-225, 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



	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 3.
	Turn the ignition switch to ON.			
	2) Read the data of sub accelerator pedal			
	position sensor signal using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
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
	<ol> <li>Turn the ignition switch to OFF.</li> <li>Disconnect the connectors from ECM.</li> </ol>			connector.
	<ul><li>3) Disconnect the connectors from accelerator</li></ul>			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 31 — (B315) No. 2:			
4	(B135) No. 22 — (B315) No. 1:		0-1	December 1
4	CHECK HARNESS BETWEEN ECM AND AC- CELERATOR PEDAL POSITION SENSOR.	Is the resistance more than 1 $M\Omega$ ?	Go to step 5.	Repair the chassis short circuit of
	Measure the resistance between ECM connec-	IVIS 2 :		harness.
	tor and chassis ground.			namooo.
	Connector & terminal			
	(B135) No. 31 — Chassis ground:			
	(B135) No. 22 — Chassis ground:			
5	CHECK POWER SUPPLY OF ACCELERA- TOR PEDAL POSITION SENSOR.	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair the poor contact of ECM
	1) Connect the ECM connector.			connector.
	2) Turn the ignition switch to ON.			Replace the ECM
	Measure the voltage between accelerator			if defective. <ref.< td=""></ref.<>
	pedal position sensor connector and chassis			to FU(H4SO)-36,
	ground.  Connector & terminal			Engine Control Module (ECM).>
	(B315) No. 1 (+) — Chassis ground (–):			INIOUUIE (ECIVI).>
6	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.75	Go to step 7.	Replace the accel-
	SENSOR.	and 3.15 kΩ?	· ·	erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor.
	position sensor.			
	Terminals			
7	No. 1 — No. 2:  CHECK ACCELERATOR PEDAL POSITION	lo the registeres between 0.15	Co to stop C	Donloce the seed
7	SENSOR.	Is the resistance between 0.15 and 0.63 k $\Omega$ ?	GO 10 SIEP <b>8</b> .	Replace the accelerator pedal posi-
	Measure the resistance of accelerator	4.14 0.00 N22:		tion sensor.
	pedal position sensor.			
	Terminals			
	No. 3 — No. 5:			
	2) Check the measured value is within the			
	specification without depressing the accelera-			
	tor pedal.			

Step	Check	Yes	No
8 CHECK ACCELERATOR PEDAL POSITION SENSOR.  1) Measure the resistance of accelerator pedal position sensor.  Terminals  No. 3 — No. 5:  2) Check the measured value is within the specification with the accelerator pedal	Is the resistance between 0.28 and 1.68 k $\Omega$ ?		Replace the accelerator pedal position sensor.

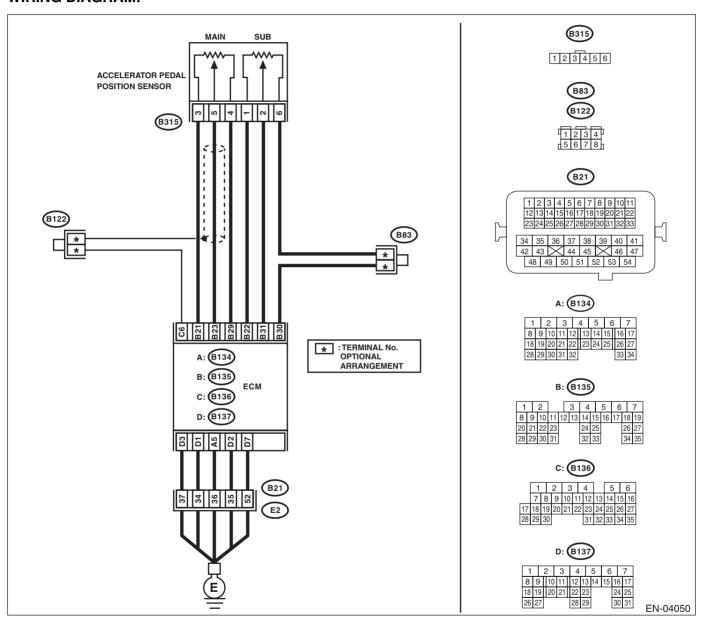
# DL:DTC P2128 THROTTLE/PEDAL POSITION SENSOR/SWITCH "E" CIRCUIT HIGH INPUT

### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-227, 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



	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.	is the voltage less than 4.0 V!	GO TO STEP Z.	αο το στ <del>ο</del> ρ <b>σ</b> .
	Turn the ignition switch to ON.			
	Read the data of sub accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
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
	1) Turn the ignition switch to OFF.			connector.
	Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	<ul><li>pedal position sensor.</li><li>4) Measure the resistance between ECM con-</li></ul>			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 30 — (B315) No. 6:			
4	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 5	Go to step 5.	Repair the poor
	CELERATOR PEDAL POSITION SENSOR.	$\Omega$ ?	он на висрем	contact of ECM
	1) Connect the ECM connector.			connector.
	2) Measure the resistance between accelera-			Replace the ECM
	tor pedal position sensor connector and chas-			if defective. <ref.< th=""></ref.<>
	sis ground.			to FU(H4SO)-36,
	Connector & terminal			Engine Control
	(B315) No. 6 — Chassis ground:		_	Module (ECM).>
5	CHECK HARNESS BETWEEN ECM AND AC-	Is the voltage less than 6 V?	Go to step 6.	Repair the battery
	CELERATOR PEDAL POSITION SENSOR.			short circuit of har-
	<ol> <li>Connect the ECM connector.</li> <li>Turn the ignition switch to ON.</li> </ol>			ness between ECM connector
	<ul><li>2) Turn the ignition switch to ON.</li><li>3) Measure the voltage between accelerator</li></ul>			and accelerator
	pedal position sensor connector and chassis			pedal position sen-
	ground.			sor connector.
	Connector & terminal			CON CONTROCTOR.
	(B315) No. 4 (+) — Chassis ground (–):			
6	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance more than 1	Repair the poor	Repair the short
	CELERATOR PEDAL POSITION SENSOR.	$M\Omega$ ?	contact of acceler-	circuit to sensor
	Turn the ignition switch to OFF.		ator pedal position	power supply.
	Disconnect the connectors from ECM.		sensor connector.	
	3) Measure the resistance between ECM con-		Replace the accel-	
	nectors.		erator pedal posi-	
	Connector & terminal		tion sensor if	
	(B135) No. 31 — (B135) No. 21:		defective.	
	(B135) No. 31 — (B135) No. 22:			

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

### **DTC DETECTING CONDITION:**

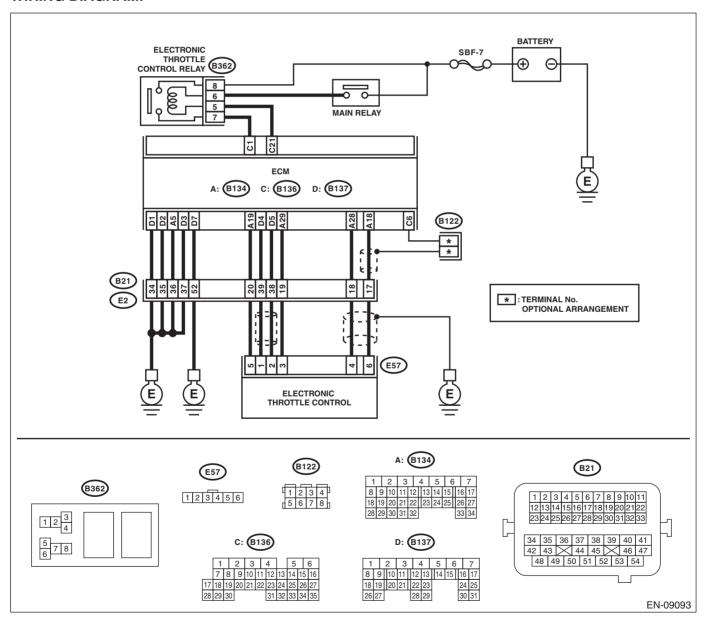
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-229, DTC P2135 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "A"/"B" VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

### TROUBLE SYMPTOM:

- · Erroneous idling
- Poor driving performance

#### **CAUTION:**

After repairing or replacing the defective part, perform 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 4.
	1) Turn the ignition switch to ON.			
	2) Read the data of main throttle sensor signal			
	using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
	tor.>			
2	CHECK SENSOR OUTPUT.	Is the voltage more than 0.8 V?	Go to step 3.	Go to step 4.
	Read the data of sub throttle sensor signal			
	using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4SO)(diag)-26, Subaru Select Moni-			
3	tor.> CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Go to step 14.
	Check poor contact in connector between	no mere poor contact?	contact.	GO 10 3164 14.
	ECM and electronic throttle control.		Johnson.	
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 5.	Repair the open
	ELECTRONIC THROTTLE CONTROL.	$\Omega$ ?	00 to 5top <b>6</b> .	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:			
	(B134) No. 19 — (E57) No. 5:		_	
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:			
	(B134) No. 19 — Chassis ground:			
6	CHECK SENSOR POWER SUPPLY.	Is the voltage 4.5 — 5.5 V?	Go to step 7.	Repair the poor
١	Connect the ECM connector.	in the voltage the old vi	20 to 5top 1.	contact of ECM
	Turn the ignition switch to ON.			connector.
	Measure the voltage between electronic			Replace the ECM
	throttle control connector and engine ground.			if defective. <ref.< td=""></ref.<>
	Connector & terminal			to FU(H4SO)-36,
	(E57) No. 5 (+) — Engine ground (–):			Engine Control
				Module (ECM).>
7	CHECK SHORT CIRCUIT IN ECM.		Go to step 8.	Repair the poor
	<ol> <li>Turn the ignition switch to OFF.</li> </ol>	$\Omega$ ?		contact of ECM
	2) Measure the resistance between electronic			connector.
	throttle control connector and engine ground.			Replace the ECM
	Connector & terminal			if defective. <ref.< td=""></ref.<>
	(E57) No. 6 — Engine ground:			to FU(H4SO)-36,
	(E57) No. 4 — Engine ground:			Engine Control
				Module (ECM).>

	Step	Check	Yes	No
8	CHECK SENSOR OUTPUT.	Is the voltage less than 4.63	Go to step 9.	Go to step 11.
	1) Connect all connectors. 2) Turn the ignition switch to ON. 3) Read the data of main throttle sensor signal using Subaru Select Monitor.  NOTE: Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4SO)(diag)-26, Subaru Select Monitor.	V?		
	tor.>		_	
9	CHECK SENSOR OUTPUT.  Read the data of sub throttle sensor signal using Subaru Select Monitor.  NOTE:  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 less than 4.73 V?	Go to step 10.	Go to step 11.
10	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact in connector between ECM and electronic throttle control.		contact.	contact occurred, but it is normal at present.
11	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. 29 — (E57) No. 3:  (B134) No. 18 — (E57) No. 6:  (B134) No. 28 — (E57) No. 4:	Is the resistance less than 1 $\Omega$ ?	Go to step 12.	Repair the open circuit of harness connector.
12	<ol> <li>Connect the ECM connector.</li> <li>Measure the resistance between electronic throttle control connector and engine ground.</li> <li>Connector &amp; terminal         (E57) No. 3 — Engine ground:     </li> </ol>	Is the resistance less than 5 $\Omega$ ?	Go to step 13.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" module="" to=""></ref.>
13	<ol> <li>ELECTRONIC THROTTLE CONTROL.</li> <li>Connect the ECM connector.</li> <li>Turn the ignition switch to ON.</li> <li>Measure the voltage between electronic throttle control connector and engine ground.</li> <li>Connector &amp; terminal         <ul> <li>(E57) No. 5 (+) — Engine ground (-):</li> </ul> </li> </ol>	Is the voltage less than 10 V?	Go to step 14.	Repair the battery short circuit of harness between ECM connector and electronic throttle control connector.
14	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL.  Measure the voltage between electronic throttle control connector and engine ground.  Connector & terminal  (E57) No. 6 (+) — Engine ground (-):  (E57) No. 4 (+) — Engine ground (-):	Is the voltage less than 10 V?	Go to step 15.	Repair the short circuit of harness between ECM connector and electronic throttle control connector.

	Step	Check	Yes	No
15	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL.  1) Turn the ignition switch to OFF.  2) Disconnect the ECM connector.  3) Measure the resistance between ECM connectors.  Connector & terminal  (B134) No. 18 — (B134) No. 19:  (B134) No. 28 — (B134) No. 19:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 16.	Repair the short circuit to sensor power supply.
16	CHECK ELECTRONIC THROTTLE CONTROL HARNESS.  1) Disconnect the connectors from ECM. 2) Disconnect the connectors from electronic throttle control. 3) Measure the resistance between electronic throttle control connector terminals.  Connector & terminal (E57) No. 6 — (E57) No. 4:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the poor contact of ECM connector. Replace the ECM if defective.	Repair the short circuit of harness.

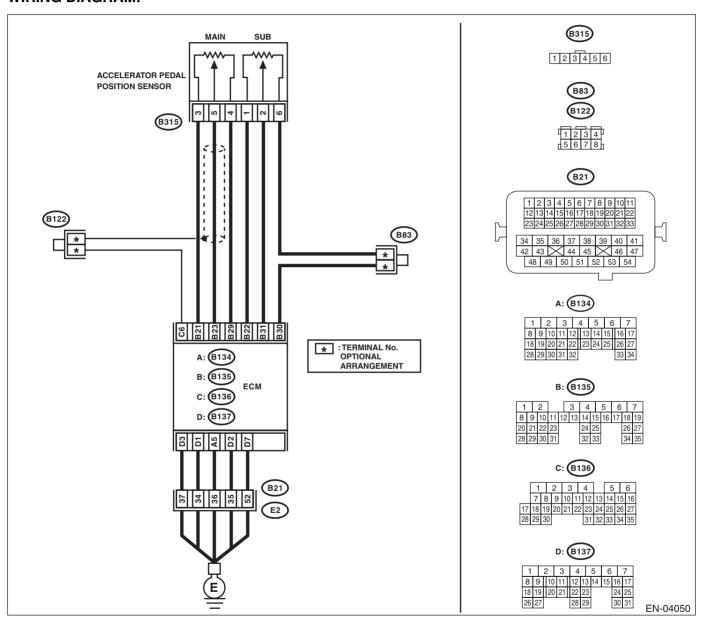
# DN:DTC P2138 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D"/"E" VOLT-AGE CORRELATION

### **DTC DETECTING CONDITION:**

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-231, DTC P2138 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "D"/"E" VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

### TROUBLE SYMPTOM:

- · Erroneous idling
- · Poor driving performance



		+		i
	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.			
	1) 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:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< th=""><th></th><th></th><th></th></ref.<>			
	to EN(H4SO)(diag)-26, Subaru Select Monitor.>			
2	CHECK POOR CONTACT.	ls there peer contact?	Repair the poor	Go to stop 12
-		Is there poor contact?	contact.	Go to step 12.
	Check poor contact of connector between ECM and accelerator pedal position sensor.		COIIIACI.	
3	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 1	Go to step 4.	Repair the open
ا	CELERATOR PEDAL POSITION SENSOR.	$\Omega$ ?	GO TO STEP 4.	circuit of harness
	Turn the ignition switch to OFF.			connector.
	2) Disconnect the connectors from ECM.			
	<ul><li>3) Disconnect the connectors from accelerator</li></ul>			
	pedal position sensor.			
	Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 23 — (B315) No. 5:			
	(B135) No. 21 — (B315) No. 3:			
	(B135) No. 31 — (B315) No. 2:			
	(B135) No. 22 — (B315) No. 1:			
4	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 5.	Repair the ground
	CELERATOR PEDAL POSITION SENSOR.	ΜΩ?		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:			
5	CHECK POWER SUPPLY OF ACCELERA-	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair the poor
ا	TOR PEDAL POSITION SENSOR.	13 the voltage 4.5 - 5.5 v !	ωο το στ <del>ο</del> ρ <b>σ</b> .	contact of ECM
	Connect the ECM connector.			connector.
	Turn the ignition switch to ON.			Replace the ECM
	Measure the voltage between accelerator			if defective. <ref.< th=""></ref.<>
	pedal position sensor connector and engine			to FU(H4SO)-36,
	ground.			Engine Control
	Connector & terminal			Module (ECM).>
	(B315) No. 2 (+) — Engine ground (–):			
	(B315) No. 1 (+) — Engine ground (–):			
6	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 1.2	Go to step 7.	Replace the accel-
	SENSOR.	and 4.8 kΩ?		erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor.
	position sensor.			
	Terminals			
	No. 2 — No. 3:			

	Step	Check	Yes	No
7	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.75	Go to step 8.	Replace the accel-
	SENSOR.	and 3.15 kΩ?		erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor.
	position sensor. <i>Terminals</i>			
	No. 1 — No. 6:			
8	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.2	Go to step 9.	Replace the accel-
	SENSOR.	and $0.8 \text{ k}\Omega$ ?	Go to stop <b>c</b> .	erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor.
	position sensor without depressing the accel-			
	erator pedal.			
	Terminals			
	No. 5 — No. 4:			
9	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.15	Go to step 10.	Replace the accel-
	SENSOR.  Measure the resistance of accelerator pedal	and 0.63 kΩ?		erator pedal posi- tion sensor.
	position sensor without depressing the accel-			tion sensor.
	erator pedal.			
	Terminals			
	No. 2 — No. 6:			
10	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.5	Go to step 11.	Replace the accel-
	SENSOR.	and 2.5 k $\Omega$ ?		erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor.
	position sensor with depressing the accelera-			
	tor pedal. <i>Terminals</i>			
	No. 2 — No. 4:			
11	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.28	Go to sten 12	Replace the accel-
l''	SENSOR.	and 1.68 k $\Omega$ ?	do to step 12.	erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor.
	position sensor with depressing the accelera-			
	tor pedal.			
	Terminals			
	No. 2 — No. 6:			
12	CHECK ACCELERATOR PEDAL POSITION	Is the voltage less than 4.8 V?	Go to step 13.	Go to step 14.
	SENSOR OUTPUT.  1) Turn the ignition switch to OFF.			
	2) Connect all connectors.			
	3) Turn the ignition switch to ON.			
	<ul><li>4) Read the data of main throttle sensor signal</li></ul>			
	and sub accelerator pedal position sensor sig-			
	nal using Subaru Select Monitor.			
13	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Go to step 18.
	Check poor contact of connector between		contact.	
	ECM and accelerator pedal position sensor.			
14	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 15.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.  1) Turn the ignition switch to OFF.	$\Omega$ ?		circuit of harness connector.
	<ul><li>2) Disconnect the connectors from ECM.</li></ul>			COLLIDECTOL.
	<ul><li>a) Disconnect the connectors from accelerator</li></ul>			
	pedal position sensor.			
	Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B135) No. 29 — (B315) No. 4:			
	(B135) No. 30 — (B315) No. 6:			

	Step	Check	Yes	No
15	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. 4 — Chassis ground:  (B315) No. 6 — Chassis ground:	Ω?	Go to step 16.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4so)-36,="" module="" to=""></ref.>
16	CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR.  1) Connect the ECM connector.  2) Turn the ignition switch to ON.  3) Measure the voltage between accelerator pedal position sensor connector and chassis ground.  Connector & terminal  (B315) No. 5 (+) — Chassis ground (-):  (B315) No. 2 (+) — Chassis ground (-):		Go to step 17.	Repair the battery short circuit of harness between ECM connector and accelerator pedal position sensor connector.
17	CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR.  1) Turn the ignition switch to OFF.  2) Disconnect the connectors from ECM.  3) Measure the resistance between ECM connectors.  Connector & terminal  (B135) No. 23 — (B135) No. 21:  (B135) No. 23 — (B135) No. 22:  (B135) No. 31 — (B135) No. 21:  (B135) No. 31 — (B135) No. 22:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 18.	Repair the short circuit to sensor power supply.
18	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  (B315) No. 5 — (B315) No. 2:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the poor contact of ECM connector. Replace the ECM if defective.	Repair the short circuit of harness between ECM connector and accelerator pedal position sensor connector.

**ENGINE (DIAGNOSTICS)** 

## DO:DTC P2227 BAROMETRIC PRESSURE CIRCUIT RANGE/PERFORMANCE DTC DETECTING CONDITION:

- Detected when two consecutive driving cycles with fault occur.
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-233, DTC P2227 BAROMETRIC PRESSURE CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

#### **CAUTION:**

After repairing or replacing the defective part, perform 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	Replace the ECM.
			"List of Diagnostic	<ref. th="" to<=""></ref.>
			Trouble Code	FU(H4SO)-36,
			(DTC)". <ref. th="" to<=""><th>Engine Control</th></ref.>	Engine Control
			EN(H4SO)(diag)-	Module (ECM).>
			70, List of Diag-	
			nostic Trouble	
			Code (DTC).>	

## DP:DTC P2228 BAROMETRIC PRESSURE CIRCUIT LOW DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-234, DTC P2228 BAROMETRIC PRESSURE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

### **CAUTION:**

After repairing or replacing the defective part, perform 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?		Replace the ECM.
		"List of Diagnostic	<ref. th="" to<=""></ref.>
		Trouble Code	FU(H4SO)-36,
		(DTC)". <ref. th="" to<=""><th>Engine Control</th></ref.>	Engine Control
		EN(H4SO)(diag)-	Module (ECM).>
		70, List of Diag-	
		nostic Trouble	
		Code (DTC).>	
		NOTE:	
		It is not necessary	
		to inspect DTC	
		P2228.	

**ENGINE (DIAGNOSTICS)** 

### **DQ:DTC P2229 BAROMETRIC PRESSURE CIRCUIT HIGH**

### DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4SO)-235, DTC P2229 BAROMETRIC PRESSURE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

### **CAUTION:**

After repairing or replacing the defective part, perform 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	Replace the ECM. <ref. to<br="">FU(H4SO)-36, Engine Control</ref.>
				Module (ECM).>
			NOTE: It is not necessary to inspect DTC P2229.	