1. Basic Diagnostic Procedure

S008501

A: PROCEDURE S008501E45

1. ENGINE S008501E4501

No.	Step	Check	Yes	No
1	CHECK ENGINE START FAILURE. 1) Ask the customer when and how the trouble occurred using the interview check list. <ref. check="" check,="" en(h4)-4="" for<br="" list="" to="">Interview.> 2) Start the engine.</ref.>	Does the engine start?	Go to step 2.	Inspection using "Diagnostics for Engine Start Fail- ure". <ref. to<br="">EN(H4)-77 Diag- nostics for Engine Starting Failure.></ref.>
2	CHECK ILLUMINATION OF CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL).	Does CHECK ENGINE malfunction indicator lamp illuminate?	Go to step 3.	Inspection using "General Diagnos- tics Table". <ref. to EN(H4)-562 INSPECTION, General Diagnos- tic Table.></ref.
3	 CHECK INDICATION OF DTC ON DISPLAY. 1) Turn ignition switch to OFF. 2) Connect the Subaru Select Monitor or the OBD-II general scan tool to data link connector. 3) Turn ignition switch to ON and the Subaru Select Monitor or OBD-II general scan tool switch to ON. 4) Read DTC on the Subaru Select Monitor or OBD-II general scan tool. 	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC?	Go to step 4.	Repair the related parts. NOTE: If DTC is not shown on display although the MIL illuminates, per- form diagnostics of MIL (CHECK ENGINE malfunc- tion indicator lamp) circuit or combination meter. <ref. to<br="">EN(H4)-66 Engine Malfunction Indi- cator Lamp (MIL).></ref.>
4	 PERFORM THE DIAGNOSIS. 1) Inspect using "Diagnostics Procedure with Diagnostic Trouble Code (DTC)". NOTE: MT vehicles: <ref. (dtc)="" code="" diagnostic="" en(h4)-106="" for="" mt="" procedure="" to="" trouble="" vehicles.="" with=""></ref.> AT vehicles: <ref. (dtc)="" at="" code="" diagnostic="" en(h4)-310="" for="" procedure="" to="" trouble="" vehicles.="" with=""></ref.> NOTE: Carry out the basic check, only when DTC about automatic transmission is shown on display. <ref. code.="" diagnostic="" en(h4)-59="" read="" to="" trouble=""></ref.> 2) Repair the trouble cause. 3) Perform the clear memory mode. <ref. clear="" en(h4)-63="" memory="" mode.="" to=""></ref.> 4) Perform the inspection mode. <ref. en(h4)-60="" inspection="" mode.="" to=""></ref.> 	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC?	Inspect using "Diagnostics Pro- cedure with Diag- nostic Trouble Code (DTC)". NOTE: • MT vehicles: <ref. en(h4)-<br="" to="">106 Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.> • AT vehicles: <ref. en(h4)-<br="" to="">310 Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.></ref.>	Complete the diagnosis.

2. AUTOMATIC TRANSMISSION S008501E4502

When trouble code about automatic transmission is shown on display, carry out the following basic check. After that, carry out the replacement or repair work.

1) ATF level check <Ref. to AT-9 Automatic Transmission Fluid.>

2) Differential gear oil level check <Ref. to AT-10 Differential Gear Oil.>

3) ATF leak check <Ref. to AT-9 Automatic Transmission Fluid.>

4) Differential gear oil leak check <Ref. to AT-10 Differential Gear Oil.>

5) Stall test <Ref. to AT-12 Stall Test.>

6) Line pressure test <Ref. to AT-15 Line Pressure Test.>

7) Transfer clutch pressure test <Ref. to AT-17 Transfer Clutch Pressure Test.>

8) Time lag test <Ref. to AT-14 Time Lag Test.>

9) Road test <Ref. to AT-11 Road Test.>

10) Shift characteristics <Ref. to AT-17 Transfer Clutch Pressure Test.>

2. Check List for Interview SOUSSOE

A: CHECK SOOB502A04

1. CHECK LIST NO. 1 S008502A0401

Check the following items when problem has occurred.

NOTE:

Use copies of this page for interviewing customers.

Customer's name		Engine no.	
Date of sale		Fuel brand	
Date of repair		Odometer reading	km
Vin no.	1		miles
Weather	 □ Fine □ Cloudy □ Rainy □ Snowy □ Various/Others: 		
Outdoor temperature	°F (°C)		
	 ☐ Hot ☐ Warm ☐ Cool ☐ Cold 	1	
Place	 Highway Suburbs Inner city Uphill Downhill Rough road Others: 		
Engine temperature	 Cold Warming-up After warming-up Any temperature Others: 		
Engine speed	rpm		
Vehicle speed	MPH		
Driving conditions	 Not affected At starting While idling At racing While accelerating While cruising While decelerating While turning (RH/LH) 		
Headlight		Rear defogger	□ ON/□ OFF
Blower		Radio	
A/C compressor		CD/Cassette	
Cooling fan		Car phone	
Front wiper		СВ	
Rear wiper			

NOTE:

2. CHECK LIST NO. 2 SOOB502A0402

Check the following items about the vehicle's state when MIL turns on.

Use copies of this page for interviewing customers.

a) Other warning lights or indicators turn on. □ Yes/□ No					
Low fuel warning light					
Charge indicator light					
AT diagnostics indicator light					
ABS warning light					
L Engine oil pressure warning light					
b) Fuel level					
● Lack of gasoline: □ Yes/□ No					
Indicator position of fuel gauge:					
c) Intentional connecting or disconnecting of harness connectors or spark plug cords: □ Yes/□ No					
What:					
d) Intentional connecting or disconnecting of hoses: □ Yes/□ No					
What:					
e) Installing of parts other than genuine parts: □ Yes/□ No					
What:					
Where:					
f) Occurrence of noise: □ Yes/□ No					
From where:					
What kind:					
g) Occurrence of smell: □ Yes/□ No					
From where:					
What kind:					
h) Intrusion of water into engine compartment or passenger compartment: Very Yes/ No					
i) Troubles occurred					
Engine does not start.					
Engine stalls during idling.					
□ Engine stalls while driving.					
□ Engine speed decreases.					
□ Engine speed does not decrease.					
Rough idling					
\Box Excessive shift shock					

3. General Description SOBBOOT

A: CAUTION SOOBOO1A03

1) Airbag system wiring harness is routed near the engine control module (ECM), main relay and fuel pump relay.

CAUTION:

• All Airbag system wiring harness and connectors are colored yellow. Do not use electrical test equipment on these circuit.

• Be careful not to damage Airbag system wiring harness when servicing the engine control module (ECM), transmission control module (TCM), main relay and fuel pump relay.

2) Never connect the battery in reverse polarity.

• The ECM will be destroyed instantly.

• The fuel injector and other part will be damaged in just a few minutes more.

3) Do not disconnect the battery terminals while the engine is running.

• A large counter electromotive force will be generated in the alternator, and this voltage may damage electronic parts such as ECM, etc.

4) Before disconnecting the connectors of each sensor and the ECM, be sure to turn OFF the ignition switch.

5) Poor contact has been identified as a primary cause of this problem. To measure the voltage and/or resistance of individual sensors or all electrical control modules at the harness side connector, use a tapered pin with a diameter of less than 0.64 mm (0.025 in). Do not insert the pin more than 5 mm (0.20 in) into the part.

6) Before removing ECM from the located position, disconnect two cables on battery.

• Otherwise, the ECM may be damaged.

CAUTION:

When replacing ECM, be careful not to use the wrong spec. ECM to avoid any damage on fuel injection system.

7) The connectors to each sensor in the engine compartment and the harness connectors on the engine side and body side are all designed to be waterproof. However, it is still necessary to take care not to allow water to get into the connectors when washing the vehicle, or when servicing the vehicle on a rainy day. 8) Use ECM mounting stud bolts at the body head grounding point when measuring voltage and resistance inside the passenger compartment.



9) Use engine grounding terminal or engine proper as the grounding point to the body when measuring voltage and resistance in the engine compartment.



10) Use TCM mounting stud bolts at the body head grounding point when measuring voltage and resistance inside the passenger compartment.



11) Every MFI-related part is a precision part. Do not drop them.

12) Observe the following cautions when installing a radio in MFI equipped models.

CAUTION:

• The antenna must be kept as far apart as possible from the control unit.

(The ECM is located under the steering column, inside of the instrument panel lower trim panel.)

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• The antenna feeder must be placed as far apart as possible from the ECM and MFI harness.

• Carefully adjust the antenna for correct matching.

• When mounting a large power type radio, pay special attention to the three items above mentioned.

• Incorrect installation of the radio may affect the operation of the ECM.

13) Before disconnecting the fuel hose, disconnect the fuel pump connector and crank the engine for more than five seconds to release pressure in the fuel system. If engine starts during this operation, run it until it stops.

14) Problems in the electronic-controlled automatic transmission may be caused by failure of the engine, the electronic control system, the transmission proper, or by a combination of these. These three causes must be distinguished clearly when performing diagnostics.

15) Diagnostics should be conducted by rotating with simple, easy operations and proceeding to complicated, difficult operations. The most important thing in diagnostics is to understand the customer's complaint, and distinguish between the three causes.

16) In AT vehicles, do not continue the stall for more than five seconds at a time (from closed throttle, fully open throttle to stall engine speed).

17) On ABS vehicle, when performing driving test in jacked-up or lifted-up position, sometimes the warning light may be lit, but this is not a malfunction of the system. The reason for this is the speed difference between the front and rear wheels. After diagnosis of engine control system, perform the ABS memory clearance procedure of self-diagnosis system.

B: INSPECTION SOOBOOTA10

Before performing diagnostics, check the following items which might affect engine problems:

1. BATTERY SOOBOO1A1001

1) Measure battery voltage and specific gravity of electrolyte.

Standard voltage: 12 V

Specific gravity: Above 1.260

2) Check the condition of the main and other fuses, and harnesses and connectors. Also check for proper grounding.

2. ENGINE GROUNDING SOOBOO1A1002

Make sure the engine grounding terminal is properly connected to the engine.



C: NOTE SOOBOO1A15

1. DESCRIPTION SOOBOOTA1501

• The on-board diagnostics (OBD) system detects and indicates a fault in various inputs and outputs of the complex electronic control. CHECK ENGINE malfunction indicator lamp (MIL) in the combination meter indicates occurrence of a fault or trouble.

• Further, against such a failure or sensors as may disable the drive, the fail-safe function is provided to ensure the minimal driveability.

• The OBD system incorporated with the vehicles within this engine family complies with Section 1968.1, California Code of Regulations (OBD-II regulation). The OBD system monitors the components and the system malfunction listed in Engine Section which affects on emissions.

• When the system decides that a malfunction occurs, MIL illuminates. At the same time of the MIL illumination or blinking, a diagnostic trouble code (DTC) and a freeze frame engine conditions are stored into on-board computer.

• The OBD system stores freeze frame engine condition data (engine load, engine coolant temperature, fuel trim, engine speed and vehicle speed, etc.) into on-board computer when it detects a malfunction first.

• If the OBD system detects the various malfunctions including the fault of fuel trim or misfire, the OBD system first stores freeze frame engine conditions about the fuel trim or misfire.

• When the malfunction does not occur again for three consecutive driving cycles, MIL is turned off, but DTC remains at on-board computer.

• The OBD-II system is capable of communication with a general scan tool (OBD-II general scan tool) formed by ISO 9141 CARB.

• The OBD-II diagnostics procedure is different from the usual diagnostics procedure. When troubleshooting OBD-II vehicles, connect Subaru Select Monitor or the OBD-II general scan tool to the vehicle.

2. ENGINE AND EMISSION CONTROL

SYSTEM S008001A1502

• The Multipoint Fuel Injection (MFI) system is a system that supplies the optimum air-fuel mixture to the engine for all the various operating conditions through the use of the latest electronic technology.

With this system fuel, which is pressurized at a constant pressure, is injected into the intake air passage of the cylinder head. The injection quantity of fuel is controlled by an intermittent injection system where the electro-magnetic injection valve (fuel injector) opens only for a short period of time, depending on the quantity of air required for one cycle of operation. In actual operation, the injection quantity is determined by the duration of an electric pulse applied to the fuel injector and this permits simple, yet highly precise metering of the fuel. • Further, all the operating conditions of the engine are converted into electric signals, and this

results in additional features of the system, such as large improved adaptability, easier addition of compensating element, etc.

The MFI system also has the following features:

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
B2M3876	24082AA150	CARTRIDGE	Troubleshooting for electrical systems.
E2M3877	22771AA030	SELECT MONITOR KIT	Troubleshooting for electrical systems. • English: 22771AA030 (Without printer) • German: 22771AA070 (Without printer) • French: 22771AA080 (Without printer) • Spanish: 22771AA090 (Without printer)

D: PREPARATION TOOL SOBBOOTA17

- Reduced emission of harmful exhaust gases.
- Reduced in fuel consumption.
- Increased engine output.
- Superior acceleration and deceleration.
- Superior startability and warm-up performance in cold weather since compensation is made for coolant and intake air temperature.

3. AUTOMATIC TRANSMISSION AND ELECTRONIC-HYDRAULIC CONTROL

SYSTEM S008001A1503

The electronic-hydraulic control system consists of various sensors and switches, a transmission control module (TCM) and the hydraulic controller including solenoid valves. The system controls the transmission proper including shift control, lock-up control, overrunning clutch control, line pressure control and shift timing control. It also controls the AWD transfer clutch. In other words, the system detects various operating conditions from various input signals and sends output signals to shift solenoids 1, 2 and low clutch timing solenoid and 2-4 brake timing solenoid, line pressure duty solenoid, lock-up duty solenoid, transfer duty solenoid and 2-4 brake duty solenoid (a total of eight solenoids).

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MEMO:

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4. Electrical Components

Location SOOB507

- A: LOCATION SOUBSOTA13
- 1. ENGINE (MT VEHICLES) S008507A1303
- MODULE S008507A130301



- (1) Engine control module (ECM)
- Data link connector (for Subaru Select Monitor and OBD-II general scan tool)
- (3) Test mode connector
- (4) CHECK ENGINE malfunction indicator lamp (MIL)



• SENSOR S008507A130302



- (1) Engine coolant temperature sensor
- (3) Throttle position sensor
- (4) Intake manifold pressure sensor
- (6) Camshaft position sensor
- sor (7) Crankshaft position sensor

- (2) Intake air temperature sensor
- (5) Knock sensor

Engine (DIAGNOSTICS)





- (1) Front oxygen (A/F) sensor
- (2) Rear oxygen sensor
- (3) Front catalytic converter(4) Rear catalytic converter



Engine (DIAGNOSTICS)



(1) Fuel level sensor

- (3) Fuel tank pressure sensor
- (2) Fuel temperature sensor
- (4) Fuel sub level sensor



Engine (DIAGNOSTICS)

• SOLENOID VALVE, EMISSION CONTROL SYSTEM PARTS AND IGNITION SYSTEM PARTS S008507A130303



(1) Purge control solenoid valve

(2) Ignition coil & ignitor ASSY

(3) Idle air control solenoid valve



Engine (DIAGNOSTICS)



MEMO:

Engine (DIAGNOSTICS)



(2) Main relay

- (3) Fuel pump relay
- (4) Radiator main fan relay
- Radiator sub fan relay (5)
- (6) Starter



Engine (DIAGNOSTICS)

2. ENGINE (AT VEHICLES) SOUBSOTA 1304

• **MODULE** S008507A130401



- (1) Engine control module (ECM)
- (2) Data link connector (for Subaru Select Monitor and OBD-II general scan tool)
- (3) Test mode connector
- (4) CHECK ENGINE malfunction indicator lamp (MIL)



MEMO:

Engine (DIAGNOSTICS)

• SENSOR 5008507A130402



- (1) Atmospheric pressure sensor
- (2) Intake air temperature and pressure sensor
- (3) Engine coolant temperature sensor
- (4) Throttle position sensor
- (5) Knock sensor
- (6) Camshaft position sensor
- (7) Crankshaft position sensor





- (1) Front oxygen (A/F) sensor
- (2) Rear oxygen sensor
- (3) Front catalytic converter(4) Rear catalytic converter



Engine (DIAGNOSTICS)



(1) Fuel level sensor

- (3) Fuel tank pressure sensor
- (2) Fuel temperature sensor
- (4) Fuel sub level sensor



Engine (DIAGNOSTICS)

• SOLENOID VALVE, EMISSION CONTROL SYSTEM PARTS AND IGNITION SYSTEM PARTS 5008507A130403



- (1) Air assist injector solenoid valve
- (3) Purge control solenoid valve
- (2) Idle air control solenoid valve
- (4) Ignition coil & ignitor ASSY



Engine (DIAGNOSTICS)



B2M1810A

B2M1811A

MEMO:

Engine (DIAGNOSTICS)



- (2) Fuel pump (3)
 - Main relay

- (4) Fuel pump relay
- (5) Radiator main fan relay
- (6) Radiator sub fan relay



3. TRANSMISSION S008507A1302

• **MODULE** S008507A130201



- (1) Transmission Control Module (TCM) (for AT vehicles)
- (2) AT diagnostic indicator light (for AT vehicles)





Rear vehicle speed sensor (for AT vehicles)
 Front vehicle speed sensor (for MT vehicles)
 Front vehicle speed sensor (for AT vehicles)
 Torque converter turbine speed sensor
 ATF temperature sensor (for AT vehicles)
 Brake light switch

Engine (DIAGNOSTICS)

• SOLENOID VALVE AND SWITCH (AT VEHICLES) S008507A130203



- (1) Dropping resistor
- (2) Inhibitor switch
- (3) Shift solenoid valve 1
- (4) Shift solenoid valve 2
- (5) Line pressure duty solenoid
 (6) Lock-up duty solenoid
 (7) Transfer duty solenoid
 (8) 2-4 brake duty solenoid

- (9) Low clutch timing solenoid valve
- (10) 2-4 brake timing solenoid valve

• SOLENOID VALVE AND SWITCH (MT VEHICLES) S008507A130204



(1) Neutral position switch

MEMO:
ENGINE CONTROL MODULE (ECM) I/O SIGNAL

5. Engine Control Module (ECM) I/O Signal SOUSSE

A: ELECTRICAL SPECIFICATION S008526408

1. MT VEHICLES SOUB526A0801



B2M2267A

Content		0	T	Signa	al (V)	
		tor No.	nal No.	Ignition SW ON (Engine OFF)	Engine ON (Idling)	Note
Crankshaft	Signal (+)	B135	1	0	-7 +7	Sensor output waveform
position	Signal (-)	B135	8	0	0	_
sensor	Shield	B135	10	0	0	—
Camshaft	Signal (+)	B135	2	0	-7 +7	Sensor output waveform
position	Signal (-)	B135	9	0	0	_
sensor	Shield	B135	10	0	0	_
These table	Signal	B136	17	Fully closed Fully opened	l: 0.2 — 1.0 d: 4.2 — 4.7	—
position	tion Power sup-		15	5	5	_
Selisor	GND (sen- sor)	B136	16	0	0	—
	Signal	B136	18	0	0 — 0.9	—
Rear oxy-	Shield	B136	24	0	0	—
gen sensor	GND sen- sor	B136	16	0	0	_
Front oxy-	Signal 1	B134	22	0.5 — 13	0.5 — 14	Waveform
gen (A/F)	Signal 2	B134	23	0.5 — 13	0.5 — 14	Waveform
sensor heater	Power sup- ply monitor	B136	3	10 — 13	13 — 14	_
Rear oxy-	Signal	B134	21	0.5 — 13	0.5 — 14	Waveform
gen sensor heater	Power sup- ply monitor	B136	3	10 — 13	13 — 14	—
Engine	Signal	B136	14	1.0 — 1.4	1.0 — 1.4	After warm-up the engine.
tempera- ture sensor	GND (sen- sor)	B136	16	0	0	After warm-up the engine.

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ENGINE CONTROL MODULE (ECM) I/O SIGNAL Engine (DIAGNOSTICS)

Content			Signal (V)			
		Connec- tor No.	Termi- nal No.	Ignition SW ON (Engine OFF)	Engine ON (Idling)	Note
Vehicle spee	ed signal	B135	24	0 or 5	0 or 5	"5" and "0" are repeatedly dis- played when vehicle is driven.
Starter switc	h	B135	28	0	0	Cranking: 8 — 14
A/C switch		B135	27	ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	—
Ignition swite	ch	B135	7	10 — 13	13 — 14	_
Neutral posi	tion switch	B135	26	ON: 1 OF	2±0.5 F: 0	On MT vehicle; switch is ON when gear is in neutral position.
Test mode c	onnector	B135	14	5	5	When connected: 0
Knock sen-	Signal	B136	4	2.5	2.5	—
sor	Shield	B136	25	0	0	—
Back-up pov	ver supply	B136	9	10 — 13	13 — 14	Ignition switch "OFF": 10 - 13
Control unit	power sup-	B136	1	10 — 13	13 — 14	_
ply		B136	2	10 — 13	13 — 14	—
Sensor pow	er supply	B136	15	5	5	—
Line end che	eck 1	B135	20	0	0	—
Ignition	#1, #2	B134	25	0	1 — 3.4	Waveform
control	#3, #4	B134	26	0	1 — 3.4	Waveform
	#1	B134	4	10 — 13	1 — 14	Waveform
Fuel injec-	#2	B134	13	10 — 13	1 — 14	Waveform
tor	#3	B134	14	10 — 13	1 — 14	Waveform
	#4	B134	15	10 — 13	1 — 14	Waveform
	Signal	B134	5	—	1 — 13	Waveform
control	Power sup- ply	B136	2	10 — 13	13 — 14	_
valve	GND (power)	B134	8	0	0	_
Fuel pump r	elay control	B134	16	ON: 0.5, or less OFF: 10 — 13	0.5, or less	_
A/C relay co	ontrol	B134	17	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	_
Radiator fan trol	relay 1 con-	B134	3	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	_
Radiator fan trol	relay 2 con-	B134	12	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	With A/C vehicles only
Self-shutoff	control	B135	19	10 — 13	13 — 14	—
Malfunction lamp	indicator	B134	11	_	—	Light "ON": 1, or less Light "OFF": 10 — 14
Engine spee	ed output	B134	30	—	0 — 13, or more	Waveform
Purge contro valve	ol solenoid	B134	2	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
la ta ba	Signal	B136	5	3.4 — 3.6	1.2 — 1.8	—
manifold	Power sup- ply	B136	15	5	5	_
sensor	GND (sen- sor)	B136	16	0	0	—
Fuel temper	ature sensor	B136	26	2.5 — 3.8	2.5 — 3.8	Ambient temperature: 25°C (75°F)
Fuel level se	ensor	B136	27	0.12 — 4.75	0.12 — 4.75	—

ENGINE CONTROL MODULE (ECM) I/O SIGNAL

		Common	To 2000 :	Signa	al (V)	
Content		tor No.	nal No.	Ignition SW ON (Engine OFF)	Engine ON (Idling)	Note
Signal		B136	12	2.3 — 2.7	2.3 — 2.7	The value obtained after the fuel filler cap was removed once and recapped.
pressure sensor	Power sup- ply	B136	15	5	5	_
	GND (sen- sor)	B136	16	0	0	—
Fuel tank protocol trol solenoid	essure con- valve	B134	1	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Drain valve		B134	10	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Small light switch		B135	18	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	_
Blower fan switch		B135	5	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	_
Rear defogg	Rear defogger switch		6	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	_
Front oxyger sor signal 1	n (A/F) sen-	B136	7	3.7 — 3.9	3.7 — 3.9	_
Front oxyger sor signal 2	n (A/F) sen-	B136	20	2.6 — 4.4	3.4 — 3.6	_
SSM/GST control tion line	ommunica-	B135	3	Less than 1 $\leftarrow \rightarrow$ More than 4	Less than $1 \leftarrow \rightarrow More$ than 4	—
Intake air tei sensor	mperature	B136	13	3.0 — 3.4	3.0 — 3.4	Intake air temperature: 25°C (75°F)
Line end che	eck 2	B135	21	5	5	
GND (senso	rs)	B136	16	0	0	—
GND (injecto	ors)	B134	7	0	0	—
GND (ignitio	n system)	B134	27	0	0	—
GND (power	· supply)	B134	8	0	0	—
GND (contro	l systems)	B136	21	0	0	—
		B136	22	0	0	—
GND (oxyge heater 1)	n sensor	B134	35	0	0	_
GND (oxyge heater 2)	n sensor	B134	34	0	0	—

MEMO:

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2. AT VEHICLES SOUB526A0802



		Connoo	Tormi	Termi- Signal (V)		
Cor	Content		nal No.	Ignition SW ON (Engine OFF)	Engine ON (Idling)	Note
Crankshaft	Signal (+)	B135	1	0	-7 +7	Sensor output waveform
position	Signal (-)	B135	8	0	0	_
sensor	Shield	B135	10	0	0	_
Camshaft	Signal (+)	B135	2	0	-7 +7	Sensor output waveform
position	Signal (-)	B135	9	0	0	_
sensor	Shield	B135	10	0	0	—
Thustile	Signal	B136	17	Fully closed Fully opened	l: 0.2 — 1.0 d: 4.2 — 4.7	—
position	Power sup- ply	B136	15	5	5	_
3011301	GND (sen- sor)	B136	16	0	0	_
	Signal	B136	18	0	0 — 0.9	_
Rear oxy-	Shield	B136	24	0	0	
gen sensor	GND (sen- sor)	B136	16	0	0	—
Front oxy- gen (A/F)	Signal 1	B134	22	0 — 1.0	0 — 1.0	—
sensor heater	Signal 2	B134	23	0 — 1.0	0 — 1.0	_
Rear oxyger heater signa	n sensor I	B134	21	0 — 1.0	0 — 1.0	_
Engine	Signal	B136	14	1.0 — 1.4	1.0 — 1.4	After warm-up the engine.
tempera- ture sensor	GND (sen- sor)	B136	16	0	0	After warm-up the engine.
Vehicle speed signal		B135	24	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.
Starter switc	h	B135	28	0	0	Cranking: 8 — 14
A/C switch		B135	27	ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	-
Ignition swite	ch	B135	7	10 — 13	13 — 14	_

ENGINE CONTROL MODULE (ECM) I/O SIGNAL Engine (DIAGNOSTICS)

Content		_		Signal (V)			
		Connec- tor No.	Termi- nal No.	Ignition SW ON	Engine ON (Idling)	Note	
			1101 1101	(Engine OFF)			
Neutral posit	tion switch	B135	26	ON OFF: 1	l: 0 12±0.5	Switch is ON when shift is in "N" or "P" position.	
Test mode c	onnector	B135	14	5	5	When connected: 0	
Knock sen-	Signal	B136	4	2.8	2.8	_	
sor	Shield	B136	25	0	0	_	
Back-up pov	ver supply	B136	9	10 — 13	13 — 14	Ignition switch "OFF": 10 — 13	
Control unit	power sup-	B136	1	10 — 13	13 — 14	—	
ply		B136	2	10 — 13	13 — 14	—	
Sensor powe	er supply	B136	15	5	5	_	
Line end che	eck 1	B135	20	0	0	—	
Ignition	#1, #2	B134	25	0	1 — 3.4	Waveform	
control	#3, #4	B134	26	0	1 — 3.4	Waveform	
	#1	B134	4	10 — 13	1 — 14	Waveform	
Fuel injec-	#2	B134	13	10 — 13	1 — 14	Waveform	
tor	#3	B134	14	10 — 13	1 — 14	Waveform	
	#4	B134	15	10 — 13	1 — 14	Waveform	
	Signal 1	B134	5	—	1 — 13	Waveform	
Idle air	Signal 2	B134	6	—	1 — 13	Waveform	
control	Signal 3	B134	19	—	1 — 13	Waveform	
solenoid	Signal 4	B134	20	—	1 — 13	Waveform	
valve	Power sup- ply	B136	2	10 — 13	13 — 14	—	
Fuel pump relay control		B134	16	ON: 0.5, or less OFF: 10 — 13	0.5, or less	_	
A/C relay co	ntrol	B134	17	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	_	
Radiator fan trol	relay 1 con-	B134	3	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	_	
Radiator fan trol	relay 2 con-	B134	2	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	With A/C vehicles only	
Self-shutoff	control	B135	19	10 - 13	13 — 14	_	
Malfunction i	indicator	B134	11	_	_	Light "ON": 1, or less Light "OFF": 10 — 14	
Engine spee	d output	B134	30	_	0 — 13, or more	Waveform	
Torque contr	ol 1 signal	B135	16	5	5	_	
Torque contr	ol 2 signal	B135	17	5	5	_	
Torque contr	ol cut signal	B134	31	8	8	_	
Purge contro valve	ol solenoid	B134	2	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	_	
	Signal	B136	29	3.9 — 4.1	2.0 — 2.3		
Atmo- spheric	Power sup- ply	B136	15	5	5	_	
sensor	GND (sen- sor)	B136	16	0	0		
Fuel tempera	ature sensor	B136	26	2.5 — 3.8	2.5 — 3.8	Ambient temperature: 25°C (75°F)	
Fuel level sensor		B136	27	0.12 — 4.75	0.12 — 4.75	_	

ENGINE CONTROL MODULE (ECM) I/O SIGNAL

				Signa	al (V)	
Content		tor No.	Termi- nal No.	Ignition SW ON (Engine OFF)	Engine ON (Idling)	Note
Signal Fuel tank		B136	12	2.3 — 2.7	2.3 — 2.7	The value obtained after the fuel filler cap was removed once and recapped.
pressure sensor	Power sup- ply	B136	15	5	5	—
	GND (sen- sor)	B136	16	0	0	—
Fuel tank pre trol solenoid	essure con- valve	B134	1	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Drain valve		B134	10	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
AT diagnosis	s input signal	B135	4	Less than 1 $\leftarrow \rightarrow$ More than 4	Less than 1 $\leftarrow \rightarrow$ More than 4	Waveform
Small light s	witch	B136	3	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	—
Blower fan s	ower fan switch		30	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	_
Rear defogg	er switch	B135	21	ON: 0 OFF: 10 — 13	ON: 0 OFF: 13 — 14	—
Front oxyger sor signal 1	n (A/F) sen-	B136	19	2.8 — 3.2	2.8 — 3.2	—
Front oxyger sor signal 2	n (A/F) sen-	B136	6	2.4 — 2.7	2.4 — 2.7	—
Front oxyger sor signal 3	n (A/F) sen-	B136	7	0.2 — 4.9	0.2 — 4.9	_
Front oxyger sor signal 4	n (A/F) sen-	B136	20	0.2 — 4.9	0.2 — 4.9	_
Pressure ser	nsor	B136	5	2.4 — 4.8	0.4 — 1.8	—
Intake air ter sensor	nperature	B136	13	2.3 — 2.5	1.4 — 1.6	—
SSM/GST co tion line	ommunica-	B135	3	Less than 1 $\leftarrow \rightarrow$ More than 4	Less than 1 $\leftarrow \rightarrow$ More than 4	—
GND (senso	rs)	B136	16	0	0	—
GND (injecto	ors)	B134	7	0	0	
GND (ignitio	n system)	B134	27	0	0	—
GND (power	supply)	B134	8	0	0	_
CND (contro	Lovotomo)	B136	21	0	0	—
	i systems)	B136	22	0	0	
GND (oxyge heater 1)	n sensor	B134	35	0	0	—
GND (oxyge heater 2)	n sensor	B134	34	0	0	_

6. Engine Condition Data SOURSSO

A: ELECTRICAL SPECIFICATION

S008530A08

Content	Specified data		
Engine lood	1.6 — 2.9 (%): Idling		
Engine load	6.4 — 12.8 (%): 2,500 rpm racing		

Measuring condition:

- After warm-up the engine.
 Gear position is in "N" or "P" position.
 A/C is turned OFF.
- All accessory switches are turned OFF.

TRANSMISSION CONTROL MODULE (TCM) I/O SIGNAL

7. Transmission Control Module (TCM) I/O Signal sources

A: ELECTRICAL SPECIFICATION SOUBSOGAOB



NOTE: Check with ignition switch ON.

Content		Connector No.	Terminal No.	Measuring conditions	Voltage (V)
Back-up power supply		B55	6	Ignition switch OFF	10 — 16
Ignition no	woroupply	B54 23		Ignition switch ON (with ongine OFF)	10 16
	wei suppiy	B54	24	Ignition switch ON (with engine OFF)	10 - 16
"D" rongo				Selector lever in "P" range	Less than 1
	switch	B55	23	Selector lever in any other than "P" range	More than 8
	"N" rango			Selector lever in "N" range	Less than 1
	switch	B55	22	Selector lever in any other than "N" range	More than 8
	"R" range switch		17	Selector lever in "R" range	Less than 1
		B55		Selector lever in any other than "R" range	More than 9.5
Inhibitor switch	"D" range switch		8	Selector lever in "D" range	Less than 1
		B55		Selector lever in any other than "D" range	More than 9.5
	"3" range	B 55	10	Selector lever in "3" range	Less than 1
	switch	655	10	Selector lever in any other than "3" range	More than 9.5
	"2" range	B54	10	Selector lever in "2" range	Less than 1
	switch		10	Selector lever in any other than "2" range	More than 9.5
	"1" range	B54	1	Selector lever in "1" range	Less than 1
	switch	201		Selector lever in any other than "1" range	More than 9.5
Brake	switch	B55	24	Brake pedal depressed	More than 10.5
Biake	ountoin .	200	21	Brake pedal released	Less than 1
ABS	signal	B54	19	ABS switch ON	Less than 1
, (100)	orginal	004	15	ABS switch OFF	More than 6.5

TRANSMISSION CONTROL MODULE (TCM) I/O SIGNAL Engine (DIAGNOSTICS)

Content	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to body (ohms)
Throttle position	B55	1	Throttle fully closed.	0.3 — 0.7	
sensor	500		Throttle fully open.	4.3 — 4.9	
Throttle position sensor power supply	B55	2	Ignition switch ON (with engine OFF)	4.8 — 5.3	—
			ATF temperature 20°C (68°F)	2.9 — 4.0	2.1 k — 2.9 k
sensor	B55	11	ATF temperature 80°C (176°F)	1.0 — 1.4	275 — 375
Rear vehicle			Vehicle stopped.	0	
speed sensor	B55	3	Vehicle speed at least 20 km/h (12 MPH)	More than 1 (AC range)	450 — 650
Front vehicle speed sensor	B55	5	Vehicle speed at most 10 km/h (6 MPH)	Less than $1 \leftarrow \rightarrow More$ than 4	—
Torque converter			Vehicle stopped.	0	
turbine speed sensor	B55	12	Vehicle speed at least 20 km/h (12 MPH)	More than 1 (AC range)	450 — 650
Vehicle speed output signal	B55	13	Vehicle speed at most 10 km/h (6 MPH)	Less than $1 \leftarrow \rightarrow More$ than 4	—
Engine speed	DEE	4	Ignition switch ON (with engine OFF).	More than 10.5	
signal	000	4	Ignition switch ON (with engine ON).	8 — 11	—
		44	When cruise control is set (SET lamp ON).	Less than 1	
Cruise set signal	B54	11	When cruise control is not set (SET lamp OFF).	More than 6.5	
Torque control 1 signal	B54	13	Ignition switch ON (with engine ON)	More than 9	_
Torque control 2 signal	B54	21	Ignition switch ON (with engine ON)	More than 9	_
Torque control cut signal	B54	2	Ignition switch ON	8	_
AT load signal	B55	20	Engine idling after warm-up	1.2 — 1.8	—
Shift solenoid 1	B54	7	1st or 4th gear	More than 9	10 — 16
	004		2nd or 3rd gear	Less than 1	10 10
Shift solenoid 2	B54	6	1st or 2nd gear	More than 9	10 — 16
	_	-	3rd or 4th gear	Less than 1	
Line pressure	B54	9	Throttle fully closed (with engine OFF) after warm-up.	1.5 — 4.0	2.0 - 4.5
duty solenoid			Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	2.0 1.0
Dropping register	P54	10	Throttle fully closed (with engine OFF) after warm-up.	More than 8.5	0 15
Dropping resistor	004	10	Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	5 — 15
Lock-up duty	B5/	16	When lock up occurs.	More than 8.5	10 — 17
solenoid	004	10	When lock up is released.	Less than 0.5	10 - 17
			Fuse on FWD switch	More than 8.5	
Transfer duty solenoid	B54	15	Fuse removed from FWD switch (with throttle fully open and with select lever in 1st	Less than 0.5	10 — 17

TRANSMISSION CONTROL MODULE (TCM) I/O SIGNAL

Content	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to body (ohms)	
2-4 brake duty	DE4	0	Throttle fully closed (with engine OFF) after warm-up.	1.5 — 4.0	20 45	
solenoid	D04	0	Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	2.0 — 4.5	
2-4 brake duty	D54	17	Throttle fully closed (with engine OFF) after warm-up.	More than 8.5	0 15	
solenoid resistor	D04	17	Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	9 — 15	
2-4 brake timing	DE A	F	3rd gear	More than 9	10 16	
solenoid	D04	Э	1st gear	Less than 1	10 — 16	
Low clutch timing	P54	1.4	2nd gear	Less than 1	10 16	
solenoid	solenoid		4th gear	More than 9	10 — 16	
Sensor ground line 1	B55	10	—	0	Less than 1	
Sensor ground line 2	B55	21	—	0	Less than 1	
System ground	DEE	9		0	Loop than 1	
line	DDD	19	—	0	Less than 1	
	DEE	1.4	Fuse removed.	6 — 9.1		
	600	14	Fuse installed.	Less than 1		
EWD indicator			Fuse on FWD switch	Less than 1		
lamp	B54	12	Fuse removed from FWD switch.	More than 9	_	
Data link signal		7	_	_		
(Subaru Select Monitor)	B55	16		—	1 —	
AT diagnosis sig- nal	B54	4	Ignition switch ON	Less than 1 $\leftarrow \rightarrow$ More than 4		

8. Data Link Connector SOURCES

A: NOTE SOOB505A15

- 1) This connector is used both for OBD-II general scan tools and the Subaru Select Monitor.
- 2) Terminal No. 4 to No. 6 of the data link connector is used for the Subaru Select Monitor signal.

CAUTION:

Do not connect any scan tools other than the OBD-II general scan tools and the Subaru Select Monitor, because the circuit for the Subaru Select Monitor may be damaged.



Terminal No.	Contents	Terminal No.	Contents
1	Power supply	9	Blank
2	Blank	10	K line of ISO 9141 CARB
3	Blank	11	Blank
4	Subaru Select Monitor signal (ECM to Subaru Select Monitor)*	12	Ground
5	Subaru Select Monitor signal (Subaru Select Monitor to ECM)*	13	Ground
6	Line end check signal 1	14	Blank
7	Blank	15	Blank
8	Line end check signal 2 (MT vehicles)	16	Blank

*: Circuit only for Subaru Select Monitor

9. OBD-II General Scan Tool SOUBSET

A: OPERATION S008527A16

1. HOW TO USE OBD-II GENERAL SCAN TOOL S008527A1601

1) Prepare a general scan tool (OBD-II general scan tool) required by SAE J1978.

2) Open the cover and connect the OBD-II general scan tool to the data link connector located in the lower portion of the instrument panel (on the driver's side).



3) Using the OBD-II general scan tool, call up diagnostic trouble code(s) and freeze frame data. OBD-II general scan tool functions consist of:

- (1) MODE \$01: Current powertrain diagnostic data
- (2) MODE \$02: Powertrain freeze frame data
- (3) MODE \$03: Emission-related powertrain diagnostic trouble codes

(4) MODE \$04: Clear/Reset emission-related diagnostic information

Read out data according to repair procedures. (For detailed operation procedures, refer to the OBD-II General Scan Tool Operation Manual.)

NOTE:

For details concerning diagnostic trouble codes, refer to the List of Diagnostic Trouble Code (DTC).

MT vehicles: <Ref. to EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.>
AT vehicles: <Ref. to EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.>

2. MODE \$01 (CURRENT POWERTRAIN DIAGNOSTIC DATA) SOUBS27A 1602

Refers to data denoting the current operating condition of analog input/output, digital input/output and/or the powertrain system.

A list of the support data and PID (Parameter Identification) codes are shown in the following table.

PID	Data	Unit of measure
01	Number of emission-related powertrain trouble codes and MIL status	ON/OFF
03	Fuel system control status	—
04	Calculated engine load value	%
05	Engine coolant temperature	°C
06	Short term fuel trim	%
07	Long term fuel trim	%
0B	Intake manifold absolute pressure	kPa
0C	Engine revolution	rpm
0D	Vehicle speed	km/h
0E	Ignition timing advance	0
10	Air flow rate from pressure sensor	g/sec
11	Throttle valve opening angle	%
13	Check whether oxygen sensor is installed.	—
14	Oxygen sensor output voltage and short term fuel trim associated with oxygen sensor—bank 1	V and %
15	Oxygen sensor output voltage and short term fuel trim associated with oxygen sensor—bank 2	V and %
1C	On-board diagnosis system	_

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to access generic OBD-II PIDs (MODE \$01).

3. MODE \$02 (POWERTRAIN FREEZE FRAME DATA) SOUBSZTA 1603

Refers to data denoting the operating condition when trouble is sensed by the on-board diagnosis system. A list of the support data and PID (Parameter Identification) codes are shown in the following table.

PID	Data	Unit of measure
02	Trouble code that caused CARB required freeze frame data storage	—
03	Fuel system control status	—
04	Calculated engine load value	%
05	Engine coolant temperature	°C
06	Short term fuel trim	%
07	Long term fuel trim	%
0B	Intake manifold absolute pressure	kPa
0C	Engine revolution	rpm
0D	Vehicle speed	km/h

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to access freeze frame data (MODE \$02).

4. MODE \$03 (EMISSION-RELATED POWERTRAIN DIAGNOSTIC TROUBLE CODE) S008527A1604

Refer to Read Diagnostic Trouble Code for information about data denoting emission-related powertrain diagnostic trouble codes. <Ref. to EN(H4)-59 Read Diagnostic Trouble Code.>

5. MODE \$04 (CLEAR/RESET EMISSION-RELATED DIAGNOSTIC INFORMATION) S008527A1605

Refers to the mode used to clear or reset emission-related diagnostic information (OBD-II trouble diagnostic information).

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to clear or reset emission-related diagnostic information (MODE \$04).

10. Subaru Select Monitor SOUSSO

A: OPERATION SOOB503A16

1. HOW TO USE SUBARU SELECT MONITOR S008503A1601

1) Prepare Subaru Select Monitor kit. <Ref. to EN(H4)-8 PREPARATION TOOL, General Description.>



2) Connect diagnosis cable to Subaru Select Monitor.

3) Insert cartridge into Subaru Select Monitor. <Ref. to EN(H4)-8 PREPARATION TOOL, General Description.>



- 4) Connect Subaru Select Monitor to data link connector.
 - (1) Data link connector located in the lower portion of the instrument panel (on the driver's side).



(2) Connect diagnosis cable to data link connector.

CAUTION:

Do not connect scan tools except for Subaru Select Monitor and OBD-II general scan tool.

5) Turn ignition switch to ON (engine OFF) and Subaru Select Monitor switch to ON.



6) Using Subaru Select Monitor, call up diagnostic trouble code(s) and various data, then record them.

2. READ DIAGNOSTIC TROUBLE CODE (DTC) FOR ENGINE. (NORMAL MODE)

S008503A1610

Refer to Read Diagnostic Trouble Code for information about how to indicate DTC. <Ref. to EN(H4)-59 Read Diagnostic Trouble Code.>

3. READ DIAGNOSTIC TROUBLE CODE (DTC) FOR ENGINE. (OBD MODE) S00850341611

Refer to Read Diagnostic Trouble Code for information about how to indicate DTC. <Ref. to EN(H4)-59 Read Diagnostic Trouble Code.>

4. READ CURRENT DATA FOR ENGINE. (NORMAL MODE) SOUBSOJA 1604

1) On the ≪Main Menu≫ display screen, select the {Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {Current Data Display & Save} and press the [YES] key.

5) On the ≪Data Display Menu≫ display screen, select the {Data Display} and press the [YES] key.

6) Using the scroll key, move the display screen up or down until the desired data is shown.

• A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Battery voltage	Battery Voltage	V
Vehicle speed signal	Vehicle Speed	km/h or MPH
Engine speed signal	Engine Speed	rpm
Engine coolant temperature signal	Coolant Temp.	°C or °F
Ignition timing signal	Ignition Timing	deg
Throttle position signal	Throttle Opening Angle	%
Throttle position signal	Throttle Sensor Voltage	V
Injection pulse width	Fuel Injection #1 Pulse	ms
Idle air control signal*2	ISC Valve Duty Ratio	%
Idle air control signal*1	ISC Valve Step	STEP
Engine load data	Engine Load	%
Front oxygen (A/F) sensor output signal	A/F Sensor #1	—
Front oxygen (A/F) sensor resistance	A/F Sensor #1 Resistance	Ω
Rear oxygen sensor output signal	Rear O2 Sensor	V
Short term fuel trim	A/F Correction #1	%
Knock sensor signal	Knocking Correction	deg
Atmospheric absolute pressure signal	Atmosphere Pressure	mmHg or kPa or inHg or psi
Intake manifold relative pressure signal	Mani. Relative Pressure	mmHg or kPa or inHg or psi
Intake manifold absolute pressure signal	Mani. Absolute Pressure	mmHg or kPa or inHg or psi
A/F correction (short term fuel trim) by rear oxygen sensor	A/F Correction #3	%
Long term whole fuel trim	A/F Learning #1	%
Front oxygen (A/F) sensor heater current	A/F Heater #1	A
Rear oxygen sensor heater voltage	Rear O2 Heater Voltage	V
Canister purge control solenoid valve duty ratio	CPC Valve Duty Ratio	%
Fuel tank pressure signal	Fuel Tank Pressure	mmHg or kPa or inHg or psi
Fuel temperature signal	Fuel Temp.	°C or °F
Fuel level signal	Fuel Level	V
Intake air temperature signal	Intake Air Temp.	°C or °F
Learned ignition timing	Learned Ignition Timing	V
Ignition switch signal	Ignition Switch	ON or OFF
Test mode connector signal	Test Mode Signal	ON or OFF
Neutral position switch signal	Neutral Position Switch	ON or OFF
Air conditioning switch signal	A/C Switch	ON or OFF
Air conditioning relay signal	A/C Relay	ON or OFF
Radiator main fan relay signal	Radiator Fan Relay #1	ON or OFF
Fuel pump relay signal	Fuel Pump Relay	ON or OFF
Knocking signal	Knocking Signal	ON or OFF
Radiator sub fan relay signal	Radiator Fan Relay #2	ON or OFF

Contents	Display	Unit of measure
Engine torque control signal #1	Torque Control Signal #1	ON or OFF
Engine torque control signal #2	Torque Control Signal #2	ON or OFF
Engine torque control permission signal	Torque Control Permit	ON or OFF
Rear oxygen sensor rich signal	Rear O2 Rich Signal	ON or OFF
Pressure control solenoid valve	PCV Solenoid Valve	ON or OFF
Drain valve	Vent. Solenoid Valve	ON or OFF
Starter switch signal	Starter Switch Signal	ON or OFF
Idle switch signal	Idle Switch Signal	ON or OFF
Crankshaft position sensor signal	Crankshaft Position Sig.	ON or OFF
Camshaft position sensor signal	Camshaft Position Sig.	ON or OFF
Rear defogger switch signal	Rear Defogger Switch	ON or OFF
Blower fan switch signal	Blower Fan Switch	ON or OFF
Small light switch signal	Small Light Switch	ON or OFF
Air assist injector solenoid valve signal	AAI Solenoid Valve	ON or OFF

*1: AT vehicles

*2: MT vehicles

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

5. READ CURRENT DATA FOR ENGINE. (OBD MODE) SOUBSO3A1605

1) On the ≪Main Menu≫ display screen, select the {Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {OBD System} and press the [YES] key.

5) On the ≪OBD Menu≫ display screen, select the {Current Data Display & Save} and press the [YES] key.

6) On the \ll Data Display Menu \gg display screen, select the {Data Display} and press the [YES] key.

7) Using the scroll key, move the display screen up or down until the desired data is shown.

• A list of the support data is shown in the following table.

SUBARU SELECT MONITOR

Contents	Display	Unit of measure
Number of diagnosis code	Number of Diagnosis Code	
Malfunction indicator lamp status	MIL Status	ON or OFF
Monitoring test of misfire	Misfire monitoring	ON or OFF
Monitoring test of fuel system	Fuel system monitoring	ON or OFF
Monitoring test of comprehensive component	Component monitoring	ON or OFF
Test of catalyst	Catalyst Diagnosis	ON or OFF
Test of heated catalyst	Heated catalyst	ON or OFF
Test of evaporative emission purge control system	Evaporative purge system	ON or OFF
Test of secondary air system	Secondary air system	ON or OFF
Test of air conditioning system refrigerant	A/C system refrigerant	ON or OFF
Test of oxygen sensor	Oxygen sensor	ON or OFF
Test of oxygen sensor heater	Oxygen sensor heater	ON or OFF
Air fuel ratio control system for bank 1	Fuel System for Bank 1	ON or OFF
Engine load data	Engine Load	%
Engine coolant temperature signal	Coolant Temp.	°C or °F
Short term fuel trim by front oxygen (A/F) sensor	Short term fuel trim B1	%
Long term fuel trim by front oxygen (A/F) sensor	Long term fuel trim B1	%
Intake manifold absolute pressure signal	Mani. Absolute Pressure	mmHg or kPa or inHg or psi
Engine speed signal	Engine Speed	rpm
Vehicle speed signal	Vehicle Speed	km/h or MPH
Ignition timing advance for #1 cylinder	Ignition timing adv. #1	0
Intake air temperature signal	Intake Air Temp.	°C or °F
Throttle position signal	Throttle Opening Angle	%
A/F sensor equipment	A/F sensor	ON or OFF
Rear oxygen sensor output signal	Oxygen Sensor #12	V
Air fuel ratio correction by rear oxygen sensor	Short term fuel trim #12	%
On-board diagnostic system	OBD System	—

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

6. READ FREEZE FRAME DATA FOR ENGINE. (OBD MODE) SOUBSOJA 1606

1) On the ≪Main Menu≫ display screen, select the {Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {OBD System} and press the [YES] key.

5) On the ≪OBD Menu≫ display screen, select the {Freeze Frame Data} and press the [YES] key.

• A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Diagnostic trouble code (DTC) for freeze frame data	Freeze frame data	DTC
Air fuel ratio control system for bank 1	Fuel system for Bank1	ON or OFF
Engine load data	Engine Load	%
Engine coolant temperature signal	Coolant Temp.	°C or °F
Short term fuel trim by front oxygen (A/F) sensor	Short term fuel trim B1	%
Long term fuel trim by front oxygen (A/F) sensor	Long term fuel trim B1	%
Intake manifold absolute pressure signal	Mani. Absolute Pressure	mmHg or kPa or inHg or psi
Engine speed signal	Engine Speed	rpm
Vehicle speed signal	Vehicle Speed	km/h or MPH

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

7. READ OXYGEN SENSOR MONITORING TEST RESULTS DATA FOR ENGINE. (OBD

MODE) S008503A1607

1) On the ≪Main Menu≫ display screen, select the {Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {OBD System} and press the [YES] key.

5) On the ≪OBD Menu≫ display screen, select the {O2 Sensor Monitor} and press the [YES] key.

6) On the ≪O2 Sensor Select≫ display screen, select the {Bank 1-Sensor1} or {Bank 1-Sensor2} and press the [YES] key.

• Bank 1-Sensor1 indicates the front oxygen or A/F sensor, and Bank 1-Sensor2 indicates the rear oxygen sensor.

• A list of the support data is shown in the following table.

Contents	Display	Unit of measure
Oxygen sensor for monitoring test	<o2 ()="" monitor="" sensor=""></o2>	—
Rich to lean oxygen sensor threshold voltage	Rich to lean sensor volt	V
Lean to rich oxygen sensor threshold voltage	Lean to rich sensor volt	V
Low oxygen sensor voltage for switch time calculation	Low sensor voltage	V
High oxygen sensor voltage for switch time calculation	High sensor voltage	V
Rich to lean oxygen sensor switch time	Rich to lean switch time	sec
Lean to rich oxygen sensor switch time	Lean to rich switch time	sec
Maximum oxygen sensor voltage for test cycle	Maximum sensor Voltage	V
Minimum oxygen sensor voltage for test cycle	Minimum sensor Voltage	V

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

8. LED OPERATION MODE FOR ENGINE SOUBSOJA 1608

1) On the ≪Main Menu≫ display screen, select the {Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {Current Data Display & Save} and press the [YES] key.

5) On the ≪Data Display Menu≫ display screen, select the {Data & LED Display} and press the [YES] key.

6) Using the scroll key, move the display screen up or down until the desired data is shown.

• A list of the support data is shown in the following table.

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SUBARU SELECT MONITOR

Contents	Display	Message	LED "ON" requirements
Ignition switch signal	Ignition Switch	ON or OFF	When ignition switch is turned ON.
Test mode connector signal	Test Mode Signal	ON or OFF	When test mode connector is connected.
Neutral position switch signal	Neutral Position Switch	ON or OFF	When neutral position signal is entered.
Air conditioning switch signal	A/C Switch	ON or OFF	When air conditioning switch is turned ON.
Air conditioning relay signal	A/C Relay	ON or OFF	When air conditioning relay is in function.
Radiator main fan relay signal	Radiator Fan Relay #1	ON or OFF	When radiator main fan relay is in function.
Fuel pump relay signal	Fuel Pump Relay	ON or OFF	When fuel pump relay is in function.
Knocking signal	Knocking Signal	ON or OFF	When knocking signal is entered.
Radiator sub fan relay signal	Radiator Fan Relay #2	ON or OFF	When radiator sub fan relay is in function.
Engine torque control signal #1	Torque Control Signal #1	ON or OFF	When engine torque control signal 1 is entered.
Engine torque control signal #2	Torque Control Signal #2	ON or OFF	When engine torque control signal 2 is entered.
Engine torque control permission signal	Torque Control Permit	ON or OFF	When engine torque control permission sig- nal is entered.
Front oxygen (A/F) sensor rich signal	Front O2 Rich Signal #1	ON or OFF	When front oxygen (A/F) sensor mixture ratio is rich.
Rear oxygen sensor rich signal	Rear O2 Rich Signal	ON or OFF	When rear oxygen sensor mixture ratio is rich.
Pressure control solenoid valve	PCV Solenoid Valve	ON or OFF	When pressure control solenoid valve is in function.
Drain valve	Vent. Solenoid Valve	ON or OFF	When drain valve is in function.
Starter switch signal	Starter Switch Signal	ON or OFF	When starter switch signal is entered.
Idle switch signal	Idle Switch Signal	ON or OFF	When idle switch signal is entered.
Crankshaft position sensor signal	Crankshaft Position Sig.	ON or OFF	When crankshaft position sensor signal is entered.
Camshaft position sensor signal	Camshaft Position Sig.	ON or OFF	When camshaft position sensor signal is entered.

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

9. READ CURRENT DATA FOR AT. S008503A1612

1) On the ≪Main Menu≫ display screen, select the {Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Transmission Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of transmission type.

4) On the ≪Transmission Diagnosis≫ display screen, select the {Current Data Display & Save} and press the [YES] key.

5) On the ≪Data Display Menu≫ display screen, select the {Data Display} and press the [YES] key.

6) Using the scroll key, move the display screen up or down until the desired data is shown.

• A list of the support data is shown in the following table.

SUBARU SELECT MONITOR

Contents	Display	Unit of measure
Battery voltage	Battery Voltage	V
Rear vehicle speed sensor signal	Vehicle Speed #1	km/h or MPH
Front vehicle speed sensor signal	Vehicle Speed #2	km/h or MPH
Engine speed signal	Engine Speed	rpm
Automatic transmission fluid temperature signal	ATF Temp.	°C or °F
Throttle position signal	Throttle Sensor Voltage	V
Gear position	Gear Position	—
Line pressure control duty ratio	Line Pressure Duty Ratio	%
Lock up clutch control duty ratio	Lock Up Duty Ratio	%
Transfer clutch control duty ratio	Transfer Duty Ratio	%
Power supply for throttle position sensor	Throttle Sensor Power	V
Torque converter turbine speed signal	AT Turbine Speed	rpm
2-4 brake timing pressure control duty ratio	2-4B Duty Ratio	%
Intake manifold pressure sensor voltage	Mani. Pressure Voltage	V
2 wheel drive switch signal	2WD Switch	ON or OFF
Kick down switch signal	Kick Down Switch	ON or OFF
Stop lamp switch signal	Stop Lamp Switch	ON or OFF
Anti lock brake system signal	ABS Signal	ON or OFF
Cruise control system signal	Cruise Control Signal	ON or OFF
Neutral/Parking range signal	N/P Range Signal	ON or OFF
Reverse range signal	R Range Signal	ON or OFF
Drive range signal	D Range Signal	ON or OFF
3rd range signal	3rd Range Signal	ON or OFF
2nd range signal	2nd Range Signal	ON or OFF
1st range signal	1st Range Signal	ON or OFF
Shift control solenoid A	Shift Solenoid #1	ON or OFF
Shift control solenoid B	Shift Solenoid #2	ON or OFF
Torque control output signal #1	Torque Control Signal #1	ON or OFF
Torque control output signal #2	Torque Control Signal #2	ON or OFF
Torque control cut signal	Torque Control Cut Sig.	ON or OFF
2-4 brake timing control solenoid valve	2-4 Brake Timing Sol.	ON or OFF
Low clutch timing control solenoid valve	Low Clutch Timing Sol.	ON or OFF
Automatic transmission diagnosis indicator lamp	AT Diagnosis Lamp	ON or OFF

NOTE:

For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

11. Read Diagnostic Trouble Code 500500

A: OPERATION SOUBSOBA16

1. SUBARU SELECT MONITOR (NORMAL MODE) SOUBSOBA 1601

 On the ≪Main Menu≫ display screen, select the {Each System Check} and press the [YES] key.
 On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {Diagnostic Code(s) Display} and press the [YES] key.

5) On the ≪Diagnostic Code(s) Display≫ display screen, select the {Current Diagnostic Code(s)} or {History Diagnostic Code(s)} and press the [YES] key.

NOTE:

• For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

• For detailed concerning diagnostic trouble codes, refer to the List of Diagnostic Trouble Code (DTC).

• MT vehicles: <Ref. to EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.>

• AT vehicles: <Ref. to EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.>

2. SUBARU SELECT MONITOR (OBD

MODE) S008508A1602

1) On the \ll Main Menu \gg display screen, select the {2. Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {OBD System} and press the [YES] key.
5) On the ≪OBD Menu≫ display screen, select the {Diagnosis Code(s) Display} and press the [YES] key.

6) Make sure that a diagnostic trouble code (DTC) is shown on the display screen.

NOTE:

• For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

• For detailed concerning diagnostic trouble codes, refer to the List of Diagnostic Trouble Code (DTC).

MT vehicles: <Ref. to EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.>
AT vehicles: <Ref. to EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.>

3. OBD-II GENERAL SCAN TOOL SOUBSOBA1603

Refers to data denoting emission-related powertrain diagnostic trouble codes.

For details concerning diagnostic trouble codes, refer to the List of Diagnostic Trouble Code (DTC).

• MT vehicles: <Ref. to EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.>

• AT vehicles: <Ref. to EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.>

NOTE:

Refer to OBD-II general scan tool manufacturer's instruction manual to access emission-related powertrain diagnostic trouble codes (MODE \$03).

INSPECTION MODE

12. Inspection Mode SOUBSIO

A: OPERATION SOUBSIDA16

1. PREPARATION FOR THE INSPECTION MODE SOUBS10A1601

Raise the vehicle using a garage jack and place on safety stands or drive the vehicle onto free rollers.

WARNING:

• Before raising the vehicle, ensure parking brakes are applied.

• Do not use a pantograph jack in place of a safety stand.

• Secure a rope or wire to the front and rear towing or tie-down hooks to prevent the lateral runout of front wheels.

• Do not abruptly depress/release clutch pedal or accelerator pedal during works even when engine is operating at low speeds since this may cause vehicle to jump off free rollers.

• In order to prevent the vehicle from slipping due to vibration, do not place any wooden blocks or similar items between the safety stands and the vehicle.

• Since the rear wheels will also rotate, do not place anything near them. Also, make sure that nobody goes in front of the vehicle.



2. SUBARU SELECT MONITOR S008510A1602

After performing diagnostics and clearing the memory, check for any remaining unresolved trouble data.

1) Prepare Subaru Select Monitor kit. <Ref. to EN(H4)-8 PREPARATION TOOL, General Description.>



2) Connect diagnosis cable to Subaru Select Monitor.

3) Insert cartridge into Subaru Select Monitor. <Ref. to EN(H4)-8 PREPARATION TOOL, General Description.>



4) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box.



5) Connect Subaru Select Monitor to data link connector.

(1) Connect Subaru Select Monitor to data link connector located in the lower portion of the instrument panel (on the driver's side).



(2) Connect diagnosis cable to data link connector.

CAUTION:

Do not connect scan tools except for Subaru Select Monitor and OBD-II general scan tool.

6) Turn ignition switch to ON (engine OFF) and Subaru Select Monitor switch to ON.



7) On the \ll Main Menu \gg display screen, select the {2. Each System Check} and press the [YES] key.

8) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

9) Press the [YES] key after displayed the information of engine type.

10) On the ≪Engine Diagnosis≫ display screen, select the {Dealer Check Mode Procedure} and press the [YES] key.

11) When the "Perform Inspection (Dealer Check) Mode?" is shown on the display screen, press the [YES] key.

12) Perform subsequent procedures as instructed on the display screen.

• If trouble still remains in the memory, the corresponding diagnostic trouble code (DTC) appears on the display screen. NOTE:

• For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

• For detailed concerning diagnostic trouble codes, refer to the List of Diagnostic Trouble Code (DTC).

MT vehicles: <Ref. to EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.>
AT vehicles: <Ref. to EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.>

• Release the parking brake.

• The speed difference between front and rear wheels may light either the ABS warning light, but this indicates no malfunctions. When engine control diagnosis is finished, perform the ABS memory clearance procedure of self-diagnosis system.

3. OBD-II GENERAL SCAN TOOL SOOB510A1603

After performing diagnostics and clearing the memory, check for any remaining unresolved trouble data:

1) Connect test mode connector at the lower side of the instrument panel (on the driver's side), to the side of the center console box.



2) Connect the OBD-II general scan tool to its data link connector in the lower portion of the instrument panel (on the driver's side).

CAUTION:

Do not connect the scan tools except for Subaru Select Monitor and OBD-II general scan tool.



3) Start the engine.

NOTE:

• Ensure the selector lever is placed in the "P" position before starting. (AT vehicles)

• Depress clutch pedal when starting the engine. (MT vehicles)

4) Using the selector lever or shift lever, turn the "P" position switch and the "N" position switch to ON.

5) Depress the brake pedal to turn the brake switch ON. (AT vehicles)

6) Keep engine speed in the 2,500 — 3,000 rpm range for 40 seconds.

NOTE:

On models without tachometer, use the tachometer (Secondary pickup type).

7) Place the selector lever or shift lever in the "D" position (AT vehicles) or "1st" gear (MT vehicles) and drive the vehicle at 5 to 10 km/h (3 to 6 MPH).

NOTE:

• On AWD vehicles, release the parking brake.

• The speed difference between front and rear wheels may light the ABS warning light, but this indicates no malfunctions. When engine control diagnosis is finished, perform the ABS memory clearance procedure of self-diagnosis system.

8) Using the OBD-II general scan tool, check for diagnostic trouble code(s) and record the result(s). NOTE:

• For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

• For detailed concerning diagnostic trouble codes, refer to the List of Diagnostic Trouble Code (DTC).

• MT vehicles: <Ref. to EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.>

• AT vehicles: <Ref. to EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.>

13. Clear Memory Mode SOUES13

A: OPERATION SOOB513A16

1. SUBARU SELECT MONITOR (NORMAL MODE) S008513A1601

1) On the \ll Main Menu \gg display screen, select the {2. Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {Clear Memory} and press the [YES] key.

5) When the 'Done' and 'Turn Ignition Switch OFF' are shown on the display screen, turn the Subaru Select Monitor and ignition switch to OFF.

NOTE:

• After the memory has been cleared, the ISC must be initialized. To do this, turn the ignition switch to the ON position. Wait 3 seconds before starting the engine. (AT vehicles only)

• For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

2. SUBARU SELECT MONITOR (OBD

MODE) S008513A1602

1) On the \ll Main Menu \gg display screen, select the {2. Each System Check} and press the [YES] key.

2) On the ≪System Selection Menu≫ display screen, select the {Engine Control System} and press the [YES] key.

3) Press the [YES] key after displayed the information of engine type.

4) On the ≪Engine Diagnosis≫ display screen, select the {OBD System} and press the [YES] key.

5) On the \ll OBD Menu \gg display screen, select the {4. Diagnosis Code(s) Cleared} and press the [YES] key.

6) When the 'Clear Diagnostic Code?' is shown on the display screen, press the [YES] key.

7) Turn Subaru Select Monitor and ignition switch to OFF.

NOTE:

• After the memory has been cleared, the ISC must be initialized. To do this, turn the ignition switch to the ON position. Wait 3 seconds before starting the engine. (AT vehicles only)

• For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

3. OBD-II GENERAL SCAN TOOL SOUB513A1603

For clear memory procedures using the OBD-II general scan tool, refer to the OBD-II General Scan Tool Instruction Manual.

After the memory has been cleared, the ISC must be initialized. To do this, turn the ignition switch to the ON position. Wait 3 seconds before starting the engine. (AT vehicles only) Engine (DIAGNOSTICS)

14. Compulsory Valve Operation Check Mode S008528

A: OPERATION SOOB52BA16

1. SUBARU SELECT MONITOR S00852BA1601

1) Prepare Subaru Select Monitor kit.



• A list of the support data is shown in the following table.

Contents	Display	
Compulsory fuel pump relay operation check	Fuel Pump Relay	
Compulsory radiator fan relay operation check	Radiator Fan Relay	
Compulsory air conditioning relay operation check	A/C Relay	
Compulsory pressure control solenoid valve operation check	PCV Solenoid Valve	
Compulsory drain valve operation check	Vent Control Solenoid Valve	

NOTE:

• Because ASV solenoid valve, FICD solenoid valve and air injection system diagnosis solenoid valve are not installed, ASV Solenoid Valve, FICD Solenoid Valve and Pressure Switching Sol.2 will be displayed but non-functional.

• For detailed operation procedure, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

2) Connect diagnosis cable to Subaru Select Monitor.

MEMO:

Engine (DIAGNOSTICS)

15. Engine Malfunction Indicator Lamp (MIL) 5000553

A: PROCEDURE S008653E45

1. Activation of check engine malfunction indicator lamp (MIL). <Ref. to EN(H4)-67 ACTIVATION OF CHECK ENGINE MAL-FUNCTION INDICATOR LAMP (MIL), Engine Malfunction Indicator Lamp (MIL).>

2. Check engine malfunction indicator lamp (MIL) does not come on. <Ref. to EN(H4)-68 CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT COME ON., Engine Malfunction Indicator Lamp (MIL).>

3. Check engine malfunction indicator lamp (MIL) does not go off. <Ref. to EN(H4)-71 CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT GO OFF., Engine Malfunction Indicator Lamp (MIL).>

4. Check engine malfunction indicator lamp (MIL) does not blink at a cycle of 3 Hz. <Ref. to EN(H4)-72 CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT BLINK AT A CYCLE OF 3 HZ., Engine Malfunction Indicator Lamp (MIL).>

5. Check engine malfunction indicator lamp (MIL) remains blinking at a cycle of 3 Hz. <Ref. to EN(H4)-74 CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) REMAINS BLINKING AT A CYCLE OF 3 HZ., Engine Malfunction Indicator Lamp (MIL).>

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Engine (DIAGNOSTICS)

B: ACTIVATION OF CHECK ENGINE MALFUNCTION INDICATOR LAMP

(MIL) S008653E89

1) When ignition switch is turned to ON (engine off), the CHECK ENGINE malfunction indicator lamp (MIL) in the combination meter illuminates.

NOTE:

If the MIL does not illuminate, perform diagnostics of the CHECK ENGINE light circuit or the combination meter circuit. <Ref. to EN(H4)-68 CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT COME ON., Engine Malfunction Indicator Lamp (MIL) Illumination Pattern.>



2) After starting the engine, the MIL goes out. If it does not, either the engine or the emission control system is malfunctioning.



3) If the diagnosis system senses a misfire which could damage the catalyzer, the MIL will blink at a cycle of 1 Hz.



4) When ignition switch is turned to ON (engine off) or to "START" with the test mode connector connected, the MIL blinks at a cycle of 3 Hz.



ENGINE MALFUNCTION INDICATOR LAMP (MIL)

Engine (DIAGNOSTICS)

C: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT COME ON. 5008653E90

• DIAGNOSIS:

- The CHECK ENGINE malfunction indicator lamp (MIL) circuit is open or shorted.
- TROUBLE SYMPTOM:
 - When ignition switch is turned ON (engine OFF), MIL does not come on.
- WIRING DIAGRAM:



B2M3916

No.	Step	Check	Yes	No
1	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 11 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Go to step 4.	Go to step 2 .

ENGINE MALFUNCTION INDICATOR LAMP (MIL) Engine (DIAGNOSTICS)

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NO.			Tes	
2	CHECK POOR CONTACT.	when shaking or pulling ECM connector and har- ness?	tact in ECM con- nector.	Go to step 3.
3	CHECK ECM CONNECTOR.	Is ECM connector correctly connected?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Repair connection of ECM connec- tor.
4	CHECK HARNESS BETWEEN COMBINA- TION METER AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Remove combination meter. <ref. idi-17<br="" to="">Combination Meter Assembly.> 3) Disconnect connector from ECM and com- bination meter. 4) Measure resistance of harness between ECM and combination meter connector. <i>Connector & terminal</i> <i>(B134) No. 11 — (i12) No. 12:</i></ref.>	Is resistance less than 1 Ω?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and combi- nation meter con- nector • Poor contact in coupling connec- tor (B36)
5	CHECK POOR CONTACT. Check poor contact in combination meter con- nector.	Is there poor contact in combination meter connector?	Repair poor con- tact in combina- tion meter con- nector.	Go to step 6.
6	CHECK HARNESS BETWEEN COMBINA- TION METER AND IGNITION SWITCH CON- NECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between combination meter connector and chassis ground. Connector & terminal (i10) No. 8 (+) — Chassis ground (-):	Is voltage more than 10 V?	Go to step 7.	Check the follow- ing and repair if necessary. NOTE: Broken down ignition relay. Blown out fuse (No. 5). If replaced fuse (No. 5) blows easily, check the harness for short circuit of harness between fuse (No. 5) and ignition relay connector. Open or short circuit in harness between fuse (No. 5) and battery ter- minal Open circuit in harness between fuse (No. 5) and ignition relay con- nector Poor contact in ignition switch connector

ENGINE MALFUNCTION INDICATOR LAMP (MIL)

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN COMBINA- TION METER AND IGNITION SWITCH CON- NECTOR. Measure voltage between combination meter connector and chassis ground. <i>Connector & terminal</i> (<i>i12</i>) No. 3 (+) — Chassis ground (–):	Is voltage more than 10 V?	Go to step 8.	Check the follow- ing and repair if necessary. NOTE: • Broken down ignition relay. • Blown out fuse (No. 5). • If replaced fuse (No. 5) blows easily, check the harness for short circuit of harness between fuse (No. 5) and ignition relay connector. • Open or short circuit in harness between fuse (No. 5) and battery ter- minal • Open circuit in harness between fuse (No. 5) and ignition relay con- nector • Poor contact in ignition switch connector
8	CHECK LAMP BULB. Remove engine malfunction indicator lamp bulb.	Is lamp bulb condition OK?	Repair combina- tion meter con- nector.	Replace lamp bulb.

D: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT GO

OFF. *S008653E91*

• DIAGNOSIS:

- The CHECK ENGINE malfunction indicator lamp (MIL) circuit is shorted.
- TROUBLE SYMPTOM:
 - Although MIL comes on when engine runs, trouble code is not shown on Subaru select monitor or OBD-II general scan tool display.
- WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN COMBINA-	Does the MIL come on?	Repair short cir-	Replace ECM.
	TION METER AND ECM CONNECTOR.		cuit in harness	<ref. 67<="" th="" to=""></ref.>
	1) Turn ignition switch to OFF.		between combina-	Engine Control
	2) Disconnect connector from ECM.		tion meter and	Module.>
	3) Turn ignition switch to ON.		ECM connector.	

ENGINE MALFUNCTION INDICATOR LAMP (MIL)

Engine (DIAGNOSTICS)

E: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT BLINK AT A CYCLE OF 3 Hz. SOURCESERS

• DIAGNOSIS:

- The CHECK ENGINE malfunction indicator lamp (MIL) circuit is open or shorted.
- Test mode connector circuit is in open.
- TROUBLE SYMPTOM:
- When inspection mode, MIL does not blink at a cycle of 3 Hz.
- WIRING DIAGRAM:



ENGINE MALFUNCTION INDICATOR LAMP (MIL) Engine (DIAGNOSTICS)

No.	Step	Check	Yes	No
1	CHECK STATUS OF CHECK ENGINE MAL- FUNCTION INDICATOR LAMP (MIL). 1) Turn ignition switch to OFF. 2) Disconnect test mode connector. 3) Turn ignition switch to ON. (engine OFF)	Does the MIL come on?	Go to step 2 .	Repair the MIL circuit. <ref. to<br="">EN(H4)-68 CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) DOES NOT COME ON., Engine Malfunc- tion Indicator Lamp (MIL).></ref.>
2	 CHECK HARNESS BETWEEN COMBINA- TION METER AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Turn ignition switch to ON. 	Does the MIL come on?	Repair ground short circuit in harness between combination meter and ECM connec- tor.	Go to step 3.
3	 CHECK HARNESS BETWEEN TEST MODE CONNECTOR AND CHASSIS GROUND. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between test mode connector and chassis ground. Connector & terminal (B76) No. 1 — Chassis ground: 	Is resistance less than 1 Ω ?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between test mode con- nector and chas- sis ground
4	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Go to step 5.
5	 CHECK HARNESS BETWEEN ECM AND TEST MODE CONNECTOR. 1) Connect test mode connector. 2) Measure resistance of harness between ECM and chassis ground. Connector & terminal (B135) No. 14 — Chassis ground: 	Is resistance less than 1 Ω ?	Go to step 6.	Repair open cir- cuit in harness between ECM and test mode connector.
6	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
ENGINE MALFUNCTION INDICATOR LAMP (MIL)

Engine (DIAGNOSTICS)

F: CHECK ENGINE MALFUNCTION INDICATOR LAMP (MIL) REMAINS BLINKING AT A CYCLE OF 3 Hz. 5008653E93

• DIAGNOSIS:

- Test mode connector circuit is shorted.
- TROUBLE SYMPTOM:
 - MIL blinks at a cycle of 3 Hz when ignition switch is turned to ON.
- WIRING DIAGRAM:



B2M3917

No.	Step	Check	Yes	No
1	CHECK TEST MODE CONNECTOR.1) Disconnect test mode connector.2) Turn ignition switch to ON.	Does MIL flash on and off?	Go to step 2.	System is in good order. NOTE: MIL blinks at a cycle of 3 Hz when test mode connector is con- nected.

ENGINE MALFUNCTION INDICATOR LAMP (MIL) Engine (DIAGNOSTICS)

No.	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM CON- NECTOR AND ENGINE GROUNDING TER- MINAL. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B135) No. 14 — Chassis ground:	Is resistance less than 5 Ω ?	Repair short cir- cuit in harness between ECM and test mode connector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

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MEMO:

EN(H4)-76

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Engine (DIAGNOSTICS)

16. Diagnostics for Engine Starting Failure 5008533

A: PROCEDURE SOUB533E45

1. Inspection of starter motor circuit. < Ref. to EN(H4)-78 STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Fail-
ure.>
\rightarrow
Inspection of ECM power supply and ground line. <ref. and<br="" control="" en(h4)-82="" module="" power="" supply="" to="">GROUND LINE, Diagnostics for Engine Starting Failure.></ref.>
\downarrow
 Inspection of ignition control system. <ref. control="" diagnostics="" en(h4)-86="" engine="" for="" ignition="" starting<br="" system,="" to="">Failure.></ref.>
\downarrow
4. Inspection of fuel pump circuit. < Ref. to EN(H4)-90 FUEL PUMP CIRCUIT, Diagnostics for Engine Starting Failure.>
\downarrow
5. Inspection of fuel injector circuit. < Ref. to EN(H4)-94 FUEL INJECTOR CIRCUIT, Diagnostics for Engine Starting Failure.>
\downarrow
Inspection of crankshaft position sensor circuit. <ref. circuit,="" crankshaft="" diag-<br="" en(h4)-98="" position="" sensor="" to="">nostics for Engine Starting Failure.></ref.>
\downarrow
7. Inspection of camshaft position sensor circuit. < Ref. to EN(H4)-98 CAMSHAFT POSITION SENSOR CIRCUIT, Diagnos- tics for Engine Starting Failure.>
\downarrow
8. Inspection using Subaru Select Monitor or OBD-II general scan tool (MT vehicles: <ref. diagnostic="" en(h4)-106="" proce-<br="" to="">dure with Diagnostic Trouble Code (DTC) for MT Vehicles.>, AT vehicles: <ref. diagnostic="" en(h4)-310="" procedure="" to="" with<br="">Diagnostic Trouble Code (DTC) for AT Vehicles.>) or inspection using "21. General Diagnostics Table". <ref. en(h4)-562<br="" to="">General Diagnostic Table.></ref.></ref.></ref.>

Engine (DIAGNOSTICS)

B: STARTER MOTOR CIRCUIT 5008533E94

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

• WIRING DIAGRAM:



B2M3918

No.	Step	Check	Yes	No
1	CHECK BATTERY.	Is the voltage more than 12 V?	Go to step 2.	Charge or replace battery.
2	 CHECK INPUT SIGNAL FOR STARTER MOTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from starter motor. 3) Turn ignition switch to ST. 4) Measure power supply voltage between starter motor connector terminal and engine ground. Connector & terminal (B14) No. 1 (+) — Engine ground (-): NOTE: On AT vehicles, place the selector lever in the "P" or "N" position. On MT vehicles, depress the clutch pedal. 	Is the voltage more than 10 V?	Go to step 3.	Go to step 4.
3	 CHECK GROUND CIRCUIT OF STARTER MOTOR. 1) Turn ignition switch to OFF. 2) Disconnect terminal from starter motor. 3) Measure resistance of ground cable between ground cable terminal and engine ground. 	Is resistance less than 5 Ω ?	Check starter motor. <ref. to<br="">SC(H4)-7 Starter.></ref.>	Repair open cir- cuit of ground cable.
4	 CHECK HARNESS BETWEEN BATTERY AND IGNITION SWITCH CONNECTOR. 1) Disconnect connector from ignition switch. 2) Measure power supply voltage between ignition switch connector and chassis ground. Connector & terminal (B72) No. 1 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 6.	Repair open cir- cuit in harness between ignition switch and battery, and check fuse SBF No. 4 and SBF No.1.
5	CHECK IGNITION SWITCH. 1) Disconnect connector from ignition switch. 2) Measure resistance between ignition switch terminals while turning ignition switch to the "ST" position. Terminals No. 1 — No. 3:	Is the resistance less than 5 Ω?	Go to step 6 .	Replace ignition switch.
6	CHECK TRANSMISSION TYPE.	Is transmission type AT?	Go to step 7.	Go to step 11.
7	 CHECK INPUT VOLTAGE OF INHIBITOR SWITCH. 1) Turn ignition switch to OFF. 2) Disconnect connector from inhibitor switch. 3) Connect connector to ignition switch. 4) Measure input voltage between inhibitor switch connector terminal and engine ground while turning ignition switch to ST. Connector & terminal (B12) No. 12 (+) — Engine ground (-): 	Is the voltage more than 10 V?	Go to step 8.	Repair open or ground short cir- cuit in harness between inhibitor switch and ignition switch. NOTE: Check security system (if equipped). <ref. to SL-24 Security System.></ref.
8	 CHECK INHIBITOR SWITCH. 1) Place the selector lever in the "P" or "N" position. 2) Measure resistance between inhibitor switch terminals. Connector & terminal (T3) No. 11 — No. 12: 	Is the resistance less than 1 Ω?	Repair open or ground short cir- cuit in harness between inhibitor switch and starter motor.	Replace inhibitor switch. <ref. to<br="">AT-28 Inhibitor Switch.></ref.>

No.	Step	Check	Yes	No
9	 CHECK INPUT VOLTAGE OF STARTER INTERLOCK RELAY. 1) Turn ignition switch to OFF. 2) Disconnect connector from starter interlock relay. 3) Connect connector to ignition switch. 4) Measure input voltage between starter interlock relay connector and chassis ground while turning ignition switch to ST. Connector & terminal (B105) No. 1 (+) — Chassis ground (-): (B105) No. 3 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 10 .	Repair open or ground short cir- cuit in harness between starter interlock relay and ignition switch. NOTE: Check security system (if equipped). <ref. to SL-24 Security System.></ref.
10	CHECK STARTER INTERLOCK RELAY. 1) Connect battery to starter interlock relay terminals No. 2 and No. 3. 2) Measure resistance between starter inter- lock relay terminals. Terminals No. 1 — No. 4:	Is the resistance less than 1 Ω ?	Go to step 11.	Replace starter interlock relay.
11	CHECK GROUND CIRCUIT OF CLUTCH SWITCH. 1) Disconnect connector from clutch switch. 2) Measure resistance between clutch switch connector and chassis ground. Connector & terminal (B106) No. 1 — Chassis ground:	Is the resistance less than 1 Ω?	Go to step 12 .	Repair open cir- cuit of ground cable.
12	CHECK CLUTCH SWITCH. 1) Measure resistance between clutch switch terminal while depressing the clutch pedal. <i>Terminals</i> <i>No. 1 — No. 2:</i>	Is the resistance less than 1 Ω ?	Go to step 13 .	Replace clutch switch. <ref. to<br="">CL-8 Clutch Switch.></ref.>
13	 CHECK CLUTCH SWITCH CIRCUIT. 1) Connect connector to clutch switch. 2) Measure resistance between starter interlock relay connector and chassis ground while depressing the clutch pedal. Connector & terminal (B105) No. 2 — Chassis ground: 	Is the resistance less than 1 Ω?	Repair open or ground short cir- cuit in harness between starter interlock relay and starter motor.	Repair open cir- cuit in harness between starter interlock relay and clutch switch.

MEMO:

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C: CONTROL MODULE POWER SUPPLY AND GROUND LINE SOURSAGE

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE. <Ref. to EN(H4)-60 Inspection Mode.>

• WIRING DIAGRAM:



B2M3919

No.	Step	Check	Yes	No
1	 CHECK MAIN RELAY. 1) Turn the ignition switch to OFF. 2) Remove main relay. 3) Connect battery to main relay terminals No. 1 and No. 2. 4) Measure resistance between main relay terminals. Terminals No. 3 - No. 5: 	Is the resistance less than 10 Ω?	Go to step 2 .	Replace main relay.
2	CHECK MAIN RELAY. Measure resistance between main relay termi- nals. <i>Terminals</i> <i>No. 4 — No. 6:</i>	Is the resistance less than 10 Ω?	Go to step 3.	Replace main relay.
3	 CHECK GROUND CIRCUIT OF ECM. 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and chassis ground. Connector & terminal (B136) No. 21 — Chassis ground: 	Is the resistance less than 5 Ω ?	Go to step 4.	Repair open cir- cuit in harness between ECM connector and engine grounding terminal.
4	CHECK GROUND CIRCUIT OF ECM. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B136) No. 22 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 5 .	Repair open cir- cuit in harness between ECM connector and engine grounding terminal.
5	CHECK GROUND CIRCUIT OF ECM. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B134) No. 27 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 6 .	Repair open cir- cuit in harness between ECM connector and engine grounding terminal.
6	CHECK GROUND CIRCUIT OF ECM. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B134) No. 8 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 7.	Repair open cir- cuit in harness between ECM connector and engine grounding terminal.
7	CHECK GROUND CIRCUIT OF ECM. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B134) No. 7 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 8.	Repair open cir- cuit in harness between ECM connector and engine ground terminal.
8	CHECK INPUT VOLTAGE OF ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 9 (+) — Chassis ground (–):	Is the voltage more than 10 V?	Go to step 9 .	Repair open or ground short cir- cuit of power sup- ply circuit.
9	 CHECK INPUT VOLTAGE OF ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 7 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 10 .	Repair open or ground short cir- cuit of power sup- ply circuit.

No.	Step	Check	Yes	No
10	CHECK HARNESS BETWEEN ECM AND MAIN RELAY CONNECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between ECM and chassis ground. Connector & terminal (B135) No. 19 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 11.	Repair ground short circuit in harness between ECM connector and main relay connector, then replace ECM.
11	CHECK OUTPUT VOLTAGE FROM ECM. 1) Connect connector to ECM. 2) Turn ignition switch to ON. 3) Measure voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 19 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 12.	Replace ECM.
12	CHECK INPUT VOLTAGE OF MAIN RELAY. Check voltage between main relay connector and chassis ground. Connector & terminal (B47) No. 2 (+) — Chassis ground (–):	Is the voltage more than 10 V?	Go to step 13.	Repair open cir- cuit in harness between ECM connector and main relay con- nector.
13	CHECK GROUND CIRCUIT OF MAIN RELAY. 1) Turn ignition switch to OFF. 2) Measure resistance between main relay connector and chassis ground. <i>Connector & terminal</i> (B47) No. 1 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 14.	Repair open cir- cuit between main relay and chassis ground.
14	CHECK INPUT VOLTAGE OF MAIN RELAY. Measure voltage between main relay connec- tor and chassis ground. Connector & terminal (B47) No. 5 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 15 .	Repair open or ground short cir- cuit in harness of power supply cir- cuit.
15	CHECK INPUT VOLTAGE OF MAIN RELAY. Measure voltage between main relay connec- tor and chassis ground. Connector & terminal (B47) No. 6 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 16.	Repair open or ground short cir- cuit in harness of power supply cir- cuit.
16	 CHECK INPUT VOLTAGE OF ECM. 1) Connect main relay connector. 2) Turn ignition switch to ON. 3) Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 1 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 17.	Repair open or ground short cir- cuit in harness between ECM connector and main relay con- nector.
17	CHECK INPUT VOLTAGE OF ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 2 (+) — Chassis ground (–):	Is the voltage more than 10 V?	Check ignition control system. <ref. to<br="">EN(H4)-86 IGNI- TION CONTROL SYSTEM, Diag- nostics for Engine Starting Failure.></ref.>	Repair open or ground short cir- cuit in harness between ECM connector and main relay con- nector.

MEMO:

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D: IGNITION CONTROL SYSTEM S008533E95

CAUTION:

1

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
	 CHECK IGNITION SYSTEM FOR SPARKS. 1) Remove plug cord cap from each spark plug. 2) Install new spark plug on plug cord cap. CAUTION: Do not remove spark plug from engine. 3) Contact spark plug's thread portion on engine. 4) While opening throttle valve fully, crank engine to check that spark occurs at each cylinder. 	Does spark occur at each cylinder?	Check fuel pump system. <ref. to<br="">EN(H4)-90 FUEL PUMP CIRCUIT, Diagnostics for Engine Starting Failure.></ref.>	Go to step 2.

No	Step	Check	Yes	No
2	CHECK POWER SUPPLY CIRCUIT FOR IGNITION COIL & IGNITOR ASSEMBLY. 1) Turn ignition switch to OFF. 2) Disconnect connector from ignition coil & ignitor assembly. 3) Turn ignition switch to ON. 4) Measure power supply voltage between ignition coil & ignitor assembly connector and engine ground. Connector & terminal (E12) No. 2 (+) — Engine ground (–):	Is the voltage more than 10 V?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ignition coil & igni- tor assembly, and ignition switch connector • Poor contact in coupling connec- tors (B22)
3	CHECK HARNESS OF IGNITION COIL & IGNITOR ASSEMBLY GROUND CIRCUIT. 1) Turn ignition switch to OFF. 2) Measure resistance between ignition coil & ignitor assembly connector and engine ground. Connector & terminal (E12) No. 3 — Engine ground:	Is the resistance between less than 5 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ignition coil & igni- tor assembly con- nector and engine grounding termi- nal
4	 CHECK IGNITION COIL & IGNITOR ASSEMBLY. 1) Remove spark plug cords. 2) Measure resistance between spark plug cord contact portions to check secondary coil. <i>Terminals</i> No. 1 — No. 2: 	Is the resistance between 10 and 15 kΩ?	Go to step 5 .	Replace ignition coil & ignitor assembly. <ref. to IG(H4)-8 Igni- tion Coil and Igni- tor Assembly.></ref.
5	CHECK IGNITION COIL & IGNITOR ASSEM- BLY. Measure resistance between spark plug cord contact portions to check secondary coil. <i>Terminals</i> <i>No. 3 — No. 4:</i>	Is the resistance between 10 and 15 kΩ?	Go to step 6 .	Replace ignition coil & ignitor assembly. <ref. to IG(H4)-8 Igni- tion Coil and Igni- tor Assembly.></ref.
6	 CHECK INPUT SIGNAL FOR IGNITION COIL & IGNITOR ASSEMBLY. 1) Connect connector to ignition coil & ignitor assembly. 2) Check if voltage varies synchronously with engine speed when cranking, while monitoring voltage between ignition coil & ignitor assembly connector and engine ground. Connector & terminal (E12) No. 1 (+) — Engine ground (-): 	Is the voltage more than 10 V?	Go to step 7.	Replace ignition coil & ignitor assembly. <ref. to IG(H4)-8 Igni- tion Coil and Igni- tor Assembly.></ref.
7	CHECK INPUT SIGNAL FOR IGNITION COIL & IGNITOR ASSEMBLY. Check if voltage varies synchronously with engine speed when cranking, while monitoring voltage between ignition coil & ignitor assem- bly connector and engine ground. Connector & terminal (E12) No. 4 (+) — Engine ground (–):	Is the voltage more than 10 V?	Go to step 8.	Replace ignition coil & ignitor assembly. <ref. to IG(H4)-8 Igni- tion Coil and Igni- tor Assembly.></ref.

No.	Step	Check	Yes	No
8	CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Disconnect connector from ignition coil & ignitor assembly. 4) Measure resistance of harness between ECM and ignition coil & ignitor assembly con- nector. Connector & terminal (B134) No. 25 — (E12) No. 1:	Is the resistance less than 1 Ω?	Go to step 9 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and ignition coil & ignitor assembly connec- tor • Poor contact in coupling connec- tor (B22)
9	CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR. Measure resistance of harness between ECM and ignition coil & ignitor assembly connector. Connector & terminal (B134) No. 26 — (E12) No. 4:	Is the resistance less than 1 Ω?	Go to step 10.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and ignition coil & ignitor assembly connec- tor • Poor contact in coupling connec- tor (B22)
10	CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR. Measure resistance of harness between ECM and engine ground. Connector & terminal: (B134) No. 25 — Engine ground:	Is the resistance more than 1 MΩ?	Go to step 11.	Repair ground short circuit in harness between ECM and ignition coil & ignitor assembly connec- tor.
11	CHECK HARNESS BETWEEN ECM AND IGNITION COIL & IGNITOR ASSEMBLY CONNECTOR. Measure resistance of harness between ECM and engine ground. Connector & terminal (B134) No. 26 — Engine ground:	Is the resistance more than 1 MΩ?	Go to step 12 .	Repair ground short circuit in harness between ECM and ignition coil & ignitor assembly connec- tor.
12	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Check fuel pump circuit. <ref. to<br="">EN(H4)-90 FUEL PUMP CIRCUIT, Diagnostics for Engine Starting Failure.></ref.>

MEMO:

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Engine (DIAGNOSTICS)

E: FUEL PUMP CIRCUIT SOUBS33E96

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK OPERATING SOUND OF FUEL PUMP. Make sure that fuel pump is in operation for two seconds when turning ignition switch to ON. NOTE: Fuel pump operation can also be executed using Subaru Select Monitor (Function mode: FD01). For the procedure, refer to "Compulsory Valve Operation Check Mode". <ref. en(h4)-64<br="" to="">Compulsory Valve Operation Check Mode.></ref.>	Does fuel pump produce operating sound?	Check fuel injec- tor circuit. <ref. to<br="">EN(H4)-94 FUEL INJECTOR CIRCUIT, Diag- nostics for Engine Starting Failure.></ref.>	Go to step 2 .

No.	Step	Check	Yes	No
2	 CHECK GROUND CIRCUIT OF FUEL PUMP. 1) Turn ignition switch to OFF. 2) Remove fuel pump access hole lid located on the right rear of trunk compartment floor (Sedan) or luggage compartment floor (Wagon). 3) Disconnect connector from fuel pump. 4) Measure resistance of harness connector between fuel pump and chassis ground. Connector & terminal (R58) No. 4 — Chassis ground: 	Is the resistance less than 5 Ω?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between fuel pump con- nector and chas- sis grounding ter- minal • Poor contact in coupling connec- tor (R57)
3	 CHECK POWER SUPPLY TO FUEL PUMP. 1) Turn ignition switch to ON. 2) Measure voltage of power supply circuit between fuel pump connector and chassis ground. Connector & terminal (R58) No. 1 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Replace fuel pump. <ref. to<br="">FU(H4)-90 Fuel Pump.></ref.>	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL PUMP AND FUEL PUMP RELAY CONNECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness connector between fuel pump and fuel pump relay. Connector & terminal (R58) No. 1 — (B46) No. 4:	Is the resistance less than 1 Ω?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between fuel pump con- nector and chas- sis grounding ter- minal • Poor contact in coupling connec- tors (R57 and B97)
5	CHECK HARNESS BETWEEN FUEL PUMP AND FUEL PUMP RELAY CONNECTOR. Measure resistance of harness between fuel pump and fuel pump relay connector. Connector & terminal (R58) No. 1 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 6.	Repair short cir- cuit in harness between fuel pump and fuel pump relay con- nector.
6	 CHECK FUEL PUMP RELAY. 1) Disconnect connectors from fuel pump relay and main relay. 2) Remove fuel pump relay and main relay with bracket. 3) Connect battery to fuel pump relay connector terminals No. 1 and No. 3. 4) Measure resistance between connector terminals of fuel pump relay. Terminals No. 2 — No. 4: 	Is the resistance less than 10 Ω?	Go to step 7.	Replace fuel pump relay. <ref. to FU(H4)-69 Fuel Pump Relay.></ref.

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND FUEL PUMP RELAY CONNECTOR. 1) Disconnect connectors from ECM. 2) Measure resistance of harness between ECM and fuel pump relay connector. Connector & terminal (B134) No. 16 — (B46) No. 3:	Is the resistance less than 1 Ω?	Go to step 8.	Repair open cir- cuit in harness between ECM and fuel pump relay connector.
8	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Check fuel injec- tor circuit. <ref. to<br="">EN(H4)-94 FUEL INJECTOR CIRCUIT, Diag- nostics for Engine Starting Failure.></ref.>

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MEMO:

EN(H4)-93

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F: FUEL INJECTOR CIRCUIT 5008533E97

CAUTION:

• Check or repair only faulty parts.

• After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE. <Ref. to EN(H4)-60 Inspection Mode.>

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK OPERATION OF EACH FUEL INJECTOR. While cranking the engine, check that each fuel injector emits "operating" sound. Use a sound scope or attach a screwdriver to injec- tor for this check.	Is the fuel injector emits "operating" sound?	Check fuel pres- sure. <ref. to<br="">FU(H4)-70 Fuel.></ref.>	Go to step 2.

No.	Step	Check	Yes	No
2	CHECK POWER SUPPLY TO EACH FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from #1 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. Connector & terminal #1 (E5) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel injector con- nector • Poor contact in main relay con- nector • Poor contact in coupling connec- tor (B22) • Poor contact in fuel injector con- nector
3	CHECK POWER SUPPLY TO EACH FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from #2 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. <i>Connector & terminal</i> #2 (E16) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel injector con- nector • Poor contact in main relay con- nector • Poor contact in coupling connec- tor (B22) • Poor contact in fuel injector con- nector
4	CHECK POWER SUPPLY TO EACH FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from #3 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. Connector & terminal #3 (E6) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 5 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel injector con- nector • Poor contact in main relay con- nector • Poor contact in coupling connec- tors (B22) • Poor contact in fuel injector con- nector

No.	Step	Check	Yes	No
5	CHECK POWER SUPPLY TO EACH FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from #4 cylinder fuel injector. 3) Turn ignition switch to ON. 4) Measure power supply voltage between the fuel injector terminal and engine ground. <i>Connector & terminal</i> #4 (E17) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 6 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel injector con- nector • Poor contact in main relay con- nector • Poor contact in coupling connec- tors (B22) • Poor contact in fuel injector con- nector
6	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 4 — (B136) No. 2:	Is the resistance between 5 and 20 Ω?	Go to step 7 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel injector connector • Poor contact in coupling connec- tor (B22)
7	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 4 — Chassis ground:	Is the resistance less than 1 Ω?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step 8.
8	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 13 — (B136) No. 2:	Is the resistance between 5 and 20 Ω?	Go to step 9 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel injector connector • Poor contact in coupling connec- tor (B22)
9	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 13 — Chassis ground:	Is the resistance less than 1 Ω?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step 10 .

No.	Step	Check	Yes	No
10	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 14 — (B136) No. 2:	Is the resistance between 5 and 20 Ω?	Go to step 11.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel injector connector • Poor contact in coupling connec- tor (B22)
11	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 14 — Chassis ground:	Is the resistance less than 1 Ω?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step 12 .
12	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 15 — (B136) No. 2:	Is the resistance between 5 and 20 Ω?	Go to step 13.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel injector connector • Poor contact in coupling connec- tor (B22)
13	CHECK HARNESS BETWEEN ECM AND FUEL INJECTOR CONNECTOR. Measure resistance of harness between ECM and fuel injector connector. Connector & terminal (B134) No. 15 — Chassis ground:	Is the resistance less than 1 Ω ?	Repair ground short circuit in harness between ECM and fuel injector connector.	Go to step 14.
14	 CHECK EACH FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between each fuel injector terminals. Terminals No. 1 — No. 2: 	Is the resistance between 5 and 20 Ω ?	Go to step 15.	Replace faulty fuel injector.
15	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Check crankshaft position sensor circuit. <ref. to<br="">EN(H4)-98 CRANKSHAFT POSITION SEN- SOR CIRCUIT, Diagnostics for Engine Starting Failure.></ref.>

G: CRANKSHAFT POSITION SENSOR CIRCUIT SOUBSISSED

CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY MODE <Ref. to EN(H4)-63 Clear Memory Mode.> and INSPECTION MODE <Ref. to EN(H4)-60 Inspection Mode.>.

NOTE:

Check crankshaft position sensor circuit.

• MT vehicles: <Ref. to EN(H4)-182 DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MAL-FUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>

• AT vehicles: <Ref. to EN(H4)-404 DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MAL-FUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

H: CAMSHAFT POSITION SENSOR CIRCUIT SOUBS33E99

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check camshaft position sensor circuit.

• MT vehicles: <Ref. to EN(H4)-186 DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MAL-FUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>

• AT vehicles: <Ref. to EN(H4)-410 DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

17. List of Diagnostic Trouble Code (DTC) for MT Vehicles SOUTHER

A: LIST S008599A12

DTC No.	Item	Index
P0106	Intake manifold pressure sensor circuit range/ performance problem	<ref. dtc="" en(h4)-106="" intake="" manifold<br="" p0106="" to="" —="">PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0107	Intake manifold pressure sensor circuit low input	<ref. dtc="" en(h4)-108="" intake="" manifold<br="" p0107="" to="" —="">PRESSURE SENSOR CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0108	Intake manifold pressure sensor circuit high input	<ref. dtc="" en(h4)-112="" intake="" manifold<br="" p0108="" to="" —="">PRESSURE SENSOR CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0111	Intake air temperature sensor circuit range/ performance problem	<ref. air="" dtc="" en(h4)-116="" intake="" p0111="" tempera-<br="" to="" —="">TURE SENSOR CIRCUIT RANGE/PERFORMANCE PROB- LEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0112	Intake air temperature sensor circuit low input	<ref. air="" dtc="" en(h4)-116="" intake="" p0111="" tempera-<br="" to="" —="">TURE SENSOR CIRCUIT RANGE/PERFORMANCE PROB- LEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0113	Intake air temperature sensor circuit high input	<ref. air="" dtc="" en(h4)-120="" intake="" p0113="" tempera-<br="" to="" —="">TURE SENSOR CIRCUIT HIGH INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0116	Engine coolant temperature sensor circuit low input	<ref. coolant<br="" dtc="" en(h4)-124="" engine="" p0116="" to="" —="">TEMPERATURE SENSOR CIRCUIT LOW INPUT —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0117	Engine coolant temperature sensor circuit high input	<ref. coolant<br="" dtc="" en(h4)-126="" engine="" p0117="" to="" —="">TEMPERATURE SENSOR CIRCUIT HIGH INPUT —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0121	Throttle position sensor circuit range/ performance problem (high input)	<ref. dtc="" en(h4)-130="" p0121="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0122	Throttle position sensor circuit low input	<ref. dtc="" en(h4)-132="" p0122="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0123	Throttle position sensor circuit high input	<ref. dtc="" en(h4)-136="" p0123="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0125	Insufficient coolant temperature for closed loop fuel control	<ref. cool-<br="" dtc="" en(h4)-138="" insufficient="" p0125="" to="" —="">ANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0131	Front oxygen (A/F) sensor circuit range/ performance problem (low input)	<ref. (a="" dtc="" en(h4)-140="" f)<br="" front="" oxygen="" p0131="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0132	Front oxygen (A/F) sensor circuit range/ performance problem (high input)	<ref. (a="" dtc="" en(h4)-142="" f)<br="" front="" oxygen="" p0132="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR MT VEHICLES

DTC No.	Item	Index
P0133	Front oxygen (A/F) sensor circuit slow response	<ref. (a="" dtc="" en(h4)-144="" f)<br="" front="" oxygen="" p0133="" to="" —="">SENSOR CIRCUIT SLOW RESPONSE —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0136	Rear oxygen sensor circuit malfunction	<ref. dtc="" en(h4)-146="" oxygen="" p0136="" rear="" sen-<br="" to="" —="">SOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0139	Rear oxygen sensor circuit slow response	<ref. dtc="" en(h4)-150="" oxygen="" p0139="" rear="" sen-<br="" to="" —="">SOR CIRCUIT SLOW RESPONSE —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0141	Rear oxygen sensor heater circuit low input	<ref. dtc="" en(h4)-152="" oxygen="" p0141="" rear="" sen-<br="" to="" —="">SOR HEATER CIRCUIT LOW INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0171	Fuel trim malfunction (A/F too lean)	<ref. dtc="" en(h4)-155="" fuel="" malfunc-<br="" p0171="" to="" trim="" —="">TION (A/F TOO LEAN) —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0172	Fuel trim malfunction (A/F too rich)	<ref. dtc="" en(h4)-156="" fuel="" malfunc-<br="" p0172="" to="" trim="" —="">TION (A/F TOO RICH) —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0181	Fuel temperature sensor A circuit range/ performance problem	<ref. dtc="" en(h4)-160="" fuel="" p0181="" temperature<br="" to="" —="">SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0182	Fuel temperature sensor A circuit low input	<ref. dtc="" en(h4)-162="" fuel="" p0182="" temperature<br="" to="" —="">SENSOR A CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0183	Fuel temperature sensor A circuit high input	<ref. dtc="" en(h4)-164="" fuel="" p0183="" temperature<br="" to="" —="">SENSOR A CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0301	Cylinder 1 misfire detected	<ref. 1="" cylinder="" dtc="" en(h4)-167="" misfire<br="" p0301="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0302	Cylinder 2 misfire detected	<ref. 2="" cylinder="" dtc="" en(h4)-167="" misfire<br="" p0302="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0303	Cylinder 3 misfire detected	<ref. 3="" cylinder="" dtc="" en(h4)-167="" misfire<br="" p0303="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0304	Cylinder 4 misfire detected	<ref. 4="" cylinder="" dtc="" en(h4)-168="" misfire<br="" p0304="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0325	Knock sensor circuit malfunction	<ref. cir-<br="" dtc="" en(h4)-178="" knock="" p0325="" sensor="" to="" —="">CUIT MALFUNCTION —, Diagnostic Procedure with Diagnos- tic Trouble Code (DTC) for MT Vehicles.></ref.>
P0335	Crankshaft position sensor circuit malfunction	<ref. crankshaft="" dtc="" en(h4)-182="" p0335="" posi-<br="" to="" —="">TION SENSOR CIRCUIT MALFUNCTION —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0336	Crankshaft position sensor circuit range/ performance problem	<ref. crankshaft="" dtc="" en(h4)-184="" p0336="" posi-<br="" to="" —="">TION SENSOR CIRCUIT RANGE/PERFORMANCE PROB- LEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0340	Camshaft position sensor circuit malfunction	<ref. camshaft="" dtc="" en(h4)-186="" p0340="" position<br="" to="" —="">SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0341	Camshaft position sensor circuit range/ performance problem	<ref. camshaft="" dtc="" en(h4)-188="" p0341="" position<br="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR MT VEHICLES Engine (DIAGNOSTICS)

DTC No.	Item	Index
P0420	Catalyst system efficiency below threshold	<ref. catalyst="" dtc="" en(h4)-192="" p0420="" system<br="" to="" —="">EFFICIENCY BELOW THRESHOLD —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0440	Evaporative emission control system malfunction	<ref. dtc="" emis-<br="" en(h4)-194="" evaporative="" p0440="" to="" —="">SION CONTROL SYSTEM MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0443	Evaporative emission control system purge con- trol valve circuit low input	<ref. dtc="" emis-<br="" en(h4)-198="" evaporative="" p0443="" to="" —="">SION CONTROL SYSTEM PURGE CONTROL VALVE CIR- CUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0446	Evaporative emission control system vent control low input	<ref. dtc="" emis-<br="" en(h4)-202="" evaporative="" p0446="" to="" —="">SION CONTROL SYSTEM VENT CONTROL LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0451	Evaporative emission control system pressure sensor range/performance problem	<ref. dtc="" emis-<br="" en(h4)-206="" evaporative="" p0451="" to="" —="">SION CONTROL SYSTEM PRESSURE SENSOR RANGE/ PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0452	Evaporative emission control system pressure sensor low input	<ref. dtc="" emis-<br="" en(h4)-208="" evaporative="" p0452="" to="" —="">SION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0453	Evaporative emission control system pressure sensor high input	<ref. dtc="" emis-<br="" en(h4)-212="" evaporative="" p0453="" to="" —="">SION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0461	Fuel level sensor circuit range/performance prob- lem	<ref. dtc="" en(h4)-216="" fuel="" level="" p0461="" sensor<br="" to="" —="">CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0462	Fuel level sensor circuit low input	<ref. dtc="" en(h4)-218="" fuel="" level="" p0462="" sensor<br="" to="" —="">CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnos- tic Trouble Code (DTC) for MT Vehicles.></ref.>
P0463	Fuel level sensor circuit high input	<ref. dtc="" en(h4)-222="" fuel="" level="" p0463="" sensor<br="" to="" —="">CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0480	Cooling fan relay 1 circuit low input	<ref. 1<br="" cooling="" dtc="" en(h4)-226="" fan="" p0480="" relay="" to="" —="">CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnos- tic Trouble Code (DTC) for MT Vehicles.></ref.>
P0483	Cooling fan function problem	<ref. cooling="" dtc="" en(h4)-230="" fan="" func-<br="" p0483="" to="" —="">TION PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0500	Vehicle speed sensor malfunction	<ref. dtc="" en(h4)-234="" p0500="" sen-<br="" speed="" to="" vehicle="" —="">SOR MALFUNCTION —, Diagnostic Procedure with Diagnos- tic Trouble Code (DTC) for MT Vehicles.></ref.>
P0505	Idle control system circuit low input	<ref. control="" dtc="" en(h4)-236="" idle="" p0505="" sys-<br="" to="" —="">TEM LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0506	Idle control system RPM lower than expected	<ref. control="" dtc="" en(h4)-238="" idle="" p0506="" sys-<br="" to="" —="">TEM RPM LOWER THAN EXPECTED —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0507	Idle control system RPM higher than expected	<ref. control="" dtc="" en(h4)-240="" idle="" p0507="" sys-<br="" to="" —="">TEM RPM HIGHER THAN EXPECTED —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR MT VEHICLES

DTC No.	Item	Index
P0601	Internal control module memory check sum error	<ref. control<br="" dtc="" en(h4)-242="" internal="" p0601="" to="" —="">MODULE MEMORY CHECK SUM ERROR —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0703	Brake switch input malfunction	<ref. brake="" dtc="" en(h4)-244="" input<br="" p0703="" switch="" to="" —="">MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0705	Transmission range sensor circuit malfunction	<ref. dtc="" en(h4)-244="" p0705="" range<br="" to="" transmission="" —="">SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0710	Transmission fluid temperature sensor circuit malfunction	<ref. dtc="" en(h4)-244="" fluid<br="" p0710="" to="" transmission="" —="">TEMPERATURE SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0715	Torque converter turbine speed sensor circuit malfunction	<ref. converter<br="" dtc="" en(h4)-244="" p0715="" to="" torque="" —="">TURBINE SPEED SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0720	Output speed sensor (vehicle speed sensor 2) circuit malfunction	<ref. dtc="" en(h4)-244="" output="" p0720="" sen-<br="" speed="" to="" —="">SOR (VEHICLE SPEED SENSOR 2) CIRCUIT MALFUNC- TION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0725	Engine speed input circuit malfunction	<ref. dtc="" en(h4)-244="" engine="" input<br="" p0725="" speed="" to="" —="">CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0731	Gear 1 incorrect ratio	<ref. 1="" dtc="" en(h4)-244="" gear="" incorrect<br="" p0731="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0732	Gear 2 incorrect ratio	<ref. 2="" dtc="" en(h4)-244="" gear="" incorrect<br="" p0732="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0733	Gear 3 incorrect ratio	<ref. 3="" dtc="" en(h4)-244="" gear="" incorrect<br="" p0733="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0734	Gear 4 incorrect ratio	<ref. 4="" dtc="" en(h4)-244="" gear="" incorrect<br="" p0734="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0740	Torque converter clutch system malfunction	<ref. converter<br="" dtc="" en(h4)-244="" p0740="" to="" torque="" —="">CLUTCH SYSTEM MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0743	Torque converter clutch system (Lock-up duty solenoid) electrical	<ref. converter<br="" dtc="" en(h4)-244="" p0743="" to="" torque="" —="">CLUTCH SYSTEM (LOCK-UP DUTY SOLENOID) ELECTRI- CAL —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0748	Pressure control solenoid (Line pressure duty solenoid) electrical	<ref. control<br="" dtc="" en(h4)-245="" p0748="" pressure="" to="" —="">SOLENOID (LINE PRESSURE DUTY SOLENOID) ELECTRI- CAL —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0753	Shift solenoid A (shift solenoid 1) electrical	<ref. a<br="" dtc="" en(h4)-245="" p0753="" shift="" solenoid="" to="" —="">(SHIFT SOLENOID 1) ELECTRICAL —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P0758	Shift solenoid B (shift solenoid 2) electrical	<ref. b<br="" dtc="" en(h4)-245="" p0758="" shift="" solenoid="" to="" —="">(SHIFT SOLENOID 2) ELECTRICAL —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1100	Starter switch circuit low input	<ref. cir-<br="" dtc="" en(h4)-246="" p1100="" starter="" switch="" to="" —="">CUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR MT VEHICLES Engine (DIAGNOSTICS)

DTC No.	ltem	Index
P1101	Neutral position switch circuit low input	<ref. dtc="" en(h4)-250="" neutral="" p1101="" position<br="" to="" —="">SWITCH CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1103	Engine torque control signal 1 circuit malfunction	<ref. con-<br="" dtc="" en(h4)-252="" engine="" p1103="" to="" torque="" —="">TROL SIGNAL 1 CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1106	Engine torque control signal 2 circuit malfunction	<ref. con-<br="" dtc="" en(h4)-252="" engine="" p1106="" to="" torque="" —="">TROL SIGNAL 2 CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1110	Atmospheric pressure sensor circuit low input	<ref. atmospheric="" dtc="" en(h4)-252="" p1110="" pres-<br="" to="" —="">SURE SENSOR CIRCUIT LOW INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1111	Atmospheric pressure sensor circuit high input	<ref. atmospheric="" dtc="" en(h4)-253="" p1111="" pres-<br="" to="" —="">SURE SENSOR CIRCUIT HIGH INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1112	Atmospheric pressure sensor circuit range/ performance problem	<ref. atmospheric="" dtc="" en(h4)-253="" p1112="" pres-<br="" to="" —="">SURE SENSOR CIRCUIT RANGE/PERFORMANCE PROB- LEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1115	Engine torque control cut signal circuit high input	<ref. con-<br="" dtc="" en(h4)-253="" engine="" p1115="" to="" torque="" —="">TROL CUT SIGNAL CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1116	Engine torque control cut signal circuit low input	<ref. con-<br="" dtc="" en(h4)-253="" engine="" p1116="" to="" torque="" —="">TROL CUT SIGNAL CIRCUIT LOW INPUT —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1120	Starter switch circuit high input	<ref. cir-<br="" dtc="" en(h4)-254="" p1120="" starter="" switch="" to="" —="">CUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1121	Neutral position switch circuit high input	<ref. dtc="" en(h4)-258="" neutral="" p1121="" position<br="" to="" —="">SWITCH CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1130	Front oxygen (A/F) sensor circuit malfunction (open circuit)	<ref. (a="" dtc="" en(h4)-260="" f)<br="" front="" oxygen="" p1130="" to="" —="">SENSOR CIRCUIT MALFUNCTION (OPEN CIRCUIT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1131	Front oxygen (A/F) sensor circuit malfunction (short circuit)	<ref. (a="" dtc="" en(h4)-262="" f)<br="" front="" oxygen="" p1131="" to="" —="">SENSOR CIRCUIT MALFUNCTION (SHORT CIRCUIT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1132	Front oxygen (A/F) sensor heater circuit low input	<ref. (a="" dtc="" en(h4)-264="" f)<br="" front="" oxygen="" p1132="" to="" —="">SENSOR HEATER CIRCUIT LOW INPUT —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1133	Front oxygen (A/F) sensor heater circuit high input	<ref. (a="" dtc="" en(h4)-268="" f)<br="" front="" oxygen="" p1133="" to="" —="">SENSOR HEATER CIRCUIT HIGH INPUT —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1134	Front oxygen (A/F) sensor micro-computer prob- lem	<ref. (a="" dtc="" en(h4)-270="" f)<br="" front="" oxygen="" p1134="" to="" —="">SENSOR MICRO-COMPUTER PROBLEM —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1139	Front oxygen (A/F) sensor #1 heater circuit range/performance problem	<ref. (a="" dtc="" en(h4)-272="" f)<br="" front="" oxygen="" p1139="" to="" —="">SENSOR #1 HEATER CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR MT VEHICLES

DTC No.	Item	Index
P1142	Throttle position sensor circuit range/ performance problem (low input)	<ref. dtc="" en(h4)-274="" p1142="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1151	Rear oxygen sensor heater circuit high input	<ref. dtc="" en(h4)-276="" oxygen="" p1151="" rear="" sen-<br="" to="" —="">SOR HEATER CIRCUIT HIGH INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1400	Fuel tank pressure control solenoid valve circuit low input	<ref. dtc="" en(h4)-278="" fuel="" p1400="" pressure<br="" tank="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1420	Fuel tank pressure control solenoid valve circuit high input	<ref. dtc="" en(h4)-282="" fuel="" p1420="" pressure<br="" tank="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1422	Evaporative emission control system purge con- trol valve circuit high input	<ref. dtc="" emis-<br="" en(h4)-284="" evaporative="" p1422="" to="" —="">SION CONTROL SYSTEM PURGE CONTROL VALVE CIR- CUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1423	Evaporative emission control system vent control high input	<ref. dtc="" emis-<br="" en(h4)-286="" evaporative="" p1423="" to="" —="">SION CONTROL SYSTEM VENT CONTROL HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1443	Evaporative emission control system vent control function problem	<ref. dtc="" emis-<br="" en(h4)-288="" evaporative="" p1443="" to="" —="">SION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1505	Idle control system circuit high input	<ref. control="" dtc="" en(h4)-290="" idle="" p1505="" sys-<br="" to="" —="">TEM CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1507	Idle control system malfunction (fail-safe)	<ref. control="" dtc="" en(h4)-292="" idle="" p1507="" sys-<br="" to="" —="">TEM MALFUNCTION (FAIL-SAFE) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1520	Cooling fan relay 1 circuit high input	<ref. 1<br="" cooling="" dtc="" en(h4)-294="" fan="" p1520="" relay="" to="" —="">CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1560	Back-up voltage circuit malfunction	<ref. back-up="" dtc="" en(h4)-298="" p1560="" to="" voltage<br="" —="">CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1700	Throttle position sensor circuit malfunction for automatic transmission	<ref. dtc="" en(h4)-300="" p1700="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1701	Cruise control set signal circuit malfunction for automatic transmission	<ref. control="" cruise="" dtc="" en(h4)-300="" p1701="" set<br="" to="" —="">SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1702	Automatic transmission diagnosis input signal circuit low input	<ref. automatic="" dtc="" en(h4)-300="" p1702="" to="" transmis-<br="" —="">SION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1703	Low clutch timing control solenoid valve circuit malfunction	<ref. clutch="" dtc="" en(h4)-300="" low="" p1703="" timing<br="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR MT VEHICLES Engine (DIAGNOSTICS)

DTC No.	Item	Index
P1704	2-4 brake timing control solenoid valve circuit malfunction	<ref. 2-4="" brake="" dtc="" en(h4)-300="" p1704="" timing<br="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1705	2-4 brake pressure control solenoid valve circuit malfunction	<ref. 2-4="" brake="" dtc="" en(h4)-300="" p1705="" pressure<br="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1722	Automatic transmission diagnosis input signal circuit high input	<ref. automatic="" dtc="" en(h4)-300="" p1722="" to="" transmis-<br="" —="">SION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>
P1742	Automatic transmission diagnosis input signal circuit malfunction	<ref. automatic="" dtc="" en(h4)-300="" p1742="" to="" transmis-<br="" —="">SION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>

Engine (DIAGNOSTICS)

18. Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles 500600

A: DTC P0106 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM — SUBBODIE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



Engine (DIAGNOSTICS)

No.	Step	Check	Yes	No
1	CHECK IDLE SWITCH SIGNAL. 1) Turn ignition switch to ON. 2) Operate the LED operation mode for engine using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	Does the LED of {Idle Switch Signal} come on?	Go to step 2.	Check throttle position sensor circuit. <ref. to<br="">EN(H4)-130 DTC P0121 — THROTTLE POSITION SEN- SOR CIRCUIT RANGE/ PERFORMANCE PROBLEM (HIGH INPUT) —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0106.</ref.>
2	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107 or P0108?	Inspect DTC P0107 or P0108 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0106.</ref.>	Go to step 3.
3	CHECK CONDITION OF INTAKE MANIFOLD PRESSURE SENSOR.	Is the intake manifold pres- sure sensor installation bolt tightened securely?	Go to step 4.	Tighten intake manifold pressure sensor installation bolt securely.
4	CHECK CONDITION OF THROTTLE BODY.	Is the throttle body installa- tion bolt tightened securely?	Replace intake manifold pressure sensor. <ref. to<br="">FU(H4)-49 Intake Manifold Pressure Sensor.></ref.>	Tighten throttle body installation bolt securely.

Engine (DIAGNOSTICS)

B: DTC P0107 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT LOW INPUT — SOUBCOFOT

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



Engine (DIAGNOSTICS)

No	Sten	Check	Yes	No
1		Is the value less than 2.2	Go to step 3	Go to step 2
l'	1) Start engine	kPa (25 mmHq. 0.98		
	2) Read the data of intake manifold absolute	inHg)?		
	pressure signal using Subaru Select Monitor			
	or OBD-II general scan tool.			
	NOTE:			
	Subaru Select Monitor For detailed exerction precedure, refer to the			
	"READ CURRENT DATA FOR ENGINE".			
	<ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>			
	OBD-II general scan tool			
	For detailed operation procedures, refer to the			
	OBD-II General Scan Tool Instruction Manual.			
2	CHECK POOR CONTACT.	Is there poor contact in	Repair poor con-	Even if MIL lights
	Check poor contact in ECIVI and pressure	ECM or pressure sensor		up, the circuit has
			connector.	mal condition at
				this time.
3	CHECK INPUT SIGNAL FOR ECM.	Is the voltage more than	Go to step 5.	Go to step 4.
	Measure voltage between ECM connector	4.5 V?		
	and chassis ground.			
	Connector & terminal			
	(B130) No. 15 (+) — Chassis ground (-):			
4	CHECK INPUT SIGNAL FOR ECM.	Does the voltage change	Repair poor con-	Contact with SOA
	Measure voltage between ECM connector	more than 4.5 V by shaking	tact in ECM con-	service.
	and chassis ground.	harness and connector of	nector.	NOTE:
	Connector & terminal	ECM while monitoring the		Inspection by
	(B136) No. 15 (+) — Chassis ground	value with voltage meter?		DTM is required,
	(-).			cause is deterio-
				ration of multiple
				parts.
5	CHECK INPUT SIGNAL FOR ECM.	Is the voltage less than 0.7	Go to step 7.	Go to step 6.
	Measure voltage between ECM and chassis	V?		
	Connector & terminal			
	(B136) No. 5 (+) — Chassis ground (–):			
6	CHECK INPUT SIGNAL FOR ECM. (USING	Does the value change	Repair poor con-	Go to step 7.
	SUBARU SELECT MONITOR.)	more than 3.3 kPa (25	tact in ECM con-	
	Read data of atmospheric absolute pressure	mmHg, 0.98 inHg) by shak-	nector.	
	signal using Subaru Select Monitor.	ing harness and connector		
	Subaru Select Monitor	the value with Subaru		
	For detailed operation procedure, refer to the	Select Monitor?		
	"READ CURRENT DATA FOR ENGINE".			
	<ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>			
7		Is the voltage more than	Go to step 8.	Repair open cir-
	CONNECTOR	4.3 V !		between FCM
	1) Turn ignition switch to OFF.			and intake mani-
	2) Disconnect connector from intake manifold			fold pressure sen-
	pressure sensor.			sor connector.
	3) Turn ignition switch to ON.			
	4) Measure voltage between intake manifold			
	pressure sensor connector and engine			
	Connector & terminal			
	(E21) No. 3 (+) — Engine ground (–):			
No.	Step	Check	Yes	No
-----	---	---	--	---
8	CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and intake manifold pressure sensor connector. Connector & terminal (B136) No. 16 — (E21) No. 2:	Is the resistance less than 1 Ω?	Go to step 9.	Repair open cir- cuit in harness between ECM and intake mani- fold pressure sen- sor connector.
9	CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR. Measure resistance of harness between intake manifold pressure sensor connector and engine ground. Connector & terminal (E21) No. 1 — Engine ground:	Is the resistance more than 500 kΩ?	Go to step 10 .	Repair ground short circuit in harness between ECM and intake manifold pressure sensor connector.
10	CHECK POOR CONTACT. Check poor contact in intake manifold pres- sure sensor connector.	Is there poor contact in intake manifold pressure sensor connector?	Repair poor con- tact in intake manifold pressure sensor connector.	Replace intake manifold pressure sensor. <ref. to<br="">FU(H4)-49 Intake Manifold Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

C: DTC P0108 — INTAKE MANIFOLD PRESSURE SENSOR CIRCUIT HIGH INPUT — SOUBCODF22

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the value more than 130	Go to step 10.	Go to step 2.
	1) Start engine.	kPa (975 mmHg, 38.39		
	2) Read the data of intake manifold absolute	inHg)?		
	pressure signal using Subaru Select Monitor			
	or OBD-II general scan tool.			
	NOTE:			
	 Subaru Select Monitor 			
	For detailed operation procedure, refer to the			
	"READ CURRENT DATA FOR ENGINE".			
	<ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>			
	• OBD-II general scan tool			
	OBD-II General Scan Tool Instruction Manual			
2		Is the voltage more than	Go to step 4	Go to step 3
	Measure voltage between ECM connector			
	and chassis ground.	1.0 V.		
	Connector & terminal			
	(B136) No. 15 (+) — Chassis ground			
	(-):			
3	CHECK INPUT SIGNAL FOR ECM.	Does the voltage change	Repair poor con-	Contact with SOA
	Measure voltage between ECM connector	more than 4.5 V by shaking	tact in ECM con-	service.
	and chassis ground.	harness and connector of	nector.	NOTE:
	Connector & terminal	ECM while monitoring the		Inspection by
	(B136) No. 15 (+) — Chassis ground	value with voltage meter?		DTM is required,
	(-):			because probable
				cause is deterio-
				ration of multiple
		In the voltage lose then 0.7	Co to otop 6	Co to otop F
4	Measure voltage between ECM connector			
	and chassis ground	v :		
	Connector & terminal			
	(B136) No. 5 (+) — Chassis ground (–):			
5	CHECK INPUT SIGNAL FOR ECM. (USING	Does the value change	Repair poor con-	Go to step 6.
	SUBARU SELECT MONITOR.)	more than 3.3 kPa (25	tact in ECM con-	
	Read data of atmospheric absolute pressure	mmHg, 0.98 inHg) by shak-	nector.	
	signal using Subaru Select Monitor.	ing harness and connector		
	NOTE:	of ECM while monitoring		
	Subaru Select Monitor	the value with Subaru		
	For detailed operation procedure, refer to the	Select Monitor?		
	"READ CURRENT DATA FOR ENGINE".			
6		Is the voltage more than	Co to stop 7	Popoir open oir
0		Is the voltage more than 4.5 V2	Go to step 7.	Repair open cir-
	CONNECTOR	4.5 V !		between FCM
	1) Turn ignition switch to OFF			and intake mani-
	2) Disconnect connector from intake manifold			fold pressure sen-
	pressure sensor.			sor connector.
	3) Turn ignition switch to ON.			
	4) Measure voltage between intake manifold			
	pressure sensor connector and engine			
	ground.			
	Connector & terminal			
	(E21) No. 3 (+) — Engine ground (–):			

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and intake manifold pressure sensor connector. Connector & terminal (B136) No. 5 — (E21) No. 1:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair open cir- cuit in harness between ECM and intake mani- fold pressure sen- sor connector.
8	CHECK HARNESS BETWEEN ECM AND INTAKE MANIFOLD PRESSURE SENSOR CONNECTOR. Measure resistance of harness between ECM and intake manifold pressure sensor connec- tor. Connector & terminal (B136) No. 16 — (E21) No. 2:	Is the resistance less than 1 Ω?	Go to step 9.	Repair open cir- cuit in harness between ECM and intake mani- fold pressure sen- sor connector.
9	CHECK POOR CONTACT. Check poor contact in intake manifold pres- sure sensor connector.	Is there poor contact in intake manifold pressure sensor connector?	Repair poor con- tact in intake manifold pressure sensor connector.	Replace intake manifold pressure sensor. <ref. to<br="">FU(H4)-49 Intake Manifold Pressure Sensor.></ref.>
10	CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF. 2) Disconnect connector from pressure sen- sor. 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON. 4) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4)-52 Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool	Is the value more than 130 kPa (975 mmHg, 38.39 inHg)?	Repair battery short circuit in harness between ECM and intake manifold pressure sensor connector.	Replace intake manifold pressure sensor. <ref. to<br="">FU(H4)-49 Intake Manifold Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

D: DTC P0111 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM — 500600014

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-116

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0112 or P0113?	Inspect DTC P0112 or P0113 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0111.</ref.>	Replace intake air temperature sen- sor. <ref. to<br="">FU(H4)-50 Intake Air Temperature Sensor.></ref.>

Engine (DIAGNOSTICS)

E: DTC P0112 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT LOW INPUT

S008600B15

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-118

No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool 	Is the value greater than 120°C (248°F)?	Go to step 2.	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in intake air tem- perature sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
2	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CON- NECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air tem- perature sensor. 3) Turn ignition switch to ON. 4) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool</ref.>	Is the value less than -40°C (-40°F)?	Replace intake air temperature sen- sor. <ref. to<br="">FU(H4)-50 Intake Air Temperature Sensor.></ref.>	Repair ground short circuit in harness between intake air tem- perature sensor and ECM connec- tor.

Engine (DIAGNOSTICS)

F: P0113 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT HIGH INPUT —

S008600B16

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.





EN(H4)-120

No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Turn ignition switch to ON. 2) Start engine. 3) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool 	Is the value less than -40°C (-40°F)?	Go to step 2.	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in intake air tem- perature sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
2	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CON- NECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air tem- perature sensor. 3) Measure voltage between intake air tem- perature sensor connector and engine ground. Connector & terminal (E20) No. 1 (+) — Engine ground (–):	Is the voltage more than 10 V?	Repair battery short circuit in harness between intake air tem- perature sensor and ECM connec- tor.	Go to step 3.
3	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CON- NECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between intake air tem- perature sensor connector and engine ground. Connector & terminal (E20) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between intake air tem- perature sensor and ECM connec- tor.	Go to step 4.
4	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CON- NECTOR. Measure voltage between intake air tempera- ture sensor connector and engine ground. <i>Connector & terminal</i> (E20) No. 1 (+) — Engine ground (–):	Is the voltage more than 3 V?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between intake air tem- perature sensor and ECM connec- tor • Poor contact in intake air tem- perature sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)

No.	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE SENSOR AND ECM CON- NECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between intake air temperature sensor connector and engine ground. Connector & terminal (E20) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Replace intake air temperature sen- sor. <ref. to<br="">FU(H4)-50 Intake Air Temperature Sensor.></ref.>	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between intake air tem- perature sensor and ECM connec- tor • Poor contact in intake air tem- perature sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

G: DTC P0116 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT LOW INPUT — 50060017

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Hard to start
- Erroneous idling
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



EN(H4)-124

No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value greater than 120°C (248°F)?	Go to step 2.	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in engine coolant temperature sen- sor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
2	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant temperature sensor. 3) Turn ignition switch to ON. 4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool</ref.>	Is the value less than -40°C (-40°F)?	Replace engine coolant tempera- ture sensor. <ref. to CO(H4)-40 Engine Coolant Temperature Sen- sor.></ref. 	Repair ground short circuit in harness between engine coolant temperature sen- sor and ECM con- nector.

Engine (DIAGNOSTICS)

H: DTC P0117 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT HIGH INPUT — SOURCE SENSOR SUBJECT STREET

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Hard to start
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
2	CHECK CURRENT DATA. 1) Start engine. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general Scan Tool Instruction Manual. CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant</ref.>	Is the value less than -40°C (-40°F)? Is the voltage more than 10 V?	Go to step 2. Repair battery short circuit in harness between ECM and engine	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in engine coolant temperature sen- sor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83) Go to step 3 .
	 2) Disconnect connector from engine coolant temperature sensor. 3) Measure voltage between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 1 (+) — Engine ground (-): 		coolant tempera- ture sensor con- nector.	
3	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and engine coolant tempera- ture sensor con- nector.	Go to step 4.

No.	Step	Check	Yes	No
4	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. Measure voltage between engine coolant tem- perature sensor connector and engine ground. Connector & terminal (E8) No. 1 (+) — Engine ground (-):	Is the voltage more than 4 V?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine coolant tempera- ture sensor con- nector • Poor contact in engine coolant temperature sen- sor connector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
5	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 2 — Engine ground:	Is the resistance less than 5 Ω ?	Replace engine coolant tempera- ture sensor. <ref. to CO(H4)-40 Engine Coolant Temperature Sen- sor.></ref. 	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine coolant tempera- ture sensor con- nector • Poor contact in engine coolant temperature sen- sor connector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

I: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) — SOUBCODE 19

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107, P0108, P0122 or P0123?	Inspect DTC P0107, P0108, P0122 or P0123 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0121.</ref.>	Go to step 2.
2	 CHECK CURRENT DATA. 1) Start engine. 2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value more than 53.3 kPa (400 mmHg, 15.75 inHg)?	Replace intake manifold pressure sensor. <ref. to<br="">FU(H4)-49 Intake Manifold Pressure Sensor.></ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

J: DTC P0122 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT — SOURCE20

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start engine. 2) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II gen- eral scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</ref.>	Is the value less than 0.1 V?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
2	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground while throttle valve is fully closed. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 3.
3	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
4	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 17 (+) — Chassis ground (-):	Is the voltage less than 0.1 V?	Go to step 6.	Go to step 5.
5	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Measure voltage between ECM connector and chassis ground.	Does the voltage change more than 0.1 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector.	Go to step 6.

Na	C tan	Check	Vee	No
NO.		Спеск	Yes	NO
6	 CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from throttle posi- tion sensor. 3) Turn ignition switch to ON. 4) Measure voltage between throttle position sensor connector and engine ground. Connector & terminal (E13) No. 1 (+) — Engine ground (-): 	Is the voltage more than 4.5 V?	Go to step 7.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
7	CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between ECM connector and throttle position sensor connector. Connector & terminal (B136) No. 17 — (E13) No. 3:	Is the resistance less than 1 Ω?	Go to step 8.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in ECM connector • Poor contact in throttle position sensor connector • Poor contact in throttle position sensor connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
8	CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNEC- TOR. Measure resistance of harness between throttle position sensor connector and engine ground. Connector & terminal (E13) No. 3 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between throttle position sensor and ECM connector.	Go to step 9.
9	CHECK POOR CONTACT. Check poor contact in throttle position sensor connector.	Is there poor contact in throttle position sensor con- nector?	Repair poor con- tact in throttle position sensor connector.	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

K: DTC P0123 — THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT — SOUBDER

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
No. 1 2	Step CHECK CURRENT DATA. 1) Start engine. 2) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general Scan Tool Instruction Manual. CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNEC-</ref.>	Check Is the value more than 4.9 V? Is the resistance less than 5 Ω?	Yes Go to step 2. Go to step 3.	No Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: Poor contact in throttle position sensor connector Poor contact in ECM connector Poor contact in coupling connec- tor (B21) Poor contact in joint connector (B83) Repair harness and connector.
	 TOR. Turn ignition switch to OFF. Disconnect connector from throttle position sensor. Measure resistance of harness between throttle position sensor connector and engine ground. Connector & terminal (E13) No. 2 — Engine ground: 			NOTE: In this case, repair the follow- ing: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in coupling connec- tor (B21)
3	 CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to ON. 2) Measure voltage between throttle position sensor connector and engine ground. Connector & terminal (E13) No. 3 (+) — Engine ground (-): 	Is the voltage more than 4.9 V?	Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

L: DTC P0125 — INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL — 5008600822

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine would not return to idling.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117?	Inspect DTC P0116 or P0117 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0125.</ref.>	Go to step 2.
2	CHECK THERMOSTAT.	Does thermostat remain opened?	Replace thermo- stat. <ref. to<br="">CO(H4)-13 Ther- mostat.></ref.>	Replace engine coolant tempera- ture sensor. <ref. to FU(H4)-40 Engine Coolant Temperature Sen- sor.></ref.

Engine (DIAGNOSTICS)

M: DTC P0131 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) — SOURCE 24

NOTE:

For the diagnostic procedure, refer to DTC P0132. <Ref. to EN(H4)-142 DTC P0132 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

N: DTC P0132 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) — SOUBCORES

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



				1
No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130, P1131, P1132, P1133 or P1134?	Inspect DTC P1130, P1131, P1132, P1133 or P1134 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT</ref.>	Go to step 2 .
			Vehicles.>	Co to stop 4
2	 CHECK FRONT (A/F) OXYGEN SENSOR DATA. 1) Start engine. 2) While observing the Subaru Select Monitor or OBD-II general scan tool screen, warm-up the engine until coolant temperature is above 70°C (158°F). If the engine is already warmed-up, operate at idle speed for at least 1 minute. 3) Read data of front oxygen (A/F) sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value equal to or more than 0.85 and equal to less than 1.15 in idling?	Go to step 3.	Go to step 4.
3	CHECK REAR OXYGEN SENSOR SIGNAL. 1) Race engine at speeds from idling to 5,000 rpm for a total of 5 cycles. NOTE: To increase engine speed to 5,000 rpm, slowly depress accelerator pedal, taking approximately 5 seconds, and quickly release accelerator pedal to decrease engine speed. 2) Operate the LED operation mode for engine. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "LED OPERATION MODE FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	Does the LED of {Rear O2 Rich Signal} blink?	Repair poor con- tact in front oxy- gen (A/F) sensor and rear oxygen sensor connector.	Check rear oxy- gen sensor circuit. <ref. to<br="">FU(H4)-65 Rear Oxygen Sensor.></ref.>
4	 CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. Loose installation of portions Damage (crack, hole etc.) of parts Looseness of front oxygen (A/F) sensor Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor 	Is there a fault in exhaust system?	Repair or replace faulty parts.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

O: DTC P0133 — FRONT OXYGEN (A/F) SENSOR CIRCUIT SLOW

RESPONSE — SOOB600B26

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130, P1131, P1132, P1133 or P1134?	Inspect DTC P1130, P1131, P1132, P1133 or P1134 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0133.</ref.>	Go to step 2.
2	 CHECK EXHAUST SYSTEM. NOTE: Check the following items. Loose installation of front portion of exhaust pipe onto cylinder heads Loose connection between front exhaust pipe and front catalytic converter Damage of exhaust pipe resulting in a hole 	Is there a fault in exhaust system?	Repair exhaust system.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>
Engine (DIAGNOSTICS)

P: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION — SOUBCODE28

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



B2M3928

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1130 or P1131?	Go to step 2.	Go to step 3.

No.	Step	Check	Yes	No
2	CHECK FAILURE CAUSE OF P1130 or P1131. Inspect DTC P1130 or P1131 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. diagnos-<br="" en(h4)-99="" list="" of="" to="">tic Trouble Code (DTC) for MT Vehicles.></ref.>	Is the failure cause of P1130 or P1131 in the fuel system?	Check fuel sys- tem. NOTE: In this case, it is not necessary to inspect DTC P0136.	Go to step 3.
3	 CHECK REAR OXYGEN SENSOR DATA. 1) Start the engine. 2) Warm-up the engine until engine coolant temperature is above 70°C (158°F), and keep the engine speed at 2,000 rpm to 3,000 rpm for two minutes. 3) Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". QBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual. 	Does the value fluctuate?	Go to step 7.	Go to step 4.
4	CHECK REAR OXYGEN SENSOR DATA. Read data of rear oxygen sensor signal using Subaru Select Monitor or OBD-II General Scan Tool.	Is the value fixed between 0.2 and 0.4 V?	Go to step 5.	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref.
5	 CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and rear oxygen sensor. 3) Measure resistance of harness between ECM and rear oxygen sensor connector. Connector & terminal (B136) No. 16 — (T6) No. 3: 	Is the resistance more than 3 Ω?	Repair open cir- cuit in harness between ECM and rear oxygen sensor connector.	Go to step 6.
6	CHECK HARNESS BETWEEN REAR OXY- GEN SENSOR AND ECM CONNECTOR. 1) Connect connector to ECM. 2) Turn ignition switch to ON. 3) Measure voltage between rear oxygen sen- sor harness connector and engine ground or chassis ground. Connector & terminal (T6) No. 4 (+) — Engine ground (-):	Is the voltage more than 0.2 V?	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref. 	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between rear oxygen sen- sor and ECM con- nector • Poor contact in rear oxygen sen- sor connector • Poor contact in ECM connector

No.	Step	Check	Yes	No
7	 CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. Loose installation of portions Damage (crack, hole etc.) of parts Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor 	Is there a fault in exhaust system?	Repair or replace faulty parts.	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

Q: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE —

S008600B29

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136?	Inspect DTC P0136 using "17. Diagnostics Chart with Trouble Code for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0139.</ref.>	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref.

Engine (DIAGNOSTICS)

R: DTC P0141 — REAR OXYGEN SENSOR HEATER CIRCUIT LOW INPUT —

S008600F03

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0141 and P0135 at the same time?	Go to step 2.	Go to step 3.

EN(H4)-152

No	Sten	Check	Yes	No
2		Is the resistance less than	Go to step 4	Go to step 3
 ²	1) Turn ignition switch to OFF		60 io siep 4.	G0 10 Step 3 .
	2) Disconnect connector from FCM	10 22.		
	3) Measure resistance of harness between			
	ECM connector and chassis ground.			
	Connector & terminal			
	(B134) No. 35 — Chassis ground:			
3	CHECK GROUND CIRCUIT OF ECM.	Is the resistance less than	Go to step 4.	Repair harness
	1) Repair harness and connector.	5 Ω?		and connector.
	NOTE:			NOTE:
	In this case, repair the following:			In this case,
	• Open circuit in harness between ECM and			repair the follow-
	engine ground terminal			ing:
	Poor contact in ECM connector			Open circuit in
	Poor contact in coupling connector (B22)			harness between
	2) Measure resistance of namess between			ECIM and engine
	Connector & terminal			ground terminal
	(B134) No. 34 — Chassis around:			• FOUL CONTACT IN
	(D134) No. $34 - 0$ massis ground.			Poor contact in
				coupling connec-
				tor (B22)
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than	Repair ground	Go to step 5.
	REAR OXYGEN SENSOR CONNECTOR.	10 Ω?	short circuit in	
	Measure resistance of harness between ECM		harness between	
	connector and chassis ground.		ECM and rear	
	Connector & terminal		oxygen sensor	
	(B134) No. 21 — Chassis ground:		connector.	
5	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than	Go to step 6.	Repair open cir-
	REAR OXYGEN SENSOR CONNECTOR.	3 Ω?		cuit in harness
	1) Disconnect connector from rear oxygen			between ECM
	sensor.			and rear oxygen
	2) Measure resistance of namess between			sensor connector.
	Connector & terminal			
	(B134) No. 21 — (T6) No. 4:			
6	CHECK POWER SUPPLY TO REAR OXY-	Is the voltage more than 10	Go to step 7	Repair power sup-
ľ	GEN SENSOR.	V?		plv line.
	1) Connect connector to ECM.			NOTE:
	2) Turn ignition switch to ON.			In this case,
	3) Measure voltage between rear oxygen sen-			repair the follow-
	sor connector and engine ground or chassis			ing:
	ground.			 Open circuit in
	Connector & terminal			harness between
	(16) No. 2 (+) — Engine ground (–):			main relay and
				rear oxygen sen-
				Sur connector
				sor connector
				 Poor contact in
				coupling connec-
				tor (T5)

No.	Step	Check	Yes	No
7	CHECK REAR OXYGEN SENSOR. 1) Turn ignition switch to OFF. 2) Measure resistance between rear oxygen sensor connector terminals. <i>Terminals</i> <i>No. 2 — No. 4:</i>	Is the resistance less than 30 Ω?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between rear oxygen sen- sor and ECM con- nector • Poor contact in rear oxygen sen- sor connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (T5)	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref.

Engine (DIAGNOSTICS)

S: DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) — SOUBCOURSS

NOTE:

For the diagnostic procedure, refer to DTC P0172. <Ref. to EN(H4)-156 DTC P0172 — FUEL TRIM MAL-FUNCTION (A/F TOO RICH) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>

Engine (DIAGNOSTICS)

T: DTC P0172 — FUEL TRIM MALFUNCTION (A/F TOO RICH) — SOURCE SOUR

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK EXHAUST SYSTEM.	Are there holes or loose bolts on exhaust system?	Repair 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 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 on the floor. 1) Release fuel pressure. (1) Disconnect connector from fuel pump relay. (2) Start the engine and run it until it stalls. (3) After the engine stalls, crank it for five more seconds. (4) Turn ignition switch to OFF. 2) Connect connector to fuel pump relay. 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4) Install fuel filler cap. 5) Start the engine and idle while gear position is neutral. 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. WARNING: Before removing fuel pressure gauge, release fuel pressure. NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.	Is fuel pressure between 284 and 314 kPa (2.9 — 3.2 kg/cm ² , 41 — 46 psi)?	Go to step 4.	Repair the follow- ing items. Fuel pressure too high • Clogged fuel return line or bent hose Fuel pressure too low • Improper fuel pump discharge • Clogged fuel supply line

No.	Step	Check	Yes	No
4	 CHECK FUEL PRESSURE. After connecting pressure regulator vacuum hose, measure fuel pressure. WARNING: Before removing fuel pressure gauge, release fuel pressure. NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose. 	Is fuel pressure between 206 and 235 kPa (2.1 — 2.4 kg/cm ² , 30 — 34 psi)?	Go to step 5.	Repair the follow- ing items. Fuel pressure too high • Faulty pressure regulator • Clogged fuel return line or bent hose Fuel pressure too low • Faulty pressure regulator • Improper fuel pump discharge • Clogged fuel supply line
5	 CHECK ENGINE COOLANT TEMPERA- TURE SENSOR. 1) Start the engine and warm-up completely. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is temperature greater than 60°C (140°F)?	Go to step 6.	Replace engine coolant tempera- ture sensor. <ref. to FU(H4)-40 Engine Coolant Temperature Sen- sor.></ref.
6	CHECK INTAKE MANIFOLD PRESSURE 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 A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sen- sor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool For detailed operation procedure, refer to the OBD-II General Scan Tool Instruction Manual. Specification: • Intake manifold absolute pressure Ignition ON 73.3 — 106.6 kPa (550 — 800 mmHg, 21.65 — 31.50 inHg) Idling 24.0 — 41.3 kPa (180 — 310 mmHg, 7.09 — 12.20 inHg)</ref.>	Is the value within the specifications?	Go to step 7.	Replace intake manifold pressure sensor. <ref. to<br="">FU(H4)-49 Intake Manifold Pressure Sensor.></ref.>

No.	Step	Check	Yes	No
7	 CHECK 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 A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Open front hood. 6) Measure ambient temperature. 7) Read data of intake manifold pressure sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool 	Is value obtained when ambient temperature is subtracted from intake air temperature greater than -10°C (14°F) and less than 50°C (122°F)?	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.	Check intake air temperature sen- sor. <ref. to<br="">FU(H4)-50 Intake Air Temperature Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

U: DTC P0181 — FUEL TEMPERATURE SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM — 5008000834

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0182 or P0183?	Inspect DTC P0182 or P0183 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0181.</ref.>	Replace fuel tem- perature sensor. <ref. to<br="">EC(H4)-10 Fuel Temperature Sen- sor.></ref.>

Engine (DIAGNOSTICS)

V: DTC P0182 — FUEL TEMPERATURE SENSOR A CIRCUIT LOW INPUT —

S008600B35

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value greater than 150°C (302°F)?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time.
2	 CHECK CURRENT DATA. 1) Turn ignition switch to OFF. 2) Remove access hole lid. 3) Disconnect connector from fuel pump. 4) Turn ignition switch to ON. 5) Read data of fuel temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value less than -40°C (-40°F)?	Replace fuel tem- perature sensor. <ref. to<br="">EC(H4)-10 Fuel Temperature Sen- sor.></ref.>	Repair ground short circuit in harness between fuel pump and ECM connector.

Engine (DIAGNOSTICS)

W: DTC P0183 — FUEL TEMPERATURE SENSOR A CIRCUIT HIGH INPUT —

S008600B36

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
2	CHECK CURRENT DATA. 1) Start engine. 2) Read data of fuel temperature sensor sig- nal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</ref.>	Is the value less than -40°C (-40°F)?	Go to step 2 .	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in fuel pump con- nector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B22, B99 and R57) • Poor contact in joint connector (B83) Go to step 3
2	 CHECK HARNESS BETWEEN FOEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Remove access hole lid. 3) Disconnect connector from fuel pump. 4) Measure voltage between fuel pump con- nector and chassis ground. Connector & terminal (R58) No. 6 (+) — Chassis ground (-): 	V?	short circuit in harness between ECM and fuel pump connector.	Go to step 3.
3	CHECK HARNESS BETWEEN FUEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to ON. 2) Measure voltage between fuel pump con- nector and chassis ground. Connector & terminal (R58) No. 6 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and fuel pump connector.	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. Measure voltage between fuel pump connec- tor and chassis ground. <i>Connector & terminal</i> (<i>R58</i>) No. 6 (+) — Chassis ground (-):	Is the voltage more than 4 V?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel pump connector • Poor contact in fuel pump con- nector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B99 and R57)

No.	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN FUEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between fuel pump connector and chassis ground. Connector & terminal (R58) No. 5 — Chassis ground:	Is the resistance less than 5 Ω?	Replace fuel tem- perature sensor. <ref. to<br="">EC(H4)-10 Fuel Temperature Sen- sor.></ref.>	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel pump connector • Poor contact in fuel pump con- nector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B22, B99 and R57) • Poor contact in joint connector (B83)

Engine (DIAGNOSTICS)

X: DTC P0301 — CYLINDER 1 MISFIRE DETECTED — SOUBCOB37

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4)-168 DTC P0304 — CYLINDER 4 MIS-FIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>

Y: DTC P0302 — CYLINDER 2 MISFIRE DETECTED — SOUBCODESS

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4)-168 DTC P0304 — CYLINDER 4 MIS-FIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>

Z: DTC P0303 — CYLINDER 3 MISFIRE DETECTED — SOUBCOURSE

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4)-168 DTC P0304 — CYLINDER 4 MIS-FIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.>

Engine (DIAGNOSTICS)

AA: DTC P0304 — CYLINDER 4 MISFIRE DETECTED — SOUBCODE40

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Erroneous idling
 - Rough driving

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:



B2M3964

Engine (DIAGNOSTICS)



B2M3965

	01.54		No	N
NO.	Step	Check	Yes	NO
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0116, P0117 or P0125?	Inspect DTC P0106, P0107, P0108, P0116, P0117 or P0125 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0301, P0302, P0303 and P0304.</ref.>	Go to step 2.
2	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 7 .	Go to step 3.
3	 CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on faulty cylinders. 3) Measure voltage 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 less than 10 Ω?	Repair ground short circuit in harness between fuel injector and ECM connector.	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. Measure resistance of harness connector between ECM connector and fuel injector on faulty cylinders. Connector & terminal #1 (B134) No. 4 — (E5) No. 1: #2 (B134) No. 13 — (E16) No. 1: #3 (B134) No. 14 — (E6) No. 1: #4 (B134) No. 15 — (E17) No. 1:	Is the resistance less than 1 Ω?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel injector connector • Poor contact in coupling connec- tor (B22)

No	Sten	Check	Ves	No
5		le the resistance between 5	Go to stop 6	Replace faulty
5	Measure resistance between fuel injector ter- minals on faulty cylinder. <i>Terminals</i> <i>No. 1 — No. 2:</i>	and 20 Ω ?	Go to step o .	fuel injector. <ref. to FU(H4)-56 Fuel Injector.></ref.
6	CHECK POWER SUPPLY LINE. 1) Turn ignition switch to ON. 2) Measure voltage between fuel injector and engine ground on faulty cylinders. Connector & terminal #1 (E5) No. 2 (+) — Engine ground (-): #2 (E16) No. 2 (+) — Engine ground (-): #3 (E6) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair poor con- tact in all connec- tors in fuel injector circuit.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel injector con- nector on faulty cylinders • Poor contact in coupling connec- tor (B22) • Poor contact in main relay con- nector • Poor contact in fuel injector con- nector • Poor contact in fuel injector con- nector on faulty cylinders
7	CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on faulty cylinder. 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 8.
8	 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 - No. 2: 	Is the resistance less than 1 Ω ?	Replace faulty fuel injector <ref. to FU(H4)-56 Fuel Injector.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.>.</ref.></ref. 	Go to step 9 .
9	CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSI- TION SENSOR.	Is camshaft position sensor or crankshaft position sen- sor loosely installed?	Tighten camshaft position sensor or crankshaft posi- tion sensor.	Go to step 10 .
10	CHECK CRANKSHAFT SPROCKET. Remove timing belt cover.	Is crankshaft sprocket rusted or does it have bro- ken teeth?	Replace crank- shaft sprocket. <ref. to<br="">ME(H4)-51 Crank- shaft Sprocket.></ref.>	Go to step 11.

No.	Step	Check	Yes	No
11	CHECK TIMING BELT.	Is timing belt out of align- ment?	Align timing belt. <ref. to<br="">ME(H4)-46 Timing Belt Assembly.></ref.>	Go to step 12 .
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 replenishing fuel, Go to step 13 .
13	CHECK STATUS OF CHECK ENGINE MAL- FUNCTION INDICATOR LAMP (MIL). 1) Clear memory using Subaru Select Moni- tor. <ref. clear="" en(h4)-63="" memory="" mode.="" to=""> 2) Start engine, and drive the vehicle more than 10 minutes.</ref.>	Is the MIL coming on or blinking?	Go to step 15.	Go to step 14.
14	CHECK CAUSE OF MISFIRE DIAGNOSED.	Was the cause of misfire diagnosed when the engine is running?	Finish diagnostics operation, if the engine has no abnormality. NOTE: Ex. Remove spark plug cord, etc.	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in ignitor connector • Poor contact in ignition coil con- nector • Poor contact in fuel injector con- nector on faulty cylinders • Poor contact in ECM connector • Poor contact in coupling connec- tor (B22)
15	CHECK AIR INTAKE SYSTEM.	Is there a fault in air intake system?	Repair air intake system. NOTE: Check the follow- ing items: • Are there air leaks or air suc- tion caused by loose or dislo- cated nuts and bolts? • Are there cracks or any dis- connection of hoses?	Go to step 16.

No.	Step	Check	Yes	No
16	CHECK MISFIRE SYMPTOM. 1) Turn ignition switch to ON. 2) Read diagnostic trouble code (DTC). <ref. to EN(H4)-59 Read Diagnostic Trouble Code.> NOTE: Perform diagnosis according to the items listed below.</ref. 	Does the Subaru Select Monitor or OBD-II general scan tool indicate only one DTC?	Go to step 21.	Go to step 17 .
17	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0302?	Go to step 22.	Go to step 18.
18	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0303 and P0304?	Go to step 23.	Go to step 19 .
19	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0303?	Go to step 24.	Go to step 20.
20	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0302 and P0304?	Go to step 25.	Go to step 26 .
21	ONLY ONE CYLINDER	Is there a fault in that cylin- der?	Repair or replace faulty parts. NOTE: Check the follow- ing items. • Spark plug • Spark plug cord • Fuel injector • Compression ratio	Go to DTC P0171 <ref. en(h4)-<br="" to="">155 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.> and P0172. <ref. to<br="">EN(H4)-156 DTC P0172 — FUEL TRIM MALFUNC- TION (A/F TOO RICH) —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.></ref.>

No.	Step	Check	Yes	No
22	GROUP OF #1 AND #2 CYLINDERS	Are there faults in #1 and #2 cylinders?	Repair or replace faulty parts. NOTE: • Check the fol- lowing items. Spark plugs Fuel injectors Ignition coil Compression ratio • If no abnormal is discovered, check for "IGNI- TION CONTROL SYSTEM" of #1 and #2 cylinders side. <ref. to<br="">EN(H4)-86 IGNI- TION CONTROL SYSTEM, Diag- nostics for Engine Starting Failure.></ref.>	Go to DTC P0171 <ref. en(h4)-<br="" to="">155 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.> and P0172. <ref. to<br="">EN(H4)-156 DTC P0172. — FUEL TRIM MALFUNC- TION (A/F TOO RICH) —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.></ref.>
23	GROUP OF #3 AND #4 CYLINDERS	Are there faults in #3 and #4 cylinders?	Repair or replace faulty parts. NOTE: • Check the fol- lowing items. Spark plugs Fuel injectors Ignition coil • If no abnormal is discovered, check for "IGNI- TION CONTROL SYSTEM" of #3 and #4 cylinders side. <ref. to<br="">EN(H4)-86 IGNI- TION CONTROL SYSTEM, Diag- nostics for Engine Starting Failure.></ref.>	Go to DTC P0171 <ref. en(h4)-<br="" to="">155 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.> and P0172. <ref. to<br="">EN(H4)-156 DTC P0172. — FUEL TRIM MALFUNC- TION (A/F TOO RICH) —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.></ref.>

No.	Step	Check	Yes	No
24	GROUP OF #1 AND #3 CYLINDERS	Are there faults in #1 and #3 cylinders?	Repair or replace faulty parts. NOTE: Check the follow- ing items. • Spark plugs • Fuel injectors • Skipping timing belt teeth	Go to DTC P0171 <ref. en(h4)-<br="" to="">155 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.> and P0172. <ref. to<br="">EN(H4)-156 DTC P0172 — FUEL TRIM MALFUNC- TION (A/F TOO RICH) —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.></ref.>
25	GROUP OF #2 AND #4 CYLINDERS	Are there faults in #2 and #4 cylinders?	Repair or replace faulty parts. NOTE: Check the follow- ing items. • Spark plugs • Fuel injectors • Compression ratio • Skipping timing belt teeth	Go to DTC P0171 <ref. en(h4)-<br="" to="">155 DTC P0171 — FUEL TRIM MALFUNCTION (A/F TOO LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.> and P0172. <ref. to<br="">EN(H4)-156 DTC P0172 — FUEL TRIM MALFUNC- TION (A/F TOO RICH) —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.></ref.>

No. Step Check Yes	No
26 CYLINDER AT RANDOM Is the engine idle rough? Go to DTC F <ref. en(<br="" to="">155 DTC PO — FUEL TR MALFUNCT (A/F TOO LE —, Diagnost Procedure w Diagnostic Trouble Cod (DTC) for M Vehicles.> a P0172. <rei EN(H4)-156 P0172 — FL TRIM MALF TION (A/F T RICH) —, D nostic Proce with Diagnos Trouble Cod (DTC) for M</rei </ref.>	P0171 Repair or replace (H4)- faulty parts. NOTE: Check the follow- ing items. EAN) tic Vith Fuel injectors Compression ratio Me T UNC- TOO DTC UEL UNC- TOO Coo Coo Coo Coo Coo Coo Coo C

Engine (DIAGNOSTICS)

AB: DTC P0325 — KNOCK SENSOR CIRCUIT MALFUNCTION — SOURCE

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Poor driving performance
- Knocking occurs.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance between ECM harness connector and chassis ground. Connector & terminal (B136) No. 4 — Chassis ground:	Is the resistance more than 700 kΩ?	Go to step 3.	Go to step 2.
2	CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR. Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B136) No. 4 — Chassis ground:	Is the resistance less than 400 kΩ?	Go to step 5.	Go to step 6.
3	CHECK KNOCK SENSOR. 1) Disconnect connector from knock sensor. 2) Measure resistance between knock sensor connector terminal and engine ground. Terminal No. 2 — Engine ground:	Is the resistance more than 700 kΩ?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between knock sensor and ECM connector • Poor contact in knock sensor con- nector • Poor contact in coupling connec- tor (B21)
4	CHECK CONDITION OF KNOCK SENSOR INSTALLATION.	Is the knock sensor instal- lation bolt tightened securely?	Replace knock sensor. <ref. to<br="">FU(H4)-43 Knock Sensor.></ref.>	Tighten knock sensor installation bolt securely.
5	CHECK KNOCK SENSOR. 1) Disconnect connector from knock sensor. 2) Measure resistance between knock sensor connector terminal and engine ground. Terminal No. 2 — Engine ground:	Is the resistance less than 400 kΩ?	Replace knock sensor. <ref. to<br="">FU(H4)-43 Knock Sensor.></ref.>	Repair ground short circuit in harness between knock sensor con- nector and ECM connector. NOTE: The harness between both connectors is shielded. Repair short circuit of harness together with shield.

No.	Step	Check	Yes	No
6	CHECK INPUT SIGNAL FOR ECM. 1) Connect connectors to ECM and knock sensor. 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chas- sis ground. Connector & terminal (B136) No. 4 (+) — Chassis ground (-):	Is the voltage more than 2 V?	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the follow- ing: • Poor contact in knock sensor con- nector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Repair poor con- tact in ECM con- nector.

Engine (DIAGNOSTICS)

MEMO:
Engine (DIAGNOSTICS)

AC: DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION — SOUBCOLE 42

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN CRANK- SHAFT POSITION SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from crankshaft posi- tion sensor. 3) Measure resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 1 — Engine ground:	Is the resistance more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between crankshaft posi- tion sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Go to step 2.
2	CHECK HARNESS BETWEEN CRANK- SHAFT POSITION SENSOR AND ECM CONNECTOR. Measure resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 1 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between crankshaft posi- tion sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short cir- cuit in harness together with shield.	Go to step 3.
3	CHECK HARNESS BETWEEN CRANK- SHAFT POSITION SENSOR AND ECM CONNECTOR. Measure resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between crankshaft posi- tion sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)
4	CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step 5 .	Tighten crankshaft position sensor installation bolt securely.
5	 CHECK CRANKSHAFT POSITION SENSOR. 1) Remove crankshaft position sensor. 2) Measure resistance between connector terminals of crankshaft position sensor. Terminals No. 1 - No. 2: 	Is the resistance between 1 and 4 $k\Omega$?	Repair poor con- tact in crankshaft position sensor connector.	Replace crank- shaft position sen- sor. <ref. to<br="">FU(H4)-41 Crank- shaft Position Sensor.></ref.>

Engine (DIAGNOSTICS)

AD: DTC P0336 — CRANKSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — 500800843

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
- Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0335?	Inspect DTC P0335 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>	Go to step 2.
2	CHECK CONDITION OF CRANKSHAFT POSITION SENSOR. Turn ignition switch to OFF.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step 3.	Tighten crankshaft position sensor installation bolt securely.
3	CHECK CRANKSHAFT SPROCKET. Remove front belt cover.	Are crankshaft sprocket teeth cracked or damaged?	Replace crank- shaft sprocket. <ref. to<br="">ME(H4)-52 Crank- shaft Sprocket.></ref.>	Go to step 4.
4	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block. ST 499987500 CRANKSHAFT SOCKET	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <ref. to<br="">ME(H4)-46 Timing Belt Assembly.></ref.>	Replace crank- shaft position sen- sor. <ref. to<br="">FU(H4)-41 Crank- shaft Position Sensor.></ref.>

Engine (DIAGNOSTICS)

AE: DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION

S008600B44

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from camshaft posi- tion sensor. 3) Measure resistance of harness between camshaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Go to step 2.
2	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short cir- cuit in harness together with shield.	Go to step 3.
3	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. Connector & terminal (E15) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)
4	CHECK CONDITION OF CAMSHAFT POSI- TION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 5 .	Tighten camshaft position sensor installation bolt securely.
5	 CHECK CAMSHAFT POSITION SENSOR. 1) Remove camshaft position sensor. 2) Measure resistance between connector terminals of camshaft position sensor. Terminals No. 1 — No. 2: 	Is the resistance between 1 and 4 $k\Omega$?	Repair poor con- tact in camshaft position sensor connector.	Replace camshaft position sensor. <ref. to<br="">FU(H4)-42 Cam- shaft Position Sensor.></ref.>

Engine (DIAGNOSTICS)

AF: DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — 5008000845

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0340?	Inspect DTC P0340 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>	Go to step 2.
2	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from camshaft posi- tion sensor. 3) Measure resistance of harness between camshaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Go to step 3.
3	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short cir- cuit in harness together with shield.	Go to step 4.
4	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. Connector & terminal (E15) No. 2 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 5 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)

No.	Step	Check	Yes	No
5	CHECK CONDITION OF CAMSHAFT POSI- TION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 6.	Tighten camshaft position sensor installation bolt securely.
6	 CHECK CAMSHAFT POSITION SENSOR. 1) Remove camshaft position sensor. 2) Measure resistance between connector terminals of camshaft position sensor. Terminals No. 1 — No. 2: 	Is the resistance between 1 and 4 $k\Omega$?	Go to step 7.	Replace camshaft position sensor. <ref. to<br="">FU(H4)-42 Cam- shaft Position Sensor.></ref.>
7	CHECK CONDITION OF CAMSHAFT POSI- TION SENSOR. Turn ignition switch to OFF.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 8.	Tighten camshaft position sensor installation bolt securely.
8	CHECK CAMSHAFT SPROCKET. Remove front belt cover. <ref. me(h4)-45<br="" to="">Belt Cover.></ref.>	Are camshaft sprocket teeth cracked or damaged?	Replace camshaft sprocket. <ref. to<br="">ME(H4)-51 Cam- shaft Sprocket.></ref.>	Go to step 9 .
9	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn camshaft using ST, and align alignment mark on camshaft sprocket with alignment mark on timing belt cover LH. ST 499207100 CAMSHAFT SPROCKET WRENCH	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <ref. to<br="">ME(H4)-46 Timing Belt Assembly.></ref.>	Replace camshaft position sensor. <ref. to<br="">FU(H4)-42 Cam- shaft Position Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AG: DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD

S008600B46

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Idle mixture is out of specifications.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0131, P0132, P0133, P0135, P0136, P0139, P0141, P0301, P0302, P0303, P0304, P1130, P1131, P1134, P1139, P1150 and P1151?	Inspect the rel- evant DTC using "17. List of Diag- nostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0420.</ref.>	Go to step 2.
2	 CHECK EXHAUST SYSTEM. Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes. NOTE: Check the following positions. Between cylinder head and front exhaust pipe Between front exhaust pipe and front catalytic converter Between front catalytic converter and rear catalytic converter 	Is there a fault in exhaust system?	Repair or replace exhaust system. <ref. ex(h4)-2<br="" to="">General Descrip- tion.></ref.>	Go to step 3.
3	CHECK REAR CATALYTIC CONVERTER. Separate rear catalytic converter from rear exhaust pipe.	Is there damage at rear face of rear catalyst?	Replace front catalytic converter <ref. ec(h4)-3<br="" to="">Front Catalytic Converter.> and rear catalytic con- verter <ref. to<br="">EC(H4)-6 Rear Catalytic Con- verter.>.</ref.></ref.>	Go to step 4 .
4	CHECK FRONT CATALYTIC CONVERTER. Remove front catalytic converter.	Is there damage at rear face or front face of front catalyst?	Replace front catalytic con- verter. <ref. to<br="">EC(H4)-3 Front Catalytic Con- verter.></ref.>	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

AH: DTC P0440 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION — SOUBAR

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- Gasoline smell
 - There is a hole of more than 1.0 mm (0.04 in) dia. in evaporation system or fuel tank.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)



B2M3882

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "17. List of Diag- nostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>	Go to step 2.
2	CHECK FUEL FILLER CAP. 1) Turn ignition switch to OFF. 2) Check the fuel filler cap. NOTE: The DTC code is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Is the fuel filler cap tight- ened securely?	Go to step 3 .	Tighten fuel filler cap securely.
3	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4)-82 Fuel Filler Pipe.></ref.>	Go to step 4.
4	CHECK DRAIN VALVE. 1) Connect test mode connector. 2) Turn ignition switch to ON. 3) Operate drain valve. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Opera- tion Check Mode". <ref. com-<br="" en(h4)-64="" to="">pulsory Valve Operation Check Mode.></ref.>	Does drain valve produce operating sound?	Go to step 5.	Replace drain valve. <ref. to<br="">EC(H4)-17 Drain Valve.></ref.>
5	CHECK PURGE CONTROL SOLENOID VALVE. Operate purge control solenoid valve. NOTE: Purge control solenoid valve operation can also be executed using Subaru Select Moni- tor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <ref. to<br="">EN(H4)-64 Compulsory Valve Operation Check Mode.></ref.>	Does purge control sole- noid valve produce operat- ing sound?	Go to step 6 .	Replace purge control solenoid valve. <ref. to<br="">EC(H4)-8 Purge Control Solenoid Valve.></ref.>
6	CHECK PRESSURE CONTROL SOLENOID VALVE. Operate pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Moni- tor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <ref. to<br="">EN(H4)-64 Compulsory Valve Operation Check Mode.></ref.>	Does pressure control sole- noid valve produce operat- ing sound?	Go to step 7.	Replace pressure control solenoid valve. <ref. to<br="">EC(H4)-13 Pres- sure Control Sole- noid Valve.></ref.>

No.	Step	Check	Yes	No
7	CHECK EVAPORATIVE EMISSION CON- TROL SYSTEM LINE. Turn ignition switch to OFF.	Is there a hole of more than 1.0 mm (0.04 in) dia. on fuel line?	Repair or replace fuel line. <ref. to<br="">FU(H4)-98 Fuel Delivery, Return and Evaporation Lines.></ref.>	Go to step 8.
8	CHECK CANISTER.	Is canister damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace canister. <ref. to<br="">EC(H4)-7 Canis- ter.></ref.>	Go to step 9.
9	CHECK FUEL TANK. Remove fuel tank. <ref. fu(h4)-73="" fuel<br="" to="">Tank.></ref.>	Is fuel tank damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace fuel tank. <ref. to<br="">FU(H4)-73 Fuel Tank.></ref.>	Go to step 10.
10	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Are there holes of more than 1.0 mm (0.04 in) dia., cracks, clogging or discon- nections of hoses or pipes in evaporative emission control system?	Repair or replace hoses or pipes.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

AI: DTC P0443 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT LOW INPUT — S00600249

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
<u>No.</u> 1	Step CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 2 (+) — Chassis ground (-):	Check Is the voltage more than 10 V?	Yes Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio-	No Go to step 2.
2	CHECK HARNESS BETWEEN PURGE	Is the resistance less than	ration of multiple parts. Repair ground	Go to step 3.
	 CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from purge control solenoid valve and ECM. 3) Measure resistance of harness between purge control solenoid valve connector and engine ground. Connector & terminal (E4) No. 2 — Engine ground: 	10 Ω?	short circuit in harness between ECM and purge control solenoid valve connector.	
3	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. Measure resistance of harness between ECM and purge control solenoid valve of harness connector. Connector & terminal (B134) No. 2 — (E4) No. 2:	Is the resistance less than 1 Ω?	Go to step 4.	Repair open cir- cuit in harness between ECM and purge control solenoid valve connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and purge control solenoid valve connector • Poor contact in coupling connec- tor (B22)
4	CHECK PURGE CONTROL SOLENOID VALVE. 1) Remove purge control solenoid valve. 2) Measure resistance between purge control solenoid valve terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i>	Is the resistance between 10 and 100 Ω?	Go to step 5.	Replace purge control solenoid valve. <ref. to<br="">EC(H4)-8 Purge Control Solenoid Valve.></ref.>
5	CHECK POWER SUPPLY TO PURGE CON- TROL SOLENOID VALVE. 1) Turn ignition switch to ON. 2) Measure voltage between purge control solenoid valve and engine ground. Connector & terminal (E4) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 6 .	Repair open cir- cuit in harness between main relay and purge control solenoid valve connector.

No.	Step	Check	Yes	No
6	CHECK POOR CONTACT. Check poor contact in purge control solenoid valve connector.	Is there poor contact in purge control solenoid valve connector?	Repair poor con- tact in purge con- trol solenoid valve connector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AJ: DTC P0446 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL LOW INPUT — 500600850

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No	Sten	Check	Ves	No
1		Le the voltage more than 10	Co to step 2	Co to step 3
	 Turn ignition switch to ON. Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 10 (+) — Chassis ground (-): 	V?	90 10 Step 2.	GU IU SIEP J .
2	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the follow- ing: • Poor contact in drain valve con- nector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B97 and B99)
3	 CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from drain valve and ECM. 3) Measure resistance of harness between drain valve connector and chassis ground. Connector & terminal (R69) No. 2 — Chassis ground: 	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and drain valve connector.	Go to step 4.
4	CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. Measure resistance of harness between ECM and drain valve connector. Connector & terminal (B134) No. 10 — (R69) No. 2:	Is the voltage less than 1 Ω ?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and drain valve connector • Poor contact in coupling connec- tors (B99)
5	CHECK DRAIN VALVE. Measure resistance between drain valve ter- minals. Terminals No. 1 — No. 2:	Is the resistance between 10 and 100 Ω?	Go to step 6.	Replace drain valve. <ref. to<br="">EC(H4)-17 Drain Valve.></ref.>

No.	Step	Check	Yes	No
6	CHECK POWER SUPPLY TO DRAIN VALVE. 1) Turn ignition switch to ON. 2) Measure voltage between drain valve and chassis ground. Connector & terminal (R69) No. 1 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 7.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and drain valve • Poor contact in coupling connec- tors (B97) • Poor contact in main relay con- nector
7	CHECK POOR CONTACT. Check poor contact in drain valve connector.	Is there poor contact in drain valve connector?	Repair poor con- tact in drain valve connector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AK: DTC P0451 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR RANGE/PERFORMANCE PROBLEM — SOUTHONDES

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any DTC on display?	Inspect the rel- evant DTC using "17. List of Diag- nostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>	Go to step 2.
2	CHECK FUEL FILLER CAP.1) Turn ignition switch to OFF.2) Open the fuel flap.	Is the fuel filler cap tight- ened 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 	Is there a fault in pressure/ vacuum line?	Repair or replace hoses and pipes.	Replace fuel tank pressure sensor. <ref. to<br="">EC(H4)-12 Fuel Tank Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

AL: DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT — SOUBCODES

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Turn ignition switch to OFF. 2) Remove fuel filler cap. 3) Install fuel filler cap. 4) Turn ignition switch to ON. 5) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value less than -2.8 kPa (-21.0 mmHg, -0.827 inHg)?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time.
2	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 4 .	Go to step 3.
3	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR. Measure voltage between ECM connector and chassis ground. <i>Connector & terminal</i> (B136) No. 15 (+) — Chassis ground (-):	Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
4	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B136) No. 12 (+) — 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 data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector.	Go to step 6.

No.	Step	Check	Yes	No
6	 CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring har- ness connector and chassis ground. Connector & terminal (R134) No. 5 (+) — Chassis ground (-): 	Is the voltage more than 4.5 V?	Go to step 7 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (R134) • Poor contact in coupling connec- tor (B99)
7	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and rear wiring harness connector. Connector & terminal (B136) No. 16 — (R134) No. 3:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (R134) • Poor contact in coupling connec- tor (B99) • Poor contact in joint connector (B83)
8	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. Measure resistance of harness between rear wiring harness connector and chassis ground. Connector & terminal (R134) No. 3 — Chassis ground:	Is the resistance more than 500 kΩ?	Go to step 9.	Repair ground short circuit in harness between ECM and rear wiring harness connector (R134).
9	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel tank pressure sensor. 2) Measure resistance of fuel tank cord. Connector & terminal (R135) No. 5 — (R47) No. 3: 	Is the resistance less than 1 Ω ?	Go to step 10 .	Repair open cir- cuit in fuel tank cord.
10	CHECK FUEL TANK CORD. Measure resistance of fuel tank cord. Connector & terminal (R135) No. 3 — (R47) No. 1:	Is the resistance less than 1 Ω ?	Go to step 11.	Repair open cir- cuit in fuel tank cord.
11	CHECK FUEL TANK CORD. Measure resistance of harness between fuel tank pressure sensor connector and chassis ground. Connector & terminal (R47) No. 2 — Chassis ground:	Is the resistance more than 500 kΩ?	Go to step 12.	Repair ground short circuit in fuel tank cord.
12	CHECK POOR CONTACT. Check poor contact in fuel tank pressure sen- sor connector.	Is there poor contact in fuel tank pressure sensor con- nector?	Repair poor con- tact in fuel tank pressure sensor connector.	Replace fuel tank pressure sensor. <ref. to<br="">EC(H4)-12 Fuel Tank Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AM: DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT — SOUBCODESS

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



r				1
No.	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the value more than 2.8	Go to step 12.	Go to step 2.
	1) Turn ignition switch to OFF.	kPa (21.0 mmHg, 0.827		
	2) Remove fuel filler cap.	inHg)?		
	3) Install fuel filler cap.			
	4) Turn ignition switch to ON.			
	5) Read data of fuel tank pressure sensor sig-			
	nal using Subaru Select Monitor or OBD-II			
	deneral scan tool			
	Subaru Select Monitor			
	• Subard Select Monitor			
	Def. to EN(14) 52 Subary Select Menitory			
	OBD-II general scan tool			
	For detailed operation procedures, refer to the			
	OBD-II General Scan Tool Instruction Manual.			
2	CHECK POWER SUPPLY TO FUEL TANK	Is the voltage more than	Go to step 4.	Go to step 3.
	PRESSURE SENSOR.	4.5 V?		
	Measure voltage between ECM connector			
	and chassis ground.			
	Connector & terminal			
	(B136) No. 15 (+) — Chassis ground			
	(–):			
3	CHECK POWER SUPPLY TO FUEL TANK	Does the voltage change	Repair poor con-	Replace ECM.
-	PRESSURE SENSOR.	more than 4.5 V by shaking	tact in ECM con-	<ref. th="" to<=""></ref.>
	Measure voltage between ECM connector	harness and connector of	nector.	FU(H4)-67 Engine
	and chassis ground.	ECM while monitoring the		Control Module.>
	Connector & terminal	value with voltage meter?		
	(B136) No. 15 (+) — Chassis ground	value min vellage meter.		
	(_):			
		Is the voltage loss than 0.2	Go to stop 6	Go to stop 5
4	Measure voltage between ECM and abassis			
	around	V		
	Connector & terminal			
	(P126) No. 12 (1) Chassis ground			
	(B130) No. 12 (+) — Chassis ground			
-	(-).			
5	ALLEAK INDUT ALANAL FOR FOR KUMANA		B :	
	CHECK INPUT SIGNAL FOR ECM. (USING	Does the value change	Repair poor con-	Go to step 6.
	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.)	Does the value change more than -2.8 kPa (-21.0	Repair poor con- tact in ECM con-	Go to step 6.
	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by	Repair poor con- tact in ECM con- nector.	Go to step 6.
	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor.	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con-	Repair poor con- tact in ECM con- nector.	Go to step 6.
	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE:	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni-	Repair poor con- tact in ECM con- nector.	Go to step 6.
	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with	Repair poor con- tact in ECM con- nector.	Go to step 6.
	 CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the 	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector.	Go to step 6.
	 CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". 	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector.	Go to step 6.
	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector.	Go to step 6.
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6 . Repair harness
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector.
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector. NOTE:
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF.</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector. NOTE: In this case,
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow-
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon).</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing:
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord.</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector. Go to step 7 .	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring har</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector.	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring har- pess connector and chassis ground</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector.	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (P134)
6	 CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring harness connector and chassis ground. 	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector.	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (R134) • Poor contact in
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring har- ness connector and chassis ground. Connector & terminal (R134) No. 5 (+) — Chassis ground (-):</ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor? Is the voltage more than 4.5 V?	Repair poor con- tact in ECM con- nector.	Go to step 6. Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (R134) • Poor contact in coupling connec-

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN FCM AND	Is the resistance less than	Go to step 8	Repair harness
l'	COUPLING CONNECTOR IN REAR WIRING	1Ω ?		and connector.
	HARNESS.			NOTE:
	1) Turn ignition switch to OFF.			In this case,
	2) Disconnect connector from ECM.			repair the follow-
	3) Measure resistance of harness between			ing:
	ECM and rear wiring harness connector.			Open circuit in
	Connector & terminal			harness between
	(B130) NO. $12 - (R134)$ NO. 0.			wiring barness
				connector (R134)
				 Poor contact in
				coupling connec-
				tor (B99)
8	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than	Go to step 9.	Repair ground
	COUPLING CONNECTOR IN REAR WIRING	1 Ω?		short circuit in
	HARNESS.			harness between
	wiring harpess connector and chassis ground			ECIM and rear
	Connector & terminal			connector (R134)
	(B136) No. 16 — (R134) No. 3:			
9	CHECK FUEL TANK CORD.	Is the resistance less than	Go to step 10.	Repair open cir-
	1) Disconnect connector from fuel tank pres-	1 Ω?		cuit in fuel tank
	sure sensor.			cord.
	2) Measure resistance of fuel tank cord.			
	Connector & terminal			
10		Is the resistance loss than	Co to stop 11	Popair opop cir
	Measure resistance of fuel tank cord			cuit in fuel tank
	Connector & terminal			cord.
	(R135) No. 3 — (R47) No. 1:			
11	CHECK POOR CONTACT.	Is there poor contact in fuel	Repair poor con-	Replace fuel tank
	Check poor contact in fuel tank pressure sen-	tank pressure sensor con-	tact in fuel tank	pressure sensor.
	sor connector.	nector?	pressure sensor	<ref. td="" to<=""></ref.>
			connector.	EC(H4)-12 Fuel
				Sensor.>
12	CHECK HARNESS BETWEEN ECM AND	Is the value more than 2.8	Repair batterv	Replace fuel tank
·	FUEL TANK PRESSURE SENSOR CON-	kPa (21.0 mmHg, 0.827	short circuit in	pressure sensor.
	NECTOR.	inHg)?	harness between	<ref. td="" to<=""></ref.>
	1) Turn ignition switch to OFF and Subaru		ECM and fuel	EC(H4)-12 Fuel
	Select Monitor or the OBD-II general scan		tank pressure	Tank Pressure
	tool switch to OFF.		sensor connector.	Sensor.>
	sure sensor			
	3) Turn ignition switch to ON and Subaru			
	Select Monitor or the OBD-II general scan			
	tool switch to ON.			
	4) Read data of fuel tank pressure sensor sig-			
	nal using Subaru Select Monitor or the OBD-II			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"READ CURRENT DATA FOR ENGINE".			
	<ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>			
	OBD-II general scan tool			
	For detailed operation procedures, refer to the			
	General Scan Tool Instruction Manual.			

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AN: DTC P0461 — FUEL LEVEL SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — S00600054

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select	Inspect DTC	Replace fuel level
		Monitor or OBD-II general	P0462 or P0463	sensor <ref. th="" to<=""></ref.>
		scan tool indicate DTC	using "17. List of	FU(H4)-93 Fuel
		P0462 or P0463?	Diagnostic	Level Sensor.>
			Trouble Code	and fuel sub level
			(DTC) for MT	sensor <ref. th="" to<=""></ref.>
			Vehicles". <ref. th="" to<=""><th>FU(H4)-94 Fuel</th></ref.>	FU(H4)-94 Fuel
			EN(H4)-99 List of	Sub Level Sen-
			Diagnostic	sor.>.
			Trouble Code	
			(DTC) for MT	
			Vehicles.>	
			NOTE:	
			In this case, it is	
			not necessary to	
			inspect this	
			trouble.	
Engine (DIAGNOSTICS)

AO: DTC P0462 — FUEL LEVEL SENSOR CIRCUIT LOW INPUT — SUBBOORDESS

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK SPEEDOMETER AND TACHOM- ETER OPERATION IN COMBINATION METER.	Does speedometer and tachometer operate nor- mally?	Go to step 2.	Repair or replace combination meter.

No.	Step	Check	Yes	No
2	CHECK INPUT SIGNAL FOR ECM.	Is the voltage less than	Go to step 4.	Go to step 3.
	1) Turn ignition switch to ON. (Engine OFF)	0.12 V?		
	2) Measure voltage between ECM connector			
	and chassis ground.			
	(B126) No. 27 (+) — Chassis ground			
	(B130) No. 27 (+) — Chassis ground (-).			
3	CHECK INPUT SIGNAL FOR ECM. (USING	Does the value change	Repair poor con-	Even if MIL lights
	SUBARU SELECT MONITOR.) Read data of fuel level sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	less than 0.12 V by shak- ing harness and connector of ECM while monitoring the value with Subaru Select Monitor?	tact in ECM con- nector.	up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: • Poor contact in combination meter connector • Poor contact in ECM connector
				 Poor contact in coupling connec- tors (R98)
4	 CHECK INPUT VOLTAGE OF ECM. 1) Turn ignition switch to OFF. 2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). 3) Turn ignition switch to ON. 4) Measure voltage of harness between ECM connector and chassis ground. Connector & terminal (B136) No. 27 (+) — Chassis ground (-): 	Is the voltage less than 0.12 V?	Go to step 5.	Go to step 7.
5	 CHECK HARNESS BETWEEN ECM AND COMBINATION METER. 1) Turn ignition switch to OFF. 2) Disconnect connector from connector (i10) and ECM connector. 3) Measure resistance between ECM and chassis ground. Connector & terminal (B136) No. 27 — Chassis ground: 	Is the resistance more than 1 MΩ?	Go to step 6 .	Repair ground short circuit in harness between ECM and combi- nation meter con- nector.
6	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than	Repair or replace	Repair open cir-
	COMBINATION METER. Measure resistance between ECM and combi- nation meter connector. Connector & terminal (B136) No. 27 — (i10) No. 3:	10 Ω?	combination meter. <ref. to<br="">IDI-17 Combina- tion Meter Assem- bly.></ref.>	cuit between ECM and combination meter connector. NOTE: In this case, repair the follow- ing: Poor contact in coupling connec-

No.	Step	Check	Yes	No
7	 CHECK FUEL TANK CORD. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel sub level sensor. 3) Measure resistance between fuel sub level sensor and chassis ground. Connector & terminal (R59) No. 1 — Chassis ground: 	Is the resistance more than 1 MΩ?	Go to step 8.	Repair ground short circuit in fuel tank cord.
8	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel pump assembly. 2) Measure resistance between fuel pump assembly and chassis ground. Connector & terminal (R59) No. 2 — Chassis ground: 	Is the resistance more than 1 MΩ?	Go to step 9 .	Repair ground short circuit in fuel tank cord.
9	CHECK FUEL LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel pump assembly. <ref. to<br="">FU(H4)-90 Fuel Pump.> 2) Measure resistance between fuel level sen- sor and terminals with its float set to the full position. <i>Terminals</i> <i>No. 3 — No. 6:</i></ref.>	Is the resistance between 0.5 and 2.5 Ω?	Go to step 10.	Replace fuel level sensor.
10	CHECK FUEL SUB LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel sub level sensor. < Ref. to FU(H4)-94 Fuel Sub Level Sensor.> 2) Measure resistance between fuel sub level sensor and terminals with its float set to the full position. Terminals No. 1 — No. 2:	Is the resistance between 0.5 and 2.5 Ω?	Repair poor con- tact in harness between ECM and combination meter connector.	Replace fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sen- sor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AP: DTC P0463 — FUEL LEVEL SENSOR CIRCUIT HIGH INPUT — SUBSCIENCE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK SPEEDOMETER AND TACHOM- ETER OPERATION IN COMBINATION METER.	Does speedometer and tachometer operate nor- mally?	Go to step 2.	Repair or replace combination meter. <ref. to<br="">IDI-17 Combina- tion Meter Assem- bly.></ref.>

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No.	Step	Check	Yes	No
2	CHECK INPUT SIGNAL FOR ECM. 1) Turn ignition switch to ON. (Engine OFF) 2) Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 27 (+) — Chassis ground (-):	Is the voltage more than 4.75 V?	Go to step 3.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: • Poor contact in fuel pump con- nector • Poor contact in coupling connec- tor (B22, R98 and R57)
3	 CHECK INPUT VOLTAGE OF ECM. 1) Turn ignition switch to OFF. 2) Disconnect combination meter connector (i10) and ECM connector. 3) Turn ignition switch to ON. 4) Measure voltage of harness between ECM and chassis ground. Connector & terminal (B136) No. 27 (+) — Chassis ground (-): 	Is the voltage more than 4.75 V?	Go to step 4.	Repair battery short circuit between ECM and combination meter connector.
4	 CHECK HARNESS BETWEEN ECM AND FUEL TANK CORD. 1) Turn ignition switch to OFF. 2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). 3) Measure resistance between ECM and fuel tank cord. Connector & terminal (B136) No. 27 — (R15) No. 6: 	Is the resistance less than 5 Ω ?	Go to step 5.	Repair open cir- cuit between ECM and fuel tank cord.
5	CHECK HARNESS BETWEEN FUEL TANK CORD AND CHASSIS GROUND. Measure resistance between fuel tank cord and chassis ground. Connector & terminal (R15) No. 5 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 6 .	Repair open cir- cuit between fuel tank cord and chassis ground. NOTE: In this case, repair the follow- ing: Poor contact in coupling connec- tors (B99 and B22)
6	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel level sensor. 2) Measure resistance between fuel level sensor and coupling connector. Connector & terminal (R57) No. 5 — (R58) No. 3: 	Is the resistance less than 10 Ω?	Go to step 7.	Repair open cir- cuit between cou- pling connector and fuel level sen- sor.

No.	Step	Check	Yes	No
7	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel sub level sensor. 2) Measure resistance between fuel level sensor and fuel sub level sensor. Connector & terminal (R58) No. 6 — (R59) No. 2: 	Is the resistance less than 10 Ω?	Go to step 8.	Repair open cir- cuit between fuel level sensor and fuel sub level sen- sor.
8	CHECK FUEL TANK CORD. Measure resistance between fuel sub level sensor and coupling connector. Connector & terminal (R57) No. 6 — (R59) No. 1:	Is the resistance less than 10 Ω ?	Go to step 9.	Repair open cir- cuit between cou- pling connector and fuel sub level sensor.
9	CHECK FUEL LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel pump assembly. <ref. 2-8<br="" to="">[W3A0].> 2) While moving fuel level sensor float up and down, measure resistance between fuel level sensor terminals. <i>Terminals</i> <i>No. 3 — No. 6:</i></ref.>	Is the resistance more than 54.5 Ω?	Replace fuel level sensor. <ref. to<br="">FU(H4)-93 Fuel Level Sensor.></ref.>	Go to step 10.
10	CHECK FUEL SUB LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sensor.> 2) While moving fuel sub level sensor float up and down, measure resistance between fuel sub level sensor terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i></ref.>	Is the resistance more than 41.5 Ω?	Replace fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sen- sor.></ref.>	Replace combina- tion meter. <ref. to IDI-17 Combi- nation Meter Assembly.></ref.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AQ: DTC P0480 — COOLING FAN RELAY 1 CIRCUIT LOW INPUT — SOURCEDER

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:



B2M3939

01 02 P1 P2

No	Stop	Chaok	Vac	No
NO.			Tes	
1	CHECK OUTPUT SIGNAL FROM ECM.	Does voltage change	Repair poor con-	Go to step 2.
	1) Turn ignition switch to UFF.	Detween 0 and 10 v?	tact in ECivi con-	
	2) Connect test mode connector at the lower		nector.	
	side) to the side of the center console box			
	3) Turn ignition switch to ON			
	A) While checking radiator fan relay operation			
	measure voltage between FCM terminal and			
	around.			
	NOTE:			
	Radiator fan relav operation check can be			
	executed using Subaru Select Monitor. For			
	procedure, refer to "Compulsory Valve Opera-			
	tion Check Mode". <ref. com-<="" en(h4)-64="" th="" to=""><th></th><th></th><th></th></ref.>			
	pulsory Valve Operation Check Mode.>			
	Connector & terminal			
	(B134) No. 3 (+) — Chassis ground (–):			
2	CHECK GROUND SHORT CIRCUIT IN	Is the resistance less than	Repair ground	Go to step 3.
	RADIATOR FAN RELAY CONTROL CIR-	10 Ω?	short circuit in	
	CUIT.		radiator fan relay	
	1) Turn ignition switch to OFF.		control circuit.	
	2) Disconnect connectors from ECM.			
	3) Measure resistance of harness between			
	ECM connector and chassis ground.			
	Connector & terminal			
	(B134) NO. 3 — Chassis ground:	t it is a then 40		
3	CHECK POWER SUPPLY FOR RELAY.	Is the voltage more than 10	Go to step 4.	Repair open cir-
	1) Remove main ran relay from A/C relay	V?		cuit in narness
	noider.			Detween ignition
	2) Massure voltage between fuse and relay			switch and ruse
	box (F/R) connector and chassis dround			(F/R) connector
	Connector & terminal			
	(F66) No. 5 (+) — Chassis ground (–):			
4	CHECK MAIN FAN RELAY.	Is the resistance between	Go to step 5.	Replace main fan
`	1) Turn ignition switch to OFF.	87 and 107 Ω ?		relav.
	2) Measure resistance between main fan			
	relav terminals.			
	Terminal			
	No. 5 — No. 6:			
5	CHECK OPEN CIRCUIT IN MAIN FAN	Is the resistance less than	Go to step 6.	Repair harness
	RELAY CONTROL CIRCUIT.	1 Ω?		and connector.
	Measure resistance of harness between ECM			NOTE:
	and main fan relay connector.			In this case,
	Connector & terminal			repair the follow-
	(B134) No. 3 — (F66) No. 6:			ing:
				• Open circuit in
				harness between
				tan relay connec-
				Poor contact in
				tor (F45)
6		Is there poor contact in	Repair poor con	
	Check poor contact in FCM or main fan relay	FCM or main fan relay con-	tact in FCM or	service
	connector	nector?	main fan relav	
			connector.	

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AR: DTC P0483 — COOLING FAN FUNCTION PROBLEM — SOURCE SOUR

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

• TROUBLE SYMPTOM:

- Occurrence of noise
- Overheating

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

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

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:



B2M3939

01 02 P1 P2

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "17. List of Diag- nostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>	Check radiator fan and fan motor. <ref. to<br="">CO(H4)-22 INSPECTION, Radiator Main Fan and Fan Motor.> and <ref. to CO(H4)-24 INSPECTION, Radiator Sub Fan and Fan Motor.></ref. </ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AS: DTC P0500 — VEHICLE SPEED SENSOR MALFUNCTION — SUBSCIENCE

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK SPEEDOMETER OPERATION IN COMBINATION METER.	Does speedometer operate normally?	Go to step 2.	Check speedom- eter and vehicle speed sensor. <ref. idi-19<br="" to="">Speedometer.> and <ref. to<br="">MT-37 Vehicle Speed Sensor.></ref.></ref.>

EN(H4)-234

No.	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from combination meter. 3) Measure resistance between ECM and combination meter. Connector & terminal (B135) No. 24 — (i10) No. 13:	Is the resistance less than 10 Ω?	Repair poor con- tact in ECM con- nector.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and combi- nation meter con- nector • Poor contact in ECM connector • Poor contact in combination meter connector • Poor contact in combination meter connector • Poor contact in coupling connec- tor (B36)

Engine (DIAGNOSTICS)

AT: DTC P0505 — IDLE CONTROL SYSTEM CIRCUIT LOW INPUT — SOURCE

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 5 (+) — Chassis ground (-): 	Is the voltage more than 3 V?	Repair poor con- tact in ECM con- nector.	Go to step 2.
2	CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE. 1) Turn ignition switch to OFF. 2) Disconnect connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between idle air control solenoid valve and engine ground. Connector & terminal (E7) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between idle air control solenoid valve and main relay connector • Poor contact in coupling connec- tor (B22)
3	CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and idle air control solenoid valve con- nector. Connector & terminal (B134) No. 5 — (E7) No. 1:	Is the resistance less than 1 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and idle air control solenoid valve connector • Poor contact in coupling connec- tor (B21)
4	CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B134) No. 5 — Chassis ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and idle air control solenoid valve connector.	Go to step 5 .
5	CHECK GROUND CIRCUIT OF IDLE AIR CONTROL SOLENOID VALVE. Measure resistance of harness between idle air control solenoid valve connector and engine ground. Connector & terminal (E7) No. 3 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 6 .	Repair open cir- cuit in harness between idle air control solenoid valve connector and engine ground terminal.
6	CHECK POOR CONTACT. Check poor contact in ECM and idle air con- trol solenoid valve connectors.	Is there poor contact in ECM and idle air control solenoid valve connectors?	Repair poor con- tact in ECM and idle air control solenoid valve connectors.	Replace idle air control solenoid valve. <ref. to<br="">FU(H4)-53 Idle Air Control Solenoid Valve.></ref.>

Engine (DIAGNOSTICS)

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

S008600B61

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine is difficult to start.
 - Engine does not start.
 - Erroneous idling
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-238

No	Stop	Check	Vos	No
4		Doop the Subary Salast		
1	CHECK ANT OTHER DIC ON DISPLAT.	Monitor or ORD II general	P0505 or P1505	Go to step \mathbf{Z} .
		scan tool indicate DTC	using "17 list of	
		P0505 or P15052	Diagnostic	
			Trouble Code	
			(DTC) for MT	
			Vehicles" <ref th="" to<=""><th></th></ref>	
			EN(H4)-99 List of	
			Diagnostic	
			Trouble Code	
			(DTC) for MT	
			Vehicles.>	
			NOTE:	
			In this case, it is	
			not necessary to	
			inspect DTC	
			P0506.	
2	CHECK IDLE AIR CONTROL SOLENOID	Does air flow out?	Go to step 4.	Replace idle air
	VALVE.			control solenoid
	1) Turn ignition switch to OFF.			valve. <ref. th="" to<=""></ref.>
	2) Remove Idle air control solenoid valve from			
	VEHICLES REMOVAL Idle Air Control Solo			
	noid Valves			Idle Air Control
	3) Using an air dun, force air into idle air con-			Solenoid Valve >
	trol solenoid valve by pass air inlet. Confirm			After replace Go
	that forced air subsequently escapes from			to step 3.
	both main air passage and assist air passage.			
3	CHECK IDLE AIR CONTROL SOLENOID	Is the value more than	Go to step 4.	END.
	VALVE DUTY RATIO.	60%?		
	1) Turn ignition switch to ON.			
	2) Start engine, and warm-up the engine.			
	Turn all accessory switches to OFF.			
	4) Read data of idle air control solenoid valve			
	duty ratio using Subaru Select Monitor or			
	OBD-II general scan tool.			
	NOTE: Subaru Calast Manitan			
	Subaru Select Monitor For detailed exerction precedures, refer to the			
	"READ CURRENT DATA FOR ENGINE"			
	Ref. to EN(H4)-52 Subaru Select Monitor >			
	OBD-II general scan tool			
	For detailed operation procedures, refer to the			
	OBD-II General Scan Tool Instruction Manual.			
4	CHECK BY-PASS AIR LINE.	Does air flow out?	Replace idle air	Replace throttle
	1) Turn ignition switch to OFF.		control solenoid	body. <ref. th="" to<=""></ref.>
	2) Remove idle air control solenoid valve from		valve. <ref. th="" to<=""><th>FU(H4)-17 MT</th></ref.>	FU(H4)-17 MT
	throttle body. <ref. fu(h4)-53="" mt<="" th="" to=""><th></th><th>FU(H4)-54 MT</th><th>VEHICLES,</th></ref.>		FU(H4)-54 MT	VEHICLES,
	VEHICLES, REMOVAL, Idle Air Control Sole-		VEHICLES	INSTALLATION,
	noid Valve.>		INSTALLATION,	Throttle Body.>
	3) Remove throttle body to intake manifold.		Idle Air Control	
	<ret. fu(h4)-16="" mi="" th="" to="" vehicles,<=""><th></th><th>Solenoid Valve.></th><th></th></ret.>		Solenoid Valve.>	
	A) Using an air aun force air inte colonaid			
	y using an air gun, lorce air into solenoid			
	rior Confirm that forced air subsequently			
	escapes from both these areas			
	osoupos nom bom mese areas.			

Engine (DIAGNOSTICS)

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

S008600B62

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0505 or P1505?	Inspect DTC P0505 or P1505 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0507.</ref.>	Go to step 2.
2	CHECK THROTTLE CABLE.	Does throttle cable have play for adjustment?	Go to step 3.	Adjust throttle cable. <ref. to<br="">SP(H4)-6 INSTALLATION, Accelerator Con- trol Cable.></ref.>
3	 CHECK AIR INTAKE SYSTEM. 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. Loose installation of intake manifold, idle air control solenoid valve and throttle body Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket Disconnections of vacuum hoses 	Is there a fault in air intake system?	Repair air suction and leaks.	Replace idle air control solenoid valve. <ref. to<br="">FU(H4)-53 Idle Air Control Solenoid Valve.></ref.>

Engine (DIAGNOSTICS)

AW: DTC P0601 — INTERNAL CONTROL MODULE MEMORY CHECK SUM ERROR — SUGGEOUERS

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine does not start.
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0601?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	It is not necessary to inspect DTC P0601.

Engine (DIAGNOSTICS)

AX: DTC P0703 — BRAKE SWITCH INPUT MALFUNCTION — SOUBCODEG

NOTE:

This DTC code is not applicable to MT vehicles.

AY: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT

MALFUNCTION — SOUBBOOFOS

NOTE:

This DTC code is not applicable to MT vehicles.

AZ: DTC P0710 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT MALFUNCTION — SOURCE

NOTE:

This DTC code is not applicable to MT vehicles.

BA: DTC P0715 — TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT MALFUNCTION — SOUBCODET

NOTE:

This DTC code is not applicable to MT vehicles.

BB: DTC P0720 — OUTPUT SPEED SENSOR (VEHICLE SPEED SENSOR 2) CIRCUIT MALFUNCTION — SOURCE

NOTE:

This DTC code is not applicable to MT vehicles.

BC: DTC P0725 — ENGINE SPEED INPUT CIRCUIT MALFUNCTION — SOURCE

NOTE:

This DTC code is not applicable to MT vehicles.

BD: DTC P0731 — GEAR 1 INCORRECT RATIO — SOUBCOURTO

NOTE:

This DTC code is not applicable to MT vehicles.

BE: DTC P0732 — GEAR 2 INCORRECT RATIO — SOUBBOOL

NOTE:

This DTC code is not applicable to MT vehicles.

BF: DTC P0733 — GEAR 3 INCORRECT RATIO — SOUBBOOD STORED

NOTE:

This DTC code is not applicable to MT vehicles.

BG: DTC P0734 — GEAR 4 INCORRECT RATIO — SOUBCOURTS

NOTE:

This DTC code is not applicable to MT vehicles.

BH: DTC P0740 — TORQUE CONVERTER CLUTCH SYSTEM MALFUNCTION

S008600B74

NOTE:

This DTC code is not applicable to MT vehicles.

BI: DTC P0743 — TORQUE CONVERTER CLUTCH SYSTEM (LOCK-UP DUTY SOLENOID) ELECTRICAL — 500600275

NOTE: This DTC code is not applicate

This DTC code is not applicable to MT vehicles.

EN(H4)-244

Engine (DIAGNOSTICS)

BJ: DTC P0748 — PRESSURE CONTROL SOLENOID (LINE PRESSURE DUTY SOLENOID) ELECTRICAL — 5008000276

NOTE:

This DTC code is not applicable to MT vehicles.

BK: DTC P0753 — SHIFT SOLENOID A (SHIFT SOLONOID 1) ELECTRICAL

S008600B77

NOTE:

This DTC code is not applicable to MT vehicles.

BL: DTC P0758 — SHIFT SOLENOID B (SHIFT SOLONOID 2) ELECTRICAL —

SOOB600B78

This DTC code is not applicable to MT vehicles.

Engine (DIAGNOSTICS)

BM: DTC P1100 — STARTER SWITCH CIRCUIT LOW INPUT — SOUBCODE79

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:



B2M4144

No.	Step	Check	Yes	No
1	CHECK OPERATION OF STARTER MOTOR. Depress the clutch pedal.	Does starter motor operate when ignition switch to "ST"?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open or ground short circuit in harness between ECM and starter motor connector. • Poor contact in ECM connector.	Check starter motor circuit. <ref. to<br="">EN(H4)-78 STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

BN: DTC P1101 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT — SOUBCODE 60

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



No.	Step	Check	Yes	No
1	CHECK INPUT SIGNAL FOR ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B135) No. 26 (+) — Chassis ground (-):	Is the voltage more than 10 V in neutral position?	Go to step 2 .	Go to step 4.
2	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 26 (+) — Chassis ground (-):	Is the voltage less than 1 V in other positions?	Go to step 3.	Go to step 4.
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
4	 CHECK NEUTRAL POSITION SWITCH. 1) Turn ignition switch to OFF. 2) Disconnect connector from transmission harness. 3) Measure resistance between transmission harness and connector terminals. Connector & terminal (T2) No. 1 - No. 2: 	Is the resistance more than 1 M Ω in neutral position?	Go to step 5.	Repair short cir- cuit in transmis- sion harness or replace neutral position switch.
5	CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNEC- TOR. Measure resistance between ECM and chas- sis ground. Connector & terminal (B135) No. 26 — Chassis ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and trans- mission harness connector.	Go to step 6 .
6	CHECK POOR CONTACT. Check poor contact in transmission harness connector.	Is there poor contact in transmission harness con- nector?	Repair poor con- tact in transmis- sion harness con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

BO: DTC P1103 — ENGINE TORQUE CONTROL SIGNAL 1 CIRCUIT MALFUNCTION — SOUTHON - SOUTHON

NOTE:

This DTC code is not applicable to MT vehicles.

BP: DTC P1106 — ENGINE TORQUE CONTROL SIGNAL 2 CIRCUIT

MALFUNCTION — SOUBCOOBES

NOTE:

This DTC code is not applicable to MT vehicles.

BQ: DTC P1110 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT LOW INPUT — SOUBCODE4

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1110?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.> NOTE: Atmospheric pres- sure sensor is built into ECM.</ref.>	It is not necessary to inspect DTC P1110.

Engine (DIAGNOSTICS)

BR: DTC P1111 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT HIGH INPUT — SOUBCODES

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1111?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.> NOTE: Atmospheric pres- sure sensor is built into ECM.</ref.>	It is not necessary to inspect DTC P1111.

BS: DTC P1112 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM — SOURCE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select	Inspect DTC	Replace ECM.
		Monitor or OBD-II general	P0106, P0107,	<ref. th="" to<=""></ref.>
		scan tool indicate DTC	P0108, P1110 or	FU(H4)-67 Engine
		P0106, P0107, P0108,	P1111 using "17.	Control Module.>
		P1110 or P1111?	List of Diagnostic	NOTE:
			Trouble Code	Atmospheric pres-
			(DTC) for MT	sure sensor is
			Vehicles". <ref. th="" to<=""><th>built into ECM.</th></ref.>	built into ECM.
			EN(H4)-99 List of	
			Diagnostic	
			Trouble Code	
			(DTC) for MT	
			Vehicles.>	

BT: DTC P1115 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT HIGH INPUT — SOUBCODET

NOTE:

This DTC code is not applicable to MT vehicles.

BU: DTC P1116 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT LOW INPUT — SOURCE

NOTE:

This DTC code is not applicable to MT vehicles.
Engine (DIAGNOSTICS)

BV: DTC P1120 — STARTER SWITCH CIRCUIT HIGH INPUT — SOURCE SOURCE

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:



B2M4144

No.	Step	Check	Yes	No
1	CHECK OPERATION OF STARTER MOTOR. NOTE: Depress or release the clutch pedal.	Does starter motor operate when ignition switch to "ON"?	Repair battery short circuit in starter motor cir- cuit. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Check starter motor circuit. <ref. to<br="">EN(H4)-78 STARTER MOTOR CIRCUIT, Diagnostics for Engine Starting Failure.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

BW: DTC P1121 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT — SOURCE SOURCE SUBJECT OF STATEMENT

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No	Stop	Chook	Vac	No
110.			res	
1	 CHECK INPOT SIGNAL FOR ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 26 (+) — Chassis ground (-): 	V in neutral position?	Go to step 2.	Go to step 4.
2	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 26 (+) — Chassis ground (-):	Is the voltage less than 1 V in other positions?	Go to step 3.	Go to step 4 .
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
4	CHECK NEUTRAL POSITION SWITCH. Measure resistance between transmission harness connector terminals. Connector & terminal (T2) No. 1 — No. 2:	Is the resistance less than 1 Ω in other positions?	Go to step 5.	Repair open cir- cuit in transmis- sion harness or replace neutral position switch.
5	CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNEC- TOR. 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and transmission harness connector. Connector & terminal (B135) No. 26 — (B25) No. 1:	Is the resistance less than 1 Ω ?	Go to step 6 .	Repair open cir- cuit in harness between ECM and transmission harness connec- tor.
6	CHECK HARNESS BETWEEN ECM AND NEUTRAL POSITION SWITCH CONNEC- TOR. Measure resistance of harness between transmission harness connector and engine ground. Connector & terminal (B25) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Go to step 7.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between transmission har- ness connector and engine grounding termi- nal • Poor contact in coupling connec- tor (B22)
7	CHECK POOR CONTACT. Check poor contact in transmission harness connector.	Is there poor contact in transmission harness connector?	Repair poor con- tact in transmis- sion harness con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

BX: DTC P1130 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (OPEN CIRCUIT) — SOURCE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connec- tor. Connector & terminal (B136) No. 7 — (B18) No. 1: CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B136) No. 20 — (B18) No. 3:	Is the resistance less than 1 Ω ? Is the resistance less than 1 Ω ?	Go to step 2.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and front oxygen (A/F) sen- sor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and front oxygen (A/F) sen- sor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F)
				ECM connector
3	CHECK POOR CONTACT. Check poor contact in front oxygen (A/F) sen- sor connector.	Is there poor contact in front oxygen (A/F) sensor connector?	Repair poor con- tact in front oxy- gen (A/F) sensor connector.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

BY: DTC P1131 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (SHORT CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT (SHORT CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT (SHORT CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT (SHORT CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT (SHORT CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT (SHORT CIRCUIT) — SUBBOORDED STORE CIRCUIT (SHORT CIRCUIT) — SUBBOORDED STORE CIRCUIT (STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT (STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT) — SUBBOORDED STORE CIRCUIT (STORE C

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B136) No. 7 — Chassis ground:	Is the resistance more than 10 Ω?	Go to step 2.	Repair ground short circuit in harness between ECM and front oxygen (A/F) sen- sor connector.
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B136) No. 20 — Chassis ground:	Is the resistance more than 10 Ω?	Go to step 3.	Repair ground short circuit in harness between ECM and front oxygen (A/F) sen- sor connector.
3	CHECK OUTPUT SIGNAL FOR ECM. Connect connector to ECM. Turn ignition switch to ON. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 7 (+) — Chassis ground (-): 	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 5.
4	CHECK OUTPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 7 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and front oxygen (A/F) sen- sor connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Repair poor con- tact in ECM con- nector.
5	CHECK OUTPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 20 (+) — Chassis ground (-):	Is the voltage more than 4.95 V?	Go to step 6.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>
6	CHECK OUTPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 20 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and front oxygen (A/F) sen- sor connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Repair poor con- tact in ECM con- nector.

Engine (DIAGNOSTICS)

BZ: DTC P1132 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT LOW INPUT — SOUBCODB94

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1132 and P0141 at the same time?	Go to step 2.	Go to step 5.
2	CHECK GROUND CIRCUIT OF ECM. Measure resistance of harness between ECM connector and chassis ground. <i>Connector & terminal</i> (B134) No. 35 — Chassis ground:	Is the resistance less than 5 Ω?	Go to step 6.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine ground terminal • Poor contact in ECM connector Poor contact in coupling connec- tor (B22)
3	 CHECK GROUND CIRCUIT OF ECM. 1) Repair harness and connector. NOTE: In this case, repair the following: Open circuit in harness between ECM and engine ground terminal Poor contact in ECM connector Poor contact in coupling connector (B22) 2) Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 34 — Chassis ground: 	Is there resistance less than 5 Ω?	Go to step 6.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine ground terminal • Poor contact in ECM connector Poor contact in coupling connec- tor (B22)
4	 CHECK POWER SUPPLY CIRCUIT OF ECM. 1) Disconnect connectors from ECM. 2) Turn ignition switch to ON. 3) Measure power supply voltage between ECM connector terminals. Connector & terminal (B136) No. 3 (+) — (B134) No. 34 (-): 	Is the voltage more than 8 V?	Go to step 3.	Repair open or ground short cir- cuit in harness of power supply cir- cuit.
5	CHECK POWER SUPPLY CIRCUIT OF ECM. Measure power supply voltage between ECM connector terminals. <i>Connector & terminal</i> (B136) No. 3 (+) — (B136) No. 35 (–):	Is the voltage more than 8 V?	Go to step 4.	Repair open or ground short cir- cuit in harness of power supply cir- cuit.

No.	Step	Check	Yes	No
6	 CHECK CURRENT DATA. 1) Start engine 2) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II scan tool For detailed operation procedures, refer to the OBD-II scan tool 	Is the value more than 0.2 A?	Repair poor con- tact in connector. NOTE: In this case, repair the follow- ing: • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector	Go to step 7.
7	 CHECK OUTPUT SIGNAL FROM ECM. 1) Start and idle the engine. 2) Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-): 	Is the voltage less than 1.0 V?	Go to step 9 .	Go to step 8.
8	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-):	Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Go to step 9 .
9	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-):	Is the voltage less than 1.0 V?	Go to step 11.	Go to step 10.
10	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-):	Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Go to step 11.
11	CHECK POWER SUPPLY TO FRONT OXY- GEN (A/F) SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from front oxygen (A/F) sensor. 3) Turn ignition switch to ON. 4) Measure voltage between front oxygen (A/F) sensor connector and engine ground. <i>Connector & terminal</i> (E18) No. 2 (+) — Engine ground (–):	Is the voltage more than 10 V?	Go to step 12.	Repair power sup- ply line. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in main relay con- nector

No.	Step	Check	Yes	No
No. 12	Step CHECK FRONT OXYGEN (A/F) SENSOR. 1) Turn ignition switch to OFF. 2) Measure resistance between front oxygen (A/F) sensor connector terminals. <i>Terminals</i> <i>No. 2 — No. 4:</i>	Check Is the resistance less than 10 Ω?	Yes Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open or ground short circuit in harness between front oxygen (A/F) sensor and ECM connector • Poor contact in front oxygen (A/F) sensor connector	No Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>
			Poor contact in ECM connector	

Engine (DIAGNOSTICS)

CA: DTC P1133 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT HIGH INPUT — 5008600895

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-): 	Is the voltage more than 8 V?	Go to step 3.	Go to step 2 .
2	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 3.	Go to step 4.
3	CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT. 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. 3) Turn ignition switch to ON. 4) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or the OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool</ref.>	Is the value more than 2.3 A?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	END
4	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-):	Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair battery short circuit in harness between ECM and front oxygen (A/F) sen- sor connector.	Go to step 5.
5	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-):	Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair battery short circuit in harness between ECM and front oxygen (A/F) sen- sor connector.	END

Engine (DIAGNOSTICS)

CB: DTC P1134 — FRONT OXYGEN (A/F) SENSOR MICRO-COMPUTER PROBLEM — SOURCE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1134?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	It is not necessary to inspect DTC P1134.

Engine (DIAGNOSTICS)

CC: DTC P1139 — FRONT OXYGEN (A/F) SENSOR #1 HEATER CIRCUIT RANGE/PERFORMANCE PROBLEM — SOUTHOUSE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Disconnect connectors from ECM and front oxygen (A/F) sensor. 4) Measure resistance of harness between ECM and front oxygen (A/F) sensor connec- tor. Connector & terminal (B134) No. 22 — (B18) No. 4:	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between ECM and front oxygen (A/F) sensor con- nector.
2	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B136) No. 7 — (B18) No. 1:	Is the resistance less than 1 Ω?	Go to step 3.	Repair open cir- cuit in harness between ECM and front oxygen (A/F) sensor con- nector.
3	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B136) No. 20 — (B18) No. 3:	Is the resistance less than 1 Ω?	Go to step 4.	Repair open cir- cuit in harness between ECM and front oxygen (A/F) sensor con- nector.
4	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. Measure resistance of harness between ECM and front oxygen (A/F) sensor connector. Connector & terminal (B136) No. 3 — (B18) No. 2:	Is the resistance less than 1 Ω?	Go to step 5 .	Repair open cir- cuit in harness between ECM and front oxygen (A/F) sensor con- nector.
5	CHECK FRONT OXYGEN (A/F) SENSOR. Measure resistance between front oxygen (A/F) sensor connector terminals. <i>Terminals</i> <i>No. 2 — No. 4:</i>	Is the resistance less than 5 Ω ?	Go to step 6 .	Replace front oxy- gen (A/F) sensor. <ref. fu(h4)-3<br="" to="">Front Oxygen (A/F) Sensor.></ref.>
6	CHECK POOR CONTACT. Check poor contact in ECM and front oxygen (A/F) sensor connector.	Is there poor contact in ECM or front oxygen (A/F) sensor connector?	Repair poor con- tact in ECM or front oxygen (A/F) sensor connector.	Replace front oxy- gen (A/F) sensor. <ref. fu(h4)-3<br="" to="">Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

CD: DTC P1142 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) — SOURCE

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0122 or P0123?	Inspect DTC P0106, P0107, P0108, P0122 or P0123 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P1142.</ref.>	Go to step 2.
2	 CHECK CURRENT DATA. 1) Start engine. 2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value less than 0 kPa (0 mmHg, 0 inHg)?	Replace intake manifold pressure sensor. <ref. to<br="">FU(H4)-49 Intake Manifold Pressure Sensor.></ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

CE: DTC P1151 — REAR OXYGEN SENSOR HEATER CIRCUIT HIGH INPUT

S008600C03

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 21 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 2.	Go to step 3.
2	 CHECK DTC P1151 ON DISPLAY. 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and rear oxygen sensor con- nector. 3) Operate the INSPECTION MODE. <ref. to<br="">EN(H4)-60 OPERATION, Inspection Mode.></ref.> 	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1151?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	END
3	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 21 (+) — Chassis ground (-):	Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Go to step 4.
4	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 21 (+) — Chassis ground (-):	Does the voltage change more than 8 V by shaking harness and connector of rear oxygen sensor while monitoring the value with voltage meter?	Repair poor con- tact in rear oxy- gen sensor con- nector.	Go to step 5 .
5	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 21 (+) — Chassis ground (-):	Does the voltage change more than 8 V by shaking coupling connector (E2) while monitoring the value with voltage meter?	Repair poor con- tact in coupling connector.	Even if MIL lights up, the circuit has returned to normal condition at this time.

Engine (DIAGNOSTICS)

CF: DTC P1400 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW INPUT — SOUBDOCOT

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 1 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 2 .	Go to step 3.

No.	Step	Check	Yes	No
2	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
3	 CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM. 3) Measure resistance of harness between fuel tank pressure control solenoid valve con- nector and chassis ground. Connector & terminal (R68) No. 2 — Chassis ground: 	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector. Connector & terminal (B134) No. 1 — (R68) No. 2:	Is the voltage less than 1 Ω?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector • Poor contact in coupling connec- tors (B99 and R134)
5	CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE. Measure resistance between fuel tank pres- sure control solenoid valve terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i>	Is the resistance between 10 and 100 Ω?	Go to step 6.	Replace fuel tank pressure control solenoid valve. <ref. to<br="">EC(H4)-13 Pres- sure Control Sole- noid Valve.></ref.>

No.	Step	Check	Yes	No
6	CHECK POWER SUPPLY TO FUEL TANK PRESSURE CONTROL SOLENOID VALVE. 1) Turn ignition switch to ON. 2) Measure voltage between fuel tank pres- sure 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 harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector • Poor contact in coupling connec- tors (B97 and R134) • Poor contact in main relay con- nector
7	CHECK POOR CONTACT. Check poor contact in fuel tank pressure con- trol solenoid valve connector.	Is there poor contact in fuel tank pressure control sole- noid valve connector?	Repair poor con- tact in fuel tank pressure control solenoid valve connector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CG: DTC P1420 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT HIGH INPUT — SOUGOOCOB

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating fuel tank pressure control solenoid valve, measure voltage between ECM and chassis ground. NOTE: Fuel tank pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Com- pulsory Valve Operation Check Mode". <ref. to EN(H4)-64 Compulsory Valve Operation Check Mode.> Connector & terminal (B134) No. 1 (+) — Chassis ground (-):</ref. 	Does voltage change between 0 and 10 V?	Go to step 2.	Even if MIL light up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.
2	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 1 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 4.	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact in ECM connector. <ref. to FOREWORD [T3C1].></ref. 	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel tank pres- sure control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 1 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and fuel tank pressure control solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5 .
5	 CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel tank pressure control solenoid valve terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i> 	Is the resistance less than 1 Ω?	Replace fuel tank pressure control solenoid valve <ref. to<br="">EC(H4)-13 Pres- sure Control Sole- noid Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.>.</ref.></ref.>	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

CH: DTC P1422 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH INPUT — 50000000

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operationg purge control solenoid valve, measure voltage between ECM and chassis ground. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Opera- tion Check Mode". <ref. com-<br="" en(h4)-64="" to="">pulsory Valve Operation Check Mode.> Connector & terminal (B134) No. 2 (+) — Chassis ground (-):</ref.>	Does voltage change between 0 and 10 V?	Go to step 2.	Even if MIL light up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.
2	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 2 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 4.	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact in ECM connector. <ref. to FOREWORD [T3C1].></ref. 	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from purge control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 2 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5.
5	 CHECK PURGE CONTROL SOLENOID VALVE. 1) Turn ignition switch to OFF. 2) Measure resistance between purge control solenoid valve terminals. Terminals No. 1 — No. 2: 	Is the resistance less than 1 Ω ?	Replace purge control solenoid valve <ref. to<br="">FU(H4)-8 Purge Control Solenoid Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.></ref.>	Go to step 6 .
6	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

CI: DTC P1423 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL HIGH INPUT — SOURCE 10

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating drain valve, measure volt- age between ECM and chassis ground. NOTE: Drain valve operation can be excecuted using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. compulsory="" en(h6)-64="" opera-<br="" to="" valve="">tion Check Mode.> Connector & terminal (B134) No. 10 (+) — Chassis ground (-):</ref.>	Does voltage change between 0 and 10 V?	Go to step 2.	Even if MIL light up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.
2	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 10 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 4.	Go to step 3 .
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	 CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from drain valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 10 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5.
5	 CHECK DRAIN VALVE. 1) Turn ignition switch to OFF. 2) Measure resistance between drain valve terminals. Terminals No. 1 — No. 2: 	Is the resistance less than 1 Ω ?	Replace drain valve <ref. to<br="">FU(H4)-17 Drain Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.></ref.>	Go to step 6 .
6	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

CJ: DTC P1443 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM — 500600C12

• DTC DETECTING CONDITION:

- Immediately after fault occurrence
- TROUBLE SYMPTOM:
 - Improper fuel supply

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "17. List of Diag- nostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.></ref.>	Go to step 2.
2	 CHECK VENT LINE HOSES. Check the following items. Clogging of vent hoses between canister and drain valve Clogging of vent hose between drain valve and drain filter Clogging of drain filter 	Is there a fault in vent line?	Repair or replace the faulty part.	Go to step 3.
3	CHECK DRAIN VALVE OPERATION. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) Operate drain valve. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to the "Compulsory Valve Operation Check Mode". <ref. en(h4)-64<br="" to="">Compulsory Valve Operation Check Mode.></ref.>	Does drain valve produce operating sound?	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.	Replace drain valve. <ref. to<br="">EC(H4)-17 Drain Valve.></ref.>
Engine (DIAGNOSTICS)

CK: DTC P1505 — IDLE CONTROL SYSTEM CIRCUIT HIGH INPUT — SOUBCOLTS

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK THROTTLE CABLE.	Does throttle cable have play for adjustment?	Go to step 2.	Adjust throttle cable. <ref. to<br="">SP(H4)-6 INSTALLATION, Accelerator Con- trol Cable.></ref.>
2	CHECK OUTPUT SIGNAL FROM ECM. Turn ignition switch to ON. Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 5 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 3.	Go to step 4.
3	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Disconnect connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 5 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Replace idle air control solenoid valve <ref. to<br="">FU(H4)-53 Idle Air Control Solenoid Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.>.</ref.></ref.>
4	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 5 (+) — Chassis ground (–):	Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Contact with SOA service. NOTE: Insepction by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

CL: DTC P1507 — IDLE CONTROL SYSTEM MALFUNCTION (FAIL-SAFE) —

S008600C16

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0116 or P0117 or P0505 or P1505?	Inspect DTC P0116 or P0117 or P0505 or P1505 using "17. List of Diagnostic Trouble Code (DTC) for MT Vehicles". <ref. to<br="">EN(H4)-99 List of Diagnostic Trouble Code (DTC) for MT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P1507.</ref.>	Go to step 2.
2	CHECK THROTTLE CABLE.	Does throttle cable have play for adjustment?	Go to step 2.	Adjust throttle cable. <ref. to<br="">SP(H4)-6 INSTALLATION, Accelerator Con- trol Cable.></ref.>
3	 CHECK AIR INTAKE SYSTEM. 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. Loose installation of intake manifold, idle air control solenoid valve and throttle body Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket Disconnections of vacuum hoses 	Is there a fault in air intake system?	Repair air suction and leaks.	Replace idle air control solenoid valve. <ref. to<br="">FU(H4)-53 Idle Air Control Solenoid Valve.></ref.>

Engine (DIAGNOSTICS)

CM: DTC P1520 — COOLING FAN RELAY 1 CIRCUIT HIGH INPUT — SOUBCOCCES

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

WIRING DIAGRAM:



B2M3939

01 02 P1 P2

No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating radiator fan relay, measure voltage between ECM and chassis ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. compulsory="" en(h4)-64="" to="" valve<br="">Operation Check Mode.> Connector & terminal (B134) No. 3 (+) — Chassis ground (–):</ref.>	Does voltage change between 0 and 10 V?	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.	Go to step 2.
2	CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY CONTROL CIRCUIT. 1) Turn ignition switch to OFF. 2) Remove main fan relay and sub fan relay. (with A/C models) 3) Disconnect test mode connector. 4) Turn ignition switch to ON. 5) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 3 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in radiator fan relay control circuit. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 3.
3	 CHECK MAIN FAN RELAY. 1) Turn ignition switch to OFF. 2) Remove main fan relay. 3) Measure resistance between main fan relay terminals. Terminal No. 1 — No. 3: 	Is the resistance less than 1 Ω ?	Replace main fan relay and ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 4.
4	 CHECK SUB FAN RELAY. 1) Remove sub fan relay. 2) Measure resistance between sub fan relay terminals. Terminal No. 1 — No. 3: 	Is the resistance less than 1 Ω?	Replace sub fan relay and ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5.
5	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CN: DTC P1560 — BACK-UP VOLTAGE CIRCUIT MALFUNCTION — SOUBDOC27

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK INPUT SIGNAL FOR ECM.	Is the voltage more than 10	Repair poor con-	Go to step 2.
	1) Turn ignition switch to OFF.	V?	tact in ECM con-	-
	2) Measure voltage between ECM and chassis ground.		nector.	
	Connector & terminal			
	(B136) No. 9 (+) — Chassis ground (–):			

No.	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR. 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and chassis ground. Connector & terminal (B136) No. 9 — Chassis ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM connector and battery termi- nal.	Go to step 3.
3	CHECK FUSE SBF-5.	Is fuse blown?	Replace fuse.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and battery • Poor contact in ECM connector • Poor contact in battery terminal

Engine (DIAGNOSTICS)

CO: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION — SOURCES

NOTE:

This DTC code is not applicable to MT vehicles.

CP: DTC P1701 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION — S0000029

NOTE:

This DTC code is not applicable to MT vehicles.

CQ: DTC P1702 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT — SOUBDOCCO

NOTE:

This DTC code is not applicable to MT vehicles.

CR: DTC P1703 — LOW CLUTCH TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION — S00000C31

NOTE:

This DTC code is not applicable to MT vehicles.

CS: DTC P1704 — 2-4 BRAKE TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION — 500600C32

NOTE:

This DTC code is not applicable to MT vehicles.

CT: DTC P1705 — 2-4 BRAKE PRESSURE CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION — SOUBCOFIO

NOTE:

This DTC code is not applicable to MT vehicles.

CU: DTC P1722 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT — 500860034

NOTE:

This DTC code is not applicable to MT vehicles.

CV: DTC P1742 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION — SOURCE 35

NOTE:

This DTC code is not applicable to MT vehicles.

19. List of Diagnostic Trouble Code (DTC) for AT Vehicles Storest

A: LIST *S008601A12*

DTC No.	Item	Index
P0031	Front oxygen (A/F) sensor heater circuit low input	<ref. (a="" dtc="" en(h4)-310="" f)<br="" front="" oxygen="" p0031="" to="" —="">SENSOR HEATER CIRCUIT LOW INPUT —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0032	Front oxygen (A/F) sensor heater circuit high input	<ref. (a="" dtc="" en(h4)-314="" f)<br="" front="" oxygen="" p0032="" to="" —="">SENSOR HEATER CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0037	Rear oxygen sensor heater circuit malfunction	<ref. dtc="" en(h4)-316="" oxygen="" p0037="" rear="" sen-<br="" to="" —="">SOR HEATER CIRCUIT MALFUNCTION —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0038	Rear oxygen sensor heater circuit high input	<ref. dtc="" en(h4)-320="" oxygen="" p0038="" rear="" sen-<br="" to="" —="">SOR HEATER CIRCUIT HIGH INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0065	Air assist injector solenoid valve malfunction	<ref. air="" assist="" dtc="" en(h4)-322="" injector<br="" p0065="" to="" —="">SOLENOID VALVE MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0066	Air assist injector solenoid valve circuit low input	<ref. air="" assist="" dtc="" en(h4)-324="" injector<br="" p0066="" to="" —="">SOLENOID VALVE CIRCUIT LOW INPUT —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0067	Air assist injector solenoid valve circuit high input	<ref. air="" assist="" dtc="" en(h4)-326="" injector<br="" p0067="" to="" —="">SOLENOID VALVE CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0106	Pressure sensor circuit range/performance prob- lem (low input)	<ref. dtc="" en(h4)-328="" p0106="" pressure="" sensor<br="" to="" —="">CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0107	Pressure sensor circuit low input	<ref. dtc="" en(h4)-332="" p0107="" pressure="" sensor<br="" to="" —="">CIRCUIT LOW INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0108	Pressure sensor circuit high input	<ref. dtc="" en(h4)-336="" p0108="" pressure="" sensor<br="" to="" —="">CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0111	Intake air temperature sensor circuit range/ performance problem	<ref. air="" dtc="" en(h4)-340="" intake="" p0111="" tempera-<br="" to="" —="">TURE SENSOR CIRCUIT RANGE/PERFORMANCE PROB- LEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0112	Intake air temperature sensor circuit low input	<ref. air="" dtc="" en(h4)-342="" intake="" p0112="" tempera-<br="" to="" —="">TURE SENSOR CIRCUIT LOW INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0113	Intake air temperature sensor circuit high input	<ref. air="" dtc="" en(h4)-344="" intake="" p0113="" tempera-<br="" to="" —="">TURE SENSOR CIRCUIT HIGH INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0117	Engine coolant temperature sensor circuit low input	<ref. coolant<br="" dtc="" en(h4)-348="" engine="" p0117="" to="" —="">TEMPERATURE SENSOR CIRCUIT LOW INPUT —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0118	Engine coolant temperature sensor circuit high input	<ref. coolant<br="" dtc="" en(h4)-350="" engine="" p0118="" to="" —="">TEMPERATURE SENSOR CIRCUIT HIGH INPUT —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR AT VEHICLES

DTC No.	Item	Index
P0121	Throttle position sensor circuit range/ performance problem (high input)	<ref. dtc="" en(h4)-354="" p0121="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0122	Throttle position sensor circuit low input	<ref. dtc="" en(h4)-356="" p0122="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0123	Throttle position sensor circuit high input	<ref. dtc="" en(h4)-360="" p0123="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0125	Insufficient coolant temperature for closed loop fuel control	<ref. cool-<br="" dtc="" en(h4)-362="" insufficient="" p0125="" to="" —="">ANT TEMPERATURE FOR CLOSED LOOP FUEL CON- TROL -, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0128	Thermostat malfunction	<ref. dtc="" en(h4)-364="" mal-<br="" p0128="" thermostat="" to="" —="">FUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0130	Front oxygen (A/F) sensor circuit range/ performance problem (Lean)	<ref. (a="" dtc="" en(h4)-366="" f)<br="" front="" oxygen="" p0130="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LEAN) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0131	Front oxygen (A/F) sensor circuit malfunction (open circuit)	<ref. (a="" dtc="" en(h4)-370="" f)<br="" front="" oxygen="" p0131="" to="" —="">SENSOR CIRCUIT MALFUNCTION (OPEN CIRCUIT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0132	Front oxygen (A/F) sensor circuit malfunction (short circuit)	<ref. (a="" dtc="" en(h4)-372="" f)<br="" front="" oxygen="" p0132="" to="" —="">SENSOR CIRCUIT MALFUNCTION (SHORT CIRCUIT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0133	Front oxygen (A/F) sensor circuit slow response	<ref. (a="" dtc="" en(h4)-374="" f)<br="" front="" oxygen="" p0133="" to="" —="">SENSOR CIRCUIT SLOW RESPONSE —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0136	Rear oxygen sensor circuit malfunction	<ref. dtc="" en(h4)-376="" oxygen="" p0136="" rear="" sen-<br="" to="" —="">SOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0139	Rear oxygen sensor circuit slow response	<ref. dtc="" en(h4)-380="" oxygen="" p0139="" rear="" sen-<br="" to="" —="">SOR CIRCUIT SLOW RESPONSE —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0170	Fuel trim malfunction	<ref. dtc="" en(h4)-382="" fuel="" malfunc-<br="" p0170="" to="" trim="" —="">TION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0181	Fuel temperature sensor A circuit range/ performance problem	<ref. dtc="" en(h4)-384="" fuel="" p0181="" temperature<br="" to="" —="">SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0182	Fuel temperature sensor A circuit low input	<ref. dtc="" en(h4)-386="" fuel="" p0182="" temperature<br="" to="" —="">SENSOR A CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0183	Fuel temperature sensor A circuit high input	<ref. dtc="" en(h4)-388="" fuel="" p0183="" temperature<br="" to="" —="">SENSOR A CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0301	Cylinder 1 misfire detected	<ref. 1="" cylinder="" dtc="" en(h4)-391="" misfire<br="" p0301="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0302	Cylinder 2 misfire detected	<ref. 2="" cylinder="" dtc="" en(h4)-391="" misfire<br="" p0302="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

EN(H4)-302

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR AT VEHICLES Engine (DIAGNOSTICS)

DTC No.	Item	Index
P0303	Cylinder 3 misfire detected	<ref. 3="" cylinder="" dtc="" en(h4)-391="" misfire<br="" p0303="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0304	Cylinder 4 misfire detected	<ref. 4="" cylinder="" dtc="" en(h4)-392="" misfire<br="" p0304="" to="" —="">DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0327	Knock sensor circuit low input	<ref. cir-<br="" dtc="" en(h4)-400="" knock="" p0327="" sensor="" to="" —="">CUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0328	Knock sensor circuit high input	<ref. cir-<br="" dtc="" en(h4)-402="" knock="" p0328="" sensor="" to="" —="">CUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0335	Crankshaft position sensor circuit malfunction	<ref. crankshaft="" dtc="" en(h4)-404="" p0335="" posi-<br="" to="" —="">TION SENSOR CIRCUIT MALFUNCTION —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0336	Crankshaft position sensor circuit range/ performance problem	<ref. crankshaft="" dtc="" en(h4)-406="" p0336="" posi-<br="" to="" —="">TION SENSOR CIRCUIT RANGE/PERFORMANCE PROB- LEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0340	Camshaft position sensor circuit malfunction	<ref. camshaft="" dtc="" en(h4)-408="" p0340="" position<br="" to="" —="">SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0341	Camshaft position sensor circuit range/ performance problem	<ref. camshaft="" dtc="" en(h4)-410="" p0341="" position<br="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0420	Catalyst system efficiency below threshold	<ref. catalyst="" dtc="" en(h4)-414="" p0420="" system<br="" to="" —="">EFFICIENCY BELOW THRESHOLD —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0442	Evaporative emission control system malfunction	<ref. dtc="" emis-<br="" en(h4)-416="" evaporative="" p0442="" to="" —="">SION CONTROL SYSTEM MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0444	Evaporative emission control system purge con- trol valve circuit low input	<ref. dtc="" emis-<br="" en(h4)-420="" evaporative="" p0444="" to="" —="">SION CONTROL SYSTEM PURGE CONTROL VALVE CIR- CUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0445	Evaporative emission control system purge con- trol valve circuit high input	<ref. dtc="" emis-<br="" en(h4)-424="" evaporative="" p0445="" to="" —="">SION CONTROL SYSTEM PURGE CONTROL VALVE CIR- CUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0447	Evaporative emission control system vent control low input	<ref. dtc="" emis-<br="" en(h4)-426="" evaporative="" p0447="" to="" —="">SION CONTROL SYSTEM VENT CONTROL LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0448	Evaporative emission control system vent control high input	<ref. dtc="" emis-<br="" en(h4)-430="" evaporative="" p0448="" to="" —="">SION CONTROL SYSTEM VENT CONTROL HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0451	Evaporative emission control system pressure sensor range/performance problem	<ref. dtc="" emis-<br="" en(h4)-432="" evaporative="" p0451="" to="" —="">SION CONTROL SYSTEM PRESSURE SENSOR RANGE/ PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0452	Evaporative emission control system pressure sensor low input	<ref. dtc="" emis-<br="" en(h4)-434="" evaporative="" p0452="" to="" —="">SION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR AT VEHICLES

DTC No.	Item	Index
P0453	Evaporative emission control system pressure sensor high input	<ref. dtc="" emis-<br="" en(h4)-438="" evaporative="" p0453="" to="" —="">SION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0456	Evaporative emission control system malfunction	<ref. dtc="" emis-<br="" en(h4)-442="" evaporative="" p0456="" to="" —="">SION CONTROL SYSTEM MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0461	Fuel level sensor circuit range/performance prob- lem	<ref. dtc="" en(h4)-446="" fuel="" level="" p0461="" sensor<br="" to="" —="">CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnos- tic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0462	Fuel level sensor circuit low input	<ref. dtc="" en(h4)-448="" fuel="" level="" p0462="" sensor<br="" to="" —="">CIRCUIT LOW INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0463	Fuel level sensor circuit high input	<ref. dtc="" en(h4)-452="" fuel="" level="" p0463="" sensor<br="" to="" —="">CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0464	Fuel level sensor intermittent input	<ref. dtc="" en(h4)-456="" fuel="" level="" p0464="" sensor<br="" to="" —="">INTERMITTENT INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0480	Cooling fan relay 1 circuit low input	<ref. cooling="" dtc="" en(h4)-458="" fan="" p0480="" relay<br="" to="" —="">1 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0483	Cooling fan function problem	<ref. cooling="" dtc="" en(h4)-462="" fan="" func-<br="" p0483="" to="" —="">TION PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0500	Vehicle speed sensor malfunction	<ref. dtc="" en(h4)-466="" p0500="" sen-<br="" speed="" to="" vehicle="" —="">SOR MALFUNCTION —, Diagnostic Procedure with Diagnos- tic Trouble Code (DTC) for AT Vehicles.></ref.>
P0506	Idle control system RPM lower than expected	<ref. control="" dtc="" en(h4)-468="" idle="" p0506="" sys-<br="" to="" —="">TEM RPM LOWER THAN EXPECTED —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0507	Idle control system RPM higher than expected	<ref. control="" dtc="" en(h4)-470="" idle="" p0507="" sys-<br="" to="" —="">TEM RPM HIGHER THAN EXPECTED —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0512	Starter switch circuit high input	<ref. dtc="" en(h4)-472="" p0512="" starter="" switch<br="" to="" —="">CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0604	Internal control module memory check sum error	<ref. control<br="" dtc="" en(h4)-474="" internal="" p0604="" to="" —="">MODULE MEMORY CHECK SUM ERROR —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0703	Brake switch input malfunction	<pre><ref. brake="" dtc="" en(h4)-476="" input<br="" p0703="" switch="" to="" —="">MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.></pre>
P0705	Transmission range sensor circuit malfunction	<ref. dtc="" en(h4)-478="" p0705="" to="" transmission<br="" —="">RANGE SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0710	Transmission fluid temperature sensor circuit malfunction	<ref. dtc="" en(h4)-478="" fluid<br="" p0710="" to="" transmission="" —="">TEMPERATURE SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR AT VEHICLES Engine (DIAGNOSTICS)

DTC No.	Item	Index
P0715	Torque converter turbine speed sensor circuit malfunction	<ref. converter<br="" dtc="" en(h4)-478="" p0715="" to="" torque="" —="">TURBINE SPEED SENSOR CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0720	Output speed sensor (vehicle speed sensor 2) circuit malfunction	<ref. dtc="" en(h4)-479="" output="" p0720="" sen-<br="" speed="" to="" —="">SOR (VEHICLE SPEED SENSOR 2) CIRCUIT MALFUNC- TION -, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0725	Engine speed input circuit malfunction	<ref. dtc="" en(h4)-479="" engine="" input<br="" p0725="" speed="" to="" —="">CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0731	Gear 1 incorrect ratio	<ref. 1="" dtc="" en(h4)-479="" gear="" incorrect<br="" p0731="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0732	Gear 2 incorrect ratio	<ref. 2="" dtc="" en(h4)-479="" gear="" incorrect<br="" p0732="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0733	Gear 3 incorrect ratio	<ref. 3="" dtc="" en(h4)-479="" gear="" incorrect<br="" p0733="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0734	Gear 4 incorrect ratio	<ref. 4="" dtc="" en(h4)-480="" gear="" incorrect<br="" p0734="" to="" —="">RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0741	Torque converter clutch system malfunction	<ref. converter<br="" dtc="" en(h4)-482="" p0741="" to="" torque="" —="">CLUTCH SYSTEM MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0743	Torque converter clutch system (Lock-up duty solenoid) electrical	<ref. converter<br="" dtc="" en(h4)-484="" p0743="" to="" torque="" —="">CLUTCH SYSTEM (LOCK-UP DUTY SOLENOID) ELECTRI- CAL —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0748	Pressure control solenoid (Line pressure duty solenoid) electrical	<ref. control<br="" dtc="" en(h4)-484="" p0748="" pressure="" to="" —="">SOLENOID (LINE PRESSURE DUTY SOLENOID) ELECTRI- CAL —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0753	Shift solenoid A (Shift solenoid 1) electrical	<ref. a<br="" dtc="" en(h4)-484="" p0753="" shift="" solenoid="" to="" —="">(SHIFT SOLENOID 1) ELECTRICAL —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0758	Shift solenoid B (Shift solenoid 2) electrical	<ref. b<br="" dtc="" en(h4)-485="" p0758="" shift="" solenoid="" to="" —="">(SHIFT SOLENOID 2) ELECTRICAL —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0778	2-4 brake pressure control solenoid valve circuit malfunction	<ref. 2-4="" brake="" dtc="" en(h4)-485="" p0778="" pressure<br="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P0785	2-4 brake timing control solenoid valve circuit malfunction	<ref. 2-4="" brake="" dtc="" en(h4)-485="" p0785="" timing<br="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1110	Atmospheric pressure sensor low input	<ref. atmospheric="" dtc="" en(h4)-486="" p1110="" pres-<br="" to="" —="">SURE SENSOR CIRCUIT LOW INPUT —, Diagnostic Proce- dure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1111	Atmospheric pressure sensor high input	<ref. atmospheric="" dtc="" en(h4)-490="" p1111="" pres-<br="" to="" —="">SURE SENSOR CIRCUIT HIGH INPUT —, Diagnostic Pro- cedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR AT VEHICLES

DTC No.	Item	Index
P1112	Atmospheric pressure sensor range/performance problem	<ref. atmospheric="" dtc="" en(h4)-494="" p1112="" pres-<br="" to="" —="">SURE SENSOR CIRCUIT RANGE/PERFORMANCE PROB- LEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1137	Front oxygen (A/F) sensor circuit range/ perfomance problem	<ref. (a="" dtc="" en(h4)-496="" f)<br="" front="" oxygen="" p1137="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1142	Throttle position sensor circuit range/ performance problem (low input)	<ref. dtc="" en(h4)-500="" p1142="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1146	Pressure sensor circuit range/performance prob- lem (high input)	<ref. dtc="" en(h4)-502="" p1146="" pressure="" sensor<br="" to="" —="">CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1400	Fuel tank pressure control solenoid valve circuit low input	<ref. dtc="" en(h4)-506="" fuel="" p1400="" pres-<br="" tank="" to="" —="">SURE CONTROL SOLENOID VALVE CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1420	Fuel tank pressure control solenoid valve circuit high input	<ref. dtc="" en(h4)-510="" fuel="" p1420="" pres-<br="" tank="" to="" —="">SURE CONTROL SOLENOID VALVE CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1442	Fuel level sensor circuit range/performance prob- lem 2	<ref. dtc="" en(h4)-512="" fuel="" level="" p1442="" sensor<br="" to="" —="">CIRCUIT RANGE/PERFORMANCE PROBLEM 2 —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1443	Evaporative emission control system vent control function problem	<ref. dtc="" emis-<br="" en(h4)-514="" evaporative="" p1443="" to="" —="">SION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1480	Cooling fan relay 1 circuit high input	<ref. cooling="" dtc="" en(h4)-516="" fan="" p1480="" relay<br="" to="" —="">1 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1507	Idle control system malfunction (fail-safe)	<ref. control="" dtc="" en(h4)-520="" idle="" p1507="" sys-<br="" to="" —="">TEM MALFUNCTION (FAIL-SAFE) —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1510	Idle air control solenoid valve signal 1 circuit low input	<ref. air="" control<br="" dtc="" en(h4)-522="" idle="" p1510="" to="" —="">SOLENOID VALVE SIGNAL 1 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1511	Idle air control solenoid valve signal 1 circuit high input	<ref. air="" control<br="" dtc="" en(h4)-522="" idle="" p1511="" to="" —="">SOLENOID VALVE SIGNAL 1 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1512	Idle air control solenoid valve signal 2 circuit low input	<ref. air="" control<br="" dtc="" en(h4)-522="" idle="" p1512="" to="" —="">SOLENOID VALVE SIGNAL 2 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1513	Idle air control solenoid valve signal 2 circuit high input	<ref. air="" control<br="" dtc="" en(h4)-522="" idle="" p1513="" to="" —="">SOLENOID VALVE SIGNAL 2 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR AT VEHICLES Engine (DIAGNOSTICS)

DTC No.	ltem	Index
P1514	Idle air control solenoid valve signal 3 circuit low input	<ref. air="" control<br="" dtc="" en(h4)-522="" idle="" p1514="" to="" —="">SOLENOID VALVE SIGNAL 3 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1515	Idle air control solenoid valve signal 3 circuit high input	<ref. air="" control<br="" dtc="" en(h4)-522="" idle="" p1515="" to="" —="">SOLENOID VALVE SIGNAL 3 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1516	Idle air control solenoid valve signal 4 circuit low input	<ref. air="" control<br="" dtc="" en(h4)-524="" idle="" p1516="" to="" —="">SOLENOID VALVE SIGNAL 4 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1517	Idle air control solenoid valve signal 4 circuit high input	<ref. air="" control<br="" dtc="" en(h4)-528="" idle="" p1517="" to="" —="">SOLENOID VALVE SIGNAL 4 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1518	Starter switch circuit low input	<ref. dtc="" en(h4)-530="" p1518="" starter="" switch<br="" to="" —="">CIRCUIT LOW INPUT —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1540	Vehicle speed sensor malfunction 2	<ref. dtc="" en(h4)-532="" p1540="" sen-<br="" speed="" to="" vehicle="" —="">SOR MALFUNCTION 2 —, Diagnostic Procedure with Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1560	Back-up voltage circuit malfunction	<ref. back-up="" dtc="" en(h4)-534="" p1560="" to="" voltage<br="" —="">CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1590	Neutral position switch circuit high input	<ref. dtc="" en(h4)-536="" neutral="" p1590="" position<br="" to="" —="">SWITCH CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1591	Neutral position switch circuit low input	<ref. dtc="" en(h4)-540="" neutral="" p1591="" position<br="" to="" —="">SWITCH CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1594	Automatic transmission diagnosis input signal circuit malfunction	<ref. automatic="" dtc="" en(h4)-542="" p1594="" to="" trans-<br="" —="">MISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNC- TION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1595	Automatic transmission diagnosis input signal circuit low input	<ref. automatic="" dtc="" en(h4)-544="" p1595="" to="" trans-<br="" —="">MISSION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1596	Automatic transmission diagnosis input signal circuit high input	<ref. automatic="" dtc="" en(h4)-546="" p1596="" to="" trans-<br="" —="">MISSION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1698	Engine torque control cut signal circuit low input	<ref. dtc="" en(h4)-548="" engine="" p1698="" to="" torque<br="" —="">CONTROL CUT SIGNAL CIRCUIT LOW INPUT —, Diagnos- tic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1699	Engine torque control cut signal circuit high input	<ref. dtc="" en(h4)-550="" engine="" p1699="" to="" torque<br="" —="">CONTROL CUT SIGNAL CIRCUIT HIGH INPUT —, Diagnos- tic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1700	Throttle position sensor circuit malfunction for automatic transmission	<ref. dtc="" en(h4)-552="" p1700="" position<br="" throttle="" to="" —="">SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

LIST OF DIAGNOSTIC TROUBLE CODE (DTC) FOR AT VEHICLES

DTC No.	Item	Index
P1701	Cruise control set signal circuit malfunction for automatic transmission	<ref. control<br="" cruise="" dtc="" en(h4)-554="" p1701="" to="" —="">SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1703	Low clutch timing control solenoid valve circuit malfunction	<ref. clutch="" dtc="" en(h4)-556="" low="" p1703="" timing<br="" to="" —="">CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1711	Engine torque control signal 1 circuit malfunction	<ref. dtc="" en(h4)-558="" engine="" p1711="" to="" torque<br="" —="">CONTROL SIGNAL 1 CIRCUIT MALFUNCTION —, Diagnos- tic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
P1712	Engine torque control signal 2 circuit malfunction	<ref. dtc="" en(h4)-560="" engine="" p1712="" to="" torque<br="" —="">CONTROL SIGNAL 2 CIRCUIT MALFUNCTION —, Diagnos- tic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

MEMO:

Engine (DIAGNOSTICS)

20. Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles SUBBLE SUB

A: DTC P0031 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT LOW INPUT — SOUBCREFES

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1132 and P0141 at the same time?	Go to step 2.	Go to step 5.
2	CHECK POWER SUPPLY TO FRONT OXY- GEN (A/F) SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from front oxygen (A/F) sensor. 3) Turn ignition switch to ON. 4) Measure voltage between front oxygen (A/F) sensor connector and engine ground. <i>Connector & terminal</i> (B18) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 3.	Repair power sup- ply line. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and front oxygen (A/F) sensor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in main relay con- nector
3	CHECK GROUND CIRCUIT OF ECM. Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 35 — Chassis ground:	Is the resistance less than 5 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine ground terminal • Poor contact in ECM connector Poor contact in coupling connec- tor (B22)
4	CHECK GROUND CIRCUIT OF ECM. 1) Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B134) No. 34 — Chassis ground:	Is there resistance less than 5 Ω?	Go to step 5 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine ground terminal • Poor contact in ECM connector Poor contact in coupling connec- tor (B22)

No.	Step	Check	Yes	No
No. 5	StepCHECK CURRENT DATA.1) Start engine2) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or OBD-II general scan tool. NOTE:• Subaru Select Monitor 	Check Is the value more than 0.2 A? Is the voltage less than 1.0	Yes Repair poor con- tact in connector. NOTE: In this case, repair the follow- ing: • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector Go to step 8.	No Go to step 6. Go to step 7.
	 Start and idle the engine. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-): 	V?		
7	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-):	Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Go to step 8.
8	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-):	Is the voltage less than 1.0 V?	Go to step 10.	Go to step 9.
9	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-):	Does the voltage change less than 1.0 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Go to step 10.
10	CHECK FRONT OXYGEN (A/F) SENSOR. 1) Turn ignition switch to OFF. 2) Measure resistance between front oxygen (A/F) sensor connector terminals. <i>Terminals</i> <i>No. 2 — No. 5:</i>	Is the resistance less than 10 Ω?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open or ground short circuit in harness between front oxygen (A/F) sensor and ECM connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector	Replace front oxy- gen (A/F) sensor. <ref. to<br="">EC(H4)-63 Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

B: DTC P0032 — FRONT OXYGEN (A/F) SENSOR HEATER CIRCUIT HIGH INPUT — SOUBCATER

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-): 	Is the voltage more than 8 V?	Go to step 3.	Go to step 2 .
2	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-):	Is the voltage more than 8 V?	Go to step 3.	Go to step 4.
3	CHECK FRONT OXYGEN (A/F) SENSOR HEATER CURRENT. 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and front oxygen (A/F) sensor connector. 3) Turn ignition switch to ON. 4) Read data of front oxygen (A/F) sensor heater current using Subaru Select Monitor or the OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool</ref.>	Is the value more than 2.3 A?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	END
4	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 23 (+) — Chassis ground (-):	Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair battery short circuit in harness between ECM and front oxygen (A/F) sen- sor connector.	Go to step 5.
5	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 22 (+) — Chassis ground (-):	Does the voltage change more than 8 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair battery short circuit in harness between ECM and front oxygen (A/F) sen- sor connector.	END

Engine (DIAGNOSTICS)

C: DTC P0037 — REAR OXYGEN SENSOR HEATER CIRCUIT MALFUNCTION

S008602F85

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



	e .			
No.	Step	Check	Yes	No
1	CHECK GROUND CIRCUIT OF ECM.	Is the resistance less than	Go to step 3.	Go to step 2.
	1) Turn ignition switch to OFF.	5 Ω?		
	2) Disconnect connector from ECM.			
	3) Measure resistance of harness between			
	ECM connector and chassis ground.			
	Connector & terminal			
	(B134) No. 35 — Chassis ground:			
2	CHECK GROUND CIRCUIT OF ECM.	Is the resistance less than	Go to step 3.	Repair harness
-	1) Repair harness and connector.	5Ω ?		and connector.
	NOTE:			NOTE:
	In this case, repair the following:			In this case
	• Open circuit in barness between FCM and			repair the follow-
	engine around terminal			ing.
	Poor contact in ECM connector			• Open circuit in
	Poor contact in coupling connector (P22)			Open circuit in
	Poor contact in coupling connector (B22) Maggure registered of hermony hetwaen			ECM and anging
	2) Measure resistance of namess between			
				ground terminal
	Connector & terminal			Poor contact in
	(B134) No. 34 — Chassis ground:			ECIVI connector
				Poor contact in
				coupling connec-
				tor (B22)
3	CHECK CURRENT DATA.	Is the value more than 0.2	Repair connector.	Go to step 4.
	1) Start engine.	A?	NOTE:	
	2) Read data of rear oxygen sensor heater		In this case,	
	current using Subaru Select Monitor or OBD-II		repair the follow-	
	general scan tool.		ing:	
	NOTE:		Poor contact in	
	 Subaru Select Monitor 		rear oxygen sen-	
	For detailed operation procedure, refer to the		sor connector	
	"READ CURRENT DATA FOR ENGINE".		 Poor contact in 	
	<ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>		rear oxvgen sen-	
	OBD-II scan tool		sor connecting	
	For detailed operation procedures, refer to the		harness connector	
	OBD-II General Scan Tool Instruction Manual		 Poor contact in 	
			FCM connector	
4		In the voltage lose than 1.0	Co to oton 7	Co to otop E
4	CHECK OUTFUT SIGNAL FROM EGM.		GO IO SIEP 7.	G0 10 Step 5 .
		V ?		
	2) Measure voltage between ECIVI connector			
	and chassis ground.			
	Connector & terminal			
	(B134) No. 21 (+) — Chassis ground			
<u> </u>	(-):			
5	CHECK OUTPUT SIGNAL FROM ECM.	Does the voltage change	Repair poor con-	Go to step 6.
	Measure voltage between ECM connector	less than 1.0 V by shaking	tact in ECM con-	
	and chassis ground.	harness and connector of	nector.	
	Connector & terminal	ECM while monitoring the		
	(B134) No. 21 (+) — Chassis ground	value with voltage meter?		
	(–):			
6	CHECK OUTPUT SIGNAL FROM ECM.	Is the voltage less than 1.0	Replace ECM.	Repair battery
	1) Disconnect connector from rear oxygen	V?	<ref. th="" to<=""><th>short circuit in</th></ref.>	short circuit in
	sensor.		FU(H4)-67 Enaine	harness between
	2) Measure voltage between ECM connector		Control Module.>	ECM and rear
	and chassis ground.			oxvgen sensor
	Connector & terminal			connector. After
	(B134) No. 21 (+) — Chassis ground			repair, replace
	(_):			FCM. <ref th="" to<=""></ref>
				FU(H4)-67 Engine
				Control Module.>
				Control Module.>

No.	Step	Check	Yes	No
7	CHECK POWER SUPPLY TO REAR OXY- GEN SENSOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from rear oxygen sensor. 3) Turn ignition switch to ON. 4) Measure voltage between rear oxygen sen- sor connector and engine ground or chassis ground. Connector & terminal (T6) No. 2 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 8.	Repair power sup- ply line. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and rear oxygen sen- sor connector • Poor contact in rear oxygen sen- sor connector • Poor contact in coupling connec- tor (T5)
8	CHECK REAR OXYGEN SENSOR. 1) Turn ignition switch to OFF. 2) Measure resistance between rear oxygen sensor connector terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i>	Is the resistance less than $30 \ \Omega?$	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between rear oxygen sen- sor and ECM con- nector • Poor contact in rear oxygen sen- sor connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (T5)	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

D: DTC P0038 — REAR OXYGEN SENSOR HEATER CIRCUIT HIGH INPUT —

S008602F86

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B134) No. 21 (+) — Chassis ground	Is the voltage more than 8 V?	Go to step 2.	Go to step 3.
	(-):			

No.	Step	Check	Yes	No
2	 CHECK CURRENT DATA. 1) Turn ignition switch to OFF. 2) Repair battery short circuit in harness between ECM and rear oxygen sensor connector. 3) Turn ignition switch to ON. 4) Read data of rear oxygen sensor heater current using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool 	Is the value more than 7 A?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	END
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	END

Engine (DIAGNOSTICS)

E: DTC P0065 — AIR ASSIST INJECTOR SOLENOID VALVE MALFUNCTION

S008602F87

- DTC DETECTING CONDITION:
 - Immediately after fault occurrence
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK AIR ASSIST INJECTOR SOLENOID VALVE OPERATION. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) Operate air assist injector solenoid valve. NOTE: Air assist injector solenoid valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to the "Com- pulsory Valve Operation Check Mode". <ref. to EN(H4)-64 Compulsory Valve Operation Check Mode.></ref. 	Does air assist injector solenoid valve operating sound?	Go to step 3.	Replace air assist injector solenoid valve. <ref. to<br="">FU(H4)-55 Air Assist Injector Solenoid Valve.></ref.>
3	CHECK AIR BY-PASS HOSES. Use your mouth to blow through air by-pass hose to make sure that there is a smooth air flow (no clogging).	Is air by-pass hose dam- aged?	Repair or replace air by-pass hoses.	Go to step 4.
4	 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Remove fuel injector. <ref. fu(h4)-56<br="" to="">REMOVAL, Fuel Injector.></ref.> 3) Check for clogged fuel injectors. 	Is fuel injector clogged?	Replace fuel injector. <ref. to<br="">FU(H4)-60 INSTALLATION, Fuel Injector.></ref.>	Replace air assist injector solenoid valve. <ref. to<br="">FU(H4)-55 Air Assist Injector Solenoid Valve.></ref.>

Engine (DIAGNOSTICS)

F: DTC P0066 — AIR ASSIST INJECTOR SOLENOID VALVE CIRCUIT LOW INPUT — SOUGARE

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 24 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair poor con- tact in ECM con- nector.	Go to step 2.
2	CHECK POWER SUPPLY TO AIR ASSIST INJECTOR SOLENOID VALVE. 1) Turn ignition switch to OFF. 2) Disconnect connector from air assist injec- tor solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between air assist injector solenoid valve and engine ground. Connector & terminal (E42) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between air assist injector solenoid valve and main relay connector • Poor contact in coupling connec- tor (B22)
3	CHECK HARNESS BETWEEN ECM AND AIR ASSIST INJECTOR SOLENOID VALVE CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and air assist injector solenoid valve connector. Connector & terminal (B134) No. 24 — (E42) No. 1:	Is the resistance less than 1 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and air assist injector solenoid valve connector • Poor contact in coupling connec- tor (B22)
4	CHECK HARNESS BETWEEN ECM AND AIR ASSIST INJECTOR SOLENOID VALVE CONNECTOR. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B134) No. 24 — Chassis ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and air assist injector solenoid valve connector.	Go to step 5.
5	CHECK POOR CONTACT. Check poor contact in ECM and air assist injector solenoid valve connectors.	Is there poor contact in ECM and air assist injector solenoid valve connectors?	Repair poor con- tact in ECM and air assist injector solenoid valve connectors.	Replace air assist injector solenoid valve. <ref. to<br="">FU(H4)-55 Air Assist Injector Solenoid Valve.></ref.>
Engine (DIAGNOSTICS)

G: DTC P0067 — AIR ASSIST INJECTOR SOLENOID VALVE CIRCUIT HIGH INPUT — SOUBCEFES

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 24 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 2.	Go to step 3.
2	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Disconnect connector from air assist injector solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 24 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and air assist injector solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Replace air assist injector solenoid valve <ref. to<br="">FU(H4)-55 Air Assist Injector Solenoid Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.></ref.>
3	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 24 (+) — Chassis ground (-):	Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair battery short circuit in harness between ECM and air assist injector solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Contact with SOA service. NOTE: Insepction by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

H: DTC P0106 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) — 500802790

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY. NOTE: In this case, it is not necessary to inspect DTC P0106.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107, P0108 or P1112?	Inspect DTC P0107, P0108 or P1112 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2 .
2	CHECK AIR INTAKE SYSTEM.	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair air intake system.	Go to step 3.
3	CHECK PRESSURE 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 the selector lever in "N" or "P" position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sen- sor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4)-52 Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general Scan Tool Instruction Manual. Specification: • Intake manifold absolute pressure Ignition ON 73.3 — 106.6 kPa (550 — 800 mmHg, 21.65 — 31.50 inHg) Idling 20.0 — 46.7 kPa (150 — 350 mmHg, 5.91 — 13.78 inHg)	Is the value within the specifications?	Go to step 4.	Replace intake air temperature sen- sor and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>
4	 CHECK THROTTLE POSITION. Read data of throttle position signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool 	Is throttle positioning ratio equal to or less than 5% when throttle is fully closed?	Go to step 5 .	Adjust or replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

No.	Step	Check	Yes	No
5	CHECK THROTTLE POSITION.	Is throttle positioning ratio equal to or more than 85% when throttle is fully open?	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

I: DTC P0107 — PRESSURE SENSOR CIRCUIT LOW INPUT — SOUBCOLB 12

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



Engine (DIAGNOSTICS)

No.	Step	Check	Yes	No
1	CHECK CURRENT DATA	Is the value less than 13.3	Go to step 3	Go to step 2
·	1) Start engine.	kPa (100 mmHg, 3.94		
	2) Read the data of intake manifold absolute	inHg)?		
	pressure signal using Subaru Select Monitor			
	or OBD-II general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	READ CORRENT DATA FOR ENGINE .			
	OBD-II general scan tool			
	For detailed operation procedures, refer to the			
	OBD-II General Scan Tool Instruction Manual.			
2	CHECK POOR CONTACT.	Is there poor contact in	Repair poor con-	Even if MIL lights
	Check poor contact in ECM and pressure	ECM or pressure sensor	tact in ECM or	up, the circuit has
	sensor connector.	connector?	pressure sensor	returned to a nor-
			connector.	mal condition at
				this time.
3	CHECK INPUT SIGNAL FOR ECM.	Is the voltage more than	Go to step 5.	Go to step 4.
	Measure voltage between ECM connector	4.5 V ?		
	Connector & terminal			
	(B136) No. 15 (+) — Chassis ground			
	(-):			
4	CHECK INPUT SIGNAL FOR ECM.	Does the voltage change	Repair poor con-	Contact with SOA
	Measure voltage between ECM connector	more than 4.5 V by shaking	tact in ECM con-	service.
	and chassis ground.	harness and connector of	nector.	NOTE:
	Connector & terminal	ECM while monitoring the		Inspection by
	(B136) No. 15 (+) — Chassis ground (_):	value with voltage meter?		DTW IS required,
	(-).			cause is deterio-
				ration of multiple
				parts.
5	CHECK INPUT SIGNAL FOR ECM.	Is the voltage less than 0.2	Go to step 7.	Go to step 6.
	Measure voltage between ECM and chassis	V?		
	ground.			
	Connector & terminal $(B136) No 5(\pm) - Chassis around (-):$			
6	CHECK INPUT SIGNAL FOR FCM (USING	Does the value change	Repair poor con-	Go to step 7
ľ	SUBARU SELECT MONITOR.)	more than 13.3 kPa (100	tact in ECM con-	
	Read data of atmospheric absolute pressure	mmHg, 3.94 inHg) by shak-	nector.	
	signal using Subaru Select Monitor.	ing harness and connector		
	NOTE:	of ECM while monitoring		
	Subaru Select Monitor	the value with Subaru		
	For detailed operation procedure, refer to the	Select Monitor?		
	<Ref. to EN(H4)-52 Subaru Select Monitor >			
7	CHECK HARNESS BETWEEN ECM AND	Is the voltage more than	Go to step 8.	Repair open cir-
ľ	INTAKE AIR TEMPERATURE AND PRES-	4.5 V?		cuit in harness
	SURE SENSOR CONNECTOR.			between ECM
	1) Turn ignition switch to OFF.			and intake air
	2) Disconnect connector from intake air tem-			temperature and
	perature and pressure sensor.			pressure sensor
	 A) Measure voltage between intake air tem- 			connector.
	perature sensor and pressure sensor connec-			
	tor and engine ground.			
	Connector & terminal			
	(E21) No. 3 (+) — Engine ground (–):			

EN(H4)-333

No.	Step	Check	Yes	No
8	CHECK HARNESS BETWEEN ECM AND INTAKE AIR TEMPERATURE AND PRES- SURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and intake air temperature and pressure sensor connector. Connector & terminal (B136) No. 16 — (E21) No. 1:	Is the resistance less than 1 Ω?	Go to step 9 .	Repair open cir- cuit in harness between ECM and intake air temperature and pressure sensor connector.
9	CHECK HARNESS BETWEEN ECM AND INTAKE AIR TEMPERATURE AND PRES- SURE SENSOR CONNECTOR. Measure resistance of harness between intake air temperature and pressure sensor connector and engine ground. Connector & terminal (E21) No. 4 — Engine ground:	Is the resistance more than 500 kΩ?	Go to step 10.	Repair ground short circuit in harness between ECM and intake air temperature and pressure sen- sor connector.
10	CHECK POOR CONTACT. Check poor contact in intake manifold pres- sure sensor connector.	Is there poor contact in intake manifold pressure sensor connector?	Repair poor con- tact in intake air temperature and pressure sensor connector.	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

J: DTC P0108 — PRESSURE SENSOR CIRCUIT HIGH INPUT — SOUBCOLB13

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



	-
1 CHECK CURRENT DATA. Is the value more than Go to step 10. Go to st	tep 2 .
1) Start engine. 119.5 kPa (896.5 mmHg.	
2) Read the data of intake manifold absolute 35.29 inHg)?	
pressure signal using Subaru Select Monitor	
or OBD-II general scan tool.	
NOTE:	
Subaru Select Monitor	
For detailed operation procedure, refer to the	
"READ CURRENT DATA FOR ENGINE".	
<ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	
OBD-II general scan tool	
For detailed operation procedures, refer to the	
OBD-II General Scan Tool Instruction Manual.	
2 CHECK INPUT SIGNAL FOR ECM. Is the voltage more than Go to step 4. Go to st	tep 3 .
Measure voltage between ECM connector 4.5 V?	
and chassis ground.	
Connector & terminal	
(B136) No. 15 (+) — Chassis ground	
3 CHECK INPUT SIGNAL FOR ECM. Does the voltage change Repair poor con- Contact	with SOA
Measure voltage between ECM connector more than 4.5 V by shaking tact in ECM con- service.	
and chassis ground. harness and connector of nector. NOTE:	
Connector & terminal ECIVI while monitoring the Inspecti	on by
(B130) No. 15 (+) — Chassis ground Value with Voltage meter?	requirea,
	e probable
	f multiplo
I allott o	i multiple
A CHECK INPLIT SIGNAL FOR ECM Is the voltage less than 0.2 Go to step 6 Go to step 6	ten 5
Measure voltage between FCM connector V2	iep J .
and chassis ground	
Connector & terminal	
(B136) No. 5 (+) — Chassis ground (–):	
5 CHECK INPUT SIGNAL FOR ECM. (USING Does the value change Repair poor con- Go to s	tep 6 .
SUBARU SELECT MONITOR.) more than 13.3 kPa (100 tact in ECM con-	-
Read data of atmospheric absolute pressure mmHg, 3.94 inHg) by shak- nector.	
signal using Subaru Select Monitor. ing harness and connector	
NOTE: of ECM while monitoring	
Subaru Select Monitor the value with Subaru	
For detailed operation procedure, refer to the Select Monitor?	
"READ CURRENT DATA FOR ENGINE".	
<pre><ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.></pre>	
6 CHECK HARNESS BETWEEN ECM AND Is the voltage more than Go to step 7. Repair of	open cir-
INTAKE AIR TEMPERATURE AND PRES- 4.5 V?	arness
SURE SENSOR CONNECTOR. between	
1) Turn ignition switch to OFF.	ake air
2) Disconnection non-intake air tem-	
2) Turn ignition switch to ON	e sensor
(1) Measure voltage between inteke air tem-	.01.
berature and pressure sensor connector and	
Connector & terminal	
(E21) No. 3 (+) — Engine ground (–):	

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND INTAKE AIR TEMPERATURE AND PRES- SURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and intake air temperature and pressure sensor connector. Connector & terminal (B136) No. 5 — (E21) No. 4:	Is the resistance less than 1 Ω?	Go to step 8.	Repair open cir- cuit in harness between ECM and intake air temperature and pressure sensor connector.
8	CHECK HARNESS BETWEEN ECM AND INTAKE AIR TEMPERATURE AND PRES- SURE SENSOR CONNECTOR. Measure resistance of harness between ECM and intake air temperature and pressure sen- sor connector. Connector & terminal (B136) No. 16 — (E21) No. 1:	Is the resistance less than 1 Ω ?	Go to step 9.	Repair open cir- cuit in harness between ECM and intake air temperature and pressure sensor connector.
9	CHECK POOR CONTACT. Check poor contact in intake air temperature and pressure sensor connector.	Is there poor contact in intake manifold pressure sensor connector?	Repair poor con- tact in intake air temperature and pressure sensor connector.	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>
10	CHECK HARNESS BETWEEN ECM AND INTAKE AIR TEMPERATURE AND PRES- SURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF. 2) Disconnect connector from intake air tem- perature and pressure sensor. 3) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON. 4) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4)-52 Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool	Is the value more than 119.5 kPa (896.5 mmHg, 35.29 inHg)?	Repair battery short circuit in harness between ECM and intake air temperature and pressure sen- sor connector.	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

K: DTC P0111 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM — 500602814

• DTC DETECTING CONDITION:

Immediately at fault recognition

• TROUBLE SYMPTOM:

- Erroneous idling
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-340

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0112, P0113, P0117, P0118 or P0125?	Inspect DTC P0112, P0113, P0116, P0117 or P0125 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0111.</ref.>	Go to step 2.
2	CHECK ENGINE COOLANT TEMPERA- TURE. 1) Start the engine and warm it up completely. 2) Measure engine coolant temperature using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</ref.>	Is the engine coolant tem- perature between 75°C (167°F) and 95°C (203°F)?	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>	Inspect DTC P0125 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

Engine (DIAGNOSTICS)

L: DTC P0112 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT LOW INPUT

S008602B15

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool 	Is the value greater than 120°C (248°F)?	Go to step 2.	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in intake air tem- perature and pressure sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
2	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE AND PRESSURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air tem- perature and pressure sensor. 3) Turn ignition switch to ON. 4) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool</ref.>	Is the value less than -40°C (-40°F)?	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>	Repair ground short circuit in harness between intake air tem- perature sensor and ECM connec- tor.

Engine (DIAGNOSTICS)

M: DTC P0113 — INTAKE AIR TEMPERATURE SENSOR CIRCUIT HIGH INPUT — SOUBCR2B16

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
2	CHECK CURRENT DATA. 1) Start engine. 2) Read data of intake air temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general Scan Tool Instruction Manual. CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE AND PRESSURE SENSOR</ref.>	Is the value less than -40°C (-40°F)? Is the voltage more than 10 V?	Go to step 2. Repair battery short circuit in	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in intake air tem- perature and pressure sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83) Go to step 3 .
	 AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from intake air temperature and pressure sensor. 3) Measure voltage between intake air temperature and pressure sensor connector and engine ground. Connector & terminal (E21) No. 2 (+) — Engine ground (-): 		harness between intake air tem- perature and pressure sensor and ECM connec- tor.	
3	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE AND PRESSURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between intake air tem- perature and pressure sensor connector and engine ground. Connector & terminal (E21) No. 2 (+) — Engine ground (–):	Is the voltage more than 10 V?	Repair battery short circuit in harness between intake air tem- perature and pressure sensor and ECM connec- tor.	Go to step 4.

No.	Step	Check	Yes	No
4	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE AND PRESSURE SENSOR AND ECM CONNECTOR. Measure voltage between intake air tempera- ture and pressure sensor connector and engine ground. <i>Connector & terminal</i> <i>(E21) No. 2 (+) — Engine ground (–):</i>	Is the voltage more than 3 V?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between intake air tem- perature and pressure sensor and ECM connec- tor • Poor contact in intake air tem- perature and pressure sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
5	CHECK HARNESS BETWEEN INTAKE AIR TEMPERATURE AND PRESSURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between intake air temperature and pressure sensor connector and engine ground. <i>Connector & terminal</i> (E21) No. 1 — Engine ground:	Is the resistance less than 5 Ω?	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between intake air tem- perature and pressure sensor and ECM connec- tor • Poor contact in intake air tem- perature and pressure sensor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

N: DTC P0117 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT LOW INPUT — SOUBCREFT

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Hard to start
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-348

No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value greater than 150°C (302°F)?	Go to step 2.	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in engine coolant temperature sen- sor • Poor contact in ECM • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
2	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant temperature sensor. 3) Turn ignition switch to ON. 4) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool</ref.>	Is the value less than -40°C (-40°F)?	Replace engine coolant tempera- ture sensor. <ref. to FU(H4)-40 Engine Coolant Temperature Sen- sor.></ref. 	Repair ground short circuit in harness between engine coolant temperature sen- sor and ECM con- nector.

Engine (DIAGNOSTICS)

O: DTC P0118 — ENGINE COOLANT TEMPERATURE SENSOR CIRCUIT HIGH INPUT — 5006602F92

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Hard to start
 - Erroneous idling
 - Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
2	CHECK CURRENT DATA. 1) Start engine. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general Scan Tool Instruction Manual. CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from engine coolant</ref.>	Is the value less than -40°C (-40°F)? Is the voltage more than 10 V?	Go to step 2. Repair battery short circuit in harness between ECM and engine	Repair poor con- tact. NOTE: In this case, repair the follow- ing: Poor contact in engine coolant temperature sen- sor Poor contact in ECM Poor contact in coupling connec- tor (B21) Poor contact in joint connector (B83) Go to step 3 .
	 2) Disconnect connector from engine coolant temperature sensor. 3) Measure voltage between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 1 (+) — Engine ground (-): 		coolant tempera- ture sensor con- nector.	
3	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and engine coolant tempera- ture sensor con- nector.	Go to step 4.

No.	Step	Check	Yes	No
4	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. Measure voltage between engine coolant tem- perature sensor connector and engine ground. Connector & terminal (E8) No. 1 (+) — Engine ground (-):	Is the voltage more than 4 V?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine coolant tempera- ture sensor con- nector • Poor contact in engine coolant temperature sen- sor connector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
5	CHECK HARNESS BETWEEN ENGINE COOLANT TEMPERATURE SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between engine coolant temperature sensor connector and engine ground. Connector & terminal (E8) No. 2 — Engine ground:	Is the resistance less than 5 Ω ?	Replace engine coolant tempera- ture sensor. <ref. to FU(H4)-40 Engine Coolant Temperature Sen- sor.></ref. 	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and engine coolant tempera- ture sensor con- nector • Poor contact in engine coolant temperature sen- sor connector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

P: DTC P0121 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) — 5008022819

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0122 or P0123?	Inspect DTC P0122 or P0123 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0121.</ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

Q: DTC P0122 — THROTTLE POSITION SENSOR CIRCUIT LOW INPUT —

S008602B20

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-356

No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan Tool Instruction Manual. 	Is the value less than 0.1 V?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)
2	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground while throttle valve is fully closed. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 3.
3	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
+	Measure voltage between ECM connector and chassis ground. <i>Connector & terminal</i> <i>(B136) No. 17 (+) — Chassis ground</i> <i>(-):</i>	V?	Go to step o .	Go to step 3 .
5	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Measure voltage between ECM connector and chassis ground.	Does the voltage change more than 0.1 V by shaking harness and connector of ECM while monitoring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector.	Go to step 6 .

No.	Step	Check	Yes	No
<u>8</u>	Step CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from throttle posi- tion sensor. 3) Turn ignition switch to ON. 4) Measure voltage between throttle position sensor connector and engine ground. <i>Connector & terminal</i> (E13) No. 4 (+) — Engine ground (–):	Check Is the voltage more than 4.5 V?	Yes Go to step 7.	No Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
7	CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between ECM connector and throttle position sensor connector. Connector & terminal (B136) No. 17 — (E13) No. 3:	Is the resistance less than 1 Ω?	Go to step 8.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in ECM connector • Poor contact in throttle position sensor connector • Poor contact in coupling connec- tor (B21)
8	CHECK HARNESS BETWEEN ECM AND THROTTLE POSITION SENSOR CONNEC- TOR. Measure resistance of harness between throttle position sensor connector and engine ground. Connector & terminal (E13) No. 3 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between throttle position sensor and ECM connector.	Go to step 9 .
9	CHECK POOR CONTACT. Check poor contact in throttle position sensor connector.	Is there poor contact in throttle position sensor con- nector?	Repair poor con- tact in throttle position sensor connector.	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

R: DTC P0123 — THROTTLE POSITION SENSOR CIRCUIT HIGH INPUT — S008602821

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Erroneous idling
- Engine stalls.
- Poor driving performance

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start engine. 2) Read data of throttle position sensor signal using Subaru Select Monitor or OBD-II gen- eral scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</ref.>	Is the value more than 4.9 V?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: • Poor contact in throttle position sensor connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)
2	CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from throttle position sensor. 3) Measure resistance of harness between throttle position sensor connector and engine ground. Connector & terminal (E13) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between throttle position sensor and ECM connector • Poor contact in coupling connec- tor (B21) • Poor contact in joint connector (B83)
3	 CHECK HARNESS BETWEEN THROTTLE POSITION SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between throttle position sensor connector and engine ground. Connector & terminal (E13) No. 3 (+) — Engine ground (-): 	Is the voltage more than 4.9 V?	Repair battery short circuit in harness between throttle position sensor and ECM connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>
Engine (DIAGNOSTICS)

S: DTC P0125 — INSUFFICIENT COOLANT TEMPERATURE FOR CLOSED LOOP FUEL CONTROL — 5008602822

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine would not return to idling.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0117 or P0118?	Inspect DTC P0116 or P0117 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0125.</ref.>	Go to step 2.
2	CHECK THERMOSTAT.	Does thermostat remain opened?	Replace thermo- stat. <ref. to<br="">EN(H4)-13 Ther- mostat.></ref.>	Replace engine coolant tempera- ture sensor. <ref. to EN(H4)-40 Engine Coolant Temperature Sen- sor.></ref.

Engine (DIAGNOSTICS)

T: DTC P0128 — THERMOSTAT MALFUNCTION — SOUBCOZF93

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Thermostat remains open.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK VEHICLE CONDITION.	Has engine operated at idle or has vehicle been driven with part of engine sub- merged under water?	In this case, it is not necessary to inspect DTC P1490.	Go to step 2 .
2	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0125, P0301, P0302, P0303 and P0304 at same time?	Go to step 3.	Inspect DTC P0125, P0301, P0302, P0303 and P0304 using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>
3	CHECK ENGINE COOLANT.	Are coolant level and mix- ture ratio of cooling water to anti-freeze solution cor- rect?	Go to step 4.	Replace engine coolant. <ref. to<br="">CO(H4)-6 REPLACEMENT, Engine Coolant.></ref.>
4	CHECK RADIATOR FAN.1) Start the engine.2) Check radiator fan operation.	Does radiator fan continu- ously rotate for more than 3 minutes during idling?	Repair radiator fan circuit. <ref. to CO(H4)-20 Radiator Main Fan and Fan Motor.> and <ref. to CO(H4)-23 Radiator Sub Fan and Fan Motor.></ref. </ref. 	Replace thermo- stat. <ref. to<br="">CO(H4)-13 Ther- mostat.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

U: DTC P0130 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LEAN) — 5008022644

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No	Sten	Check	Vos	No
1	CHECK ANY OTHER DIC ON DISPLAY.	Does the Subaru Select		Go to step 2.
		Monitor or OBD-II general	PUISI, PUISZ,	
			PII32 OF PII33	
		P0131, P0132, P1132 01	Diagnastic	
		P1133?	Trauble Code	
			(DTC) IOLAT	
			of Diagnostic	
			Trouble Code	
			(DTC) for AT	
			Vehicles.>	
2	CHECK FRONT OXYGEN (A/F) SENSOR	Is the value equal to or	Go to step 3.	Go to step 4.
- 	DATA.	more than 0.85 and equal		
	1) Start engine.	to less than 1.15 in idling?		
	2) While observing the Subaru Select Monitor	5		
	or OBD-II general scan tool screen, warm-up			
	the engine until coolant temperature is above			
	70°C (160°F).			
	If the engine is already warmed-up, operate at			
	idle speed for at least 1 minute.			
	3) Read data of front oxygen (A/F) sensor			
	signal using Subaru Select Monitor or OBD-II			
	general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"READ CURRENT DATA FOR ENGINE".			
	CRET. to EIN(H4)-52 Subaru Select Monitor.>			
	OBD-II general scall tool For detailed operation precedures, refer to the			
	OBD-II General Scan Tool Instruction Manual			
3	CHECK EPONT OXYGEN (A/E) SENSOR	Is the value more than 1.1	Go to step 6	Go to step 4
ľ		for a moment?		
	Race engine at speeds from idling to 5.000			
	rom for a total of 5 cycles.			
	NOTE:			
	To increase engine speed to 5,000 rpm,			
	slowly depress accelerator pedal, taking			
	approximately 5 seconds, and quickly release			
	accelerator pedal to decrease engine speed.			
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than	Go to step 5.	Repair open cir-
	FRONT OXYGEN (A/F) SENSOR.	5 Ω?		cuit between ECM
	1) Turn ignition switch to OFF.			and front oxygen
	2) Disconnect connector from ECM and front			(A/F) sensor.
	oxygen (A/F) sensor connector.			
	3) Measure resistance between ECM and			
	front oxygen (A/F) sensor.			
	(B130) NO. 0 — $(B18)$ NO. 1: (B126) NO. 7 (B19) NO. 6:			
	(B130) NO. 1 (B16) NO. 0: (B126) NO. 10 (B19) NO. 2:			
	(B136) No 20 - (B18) No 4			
	(DISU) NU. ZU — (DIO) NU. 4:		1	1

No.	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR. Measure resistance between ECM and chas- sis ground. Connector & terminals (B136) No. 6 — Chassis ground: (B136) No. 7 — Chassis ground: (B136) No. 19 — Chassis ground: (B136) No. 20 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 6 .	Repair ground short circuit between ECM and front oxygen (A/F) sensor.
6	CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. • Loose installation of portions • Damage (crack, hole etc.) of parts • Looseness of front oxygen (A/F) sensor • Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there a fault in exhaust system?	Repair or replace faulty parts.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

V: DTC P0131 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (OPEN CIRCUIT) — 500802245

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and front oxygen (A/F) sensor connector. 3) Measure resistance of harness between ECM and front oxygen (A/F) sensor connec- tor. Connector & terminal (B136) No. 6 — (E18) No. 1: (B136) No. 7 — (B18) No. 6: (B136) No. 19 — (B18) No. 3: (B136) No. 20 — (B18) No. 4:	Is the resistance less than 1 Ω?	Go to step 2.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and front oxygen (A/F) sen- sor connector • Poor contact in front oxygen (A/F) sensor connector • Poor contact in ECM connector
2	CHECK POOR CONTACT. Check poor contact in front oxygen (A/F) sen- sor connector.	Is there poor contact in front oxygen (A/F) sensor connector?	Repair poor con- tact in front oxy- gen (A/F) sensor connector.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

W: DTC P0132 — FRONT OXYGEN (A/F) SENSOR CIRCUIT MALFUNCTION (SHORT CIRCUIT) — 5008002646

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B136) No. 6 — Chassis ground: (B136) No. 7 — Chassis ground: (B136) No. 19 — Chassis ground: (B136) No. 20 — Chassis ground:	Is the resistance more than 10 Ω?	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>	Repair ground short circuit in harness between ECM and front oxygen (A/F) sen- sor connector.

Engine (DIAGNOSTICS)

X: DTC P0133 — FRONT OXYGEN (A/F) SENSOR CIRCUIT SLOW

RESPONSE — SOOB602 B26

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0131, P0132, P1132 or P1133?	Inspect DTC P0131, P0132, P1132 or P1133 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0133.</ref.>	Go to step 2.
2	 CHECK EXHAUST SYSTEM. NOTE: Check the following items. Loose installation of front portion of exhaust pipe onto cylinder heads Loose connection between front exhaust pipe and front catalytic converter Damage of exhaust pipe resulting in a hole 	Is there a fault in exhaust system?	Repair exhaust system.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

Y: DTC P0136 — REAR OXYGEN SENSOR CIRCUIT MALFUNCTION — SOURCE SUBJECT SENSOR CIRCUIT MALFUNCTION — SOURCE SUBJECT SENSOR SENSOR

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0131 or P0132?	Go to step 2 .	Go to step 3.

No.	Step	Check	Yes	No
2	CHECK FAILURE CAUSE OF P0131 or	Is the failure cause of	Check fuel sys-	Go to step 3.
	P0132.	P0131 or P0132 in the fuel	tem.	
	Inspect DTC P0131 or P0132 using "19. List	system?	NOTE:	
	of Diagnostic Trouble Code (DTC) for AT		In this case, it is	
	Vehicles". <ref. diag-<="" en(h4)-301="" list="" of="" th="" to=""><th></th><th>not necessary to</th><th></th></ref.>		not necessary to	
	nostic Trouble Code (DTC) for AT Vehicles.>		inspect DTC	
			P0136.	_
3	CHECK REAR OXYGEN SENSOR DATA.	Does the value fluctuate?	Go to step 7.	Go to step 4.
	1) warm-up the engine until engine coolant			
	the opging speed at 2,000 rpm to 2,000 rpm			
	for two minutes			
	2) Read data of rear oxygen sensor signal			
	using Subaru Select Monitor or OBD-II gen-			
	eral scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"READ CURRENT DATA SHOWN ON DIS-			
	PLAY FOR ENGINE". <ref. en(h4)-52<="" td="" to=""><td></td><td></td><td></td></ref.>			
	OBD-IL general scan tool			
	For detailed operation procedures, refer to the			
	OBD-II General Scan Tool Instruction Manual.			
4	CHECK REAR OXYGEN SENSOR DATA.	Is the value fixed between	Go to step 5.	Replace rear oxv-
	Read data of rear oxygen sensor signal using	0.2 and 0.4 V?		gen sensor. <ref.< td=""></ref.<>
	Subaru Select Monitor or OBD-II General			to FU(H4)-65
	Scan Tool.			Rear Oxygen
				Sensor.>
5		Is the resistance more than	Repair open cir-	Go to step 6.
	A Turn ignition quiteb to OFF	3 \2?	cuit in narness	
	2) Disconnect connectors from ECM and rear		and rear oxygen	
			sensor connector	
	3) Measure resistance of harness between			
	ECM and rear oxygen sensor connector.			
	Connector & terminal			
	(B136) No. 16 — (T6) No. 3:			
6	CHECK HARNESS BETWEEN REAR OXY-	Is the voltage more than	Replace rear oxy-	Repair harness
	GEN SENSOR AND ECM CONNECTOR.	0.2 V?	gen sensor. <ref.< td=""><td>and connector.</td></ref.<>	and connector.
	1) Turn ignition switch to OFF.		10 FU(H4)-65	NUTE:
	2) Disconnect connector from rear oxygen		Sensor >	In this case,
	3) Turn ignition switch to ON			ing.
	4) Measure voltage between rear oxygen sen-			Open circuit in
	sor harness connector and engine ground or			harness between
	chassis ground.			rear oxygen sen-
	Connector & terminal			sor and ECM con-
	(T6) No. 4 (+) — Engine ground (–):			nector
				Poor contact in
				rear oxygen sen-
				sor connector
				ECM connector

No.	Step	Check	Yes	No
7	CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. • Loose installation of portions • Damage (crack, hole etc.) of parts • Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there a fault in exhaust system?	Repair or replace faulty parts.	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

Z: DTC P0139 — REAR OXYGEN SENSOR CIRCUIT SLOW RESPONSE — SOUBCOZE29

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0136?	Inspect DTC P0136 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0139.</ref.>	Replace rear oxy- gen sensor. <ref. to FU(H4)-65 Rear Oxygen Sensor.></ref.

Engine (DIAGNOSTICS)

AA: DTC P0170 — FUEL TRIM MALFUNCTION — SOUBCOZED31

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK EXHAUST SYSTEM.	Are there holes or loose bolts on exhaust system?	Repair 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 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 on the floor. 1) Release fuel pressure. (1) Disconnect connector from fuel pump relay. (2) Start the engine and run it until it stalls. (3) After the engine stalls, crank it for five more seconds. (4) Turn ignition switch to OFF. 2) Connect connector to fuel pump relay. 3) Disconnect fuel delivery hose from fuel filter, and connect fuel pressure gauge. 4) Install fuel filler cap. 5) Start the engine and idle while gear position is neutral. 6) Measure fuel pressure while disconnecting pressure regulator vacuum hose from intake manifold. WARNING: Before removing fuel pressure gauge, release fuel pressure. NOTE: If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again.	Is fuel pressure between 284 and 314 kPa (2.9 — 3.2 kg/cm ² , 41 — 46 psi)?	Go to step 4.	Repair the follow- ing items. Fuel pressure too high • Clogged fuel return line or bent hose Fuel pressure too low • Improper fuel pump discharge • Clogged fuel supply line

No.	Step	Check	Yes	No
4	CHECK FUEL PRESSURE. After connecting pressure regulator vacuum hose, measure fuel pressure. WARNING: Before removing fuel pressure gauge, release fuel pressure. NOTE: • If fuel pressure does not increase, squeeze fuel return hose 2 to 3 times, then measure fuel pressure again. • If out of specification as measured at this step, check or replace pressure regulator and pressure regulator vacuum hose.	Is fuel pressure between 206 and 235 kPa (2.1 — 2.4 kg/cm ² , 30 — 34 psi)?	Go to step 5 .	Repair the follow- ing items. Fuel pressure too high • Faulty pressure regulator • Clogged fuel return line or bent hose Fuel pressure too low • Faulty pressure regulator • Improper fuel pump discharge • Clogged fuel supply line
5	 CHECK ENGINE COOLANT TEMPERA- TURE SENSOR. 1) Start the engine and warm-up completely. 2) Read data of engine coolant temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is temperature between 70°C (158°F) and 100°C (212°F)?	Go to step 6.	Replace engine coolant tempera- ture sensor. <ref. to FU(H4)-40 Engine Coolant Temperature Sen- sor.></ref.
6	CHECK INTAKE MANIFOLD PRESSURE SENSOR SIGNAL. 1) Start the engine and warm-up engine until coolant temperature is greater than 60°C (140°F). 2) Place the selector lever in "N" or "P" posi- tion. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sen- sor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general Scan Tool Instruction Manual. Specification: <i>Idling</i> 24.0 — 41.3 kPa (180 — 310 mmHg, 7.09 — 12.20 inHg) <i>Ignition ON</i> 73.3 — 106.6 kPa (550 — 800 mmHg, 21.65 — 31.50 inHg)</ref.>	Is the voltage within the specifications?	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

AB: DTC P0181 — FUEL TEMPERATURE SENSOR A CIRCUIT RANGE/PERFORMANCE PROBLEM — 5008002B34

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0182 or P0183?	Inspect DTC P0182 or P0183 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0181.</ref.>	Replace fuel tem- perature sensor. <ref. to<br="">EC(H4)-10 Fuel Temperature Sen- sor.></ref.>

Engine (DIAGNOSTICS)

AC: DTC P0182 — FUEL TEMPERATURE SENSOR A CIRCUIT LOW INPUT —

S008602B35

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK CURRENT DATA. 1) Start engine. 2) Read data of fuel temperature sensor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4)-52 Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.	Is the value greater than 150°C (302°F)?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time.
2	 CHECK CURRENT DATA. 1) Turn ignition switch to OFF. 2) Remove access hole lid. 3) Disconnect connector from fuel pump. 4) Turn ignition switch to ON. 5) Read data of fuel temperature sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value less than -40°C (-40°F)?	Replace fuel tem- perature sensor. <ref. to<br="">EC(H4)-10 Fuel Temperature Sen- sor.></ref.>	Repair ground short circuit in harness between fuel pump and ECM connector.

Engine (DIAGNOSTICS)

AD: DTC P0183 — FUEL TEMPERATURE SENSOR A CIRCUIT HIGH INPUT

S008602B36

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
2	CHECK CURRENT DATA. 1) Start engine. 2) Read data of fuel temperature sensor sig- nal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.</ref.>	Is the value less than -40°C (-40°F)?	Go to step 2 .	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in fuel pump con- nector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B22, B99 and R57) • Poor contact in joint connector (B83) Go to step 3
2	 CHECK HARNESS BETWEEN FOEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Remove access hole lid. 3) Disconnect connector from fuel pump. 4) Measure voltage between fuel pump con- nector and chassis ground. Connector & terminal (R58) No. 6 (+) — Chassis ground (-): 	V?	short circuit in harness between ECM and fuel pump connector.	Go to step 3.
3	CHECK HARNESS BETWEEN FUEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to ON. 2) Measure voltage between fuel pump con- nector and chassis ground. Connector & terminal (R58) No. 6 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and fuel pump connector.	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. Measure voltage between fuel pump connec- tor and chassis ground. <i>Connector & terminal</i> (<i>R58</i>) No. 6 (+) — Chassis ground (-):	Is the voltage more than 4 V?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel pump connector • Poor contact in fuel pump con- nector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B99 and R57)

No.	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN FUEL TEM- PERATURE SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Measure resistance of harness between fuel pump connector and chassis ground. <i>Connector & terminal</i> (<i>R58</i>) No. 5 — Chassis ground:	Is the resistance less than 5 Ω?	Replace fuel tem- perature sensor. <ref. to<br="">EC(H4)-10 Fuel Temperature Sen- sor.></ref.>	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel pump connector • Poor contact in fuel pump con- nector • Poor contact in ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B99 and R57) • Poor contact in joint connector (B83)

Engine (DIAGNOSTICS)

AE: DTC P0301 — CYLINDER 1 MISFIRE DETECTED — SOUGCO2B37

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4)-392 DTC P0304 — CYLINDER 4 MIS-FIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

AF: DTC P0302 — CYLINDER 2 MISFIRE DETECTED — SOUBCOLDER

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4)-392 DTC P0304 — CYLINDER 4 MIS-FIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

AG: DTC P0303 — CYLINDER 3 MISFIRE DETECTED — SOUBCOLESS

NOTE:

For the diagnostic procedure, refer to DTC P0304. <Ref. to EN(H4)-392 DTC P0304 — CYLINDER 4 MIS-FIRE DETECTED —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

Engine (DIAGNOSTICS)

AH: DTC P0304 — CYLINDER 4 MISFIRE DETECTED — SOUBCOZEMO

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- Immediately at fault recognition (A misfire which could damage catalyst occurs.)
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Erroneous idling
 - Rough driving

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:

B2M3966

Engine (DIAGNOSTICS)

B2M3967

No	Step	Check	Ves	No
1		Does the Subaru Select	Inspect DTC	Go to step 2
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P0116, P0117 or P0125?	Inspect DTC P0106, P0107, P0108, P0116, P0117 or P0125 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0301, P0302, P0303 and</ref.>	Go to step 2.
			P0304.	
2	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 7 .	Go to step 3.
3	CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on faulty cylinders. 3) Measure voltage 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 less than 10 Ω?	Repair ground short circuit in harness between fuel injector and ECM connector.	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. Measure resistance of harness connector between ECM connector and fuel injector on faulty cylinders. Connector & terminal #1 (B134) No. 4 — (E5) No. 1: #2 (B134) No. 13 — (E16) No. 1: #3 (B134) No. 14 — (E6) No. 1: #4 (B134) No. 15 — (E17) No. 1:	Is the resistance less than 1 Ω ?	Go to step 5 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel injector connector • Poor contact in coupling connec- tor (B21)

Engine (DIAGNOSTICS)

1100 CHECK FUEL INJECTOR. Is the resistance between 5 Go to step 6. Replace faulty fuel injector. <ref.< th=""> 6 0.1 — No. 2: and 20 17 ad 20 17</ref.<>	No.	Sten	Check	Yes	No
Measure resistance between fuel injector terminals on faulty cylinder: and 20 Ω? for 0 both of	5		Is the resistance between 5	Go to step 6	Replace faulty
minals on faulty cylinder. Ib FU(H4)-56 Fuel Injector.> 6 CHECK POWER SUPEY LINE. Is the voltage more than 10 Repair poor context in all connector. Repair poor context in all connector. Repair poor context in all connector. NOTE: In tuel injector.> NOTE: In tuel injector. NOTE: NOTE: In tuel injector. NOTE: Note: <t< th=""><th>ľ</th><th>Measure resistance between fuel injector ter-</th><th>and 20 Ω?</th><th></th><th>fuel injector. <ref.< th=""></ref.<></th></t<>	ľ	Measure resistance between fuel injector ter-	and 20 Ω ?		fuel injector. <ref.< th=""></ref.<>
Terminals No. 1 - No. 2: Injector.> 6 1) Fun (pintion switch to ON. 2) Measure voltage between fuel injector and engine ground of taluby optimders. Connector & terminal #1 (E5) No. 2 (+) — Engine ground (-): #2 (E10) No. 2 (+) — Engine ground (-): #3 (E0) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): Is the voltage more than 10 Y? Repair horroor- tors in fuel injector circuit. Repair horroor- tors in fuel injector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel injector con- nector on faulty optimders 7 CHECK HARNESS BETWEEN FUEL INJECT TOR AND ECM CONNECTOR. 1) Turn ignition switch to ON: 4) Measure voltage between ECM connector and chassis ground fuel (-): * 82 (B134) No. 13 (+) — Chassis ground fuel * 10 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF: 2) Measure voltage between ECM connector and chassis ground on faulty oplinders. Connector & terminal # # (B134) No. 13 (+) — Chassis ground fuel * 10 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF: 2) Measure resistance between fuel injector at chassis ground fuel * 10 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF: 2) Measure resistance between fuel injector * Replace faulty tue injector. After repair, replace ECMRef. tu FU[H4]-65 Engine Control Module.> Go to step 9. tul injector. After repair, replace ECMRef. tu FU[H4]-65 Engine Control Module.> Go to step 9. tu injector. After repair, replace ECMRef. tu FU[H4]-65 Engine Control Module.> Go to step 9. tu injector. After repair india consector for sensor, rooseptinis alanor fuel		minals on faulty cylinder.			to FU(H4)-56 Fuel
No. 1 - No. 2: Repair Porcentation Repair porcentation Repair porcentation Repair porcentation Repair harness and connector. 0. Measure voltage between fuel injector and engine ground on faulty cylinders. Connector 4 error function If (E5) No. 2 (+) - Engine ground (-): If (E5) No. 2 (+) - Engine ground (-): If (E5) No. 2 (+) - Engine ground (-): If (E5) No. 2 (+) - Engine ground (-): If (E1) No. 2 (+) - Eng		Terminals			Injector.>
 6 CHECK POWER SUPPLY LINE. 1) Turn ignition switch to ON. 2) Measure voltage between fuel injector and engine ground on faulty cylinders. <i>Connector & terminal</i> <i>#1 (E5) No. 2 (+) — Engine ground (-):</i> <i>#2 (E10) No. 2 (+) — Engine ground (-):</i> <i>#3 (E5) No. 2 (+) — Engine ground (-):</i> <i>#4 (E17) No. 2 (+) — Engine ground (-):</i> <i>#3 (E5) No. 2 (+) — Engine ground (-):</i> <i>#4 (E17) No. 2 (+) — Engine ground (-):</i> <i>#3 (E5) No. 1 (+) — Chassis ground (-):</i> <i>#3 (B134) No. 14 (+) — Chassis ground (-):</i> <i>#3 (B134) No. 15 (+) — Chassis ground (-):</i> <i>#4 (B134) No. 15 (+) — Chassis ground (</i>		No. 1 — No. 2:			
 1) fun ignition switch to ON. 2) Measure voltage between fuel injector and engine ground on faulty cylinders. Connector & terminal #1 (E5) No. 2 (+) — Engine ground (-): #2 (E16) No. 2 (+) — Engine ground (-): #3 (E10) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): #2 (E16) Max 2 (+) — Engine ground (-): #2 (E16) Max 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Engine ground (-): #2 (E17) No. 2 (+) — Chassis ground (-): #2 (E17) No. 2 (+) — Chassis ground (-): #2 (E17) No. 2 (+) — Chassis ground (-): #2 (E17) No. 2 (+) — Chassis ground (-): #2 (E17) No. 2 (+) — Chassis ground (-): #2 (E17) No. 2 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+) — Chassis ground (-): #2 (E17) No. 4 (+)	6	CHECK POWER SUPPLY LINE.	Is the voltage more than 10	Repair poor con-	Repair harness
Exploration brance Description of faulty cylinders. Connector & terminal ##1 (E5) No. 2 (+) — Engine ground (-): ##2 (E16) No. 2 (+) — Engine ground (-): ##2 (E16) No. 2 (+) — Engine ground (-): ##3 (E6) No. 2 (+) — Engine ground (-): ##4 (E17) No. 2 (+) — Engine ground (-): ##3 (E6) No. 2 (+) — Engine ground (-): ##4 (E17) No. 2 (+) — Engine ground (-): ##4 (E17) No. 2 (+) — Engine ground (-): ##4 (E17) No. 2 (+) — Engine ground (-): ##0 (CHCK HARNESS BETWEEN FUEL INJECT TOR AND ECM CONNECTOR. Is the voltage more than 10 1) Turn ignition switch to OFF. Is the voltage more than 10 1) Turn ignition switch to OFF. Is the voltage more than 10 2) Disonnect connector from fuel injector on faulty cylinders. V? 3) Turn ignition switch to OFF. Is the voltage more than 10 4) Measure voltage between ECM connector and chassis ground (-): #2 (B13) No. 13 (+) — Chassis ground (-): #1 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 13 (+) — Chassis ground (-): #2 (EHCK FUEL INJECTOR. Is the resistance less than 1.1 1.127 Secon call the injector or or Fuel, injector - sand ECM - sensor or cranshaft position sensor or cranshaft posi		2) Measure voltage between fuel injector and	V	tors in fuel injector	
Connector & terminal #1 (ES) No. 2 (+) — Engine ground (-): #2 (E16) No. 2 (+) — Engine ground (-): #3 (E5) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): +		engine around on faulty cylinders.		circuit.	In this case.
#1 (E5) No. 2 (+) — Engine ground (-): #2 (E16) No. 2 (+) — Engine ground (-): #3 (E6) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-):inc: 		Connector & terminal			repair the follow-
#2 (E16) No. 2 (+) — Engine ground (-): #3 (E6) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): #4 (E12) No. 2 (+) — Engine ground (-): #4 (E12) No. 2 (+) — Engine ground (-): #4 (E12) No. 2 (+) — Engine ground (-): #1 (D1 m ignition switch to OFF. Is the voltage more than 10 V? Repair battery short circuit in harness between ECM and thei injector con- nector on faulty cylinders 7 CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. 2) Disconnect connector from fuel injector on faulty cylinders. Connector 8 terminal #1 (B134) No. 4 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Cha		#1 (E5) No. 2 (+) — Engine ground (–):			ing:
 (-): #3 (E6) No. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): #0 coupling connector for Poor contact in main relay con- nector on faulty cylinders Poor contact in main relay con- nector on faulty cylinders CHECK HARNESS BETWEEN FUEL INJEC TOR AND ECM CONNECTOR. Turn ignition switch to OFF. Disconnect connector from fuel injector on faulty cylinders. Connector & terminal 41 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #2 (D134) No. 15 (+) — Chassis ground (-): #3 CHECK FUEL INJECTOR. Is the resistance less than (-): No. 1 — No. 2: Is canshaft position sensor or crankshaft position sensor. Go to step 9. CHECK NETALLATION OF CAMSHAFT POSITION SENSOR. Is canshaft position sensor. Go to step 10. CHECK CRAMKSHAFT SPEOCKET Is canshaft position sensor. 		#2 (E16) No. 2 (+) — Engine ground			 Open circuit in
#3 (ED) NO. 2 (+) — Engine ground (-): #4 (E17) No. 2 (+) — Engine ground (-): main felly and the linjector con- nector on faulty cylinders 7 CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. Is the voltage more than 10 Y? Repair battery short circuit in harness between 2) Disconnect connector from fuel injector on faulty cylinders. Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECMRef. to FU(H4)-67 Engine Control Module.> Go to step 8. 8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): *3 (CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2: Is the resistance less than 1 Ω? Replace faulty fuel injector - Ref. to FU(H4)-65 Fuel Injector - and ECM - Ref. to FU(H4)-65 Fuel Injector - Ref. to FU(H4)-65 Fuel Injector - Ref. to FU(H4)-6		(-):			harness between
*** (E17) No. 2 (*) — Engline ground (-): *** (E17) No. 2 (*) — Engline ground (-): *** (E17) No. 2 (*) — Engline ground (-): **** *** ***		#3 (E6) No. 2 (+) — Engine ground (-):			main relay and
1 1		(-)			nector on faulty
 Poor contact in coupling connection Poor contact in main relay connection Poor contact in main relay connector Poor contact in main relay connector Poor contact in main relay connector Poor contact in main relay connector on faulty cylinders. Check HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR. Turn ignition switch to OFF. Disconnect connector from fuel injector on faulty cylinders. Connector & terminal #1 (B134) No. 13 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 13 (+) — Chassis ground (-): Measure resistance between fuel injector terminals on faulty cylinder. CHECK FUEL INJECTOR. Turn ignition switch to OFF. Measure resistance between fuel injector terminals on faulty cylinder. S CHECK FUEL INJECTOR. Turn ignition switch to OFF. Measure resistance between fuel injector terminals on faulty cylinder. S camshaft position sensor or crankshaft positin sensor or crankshaft position sensor or crankshaft position s					cylinders
Image: comparison of the second se					 Poor contact in
7 CHECK HARNESS BETWEEN FUEL INJECTOR is the voltage more than 10 Repair battery soft crouit in harness between ECM connector and chassis ground on faulty cylinders. Soft circuit in harness between ECM connector and chassis ground on faulty cylinders. Soft circuit in harness between ECM connector and chassis ground (-): B the resistance less than (-): Repair battery soft circuit in harness between ECM connector and chassis ground on faulty cylinders. Soft circuit in harness between ECM connector and chassis ground (-): B the resistance less than (-): Replace faulty full (H4)-67 Engine Control Module.> Soft circuit in harness between ECM connector and chassis ground (-): B the resistance less than (-): Replace faulty cylinders. Soft circuit in harness is for context in full injector control Module.> 8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals in analty cylinder. Is the resistance less than 10 (-): Replace faulty fuel injector <ref. fu(h4)-65="" fuel="" injector.="" to=""> and ECM <ref. fu(h4)-65="" fuel="" injector.="" to=""> and C-): Is the resistance less than 10 (-): Soft control Module.> Go to step 9. 8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals in analty cylinder. Is cranshaft position sensor control Module.> Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSI-TION SENSOR/CRANKSHAFT POSI-TION SENSOR. Is cranshaft position sensor. Tighten camshaft position sensor. Go to step 1</ref.></ref.>					coupling connec-
7 CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR. Is the voltage more than 10 Repair battery short circuit in harness between ECM connector on faulty cylinders. Go to step 8. 7 CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR. Is the voltage more than 10 Repair battery short circuit in harness between ECM connector and chassis ground on faulty cylinders. Go to step 8. 7 CHECK HARNESS BETWEEN FUEL INJECTOR. 4) Measure voltage between ECM connector and chassis ground on faulty cylinders. Is the voltage more than 10 Repair battery short circuit in harness between ECM and fuel injector. After repair, replace. FCM. <ref. control="" engine="" fu(h4)-67="" module.="" to=""> Go to step 8. 8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals no faulty cylinder. Is the resistance less than 1 (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (H4) 56 (-): To FU(H4) 56</ref.>					tor
7 CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. Is the voltage more than 10 V? Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. After to FU(H4)-65 Engline Control Module.> Go to step 9. 8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 - No. 2: Is the resistance less than 1 Ω? Replace faulty fuel injector - Ref. to FU(H4)-65 Englin ECOntrol Module.> Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR. Is camshaft position sensor. or cankshaft position sensor. Tighten camshaft position sensor. Go to step 10.					 Poor contact in main relay con
7 CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. is the voltage more than 10 Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECMRef. to FU(H4)-67 Engine Control Module.> Go to step 8. 7 CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. is the voltage more than 10 Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECMRef. to FU(H4)-67 Engine Control Module.> Go to step 8. 3 Turn ignition switch to ON.					nector
1 CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR. Is the voltage more than 10 V? Repair battery shot circuit in harness between ECM and fuel injector. After repair, replace ECM. <ref. control="" engine="" fu(h4)-67="" module.="" to=""> Go to step 8. 7 CHECK FUEL INJECTOR. Is the voltage more than 10 V? Repair battery shot circuit in harness between ECM and fuel injector. After repair, replace ECM. <ref. control="" engine="" fu(h4)-67="" module.="" to=""> Go to step 8. 3 Turn ignition switch to ON. H1 (B134) No. 13 (+) — Chassis ground (-): H2 (B134) No. 13 (+) — Chassis ground (-): FU(H4)-67 Engine Control Module.> FU(H4)-67 Engine Control Module.> 8 CHECK FUEL INJECTOR. Is the resistance less than (-): Replace faulty fuel injector <ref. control="" engine="" fu(h4)-67="" module.="" to=""> Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSI- TION SENSOR. Is camshaft position sensor or crankshaft positon sensor or crankshaft posi</ref.></ref.></ref.>					 Poor contact in
7 CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. Is the voltage more than 10 Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. after. Go to step 8. 7) CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. Is the voltage more than 10 Repair battery short circuit in harness between ECM and fuel injector. After repair, replace ECM. after. to FU(H4)-67 Engine Control Module.> Go to step 8. 2) Disconnect or from fuel injector on faulty cylinder. #/// (B134) No. 4 (+) - Chassis ground (-): #/// (B134) No. 13 (+) - Chassis ground (-): #/// #/ (B134) No. 14 (+) - Chassis ground (-): Is the resistance less than 10. Replace faulty fuel injector <ref. to FU(H4)-65 Fuel Injector.> and ECM Go to step 9. 8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 - No. 2: Is the resistance less than No. 1 - No. 2: Replace faulty fuel injector <ref. to FU(H4)-65 Fuel Injector.> and ECM Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR. Is camshaft position sensor or crankshaft position sensor or crankshaft position sensensor Go to step 11 <</ref. </ref. 					fuel injector con-
CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on faulty cylinder. 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 13 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 13 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): 8 Is the resistance less than 1 Ω? Replace faulty fuel injector <ref. to FU(H4)-65 Fuel Injector. And ECM <ref. to<br="">FU(H4)-65 Fuel Injector. And CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals No. 1 — No. 2: Is the resistance less than 1 Ω? Replace faulty fuel injector <ref. to FU(H4)-65 Fuel Injector. > and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.> Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR. Is camshaft position sensor or crankshaft position sensor sor loosely installed? Tighten camshaft position sensor or crankshaft position sensor or crankshaft position sensor or crankshaft position sensor Go to step 10.</ref.></ref. </ref.></ref. 					nector on faulty
7 CHECK HARNESS BETWEEN FUEL INJEC- TOR AND ECM CONNECTOR. Is the voltage more than 10 Repair battery short circuit in harness between Go to step 8. 1) Turn ignition switch to OFF. Disconnect connector from fuel injector on faulty cylinder. No. 1000 No. 4 (+) Chassis ground (-): FU(H4)-67 Engine Control Module.> Control Module.> #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): Is the resistance less than 100 Replace faulty fuel injector. And the injector terminals Go to step 9. 8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Is the resistance less than 1 Ω? Replace faulty fuel injector. > and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.> Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR. Is camshaft position sensor or crankshaft position sensor sor loosely installed? Tighten camshaft position sensor Go to step 10. 10 CHECK CRANKSHAFT SPROCKET Is crankshaft position sensor sor loosely installed? For targe and Englage crank- Sentare Go to step 11</ref.>					cylinders
1 Dr AND ELM CONNECTOR. V? Short circuit in 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel injector on faulty cylinder. harmess between 2) Disconnect connector from fuel injector on faulty cylinder. injector. After ECM and fuel injector. After 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground on faulty cylinders. ECM. <ref. td="" to<=""> Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): Sont Circuit (III model) #3 (B134) No. 14 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): Is the resistance less than 1 Ω? Replace faulty fuel injector <ref. <ref.="" control="" engine="" fu(h4)-56="" fu(h4)-67="" fuel="" injector="" module.="" to=""> Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR. Is camshaft position sensor or crankshaft position sensor. Go to step 10. 10 CHECK CRANKSHAFT SPROCKET Is cankshaft sprocket Replace crank- Go to step 11.</ref.></ref.>	7	CHECK HARNESS BETWEEN FUEL INJEC-	Is the voltage more than 10	Repair battery	Go to step 8.
 a) The High House of P.P. a) Disconnect connector from fuel injector on faulty cylinder. b) Disconnect connector from fuel injector on faulty cylinder. connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #3 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): B CHECK FUEL INJECTOR. Turn ignition switch to OFF. Measure resistance between fuel injector terminals on faulty cylinder. Terminals on faulty cylinder. Terminals No. 1 — No. 2: CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR. CHECK CRANKSHAFT SPROCKET 		1) Turn ignition switch to OEE	V?	snort circuit in	
autry cylinder. autry cylinder. 3) Turn ignition switch to ON. injector. After 4) Measure voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 13 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #5 (B134) No. 16 (+) — Chassis ground (-): Is the resistanc		2) Disconnect connector from fuel injector on		FCM and fuel	
3) Turn ignition switch to ON. Prepair, replace 4) Measure voltage between ECM connector and chassis ground on faulty cylinders. repair, replace Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): Is the resistance less than full injector - Ref. 1) Turn ignition switch to OFF. Is the resistance less than full injector - Ref. 2) Measure resistance between fuel injector terminals on faulty cylinder. Is the resistance less than full injector -> and ECM <ref. fu(h4)-56="" fuel="" injector.="" to=""> and ECM <ref. control="" engine="" fu(h4)-67="" module.="" to="">. 9 CHECK INSTALLATION OF CAMSHAFT POSI- No. 1 — No. 2: Is camshaft position sensor or crankshaft position sensor or crankshaft position sensor or crankshaft position sensor ion loosely installed? Tighten camshaft position sensor ion sensor. Go to step 10.</ref.></ref.>		faulty cylinder.		injector. After	
4) Measure voltage between ECM connector and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-):ECM. <ref. to<br=""></ref.> FU(H4)-67 Engine Control Module.>8CHECK FUEL INJECTOR. (1) Turn ignition switch to OFF. (2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2:Is the resistance less than 1 Ω?Replace faulty fuel injector <ref. </ref. to FU(H4)-67 Engine Control Module.>Go to step 9.9CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR.Is camshaft position sensor or crankshaft position sensor or crankshaft position sensor.Tighten camshaft position sensor.Go to step 10.10CHECK CRANKSHAFT SPROCKET.Is crankshaft sprocketReplace crank- Son osensor.Go to step 11.		3) Turn ignition switch to ON.		repair, replace	
and chassis ground on faulty cylinders. Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-):FU(H4)-67 Engine Control Module.>8CHECK FUEL INJECTOR. (1) Turn ignition switch to OFF. (2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2:Is the resistance less than 1 Ω?Replace faulty fuel injector <ref. </ref. to FU(H4)-56 Fuel Injector.> and ECM <ref. to<br=""></ref.> FU(H4)-67 Engine Control Module.>Go to step 9.9CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR.Is camshaft position sensor or crankshaft position sensor sor loosely installed?Tighten camshaft position sensor.Go to step 10.10CHECK CRANKSHAFT SPROCKET.Is crankshaft sprocketReplace crank- Go to step 11Go to step 11		4) Measure voltage between ECM connector		ECM. <ref. th="" to<=""><th></th></ref.>	
Connector & terminal #1 (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 13 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-):Control Module.>8CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2:Is the resistance less than 1 Ω?Replace faulty fuel injector <ref. </ref. to FU(H4)-56 Fuel Injector.> and ECM <ref. to<br=""></ref.> FU(H4)-67 Engine Control Module.>.Go to step 9.9CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSI- TION SENSOR.Is camshaft position sensor or crankshaft position sensor or loosely installed?Tighten camshaft position sensor.Go to step 10.10CHECK CRANKSHAFT SPROCKETIs crankshaft sprocketReplace rank- Sor loosely installed?Go to step 11		and chassis ground on faulty cylinders.		FU(H4)-67 Engine	
*** (B134) No. 4 (+) — Chassis ground (-): #2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): Is the resistance less than 1 Ω? Replace faulty fuel injector < Ref. to FU(H4)-56 Fuel Injector.> and ECM < Ref. to FU(H4)-67 Engine Control Module.>. Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR. Is camshaft position sensor or crankshaft position sensor sor loosely installed? Tighten camshaft position sensor. Go to step 10.		Connector & terminal		Control Module.>	
#2 (B134) No. 13 (+) — Chassis ground (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-):Replace faulty fuel injector <ref. </ref. to FU(H4)-56 Fuel Injector.> and ECM <ref. to<br=""></ref.> FU(H4)-66 Fuel Injector.> and ECM <ref. to<br=""></ref.> FU(H4)-67 Engine Control Module.>.Go to step 9.9CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR.Is canshaft position sensor or crankshaft position sensor.Tighten canshaft position sensor.Go to step 10.10CHECK CRANKSHAFT SPROCKET.Is crankshaft sprocketBenjace crank- Sensor.Go to step 11		$(-)^{-1}$			
 (-): #3 (B134) No. 14 (+) — Chassis ground (-): #4 (B134) No. 15 (+) — Chassis ground (-): CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2: CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR./CRANKSHAFT POSI- TION SENSOR. Is camshaft position sensor or crankshaft position sensor sor loosely installed? Replace faulty fuel injector < Ref. to FU(H4)-56 Fuel Injector.> and ECM < Ref. to FU(H4)-67 Engine Control Module.>. CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSI- TION SENSOR. Is camshaft position sensor or crankshaft position sensor. Go to step 10. CHECK CRANKSHAFT SPROCKET Is crankshaft sprocket Replace faulty fuel injector < Ref. to FU(H4)-56 Fuel Injector.> and ECM < Ref. to FU(H4)-67 Engine Control Module.>. Go to step 10. 		#2 (B134) No. 13 (+) — Chassis ground			
#3 (B134) No. 14 (+) — Chassis ground (-):-		(–):			
(-): #4 (B134) No. 15 (+) — Chassis ground (-):Is the resistance less than 1 Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2:Is the resistance less than 1 Ω?Replace faulty fuel injector <ref. </ref. to FU(H4)-56 Fuel Injector.> and ECM <ref. to<br=""></ref.> FU(H4)-67 Engine Control Module.>.Go to step 9.9CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR.Is camshaft position sensor or crankshaft position sensor.Tighten camshaft position sensor.Go to step 10.10CHECK CRANKSHAFT SPROCKET.Is crankshaft sprocketReplace grank- Go to step 11.		#3 (B134) No. 14 (+) — Chassis ground			
#4 (B134) No. 15 (+) — Chassis ground (-):Second (-):Replace faulty fuel injector <ref. </ref. to FU(H4)-56 Fuel lnjector.> and ECM <ref. to<br=""></ref.> FU(H4)-67 Engine Control Module.>.Go to step 9.9CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR.Is camshaft position sensor or crankshaft position sensor.Tighten camshaft position sensor.Go to step 10.10CHECK CRANKSHAFT SPROCKETIs crankshaft sprocketReplace crank- for crankshaft sprocketGo to step 11.		(-):			
8 CHECK FUEL INJECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel injector terminals on faulty cylinder. Terminals No. 1 — No. 2: Is the resistance less than 1 Ω? Replace faulty fuel injector <ref. to FU(H4)-56 Fuel Injector.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.>. Go to step 9. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSI- TION SENSOR. Is camshaft position sensor or crankshaft position sensor. Tighten camshaft position sensor. Go to step 10. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- for trankshaft position sensor. Go to step 11.</ref.></ref. 		(B134) No. 15 (+) — Chassis ground (_)			
1) Turn ignition switch to OFF. 1 Ω? fuel injector <ref.< td=""> 2) Measure resistance between fuel injector terminals on faulty cylinder. 1 Ω? fuel injector <ref.< td=""> <i>Terminals</i> No. 1 — No. 2: fuel injector <ref. fu(h4)-56="" fuel="" injector.="" to=""> and ECM <ref. control="" engine="" fu(h4)-67="" module.="" to="">. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR. Is camshaft position sensor or crankshaft position sensor or crankshaft position sensor. Tighten camshaft position sensor. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- Go to step 11</ref.></ref.></ref.<></ref.<>	8	CHECK FUEL INJECTOR.	Is the resistance less than	Replace faultv	Go to step 9.
2) Measure resistance between fuel injector terminals on faulty cylinder. to FU(H4)-56 Fuel Injector.> and ECM <ref. control="" engine="" fu(h4)-67="" module.="" to="">. 9 CHECK INSTALLATION OF CAMSHAFT POSI-TION SENSOR/CRANKSHAFT POSI-TION SENSOR. Is camshaft position sensor or crankshaft position sensor or crankshaft position sensor. Tighten camshaft position sensor or crankshaft position sensor. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Beplace crank- Go to step 11</ref.>	-	1) Turn ignition switch to OFF.	1 Ω?	fuel injector <ref.< th=""><th> -</th></ref.<>	 -
terminals on faulty cylinder. Injector.> and ECM <ref. control="" engine="" fu(h4)-67="" module.="" to="">. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR/CRANKSHAFT POSITION SENSOR. Is camshaft position sensor or crankshaft position sensor or crankshaft position sensor. Tighten camshaft position sensor or crankshaft position sensor. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- Go to step 11</ref.>		2) Measure resistance between fuel injector		to FU(H4)-56 Fuel	
Terminals ECM <ref. td="" to<=""> No. 1 — No. 2: FU(H4)-67 Engine CHECK INSTALLATION OF CAMSHAFT Is camshaft position sensor POSITION SENSOR/CRANKSHAFT POSI- Is camshaft position sensor TION SENSOR. Is camshaft position sensor IO CHECK CRANKSHAFT SPROCKET.</ref.>		terminals on faulty cylinder.		Injector.> and	
No. 1 — No. 2: FU(H4)-67 Engine Control Module.>. 9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSI- TION SENSOR. Is camshaft position sensor or crankshaft position sen- sor loosely installed? Tighten camshaft position sensor or crankshaft posi- tion sensor. Go to step 10. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- Beplace crank- Go to step 11		Terminals		ECM <ref. th="" to<=""><th></th></ref.>	
9 CHECK INSTALLATION OF CAMSHAFT POSITION SENSOR/CRANKSHAFT POSI- TION SENSOR. Is camshaft position sensor or crankshaft position sen- sor loosely installed? Tighten camshaft position sensor or crankshaft posi- tion sensor. Go to step 10. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Beplace crank- Sor loosely installed? Go to step 11		NO. 1 — NO. 2:		FU(H4)-67 Engine	
POSITION SENSOR/CRANKSHAFT POSI- TION SENSOR. or crankshaft position sen- sor loosely installed? position sensor or crankshaft posi- tion sensor. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- Sor loosely installed?	9	CHECK INSTALLATION OF CAMSHAFT	Is camshaft position sensor	Tighten camshaft	Go to step 10.
TION SENSOR. sor loosely installed? crankshaft position sensor. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- Go to step 11	-	POSITION SENSOR/CRANKSHAFT POSI-	or crankshaft position sen-	position sensor or	· •·
Image: tion sensor. tion sensor. 10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- Go to step 11		TION SENSOR.	sor loosely installed?	crankshaft posi-	
10 CHECK CRANKSHAFT SPROCKET. Is crankshaft sprocket Replace crank- Go to step 11				tion sensor.	
	10	CHECK CRANKSHAFT SPROCKET.	Is crankshaft sprocket	Replace crank-	Go to step 11.
Remove timing belt cover. rusted or does it have bro- shaft sprocket.		Remove timing belt cover.	rusted or does it have bro-	shaft sprocket.	
ken teeth?			ken teeth?	Ket. to	
₩E(Π4)-52 Cialik- shaft Sprocket >				shaft Sprocket >	

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No.	Step	Check	Yes	No
11	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block. ST 499987500 CRANKSHAFT SOCKET	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <ref. to<br="">ME(H4)-46 Timing Belt Assembly.></ref.>	Go to step 12.
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 replenishing fuel, Go to step 13 .
13	CHECK STATUS OF CHECK ENGINE MAL- FUNCTION INDICATOR LAMP (MIL). 1) Clear memory using Subaru Select Moni- tor. <ref. clear="" en(h4)-63="" memory="" mode.="" to=""> 2) Start engine, and drive the vehicle more than 10 minutes.</ref.>	Is the MIL coming on or blinking?	Go to step 15 .	Go to step 14 .
14	CHECK CAUSE OF MISFIRE DIAGNOSED.	Was the cause of misfire diagnosed when the engine is running?	Finish diagnostics operation, if the engine has no abnormality. NOTE: Ex. Remove spark plug cord, etc.	Repair poor con- tact. NOTE: In this case, repair the follow- ing: • Poor contact in ignitor connector • Poor contact in ignition coil con- nector • Poor contact in fuel injector con- nector on faulty cylinders • Poor contact in ECM connector • Poor contact in coupling connec- tor
15	CHECK AIR INTAKE SYSTEM.	Is there a fault in air intake system?	Repair air intake system. NOTE: Check the follow- ing items: • Are there air leaks or air suc- tion caused by loose or dislo- cated nuts and bolts? • Are there cracks or any dis- connection of hoses?	Go to step 16.
Engine (DIAGNOSTICS)

No.	Step	Check	Yes	No
16	CHECK MISFIRE SYMPTOM.	Does the Subaru Select	Go to step 21.	Go to step 17.
	 1) Turn ignition switch to ON. 2) Read diagnostic trouble code (DTC). Subaru Select Monitor <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the 	Monitor or OBD-II general scan tool indicate only one DTC?		
	NOTE: Perform diagnosis according to the items listed below.			
17	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0302?	Go to step 22.	Go to step 18 .
18	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0303 and P0304?	Go to step 23.	Go to step 19.
19	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0301 and P0303?	Go to step 24.	Go to step 20 .
20	CHECK DIAGNOSTIC TROUBLE CODE (DTC) ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0302 and P0304?	Go to step 25.	Go to step 26.
21	ONLY ONE CYLINDER	Is there a fault in that cylin- der?	Repair or replace faulty parts. NOTE: Check the follow- ing items. • Spark plug • Spark plug cord • Fuel injector • Compression ratio	Go to DTC P0170. <ref. to<br="">EN(H4)-382 DTC P0170 — FUEL TRIM MALFUNC- TION —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
22	GROUP OF #1 AND #2 CYLINDERS	Are there faults in #1 and #2 cylinders?	Repair or replace faulty parts. NOTE: • Check the fol- lowing items. Spark plugs Fuel injectors Ignition coil Compression ratio • If no abnormal is discovered, check for "IGNI- TION CONTROL SYSTEM" of #1 and #2 cylinders side. <ref. to<br="">EN(H4)-86 IGNI- TION CONTROL SYSTEM, Diag- nostics for Engine Starting Failure.></ref.>	Go to DTC P0170. <ref. to<br="">EN(H4)-382 DTC P0170 — FUEL TRIM MALFUNC- TION —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>

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No.	Step	Check	Yes	No
23	GROUP OF #3 AND #4 CYLINDERS	Are there faults in #3 and #4 cylinders?	Repair or replace faulty parts. NOTE: • Check the fol- lowing items. Spark plugs Fuel injectors Ignition coil • If no abnormal is discovered, check for "16. D: IGNITION CON- TROL SYSTEM" of #3 and #4 cyl- inders side. <ref. to EN(H4)-86 IGNITION CON- TROL SYSTEM, Diagnostics for Engine Starting Failure.></ref. 	Go to DTC P0170. <ref. to<br="">EN(H4)-382 DTC P0170 — FUEL TRIM MALFUNC- TION —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
24	GROUP OF #1 AND #3 CYLINDERS	Are there faults in #1 and #3 cylinders?	Repair or replace faulty parts. NOTE: Check the follow- ing items. • Spark plugs • Fuel injectors • Skipping timing belt teeth	Go to DTC P0170. <ref. to<br="">EN(H4)-382 DTC P0170 — FUEL TRIM MALFUNC- TION —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
25	GROUP OF #2 AND #4 CYLINDERS	Are there faults in #2 and #4 cylinders?	Repair or replace faulty parts. NOTE: Check the follow- ing items. • Spark plugs • Fuel injectors • Compression ratio • Skipping timing belt teeth	Go to DTC P0170. <ref. to<br="">EN(H4)-382 DTC P0170 — FUEL TRIM MALFUNC- TION —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>
26	CYLINDER AT RANDOM	Is the engine idle rough?	Go to DTC P0170. <ref. to<br="">EN(H4)-382 DTC P0170 — FUEL TRIM MALFUNC- TION —, Diag- nostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Repair or replace faulty parts. NOTE: Check the follow- ing items. • Spark plugs • Fuel injectors • Compression ratio

Engine (DIAGNOSTICS)

AI: DTC P0327 — KNOCK SENSOR CIRCUIT LOW INPUT — SOUBBOLE F94

• DTC DETECTING CONDITION:

• Immediately at fault recognition

• TROUBLE SYMPTOM:

- Poor driving performance
- Knocking occurs.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance between ECM harness connector and chassis ground. Connector & terminal (B136) No. 4 — Chassis ground:	Is the resistance more than 700 kΩ?	Go to step 2.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between knock sensor and ECM connector • Poor contact in knock sensor con- nector • Poor contact in coupling connec- tor (B21)
2	CHECK KNOCK SENSOR. 1) Disconnect connector from knock sensor. 2) Measure resistance between knock sensor connector terminal and engine ground. Terminal No. 2 — Engine ground:	Is the resistance more than 700 kΩ?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between knock sensor and ECM connector • Poor contact in knock sensor con- nector • Poor contact in coupling connec- tor (B21)
3	CHECK CONDITION OF KNOCK SENSOR INSTALLATION.	Is the knock sensor instal- lation bolt tightened securely?	Replace knock sensor. <ref. to<br="">FU(H4)-43 Knock Sensor.></ref.>	Tighten knock sensor installation bolt securely.

Engine (DIAGNOSTICS)

AJ: DTC P0328 — KNOCK SENSOR CIRCUIT HIGH INPUT — S008602F95

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Poor driving performance
 - Knocking occurs.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN KNOCK SENSOR AND ECM CONNECTOR. Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B136) No. 4 — Chassis ground:	Is the resistance less than 400 k Ω ?	Go to step 2.	Go to step 3.
2	CHECK KNOCK SENSOR. 1) Disconnect connector from knock sensor. 2) Measure resistance between knock sensor connector terminal and engine ground. <i>Terminal</i> <i>No. 2 — Engine ground:</i>	Is the resistance less than 400 kΩ?	Replace knock sensor. <ref. to<br="">FU(H4)-43 Knock Sensor.></ref.>	Repair ground short circuit in harness between knock sensor con- nector and ECM connector. NOTE: The harness between both connectors is shielded. Repair short circuit of harness together with shield.
3	CHECK INPUT SIGNAL FOR ECM. 1) Connect connectors to ECM and knock sensor. 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chas- sis ground. Connector & terminal (B136) No. 4 (+) — Chassis ground (-):	Is the voltage more than 2 V?	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the follow- ing: • Poor contact in knock sensor con- nector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Repair poor con- tact in ECM con- nector.

Engine (DIAGNOSTICS)

AK: DTC P0335 — CRANKSHAFT POSITION SENSOR CIRCUIT MALFUNCTION — S008602.E42

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN CRANK- SHAFT POSITION SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from crankshaft posi- tion sensor. 3) Measure resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 1 — Engine ground:	Is the resistance more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between crankshaft posi- tion sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Go to step 2.
2	CHECK HARNESS BETWEEN CRANK- SHAFT POSITION SENSOR AND ECM CONNECTOR. Measure resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 1 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between crankshaft posi- tion sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short cir- cuit in harness together with shield.	Go to step 3.
3	CHECK HARNESS BETWEEN CRANK- SHAFT POSITION SENSOR AND ECM CONNECTOR. Measure resistance of harness between crankshaft position sensor connector and engine ground. Connector & terminal (E10) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between crankshaft posi- tion sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)
4	CHECK CONDITION OF CRANKSHAFT POSITION SENSOR.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step 5 .	Tighten crankshaft position sensor installation bolt securely.
5	 CHECK CRANKSHAFT POSITION SENSOR. 1) Remove crankshaft position sensor. 2) Measure resistance between connector terminals of crankshaft position sensor. Terminals No. 1 - No. 2: 	Is the resistance between 1 and 4 $k\Omega$?	Repair poor con- tact in crankshaft position sensor connector.	Replace crank- shaft position sen- sor. <ref. to<br="">FU(H4)-41 Crank- shaft Position Sensor.></ref.>

Engine (DIAGNOSTICS)

AL: DTC P0336 — CRANKSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — 5005022843

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0335?	Inspect DTC P0335 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK CONDITION OF CRANKSHAFT POSITION SENSOR. Turn ignition switch to OFF.	Is the crankshaft position sensor installation bolt tightened securely?	Go to step 3.	Tighten crankshaft position sensor installation bolt securely.
3	CHECK CRANKSHAFT SPROCKET. Remove front belt cover.	Are crankshaft sprocket teeth cracked or damaged?	Replace crank- shaft sprocket. <ref. to<br="">ME(H4)-52 Crank- shaft Sprocket.></ref.>	Go to step 4.
4	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn crankshaft using ST, and align alignment mark on crankshaft sprocket with alignment mark on cylinder block. ST 499987500 CRANKSHAFT SOCKET	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <ref. to<br="">ME(H4)-46 Timing Belt Assembly.></ref.>	Replace crank- shaft position sen- sor. <ref. to<br="">FU(H4)-41 Crank- shaft Position Sensor.></ref.>

Engine (DIAGNOSTICS)

AM: DTC P0340 — CAMSHAFT POSITION SENSOR CIRCUIT MALFUNCTION

S008602B44

- DTC DETECTING CONDITION:
 - Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from camshaft position sensor. 3) Measure resistance of harness between camshaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground: 	Is the resistance more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Go to step 2.
2	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short cir- cuit in harness together with shield.	Go to step 3.
3	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. Connector & terminal (E15) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)
4	CHECK CONDITION OF CAMSHAFT POSI- TION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 5 .	Tighten camshaft position sensor installation bolt securely.
5	 CHECK CAMSHAFT POSITION SENSOR. 1) Remove camshaft position sensor. 2) Measure resistance between connector terminals of camshaft position sensor. Terminals No. 1 - No. 2: 	Is the resistance between 1 and 4 $k\Omega?$	Repair poor con- tact in camshaft position sensor connector.	Replace camshaft position sensor. <ref. to<br="">FU(H4)-42 Cam- shaft Position Sensor.></ref.>

Engine (DIAGNOSTICS)

AN: DTC P0341 — CAMSHAFT POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — 500002245

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0340?	Inspect DTC P0340 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from camshaft posi- tion sensor. 3) Measure resistance of harness between camshaft position sensor connector and engine ground. Connector & terminal (E15) No. 1 — Engine ground:	Is the resistance more than 100 kΩ?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)	Go to step 3.
3	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. <i>Connector & terminal</i> <i>(E15) No. 1 — Engine ground:</i>	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between camshaft position sensor and ECM connector. NOTE: The harness between both connectors are shielded. Repair ground short cir- cuit in harness together with shield.	Go to step 4.
4	CHECK HARNESS BETWEEN CAMSHAFT POSITION SENSOR AND ECM CONNEC- TOR. Measure resistance of harness between cam- shaft position sensor connector and engine ground. Connector & terminal (E15) No. 2 — Engine ground:	Is the resistance less than 5 Ω?	Go to step 5 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between camshaft position sensor and ECM connector • Poor contact in ECM connector • Poor contact in coupling connec- tor (B21)

No.	Step	Check	Yes	No
5	CHECK CONDITION OF CAMSHAFT POSI- TION SENSOR.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 6 .	Tighten camshaft position sensor installation bolt securely.
6	 CHECK CAMSHAFT POSITION SENSOR. 1) Remove camshaft position sensor. 2) Measure resistance between connector terminals of camshaft position sensor. Terminals No. 1 — No. 2: 	Is the resistance between 1 and 4 k Ω ?	Go to step 7.	Replace camshaft position sensor. <ref. to<br="">FU(H4)-42 Cam- shaft Position Sensor.></ref.>
7	CHECK CONDITION OF CAMSHAFT POSI- TION SENSOR. Turn ignition switch to OFF.	Is the camshaft position sensor installation bolt tightened securely?	Go to step 8.	Tighten camshaft position sensor installation bolt securely.
8	CHECK CAMSHAFT SPROCKET. Remove front belt cover. <ref. me(h4)-45<br="" to="">Belt Cover.></ref.>	Are camshaft sprocket teeth cracked or damaged?	Replace camshaft sprocket. <ref. to<br="">ME(H4)-51 Cam- shaft Sprocket.></ref.>	Go to step 9 .
9	CHECK INSTALLATION CONDITION OF TIMING BELT. Turn camshaft using ST, and align alignment mark on camshaft sprocket with alignment mark on timing belt cover LH. ST 499207100 CAMSHAFT SPROCKET WRENCH	Is timing belt dislocated from its proper position?	Repair installation condition of timing belt. <ref. to<br="">ME(H4)-46 Timing Belt Assembly.></ref.>	Replace camshaft position sensor. <ref. to<br="">FU(H4)-42 Cam- shaft Position Sensor.></ref.>

MEMO:

Engine (DIAGNOSTICS)

AO: DTC P0420 — CATALYST SYSTEM EFFICIENCY BELOW THRESHOLD

S008602B46

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine stalls.
 - Idle mixture is out of specifications.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0130, P0133, P0136, P0139, P0037, P0301, P0302, P0303, P0304, P1130, P1131, P0031, P0032 and P0038?	Inspect the rel- evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0420.</ref.>	Go to step 2.
2	 CHECK EXHAUST SYSTEM. Check for gas leaks or air suction caused by loose or dislocated nuts and bolts, and open hole at exhaust pipes. NOTE: Check the following positions. Between cylinder head and front exhaust pipe Between front exhaust pipe and front catalytic converter Between front catalytic converter and rear catalytic converter 	Is there a fault in exhaust system?	Repair or replace exhaust system. <ref. 2.="" to=""></ref.>	Go to step 3.
3	CHECK REAR CATALYTIC CONVERTER. Separate rear catalytic converter from rear exhaust pipe.	Is there damage at rear face of rear catalyst?	Replace front catalytic converter <ref. ec(h4)-3<br="" to="">Front Catalytic Converter.> and rear catalytic con- verter <ref. to<br="">EC(H4)-6 Rear Catalytic Con- verter.>.</ref.></ref.>	Go to step 4.
4	CHECK FRONT CATALYTIC CONVERTER. Remove front catalytic converter.	Is there damage at rear face or front face of front catalyst?	Replace front catalytic con- verter. <ref. to<br="">EC(H4)-3 Front Catalytic Con- verter.></ref.>	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

AP: DTC P0442 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION — SOUBOOL BAG

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- Gasoline smell
 - There is a hole of more than 1.0 mm (0.04 in) dia. in evaporation system or fuel tank.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)



B2M3882

No	Ston	Check	Vas	No
1NO.			Its	
1		display?	evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK FUEL FILLER CAP. 1) Turn ignition switch to OFF. 2) Check the fuel filler cap. NOTE: The DTC code is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Is the fuel filler cap tight- ened securely?	Go to step 3.	Tighten fuel filler cap securely.
3	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4)-82 Fuel Filler Pipe.></ref.>	Go to step 4.
4	CHECK DRAIN VALVE. 1) Connect test mode connector. 2) Turn ignition switch to ON. 3) Operate drain valve. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Opera- tion Check Mode". <ref. com-<br="" en(h4)-64="" to="">pulsory Valve Operation Check Mode.></ref.>	Does drain valve produce operating sound?	Go to step 5.	Replace drain valve. <ref. to<br="">EC(H4)-17 Drain Valve.></ref.>
5	CHECK PURGE CONTROL SOLENOID VALVE. Operate purge control solenoid valve. NOTE: Purge control solenoid valve operation can also be executed using Subaru Select Moni- tor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <ref. to<br="">EN(H4)-64 Compulsory Valve Operation Check Mode.></ref.>	Does purge control sole- noid valve produce operat- ing sound?	Go to step 6 .	Replace purge control solenoid valve. <ref. to<br="">EC(H4)-8 Purge Control Solenoid Valve.></ref.>
6	CHECK PRESSURE CONTROL SOLENOID VALVE. Operate pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Moni- tor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <ref. to<br="">EN(H4)-64 Compulsory Valve Operation Check Mode.></ref.>	Does pressure control sole- noid valve produce operat- ing sound?	Go to step 7.	Replace pressure control solenoid valve. <ref. to<br="">EC(H4)-13 Pres- sure Control Sole- noid Valve.></ref.>
7	CHECK EVAPORATIVE EMISSION CON- TROL SYSTEM LINE. Turn ignition switch to OFF.	Is there a hole of more than 1.0 mm (0.04 in) dia. on fuel line?	Repair or replace fuel line. <ref. to<br="">FU(H4)-98 Fuel Delivery, Return and Evaporation Lines.></ref.>	Go to step 8.

Na	Ctore.	Chaole	Vee	Na
NO.	Step	Check	res	NO
8	CHECK CANISTER.	Is canister damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace canister. <ref. to<br="">EC(H4)-7 Canis- ter.></ref.>	Go to step 9.
9	CHECK FUEL TANK. Remove fuel tank. <ref. fu(h4)-73="" fuel<br="" to="">Tank.></ref.>	Is fuel tank damaged or is there a hole of more than 1.0 mm (0.04 in) dia. in it?	Repair or replace fuel tank. <ref. to<br="">FU(H4)-73 Fuel Tank.></ref.>	Go to step 10 .
10	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Are there holes of more than 1.0 mm (0.04 in) dia., cracks, clogging or discon- nections of hoses or pipes in evaporative emission control system?	Repair or replace hoses or pipes.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

AQ: DTC P0444 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT LOW INPUT — 500602G47

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
<u>No.</u> 1	Step CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 2 (+) — Chassis ground (-):	Check Is the voltage more than 10 V?	Yes Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio-	No Go to step 2.
2	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF.	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and purge	Go to step 3.
	 2) Disconnect connectors from purge control solenoid valve and ECM. 3) Measure resistance of harness between purge control solenoid valve connector and engine ground. Connector & terminal (E4) No. 2 — Engine ground: 		control solenoid valve connector.	
3	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. Measure resistance of harness between ECM and purge control solenoid valve of harness connector. Connector & terminal (B134) No. 2 — (E4) No. 2:	Is the resistance less than 1 Ω?	Go to step 4.	Repair open cir- cuit in harness between ECM and purge control solenoid valve connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and purge control solenoid valve connector • Poor contact in coupling connec- tor (B22)
4	CHECK PURGE CONTROL SOLENOID VALVE. 1) Remove purge control solenoid valve. 2) Measure resistance between purge control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance between 10 and 100 Ω?	Go to step 5.	Replace purge control solenoid valve. <ref. to<br="">EC(H4)-8 Purge Control Solenoid Valve.></ref.>
5	CHECK POWER SUPPLY TO PURGE CON- TROL SOLENOID VALVE. 1) Turn ignition switch to ON. 2) Measure voltage between purge control solenoid valve and engine ground. Connector & terminal (E4) No. 1 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 6 .	Repair open cir- cuit in harness between main relay and purge control solenoid valve connector.

No.	Step	Check	Yes	No
6	CHECK POOR CONTACT. Check poor contact in purge control solenoid valve connector.	Is there poor contact in purge control solenoid valve connector?	Repair poor con- tact in purge con- trol solenoid valve connector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AR: DTC P0445 — EVAPORATIVE EMISSION CONTROL SYSTEM PURGE CONTROL VALVE CIRCUIT HIGH INPUT — 5008602G48

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating purge control solenoid valve, measure voltage between ECM and chassis ground. NOTE: Purge control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Opera- tion Check Mode". <ref. com-<br="" en(h4)-64="" to="">pulsory Valve Operation Check Mode.> Connector & terminal (B134) No. 2 (+) — Chassis ground (-):</ref.>	Does voltage change between 0 and 10 V?	Go to step 2.	Even if MIL light up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.
2	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 2 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 4.	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	CHECK HARNESS BETWEEN PURGE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from purge control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 2 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and purge control solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5.
5	CHECK PURGE CONTROL SOLENOID VALVE. 1) Turn ignition switch to OFF. 2) Measure resistance between purge control solenoid valve terminals. Terminals No. 1 — No. 2:	Is the resistance less than 1 Ω ?	Replace purge control solenoid valve <ref. to<br="">EC(H4)-13 Purge Control Solenoid Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.></ref.>	Go to step 6 .
6	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

AS: DTC P0447 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL LOW INPUT — 5008002 F98

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No	Sten	Check	Ves	No
1		Le the voltage more than 10	Co to step 2	Go to step 3
	 Turn ignition switch to ON. Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 10 (+) — Chassis ground (-): 	V?	90 10 Step 2.	GU IU SIEP J .
2	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. (However, the possibility of poor contact still remains.) NOTE: In this case, repair the follow- ing: • Poor contact in drain valve con- nector • Poor contact in ECM connector • Poor contact in coupling connec- tors (B97 and B99)
3	 CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from drain valve and ECM. 3) Measure resistance of harness between drain valve connector and chassis ground. Connector & terminal (R69) No. 2 — Chassis ground: 	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and drain valve connector.	Go to step 4.
4	CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. Measure resistance of harness between ECM and drain valve connector. Connector & terminal (B134) No. 10 — (R69) No. 2:	Is the voltage less than 1 Ω ?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and drain valve connector • Poor contact in coupling connec- tors (B99)
5	CHECK DRAIN VALVE. Measure resistance between drain valve ter- minals. Terminals No. 1 — No. 2:	Is the resistance between 10 and 100 Ω?	Go to step 6.	Replace drain valve. <ref. to<br="">EC(H4)-17 Drain Valve.></ref.>

No.	Step	Check	Yes	No
6	CHECK POWER SUPPLY TO DRAIN VALVE. 1) Turn ignition switch to ON. 2) Measure voltage between drain valve and chassis ground. Connector & terminal (R69) No. 1 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Go to step 7.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and drain valve • Poor contact in coupling connec- tors (B97) • Poor contact in main relay con- nector
7	CHECK POOR CONTACT. Check poor contact in drain valve connector.	Is there poor contact in drain valve connector?	Repair poor con- tact in drain valve connector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AT: DTC P0448 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL HIGH INPUT — 5006602F99

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating drain valve, measure volt- age between ECM and chassis ground. NOTE: Drain valve operation can be excecuted using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. compulsory="" en(h4)-64="" opera-<br="" to="" valve="">tion Check Mode.> Connector & terminal (B134) No. 10 (+) — Chassis ground (-):</ref.>	Does voltage change between 0 and 10 V?	Go to step 2.	Even if MIL light up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.
2	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 10 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 4.	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	 CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from drain valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 10 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5.
5	 CHECK DRAIN VALVE. 1) Turn ignition switch to OFF. 2) Measure resistance between drain valve terminals. Terminals No. 1 — No. 2: 	Is the resistance less than 1 Ω?	Replace drain valve <ref. to<br="">EC(H4)-17 Drain Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.></ref.>	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

AU: DTC P0451 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR RANGE/PERFORMANCE PROBLEM — SOUTH STATEMENT

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any DTC on display?	Inspect the rel- evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK FUEL FILLER CAP.1) Turn ignition switch to OFF.2) Open the fuel flap.	Is the fuel filler cap tight- ened 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 	Is there a fault in pressure/ vacuum line?	Repair or replace hoses and pipes.	Replace fuel tank pressure sensor. <ref. to<br="">EC(H4)-12 Fuel Tank Pressure Sensor.></ref.>
Engine (DIAGNOSTICS)

AV: DTC P0452 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR LOW INPUT — 5005022852

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Turn ignition switch to OFF. 2) Remove fuel filler cap. 3) Install fuel filler cap. 4) Turn ignition switch to ON. 5) Read the data of fuel tank pressure sensor signal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value less than -2.8 kPa (-21.0 mmHg, -0.827 inHg)?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time.
2	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 4 .	Go to step 3.
3	CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR. Measure voltage between ECM connector and chassis ground. <i>Connector & terminal</i> (B136) No. 15 (+) — Chassis ground (-):	Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
4	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B136) No. 12 (+) — 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 data of fuel tank pressure sensor signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	Does the value change more than -2.8 kPa (-21.0 mmHg, -0.827 inHg) by shaking harness and con- nector of ECM while moni- toring the value with Subaru Select Monitor?	Repair poor con- tact in ECM con- nector.	Go to step 6.

No.	Sten	Check	Yes	No
6		Is the voltage more than	Go to step 7	Renair harness
	 COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Remove rear seat cushion (Sedan) or move rear seat cushion (Wagon). 3) Separate rear wiring harness and fuel tank cord. 4) Turn ignition switch to ON. 5) Measure voltage between rear wiring harness connector and chassis ground. Connector & terminal (R134) No. 5 (+) — Chassis ground (-): 	4.5 V?		and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (R134) • Poor contact in coupling connec- tor (B99)
7	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and rear wiring harness connector. Connector & terminal (B136) No. 16 — (R134) No. 3:	Is the resistance less than 1 Ω?	Go to step 8.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (R134) • Poor contact in coupling connec- tor (B99) • Poor contact in joint connector (B83)
8	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. Measure resistance of harness between rear wiring harness connector and chassis ground. Connector & terminal (R134) No. 3 — Chassis ground:	Is the resistance more than 500 kΩ?	Go to step 9.	Repair ground short circuit in harness between ECM and rear wiring harness connector (R134).
9	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel tank pressure sensor. 2) Measure resistance of fuel tank cord. Connector & terminal (R135) No. 5 — (R47) No. 3: 	Is the resistance less than 1 Ω?	Go to step 10 .	Repair open cir- cuit in fuel tank cord.
10	CHECK FUEL TANK CORD. Measure resistance of fuel tank cord. Connector & terminal (R135) No. 3 — (R47) No. 1:	Is the resistance less than 1 Ω?	Go to step 11.	Repair open cir- cuit in fuel tank cord.
11	CHECK FUEL TANK CORD. Measure resistance of harness between fuel tank pressure sensor connector and chassis ground. Connector & terminal (R47) No. 2 — Chassis ground:	Is the resistance more than 500 kΩ?	Go to step 12 .	Repair ground short circuit in fuel tank cord.
12	CHECK POOR CONTACT. Check poor contact in fuel tank pressure sen- sor connector.	Is there poor contact in fuel tank pressure sensor con- nector?	Repair poor con- tact in fuel tank pressure sensor connector.	Replace fuel tank pressure sensor. <ref. to<br="">EC(H4)-12 Fuel Tank Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AW: DTC P0453 — EVAPORATIVE EMISSION CONTROL SYSTEM PRESSURE SENSOR HIGH INPUT — 5008022853

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



Engine (DIAGNOSTICS)

	e t		X	
No.	Step	Check	Yes	No
1	CHECK CURRENT DATA.	Is the value more than 2.8	Go to step 12.	Go to step 2.
	1) Turn ignition switch to OFF.	kPa (21.0 mmHg, 0.827		
	2) Remove fuel filler cap.	inHg)?		
	3) Install fuel filler cap.			
	4) Turn ignition switch to ON.			
	5) Read data of fuel tank pressure sensor sig-			
	nal using Subaru Select Monitor or OBD-II			
	general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure refer to the			
	"READ CURRENT DATA FOR ENGINE".			
	<ref. en(h4)-52="" monitor="" select="" subaru="" to=""></ref.>			
	OBD-II general scan tool			
	For detailed operation procedures, refer to the			
	OBD-II General Scan Tool Instruction Manual			
2	CHECK POWER SUPPLY TO FUEL TANK	Is the voltage more than	Go to step 4.	Go to step 3.
	PRESSURE SENSOR.	4.5 V?		
	Measure voltage between ECM connector			
	and chassis ground.			
	Connector & terminal			
	(B136) No. 15 (+) — Chassis ground			
	(–):			
3	CHECK POWER SUPPLY TO FUEL TANK	Does the voltage change	Repair poor con-	Replace ECM.
	PRESSURE SENSOR.	more than 4.5 V by shaking	tact in ECM con-	<ref. th="" to<=""></ref.>
	Measure voltage between ECM connector	harness and connector of	nector.	FU(H4)-67 Engine
	and chassis ground.	ECM while monitoring the		Control Module.>
	Connector & terminal	value with voltage meter?		
	(B136) No. 15 (+) — Chassis ground	_		
	(-):			
4	CHECK INPUT SIGNAL FOR ECM.	Is the voltage less than 0.2	Go to step 6.	Go to step 5.
	Measure voltage between FCM and chassis	V?		
	around.			
	Connector & terminal			
	(B136) No. 12 (+) — Chassis ground			
	(-):			
5	CHECK INPUT SIGNAL FOR FCM (USING	Does the value change	Renair noor con-	Go to step 6
ľ	SUBARU SELECT MONITOR)	more than -2.8 kPa (-21.0	tact in ECM con-	
	Pead data of fuel tank pressure sensor signal	mmHa = 0.827 inHa) by		
	using Subaru Select Monitor	shaking harness and con-		
		nector of ECM while moni-		
	Subaru Select Monitor	toring the value with		
	For detailed operation procedure, refer to the	Subaru Select Monitor?		
	"READ CURRENT DATA FOR ENGINE"			
	<pre>>Ref to EN(H4)-52 Subaru Select Monitor ></pre>			
			Cata star 7	Denein hennese
0		is the voltage more than	GO IO SIEP 7.	Repair namess
		4.5 V !		
				NOTE:
	1) Turn Ignition switch to OFF.			In this case,
	2) Remove rear seat cushion (Sedan) or			repair the follow-
	move rear seat cushion (Wagon).			ing:
	ord Separate rear wiring namess and fuel tank			Open circuit in
	COIG.			namess between
	4) Turn Ignition switch to ON.			ECIM and rear
	5) ivieasure voltage between rear wiring har-			wiring harness
	ness connector and chassis ground.			connector (R134)
	Connector & terminal			Poor contact in
	(R134) No. 5 (+) — Chassis ground (–):			coupling connec-
1				tor (B99)

EN(H4)-439

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and rear wiring harness connector. Connector & terminal (B136) No. 12 — (R134) No. 6:	Is the resistance less than 1 Ω?	Go to step 8.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and rear wiring harness connector (R134) • Poor contact in coupling connec- tor (B99)
8	CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS. Measure resistance of harness between rear wiring harness connector and chassis ground. Connector & terminal (B136) No. 16 — (R134) No. 3:	Is the resistance less than 1 Ω?	Go to step 9 .	Repair ground short circuit in harness between ECM and rear wiring harness connector (R134).
9	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel tank pressure sensor. 2) Measure resistance of fuel tank cord. Connector & terminal (R135) No. 6 — (R47) No. 2: 	Is the resistance less than 1 Ω ?	Go to step 10.	Repair open cir- cuit in fuel tank cord.
10	CHECK FUEL TANK CORD. Measure resistance of fuel tank cord. Connector & terminal (R135) No. 3 — (R47) No. 1:	Is the resistance less than 1 Ω ?	Go to step 11.	Repair open cir- cuit in fuel tank cord.
11	CHECK POOR CONTACT. Check poor contact in fuel tank pressure sen- sor connector.	Is there poor contact in fuel tank pressure sensor con- nector?	Repair poor con- tact in fuel tank pressure sensor connector.	Replace fuel tank pressure sensor. <ref. to<br="">FU(H4)-12 Fuel Tank Pressure Sensor.></ref.>
12	CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CON- NECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel tank pres- sure sensor. 3) Turn ignition switch to ON. 4) Read data of fuel tank pressure sensor sig- nal using Subaru Select Monitor or the OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". < Ref. to EN(H4)-52 Subaru Select Monitor.> • OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool	Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?	Repair battery short circuit in harness between ECM and fuel tank pressure sensor connector.	Replace fuel tank pressure sensor. <ref. to<br="">FU(H4)-12 Fuel Tank Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

AX: DTC P0456 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION — SOURCE SOURCE STATEM

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- Gasoline smell
 - There is a hole of more than 0.5 mm (0.020 in) dia. in evaporation system or fuel tank.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)



B2M3882

			1	
No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK FUEL FILLER CAP. 1) Turn ignition switch to OFF. 2) Check the fuel filler cap. NOTE: The DTC code is stored in memory if fuel filler cap is or was loose or if the cap chain was caught while tightening.	Is the fuel filler cap tight- ened securely?	Go to step 3.	Tighten fuel filler cap securely.
3	CHECK FUEL FILLER PIPE PACKING.	Is there any damage to the seal between fuel filler cap and fuel filler pipe?	Repair or replace fuel filler cap and fuel filler pipe. <ref. to<br="">FU(H4)-82 Fuel Filler Pipe.></ref.>	Go to step 4.
4	CHECK DRAIN VALVE. 1) Connect test mode connector. 2) Turn ignition switch to ON. 3) Operate drain valve. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to "Compulsory Valve Opera- tion Check Mode". <ref. com-<br="" en(h4)-64="" to="">pulsory Valve Operation Check Mode.></ref.>	Does drain valve produce operating sound?	Go to step 5.	Replace drain valve. <ref. to<br="">EC(H4)-17 Drain Valve.></ref.>
5	CHECK PURGE CONTROL SOLENOID VALVE. Operate purge control solenoid valve. NOTE: Purge control solenoid valve operation can also be executed using Subaru Select Moni- tor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <ref. to<br="">EN(H4)-64 Compulsory Valve Operation Check Mode.></ref.>	Does purge control sole- noid valve produce operat- ing sound?	Go to step 6 .	Replace purge control solenoid valve. <ref. to<br="">EC(H4)-8 Purge Control Solenoid Valve.></ref.>
6	CHECK PRESSURE CONTROL SOLENOID VALVE. Operate pressure control solenoid valve. NOTE: Pressure control solenoid valve operation can also be executed using Subaru Select Moni- tor. For the procedure, refer to "Compulsory Valve Operation Check Mode". <ref. to<br="">EN(H4)-64 Compulsory Valve Operation Check Mode.></ref.>	Does pressure control sole- noid valve produce operat- ing sound?	Go to step 7.	Replace pressure control solenoid valve. <ref. to<br="">EC(H4)-13 Pres- sure Control Sole- noid Valve.></ref.>
7	CHECK EVAPORATIVE EMISSION CON- TROL SYSTEM LINE. Turn ignition switch to OFF.	Is there a hole of more than 0.5 mm (0.020 in) dia. on fuel line?	Repair or replace fuel line. <ref. to<br="">FU(H4)-98 Fuel Delivery, Return and Evaporation Lines.></ref.>	Go to step 8.

No	Ston	Chaok	Vac	No
NO.	Step	Check	res	NO
8	CHECK CANISTER.	Is canister damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace canister. <ref. to<br="">EC(H4)-7 Canis- ter.></ref.>	Go to step 9.
9	CHECK FUEL TANK. Remove fuel tank. <ref. fu(h4)-73="" fuel<br="" to="">Tank.></ref.>	Is fuel tank damaged or is there a hole of more than 0.5 mm (0.020 in) dia. in it?	Repair or replace fuel tank. <ref. to<br="">FU(H4)-73 Fuel Tank.></ref.>	Go to step 10.
10	CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.	Are there holes of more than 0.5 mm (0.020 in) dia., cracks, clogging or disconnections of hoses or pipes in evaporative emis- sion control system?	Repair or replace hoses or pipes.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

AY: DTC P0461 — FUEL LEVEL SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — 500602054

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0462 or P0463?	Inspect DTC P0462 or P0463 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect this trouble.</ref.>	Replace fuel level sensor <ref. to<br="">EC(H4)-9 Main Fuel Level Sen- sor.> and fuel sub level sensor <ref. to FU(H4)-94 Fuel Sub Level Sen- sor.>.</ref. </ref.>

Engine (DIAGNOSTICS)

AZ: DTC P0462 — FUEL LEVEL SENSOR CIRCUIT LOW INPUT — S006602855

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK SPEEDOMETER AND TACHOM- ETER OPERATION IN COMBINATION METER.	Does speedometer and tachometer operate nor- mally?	Go to step 2.	Repair or replace combination meter. <ref. to<br="">IDI-4 Combination Meter System.></ref.>

No.	Step	Check	Yes	No
2	CHECK INPUT SIGNAL FOR ECM.	Is the voltage less than	Go to step 6.	Go to step 3.
	1) Turn ignition switch to ON. (Engine OFF)	0.12 V?		
	2) Measure voltage between ECM connector			
	and chassis ground.			
	(B136) No. 27 (+) — Chassis ground			
	(-):			
3	CHECK INPUT SIGNAL FOR ECM. (USING	Does the value change	Repair poor con-	Even if MIL lights
	 SUBARU SELECT MONITOR.) Read data of fuel level sensor signal using Subaru Select Monitor. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> 	less than 0.12 V by shak- ing harness and connector of ECM while monitoring the value with Subaru Select Monitor?	tact in ECM con- nector.	up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: • Poor contact in combination meter connector • Poor contact in
				ECM connector • Poor contact in coupling connec- tors (B99)
4	CHECK INPUT VOLTAGE OF ECM.	Is the voltage more than	Go to step 4.	Go to step 7.
	 Turn ignition switch to OFF. Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). Turn ignition switch to ON. Measure voltage of harness between ECM connector and chassis ground. <i>Connector & terminal</i> (B136) No. 27 (+) — Chassis ground (-): 	0.12 V?		
5	CHECK HARNESS BETWEEN ECM AND COMBINATION METER. 1) Turn ignition switch to OFF.	Is the resistance more than 1 $M\Omega$?	Go to step 6.	Repair ground short circuit in harness between
	 2) Disconnect connector from connector (i10) and ECM connector. 3) Measure resistance between ECM and chassis ground. Connector & terminal (B136) No. 27 — Chassis ground: 			ECM and combi- nation meter con- nector.
6	CHECK HARNESS BETWEEN ECM AND COMBINATION METER. Measure resistance between ECM and combi- nation meter connector. Connector & terminal (B136) No. 27 — (i10) No. 3:	Is the resistance less than 10 Ω?	Repair or replace combination meter. <ref. to<br="">IDI-4 Combination Meter System.></ref.>	Repair open cir- cuit between ECM and combination meter connector. NOTE: In this case, repair the follow- ing: Poor contact in coupling connec-
				coupling cor tor (R98)

No.	Step	Check	Yes	No
7	 CHECK FUEL TANK CORD. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel sub level sensor. 3) Measure resistance between fuel sub level sensor and chassis ground. Connector & terminal (R59) No. 1 — Chassis ground: 	Is the resistance more than 1 MΩ?	Go to step 8.	Repair ground short circuit in fuel tank cord.
8	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel pump assembly. 2) Measure resistance between fuel pump assembly and chassis ground. Connector & terminal (R59) No. 2 — Chassis ground: 	Is the resistance more than 1 MΩ?	Go to step 9 .	Repair ground short circuit in fuel tank cord.
9	CHECK FUEL LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel pump assembly. <ref. to<br="">FU(H4)-90 Fuel Pump.> 2) Measure resistance between fuel level sen- sor and terminals with its float set to the full position. <i>Terminals</i> <i>No. 3 — No. 6:</i></ref.>	Is the resistance between 0.5 and 2.5 Ω?	Go to step 10 .	Replace fuel level sensor.
10	CHECK FUEL SUB LEVLE SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel sub level sensor. < Ref. to FU(H4)-94 Fuel Sub Level Sensor.> 2) Measure resistance between fuel sub level sensor and terminals with its float set to the full position. Terminals No. 1 — No. 2:	Is the resistance between 0.5 and 2.5 Ω?	Repair poor con- tact in harness between ECM and combination meter connector.	Replace fuel sub level sensor.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

BA: DTC P0463 — FUEL LEVEL SENSOR CIRCUIT HIGH INPUT — SUBBOLEDE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK SPEEDOMETER AND TACHOM- ETER OPERATION IN COMBINATION METER.	Does speedometer and tachometer operate nor- mally?	Go to step 2.	Repair or replace combination meter. <ref. to<br="">IDI-4 Combination Meter System.></ref.>

No.	Step	Check	Yes	No
2	CHECK INPUT SIGNAL FOR ECM. 1) Turn ignition switch to ON. (Engine OFF) 2) Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 27 (+) — Chassis ground (-):	Is the voltage more than 4.75 V?	Go to step 3.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. A tem- porary poor con- tact of the con- nector may be the cause. NOTE: In this case, repair the follow- ing: • Poor contact in fuel pump con- nector • Poor contact in coupling connec- tor (B22, R98 and R57)
3	 CHECK INPUT VOLTAGE OF ECM. 1) Turn ignition switch to OFF. 2) Disconnect combination meter connector (i10) and ECM connector. 3) Turn ignition switch to ON. 4) Measure voltage of harness between ECM and chassis ground. Connector & terminal (B136) No. 27 (+) — Chassis ground (-): 	Is the voltage more than 4.75 V?	Go to step 4.	Repair battery short circuit between ECM and combination meter connector.
4	 CHECK HARNESS BETWEEN ECM AND FUEL TANK CORD. 1) Turn ignition switch to OFF. 2) Separate fuel tank cord connector (R57) and rear wiring harness connector (R15). 3) Measure resistance between ECM and fuel tank cord. Connector & terminal (B136) No. 27 — (R15) No. 6: 	Is the resistance less than 5 Ω ?	Go to step 5.	Repair open cir- cuit between ECM and fuel tank cord.
5	CHECK HARNESS BETWEEN FUEL TANK CORD AND CHASSIS GROUND. Measure resistance between fuel tank cord and chassis ground. Connector & terminal (R15) No. 5 — Chassis ground:	Is the resistance less than 5 Ω ?	Go to step 6 .	Repair open cir- cuit between fuel tank cord and chassis ground. NOTE: In this case, repair the follow- ing: Poor contact in coupling connec- tors (B22 and B99)
6	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel level sensor. 2) Measure resistance between fuel level sensor and coupling connector. Connector & terminal (R57) No. 5 — (R58) No. 3: 	Is the resistance less than 10 Ω ?	Go to step 7 .	Repair open cir- cuit between cou- pling connector and fuel level sen- sor.

No.	Step	Check	Yes	No
7	 CHECK FUEL TANK CORD. 1) Disconnect connector from fuel sub level sensor. 2) Measure resistance between fuel level sensor and fuel sub level sensor. Connector & terminal (R58) No. 6 — (R59) No. 2: 	Is the resistance less than 10 Ω?	Go to step 8.	Repair open cir- cuit between fuel level sensor and fuel sub level sen- sor.
8	CHECK FUEL TANK CORD. Measure resistance between fuel sub level sensor and coupling connector. Connector & terminal (R57) No. 6 — (R59) No. 1:	Is the resistance less than 10 Ω ?	Go to step 9 .	Repair open cir- cuit between cou- pling connector and fuel sub level sensor.
9	CHECK FUEL LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel pump assembly. <ref. to<br="">FU(H4)-90 Fuel Pump.> 2) While moving fuel level sensor float up and down, measure resistance between fuel level sensor terminals. <i>Terminals</i> <i>No. 3 — No. 6:</i></ref.>	Is the resistance more than 54.5 Ω?	Replace fuel level sensor. <ref. to<br="">FU(H4)-93 Fuel Level Sensor.></ref.>	Go to step 10.
10	CHECK FUEL SUB LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sensor.> 2) While moving fuel sub level sensor float up and down, measure resistance between fuel sub level sensor terminals. Terminals No. 1 — No. 2:</ref.>	Is the resistance more than 41.5 Ω?	Replace fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sen- sor.></ref.>	Replace combina- tion meter. <ref. to IDI-17 Combi- nation Meter Assembly.></ref.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

BB: DTC P0464 — FUEL LEVEL SENSOR INTERMITTENT INPUT SOURCE SOURCE SOURCE STATEMENT INPUT

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0462 or P0463?	Inspect DTC P0462 or P0463 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2 .
2	CHECK FUEL LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel pump assembly. <ref. to<br="">FU(H4)-90 Fuel Pump.> 2) While moving fuel level sensor float up and down, make sure that the resistance between fuel level sensro terminals changes smoothly. <i>Terminals</i> <i>No. 3 — No. 6:</i></ref.>	Does the resistance change smoothly?	Go to step 3.	Replace fuel level sensor. <ref. to<br="">FU(H4)-93 Fuel Level Sensor.></ref.>
3	CHECK FUEL SUB LEVEL SENSOR. WARNING: During work procedures, if fuel tank is more than 3/4 full, be careful because fuel may spill. 1) Remove fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sensor.> 2) While moving fuel sub level sensor float up and down, make sure that the resistance between fuel level sensro terminals changes smoothly. Terminals No. 1 — No. 2:</ref.>	Does the resistance change smoothly?	Repair poor con- tact in ECM, com- bination meter and coupling con- nectors.	Replace fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sen- sor.></ref.>

Engine (DIAGNOSTICS)

BC: DTC P0480 — COOLING FAN RELAY 1 CIRCUIT LOW INPUT — SOUBCOZED57

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

WIRING DIAGRAM:



B2M3939

01 02 P1 P2

No	Sten	Check	Yes	No
1		Does voltage change	Repair poor con-	Go to step 2
l'	1) Turn ignition switch to OFF	between 0 and 10 V?	tact in FCM con-	00 to step z .
	2) Connect test mode connector at the lower		nector.	
	portion of instrument panel (on the driver's			
	side), to the side of the center console box.			
	3) Turn ignition switch to ON.			
	4) While operating radiator fan relay, measure			
	voltage between ECM terminal and ground.			
	NOTE:			
	Radiator fan relay operation can be executed			
	using Subaru Select Monitor. For procedure,			
	Mode" "Pof. to EN(H4) 52 Subaru Soloot			
	Monitor >			
	Connector & terminal			
	(B134) No. 3 (+) — Chassis ground (-):			
2	CHECK GROUND SHORT CIRCUIT IN	Is the resistance less than	Repair ground	Go to step 3
-	RADIATOR FAN RELAY 1 CONTROL CIR-		short circuit in	
	CUIT.		radiator fan relay	
	1) Turn ignition switch to OFF.		1 control circuit.	
	2) Disconnect connectors from ECM.			
	3) Measure resistance of harness between			
	ECM connector and chassis ground.			
	Connector & terminal			
	(B134) No. 3 — Chassis ground:		-	
3	CHECK POWER SUPPLY FOR RELAY.	Is the voltage more than 10	Go to step 4.	Repair open cir-
	1) Remove main fan relay from A/C relay	V?		cult in narness
	2) Turn ignition switch to ON			switch and fuse
	3) Measure voltage between fuse and relay			and relay box
	box (F/B) connector and chassis ground.			(F/B) connector.
	Connector & terminal			(, , , , , , , , , , , , , , , , , , ,
	(F66) No. 5 (+) — Chassis ground (–):			
4	CHECK MAIN FAN RELAY.	Is the resistance between	Go to step 5.	Replace main fan
	1) Turn ignition switch to OFF.	87 and 107 Ω?		relay.
	2) Measure resistance between main fan			
	relay terminals.			
	Ierminal No.5. No.6:			
5	NO. 5 - NO. 6.	In the registered less than	Co to otop 6	Banair barnasa
5				and connector
	Measure resistance of barness between ECM	1 52:		
	and main fan relay connector.			In this case.
	Connector & terminal			repair the follow-
	(B134) No. 3 — (F66) No. 6:			ing:
				Open circuit in
				harness between
				ECM and main
				fan relay connec-
				tor
				Poor contact in
				tor (E45)
6		la thana naon contact in	Deneir near ann	
0	Check poor contact in ECM or main fan relev	ECM or main for roley con	Repair poor con-	Contact with SOA
	connector	nector?	main fan relav	361 1106.
			connector.	

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

BD: DTC P0483 — COOLING FAN FUNCTION PROBLEM — SOURCE SOURCE

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

• TROUBLE SYMPTOM:

- Occurrence of noise
- Overheating

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

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

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:



B2M3939

01 02 P1 P2

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>	Check radiator fan and fan motor. <ref. to<br="">CO(H4)-22 INSPECTION, Radiator Main Fan and Fan Motor.> and <ref. to CO(H4)-24 INSPECTION, Radiator Sub Fan and Fan Motor.></ref. </ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

BE: DTC P0500 — VEHICLE SPEED SENSOR MALFUNCTION — SUBSCIENCE

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK DTC P0720 ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?	Check front vehicle speed sensor signal cir- cuit. <ref. to<br="">AT-56 TROUBLE CODE 33 — FRONT VEHICLE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.></ref.>	Go to step 2.
2	CHECK SPEEDOMETER OPERATION IN COMBINATION METER.	Does speedometer operate normally?	Go to step 3.	Check speedom- eter and vehicle speed sensor. <ref. idi-19<br="" to="">Speedometer.> and <ref. to<br="">AT-31 Front and Rear Vehicle Speed Sensor, Torque Converter Turbine Speed Sensor and Har- ness Assembly.></ref.></ref.>
3	CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from combination meter. 3) Measure resistance between ECM and combination meter. Connector & terminal (B135) No. 24 — (i10) No. 13:	Is the resistance less than 10 Ω?	Repair poor con- tact in ECM con- nector.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and combi- nation meter con- nector • Poor contact in ECM connector • Poor contact in combination meter connector • Poor contact in combination meter connector • Poor contact in coupling connec- tor (B36)

Engine (DIAGNOSTICS)

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

S008602B61

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine is difficult to start.
 - Engine does not start.
 - Erroneous idling
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517?	Inspect DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0506.</ref.>	Go to step 2.
2	 CHECK AIR BY-PASS LINE. 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <ref. air="" at="" control="" fu(h4)-53="" idle="" removal,="" solenoid="" to="" valve.="" vehicles,=""></ref.> 3) Remove throttle body from intake manifold. <ref. at="" body.="" fu(h4)-17="" removal,="" throttle="" to="" vehicles,=""></ref.> 4) Using an air gun, force air into idle air control solenoid valve installation area. Confirm that forced air subsequently escapes from throttle body interior. 	Does air flow out?	Replace idle air control solenoid valve. <ref. to<br="">FU(H4)-54 AT VEHICLES, INSTALLATION, Idle Air Control Solenoid Valve.></ref.>	Replace throttle body. <ref. to<br="">FU(H4)-17 AT VEHICLES, INSTALLATION, Throttle Body.></ref.>
Engine (DIAGNOSTICS)

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

S008602B62

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517?	Inspect DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0507.</ref.>	Go to step 2.
2	 CHECK AIR INTAKE SYSTEM. 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. Loose installation of intake manifold, idle air control solenoid valve and throttle body Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket Disconnections of vacuum hoses 	Is there a fault in air intake system?	Repair air suction and leaks.	Go to step 3.
3	CHECK THROTTLE CABLE.	Does throttle cable have play for adjustment?	Go to step 4.	Adjust throttle cable. <ref. to<br="">SP(H4)-6 INSTALLATION, Accelerator Con- trol Cable.></ref.>
4	 CHECK AIR BY-PASS LINE. 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <ref. at<="" fu(h4)-53="" li="" to=""> VEHICLES, REMOVAL, Idle Air Control Solenoid Valve.> 3) Confirm that there are no foreign particles in by-pass air line. </ref.>	Are foreign particles in by- pass air line?	Remove foreign particles from by- pass air line.	Replace idle air control solenoid valve. <ref. to<br="">FU(H4)-53 Idle Air Control Solenoid Valve.></ref.>

Engine (DIAGNOSTICS)

BH: DTC P0512 — STARTER SWITCH CIRCUIT HIGH INPUT — SOUBCOLGOZ

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OPERATION OF STARTER MOTOR. NOTE: Place the inhibitor switch in each position.	Does starter motor operate when ignition switch to "ON"?	Repair battery short circuit in starter motor cir- cuit. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Check starter motor circuit. <ref. to<br="">EC(H4)-77 Diag- nostics for Engine Starting Failure.></ref.>

Engine (DIAGNOSTICS)

BI: DTC P0604 — INTERNAL CONTROL MODULE MEMORY CHECK SUM

ERROR — S008602G03

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine does not start.
 - Engine stalls.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0601?	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	It is not necessary to inspect DTC P0601.

Engine (DIAGNOSTICS)

BJ: DTC P0703 — BRAKE SWITCH INPUT MALFUNCTION — SOUBCOLEGA

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OPERATION OF BRAKE LIGHT.	Does brake light come on when depressing the brake pedal?	Go to step 2.	Repair or replace brake light circuit.

No.	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR. 1) Disconnect connectors from TCM and brake light switch. 2) Measure resistance of harness between TCM and brake light switch connector. Connector & terminal (B55) No. 24 — (B64) No. 2: (B55) No. 24 — (B65) No. 3 (With cruise control):	Is the resistance less than 1 Ω?	Go to step 3.	Repair or replace harness and con- nector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between TCM and brake light switch con- nector • Poor contact in TCM connector • Poor contact in brake light switch connector
3	CHECK HARNESS BETWEEN TCM AND BRAKE LIGHT SWITCH CONNECTOR. Measure resistance of harness between TCM and chassis ground. Connector & terminal (B55) No. 24 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 4.	Repair ground short circuit in harness between TCM and brake light switch con- nector.
4	 CHECK INPUT SIGNAL FOR TCM. 1) Connect connectors to TCM and brake light switch. 2) Measure voltage between TCM and chassis ground. Connector & terminal (B55) No. 24 (+) — Chassis ground (-): 	Is the voltage less than 1 V when releasing the brake pedal?	Go to step 5 .	Adjust or replace brake light switch. <ref. li-19<br="" to="">STOP LIGHT SWITCH, INSPECTION, Stop Light Sys- tem.></ref.>
5	CHECK INPUT SIGNAL FOR TCM. Measure voltage between TCM and chassis ground. Connector & terminal (B55) No. 24 (+) — Chassis ground (–):	Is the voltage more than 10 V when depressing the brake pedal?	Go to step 6.	Adjust or replace brake light switch. <ref. li-19<br="" to="">STOP LIGHT SWITCH, INSPECTION, Stop Light Sys- tem.></ref.>
6	CHECK POOR CONTACT. Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor con- tact in TCM con- nector.	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module.></ref.>

Engine (DIAGNOSTICS)

BK: DTC P0705 — TRANSMISSION RANGE SENSOR CIRCUIT MALFUNCTION — 5008602705

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Starter does not rotate when selector lever is in "P" or "N" range.
 - Starter rotates when selector lever is in "R", "D", "3", "2" or "1" range.
 - Engine brake is not effected when selector lever is in "3" range.
 - Shift characteristics are erroneous.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check inhibitor switch circuit. <Ref. to AT-124 CHECK INHIBITOR SWITCH, Diagnostic Procedure for No-Trouble Code.>

BL: DTC P0710 — TRANSMISSION FLUID TEMPERATURE SENSOR CIRCUIT MALFUNCTION — SOUBCOLEG

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

• TROUBLE SYMPTOM:

- No shift up to 4th speed (after engine warm-up)
- No lock-up (after engine warm-up)
- Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check ATF temperature sensor circuit. <Ref. to AT-44 TROUBLE CODE 27 — ATF TEMPERATURE SEN-SOR —, Diagnostic Procedure with Trouble Code.>

BM: DTC P0715 — TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT MALFUNCTION — SOUBCE DE7

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check torque converter turbine speed sensor circuit. <Ref. to AT-62 TROUBLE CODE 36 — TORQUE CONVERTER TURBINE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.>

Engine (DIAGNOSTICS)

BN: DTC P0720 — OUTPUT SPEED SENSOR (VEHICLE SPEED SENSOR 2) CIRCUIT MALFUNCTION — SOUBCE BEB

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - No shift or excessive tight corner "braking"

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check front vehicle speed sensor circuit. <Ref. to AT-56 TROUBLE CODE 33 — FRONT VEHICLE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.>

BO: DTC P0725 — ENGINE SPEED INPUT CIRCUIT MALFUNCTION — SOURCE SPEED

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

- TROUBLE SYMPTOM:
 - No lock-up (after engine warm-up)
 - AT diagnostic indicator light (AT OIL TEMP indicator light) remains on when vehicle speed is "0".

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check engine speed input signal circuit. <Ref. to AT-40 TROUBLE CODE 11 — ENGINE SPEED SIGNAL —, Diagnostic Procedure with Trouble Code.>

BP: DTC P0731 — GEAR 1 INCORRECT RATIO — SOUBCO2BTO

NOTE:

For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4)-480 DTC P0734 — GEAR 4 INCOR-RECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

BQ: DTC P0732 — GEAR 2 INCORRECT RATIO — S008602B71

NOTE:

For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4)-480 DTC P0734 — GEAR 4 INCOR-RECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

BR: DTC P0733 — GEAR 3 INCORRECT RATIO — SOUBCO2B72

NOTE:

For the diagnostic procedure, refer to DTC P0734. <Ref. to EN(H4)-480 DTC P0734 — GEAR 4 INCOR-RECT RATIO —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

Engine (DIAGNOSTICS)

BS: DTC P0734 — GEAR 4 INCORRECT RATIO — SOUBCOLET3

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

• TROUBLE SYMPTOM:

• Shift point too high or too low; engine brake not effected in "3" range; excessive shift shock; excessive tight corner "braking"

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect relevant DTC using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK THROTTLE POSITION SENSOR CIRCUIT. Check throttle position sensor circuit. <ref. to<br="">AT-48 TROUBLE CODE 31 — THROTTLE POSITION SENSOR —, Diagnostic Proce- dure with Trouble Code.></ref.>	Is there any trouble in throttle position sensor cir- cuit?	Repair or replace throttle position sensor circuit.	Go to step 3.
3	CHECK FRONT VEHICLE SPEED SENSOR CIRCUIT. Check front vehicle speed sensor circuit. <ref. 33="" at-56="" code="" to="" trouble="" —<br="">FRONT VEHICLE SPEED SENSOR —, Diag- nostic Procedure with Trouble Code.></ref.>	Is there any trouble in vehicle speed sensor 2 cir- cuit?	Repair or replace vehicle speed sensor 2 circuit.	Go to step 4.
4	CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT. Check torque converter turbine speed sensor circuit. <ref. 36="" at-62="" code="" to="" trouble="" —<br="">TORQUE CONVERTER TURBINE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.></ref.>	Is there any trouble in torque converter turbine speed sensor circuit?	Repair or replace torque converter turbine speed sensor circuit.	Go to step 5.
5	CHECK POOR CONTACT. Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor con- tact in TCM con- nector.	Go to step 6 .
6	CHECK MECHANICAL TROUBLE. Check mechanical trouble in automatic trans- mission.	Is there any mechanical trouble in automatic trans- mission?	Repair or replace automatic trans- mission. <ref. to<br="">AT-11 INSPECTION, Road Test.></ref.>	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

BT: DTC P0741 — TORQUE CONVERTER CLUTCH SYSTEM MALFUNCTION

S008602G04

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - No lock-up (after engine warm-up)
 - No shift or excessive tight corner "braking"

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK LOCK-UP DUTY SOLENOID CIR- CUIT. Check lock-up duty solenoid circuit. <ref. to<br="">AT-102 TROUBLE CODE 77 — LOCK-UP DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.></ref.>	Is there any trouble in lock-up duty solenoid cir- cuit?	Repair or replace lock-up duty sole- noid circuit.	Go to step 3.
3	CHECK THROTTLE POSITION SENSOR CIRCUIT. Check throttle position sensor circuit. <ref. to<br="">AT-48 TROUBLE CODE 31 — THROTTLE POSITION SENSOR —, Diagnostic Proce- dure with Trouble Code.></ref.>	Is there any trouble in throttle position sensor cir- cuit?	Repair or replace throttle position sensor circuit.	Go to step 4.
4	CHECK TORQUE CONVERTER TURBINE SPEED SENSOR CIRCUIT. Check torque converter turbine speed sensor circuit. <ref. 36="" at-62="" code="" to="" trouble="" —<br="">TORQUE CONVERTER TURBINE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.></ref.>	Is there any trouble in torque converter turbine speed sensor circuit?	Repair or replace torque converter turbine speed sensor circuit.	Go to step 5.
5	CHECK ENGINE SPEED INPUT CIRCUIT. Check engine speed input circuit. <ref. to<br="">AT-40 TROUBLE CODE 11 — ENGINE SPEED SIGNAL —, Diagnostic Procedure with Trouble Code.></ref.>	Is there any trouble in engine speed input circuit?	Repair or replace engine speed input circuit.	Go to step 6 .
6	CHECK INHIBITOR SWITCH CIRCUIT. Check inhibitor switch circuit. <ref. at-124<br="" to="">CHECK INHIBITOR SWITCH, Diagnostic Pro- cedure for No-trouble Code.></ref.>	Is there any trouble in inhibitor switch circuit?	Repair or replace inhibitor switch circuit.	Go to step 7 .
7	CHECK BRAKE LIGHT SWITCH CIRCUIT. Check brake light switch circuit. <ref. to<br="">AT-122 CHECK BRAKE SWITCH, Diagnostic Procedure for No-trouble Code.></ref.>	Is there any trouble in brake light switch circuit?	Repair or replace brake light switch circuit.	Go to step 8.

No.	Step	Check	Yes	No
8	CHECK ATF TEMPERATURE SENSOR CIR- CUIT. Check ATF temperature sensor circuit. <ref. to AT-44 TROUBLE CODE 27 — ATF TEM- PERATURE SENSOR —, Diagnostic Proce- dure with Trouble Code.></ref. 	Is there any trouble in ATF temperature sensor circuit?	Repair or replace ATF temperature sensor circuit.	Go to step 9.
9	CHECK POOR CONTACT. Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor con- tact in TCM con- nector.	Go to step 10.
10	CHECK MECHANICAL TROUBLE. Check mechanical trouble in automatic trans- mission.	Is there any mechanical trouble in automatic trans- mission?	Repair or replace automatic trans- mission. <ref. to<br="">AT-11 INSPECTION, Road Test.></ref.>	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

Engine (DIAGNOSTICS)

BU: DTC P0743 — TORQUE CONVERTER CLUTCH SYSTEM (LOCK-UP DUTY SOLENOID) ELECTRICAL — SOUBCOLE 50

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- No lock-up (after engine warm-up)

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check lock-up duty solenoid circuit. <Ref. to AT-102 TROUBLE CODE 77 — LOCK-UP DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.>

BV: DTC P0748 — PRESSURE CONTROL SOLENOID (LINE PRESSURE DUTY SOLENOID) ELECTRICAL — 5008022076

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check line pressure duty solenoid circuit. <Ref. to AT-90 TROUBLE CODE 75 — LINE PRESSURE DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.>

BW: DTC P0753 — SHIFT SOLENOID A (SHIFT SOLENOID 1) ELECTRICAL

S008602B77

- DTC DETECTING CONDITION:
- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - No shift

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check shift solenoid 1 circuit. <Ref. to AT-74 TROUBLE CODE 71 — SHIFT SOLENOID 1 —, Diagnostic Procedure with Trouble Code.>

Engine (DIAGNOSTICS)

BX: DTC P0758 — SHIFT SOLENOID B (SHIFT SOLENOID 2) ELECTRICAL —

S008602B78

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

- TROUBLE SYMPTOM:
 - No shift

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check shift solenoid 2 circuit. <Ref. to AT-78 TROUBLE CODE 72 — SHIFT SOLENOID 2 —, Diagnostic Procedure with Trouble Code.>

BY: DTC P0778 — 2-4 BRAKE PRESSURE CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION — 500802205

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check 2-4 brake pressure control solenoid valve circuit. <Ref. to AT-96 TROUBLE CODE 76 — 2-4 BRAKE DUTY SOLENOID —, Diagnostic Procedure with Trouble Code.>

BZ: DTC P0785 — 2-4 BRAKE TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION — S008022006

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check 2-4 brake timing control solenoid valve circuit. <Ref. to AT-86 TROUBLE CODE 74 — 2-4 BRAKE TIMING SOLENOID —, Diagnostic Procedure with Trouble Code.>

Engine (DIAGNOSTICS)

CA: DTC P1110 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT LOW INPUT — SOUBCE BEA

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value less than 0 kPa (0 mmHg, 0 inHg)?	Go to step 3.	Go to step 2.
2	CHECK POOR CONTACT. Check poor contact in ECM and pressure sensor connector.	Is there poor contact in ECM or pressure sensor connector?	Repair poor con- tact in ECM or atmospheric pres- sure sensor con- nector.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time.
3	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 5.	Go to step 4.
4	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
5	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B136) No. 29 (+) — Chassis ground (-):	Is the voltage less than 0.2 V?	Go to step 7 .	Go to step 6 .
6	CHECK INPUT SIGNAL FOR ECM. (USING SUBARU SELECT MONITOR.) Read data of atmospheric absolute pressure signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	Does the value change more than 0 kPa (0 mmHg, 0 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select moni- tor?	Repair poor con- tact in ECM con- nector.	Go to step 7 .

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND ATMOSPHERIC PRESSURE SENSOR CON- NECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from atmospheric pressure sensor. 3) Turn ignition switch to ON. 4) Measure voltage between atmospheric pressure sensor connector and engine ground. Connector & terminal (B2) No. 3 (+) — Engine ground (-):	Is the voltage more than 4.5 V?	Go to step 8.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and atmo- spheric pressure sensor connector • Poor contact in joint connector (B83)
8	 CHECK HARNESS BETWEEN ECM AND ATMOSPHERIC PRESSURE SENSOR CON- NECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and pressure sensor connector. Connector & terminal (B136) No. 16 — (B2) No. 1: 	Is the resistance less than 1 Ω?	Go to step 9.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and pres- sure sensor con- nector
9	CHECK HARNESS BETWEEN ECM AND ATMOSPHERIC PRESSURE SENSOR CON- NECTOR. Measure resistance of harness between pres- sure sensor connector and engine ground. Connector & terminal (B2) No. 2 — Engine ground:	Is the resistance more than 500 k Ω ?	Go to step 10 .	Repair ground short circuit in harness between ECM and pres- sure sensor con- nector.
10	CHECK POOR CONTACT. Check poor contact in pressure sensor con- nector.	Is there poor contact in pressure sensor connec- tor?	Repair poor con- tact in atmo- spheric pressure sensor connector.	Replace atmo- spheric pressure sensor. <ref. to<br="">FU(H4)-52 Atmo- spheric Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CB: DTC P1111 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT HIGH INPUT — SOUGCEZEDES

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK CURRENT DATA. 1) Start engine. 2) Read the data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general Scan Tool Instruction Manual. 	Is the value more than 140 kPa (1,050 mmHg, 41.34 inHg)?	Go to step 10.	Go to step 2.
2	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 4.	Go to step 3.
3	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 15 (+) — Chassis ground (-):	Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
4	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM connector and chassis ground. Connector & terminal (B136) No. 29 (+) — 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 data of atmospheric absolute pressure signal using Subaru Select Monitor. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.>	Does the value change more than 0 kPa (0 mmHg, 0 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select moni- tor?	Repair poor con- tact in ECM con- nector.	Go to step 6 .
6	CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from atmospheric pressure sensor. 3) Turn ignition switch to ON. 4) Measure voltage between atmospheric pressure sensor connector and engine ground. Connector & terminal (B2) No. 3 (+) — Engine ground (-):	Is the voltage more than 4.5 V?	Go to step 7.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and pres- sure sensor con- nector • Poor contact in joint connector (B83)

No.	Step	Check	Yes	No
7	CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM. 3) Measure resistance of harness between ECM and pressure sensor connector. Connector & terminal (B136) No. 29 — (B2) No. 2:	Is the resistance less than 1 Ω ?	Go to step 8.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and pres- sure sensor con- nector • Poor contact in joint connector (B83)
8	CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR. Measure resistance of harness between ECM and pressure sensor connector. Connector & terminal (B136) No. 16 — (B2) No. 1:	Is the resistance less than 1 Ω?	Go to step 9.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and pres- sure sensor con- nector • Poor contact in joint connector (B83)
9	CHECK POOR CONTACT. Check poor contact in pressure sensor con- nector.	Is there poor contact in pressure sensor connec- tor?	Repair poor con- tact in atmo- spheric pressure sensor connector.	Replace atmo- spheric pressure sensor. <ref. to<br="">FU(H4)-52 Atmo- spheric Pressure Sensor.></ref.>
10	 CHECK CURRENT DATA. 1) Turn ignition switch to OFF. 2) Disconnect connector from atmospheric pressure sensor. 3) Turn ignition switch to ON. 4) Read data of intake manifold absolute pressure signal using Subaru select monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value more than 140 kPa (1,050 mmHg, 41.34 inHg)?	Repair battery short circuit in harness between ECM and atmo- spheric pressure sensor connector.	Replace atmo- spheric pressure sensor. <ref. to<br="">FU(H4)-52 Atmo- spheric Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CC: DTC P1112 — ATMOSPHERIC PRESSURE SENSOR CIRCUIT RANGE/ PERFORMANCE PROBLEM — SOURCE SENSOR CIRCUIT RANGE/

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY. NOTE: In this case, it is not necessary to inspect DTC P0106.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0106, P0107, P0108, P1110 or P1111?	Inspect DTC P0106, P0107, P0108, P1110 or P1111 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	 CHECK ATMOSPHERIC PRESSURE SEN- SOR FILTER. 1) Turn ignition switch to OFF. 2) Disconnect connector from atmospheric pressure sensor. 3) Remove atmospheric pressure sensor. 4) Check atmospheric pressure sensor filter. 	Is atmospheric pressure sensor filter non-functional? (Check for contamination, damage, water leakage, etc.)	Replace atmo- spheric pressure sensor filter.	Go to step 3.
3	 CHECK CURRENT DATA. 1) Turn ignition switch to ON. 2) Read data of intake manifold absolute pressure signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedures, refer to the OBD-II general scan tool 	Is the value between 73.3 kPa (550 mmHg, 21.65 inHg) and 106.6 kPa (800 mmHg, 31.50 inHg)?	Replace atmo- spheric pressure sensor. <ref. to<br="">FU(H4)-52 Atmo- spheric Pressure Sensor.></ref.>	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>

Engine (DIAGNOSTICS)

CD: DTC P1137 — FRONT OXYGEN (A/F) SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM — 5008602649

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No	Ston	Check	Vos	No
1	CHECK ANY OTHER DIC ON DISPLAY.	Does the Subaru Select	Inspect DIC	Go to step 2.
		Monitor or OBD-II general	PUISI, PUISZ,	
			PII32 01 PII33	
		P0131, P0132, P1132 01	Diagnastia	
		P1133?	Trauble Code	
			(DTC) IOLAT	
			of Diagnostic	
			Trouble Code	
			(DTC) for AT	
			Vehicles.>	
2	CHECK FRONT OXYGEN (A/F) SENSOR	Is the value equal to or	Go to step 3.	Go to step 4.
⁻	DATA.	more than 0.85 and equal		
	1) Start engine.	to less than 1.15 in idling?		
	2) While observing the Subaru Select Monitor			
	or OBD-II general scan tool screen, warm-up			
	the engine until coolant temperature is above			
	70°C (160°F).			
	If the engine is already warmed-up, operate at			
	idle speed for at least 1 minute.			
	3) Read data of front oxygen (A/F) sensor			
	signal using Subaru Select Monitor or OBD-II			
	general scan tool.			
	NOTE:			
	Subaru Select Monitor			
	For detailed operation procedure, refer to the			
	"READ CURRENT DATA FOR ENGINE".			
	CRET. to EIN(H4)-52 Subaru Select Monitor.>			
	• OBD-II general scall tool			
	OBD-II General Scan Tool Instruction Manual			
3	CHECK EPONT OXYGEN (A/E) SENSOR	Is the value more than 1.1	Go to step 6	Go to step 4
ľ		for a moment?		
	Race engine at speeds from idling to 5.000			
	rom for a total of 5 cycles.			
	NOTE:			
	To increase engine speed to 5,000 rpm,			
	slowly depress accelerator pedal, taking			
	approximately 5 seconds, and quickly release			
	accelerator pedal to decrease engine speed.			
4	CHECK HARNESS BETWEEN ECM AND	Is the resistance less than	Go to step 5.	Repair open cir-
	FRONT OXYGEN (A/F) SENSOR.	5 Ω?		cuit between ECM
	1) Turn ignition switch to OFF.			and front oxygen
	2) Disconnect connector from ECM and front			(A/F) sensor.
	oxygen (A/F) sensor connector.			
	3) Measure resistance between ECM and			
	front oxygen (A/F) sensor.			
	(B130) NO. 0 — $(B18)$ NO. 1: (B126) NO. 7 (B18) NO. 6:			
	(B130) NO. 7 (B16) NO. 0: (B126) NO. 10 (B19) NO. 2:			
	(B136) No 20 - (B18) No 4			
	(DISU) NU. ZU — (DIO) NU. 4.		1	1

No.	Step	Check	Yes	No
5	CHECK HARNESS BETWEEN ECM AND FRONT OXYGEN (A/F) SENSOR. Measure resistance between ECM and chas- sis ground. Connector & terminals (B136) No. 6 — Chassis ground: (B136) No. 7 — Chassis ground: (B136) No. 19 — Chassis ground: (B136) No. 20 — Chassis ground:	Is the resistance more than 1 MΩ?	Go to step 6 .	Repair ground short circuit between ECM and front oxygen (A/F) sensor.
6	CHECK EXHAUST SYSTEM. Check exhaust system parts. NOTE: Check the following items. • Loose installation of portions • Damage (crack, hole etc.) of parts • Looseness of front oxygen (A/F) sensor • Looseness and ill fitting of parts between front oxygen (A/F) sensor and rear oxygen sensor	Is there a fault in exhaust system?	Repair or replace faulty parts.	Replace front oxy- gen (A/F) sensor. <ref. to<br="">FU(H4)-63 Front Oxygen (A/F) Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CE: DTC P1142 — THROTTLE POSITION SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (LOW INPUT) — SOUBCOZED

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-500

No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0122 or P0123?	Inspect DTC P0122 or P0123 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P1142.</ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

CF: DTC P1146 — PRESSURE SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM (HIGH INPUT) — SOUBCEZGOT

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY. NOTE: In this case, it is not necessary to inspect DTC P0106.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0107, P0108 or P1112?	Inspect DTC P0107, P0108 or P1112 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	CHECK AIR INTAKE SYSTEM.	Are there holes, loose bolts or disconnection of hose on air intake system?	Repair air intake system.	Go to step 3.
3	CHECK PRESSURE 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 the selector lever in "N" or "P" position. 3) Turn A/C switch to OFF. 4) Turn all accessory switches to OFF. 5) Read data of intake manifold pressure sen- sor signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""> • OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general Scan tool Instruction Manual. Specification: • Intake manifold absolute pressure Ignition ON 73.3 — 106.6 kPa (550 — 800 mmHg, 21.65 — 31.50 inHg) Idling 20.0 — 46.7 kPa (150 — 350 mmHg, 5.91 — 13.78 inHg)</ref.>	Is the value within the specifications?	Go to step 4.	Replace intake air temperature sen- sor and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>
4	 CHECK THROTTLE POSITION. Read data of throttle position signal using Subaru Select Monitor or OBD-II general scan tool. NOTE: Subaru Select Monitor For detailed operation procedure, refer to the "READ CURRENT DATA FOR ENGINE". <ref. en(h4)-52="" monitor.="" select="" subaru="" to=""></ref.> OBD-II general scan tool For detailed operation procedure, refer to the OBD-II general scan tool 	Is throttle positioning ratio equal to or less than 5% when throttle is fully closed?	Go to step 5 .	Adjust or replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

No.	Step	Check	Yes	No
5	CHECK THROTTLE POSITION.	Is throttle positioning ratio equal to or more than 85% when throttle is fully open?	Replace intake air temperature and pressure sensor. <ref. to<br="">FU(H4)-51 Intake Air Temperature and Pressure Sensor.></ref.>	Replace throttle position sensor. <ref. to<br="">FU(H4)-45 Throttle Position Sensor.></ref.>

Engine (DIAGNOSTICS)

MEMO:
Engine (DIAGNOSTICS)

CG: DTC P1400 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT LOW INPUT — 500802207

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B124) No. 1 (1) Chassis ground (1):	Is the voltage more than 10 V?	Go to step 2.	Go to step 3.

No.	Step	Check	Yes	No
2	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
3	 CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM. 3) Measure resistance of harness between fuel tank pressure control solenoid valve con- nector and chassis ground. Connector & terminal (R68) No. 2 — Chassis ground: 	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.	Go to step 4.
4	CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector. Connector & terminal (B134) No. 1 — (R68) No. 2:	Is the voltage less than 1 Ω?	Go to step 5.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector • Poor contact in coupling connec- tors (R134 and B99)
5	CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE. Measure resistance between fuel tank pres- sure control solenoid valve terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i>	Is the resistance between 10 and 100 Ω?	Go to step 6 .	Replace fuel tank pressure control solenoid valve. <ref. to<br="">EC(H4)-13 Pres- sure Control Sole- noid Valve.></ref.>

No.	Step	Check	Yes	No
6	CHECK POWER SUPPLY TO FUEL TANK PRESSURE CONTROL SOLENOID VALVE. 1) Turn ignition switch to ON. 2) Measure voltage between fuel tank pres- sure 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 harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector • Poor contact in coupling connec- tors (R134 and B97) • Poor contact in main relay con- nector
7	CHECK POOR CONTACT. Check poor contact in fuel tank pressure con- trol solenoid valve connector.	Is there poor contact in fuel tank pressure control sole- noid valve connector?	Repair poor con- tact in fuel tank pressure control solenoid valve connector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CH: P1420 — FUEL TANK PRESSURE CONTROL SOLENOID VALVE CIRCUIT HIGH INPUT — SUBBOLCOB

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating fuel tank pressure control solenoid valve, measure voltage between ECM and chassis ground. NOTE: Fuel tank pressure control solenoid valve operation can be executed using Subaru Select Monitor. For procedure, refer to "Com- pulsory Valve Operation Check Mode". <ref. to EN(H4)-64 Compulsory Valve Operation Check Mode.> Connector & terminal (B134) No. 1 (+) — Chassis ground (-):</ref. 	Does voltage change between 0 and 10 V?	Go to step 2.	Even if MIL light up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.
2	 CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 1 (+) — Chassis ground (-): 	Is the voltage more than 10 V?	Go to step 4.	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from fuel tank pres- sure control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 1 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and fuel tank pressure control solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5 .
5	 CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE. 1) Turn ignition switch to OFF. 2) Measure resistance between fuel tank pressure control solenoid valve terminals. <i>Terminals</i> <i>No. 1 — No. 2:</i> 	Is the resistance less than 1 Ω ?	Replace fuel tank pressure control solenoid valve <ref. to<br="">EC(H4)-13 Pres- sure Control Sole- noid Valve.> and ECM <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.></ref.>	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

CI: DTC P1442 — FUEL LEVEL SENSOR CIRCUIT RANGE/PERFORMANCE PROBLEM 2 — SUDBOLC 11

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0461, P0462 or P0463?	Inspect DTC P0461, P0462 or P0463 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect this trouble</ref.>	Replace fuel level sensor <ref. to<br="">FU(H4)-93 Fuel Level Sensor.> and fuel sub level sensor. <ref. to<br="">FU(H4)-94 Fuel Sub Level Sen- sor.></ref.></ref.>

Engine (DIAGNOSTICS)

CJ: DTC P1443 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM — 5008602C12

• DTC DETECTING CONDITION:

- Immediately after fault occurrence
- TROUBLE SYMPTOM:
 - Improper fuel supply

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Is there any other DTC on display?	Inspect the rel- evant DTC using "19. List of Diag- nostic Trouble Code (DTC) for AT Vehicles". <ref. en(h4)-<br="" to="">301 List of Diag- nostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	 CHECK VENT LINE HOSES. Check the following items. Clogging of vent hoses between canister and drain valve Clogging of vent hose between drain valve and air filter Clogging of drain filter 	Is there a fault in vent line?	Repair or replace the faulty part.	Go to step 3.
3	CHECK DRAIN VALVE OPERATION. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) Operate drain valve. NOTE: Drain valve operation can also be executed using Subaru Select Monitor. For the procedure, refer to the "Compulsory Valve Operation Check Mode". <ref. en(h4)-64<br="" to="">Compulsory Valve Operation Check Mode.></ref.>	Does drain valve produce operating sound?	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.	Replace drain valve. <ref. to<br="">EC(H4)-17 Drain Valve.></ref.>

Engine (DIAGNOSTICS)

CK: DTC P1480 — COOLING FAN RELAY 1 CIRCUIT HIGH INPUT — SOUBCOZGOB

• DTC DETECTING CONDITION:

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

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

Engine (DIAGNOSTICS)

• WIRING DIAGRAM:



B2M3939

01 02 P1 P2

No.	Step	Check	Yes	No
1	CHECK OUTPUT SIGNAL FROM ECM. 1) Turn ignition switch to OFF. 2) Connect test mode connector at the lower portion of instrument panel (on the driver's side), to the side of the center console box. 3) Turn ignition switch to ON. 4) While operating radiator fan relay, measure voltage between ECM and chassis ground. NOTE: Radiator fan relay operation can be executed using Subaru Select Monitor. For procedure, refer to "Compulsory Valve Operation Check Mode". <ref. compulsory="" en(h4)-64="" to="" valve<br="">Operation Check Mode.> Connector & terminal (B134) No. 3 (+) — Chassis ground (-):</ref.>	Does voltage change between 0 and 10 V?	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. In this case, repair poor contact in ECM connector.	Go to step 2.
2	CHECK SHORT CIRCUIT IN RADIATOR FAN RELAY CONTROL CIRCUIT. 1) Turn ignition switch to OFF. 2) Remove main fan relay and sub fan relay. (with A/C models) 3) Disconnect test mode connector. 4) Turn ignition switch to ON. 5) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 3 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in radiator fan relay control circuit. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 3.
3	 CHECK MAIN FAN RELAY. 1) Turn ignition switch to OFF. 2) Remove main fan relay. 3) Measure resistance between main fan relay terminals. Terminal No. 1 — No. 3: 	Is the resistance less than 1 Ω ?	Replace main fan relay and ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 4.
4	 CHECK SUB FAN RELAY. 1) Remove sub fan relay. 2) Measure resistance between sub fan relay terminals. Terminal No. 1 — No. 3 	Is the resistance less than 1 Ω?	Replace sub fan relay and ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Go to step 5.
5	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CL: DTC P1507 — IDLE CONTROL SYSTEM MALFUNCTION (FAIL-SAFE) —

S008602C16

- DTC DETECTING CONDITION:
 - Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Engine keeps running at higher revolution than specified idling revolution.

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517?	Inspect DTC P1510, P1511, P1512, P1513, P1514, P1515, P1516 or P1517 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.> NOTE: In this case, it is not necessary to inspect DTC P0507.</ref.>	Go to step 2.
2	 CHECK AIR INTAKE SYSTEM. 1) Turn ignition switch to ON. 2) Start engine, and idle it. 3) Check the following items. Loose installation of intake manifold, idle air control solenoid valve and throttle body Cracks of intake manifold gasket, idle air control solenoid valve gasket and throttle body gasket Disconnections of vacuum hoses 	Is there a fault in air intake system?	Repair air suction and leaks.	Go to step 3.
3	CHECK THROTTLE CABLE.	Does throttle cable have play for adjustment?	Go to step 4.	Adjust throttle cable. <ref. to<br="">SP(H4)-6 INSTALLATION, Accelerator Con- trol Cable.></ref.>
4	 CHECK AIR BY-PASS LINE. 1) Turn ignition switch to OFF. 2) Remove idle air control solenoid valve from throttle body. <ref. air="" control="" fu(h4)-53="" idle="" solenoid="" to="" valve.=""></ref.> 3) Confirm that there are no foreign particles in by-pass air line. 	Are foreign particles in by- pass air line?	Remove foreign particles from by- pass air line.	Replace idle air control solenoid valve. <ref. to<br="">FU(H4)-53 Idle Air Control Solenoid Valve.></ref.>

Engine (DIAGNOSTICS)

CM: DTC P1510 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 1 CIRCUIT LOW INPUT — 500802217

NOTE:

For the diagnostic procedure, refer to DTC P1516. <Ref. to EN(H4)-524 DTC 1516 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

CN: DTC P1511 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 1 CIRCUIT HIGH INPUT — 5008602C18

NOTE:

For the diagnostic procedure, refer to DTC P1517. <Ref. to EN(H4)-528 DTC 1517 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

CO: DTC P1512 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 2 CIRCUIT LOW INPUT — 500802C19

NOTE:

For the diagnostic procedure, refer to DTC P1516. <Ref. to EN(H4)-524 DTC 1516 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

CP: DTC P1513 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 2 CIRCUIT HIGH INPUT — 5008602C20

NOTE:

For the diagnostic procedure, refer to DTC P1517. <Ref. to EN(H4)-528 DTC 1517 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

CQ: DTC P1514 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 3 CIRCUIT LOW INPUT — 500602C21

NOTE:

For the diagnostic procedure, refer to DTC P1516. <Ref. to EN(H4)-524 DTC 1516 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT LOW INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

CR: DTC P1515 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 3 CIRCUIT HIGH INPUT — 500802C22

NOTE:

For the diagnostic procedure, refer to DTC P1517. <Ref. to EN(H4)-528 DTC 1517 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT HIGH INPUT —, Diagnostic Procedure with Diagnostic Trouble Code (DTC) for AT Vehicles.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CS: DTC P1516 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT LOW INPUT — 5008602C23

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE. 1) Turn ignition switch to OFF. 2) Disconnect connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between idle air control solenoid valve connector and engine ground. Connector & terminal (E7) No. 2 (+) — Engine ground (-):	Is the voltage more than 10 V?	Go to step 2 .	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between idle air control solenoid valve and main relay connector • Poor contact in coupling connec- tor (B22)
2	CHECK POWER SUPPLY TO IDLE AIR CONTROL SOLENOID VALVE. Measure voltage between idle air control sole- noid valve connector and engine ground. Connector & terminal (E7) No. 5 (+) — Engine ground (–):	Is the voltage more than 10 V?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between idle air control solenoid valve and main relay connector • Poor contact in coupling connec- tor (B22)
3	CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR. 1) Turn ignition switch to OFF. 2) Measure resistance between ECM and idle air control solenoid valve connector. Connector & terminal DTC P1510; (B134) No. 5 — (E7) No. 3: DTC P1512; (B134) No. 6 — (E7) No. 1: DTC P1514; (B134) No. 19 — (E7) No. 6: DTC P1516; (B134) No. 20 — (E7) No. 4:	Is the resistance less than 1 Ω?	Go to step 4.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and idle air control solenoid valve connector • Poor contact in coupling connec- tor (B21)
4	CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR. 1) Disconnect connector from ECM. 2) Measure resistance between ECM connec- tor and chassis ground. Connector & terminal DTC P1510; (B134) No. 5 — Chassis ground: DTC P1512; (B134) No. 6 — Chassis ground: DTC P1514; (B134) No. 19 — Chassis ground: DTC P1516; (B134) No. 20 — Chassis ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and idle air control solenoid valve connector.	Go to step 5.

No.	Step	Check	Yes	No
5	CHECK POOR CONTACT. Check poor contact in ECM connector and idle air control solenoid valve connector.	Is there poor contact in ECM connector or idle air control solenoid valve con- nector?	Repair poor con- tact in ECM con- nector or idle air control solenoid valve connector.	Replace idle air control solenoid valve. <ref. to<br="">FU(H4)-53 Idle Air Control Solenoid Valve.></ref.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CT: DTC P1517 — IDLE AIR CONTROL SOLENOID VALVE SIGNAL 4 CIRCUIT HIGH INPUT — 5008602C24

• DTC DETECTING CONDITION:

- Immediately at fault recognition
- TROUBLE SYMPTOM:
 - Erroneous idling
 - Engine stalls.
 - Engine breathing

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK ANY OTHER DTC ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P1511, P1513, P1515 and P1517 at same time?	Go to step 2.	Go to step 3.
2	 CHECK GROUND CIRCUIT FOR ECM. 1) Turn ignition switch to OFF. 2) Measure resistance between ECM connector and chassis ground. Connector & terminal (B134) No. 7 — Chassis ground: 	Is the resistance less than 5 Ω?	Go to step 3.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM connector and engine ground terminal • Poor contact in ECM connector • Poor contact in coupling connec- tor (B22)
3	CHECK HARNESS BETWEEN ECM AND IDLE AIR CONTROL SOLENOID VALVE CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from idle air control solenoid valve. 3) Turn ignition switch to ON. 4) Measure voltage between ECM connector and chassis ground. Connector & terminal DTC P1511; (B134) No. 5 (+) — Chassis ground (-): DTC P1513; (B134) No. 6 (+) — Chassis ground (-): DTC P1515; (B134) No. 19 (+) — Chas- sis ground (-): DTC P1517; (B134) No. 20 (+) — Chas- sis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and idle air control solenoid valve connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>

Engine (DIAGNOSTICS)

CU: DTC P1518 — STARTER SWITCH CIRCUIT LOW INPUT — SOUBCOZGO9

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Failure of engine to start

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

• WIRING DIAGRAM:



EN(H4)-530

No.	Step	Check	Yes	No
1	CHECK OPERATION OF STARTER MOTOR. NOTE: Place the inhibitor switch in the "P" or "N" position.	Does starter motor operate when ignition switch to "ST"?	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open or ground short circuit in harness between ECM and starter motor connector. • Poor contact in ECM connector.	Check starter motor circuit. <ref. to<br="">EN(H4)-78 STARTER MOTOR CIRCUIT, Diagnostic for Engine Starting Failure.></ref.>

Engine (DIAGNOSTICS)

CV: DTC P1540 — VEHICLE SPEED SENSOR MALFUNCTION 2 — SUBSCIENCE

• DTC DETECTING CONDITION:

• Immediately at fault recognition

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK DTC P0720 ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0720?	Check front vehicle speed sensor signal cir- cuit. <ref. to<br="">AT-56 TROUBLE CODE 33 — FRONT VEHICLE SPEED SENSOR —, Diagnostic Procedure with Trouble Code.></ref.>	Go to step 2.
2	CHECK SPEEDOMETER OPERATION IN COMBINATION METER.	Does speedometer operate normally?	Go to step 3.	Check speedom- eter and vehicle speed sensor. <ref. idi-19<br="" to="">Speedometer.></ref.>
3	CHECK HARNESS BETWEEN ECM AND COMBINATION METER CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from combination meter. 3) Measure resistance between ECM and combination meter. Connector & terminal (B135) No. 24 — (i10) No. 13:	Is the resistance less than 10 Ω?	Repair poor con- tact in ECM con- nector.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and combi- nation meter con- nector • Poor contact in ECM connector • Poor contact in combination meter connector • Poor contact in combination meter connector • Poor contact in coupling connec- tor (i2)

Engine (DIAGNOSTICS)

CW: DTC P1560 — BACK-UP VOLTAGE CIRCUIT MALFUNCTION — SOUBCOLT

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK INPUT SIGNAL FOR ECM.	Is the voltage more than 10	Repair poor con-	Go to step 2.
	1) Turn ignition switch to OFF.	V?	tact in ECM con-	
	2) Measure voltage between ECM and chassis ground.		nector.	
	Connector & terminal			
	(B136) No. 9 (+) — Chassis ground (–):			

No.	Step	Check	Yes	No
2	CHECK HARNESS BETWEEN ECM AND MAIN FUSE BOX CONNECTOR. 1) Disconnect connector from ECM. 2) Measure resistance of harness between ECM and chassis ground. Connector & terminal (B136) No. 9 — Chassis ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM connector and battery termi- nal.	Go to step 3.
3	CHECK FUSE SBF-5.	Is fuse blown?	Replace fuse.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and battery • Poor contact in ECM connector • Poor contact in battery terminal

Engine (DIAGNOSTICS)

CX: DTC P1590 — NEUTRAL POSITION SWITCH CIRCUIT HIGH INPUT — S008602G10

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK DTC P0705 ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705?	Inspect DTC P0705 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2.
2	 CHECK INPUT SIGNAL FOR ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground in selector lever "N" and "P" positions. Connector & terminal (B135) No. 26 (+) — Chassis ground (-): 	Is the voltage less than 1 V?	Go to step 3.	Go to step 5.
3	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground in selector lever except for "N" and "P" positions. Connector & terminal (B135) No. 26 (+) — Chassis ground (-):	Is the voltage between 4.5 and 5.5 V?	Go to step 4.	Go to step 5.
4	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
5	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 26 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and inhibitor switch connector.	Go to step 6 .
6	CHECK HARNESS BETWEEN ECM AND INHIBITOR SWITCH CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and inhibitor switch. 3) Measure resistance of harness between ECM and inhibitor switch connector. Connector & terminal (B135) No. 26 — (T7) No. 12:	Is the resistance less than 1 Ω ?	Go to step 7.	Repair harness and connector. NOTE: In this case, repair the follow- ing: • Open circuit in harness between ECM and inhibitor switch connector • Poor contact in coupling connec- tor (B12) • Poor contact in inhibitor switch connector • Poor contact in ECM connector

No.	Step	Check	Yes	No
7	CHECK INHIBITOR SWITCH GROUND LINE. Measure resistance of harness between inhibitor switch connector and engine ground. Connector & terminal (T7) No. 7 — Engine ground:	Is the resistance less than 5 Ω ?	Go to step 8.	Repair open cir- cuit in harness between inhibitor switch connector and starter motor ground line. NOTE: In this case, repair the follow- ing: • Open circuit in harness between inhibitor switch connector and starter motor ground line • Poor contact in starter motor con- nector • Poor contact in starter motor ground • Starter motor
8	CHECK INHIBITOR SWITCH. Measure resistance between inhibitor switch connector receptacle's terminals in selector lever "N" and "P" positions. <i>Terminals</i> No. 7 — No. 12:	Is the resistance less than 1 Ω ?	Go to step 9.	Replace inhibitor switch. <ref. to<br="">AT-28 Inhibitor Switch.></ref.>
9	CHECK SELECTOR CABLE CONNECTION.	Is there any fault in selec- tor cable connection to inhibitor switch?	Repair selector cable connection. <ref. cs-25<br="" to="">INSPECTION, Select Cable.></ref.>	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

CY: DTC P1591 — NEUTRAL POSITION SWITCH CIRCUIT LOW INPUT — S008602G11

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
- Erroneous idling

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK DTC P0705 ON DISPLAY.	Does the Subaru Select Monitor or OBD-II general scan tool indicate DTC P0705?	Inspect DTC P0705 using "19. List of Diagnostic Trouble Code (DTC) for AT Vehicles". <ref. to<br="">EN(H4)-301 List of Diagnostic Trouble Code (DTC) for AT Vehicles.></ref.>	Go to step 2 .
2	CHECK INPUT SIGNAL FOR ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B135) No. 26 (+) — Chassis ground (-):	Is the voltage between 4.5 and 5.5 V at except "N" and "P" positions?	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time.	Go to step 3 .
3	 CHECK HARNESS BETWEEN ECM AND TRANSMISSION HARNESS CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and transmission harness connector (T3). 3) Measure resistance of harness between ECM connector and chassis ground. Connector & terminal (B135) No. 26 — Chassis ground: 	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and trans- mission harness connector.	Go to step 4.
4	CHECK TRANSMISSION HARNESS CON- NECTOR. 1) Disconnect connector from inhibitor switch. 2) Measure resistance of harness between transmission harness connector and engine ground. Connector & terminal (T3) No. 12 — Engine ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between transmission har- ness and inhibitor switch connector.	Go to step 5.
5	CHECK INHIBITOR SWITCH. Measure resistance between inhibitor switch connector receptacle's terminals in selector lever except for "N" position. Terminals No. 7 — No. 12:	Is the resistance more than 1 $M\Omega$ at except "N" and "P" positions?	Go to step 6.	Replace inhibitor switch. <ref. to<br="">AT-28 Inhibitor Switch.></ref.>
6	CHECK SELECTOR CABLE CONNECTION.	Is there any fault in selec- tor cable connection to inhibitor switch?	Repair selector cable connection. <ref. cs-25<br="" to="">INSPECTION, Select Cable.></ref.>	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
Engine (DIAGNOSTICS)

CZ: DTC P1594 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT MALFUNCTION — 5008622312

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK DRIVING CONDITION.1) Start and warm-up the engine until the radiator fan makes one complete rotation.2) Drive the vehicle.	Is AT shift control function- ing properly?	Go to step 2 .	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

No.	Step	Check	Yes	No
2	CHECK ACCESSORY.	Are car phone and/or CB installed on vehicle?	Repair grounding line of car phone or CB system.	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

Engine (DIAGNOSTICS)

DA: DTC P1595 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT LOW INPUT — 5008602613

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B135) No. 4 (+) — Chassis ground (-):	Is the voltage less than 1 V?	Go to step 2.	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. NOTE: In this case, repair the follow- ing: • Poor contact in ECM connector • Poor contact in TCM connector
2	 CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connector from ECM and TCM. 3) Measure resistance of harness between ECM and chassis ground. Connector & terminal (B135) No. 4 — Chassis ground: 	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and TCM connector.	Go to step 3.
3	 CHECK OUTPUT SIGNAL FOR ECM. 1) Connect connector to ECM. 2) Turn ignition switch to ON. 3) Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 4 (+) — Chassis ground (-): 	Is the voltage more than 5 V?	Go to step 4 .	Repair poor con- tact in ECM con- nector.
4	CHECK TROUBLE CODE FOR AUTOMATIC TRANSMISSION. Read trouble code for automatic transmission. <ref. at-26="" diagnostic="" read="" to="" trouble<br="">Code.></ref.>	Does trouble code appear for automatic transmission?	Inspect trouble code for auto- matic transmis- sion. <ref. to<br="">AT-36 Diagnostic Procedure with Trouble Code.></ref.>	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

Engine (DIAGNOSTICS)

DB: DTC P1596 — AUTOMATIC TRANSMISSION DIAGNOSIS INPUT SIGNAL CIRCUIT HIGH INPUT — 5008022014

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B135) No. 4 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Control Module.></ref.>	Go to step 2.
2	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. Measure voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 4 (+) — Chassis ground (–):	Is the voltage more than 4 V?	Go to step 5 .	Go to step 3.
3	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. Measure voltage between ECM connector and chassis ground. Connector & terminal (B135) No. 4 (+) — Chassis ground (–):	Is the voltage less than 1 V?	Repair poor con- tact in ECM con- nector.	Go to step 4.
4	CHECK OUTPUT SIGNAL FROM ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 4 (+) — Chassis ground (–):	Does the voltage change from 1 V to 4 V while moni- toring the value with volt- age meter?	Even if MIL lights up, the circuit has returned to a nor- mal condition at this time. NOTE: In this case, repair the follow- ing: • Poor contact in ECM connector • Poor contact in TCM connector	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.
5	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. Measure voltage between TCM and chassis ground. Connector & terminal (B54) No. 4 (+) — Chassis ground (-):	Is the voltage more than 4 V?	Go to step 6 .	Repair open cir- cuit in harness between ECM and TCM connec- tor.
6	CHECK POOR CONTACT. Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor con- tact in TCM con- nector.	Check TCM power supply line and grounding line.

Engine (DIAGNOSTICS)

DC: DTC P1698 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT LOW INPUT — SUBBLICITS

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK OUTPUT SIGNAL FROM ECM. 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Turn ignition switch to ON. 4) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 31 (+) — Chassis ground (-): 	Is the voltage more than 3 V?	Repair poor con- tact in ECM con- nector.	Go to step 2.
2	 CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and chassis ground. Connector & terminal (B134) No. 31 — Chassis ground: 	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and TCM connector.	Go to step 3.
3	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. Measure resistance of harness betwee ECM and TCM connector. Connector & terminal (B134) No. 31 — (B54) No. 2:	Is the resistance less than 1 Ω ?	Repair poor con- tact in ECM or TCM connector.	Repair open cir- cuit in harness between ECM and TCM connec- tor.

Engine (DIAGNOSTICS)

DD: DTC P1699 — ENGINE TORQUE CONTROL CUT SIGNAL CIRCUIT HIGH INPUT — SOUBCOL 716

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK OUTPUT SIGNAL FROM ECM. 1) Start engine, and warm-up the engine. 2) Turn ignition switch to OFF. 3) Disconnect connector from TCM. 4) Turn ignition switch to ON. 5) Measure voltage between ECM and chassis ground. Connector & terminal (B134) No. 31 (+) — Chassis ground (-): 	Is the voltage less than 3 V?	Go to step 2.	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
2	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. 1) Turn ignition switch to OFF. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B134) No. 31 (+) — Chassis ground (-):	Does the voltage change more than 10 V by shaking harness and connector of ECM while monitoring the value with voltage meter?	Repair battery short circuit in harness between ECM and TCM connector. After repair, replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>	Contact with SOA service. NOTE: Inspection by DTM is required, because probable cause is deterio- ration of multiple parts.

Engine (DIAGNOSTICS)

DE: DTC P1700 — THROTTLE POSITION SENSOR CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION — SOUBCACES

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:

• Shift point too high or too low; engine brake not effected in "3" range; excessive shift shock; excessive tight corner "braking"

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check throttle position sensor circuit. <Ref. to AT-48 TROUBLE CODE 31 — THROTTLE POSITION SEN-SOR —, Diagnostic Procedure with Trouble Code.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

DF: DTC P1701 — CRUISE CONTROL SET SIGNAL CIRCUIT MALFUNCTION FOR AUTOMATIC TRANSMISSION — SUBJECT 9

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from TCM and CCM. 3) Measure resistance of harness between TCM and CCM connector. Connector & terminal (B54) No. 11 — (B94) No. 3: 	Is the resistance less than 1 Ω?	Go to step 2.	Repair open cir- cuit in harness between TCM and CCM connector.
2	CHECK HARNESS BETWEEN TCM AND CCM CONNECTOR. Measure resistance of harness between TCM and chassis ground. Connector & terminal (B54) No. 11 — Chassis ground:	Is the resistance less than 10 Ω?	Repair short cir- cuit in harness between TCM and CCM connector.	Go to step 3 .
3	 CHECK INPUT SIGNAL FOR TCM. 1) Connect connector to TCM and CCM. 2) Lift-up the vehicle or set the vehicle on free rollers. CAUTION: On AWD models, raise all wheels off ground. 3) Start the engine. 4) Cruise control main switch to ON. 5) Move selector lever to "D" and slowly increase vehicle speed to 50 km/h (31 MPH). 6) Cruise control command switch to ON. 7) Measure voltage between TCM and chassis ground. Connector & terminal (B54) No. 11 (+) — Chassis ground (-): 	Is the resistance less than 1 V?	Go to step 4.	Check cruise con- trol command switch circuit. <ref. cc-6<br="" to="">INSPECTION, Cruise Control Command Switch.></ref.>
4	CHECK POOR CONTACT. Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor con- tact in TCM con- nector.	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

Engine (DIAGNOSTICS)

DG: DTC P1703 — LOW CLUTCH TIMING CONTROL SOLENOID VALVE CIRCUIT MALFUNCTION — 5006602C31

• DTC DETECTING CONDITION:

• Two consecutive driving cycles with fault

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.

NOTE:

Check low clutch timing control solenoid valve circuit. <Ref. to AT-82 TROUBLE CODE 73 — LOW CLUTCH TIMING SOLENOID —, Diagnostic Procedure with Trouble Code.>

Engine (DIAGNOSTICS)

MEMO:

Engine (DIAGNOSTICS)

DH: DTC P1711 — ENGINE TORQUE CONTROL SIGNAL 1 CIRCUIT

MALFUNCTION — S008602G17

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	CHECK INPUT SIGNAL FOR ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chas- sis ground. Connector & terminal (B135) No. 16 (+) — Chassis ground (-):	Is the voltage more than 4.5 V?	Go to step 2.	Go to step 4.
2	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 16 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and TCM connector.	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	 CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and TCM connector. Connector & terminal (B135) No. 16 — (B54) No. 13: 	Is the resistance less than 1 Ω?	Go to step 5.	Repair open cir- cuit in harness between ECM and TCM connec- tor.
5	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B135) No. 16 — Chassis ground:	Is the resistance less than 10 Ω?	Repair ground short circuit in harness between ECM and TCM connector.	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor con- tact in TCM con- nector.	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

Engine (DIAGNOSTICS)

DI: DTC P1712 — ENGINE TORQUE CONTROL SIGNAL 2 CIRCUIT

MALFUNCTION — SOUBBODIE G1B

• DTC DETECTING CONDITION:

- Two consecutive driving cycles with fault
- TROUBLE SYMPTOM:
 - Excessive shift shock

CAUTION:

After repair or replacement of faulty parts, conduct Clear Memory Mode <Ref. to EN(H4)-63 OPERATION, Clear Memory Mode.> and Inspection Mode <Ref. to EN(H4)-60 OPERATION, Inspection Mode.>.



No.	Step	Check	Yes	No
1	 CHECK INPUT SIGNAL FOR ECM. 1) Turn ignition switch to ON. 2) Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 17 (+) — Chassis ground (-): 	Is the voltage more than 4.5 V?	Go to step 2.	Go to step 4 .
2	CHECK INPUT SIGNAL FOR ECM. Measure voltage between ECM and chassis ground. Connector & terminal (B135) No. 17 (+) — Chassis ground (-):	Is the voltage more than 10 V?	Repair battery short circuit in harness between ECM and TCM connector.	Go to step 3.
3	CHECK POOR CONTACT. Check poor contact in ECM connector.	Is there poor contact in ECM connector?	Repair poor con- tact in ECM con- nector.	Replace ECM. <ref. to<br="">FU(H4)-67 Engine Control Module.></ref.>
4	 CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. 1) Turn ignition switch to OFF. 2) Disconnect connectors from ECM and TCM. 3) Measure resistance of harness between ECM and TCM connector. Connector & terminal (B135) No. 17 — (B54) No. 21: 	Is the resistance less than 1 Ω?	Go to step 5 .	Repair open cir- cuit in harness between ECM and TCM connec- tor.
5	CHECK HARNESS BETWEEN ECM AND TCM CONNECTOR. Measure resistance of harness between ECM and chassis ground. Connector & terminal (B135) No. 17 — Chassis ground:	Is the resistance less than 10 Ω ?	Repair ground short circuit in harness between ECM and TCM connector.	Go to step 6.
6	CHECK POOR CONTACT. Check poor contact in TCM connector.	Is there poor contact in TCM connector?	Repair poor con- tact in TCM con- nector.	Replace TCM. <ref. at-42<br="" to="">Transmission Control Module (TCM).></ref.>

21. General Diagnostic Table

S008257

A: INSPECTION S008257A10

1. ENGINE S008257A1001

NOTE:

Malfunction of parts other than those listed is also possible. <Ref. to ME(H4)-86 Engine Trouble in General.>

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

GENERAL DIAGNOSTIC TABLE

Symptom	Problem parts
	1) Intake manifold pressure sensor
	2) Intake air temperature sensor
	3) Intake air temperature and pressure sensor
	4) Engine coolant temperature sensor (*2)
5. Engine stalls or engine sags or hesitates at	5) Crankshaft position sensor (*3)
acceleration.	6) Camshaft position sensor (*3)
	7) Purge control solenoid valve
	8) Fuel injection parts (*4)
	9) Throttle position sensor
	10) Fuel pump and fuel pump relay
	1) Intake manifold pressure sensor
	2) Intake air temperature sensor
	3) Intake air temperature and pressure sensor
	4) Engine coolant temperature sensor (*2)
6. Surge	5) Crankshaft position sensor (*3)
	6) Camshaft position sensor (*3)
	7) Fuel injection parts (*4)
	8) Throttle position sensor
	9) Fuel pump and fuel pump relay
	1) Intake manifold pressure sensor
	2) Intake air temperature sensor
	3) Intake air temperature and pressure sensor
7. Spark knock	4) Engine coolant temperature sensor
	5) Knock sensor
	6) Fuel injection parts (*4)
	7) Fuel pump and fuel pump relay
	1) Intake manifold pressure sensor
	2) Intake air temperature sensor
8 After burning in exhaust system	3) Intake air temperature and pressure sensor
	4) Engine coolant temperature sensor (*2)
	5) Fuel injection parts (*4)
	6) Fuel pump and fuel pump relay

*1: Check ignition coil & ignitor assembly and spark plug.*2: Indicate the symptom occurring only in cold temperatures.

*3: Ensure the secure installation.

*4: Check fuel injector, fuel pressure regulator and fuel filter.

*5: Inspect air leak in air intake system.

*6: Adjust accelerator cable.

2. AUTOMATIC TRANSMISSION S008257A1002

NOTE:

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

MEMO: