ENGINE (DIAGNOSTICS)

18. Diagnostic Procedure with Diagnostic Trouble Code (DTC)

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

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-9, DTC P0011 INTAKE CAMSHAFT POSITION TIM-ING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

Step	Check	Yes	No
	Is there any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
 Start the engine and let it idle. Inspect the output of AVCS advance angle 		Check the following item and repair or replace if necessary. Oil pipe (clog) Oil flow control solenoid valve (clog or dirt of oil routing, setting of spring, clog of valve) Intake camshaft (dirt, damage of camshaft) Timing belt (matching of timing mark)	A temporary mal- function. Perform the following, and clean the oil rout- ing. Replace the engine oil and idle the engine for 5 minutes, and then replace the oil filter and engine oil.

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-11, DTC P0021 INTAKE CAMSHAFT POSITION TIMING OVER-ADVANCED OR SYSTEM PERFORMANCE (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

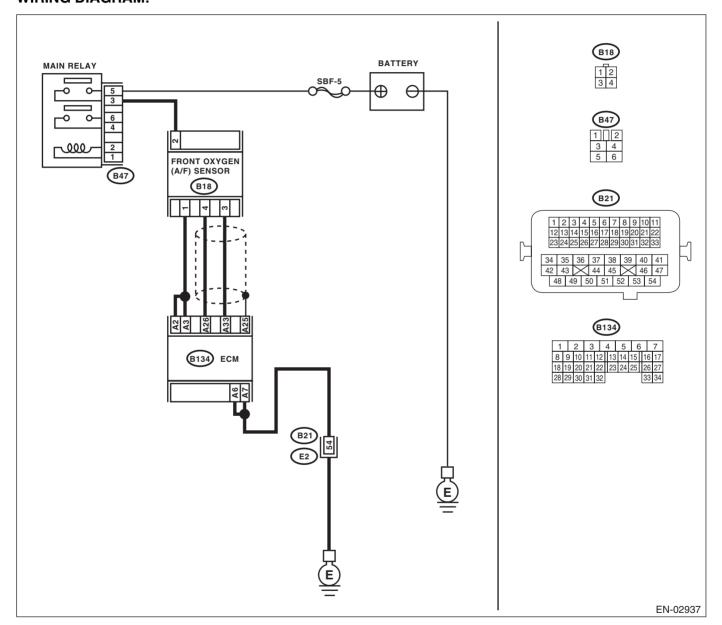
	Step	Check	Yes	No
1 CHECK	ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
1) Start 2) Insperand oil f NOTE: • Subar For det "READ of to EN(H itor.> • Gener For deta	current data. If the engine and let it idle. If the output of AVCS advance angle low control solenoid valve duty. If u Select Monitor tailed operation procedure, refer to CURRENT DATA FOR ENGINE". < Ref. 4DOTC)(diag)-24, Subaru Select Montral scan tool ailed operation procedure, refer to the scan tool operation manual.		Check the following item and repair or replace if necessary. • Engine oil (amount, dirt) • Oil pipe (clog)	A temporary mal- function. Perform the following, and clean the oil rout- ing. Replace the engine oil and idle the engine for 5 minutes, and then replace the oil filter and engine oil.

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-12, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



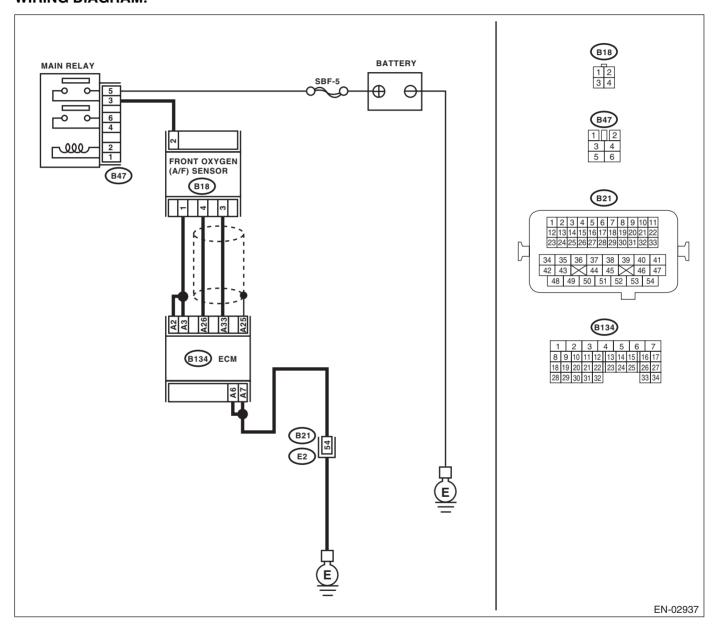
	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 2.	Repair the open
	FRONT OXYGEN (A/F) SENSOR CONNEC-	Ω?		circuit of harness
	TOR.			between ECM and
	Start and warm-up engine. Type the impition switch to OFF.			front oxygen (A/F)
	2) Turn the ignition switch to OFF.3) Disconnect the connectors from ECM and			sensor connector.
	front oxygen (A/F) sensor.			
	4) Measure the resistance of harness			
	between ECM and front oxygen (A/F) sensor			
	connector.			
	Connector & terminal			
	(B134) No. 2 — (B18) No. 1:			
	(B134) No. 3 — (B18) No. 1:			
2	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 3.	Repair the open
-		Ω ?	Go to stop c .	circuit of harness
	TOR.			between ECM and
	Measure the resistance of harness between			front oxygen (A/F)
	ECM and front oxygen (A/F) sensor connector.			sensor connector.
	Connector & terminal			
	(B134) No. 26 — (B18) No. 4:			
	(B134) No. 33 — (B18) No. 3:			
3	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 4.	Repair the open
	FRONT OXYGEN (A/F) SENSOR CONNEC-	Ω?		circuit of harness
	TOR.			between ECM and
	Measure the resistance of harness between			front oxygen (A/F)
	main relay and front oxygen (A/F) sensor con-			sensor connector.
	nector.			
	Connector & terminal			
	(B47) No. 3 — (B18) No. 2:			
4	CHECK FRONT OXYGEN (A/F) SENSOR.	Is the resistance less than 5	Go to step 5.	Replace the front
	, , , , , , , , , , , , , , , , , , ,	Ω?		oxygen (A/F) sen-
	(A/F) sensor connector terminals.			sor. <ref. th="" to<=""></ref.>
	Terminals			FU(H4DOTC)-34,
	No. 1 — No. 2:			Front Oxygen (A/
_	OUTOV DOOD CONTACT	la than a name and a time!	Danaina	F) Sensor.>
5	CHECK POOR CONTACT.	Is there poor contact in the	Repair poor con-	Replace the front
	Check the poor contact of ECM and front oxy-	ECM or front oxygen (A/F) sen-	tact of the ECM or	oxygen (A/F) sen-
	gen (A/F) sensor connector.	sor connector?	front oxygen (A/F)	sor. <ref. th="" to<=""></ref.>
			sensor.	FU(H4DOTC)-34,
				Front Oxygen (A/ F) Sensor.>
				r) Sensor.>

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-14, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



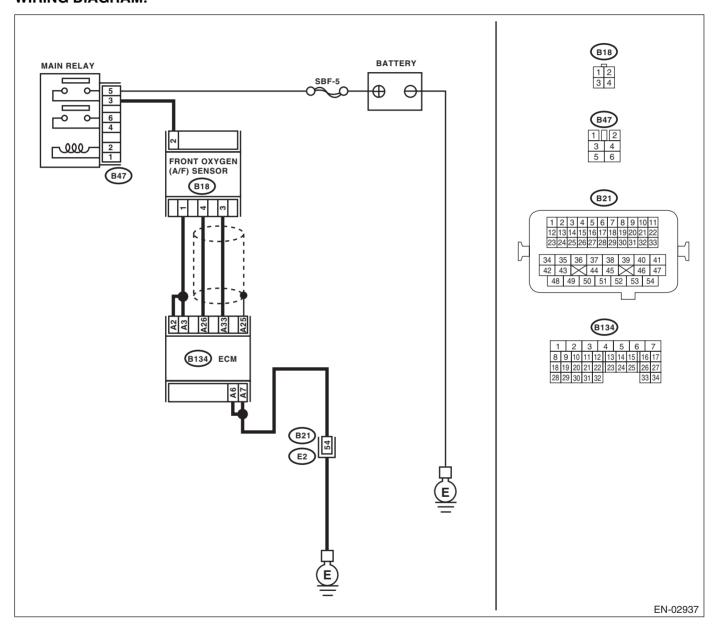
	Step	Check	Yes	No
1	CHECK POWER SUPPLY TO FRONT OXY-GEN (A/F) SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from front oxygen (A/F) sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between front oxygen (A/F) sensor connector and engine ground. Connector & terminal (B18) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 2.	Repair the power supply line. NOTE: In this case, repair the following item: Open circuit of harness between main relay and front oxygen (A/F) sensor connector Poor contact of main relay connector Malfunction in main relay
2	CHECK HARNESS BETWEEN FRONT OXY-GEN (A/F) SENSOR AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance between front oxygen (A/F) sensor connector and ECM connector. Connector & terminal (B18) No. 1 — (B134) No. 2: (B18) No. 1 — (B134) No. 3:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between ECM and front oxygen (A/F) sensor.
3	CHECK HARNESS BETWEEN FRONT OXY- GEN (A/F) SENSOR AND ECM. Measure the resistance between ECM connector and chassis ground. Connector & terminal (B134) No. 2 — Chassis ground: (B134) No. 3 — Chassis ground:	ΜΩ?	Go to step 4.	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor.
4	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. 1 — No. 2:	Is the resistance 2.4 Ω ?	Repair the poor contact of ECM connector.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4DOTC)-34, Front Oxygen (A/ F) Sensor.></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(H4DOTC)-16, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



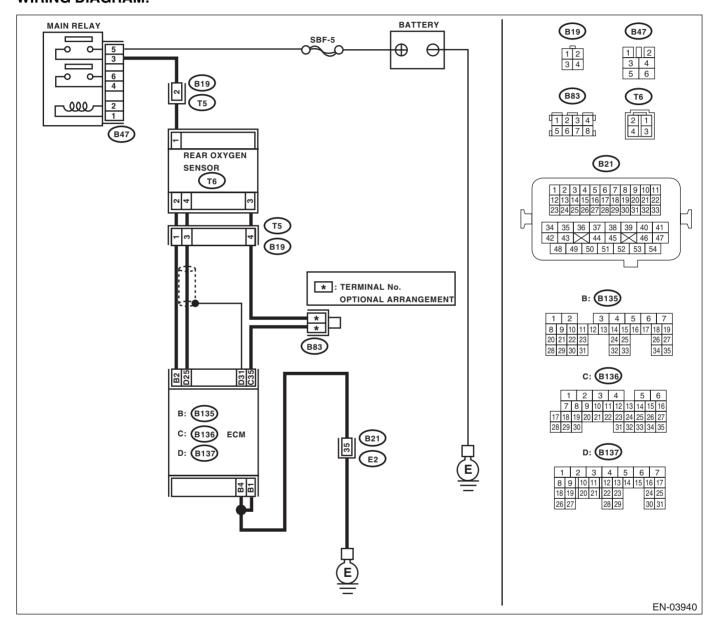
	Step	Check	Yes	No
1	CHECK GROUND CIRCUIT FOR ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance between ECM connector and chassis ground. Connector & terminal (B134) No. 6 — Chassis ground: (B136) No. 7 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 2.	Repair the open circuit of harness between ECM connector and chassis ground.
2	CHECK THE VOLTAGE BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B137) No. 2 (+) — Chassis ground (-): (B137) No. 3 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.	

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-18, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK GROUND CIRCUIT FOR ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B135) No. 1 — Chassis ground: (B135) No. 4 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 2.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM and engine ground cable Poor contact in ECM connector Poor contact of coupling connector
3	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR. 1) Disconnect the connector from the rear oxygen sensor. 2) Measure the resistance between ECM connector and chassis ground. Connector & terminal (B135) No. 2 — Chassis ground: CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR. Measure the resistance between ECM connector and chassis ground.	Is the resistance more than 1 $\mbox{M}\Omega ?$ Does the resistance change when shaking the ECM harness and connector?	Repair the poor contact of ECM connector.	Repair the ground short circuit of harness between ECM and rear oxygen sensor. Go to step 4.
	Connector & terminal			
4	CHECK POWER SUPPLY TO REAR OXYGEN SENSOR. 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and chassis ground. Connector & terminal (T6) No. 1 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 5.	Repair the power supply line. NOTE: In this case, repair the following item: • Open circuit in harness between main relay and rear oxygen sensor connector • Poor contact in main relay connector • Poor contact of coupling connector • Malfunction in main relay

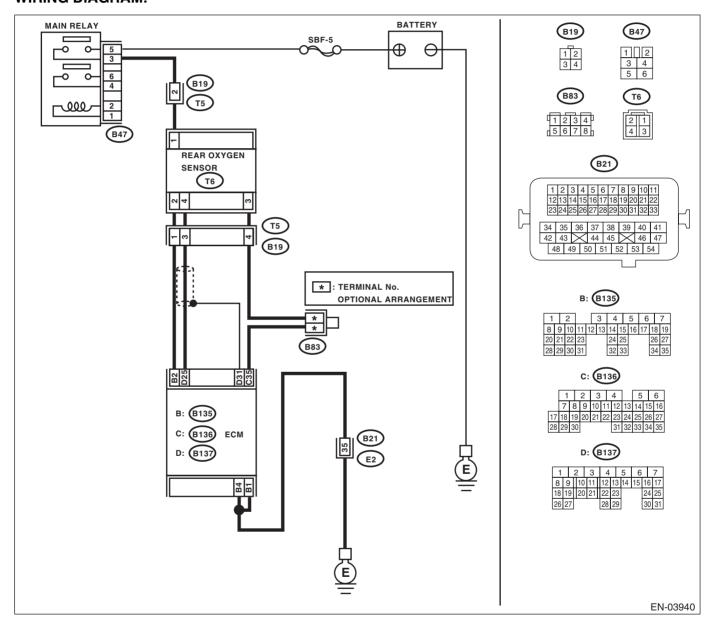
	Step	Check	Yes	No
5	CHECK REAR OXYGEN SENSOR.	Is the resistance less than 30	Repair the har-	Replace the rear
	 Turn the ignition switch to OFF. 	Ω ?	ness and connec-	oxygen sensor.
	2) Measure the resistance between the rear		tor.	<ref. th="" to<=""></ref.>
	oxygen sensor connector terminals.			FU(H4DOTC)-36,
	Terminals		In this case, repair	Rear Oxygen Sen-
	No. 1 — No. 2:		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	
			 Poor contact of 	
			coupling connector	

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-20, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK GROUND CIRCUIT FOR ECM.	Is the resistance less than 5	Go to step 2.	Repair the har-
	 Turn the ignition switch to OFF. 	Ω ?		ness and connec-
	Disconnect the connectors from ECM.			tor.
	Measure the resistance of harness			NOTE:
	between ECM connector and chassis ground.			In this case, repair
	Connector & terminal			the following item:
	(B135) No. 4 — Chassis ground:			 Open circuit of
	(B135) No. 1 — Chassis ground:			harness between
				ECM and engine
				ground cable
				 Poor contact in
				ECM connector
				 Poor contact of
				coupling connector
2	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 10 V?	Repair the battery	Repair the poor
	REAR OXYGEN SENSOR.		short circuit of har-	contact of ECM
	Measure the voltage between ECM and chas-		ness between	connector.
	sis ground.		ECM and rear oxy-	
	Connector & terminal		gen sensor.	
	(B135) No. 2 (+) — Chassis ground (–):			

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

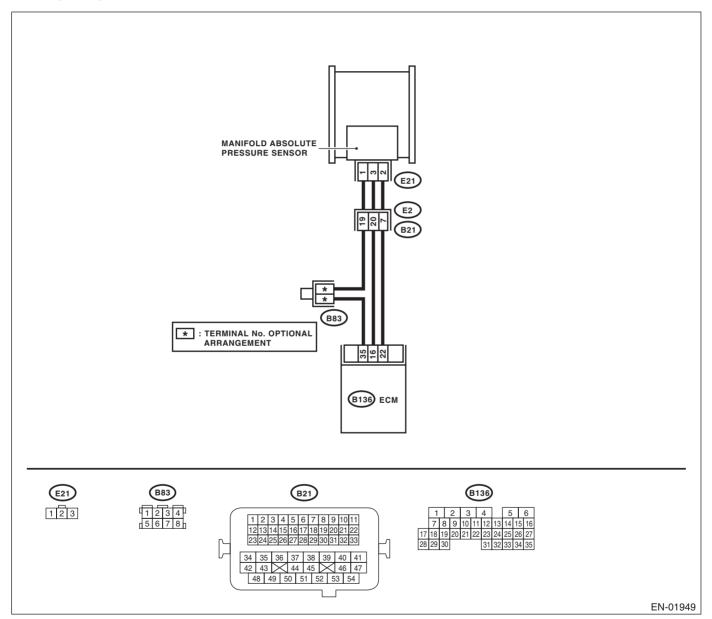
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-22, DTC P0068 MAP/MAF THROTTLE POSITION CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Failure of engine to start

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK IDLE SWITCH SIGNAL. 1) Turn the ignition switch to ON. 2) Operate the LED operation mode for engine using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>	Does the LED of {Idle Switch Signal} come on?	Go to step 2.	Check the throttle position sensor circuit. <ref. "a"="" "b"="" (dtc).="" -310,="" code="" correlation,="" diagnostic="" dtc="" en(h4dotc)(diag)="" p2135="" pedal="" position="" procedure="" sensor="" switch="" throttle="" to="" trouble="" voltage="" with=""> NOTE: In this case, it is not necessary to inspect DTC P0106.</ref.>
2	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the relative DTC. "List of Diagnostic Trouble Code (DTC)" < Ref. to EN(H4DOTC) (diag)-68, List of Diagnostic Trouble Code (DTC).> NOTE: In this case, it is not necessary to inspect DTC P0106.	Go to step 3.
3	CHECK CONDITION OF MANIFOLD ABSO- LUTE PRESSURE SENSOR.	Is the manifold absolute pres- sure sensor installation bolt tightened securely?	Go to step 4.	Securely tighten the manifold abso- lute pressure sen- sor installation bolt.
4	CHECK CONDITION OF THROTTLE BODY.	Is the throttle body installation bolt tightened securely?	Replace the manifold absolute pressure sensor. <ref. absolute="" fu(h4dotc)-27,="" manifold="" pressure="" sensor.="" to=""></ref.>	Tighten the throttle body installation bolt securely.

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

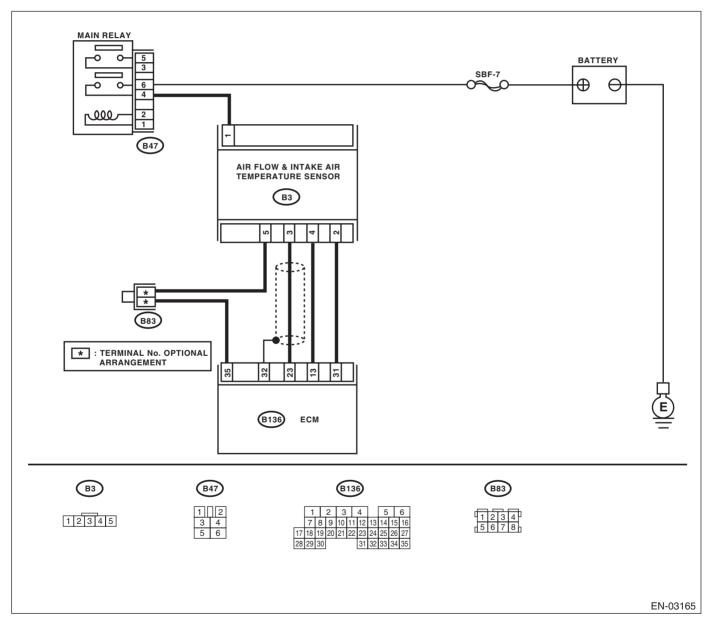
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-24, DTC P0101 MASS OR VOLUME AIR FLOW CIR-CUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appro-	Replace the mass
		priate DTC using	air flow and intake
		the "List of Diag-	air temperature
		nostic Trouble	sensor. <ref. th="" to<=""></ref.>
		Code (DTC)".	FU(H4DOTC)-26,
		<ref. th="" to<=""><th>Mass Air Flow and</th></ref.>	Mass Air Flow and
		EN(H4DOTC)(diag)	Intake Air Temper-
		-68, List of Diag-	ature Sensor.>
		nostic Trouble	
		Code (DTC).>	
		NOTE:	
		In this case, it is	
		not necessary to	
		inspect DTC P0101.	

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

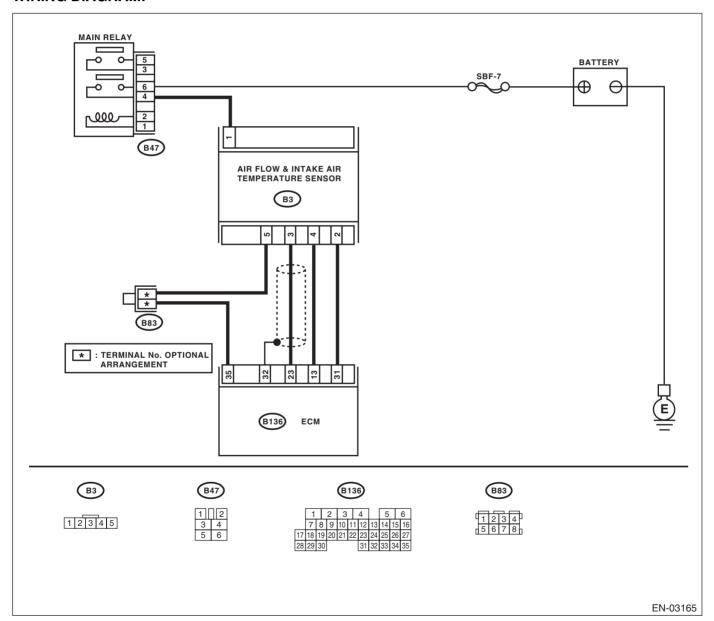
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-27, DTC P0102 MASS OR VOLUME AIR FLOW CIR-CUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.

TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CONNECT SUBARU SELECT MONITOR OR	Is the voltage 0.2 — 4.7 V?	Even if the mal-	Go to step 2.
	THE GENERAL SCAN TOOL, AND READ		function indicator	·
	THE DATA.		light illuminates,	
	 Turn the ignition switch to OFF. 		the circuit has	
	2) Connect the Subaru Select Monitor to the		returned to a nor-	
	data link connector.		mal condition at	
	3) Turn the ignition switch to ON, and the Sub-		this time.Tempo-	
	aru Select Monitor power switch to ON.		rary poor contact	
	Start and idle the engine.		of connector or	
	5) Read the mass air flow sensor voltage		harness may be	
	using Subaru Select Monitor or general scan		the cause. Repair	
	tool.		the harness or	
	NOTE:		connector in mass	
	Subaru Select Monitor		air flow sensor.	
	For detailed operation procedure, refer to		NOTE:	
	"READ CURRENT DATA FOR ENGINE". < Ref.		In this case, repair	
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-		the following item:	
	itor.> • General scan tool		 Open or ground short circuit of har- 	
	For detailed operation procedure, refer to the		ness between mass	
	general scan tool operation manual.		air flow sensor and	
	general scan tool operation manual.		ECM connector	
	·		Poor contact of	
	·		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			
	(B136) No. 23 (+) — Chassis ground (–):			
3	CHECK INPUT SIGNAL FOR ECM (USING	Does the voltage change by	Repair the poor	Replace and
	SUBARU SELECT MONITOR).	shaking the harness and con- nector of the ECM while moni-	contact of ECM	inspect again
	Measure the voltage between ECM connector and chassis ground while engine is idling.	toring the value with Subaru	connector.	because ECM may be faulty.
	and chassis ground write engine is failing.	Select Monitor?		be laulty.
4	CHECK POWER SUPPLY TO MASS AIR	Is the voltage more than 10 V?	Go to step 5.	Repair the open
	FLOW SENSOR.	in the second se	S. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2. 2.	circuit between
	1) Turn the ignition switch to OFF.			mass air flow sen-
	2) Disconnect the connector from mass air			sor and main relay.
	flow sensor.			
	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 (-):		0 1 1 2	D : "
5		Is the resistance less than 1 Ω ?	Go to step 6.	Repair the open
		22:		circuit between ECM and mass air
	 Turn the ignition switch to OFF. Disconnect the connectors from ECM. 			flow sensor con-
	Disconnect the connectors from ECM. Measure the resistance of harness			nector.
	between ECM and mass air flow sensor con-			nicoloi.
	nector.			
	Connector & terminal			
	(B136) No. 23 — (B3) No. 3:			
	(B136) No. 31 — (B3) No. 2:			
	(B136) No. 35 — (B3) No. 5:			
	(= 100) 110: 00 (50) 110: 0:			

	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 (B136) No. 23 — Chassis ground: (B136) No. 31 — Chassis ground: (B136) No. 35 — Chassis ground:	Is the resistance more than 1 M Ω ?	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(H4DOTC)-26, Mass Air Flow and Intake Air Temper- ature Sensor.></ref.>

ENGINE (DIAGNOSTICS)

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

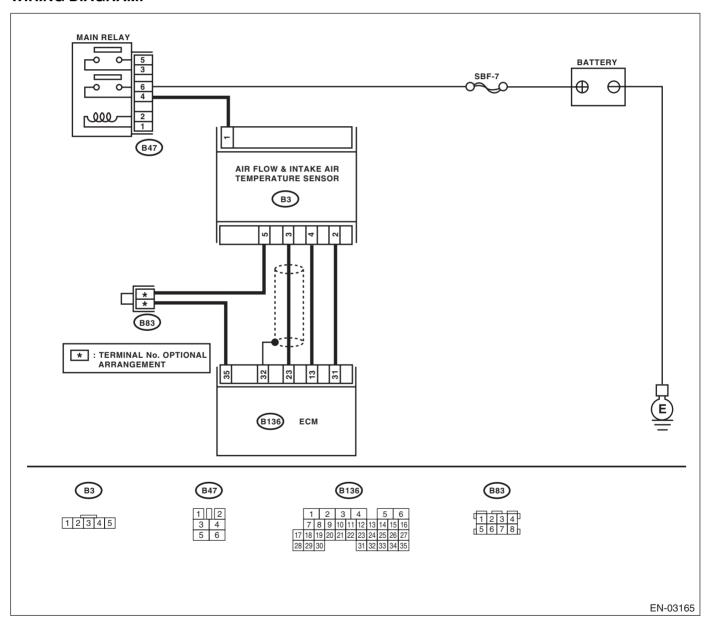
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-29, DTC P0103 MASS OR VOLUME AIR FLOW CIR-CUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CONNECT SUBARU SELECT MONITOR OR THE GENERAL SCAN TOOL, AND READ THE DATA. 1) Turn the ignition switch to OFF. 2) Connect the Subaru Select Monitor to the data link connector. 3) Turn the ignition switch to ON, and the Subaru Select Monitor power switch to ON. 4) Start and idle the engine. 5) Read the mass air flow sensor voltage using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4dotc)(diag)-24,="" 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 — (B136) No. 31:	Is the resistance less than 1 Ω ?	Replace the mass air flow sensor. <ref. to<br="">FU(H4DOTC)-26, Mass Air Flow and Intake Air Temper- ature Sensor.></ref.>	Repair the open circuit of harness between mass air flow sensor connector and ECM connector.

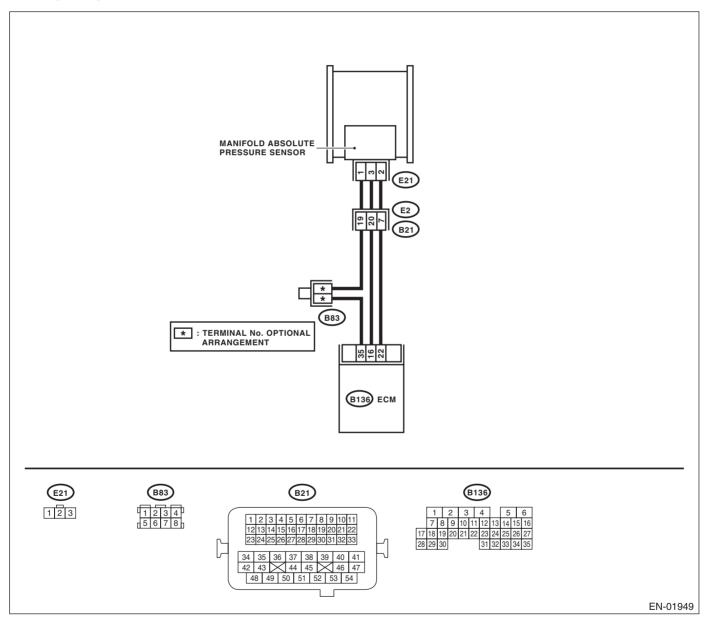
L: DTC P0107 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-31, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 4.5 V?		Go to step 2.
	Measure the voltage between ECM connector	lo trio voltago more triari 1.0 v .	Go to stop G.	Go to stop 2.
	and chassis ground.			
	Connector & terminal			
	(B136) No. 16 (+) — Chassis ground (–):			
2	CHECK INPUT SIGNAL OF ECM.	Does the voltage change when	Repair the poor	Replace the ECM.
-	Measure the voltage between ECM connector	shaking the harness and con-	contact of ECM	<ref. td="" to<=""></ref.>
	and chassis ground.	nector of the ECM while moni-	connector.	FU(H4DOTC)-38,
	Connector & terminal	toring the value with a voltage	COTTILECTOL.	Engine Control
	(B136) No. 16 (+) — Chassis ground (–):	meter?		Module (ECM).>
3	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.7 V?	Go to step 4.	Replace the ECM.
١	Measure the voltage between ECM and chas-	is the voltage less than 0.7 v:	do lo slep 4.	Ref. to
				FU(H4DOTC)-38,
	sis ground. Connector & terminal			, ,
				Engine Control
4	(B136) No. 22 (+) — Chassis ground (-): CHECK HARNESS BETWEEN ECM AND		0-15	Module (ECM).>
4	MANIFOLD ABSOLUTE PRESSURE SEN-	Is the voltage more than 4.5 V?	Go to step 5 .	Repair the open
	SOR CONNECTOR.			circuit of harness between ECM and
	Turn the ignition switch to OFF.			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 (-):		0 1 1 0	D : "
5	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 6.	Repair the open
	MANIFOLD ABSOLUTE PRESSURE SEN-	Ω ?		circuit of harness
	SOR CONNECTOR.			between ECM and
	Turn the ignition switch to OFF.			manifold absolute
	2) Disconnect the connectors from ECM.			pressure sensor
	3) Measure the resistance of harness			connector.
	between ECM and manifold absolute pressure			
	sensor connector.			
	Connector & terminal			
C	(B136) No. 35 — (E21) No. 1:	la tha wasistawaa waaya thay 1	Co to oton 7	Danair areas and
6	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 7.	Repair ground
	MANIFOLD ABSOLUTE PRESSURE SEN- SOR CONNECTOR.	ΜΩ?		short circuit of har- ness between
	Measure the resistance of harness between			ECM and mani-
	manifold absolute pressure sensor connector			fold absolute pres-
	and engine ground.			sure sensor
	Connector & terminal			connector.
7	(E21) No. 1 — Engine ground:	le there need contact in magni	Donoir the reser	Donland the meet
7	CHECK POOR CONTACT.	Is there poor contact in mani-	Repair the poor	Replace the mani-
	Check poor contact of manifold absolute pres-	fold absolute pressure sensor		fold absolute pres-
	sure sensor connector.	connector?	absolute pressure	sure sensor. <ref.< td=""></ref.<>
			sensor connector.	to FU(H4DOTC)-
				27, Manifold Abso-
				lute Pressure Sen-
				sor.>

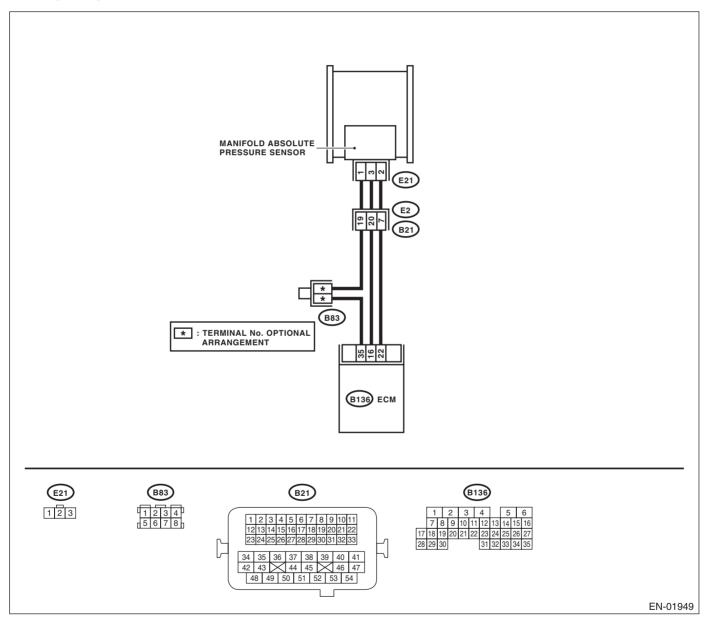
M: DTC P0108 MANIFOLD ABSOLUTE PRESSURE/BAROMETRIC PRESSURE CIRCUIT HIGH INPUT

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-33, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 4.5 V?		Go to step 2.
	Measure the voltage between ECM connector	le me remage mere man ne r	GIO TO GIOP C.	G.0 10 010p
	and chassis ground.			
	Connector & terminal			
	(B136) No. 16 (+) — Chassis ground (–):			
2	CHECK INPUT SIGNAL OF ECM.	Does the voltage change when	Repair the poor	Replace the ECM.
	Measure the voltage between ECM connector	shaking the harness and con-	contact of ECM	<ref. td="" to<=""></ref.>
	and chassis ground.	nector of the ECM while moni-	connector.	FU(H4DOTC)-38,
	Connector & terminal	toring the value with a voltage		Engine Control
	(B136) No. 16 (+) — Chassis ground (–):	meter?		Module (ECM).>
3	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 4.5 V?	Go to sten 4	Replace the ECM.
	Measure the voltage between ECM connector	le the veltage mere than he v.	GO TO GLOP II	<ref. td="" to<=""></ref.>
	and chassis ground.			FU(H4DOTC)-38,
	Connector & terminal			Engine Control
	(B136) No. 22 (+) — Chassis ground (-):			Module (ECM).>
4	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to sten 5	Repair the open
	MANIFOLD ABSOLUTE PRESSURE SEN-	is the voltage more than 4.5 v:	αο το στερ 3 .	circuit of harness
	SOR CONNECTOR.			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.			COTHICOTOR.
	Measure the voltage between manifold			
	absolute pressure sensor connector and			
	engine ground.			
	Connector & terminal			
	(E21) No. 3 (+) — Engine ground (–):			
5	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 6.	Repair the open
	MANIFOLD ABSOLUTE PRESSURE SEN-	Ω ?	'	circuit of harness
	SOR CONNECTOR.			between ECM and
	 Turn the ignition switch to OFF. 			manifold absolute
	2) Disconnect the connectors from ECM.			pressure sensor
	3) Measure the resistance of harness			connector.
	between ECM and manifold absolute pressure			
	sensor connector.			
	Connector & terminal			
	(B136) No. 22 — (E21) No. 2:			
6	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 7.	Repair the open
	MANIFOLD ABSOLUTE PRESSURE SEN-	Ω?	-	circuit of harness
	SOR CONNECTOR.			between ECM and
	Measure the resistance of harness between			manifold absolute
	ECM and manifold absolute pressure sensor			pressure sensor
	connector.			connector.
	Connector & terminal			
	(B136) No. 35 — (E21) No. 1:			
7	CHECK POOR CONTACT.	Is there poor contact in mani-	Repair the poor	Replace the mani-
	Check poor contact of manifold absolute pres-	fold absolute pressure sensor	contact of manifold	fold absolute pres-
	sure sensor connector.	connector?	absolute pressure	sure sensor. <ref.< td=""></ref.<>
			sensor connector.	to FU(H4DOTC)-
				27, Manifold Abso-
				lute Pressure Sen-
				sor.>

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

DTC DETECTING CONDITION:

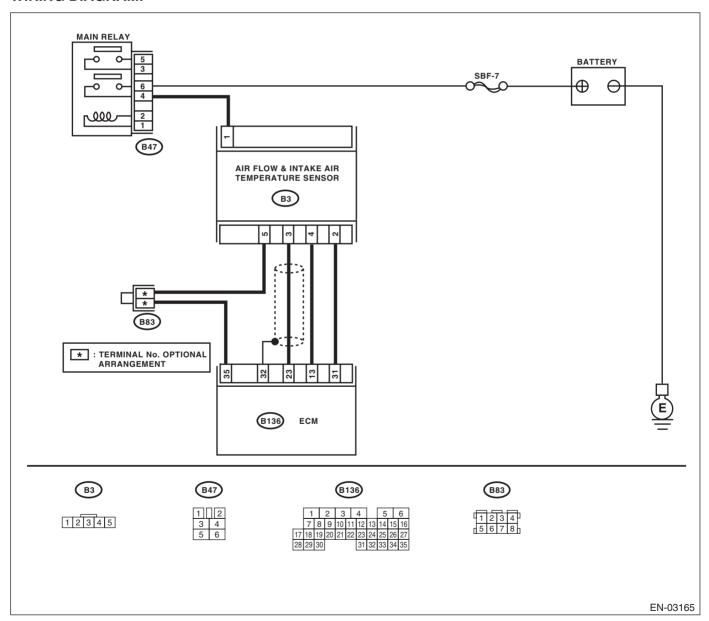
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-35, DTC P0111 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0111.</ref.>	Go to step 2.
2	CHECK ENGINE COOLANT TEMPERATURE. 1) Start the engine and warm-up completely. 2) Measure the engine coolant temperature using the Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Replace the mass air flow and intake air temperature sensor. <ref. to<br="">FU(H4DOTC)-26, Mass Air Flow and Intake Air Temper- ature Sensor.></ref.>	using "List of Diag- nostic Trouble Code (DTC)." <ref. th="" to<=""></ref.>

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

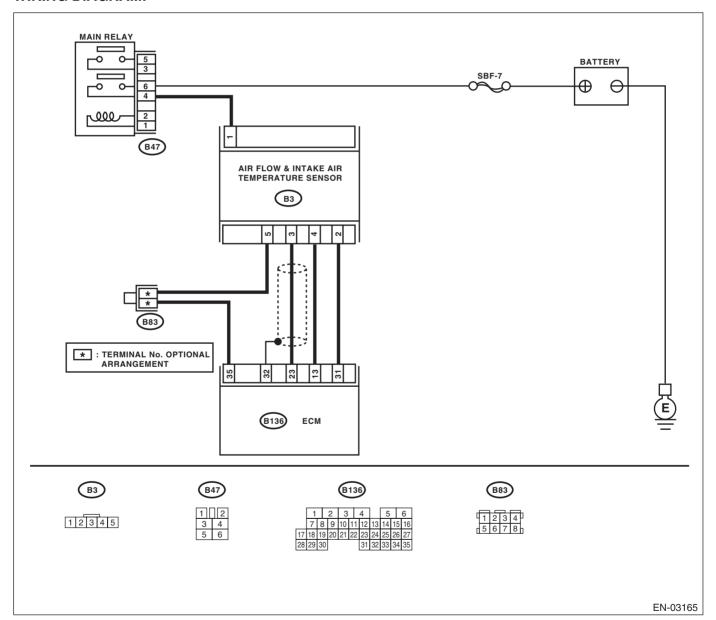
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-37, DTC P0112 INTAKE AIR TEMPERATURE SEN-SOR 1 CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the temperature above 55°C (131°F)?	Go to step 2.	Repair the poor contact. NOTE: In this case, repair the following item: • Poor contact of mass air flow and intake air temperature sensor • Poor contact in ECM • Poor contact of joint connector
2	CHECK HARNESS BETWEEN MASS AIR FLOW AND INTAKE AIR TEMPERATURE SENSOR AND THE ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the mass air flow and 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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the temperature less than – 36°C (–33°F)?	Replace the mass air flow and intake air temperature sensor. <ref. air="" and="" flow="" fu(h4dotc)-26,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>	Repair the ground short circuit of the harness between the mass air flow and intake air temperature sensor and ECM connector.

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

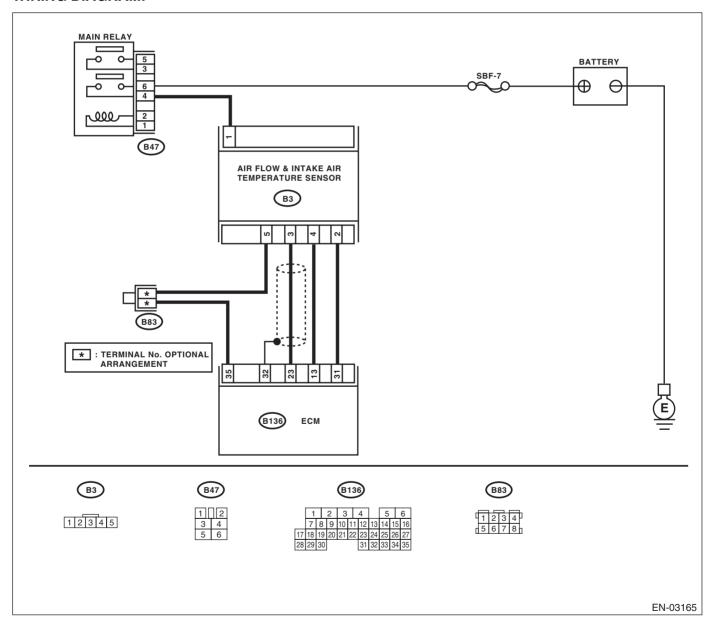
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-39, DTC P0113 INTAKE AIR TEMPERATURE SENSOR 1 CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	01		V	
1	Step	Check	Yes	No Denois the poor
1	CHECK CURRENT DATA. 1) Start the engine.	Is the temperature less than – 36°C (–33°F)?	Go to step 2.	Repair the poor contact.
	2) Read the data of intake air temperature	30 C (-33 F):		
	sensor signal using Subaru Select Monitor or			NOTE: In this case, repair
	general scan tool.			the following item:
	NOTE:			Poor contact of
	Subaru Select Monitor			mass air flow and
	For detailed operation procedure, refer to			intake air tempera-
	"READ CURRENT DATA FOR ENGINE". < Ref.			ture sensor
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-			 Poor contact in
	itor.>			ECM
	General scan tool			 Poor contact of
	For detailed operation procedure, refer to the			joint connector
	general scan tool operation manual.			
2	CHECK HARNESS BETWEEN MASS AIR	Is the voltage more than 10 V?	Repair the battery	Go to step 3.
	FLOW AND INTAKE AIR TEMPERATURE		short circuit of the	
	SENSOR AND THE ECM CONNECTOR.		harness between	
	1) Turn the ignition switch to OFF.		mass air flow and	
	2) Disconnect the connector from the mass air		intake air tempera-	
	flow and intake air temperature sensor.		ture sensor, and the ECM connec-	
	3) Measure the voltage between the mass air			
	flow and intake air temperature sensor connectors and engine ground.		tor.	
	Connector & terminal			
	(B3) No. 4 (+) — Engine ground (–):			
3	CHECK HARNESS BETWEEN MASS AIR	Is the voltage more than 10 V?	Repair the battery	Go to step 4.
	FLOW AND INTAKE AIR TEMPERATURE	le are remage mere anam re r r	short circuit of the	G.5 15 515p 11
	SENSOR AND THE ECM CONNECTOR.		harness between	
	1) Turn the ignition switch to ON.		mass air flow and	
	2) Measure the voltage between the mass air		intake air tempera-	
	flow and intake air temperature sensor connec-		ture sensor, and	
	tors and engine ground.		the ECM connec-	
	Connector & terminal		tor.	
	(B3) No. 4 (+) — Engine ground (–):			
4	CHECK HARNESS BETWEEN MASS AIR	Is the voltage more than 4 V?	Go to step 5.	Repair the har-
	FLOW AND INTAKE AIR TEMPERATURE			ness and connec-
	SENSOR AND THE ECM CONNECTOR. Measure the voltage between the mass air flow			tor.
	and intake air temperature sensor connectors			NOTE:
	and engine ground.			In this case, repair the following item:
	Connector & terminal			Open circuit be-
	(B3) No. 4 (+) — Engine ground (–):			tween mass air
	· / · · · · · · · · · · · · · · · · · ·			flow and intake air
				temperature sen-
				sor and ECM con-
				nector.
				 Poor contact of
				mass air flow and
				intake air tempera-
				ture sensor
				Poor contact in
				ECM
				Poor contact of
				joint connector

	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN MASS AIR	Is the resistance less than 5	Replace the mass	Repair the har-
	FLOW AND INTAKE AIR TEMPERATURE	Ω ?	air flow and intake	ness and connec-
	SENSOR AND THE ECM CONNECTOR.		air temperature	tor.
	 Turn the ignition switch to OFF. 		sensor. <ref. th="" to<=""><th>NOTE:</th></ref.>	NOTE:
	Measure the resistance of harness		FU(H4DOTC)-26,	In this case, repair
	between mass air flow and intake air tempera-			the following item:
	ture sensor and engine ground.		Intake Air Temper-	 Open circuit be-
	Connector & terminal		ature Sensor.>	tween mass air
	(B3) No. 5 — Engine ground:			flow and intake air
				temperature sen-
				sor and ECM con-
				nector.
				 Poor contact of
				mass air flow and
				intake air tempera-
				ture sensor
				 Poor contact in
				ECM
				 Poor contact of
				joint connector

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

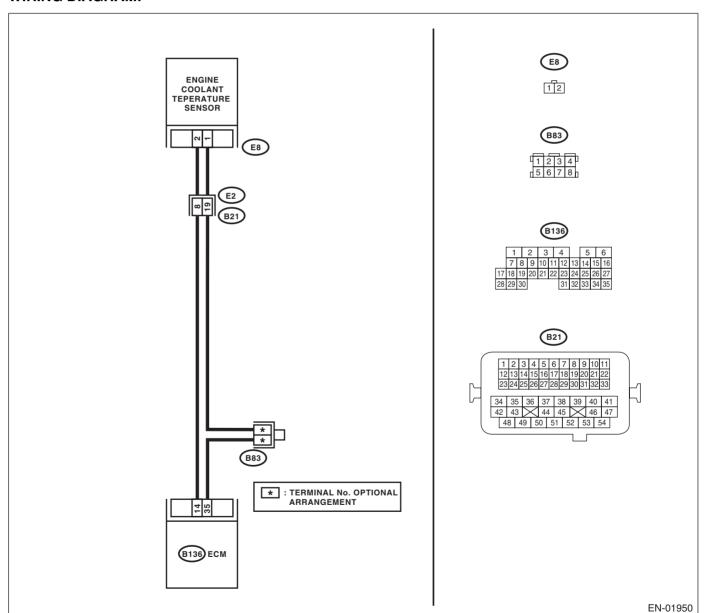
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-41, DTC P0117 ENGINE COOLANT TEMPERATURE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the temperature above 120°C (248°F)?	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 joint connector
2	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the engine coolant temperature sensor. 3) Turn the ignition switch to ON. 4) Read the data of engine coolant temperature sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the engine coolant temperature less than -40°C (-40°F)?	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4dotc)-21,="" sensor.="" temperature="" to=""></ref.>	Repair the ground short circuit of harness between engine coolant temperature sensor and ECM connector.

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

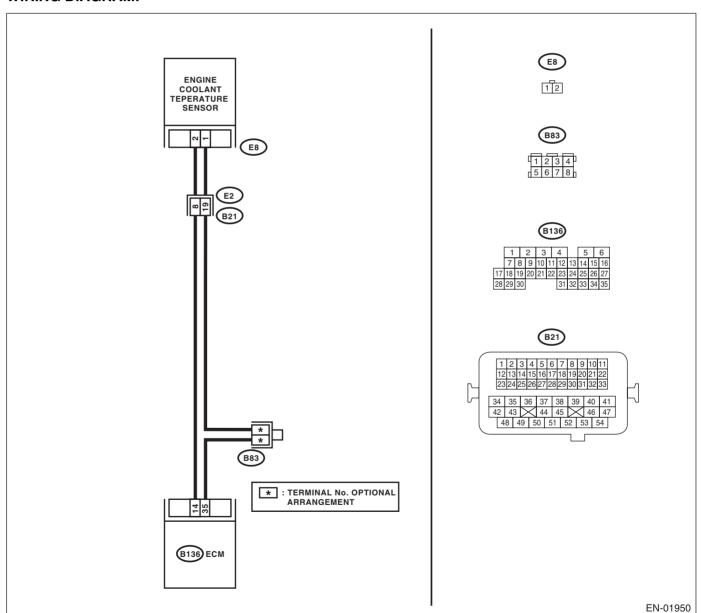
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-43, DTC P0118 ENGINE COOLANT TEMPERATURE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the engine coolant tempera-	Go to step 2.	Repair the poor
	1) Start the engine.	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(H4DOTC)(diag)-24, Subaru Select Mon-			ECM
	itor.>			 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 ENGINE	Is the voltage more than 10 V?	Repair the battery	Go to step 3.
<u> </u>	COOLANT TEMPERATURE SENSOR AND		short circuit of har-	G.5 15 515 F 5.
	ECM CONNECTOR.		ness between	
	Turn the ignition switch to OFF.		ECM and engine	
	2) Disconnect the connectors from the engine		coolant tempera-	
	coolant temperature sensor.		ture sensor con-	
	Measure the voltage between engine cool-		nector.	
	ant temperature sensor connector and engine			
	ground.			
	Connector & terminal			
	(E8) No. 2 (+) — Engine ground (–):			
3	CHECK HARNESS BETWEEN ENGINE	Is the voltage more than 10 V?	Repair the battery	Go to step 4.
	COOLANT TEMPERATURE SENSOR AND	lo the veltage more than 10 v.	short circuit of har-	GO to otop 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	lo the veltage more than 1 v.	αο το στορ σ .	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			Open circuit in
	(E8) No. 2 (+) — Engine ground (–):			harness between
	(=0) = (.) =g g. c.aa ().			ECM and engine
				coolant tempera-
				ture sensor con-
				nector
				Poor contact of
				engine coolant tem-
				perature sensor
				connector
				Poor contact in
				ECM connector
				Poor contact of
				coupling connector
				Poor contact of
				joint connector
				Joint Connector

Step	Check	Yes	No
5 CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 1 — Engine ground:	Is the resistance less than 5 Ω ?	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4dotc)-21,="" sensor.="" temperature="" to=""></ref.>	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between ECM and engine coolant temperature sensor connector Poor contact or engine coolant temperature sensor connector Poor contact in ECM connector Poor contact or coupling connector Poor contact or coupling connector Poor contact or coupling connector

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

DTC DETECTING CONDITION:

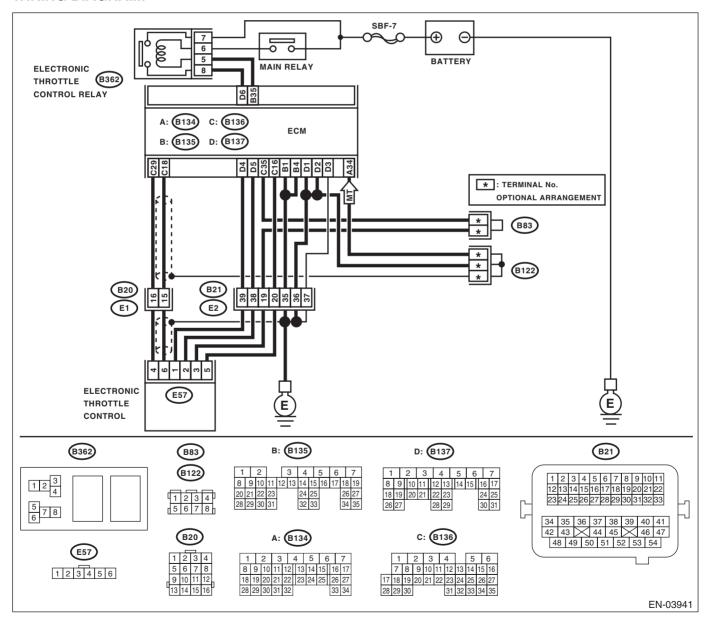
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-45, DTC P0122 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 or general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>	Is the voltage more than 0.4 V?		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 (B136) No. 16 — (E57) No. 5: (B136) No. 18 — (E57) No. 6:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness connector.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. Measure the resistance between ECM connector and chassis ground. Connector & terminal (B136) No. 18 — Chassis ground: (B136) No. 16 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the chassis short circuit of harness.
5	CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL. 1) Connect the ECM connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 5 (+) — Engine ground (-):	Is the voltage 4.5 — 5.5 V?	Go to step 6.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>
6	CHECK SHORT CIRCUIT INSIDE THE ECM. 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 6 — Engine ground:	Is the resistance more than 10 Ω ?	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(h4dotc)-38,="" module="" to=""></ref.>

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

DTC DETECTING CONDITION:

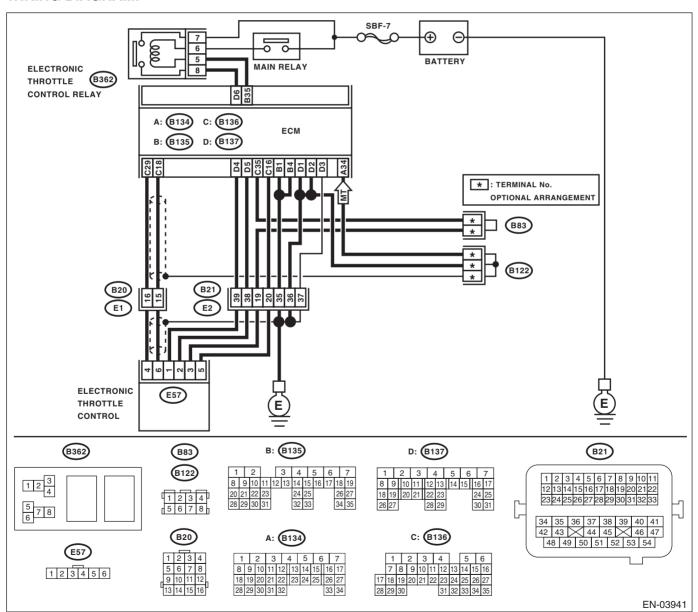
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-47, DTC P0123 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>		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 (B136) No. 18 — (E57) No. 6: (B136) No. 35 — (E57) No. 3:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness connector.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 6 (+) — Engine ground (-): 3) Check the voltage change by shaking the harness and connector of ECM, and engine harness connector, while monitoring the value with voltage meter.	Is the voltage less than 10 V?	Go to step 5.	Repair the battery short circuit of harness between ECM connector and electronic throttle control connector.
5	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 (B136) No. 18 — (B136) No. 16:	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.

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

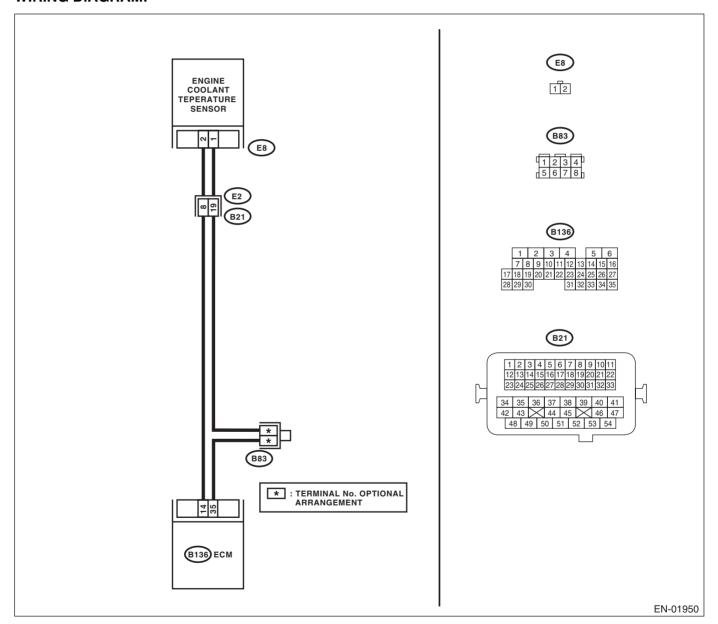
DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-49, DTC P0125 INSUFFICIENT COOLANT TEMPER-ATURE 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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(h4dotc)(diag)-68,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0125.</ref.>	
2	CHECK ENGINE COOLING SYSTEM. NOTE: Check the following items. Thermostat open stuck Coolant level Engine coolant freeze Tire diameter	Is there any fault in engine cooling system?	Replace the ther- mostat. <ref. to<br="">CO(H4SO)-17, Thermostat.></ref.>	Replace the engine coolant temperature sen- sor. <ref. to<br="">FU(H4DOTC)-21, Engine Coolant Temperature Sen- sor.></ref.>

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

DTC DETECTING CONDITION:

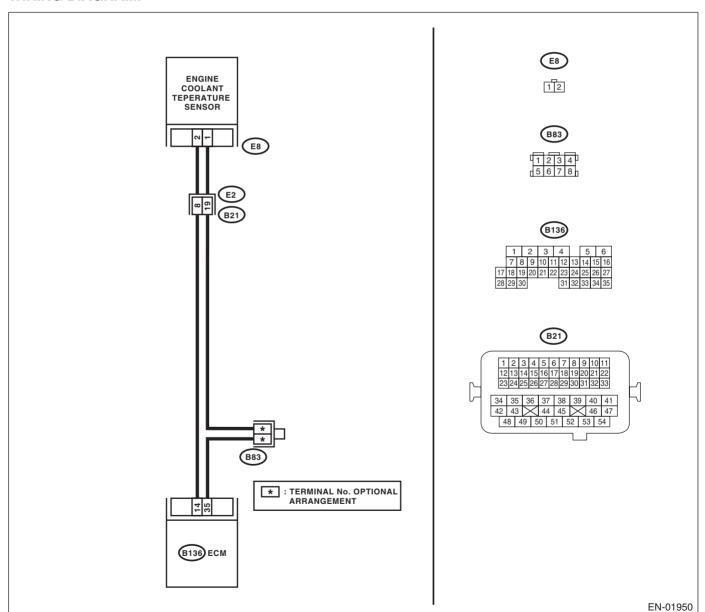
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-51, DTC P0126 INSUFFICIENT ENGINE COOLANT TEMPERATURE FOR STABLE OPERATION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" 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 is cold and after warmed-up?	Contact with SOA Service Center.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4dotc)-21,="" sensor.="" temperature="" to=""></ref.>

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-53, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

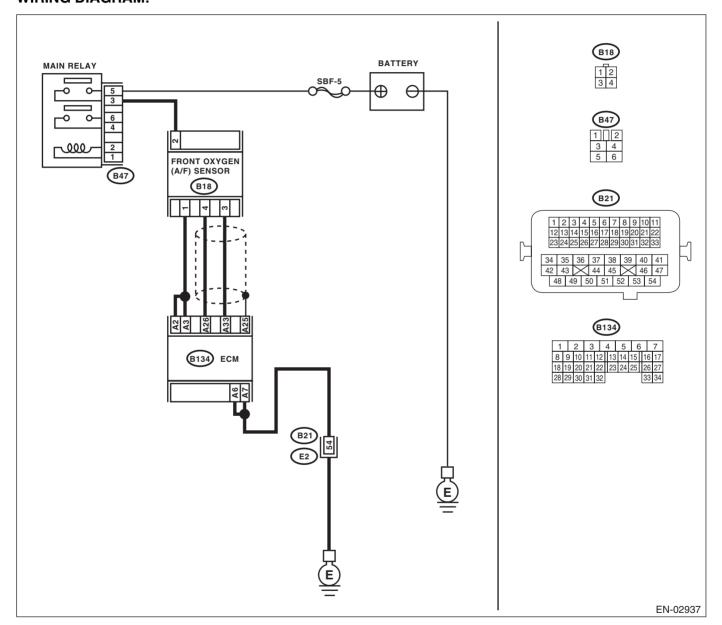
	Step	Check	Yes	No
1	CHECK VEHICLE CONDITION.	Was the vehicle driven or idled with the engine partially submerged under water?	In this case, it is not necessary to inspect DTC P0128.	Go to step 2.
2	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 3.
3	CHECK ENGINE COOLANT.	Are the coolant level and mix- ture ratio of engine coolant to anti-freeze 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. to<br="">CO(H4SO)-23, Radiator Main Fan and Fan Motor.> <ref. to<br="">CO(H4SO)-25, Radiator Sub Fan and Fan Motor.></ref.></ref.>	Replace the ther- mostat. <ref. to<br="">CO(H4SO)-17, Thermostat.></ref.>

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-55, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



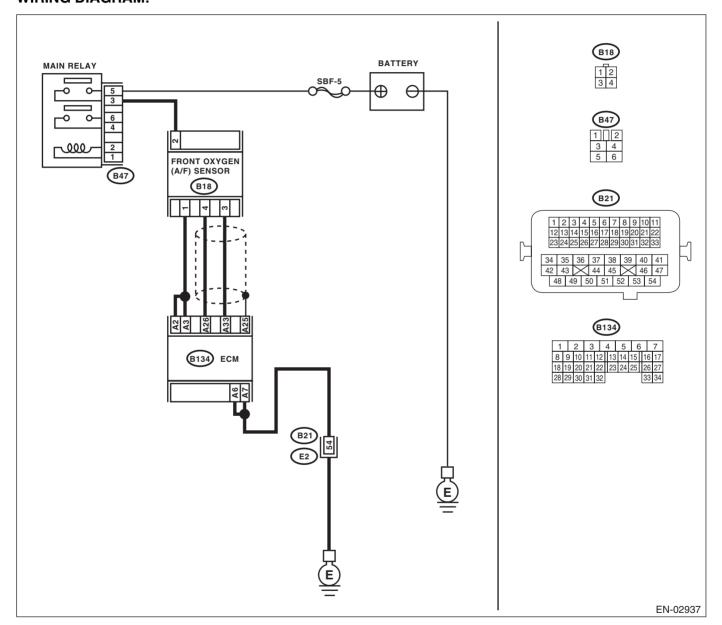
	Step	Check	Yes	No
1	CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNEC-	Does water enter the connector?	Dry the water thoroughly.	Go to step 2.
2	TOR. CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR.	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Replace the front oxygen (A/F) sensor. <ref. th="" to<=""><th>Repair the ground short circuit of harness between</th></ref.>	Repair the ground short circuit of harness between
	 Turn the ignition switch to OFF. Disconnect the connector from ECM and front oxygen (A/F) sensor connector. Measure the resistance of harness 		- (/ - /	ECM and front oxygen (A/F) sensor connector.
	between ECM connector and chassis ground. Connector & terminal (B134) No. 26 — Chassis ground: (B134) No. 33 — Chassis ground:			

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-57, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



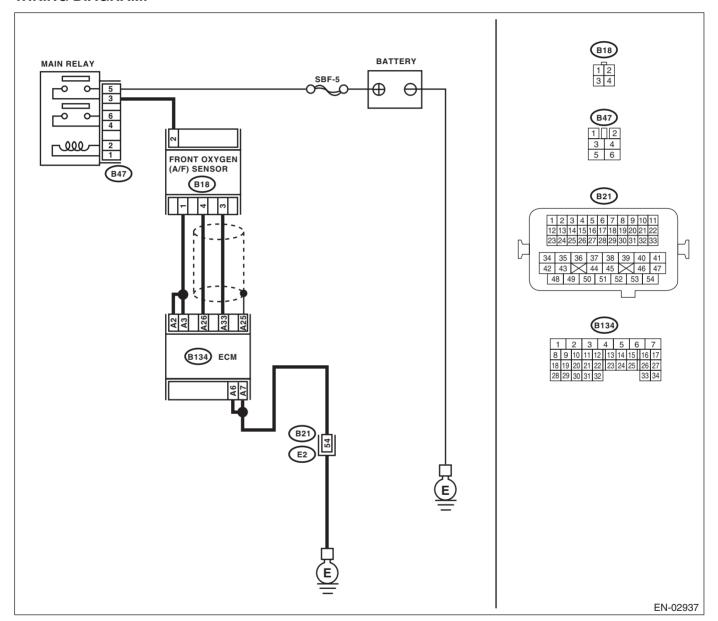
	Step	Check	Yes	No
1	CHECK FRONT OXYGEN (A/F) SENSOR	Does water enter the connec-	Dry the water thor-	Go to step 2.
	CONNECTOR AND COUPLING CONNECTOR.	tor?	oughly.	
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. 1) Turn the ignition switch to ON. 2) Disconnect the connector from front oxygen (A/F) sensor. 3) Measure the voltage of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 26 (+) — Chassis ground (-): (B134) No. 33 (+) — Chassis ground (-):	Is the voltage more than 8 V?	oxygen (A/F) sensor. <ref. fu(h4dotc)-34,<="" th="" to=""><th>Repair the battery short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.</th></ref.>	Repair the battery short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-59, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(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(H4DOTC)-34, Front Oxygen (A/ F) Sensor.></ref.>

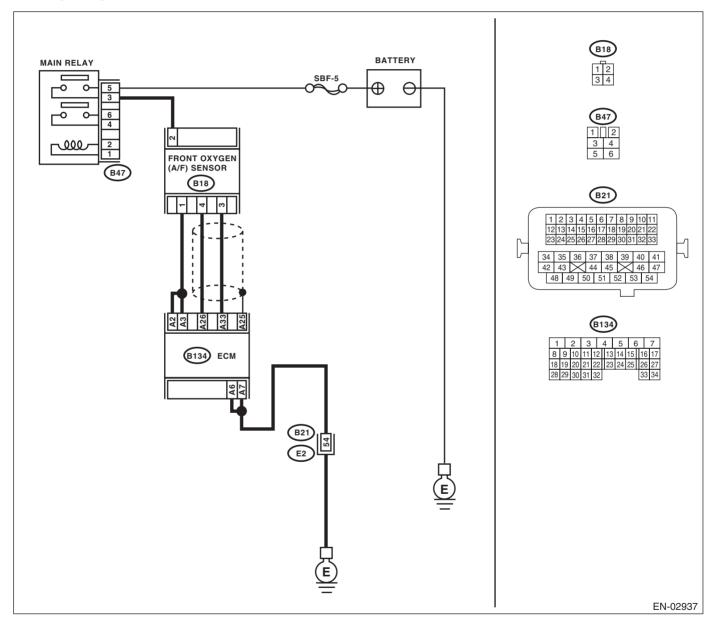
AA:DTC P0134 O2 SENSOR CIRCUIT NO ACTIVITY DETECTED (BANK 1 SEN-SOR 1)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-62, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



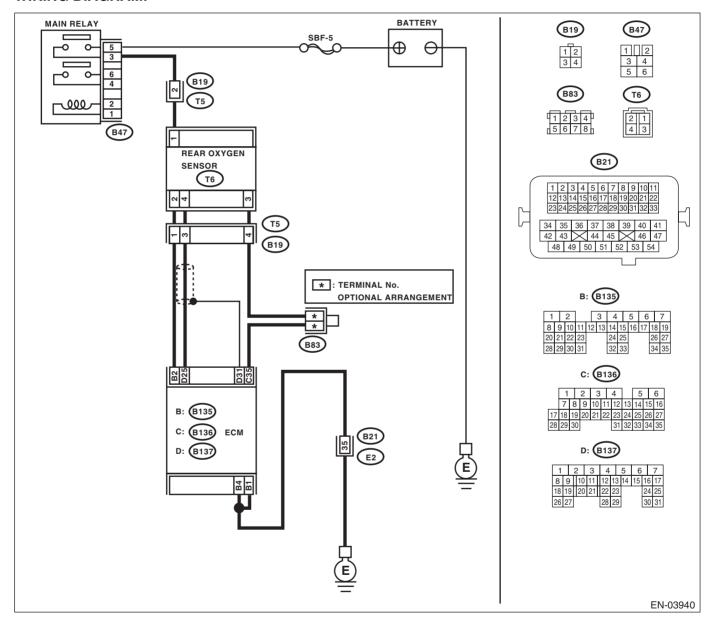
Step	Check	Yes	No
1 CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and front oxygen (A/F) sensor. 3) Measure the resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B134) No. 26 — (B18) No. 4: (B134) No. 33 — (B18) No. 3:	Is the resistance less than 1 Ω ?	oxygen (A/F) sensor. <ref. fu(h4dotc)-34,<="" th="" to=""><th>Repair the open circuit of harness between ECM and front oxygen (A/F) sensor connector.</th></ref.>	Repair the open circuit of harness between ECM and front oxygen (A/F) sensor connector.

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-64, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0137.</ref.>	
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(h4dotc)(diag)-24,="" 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 connectors from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM and rear oxygen sensor connector. Connector & terminal (B137) No. 25 — (T6) No. 4: (B136) No. 35 — (T6) No. 3:	Is the resistance more than 3 Ω ?	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 chassis ground. Connector & terminal (T6) No. 4 (+) — Chassis ground (-):	Is the voltage more than 0.2 — 0.5 V?		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

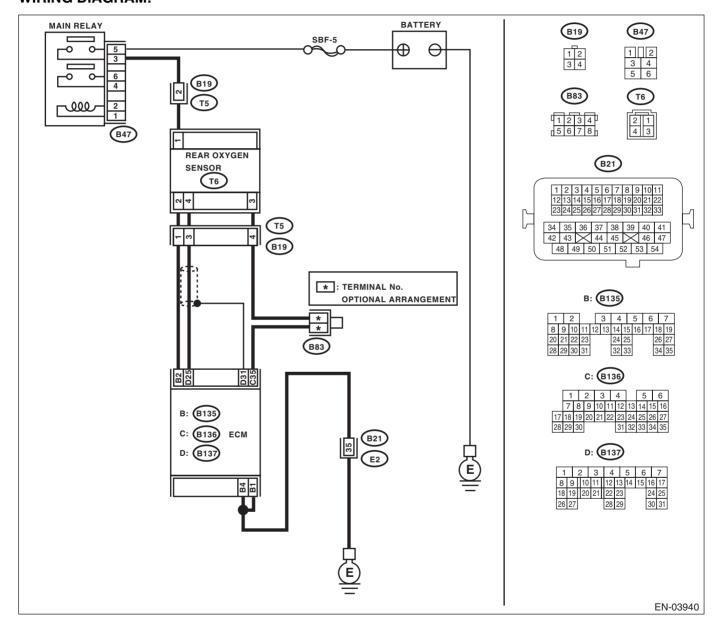
	Step	Check	Yes	No
6	CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. • Loose part and incomplete installation of exhaust system • Damage (crack, hole etc.) of parts • Loose part and improper installation between front oxygen (A/F) sensor and rear oxygen sensor		Repair or replace faulty parts.	Replace the rear oxygen sensor. <ref. to<br="">FU(H4DOTC)-36, Rear Oxygen Sen- sor.></ref.>

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-66, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diag-="" en(h4dotc)(diag)="" list="" nostic="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0138.</ref.>	
2	CHECK REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and drop the engine speed suddenly from 3,000 rpm. 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • For MT model, depress the clucth pedal. • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the voltage less than 250 mV?	Go to step 6.	Go to step 3.
4	CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR. CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and rear oxygen sensor. 3) Measure the resistance of harness	Does water enter the connector? Is the resistance more than 3 Ω ?	Dry the water thoroughly. Repair the open circuit of harness between ECM and rear oxygen sensor connector.	Go to step 4 . Go to step 5 .
	between ECM and rear oxygen sensor connector. Connector & terminal (B137) No. 25 — (T6) No. 4: (B136) No. 35 — (T6) No. 3:			
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 chassis ground. Connector & terminal (T6) No. 4 (+) — Chassis ground (-):	Is the voltage more than 0.2 — 0.5 V?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4DOTC)-36, Rear Oxygen Sen- sor.></ref.>	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between rear oxygen sensor and ECM connector Poor contact of the rear oxygen sensor connector Poor contact in ECM connector

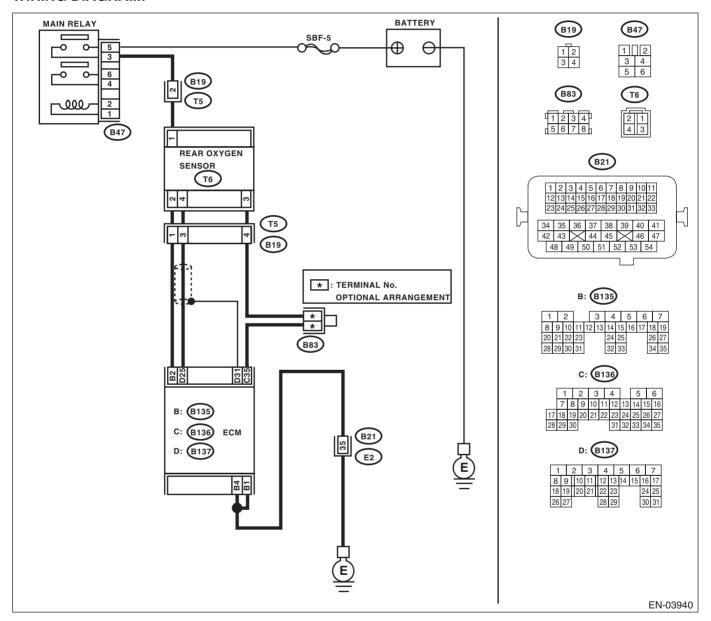
	Step	Check	Yes	No
6	CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. • Loose part and incomplete installation of exhaust system • Damage (crack, hole etc.) of parts • Loose part and improper installation between front oxygen (A/F) sensor and rear oxygen sensor		Repair or replace faulty parts.	Replace the rear oxygen sensor. <ref. to<br="">FU(H4DOTC)-36, Rear Oxygen Sen- sor.></ref.>

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-68, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



ENGINE (DIAGNOSTICS)

	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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" 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 (B137) No. 25 — (T6) No. 4:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between ECM and rear oxygen sensor connector.
3	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. 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 (B137) No. 25 — (T6) No. 4:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between ECM and rear oxygen sensor connector.
3	CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. Measure the resistance between rear oxygen sensor harness connector and chassis ground. Connector & terminal (T6) No. 4 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 4.	Repair the chassis short circuit of harness.
4	CHECK REAR OXYGEN SENSOR. Measure the resistance between rear oxygen sensor terminals. Terminals No. 3 — No. 4:	Is the resistance less than 1 Ω ?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4DOTC)-36, Rear Oxygen Sen- sor.></ref.>	Temporary poor contact occurs. Check the poor contact of connector.

AE:DTC P0171 SYSTEM TOO LEAN (BANK 1)

NOTE:

For the diagnostic procedure, refer to DTC P0172. <Ref. to EN(H4DOTC)(diag)-138, DTC P0172 SYSTEM TOO RICH (BANK 1), Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

ENGINE (DIAGNOSTICS)

AF:DTC P0172 SYSTEM TOO RICH (BANK 1)

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-76, DTC P0172 SYSTEM TOO RICH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 while disconnecting pressure regulator vacuum hose from intake manifold. Ref. to ME(H4DOTC)-24, INSPECTION, Fuel Pressure.> WARNING: Release fuel pressure before removing the fuel pressure gauge. NOTE: If fuel pressure does not increase, squeeze the fuel return hose 2 to 3 times, then measure fuel pressure again.		Go to step 4.	Repair the following item. Fuel pressure is too high: Clogged fuel return line or bent hose Fuel pressure is too low: Improper fuel pump discharge Clogged fuel supply line
4	CHECK FUEL PRESSURE. After connecting the pressure regulator vacuum hose, measure fuel pressure. <ref. fuel="" inspection,="" me(h4dotc)-24,="" pressure.="" to=""> WARNING: Release fuel pressure before removing the fuel pressure gauge. NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. If the measured value at this step is out of specification, check or replace pressure regulator and pressure regulator vacuum hose.</ref.>		Go to step 5.	Repair the following item. Fuel pressure is too high: Faulty pressure regulator Clogged fuel return line or bent hose Fuel pressure is too low: Faulty pressure regulator Improper fuel pump discharge Clogged fuel supply line

	Step	Check	Yes	No
5	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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool</ref.>	(140°F)?	Go to step 6.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4dotc)-21,="" 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) 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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the measured value 2.7 — 4.7 g/s (0.36 — 0.62 lb/m)?	Go to step 7.	Replace the mass air flow and intake air temperature sensor. <ref. air="" and="" flow="" fu(h4dotc)-26,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>
7	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(h4dotc)(diag)-24,="" 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(h4dotc)-38,="" module="" to=""></ref.>	Check the mass air flow and intake air temperature sensor. <ref. air="" and="" flow="" fu(h4dotc)-26,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>

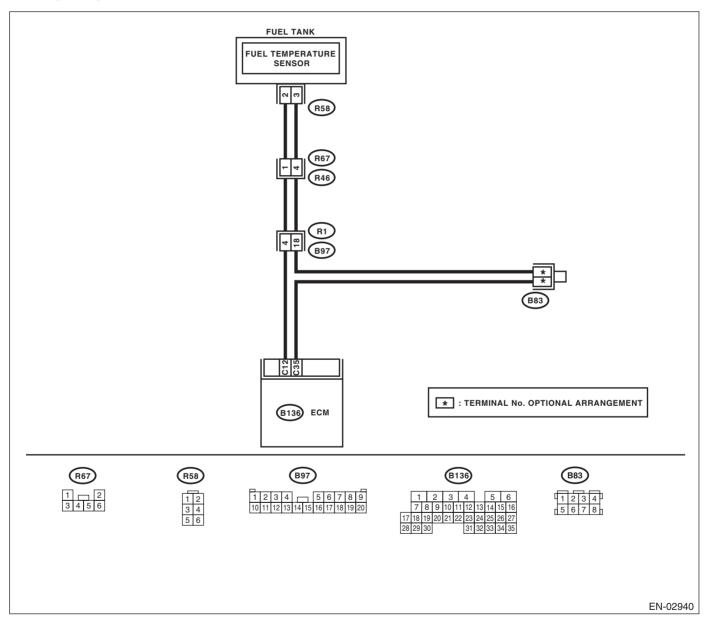
AG:DTC P0181 FUEL TEMPERATURE SENSOR "A" CIRCUIT RANGE/PERFOR-MANCE

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-78, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



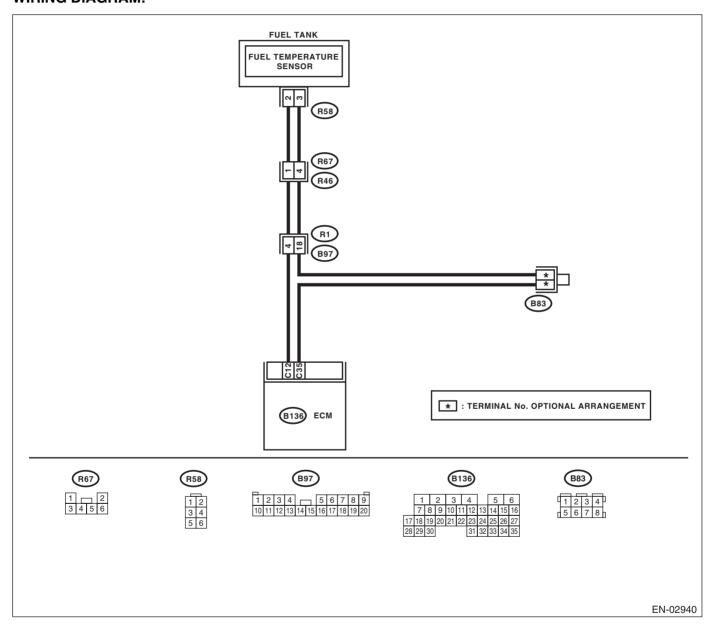
	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	priate DTC using the "List of Diag- nostic Trouble	Replace the fuel temperature sen- sor. <ref. to<br="">EC(H4DOTC)-9, Fuel Temperature Sensor.></ref.>
			NOTE: In this case, it is not necessary to inspect DTC P0181.	

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-81, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



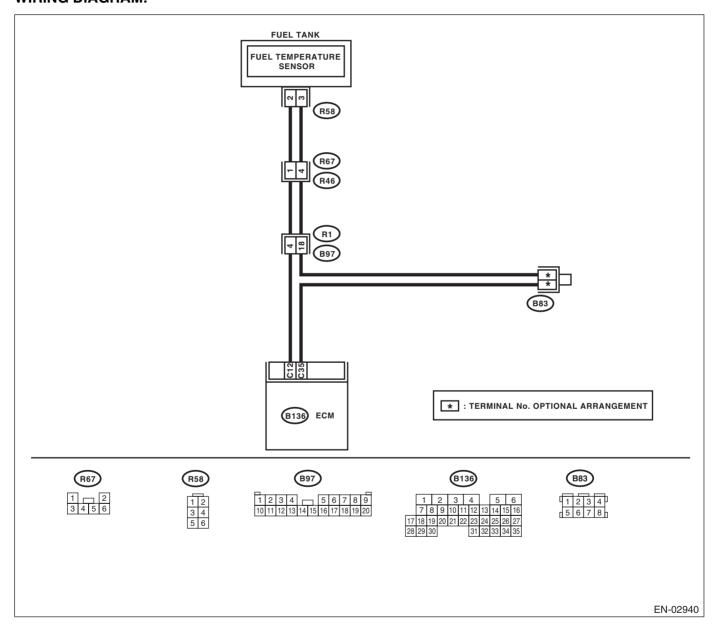
	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of fuel temperature sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>		Go to step 2.	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time.
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 the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>		Replace the fuel temperature sen- sor. <ref. to<br="">EC(H4DOTC)-9, Fuel Temperature Sensor.></ref.>	Repair ground short circuit of harness between fuel pump and ECM connector.

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-83, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the 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 CONNEC- TOR. 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 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 CONNEC- TOR. 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 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-	Ω ?	temperature sen-	ness and connec-
	TOR.		sor. <ref. td="" to<=""><td>tor.</td></ref.>	tor.
	 Turn the ignition switch to OFF. 		EC(H4DOTC)-9,	NOTE:
	Disconnect the connectors from ECM.		Fuel Temperature	In this case, repair
	Measure the resistance of harness		Sensor.>	the following item:
	between fuel pump connector and ECM.			 Open circuit of
	Connector & terminal			harness between
	(R58) No. 3 — (B136) No. 35:			ECM and fuel
				pump connector
				 Poor contact in
				fuel pump connec-
				tor
				 Poor contact in
				ECM connector
				 Poor contact of
				coupling connector
				 Poor contact of
				joint connector

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

DTC DETECTING CONDITION:

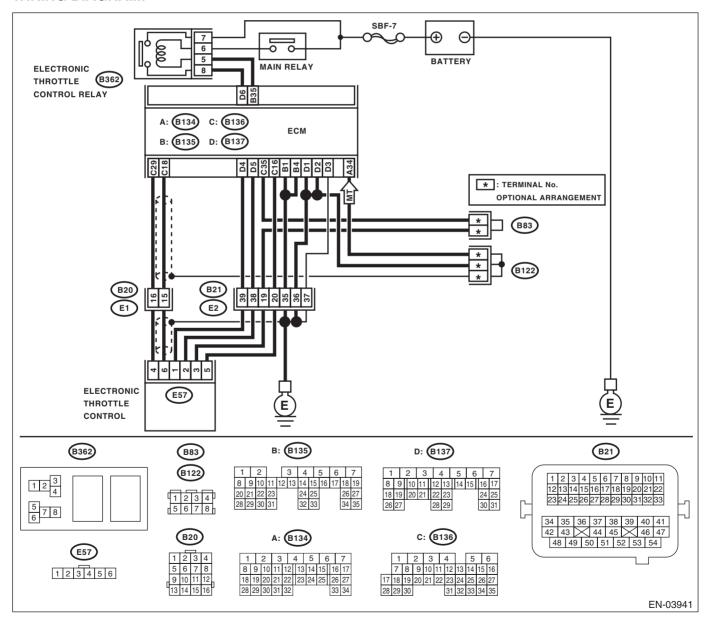
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-85, DTC P0222 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "B" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
CHECK SENSOR OUTPUT. Turn the ignition switch to ON. Read the data of sub throttle ser using Subaru Select Monitor. NOTE:	Is the voltage more than 0.8 V?		Go to step 3.
Subaru Select Monitor For detailed operation procedure, r "LED OPERATION MODE FOR <ref. en(h4dotc)(diag)-24,="" monitor.="" sul="" to=""></ref.>	ENGINE." paru Select		
CHECK POOR CONTACT. Check poor contact in connector be ECM and electronic throttle control.		Repair the poor contact.	Temporary poor contact occurred, but it is normal at present.
3 CHECK HARNESS BETWEEN ECELECTRONIC THROTTLE CONTR 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from 3) Disconnect the connectors from throttle control. 4) Measure the resistance between nector and electronic throttle control Connector & terminal (B136) No. 16 — (E57) No. 5: (B136) No. 29 — (E57) No. 4:	OL. Ω? ECM. electronic ECM con-	Go to step 4.	Repair the open circuit of harness connector.
4 CHECK HARNESS BETWEEN EC ELECTRONIC THROTTLE CONTR Measure the resistance between EC tor and chassis ground. Connector & terminal (B136) No. 29 — Chassis groun (B136) No. 16 — Chassis groun	OL. M Ω ? M connection of:	Go to step 5.	Repair the chassis short circuit of harness.
5 CHECK SENSOR POWER SUPPL 1) Connect the ECM connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between electrottle control connector and engine Connector & terminal (E57) No. 5 (+) — Engine ground	ectronic e ground. d (–):	Go to step 6.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>
6 CHECK SHORT CIRCUIT INSIDE 1 1) Turn the ignition switch to OFF. 2) Measure the resistance between throttle control connector and engine Connector & terminal (E57) No. 4 — Engine ground:	electronic Ω ?	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(h4dotc)-38,="" module="" to=""></ref.>

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

DTC DETECTING CONDITION:

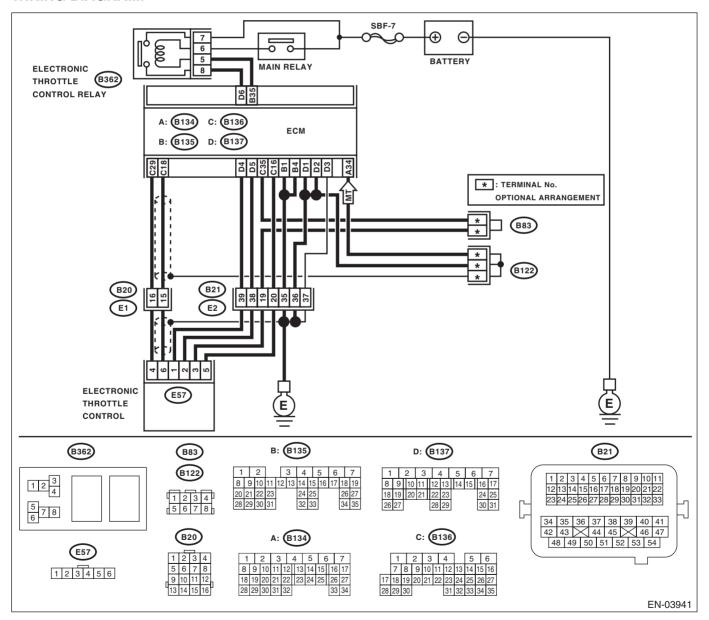
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-87, DTC P0223 THROTTLE/PEDAL POSITION SEN-SOR/SWITCH "B" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT. 1) Turn the ignition switch to ON. 2) Read the data of sub throttle sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>		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 (B136) No. 35 — (E57) No. 3: (B136) No. 29 — (E57) No. 4:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness connector.
4	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. 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. 4 (+) — Engine ground (-):	Is the voltage less than 10 V?	Go to step 5.	Repair the battery short circuit of har- ness between ECM connector and electronic throttle control connector.
5	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 connector terminals. Connector & terminal (B136) No. 29 — (B136) No. 16:	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.

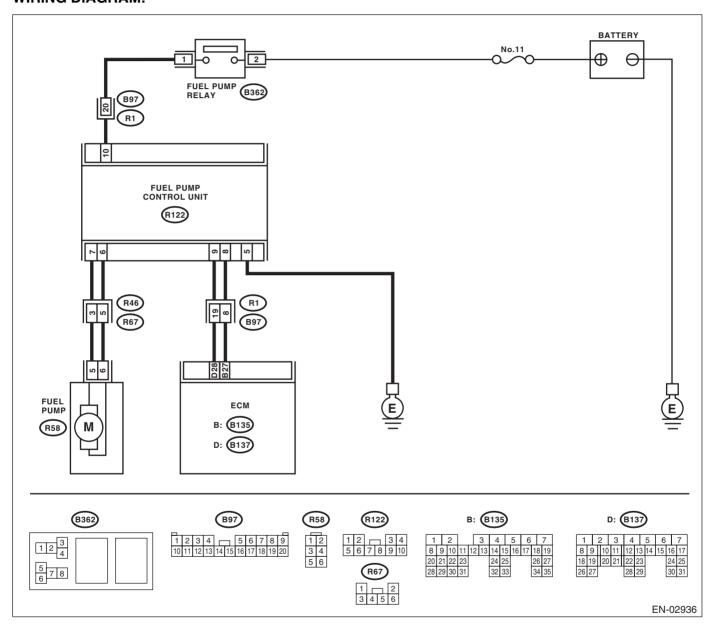
AL:DTC P0230 FUEL PUMP PRIMARY CIRCUIT

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-89, DTC P0230 FUEL PUMP PRIMARY CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Sten	Check	Ves	No
1	CHECK POWER SUPPLY CIRCUIT TO FUEL PUMP CONTROL UNIT. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel pump control unit. 3) Turn the ignition switch to ON. 4) Measure the voltage between fuel pump control unit and chassis ground. Connector & terminal (R122) No. 10 (+) — Chassis ground (-):	Is the voltage more than 10 V?		No Repair the power supply circuit. NOTE: In this case, repair the following item: • Open or ground short circuit of harness between fuel pump relay and fuel pump control unit • Poor contact of fuel pump control unit connector • Poor contact of fuel pump relay connector Repair the har-
	CONTROL UNIT. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between fuel pump control unit and chassis ground. Connector & terminal (R122) No. 5 — Chassis ground:	Ω ?		ness and connector. NOTE: In this case, repair the following item: Open circuit between fuel pump control unit and chassis ground Poor contact of fuel pump control unit connector
3	CHECK HARNESS BETWEEN FUEL PUMP CONTROL UNIT AND FUEL PUMP CONNECTOR. 1) Disconnect the connector from fuel pump. 2) Measure the resistance of harness between fuel pump control unit and fuel pump connector. Connector & terminal (R122) No. 7 — (R58) No. 5: (R122) No. 6 — (R58) No. 6:	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit between fuel pump control unit and fuel pump.
4	CHECK HARNESS BETWEEN FUEL PUMP CONTROL UNIT AND FUEL PUMP CONNECTOR. Measure the resistance of harness between fuel pump control unit and chassis ground. Connector & terminal (R122) No. 7 — Chassis ground: (R122) No. 6 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the ground short circuit between fuel pump control unit and fuel pump.

	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN FUEL PUMP CONTROL UNIT AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between fuel pump control unit and ECM connector. Connector & terminal (R122) No. 9 — (B137) No. 28: (R122) No. 8 — (B135) No. 27:	Is the resistance less than 1 Ω ?	Go to step 6.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit between fuel pump control unit and ECM Poor contact of fuel pump control unit and ECM connector
6	CHECK HARNESS BETWEEN FUEL PUMP CONTROL UNIT AND ECM CONNECTOR. Measure the resistance of harness between fuel pump control unit and chassis ground. Connector & terminal (R122) No. 9 — Chassis ground: (R122) No. 8 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 7.	Repair the ground short circuit between fuel pump control unit and ECM.
7	CHECK POOR CONTACT. Check poor contact of ECM and fuel pump control unit connector.	Is there poor contact of ECM and fuel pump control unit connector?	Repair poor contact in ECM and fuel pump control unit.	Go to step 8.
8	CHECK EXPERIENCE OF RUNNING OUT OF FUEL.	Has the vehicle experienced running out of fuel?	Finish the diagnosis. NOTE: DTC may be recorded as a result of fuel pump idling while running out of fuel.	Fuel Pump Control Unit.>

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

DTC DETECTING CONDITION:

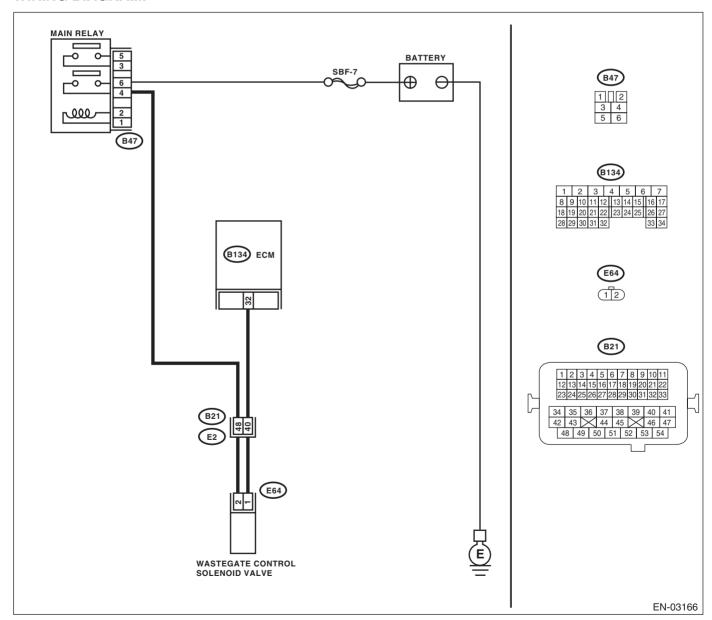
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-91, DTC P0244 TURBO/SUPER CHARGER WASTE-GATE SOLENOID "A" RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

IIIOODEE OIMII I

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	<ref. to<br="">EN(H4DOTC)(diag) -68, List of Diag- nostic Trouble Code (DTC).> NOTE: In this case, it is</ref.>	Valve.>
			not necessary to inspect DTC P0244.	

AN:DTC P0245 TURBO/SUPER CHARGER WASTEGATE SOLENOID "A" LOW DTC DETECTING CONDITION:

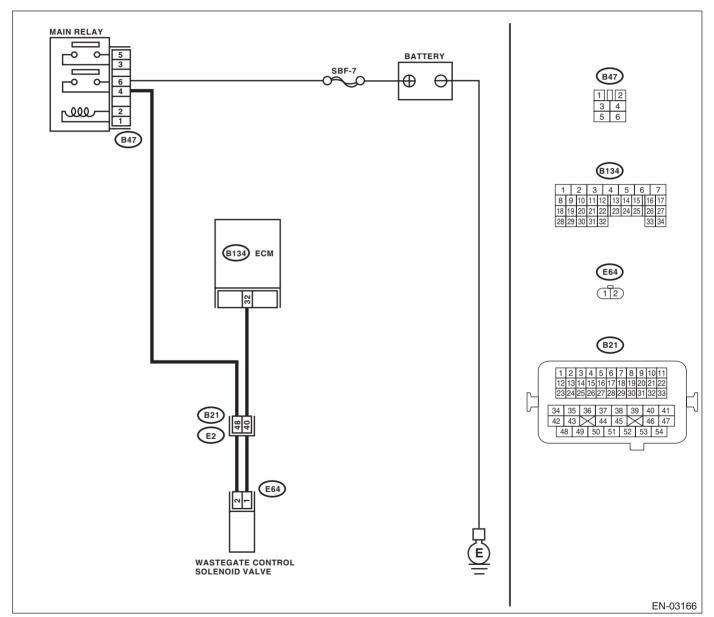
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-93, DTC P0245 TURBO/SUPER CHARGER WASTE-GATE SOLENOID "A" LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Even if the mal-	Go to step 2.
	1) Turn the ignition switch to ON.	<u> </u>	function indicator	
	Measure the voltage between ECM and		light illuminates,	
	chassis ground.		the circuit has	
	Connector & terminal		returned to a nor-	
	(B134) No. 32 (+) — Chassis ground (–):		mal condition at	
	OUEOK HARNEGO RETWEEN WAGTEGATE		this time.	Danain manual
2	CHECK HARNESS BETWEEN WASTEGATE CONTROL SOLENOID VALVE AND ECM	Is the resistance more than 1 $M\Omega$?	Go to step 3.	Repair ground short circuit of har-
	CONNECTOR.	10122:		ness between
	Turn the ignition switch to OFF.			ECM and waste-
	2) Disconnect the connectors from wastegate			gate control sole-
	control solenoid valve and ECM.			noid valve
	3) Measure the resistance of harness			connector.
	between wastegate control solenoid valve con-			
	nector and engine ground.			
	Connector & terminal			
	(E64) No. 1 — Engine ground:		0 1 1	
3	CHECK HARNESS BETWEEN WASTEGATE CONTROL SOLENOID VALVE AND ECM	Is the resistance less than 1	Go to step 4.	Repair open circuit of harness
	CONNECTOR.	Ω?		between ECM and
	Measure the resistance of harness between			wastegate control
	wastegate control solenoid valve of harness			solenoid valve
	connector and ECM.			connector.
	Connector & terminal			NOTE:
	(B134) No. 32 — (E64) No. 1:			In this case, repair
				the following item:
				Open circuit of har-
				ness between ECM
				and wastegate con-
				trol solenoid valve connector
4	CHECK WASTEGATE CONTROL SOLE-	Is the resistance between 30	Go to step 5.	Replace the
]	NOID VALVE.	-34Ω ?	do to step 3.	wastegate control
	Remove the wastegate control solenoid	0.12.		solenoid valve.
	valve.			<ref. td="" to<=""></ref.>
	2) Measure the resistance between wastegate			FU(H4DOTC)-33,
	control solenoid valve terminals.			Wastegate Con-
	Terminals			trol Solenoid
<u></u>	No. 1 — No. 2:			Valve.>
5	CHECK POWER SUPPLY TO WASTEGATE	Is the voltage more than 10 V?	Go to step 6.	Repair open circuit
	CONTROL SOLENOID VALVE. 1) Turn the ignition switch to ON.			of harness between main
	2) Measure the voltage between wastegate			relay and waste-
	control solenoid valve and engine ground.			gate control sole-
	Connector & terminal			noid valve
	(E64) No. 2 (+) — Engine ground (–):			connector.
6	CHECK POOR CONTACT.	Is there poor contact of waste-	Repair poor con-	Replace the ECM.
	Check poor contact of wastegate control sole-	gate control solenoid valve	tact in wastegate	<ref. td="" to<=""></ref.>
	noid valve connector.	connector?	control solenoid	FU(H4DOTC)-38,
			valve connector.	Engine Control
				Module (ECM).>

AO:DTC P0246 TURBO/SUPER CHARGER WASTEGATE SOLENOID "A" HIGH DTC DETECTING CONDITION:

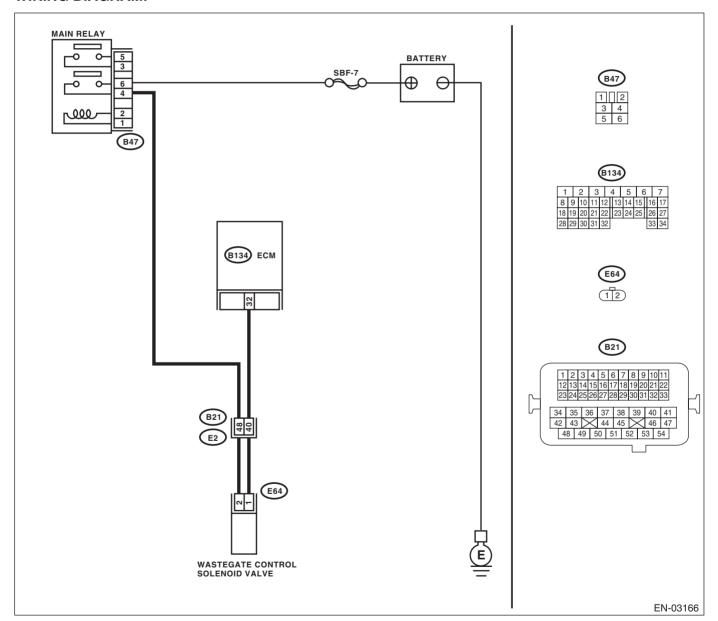
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-95, DTC P0246 TURBO/SUPER CHARGER WASTE-GATE SOLENOID "A" HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 (B134) No. 32 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 3.	Go to step 2.
2	CHECK POOR CONTACT. Check the 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(H4DOTC)-38, Engine Control Module (ECM).></ref.>
3	CHECK HARNESS BETWEEN WASTEGATE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from wastegate control solenoid valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground. Connector & terminal (B134) No. 32 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit of harness between ECM and wastegate control solenoid valve connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Go to step 4.
4	CHECK WASTEGATE CONTROL SOLE-NOID VALVE. 1) Turn the ignition switch to OFF. 2) Measure the resistance between wastegate control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance less than 1 Ω ?	Replace the wastegate control solenoid valve and ECM. <ref. control="" fu(h4dotc)-33,="" solenoid="" to="" valve.="" wastegate=""> <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.></ref.>	Go to step 5.
5	CHECK POOR CONTACT. Check the 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(H4DOTC)-38, Engine Control Module (ECM).></ref.>

AP:DTC P0301 CYLINDER 1 MISFIRE DETECTED

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DOTC)(diag)-160, DTC P0304 CYLIN-DER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AQ:DTC P0302 CYLINDER 2 MISFIRE DETECTED

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DOTC)(diag)-160, DTC P0304 CYLIN-DER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AR:DTC P0303 CYLINDER 3 MISFIRE DETECTED

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4DOTC)(diag)-160, DTC P0304 CYLIN-DER 4 MISFIRE DETECTED, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

AS:DTC P0304 CYLINDER 4 MISFIRE DETECTED

DTC DETECTING CONDITION:

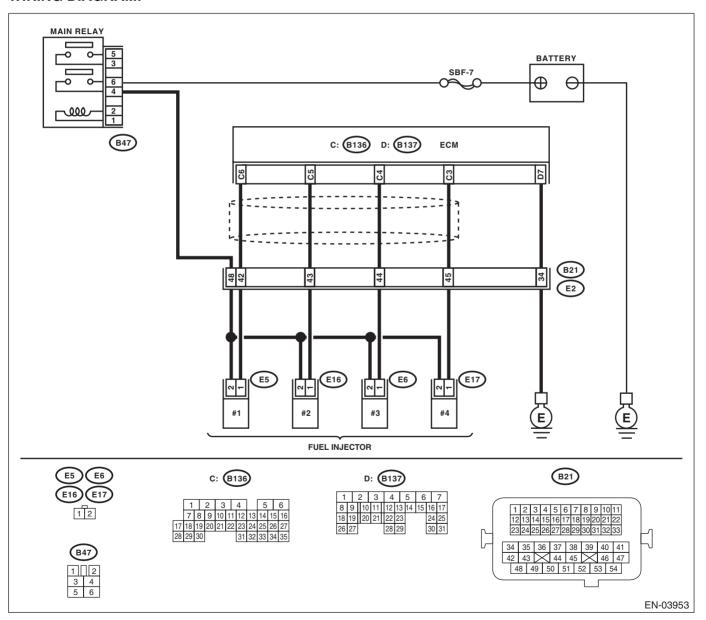
- Two consecutive driving cycles with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-102, DTC P0304 CYLINDER 4 MISFIRE DETECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Engine stalls.
- Improper idling
- Rough driving

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK OUTPUT SIGNAL OF ECM. 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B136) No. 6 (+) — Chassis ground (-): #2 (B136) No. 5 (+) — Chassis ground (-): #3 (B136) No. 4 (+) — Chassis ground (-): #4 (B136) No. 3 (+) — Chassis ground (-):		Go to step 7.	Go to step 3.
3	CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Disconnect the connectors from ECM. 4) Measure the resistance between ECM connector and engine ground on faulty cylinders. Connector & terminal #1 (E5) No. 1 — Engine ground: #2 (E16) No. 1 — Engine ground: #3 (E6) No. 1 — Engine ground: #4 (E17) No. 1 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 4.	Repair the ground short circuit of harness between fuel injector and ECM connector.
4		Is the resistance less than 1 Ω ?	Go to step 5.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM and fuel injector connector Poor contact of coupling connector
5	CHECK FUEL INJECTOR. Measure the resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2:	Is the resistance between 5 — 20 Ω ?		Replace the faulty fuel injector. <ref. to FU(H4DOTC)- 28, Fuel Injector.></ref.

	Step	Check	Yes	No
6	CHECK POWER SUPPLY LINE. 1) Turn the ignition switch to ON. 2) Measure the voltage between fuel injector and engine ground on faulty cylinders. Connector & terminal #1 (E5) No. 2 (+) — Engine ground (-): #2 (E16) No. 2 (+) — Engine ground (-): #3 (E6) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-):		Repair the poor contact of all connectors in fuel injector circuit.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between main relay and fuel injector connector on faulty cylinders Poor contact of coupling connector Poor contact of main relay connector Poor contact of fuel injector connector on faulty cylinders
7	CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel injector on faulty cylinders. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B136) No. 6 (+) — Chassis ground (-): #2 (B136) No. 5 (+) — Chassis ground (-): #3 (B136) No. 4 (+) — Chassis ground (-):		Repair the battery short circuit of harness between ECM and fuel injector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Go to step 8.
8	CHECK FUEL INJECTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2:	Is the resistance between 5 — 20 Ω ?		Replace the faulty fuel injector and ECM. <ref. fu(h4dotc)-28,="" fuel="" injector.="" to=""> <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.></ref.>
9	CHECK INSTALLATION OF CAMSHAFT PO- SITION SENSOR/CRANKSHAFT POSITION SENSOR.	Is the camshaft position sensor or crankshaft position sensor loosely installed?	Tighten the cam- shaft position sen- sor or crankshaft position sensor.	Go to step 10.
10	CHECK CRANKSHAFT SPROCKET. Remove the timing belt cover.	Is the crank sprocket rusted or does it have broken teeth?	Replace the crank- shaft sprocket. <ref. to<br="">ME(H4DOTC)-51, Crank Sprocket.></ref.>	
11	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(h4dotc)-42,="" timing="" to=""></ref.>	Go to step 12.

	Step	Check	Yes	No
12	CHECK FUEL LEVEL.	Is the fuel meter indication higher than the "Lower" level?	Go to step 13.	Replenish fuel so fuel meter indica- tion is higher than the "Lower" level. After refueling, Go to step 13.
13	CHECK STATUS OF MALFUNCTION INDI- CATOR LIGHT. 1) Clear the memory using Subaru Select Monitor. <ref. clear<br="" en(h4dotc)(diag)-42,="" to="">Memory Mode.> 2) Start the engine, and drive the vehicle more than 10 minutes.</ref.>	Does the malfunction indicator light illuminate or blink?	Go to step 15.	Go to step 14.
14	CHECK CAUSE OF MISFIRE.	Has the cause of misfire diagnosed when the engine is running?	Finish diagnostics operation, if the engine has no abnormality.	Repair the poor contact. NOTE: In this case, repair the following item: • Poor contact of ignition coil connector • Poor contact of fuel injector connector on faulty cylinders • Poor contact in ECM connector • Poor contact of coupling connector
15	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?	
16	CHECK CYLINDER.	Is there any fault in the cylinder?	Repair or replace faulty parts. NOTE: Check the following items. • Spark plug • Fuel Injector • Compression	Go to DTC P0171 and P0172. <ref. to EN(H4DOTC) (diag)-137, DTC P0171 SYSTEM TOO LEAN (BANK 1), Diagnostic Pro- cedure with Diag- nostic Trouble Code (DTC).></ref.

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

DTC DETECTING CONDITION:

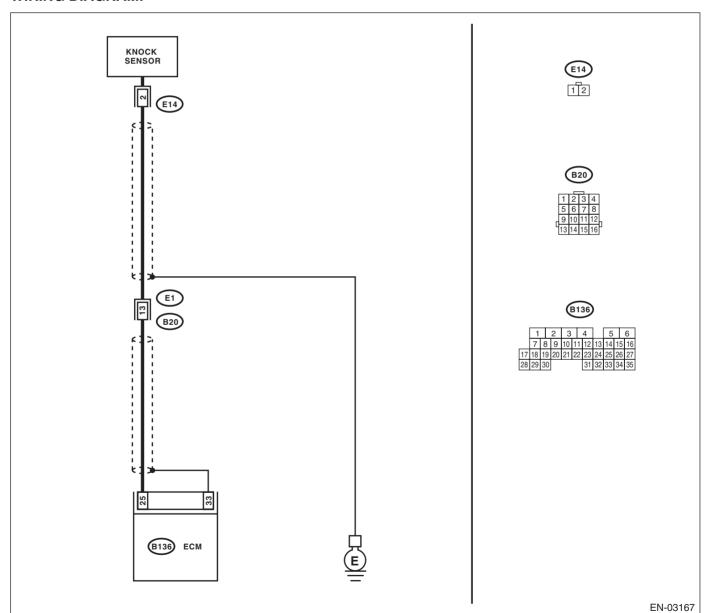
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-103, DTC P0327 KNOCK SENSOR 1 CIRCUIT LOW (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Poor driving performance
- · Knocking occurs.

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance between ECM harness connector and chassis ground. Connector & terminal (B136) No. 25 — Chassis ground:	Is the resistance more than 700 k Ω ?	Go to step 2.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between knock sensor and ECM connector Poor contact of knock sensor connector Poor contact of coupling connector
2	CHECK KNOCK SENSOR. 1) Disconnect the connector from knock sensor. 2) Measure the resistance between knock sensor connector terminal and engine ground. Terminals No. 2 — Engine ground:	Is the resistance more than 700 k Ω ?	Go to step 3.	Repair the harness and connector. NOTE: In this case, repair the following item: Poor contact of knock sensor connector Poor contact of coupling connector
3	CHECK INSTALLATION CONDITION OF KNOCK SENSOR.	Is the knock sensor installation bolt tightened securely?	Replace the knock sensor. <ref. to<br="">FU(H4DOTC)-24, Knock Sensor.></ref.>	Tighten the knock sensor installation bolt securely.

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

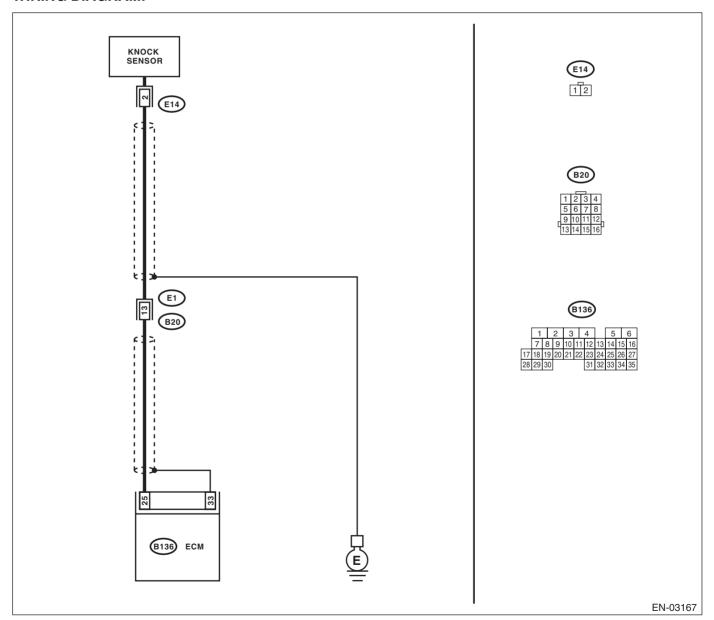
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-105, DTC P0328 KNOCK SENSOR 1 CIRCUIT HIGH (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Poor driving performance
- Knocking occurs.

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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	Is the resistance less than 400 $\mbox{k}\Omega$?	Go to step 2.	Go to step 3.
	(B136) No. 25 — Chassis ground:			
2	 CHECK KNOCK SENSOR. 1) Disconnect the connector from knock sensor. 2) Measure the resistance between knock sensor connector terminal and engine ground. Terminals No. 2 — Engine ground: 	Is the resistance less than 400 $\mbox{k}\Omega ?$	Replace the knock sensor. <ref. to<br="">FU(H4DOTC)-24, Knock Sensor.></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 (B136) No. 25 (+) — Chassis ground (-):	Is the voltage more than 2 V?	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time. (How- ever, the possibility of poor contact still remains.) NOTE: In this case, repair the following item: • Poor contact of knock sensor con- nector • Poor contact in ECM connector • Poor contact of coupling connector	

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

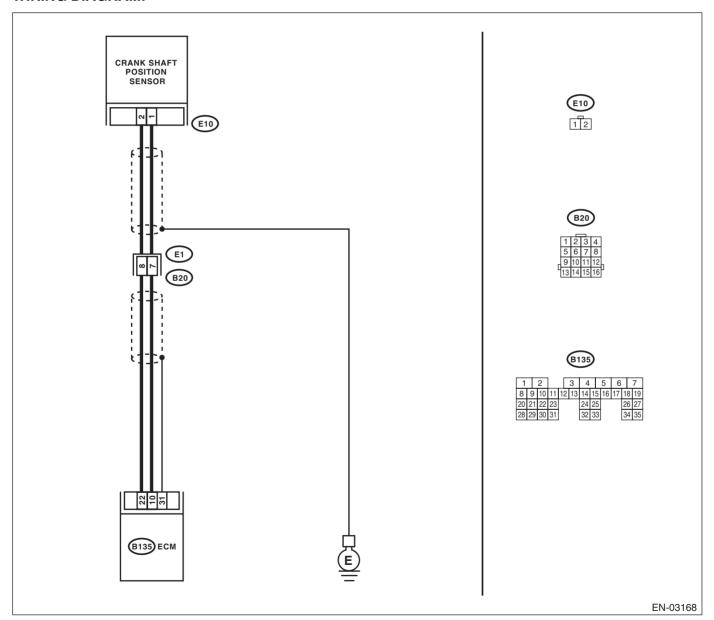
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-107, DTC P0335 CRANKSHAFT POSITION SENSOR "A" CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK HARNESS BETWEEN CRANK-SHAFT POSITION SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from crankshaft position sensor. 3) Measure the resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 1 — (B135) No. 10: (E10) No. 2 — (B135) No. 22:	Is the resistance more than 100 k Ω ?	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	
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. 1 — Engine ground: (E10) No. 2 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 4.	Repair the ground short circuit of harness between crankshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair the ground short circuit of harness with shield.
4	CHECK CONDITION OF CRANKSHAFT PO- SITION SENSOR.	sor installation bolt tightened securely?	Go to step 5.	Tighten the crank- shaft position sen- sor installation bolt securely.
5	 CHECK CRANKSHAFT POSITION SENSOR. 1) Remove the crankshaft position sensor. 2) Measure the resistance between connector terminals of crankshaft position sensor. Terminals No. 1 — No. 2: 	Is the resistance between 1 and 4 k Ω ?	Repair the poor contact of crank-shaft position sensor connector.	Replace the crank- shaft position sen- sor. <ref. to<br="">FU(H4DOTC)-22, Crankshaft Posi- tion Sensor.></ref.>

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

DTC DETECTING CONDITION:

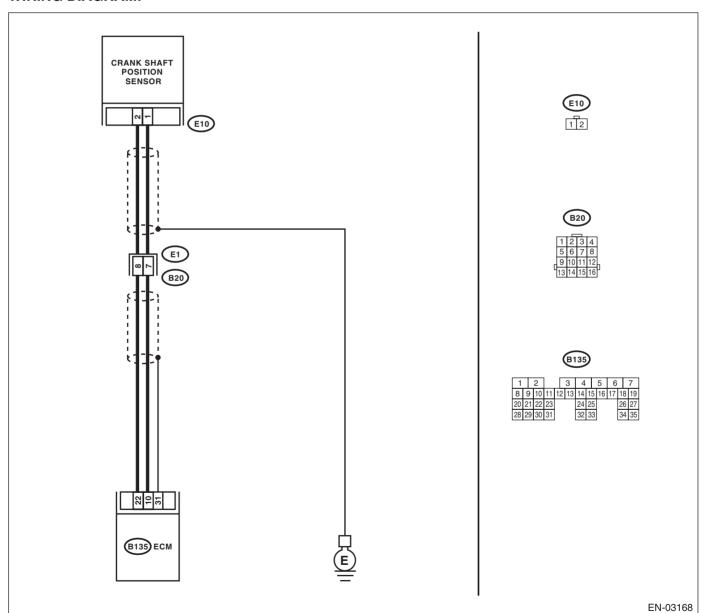
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION < Ref. to GD(H4DOTC)-109, DTC P0336 CRANKSHAFT POSITION SENSOR "A" CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" 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 CRANKSHAFT SPROCKET. Remove the front belt cover.	Are crank sprocket teeth cracked or damaged?	Replace the crank- shaft sprocket. <ref. to<br="">FU(H4DOTC)-22, Crankshaft Posi- tion Sensor.></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(h4dotc)-42,="" timing="" to=""></ref.>	Replace the crank- shaft position sen- sor. <ref. to<br="">FU(H4DOTC)-22, Crankshaft Posi- tion Sensor.></ref.>

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

DTC DETECTING CONDITION:

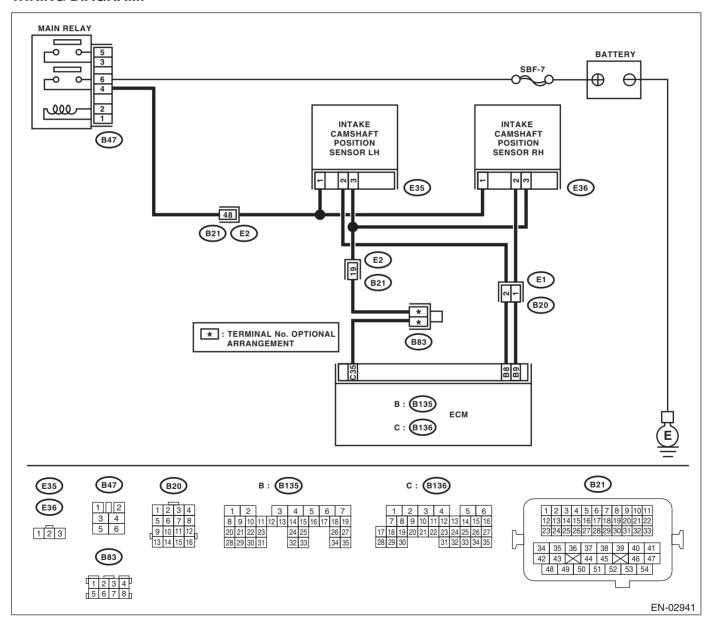
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-111, DTC P0340 CAMSHAFT POSITION SENSOR "A" CIRCUIT (BANK 1 OR SINGLE SENSOR), Diagnostic Trouble Code (DTC) Detecting Criteria.>

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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from camshaft position sensor. 3) Measure the voltage between camshaft position sensor connector and engine ground. Connector & terminal (E36) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit between main relay connector and camshaft position sensor connector.	Go to step 3.
3	CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between camshaft position sensor connector and engine ground. Connector & terminal (E36) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 4.	Repair the open or ground short circuit between main relay connector and camshaft position sensor connector.
4	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR CONNECTOR AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between camshaft position sensor connector and ECM. Connector & terminal (E36) No. 2 — (B135) No. 9: (E36) No. 3 — (B136) No. 35:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit between camshaft position sensor and ECM.
5	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR CONNECTOR AND ECM. Measure the resistance between camshaft position sensor connector and engine ground. Connector & terminal (E36) No. 2 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 6.	Repair the ground short circuit between camshaft position sensor and ECM.
6	CHECK CONDITION OF CAMSHAFT POSITION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 7.	Tighten the cam- shaft position sen- sor installation bolt securely.
7	CHECK CAMSHAFT POSITION SENSOR. Check waveform of camshaft position sensor. <ref. (ecm)="" control="" en(h4dotc)(diag)-16,="" engine="" i="" module="" o="" signal.="" to=""></ref.>	Is there any abnormality in waveform?	Replace the cam- shaft position sen- sor. <ref. to<br="">FU(H4DOTC)-23, Camshaft Position Sensor.></ref.>	Go to step 8.
8	CHECK POOR CONTACT. Check the 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(H4DOTC)-38, Engine Control Module (ECM).></ref.>

AY:DTC P0345 CAMSHAFT POSITION SENSOR "A" CIRCUIT (BANK 2) DTC DETECTING CONDITION:

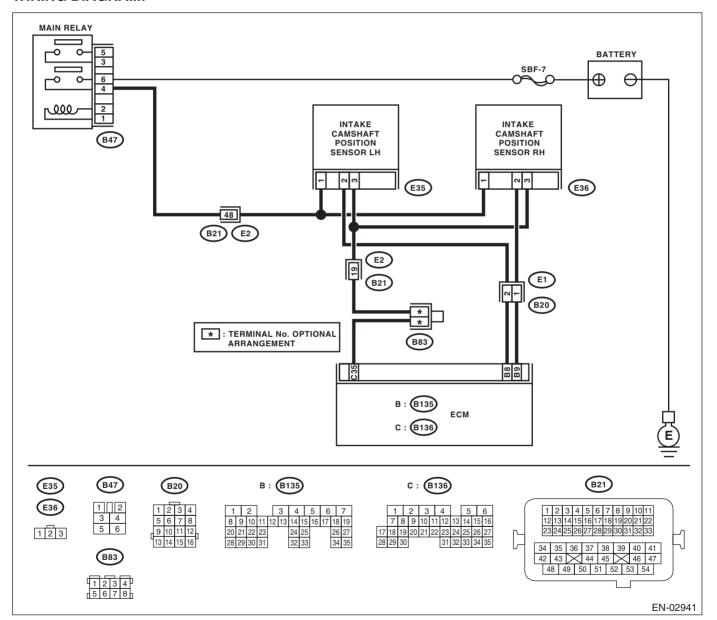
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-113, DTC P0345 CAMSHAFT POSITION SENSOR "A" CIRCUIT (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- · Engine stalls.
- · Failure of engine to start

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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. -68,="" diagnostic="" en(h4dotc)(diag)="" list="" of="" td="" to="" trouble<=""><td>Go to step 2.</td></ref.>	Go to step 2.
2	CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from camshaft position sensor. 3) Measure the voltage between camshaft position sensor connector and engine ground. Connector & terminal (E35) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Code (DTC).> Repair the battery short circuit between main relay connector and camshaft position sensor connector.	Go to step 3.
3	CHECK POWER SUPPLY OF CAMSHAFT POSITION SENSOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between camshaft position sensor connector and engine ground. Connector & terminal (E35) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 4.	Repair the open or ground short cir- cuit between main relay connector and camshaft position sensor connector.
4	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR CONNECTOR AND ECM. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance between camshaft position sensor connector and ECM. Connector & terminal (E35) No. 2 — (B135) No. 8: (E35) No. 3 — (B136) No. 35:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit between camshaft position sensor and ECM.
5	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR CONNECTOR AND ECM. Measure the resistance between camshaft position sensor connector and engine ground. Connector & terminal (E35) No. 2 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 6.	Repair the ground short circuit between camshaft position sensor and ECM.
6	CHECK CONDITION OF CAMSHAFT POSITION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 7.	Tighten the cam- shaft position sen- sor installation bolt securely.
7	CHECK CAMSHAFT POSITION SENSOR. Check waveform of camshaft position sensor. <ref. (ecm)="" control="" en(h4dotc)(diag)-16,="" engine="" i="" module="" o="" signal.="" to=""></ref.>	Is there any abnormality in waveform?	Replace the cam- shaft position sen- sor. <ref. to<br="">FU(H4DOTC)-23, Camshaft Position Sensor.></ref.>	Go to step 8.
8	CHECK POOR CONTACT. Check the 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(H4DOTC)-38, Engine Control Module (ECM).></ref.>

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

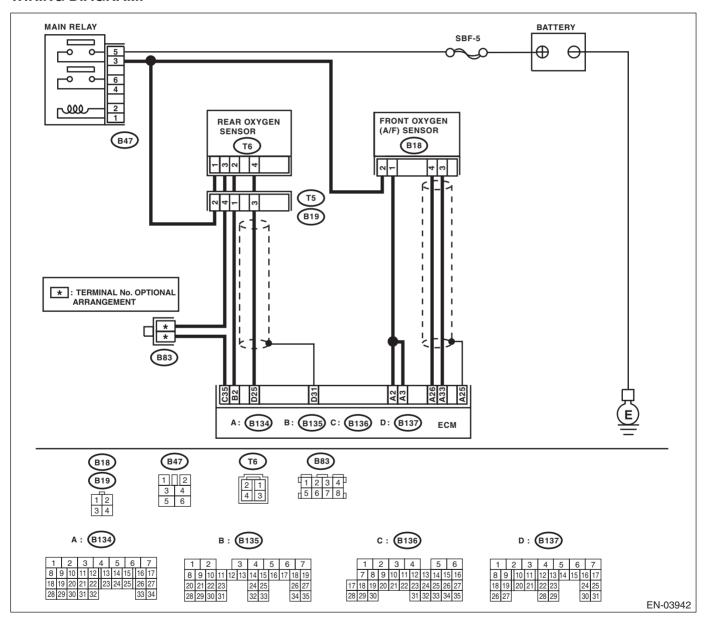
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-113, DTC P0420 CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0420.</ref.>	Go to step 2.
CHECK EXHAUST SYSTEM. Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes. NOTE: Check the following positions. Between cylinder head and front exhaust pipe Between front exhaust pipe and front catalytic converter Between front catalytic converter and rear catalytic converter Loose part and improper installation of front oxygen (A/F) sensor or rear oxygen sensor		Repair or replace the exhaust sys- tem. <ref. to<br="">EX(H4DOTC)-2, General Descrip- tion.></ref.>	Go to step 3.
3 CHECK WAVEFORM DATA ON SUBARU SELECT MONITOR (WHILE DRIVING). 1) Drive the vehicle at a constant speed of 80 — 112 km/h (50 — 70 MPH). 2) Keep the condition of step 1) for 5 minutes, then read the waveform data in a driving condition using Subaru Select Monitor. Rear O2 Sensor	Is normal waveform pattern displayed?	Contact your SOA Service Center. NOTE: The probable cause is consid- ered as the deteri- oration of multiple parts.	Go to step 4.
A/F Sensor #1 Rear O2 Sensor A/F Sensor #1 A/F Sensor #1 TIME(=) 0 10 20 30 40			

	Cton	Charle	Voc	N-
<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			
	1 : : :			
	Rear 02			
	Sensor			
	TIME[S] 0 10 20 30 40			
	EN-04681			
5	CHECK REAR OXYGEN SENSOR VOLT-	Is the voltage more than 490	Go to step 9.	Go to step 6.
	AGE.	mV?	·	•
	1) Warm-up the engine until engine coolant			
	temperature is above 70°C (158°F), and keep			
	the engine speed at 3,000 rpm.			
	(Max. 2 minutes)			
	2) Read the voltage of rear oxygen (A/F) sen-			
	sor using Subaru Select Monitor.			
	NOTE:			
	• For MT model, depress the clutch pedal.			
	Subaru Select Monitor For detailed energing precedure refer to			
	For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". < Ref.			
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-			
	itor.>			
6	CHECK REAR OXYGEN SENSOR CONNEC-	Does water enter the connec-	Dry the water thor-	Go to sten 7
ا ً	TOR AND COUPLING CONNECTOR.	tor?	oughly.	to otop 1.
7	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 3	Repair the open	Go to step 8.
	REAR OXYGEN SENSOR CONNECTOR.	Ω ?	circuit of harness	• '
	1) Turn the ignition switch to OFF.		between ECM and	
	2) Disconnect the connector from ECM and		rear oxygen sen-	
	rear oxygen sensor.		sor connector.	
	3) Measure the resistance of harness			
	between ECM and rear oxygen sensor con-			
	nector.			
	Connector & terminal			
	(B137) No. 25 — (T6) No. 4:			
	(B136) No. 35 — (T6) No. 3:			

	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 (T6) No. 4 (+) — 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 (A/F) 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(h4dotc)(diag)-24,="" 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(h4dotc)-3,="" front="" to=""></ref.>	Contact your SOA Service Center. NOTE: The probable cause is considered as the deterioration of multiple parts.
11	CHECK REAR OXYGEN SENSOR SHIELD. 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 Ω ?	Replace the rear oxygen sensor. <ref. to<br="">FU(H4DOTC)-36, Rear Oxygen Sen- sor.></ref.>	Repair the open circuit of rear oxygen sensor harness.

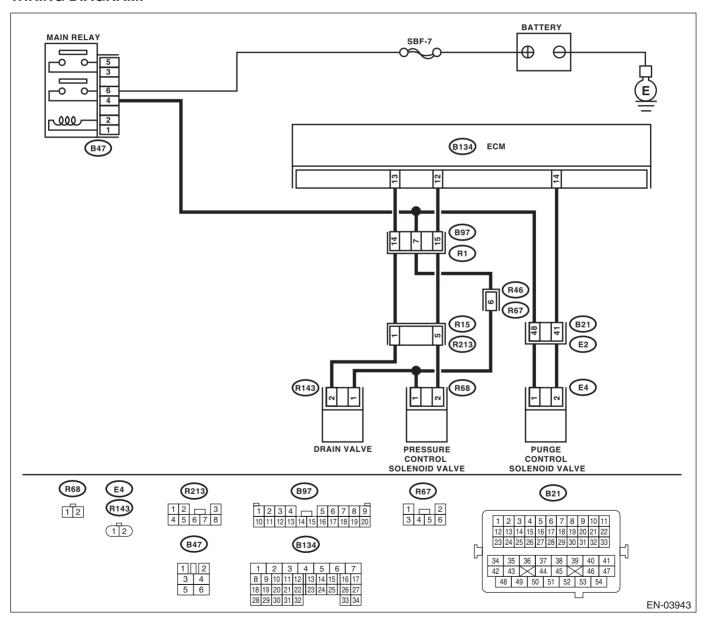
BA:DTC P0442 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (SMALL LEAK)

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-116, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" 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.	Tighten fuel filler cap securely.
3	CHECK FUEL FILLER CAP.	Is the fuel filler cap SUBARU genuine?	Go to step 4.	Replace with a SUBARU genuine fuel filler cap.
4	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace the fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4DOTC)-50, Fuel Filler Pipe.></ref.>	Go to step 5.
5	CHECK DRAIN VALVE. 1) Connect the test mode connector. 2) Turn the ignition switch to ON. 3) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 6.	Replace the drain valve. <ref. to<br="">EC(H4DOTC)-15, Drain Valve.></ref.>
6	CHECK PURGE CONTROL SOLENOID VALVE. Operate the purge control solenoid valve. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" 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(H4DOTC)-7, Purge Control Solenoid Valve.></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(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 8.	Replace the pressure control solenoid valve. <ref. control="" ec(h4dotc)-12,="" pressure="" solenoid="" to="" valve.=""></ref.>

	Step	Check	Yes	No
8	CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE. Turn the ignition switch to OFF.	Is there a hole of more than 1.0 mm (0.04 in) dia. in evaporation line?	Repair or replace the evaporation line. <ref. to<br="">FU(H4DOTC)-60, Fuel Delivery, Return and Evapo- ration Lines.></ref.>	Go to step 9.
9	CHECK CANISTER.	Is the canister damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace the canister. <ref. to EC(H4DOTC)-6, Canister.></ref. 	Go to step 10.
10	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4dotc)-44,="" fuel="" tank.="" to=""></ref.>	Is the fuel tank damaged or is there any hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace the fuel tank. <ref. to FU(H4DOTC)- 44, Fuel Tank.></ref. 	Go to step 11.
11	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Is there any hole of more than 1.0 mm (0.04 in) dia., crack, clogging, or disconnections, bend, misconnection of hoses or pipes in evaporative emis- sion control system?	Repair or replace the hoses or pipes.	Contact with SOA Service Center.

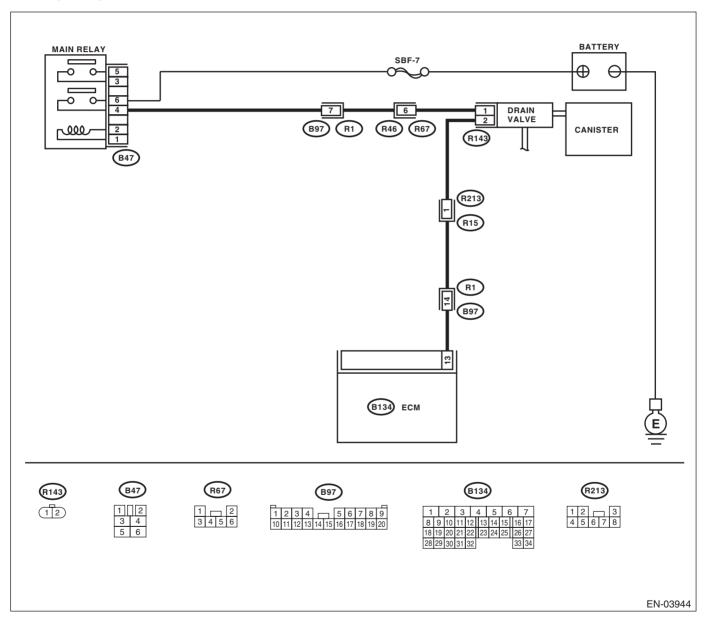
BB:DTC P0447 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT OPEN

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-131, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 10 V?		Go to step 3.
'	Turn the ignition switch to ON.	is the voltage more than 10 v:	do to step 2.	αο το step 3 .
	Measure the voltage between ECM and			
	chassis ground.			
	Connector & terminal			
	(B134) No. 13 (+) — Chassis ground (–):			
2		ls there peer centact in ECM	Donair the near	Even if the mal
2	CHECK POOR CONTACT. Check the poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair the poor contact of ECM connector.	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time. (How- ever, the possibility of poor contact still remains.) NOTE: In this case, repair the following item: • Poor contact in drain valve con- nector • Poor contact in ECM connector
3	CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from drain valve	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 4.	Poor contact of coupling connector Repair the ground short circuit of har- ness between ECM and drain
	and ECM.3) Measure the resistance of harness			valve connector.
	between drain valve connector and chassis			
	ground.			
	Connector & terminal			
	(R143) No. 2 — Chassis ground:			
4	CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. Measure the resistance of harness between ECM and drain valve connector. Connector & terminal (B134) No. 13 — (R143) No. 2:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM and drain valve connector Poor contact of coupling connector
5	CHECK DRAIN VALVE. Measure the resistance between drain valve	Is the resistance between 10 $-$ 100 Ω ?	Go to step 6.	Replace the drain valve. <ref. td="" to<=""></ref.>
	terminals. <i>Terminals No. 1 — No. 2:</i>			EC(H4DOTC)-15, Drain Valve.>

	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-
	 Turn the ignition switch to ON. 			ness and connec-
	Measure the voltage between drain valve			tor.
	and chassis ground.			NOTE:
	Connector & terminal			In this case, repair
	(R143) No. 1 (+) — Chassis ground (–):			the following item:
				 Open circuit of
				harness between
				main relay and
				drain valve
				 Poor contact of
				coupling connector
				 Poor contact of
				main relay connec-
				tor
7	CHECK POOR CONTACT.	Is there poor contact in drain	Repair the poor	Contact with SOA
	Check for poor contact in the drain valve con-	valve connector?	contact of drain	Service Center.
	nector.		valve connector.	

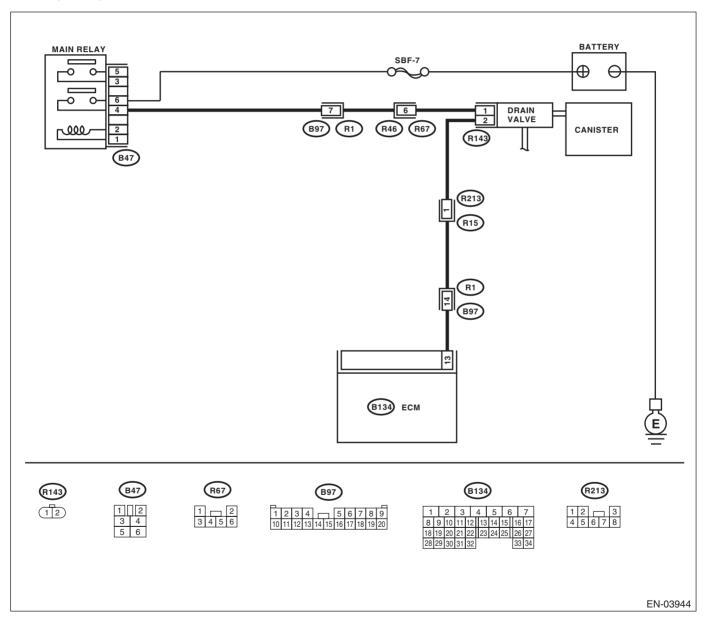
BC:DTC P0448 EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL CIRCUIT SHORTED

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-133, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT SIGNAL OF ECM.	Is the voltage 0 — 10 V?	Go to step 2.	Even if the mal-
	1) Turn the ignition switch to OFF.			function indicator
	2) Connect the test mode connector at the			light illuminates,
	lower portion of instrument panel (on the			the circuit has
	driver's side).			returned to a nor-
	Turn the ignition switch to ON.			mal condition at
	4) While operating the drain valve, measure			this time. In this
	voltage between ECM and chassis ground.			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. check="" compulsory="" en(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>			
	Connector & terminal			
	(B134) No. 13 (+) — Chassis ground (–):			
2	CHECK INPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Go to sten 4	Go to step 3.
<u> </u>	Turn the ignition switch to ON.	is and totage more than 10 V:	5.5 to 5top 4.	3.5 to otop 3 .
	Measure the voltage between ECM and			
	chassis ground.			
	Connector & terminal			
	(B134) No. 13 (+) — Chassis ground (–):			
3	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair the poor	Replace the ECM.
	Check the poor contact of ECM connector.	connector?	contact of ECM	<ref. th="" to<=""></ref.>
			connector.	FU(H4DOTC)-38,
				Engine Control
				Module (ECM).>
4	CHECK HARNESS BETWEEN DRAIN	Is the voltage more than 10 V?	Repair the battery	Go to step 5.
	VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF.		short circuit of har- ness between	
	2) Disconnect the connector from the drain		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(H4DOTC)-38,	
	(B134) No. 13 (+) — Chassis ground (–):		Engine Control	
			Module (ECM).>	
5	CHECK DRAIN VALVE.	Is the resistance less than 1	Replace the drain	Go to step 6.
	 Turn the ignition switch to OFF. 	Ω?	valve <ref. th="" to<=""><th></th></ref.>	
	2) Measure the resistance between drain		EC(H4DOTC)-15,	
	valve terminals.		Drain Valve.> and	
	Terminals		ECM <ref. th="" to<=""><th></th></ref.>	
	No. 1 — No. 2:		FU(H4DOTC)-38, Engine Control	
			Module (ECM).>.	
6	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair the poor	Replace the ECM.
[Check the poor contact of ECM connector.	connector?	contact of ECM	<ref. th="" to<=""></ref.>
	Check the poor contact of Low confidetor.	Confidence :	connector.	FU(H4DOTC)-38,
				Engine Control
				Module (ECM).>

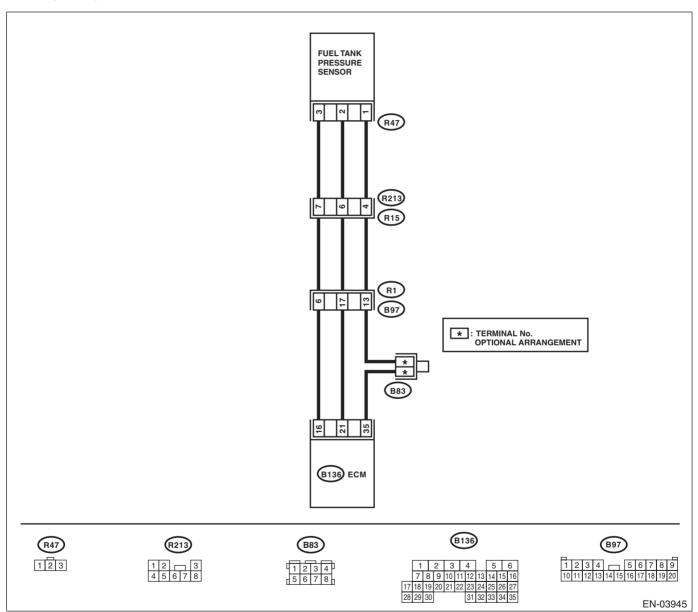
BD:DTC P0451 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-135, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" 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.	Tighten fuel filler cap securely.
3	CHECK PRESSURE VACUUM LINE. NOTE: Check the following items. • Disconnection, leakage and clogging of the vacuum hoses and pipes between fuel tank pressure sensor and fuel tank • Disconnection, leakage and clogging of air ventilation hoses and pipes between fuel filler pipe and fuel tank		Repair or replace the hoses and pipes.	Replace the fuel tank pressure sen- sor. <ref. to<br="">EC(H4DOTC)-11, Fuel Tank Pres- sure Sensor.></ref.>

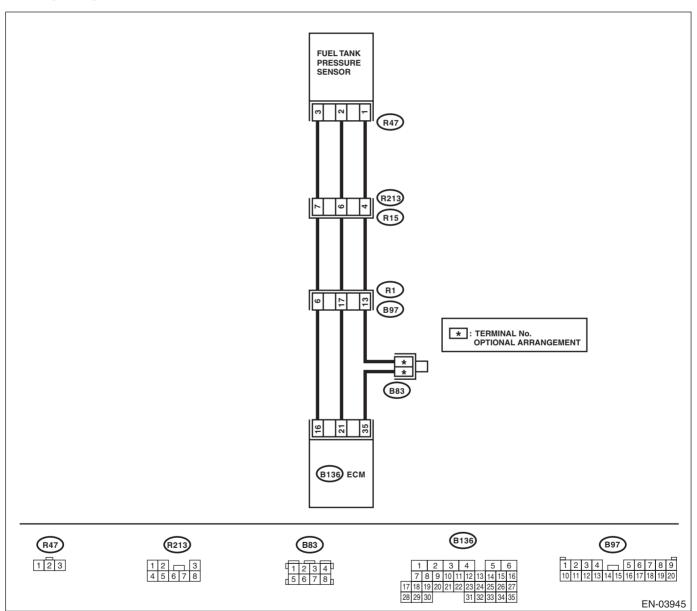
BE:DTC P0452 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-137, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Turn the ignition switch to OFF. 2) Remove the fuel filler cap. 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 the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>		Go to step 2.	Even if the mal- function indicator light illuminates, the circuit has returned to a nor- mal condition at this time.
2	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 16 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?		Go to step 3.
3	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 16 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Repair the poor contact of ECM connector.	Contact with SOA Service Center.
4	CHECK INPUT SIGNAL OF ECM. Measure the voltage between ECM and chassis ground. Connector & terminal (B136) No. 21 (+) — Chassis ground (-):	Is the voltage less than 0.2 V?	Go to step 6.	Go to step 5.
5	CHECK INPUT SIGNAL FOR ECM (USING SUBARU SELECT MONITOR). Read the data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>		Repair the poor contact of ECM connector.	Go to step 6.
6	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn the ignition switch to OFF. 2) Remove the rear seat cushion. 3) Separate rear wiring harness and fuel tank cord. 4) Turn the ignition switch to ON. 5) Measure the voltage between the rear wiring harness connector and chassis ground. Connector & terminal (R15) No. 7 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 7.	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

	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM and rear wiring harness connector. Connector & terminal (B136) No. 35 — (R15) No. 4:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM and rear wiring harness connector Poor contact of coupling connector Poor contact of joint connector
8	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. Measure the resistance of harness between rear wiring harness connector and chassis ground. Connector & terminal (R15) No. 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 CORD.	Is the resistance less than 1 Ω ?	Go to step 10.	Repair the open circuit in fuel tank cord.
10	CHECK FUEL TANK CORD. Measure the resistance of fuel tank cord. Connector & terminal (R213) No. 4 — (R47) No. 1:	Is the resistance less than 1 Ω ?	Go to step 11.	Repair the open circuit in fuel tank cord.
11	CHECK FUEL TANK CORD. Measure the resistance of harness between fuel tank pressure sensor connector and engine ground. Connector & terminal (R47) No. 2 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 12.	Repair the ground short circuit of fuel tank cord.
12	CHECK POOR CONTACT. Check for poor contact in fuel tank pressure sensor connector.	Is there poor contact in fuel tank pressure sensor connector?	Repair the poor contact in fuel tank pressure sensor connector.	Replace the fuel tank pressure sen- sor. <ref. to<br="">EC(H4DOTC)-11, Fuel Tank Pres- sure Sensor.></ref.>

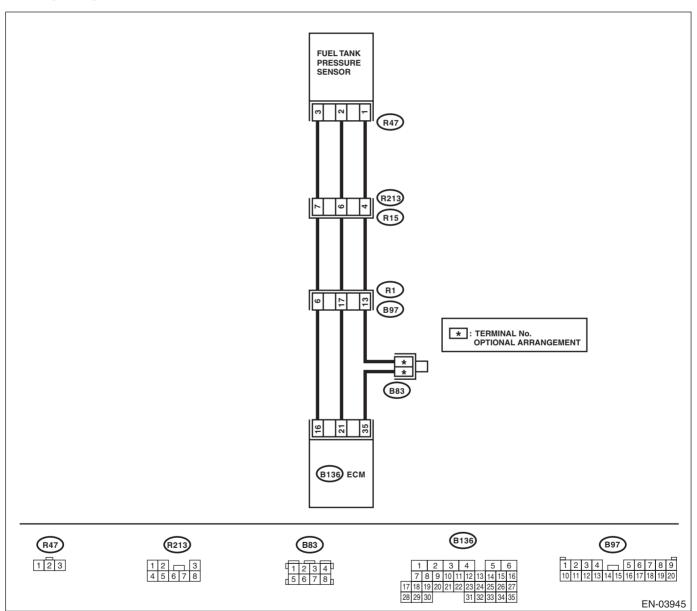
BF:DTC P0453 EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-139, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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	Go to step 11.	Go to step 2.
	2) Remove the fuel filler cap.	more?		
	3) Install the fuel filler cap.	more:		
	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 the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" p="" select<="" subaru="" to=""></ref.>			
	Monitor.>			
2	CHECK POWER SUPPLY TO FUEL TANK	le the voltage more than 4 E V2	Co to oton 4	Co to oton 2
-	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			
	(B136) No. 16 (+) — Chassis ground (-):		D : II	D 1 11 FOM
3	CHECK POWER SUPPLY TO FUEL TANK	Does the measured value	Repair the poor	Replace the ECM.
	PRESSURE SENSOR.	change by shaking the ECM	contact of ECM	<ref. td="" to<=""></ref.>
	Measure the voltage between ECM connector	harness and connector?	connector.	FU(H4DOTC)-38,
	and chassis ground.			Engine Control
	Connector & terminal			Module (ECM).>
	(B136) No. 16 (+) — 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			
_	(B136) No. 21 (+) — Chassis ground (–):		D : II	0 1 1 0
5	CHECK INPUT SIGNAL FOR ECM (USING	Is the measured value more	Repair the poor	Go to step 6.
	SUBARU SELECT MONITOR).	than –2.8 kPa (–21.0 mmHg, –	contact of ECM	
	Read the data of fuel tank pressure sensor sig-	0,	connector.	
	nal using Subaru Select Monitor.	ECM harness and connector?		
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" th="" to=""><th></th><th></th><th></th></ref.>			
	Monitor.>	1 11 11 11 11 11 11 11 11	<u> </u>	
6	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 4.5 V?	Go to step 7.	Repair the har-
	COUPLING CONNECTOR IN REAR WIRING			ness and connec-
	HARNESS.			tor.
	Turn the ignition switch to OFF.			NOTE:
	2) Remove the rear seat cushion.			In this case, repair
	3) Separate rear wiring harness and fuel tank			the following item:
	cord.			Open circuit of
	4) Turn the ignition switch to ON.			harness between
	5) Measure the voltage between the rear wir-			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

	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance of harness between ECM and rear wiring harness connector. Connector & terminal (B136) No. 21 — (R15) No. 6: (B136) No. 35 — (R15) No. 4:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM and rear wiring harness connector Poor contact of coupling connector
8	 CHECK FUEL TANK CORD. Disconnect the connector from the fuel tank pressure sensor. Measure the resistance of fuel tank cord. Connector & terminal (R213) No. 6 — (R47) No. 2: 	Is the resistance less than 1 Ω ?	Go to step 9.	Repair the open circuit in fuel tank cord.
9	CHECK FUEL TANK CORD. Measure the resistance of fuel tank cord. Connector & terminal (R213) No. 4 — (R47) No. 1:	Is the resistance less than 1 Ω ?	Go to step 10.	Repair the open circuit in fuel tank cord.
10	CHECK POOR CONTACT. Check for poor contact in fuel tank pressure sensor connector.	Is there poor contact in fuel tank pressure sensor connector?	Repair the poor contact in fuel tank pressure sensor connector.	Replace the fuel tank pressure sen- sor. <ref. to<br="">EC(H4DOTC)-11, Fuel Tank Pres- sure Sensor.></ref.>
11	CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from fuel tank pressure sensor. 3) Turn the ignition switch to ON. 4) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE." <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>	Is the measured value 2.8 kPa (21.0 mmHg, 0.827 inHg) or 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(H4DOTC)-11, Fuel Tank Pres- sure Sensor.></ref.>

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

DTC DETECTING CONDITION:

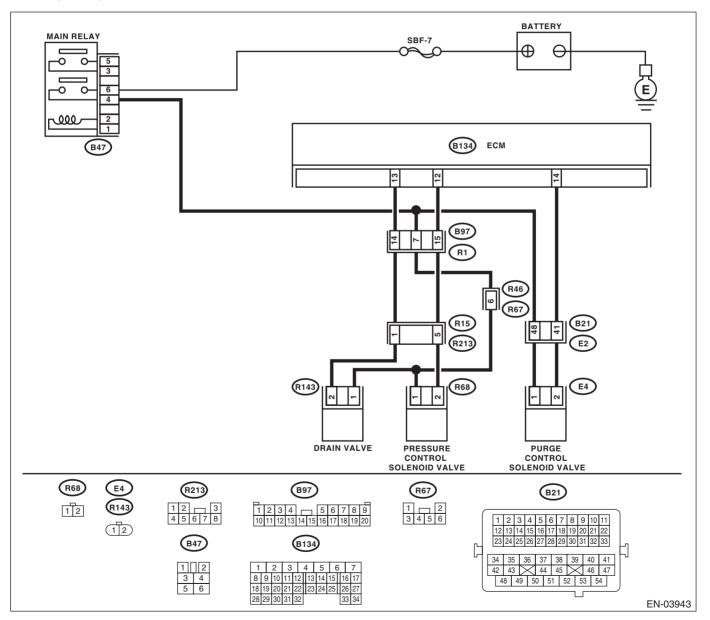
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-140, DTC P0456 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (VERY SMALL LEAK), Diagnostic Trouble Code (DTC) Detecting Criteria.>

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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" 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.	Tighten fuel filler cap securely.
3	CHECK FUEL FILLER CAP.	Is the fuel filler cap SUBARU genuine?	Go to step 4.	Replace with a SUBARU genuine fuel filler cap.
4	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace the fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4DOTC)-50, Fuel Filler Pipe.></ref.>	Go to step 5.
5	CHECK DRAIN VALVE. 1) Connect the test mode connector. 2) Turn the ignition switch to ON. 3) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 6.	Replace the drain valve. <ref. to<br="">EC(H4DOTC)-15, Drain Valve.></ref.>
6	CHECK PURGE CONTROL SOLENOID VALVE. Operate the purge control solenoid valve. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" 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(H4DOTC)-7, Purge Control Solenoid Valve.></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(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 8.	Replace the pressure control solenoid valve. <ref. control="" ec(h4dotc)-12,="" pressure="" solenoid="" to="" valve.=""></ref.>

	Step	Check	Yes	No
8	CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE. Turn the ignition switch to OFF.	Is there a hole of more than 0.5 mm (0.020 in) dia. in evaporation line?	Repair or replace the evaporation line. <ref. to<br="">FU(H4DOTC)-60, Fuel Delivery, Return and Evapo- ration Lines.></ref.>	Go to step 9.
9	CHECK CANISTER.	Is the canister damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace the canister. <ref. to EC(H4DOTC)-6, Canister.></ref. 	Go to step 10.
10	CHECK FUEL TANK. Remove the fuel tank. <ref. fu(h4dotc)-44,="" fuel="" tank.="" to=""></ref.>	Is the fuel tank damaged or is there any hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace the fuel tank. <ref. to FU(H4DOTC)- 44, Fuel Tank.></ref. 	Go to step 11.
11	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Is there any hole of more than 0.5 mm (0.020 in) dia., crack, clogging, or disconnections, bend, misconnection of hoses or pipes in evaporative emission control system?	Repair or replace the hoses or pipes.	Contact with SOA Service Center.

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

DTC DETECTING CONDITION:

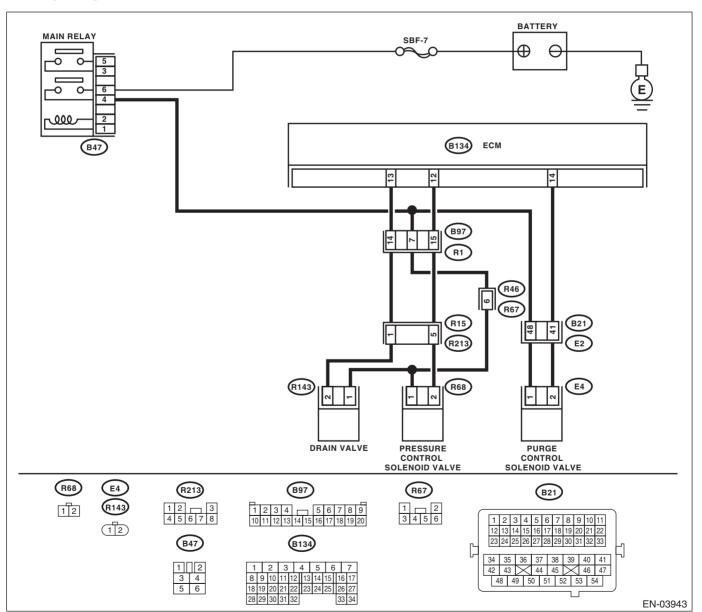
- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-140, DTC P0457 EVAPORATIVE EMISSION CONTROL SYSTEM LEAK DETECTED (FUEL CAP LOOSE/OFF), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Fuel odor
- Fuel filler cap loose or lost

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" 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 has caught while tightening.	Is the fuel filler cap tightened securely?	Go to step 3.	Tighten fuel filler cap securely.
3	CHECK FUEL FILLER CAP.	Is the fuel filler cap SUBARU genuine?	Go to step 4.	Replace with a SUBARU genuine fuel filler cap.
4	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace the fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4DOTC)-50, Fuel Filler Pipe.></ref.>	Go to step 5.
5	CHECK DRAIN VALVE. 1) Connect the test mode connector. 2) Turn the ignition switch to ON. 3) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 6.	Replace the drain valve. <ref. to<br="">EC(H4DOTC)-15, Drain Valve.></ref.>
6	CHECK PURGE CONTROL SOLENOID VALVE. Operate the purge control solenoid valve. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 7.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4DOTC)-7, Purge Control Solenoid Valve.></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(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Go to step 8.	Replace the pressure control sole- noid valve. <ref. to EC(H4DOTC)- 12, Pressure Con- trol Solenoid Valve.></ref.
8	CHECK CANISTER.	Is the canister damaged?	Repair or replace the canister. <ref. to EC(H4DOTC)-6, Canister.></ref. 	Go to step 9.

	Step	Check	Yes	No
9	CHECK FUEL TANK. Remove the fuel tank. <ref. 44,="" fu(h4dotc)-="" fuel="" tank.="" to=""></ref.>	Is the fuel tank damaged?	Repair or replace the fuel tank. <ref. to FU(H4DOTC)- 44, Fuel Tank.></ref. 	Go to step 10.
10	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Are there holes of more than 0.5 mm (0.020 in) dia., cracks, clogging, or disconnections, misconnection of hoses or pipes in evaporative emission control system?	Repair or replace the hoses or pipes.	Contact with SOA Service Center.

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

DTC DETECTING CONDITION:

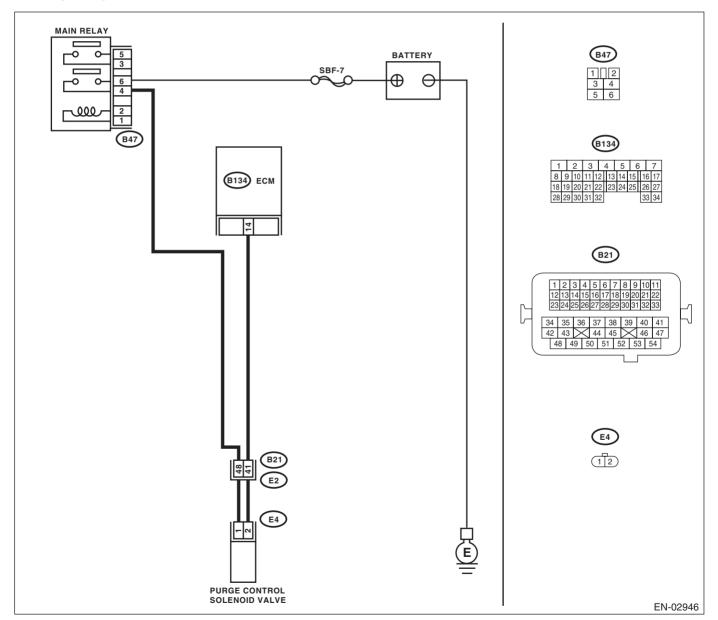
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-141, DTC P0458 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL OF ECM.	Is the voltage more than 10 V?	Even if the mal-	Go to step 2.
	 Turn the ignition switch to ON. Measure the voltage between ECM and chassis ground. Connector & terminal (B134) No. 14 (+) — Chassis ground (-): 	,	function indicator light illuminates, the circuit has returned to a nor- mal condition at this time.	
2	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from purge control solenoid valve and ECM. 3) Measure the resistance of harness between purge control solenoid valve connector and engine ground. Connector & terminal (E4) No. 2 — Engine ground:	M $Ω$?	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 (B134) No. 14 — (E4) No. 2:	Is the resistance less than 1 Ω ?	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 29 $-35~\Omega$?	Go to step 5.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4DOTC)-7, Purge Control Solenoid Valve.></ref.>
5	CHECK POWER SUPPLY TO PURGE CONTROL SOLENOID VALVE. 1) Turn the ignition switch to ON. 2) Measure the voltage between purge control solenoid valve and engine ground. Connector & terminal (E4) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 6.	Repair the open circuit of harness between main relay and purge control solenoid valve connector.
6	CHECK POOR CONTACT. Check poor contact of purge control solenoid valve connector.	Is there poor contact of purge control solenoid valve connec- tor?	Repair the poor contact of purge control solenoid valve connector.	Replace the ECM. <ref. to<br="">FU(H4DOTC)-38, Engine Control Module (ECM).></ref.>

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

DTC DETECTING CONDITION:

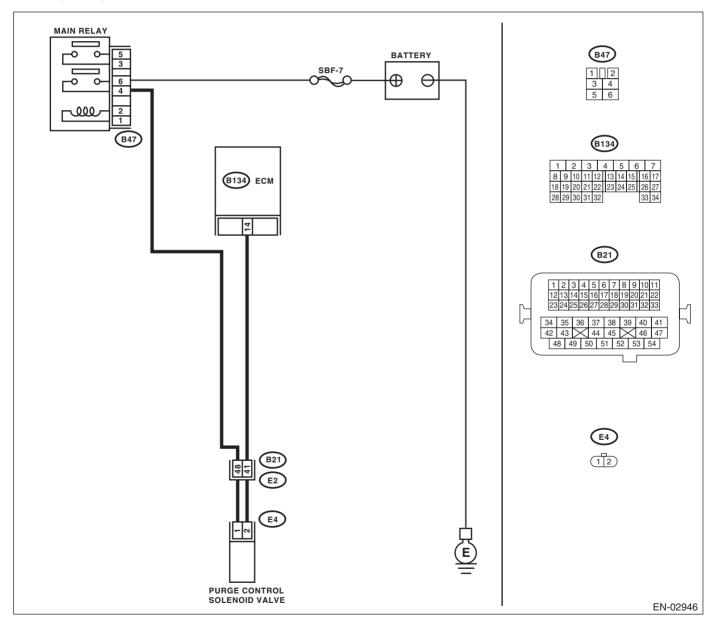
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-143, DTC P0459 EVAPORATIVE EMISSION SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK OUTPUT 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.	Does the purge control sole- noid valve operate?	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 PURGE CONTROL SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from purge control solenoid valve. 3) Measure the resistance between purge control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance 29 — 35 Ω ?	Go to step 3.	Replace the purge control solenoid valve. <ref. to<br="">EC(H4DOTC)-7, Purge Control Solenoid Valve.></ref.>
3	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from purge control solenoid valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground. Connector & terminal (B134) No. 14 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 4.	Repair the battery short circuit of harness between ECM and purge control solenoid valve connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>
4	CHECK POOR CONTACT. Check the poor contact of ECM connector.	Is there poor contact in ECM connector?	Repair the poor contact of ECM connector.	Replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>

ENGINE (DIAGNOSTICS)

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-145, DTC P0461 FUEL LEVEL 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appro-	Replace the fuel
			priate DTC using	level sensor and
			the "List of Diag-	fuel sub level sen-
			nostic Trouble	sor. <ref. th="" to<=""></ref.>
			Code (DTC)".	FU(H4DOTC)-55,
			<ref. th="" to<=""><th>Fuel Level Sen-</th></ref.>	Fuel Level Sen-
			EN(H4DOTC)(diag)	sor.> <ref. th="" to<=""></ref.>
			-68, List of Diag-	FU(H4DOTC)-56,
			nostic Trouble	Fuel Sub Level
			Code (DTC).>	Sensor.>
			NOTE:	
			In this case, it is	
			not necessary to	
			inspect DTC P0461.	

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-147, DTC P0462 FUEL LEVEL SENSOR "A" CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is DTC P0462 displayed on the	Check the combi-	Temporary poor
		Subaru Select Monitor?	nation meter.	contact occurs.
			<ref. idi-3,<="" th="" to=""><th></th></ref.>	
			Combination	
			Meter System.>	

ENGINE (DIAGNOSTICS)

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-149, DTC P0463 FUEL LEVEL SENSOR "A" CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is DTC P0463 displayed on the	Check the combi-	Temporary poor
		Subaru Select Monitor?	nation meter.	contact occurs.
			<ref. idi-3,<="" th="" to=""><th></th></ref.>	
			Combination	
			Meter System.>	

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-151, DTC P0464 FUEL LEVEL SENSOR CIRCUIT INTERMITTENT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

	Step	Check	Yes	No
Ī	1 CHECK ANY OTHER DTC ON DISPLAY.	Is DTC P0464 displayed on the	Check the combi-	Temporary poor
		Subaru Select Monitor?	nation meter.	contact occurs.
ı			<ref. idi-3,<="" th="" to=""><th></th></ref.>	
ı			Combination	
			Meter System.>	

ENGINE (DIAGNOSTICS)

BO:DTC P0483 FAN RATIONALITY CHECK

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-154, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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.

WIRING DIAGRAM:

Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appro-	Check radiator fan,
		priate DTC using	fan motor and
		the "List of Diag-	thermostat and if
		nostic Trouble	thermostat is
		Code (DTC)".	stuck, replace
		<ref. th="" to<=""><th>thermostat. <ref.< th=""></ref.<></th></ref.>	thermostat. <ref.< th=""></ref.<>
		EN(H4DOTC)(diag)	to CO(H4DOTC)-
		-68, List of Diag-	24, Radiator Main
		nostic Trouble	Fan and Fan
		Code (DTC).>	Motor.> <ref. th="" to<=""></ref.>
			CO(H4DOTC)-27,
			Radiator Sub Fan
			and Fan Motor.>

BP:DTC P0500 VEHICLE SPEED SENSOR "A"

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-155, DTC P0500 VEHICLE SPEED SENSOR "A", Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

	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).>	

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

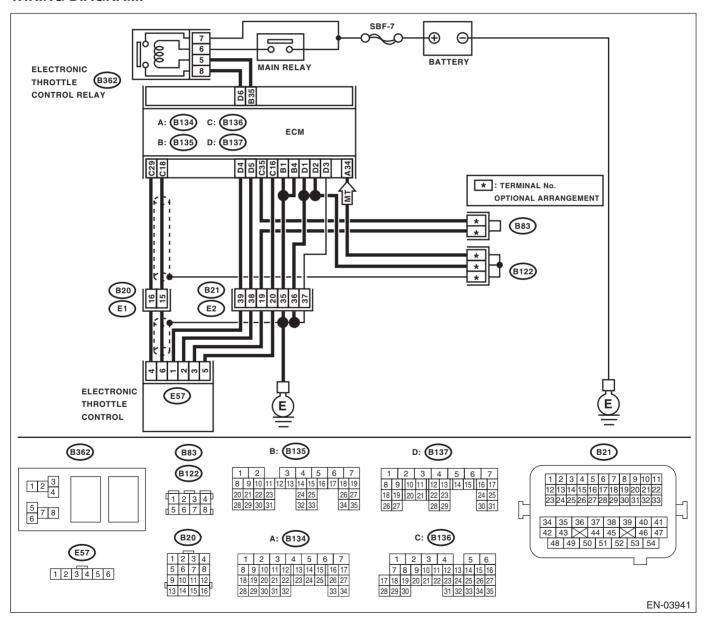
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-157, DTC P0506 IDLE AIR CONTROL SYSTEM RPM LOWER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0506.</ref.>	
2	CHECK AIR CLEANER ELEMENT. 1) Turn the ignition switch to OFF. 2) Check the air cleaner element.	Is there excessive clogging on air cleaner element?	Replace the air cleaner element. <ref. to<br="">IN(H4DOTC)-7, Air Cleaner Element.></ref.>	Go to step 3.
3	CHECK ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control. 3) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diagnosis of DTC P2101.

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

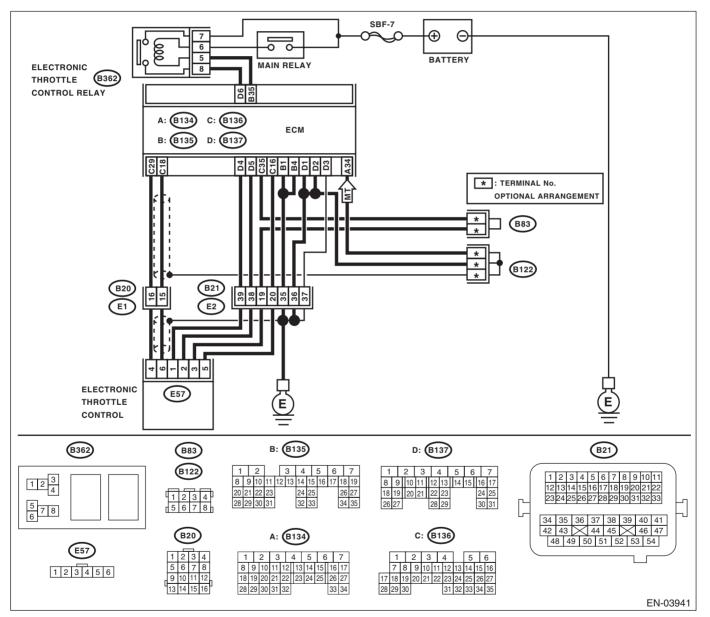
- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-159, DTC P0507 IDLE AIR CONTROL SYSTEM RPM HIGHER THAN EXPECTED, Diagnostic Trouble Code (DTC) Detecting Criteria.>

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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	Step CHECK ANY OTHER DTC ON DISPLAY.	Check Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to</ref.>	No Go to step 2.
2	CHECK AIR INTAKE SYSTEM. 1) Turn the ignition switch to ON. 2) Start and idle the engine. 3) Check the following items. • Loose installation of intake manifold and throttle body • Cracks of intake manifold gasket and throttle body gasket • Disconnection of vacuum hoses	Is there any fault in air intake system?	inspect DTC P0507. Repair air suction and leaks.	Go to step 3.
3	CHECK ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control. 3) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diag- nosis of DTC P2101.

BS:DTC P0512 STARTER REQUEST CIRCUIT

DTC DETECTING CONDITION:

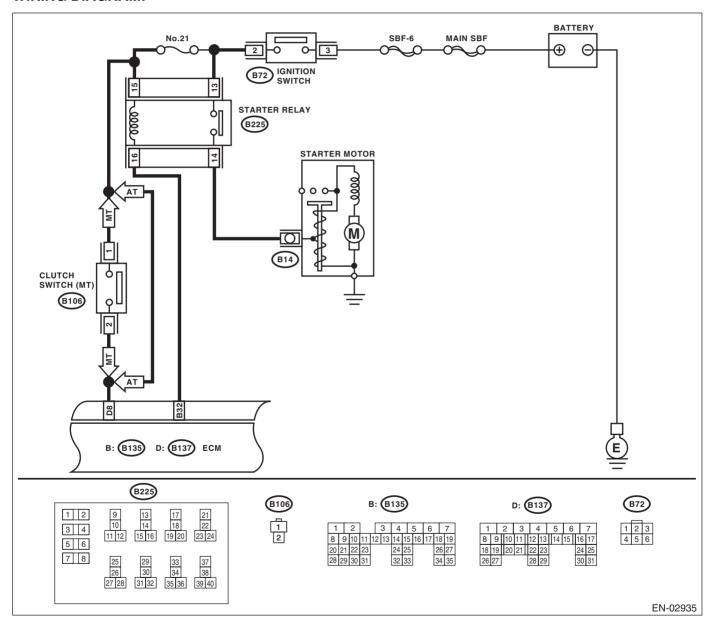
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-161, DTC P0512 STARTER REQUEST CIRCUIT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Failure of engine to start

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



ENGINE (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN IGNITION	Is the voltage more than 10 V?	Repair the battery	Repair the poor
	SWITCH AND ECM.		short circuit of har-	contact of ECM.
	 Disconnect the connectors from ECM. 		ness between igni-	
	2) Measure the voltage between ECM and		tion switch and	
	chassis ground.		ECM.	
	Connector & terminal			
	(B137) No. 32 (+) — Chassis ground (–):			

BT:DTC P0519 IDLE AIR CONTROL SYSTEM PERFORMANCE DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-163, 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.
- Fuel is cut according to fail-safe function.

CAUTION:

	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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P0519.</ref.>	
2	CHECK AIR INTAKE SYSTEM. 1) Turn the ignition switch to ON. 2) Start and idle the engine. 3) Check the following items. • Loose installation of intake manifold and throttle body • Cracks of intake manifold gasket and throttle body gasket • Disconnection of vacuum hoses	Is there any fault in air intake system?	Repair air suction and leaks.	Go to step 3.
3	CHECK ELECTRONIC THROTTLE CONTROL. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control. 3) Check the electronic throttle control.	Are foreign matter found inside electronic throttle control?	Remove foreign matter from elec- tronic throttle con- trol.	Perform the diagnosis of DTC P2101.

BU:DTC P0545 EXHAUST GAS TEMPERATURE SENSOR CIRCUIT LOW (BANK 1 SENSOR 1)

DTC DETECTING CONDITION:

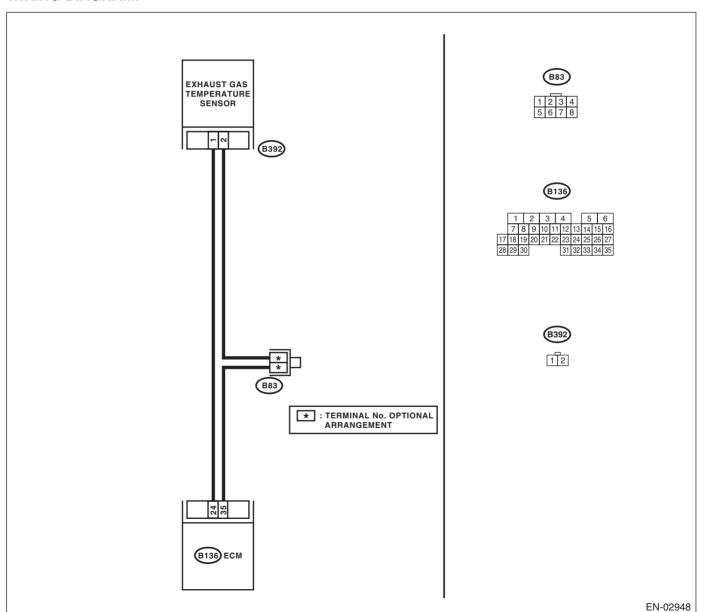
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-164, DTC P0545 EXHAUST GAS TEMPERATURE SENSOR CIRCUIT LOW (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of exhaust 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(h4dotc)(diag)-24,="" 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 of the exhaust temperature sensor • Poor contact in ECM • Poor contact of joint connector
2	CHECK HARNESS BETWEEN EXHAUST TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from exhaust temperature sensor. 3) Turn the ignition switch to ON. 4) Read the data of exhaust 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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Replace the exhaust temperature sensor. <ref. exhaust="" fu(h4dotc)-37,="" sensor.="" temperature="" to=""></ref.>	Repair ground short circuit of har- ness between exhaust tempera- ture sensor and ECM connector.

BV:DTC P0546 EXHAUST GAS TEMPERATURE SENSOR CIRCUIT HIGH (BANK 1 SENSOR 1)

DTC DETECTING CONDITION:

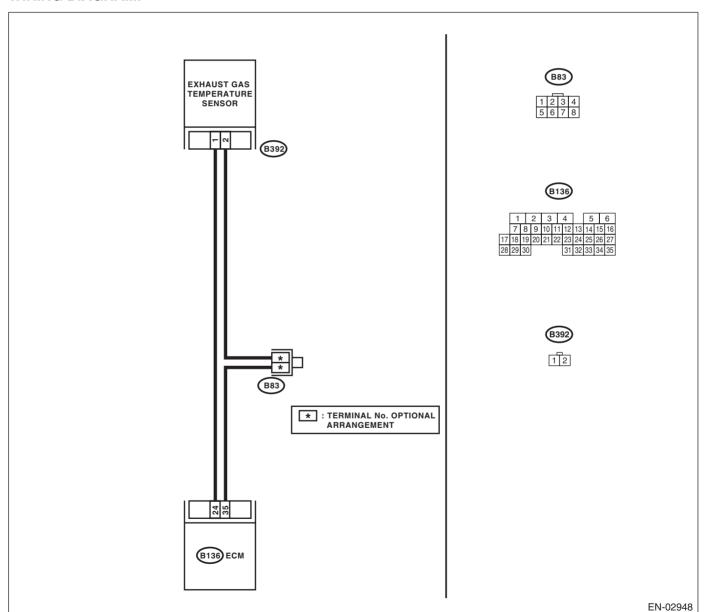
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-166, DTC P0546 EXHAUST GAS TEMPERATURE SENSOR CIRCUIT HIGH (BANK 1 SENSOR 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of exhaust 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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>	Is the temperature less than 372°C (702°F)?	Go to step 2.	Repair the poor contact. NOTE: In this case, repair the following item: • Poor contact of the exhaust temperature sensor • Poor contact in ECM • Poor contact of joint connector
2	CHECK HARNESS BETWEEN EXHAUST TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from exhaust temperature sensor. 3) Measure the voltage between the exhaust temperature sensor connector and engine ground. Connector & terminal (B392) No. 1 (+) — Engine ground (-):	-	Repair the battery short circuit of har- ness between ECM and exhaust temperature sen- sor connector.	Go to step 3.
3	CHECK HARNESS BETWEEN EXHAUST TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between the exhaust temperature sensor connector and engine ground. Connector & terminal (B392) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair the battery short circuit of har- ness between ECM and exhaust temperature sen- sor connector.	Go to step 4.
4	CHECK HARNESS BETWEEN EXHAUST TEMPERATURE SENSOR AND ECM CONNECTOR. Measure the voltage between the exhaust temperature sensor connector and engine ground. Connector & terminal (B392) No. 1 (+) — Engine 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 exhaust temperature connector Poor contact of the exhaust temperature sensor connector Poor contact in ECM connector Poor contact of joint connector

ENGINE (DIAGNOSTICS)

Step	Check	Yes	No
5 CHECK HARNESS BETWEEN EXHAUST	Is the resistance less than 5	Replace the	Repair the har-
TEMPERATURE SENSOR AND ECM CON-	Ω?	exhaust tempera-	ness and connec-
NECTOR.		ture sensor. <ref.< th=""><th>tor.</th></ref.<>	tor.
 Turn the ignition switch to OFF. 		to FU(H4DOTC)-	NOTE:
Measure the resistance of harness		37, Exhaust Tem-	In this case, repair
between exhaust temperature temperature		perature Sensor.>	the following item:
sensor connector and engine ground.			 Open circuit of
Connector & terminal			harness between
(B392) No. 2 — Engine ground:			ECM and exhaust
			temperature con-
			nector
			 Poor contact of
			the exhaust tem-
			perature sensor
			connector
			 Poor contact in
			ECM connector
			 Poor contact of
			joint connector

BW:DTC P0600 SERIAL COMMUNICATION LINK

NOTE:

For the diagnostic procedure, refer to LAN System.

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

NOTE:

For the diagnostic procedure, refer to DTC P0607. <Ref. to EN(H4DOTC)(diag)-220, DTC P0607 CONTROL MODULE PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

NOTE:

For the diagnostic procedure, refer to DTC P0607. <Ref. to EN(H4DOTC)(diag)-220, DTC P0607 CONTROL MODULE PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

BZ:DTC P0607 CONTROL MODULE PERFORMANCE

DTC DETECTING CONDITION:

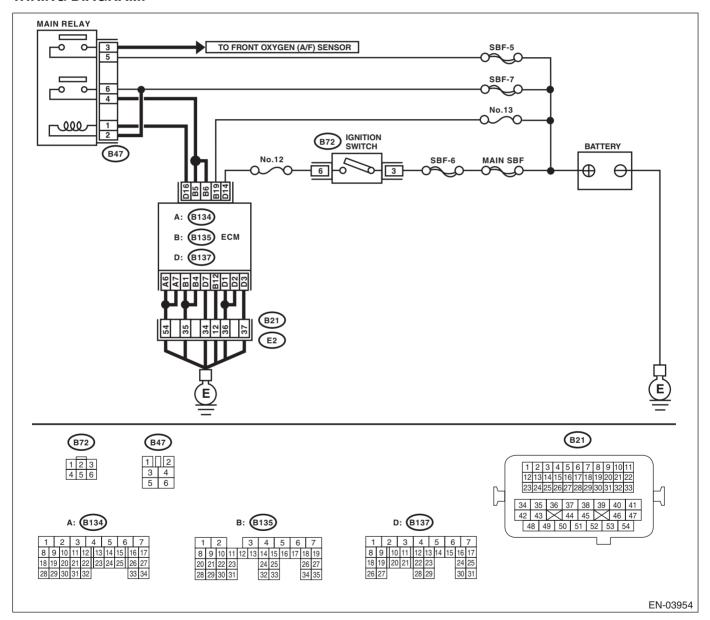
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-172, DTC P0607 CONTROL MODULE PERFOR-MANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK INPUT VOLTAGE OF ECM. 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 5 (+) — Chassis ground (-): (B135) No. 6 (+) — Chassis ground (-):	Is the voltage 10 — 13 V?	Go to step 2.	Repair the open or ground short cir- cuit of power sup- ply circuit.
2	CHECK INPUT VOLTAGE OF ECM. 1) Start the engine. 2) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 5 (+) — Chassis ground (-): (B135) No. 6 (+) — Chassis ground (-):	Is the voltage 13 — 15 V?	Go to step 3.	Repair the open or ground short cir- cuit of power sup- ply circuit.
3	CHECK ECM GROUND HARNESS. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B137) No. 1 (+) — Chassis ground (-): (B137) No. 2 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Replace the ECM. <ref. to<br="">FU(H4DOTC)-38, Engine Control Module (ECM).></ref.>	Repair the following items. • Further tighten the engine ground terminal. • Poor contact in ECM connector. • Poor contact in coupling connector.

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

NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4DOTC)(diag)-290, DTC P2101 THROT-TLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CB:DTC P0691 FAN 1 CONTROL CIRCUIT LOW

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION < Ref. to GD(H4DOTC)-178, DTC P0691 FAN 1 CONTROL CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Radiator fan does not operate properly.
- Overheating

CAUTION:

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is DTC P0691 displayed on the	Inspect the radia-	Temporary poor
		Subaru Select Monitor?	tor fan relay. <ref.< th=""><th>contact occurs.</th></ref.<>	contact occurs.
			to CO(H4DOTC)-	
			8, Radiator Fan	
			System.>	

ENGINE (DIAGNOSTICS)

CC:DTC P0692 FAN 1 CONTROL CIRCUIT HIGH

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is DTC P0692 displayed on the	Inspect the radia-	Temporary poor
		Subaru Select Monitor?	tor fan relay. <ref.< th=""><th>contact occurs.</th></ref.<>	contact occurs.
			to CO(H4DOTC)-	
			8, Radiator Fan	
			System.>	

CD:DTC P0700 TRANSMISSION CONTROL SYSTEM (MIL REQUEST)

NOTE:

For the diagnostic procedure, refer to AT section. <Ref. to 5AT(diag)-2, Basic Diagnostic Procedure.>

CE:DTC P0851 PARK/NEUTRAL SWITCH INPUT CIRCUIT LOW

NOTE:

For the diagnostic procedure, refer to AT section. <Ref. to 5AT(diag)-2, Basic Diagnostic Procedure.>

CF:DTC P0852 PARK/NEUTRAL SWITCH INPUT CIRCUIT HIGH

NOTE:

For the diagnostic procedure, refer to AT section. <Ref. to 5AT(diag)-2, Basic Diagnostic Procedure.>

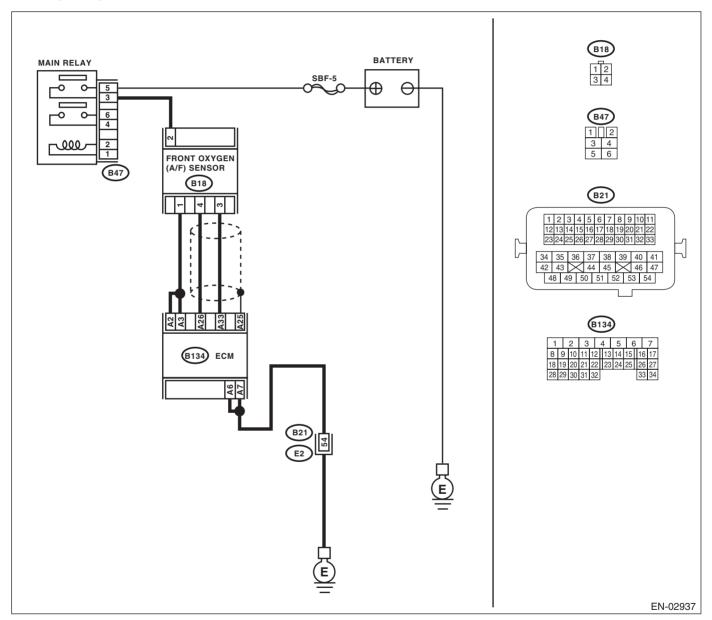
CG:DTC P1152 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (LOW) (BANK1 SENSOR1)

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 (B134) No. 26 — (B18) No. 4: (B134) No. 33 — (B18) No. 3:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit in harness between ECM and front oxygen (A/F) sensor connector Poor contact in front oxygen (A/F) sensor connector Poor contact in front oxygen (A/F) sensor connector Poor contact in ECM connector
3	CHECK POOR CONTACT. Check for poor contact of the front oxygen (A/F) sensor connector.	Is there poor contact in the 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(H4DOTC)-34, Front Oxygen (A/F) Sensor.></ref.>

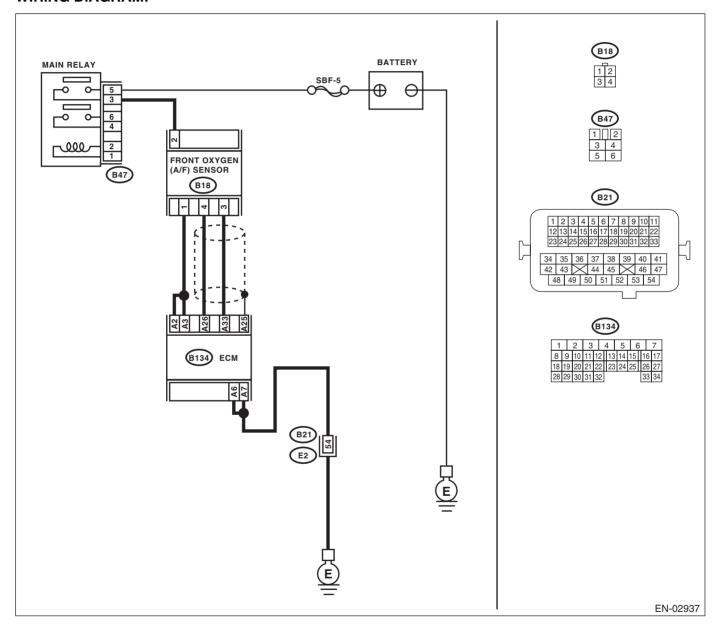
CH:DTC P1153 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (HIGH) (BANK1 SENSOR1)

DTC DETECTING CONDITION:

- · Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-187, DTC P1153 O2 SENSOR CIRCUIT RANGE/PERFORMANCE (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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 connectors from ECM. 3) Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 26 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.	Go to step 3.
3	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 33 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.	Go to step 4.
4	CHECK OUTPUT SIGNAL FOR ECM. 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 26 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 5.	Go to step 6.
5	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 26 (+) — 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(h4dotc)-38,="" module="" to=""></ref.>	Repair the poor contact of ECM connector.
6	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 33 (+) — Chassis ground (-):	Is the voltage more than 4.95 V?	Go to step 7.	Replace the front oxygen (A/F) sen- sor. <ref. to<br="">FU(H4DOTC)-34, Front Oxygen (A/F) Sensor.></ref.>
7	CHECK OUTPUT SIGNAL FOR ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 33 (+) — 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(h4dotc)-38,="" module="" to=""></ref.>	Repair the poor contact of ECM connector.

ENGINE (DIAGNOSTICS)

CI: DTC P1160 RETURN SPRING FAILURE

NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4DOTC)(diag)-290, DTC P2101 THROT-TLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

CJ:DTC P1301 MISFIRE DETECTED (HIGH TEMPERATURE EXHAUST GAS) DTC DETECTING CONDITION:

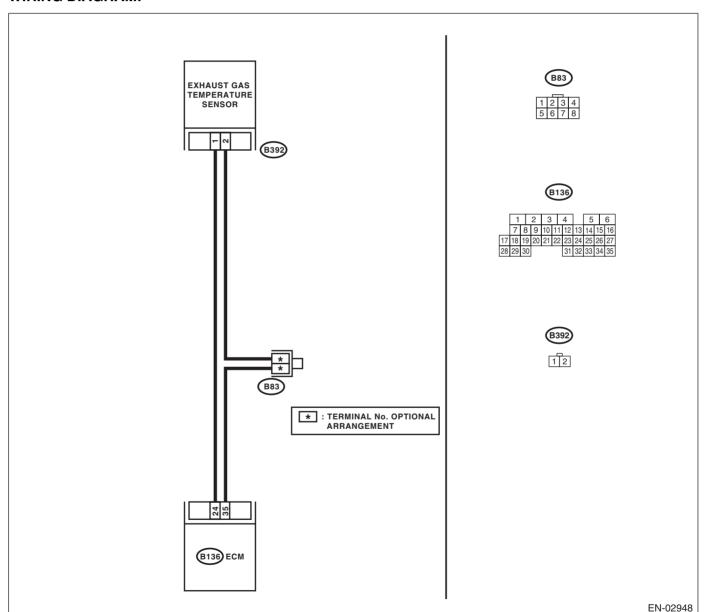
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-191, DTC P1301 MISFIRE DETECTED (HIGH TEMPERATURE EXHAUST GAS), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



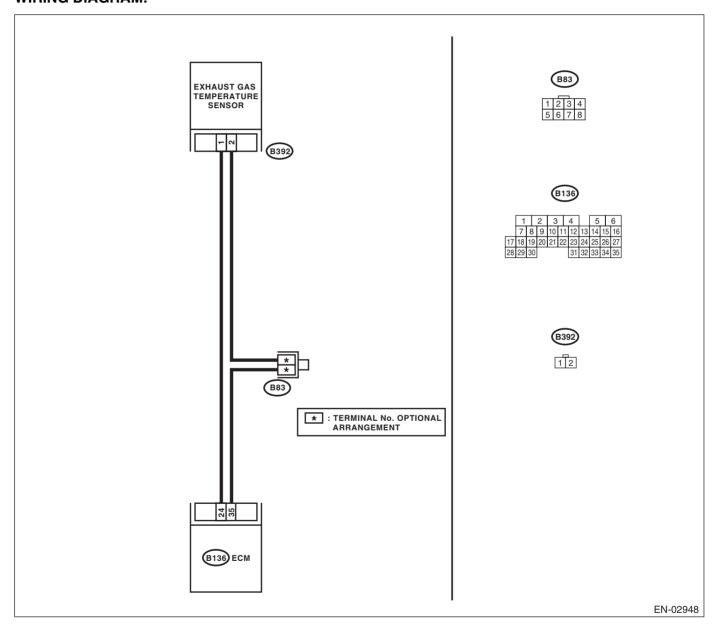
	Step	Check	Yes	No
1	CHECK DTC.	Does any trouble needing	Repair or replace-	Contact with SOA
	Perform the troubleshooting of DTC P0301,	repair or replacement exist?	ment the faulty	Service Center.
	P0302, P0303 and P0304. <ref. th="" to<=""><th></th><th>parts, and replace</th><th></th></ref.>		parts, and replace	
	EN(H4DOTC)(diag)-68, List of Diagnostic		the precatalytic	
	Trouble Code (DTC).>		converter.	

CK:DTC P1312 EXHAUST GAS TEMPERATURE SENSOR MALFUNCTION DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-193, DTC P1312 EXHAUST GAS TEMPERATURE SENSOR MALFUNCTION, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appro-	Replace the
		priate DTC using	exhaust tempera-
		the "List of Diag-	ture sensor. <ref.< th=""></ref.<>
		nostic Trouble	to FU(H4DOTC)-
		Code (DTC)".	37, Exhaust Tem-
		<ref. th="" to<=""><th>perature Sensor.></th></ref.>	perature Sensor.>
		EN(H4DOTC)(diag)	
		-68, List of Diag-	
		nostic Trouble	
		Code (DTC).>	
		NOTE:	
		In this case, it is	
		not necessary to	
		inspect DTC P1312.	

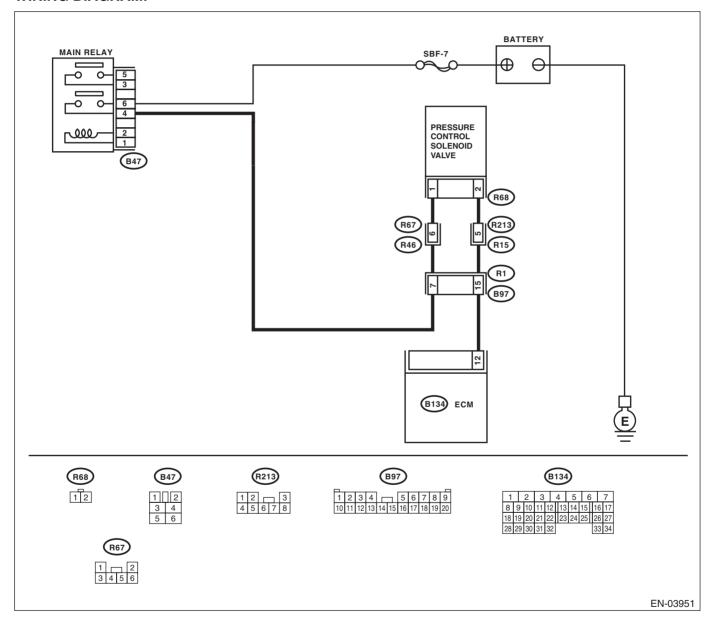
CL:DTC P1400 FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW

DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION < Ref. to GD(H4DOTC)-194, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 (B134) No. 12 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 2.	Go to step 3.

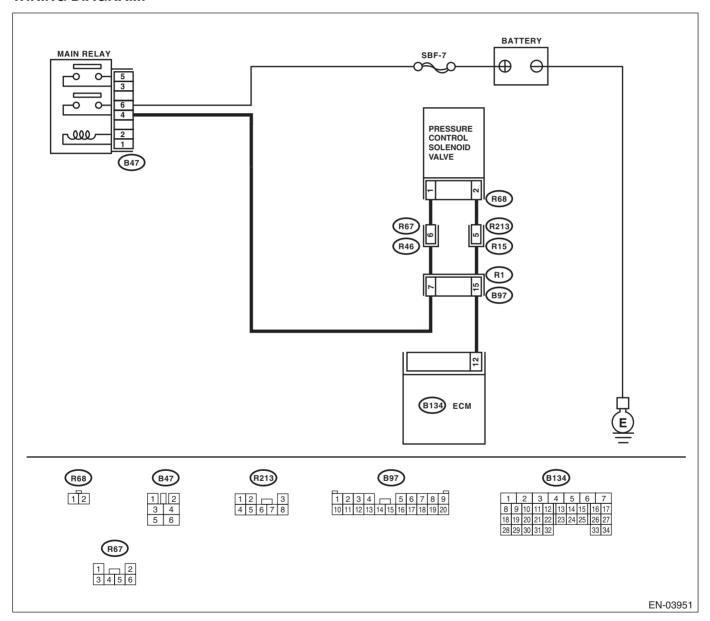
	Step	Check	Yes	No
2	CHECK POOR CONTACT.	Is there poor contact in ECM	Repair the poor	Contact with SOA
	Check the poor contact of ECM connector.	connector?	contact of ECM connector.	Service Center.
3	CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the pressure control solenoid valve and ECM. 3) Measure the resistance of harness between pressure control solenoid valve connector and chassis ground. Connector & terminal (R68) No. 2 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 4.	Repair the ground short circuit of har- ness between ECM and pressure control solenoid valve connector.
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 (B134) No. 12 — (R68) No. 2:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the har- ness and connec- tor. 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 — 100 Ω ?	Go to step 6.	Replace the pressure control sole- noid valve. <ref. to EC(H4DOTC)- 12, Pressure Con- trol Solenoid Valve.></ref.
6	CHECK POWER SUPPLY TO THE 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
7	CHECK POOR CONTACT. Check poor contact of pressure control solenoid valve connector.	Is there poor contact of the pressure control solenoid valve connector?	Repair the poor contact of pressure control solenoid valve connector.	Contact with SOA Service Center.

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-196, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
2	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. Regarding the procedures, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""> Connector & terminal (B134) No. 12 (+) — Chassis ground (-): CHECK INPUT SIGNAL OF ECM.</ref.>		Go to step 4	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	 Turn the ignition switch to ON. Measure the voltage between ECM and chassis ground. Connector & terminal (B134) No. 12 (+) — Chassis ground (-): 	is the voltage more than 10 v?	Go to step 4.	GO to step 3.
3	CHECK POOR CONTACT. Check the 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(H4DOTC)-38, Engine Control Module (ECM).></ref.>
4	CHECK HARNESS BETWEEN PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the pressure control solenoid valve. 3) Turn the ignition switch to ON. 4) Measure the voltage between ECM and chassis ground. Connector & terminal (B134) No. 12 (+) — 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(h4dotc)-38,="" module="" to=""></ref.>	Go to step 5.
5	CHECK PRESSURE CONTROL SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Measure the resistance between pressure control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance less than 1 Ω ?	Replace the purge control solenoid valve <ref. control="" ec(h4dotc)-12,="" pressure="" solenoid="" to="" valve.="">and ECM <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.></ref.>	Go to step 6.
6	CHECK POOR CONTACT. Check the 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(H4DOTC)-38, Engine Control Module (ECM).></ref.>

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

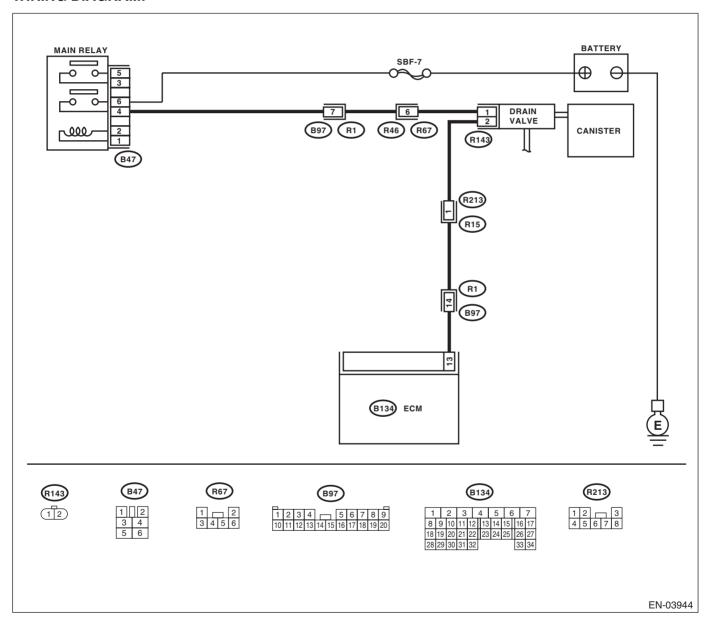
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-198, DTC P1443 VENT CONTROL SOLENOID VALVE FUNCTION PROBLEM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper fuel supply

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK DRAIN HOSE. Check the drain hose for clogging.	Is there clogging in the drain hose?	Replace the drain hose.	Go to step 3.
3	CHECK DRAIN VALVE OPERATION. 1) Turn the ignition switch to OFF. 2) Connect the test mode connector at the lower portion of instrument panel (on the driver's side). 3) Turn the ignition switch to ON. 4) Operate the drain valve. NOTE: Drain valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. check="" compulsory="" en(h4dotc)(diag)-43,="" mode.="" operation="" to="" valve=""></ref.>		Contact with SOA Service Center.	Replace the drain valve. <ref. to<br="">EC(H4DOTC)-15, Drain Valve.></ref.>

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

DTC DETECTING CONDITION:

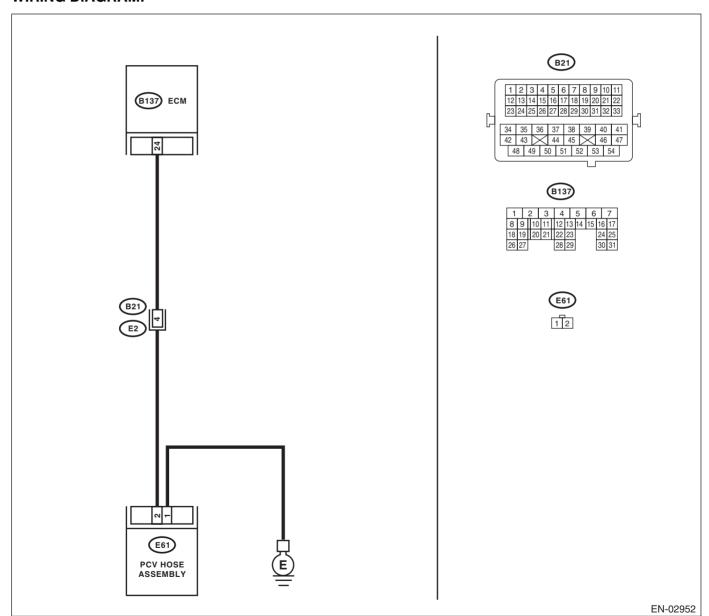
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-200, DTC P1491 POSITIVE CRANKCASE VENTILATION (BLOW-BY) FUNCTION PROBLEM, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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 blow-by hose condition.	crack in blow-by hose?	the blow-by hose.	
2	CHECK HARNESS BETWEEN PCV HOSE ASSEMBLY AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from the PCV hose assembly and ECM. 3) Measure the resistance of harness between PCV hose assembly and ECM connector. Connector & terminal (B137) No. 24 — (E61) No. 2:	Is the resistance less than 1 Ω ?	Go to step 3.	Repair the open circuit of harness between PCV hose assembly and ECM connector.
3	CHECK HARNESS BETWEEN PCV HOSE ASSEMBLY AND ECM CONNECTOR. Measure the resistance of harness between PCV hose assembly and chassis ground. Connector & terminal (B137) No. 24 — Chassis ground:	Is the resistance more than 1 M Ω ?	Go to step 4.	Repair the ground short circuit of harness between PCV hose assembly and ECM connector.
4	CHECK GROUND CIRCUIT OF PCV HOSE ASSEMBLY. Measure the resistance of harness between PCV hose assembly and engine ground. Connector & terminal (E61) No. 1 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 5.	Repair the ground circuit of PCV hose assembly.
5	CHECK THE PCV HOSE ASSEMBLY. Measure the resistance between the PCV hose assembly terminals. Terminals No. 1 — No. 2:	Is the resistance less than 1 Ω ?	Repair the poor contact in ECM and PCV hose assembly.	Replace the PCV hose assembly.

CP:DTC P1518 STARTER SWITCH CIRCUIT LOW INPUT

DTC DETECTING CONDITION:

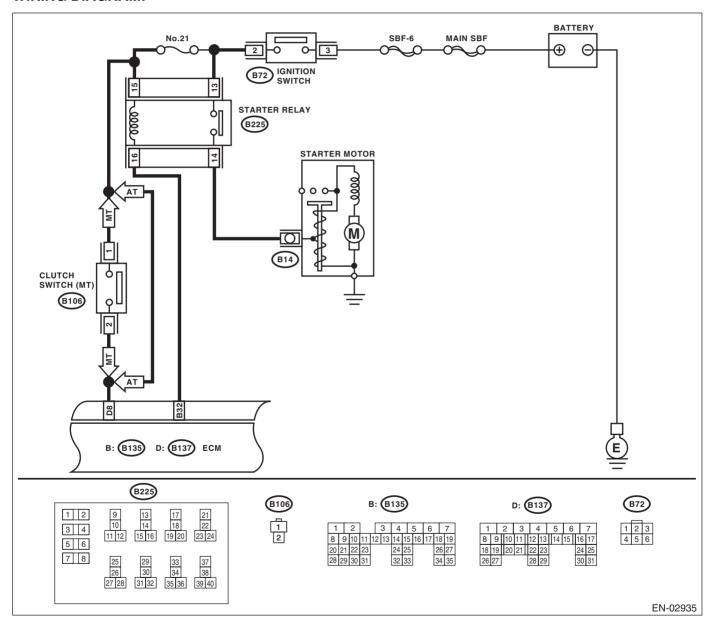
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-202, DTC P1518 STARTER SWITCH CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Failure of engine to start

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK HARNESS BETWEEN STARTER RELAY AND ECM. 1) Disconnect the connectors from starter relay and ECM. 2) Measure the resistance of harness between ECM and chassis ground. Connector & terminal (B135) No. 32 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Repair the ground short circuit between starter motor and ECM.	Repair the poor contact of ECM connector.

CQ:DTC P1544 EXHAUST GAS TEMPERATURE TOO HIGH

DTC DETECTING CONDITION:

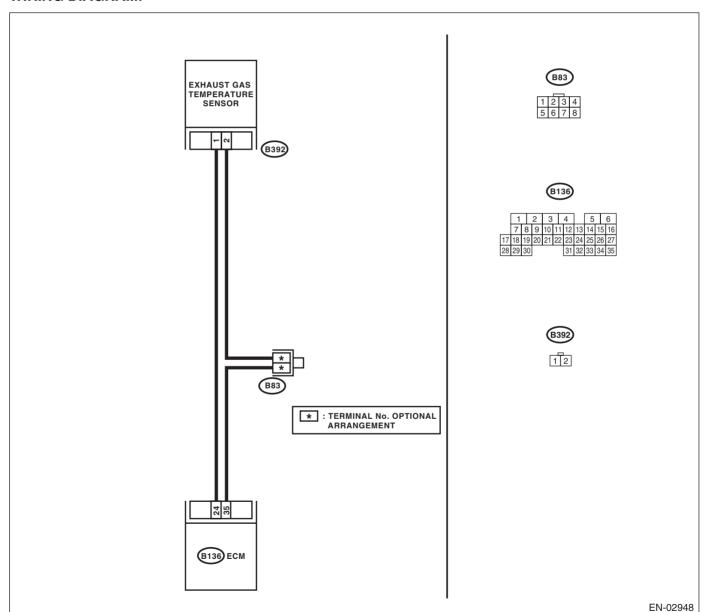
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-203, DTC P1544 EXHAUST GAS TEMPERATURE TOO HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



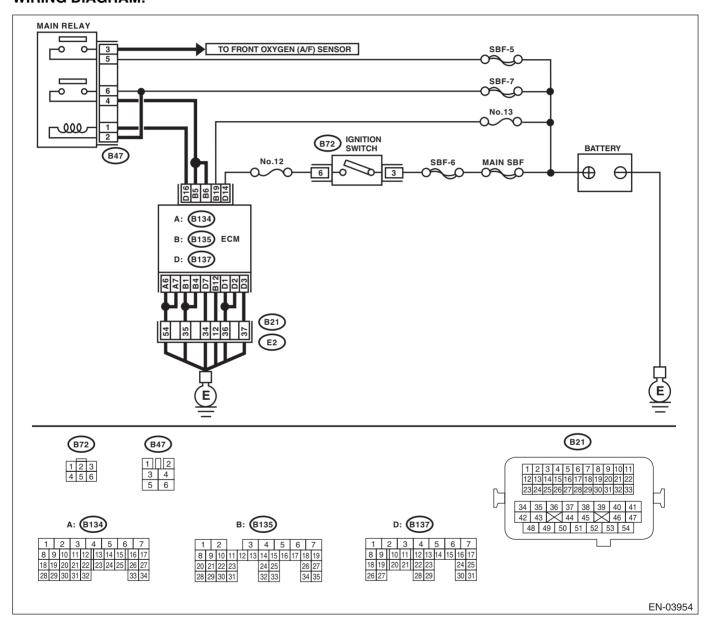
	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	Check the appropriate DTC using the "List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" code="" diagnostic="" en(h4dotc)(diag)-68,="" list="" of="" to="" trouble=""> NOTE: In this case, it is not necessary to inspect DTC P1544.</ref.>	
2	CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. • Loose installation of the exhaust manifold • Cracks or holes on exhaust manifold • Loose installation of the front oxygen (A/F) sensor	Is there any fault in exhaust system?	Repair or replacement the faulty parts, and replace the precatalytic converter.	Contact with SOA Service Center.

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-204, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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	Is the voltage more than 10 V?	Repair the poor contact of ECM connector.	Go to step 2.
	(B135) No. 19 (+) — Chassis ground (–):			
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. 19 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair the ground short circuit of harness between ECM connector and battery terminal.	Go to step 3.
3	CHECK FUSE 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

ENGINE (DIAGNOSTICS)

CS:DTC P2004 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 1) DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-206, DTC P2004 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

	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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK TUMBLE GENERATOR VALVE RH. 1) Remove the tumble generator valve assembly. 2) Check the tumble generator valve body.	Does the tumble generator valve move smoothly? (No dirt or foreign matter is clogged)	Replace the tum- ble generator valve assembly. <ref. to<br="">FU(H4DOTC)-29, Tumble Generator Valve Assembly.></ref.>	Clean the tumble generator valve.

ENGINE (DIAGNOSTICS)

CT:DTC P2005 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 2) DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-207, DTC P2005 INTAKE MANIFOLD RUNNER CONTROL STUCK OPEN (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

	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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK TUMBLE GENERATOR VALVE LH. 1) Remove the tumble generator valve assembly. 2) Check the tumble generator valve body.	Does the tumble generator valve move smoothly? (No dirt or foreign matter is clogged)	Replace the tum- ble generator valve assembly. <ref. to<br="">FU(H4DOTC)-29, Tumble Generator Valve Assembly.></ref.>	Clean the tumble generator valve.

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-208, DTC P2006 INTAKE MANIFOLD RUNNER CONTROL STUCK CLOSED (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

	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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK TUMBLE GENERATOR VALVE RH.1) Remove the tumble generator valve assembly.2) Check the tumble generator valve body.	Does the tumble generator valve move smoothly? (No dirt or foreign matter is clogged)	Replace the tum- ble generator valve assembly. <ref. to<br="">FU(H4DOTC)-29, Tumble Generator Valve Assembly.></ref.>	Clean the tumble generator valve.

ENGINE (DIAGNOSTICS)

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

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-209, DTC P2007 INTAKE MANIFOLD RUNNER CONTROL STUCK CLOSED (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

	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).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""></ref.>	Go to step 2.
2	CHECK TUMBLE GENERATOR VALVE LH.1) Remove the tumble generator valve assembly.2) Check the tumble generator valve body.	Does the tumble generator valve move smoothly? (No dirt or foreign matter is clogged)	Replace the tumble generator valve assembly. <ref. assembly.="" fu(h4dotc)-29,="" generator="" to="" tumble="" valve=""></ref.>	Clean the tumble generator valve.

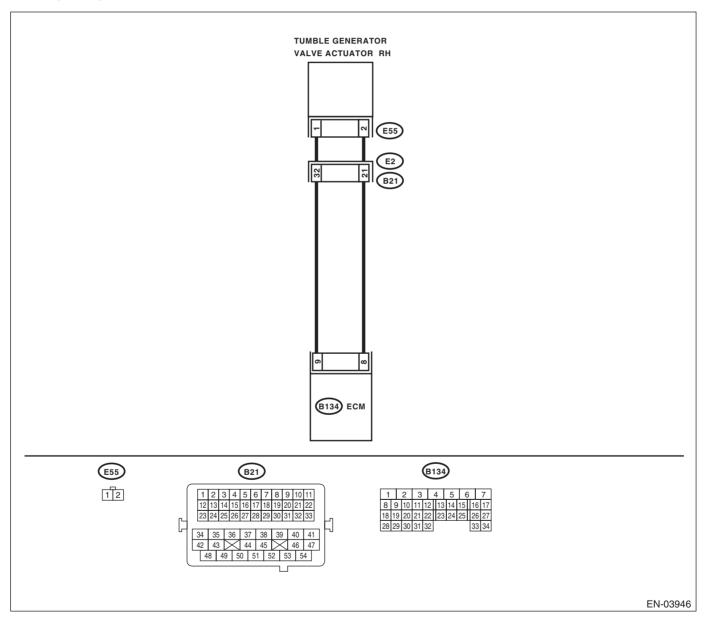
CW:DTC P2008 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT / OPEN (BANK 1)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-210, DTC P2008 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT / OPEN (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble generator valve and ECM connector. 3) Measure the resistance between tumble generator valve actuator and ECM connector. Connector & terminal (E55) No. 1 — (B134) No. 9: (E55) No. 2 — (B134) No. 8:		Go to step 2.	Repair the open circuit between ECM and tumble generator valve connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM and tumble generator valve actuator connector Poor contact of coupling connector
2	CHECK POOR CONTACT. Check poor contact in tumble generator valve actuator connector.	Is there poor contact in tumble generator valve actuator connector?	Repair the poor contact of tumble generator valve actuator connector.	Replace the tum- ble generator valve actuator. <ref. to<br="">FU(H4DOTC)-30, Tumble Generator Valve Actuator.></ref.>

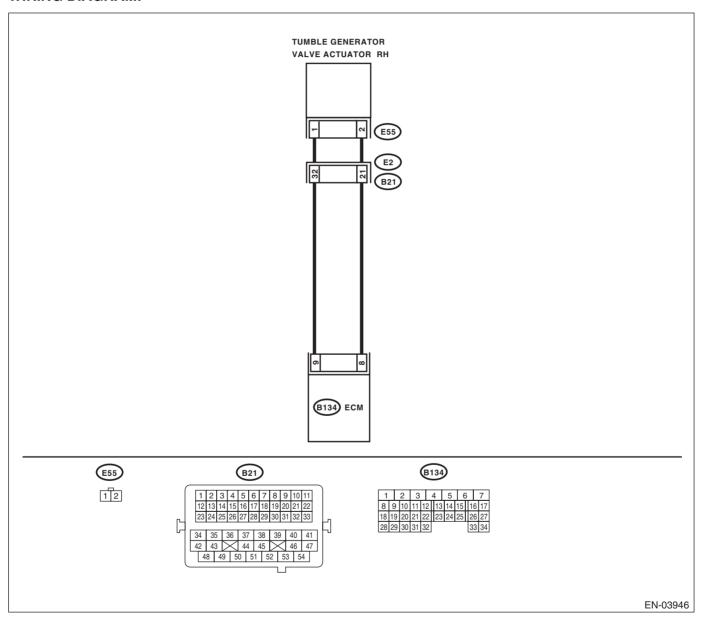
ENGINE (DIAGNOSTICS)

CX:DTC P2009 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 1) DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-212, DTC P2009 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble generator valve connector. 3) Measure the voltage between tumble generator valve actuator and chassis ground. Connector & terminal (E55) No. 1 (+) — Chassis ground (-): (E55) No. 2 (+) — Chassis ground (-):	Is the voltage less than 5 V?	FU(H4DOTC)-30,	Repair the battery short circuit between ECM and tumble generator valve actuator.

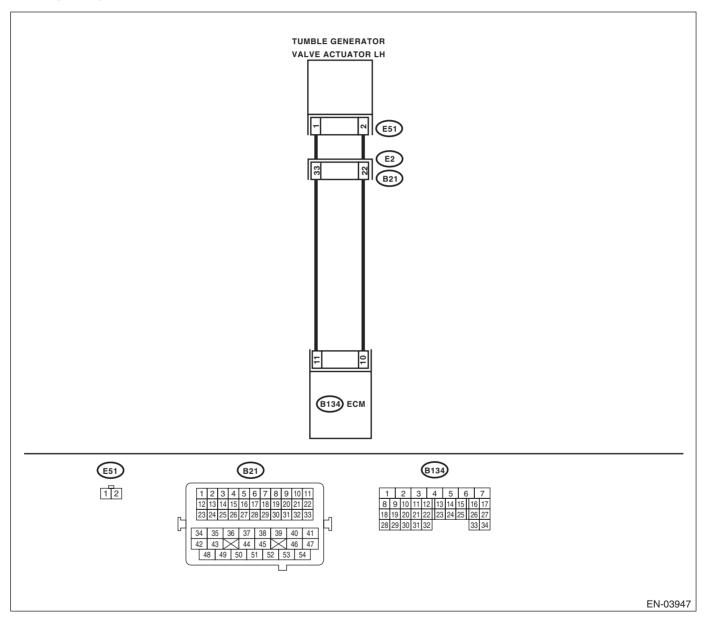
CY:DTC P2011 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT / OPEN (BANK 2)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-214, DTC P2011 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT / OPEN (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble generator valve and ECM connector. 3) Measure the resistance between tumble generator valve actuator and ECM connector. Connector & terminal (E51) No. 1 — (B134) No. 11: (E51) No. 2 — (B134) No. 10:	Is the resistance less than 1 Ω ?	Go to step 2.	Repair the open circuit between ECM and tumble generator valve connector. NOTE: In this case, repair the following item: • Open circuit of harness between ECM and tumble generator valve actuator connector • Poor contact of coupling connector
2	CHECK POOR CONTACT. Check poor contact in tumble generator valve actuator connector.	Is there poor contact in tumble generator valve actuator connector?	Repair the poor contact of tumble generator valve actuator connector.	Replace the tum- ble generator valve actuator. <ref. to<br="">FU(H4DOTC)-30, Tumble Generator Valve Actuator.></ref.>

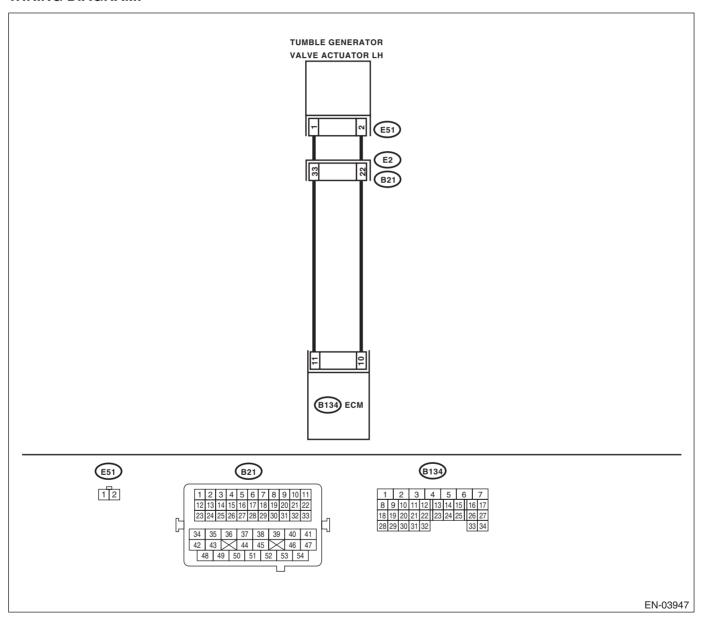
ENGINE (DIAGNOSTICS)

CZ:DTC P2012 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 2) DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-216, DTC P2012 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



Step	Check	Yes	No
1 CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE ACTUATOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble generator valve connector. 3) Measure the voltage between tumble generator valve actuator and chassis ground. Connector & terminal (E51) No. 1 (+) — Chassis ground (-): (E51) No. 2 (+) — Chassis ground (-):	Is the voltage less than 5 V?	FU(H4DOTC)-30,	Repair the battery short circuit between ECM and tumble generator valve actuator.

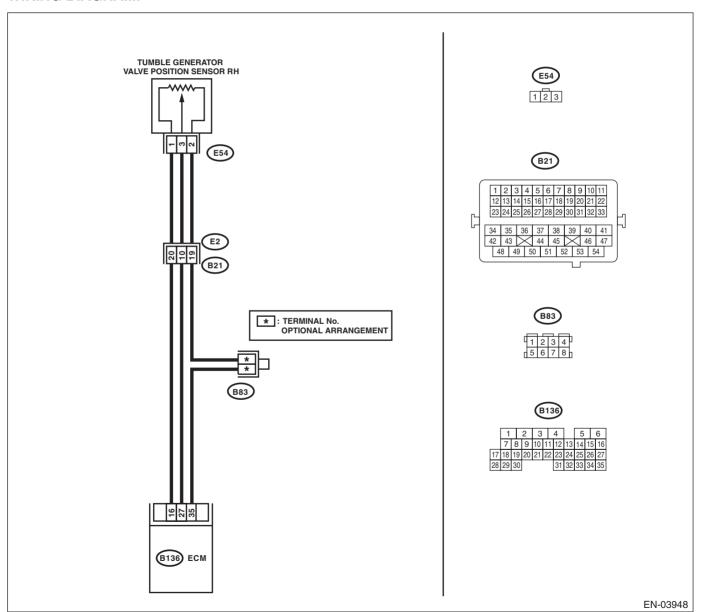
DA:DTC P2016 INTAKE MANIFOLD RUNNER POSITION SENSOR / SWITCH CIRCUIT LOW (BANK 1)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-218, DTC P2016 INTAKE MANIFOLD RUNNER PO-SITION SENSOR / SWITCH CIRCUIT LOW (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:
- Improper idling
- · Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the voltage less than 0.1 V?	Go to step 2.	Even if the mal-
	 Start the engine. 			function indicator
	Read the data of tumble generator valve			light illuminates,
	position sensor signal using Subaru Select			the circuit has
	Monitor or general scan tool.			returned to a nor-
	NOTE:			mal condition at
	 Subaru Select Monitor 			this time. A tempo-
	For detailed operation procedure, refer to			rary poor contact
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td>of the connector</td></ref.<>			of the connector
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-			may be the cause.
	itor.>			NOTE:
	 General scan tool 			In this case, repair
	For detailed operation procedure, refer to the			the following item:
	general scan tool operation manual.			 Poor contact of
				tumble generator
				valve position sen-
				sor connector
				 Poor contact in
				ECM connector
				 Poor contact of
				coupling connector
2	CHECK INPUT 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			
	(B136) No. 16 (+) — Chassis ground (–):			
3	CHECK INPUT SIGNAL OF ECM.	Does the voltage change when	Repair the poor	Contact with SOA
		shaking the harness and con-	contact of ECM	Service Center.
	and chassis ground.	nector of the ECM while moni-	connector.	
	Connector & terminal	toring the value with a voltage		
	(B136) No. 16 (+) — Chassis ground (–):	meter?		
4	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.1 V?	Go to step 6.	Go to step 5.
	Measure the voltage between ECM connector			
	and chassis ground.			
	Connector & terminal			
	(B136) No. 27 (+) — Chassis ground (–):		_	
5	CHECK INPUT SIGNAL FOR ECM (USING	Does the voltage change by	Repair the poor	Go to step 6.
	SUBARU SELECT MONITOR).	shaking the harness and con-	contact of ECM	
		nector of the ECM while moni-	connector.	
	and chassis ground.	toring the value with Subaru		
		Select Monitor?		

	Step	Check	Yes	No
6	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble generator valve position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between the tumble generator valve position sensor connector and engine ground. Connector & terminal (E54) No. 1 (+) — Engine ground (-):	Is the voltage more than 4.5 V?	Go to step 7.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between tumble generator valve position sensor and ECM connector Poor contact of tumble generator valve position sensor connector Poor contact in ECM connector Poor contact in ECM connector Poor contact of coupling connector Poor contact of joint connector
7	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between ECM connector and tumble generator valve position sensor connector. Connector & terminal (B136) No. 27 — (E54) No. 3:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between tumble generator valve position sensor and ECM connector Poor contact in ECM connector Poor contact of tumble generator valve position sensor connector Poor contact of tumble generator valve position sensor connector Poor contact of coupling connector
8	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR. Measure the resistance of the harness between the tumble generator valve position sensor connector and engine ground. Connector & terminal (E54) No. 3 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 9.	Repair the ground short circuit of the harness between the tumble generator valve position sensor and ECM connector.
9	CHECK POOR CONTACT. Check for poor contact in the tumble generator valve position sensor connector.	Is there poor contact in the tumble generator valve position sensor connector?	Repair poor contact of the tumble generator valve position sensor connector.	Replace the tumble generator valve position sensor. <ref. fu(h4dotc)-31,="" generator="" position="" sensor.="" to="" tumble="" valve=""></ref.>

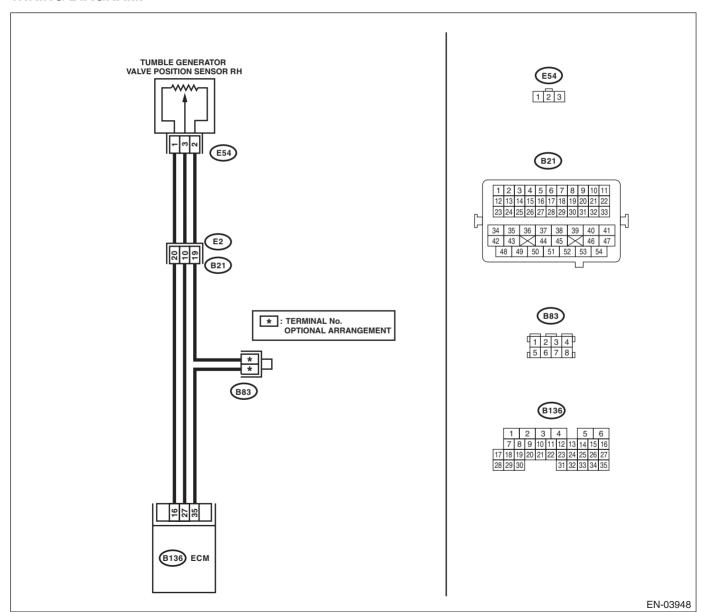
DB:DTC P2017 INTAKE MANIFOLD RUNNER POSITION SENSOR / SWITCH CIRCUIT HIGH (BANK 1)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-220, DTC P2017 INTAKE MANIFOLD RUNNER PO-SITION SENSOR / SWITCH CIRCUIT HIGH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:
- Improper idling
- · Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



Sten	Check	Ves	No
Step 1 CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of tumble generator valve position sensor signal using Subaru Select Monitor or general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer "READ CURRENT DATA FOR ENGINE". <re en(h4dotc)(diag)-24,="" moitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</re>	of. -		No Even if the malfunction indicator light illuminates, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following item: Poor contact of tumble generator valve position sensor connector Poor contact in ECM connector Poor contact of coupling connector
2 CHECK HARNESS BETWEEN TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble ge erator valve position sensor. 3) Measure the resistance of the harness between the tumble generator valve position sensor connector and engine ground. Connector & terminal (E54) No. 2 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 3.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between tumble generator valve position sensor and ECM connector Poor contact of coupling connector Poor contact of joint connector
3 CHECK HARNESS BETWEEN TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR AND ECM CONNECTOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between the tumble generator valve position sensor connector an engine ground. Connector & terminal (E54) No. 3 (+) — Engine ground (-):	Is the voltage more than 4.9 V?	Repair the battery short circuit of harness between tumble generator valve position sensor and ECM connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Replace the tumble generator valve position sensor.

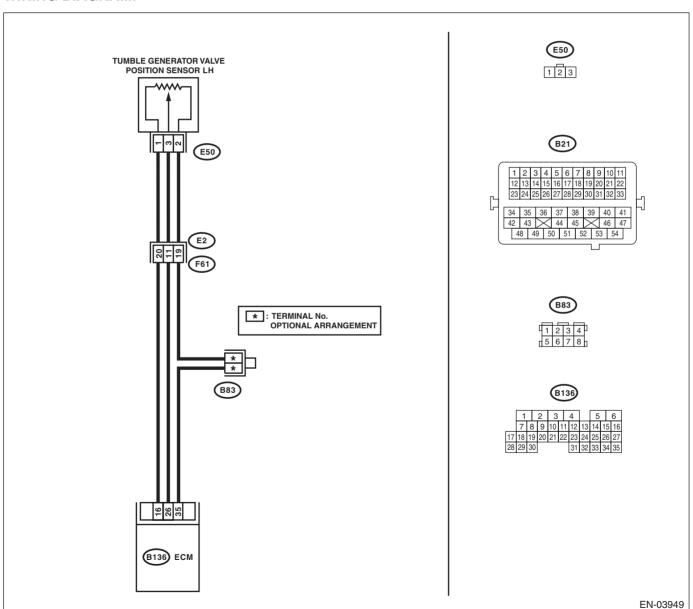
DC:DTC P2021 INTAKE MANIFOLD RUNNER POSITION SENSOR / SWITCH CIRCUIT LOW (BANK 2)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-222, DTC P2021 INTAKE MANIFOLD RUNNER PO-SITION SENSOR / SWITCH CIRCUIT LOW (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:
- Improper idling
- · Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the voltage less than 0.1 V?	Go to step 2.	Even if the mal-
	 Start the engine. 			function indicator
	2) Read the data of tumble generator valve			light illuminates,
	position sensor signal using Subaru Select			the circuit has
	Monitor or general scan tool.			returned to a nor-
	NOTE:			mal condition at
	 Subaru Select Monitor 			this time. A tempo-
	For detailed operation procedure, refer to			rary poor contact
	"READ CURRENT DATA FOR ENGINE". < Ref.			of the connector
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-			may be the cause.
	itor.>			NOTE:
	 General scan tool 			In this case, repair
	For detailed operation procedure, refer to the			the following item:
	general scan tool operation manual.			 Poor contact of
				tumble generator
				valve position sen-
				sor connector
				Poor contact in
				ECM connector
				Poor contact of
			_	coupling connector
2	CHECK INPUT 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			
•	(B136) No. 16 (+) — Chassis ground (–):	December of the second	Danais tha sasas	0
3	CHECK INPUT SIGNAL OF ECM.	Does the voltage change when	Repair the poor	Contact with SOA
	Measure the voltage between ECM connector	shaking the harness and con-	contact of ECM	Service Center.
	and chassis ground.	nector of the ECM while moni-	connector.	
	Connector & terminal (B136) No. 16 (+) — Chassis ground (–):	toring the value with a voltage meter?		
4	CHECK INPUT SIGNAL OF ECM.	Is the voltage less than 0.1 V?	Go to step 6.	Go to step 5.
*	Measure the voltage between ECM connector	is the voltage less than 0.1 V?	ιο ει ε ρ σ .	αυ ιυ sι ε ρ 3 .
	and chassis ground.			
	Connector & terminal			
	(B136) No. 26 (+) — Chassis ground (–):			
5	CHECK INPUT SIGNAL FOR ECM (USING	Does the voltage change by	Repair the poor	Go to step 6.
3	SUBARU SELECT MONITOR).	shaking the harness and con-	contact of ECM	αυ ιυ δι ο ρ υ .
	Measure the voltage between ECM connector	nector of ECM while monitor-	connector.	
	and chassis ground.	ing the value with Subaru	COTTIBECTOL.	
	and ondoors ground.	Select Monitor?		
		Delect Moulton:		

	Step	Check	Yes	No
6	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble generator valve position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between the tumble generator valve position sensor connector and engine ground. Connector & terminal (E50) No. 1 (+) — Engine ground (-):	Is the voltage more than 4.5 V?	Go to step 7.	Repair the harness and connector. NOTE: In this case, repair the following item: Open circuit of harness between tumble generator valve position sensor and ECM connector Poor contact of tumble generator valve position sensor connector Poor contact in ECM connector Poor contact in ECM connector Poor contact of coupling connector Poor contact of coupling connector
7	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Measure the resistance of harness between ECM connector and tumble generator valve position sensor connector. Connector & terminal (B136) No. 26 — (E50) No. 3:	Is the resistance less than 1 Ω ?	Go to step 8.	joint connector Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit of harness between tumble generator valve position sensor and ECM connector • Poor contact in ECM connector • Poor contact of tumble generator valve position sensor connector • Poor contact of tumble generator valve position sensor connector • Poor contact of coupling connector
8	CHECK HARNESS BETWEEN ECM AND TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR. Measure the resistance of the harness between the tumble generator valve position sensor connector and engine ground. Connector & terminal (E50) No. 3 — Engine ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 9.	Repair the ground short circuit of the harness between the tumble generator valve position sensor and ECM connector.
9	CHECK POOR CONTACT.	Is there poor contact in the tumble generator valve position sensor connector?	Repair poor contact of the tumble generator valve position sensor connector.	Replace the tum- ble generator valve position sensor. <ref. to<br="">FU(H4DOTC)-31, Tumble Generator Valve Position Sensor.></ref.>

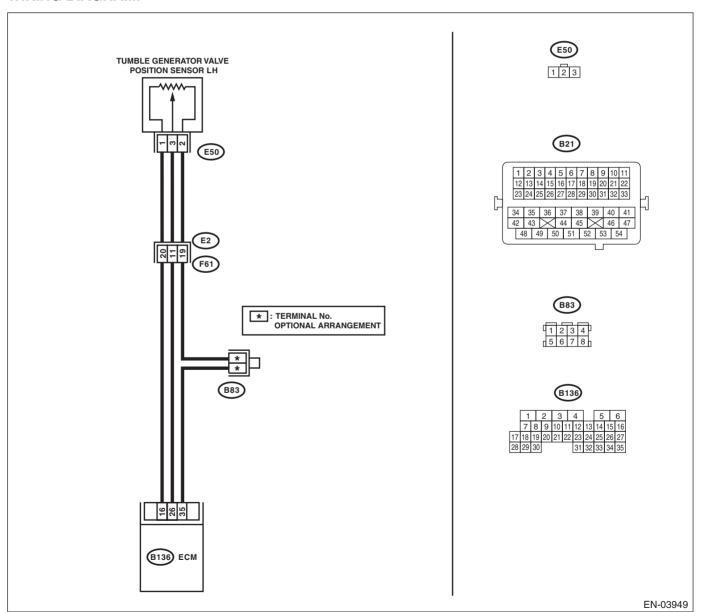
DD:DTC P2022 INTAKE MANIFOLD RUNNER POSITION SENSOR / SWITCH CIRCUIT HIGH (BANK 2)

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-224, DTC P2022 INTAKE MANIFOLD RUNNER PO-SITION SENSOR / SWITCH CIRCUIT HIGH (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:
- Improper idling
- · Engine stalls.
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Sten	Check	Yes	No
1	Step CHECK CURRENT DATA. 1) Start the engine. 2) Read the data of tumble generator valve position 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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>			No Even if the malfunction indicator light illuminates, the circuit has returned to a normal condition at this time. A temporary poor contact of the connector may be the cause. NOTE: In this case, repair the following item: Poor contact of tumble generator valve position sensor connector
2	CHECK HARNESS BETWEEN TUMBLE GENERATOR VALVE POSITION SENSOR CONNECTOR AND ECM CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from tumble generator valve position sensor.	Is the resistance less than 5 Ω ?	Go to step 3.	Poor contact in ECM connector Poor contact of coupling connector Repair the harness and connector. NOTE: In this case, repair the following item:
	3) Measure the resistance of the harness between the tumble generator valve position sensor connector and engine ground. Connector & terminal (E50) No. 2 — Engine ground:			 Open circuit of harness between tumble generator valve position sen- sor and ECM con- nector Poor contact of coupling connector Poor contact of joint connector
3	CHECK HARNESS BETWEEN TUMBLE GENERATOR VALVE POSITION SENSOR AND ECM CONNECTOR. 1) Turn the ignition switch to ON. 2) Measure the voltage between the tumble generator valve position sensor connector and engine ground. Connector & terminal (E50) No. 3 (+) — Engine ground (-):	Is the voltage more than 4.9 V?		

DE:DTC P2088 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT LOW (BANK 1)

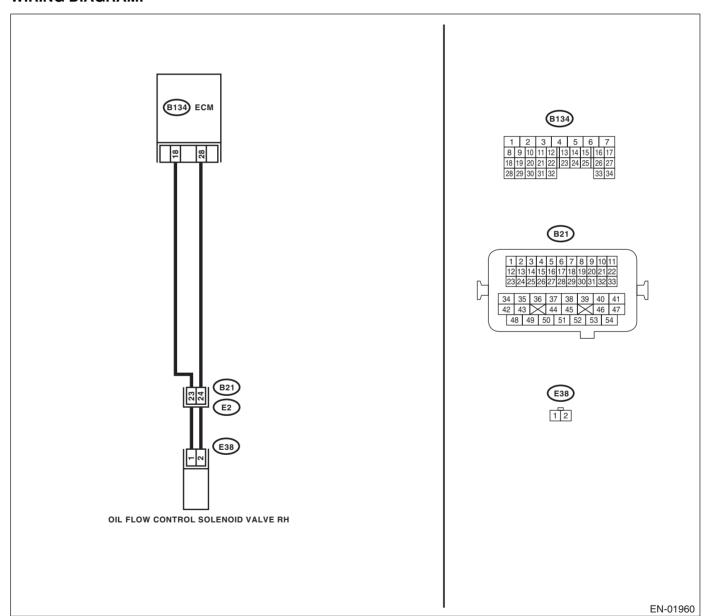
DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-225, DTC P2088 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT LOW (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
_	CHECK HARNESS BETWEEN ECM AND OIL			
1		Is the resistance less than 1	Go to step 2.	Repair the open
	FLOW CONTROL SOLENOID VALVE.	Ω?		circuit of harness
	Turn the ignition switch to OFF.			between ECM and
	Disconnect the connectors from ECM and			oil flow control
	oil flow control solenoid valve.			solenoid valve
	Measure the resistance between ECM and			connector.
	oil flow control solenoid valve.			NOTE:
	Connector & terminal			In this case, repair
	(B134) No. 18 — (E38) No. 1:			the following item:
	(B134) No. 28 — (E38) No. 2:			 Open circuit of
	, , , , ,			harness between
				ECM and oil flow
				control solenoid
				valve connector
				Poor contact of
				coupling connector
2	CHECK OIL FLOW CONTROL SOLENOID	Is the resistance between 6 —	Repair the poor	Replace the oil
-	VALVE.		contact of ECM	flow control sole-
		12 Ω?		
	Disconnect the oil flow control solenoid		and oil flow con-	noid valve. <ref.< td=""></ref.<>
	valve connector.		trol solenoid valve.	to ME(H4DOTC)-
	Measure the resistance between oil flow			52, Camshaft.>
	control solenoid valve terminals.			
	Terminals			
	No. 1 — No. 2:			

DF:DTC P2089 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT HIGH (BANK 1)

DTC DETECTING CONDITION:

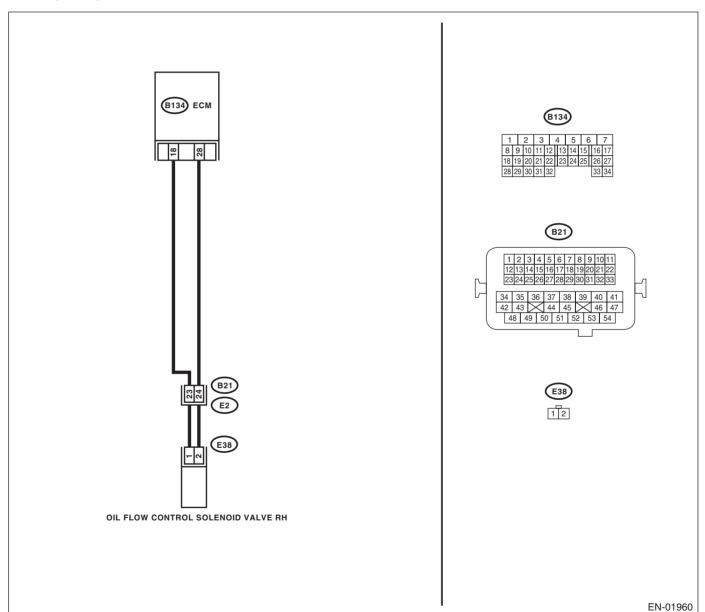
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-227, DTC P2089 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT HIGH (BANK 1), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND OIL FLOW CONTROL SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and oil flow control solenoid valve. 3) Measure the resistance between oil flow control solenoid valve and engine ground. Connector & terminal (E38) No. 1 — Engine ground: (E38) 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 flow control solenoid valve connector.
2	CHECK OIL FLOW CONTROL SOLENOID VALVE. 1) Disconnect the oil flow control solenoid valve connector. 2) Measure the resistance between oil flow control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 6 — 12 Ω ?	Repair the poor contact of ECM and oil flow con- trol solenoid valve.	Replace the oil flow control sole- noid valve. <ref. to ME(H4DOTC)- 52, Camshaft.></ref.

DG:DTC P2092 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT LOW (BANK 2)

DTC DETECTING CONDITION:

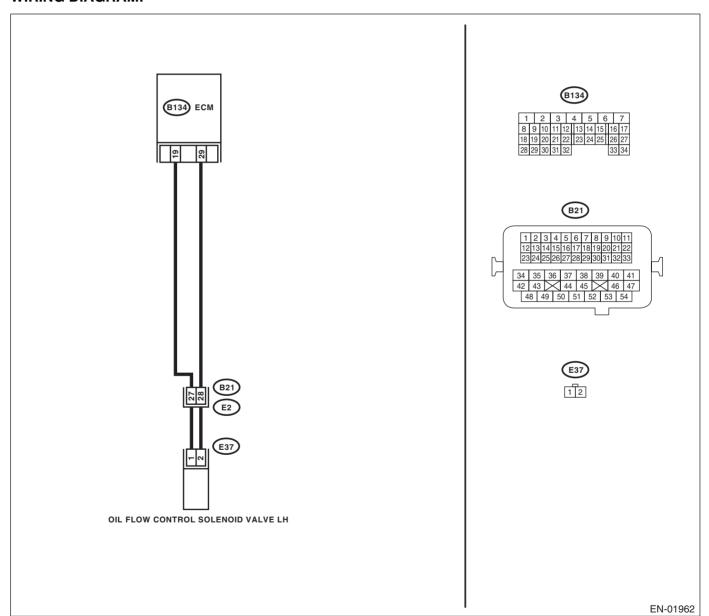
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-228, DTC P2092 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT LOW (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:

THOOBLE STWIFT

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Sten	Check	Ves	No
1	Step CHECK HARNESS BETWEEN ECM AND OIL FLOW CONTROL SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and		Yes Go to step 2.	No Repair the open circuit of harness between ECM and oil flow control
	oil flow control solenoid valve. 3) Measure the resistance between ECM and oil flow control solenoid valve. Connector & terminal (B134) No. 19 — (E37) No. 1: (B134) No. 29 — (E37) No. 2:			solenoid valve connector. NOTE: In this case, repair the following item: Open circuit of harness between ECM and oil flow control solenoid valve connector Poor contact of coupling connector
2	CHECK OIL FLOW CONTROL SOLENOID VALVE. 1) Disconnect the oil flow control solenoid valve connector. 2) Measure the resistance between oil flow control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 6 — 12 Ω ?	Repair the poor contact of ECM and oil flow con- trol solenoid valve.	Replace the oil flow control sole- noid valve. <ref. to ME(H4DOTC)- 52, Camshaft.></ref.

DH:DTC P2093 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT HIGH (BANK 2)

DTC DETECTING CONDITION:

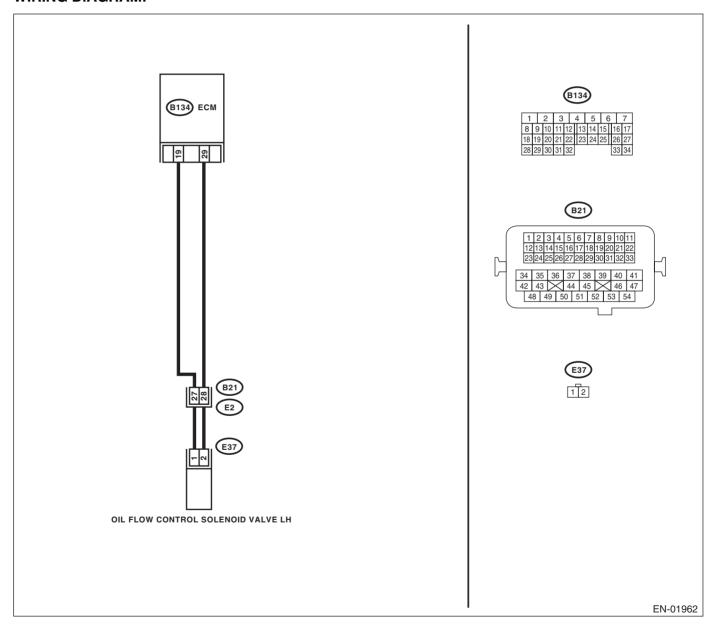
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-228, DTC P2093 INTAKE CAMSHAFT POSITION ACTUATOR CONTROL CIRCUIT HIGH (BANK 2), Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

Improper idling

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



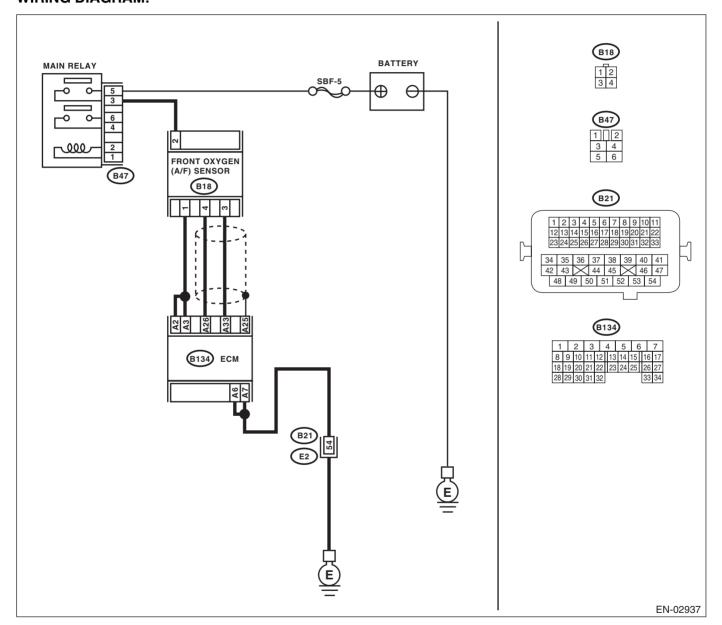
	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND OIL FLOW CONTROL SOLENOID VALVE. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM and oil flow control solenoid valve. 3) Measure the resistance between oil flow control solenoid valve and engine ground. Connector & terminal (E37) No. 1 — Engine ground: (E37) 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 flow control solenoid valve connector.
2	CHECK OIL FLOW CONTROL SOLENOID VALVE. 1) Disconnect the oil flow control solenoid valve connector. 2) Measure the resistance between oil flow control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 6 — 12 Ω ?	Repair the poor contact of ECM and oil flow control solenoid valve.	Replace the oil flow control sole- noid valve. <ref. to ME(H4DOTC)- 52, Camshaft.></ref.

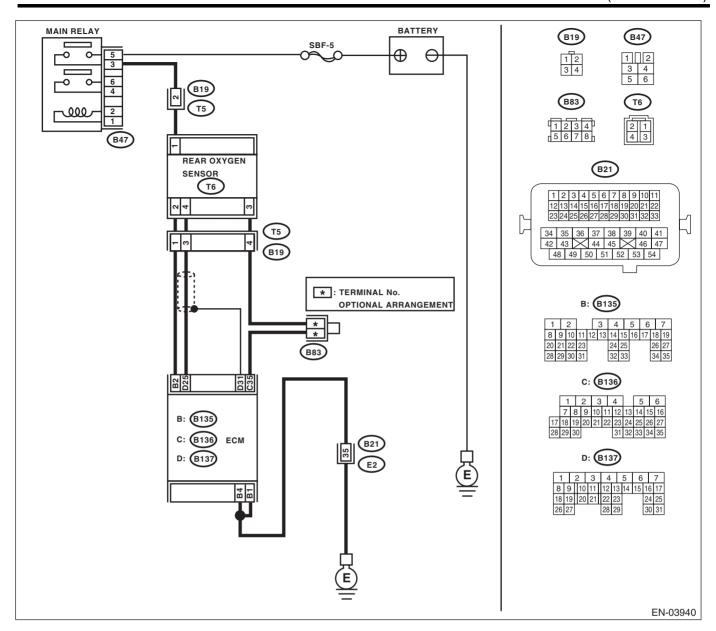
DI: DTC P2096 POST CATALYST FUEL TRIM SYSTEM TOO LEAN BANK 1 DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-229, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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. (dtc).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is</ref.>	
			not necessary to inspect DTC P2096.	

	Step	Check	Yes	No
2	CHECK FRONT OXYGEN (A/F) SENSOR	Does water enter the connec-	Dry the water thor-	
	CONNECTOR AND COUPLING CONNECTOR.	tor?	oughly.	Go to ctop c.
3	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 (B134) No. 26 — (B18) No. 4:	Is the resistance less than 1 $\mbox{M}\Omega ?$	Go to step 4.	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
	(B134) No. 33 — (B18) No. 3:			 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 CONNECTOR. Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 26 — Chassis ground: (B134) No. 33 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.
5	CHECK OUTPUT SIGNAL OF ECM. 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 26 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 6.	Go to step 7.
6	CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 26 (+) — 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(H4DOTC)-38, Engine Control Module (ECM).></ref.>	Repair the poor contact of ECM connector.
7	CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 33 (+) — Chassis ground (-):	Is the voltage more than 4.95 V?	Go to step 8.	Go to step 9.

	Sten	Check	Yes	No
8	Step CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 33 (+) — Chassis ground (-):	Check 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. control<="" engine="" fu(h4dotc)-38,="" td="" to=""><td>Repair the poor contact of ECM connector.</td></ref.>	Repair the poor contact of ECM connector.
9	CHECK EXHAUST SYSTEM.	Are there holes or loose bolts on exhaust system?	Module (ECM).> 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 while disconnecting pressure regulator vacuum hose from intake manifold. Ref. to ME(H4DOTC)-24, INSPECTION, Fuel Pressure.> WARNING: Release fuel pressure before removing the fuel pressure gauge. NOTE: If fuel pressure does not increase, squeeze the fuel return hose 2 to 3 times, then measure fuel pressure again.	Is the measured value 284 — 314 kPa (2.9 — 3.2 kgf/cm ² , 41 — 46 psi)?	Go to step 12.	Repair the following item. Fuel pressure is too high: Clogged fuel return line or bent hose Fuel pressure is too low: Improper fuel pump discharge Clogged fuel supply line
12	CHECK FUEL PRESSURE. After connecting the pressure regulator vacuum hose, measure fuel pressure. <ref. fuel="" inspection,="" me(h4dotc)-24,="" pressure.="" to=""> WARNING: Release fuel pressure before removing the fuel pressure gauge. NOTE: • If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. • If the measured value at this step is out of specification, check or replace pressure regulator and pressure regulator vacuum hose.</ref.>		Go to step 13.	Repair the following item. Fuel pressure is too high: Faulty pressure regulator Clogged fuel return line or bent hose Fuel pressure is too low: Faulty pressure regulator Improper fuel pump discharge Clogged fuel supply line

	Step	Check	Yes	No
13		Is the temperature above 60°C	Go to step 14.	Replace the
	SENSOR.	(140°F)?		engine coolant
	1) Start the engine and warm-up completely.			temperature sen-
	2) Read the data of engine coolant tempera-			sor. <ref. td="" to<=""></ref.>
	ture sensor signal using Subaru Select Monitor			FU(H4DOTC)-21,
	or general scan tool.			Engine Coolant
	NOTE:			Temperature Sen-
	Subaru Select Monitor			sor.>
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td></td></ref.<>			
	to EN(H4DOTC)(diag)-24, Subaru Select Mon- itor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
14	CHECK MASS AIR FLOW AND INTAKE AIR	Is the measured value 2.7 —	Go to step 15.	Replace the mass
	TEMPERATURE SENSOR.	4.7 g/s (0.36 — 0.62 lb/m)?	он на спар на н	air flow and intake
	1) Start the engine and warm-up engine until	,		air temperature
	coolant temperature is greater than 60°C			sensor. <ref. td="" to<=""></ref.>
	(140°F).			FU(H4DOTC)-26,
	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.			
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-			
	itor.>			
	 General scan tool 			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
15		Subtract the ambient tempera-	Go to step 16.	Check the mass
	TEMPERATURE SENSOR.	ture from intake air tempera-		air flow and intake
	,	ture. Is the obtained value –10		air temperature
	coolant temperature is greater than 60°C	— 50°C (–18 — 90°F)?		sensor. <ref. fu(h4dotc)-26,<="" td="" to=""></ref.>
	(140°F).2) Place the shift lever in neutral position.			Mass Air Flow and
	3) Turn the A/C switch to OFF.			Intake Air Temper-
	4) Turn all the accessory switches to OFF.			ature Sensor.>
	5) Open the front hood.			
	6) Measure the ambient temperature.			
	7) Read the data of mass air flow and intake			
	air temperature sensor signal using Subaru			
	Select Monitor or general scan tool.			
	NOTE:			
	Subaru Select Monitor The plate that a great first and a gre			
	For detailed operation procedure, refer to			
	"READ CURRENT DATA FOR ENGINE". <ref.< td=""><td></td><td></td><td></td></ref.<>			
	to EN(H4DOTC)(diag)-24, Subaru Select Mon- itor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
	gonoral odan tool opolation mandal.			

	Step	Check	Yes	No
16	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage more than 490	Go to step 20.	Go to step 17.
	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 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.< td=""><td></td><td></td><td></td></ref.<>			
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-			
	itor.>			
	General scan tool			
	For detailed operation procedure, refer to the			
4-	general scan tool operation manual.		5	0 1 1 10
17	CHECK REAR OXYGEN SENSOR CONNEC-		Dry the water thor-	Go to step 18.
40	TOR AND COUPLING CONNECTOR.	tor?	oughly.	0 : 10
18	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 3	Repair the open	Go to step 19.
	REAR OXYGEN SENSOR CONNECTOR.	Ω?	circuit of harness	
	Turn the ignition switch to OFF.		between ECM and	
	2) Disconnect the connector from ECM and		front oxygen (A/F)	
	rear oxygen sensor.		sensor connector.	
	3) Measure the resistance of harness			
	between ECM and rear oxygen sensor con- nector.			
	Connector & terminal			
	(B137) No. 25 — (T6) No. 4:			
	(B136) No. 35 — (T6) No. 3:			
19	CHECK HARNESS BETWEEN REAR OXY-	Is the voltage 0.2 — 0.5 V?	Replace the rear	Repair the har-
13	GEN SENSOR AND ECM CONNECTOR.	is the voltage 0.2 — 0.5 v :	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(H4DOTC)-36,	NOTE:
	oxygen sensor.		Rear Oxygen Sen-	In this case, repair
	3) Turn the ignition switch to ON.		sor.>	the following item:
	Measure the voltage between rear oxygen			Open circuit of
	sensor harness connector and engine ground			harness between
	or chassis ground.			rear oxygen sen-
	Connector & terminal			sor and ECM con-
	(T6) No. 4 (+) — Engine ground (–):			nector
				 Poor contact of
				the rear oxygen
				sensor connector
				 Poor contact in
				ECM connector

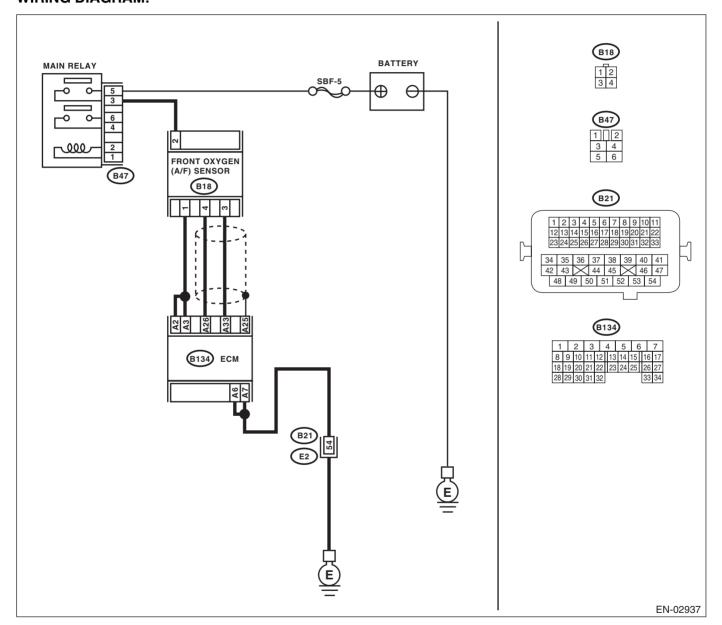
	Step	Check	Yes	No
20	CHECK REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and drop the engine speed suddenly from 3,000 rpm. 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • For MT model, depress the clutch pedal. • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4DOTC)(diag)-24, Subaru Select Monitor.> • General scan tool For detailed operation procedure, refer to the		Go to step 21.	Go to step 17.
21	general scan tool operation manual. 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(h4dotc)(diag)-24,="" 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(H4DOTC)-34, Front Oxygen (A/F) Sensor.></ref.>	Go to step 18.

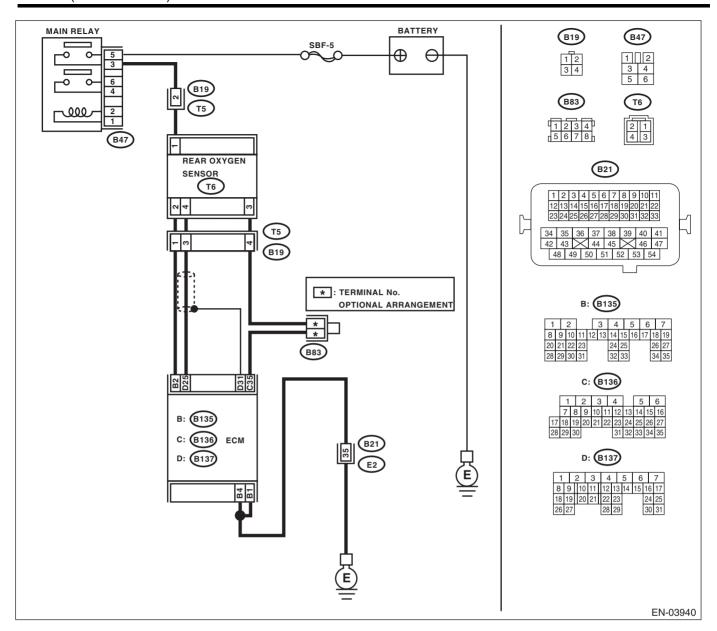
DJ:DTC P2097 POST CATALYST FUEL TRIM SYSTEM TOO RICH BANK 1 DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-231, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.





1 CHECK ANY OTHER DTC ON DISPLAY. Is any other DTC displayed? Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. -68,="" diagnostic="" en(h4dotc)(diag)="" list="" of="" th="" to="" trouble<=""><th></th><th>Step</th><th>Check</th><th>Yes</th><th>No</th></ref.>		Step	Check	Yes	No
Code (DTC).> NOTE: In this case, it is not necessary to	1	CHECK ANY OTHER DTC ON DISPLAY.	Is any other DTC displayed?	"List of Diagnostic Trouble Code (DTC)". <ref. (dtc).="" -68,="" code="" diagnostic="" en(h4dotc)(diag)="" list="" of="" to="" trouble=""> NOTE: In this case, it is</ref.>	

	Step	Check	Yes	No
2	CHECK FRONT OXYGEN (A/F) SENSOR CONNECTOR AND COUPLING CONNECTOR.	Does water enter the connector?	Dry the water thoroughly.	Go to step 3.
3	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 (B134) No. 26 — (B18) No. 4: (B134) No. 33 — (B18) No. 3:	Is the resistance less than 1 $\mbox{M}\Omega ?$	Go to step 4.	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
4	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNECTOR. Measure the resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 26 — Chassis ground: (B134) No. 33 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the ground short circuit of har- ness between ECM and front oxygen (A/F) sen- sor connector.
5	CHECK OUTPUT SIGNAL OF ECM. 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 26 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 6.	Go to step 7.
6	CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 26 (+) — Chassis ground (-):	Is the voltage more than 10 V?	short circuit of harness between ECM and front oxygen (A/F) sensor connector. After repair, replace the ECM. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Repair the poor contact of ECM connector.
7	CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 33 (+) — Chassis ground (-):	Is the voltage more than 4.95 V?	Go to step 8.	Go to step 9.

	Step	Check	Yes	No
8	Step CHECK OUTPUT SIGNAL OF ECM. Measure the voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 33 (+) — 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. control<="" engine="" fu(h4dotc)-38,="" td="" to=""><td>Repair the poor contact of ECM connector.</td></ref.>	Repair the poor contact of ECM connector.
9	CHECK EXHAUST SYSTEM.	Are there holes or loose bolts on exhaust system?	Module (ECM).> 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 while disconnecting pressure regulator vacuum hose from intake manifold. Ref. to ME(H4DOTC)-24, INSPECTION, Fuel Pressure.> WARNING: Release fuel pressure before removing the fuel pressure gauge. NOTE: If fuel pressure does not increase, squeeze the fuel return hose 2 to 3 times, then measure fuel pressure again.	Is the measured value 284 — 314 kPa (2.9 — 3.2 kgf/cm ² , 41 — 46 psi)?	Go to step 12.	Repair the following item. Fuel pressure is too high: Clogged fuel return line or bent hose Fuel pressure is too low: Improper fuel pump discharge Clogged fuel supply line
12	CHECK FUEL PRESSURE. After connecting the pressure regulator vacuum hose, measure fuel pressure. <ref. fuel="" inspection,="" me(h4dotc)-24,="" pressure.="" to=""> WARNING: Release fuel pressure before removing the fuel pressure gauge. NOTE: • If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. • If the measured value at this step is out of specification, check or replace pressure regulator and pressure regulator vacuum hose.</ref.>		Go to step 13.	Repair the following item. Fuel pressure is too high: Faulty pressure regulator Clogged fuel return line or bent hose Fuel pressure is too low: Faulty pressure regulator Improper fuel pump discharge Clogged fuel supply line

	Step	Check	Yes	No
13	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. to EN(H4DOTC)(diag)-24, Subaru Select Monitor.> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.	(140°F)?	Go to step 14.	Replace the engine coolant temperature sensor. <ref. coolant="" engine="" fu(h4dotc)-21,="" sensor.="" temperature="" to=""></ref.>
14	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) 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(H4DOTC)(diag)-24, Subaru Select Monitor.> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.		Go to step 15.	Replace the mass air flow and intake air temperature sensor. <ref. air="" and="" flow="" fu(h4dotc)-26,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>
15	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(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Go to step 16.	Check the mass air flow and intake air temperature sensor. <ref. air="" and="" flow="" fu(h4dotc)-26,="" intake="" mass="" sensor.="" temperature="" to=""></ref.>

	Step	Check	Yes	No
16	CHECK REAR OXYGEN SENSOR DATA.	Is the voltage more than 490	Go to step 20.	Go to step 17.
	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 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.			
	to EN(H4DOTC)(diag)-24, Subaru Select Mon-			
	itor.>			
	 General scan tool 			
	For detailed operation procedure, refer to the			
	general scan tool operation manual.			
17	CHECK REAR OXYGEN SENSOR CONNEC-	Does water enter the connec-	Dry the water thor-	Go to step 18.
	TOR AND COUPLING CONNECTOR.	tor?	oughly.	
18	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 3	Repair the open	Go to step 19.
	REAR OXYGEN SENSOR CONNECTOR.	Ω ?	circuit of harness	
	 Turn the ignition switch to OFF. 		between ECM and	
	Disconnect the connector from ECM and		front oxygen (A/F)	
	rear oxygen sensor.		sensor connector.	
	Measure the resistance of harness			
	between ECM and rear oxygen sensor con-			
	nector.			
	Connector & terminal			
	(B137) No. 25 — (T6) No. 4:			
	(B136) No. 35 — (T6) No. 3:			
19	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. th="" to<=""><th>tor.</th></ref.>	tor.
	Disconnect the connector from the rear		FU(H4DOTC)-36,	NOTE:
	oxygen sensor.		Rear Oxygen Sen-	In this case, repair
	Turn the ignition switch to ON.		sor.>	the following item:
	4) Measure the voltage between rear oxygen			 Open circuit of
	sensor harness connector and engine ground			harness between
	or chassis ground.			rear oxygen sen-
	Connector & terminal			sor and ECM con-
	(T6) No. 4 (+) — Engine ground (–):			nector
				 Poor contact of
				the rear oxygen
				sensor connector
				Poor contact in
				ECM connector

	Step	Check	Yes	No
20	CHECK REAR OXYGEN SENSOR DATA. 1) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and drop the engine speed suddenly from 3,000 rpm. 2) Read the data of rear oxygen sensor signal using Subaru Select Monitor or general scan tool. NOTE: • For MT model, depress the clutch pedal. • Subaru Select Monitor For detailed operation procedure, refer to "READ CURRENT DATA FOR ENGINE". <ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""> • General scan tool For detailed operation procedure, refer to the general scan tool operation manual.</ref.>		Go to step 21.	Go to step 17.
21	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(h4dotc)(diag)-24,="" 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(H4DOTC)-34, Front Oxygen (A/F) Sensor.></ref.>	Go to step 18.

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

DTC DETECTING CONDITION:

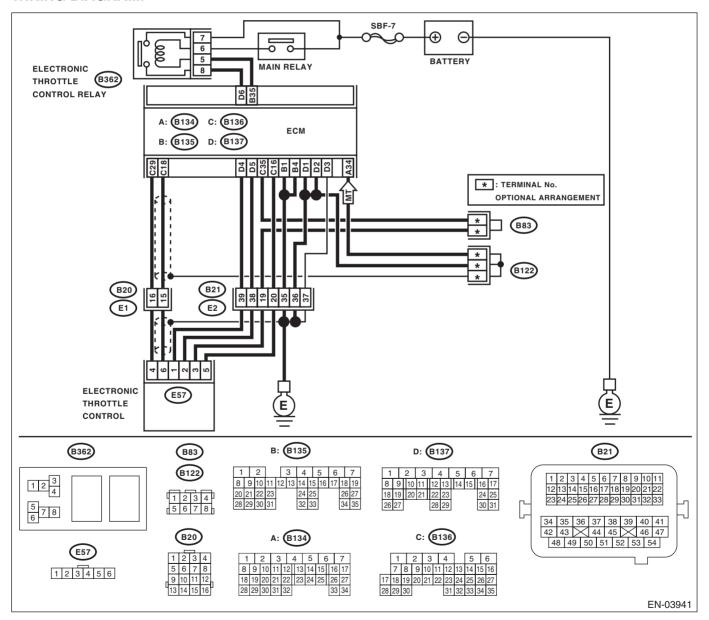
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-233, DTC P2101 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ELECTRONIC THROTTLE CON-	Is the resistance less than 1	Go to step 2.	Replace the elec-
	TROL RELAY.	Ω ?	•	tronic throttle con-
	 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. 7 — No. 8:			_
2	CHECK POWER SUPPLY OF ELECTRONIC	Is the voltage more than 10 V?	Go to step 3.	Repair the open or
	THROTTLE CONTROL RELAY.			ground short cir-
	Turn the ignition switch to ON.			cuit of power sup-
	2) Measure the voltage between electronic			ply circuit.
	throttle control relay connector and chassis			
	ground. Connector & terminal			
	(B362) No. 7 (+) — Chassis ground (–):			
	(B362) No. 7 (+) — Chassis ground (-):			
3	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than 10 V?	Repair the power	Go to step 4.
3	ELECTRONIC THROTTLE CONTROL RELAY.	lis the voltage more than 10 v :	supply short circuit	Go to step 4.
	Turn the ignition switch to OFF.		of harness	
	2) Disconnect the connectors from ECM.		between ECM and	
	3) Turn the ignition switch to ON.		electronic throttle	
	Measure the voltage between electronic		control.	
	throttle control relay connector and chassis			
	ground.			
	Connector & terminal			
	(B362) No. 5 (+) — Chassis ground (–):			
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 5.	Repair the ground
	ELECTRONIC THROTTLE CONTROL RELAY.	ΜΩ?		short circuit of har-
	 Turn the ignition switch to OFF. 			ness between
	2) Measure the resistance between electronic			ECM and elec-
	throttle control relay connector and chassis			tronic throttle con-
	ground.			trol relay.
	Connector & terminal			
	(B362) No. 5 — Chassis ground:			
_	(B362) No. 8 — Chassis ground: CHECK HARNESS BETWEEN ECM AND	le the registeres less than 1	Co to oton 6	Danair the anan
5	ELECTRONIC THROTTLE CONTROL RELAY.	Is the resistance less than 1	Go to step 6.	Repair the open circuit of harness
	Measure the resistance between ECM connec-			between ECM and
	tor and electronic throttle control relay connec-			electronic throttle
	tor.			control relay.
	Connector & terminal			,-
	(B135) No. 35 — (B362) No. 5:			
	(B137) No. 6 — (B362) No. 8:			
6	CHECK SENSOR OUTPUT.	Is the voltage more than 0.4 V?	Go to step 7.	Go to step 9.
	1) Connect all connectors.	_	•	·
	2) Turn the ignition switch to ON.			
	3) Measure the voltage between ECM con-			
	nector terminals.			
	Connector & terminal			
	(B136) No. 18 (+) — (B136) No. 35 (-):			
7	CHECK SENSOR OUTPUT.	Is the voltage more than 0.8 V?	Go to step 8.	Go to step 9.
	1) Connect all connectors.			
	2) Turn the ignition switch to ON.			
	Measure the voltage between ECM con-			
	nector terminals.			
	Connector & terminal			
I	(B136) No. 29 (+) — (B136) No. 35 (–):			

	Step	Check	Yes	No
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
	 Turn the ignition switch to OFF. 			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	 Measure the resistance between ECM con- nector and electronic throttle control connector. 			
	Connector & terminal			
	(B136) No. 16 — (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			
	(B136) No. 16 — Chassis ground:			
	(B136) No. 18 — Chassis ground:			
11	(B136) No. 29 — Chassis ground: CHECK SENSOR POWER SUPPLY.	Is the voltage 4.5 — 5.5 V?	Go to step 12.	Donair the near
''	Connect the ECM connector.	13 the voltage 4.5 — 5.5 v?	GO TO STEP 12.	Repair the poor contact of ECM
	2) 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(H4DOTC)-
	(E57) No. 5 (+) — Engine ground (–):			38, Engine Con-
				trol 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.	Ω?		contact of ECM
	2) Measure the resistance between electronic			connector.
	throttle control connector and engine ground. Connector & terminal			Replace the ECM if defective. <ref.< th=""></ref.<>
	(E57) No. 6 — Engine ground:			to FU(H4DOTC)-
	(E57) No. 4 — Engine ground:			38, Engine Con-
	(201) No. 1 2 Ingine grounds			trol Module
				(ECM).>
13	CHECK SENSOR OUTPUT.	Is the voltage 4.63 V?	Go to step 14.	Go to step 16.
	 Connect all connectors. 			
	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 the "LED OPERATION MODE FOR ENGINE."			
	Ref. to EN(H4DOTC)(diag)-24, Subaru Select			
	Monitor.>			
14	CHECK SENSOR OUTPUT.	Is the voltage 4.73 V?	Go to step 15.	Go to step 16.
	Read the data of sub throttle sensor signal	Ĭ	'	'
	using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" th="" to=""><th></th><th></th><th></th></ref.>			
	Monitor.>			

	Step	Check	Yes	No
15	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Go to step 20.
	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
	 Turn the ignition switch to OFF. 			connector.
	Disconnect the connectors from ECM.			
	Disconnect the connectors from electronic			
	throttle control.			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B136) No. 35 — (E57) No. 3:			
	(B136) No. 18 — (E57) No. 6:			
	(B136) No. 29 — (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.	Ω?		contact of ECM
	 Connect the ECM connector. 			connector.
	2) Measure the resistance between electronic			Replace the ECM
	throttle control connector and engine ground.			if defective. <ref.< td=""></ref.<>
	Connector & terminal			to FU(H4DOTC)-
	(E57) No. 3 — Engine ground:			38, Engine Con-
				trol Module
		1 11 11 12 13 14 14 14	0	(ECM).>
18	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 19.	Repair the short
	ELECTRONIC THROTTLE CONTROL.			circuit of harness between ECM
	Measure the voltage between electronic throt- tle control connector and engine ground.			connector and
	Connector & terminal			electronic throttle
	(E57) No. 6 (+) — Engine ground (–):			control connector.
	(E57) No. 4 (+) — Engine ground (–):			Control connector.
19	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 20.	Repair the short
	ELECTRONIC THROTTLE CONTROL.	$M\Omega$?	GO 10 010P 20 .	circuit to sensor
	Turn the ignition switch to OFF.			power supply.
	2) Remove the ECM.			power suppry.
	3) Measure the resistance between ECM con-			
	nectors.			
	Connector & terminal			
	(B136) No. 18 — (B136) No. 35:			
	(B136) No. 29 — (B136) No. 35:			
20	CHECK SENSOR OUTPUT.	Is the voltage 0.81 — 0.87 V?	Go to step 21.	Repair the poor
	 Turn the ignition switch to OFF. 			contact of elec-
	2) Connect the connectors except for electric			tronic throttle con-
	throttle control relay.			trol connector.
	Turn the ignition switch to ON.			Replace the elec-
	4) Read the data of main throttle sensor signal			tronic throttle con-
	using Subaru Select Monitor.			trol if defective.
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" td="" to=""><td></td><td></td><td></td></ref.>			
	Monitor.>			

	Step	Check	Yes	No
21	CHECK SENSOR OUTPUT.	Is the voltage 1.64 — 1.70 V?	Go to step 22.	Repair the poor
	Read the data of sub throttle sensor signal	ğ	'	contact of ECM
	using Subaru Select Monitor.			connector.
	NOTE:			Replace the elec-
	Subaru Select Monitor			tronic throttle con-
	For detailed operation procedure, refer to the			trol if defective.
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" td="" to=""><td></td><td></td><td></td></ref.>			
	Monitor.>			
22	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 23.	Repair the open
	ELECTRONIC THROTTLE CONTROL MO-	Ω?		circuit of harness
	TOR.			connector.
	Turn the ignition switch to OFF. Disconnect the connectors from FCM			
	Disconnect the connectors from ECM. Disconnect the connectors from electronic			
	 Disconnect the connectors from electronic throttle control. 			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B137) No. 5 — (E57) No. 2:			
	(B137) No. 4 — (E57) No. 1:			
23	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 5 V?	Go to step 24.	Repair the power
	ELECTRONIC THROTTLE CONTROL MO-	ŭ	'	supply short cir-
	TOR.			cuit of harness
	 Connect the connector to ECM. 			between ECM and
	Turn the ignition switch to ON.			electronic throttle
	Measure the voltage between electronic			control.
	throttle control connector and engine ground.			
	Connector & terminal			
	(E57) No. 2 (+) — Engine ground (-):			
	(E57) No. 1 (+) — Engine ground (–):			
24	CHECK HARNESS BETWEEN ECM AND	Is the resistance more than 1	Go to step 25.	Repair the short
	ELECTRONIC THROTTLE CONTROL MO- TOR.	ΜΩ?		circuit of harness.
	 Turn the ignition switch to OFF. Disconnect the connectors from ECM. 			
	3) Measure the resistance between electronic			
	throttle control connector and engine ground.			
	Connector & terminal			
	(E57) No. 2 — Engine ground:			
	(E57) No. 1 — Engine ground:			
25	CHECK ELECTRONIC THROTTLE CON-	Is the resistance more than 1	Go to step 26.	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:			
26	CHECK ELECTRONIC THROTTLE CON-	Is the resistance less than 10	Go to step 27.	Repair the open
	TROL GROUND CIRCUIT.	Ω?		circuit of the har-
	Measure the resistance between ECM connec-			ness.
	tor and chassis ground.			
	Connector & terminal			
27	(B137) No. 3 — Chassis ground:	lo the registeres less than 50	Co to oto = 00	Donland the slee
27	CHECK ELECTRONIC THROTTLE CONTROL.	Is the resistance less than 50 Ω ?	Go to step 28.	Replace the elec- tronic throttle con-
	Measure the resistance between electronic	221		tronic throttle con-
	throttle control terminals.			uol.
	throttle control terminals. Terminals			
	No. 1 — No. 2:			
	110. 1 110. E.	1	1	

	Step	Check	Yes	No
28	CHECK ELECTRONIC THROTTLE CONTROL. Move the throttle valve to the fully open and fully closed positions with fingers. Check that the valve returns to the specified position when releasing fingers.		contact of ECM	Replace the electronic throttle control.

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

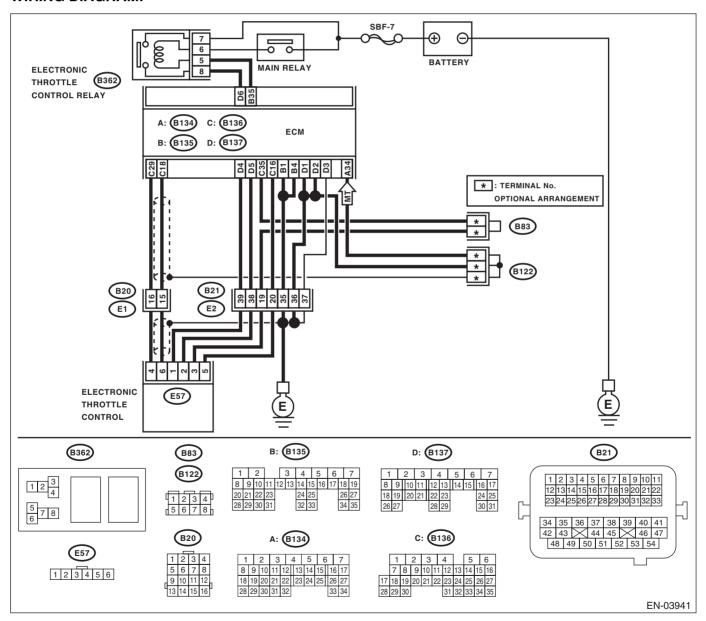
- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-235, DTC P2102 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT LOW, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

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

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



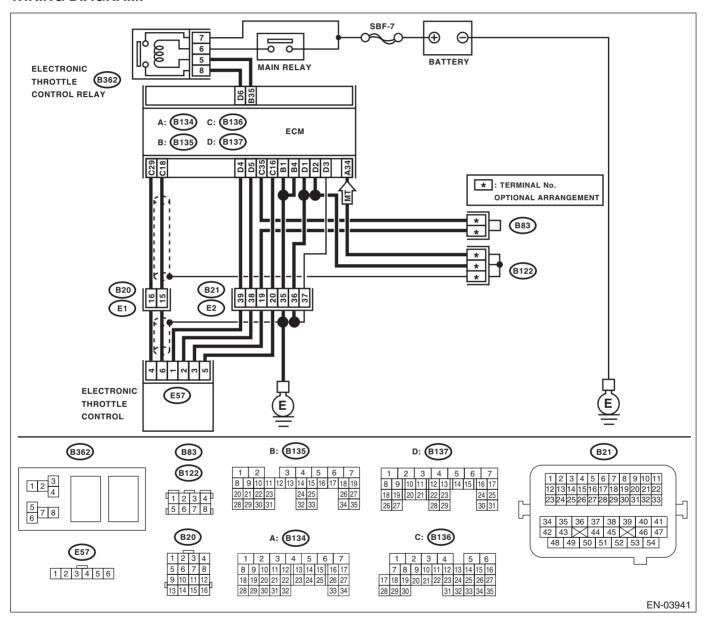
	Step	Check	Yes	No
1	CHECK ELECTRONIC THROTTLE CONTROL RELAY. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control relay. 3) Connect the battery to terminals No. 5 and No. 6 of electronic throttle control relay. 4) Measure the resistance between electronic throttle control terminals. Terminals (B362) No. 7 — (B362) No. 8:	Is the resistance less than 1 Ω ?	Go to step 2.	Replace the electronic throttle control relay.
2	CHECK POWER SUPPLY OF ELECTRONIC THROTTLE CONTROL RELAY. 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control relay connector and chassis ground. Connector & terminal (B362) No. 7 (+) — 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. 8 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 5.	Repair the ground short circuit of har- ness between ECM and elec- tronic throttle con- trol relay.
5	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL RE-LAY. Measure the resistance between ECM connector and electronic throttle control relay connector. Connector & terminal (B135) No. 35 — (B362) No. 5: (B137) No. 6 — (B362) No. 8:	Is the resistance less than 1 Ω ?	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Repair the open circuit of harness between ECM and electronic throttle control relay.

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

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-237, DTC P2103 THROTTLE ACTUATOR CONTROL MOTOR CIRCUIT HIGH, Diagnostic Trouble Code (DTC) Detecting Criteria.>

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



ENGINE (DIAGNOSTICS)

	Step	Check	Yes	No
1	CHECK ELECTRONIC THROTTLE CONTROL RELAY. 1) Turn the ignition switch to OFF. 2) Remove the electronic throttle control relay. 3) Measure the resistance between electronic throttle control relay terminals. Terminals No. 7 — No. 8:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Go to step 2.	Replace the electronic throttle control relay.
2	CHECK SHORT CIRCUIT OF ELECTRONIC THROTTLE CONTROL RELAY POWER SUPPLY. 1) Turn the ignition switch to ON. 2) Measure the voltage between electronic throttle control relay connector and chassis ground. Connector & terminal (B362) No. 8 (+) — 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 RELAY. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Measure the resistance between ECM connector and chassis ground. Connector & terminal (B135) No. 35 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega ?$	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Repair the ground short circuit of har- ness between ECM and elec- tronic throttle con- trol relay.

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

NOTE:

For the diagnostic procedure, refer to DTC P2101. <Ref. to EN(H4DOTC)(diag)-290, DTC P2101 THROT-TLE ACTUATOR CONTROL MOTOR CIRCUIT RANGE/PERFORMANCE, Diagnostic Procedure with Diagnostic Trouble Code (DTC).>

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

DTC DETECTING CONDITION:

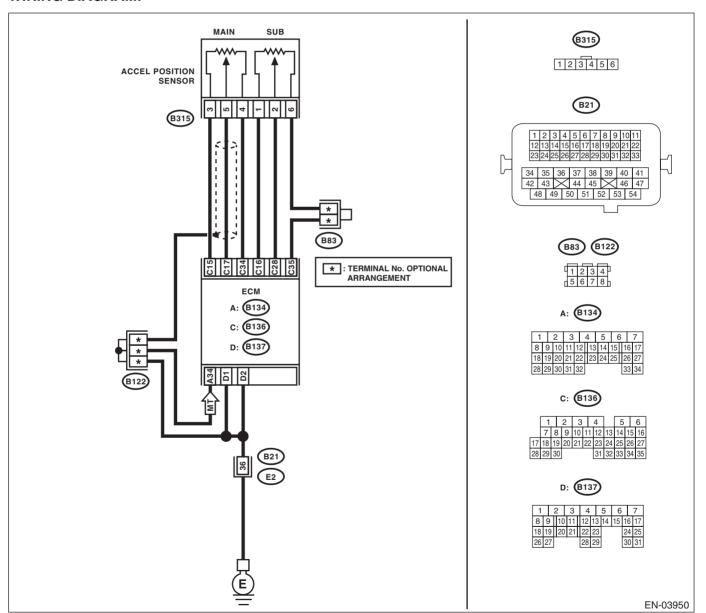
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-241, DTC P2122 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1		Is the voltage more than 0.4 V?	Go to step 2.	Go to step 3.
	SENSOR OUTPUT.		•	•
	 Turn the ignition switch to ON. 			
	Read the data of main accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" monitor.="" select="" subaru="" to=""></ref.>			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
 	Check poor contact of connector between	lis there poor contact?	contact.	contact occurred,
	ECM and accelerator pedal position sensor.		contact.	but it is normal at
	Low and adderenator pedar position sensor.			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.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector. Connector & terminal			
	(B136) No. 17 — (B315) No. 5:			
	(B136) No. 15 — (B315) No. 3:			
4	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance more than 1	Go to step 5.	Repair the chas-
	CELERATOR PEDAL POSITION SENSOR.	$M\Omega$?	S. 3. 3. 3. 3. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.	sis short circuit of
	Measure the resistance between ECM connec-			harness.
	tor and chassis ground.			
	Connector & terminal			
	(B136) No. 17 — Chassis ground:			
	(B136) No. 15 — 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
	Connect the ECM connector. True the implified quitable to CN.			connector.
	2) Turn the ignition switch to ON.3) Measure the voltage between accelerator			Replace the ECM if defective. <ref.< th=""></ref.<>
	pedal position sensor connector and chassis			to FU(H4DOTC)-
	ground.			38, Engine Con-
	Connector & terminal			trol Module
	(B315) No. 3 (+) — Chassis ground (–):			(ECM).>
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. 3 — No. 4:		0 1 1 2	Dania a a di
7	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.2	Go to step 8.	Replace the accel-
	SENSOR. Measure the resistance of accelerator pedal	and 1.0 kΩ?		erator pedal posi- tion sensor.
	Measure the resistance of accelerator pedal position sensor.			LIUTI SELISUI.
	Terminals			
	No. 5 — No. 4:			
	Check the measured value is within the specifi-			
	cation without depressing the accelerator			
	pedal.			

	Step	Check	Yes	No
8	CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor. Terminals No. 5 — No. 4: Check the measured value is within the specification with the accelerator pedal depressed.	Is the resistance between 0.5 and 2.5 k Ω ?		Replace the accelerator pedal position sensor.

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

DTC DETECTING CONDITION:

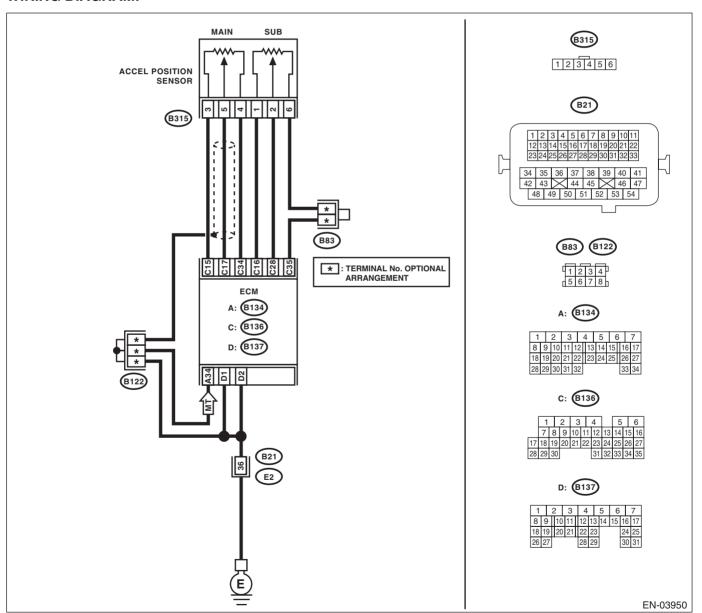
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-243, DTC P2123 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION	Is the voltage less than 4.8 V?	Go to step 2.	Go to step 3.
Ι΄	SENSOR OUTPUT.	is the voltage loss than 4.0 V:	33 to 5top 2 .	33 to stop 6 .
	Turn the ignition switch to ON.			
	Read the data of main accelerator pedal			
	position sensor signal using Subaru Select			
	Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" td="" to=""><td></td><td></td><td></td></ref.>			
	Monitor.>			_
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 4.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.	Ω ?		circuit of harness
	 Turn the ignition switch to OFF. 			connector.
	Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B136) No. 34 — (B315) No. 4:			
4	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 5	Go to step 5.	Repair the poor
	CELERATOR PEDAL POSITION SENSOR.	Ω ?		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(H4DOTC)-
	Connector & terminal			38, Engine Con-
	(B315) No. 4 — Chassis ground:			trol 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-
	1) Connect the ECM connector.			ness between
	2) Turn the ignition switch to ON.			ECM connector
	3) Measure the voltage between accelerator			and accelerator
	pedal position sensor connector and chassis			pedal position sen-
	ground.			sor connector.
	Connector & terminal			
	(B315) No. 5 (+) — 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
	1) Turn the ignition switch to OFF.		ator pedal position	power supply.
	2) Disconnect the connectors from ECM.		sensor connector.	,
	3) Measure the resistance between ECM con-		Replace the accel-	
	nector terminals.		erator pedal posi-	
	Connector & terminal		tion sensor if	
	(B136) No. 17 — (B136) No. 15:		defective.	
	(B136) No. 17 — (B136) No. 16:			
	(3.00) (2.00)	1	l	i

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

DTC DETECTING CONDITION:

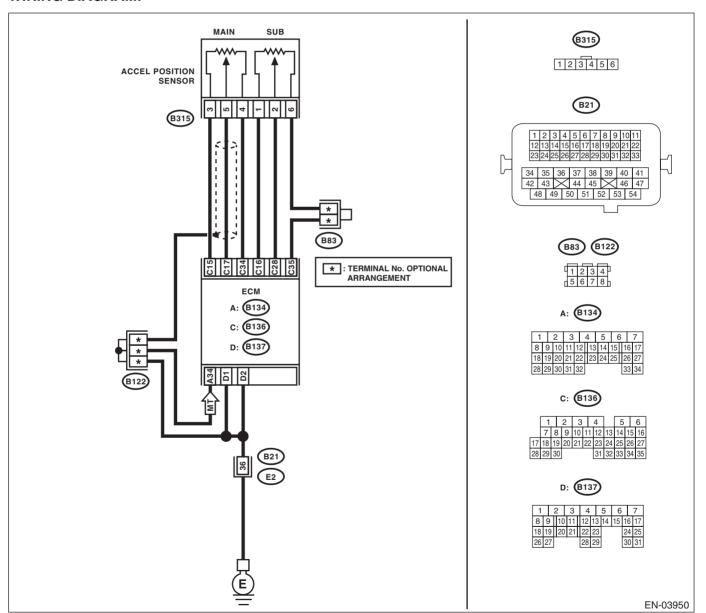
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-245, DTC P2127 THROTTLE/PEDAL POSITION SENSOR/SWITCH "E" CIRCUIT LOW INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Stan	Check	Yes	No
1	Step CHECK ACCELERATOR PEDAL POSITION	Is the voltage more than 0.4 V?		Go to step 3.
	SENSOR OUTPUT.	is the voltage more than 0.4 V	GO 10 310P 2.	GO 10 310P G .
	1) 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 the "LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" p="" select<="" subaru="" to=""></ref.>			
	Monitor.>			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND AC- CELERATOR PEDAL POSITION SENSOR.	Is the resistance less than 1 Ω ?	Go to step 4.	Repair the open circuit of harness
	Turn the ignition switch to OFF.	22:		connector.
	2) Disconnect the connectors from ECM.			connector.
	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			
	(B136) No. 28 — (B315) No. 2:			
	(B136) No. 16 — (B315) No. 1:			
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 (B136) No. 28 — Chassis ground:			
	(B136) No. 16 — Chassis ground: (B136) No. 16 — 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.	le are remage me ere ri	olo to olop ol	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 ground.			to FU(H4DOTC)- 38, Engine Con-
	Connector & terminal			trol Module
	(B315) No. 1 (+) — Chassis ground (–):			(ECM).>
6	CHECK ACCELERATOR PEDAL POSITION		Go to step 7.	Replace the accel-
	SENSOR.	and 3.15 k Ω ?		erator pedal posi-
	Measure the resistance of accelerator pedal			tion sensor.
	position sensor.			
	Terminals No. 1 — No. 6:			
7	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.15	Go to step 8.	Replace the accel-
[SENSOR.	and 0.63 k Ω ?	to otop o .	erator pedal posi-
	Measure the resistance of accelerator			tion sensor.
	pedal position sensor.			
	Terminals			
	No. 2 — No. 6:			
	2) Check the measured value is within the			
	specification without depressing the accelera-			
	tor pedal.			

	Step	Check	Yes	No
8	CHECK ACCELERATOR PEDAL POSITION	Is the resistance between 0.28	Repair the poor	Replace the accel-
	SENSOR.	and 1.68 kΩ?	contact of ECM	erator pedal posi-
	 Measure the resistance of accelerator 		connector.	tion sensor.
	pedal position sensor.		Replace the ECM	
	Terminals		if defective. <ref.< th=""><th></th></ref.<>	
	No. 2 — No. 6:		to FU(H4DOTC)-	
	2) Check the measured value is within the		38, Engine Con-	
	specification with the accelerator pedal		trol Module	
	depressed.		(ECM).>	

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

DTC DETECTING CONDITION:

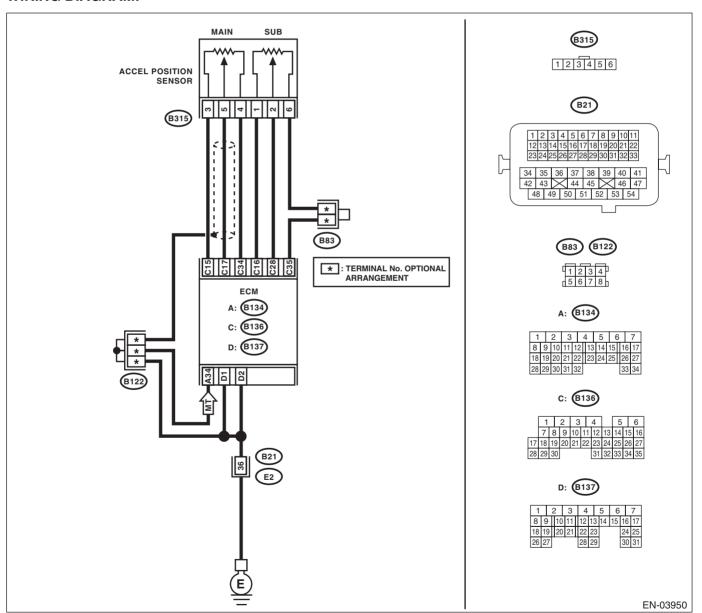
- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-247, DTC P2128 THROTTLE/PEDAL POSITION SENSOR/SWITCH "E" CIRCUIT HIGH INPUT, Diagnostic Trouble Code (DTC) Detecting Criteria.>

TROUBLE SYMPTOM:

- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1		Is the voltage less than 4.8 V?	Go to step 2.	Go to step 3.
[SENSOR OUTPUT.	le are vehage less alan ne vi	Go to stop 2.	Go to stop c.
	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 the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" th="" to=""><th></th><th></th><th></th></ref.>			
	Monitor.>			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Temporary poor
	Check poor contact of connector between		contact.	contact occurred,
	ECM and accelerator pedal position sensor.			but it is normal at
				present.
3	CHECK HARNESS BETWEEN ECM AND AC-	Is the resistance less than 1	Go to step 4.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.	Ω?		circuit of harness
	Turn the ignition switch to OFF.			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor connector.			
	Connector & terminal			
	(B136) No. 35 — (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.	Ω ?	do to stop o .	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.< th=""></ref.<>
	sis ground.			to FU(H4DOTC)-
	Connector & terminal			38, Engine Con-
	(B315) No. 6 — Chassis ground:			trol 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-
	Connect the ECM connector.			ness between
	2) Turn the ignition switch to ON.			ECM connector
	3) Measure the voltage between accelerator			and accelerator
	pedal position sensor connector and chassis			pedal position sen-
	ground. Connector & terminal			sor connector.
	(B315) No. 2 (+) — Chassis ground (–):			
6		Is the resistance more than 1	Repair the poor	Repair the short
ا	CELERATOR PEDAL POSITION SENSOR.	$M\Omega$?		circuit to sensor
	Turn the ignition switch to OFF.	14175:		power supply.
	2) Measure the resistance between ECM con-		sensor connector.	power suppry.
	nector terminals.		Replace the accel-	
	Connector & terminal		erator pedal posi-	
	(B136) No. 28 — (B136) No. 15:		tion sensor if	
	(B136) No. 28 — (B136) No. 16:		defective.	
	• / • • • • • • • • • • • • • • • • • •	l	1	1

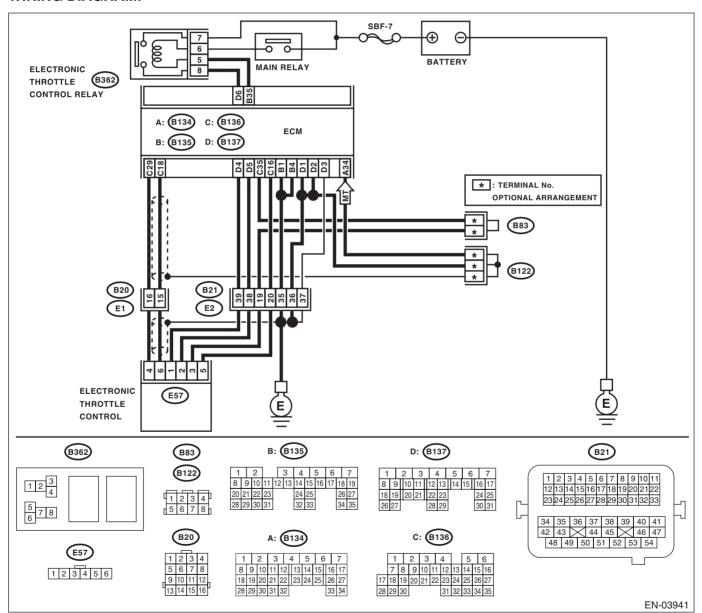
DS:DTC P2135 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A"/"B" VOLT-AGE CORRELATION

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-249, DTC P2135 THROTTLE/PEDAL POSITION SENSOR/SWITCH "A"/"B" VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:
- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK SENSOR OUTPUT. 1) Turn the ignition switch to ON. 2) Measure the voltage between ECM connector terminals. Connector & terminal (B136) No. 18 (+) — (B136) No. 35 (-):	Is the voltage more than 0.4 V?	Go to step 2.	Go to step 4.
2	CHECK SENSOR OUTPUT. Measure the voltage between ECM connector terminals. Connector & terminal (B136) No. 29 (+) — (B136) No. 35 (-):	Is the voltage more than 0.8 V?	Go to step 3.	Go to step 4.
3	CHECK POOR CONTACT. Check poor contact in connector between ECM and electronic throttle control.	Is there poor contact?	Repair the poor contact.	Go to step 14.
4	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 (B136) No. 16 — (E57) No. 5:	Is the resistance less than 1 Ω ?	Go to step 5.	Repair the open circuit of harness connector.
5	CHECK HARNESS BETWEEN ECM AND ELECTRONIC THROTTLE CONTROL. Measure the resistance between ECM connector and chassis ground. Connector & terminal (B136) No. 18 — Chassis ground: (B136) No. 29 — Chassis ground: (B136) No. 16 — Chassis ground:	Is the resistance more than 1 $\mbox{M}\Omega\mbox{?}$	Go to step 6.	Repair the ground short circuit of harness.
6	CHECK SENSOR POWER SUPPLY. 1) Connect the ECM connector. 2) Turn the ignition switch to ON. 3) Measure the voltage between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 5 (+) — Engine ground (-):	Is the voltage 4.5 — 5.5 V?	Go to step 7.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>
7	CHECK SHORT CIRCUIT IN ECM. 1) Turn the ignition switch to OFF. 2) Measure the resistance between electronic throttle control connector and engine ground. Connector & terminal (E57) No. 6 — Engine ground: (E57) No. 4 — Engine ground:	Is the resistance more than 10 Ω ?	Go to step 8.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>

	Step	Check	Yes	No
8	CHECK SENSOR OUTPUT.	Is the voltage less than 4.63	Go to step 9.	Go to step 11.
ľ	Connect all the connectors.	V?	Go to stop c.	Go to dtop 111
	2) Turn the ignition switch to ON.			
	3) Read the data of main throttle sensor signal			
	using Subaru Select Monitor.			
	NOTE:			
	NOTE: Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" td="" to=""><td></td><td></td><td></td></ref.>			
	Monitor.>		0 - 11 10	0 - 44 44
9	CHECK SENSOR OUTPUT.	Is the voltage less than 4.73	Go to step 10.	Go to step 11.
	Read the data of sub throttle sensor signal	V?		
	using Subaru Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" td="" to=""><td></td><td></td><td></td></ref.>			
	Monitor.>			
10	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
				present.
11	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 1	Go to step 12.	Repair the open
	ELECTRONIC THROTTLE CONTROL.	Ω ?		circuit of harness
	 Turn the ignition switch to OFF. 			connector.
	2) Disconnect the connectors from ECM.			
	3) Disconnect the connectors from electronic			
	throttle control.			
	4) Measure the resistance between ECM con-			
	nector and electronic throttle control connector.			
	Connector & terminal			
	(B136) No. 35 — (E57) No. 3:			
	(B136) No. 18 — (E57) No. 6:			
	(B136) No. 29 — (E57) No. 4:			
12	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than 5	Go to step 13.	Repair the poor
	ELECTRONIC THROTTLE CONTROL.	Ω ?		contact of ECM
	Connect the ECM connector.			connector.
	2) Measure the resistance between electronic			Replace the ECM
	throttle control connector and engine ground.			if defective. <ref.< td=""></ref.<>
	Connector & terminal			to FU(H4DOTC)-
	(E57) No. 3 — Engine ground:			38, Engine Con-
	(trol Module
				(ECM).>
13	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 14.	Repair the battery
۱.٠	ELECTRONIC THROTTLE CONTROL.	is the relago loos than to v:	5.5 to 5top 14.	short circuit of har-
	Connect the ECM connector.			ness between
	Turn the ignition switch to ON.			ECM connector
	3) Measure the voltage between electronic			and electronic
	throttle control connector and engine ground.			throttle control
	Connector & terminal			connector.
	(E57) No. 5 (+) — Engine ground (–):			COLLIECTOL.
14	CHECK HARNESS BETWEEN ECM AND	Is the voltage less than 10 V?	Go to step 15.	Repair the short
'4		is the voltage less than 10 V?	Go to step 13.	_
	ELECTRONIC THROTTLE CONTROL. Measure the voltage between electronic throt-			circuit of harness between ECM
	Measure the voltage between electronic throt-			
	tle control connector and engine ground.			connector and
	Connector & terminal			electronic throttle control connector.
	(E57) No. 6 (+) — Engine ground (-):			Control Connector.
	(E57) No. 4 (+) — Engine ground (–):		1	

	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 (B136) No. 18 — (B136) No. 35: (B136) No. 29 — (B136) No. 35:	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. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Repair the short circuit of harness.

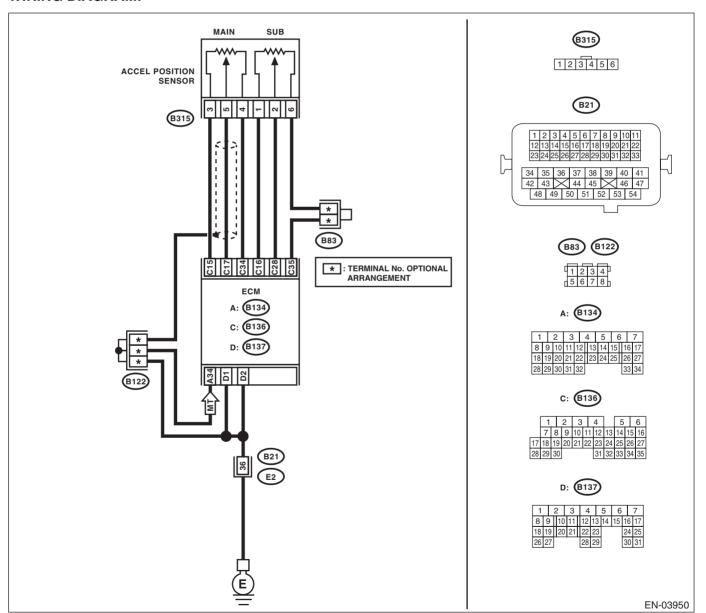
DT:DTC P2138 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D"/"E" VOLT-AGE CORRELATION

DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-251, DTC P2138 THROTTLE/PEDAL POSITION SENSOR/SWITCH "D"/"E" VOLTAGE CORRELATION, Diagnostic Trouble Code (DTC) Detecting Criteria.> TROUBLE SYMPTOM:
- Improper idling
- Poor driving performance

CAUTION:

After repairing or replacing the defective part, perform the Clear Memory Mode <Ref. to EN(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.



	Step	Check	Yes	No
1	CHECK ACCELERATOR PEDAL POSITION	Is the voltage more than 0.4 V?		Go to step 3.
Ι΄	SENSOR OUTPUT.	vollago moro man ola vi	to otop .	
	Turn the ignition switch to ON.			
	2) Read the data of main accelerator pedal			
	position sensor signal and sub accelerator			
	pedal position sensor signal using Subaru			
	Select Monitor.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"LED OPERATION MODE FOR ENGINE."			
	<ref. en(h4dotc)(diag)-24,="" select<="" subaru="" td="" to=""><td></td><td></td><td></td></ref.>			
	Monitor.>			
2	CHECK POOR CONTACT.	Is there poor contact?	Repair the poor	Go to step 12.
	Check poor contact of connector between		contact.	
	ECM and accelerator pedal position sensor.		_	
3	CHECK HARNESS BETWEEN ECM AND AC-		Go to step 4.	Repair the open
	CELERATOR PEDAL POSITION SENSOR.	Ω?		circuit of harness
	Turn the ignition switch to OFF. Disconnect the connectors from ECM.			connector.
	2) Disconnect the connectors from ECM.3) Disconnect the connectors from accelerator			
	pedal position sensor.			
	4) Measure the resistance between ECM con-			
	nector and accelerator pedal position sensor			
	connector.			
	Connector & terminal			
	(B136) No. 17 — (B315) No. 5:			
	(B136) No. 15 — (B315) No. 3:			
	(B136) No. 28 — (B315) No. 2:			
	(B136) No. 16 — (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			
	(B136) No. 17 — Chassis ground: (B136) No. 15 — Chassis ground:			
	(B136) No. 15 — Chassis ground: (B136) No. 28 — Chassis ground:			
	(B136) No. 26 — Chassis ground: (B136) No. 16 — 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.	in the voltage the old vi	5.5 to 5top 5 .	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.< td=""></ref.<>
	pedal position sensor connector and chassis			to FU(H4DOTC)-
	ground.			38, Engine Con-
	Connector & terminal			trol Module
	(B315) No. 3 (+) — Chassis ground (–):			(ECM).>
	(B315) No. 1 (+) — 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.
	position sensor.			
	Terminals			
	No. 3 — No. 4:			

Terminals No. 2 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 5 — No. 4: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 5 — No. 4: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor signal and sub accelerator pedal position sensor signal and sub accelerator pedal position sensor signal and sub accelerator pedal position sensor connector form ECM. CHE		Step	Check	Yes	No
SENSOR. Measure the resistance of accelerator pedal position sensor. Terminals No. 1 - No. 6: Sensor. Terminals No. 1 - No. 6: Sensor. Se	7				
Measure the resistance of accelerator pedal position sensor. **Terminals** No. 1 — No. 6: **Terminals** No. 2 — No. 6: **Terminals** No. 3 — No. 4: **Terminals** No. 5 — No. 4: **Terminals** No. 5 — No. 4: **Terminals** No. 2 — No. 6: **Terminals** No. 2 — No. 6: **Terminals** No. 3 — No. 4: **Terminals** No. 2 — No. 6: **Terminals** No. 3 — No. 4: **Terminals** No. 5 — No. 4: **Terminals** No. 6 — No. 4: **Terminals** No. 2 — No. 6: **Terminals** No. 3 — No. 6: **T	•			do to stop o .	•
position sensor. Terminals No. 1 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 5 — No. 4: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor signal and sub accelerator pedal position sensor signal using Subaru Select Monitor. CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. Thur the ignition switch to OFF. Check poor contact of connector between ECM and accelerator pedal position sensor signal using Subaru Select Monitor. CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. Turn the ignition switch to OFF. Disconnect the connectors from ECM. Turn the ignition switch to OFF. Short ACCELERATOR PEDAL POSITION SENSOR. Turn the ignition switch to OFF. Short ACCELERATOR PEDAL POSITION SENSOR. The value of the pedal position sensor connector. CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. Turn the ignition sensor with the pedal positio		Measure the resistance of accelerator pedal			
8 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 5 — No. 4: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator peda		·			
SENSOR. Replace the accelerator pedal position sensor without depressing the accelerator pedal. Sensor. Replace the accelerator pedal position sensor without depressing the accelerator pedal. Sensor. Replace the accelerator pedal position sensor without depressing the accelerator pedal position sensor while depressing the accelerator pedal position sensor signal and sub accelerator pedal position sensor. It is the resistance less than 1 Go to step 15. Repair the poor contact CELERATOR PEDAL POSITION SENSOR. It is the resistance less than 1 Go to step 15. Repair the poor contact CELERATOR PEDAL POSITION SENSOR. It is the resistance less than 1 Go to step 15. Repair the poor contact CELERATOR PEDAL POSITION SENSOR. It is the resistance less tha		Terminals			
SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 5 — No. 4: Is the resistance between 0.15 Go to step 10. Replace the accelerator pedal position sensor without depressing the accelerator pedal position sensor while depressing the accelerator ped					
Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 5 — No. 4: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor signal and sub accelerator pedal position sensor signal and accelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 CHECK HARNESS BETWEEN ECM AND ACC. CELERATOR PEDAL POSITION SENSOR. 15 the resistance less than 1 CPECK CACCELERATOR PEDAL POSITION SENSOR. 16 the resistance between ECM connector & terminal (B139) No. 34 — (B315) No. 4:	8			Go to step 9.	Replace the accel-
position sensor without depressing the accelerator pedal. Terminals No. 5 — No. 4: 9 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor will be depressed to the pedal position sensor signal and sub accelerator pedal position sensor signal and succelerator pedal position sensor signal and succelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact onenctor between ECM and accelerator pedal position sensor. 14 CHECK HARNESS BETWEEN ECM AND AC CLERATOR PEDAL POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Disconnect the connectors from ECM. 3) Disconnect the connectors from ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector & terminal (B139) No. 34 — (B315) No. 4:			and 0.8 kΩ?		
erator pedal. Terminals No. 5 — No. 4: 1 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR. 13 CHECK ACCELERATOR PEDAL POSITION SENSOR. 14 CHECK ACCELERATOR PEDAL POSITION SENSOR SENSOR OUTPUT. 15 Turn the ignition switch to OFF. 20 Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 CHECK HARNESS BETWEEN ECM AND ACC. CELERATOR PEDAL POSITION SENSOR. 15 the resistance less than 1 CPECK CACCELERATOR SECON SENSOR. 17 Turn the ignition switch to OFF. 2) Disconnect the connectors from ECM. 3) Disconnect the connectors from ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector & terminal (B139) No. 34 — (B315) No. 4:					tion sensor.
Terminals No. 5 — No. 4: 9 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor signal and sub accelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM connector and accelerator pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor. 4) Measure the resistance between ECM connector & terminal (B136) No. 44 — (B315) No. 4:					
Position sensor without depressing the accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal and sub accelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 CHECK HARNESS BETWEEN ECM AND AC. Check poor contact the connector from ECM. 3) Disconnect the connectors from ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor. Connector & terminal (B136) No. 4:					
CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: Is the resistance between 0.5 and 2.5 kΩ? Go to step 11. Replace the accelerator pedal position sensor while depressing the accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: Is the resistance between 0.5 and 2.5 kΩ? Go to step 11. Replace the accelerator pedal. Terminals No. 5 — No. 4: Is the resistance between 0.28 and 1.68 kΩ? Go to step 12. Replace the accelerator pedal position sensor while depressing the accelerator pedal position sensor signal and sub accelerator pedal position sensor. Is there poor contact? Repair the poor contact. Check poor contact of connector between ECM and accelerator pedal position sensor. Ω? CHECK HARNESS BETWEEN ECM AND ACLED ACCELERATOR PEDAL POSITION SENSOR. Ω? Repair the poor contact. Check poor contact of connector between ECM and accelerator pedal position sensor. Ω? Repair the poor contact. Repair the poor contact. Check poor contact of connector me ECM. Ω Disconnect the connectors from ECM. Ω? Ω Disconnect the connectors from ECM. Ω Disconnector & terminal (B136) No. 34 — (B315) No. 4: Ω Disconnect the connectors from ECM. Ω Discon					
SENSOR. Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 − No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 − No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 − No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the acc	q		Is the resistance between 0.15	Go to sten 10	Replace the accel-
Measure the resistance of accelerator pedal position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor. 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors between ECM and accelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM connector and accelerator pedal position sensor. 4) Measure the resistance between ECM connector. Connector & terminal (B136) No. 34 — (B315) No. 4:	9			do to stop 10.	· ·
position sensor without depressing the accelerator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal using Subsaru Select Monitor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:			and 0.00 kg:		
erator pedal. Terminals No. 2 — No. 6: 10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor. 12 CHECK ACCELERATOR PEDAL POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to OFF. 2) Connect and accelerator pedal position sensor. 14 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
10 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 − No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 − No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR. 13 Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal using Subaru Select Monitor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM. 3) Disconnect the connectors from ECM. 3) Disconnect the connectors from ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 − (B315) No. 4:					
The Check Accelerator pedal positions sensor while depressing the accelerator pedal position sensor. Is the voltage less than 4.8 V? Go to step 13. Go to step 14. Sepair the poor contact. Check POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION sensor. Is the resistance between 0.28 Go to step 12. Beplace the accelerator pedal position sensor while accelerator pedal position sensor. Is the resistance between 0.28 Go to step 12. Beplace the accelerator pedal position sensor while accelerator pedal position sensor. Is the resistance between 0.28 Go to		Terminals			
SENSOR Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4; Is the resistance between 0.28 Go to step 12. Replace the accelerator pedal position sensor while depressing the accelerator pedal position sensor. 12					
Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor while depressing the accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal using Subaru Select Monitor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM. 3) Disconnect the connectors from ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector & terminal (B136) No. 34 — (B315) No. 4:	10			Go to step 11.	Replace the accel-
position sensor while depressing the accelerator pedal. Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor. 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal using Subaru Select Monitor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM. 3) Disconnect the connectors from ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B135) No. 41 — (B315) No. 4:			and 2.5 kΩ?		
tor pedal. Terminals No. 5 – No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal using Subaru Select Monitor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 CHECK HANNESS 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 ECM connector and accelerator pedal position sensor. 4) Measure the resistance between ECM connector & terminal (B136) No. 34 — (B315) No. 4:		•			tion sensor.
Terminals No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM. 3) Disconnect the connectors from ECM. 4) Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
No. 5 — No. 4: 11 CHECK ACCELERATOR PEDAL POSITION SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:		· · · · · · · · · · · · · · · · · · ·			
The Check Accelerator Pedal Position Sensor. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: Terminals No. 2 — No. 6: CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. Turn the ignition switch to OFF. Connect all connectors. Turn the ignition switch to ON. Read the data of main throttle sensor signal and sub accelerator pedal position sensor. CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION Sensor. Turn the ignition switch to OFF. Disconnect the connectors from ECM. Disconnect the connectors from accelerator pedal position sensor. Measure the resistance Pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4: Is the resistance between 0.28 and 1.68 kΩ? Replace the accelerator pedal position sensor. So to step 12. Replace the accelerator pedal position sensor. So to step 13. Go to step 14. So to step 14. So to step 14. So to step 15. Repair the poor contact. Go to step 15. Repair the open circuit of harness connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
SENSOR. Measure the resistance of accelerator pedal position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal using Subaru Select Monitor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:	11		Is the resistance between 0.28	Go to sten 12	Replace the accel-
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position sensor while depressing the accelerator pedal. Terminals No. 2 — No. 6: 12 CHECK ACCELERATOR PEDAL POSITION SENSOR OUTPUT. 1) Turn the ignition switch to OFF. 2) Connect all connectors. 3) Turn the ignition switch to ON. 4) Read the data of main throttle sensor signal and sub accelerator pedal position sensor signal using Subaru Select Monitor. 13 CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. 14 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
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nal using Subaru Select Monitor. CHECK POOR CONTACT. Check poor contact of connector between ECM and accelerator pedal position sensor. Is there poor contact? Repair the poor contact. Go to step 18. 14 CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. Is the resistance less than 1 Go to step 15. Repair the open circuit of harness connector. 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
The contact of connector between ECM and accelerator pedal position sensor. 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
Check poor contact of connector between ECM and accelerator pedal position sensor. CHECK HARNESS BETWEEN ECM AND ACCELERATOR PEDAL POSITION SENSOR. Turn the ignition switch to OFF. Disconnect the connectors from ECM. Disconnect the connectors from accelerator pedal position sensor. Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:	13		Is there poor contact?	Repair the poor	Go to step 18.
ECM and accelerator pedal position sensor. 14 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
CELERATOR 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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:		· · · · · · · · · · · · · · · · · · ·			
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 ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:	14		Is the resistance less than 1	Go to step 15.	
2) Disconnect the connectors from ECM. 3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:			Ω ?		
3) Disconnect the connectors from accelerator pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					connector.
pedal position sensor. 4) Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:		•			
4) Measure the resistance between ECM connector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
nector and accelerator pedal position sensor connector. Connector & terminal (B136) No. 34 — (B315) No. 4:					
connector. Connector & terminal (B136) No. 34 — (B315) No. 4:		•			
Connector & terminal (B136) No. 34 — (B315) No. 4:					
(B136) No. 34 — (B315) No. 4:					
(B136) No. 35 — (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: 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.	Is the resistance less than 5 Ω ?	Go to step 16. Go to step 17.	Repair the poor contact of ECM connector. Replace the ECM if defective. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""> Repair the battery short circuit of harness between ECM connector and accelerator pedal position sensor connector.</ref.>
	Connector & terminal (B315) No. 5 (+) — Chassis ground (–): (B315) No. 2 (+) — Chassis ground (–):			
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 connector terminals. Connector & terminal (B136) No. 17 — (B136) No. 15: (B136) No. 17 — (B136) No. 16: (B136) No. 28 — (B136) No. 15: (B136) No. 28 — (B136) No. 16:	M $Ω$?	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. <ref. (ecm).="" control="" engine="" fu(h4dotc)-38,="" module="" to=""></ref.>	Repair the short circuit of harness between ECM connector and accelerator pedal position sensor connector.

ENGINE (DIAGNOSTICS)

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

- Two consecutive driving cycles with fault
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-253, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	.	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref. to<br="">EN(H4DOTC)(diag)-68, List of Diag-</ref.>	Replace the ECM. <ref. to<br="">FU(H4DOTC)-38, Engine Control</ref.>
				pressure sensor is built into the ECM.

DV:DTC P2228 BAROMETRIC PRESSURE CIRCUIT LOW DTC DETECTING CONDITION:

- · Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-254, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, 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(H4DOTC)-38,
			(DTC)". <ref. th="" to<=""><th>Engine Control</th></ref.>	Engine Control
			EN(H4DOTC)(diag	Module (ECM).>
)-68, List of Diag-	NOTE:
				The atmospheric
			Code (DTC).>	pressure sensor is
				built into the ECM.

ENGINE (DIAGNOSTICS)

DW:DTC P2229 BAROMETRIC PRESSURE CIRCUIT HIGH

DTC DETECTING CONDITION:

- Immediately at fault recognition
- GENERAL DESCRIPTION <Ref. to GD(H4DOTC)-255, 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(H4DOTC) (diag)-42, OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4DOTC)(diag)-33, PROCEDURE, Inspection Mode.>.

	Step	Check	Yes	No
1	•	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <ref.)-68,="" diag-<="" en(h4dotc)(diag="" list="" of="" th="" to=""><th>Replace the ECM. <ref. to<br="">FU(H4DOTC)-38, Engine Control Module (ECM).> NOTE:</ref.></th></ref.>	Replace the ECM. <ref. to<br="">FU(H4DOTC)-38, Engine Control Module (ECM).> NOTE:</ref.>
			Code (DTC).>	The atmospheric pressure sensor is built into the ECM.