3. Vehicle Identification Numbers (V.I.N.)

A: APPLICABLE V.I.N. IN THIS MANUAL

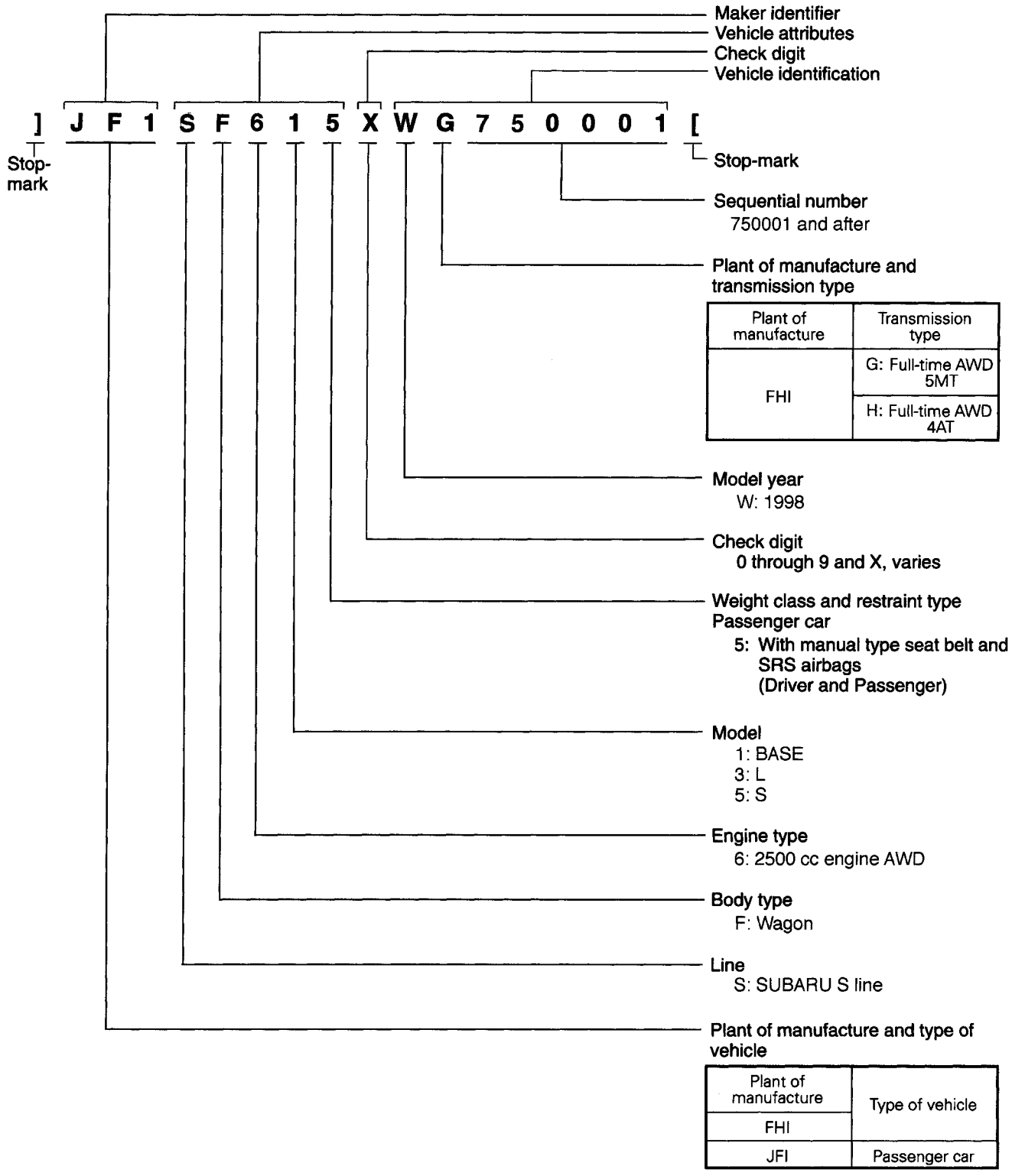
1. AMERICA SPEC. VEHICLES

Wagon	2500 cc engine AWD	BASE	5MT	J	F	1	S	F	6	1	5	X	W	G	7	5	0	0	0	1	and after
		L	5MT	J	F	1	S	F	6	3	5	X	W	G	7	5	0	0	0	1	and after
			4AT	J	F	1	S	F	6	3	5	X	W	H	7	5	0	0	0	1	and after
		S	5MT	J	F	1	S	F	6	5	5	X	W	G	7	5	0	0	0	1	and after
			4AT	J	F	1	S	F	6	5	5	X	W	H	7	5	0	0	0	1	and after

2. CANADA SPEC. VEHICLES

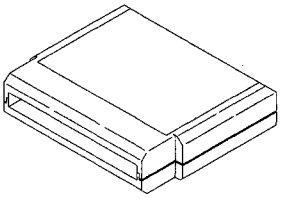
Wagon	2500 cc engine AWD	L	5MT	J	F	1	S	F	6	3	5	X	W	G	7	5	0	0	0	1	and after
			4AT	J	F	1	S	F	6	3	5	X	W	H	7	5	0	0	0	1	and after
		S	5MT	J	F	1	S	F	6	5	5	X	W	G	7	5	0	0	0	1	and after
			4AT	J	F	1	S	F	6	5	5	X	W	H	7	5	0	0	0	1	and after

B: THE MEANING OF V.I.N.



S1H0017A

11. Select Monitor and Cartridge

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 S1H0027	22771AA020	SELECT MONITOR KIT	Troubleshooting for electrical systems. • English (With printer: 22771AA020) • English (Without printer: 22771AA030) • German (With printer: 22771AA040) • French (With printer: 22771AA050) • Spanish (With printer: 22771AA060)
 S1H0070	24082AA030 (Newly adopted tool)	CARTRIDGE	Troubleshooting for electrical systems.

1. System Application

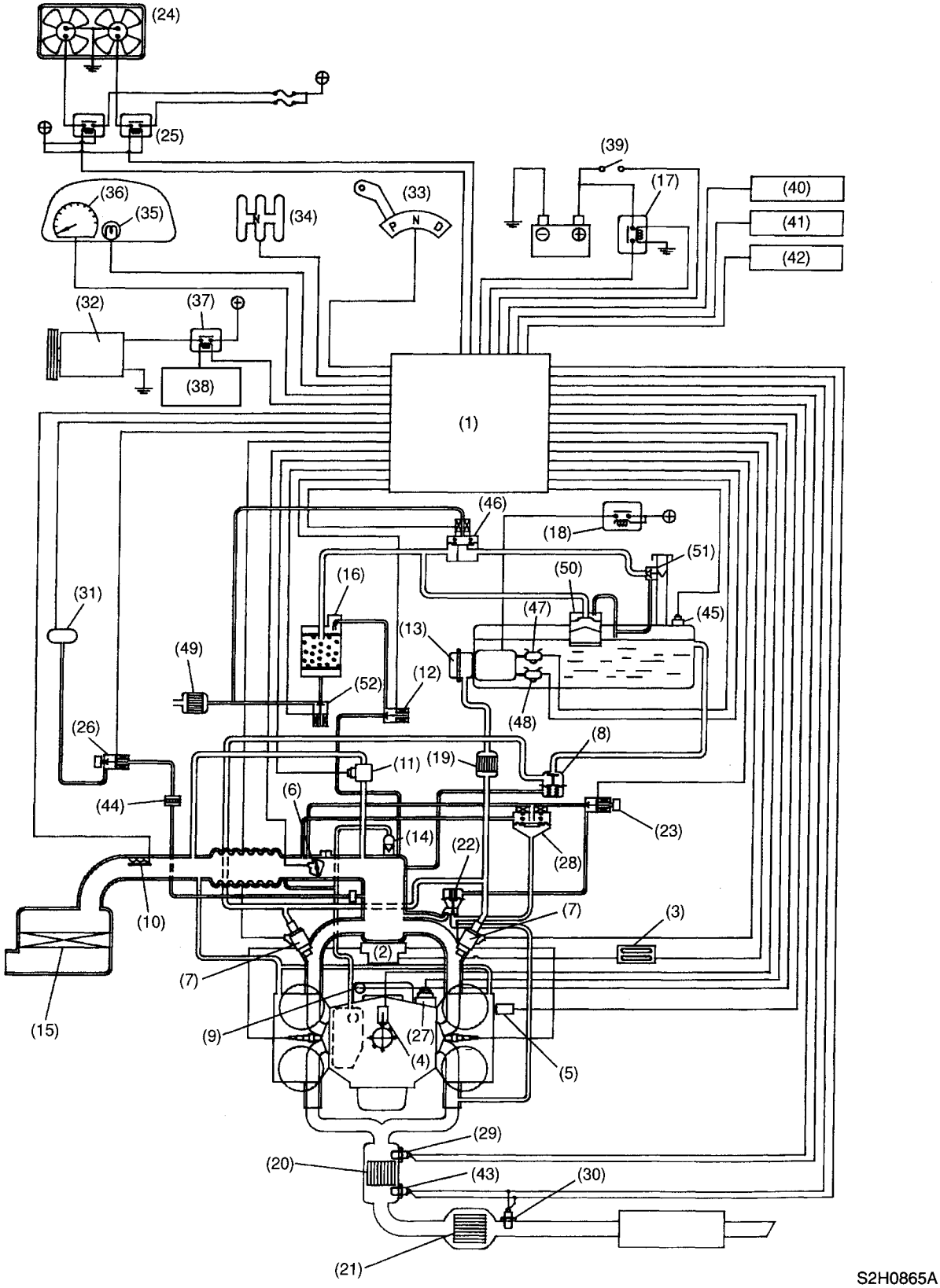
There are three emission control systems which are as follows:

- Crankcase emission control system
- Exhaust emission control system
  - Three-way catalyst system
  - A/F control system
  - Ignition control system
  - EGR system

- Evaporative emission control system
  - ORVR (On-board Refueling Vapor Recovery) System

Item			Main components	Function
Crankcase emission control system			PCV valve	Draws blow-by gas into intake manifold from crankcase and burns it together with air-fuel mixture. Amount of blow-by gas to be drawn in is controlled by intake manifold pressure.
Exhaust emission control system	Catalyst system	Front	Three-way catalyst	Oxidizes HC and CO contained in exhaust gases as well as reducing NOx.
		Rear		
	A/F control system		ECM (Engine control module)	Receives input signals from various sensors, compares signals with stored data, and emits a signal for optimal control of air-fuel mixture ratio.
			Oxygen sensor	Detects density of oxygen contained exhaust gases.
			Mass air flow sensor	Detects amount of intake air.
			Throttle position sensor	Detects throttle position.
	Ignition control system		ECM	Receives various signals, compares signals with basic data stored in memory, and emits a signal for optimal control of ignition timing.
			Crankshaft position sensor	Detects engine speed (Revolution).
			Camshaft position sensor	Detects reference signal for combustion cylinder discrimination.
			Engine coolant temperature sensor	Detects coolant temperature.
			Knock sensor	Detects engine knocking.
EGR system			ECM	Receives various signals, compares signals with basic data stored in memory, and emits ON-OFF signal for EGR solenoid valve.
			EGR valve	Controls amount of exhaust gas to send to intake manifold.
			EGR solenoid valve	Controls EGR valve operation for ON-OFF signal emitted from ECM.
			BPT (Back pressure transducer)	Controls the operation of EGR valve according to the engine load.
Evaporative emission control system			Canister	Absorbs evaporative gas which occurs in fuel tank when engine stops, and sends it to combustion chambers for a complete burn when engine is started. This prevents HC from being discharged into atmosphere.
			Purge control solenoid valve	Receives a signal from ECM and controls purge of evaporative gas absorbed by canister.
			Pressure control solenoid valve	Receives a signal from ECM and controls evaporative gas pressure in fuel tank.
			Vent control solenoid valve	Closes the evaporation line by receiving a signal from ECM to check the evaporation gas leak.
ORVR system			Vent valve	Controls evaporation pressure in fuel tank.
			Drain valve	Closes the evaporation line by receiving a signal from ECM to check the evaporation gas leak.

2. Schematic Drawing



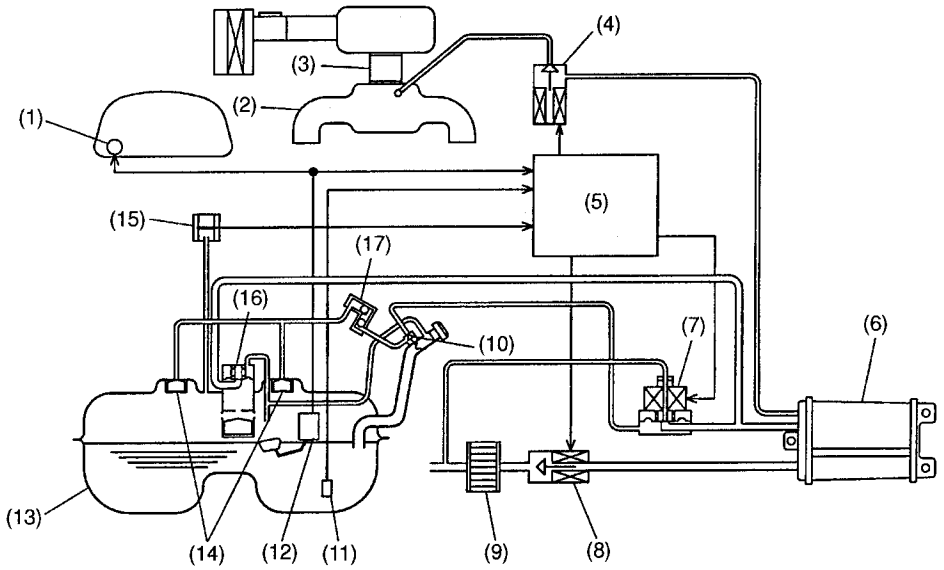
S2H0865A

(1) Engine control module (ECM)
(2) Ignition coil
(3) Ignitor
(4) Crankshaft position sensor
(5) Camshaft position sensor
(6) Throttle position sensor
(7) Fuel injectors
(8) Pressure regulator
(9) Engine coolant temperature sensor
(10) Mass air flow sensor
(11) Idle air control solenoid valve
(12) Purge control solenoid valve
(13) Fuel pump
(14) PCV valve
(15) Air cleaner
(16) Canister
(17) Main relay
(18) Fuel pump relay
(19) Fuel filter
(20) Front catalytic converter
(21) Rear catalytic converter
(22) EGR valve
(23) EGR control solenoid valve
(24) Radiator fan
(25) Radiator fan relay
(26) Pressure sources switching solenoid valve
(27) Knock sensor
(28) Back-pressure transducer
(29) Front oxygen sensor
(30) Rear oxygen sensor (Except California spec. vehicles)
(31) Pressure sensor
(32) A/C compressor
(33) Inhibitor switch (AT vehicles only)
(34) Neutral switch (MT vehicles only)
(35) CHECK ENGINE malfunction indicator lamp (MIL)
(36) Tachometer
(37) A/C relay
(38) A/C control module
(39) Ignition switch
(40) Transmission control module (TCM)
(41) Vehicle speed sensor
(42) Data link connector
(43) Rear oxygen sensor (California spec. vehicles)
(44) Filter
(45) Fuel tank pressure sensor
(46) Pressure control solenoid valve
(47) Fuel temperature sensor
(48) Fuel level sensor
(49) Air filter
(50) Vent valve
(51) Shut valve
(52) Drain valve

8. Evaporative Emission Control System

A: GENERAL

- The evaporative emission control system is employed to prevent evaporative fuel from being discharged into ambient atmosphere. This system includes a canister, purge control solenoid valve, fuel cut valve, their connecting lines, etc.
- Gasoline vapor evaporated from the fuel in the fuel tank is introduced into the canister through the evaporation line, and is absorbed on activated carbon in it. A fuel cut valve is also incorporated on the fuel tank line.
- The purge control solenoid valve is controlled by the ECM and provides optimal purge control according to the engine condition. Except Taiwan spec. vehicles, the signal from the fuel temperature sensor and fuel level sensor installed in the fuel tank is also used for this control.
- A pressure control solenoid valve incorporated in the fuel tank evaporation line controls the pressure/vacuum in the fuel tank according to the pressure/vacuum sensed by the fuel tank pressure sensor.

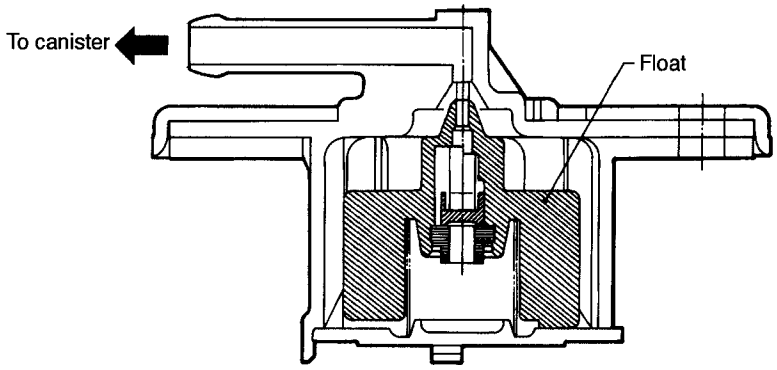


S2H0870A

(1) Fuel gauge
(2) Intake manifold
(3) Throttle body
(4) Purge control solenoid valve
(5) Engine control module (ECM)
(6) Canister
(7) Pressure control solenoid valve
(8) Drain valve
(9) Air filter
(10) Shut valve
(11) Fuel temperature sensor
(12) Fuel level sensor
(13) Fuel tank
(14) Fuel cut valve
(15) Fuel tank pressure sensor
(16) Vent valve
(17) Roll over valve

B: FUEL CUT VALVE

The fuel cut valve is built onto the evaporation pipe of the fuel tank cap. The rising level of the fuel from the fuel tank causes the float to move up and close the cap hole so that no fuel can enter during evaporation line.

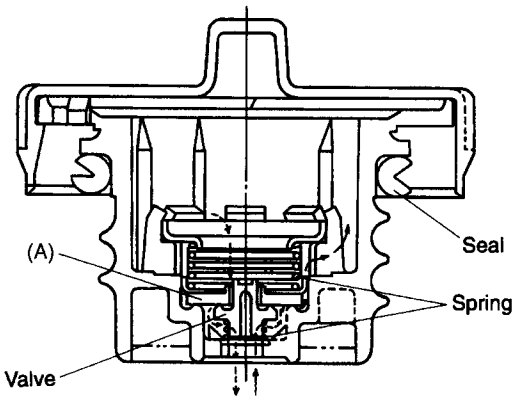


G2H0008

C: FUEL CAP

The relief valve is adopted to prevent the development of vacuum in the fuel tank which may occur in case of trouble in the fuel vapor line.

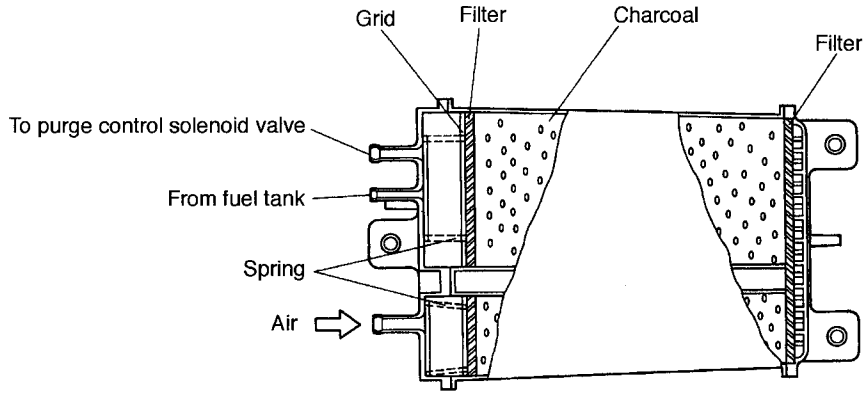
In normal condition, the filler pipe is sealed at (A) and at the packing pressed against the filler pipe end. As vacuum develops in the fuel tank, atmospheric pressure forces the spring down to open the valve; consequently air is led into the fuel tank controlling the inside pressure.



B2H0395A

D: CANISTER

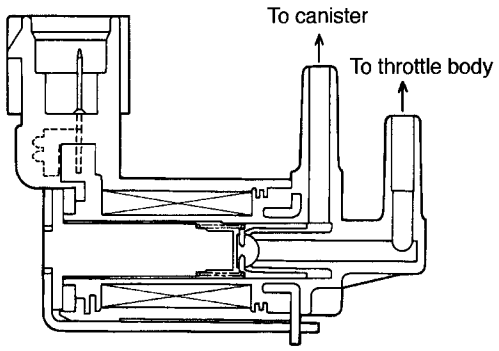
The canister temporarily stores the evaporation gas. When the purge control solenoid valve is opened from a signal sent from the ECM, the evaporation gas is sent into the collector chamber after being mixed with fresh external air.



H2H1164B

E: PURGE CONTROL SOLENOID VALVE

The purge control solenoid valve is on the evaporation line between canister and throttle body. It is installed at the under side of intake manifold.



B2H0426

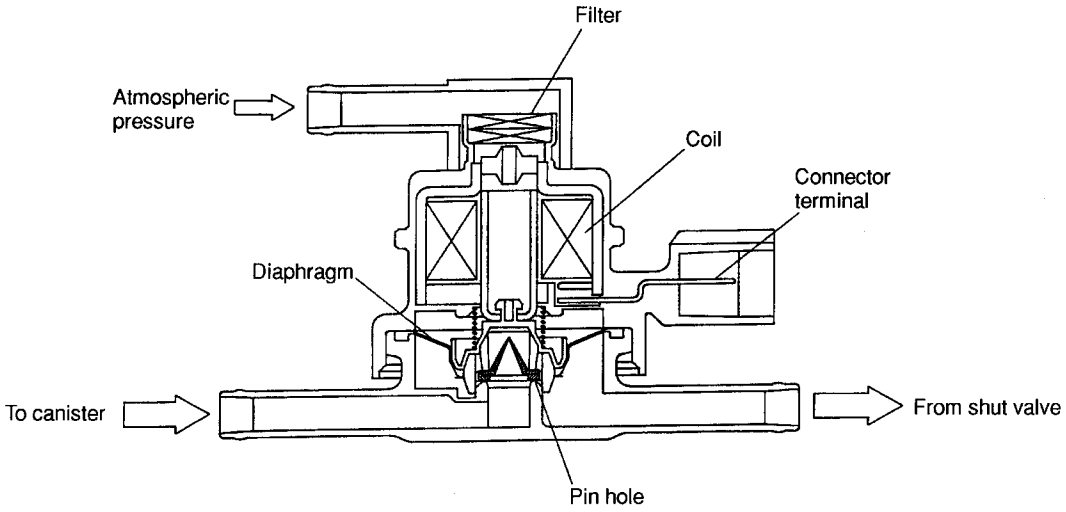
F: PRESSURE CONTROL SOLENOID VALVE

The fuel tank pressure control solenoid valve located in the evaporation line between the shut valve on fuel filler pipe and the canister adjusts the pressure inside the fuel tank under the control of ECM.

When the tank internal pressure is increased and becomes greater than atmospheric pressure, the valve is opened to introduce evaporation gas into the canister to purge.

On the other hand, when the tank internal pressure becomes smaller than atmospheric pressure, external air is taken from the drain valve into the canister.

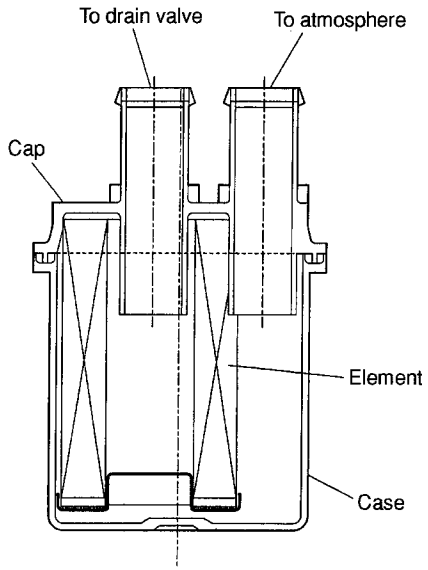
Also, the pressure control solenoid valve can be electrically closed for system diagnosis.



B2H1719B

G: AIR FILTER

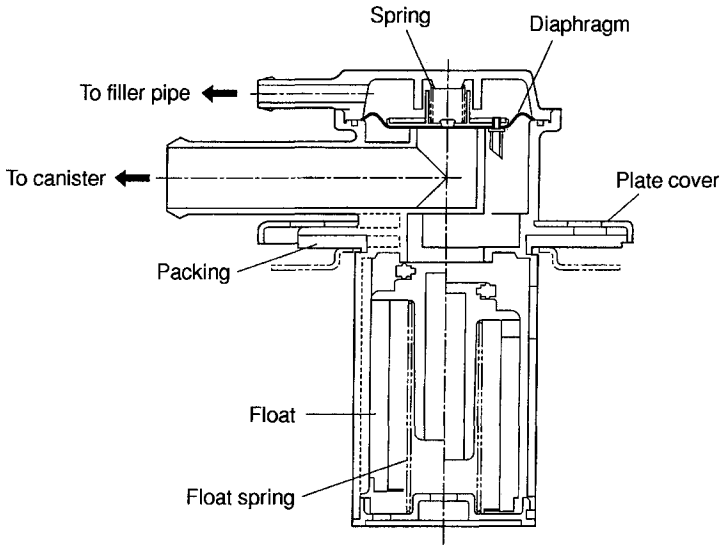
The air filter is installed at the air inlet port of the drain valve to clean the air taken in the canister through the drain valve.



S2H0874

H: VENT VALVE

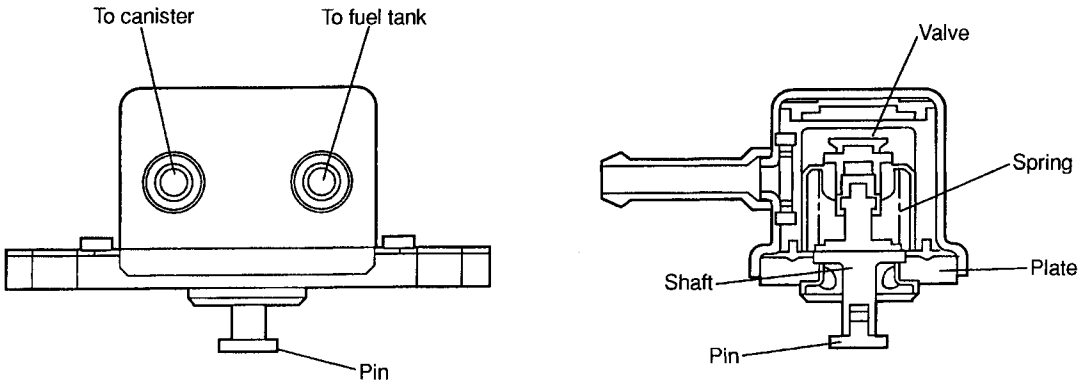
Vent valve is located on the fuel tank. During filling the fuel tank, evaporation gas is introduced to the canister through vent valve.
When the evaporation pressure overcomes atmospheric pressure and spring force which are applied to the back side of the diaphragm, the port is opened. Also, the float in the vent valve is to stop the fuel which is supplied when the tank is filled up. Increasing fuel level raises the float to close the port.



S2H0875A

I: SHUT VALVE

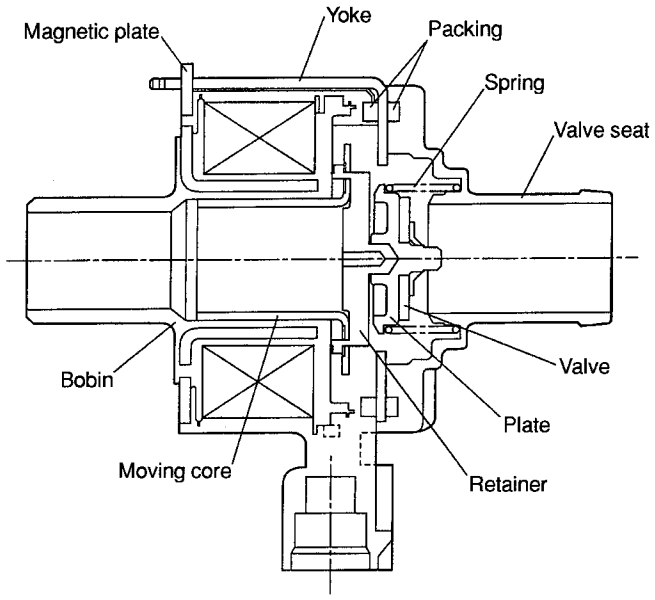
Shut valve is located on the upper side of fuel filler pipe. When a filler gun is inserted into the filler pipe, the shut valve is closes the evaporation line.



B2H1769

J: DRAIN VALVE

The drain valve is located on the line connecting the air filter and canister, at a point just below the air filter. The drain valve is forcibly closed by a signal from the ECM while the evaporation system diagnosis is being conducted.



B2H1770

10. On-board Refueling Vapor Recovery (ORVR) System

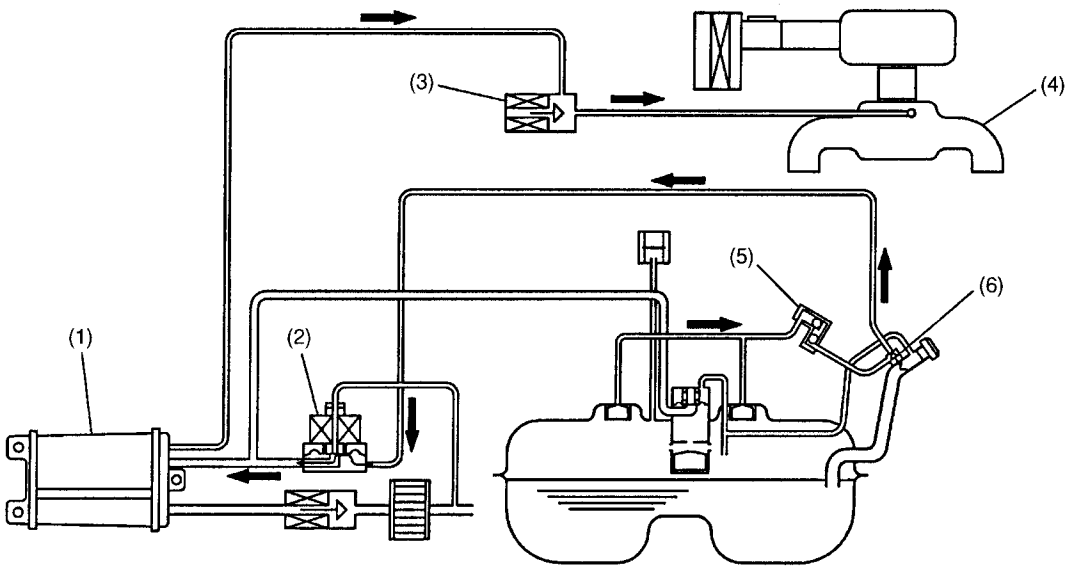
A: GENERAL

The on-board refueling vapor recovery system allows the fuel evaporation gas in the fuel tank to be introduced directly into the canister through the vent valve when the fuel tank inside pressure increases as a result of refueling.
The diagnosis of the system is performed by monitoring the fuel tank inside pressure detected by the fuel tank pressure sensor while forcibly closing the drain valve.

B: OPERATION

- While driving

Since the back side of the diaphragm in the pressure control solenoid valve is open to the atmosphere, the diaphragm is held pressed by the atmospheric pressure in the position where only the external air is introduced into the canister. When the evaporation gas pressure acting on the other side of the diaphragm increases and overcomes the atmospheric pressure, it pushes the diaphragm and opens a port through which the evaporation gas makes its way to the canister.

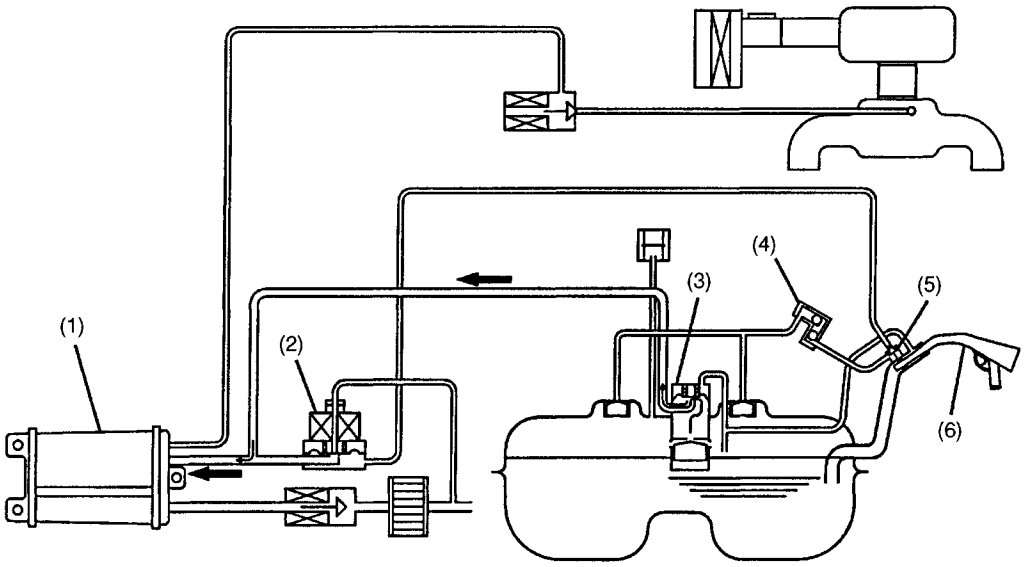


S2H0872A

(1) Canister
(2) Pressure control solenoid valve
(3) Purge control solenoid valve
(4) Intake manifold
(5) Roll over valve
(6) Shut valve: opened

• While refueling

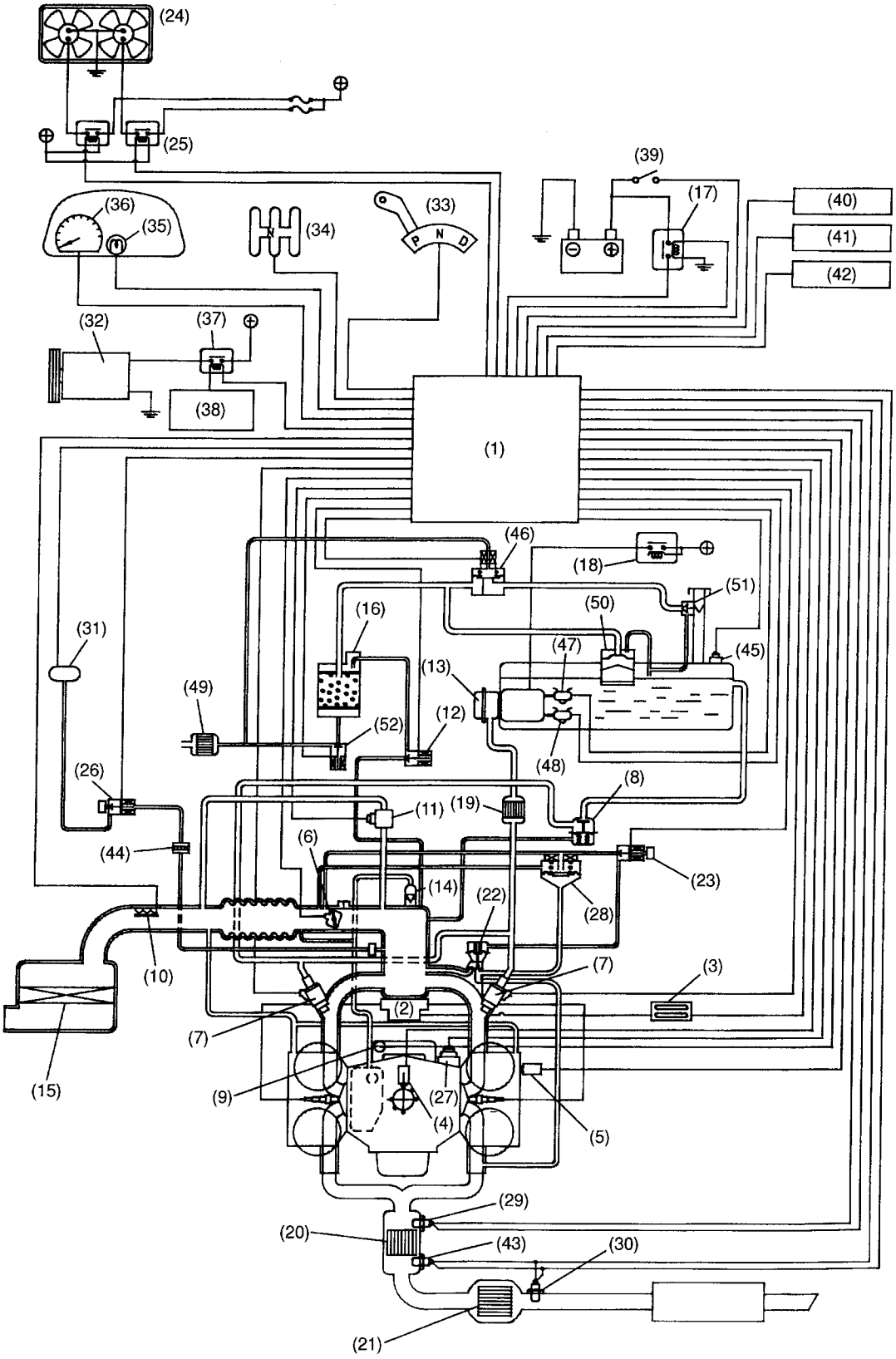
As fuel is filled in to fuel tank, internal pressure is increased. When internal pressure overcomes atmospheric pressure, port of the vent valve is opened, and evaporation gas is introduced into the canister through the vent line. Fuel vapor is absorbed by a chacoal in the canister and purified air is discharged from the drain valve. When a filler gun is inserted, the shut valve closes the evaporation line.



S2H0873A

(1) Canister
(2) Pressure control solenoid valve
(3) Vent valve
(4) Roll over valve
(5) Shut valve: closed
(6) Filler gun

2. Schematic Drawing



S2H0865A

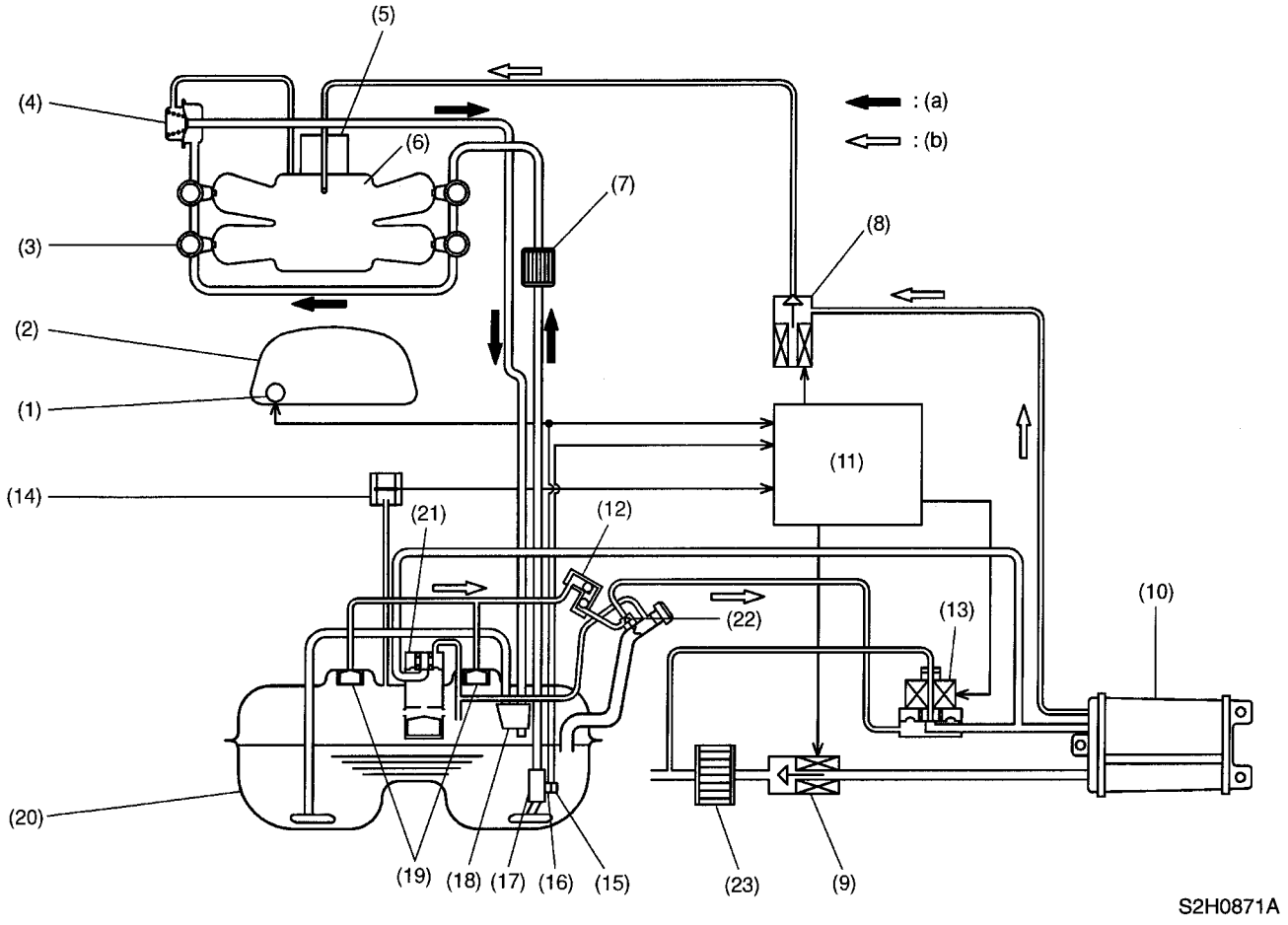
(1) Engine control module (ECM)
(2) Ignition coil
(3) Ignitor
(4) Crankshaft position sensor
(5) Camshaft position sensor
(6) Throttle position sensor
(7) Fuel injectors
(8) Pressure regulator
(9) Engine coolant temperature sensor
(10) Mass air flow sensor
(11) Idle air control solenoid valve
(12) Purge control solenoid valve
(13) Fuel pump
(14) PCV valve
(15) Air cleaner
(16) Canister
(17) Main relay
(18) Fuel pump relay
(19) Fuel filter
(20) Front catalytic converter
(21) Rear catalytic converter
(22) EGR valve
(23) EGR control solenoid valve
(24) Radiator fan
(25) Radiator fan relay
(26) Pressure sources switching solenoid valve
(27) Knock sensor
(28) Back-pressure transducer
(29) Front oxygen sensor
(30) Rear oxygen sensor (Except California spec. vehicles)
(31) Pressure sensor
(32) A/C compressor
(33) Inhibitor switch (AT vehicles only)
(34) Neutral switch (MT vehicles only)
(35) CHECK ENGINE malfunction indicator lamp (MIL)
(36) Tachometer
(37) A/C relay
(38) A/C control module
(39) Ignition switch
(40) Transmission control module (TCM)
(41) Vehicle speed sensor
(42) Data link connector
(43) Rear oxygen sensor (California spec. vehicles)
(44) Filter
(45) Fuel tank pressure sensor
(46) Pressure control solenoid valve
(47) Fuel temperature sensor
(48) Fuel level sensor
(49) Air filter
(50) Vent valve
(51) Shut valve
(52) Drain valve

4. Fuel Line

A: GENERAL

• Fuel pressurized by the fuel pump built into the fuel tank is delivered to fuel injectors by way of the fuel pipe and fuel filter. Fuel is regulated to the optimum pressure level by the pressure regulator on the way to the injectors.

• From the injectors, fuel is injected into the intake port of each cylinder where it is mixed with intake air, and is then delivered to the respective cylinders.
Fuel injection timing and the amount of fuel injected is regulated by the ECM.



(1) Fuel gauge
(2) Combination meter
(3) Fuel injector
(4) Pressure regulator
(5) Throttle body
(6) Intake manifold
(7) Fuel filter
(8) Purge control solenoid valve
(9) Drain valve
(10) Canister
(11) ECM
(12) Roll over valve
(13) Pressure control solenoid valve
(14) Fuel tank pressure sensor
(15) Fuel temperature sensor
(16) Fuel level sensor
(17) Fuel pump
(18) Jet pump
(19) Fuel cut valve
(20) Fuel tank
(21) Vent valve
(22) Shut valve
(23) Air filter

(a) Fuel line
(b) Evaporation line

6. Control System

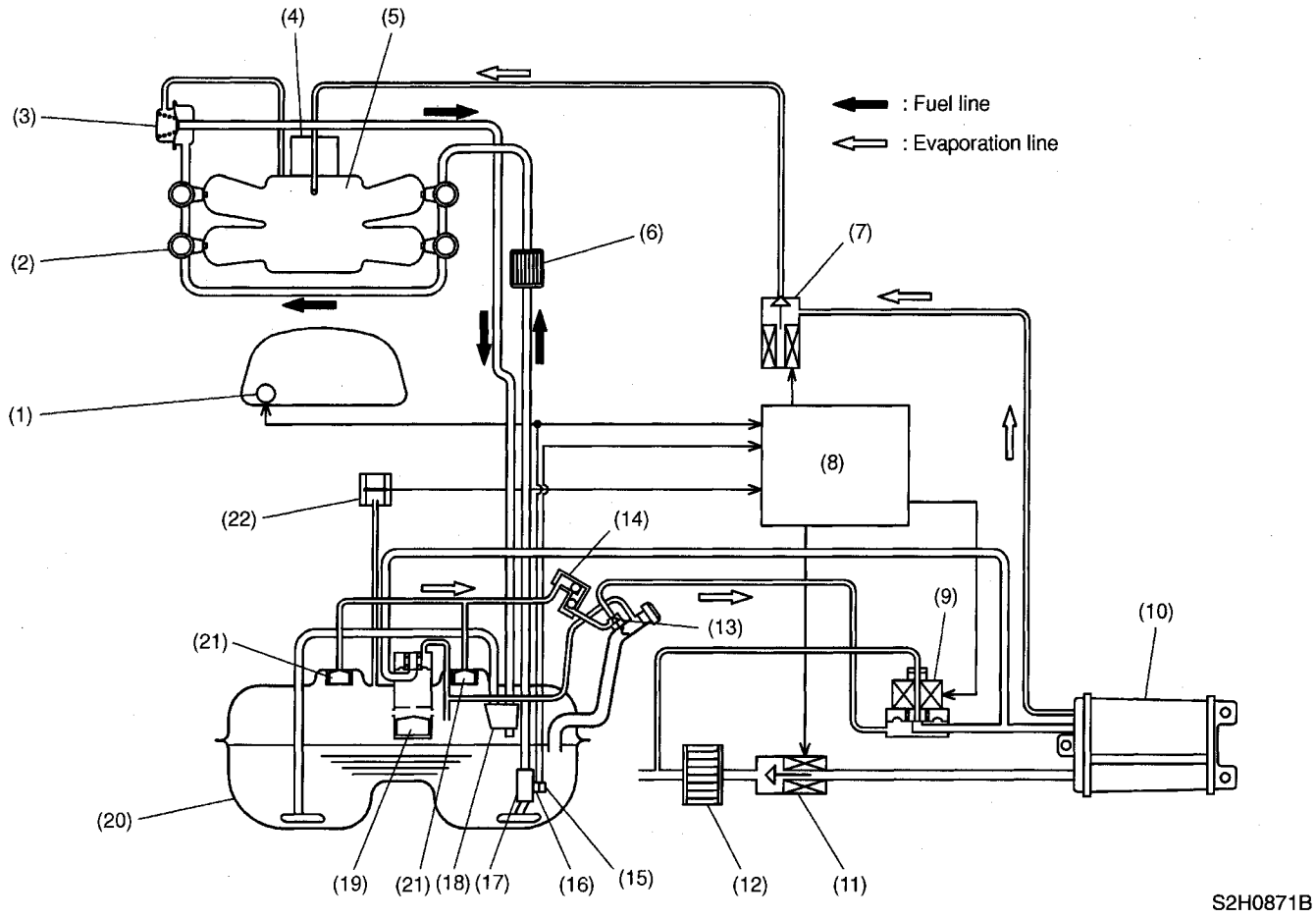
B: INPUT AND OUTPUT SIGNALS

	Unit	Function
Input signal	Mass air flow sensor	Detects the amount of intake air.
	Throttle position sensor	Detects the throttle position.
	Front and rear oxygen sensors	Detects the density of oxygen in exhaust gases.
	Crankshaft position sensor	Detects crankshaft position.
	Camshaft position sensor	Detects the relative cylinder positions.
	Engine coolant temperature sensor	Detects the engine coolant temperature.
	Knock sensor	Detects engine knocking.
	Vehicle speed sensor 2	Detects vehicle speed.
	Ignition switch	Detects ignition switch operation.
	Starter switch	Detects the condition of engine cranking.
	Park/Neutral position switch (AT)	Detects shift positions.
	Neutral position switch (MT)	Detects gear position being in the neutral.
	Torque control signal (AT)	Controls the engine torque.
	Pressure sensor	Detects atmospheric pressure and intake manifold pressure.
	Heater circuit of front and rear oxygen sensor	Detects the abnormal for heater circuit of front and rear oxygen sensor.
	Diagnostics of AT (AT)	Detects the self-diagnostics of AT.
	A/C switch	Detects the ON-OFF operation of the A/C switch.
	Fuel temperature sensor	Detects the temperature of the fuel in fuel tank.
	Fuel level sensor	Detects the level of the fuel in fuel tank.
	Fuel tank pressure sensor	Detects the evaporation gas pressure in fuel tank.
Output signal	Fuel Injector	Inject fuel.
	Ignition signal	Turns primary ignition current ON or OFF.
	Fuel pump relay	Turns the fuel pump relay ON or OFF.
	A/C control relay	Turns A/C control relay ON or OFF.
	Radiator fan control relay	Turns radiator fan control relay ON or OFF.
	Idle air control solenoid valve	Adjusts the amount of idle air flowing through the throttle valve.
	Malfunction indicator lamp	Indicates trouble.
	Purge control solenoid valve	Controls the purge of evaporative gas absorbed by canister.
	Power supply	Control the ON/OFF switching of main relay.
	EGR solenoid valve	Control the function of EGR system.
	Pressure sources switching solenoid valve	Switch the intake manifold pressure and atmospheric pressure that pressure sensor detects.
	Pressure control solenoid valve	Controls the evaporation gas pressure in fuel tank.
	Drain valve	Closes the evaporation line between the fuel tank and canister to detect the leak of evaporation gases.

1. Fuel Lines

The fuel lines consist of a delivery line, return line, and an evaporation line.

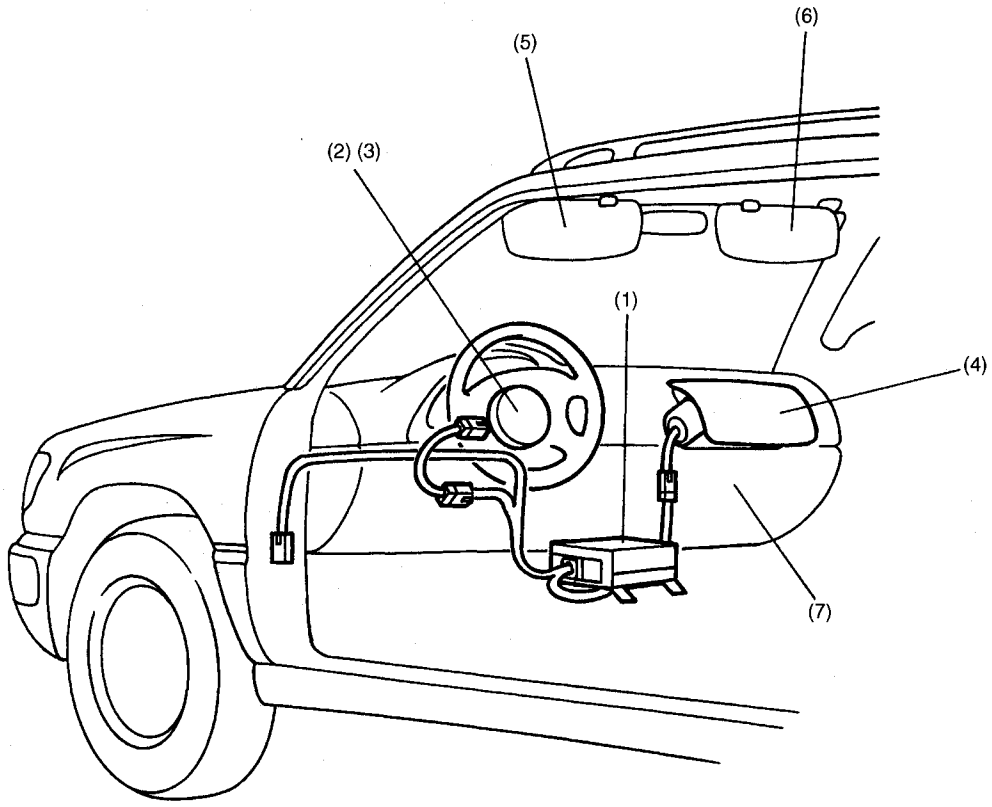
- The delivery line supplies fuel from the fuel tank to the intake manifold and consists of a pump filter, fuel pump and fuel filter.
- The return line returns excess fuel to the fuel tank via the pressure regulator to maintain a constant level of fuel pressure.
- The evaporation line consists of a purge control solenoid valve, pressure control solenoid valve and canister. Two fuel cut valves are additionally provided.
- The fuel tank is equipped with a jet pump so that the fuel level of both fuel tank chambers can always be kept equal.
- For evaporation line for ORVR system, refer to chapter 2-1. <Ref. to 2-1 [M1000].★2>



(1) Fuel gauge
(2) Fuel injector
(3) Pressure regulator
(4) Throttle body
(5) Intake manifold
(6) Fuel filter
(7) Purge control solenoid valve
(8) ECM
(9) Pressure control solenoid valve
(10) Canister
(11) Drain valve
(12) Air filter
(13) Shut valve
(14) Roll over valve
(15) Fuel temperature sensor
(16) Fuel level sensor
(17) Fuel pump
(18) Jet pump
(19) Vent valve
(20) Fuel tank
(21) Fuel cut valve
(22) Fuel tank pressure sensor

2. Construction

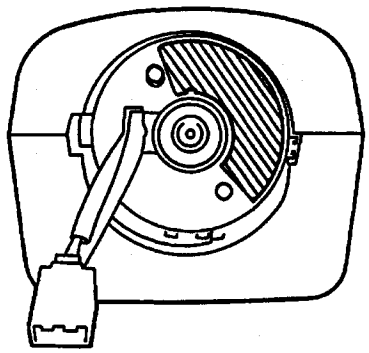
I: WARNING AND CAUTION LABELS



S5H0009C

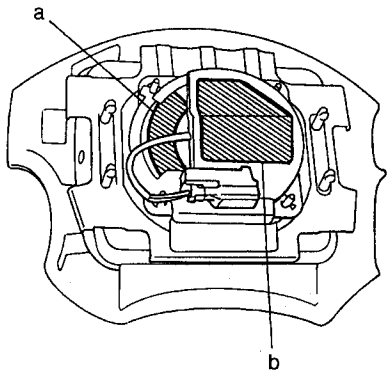
(1)	SRS AIRBAG CONTROL UNIT CAUTION • READ SERVICE MANUAL • NO SERVICEABLE INSIDE • DO NOT DISASSEMBLE OR TAMPER • DO NOT DROP; KEEP DRY • STORE IN CLEAN DRY AREA	注意 • 取扱いは、サービスマニュアルを参照して下さい。 • 分解しないで下さい。 • 乾燥したクリーンな場所に保管して下さい。 • 落したり濡らしたりしないで下さい。	Précaution • lisez le manuel d'entretien • aucune pièce interne ne peut être remplacée ou réparée • ne démontez ou altérez pas cette unité de contrôle • n'échappez pas • emmagasinez dans un endroit sec

S5H0016

(2)		CAUTION [BEFORE INSTALLING] 1. POINT FRONT WHEELS STRAIGHT AHEAD. 2. ROTATE 2.50 TURNS FROM RIGHT END STOP. 3. ALIGN MATCH-MARKS (MARKS: ▼▲). 4. READ SERVICE MANUAL. 注意［取り付け前に］ 1. 前輪を直進状態にする。 2. 右回転終点より左へ約2.50回転回す。 3. マーク（MARK：▼▲）を合わせる。 4. 詳細はサービスマニアルに従う事。

S5H0017

(3)



a. AIRBAG-GASGENERATOR 121747
HERST: AUTOLIV ASP, INC.
OGDEN, UT USA
TEL: 6031-6060 EINFÜHRER:
SUBARU DEUTSCHLAND G. m. b. H.
FRIEDBERG Herg: 1997 OG
BAM PT_1 0603

SICHERHEITSHINWEISE: UMGANG NUR DURCH GESCHULTES PERSONAL ERLAUBT. VERWENDUNG NUR ALS INSASSEN-RÜCKHALTESYSTEM MIT LUFTSACK FÜR KRAFTFAHRZEUGE ERLAUBT. BEI AUSLÖSUNG KANN DIE NICHT MONTIERTE AIRBAG-EINHEIT ZUM GEFÄHRLICHEN WURFSTÜCK WERDEN.

危険　エアバック・インフレーター
可燃性物質封入部品
1．分解、加熱、焼却はしないで下さい。
2．電気に触れないようにして下さい。
3．高温（93° C以上）の場所に貯蔵しないで下さい。

DANGER: FLAMMABLE MATERIAL. TO PREVENT PERSONAL INJURY, DO NOT DISMANTLE, INCINERATE, OR BRING INTO CONTACT WITH ELECTRICITY. STORE BELOW 200°F (93°C).

ATTENTION: MATÉRIAU INFLAMMABLE GARDER HORS D'ATTEINTE DES ENFANTS POUR ÉVITER TOUT RISQUE DE BLESSURE PHYSIQUE, NE PAS DÉMONTER, INCINÉRER NI METTRE EN CONTACT AVEC L'ÉLECTRICITÉ. RANGER À UNE TEMPÉRATURE INFÉRIEURE À 93°C (200°F).

ACHTUNG: LEICHT ENTZÜNDLICHES MATERIAL KONTAKT MIT SÄURE, WASSER ODER SCHWERMETALLEN KANN GEFÄHRLICHE GASE ODER EXPLOSIVE VERBINDUNGEN ERZEUGEN. NICHT ZERLEGEN, VERBRENNEN, IN KONTAKT MIT ELEKTRIZITÄT BRINGEN UND AUCH NICHT BEI TEMPERATUREN VON MEHR ALS 93°C (200°F) LAGERN.

b. AIR BAG MODULE

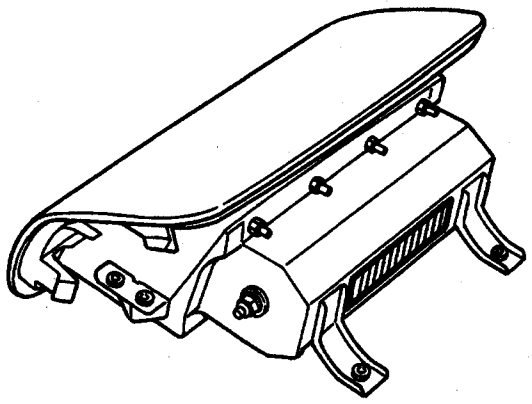
警告　この部分は分解、修理、他車への取り付けをしないでください。取り扱い・交換・廃棄方法は整備解説書に従って下さい。

WARNING To prevent personal injury. Do not dismantle, repair or install in another vehicle. Service or dispose as directed in the service manual.

ATTENTION Pour éviter tout risque de blessures corporelles. Ne pas démonter, réparer, installer dans un autre véhicule. L'entretenir ou le remplacer comme indique dans le manuel d'entretien.

ACHTUNG Zur vermeidung von verletzungen. Nicht zerlegen, reparieren oder in einem anderen fahrzeug installieren. Wartung und ausbau wie im reparatuhandbuch beschrieben.

S5H0326A

(4)		WARNING FLAMMABLE/EXPLOSIVE • DO NOT USE ELECTRIC TESTING EQUIPMENTS AND OTHER ELECTRIC RELATED PRODUCTS. • DO NOT OVERHAUL THE SYSTEM AND AVOID STRONG IMPACT. • MAXIMUM SAFE TEMPERATURE FOR THE AIRBAG SYSTEM IS 200°F (93°C). • STORE THE SYSTEM WITH TOP SIDE UP. • REFER TO SERVICE MANUAL FOR HANDLING STORAGE AND DISPOSAL PROCEDURES. WARNUNG BRENNBARES/EXPLOSIVES • KEINE ELEKTRISCHEN PRÜFGERÄTE ODER ÄHNLICHE INSTRUMENTE VERWENDÉN. • NICHT VERSUCHEN ZU ZERLEGEN ODER ZU REPARIEREN. VOR STÖBEN SCHÜTZEN. • LAGERTEMPERATUR DARF 93°C (200°F) NICHT ÜBERSCHREITEN. • MIT DEM DECKEL NACH OBEN LAGERN. • ZU BEDIENUNG LAGERUNG UND BESITIGUNG SIEHE WARTUNGSHANDBUCH. DANGER RISQUE D'INCENDIE/EXPLOSION • NE PAS UTILISER DE TESTEUR ELECTRIQUE. • CE MODULE NE PEUT ÉTRE NI DÉMONTÉ NI RÉPARÉ. EVITER LES CHOOS. • NE JAMAIS ENTREPOSER SOUS UNE TEMPÉRATURE SUPÉRIEURE À 93°C (200°F). • LE MODULE DOIT TOUJOURS ÉTRE POSÉ AVEC LE COUVERCLE VERS LE HAUT. • CONCERNANT LE MODE D'EMPLOI, DE CONCERVATION ET DE REJET, VEUILLEZ VOUS RÉFÉRER À LA NOTICE D'UTILISATION. 警告 可燃性/爆発性 • 電気テスター等は使用しないこと。 • 分解、修理不可。衝撃を与えないこと。 • 高温（93°以上）での保管禁止。 • リッド面を上にして保管すること。 • 取扱い、保管、廃却方法は整備解説書を参照。

S5H0019

(5)	WARNING DEATH or SERIOUS INJURY can occur • Children 12 and under can be killed by the airbag • The BACK SEAT is the SAFEST place for children • NEVER put a rear-facing child seat in the front • Sit as far back as possible from the airbag • ALWAYS use SEAT BELTS and CHILD RESTRAINTS TEN YEARS AFTER THE DATE OF VEHICLE MANUFACTURE AS NOTED ON THE CERTIFICATION PLATE, THE SRS AIRBAG SYSTEM MUST BE INSPECTED BY A SUBARU DEALER. AVERTISSEMENT Il y a risque de MORT ou de BLESSURES GRAVES • Les enfants de 12 ans et moins peuvent être tués par le coussin gonflable • La BANQUETTE ARRIÈRE est l'endroit le plus SÛR pour les enfants • NE JAMAIS installer à l'avant un siège pour enfants orienté vers l'arrière • S'asseoir aussi loin que possible du coussin gonflable • TOUJOURS utiliser CEINTURES DE SÉCURITÉ et DISPOSITIFS DE RETENUE POUR ENFANTS DIX ANS APRÈS LA DATE DE FABRICATION DU VÉHICULE, NOTÉE SUR LA PLAQUE DE CERTIFICATION, LE SYSTÈME DE COUSSIN GONFLABLE (SRS) DOIT ÊTRE INSPECTÉ PAR UN CONCESSIONNAIRE SUBARU.

S5H0193

(6)	WARNING DEATH or SERIOUS INJURY can occur • Children 12 and under can be killed by the airbag • The BACK SEAT is the SAFEST place for children • NEVER put a rear-facing child seat in the front • Sit as far back as possible from the airbag • ALWAYS use SEAT BELTS and CHILD RESTRAINTS AVERTISSEMENT Il y a risque de MORT ou de BLESSURES GRAVES • Les enfants de 12 ans et moins peuvent être tués par le coussin gonflable • La BANQUETTE ARRIÈRE est l'endroit le plus SÛR pour les enfants • NE JAMAIS installer à l'avant un siège pour enfants orienté vers l'arrière • S'asseoir aussi loin que possible du coussin gonflable • TOUJOURS utiliser CEINTURES DE SÉCURITÉ et DISPOSITIFS DE RETENUE POUR ENFANTS

S5H0194

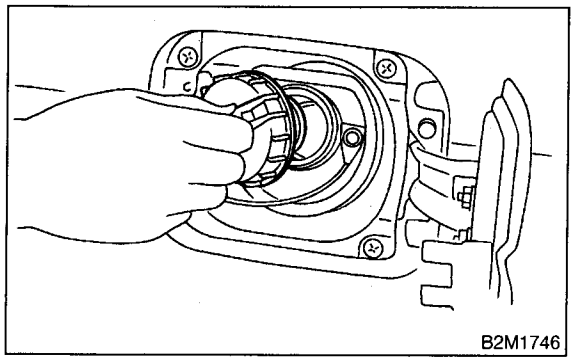
(7)	WARNING Children May Be KILLED or INJURED by Passenger Airbag The back seat is the safest place for children 12 and under. Make sure all children use seat belts or child seats. AVERTISSEMENT Les enfants peuvent être TUÉS ou BLESSÉS par le coussin gonflable côté passager La BANQUETTE ARRIÈRE est l'endroit le plus SÛR pour les enfants de 12 ans et moins. S'assurer que les enfants bouclent leur ceinture ou utilisent un siège pour enfant.

S5H0195

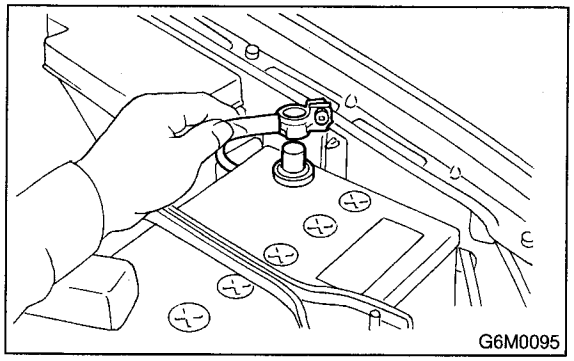
8. Fuel Tank Pressure Sensor

A: REMOVAL AND INSTALLATION

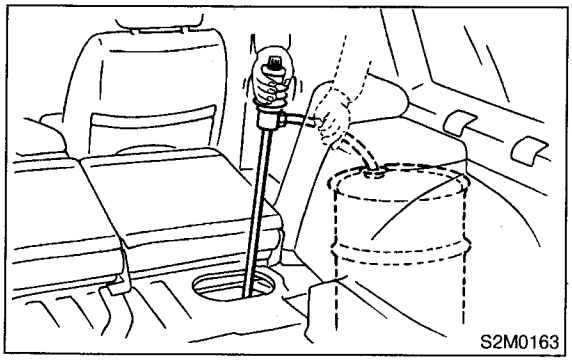
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>
2) Open fuel flap lid, and remove fuel filler cap.



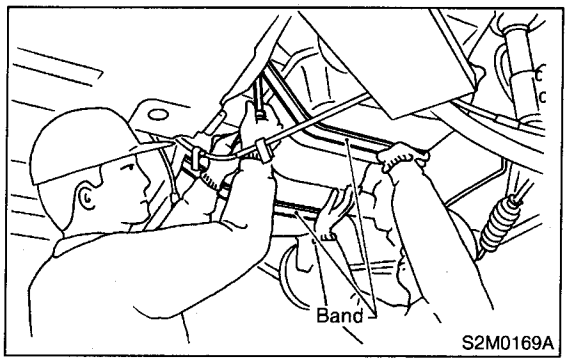
3) Disconnect battery ground cable.



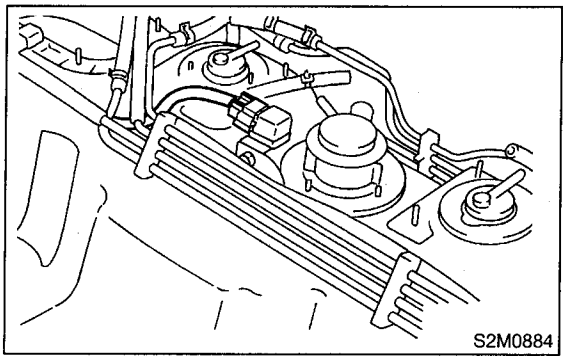
4) Drain fuel from fuel tank. <Ref. to 2-2 [W9C0].☆1>



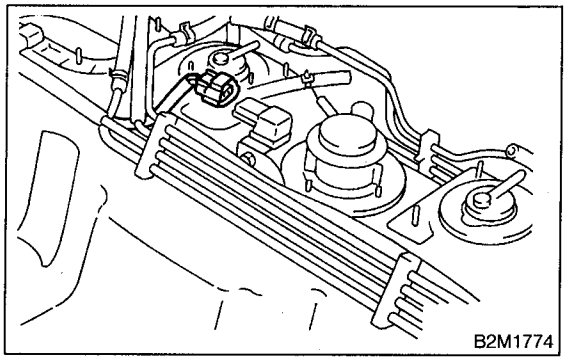
5) Remove fuel tank. <Ref. to 2-8 [W1A0].☆1>



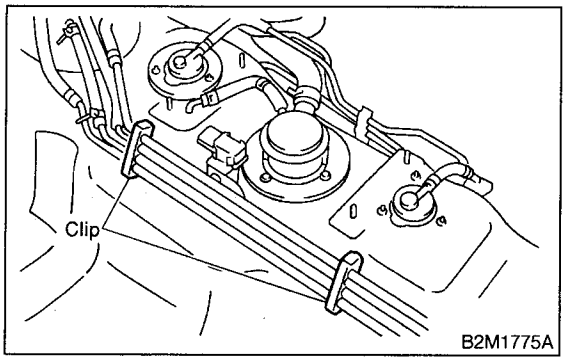
6) Remove protector cover.



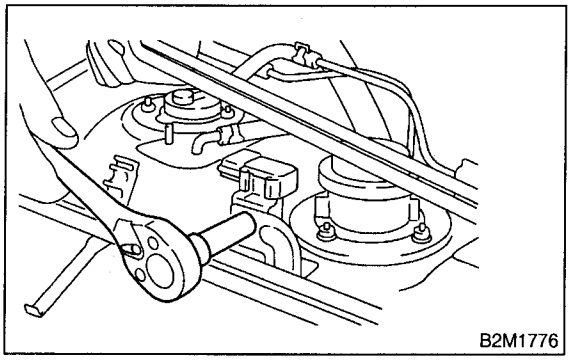
7) Disconnect connector from fuel tank pressure sensor.



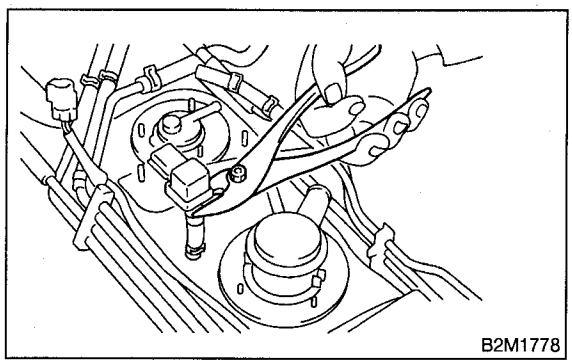
8) Release clips which hold fuel pipes onto fuel tank.



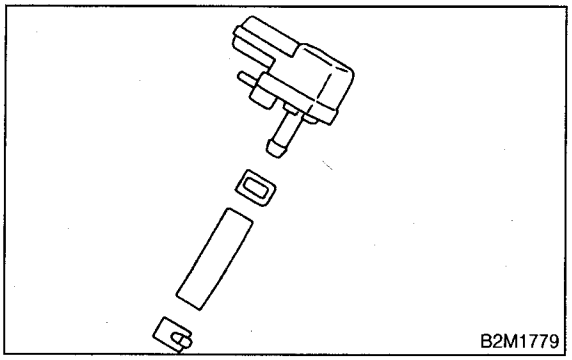
9) Move two fuel pipes to upper side, and remove bolt which install fuel tank pressure sensor to bracket.



10) Move clip, and disconnect pressure hose from fuel tank.

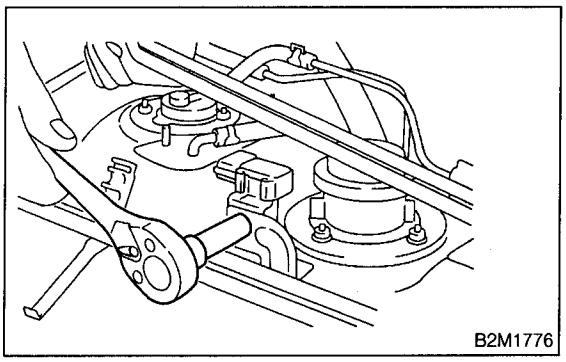


11) Disconnect pressure hose from fuel tank pressure sensor.



12) Installation is in the reverse order of removal.

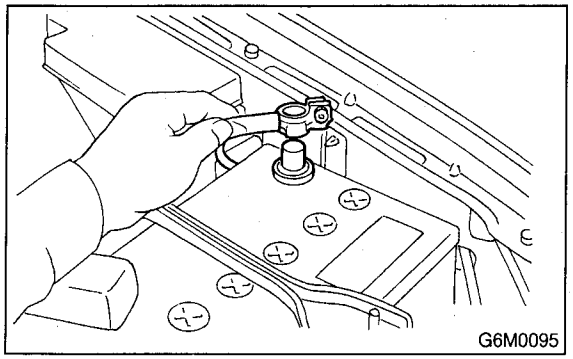
Tightening torque:
7.35±1.96 N·m (0.75±0.20 kg-m, 5.4±1.4 ft-lb)



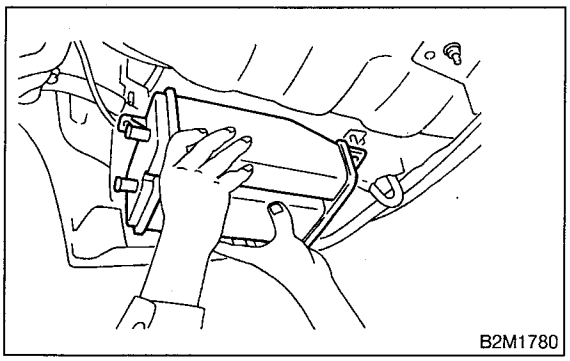
9. Pressure Control Solenoid Valve

A: REMOVAL AND INSTALLATION

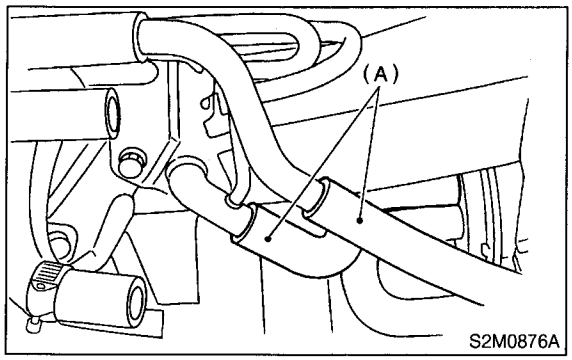
1) Disconnect battery ground cable.



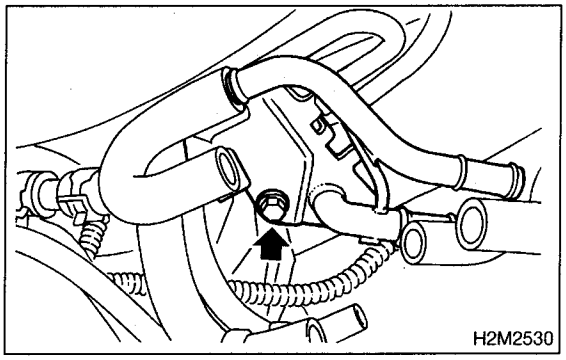
2) Remove canister. <Ref. to 2-1 [W3A0].☆1>



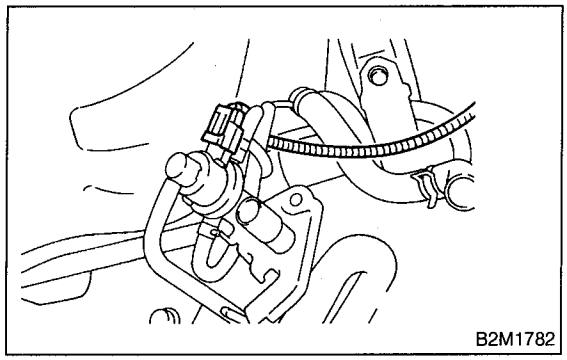
3) Disconnect evaporation hoses (A) from joint pipes.



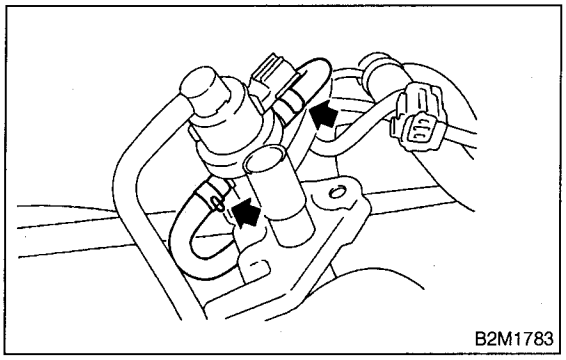
4) Remove bolt which installs pressure control solenoid valve holding bracket on body.



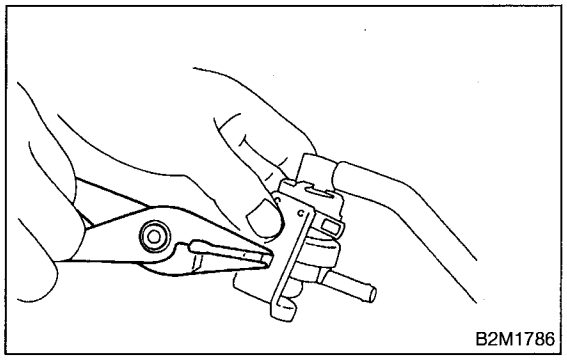
5) Disconnect connector from pressure control solenoid valve.



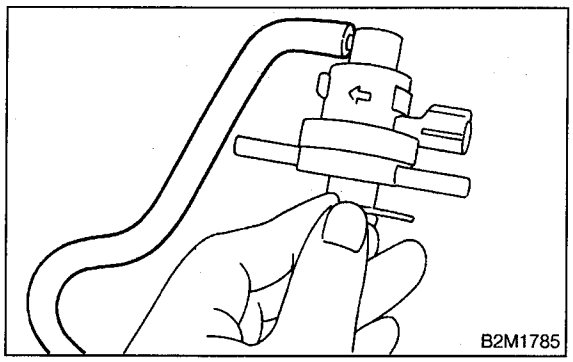
6) Disconnect two evaporation hoses from pressure control solenoid valve.
7) Remove pressure control solenoid valve with bracket.



8) Remove pressure control solenoid valve from bracket.

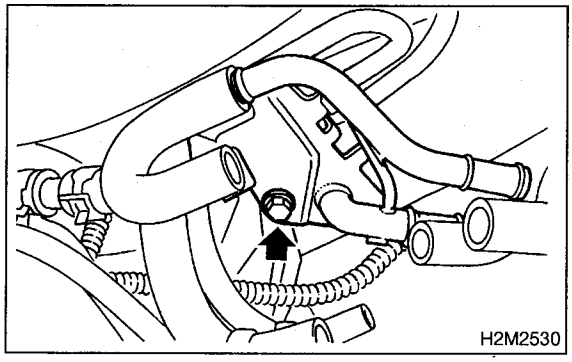


9) Disconnect vacuum hose from pressure control solenoid valve.



10) Installation is in the reverse order of removal.

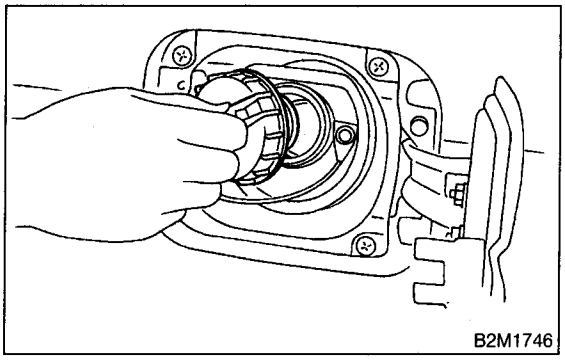
Tightening torque:
17.6±5 N·m (1.8±0.5 kg-m, 13.0±3.6 ft-lb)



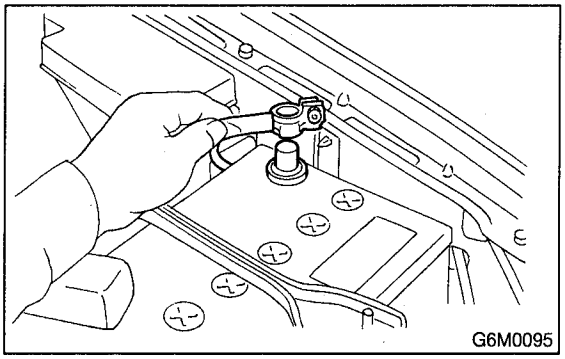
11. Main Fuel Level Sensor

A: REMOVAL

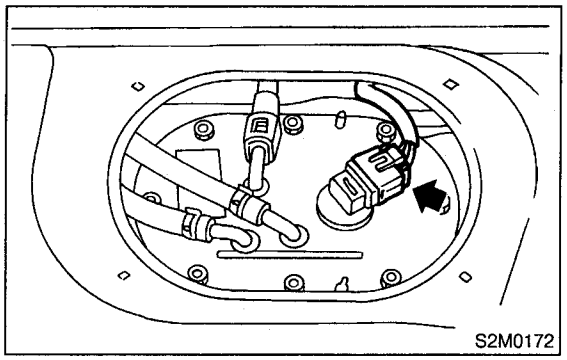
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>
2) Open fuel flap lid, and remove fuel filler cap.



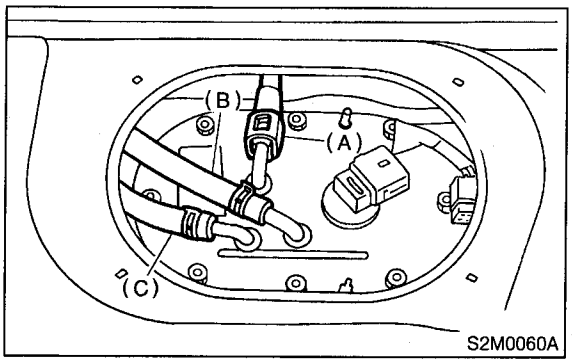
3) Disconnect battery ground cable.



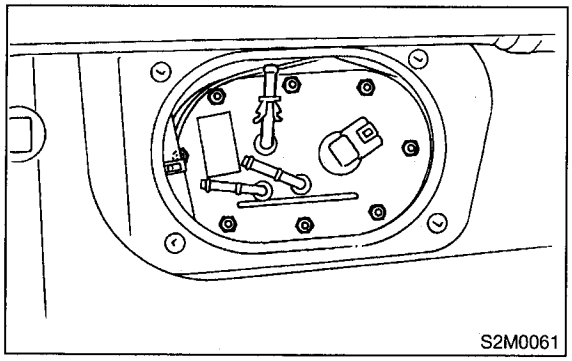
4) Disconnect connector from fuel pump.



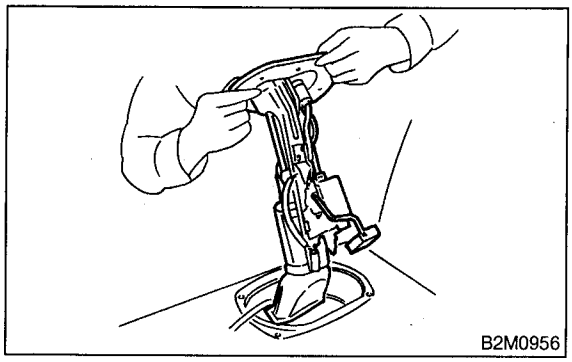
5) Move clips, and then disconnect fuel delivery hose (A), return hose (B) and jet pump hose (C).
6) Disconnect quick connector, and then disconnect fuel delivery hose (A). <Ref. to 2-8 [W6A0].☆1>



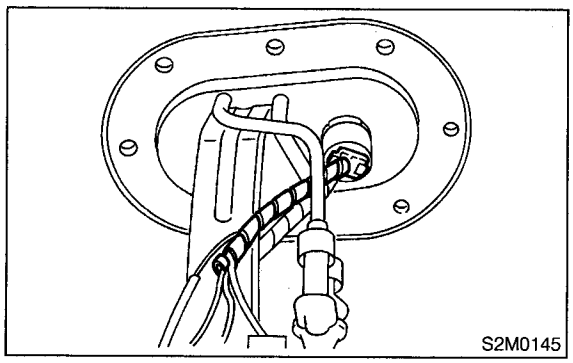
7) Remove nuts which install fuel pump assembly onto fuel tank.



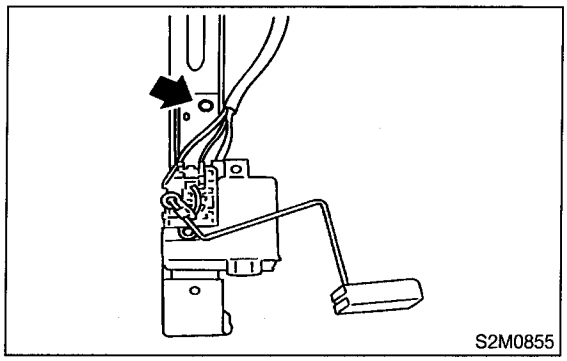
8) Take off fuel pump assembly from fuel tank.



9) Disconnect connector from fuel pump bracket.



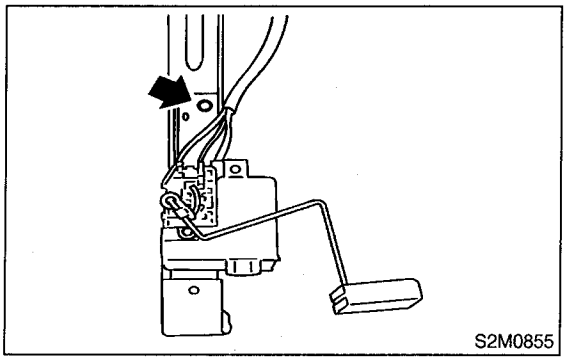
10) Remove bolt which installs fuel level sensor on mounting bracket.



B: INSTALLATION

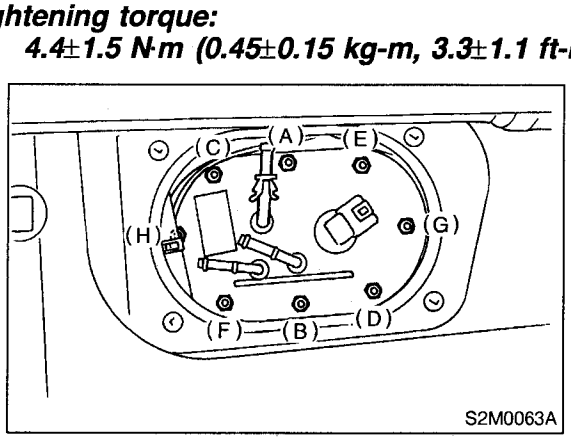
CAUTION:
Leave fuel filler cap open when tightening nuts, to prevent fuel from flowing out through fuel delivery and return pipes. Close fuel filler cap after tightening nuts.

Installation is in the reverse order of removal. Do the following:
(1) Install the fuel level sensor onto the mounting bracket.



(2) Always use new gaskets.
(3) Ensure sealing portion is free from fuel or foreign particles before installation.
(4) Tighten nuts in alphabetical sequence shown in figure to specified torque.

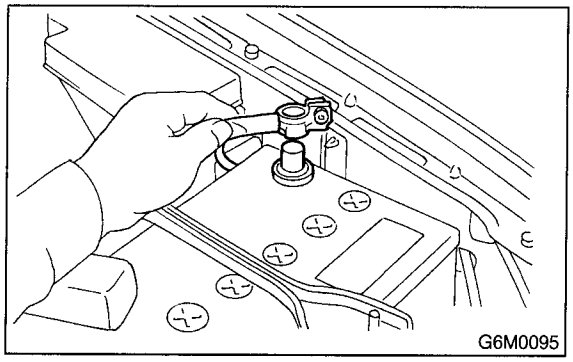
Tightening torque:
4.4±1.5 N·m (0.45±0.15 kg-m, 3.3±1.1 ft-lb)



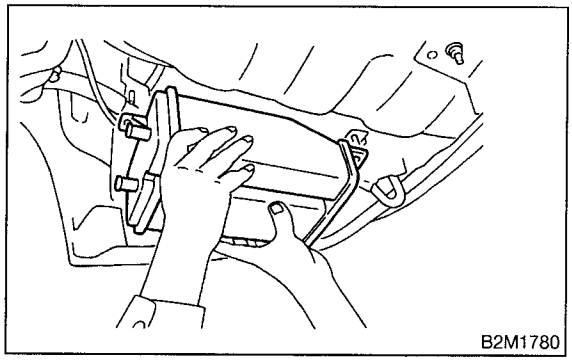
13. Air Filter

A: REMOVAL AND INSTALLATION

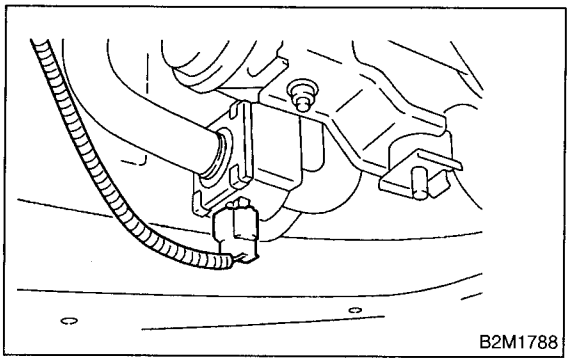
1) Disconnect battery ground cable.



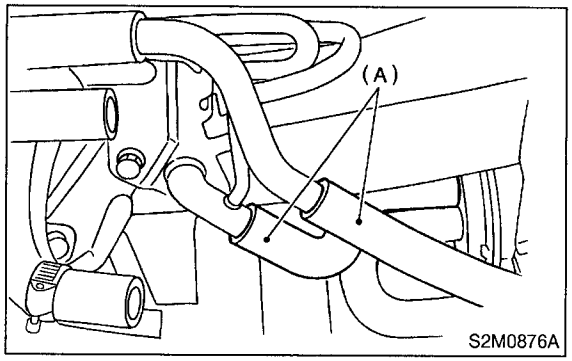
2) Lift-up the vehicle.
3) Remove canister. <Ref. to 2-1 [W3A0].☆1>



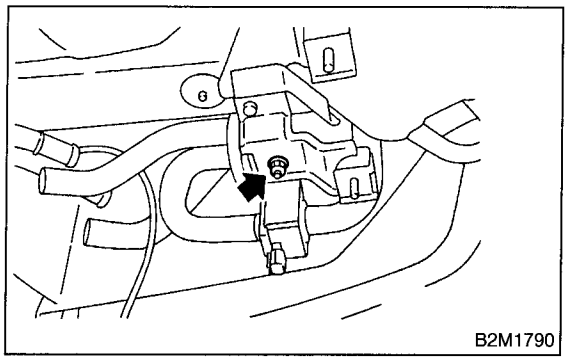
4) Disconnect connector from drain valve.



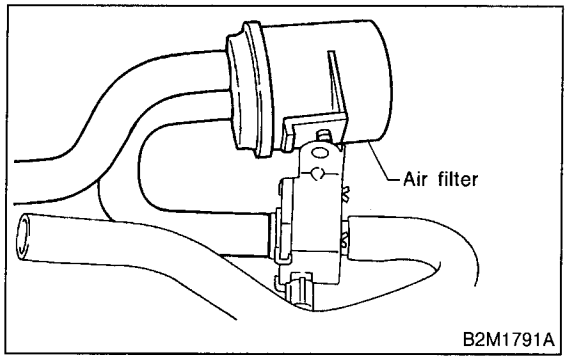
5) Disconnect evaporation hoses (A) from joint pipes.



6) Remove nut which installs air filter and drain valve brackets on body, and remove them as a unit.

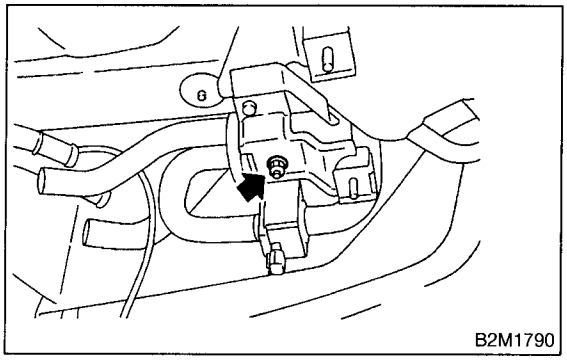


7) Disconnect evaporation hoses, and remove air filter.



8) Installation is in the reverse order of removal.

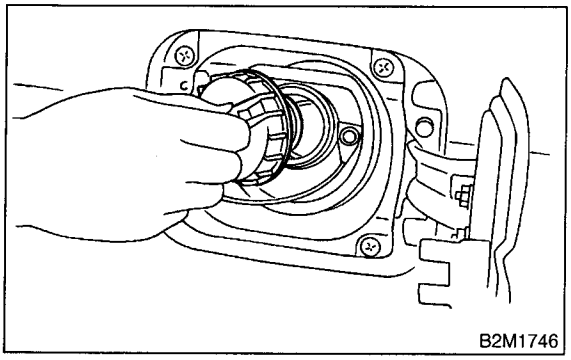
Tightening torque:
22.5±7 N·m (2.3±0.7 kg-m, 16.6±5.1 ft-lb)



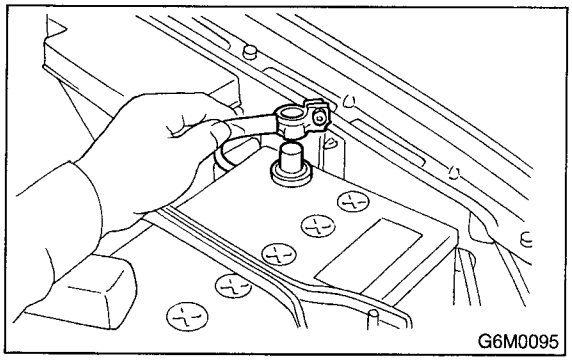
14. Vent Valve

A: REMOVAL AND INSTALLATION

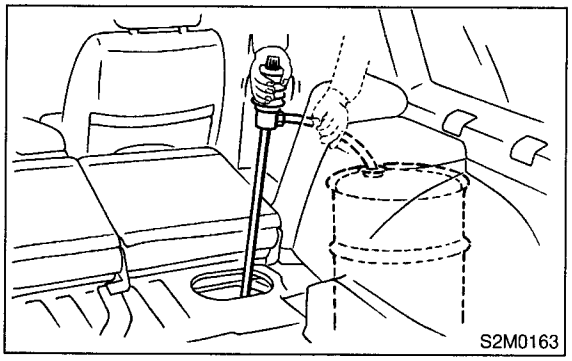
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>
2) Open fuel flap lid, and remove fuel filer cap.



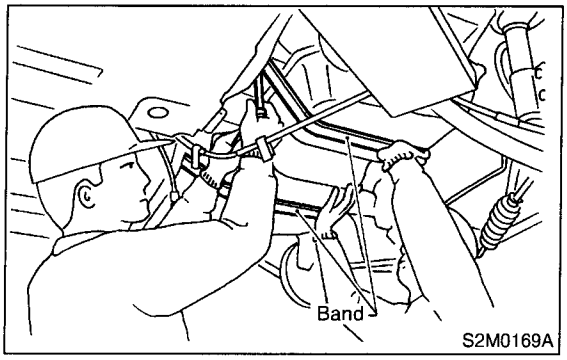
3) Disconnect battery ground cable.



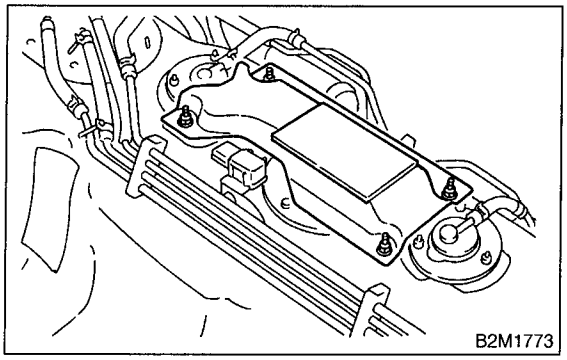
4) Drain fuel from fuel tank. <Ref. to 2-2 [W9C0].☆1>



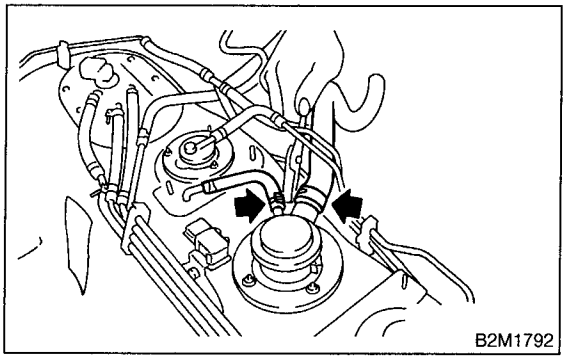
5) Remove fuel tank. <Ref. to 2-8 [W1A0].☆1>



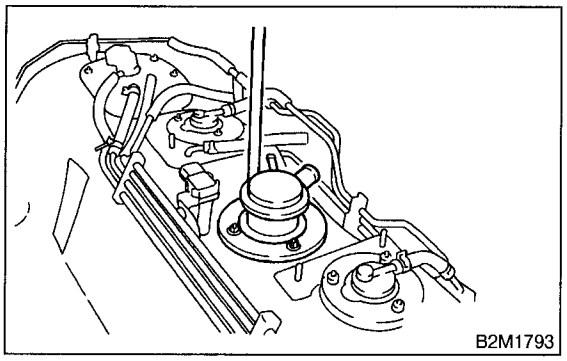
6) Remove protector cover.



7) Move clips, and disconnect hoses from vent valve.



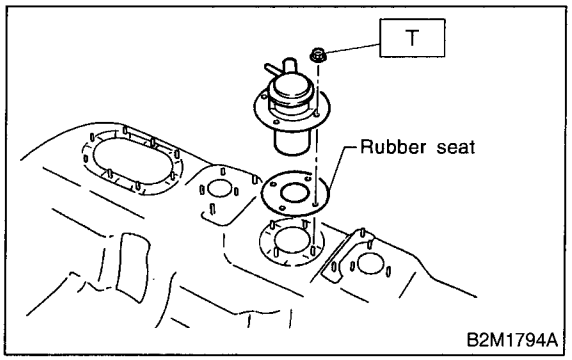
8) Remove nuts which install vent valve on fuel tank.



9) Installation is in the reverse order of removal.

CAUTION:
Replace rubber seat with a new one.

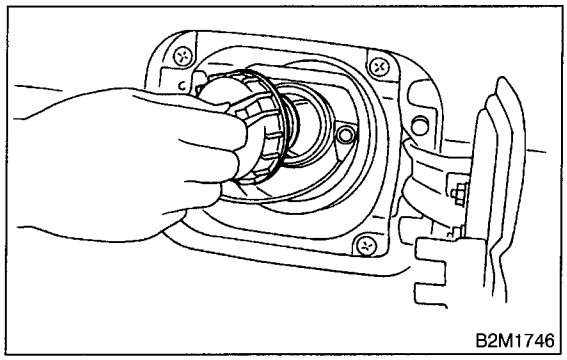
Tightening torque:
T: 4.4±1.5 N·m (0.45±0.15 kg-m, 3.3±1.1 ft-lb)



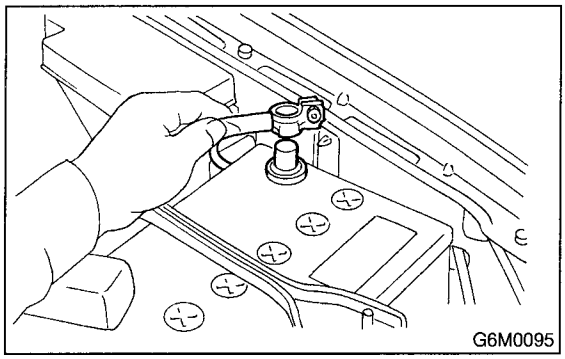
15. Shut Valve

A: REMOVAL AND INSTALLATION

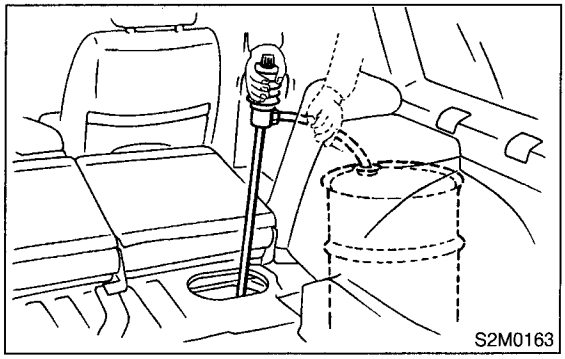
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>
2) Open fuel flap lid, and remove fuel filler cap.



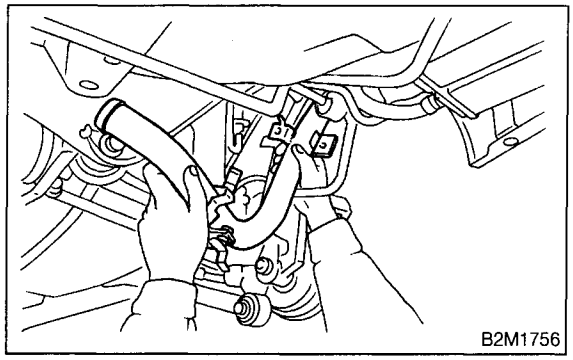
3) Disconnect battery ground cable.



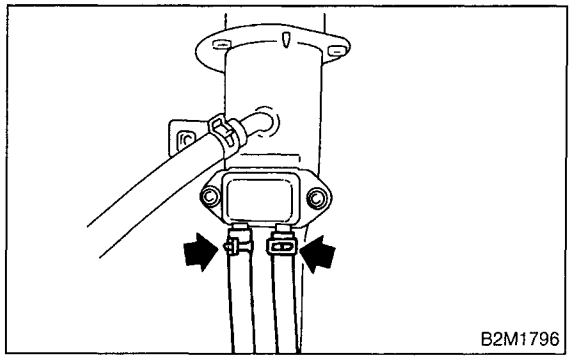
4) Drain fuel from fuel tank. <Ref. to 2-2 [W9C0].☆1>



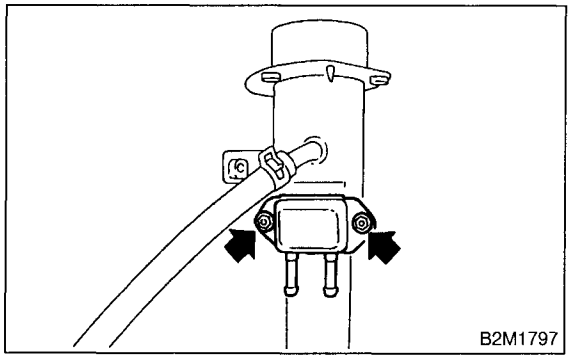
5) Remove fuel filler pipe. <Ref. to 2-8 [W2A0].☆1>


B2M1756

6) Disconnect evaporation hoses from shut valve.

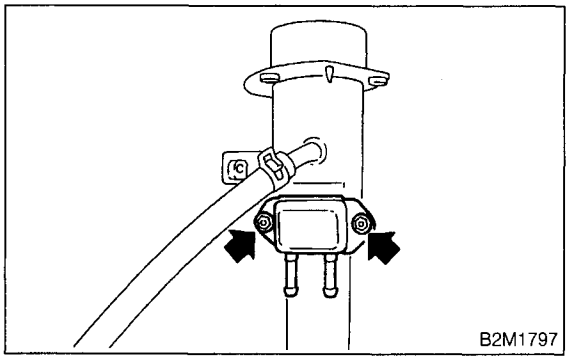

B2M1796

7) Remove shut valve from fuel filler pipe.


B2M1797

8) Installation is in the reverse order of removal.

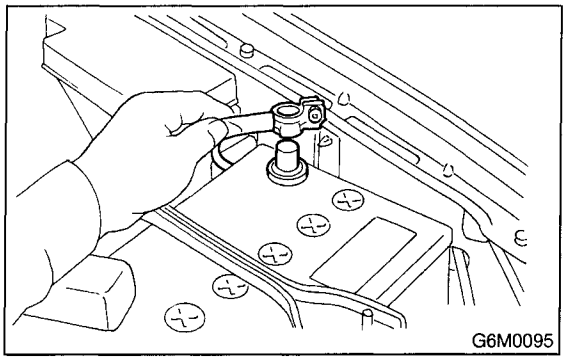
Tightening torque:
4.4±1.5 N·m (0.45±0.15 kg-m, 3.3±1.1 ft-lb)


B2M1797

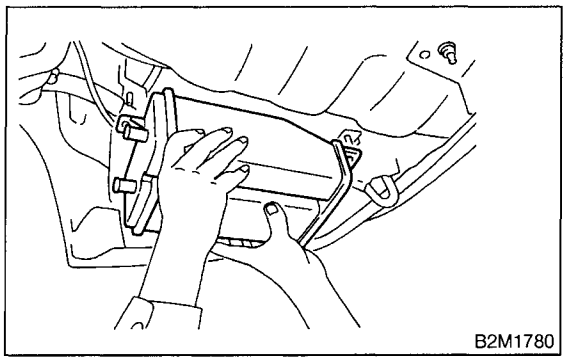
16. Drain Valve

A: REMOVAL AND INSTALLATION

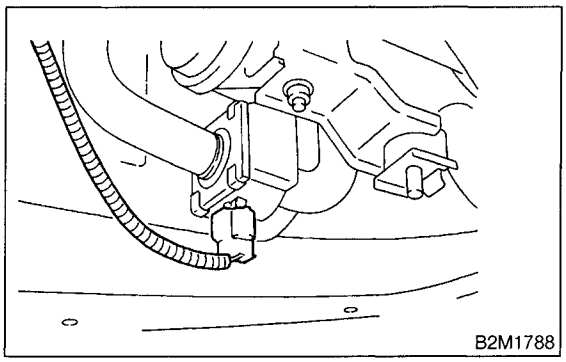
1) Disconnect battery ground cable.


G6M0095

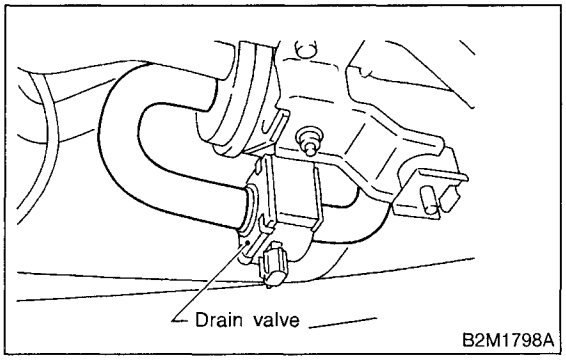
2) Lift-up the vehicle.
3) Remove canister. <Ref. to 2-1 [W3A0].☆1>


B2M1780

4) Disconnect connector from drain valve.

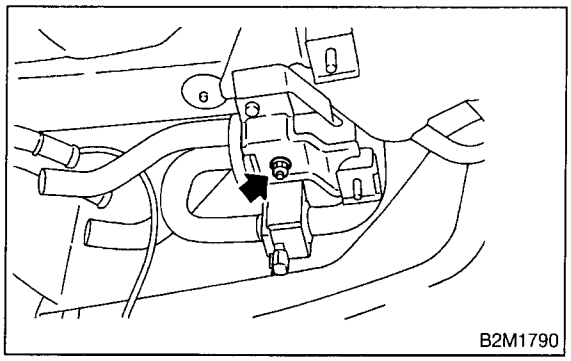

B2M1788

5) Disconnect evaporation hoses from drain valve.

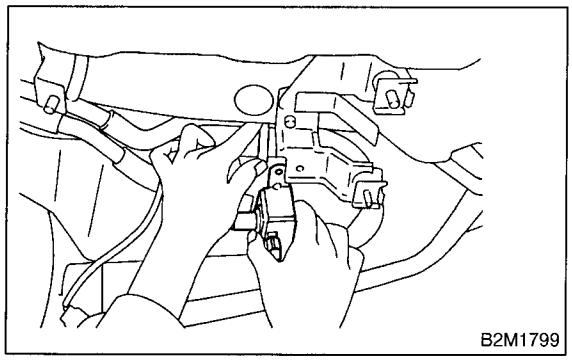


B2M1798A

6) Remove bolt which installs air filter and drain valve brackets on body.

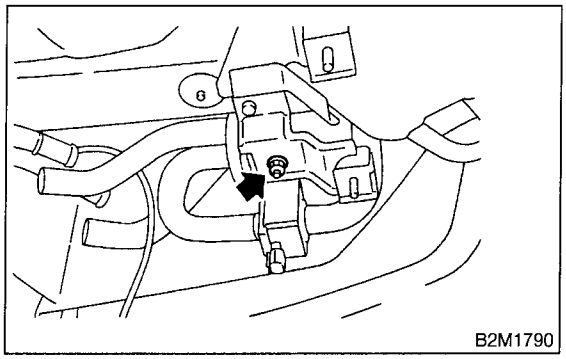


7) Move air filter to upper side, and remove drain valve with bracket.



8) Installation is in the reverse order of removal.

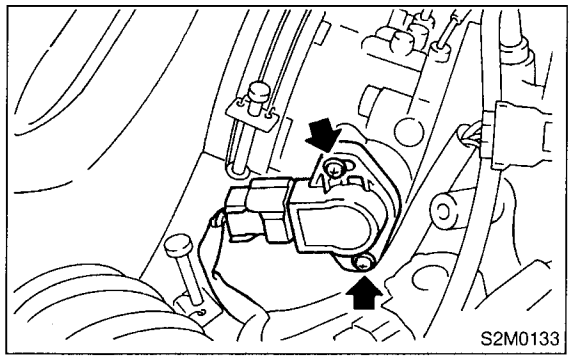
Tightening torque:
22.5±7 N·m (2.3±0.7 kg-m, 16.6±5.1 ft-lb)



11. Throttle Position Sensor

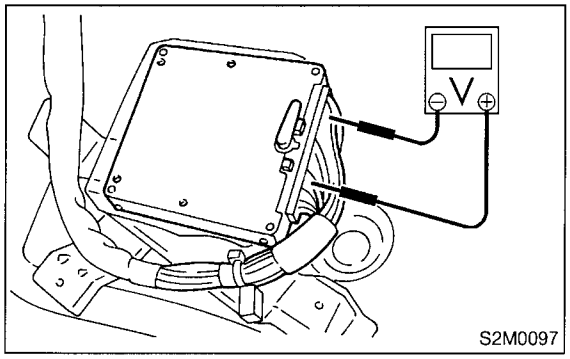
B: ADJUSTMENT

1) Turn ignition switch to OFF.
2) Loosen throttle position sensor holding screws.



3) When using voltage meter;
   (1) Take out ECM.
   (2) Turn ignition switch to ON.
   (3) Adjust throttle position sensor so that signal voltage to ECM may be in specification.

Connector & terminal / Specified voltage
(B84) No. 24 — (B84) No. 25 / 0.45 — 0.55 V
[Fully closed.]



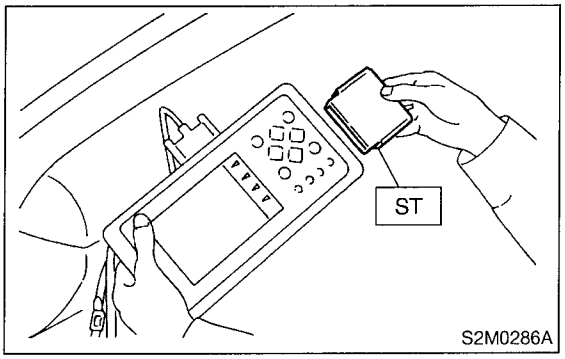
(4) Tighten throttle position sensor holding screws.

Tightening torque:
2.2±0.2 N·m (0.22±0.02 kg-m, 1.6±0.1 ft-lb)

4) When using SUBARU SELECT MONITOR;

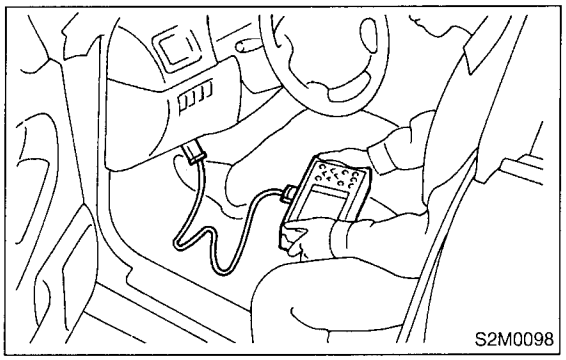
NOTE:
For detailed operation procedures, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

(1) Insert the cartridge to SUBARU SELECT MONITOR.
ST 24082AA030 CARTRIDGE



(2) Connect SUBARU SELECT MONITOR to the data link connector.
(3) Turn ignition switch to ON, and SUBARU SELECT MONITOR switch to ON.
(4) Select {2. Each System Check} in Main Menu.
(5) Select {EGI/EMPI} in Selection Menu.
(6) Select {1. Current Data Display & Save} in EGI/EMPI Diagnosis.
(7) Select {1.12 Data Display} in Data Display Menu.
(8) Adjust throttle position sensor to the following specifications.

Condition: Throttle fully closed
Throttle opening angle 0.00%
Throttle sensor voltage 0.50 V



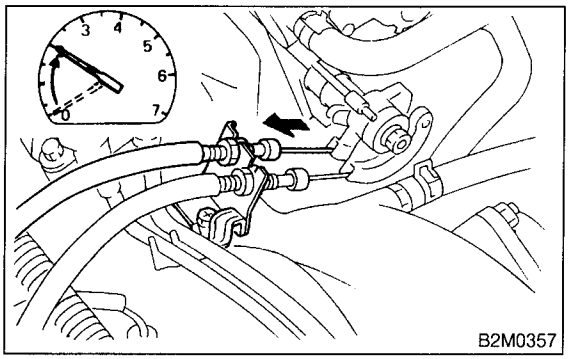
(9) Tighten throttle position sensor holding screws.

Tightening torque:
2.2±0.2 N·m (0.22±0.02 kg-m, 1.6±0.1 ft-lb)

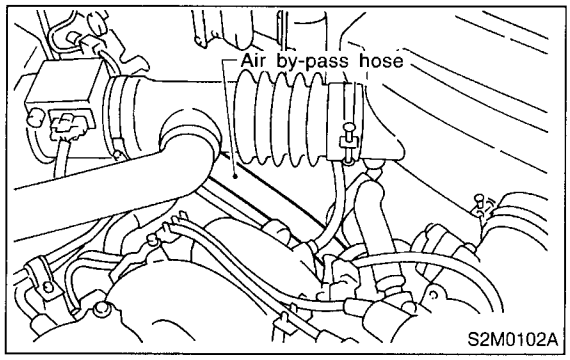
13. Idle Air Control Solenoid Valve

B: CLEANING

1) Start and warm-up the engine until radiator fan operates.
2) Hold throttle valve so that engine speed is at 2,000 rpm.

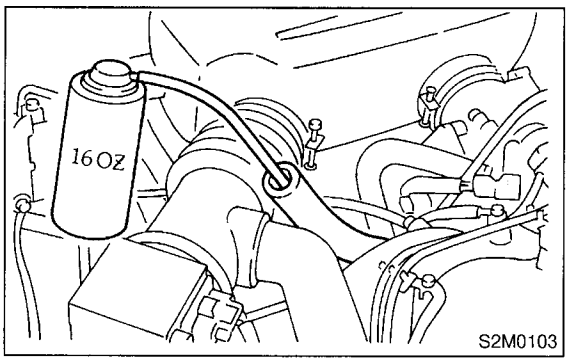


3) Disconnect air by-pass hose from air intake duct.



4) Slowly pour one can (16 oz) of cleaner into by-pass air hole.

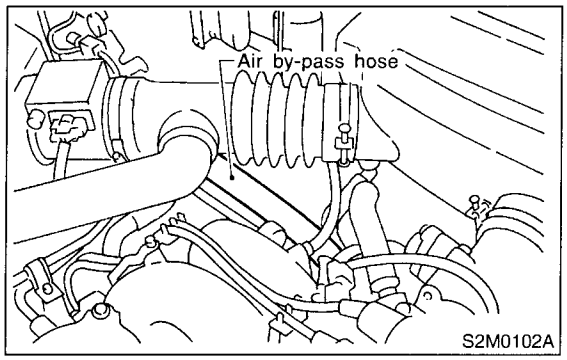
Cleaner:
Part No. 1050002 GM Top Engine Cleaner
Part No. X66-A AC Delco Carburetor Tune-up Conditioner



5) Leave the engine running for five minutes.

NOTE:
White smoke comes out of the muffler until the cleaner is used up.

6) Stop the engine.
7) Release the throttle valve.
8) Connect air by-pass hose to air intake duct.

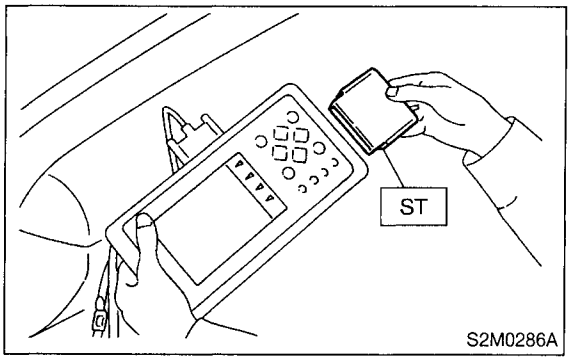


9) Check duty ratio of idle air control solenoid valve using SUBARU SELECT MONITOR.

NOTE:
For detailed operation procedures, refer to the SUBARU SELECT MONITOR OPERATION MANUAL.

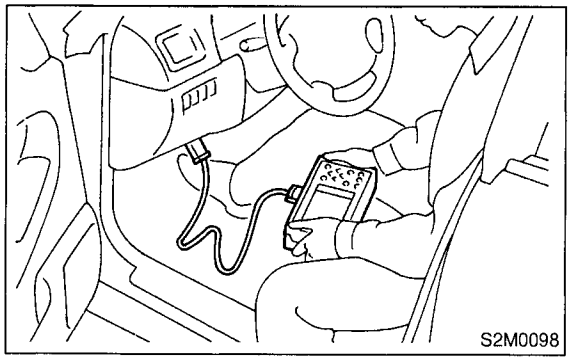
(1) Insert the cartridge to SUBARU SELECT MONITOR.

ST 24082AA030 CARTRIDGE

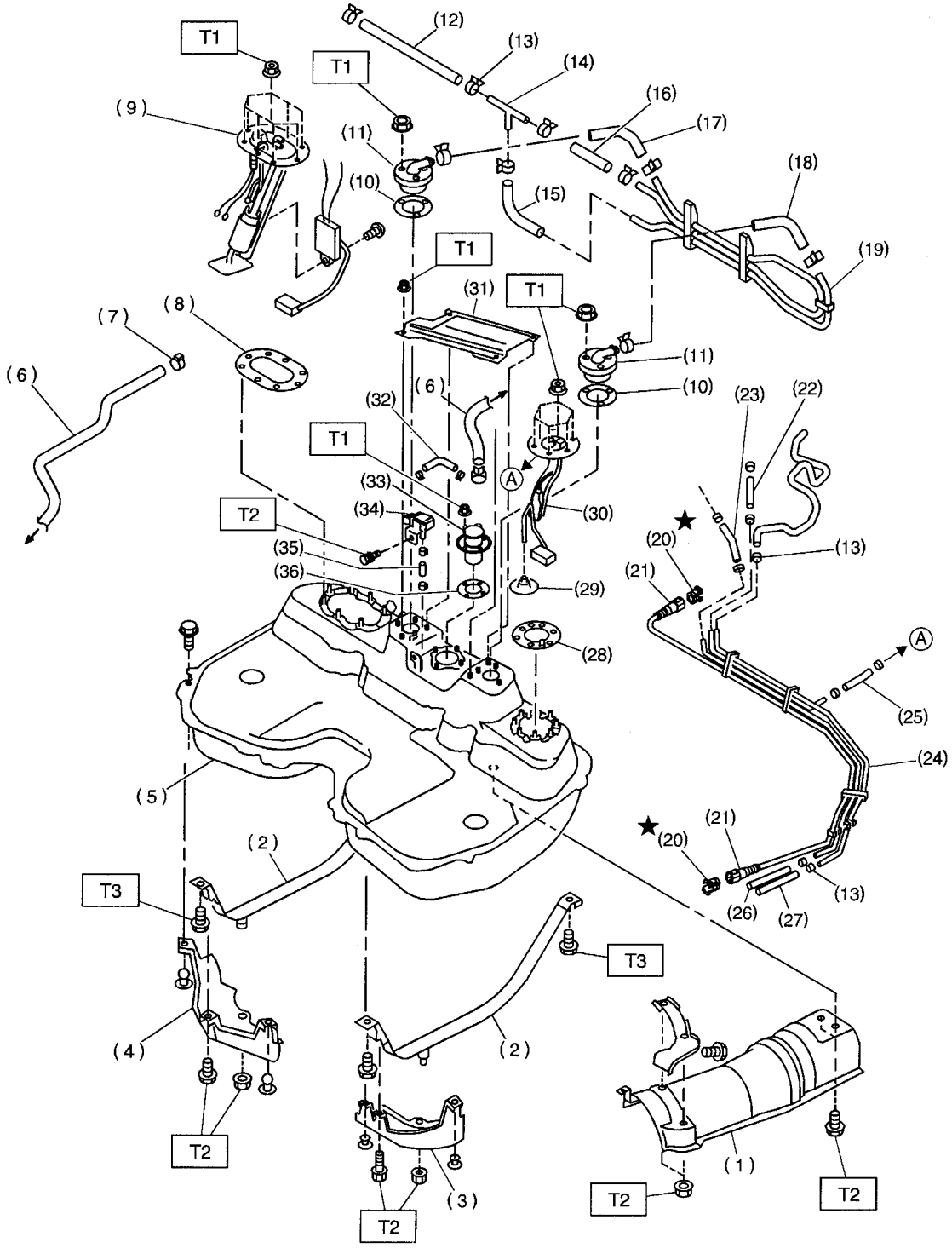


(2) Connect SUBARU SELECT MONITOR to the data link connector.
(3) Turn ignition switch to ON, and SUBARU SELECT MONITOR switch to ON.
(4) Select {2. Each System Check} in Main Menu.
(5) Select {EGI/EMPI} in Selection Menu.
(6) Select {1. Current Data Display & Save} in EGI/EMPI Diagnosis.
(7) Select {1.12 Data Display} in Data Display Menu.
(8) Adjust throttle position sensor to the following specification.

ISC valve duty ratio: 25 — 40%



1. Fuel Tank

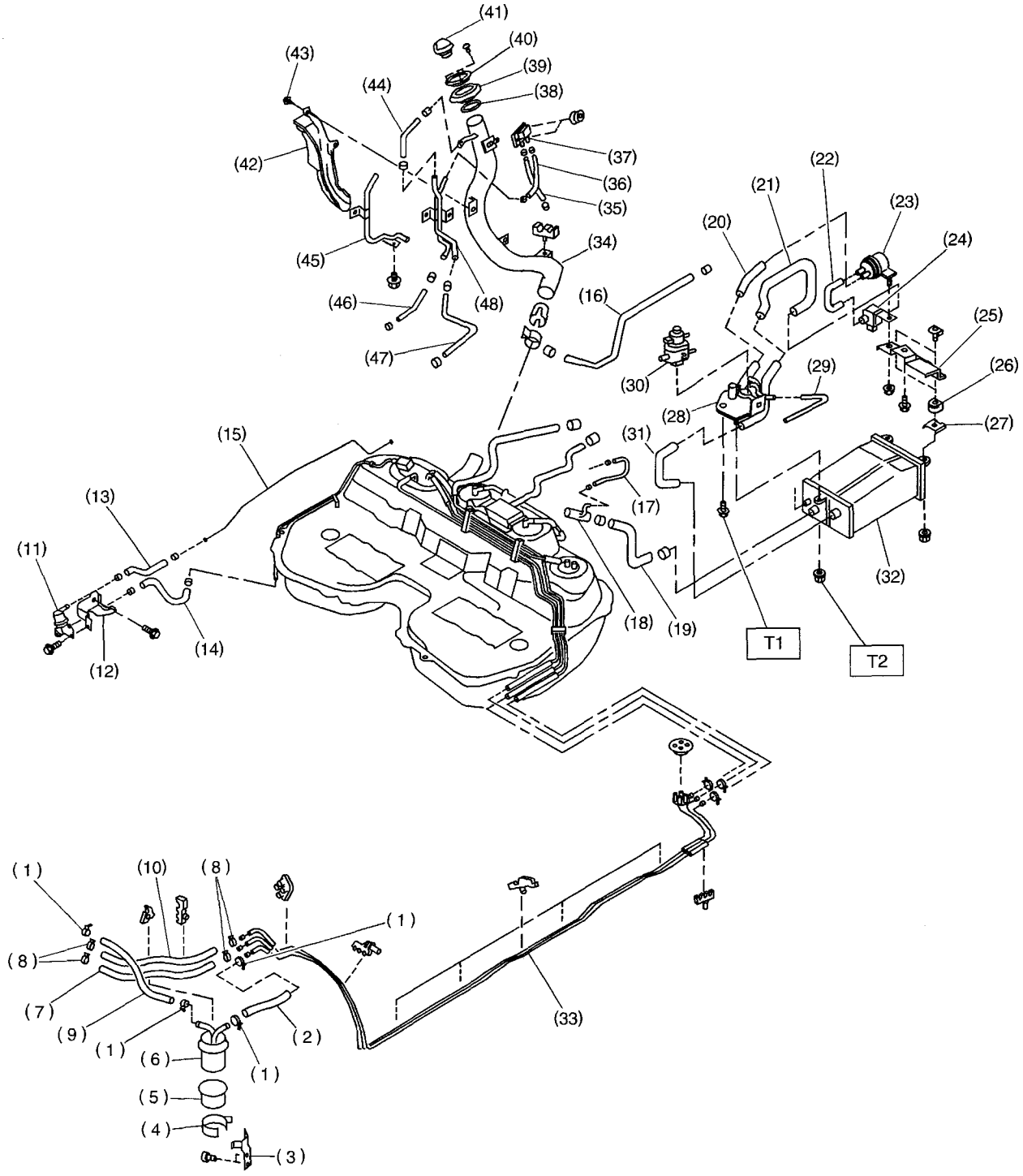


S2M0877A

(1) Heat seated cover
(2) Fuel tank band
(3) Protector LH
(4) Protector RH
(5) Fuel tank
(6) Canister hose A
(7) Clamp
(8) Fuel pump gasket
(9) Fuel pump ASSY
(10) Fuel cut valve gasket
(11) Fuel cut valve
(12) Fuel delivery hose A
(13) Clip
(14) Joint pipe
(15) Evaporation hose C
(16) Evaporation hose B
(17) Evaporation hose D
(18) Evaporation hose E
(19) Evaporation pipe ASSY
(20) Retainer
(21) Quick connector
(22) Jet pump hose A
(23) Fuel return hose A
(24) Fuel pipe ASSY
(25) Jet pump hose B
(26) Fuel return hose B
(27) Evaporation hose F
(28) Fuel sub meter gasket
(29) Jet pump filter
(30) Fuel sub meter unit
(31) Protector cover
(32) Vent valve hose
(33) Vent valve
(34) Fuel tank pressure sensor
(35) Fuel tank pressure sensor hose
(36) Vent valve gasket

Tightening torque: N·m (kg-m, ft-lb)
T1: 4.4±1.5 (0.45±0.15, 3.3±1.1)
T2: 7.4±2.0 (0.75±0.2, 5.4±1.4)
T3: 33±10 (3.4±1.0, 25±7)

2. Fuel Line



S2M0878A

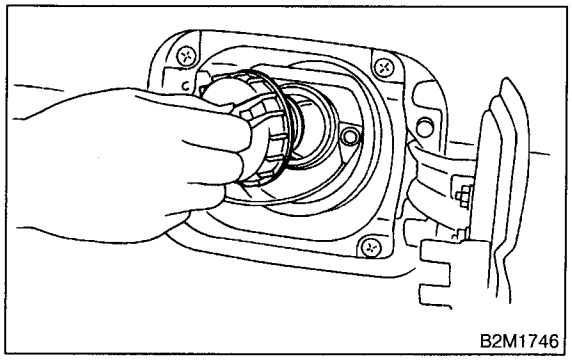
(1) Clamp
(2) Fuel delivery hose A
(3) Fuel filter bracket
(4) Fuel filter holder
(5) Fuel filter cup
(6) Fuel filter
(7) Evaporation hose
(8) Clip
(9) Fuel delivery hose B
(10) Fuel return hose
(11) Roll over valve
(12) Roll over valve bracket
(13) Evaporation hose H
(14) Evaporation hose I
(15) Evaporation pipe B
(16) Evaporation hose J
(17) Evaporation hose K
(18) Joint pipe
(19) Canister hose A
(20) Air filter hose A
(21) Drain valve hose
(22) Air filter hose B
(23) Air filter
(24) Drain valve
(25) Canister upper bracket
(26) Cushion rubber
(27) Canister lower bracket
(28) Front canister bracket
(29) Evaporation hose L
(30) Pressure control solenoid valve
(31) Canister hose B
(32) Canister
(33) Fuel pipe ASSY
(34) Fuel filler pipe
(35) Evaporation hose M
(36) Evaporation hose N
(37) Shut valve
(38) Packing
(39) Ring A
(40) Ring B
(41) Fuel filler cap
(42) Fuel filler pipe protector
(43) Tapping screw
(44) Evaporation hose O
(45) Joint pipe
(46) Evaporation hose P
(47) Evaporation hose Q
(48) Evaporation pipe

Tightening torque: N·m (kg-m, ft-lb)
T1: 17.6±5 (1.8±0.5, 13.0±3.6)
T2: 23±7 (2.3±0.7, 16.6±5.1)

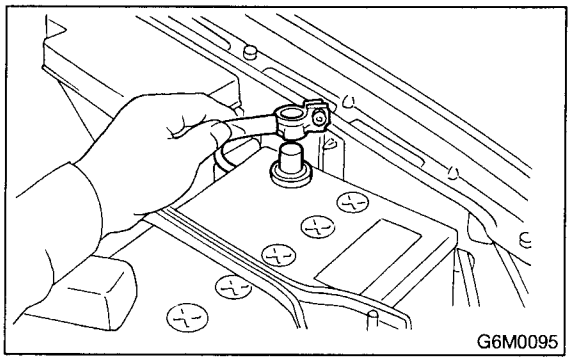
1. Fuel Tank

A: REMOVAL

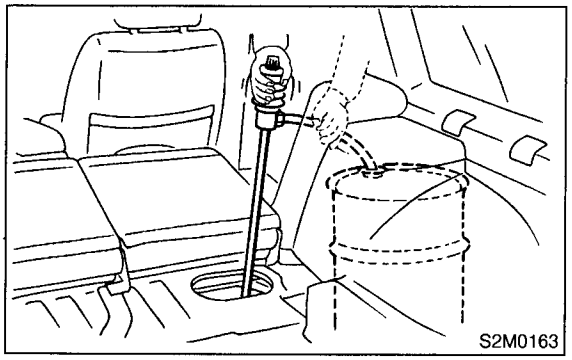
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>
2) Open fuel flap lid, and remove fuel filler cap.



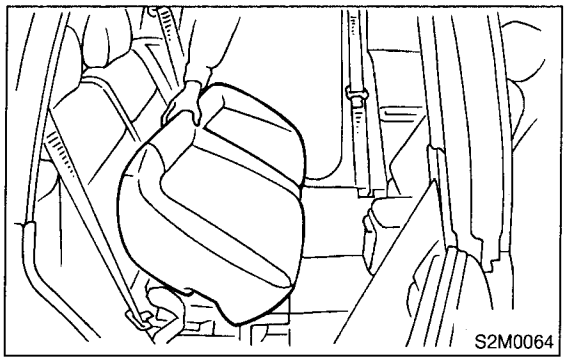
3) Disconnect battery ground cable.



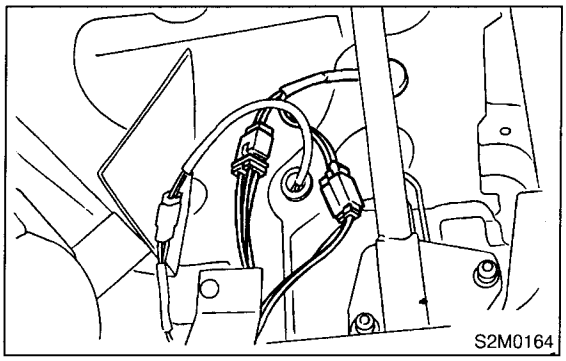
4) Drain fuel from fuel tank. <Ref. to 2-2 [W9C0].☆1>



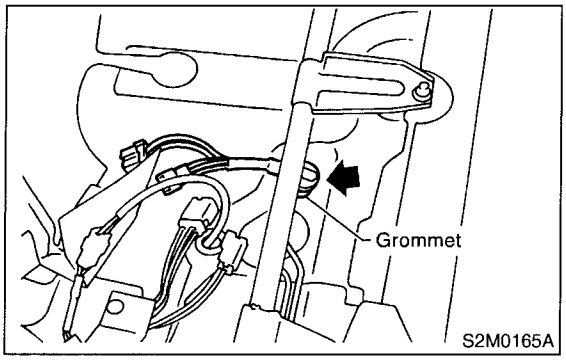
5) Remove rear seat cushion, and turn up cover. <Ref. to 5-3 [W2A0].☆1>



6) Disconnect connector of fuel tank cord from rear harness.

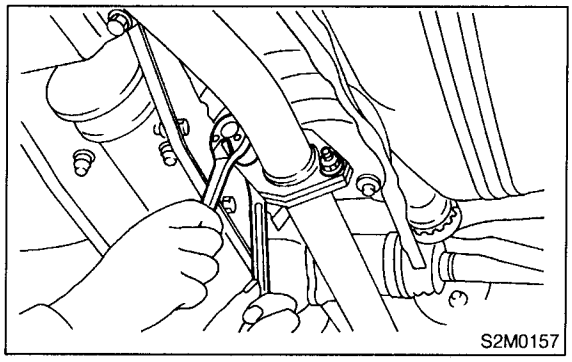


7) Push grommet which holds fuel tank cord on floor panel into under the body.



8) Remove fuel filler cap.
9) Lift-up the vehicle.

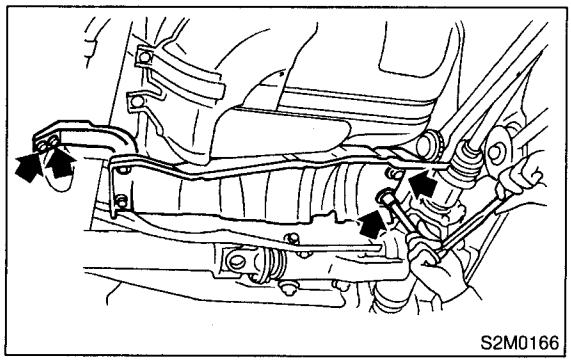
10) Remove rear exhaust pipe.
(1) Separate rear exhaust pipe from center exhaust pipe.
(2) Separate rear exhaust pipe from muffler.


S2M0157

(3) Remove bracket from rubber cushion, and remove exhaust pipe.

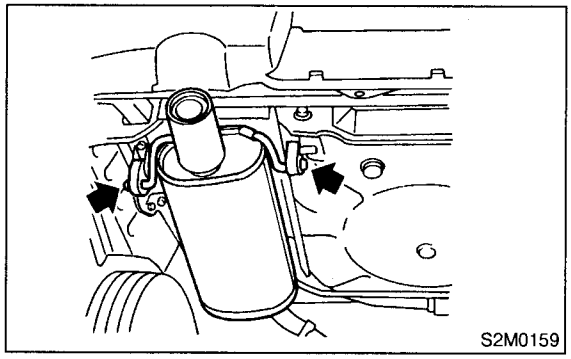
NOTE:
To facilitate the removal of parts, apply a coat of SUBARU CRC5-56 (Part No. 004301003). <Ref. to 2-9 [W3A0].☆1>

11) Remove heat sealed cover.

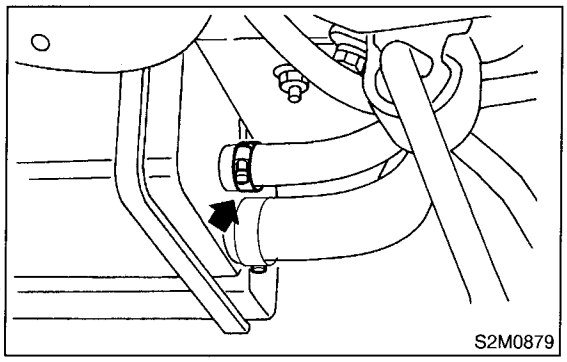

S2M0166

12) Remove muffler assembly.
<Ref. to 2-9 [W4A0].☆1>

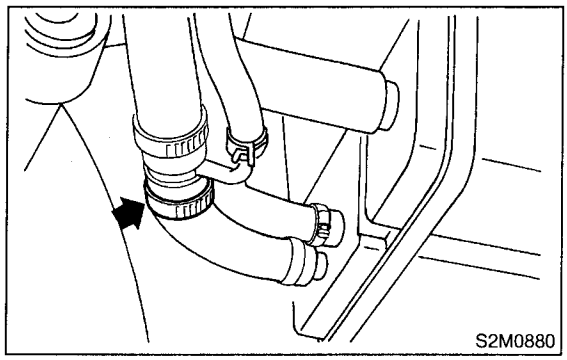
NOTE:
To facilitate the removal of parts, apply a coat of SUBARU CRC5-56 (Part No. 004301003).


S2M0159

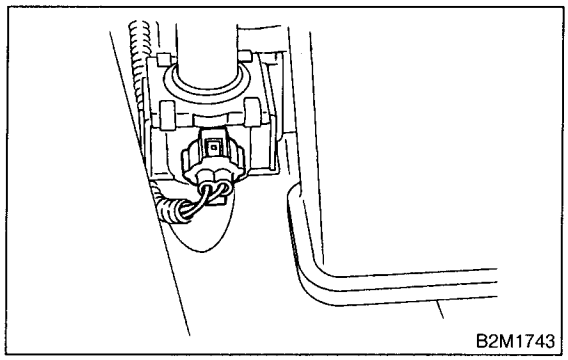
13) Move clip, and disconnect evaporation hose from canister.


S2M0879

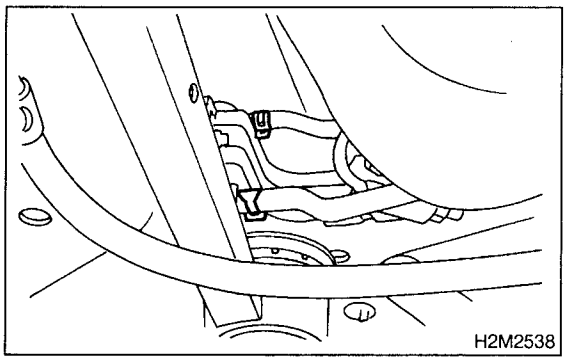
14) Disconnect hose from joint pipe.


S2M0880

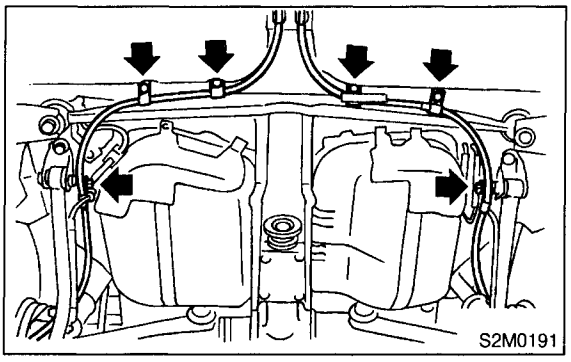
15) Disconnect connector from pressure control solenoid valve.
16) Disconnect connector from drain valve.


B2M1743

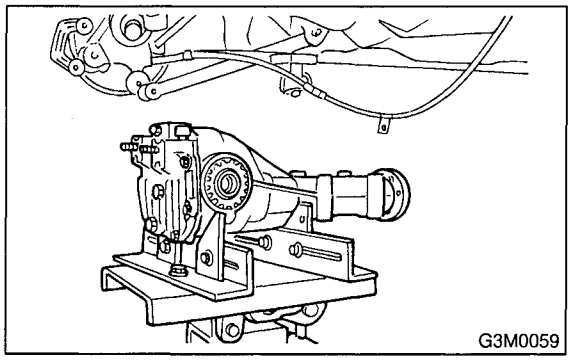
17) Disconnect hoses from roll over valve.


H2M2538

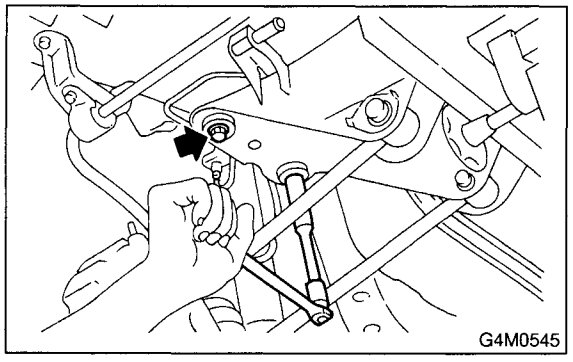
18) Remove bolts which hold parking brake cable holding bracket.



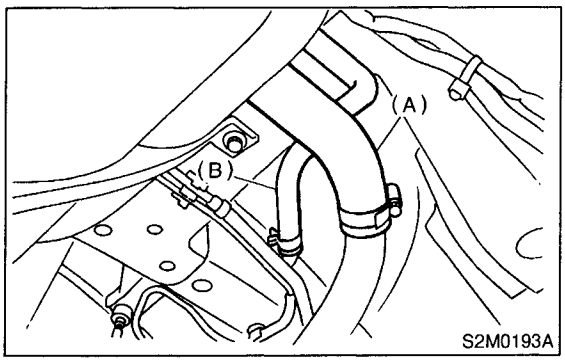
19) Remove rear differential assembly.
(1) Remove rear axle shafts from rear differential assembly.
(2) Remove rear differential front cover.
(3) Remove propeller shaft.
(4) Remove lower differential bracket.
(5) Set transmission jack under rear differential.
(6) Remove bolts which install rear differential onto rear crossmember.
<Ref. to 3-4 [W2B0].☆1>



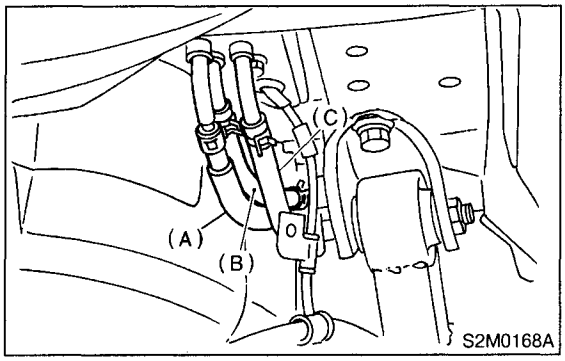
20) Remove rear crossmember.
<Ref. to 4-1 [W11A0].☆1>



21) Loosen clamp, and disconnect fuel filler hose (A) and air vent hose (B) from fuel filler pipe and air vent pipe.

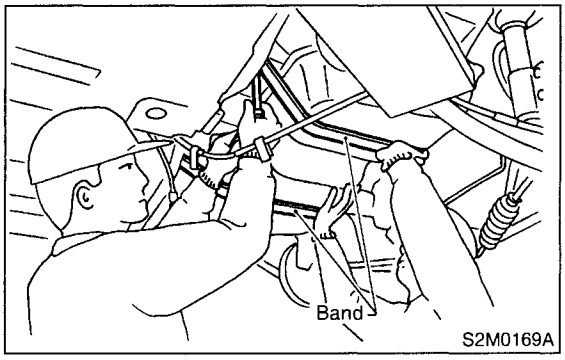


22) Move clips, and disconnect fuel return hose (B) and evaporation hose (C).
23) Disconnect quick connector, and then disconnect fuel delivery hose (A). <Ref. to 2-8 [W6A0].☆1>



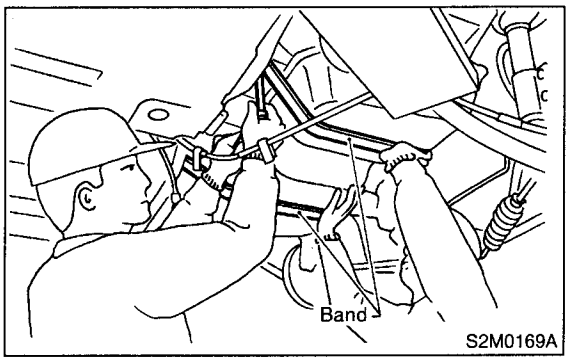
24) While holding fuel tank, remove bolts from bands and dismount fuel tank.

WARNING:
A helper is required to perform this work.

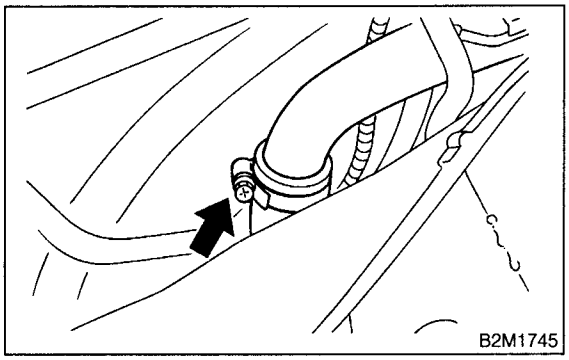


B: INSTALLATION

1) While a helper holds fuel tank, push fuel tank harness into access hole with grommet.
2) Set fuel tank, and temporary tighten bolts for installing fuel tank bands.

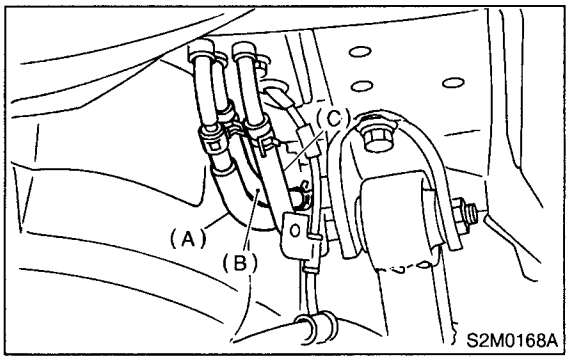


3) Connect fuel filler hose, and tighten clamp.

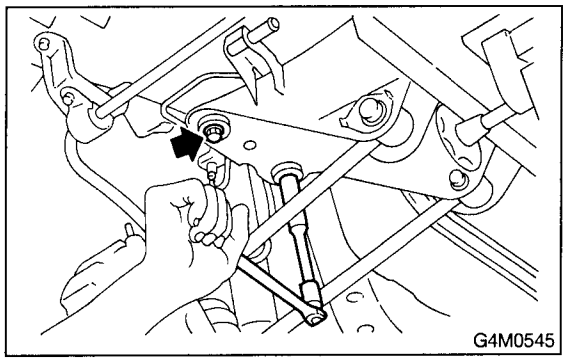


4) Connect fuel hoses, and hold then with clips and quick connector. <Ref. to 2-8 [W6B0].☆1>
5) Tighten band mounting bolts.

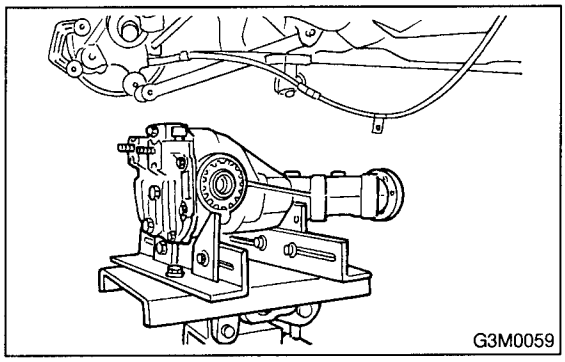
Tightening torque:
33±10 N·m (3.4±1.0 kg-m, 25±7 ft-lb)



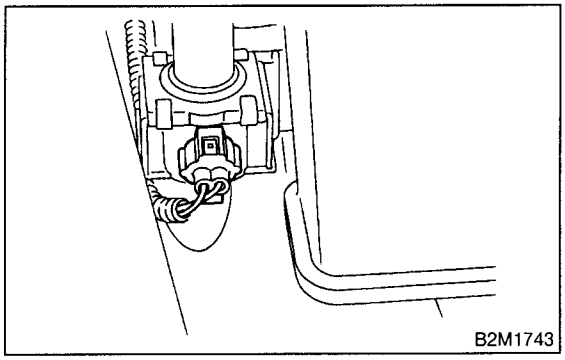
6) Install rear crossmember. <Ref. to 4-1 [W11C0].☆1>



7) Install rear differential assembly. <Ref. to 3-4 [W2F0].☆1>

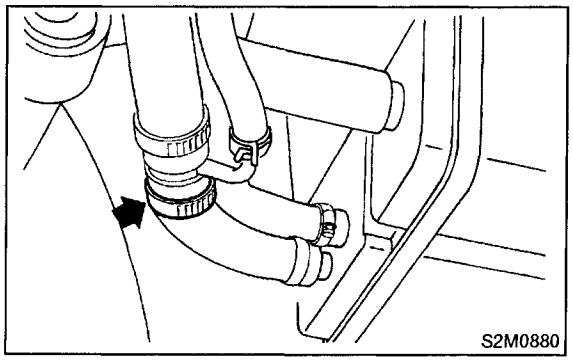


8) Connect connector to drain valve.
9) Connect connector to pressure control solenoid valve.



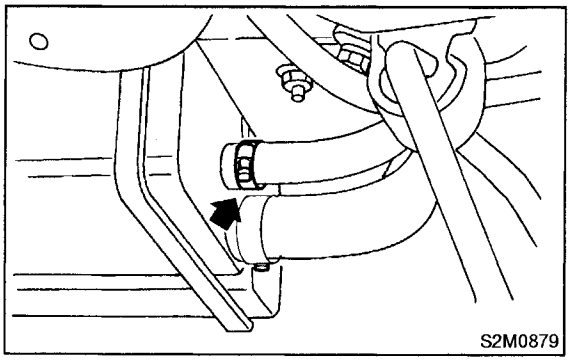
10) Connect hose to joint pipe.

Tightening torque:
1.4±0.3 N·m (0.14±0.03 kg-m, 1.0±0.2 ft-lb)

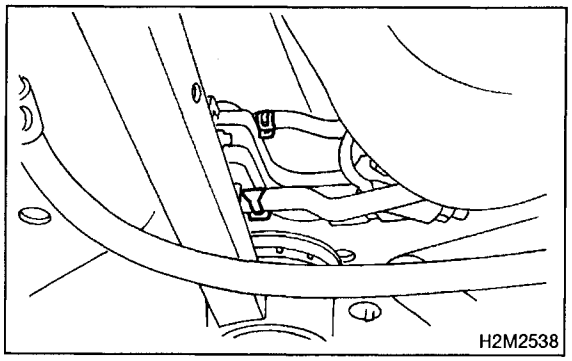


11) Connect evaporation hose to canister, and hold them with clip.

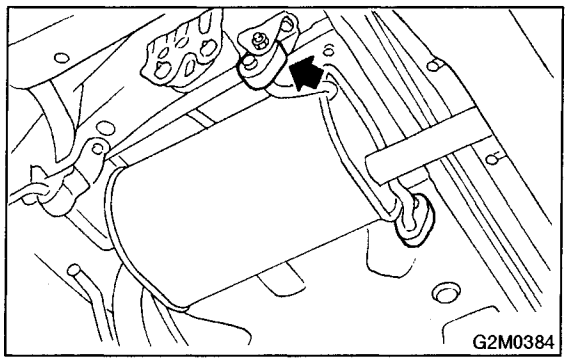
Tightening torque:
1.4±0.3 N·m (0.14±0.03 kg-m, 1.0±0.2 ft-lb)



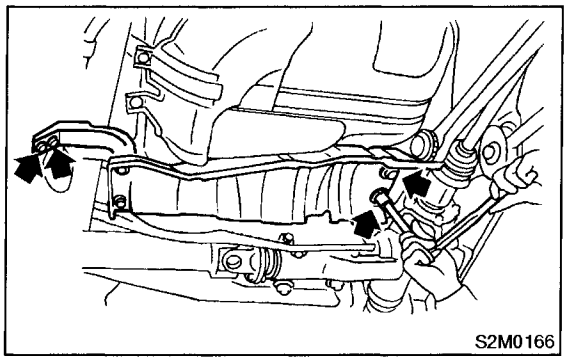
12) Connect hoses to roll over valve.



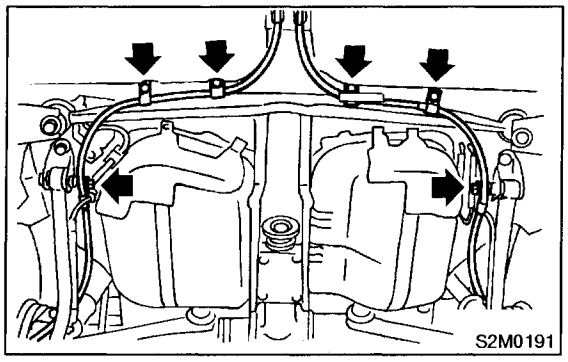
13) Install muffler assembly. <Ref. to 2-9 [W3A0].☆1>



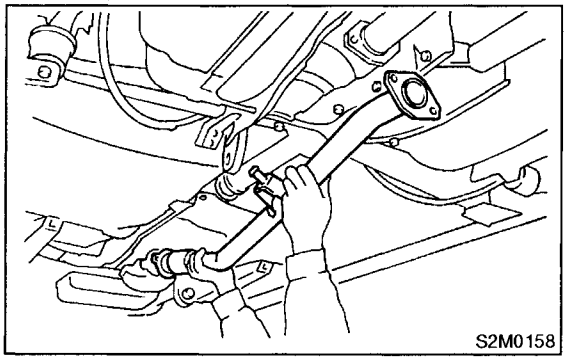
14) Install heat sealed cover.



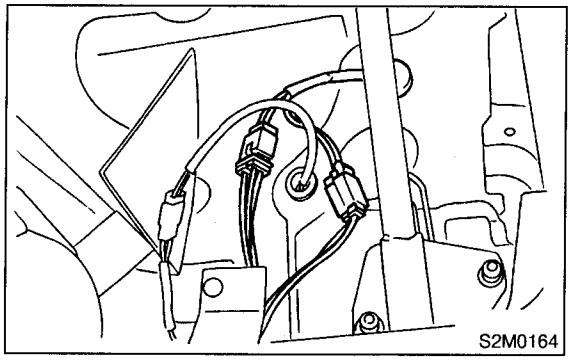
15) Install bolts which hold parking brake holding bracket.



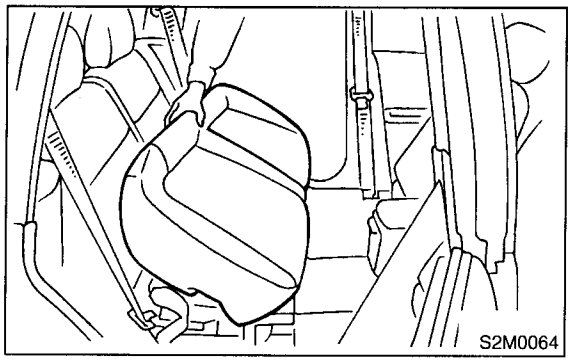
16) Install rear exhaust pipe. <Ref. to 2-9 [W2A0].☆1>



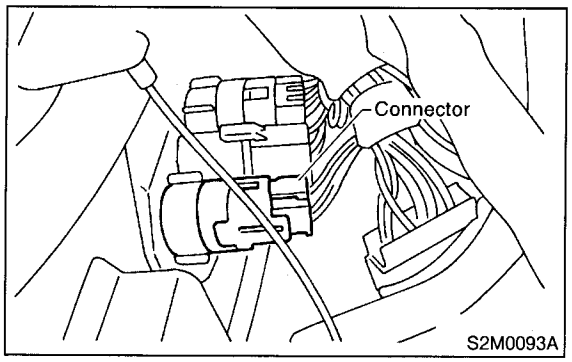
17) Lower the vehicle.
18) Connect connectors to fuel tank harness, and plug access hole with grommet.



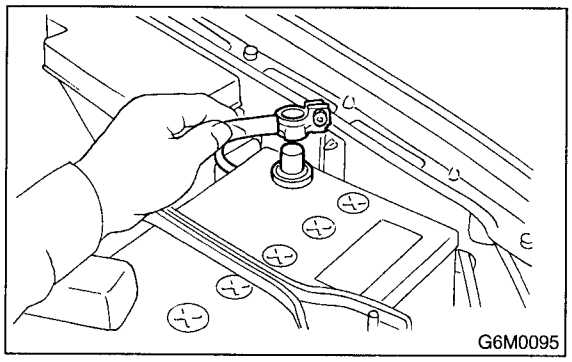
19) Install rear seat cushion. <Ref. to 5-3 [W2B0].☆1>



20) Install fuel filler cap.
21) Connect connector to fuel pump relay.



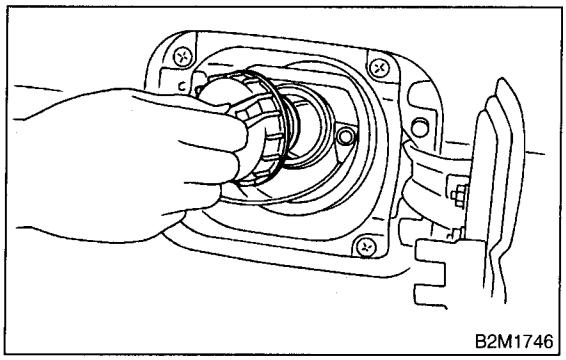
22) Connect battery ground cable.



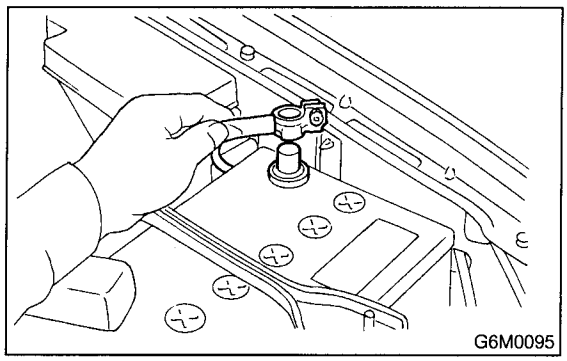
2. Fuel Filler Pipe

A: REMOVAL

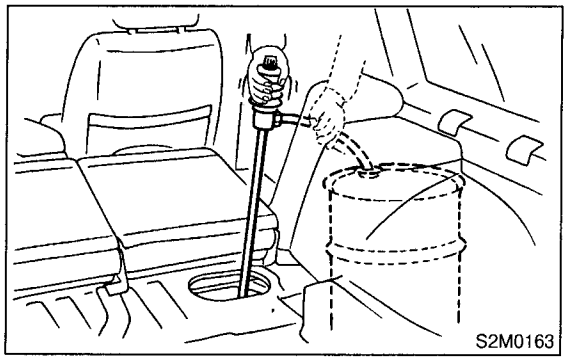
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>
2) Open fuel flap lid, and remove fuel filler cap.



3) Disconnect battery ground cable.

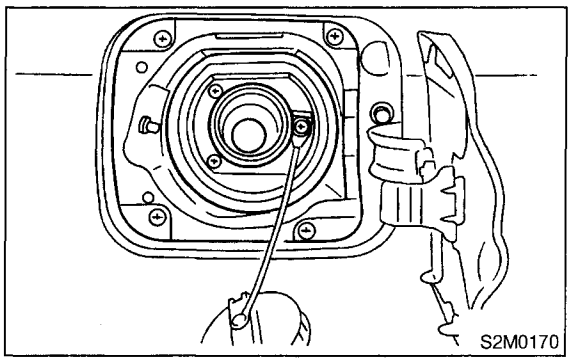


4) Drain fuel from fuel tank. <Ref. to 2-2 [W9C0].☆1>

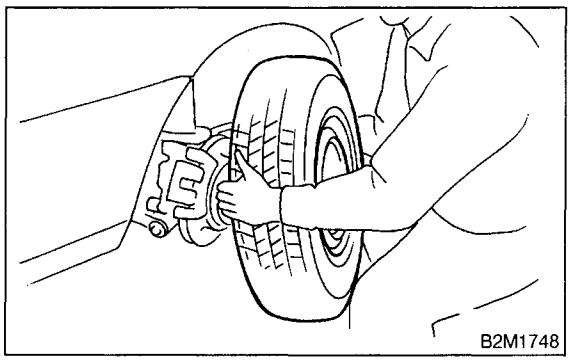


5) Remove right rear wheel.
6) Open fuel filler flap and remove filler cap.

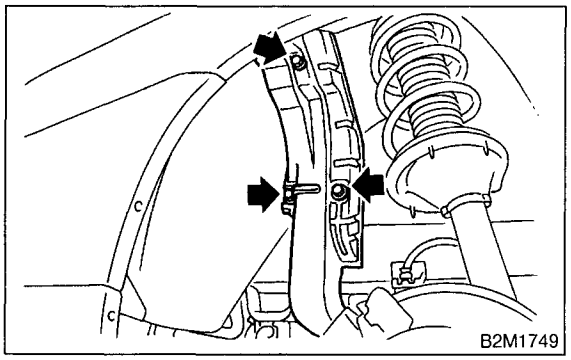
7) Remove screws holding packing in place.



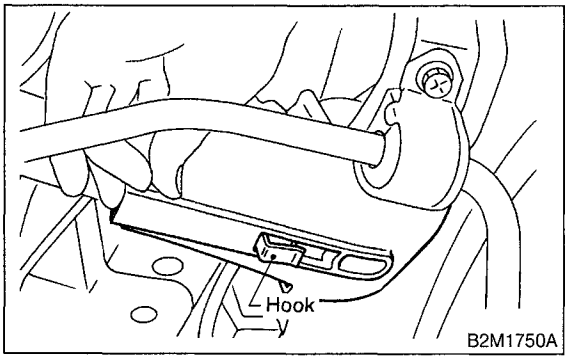
8) Remove wheel nuts of rear right side.
9) Lift-up the vehicle.
10) Remove rear right side wheel.



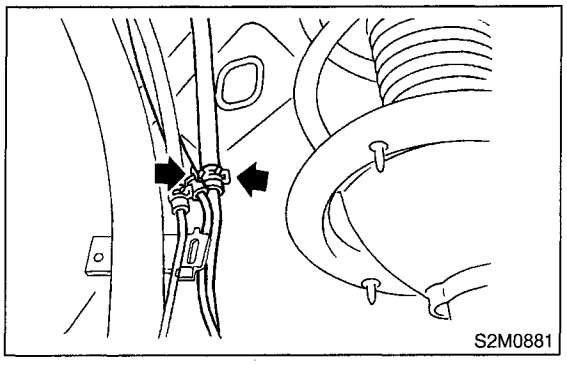
11) Remove bolts which install protector cover on body.



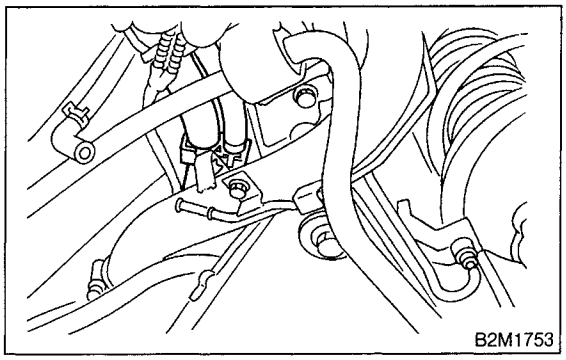
12) While releasing the under side of protector cover from hook, remove it.



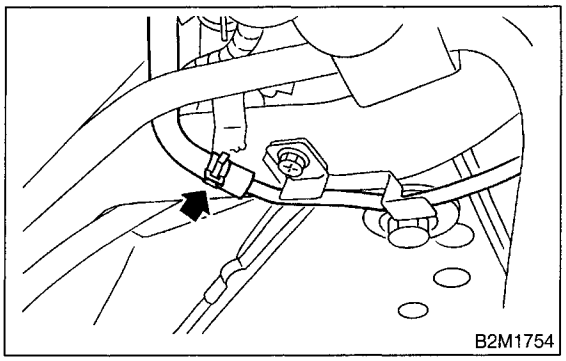
13) Disconnect evaporation hoses from pipes.



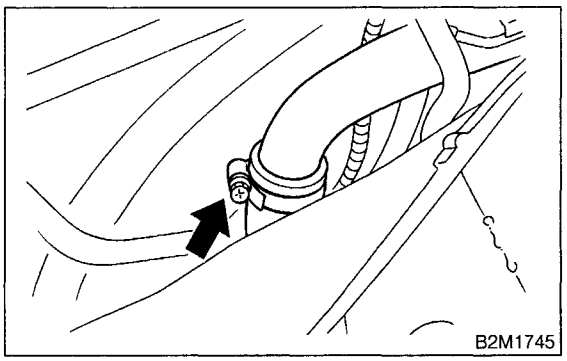
14) Lift-up the vehicle more.
15) Remove two evaporation hoses from clip.



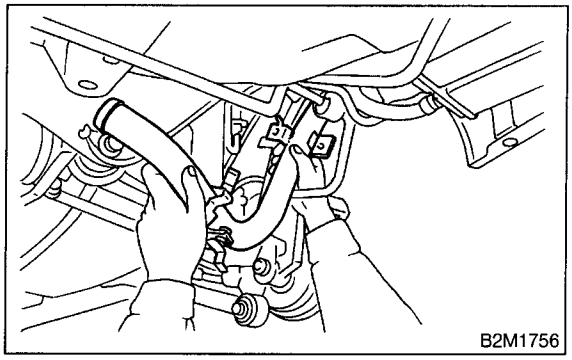
16) Disconnect evaporation hose from joint pipe.



17) Loosen clamp, and disconnect fuel filler hose from fuel filler pipe.

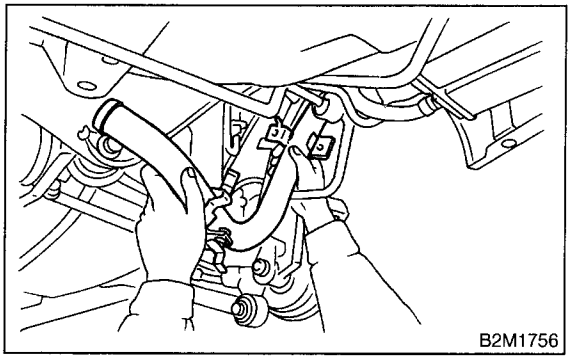


18) Remove fuel filler pipe to under side of vehicle.

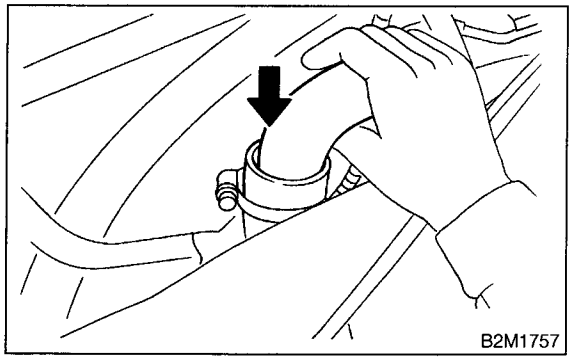


B: INSTALLATION

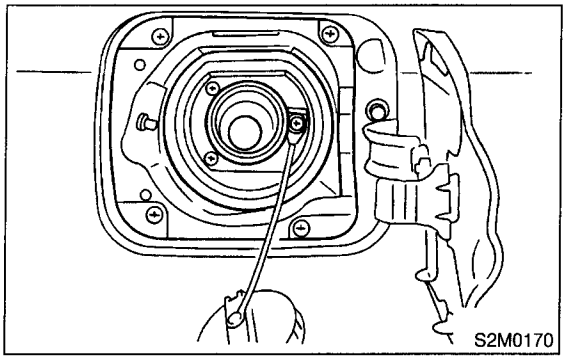
1) Set fuel filler pipe from under side of vehicle, and hold it on fuel filler flap open.



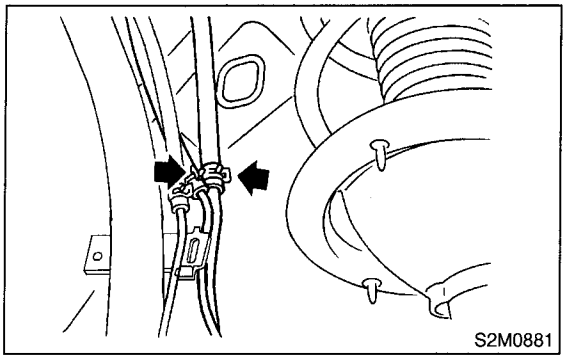
2) Connect fuel filler pipe into fuel filler hose.



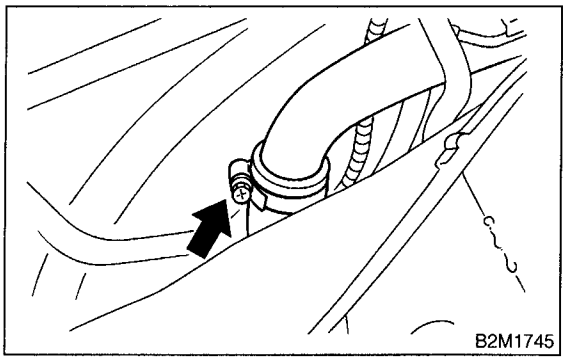
3) Lower the vehicle.
4) Temporarily tighten screws which install fuel filler pipe on filler lid open.



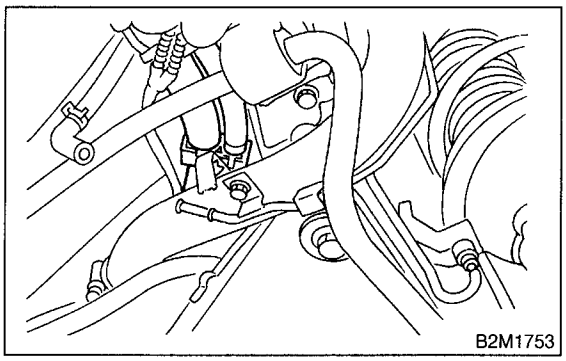
5) Connect evaporation hoses to pipes.



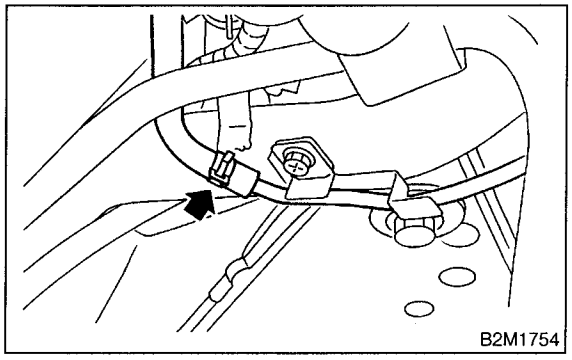
6) Lift-up the vehicle.
7) Tighten clamp bolt which holds fuel filler hose.



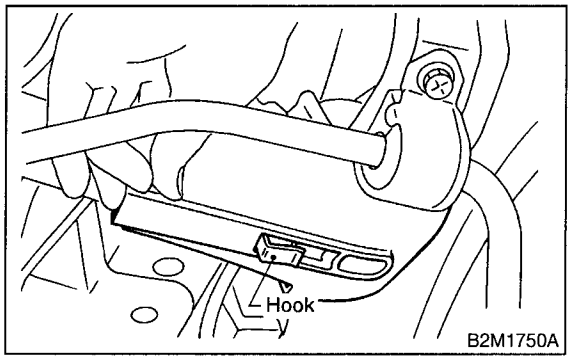
8) Install two evaporation hoses to clip.



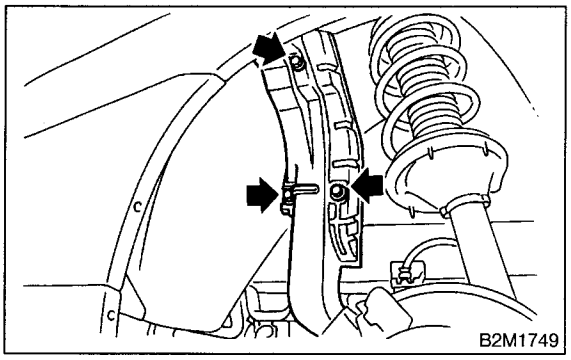
9) Connect evaporation hose to joint pipe.



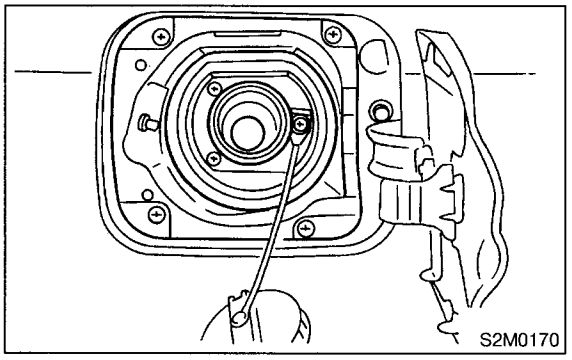
10) Lower the vehicle.
11) While holding the under side of protector cover on bracket, install it.



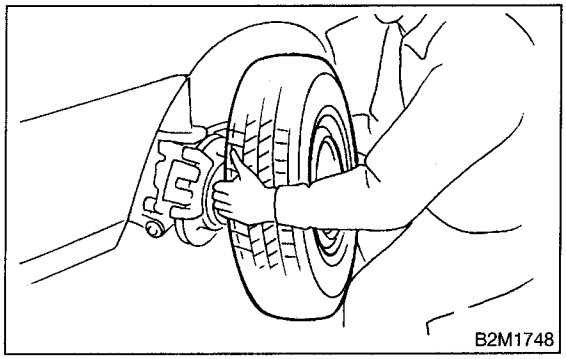
12) Tighten bolts which install protector cover on body.



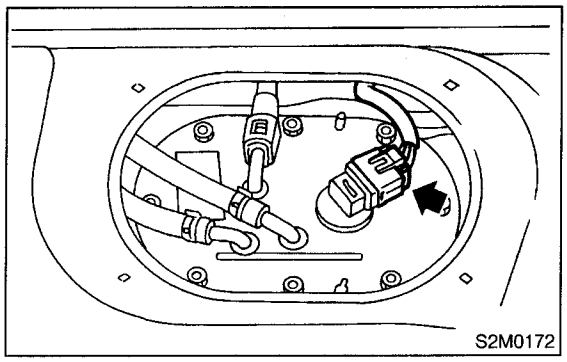
13) Tighten screws which install fuel filler pipe on filler lid open.



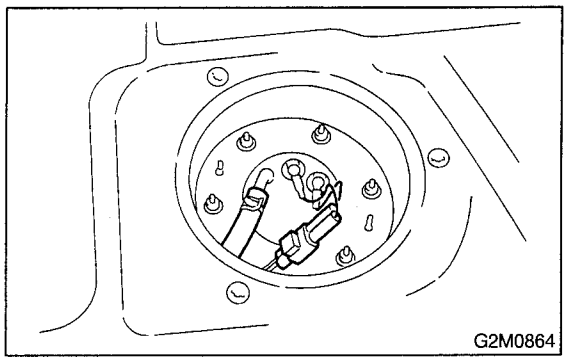
14) Install rear right wheel.
15) Install fuel filler cap.



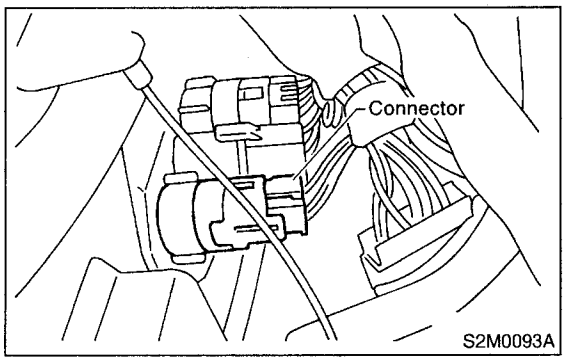
16) Install fuel pump, and connect connector and fuel hoses. <Ref. to 2-8 [W6B0].☆1>



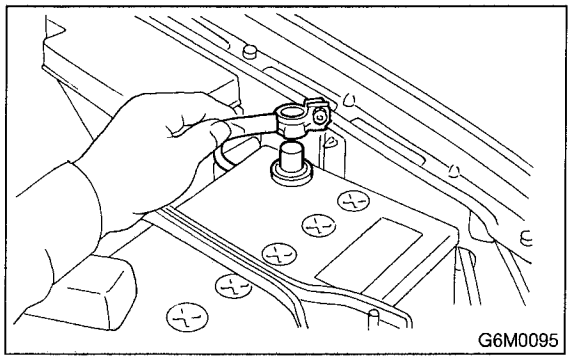
17) Install fuel sub meter unit, and connect connector and jet pump hose. <Ref. to 2-8 [W8A0].☆1>



18) Connect connector to fuel pump relay.

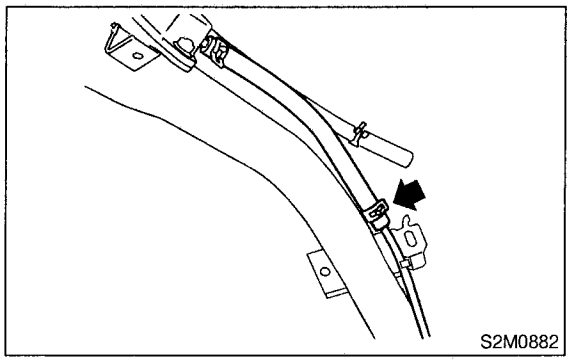


19) Connect battery ground cable.

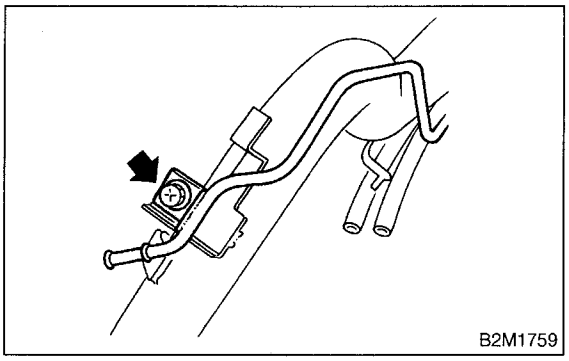


C: DISASSEMBLY

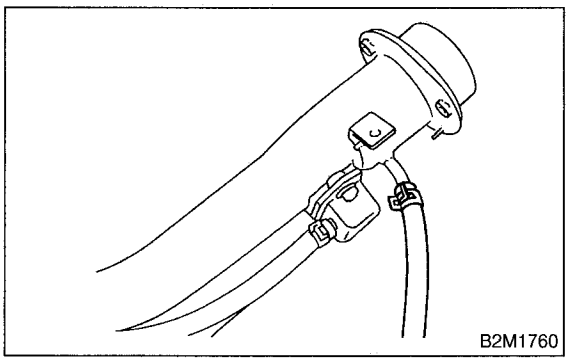
1) Move clip, and disconnect evaporation hose from joint pipe.



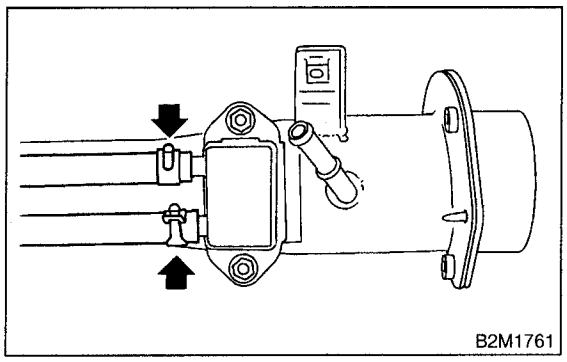
2) Remove bolt which installs joint pipe on fuel filler pipe.



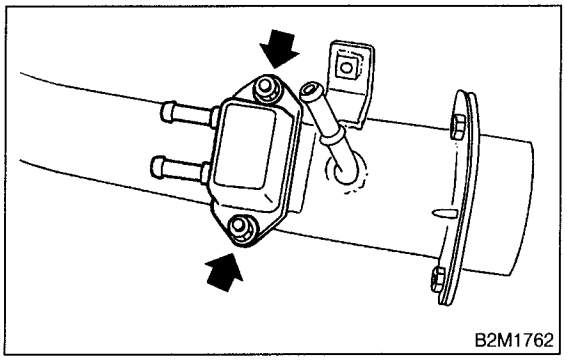
3) Disconnect evaporation hose from fuel filler pipe.



4) Disconnect evaporation hoses from shut valve.



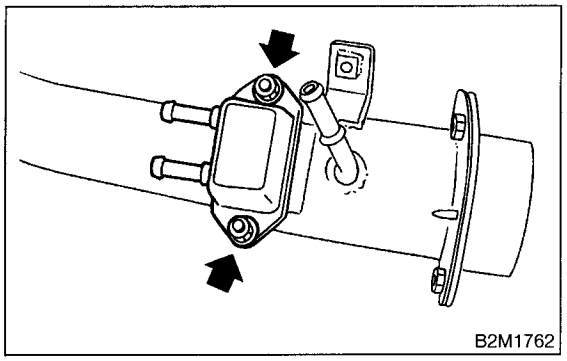
5) Remove shut valve from fuel filler pipe.



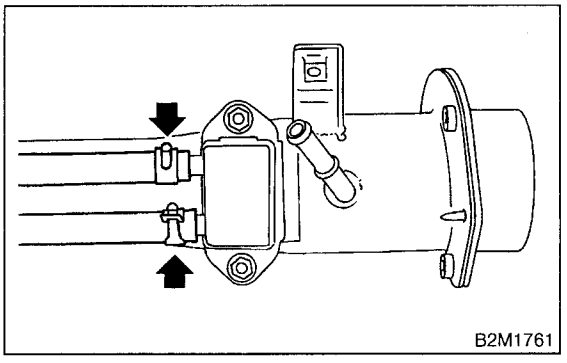
D: ASSEMBLY

1) Install shut valve on fuel filler pipe.

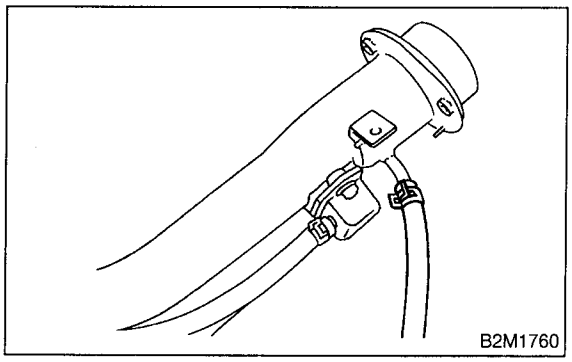
Tightening torque:
4.4±1.5 N·m (0.45±0.15 kg-m, 3.3±1.1 ft-lb)



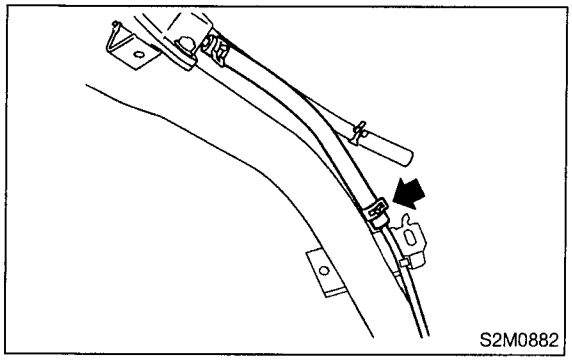
2) Connect evaporation hoses to shut valve.



3) Connect evaporation hose to fuel filler pipe.



4) Connect evaporation hose to evaporation pipe.

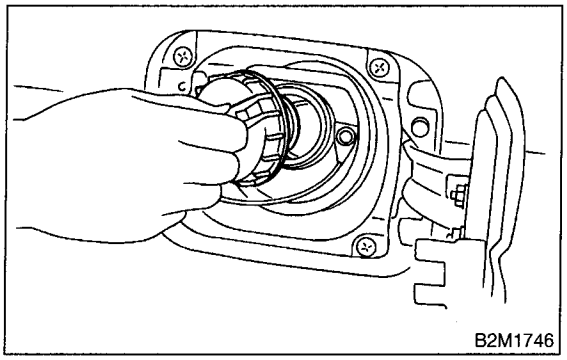


5. Fuel Meter Unit

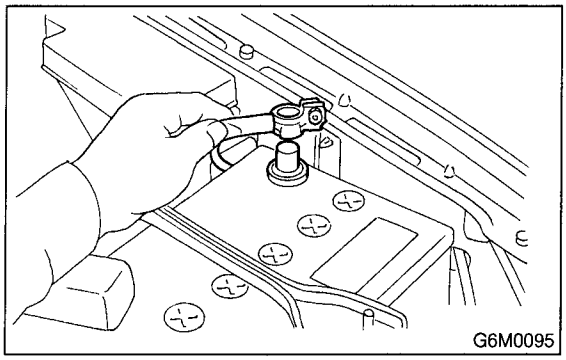
A: REMOVAL

NOTE:
Fuel meter unit is built in fuel pump assembly.

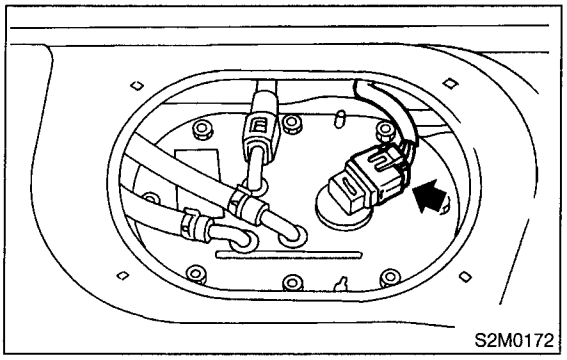
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>
2) Open fuel flap lid, and remove fuel filler cap.



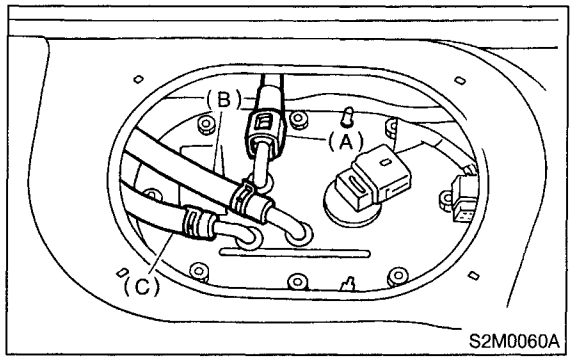
3) Disconnect battery ground cable.



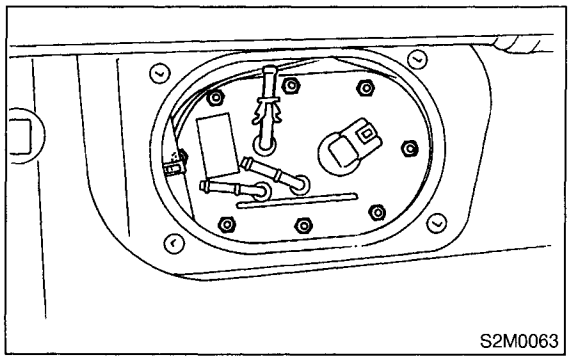
4) Disconnect connector from fuel pump.



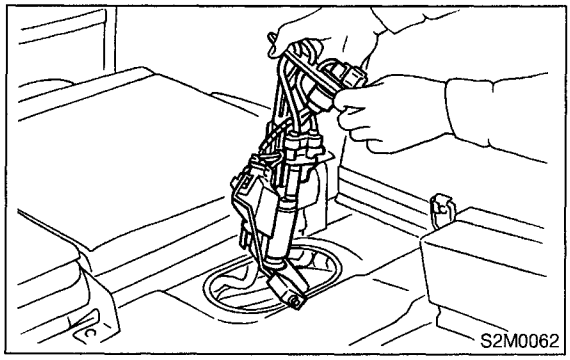
5) Move clips, and then disconnect fuel return hose (B) and jet pump hose (C).
6) Disconnect quick connector, and then disconnect fuel delivery hose (A). <Ref. to 2-8 [W8A0].☆2>



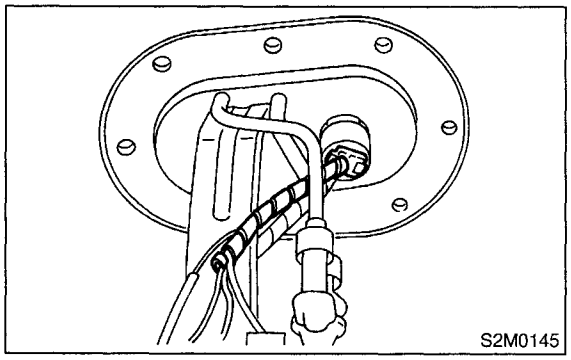
7) Remove nuts which install fuel pump assembly onto fuel tank.



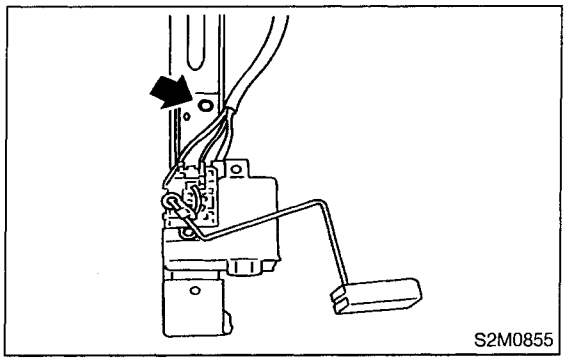
8) Take off fuel pump assembly.



9) Disconnect connector from fuel pump bracket.

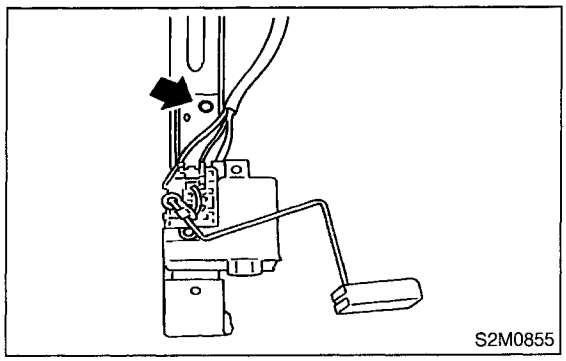


10) Remove bolt which installs fuel meter unit on mounting bracket.



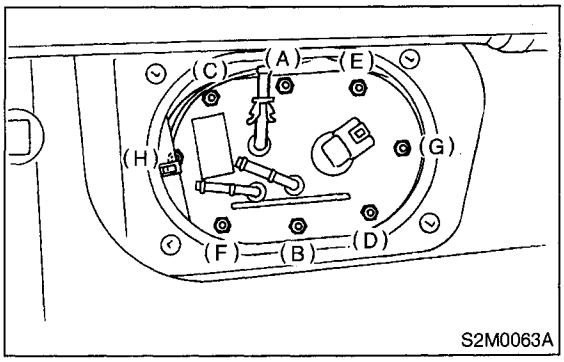
B: INSTALLATION

Installation is in the reverse order of removal. Do the following:
(1) Install the fuel meter unit on mounting bracket.



(2) Always use new gaskets.
(3) Ensure sealing portion is free from fuel or foreign particles before installation.
(4) Tighten nuts in alphabetical sequence shown in Figure to specified torque.

Tightening torque:
4.4±1.5 N·m (0.45±0.15 kg-m, 3.3±1.1 ft-lb)

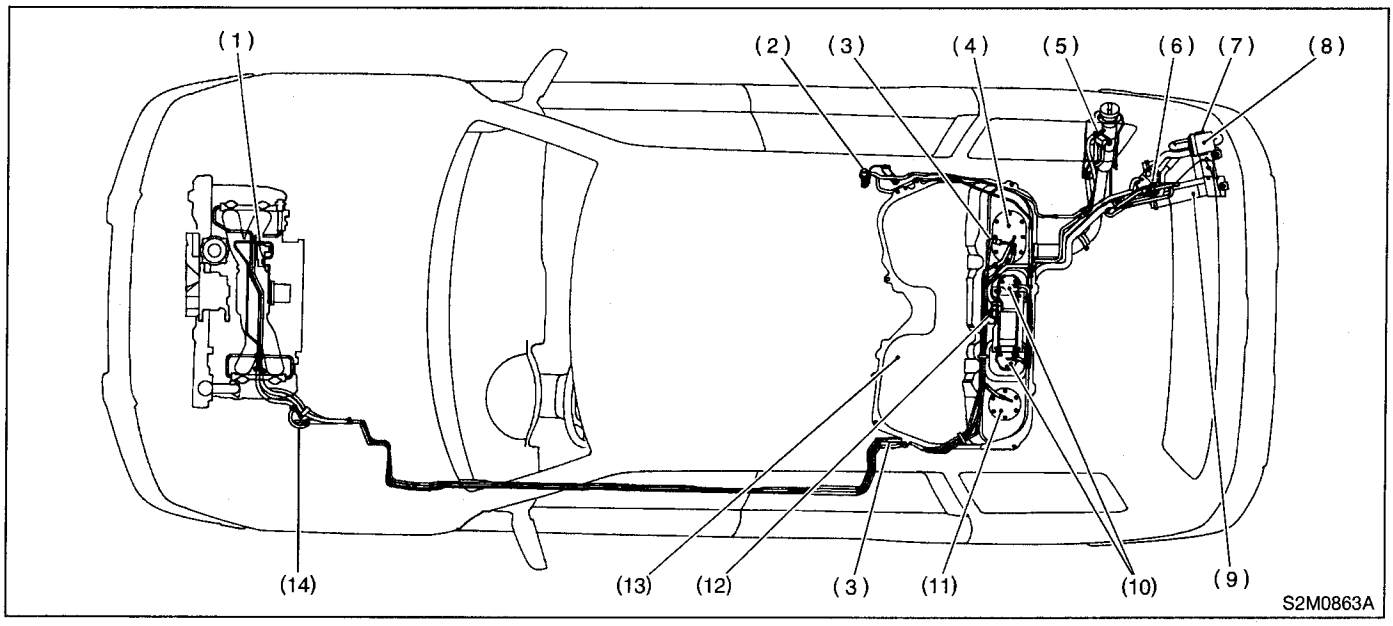


6. Fuel Delivery, Return and Evaporation Lines

A: REMOVAL

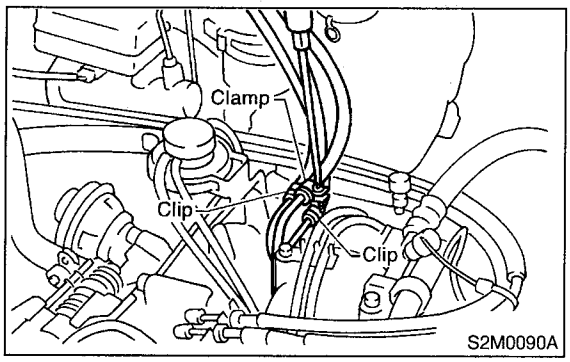
1) Release fuel pressure. <Ref. to 2-2 [W9B0].☆1>

2) Remove fuel filler cap.
3) Remove inner trim, insulator and rear seat.
4) Remove fuel delivery pipes and hoses, fuel return pipes and hoses, and evaporation pipes and hoses.



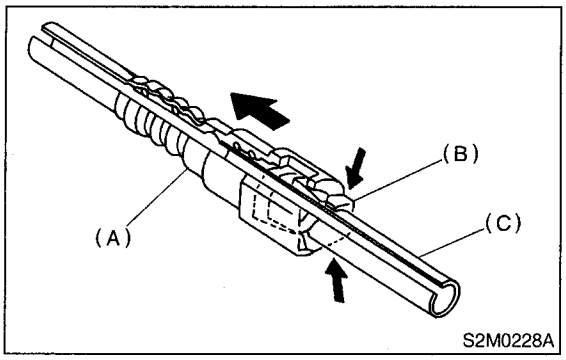
(1) Purge control solenoid valve
(2) Roll over valve
(3) Quick connector
(4) Fuel pump
(5) Shut valve
(6) Pressure control solenoid valve
(7) Drain valve
(8) Air filter
(9) Canister
(10) Fuel cut valve
(11) Fuel sub meter unit
(12) Fuel tank pressure sensor
(13) Fuel tank
(14) Fuel filter

5) In engine compartment, detach fuel delivery hose, return hose and evaporation hose.



6) Separate quick connector on fuel delivery line.
(1) Clean pipe and connector, if they are covered with dust.
(2) Hold connector (A) and push retainer (B) down.
(3) Pull out connector (A) from retainer (B).

CAUTION:
Replace retainer with new ones.

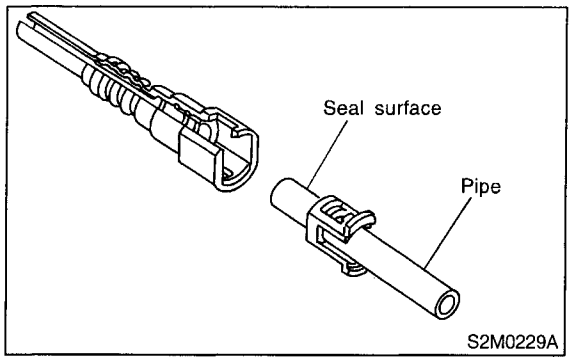


(A) Connector
(B) Retainer
(C) Pipe

B: INSTALLATION

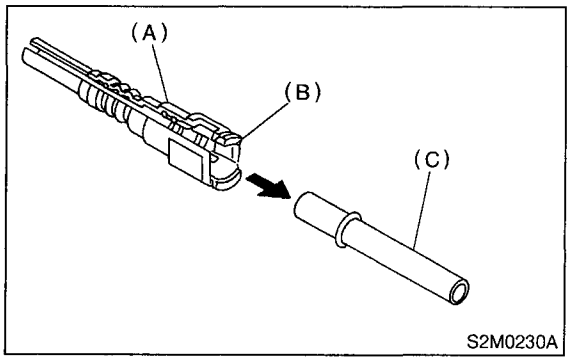
Installation is in the reverse order of removal.
1) Connect quick connector on fuel delivery line.

CAUTION:
- **Always use a new retainer.**
- **Make sure that the connected portion is not damaged or has dust. If necessary, clean seal surface of pipe.**



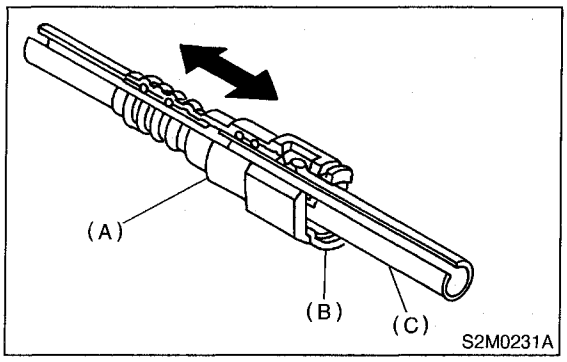
(1) Set new retainer (B) to connector (A).
(2) Push pipe into connector completely.

NOTE:
At this time, two clicking sounds are heard.



(A) Connector
(B) Retainer
(C) Pipe

CAUTION:
- **Pull the connector to ensure it is connected securely.**
- **Ensure the two retainer pawls are engaged in their mating positions in the connector.**
- **Be sure to inspect hoses and their connections for any leakage of fuel.**

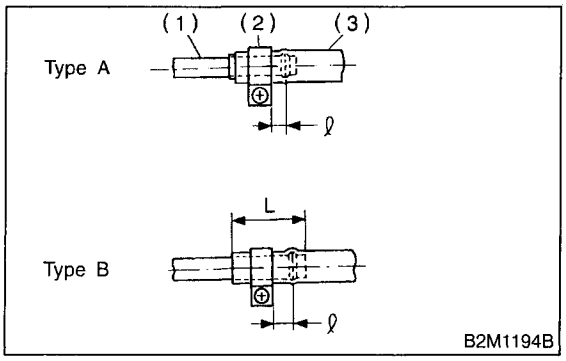


(A) Connector
(B) Retainer
(C) Pipe

2) Connect fuel delivery hose to pipe in engine compartment with an overlap of 20 to 25 mm (0.79 to 0.98 in).
Type A: When fitting length is specified.
Type B: When fitting length is not specified.

ℓ : 1.0 — 4.0 mm (0.039 — 0.157 in)

L: 20 — 25 mm (0.79 — 0.98 in)



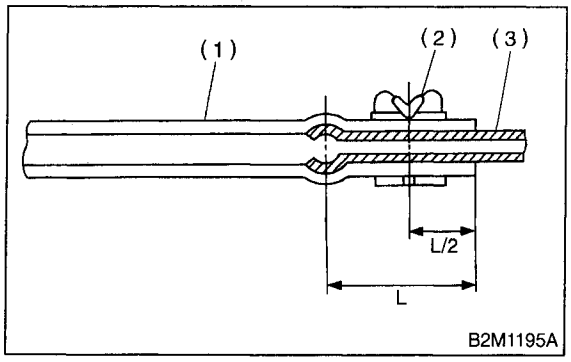
(1) Fitting
(2) Clamp
(3) Hose

3) Connect return hose and evaporation hose to pipe by approx. 15 mm (0.59 in) from hose end.

Fuel return hose:
L = 20 — 25 mm (0.79 — 0.98 in)

Fuel evaporation hose:
L = 15 — 20 mm (0.59 — 0.79 in)

CAUTION:
Be sure to inspect hoses and their connections for any leakage of fuel.



(1) Hose
(2) Clip
(3) Pipe

1. Important Safety Notice

- Providing appropriate service and repair is a matter of great importance in the serviceman's safety maintenance and safe operation, function and performance which the SUBARU vehicle possesses.

- In case the replacement of parts or replenishment of consumables is required, genuine SUBARU parts whose parts numbers are designated or their equivalents must be utilized.

- It must be made well known that the safety of the serviceman and the safe operation of the vehicle would be jeopardized if he used any service parts, consumables, special tools and work procedure manuals which are not approved or designated by SUBARU.

2. How to Use This Manual

• This Service Manual is divided into four volumes by section so that it can be used with ease at work. Refer to the Table of Contents, select and use the necessary section.

- GENERAL INFORMATION SECTION
- REPAIR SECTION
- DIAGNOSTICS SECTION
- WIRING DIAGRAM SECTION

• The description of each area is provided with four types of titles different in size as shown below. The Title No. or Symbol prefixes each title in order that the construction of the article and the flow of explanation can be easily understood.

[Example of each title]

• Area title:	T. DIAGNOSTICS
• Large title (Heading):	1. Diagnostics Chart with Select Monitor (to denote the main item of explanation.)
• Medium title (Section):	A: BASIC DIAGNOSTICS CHART (to denote the type of work in principle.)
• Small title (Sub-section):	1. CHECK INPUT SIGNAL FOR ECM (to denote a derivative item of explanation.)

- The Title Index No. is indicated on the top left (or right) side of the page as the book is opened. This is useful for retrieving the necessary portion.

(Example of usage)

Refer to 3 - 2 [T 5 A 0]

- Small title (Sub-section)
- Medium title (Section)
- Large title (Heading)
- DIAGNOSTICS
- Chapter no.

Example of title placement

Title index No.

Medium title

Large title

AUTOMATIC TRANSMISSON AND DIFFERENTIAL [T5A1] 3-2

5. Diagnostic Chart with Trouble Code

5. Diagnostic Chart with Trouble Code

A: TROUBLE CODE 11
— DUTY SOLENOID A —

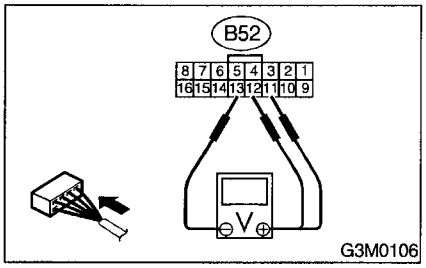
DIAGNOSIS:

Output signal circuit of duty solenoid A or resistor is open or shorted

TROUBLE SYMPTOM:

Excessive shift shock

1 **Measure signal voltage output emitted from TCM.**	Not OK →	Repair TCM terminal poor contact. (Replace TCM.)
OK ↓		
2 **Check harness and connectors between TCM and duty solenoid A and TCM and resistor.**	Not OK →	Repair or replace harness/connector.
OK ↓		
Repair TCM terminal poor contact. (Replace TCM.)		



1. MEASURE SIGNAL VOLTAGE OUTPUT EMITTED FROM TCM.

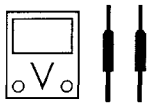
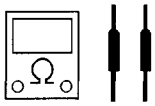
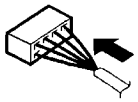
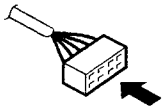
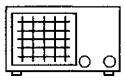
1) Warm-up the engine and transmission.
2) Ignition switch ON (Engine OFF)
3) Move shift lever to "N"
4) While opening and closing throttle valve, measure voltage between TCM connector and body.

Connector & terminal / Specified resistance:
(B52) No. 11—No. 13 /
1.5—4.0 V (Throttle is fully closed.)
0.5 V, max. (Throttle is fully open.)

Small title

B0M0001

- In this manual, the following symbols are used.

Character	Description
 B0M0002	Circuit tester • Voltage measurement
 B0M0003	Circuit tester • Resistance measurement
 B0M0004	The arrow indicates that insertion of the probe or numbering of the connector pins is made from the side.
 B0M0005	The arrow indicates that insertion of the probe or numbering of the connector pins is made from the side.
 B0M0006	Oscilloscope
B0M0007	Oscilloscope positive probe
B0M0008	Oscilloscope earth head

- **WARNING, CAUTION,** NOTE

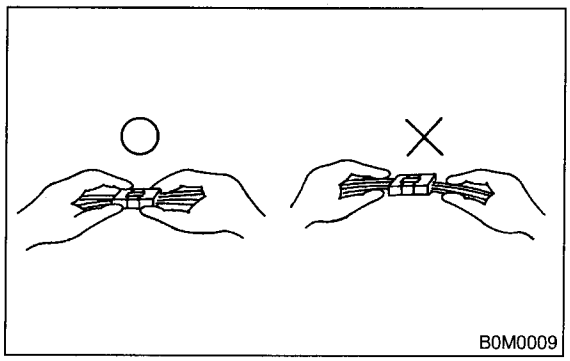
WARNING:	Indicates the item which must be observed precisely during performance of maintenance services in order to avoid injury to the mechanics and other persons.
CAUTION:	Indicates that item which must be followed precisely during performance of maintenance services so as to avoid damage and breakage to the vehicle and its parts and components.
NOTE:	Indicates the hints, knacks, etc. which make the maintenance job easier.

3. Basic Checks

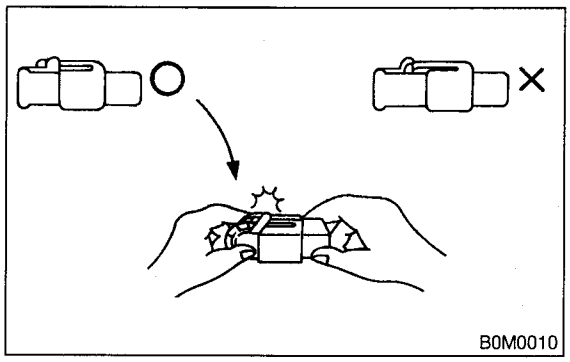
A: DISCONNECTING CONNECTORS

- Always hold the connector itself.

CAUTION:
Don't pull the harness.

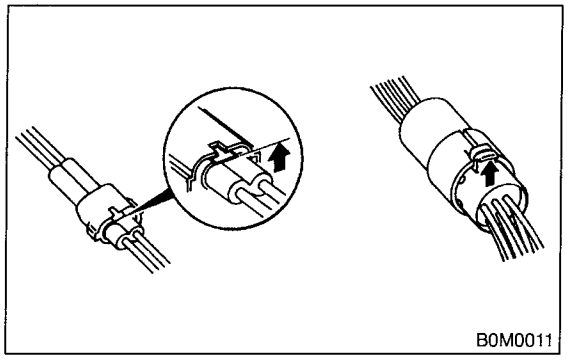


- Inspect a connector by pushing it all the way in. If the connector is equipped with a locking device, push it in until a clicking sound is heard.

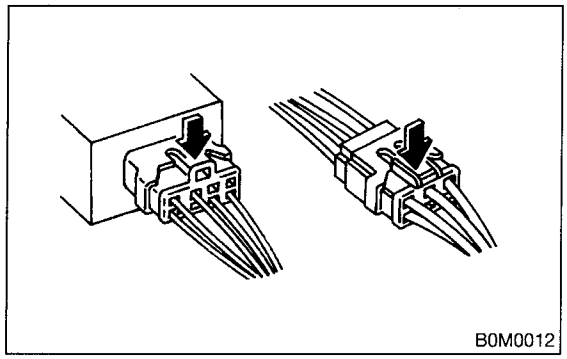


- To disconnect a locking connector, first release the lock, then pull the connector off.

<Unlock by pulling the locking tab.>

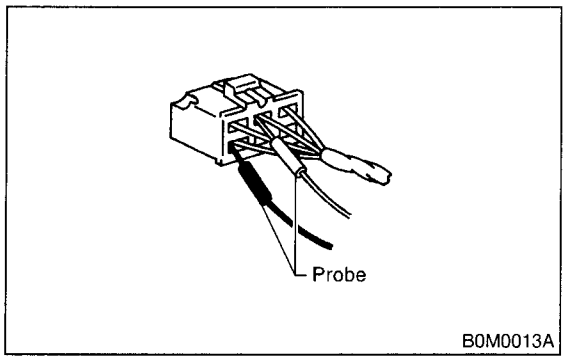


<Unlock by pushing the locking tab.>

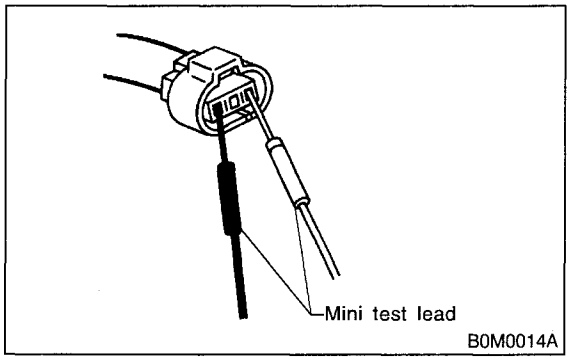


B: INSERTING A PROBE

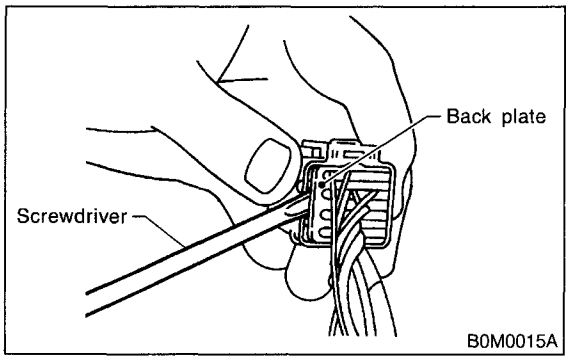
- Generally, probes are inserted into connectors from the rear side (wire side).
- When removing the shock protector take care not to deform it; this also applies to waterproof connectors, which cannot be tested from the wire side.



• Connectors equipped with shock protectors must be checked with a mini probe (thin), or it will be necessary to remove the shock protector.



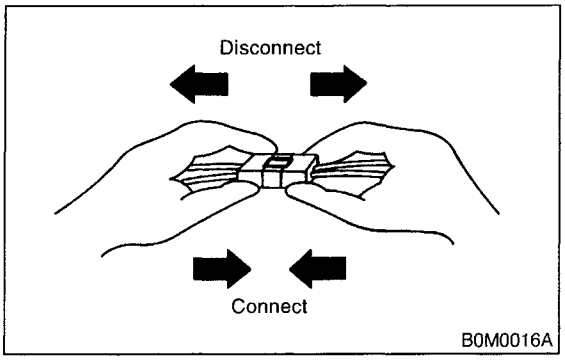
• When the connector has a back plate, remove the plate after removing the projection of the plate first. (Be careful not to use excessive force, since the terminals might brake off.)



C: CHECKING FOR POOR CONTACT ON PLUG-IN CONNECTORS

1. POOR CONTACT

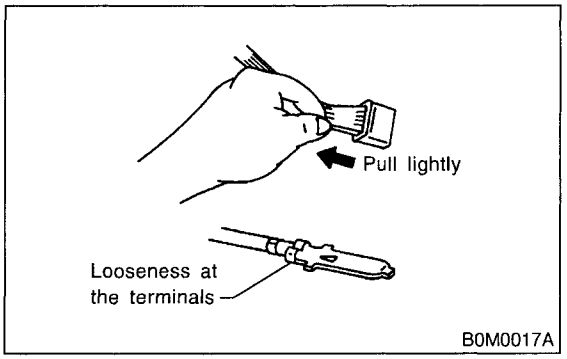
Poor contact is frequently caused by corroded terminals, dirt, foreign substances, weak contact points between male and female connectors, etc. Quite often a plug with poor contact will work perfectly again after it has been pulled off and reconnected. If harness and connector checks do not reveal any defect, it can be assumed that an intermittent contact in a connector is the source of trouble.



2. VISUAL INSPECTION

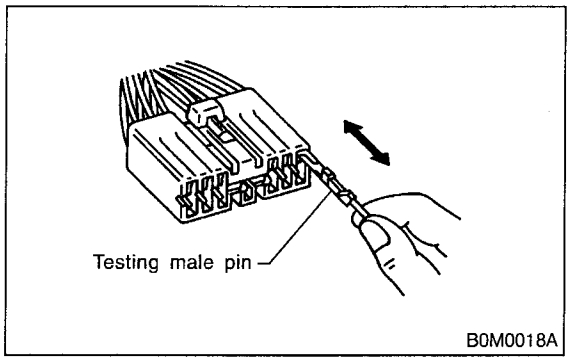
1) Disconnect the two connector halves.
2) Check the connector pins for signs of corrosion or foreign material.
3) Check the connector for loose and damaged terminals, and make sure they are set correctly in the connector.

NOTE:
When the harness is pulled lightly, the terminals should not come out.

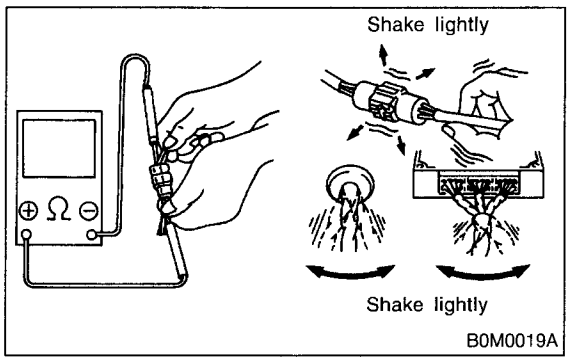


4) Insert the male pin of the connector into the female pin, then pull it out.

NOTE:
If one of the pins allows to pull out easily, it is a likely source of a malfunction.



5) Shake lightly the connector and the harness, and check for sudden changes in voltage or resistance.

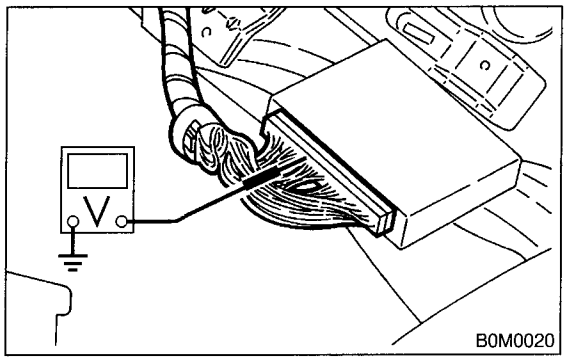


4. Diagnosis and Checking Procedure Using Instruments

A: USING A CIRCUIT TESTER

1. VOLTAGE CHECK (range set to DC V)

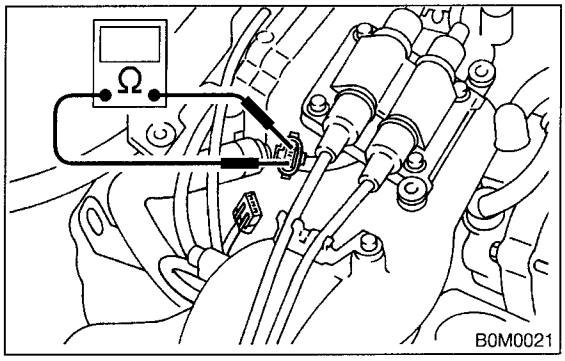
Connect the positive probe to the terminal to be tested, and the negative probe to body ground. (or the ground terminal of the ECM)



2. CHECKING THE CONNECTION (range set to Ω)

Measure the resistance and check for open or shorted wire in the harness or the connector.

NOTE:
This check must be carried out with both connectors disconnected.
(This avoids by-passing the connection through other circuits.)



1) Check for open circuit. (range: Ω × 1K)
Measure the resistance between the respective pins in both connectors.

Specified resistance:
More than 1 MΩ (No continuity) Open circuit
Less than 10 Ω (Continuity) O.K.

2) Check for correct insulation value. (range: Ω × 1K)
Measure the resistance between the pins in both connectors, as well as between the suspected pin and the body. (body short)

Specified resistance:
More than 1 MΩ (No continuity) O.K.
Less than 10 Ω (Continuity) Short circuit

3) Resistance measurement (range set to Ω)
Measuring the internal resistance of sensors, solenoid valves etc. to check the operating condition of components.

NOTE:
- Select the appropriate range for measuring the internal resistance, or the measurement will result in an incorrect reading.
- Before changing the measurement range the gauge must be reset to zero.

B: USING A SUBARU SELECT MONITOR

With this testing procedure the defective component can be determined by directly monitoring input/output signals of the ECM or the trouble codes.

1. FEATURES

- A variety of data can be checked without movements from the drivers seat, passenger's seat or from outside the vehicle.
- This unit allows the identification of the type of malfunction, for example whether the cause is an open or shorted wire in the input/output signal line, or whether the breakdown of a component is caused by a lack of maintenance.

2. DIAGNOSIS

- Refer to the reference values for input/output and control data to determine whether the malfunction is caused by a worn out component, an open wire, a short etc.
- Perform the diagnostics procedure as described in chapter "Check based on trouble codes" by monitoring the trouble codes.

NOTE:
It will be easier to determine a malfunction if the vehicle data for normal conditions are available for comparison.

C: USING AN OSCILLOSCOPE

A malfunction can be determined by displaying the waveforms of input/output signals on the oscilloscope.

1. DIAGNOSIS

A simple comparison of the waveforms may lead to an incorrect diagnosis. To exactly determine the sources of the malfunction it will be necessary to determine them under consideration about information other than waveforms.

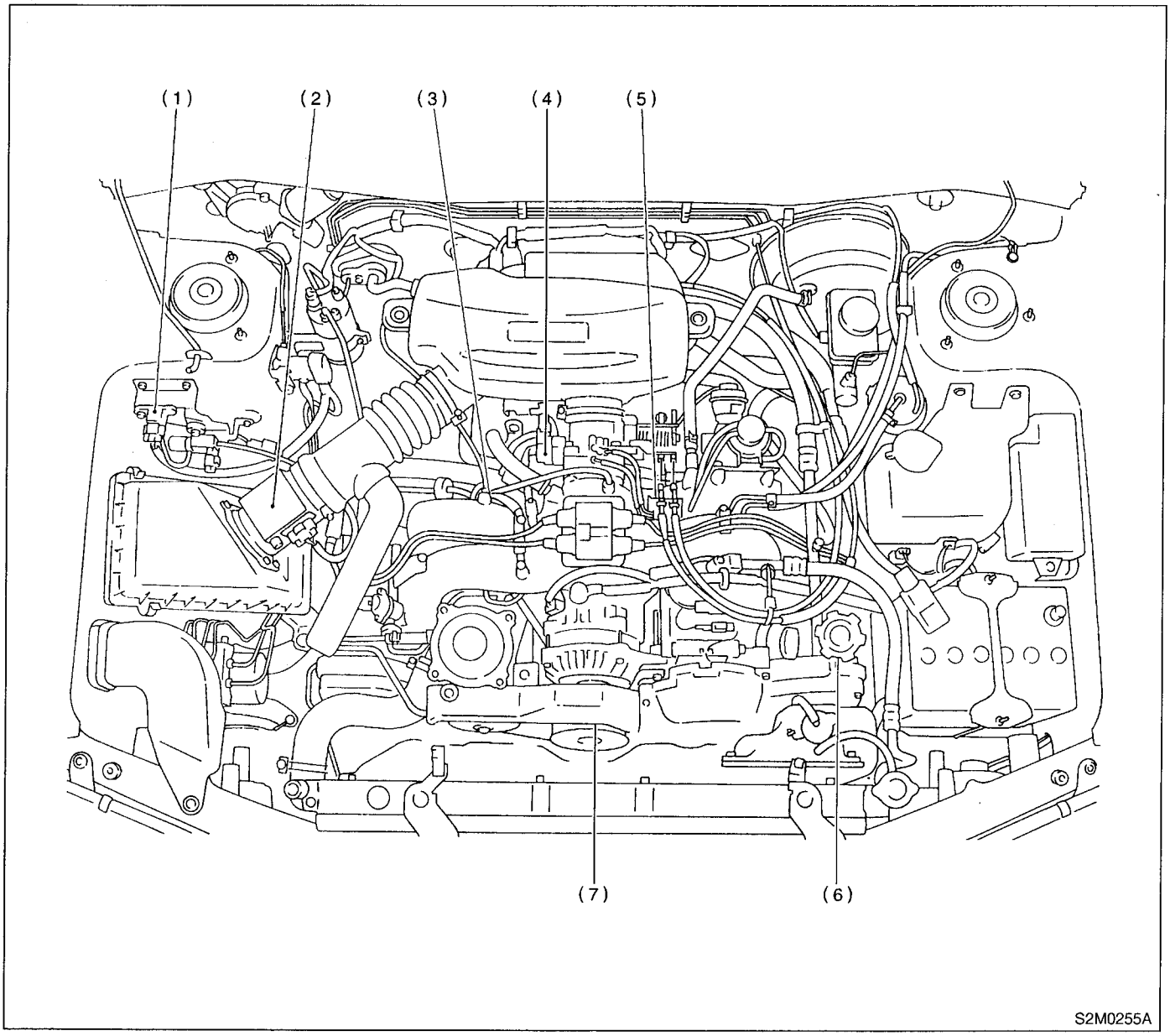
2. APPLYING INPUT/OUTPUT SIGNALS

Connect the probe directly with the terminal of the signal.

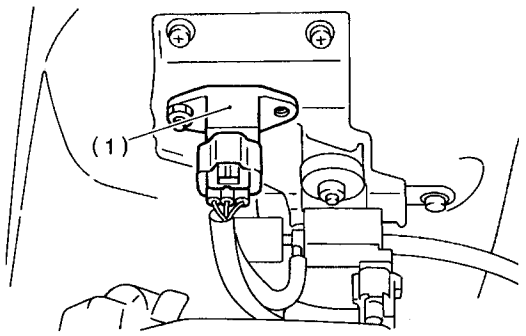
2. Electrical Components Location

A: ENGINE

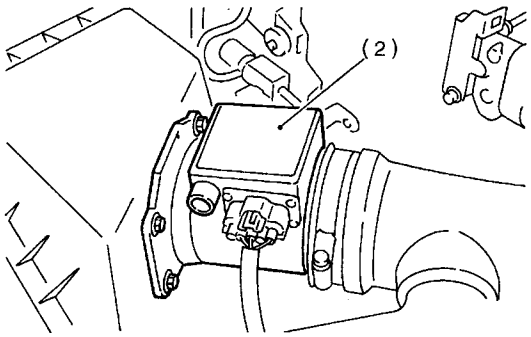
2. SENSOR



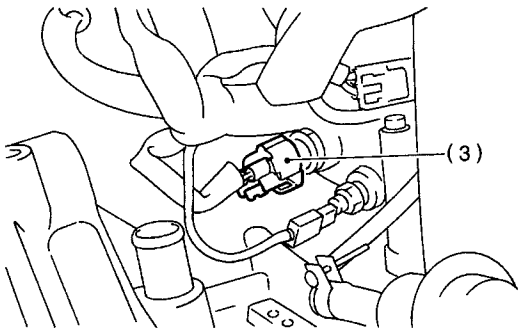
(1) Pressure sensor
(2) Mass air flow sensor
(3) Engine coolant temperature sensor
(4) Throttle position sensor
(5) Knock sensor
(6) Camshaft position sensor
(7) Crankshaft position sensor



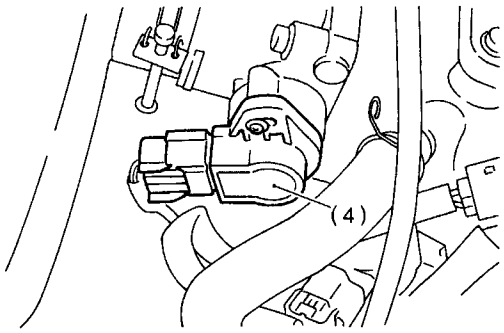
S2M0260A



S2M0261A



B2M1690E



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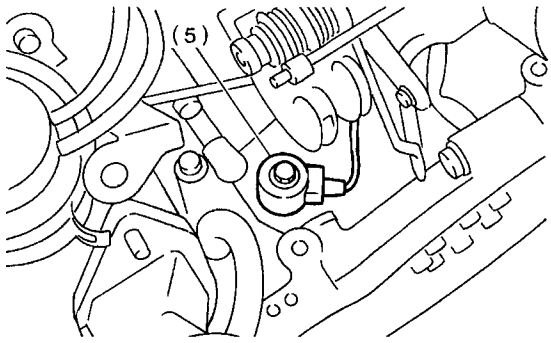

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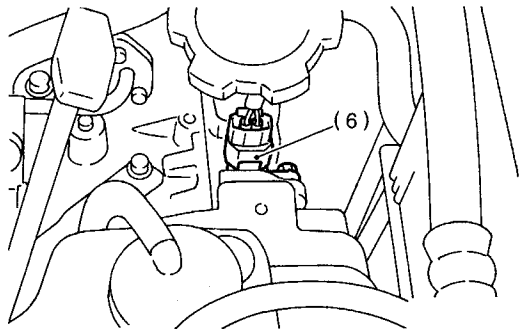

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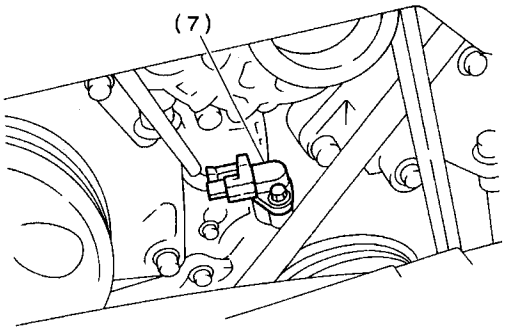

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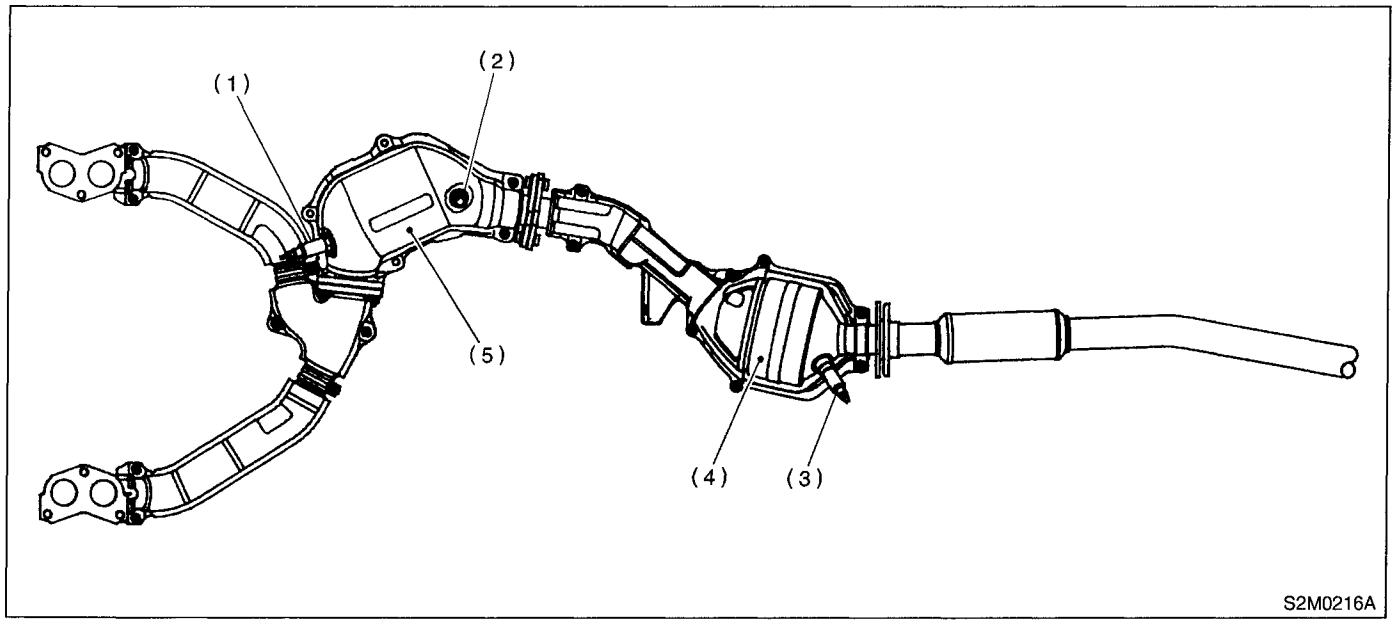
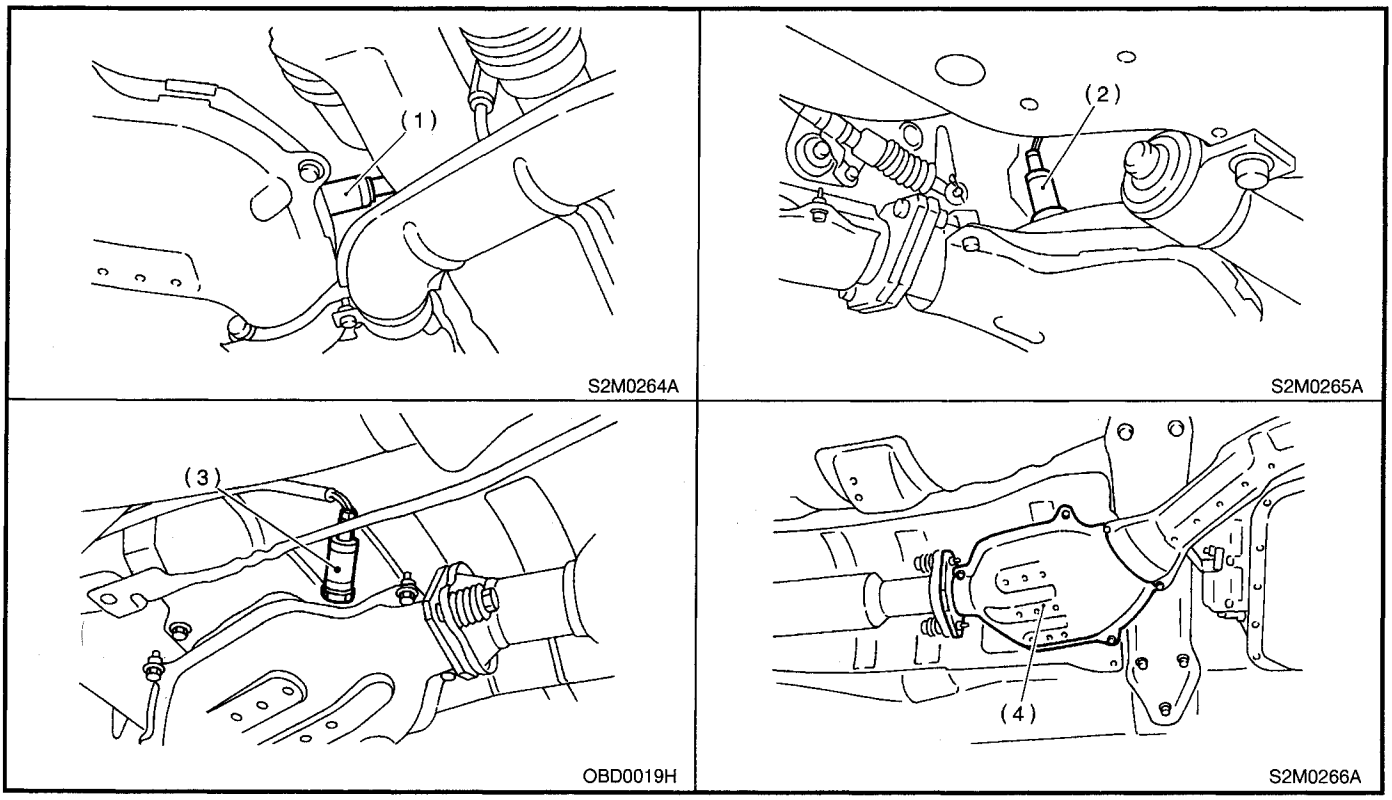
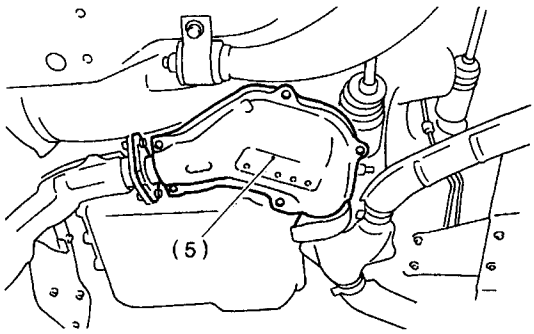
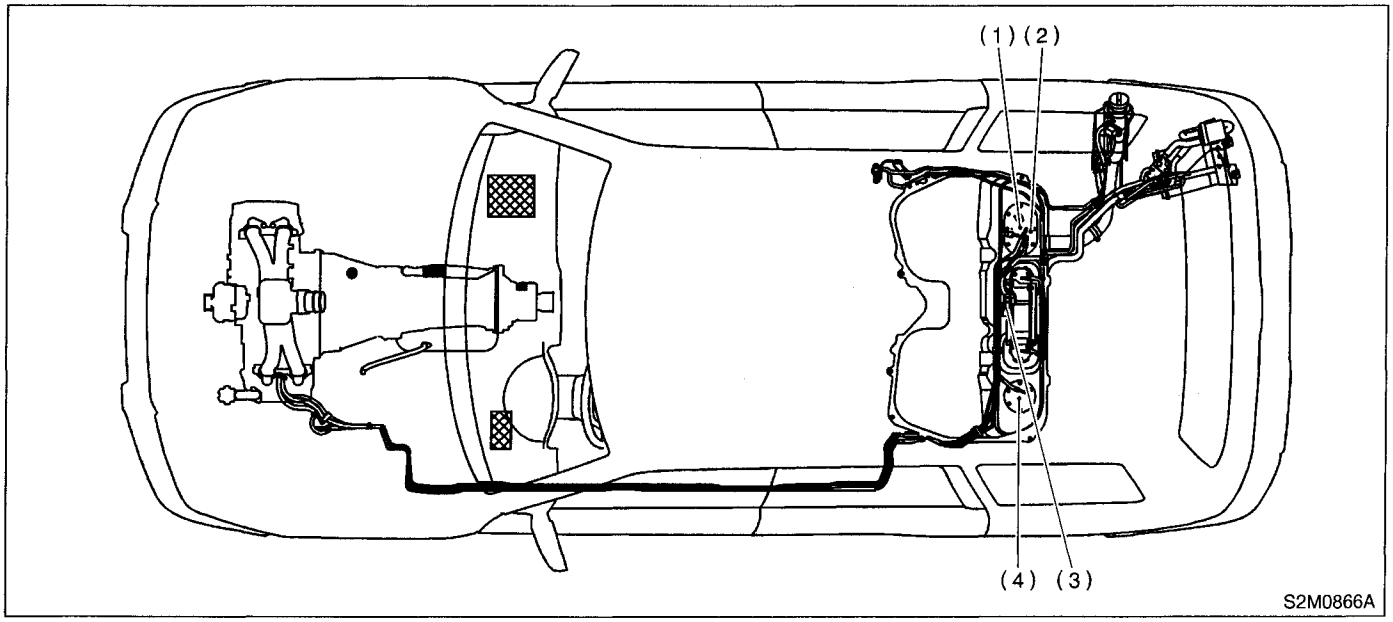


(1) Front oxygen sensor
(2) Rear oxygen sensor (California spec. vehicles)
(3) Rear oxygen sensor (Federal spec. vehicles)
(4) Rear catalytic converter
(5) Front catalytic converter

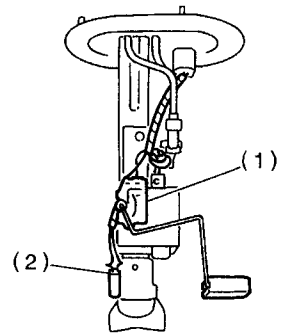


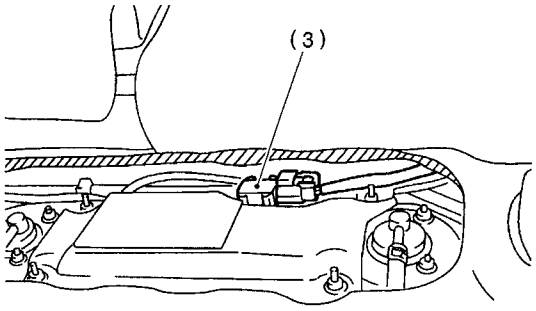


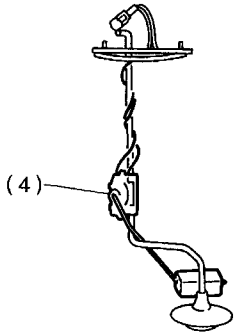
S2M0267A



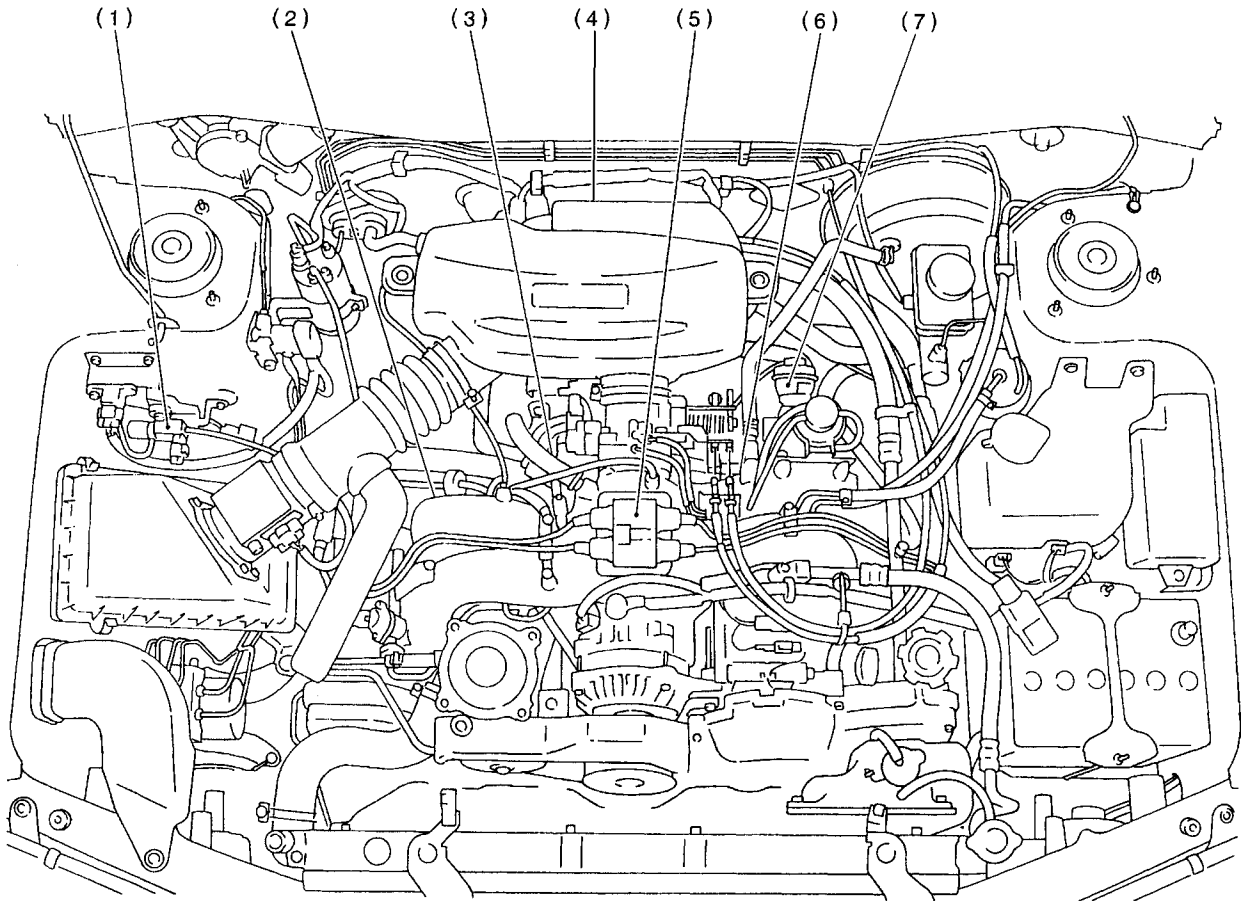
(1) Fuel level sensor (Main)
(2) Fuel temperature sensor
(3) Fuel tank pressure sensor
(4) Fuel level sensor (Sub)



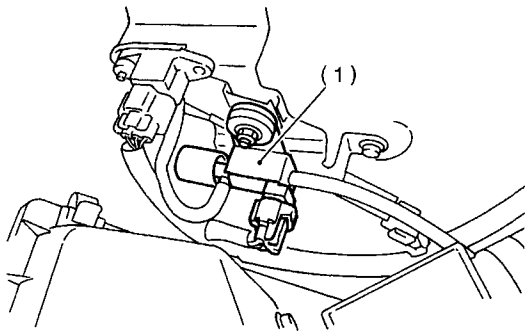




3. SOLENOID VALVE, EMISSION CONTROL SYSTEM PARTS AND IGNITION SYSTEM PARTS



(1) Pressure sources switching solenoid valve
(2) Purge control solenoid valve
(3) Idle air control solenoid valve
(4) Ignitor
(5) Ignition coil
(6) EGR control solenoid valve
(7) EGR valve



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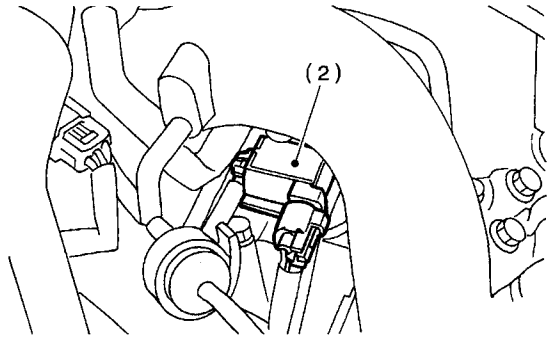

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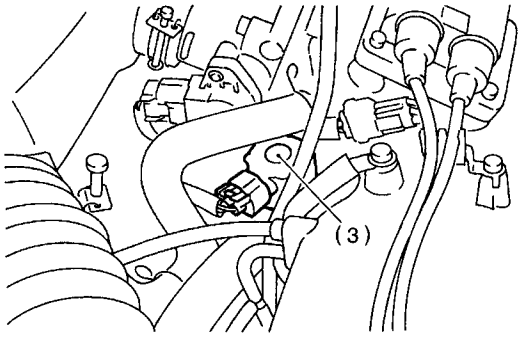

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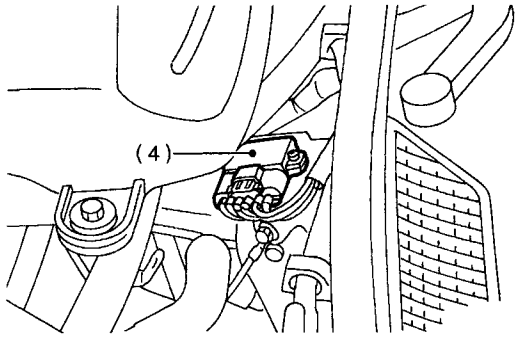

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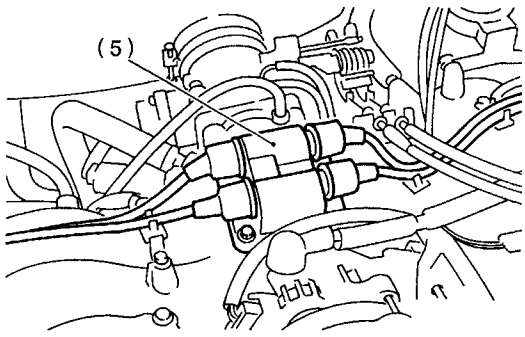

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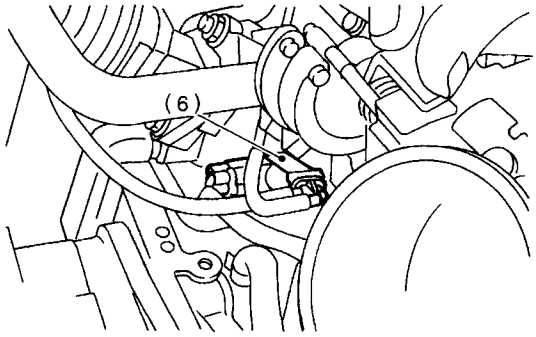

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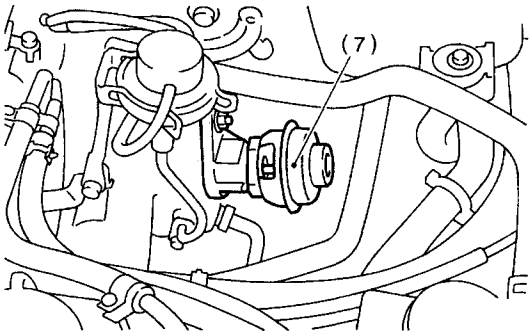

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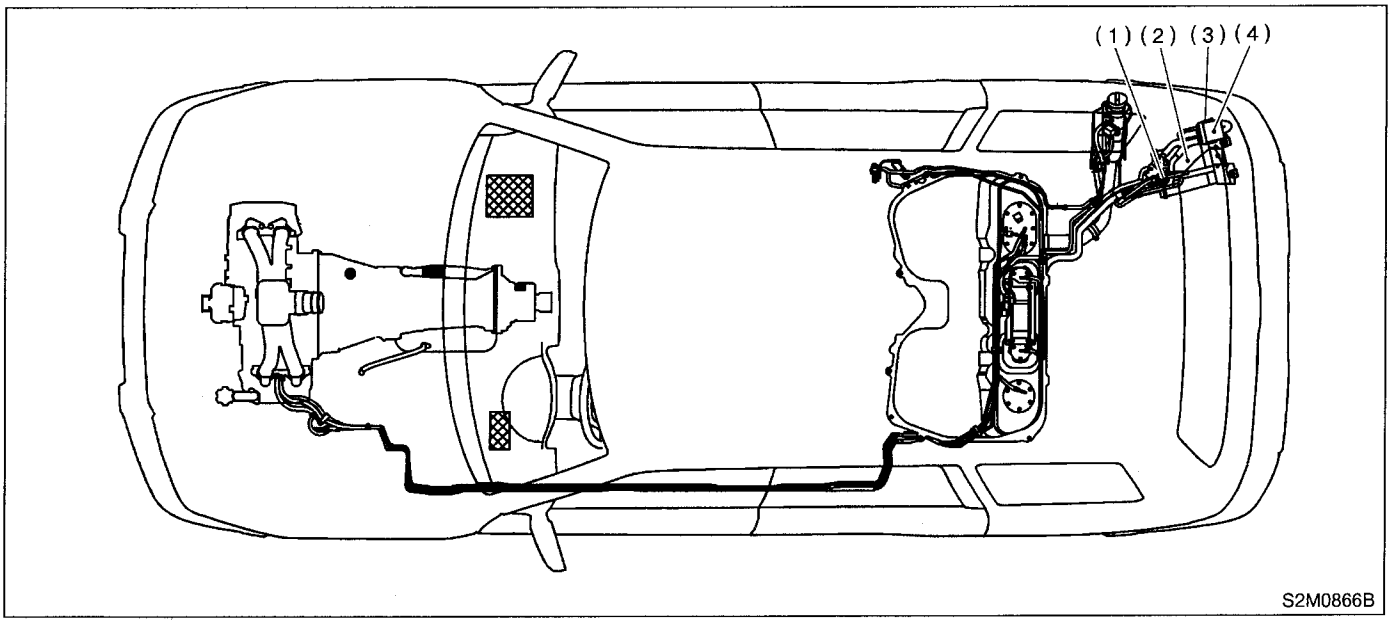
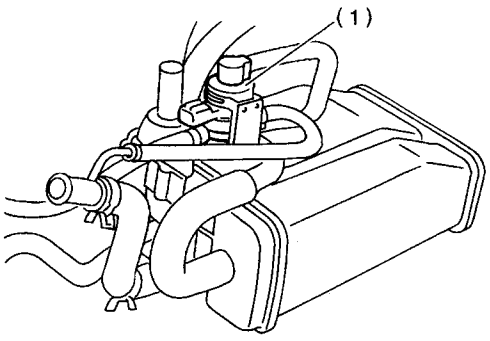
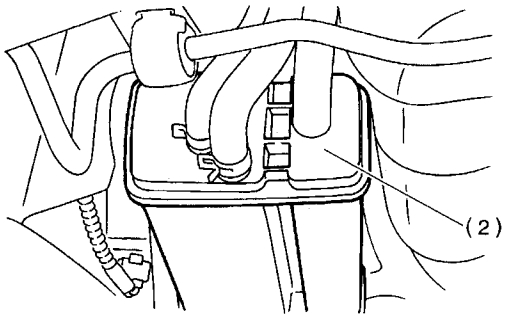
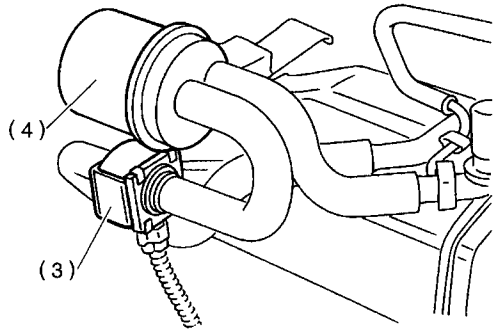
SUBARU



(1) Pressure control solenoid valve
(2) Canister
(3) Drain valve
(4) Air filter







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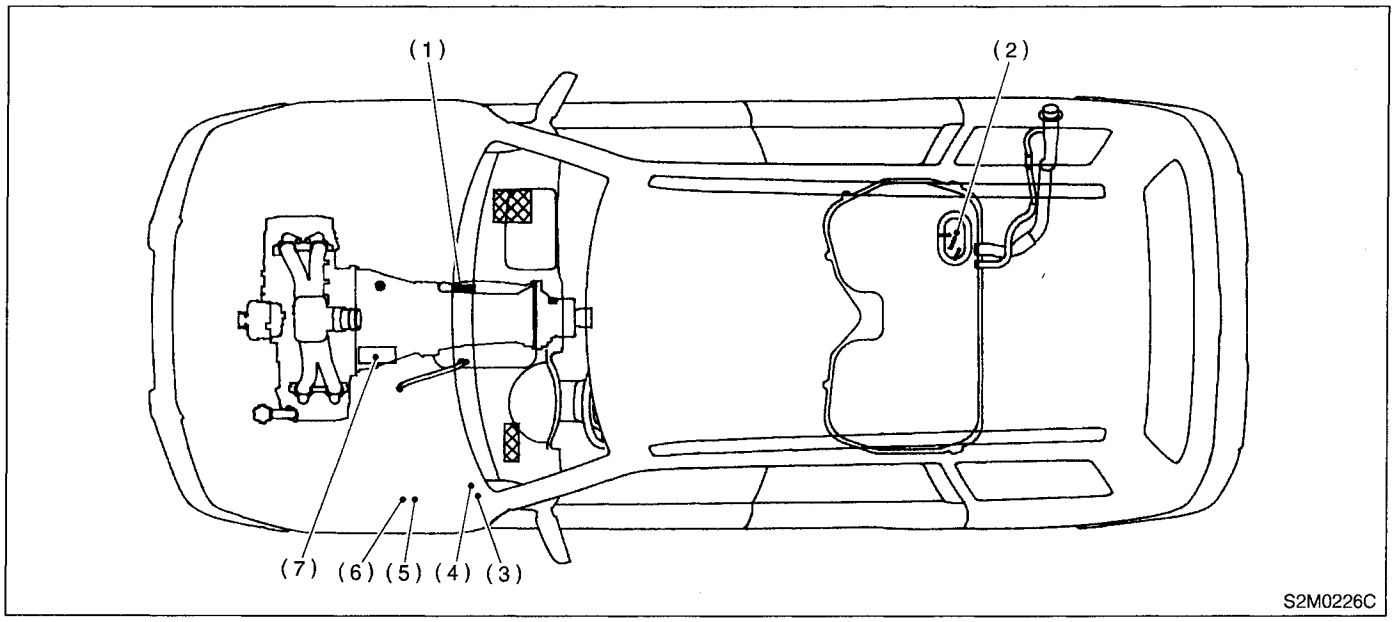
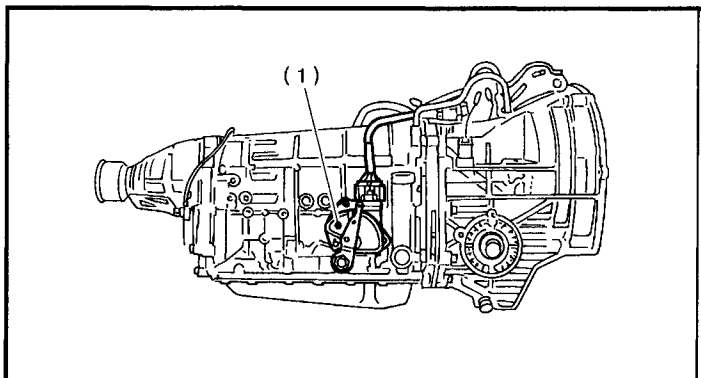
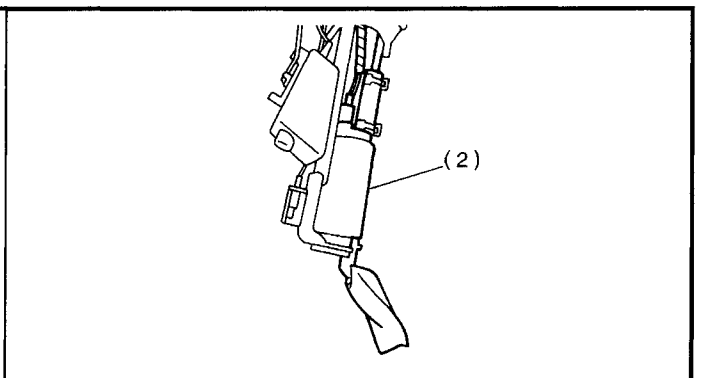
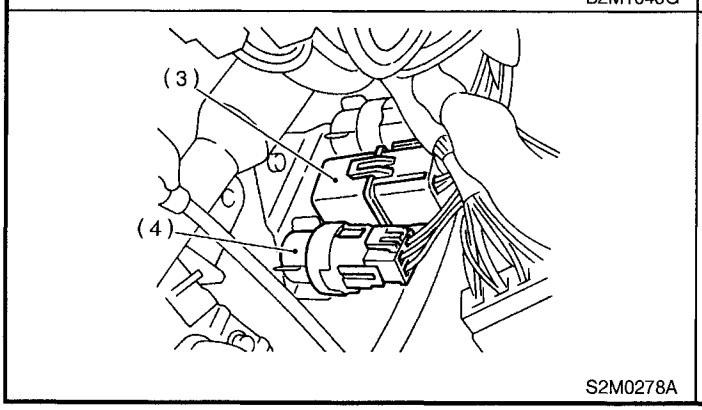
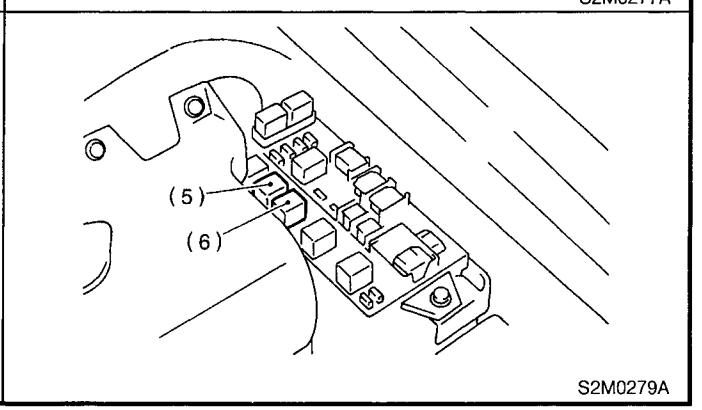


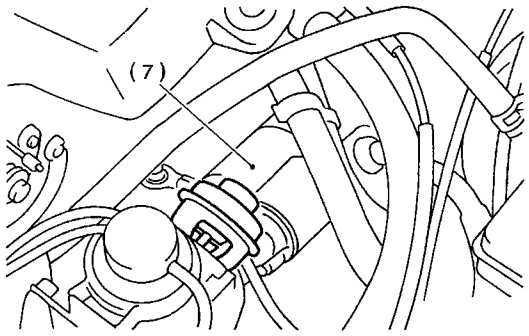
(1) Inhibitor switch
(2) Fuel pump
(3) Main relay
(4) Fuel pump relay
(5) Radiator cooling main fan relay
(6) Radiator cooling sub fan relay
(7) Starter











S2M0280A

3. Diagnosis System

C: SUBARU SELECT MONITOR

4. READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE. (NORMAL MODE)

1) On the ⌜Main Menu⌟ display screen, select the {2. Each System Check} and press the [YES] key.
2) On the ⌜System Selection Menu⌟ display screen, select the {EGI/EMPi} and press the [YES] key.
3) Press the [YES] key after displayed the information of engine type.
4) On the ⌜EGI/EMPI Diagnosis⌟ display screen, select the {1. Current Data Display & Save} and press the [YES] key.
5) On the ⌜Data Display Menu⌟ display screen, select the {1. 12 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
Mass air flow signal	Mass Air Flow	g/s or lb/m
Mass air flow signal	Air Flow Sensor Voltage	V
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	ISC Valve Duty Ratio	%
Engine load data	Engine Load	%
Front oxygen sensor output signal	Front O2 Sensor	V
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
Intake manifold absolute pressure signal	Mani. Relative Pressure	mmHg or kPa or inHg
A/F correction (short term fuel trim) by rear oxygen sensor	Rear O2 A/F Learning	%
Long term fuel trim	Whole A/F Learning	%
Long term whole fuel trim	Front O2 A/F Learning	%
Front oxygen sensor heater current	Front O2 Heater	A
Rear oxygen sensor heater current	Rear O2 Heater	A
Canister purge control solenoid valve duty ratio	CPC Valve Duty Ratio	%
Fuel tank pressure signal	Fuel Tank Pressure	mmHg or kPa or inHg
Fuel temperature signal	Fuel Temp.	°C or °F
Fuel level signal	Fuel Level	V
Ignition switch signal	Ignition Switch	ON or OFF
Automatic transmission vehicle identification signal	AT Vehicle ID Signal	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
Engine torque control signal	Torque Control Signal	ON or OFF
Pressure sources switching solenoid valve	Pressure Sources Change	ON or OFF

Contents	Display	Unit of measure
Front oxygen sensor rich signal	Front O2 Rich Signal	ON or OFF
Rear oxygen sensor rich signal	Rear O2 Rich Signal	ON or OFF
Federal specification vehicle identification signal	FED Spec. Vehicle Signal	ON or OFF
Exhaust gas recirculation system diagnosis signal	EGR System Diagnosis	ON or OFF
Catalyst diagnosis signal	Catalyst Diagnosis	ON or OFF
Pressure control solenoid valve	PCV Solenoid Valve	ON or OFF
Exhaust gas recirculation solenoid valve	EGR Solenoid Valve	ON or OFF
Drain valve	Vent. Solenoid Valve	ON or OFF

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

8. LED OPERATION MODE FOR ENGINE

1) On the ⌜Main Menu⌟ display screen, select the {2. Each System Check} and press the [YES] key.
2) On the ⌜System Selection Menu⌟ display screen, select the {EGI/EMPi} and press the [YES] key.
3) Press the [YES] key after displayed the information of engine type.
4) On the ⌜EGI/EMPI Diagnosis⌟ display screen, select the {1. Current Data Display & Save} and press the [YES] key.
5) On the ⌜Data Display Menu⌟ display screen, select the {2. 6 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.

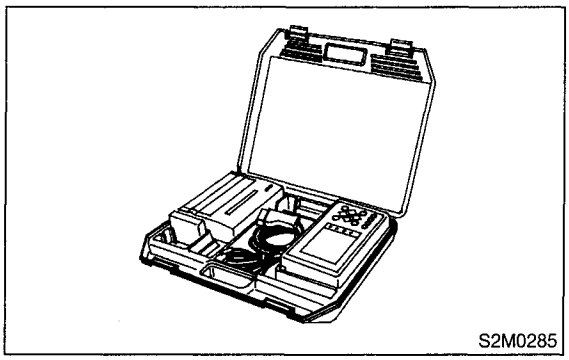
Contents	Display	Message	LED "ON" requirements
Ignition switch signal	Ignition Switch	ON or OFF	When ignition switch is turned ON.
Automatic transmission vehicle identification signal	AT Vehicle ID Signal	ON or OFF	When AT identification signal is entered.
Test mode connector signal	Test Mode Signal	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	Torque Control Signal #1	ON or OFF	When engine torque control signal is entered.
Pressure sources switching solenoid valve	Pressure Sources Change	ON or OFF	When pressure sources switching solenoid valve is in function.
Front oxygen sensor rich signal	Front O2 Rich Signal	ON or OFF	When front oxygen 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.
Federal specification vehicle identification signal	FED Spec. Vehicle Signal	ON or OFF	Federal specification vehicle identification signal is entered.
Exhaust gas recirculation system diagnosis signal	EGR System Diagnosis	ON or OFF	When diagnosis of EGR system is finished.
Catalyst diagnosis signal	Catalyst Diagnosis	ON or OFF	When diagnosis of catalyzer is finished.
Pressure control solenoid valve	PCV Solenoid Valve	ON or OFF	When pressure control solenoid valve is in function.
Exhaust gas recirculation solenoid valve	EGR Solenoid Valve	ON or OFF	When EGR Solenoid Valve is in function.
Drain valve	Drain Valve	ON or OFF	When drain valve is in function.

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

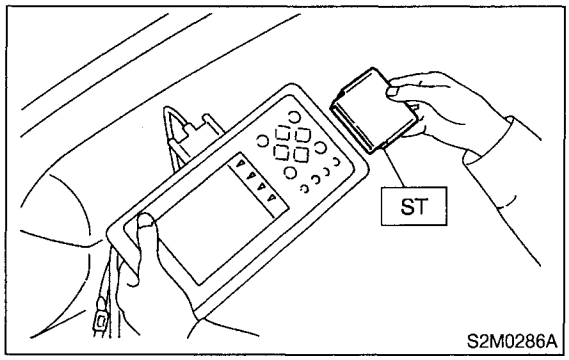
F: COMPULSORY VALVE OPERATION CHECK MODE

1. SUBARU SELECT MONITOR

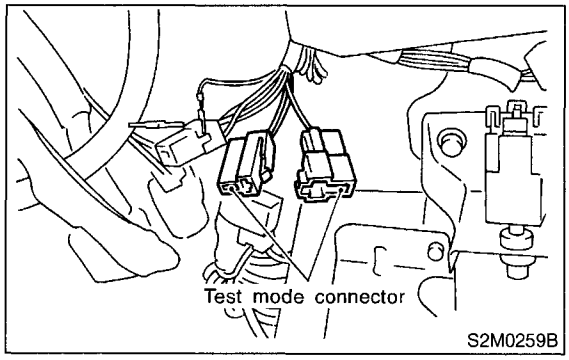
1) Prepare Subaru select monitor kit.



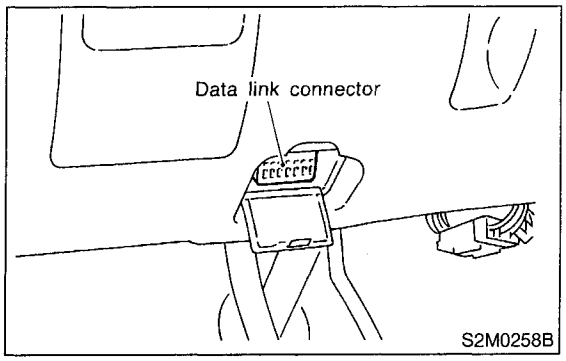
2) Connect diagnosis cable to Subaru select monitor.
3) Insert cartridge into Subaru select monitor.
ST 24082AA010 CARTRIDGE



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.

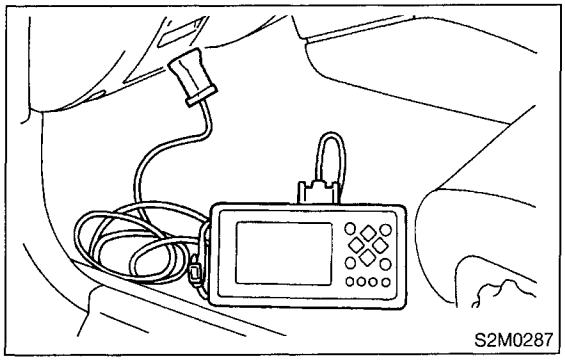


5) Connect Subaru select monitor to data link connector.
(1) Open the cover and connect Subaru select monitor to data link connector located in the lower portion of the instrument panel (on the driver's side), to the lower cover.

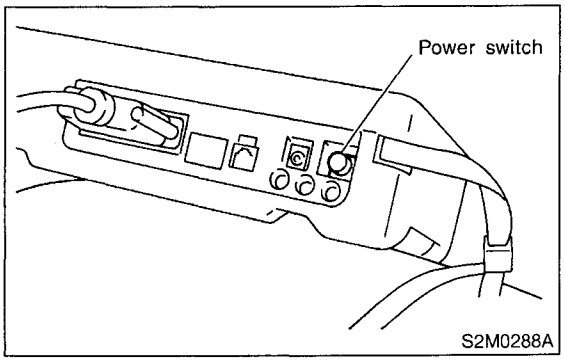


(2) Connect diagnosis cable to data link connector.

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 ⌜Main Menu⌟ display screen, select the {2. Each System Check} and press the [YES] key.
8) On the ⌜System Selection Menu⌟ display screen, select the {EGI/EMPi} and press the [YES] key.
9) Press the [YES] key after displayed the information of engine type.

10) On the ⌜EGI/EMPI Diagnosis⌟ display screen, select the {4. System Operation Check Mode} and press the [YES] key.
11) On the ⌜System Operation Check Mode⌟ display screen, select the {Actuator ON/OFF Operation} and press the [YES] key.
12) Select the desired compulsory actuator on the ⌜Actuator ON/OFF Operation⌟ display screen and press the [YES] key.
13) Pressing the [NO] key completes the compulsory operation check mode. The display will then return to the ⌜Actuator ON/OFF Operation⌟ screen.

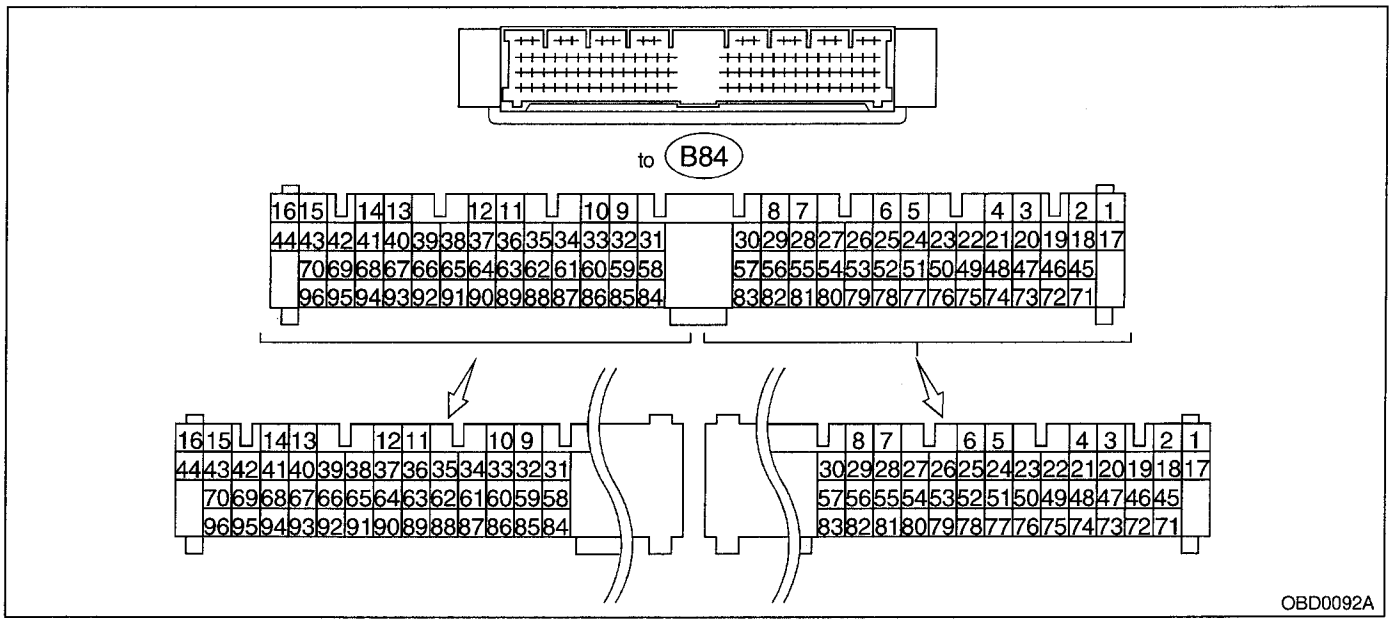
- A list of the support data is shown in the following table.

Contents	Display
Compulsory fuel pump relay operation check	Fuel Pump Relay
Compulsory purge control solenoid valve operation check	CPC Solenoid Valve
Compulsory radiator fan relay operation check	Radiator Fan Relay
Compulsory air conditioning relay operation check	A/C Relay
Compulsory exhaust gas recirculation control solenoid valve operation check	EGR Solenoid Valve
Compulsory pressure control solenoid valve operation check	PCV Solenoid Valve
Compulsory drain valve operation check	Vent Control Solenoid Valve
Compulsory pressure sources switching solenoid valve operation check	Pressure Switching Sol.1

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.

5. Specified Data

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



Content		Connector No.	Terminal No.	Signal (V)		Note
				Ignition SW ON (Engine OFF)	Engine ON (Idling)	
Crankshaft position sensor	Signal (+)	B84	8	0	–7 — +7	Sensor output waveform
	Signal (–)	B84	29	0	0	—
	Shield	B84	54	0	0	—
Camshaft position sensor	Signal (+)	B84	7	0	–7 — +7	Sensor output waveform
	Signal (–)	B84	28	0	0	—
	Shield	B84	54	0	0	—
Mass air flow sensor	Signal	B84	5	0 — 0.3	0.8 — 1.2	—
	Shield	B84	57	0	0	—
	GND	B84	53	0	0	—
Throttle position sensor	Signal	B84	6	Fully closed: 0.2 — 1.0 Fully opened: 4.2 — 4.7		—
	Power supply	B84	21	5	5	—
	GND	B84	20	0	0	—
Front oxygen sensor	Signal	B84	23	0	0 — 0.9	—
	Shield	B84	56	0	0	—
Rear oxygen sensor	Signal	B84	24	0	0 — 0.9	—
	Shield	B84	56	0	0	—
Engine coolant temperature sensor		B84	22	1.0 — 1.4	1.0 — 1.4	After warm-up
Vehicle speed sensor 2		B84	83	0 or 5	0 or 5	"5" and "0" are repeatedly displayed when vehicle is driven.
Starter switch		B84	86	0	0	Cranking: 8 to 14
A/C switch		B84	60	ON: 10 — 13 OFF: 0	ON: 13 — 14 OFF: 0	—
Ignition switch		B84	85	10 — 13	13 — 14	—

Neutral position switch (MT)		B84	82	ON: 5.0±0.5 OFF: 0		• On MT vehicles; switch is ON when gear is in neutral position.
Neutral position switch (AT)				ON: 0 OFF: 5.0±0.5		• On AT vehicles; switch is ON when shift is in "N" or "P" position
Test mode connector		B84	84	5	5	When connected: 0
Knock sensor	Signal	B84	3	2.8	2.8	—
	Shield	B84	56	0	0	
AT/MT identification		B84	81	AT: 5 MT: 0	AT: 5 MT: 0	When measuring voltage between ECM and chassis ground.
Back-up power supply		B84	39	10 — 13	13 — 14	Ignition switch "OFF": 10 — 13
Control unit power supply		B84	1	10 — 13	13 — 14	—
			2			
Ignition control	# 1, # 2	B84	41	0	1 — 3.4	—
	# 3, # 4	B84	40	0	1 — 3.4	—
Fuel injector	# 1	B84	96	10 — 13	1 — 14	Waveform
	# 2	B84	70	10 — 13	1 — 14	Waveform
	# 3	B84	44	10 — 13	1 — 14	Waveform
	# 4	B84	16	10 — 13	1 — 14	Waveform
Idle air control solenoid valve	OPEN end	B84	14	—	1 — 13	Waveform
	CLOSE end	B84	13	—	13 — 1	Waveform
Fuel pump relay control		B84	32	ON: 0.5, or less OFF: 10 — 13	0.5, or less	—
A/C relay control		B84	31	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 1		B84	74	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	—
Radiator fan relay 2		B84	73	ON: 0.5, or less OFF: 10 — 13	ON: 0.5, or less OFF: 13 — 14	With A/C vehicles only
Self-shutoff control		B84	63	10 — 13	13 — 14	—
Malfunction indicator lamp		B84	58	—	—	Light "ON": 1, or less Light "OFF": 10 — 14
Engine speed output		B84	64	—	0 — 13, or more	Waveform
Torque control signal		B84	79	5	5	—
Mass air flow signal for AT		B84	47	0 — 0.3	0.8 — 1.2	—
Purge control solenoid valve		B84	72	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Atmospheric pressure sensor		B84	26	3.9 — 4.1	2.0 — 2.3	—
Pressure sources switching solenoid valve		B84	15	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
EGR solenoid valve		B84	71	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Front oxygen sensor heater signal		B84	38	0 — 1.0	0 — 1.0	—
Rear oxygen sensor heater signal		B84	37	0 — 1.0	0 — 1.0	—
Fuel temperature sensor		B84	25	2.5 — 3.8	2.5 — 3.8	Ambient temperature: 25°C (77°F)

Fuel level sensor		B84	27	0.12 — 4.75	0.12 — 4.75	—
Fuel tank pressure sensor	Signal	B84	4	2.3 — 2.7	2.3 — 2.7	The value obtained after the fuel filler cap was removed once and recapped.
	Power supply	B84	21	5	5	—
	GND	B84	20	0	0	—
Fuel tank pressure control solenoid valve		B84	10	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Drain valve		B84	35	ON: 1, or less OFF: 10 — 13	ON: 1, or less OFF: 13 — 14	—
Fed. spec. vehicle identification		B84	87	Fed.: 5 Cal.: 0	Fed.: 5 Cal.: 0	When measuring voltage between ECM and chassis ground.
AT diagnosis input signal		B84	80	Less than 1 ←→ More than 4	Less than 1 ←→ More than 4	Waveform
GND (sensors)		B84	20	0	0	—
GND (injectors)		B84	69 95	0	0	—
GND (ignition system)		B84	94	0	0	—
GND (power supply)		B84	19 46	0	0	—
GND (control systems)		B84	17 18	0	0	—
GND (oxygen sensor heater)		B84	42	0	0	—

B: ENGINE CONDITION DATA

Content	Specified data
Mass air flow	2.2 — 4.2 (g/sec): Idling
	8.6 — 14.5 (g/sec): 2,500 rpm racing
Engine load	1.9 — 3.5 (%): Idling
	7.2 — 12.1 (%): 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.

10. Diagnostic Chart with Trouble Code

A: DIAGNOSTIC TROUBLE CODE (DTC) LIST

DTC No.	Item	Index
P0101	Mass air flow sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10B0].☆1>
P0102	Mass air flow sensor circuit low input	<Ref. to 2-7 [T10C0].☆1>
P0103	Mass air flow sensor circuit high input	<Ref. to 2-7 [T10D0].☆1>
P0106	Pressure sensor circuit range/performance problem	<Ref. to 2-7 [T10E0].☆1>
P0107	Pressure sensor circuit low input	<Ref. to 2-7 [T10F0].☆1>
P0108	Pressure sensor circuit high input	<Ref. to 2-7 [T10G0].☆1>
P0117	Engine coolant temperature sensor circuit low input	<Ref. to 2-7 [T10H0].☆1>
P0118	Engine coolant temperature sensor circuit high input	<Ref. to 2-7 [T10I0].☆1>
P0121	Throttle position sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10J0].☆1>
P0122	Throttle position sensor circuit low input	<Ref. to 2-7 [T10K0].☆1>
P0123	Throttle position sensor circuit high input	<Ref. to 2-7 [T10L0].☆1>
P0125	Insufficient coolant temperature for closed loop fuel control	<Ref. to 2-7 [T10M0].☆1>
P0130	Front oxygen sensor circuit malfunction	<Ref. to 2-7 [T10N0].☆1>
P0133	Front oxygen sensor circuit slow response	<Ref. to 2-7 [T10O0].☆1>
P0135	Front oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T10P0].☆1>
P0136	Rear oxygen sensor circuit malfunction	<Ref. to 2-7 [T10Q0].☆1>
P0139	Rear oxygen sensor circuit slow response	<Ref. to 2-7 [T10R0].☆1>
P0141	Rear oxygen sensor heater circuit malfunction	<Ref. to 2-7 [T10S0].☆1>
P0170	Fuel trim malfunction	<Ref. to 2-7 [T10T0].☆1>
P0181	Fuel temperature sensor A circuit range/performance problem	<Ref. to 2-7 [T10U0].☆1>
P0182	Fuel temperature sensor A circuit low input	<Ref. to 2-7 [T10V0].☆1>
P0183	Fuel temperature sensor A circuit high input	<Ref. to 2-7 [T10W0].☆1>
P0261	Fuel injector circuit low input - #1	<Ref. to 2-7 [T10X0].☆1>
P0262	Fuel injector circuit high input - #1	<Ref. to 2-7 [T10Y0].☆1>
P0264	Fuel injector circuit low input - #2	<Ref. to 2-7 [T10Z0].☆1>

DTC No.	Item	Index
P0265	Fuel injector circuit high input - #2	<Ref. to 2-7 [T10AA0].☆1>
P0267	Fuel injector circuit low input - #3	<Ref. to 2-7 [T10AB0].☆1>
P0268	Fuel injector circuit high input - #3	<Ref. to 2-7 [T10AC0].☆1>
P0270	Fuel injector circuit low input - #4	<Ref. to 2-7 [T10AD0].☆1>
P0271	Fuel injector circuit high input - #4	<Ref. to 2-7 [T10AE0].☆1>
P0301	Cylinder 1 misfire detected	<Ref. to 2-7 [T10AF0].☆1>
P0302	Cylinder 2 misfire detected	<Ref. to 2-7 [T10AG0].☆1>
P0303	Cylinder 3 misfire detected	<Ref. to 2-7 [T10AH0].☆1>
P0304	Cylinder 4 misfire detected	<Ref. to 2-7 [T10AI0].☆1>
P0325	Knock sensor circuit malfunction	<Ref. to 2-7 [T10AJ0].☆1>
P0335	Crankshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AK0].☆1>
P0336	Crankshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AL0].☆1>
P0340	Camshaft position sensor circuit malfunction	<Ref. to 2-7 [T10AM0].☆1>
P0341	Camshaft position sensor circuit range/performance problem	<Ref. to 2-7 [T10AN0].☆1>
P0400	Exhaust gas recirculation flow malfunction	<Ref. to 2-7 [T10AO0].☆1>
P0403	Exhaust gas recirculation circuit low input	<Ref. to 2-7 [T10AP0].☆1>
P0420	Catalyst system efficiency below threshold	<Ref. to 2-7 [T10AQ0].☆1>
P0440	Evaporative emission control system malfunction	<Ref. to 2-7 [T10AR0].☆2>
P0441	Evaporative emission control system incorrect purge flow	<Ref. to 2-7 [T10AS0].☆1>
P0443	Evaporative emission control system purge control valve circuit low input	<Ref. to 2-7 [T10AT0].☆1>
P0446	Evaporative emission control system vent control low input	<Ref. to 2-7 [T10AU0].☆2>
P0451	Evaporative emission control system pressure sensor range/performance problem	<Ref. to 2-7 [T10AV0].☆2>
P0452	Evaporative emission control system pressure sensor low input	<Ref. to 2-7 [T10AW0].☆2>
P0453	Evaporative emission control system pressure sensor high input	<Ref. to 2-7 [T10AX0].☆2>
P0461	Fuel level sensor circuit range/performance problem	<Ref. to 2-7 [T10AY0].☆1>
P0462	Fuel level sensor circuit low input	<Ref. to 2-7 [T10AZ0].☆1>
P0463	Fuel level sensor circuit high input	<Ref. to 2-7 [T10BA0].☆1>

DTC No.	Item	Index
P0480	Cooling fan relay 1 circuit low input	<Ref. to 2-7 [T10BB0].☆1>
P0483	Cooling fan function problem	<Ref. to 2-7 [T10BC0].☆1>
P0500	Vehicle speed sensor malfunction	<Ref. to 2-7 [T10BD0].☆1>
P0505	Idle control system malfunction	<Ref. to 2-7 [T10BE0].☆1>
P0506	Idle control system RPM lower than expected	<Ref. to 2-7 [T10BF0].☆1>
P0507	Idle control system RPM higher than expected	<Ref. to 2-7 [T10BG0].☆1>
P0600	Serial communication link malfunction	<Ref. to 2-7 [T10BH0].☆1>
P0601	Internal control module memory check sum error	<Ref. to 2-7 [T10BI0].☆1>
P0703	Brake switch input malfunction	<Ref. to 2-7 [T10BJ0].☆1>
P0705	Transmission range sensor circuit malfunction	<Ref. to 2-7 [T10BK0].☆1>
P0710	Transmission fluid temperature sensor circuit malfunction	<Ref. to 2-7 [T10BL0].☆1>
P0720	Output speed sensor (vehicle speed sensor 1) circuit malfunction	<Ref. to 2-7 [T10BM0].☆1>
P0725	Engine speed input circuit malfunction	<Ref. to 2-7 [T10BN0].☆1>
P0731	Gear 1 incorrect ratio	<Ref. to 2-7 [T10BO0].☆1>
P0732	Gear 2 incorrect ratio	<Ref. to 2-7 [T10BP0].☆1>
P0733	Gear 3 incorrect ratio	<Ref. to 2-7 [T10BQ0].☆1>
P0734	Gear 4 incorrect ratio	<Ref. to 2-7 [T10BR0].☆1>
P0740	Torque converter clutch system malfunction	<Ref. to 2-7 [T10BS0].☆1>
P0743	Torque converter clutch system electrical	<Ref. to 2-7 [T10BT0].☆1>
P0748	Pressure control solenoid electrical	<Ref. to 2-7 [T10BU0].☆1>
P0753	Shift solenoid A electrical	<Ref. to 2-7 [T10BV0].☆1>
P0758	Shift solenoid B electrical	<Ref. to 2-7 [T10BW0].☆1>
P0760	Shift solenoid C malfunction	<Ref. to 2-7 [T10BX0].☆1>
P0763	Shift solenoid C electrical	<Ref. to 2-7 [T10BY0].☆1>
P1100	Starter switch circuit low input	<Ref. to 2-7 [T10BZ0].☆1>
P1101	Neutral position switch circuit malfunction [MT vehicles]	<Ref. to 2-7 [T10CA0].☆1>
P1101	Neutral position switch circuit high input [AT vehicles]	<Ref. to 2-7 [T10CB0].☆1>

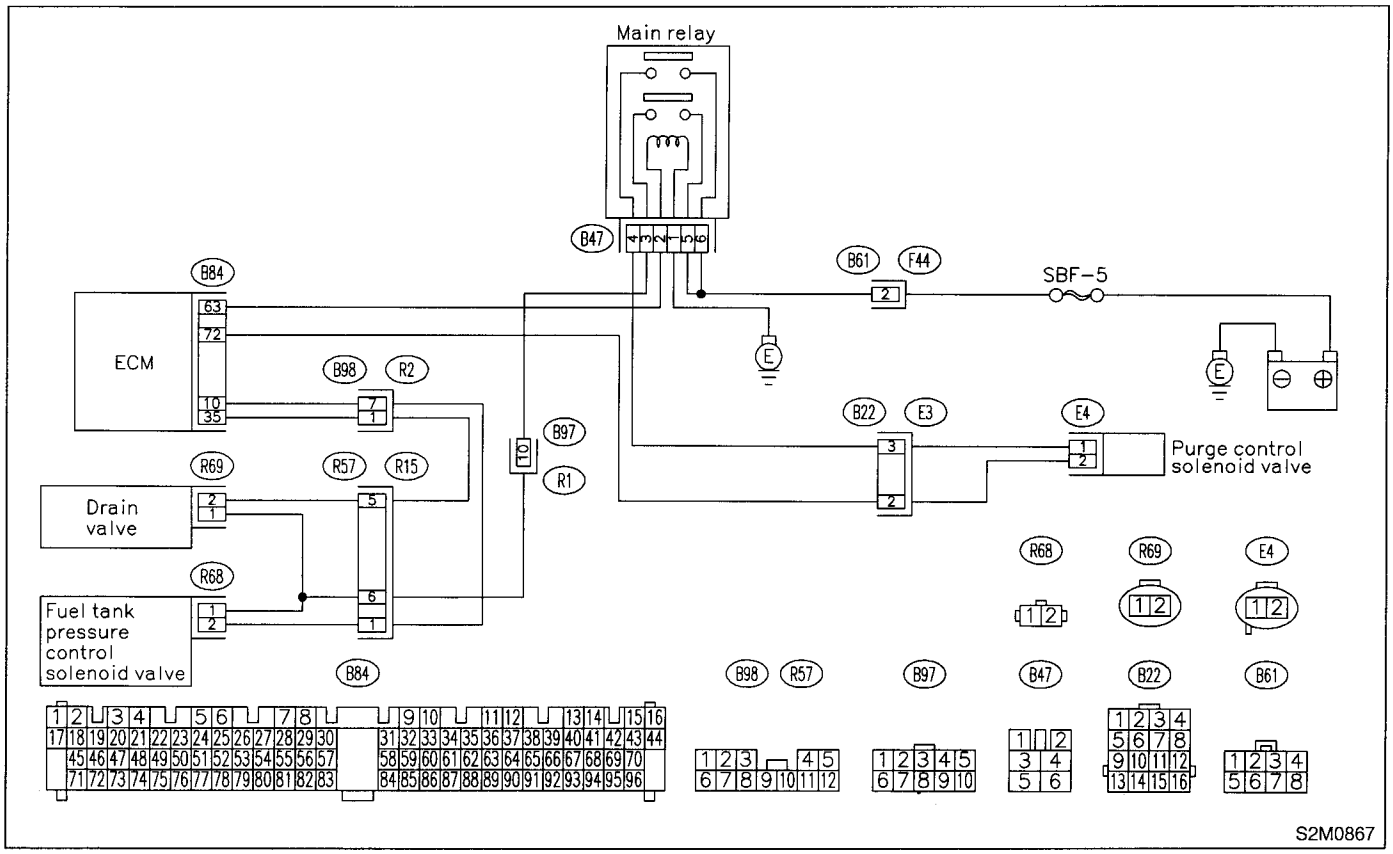
DTC No.	Item	Index
P1102	Pressure sources switching solenoid valve circuit low input	<Ref. to 2-7 [T10CC0].☆1>
P1103	Engine torque control signal circuit malfunction	<Ref. to 2-7 [T10CD0].☆1>
P1120	Starter switch circuit high input	<Ref. to 2-7 [T10CE0].☆1>
P1121	Neutral position switch circuit low input [AT vehicles]	<Ref. to 2-7 [T10CF0].☆1>
P1122	Pressure sources switching solenoid valve circuit high input	<Ref. to 2-7 [T10CG0].☆1>
P1141	Mass air flow sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10CH0].☆1>
P1142	Throttle position sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10CI0].☆1>
P1143	Pressure sensor circuit range/performance problem (low input)	<Ref. to 2-7 [T10CJ0].☆1>
P1144	Pressure sensor circuit range/performance problem (high input)	<Ref. to 2-7 [T10CK0].☆1>
P1400	Fuel tank pressure control solenoid valve circuit low input	<Ref. to 2-7 [T10CL0].☆1>
P1420	Fuel tank pressure control solenoid valve circuit high input	<Ref. to 2-7 [T10CM0].☆1>
P1421	Exhaust gas recirculation circuit high input	<Ref. to 2-7 [T10CN0].☆1>
P1422	Evaporative emission control system purge control valve circuit high input	<Ref. to 2-7 [T10CO0].☆1>
P1423	Evaporative emission control system vent control high input	<Ref. to 2-7 [T10CP0].☆2>
P1440	Fuel tank pressure control system function problem (low input)	<Ref. to 2-7 [T10CQ0].☆2>
P1441	Fuel tank pressure control system function problem (high input)	<Ref. to 2-7 [T10CR0].☆2>
P1442	Fuel level sensor circuit range/performance problem 2	<Ref. to 2-7 [T10CS0].☆1>
P1443	Evaporative emission control system vent control function problem	<Ref. to 2-7 [T10DC0].☆2>
P1507	Idle control system malfunction (fail-safe)	<Ref. to 2-7 [T10CT0].☆1>
P1520	Cooling fan relay 1 circuit high input	<Ref. to 2-7 [T10CU0].☆1>
P1540	Vehicle speed sensor malfunction 2	<Ref. to 2-7 [T10CV0].☆1>
P1700	Throttle position sensor circuit malfunction for automatic transmission	<Ref. to 2-7 [T10CW0].☆1>
P1701	Cruise control set signal circuit malfunction for automatic transmission	<Ref. to 2-7 [T10CX0].☆1>
P1702	Automatic transmission diagnosis input signal circuit low input	<Ref. to 2-7 [T10CY0].☆1>
P1722	Automatic transmission diagnosis input signal circuit high input	<Ref. to 2-7 [T10CZ0].☆1>
P1742	Automatic transmission diagnosis input signal circuit malfunction	<Ref. to 2-7 [T10DA0].☆1>

AR: DTC P0440 — EVAPORATIVE EMISSION CONTROL SYSTEM MALFUNCTION —

- **DTC DETECTING CONDITION:**
  - Two consecutive driving cycles with fault
- **TROUBLE SYMPTOM:**
  - Gasoline smell

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10AR1 : CHECK ANY OTHER DTC ON DISPLAY.

CHECK : ***Is there any other DTC on display?***
YES : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code". <Ref. to 2-7 [T10A0].☆2>
NO : Go to step **10AR2**.

10AR2 : CHECK FUEL FILLER CAP.

1) Turn ignition switch to OFF.
2) Open the fuel flap.

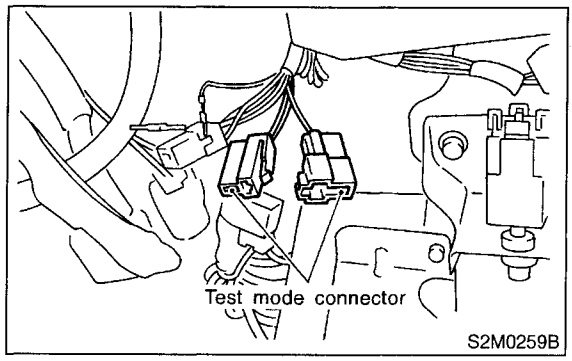
CHECK : ***Is the fuel filler cap tightened securely?***
YES : Tighten fuel filler cap securely.
NO : Go to step **10AR3**.

10AR3 : CHECK FUEL FILLER PIPE PACKING.

CHECK : ***Is there any damage to the seal between fuel filler cap and fuel filler pipe?***
YES : Repair or replace fuel filler cap and fuel filler pipe.
NO : Go to step **10AR4**.

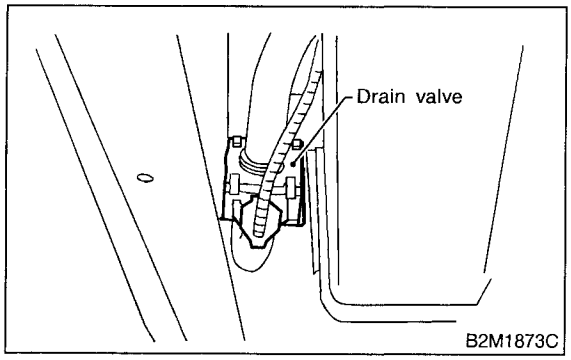
10AR4 : CHECK DRAIN VALVE.

1) Connect test mode connector.



2) Turn ignition switch to ON.

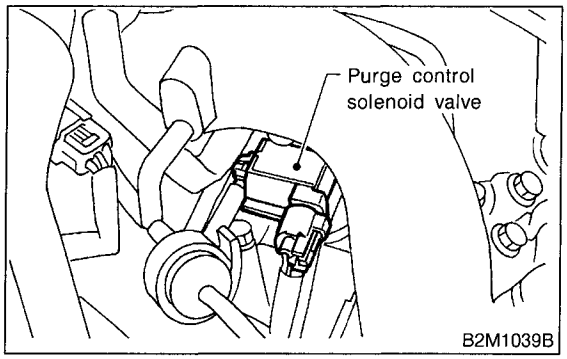
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



CHECK : ***Does drain valve produce operating sound?***
YES : Go to step **10AR5**.
NO : Replace drain valve.

10AR5 : CHECK PURGE CONTROL SOLENOID VALVE.

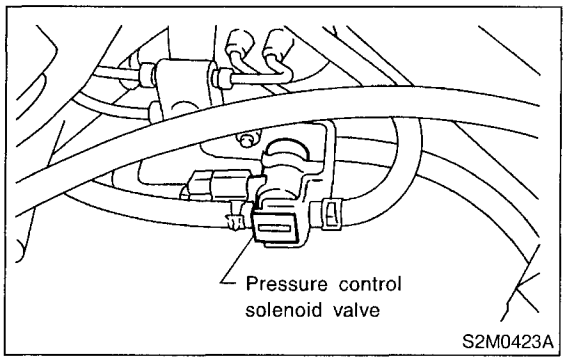
NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



CHECK : ***Does purge control solenoid valve produce operating sound?***
YES : Go to step **10AR6**.
NO : Replace purge control solenoid valve.

10AR6 : CHECK PRESSURE CONTROL SOLENOID VALVE.

NOTE:
Pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



CHECK : ***Does pressure control solenoid valve produce operating sound?***
YES : Go to step **10AR7**.
NO : Replace pressure control solenoid valve.

10AR7 : CHECK EVAPORATIVE EMISSION CONTROL SYSTEM LINE.

Turn ignition switch to OFF.

CHECK : ***Does fuel leak in fuel line?***
YES : Repair or replace fuel line.
NO : Go to step **10AR8**.

10AR8 : CHECK CANISTER.

CHECK : ***Is there any damage at canister?***
YES : Repair or replace canister.
NO : Go to step **10AR9**.

10AR9 : CHECK FUEL TANK.

CHECK : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank.
NO : Go to step **10AR10**.

10AR10 : CHECK ANY OTHER MECHANICAL TROUBLE IN EVAPORATIVE EMISSION CONTROL SYSTEM.

CHECK : ***Are there holes, cracks, clogging or disconnections of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

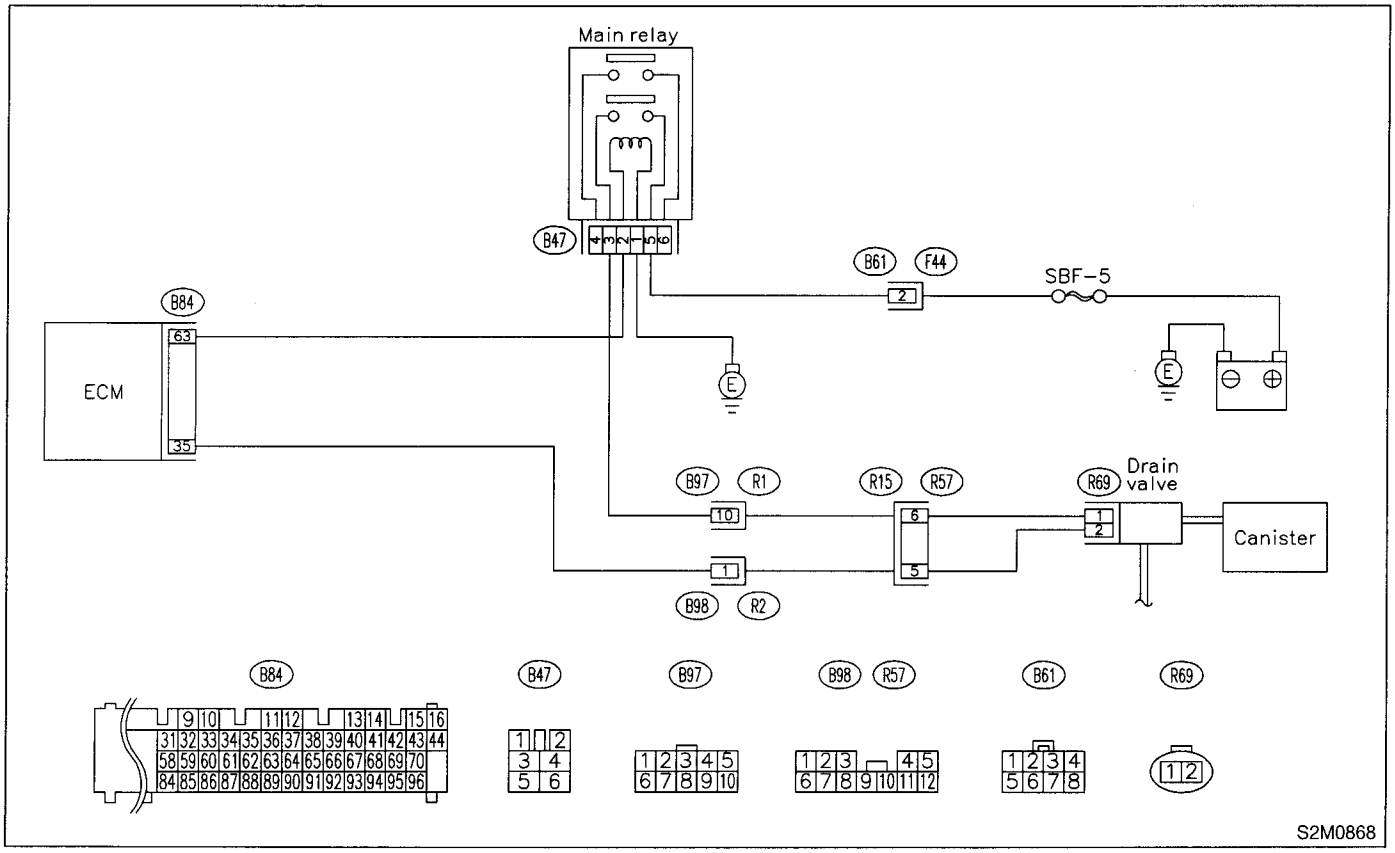
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

AU: DTC P0446 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL LOW INPUT —

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

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

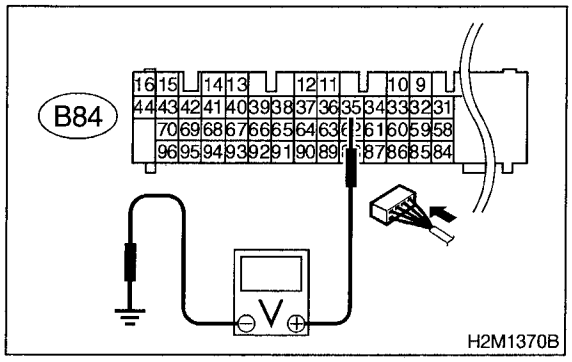
- **WIRING DIAGRAM:**



10AU1 : CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 35 (+) — Chassis ground (–):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AU2**.
NO : Go to step **10AU3**.

10AU2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆2>

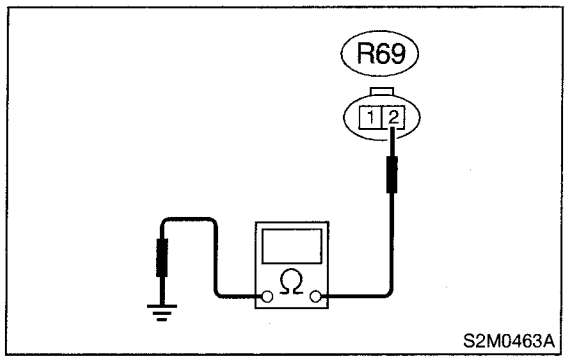
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time. (However, the possibility of poor contact still remains.)

NOTE:
In this case, repair the following:
- Poor contact in drain valve connector
- Poor contact in ECM connector
- Poor contact in coupling connectors (B97, B98 and R57)

10AU3 : 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:

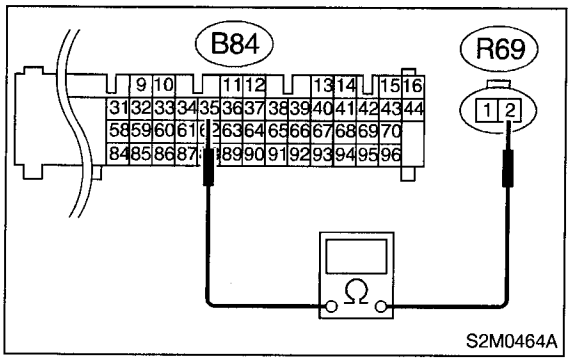


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and drain valve connector.
NO : Go to step **10AU4**.

10AU4 : CHECK HARNESS BETWEEN DRAIN VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and drain valve connector.

Connector & terminal
(B84) No. 35 — (R69) No. 2:



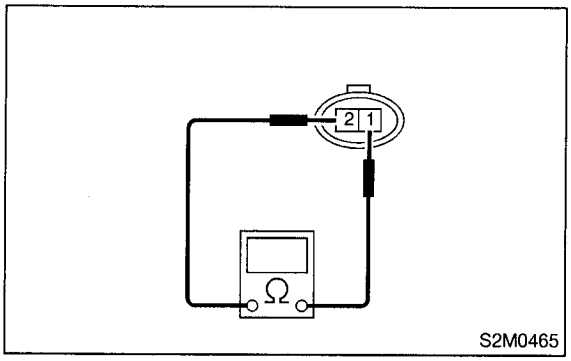
CHECK : ***Is the voltage less than 1 Ω?***
YES : Go to step **10AU5**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and drain valve connector
- Poor contact in coupling connectors (B98 and R57)

10AU5 : CHECK DRAIN VALVE.

Measure resistance between drain valve terminals.

Terminals
No. 1 — No. 2:

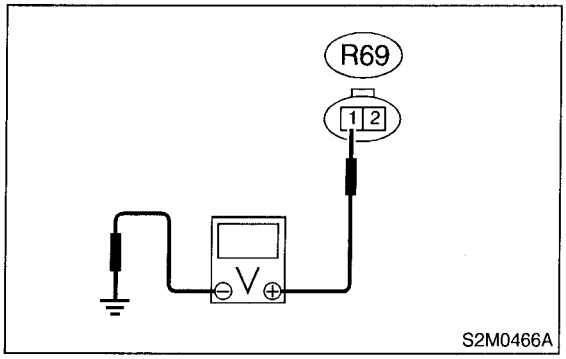


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10AU6**.
NO : Replace drain valve.

10AU6 : 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 (–):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10AU7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between main relay and drain valve
- Poor contact in coupling connectors (B97 and R57)
- Poor contact in main relay connector

10AU7 : CHECK POOR CONTACT.

Check poor contact in drain valve connector. <Ref. to FOREWORD [T3C1].☆2>

CHECK : ***Is there poor contact in drain valve connector?***
YES : Repair poor contact in drain valve connector.
NO : Contact with SOA service.

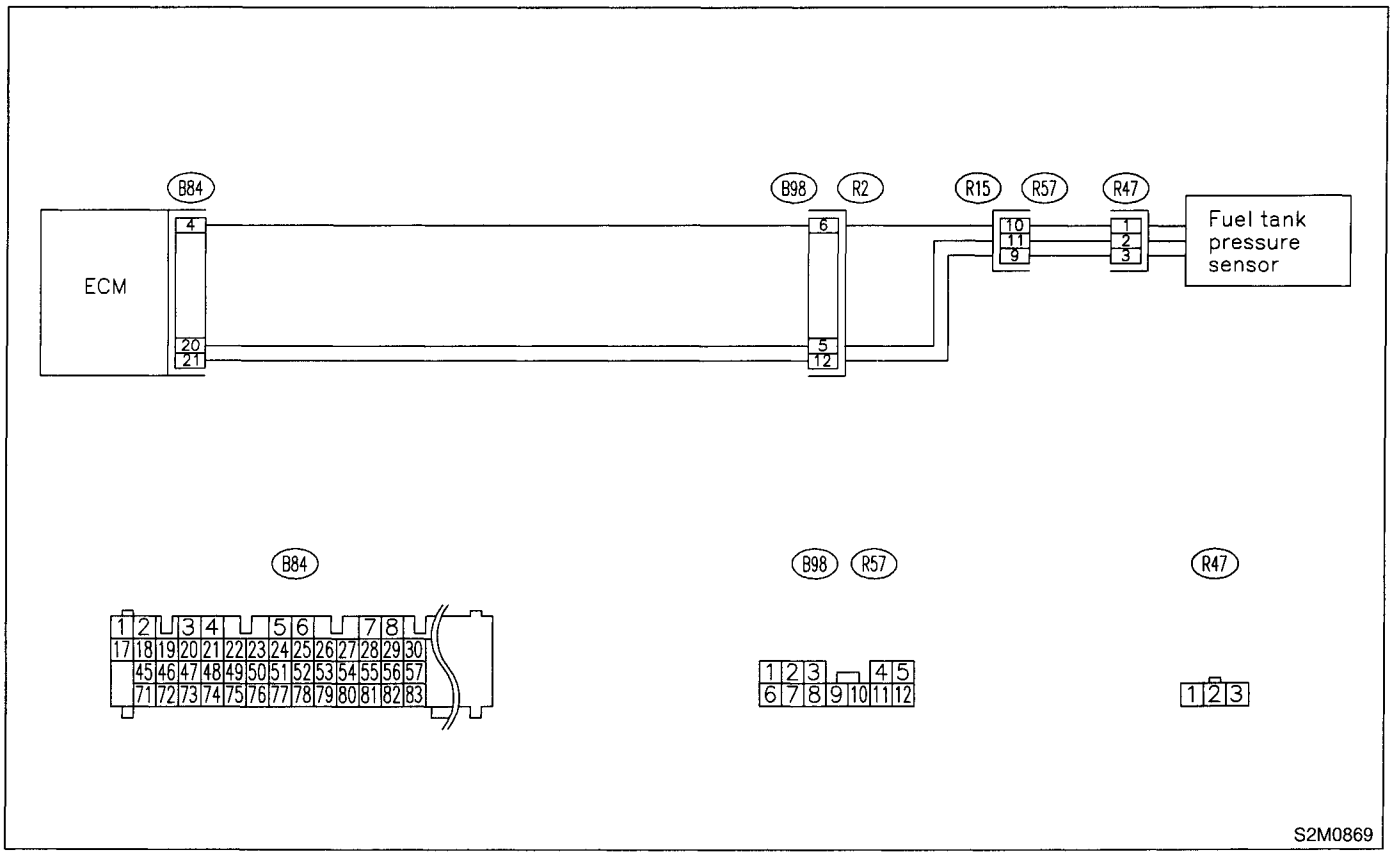
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

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

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

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10AV1 : 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

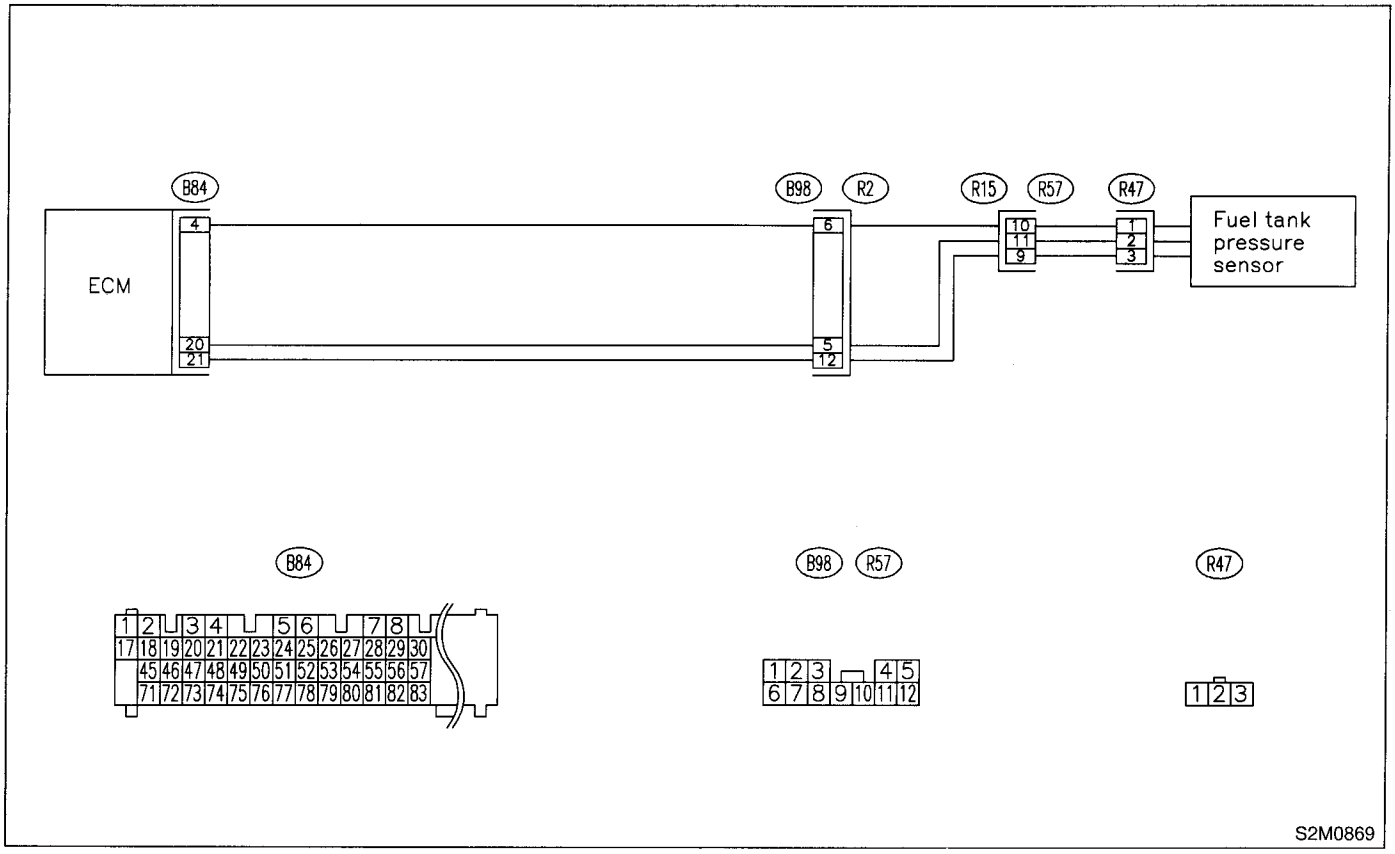
CHECK : ***Is there a fault in pressure/vacuum line?***
YES : Repair or replace hoses and pipes.
NO : Replace fuel tank pressure sensor.

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

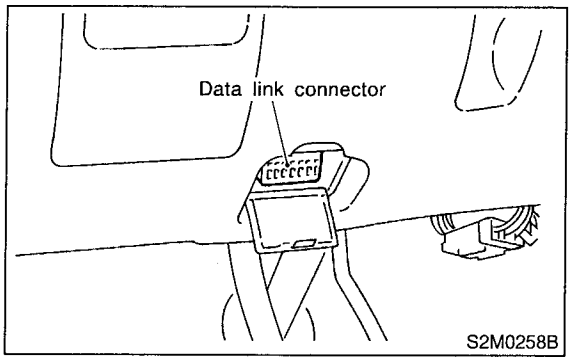
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10AW1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

1) Turn ignition switch to OFF.
2) Remove fuel filler cap.
3) Install fuel filler cap.
4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
6) 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 SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].☆2>
- OBD-II general scan tool

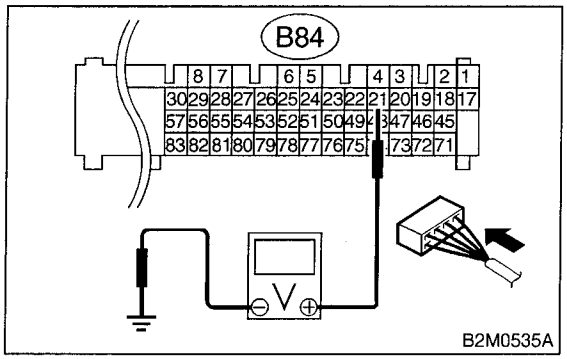
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value less than –2.8 kPa (–21.0 mmHg, –0.827 inHg)?***
YES : Go to step **10AW2**.
NO : Even if MIL lights up, the circuit has returned to a normal condition at this time.

10AW2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

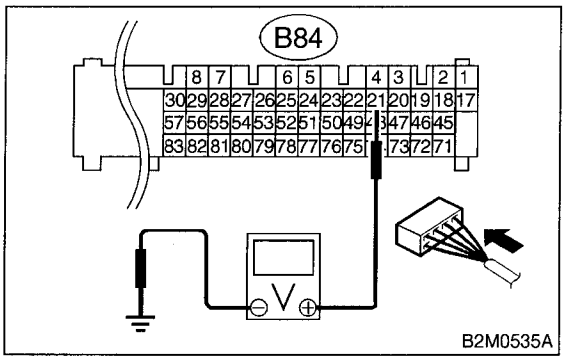
Connector & terminal
(B84) No. 21 (+) — Chassis ground (–):



CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AW4**.
NO : Go to step **10AW3**.

10AW3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.



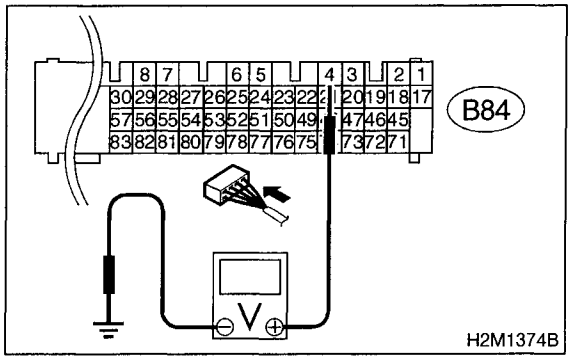
CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

10AW4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 4 (+) — Chassis ground (–):



CHECK : ***Is the voltage less than 0.2 V?***
YES : Go to step **10AW6**.
NO : Go to step **10AW5**.

10AW5 : 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

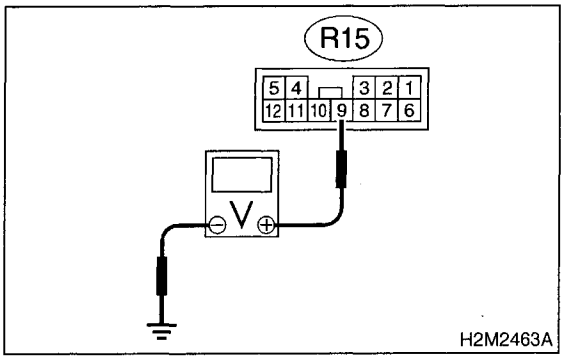
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].☆2>

CHECK : ***Does the value change more than –2.8 kPa (–21.0 mmHg, –0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10AW6**.

10AW6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

1) Turn ignition switch to OFF.
2) Remove rear seat cushion.
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
(R15) No. 9 (+) — Chassis ground (–):



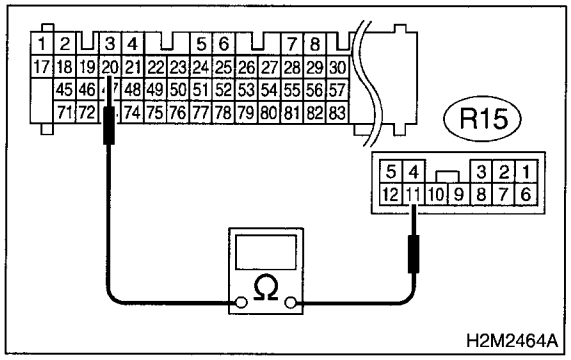
CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AW7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AW7 : 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
(B84) No. 20 — (R15) No. 11:



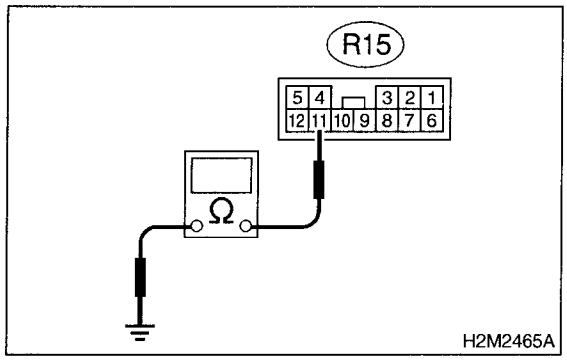
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW8**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AW8 : 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
(R15) No. 11 — Chassis ground:

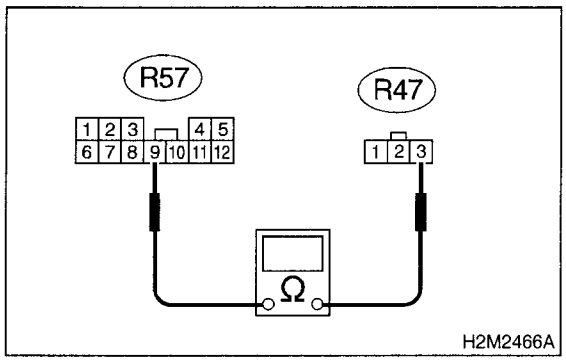


CHECK : ***Is the resistance more than 500 kΩ?***
YES : Go to step **10AW9**.
NO : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AW9 : CHECK FUEL TANK CORD.

1) Remove fuel tank. <Ref. to 2-8 [W2A0].☆2>
2) Disconnect connector from fuel tank pressure sensor.
3) Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 9 — (R47) No. 3:

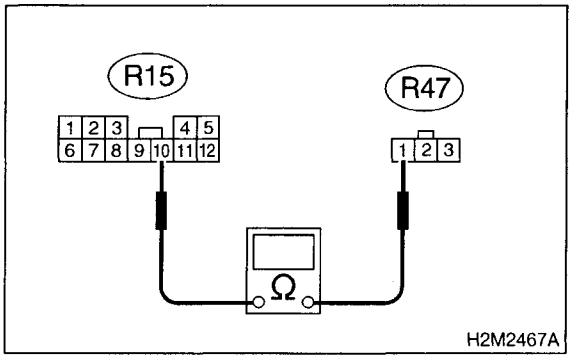


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW10**.
NO : Repair open circuit in fuel tank cord.

10AW10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal
(R15) No. 10 — (R47) No. 1:

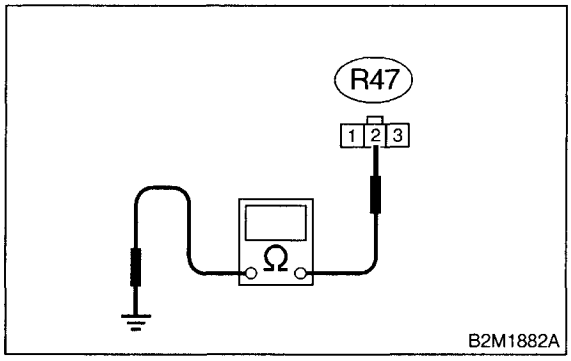


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AW11**.
NO : Repair open circuit in fuel tank cord.

10AW11 : CHECK FUEL TANK CORD.

Measure resistance of harness between fuel tank pressure sensor connector and chassis ground.

Connector & terminal
(R47) No. 2 — Chassis ground:



CHECK : ***Is the resistance more than 500 kΩ?***
YES : Go to step **10AW12**.
NO : Repair ground short circuit in fuel tank cord.

10AW12 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure sensor connector. <Ref. to FOREWORD [T3C1].☆2>

CHECK : ***Is there poor contact in fuel tank pressure sensor connector?***
YES : Repair poor contact in fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor.

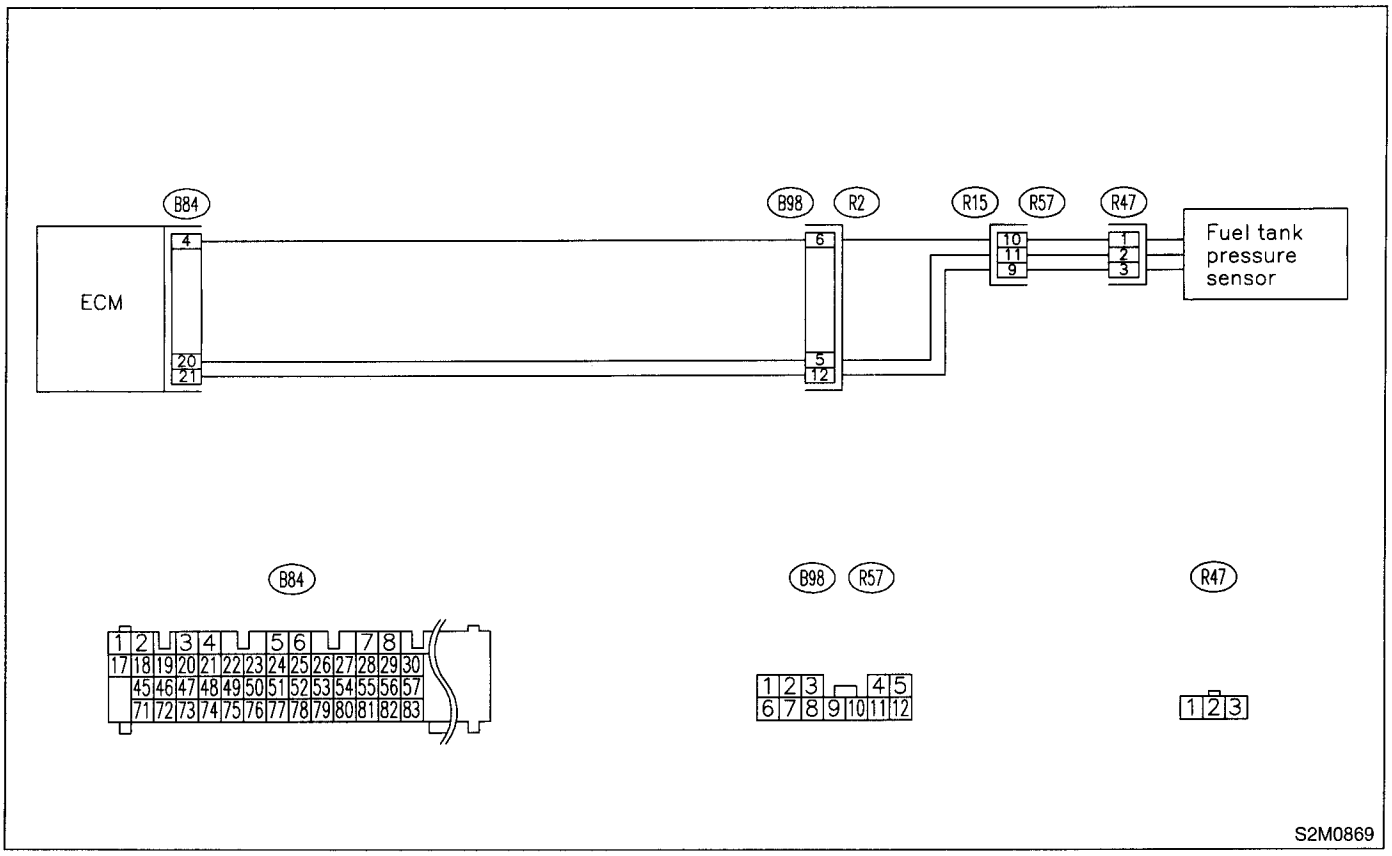
MEMO:

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

- **DTC DETECTING CONDITION:**
  - Immediately at fault recognition

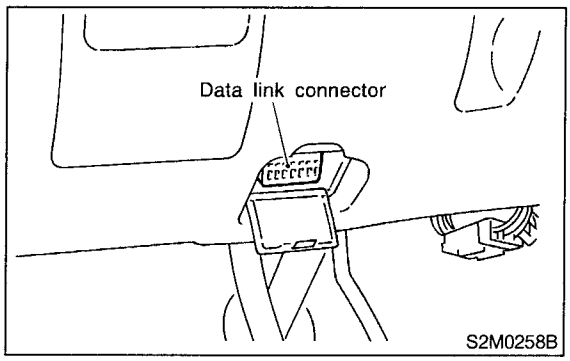
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10AX1 : CONNECT SUBARU SELECT MONITOR OR THE OBD-II GENERAL SCAN TOOL, AND READ DATA.

1) Turn ignition switch to OFF.
2) Remove fuel filler cap.
3) Install fuel filler cap.
4) Connect Subaru Select Monitor or the OBD-II general scan tool to data link connector.



5) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
6) Read data of fuel tank 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 SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].☆2>
- OBD-II general scan tool

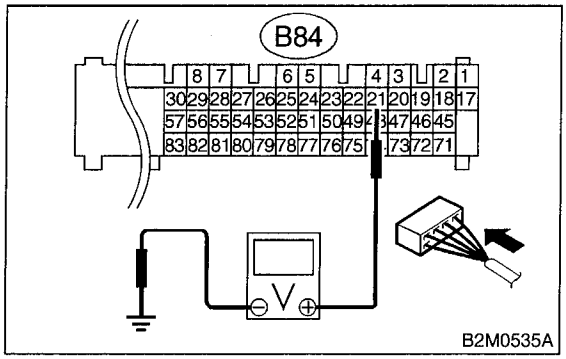
For detailed operation procedures, refer to the OBD-II General Scan Tool Instruction Manual.

CHECK : ***Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?***
YES : Go to step **10AX12**.
NO : Go to step **10AX2**.

10AX2 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (–):

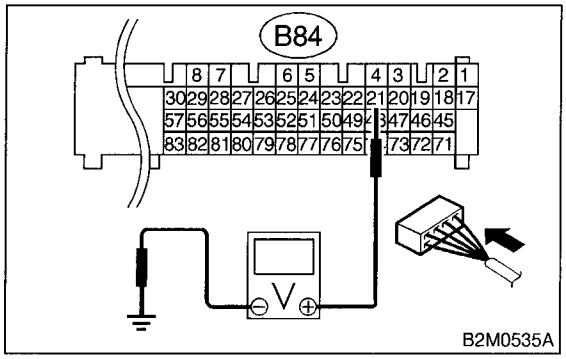


CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AX4**.
NO : Go to step **10AX3**.

10AX3 : CHECK POWER SUPPLY TO FUEL TANK PRESSURE SENSOR.

Measure voltage between ECM connector and chassis ground.

Connector & terminal
(B84) No. 21 (+) — Chassis ground (–):

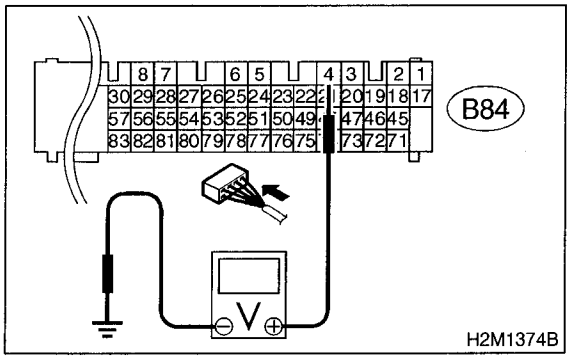


CHECK : ***Does the voltage change more than 4.5 V by shaking harness and connector of ECM while monitoring the value with voltage meter?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

10AX4 : CHECK INPUT SIGNAL FOR ECM.

Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 4 (+) — Chassis ground (–):



CHECK : ***Is the voltage less than 0.2 V?***
YES : Go to step **10AX6**.
NO : Go to step **10AX5**.

10AX5 : 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

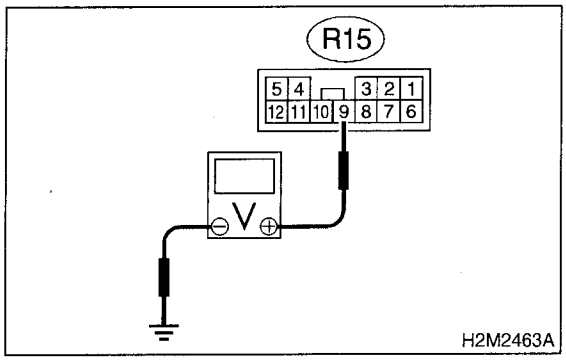
For detailed operation procedure, refer to the "READ CURRENT DATA SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].☆2>

CHECK : ***Does the value change more than –2.8 kPa (–21.0 mmHg, –0.827 inHg) by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?***
YES : Repair poor contact in ECM connector.
NO : Go to step **10AX6**.

10AX6 : CHECK HARNESS BETWEEN ECM AND COUPLING CONNECTOR IN REAR WIRING HARNESS.

1) Turn ignition switch to OFF.
2) Remove rear seat cushion.
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
(R15) No. 9 (+) — Chassis ground (–):



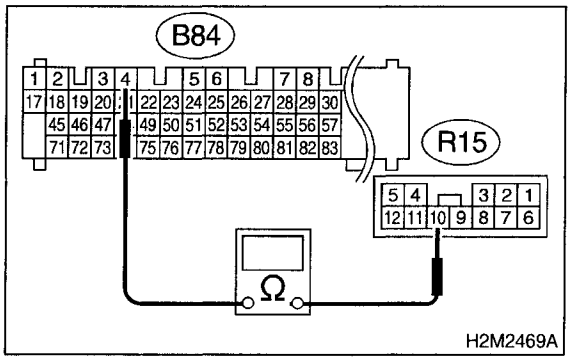
CHECK : ***Is the voltage more than 4.5 V?***
YES : Go to step **10AX7**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AX7 : 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
(B84) No. 4 — (R15) No. 10:



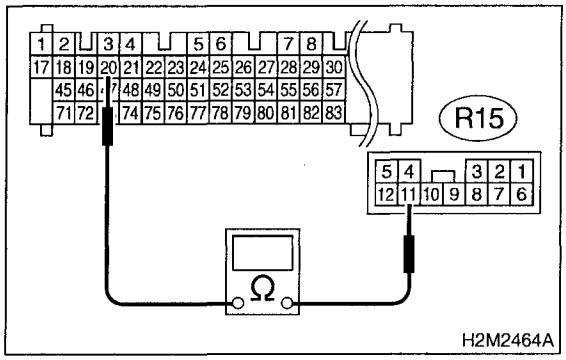
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX8**.
NO : Repair harness and connector.

NOTE:
In this case, repair the following:
- Open circuit in harness between ECM and rear wiring harness connector (R15)
- Poor contact in coupling connector (B98)

10AX8 : 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
(B84) No. 20 — (R15) No. 11:

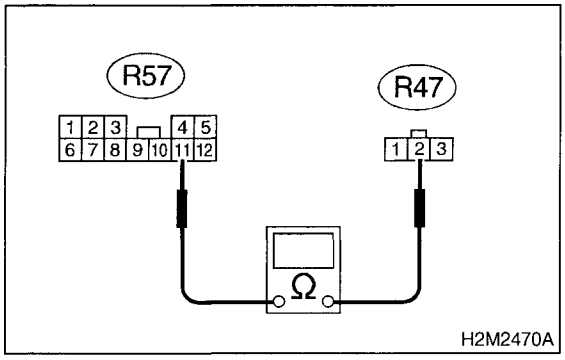


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX9**.
NO : Repair ground short circuit in harness between ECM and rear wiring harness connector (R15).

10AX9 : CHECK FUEL TANK CORD.

1) Remove fuel tank. <Ref. to 2-8 [W2A0].☆2>
2) Disconnect connector from fuel tank pressure sensor.
3) Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 11 — (R47) No. 2:

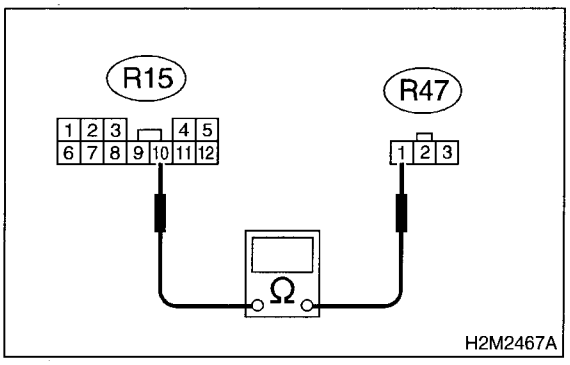


CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX10**.
NO : Repair open circuit in fuel tank cord.

10AX10 : CHECK FUEL TANK CORD.

Measure resistance of fuel tank cord.

Connector & terminal
(R57) No. 10 — (R47) No. 1:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10AX11**.
NO : Repair open circuit in fuel tank cord.

10AX11 : CHECK POOR CONTACT.

Check poor contact in fuel tank pressure sensor connector. <Ref. to FOREWORD [T3C1].☆2>

CHECK : ***Is there poor contact in fuel tank pressure sensor connector?***
YES : Repair poor contact in fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor.

10AX12 : CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.

1) Turn ignition switch to OFF and Subaru Select Monitor or the OBD-II general scan tool switch to OFF.
2) Remove fuel tank. <Ref. to 2-8 [W2A0].☆2>
3) Remove fuel tank cord from fuel tank.
4) Connect fuel tank cord to rear wiring harness.
5) Remove fuel filler cap.
6) Install fuel filler cap.
7) Turn ignition switch to ON and Subaru Select Monitor or the OBD-II general scan tool switch to ON.
8) Read 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 SHOWN ON DISPLAY FOR ENGINE". <Ref. to 2-7 [T3C4].☆2>
- OBD-II general scan tool

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

CHECK : ***Is the value more than 2.8 kPa (21.0 mmHg, 0.827 inHg)?***
YES : Repair battery short circuit in harness between ECM and fuel tank pressure sensor connector.
NO : Replace fuel tank pressure sensor.

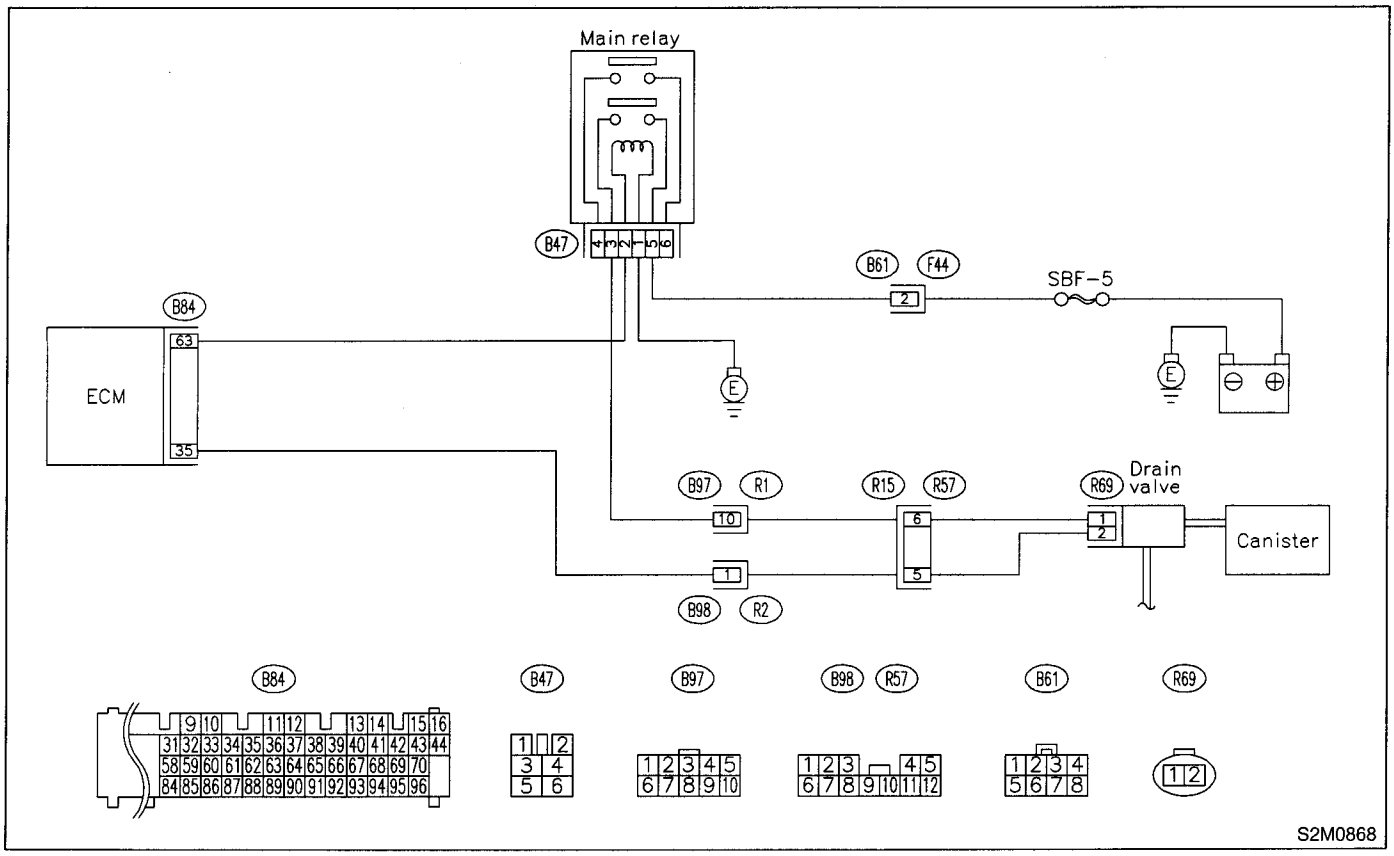
MEMO:

CP: DTC P1423 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL HIGH INPUT —

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

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

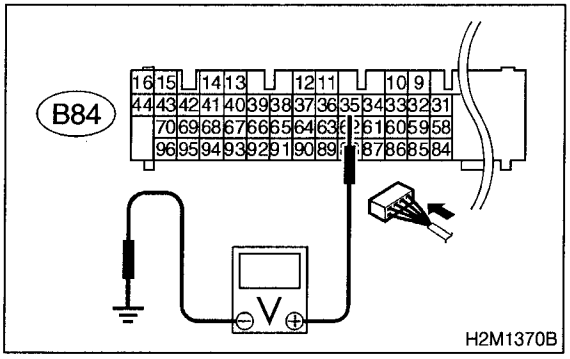
- **WIRING DIAGRAM:**



10CP1 : CHECK OUTPUT SIGNAL FROM ECM.

1) Turn ignition switch to ON.
2) Measure voltage between ECM and chassis ground.

Connector & terminal
(B84) No. 35 (+) — Chassis ground (–):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **10CP3**.
NO : Go to step **10CP2**.

10CP2 : CHECK POOR CONTACT.

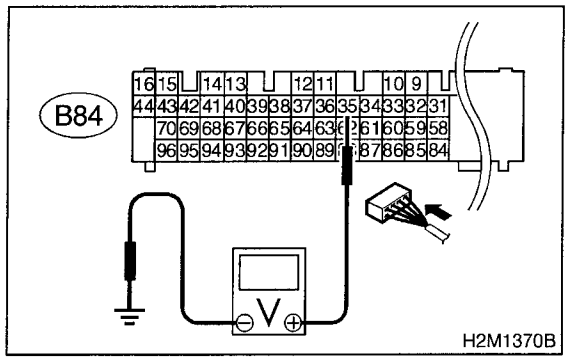
Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆2>

CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Replace ECM.

10CP3 : 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
(B84) No. 35 (+) — Chassis ground (–):

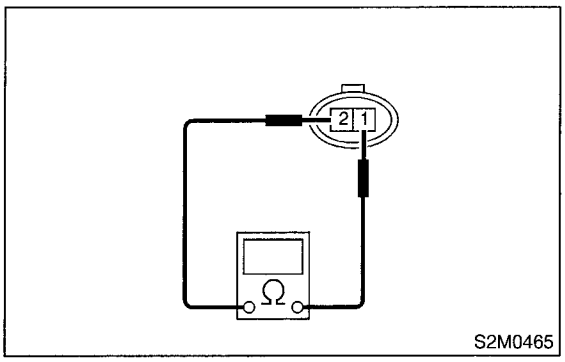


CHECK : ***Is the voltage more than 10 V?***
YES : Repair battery short circuit in harness between ECM and drain valve connector. After repair, replace ECM.
NO : Go to step **10CP4**.

10CP4 : CHECK DRAIN VALVE.

1) Turn ignition switch to OFF.
2) Measure resistance between drain valve terminals.

Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance less than 1 Ω?***
YES : Replace drain valve and ECM.
NO : Go to step **10CP5**.

10CP5 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆2>

CHECK : ***Is there poor contact in ECM connector?***

YES : Repair poor contact in ECM connector.

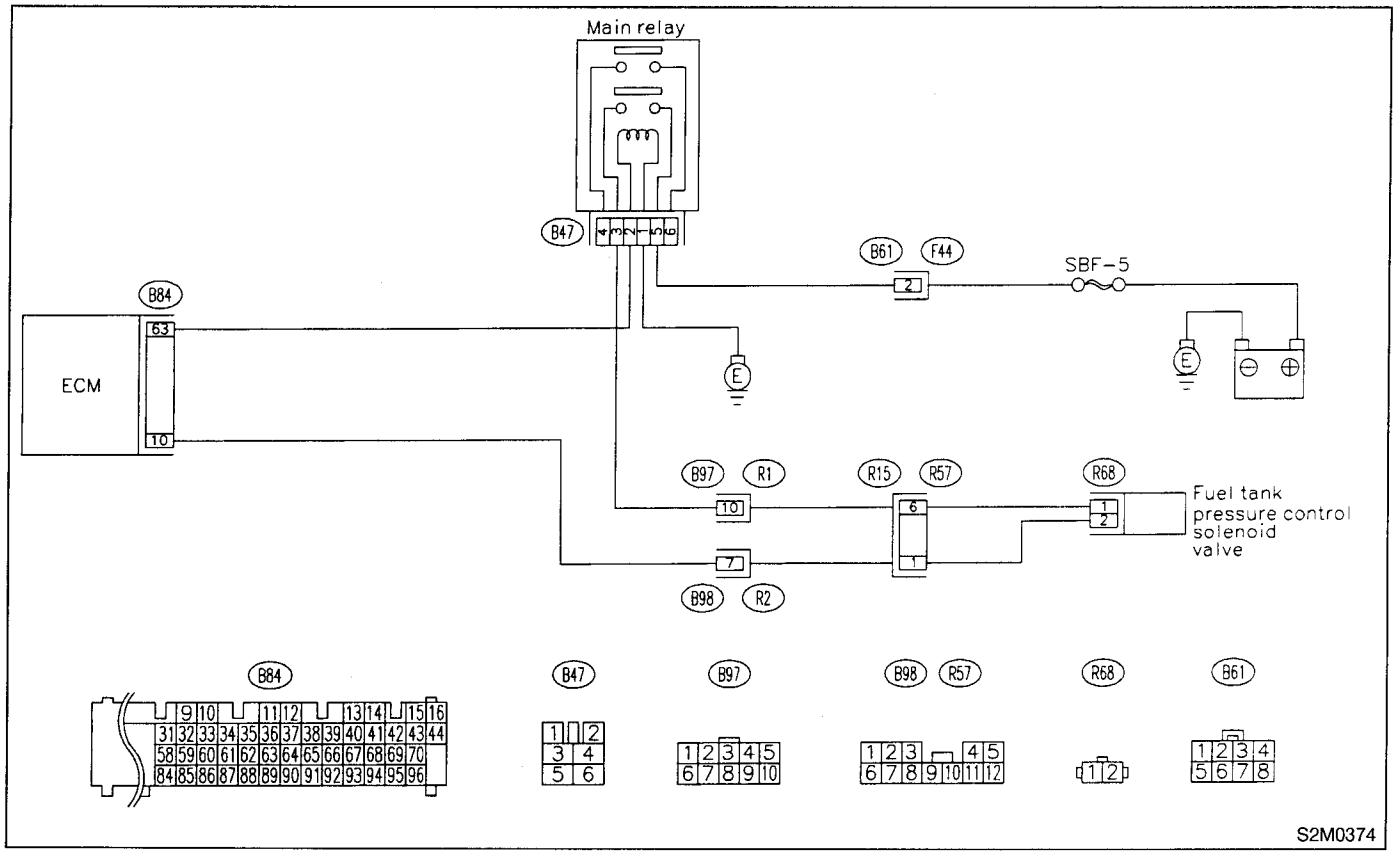
NO : Replace ECM.

CQ: DTC P1440 — FUEL TANK PRESSURE CONTROL SYSTEM FUNCTION PROBLEM (LOW INPUT) —

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

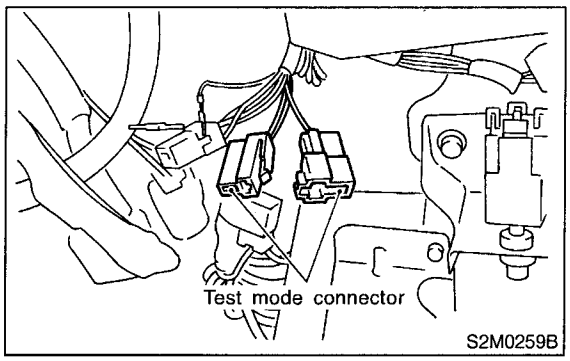
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10CQ1 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Connect test mode connector.



3) Turn ignition switch to ON.

NOTE:
Fuel tank pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>

CHECK : ***Does fuel tank pressure control solenoid valve produce operating sound?***
YES : Go to step **10CQ2**.
NO : Replace fuel tank pressure control solenoid valve.

10CQ2 : CHECK FUEL FILLER CAP.

1) Turn ignition switch to OFF.
2) Open the fuel flap.

CHECK : ***Is the fuel filler cap tightened securely?***
YES : Tighten fuel filler cap securely.
NO : Go to step **10CQ3**.

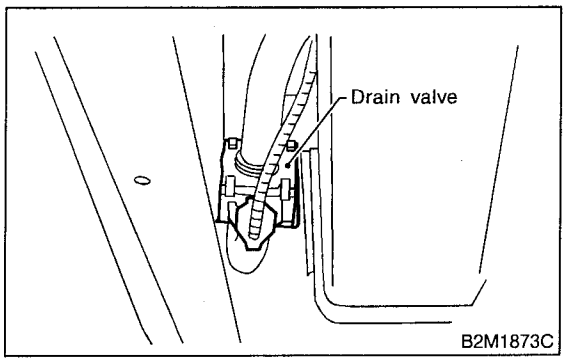
10CQ3 : CHECK FUEL FILLER PIPE SEAL.

CHECK : ***Is there any damage to the seal between fuel filler cap and fuel filler pipe?***
YES : Repair or replace fuel filler cap and fuel filler pipe.
NO : Go to step **10CQ4**.

10CQ4 : CHECK DRAIN VALVE.

Turn ignition switch to ON.

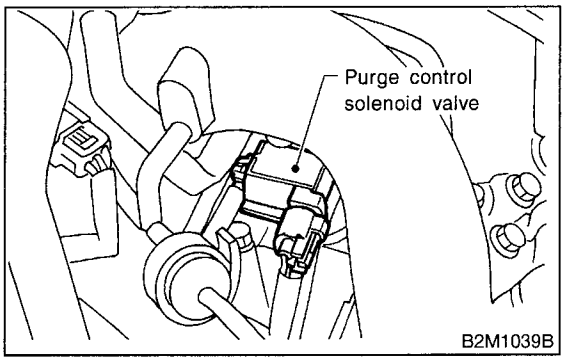
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



CHECK : ***Does drain valve produce operating sound?***
YES : Go to step **10CQ5**.
NO : Replace drain valve.

10CQ5 : CHECK PURGE CONTROL SOLENOID VALVE.

NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



CHECK : ***Does purge control solenoid valve produce operating sound?***
YES : Go to step **10CQ6**.
NO : Replace purge control solenoid valve.

10CQ6 : CHECK FUEL LINE.

Turn ignition switch to OFF.

CHECK : ***Does fuel leak in fuel line?***
YES : Repair or replace fuel line.
NO : Go to step **10CQ7**.

10CQ7 : CHECK CANISTER.

CHECK : ***Is there any damage at canister?***
YES : Repair or replace canister.
NO : Go to step **10CQ8**.

10CQ8 : CHECK FUEL TANK.

CHECK : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank.
NO : Go to step **10CQ9**.

10CQ9 : CHECK OTHER MECHANICAL TROUBLE.

CHECK : ***Are there holes, cracks or disconnections of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

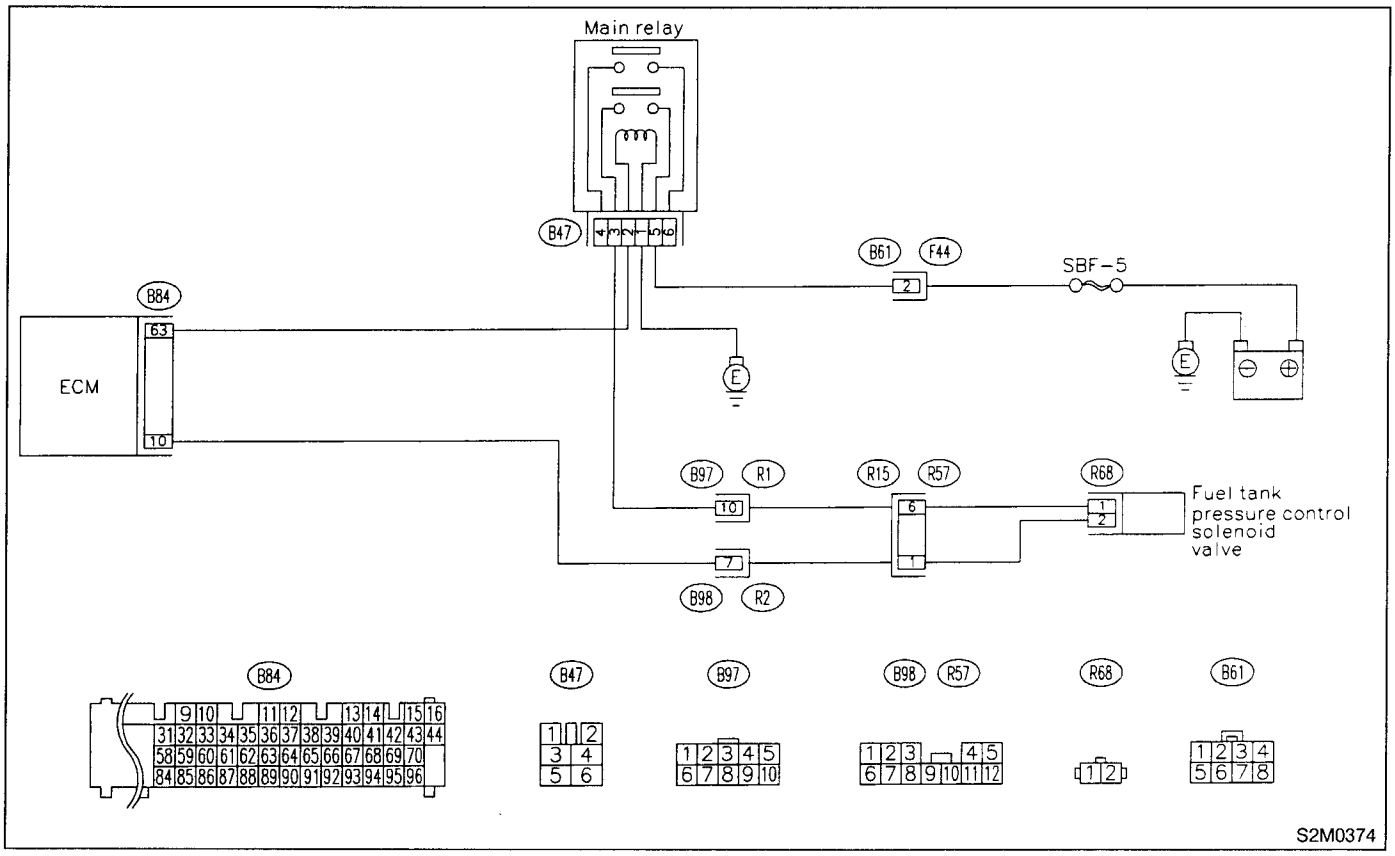
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

CR: P1441 — FUEL TANK PRESSURE CONTROL SYSTEM FUNCTION PROBLEM (HIGH INPUT) —

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

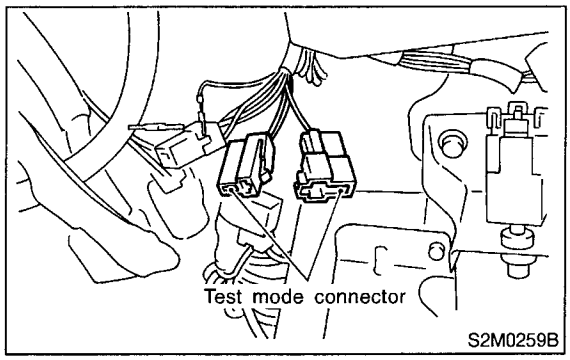
CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10CR1 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

1) Turn ignition switch to OFF.
2) Connect test mode connector.



3) Turn ignition switch to ON.

NOTE:
Fuel tank pressure control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>

CHECK : ***Does fuel tank pressure control solenoid valve produce operating sound?***
YES : Go to step **10CR2**.
NO : Replace fuel tank pressure control solenoid valve.

10CR2 : CHECK FUEL FILLER CAP AND FUEL FILLER PIPE.

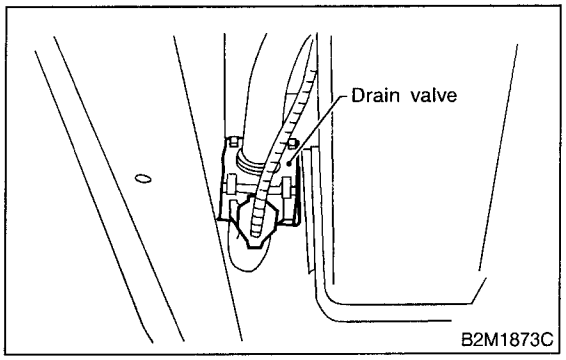
1) Turn ignition switch to OFF.
2) Open the fuel flap.

CHECK : ***Is there any damage at fuel filler cap and fuel filler pipe?***
YES : Repair or replace fuel filler cap and fuel filler pipe.
NO : Go to step **10CR3**.

10CR3 : CHECK DRAIN VALVE.

Turn ignition switch to ON.

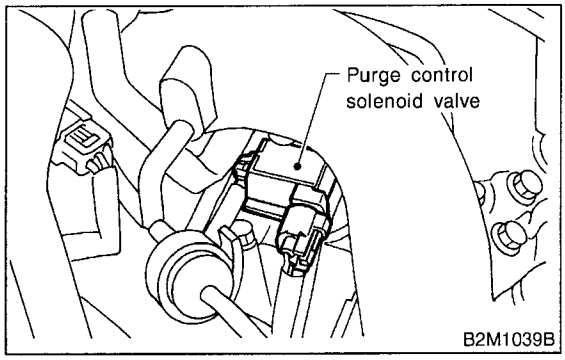
NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



CHECK : ***Does drain valve produce operating sound?***
YES : Go to step **10CR4**.
NO : Replace drain valve.

10CR4 : CHECK PURGE CONTROL SOLENOID VALVE.

NOTE:
Purge control solenoid valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



CHECK : ***Does purge control solenoid valve produce operating sound?***
YES : Go to step **10CR5**.
NO : Replace purge control solenoid valve.

10CR5 : CHECK CANISTER.

Turn ignition switch to OFF.

CHECK : ***Is there any damage at canister?***
YES : Repair or replace canister.
NO : Go to step **10CR6**.

10CR6 : CHECK FUEL TANK.

CHECK : ***Is there any damage at fuel tank?***
YES : Repair or replace fuel tank.
NO : Go to step **10CR7**.

10CR7 : CHECK OTHER MECHANICAL TROUBLE.

CHECK : ***Is there clogging of hoses or pipes in evaporative emission control system?***
YES : Repair or replace hoses or pipes.
NO : Contact with SOA service.

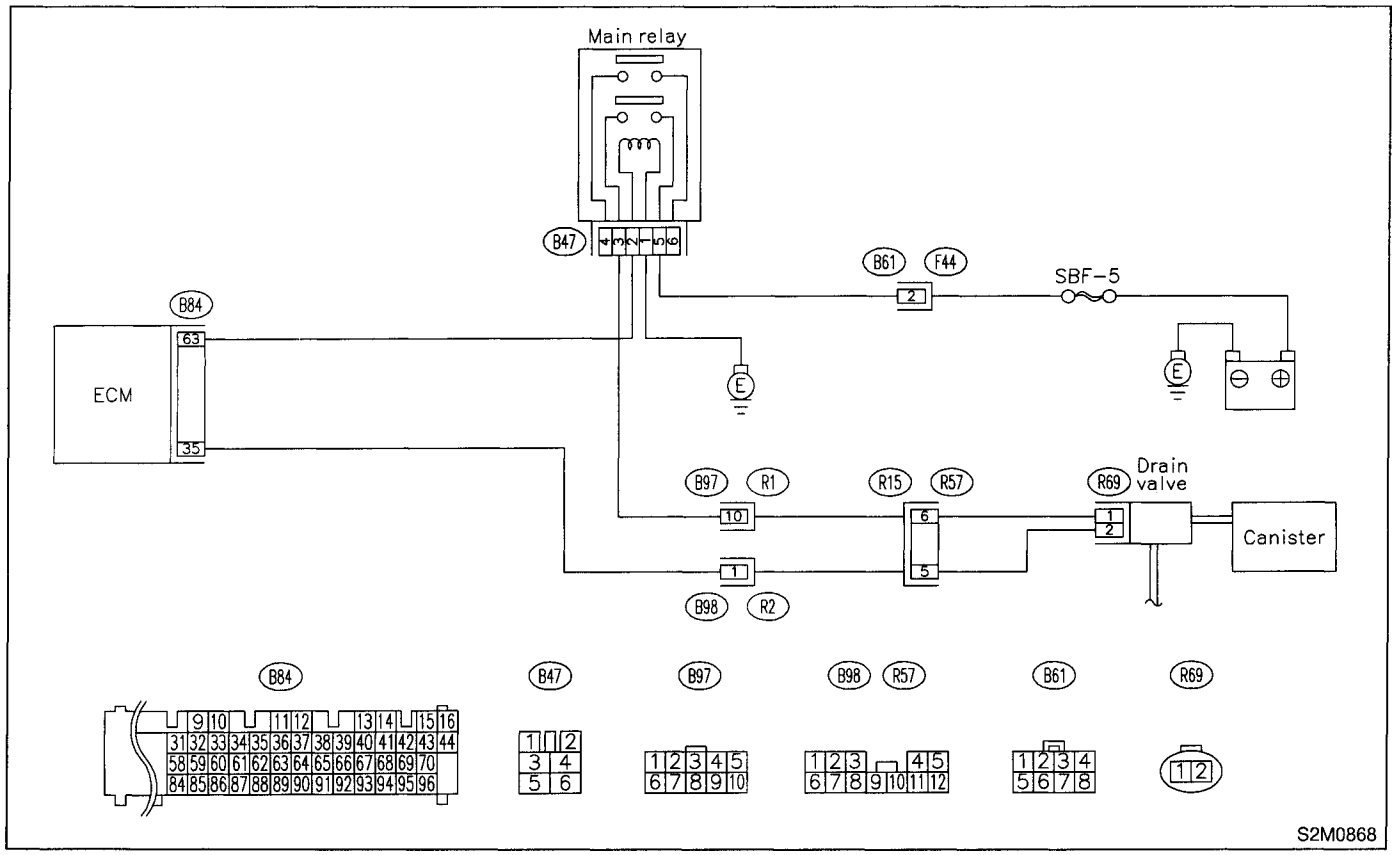
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

DC: DTC P1443 — EVAPORATIVE EMISSION CONTROL SYSTEM VENT CONTROL FUNCTION PROBLEM —

- **DTC DETECTING CONDITION:**
  - Immediately after fault occurrence
- **TROUBLE SYMPTOM:**
  - Improper fuel supply

CAUTION:
After repair or replacement of faulty parts, conduct CLEAR MEMORY <Ref. to 2-7 [T3D0].☆1> and INSPECTION MODES <Ref. to 2-7 [T3E0].☆1>.

- **WIRING DIAGRAM:**



10DC1 :	CHECK ANY OTHER DTC ON DISPLAY.

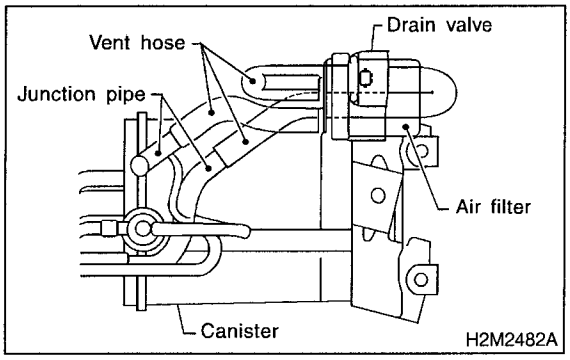
CHECK : ***Is there any other DTC on display?***

YES : Inspect the relevant DTC using "10. Diagnostics Chart with Trouble Code". <Ref. to 2-7 [T10A0].☆2>

NO : Go to step **10DC2**.

10DC2 : CHECK VENT LINE HOSES.

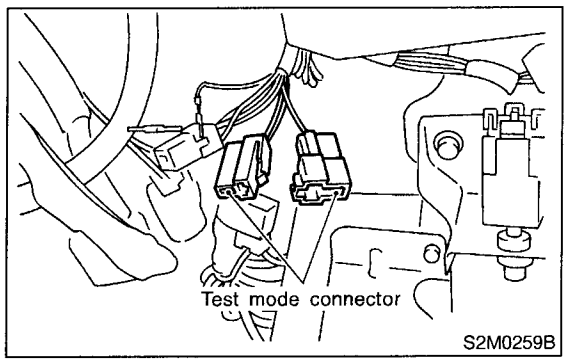
Check the following items.
- Clogging of vent hoses between canister and drain valve
- Clogging of vent hose between drain valve and air filter
- Clogging of vent hose between air filter and junction pipe
- Clogging of junction pipe
- Clogging of air filter



CHECK : ***Is there a fault in vent line?***
YES : Repair or replace the faulty part.
NO : Go to step **10DC3**.

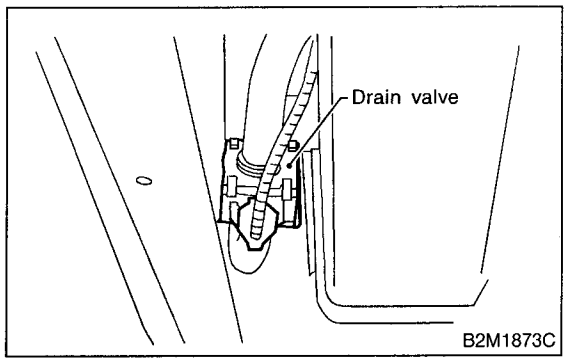
10DC3 : CHECK DRAIN VALVE OPERATION.

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.

NOTE:
Drain valve operation check can also be executed using Subaru Select Monitor. For the procedure, refer to the "COMPULSORY VALVE OPERATION CHECK MODE". <Ref. to 2-7 [T3F0].☆2>



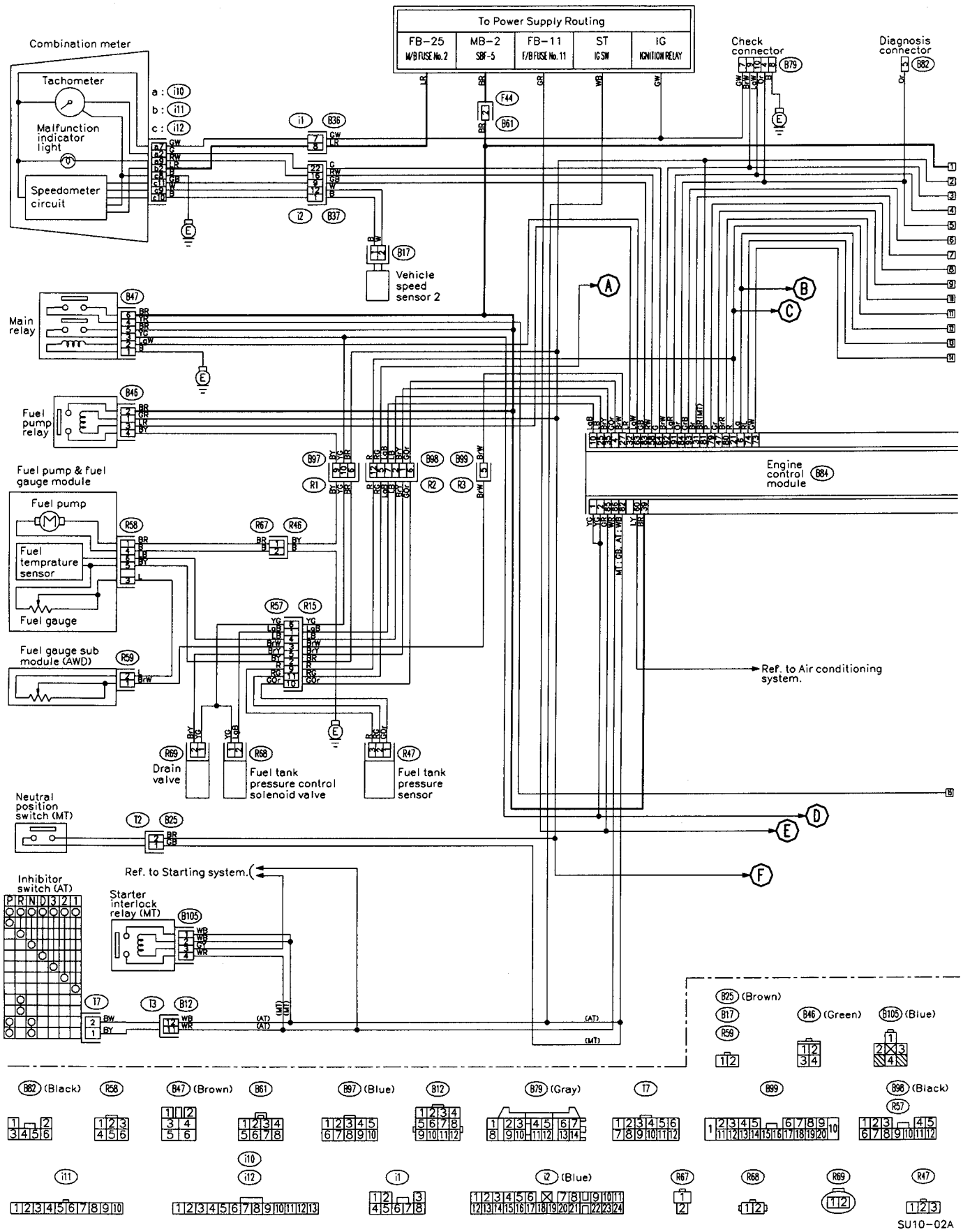
CHECK : ***Does drain valve produce operating sound?***
YES : Contact with SOA service.

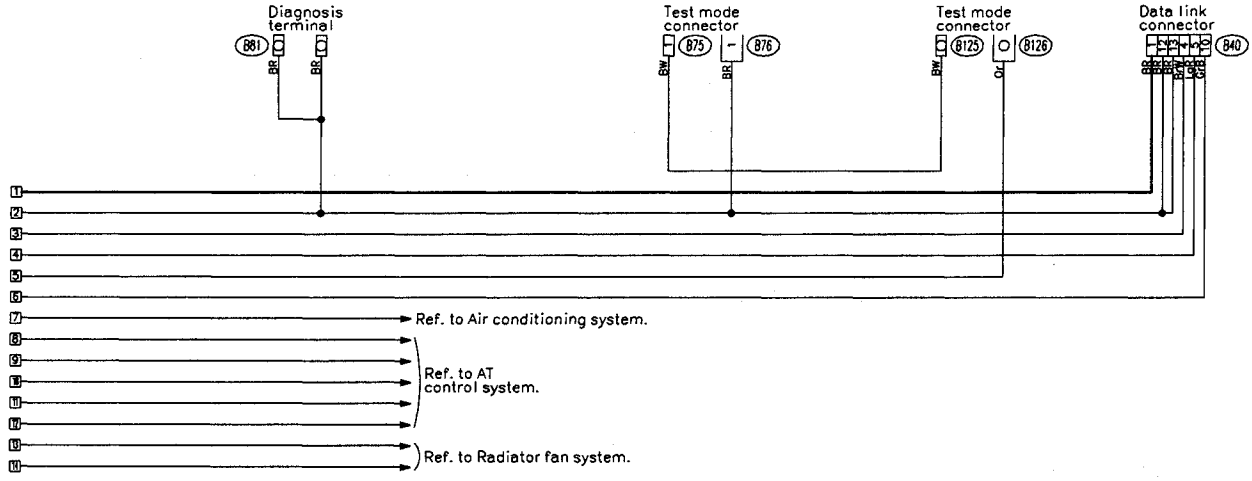
NOTE:
Inspection by DTM is required, because probable cause is deterioration of multiple parts.

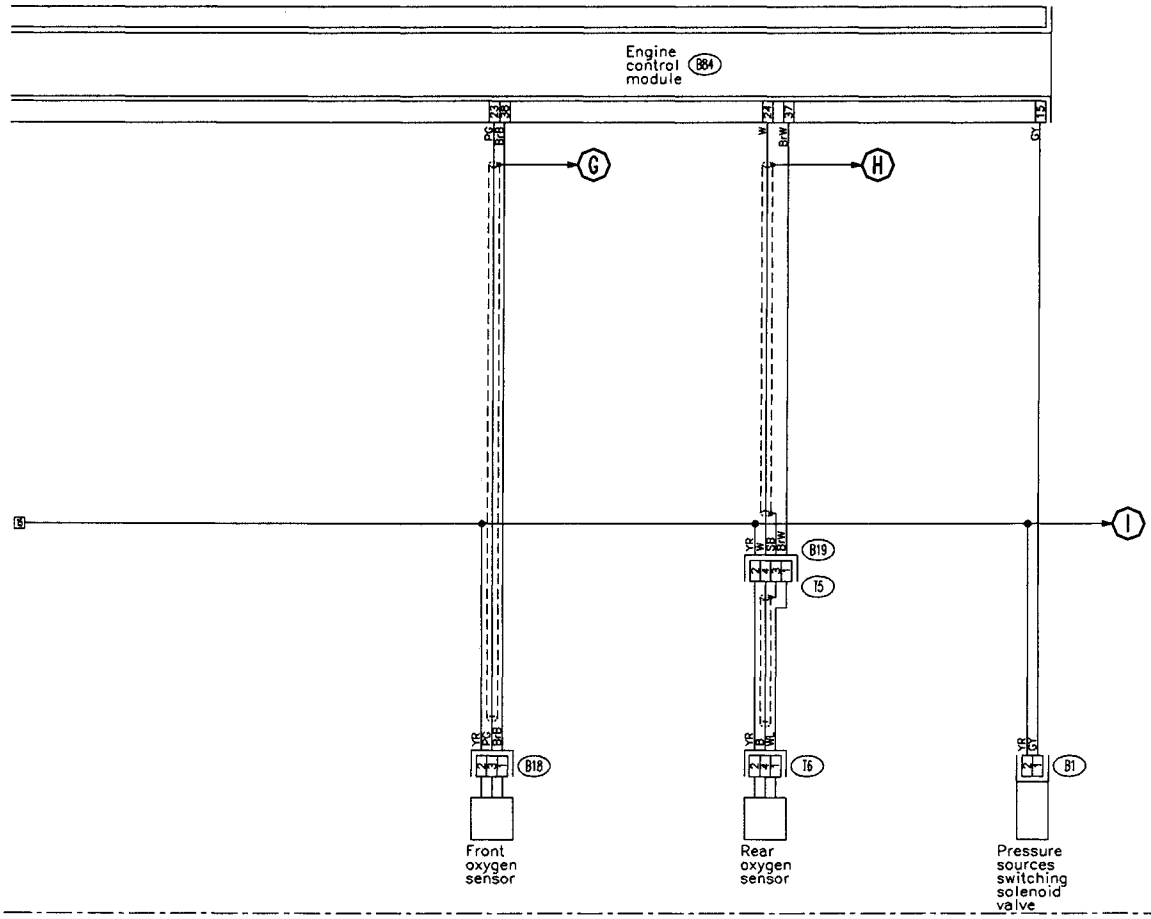
NO : Replace drain valve.

5. Wiring Diagram

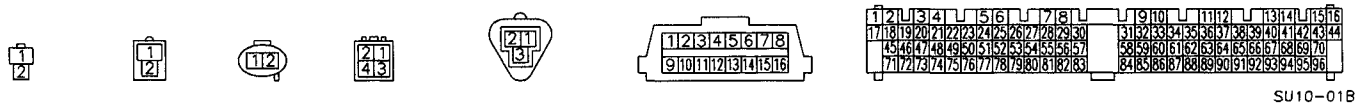
M: ENGINE ELECTRICAL SYSTEM





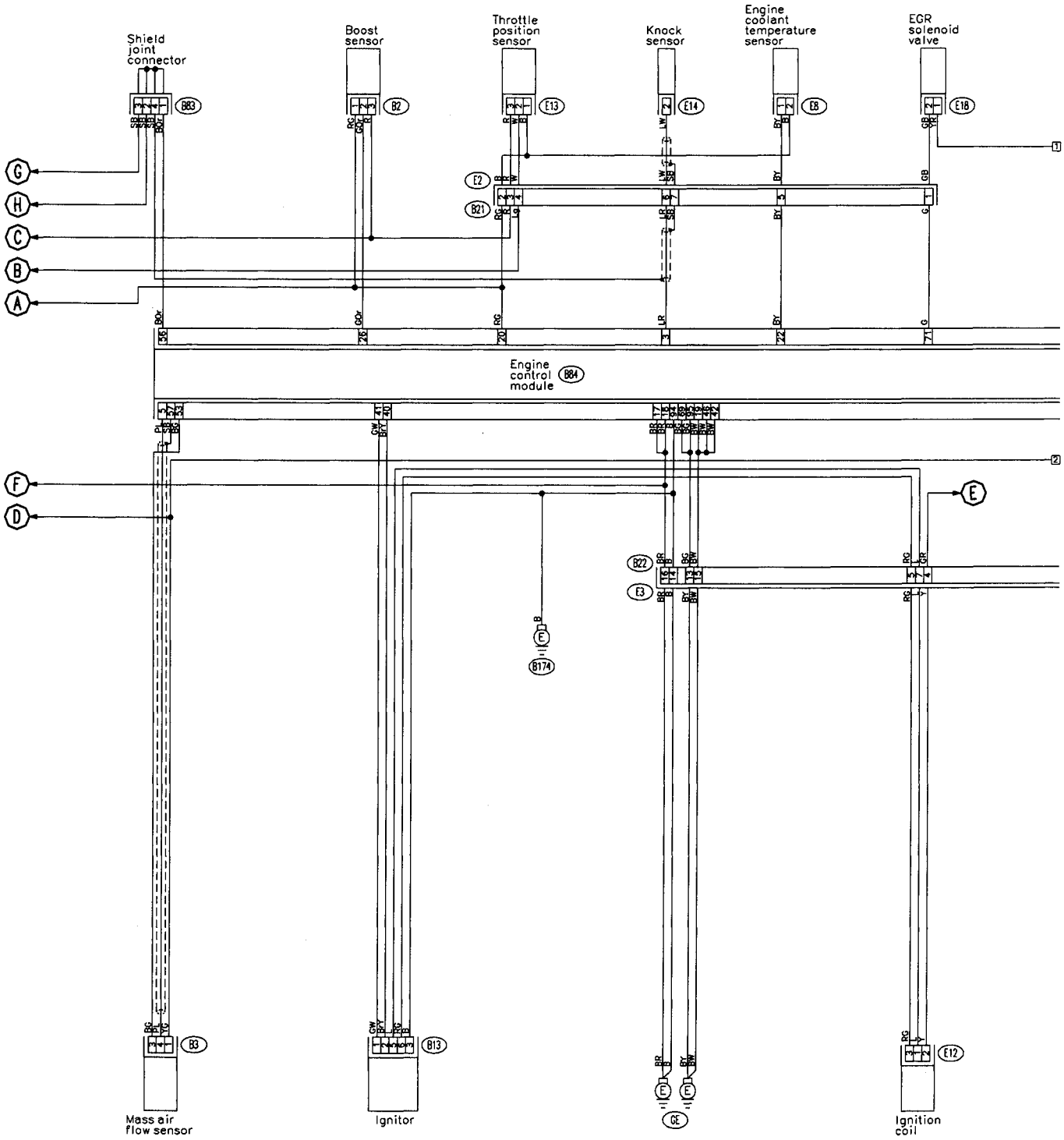


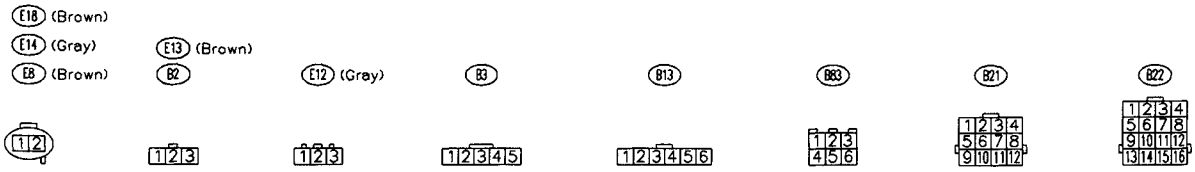
B75 (Green) B76 (Green) B1 B19 T6 (Gray) B18 B40 B84 (Light blue)



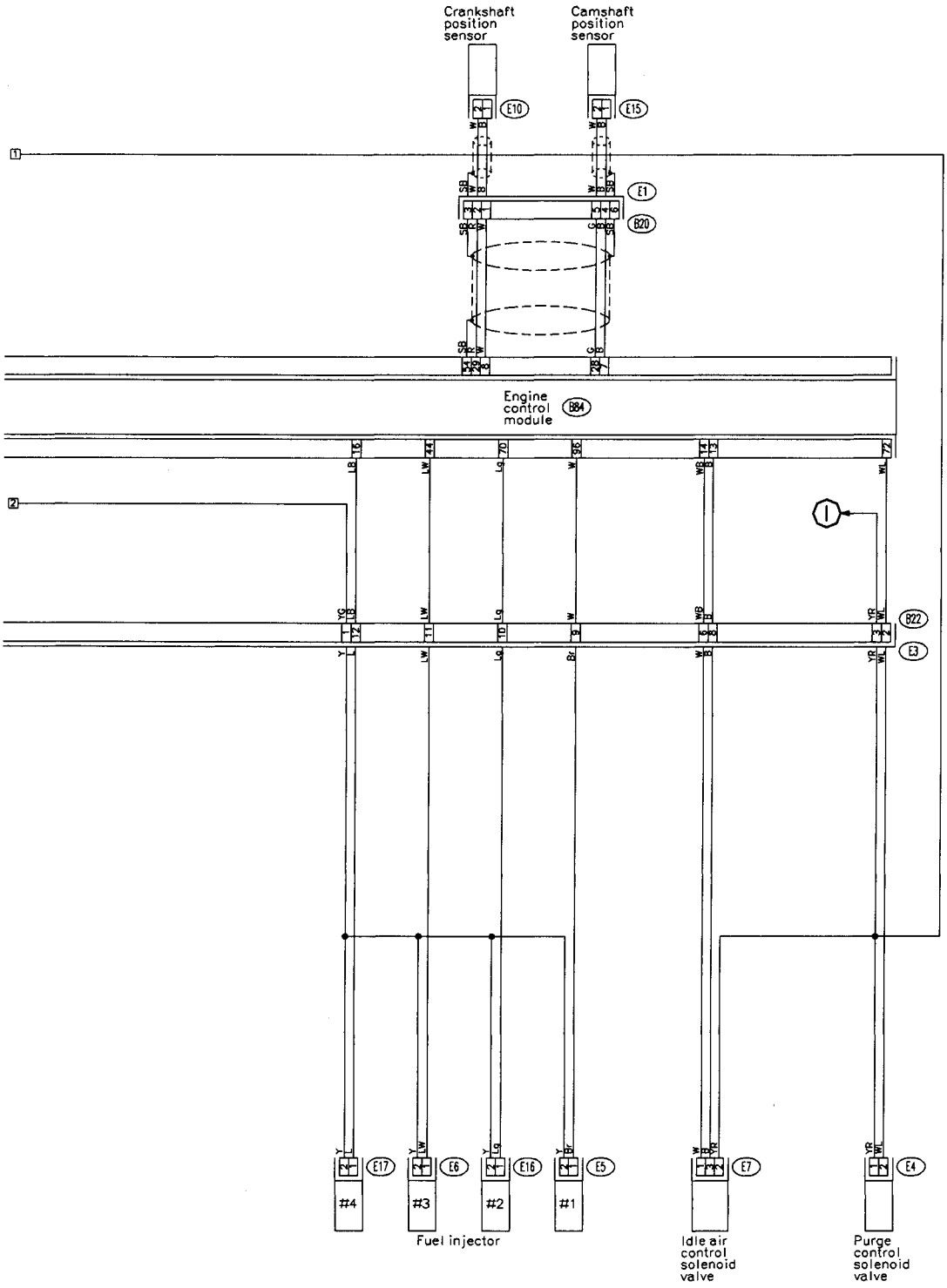
SU10-01B

WIRING DIAGRAM





SU10-02C



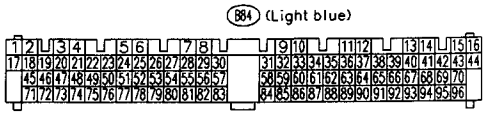
(Gray) E10 E15 (Dark gray)
(Light gray) E5 E16 (Light gray)
(Dark gray) E6 E17 (Dark gray)

E4 (Blue)

E7 (Gray)

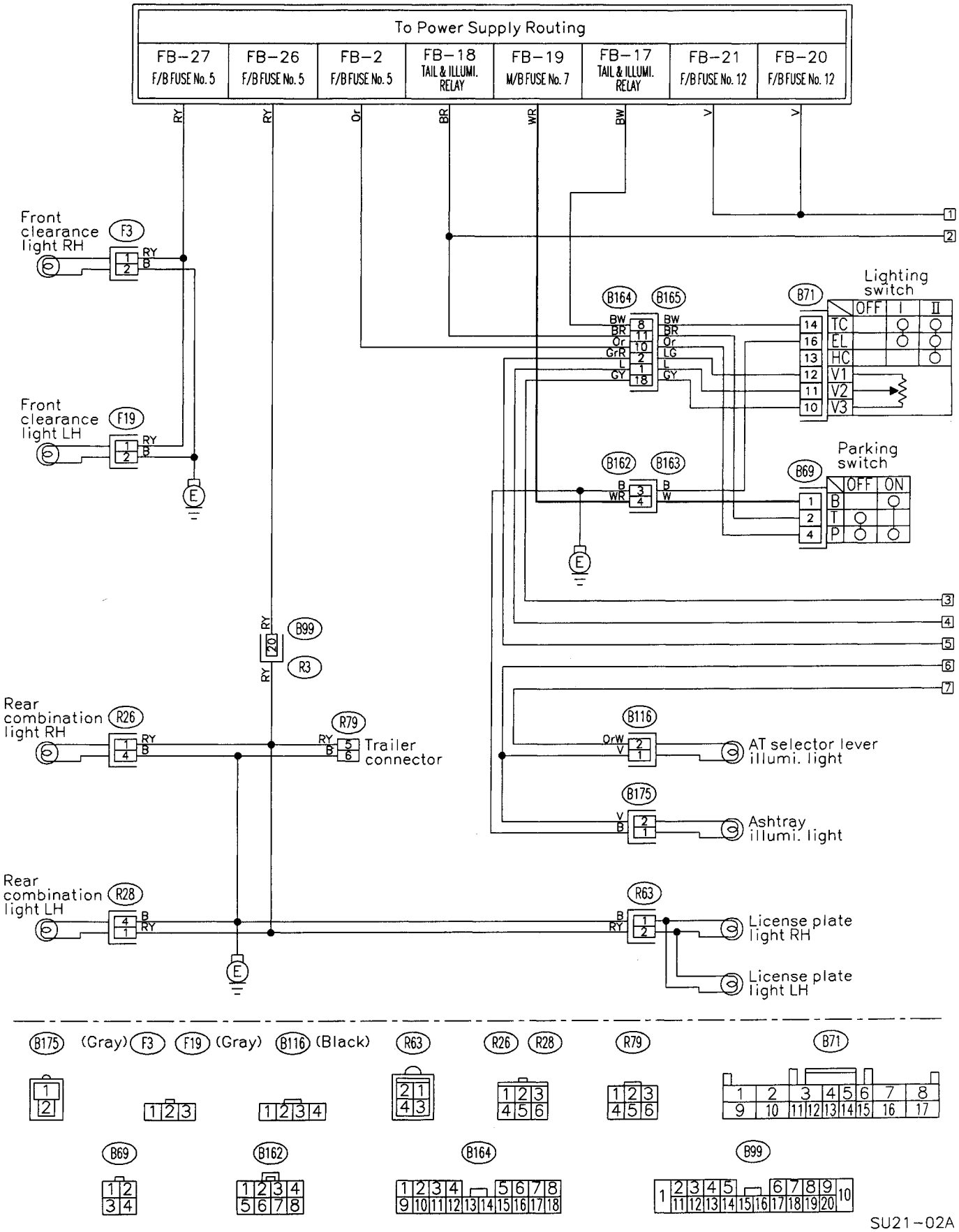
B20

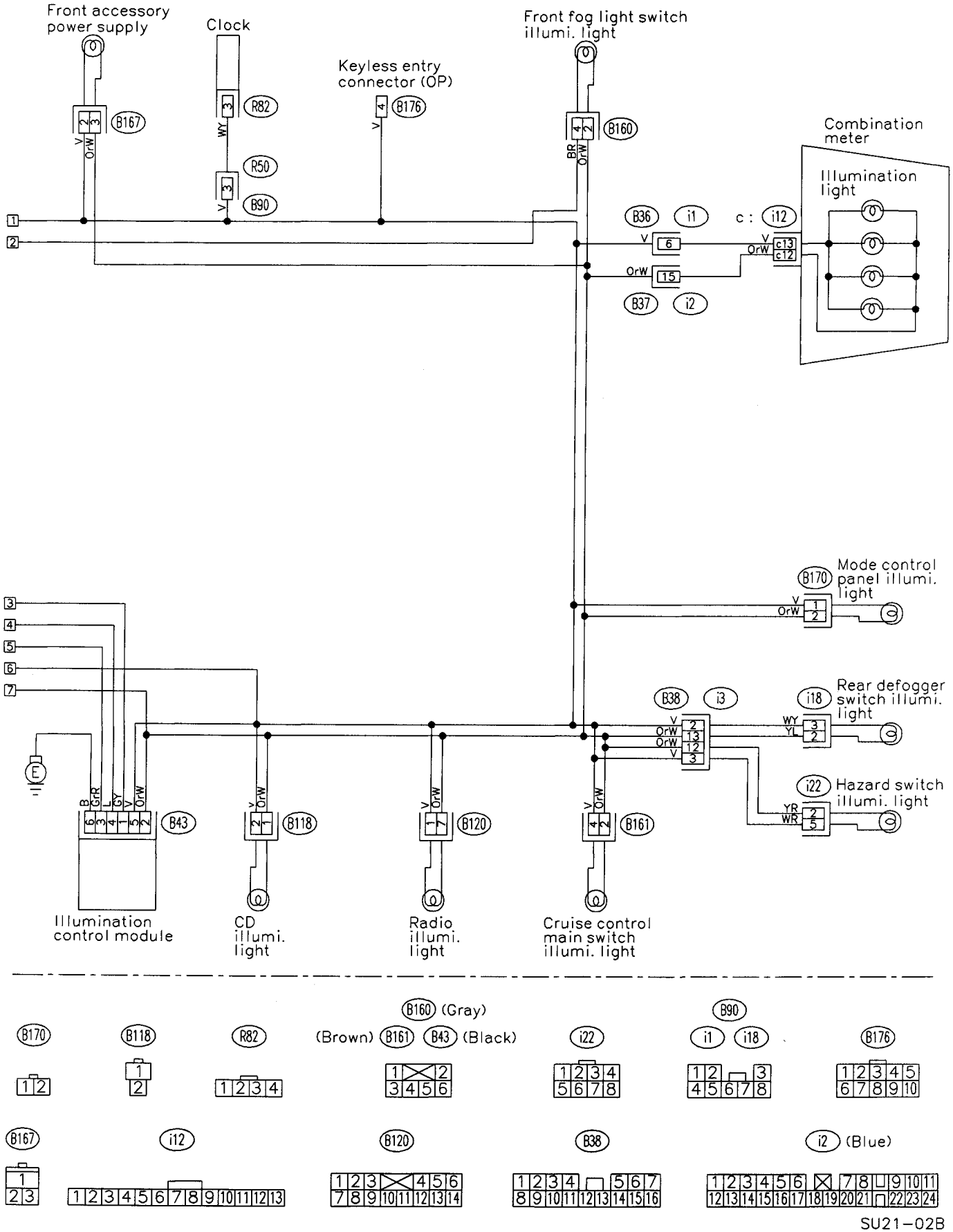
B84 (Light blue)



SU10-02D

Q: LIGHTING SYSTEM (CLEARANCE LIGHT AND ILLUMINATION LIGHT)




Front accessory power supply
Clock
Keyless entry connector (OP)
Front fog light switch illumi. light
Combination meter
Illumination light
Mode control panel illumi. light
Rear defogger switch illumi. light
Hazard switch illumi. light
Illumination control module
CD illumi. light
Radio illumi. light
Cruise control main switch illumi. light
(Gray)
(Brown)
(Black)
(Blue)
SU21-02B

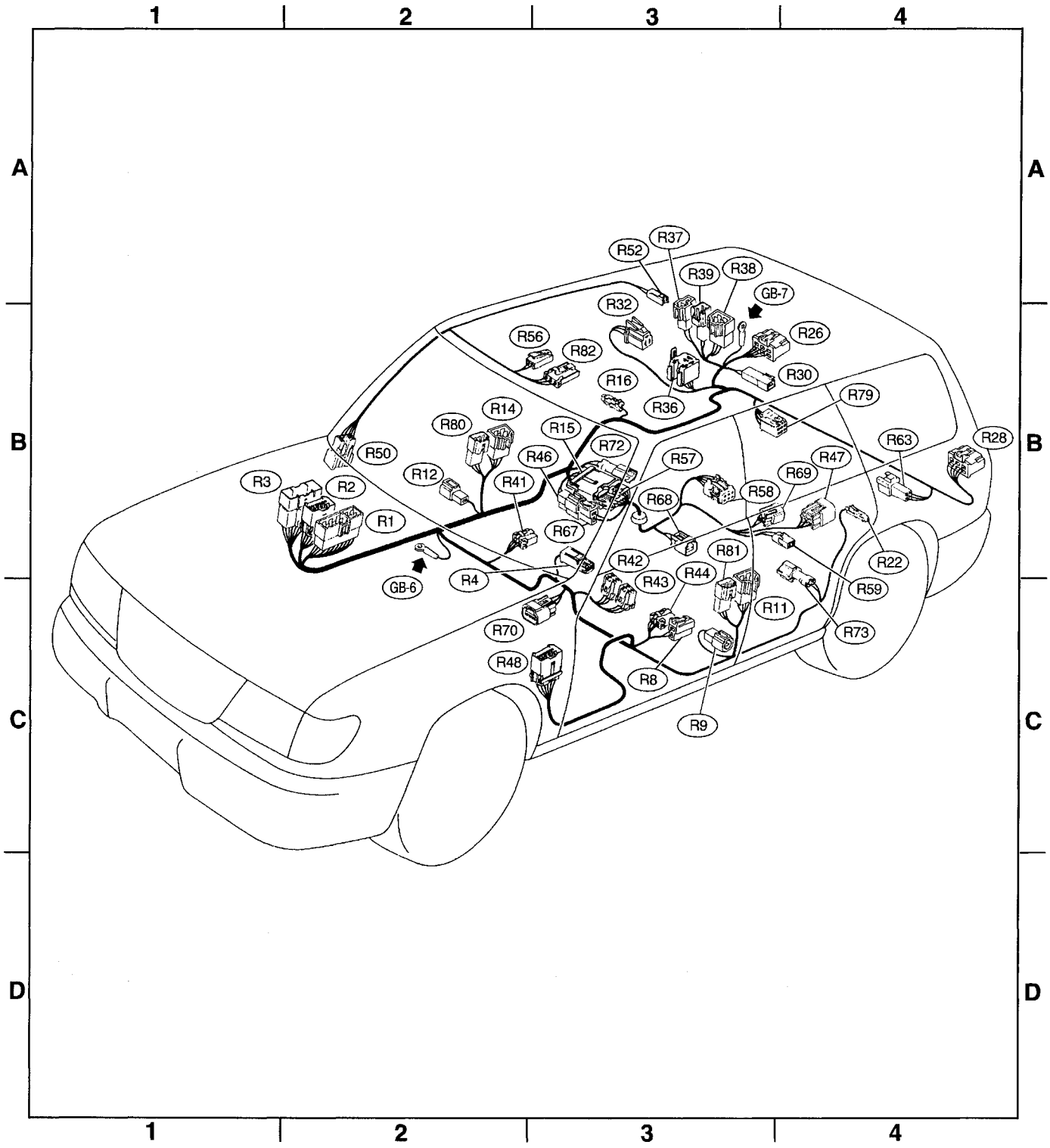
6. Electrical Wiring Harness and Ground Point

G: REAR WIRING HARNESS

1. LIST OF ITEMS

Connector				Connecting to	
No.	Pole	Color	Area	No.	Name
R1	10	Blue	B-2	B97	Bulkhead wiring harness
R2	12	Black	B-2	B98	
R3	20	★	B-2	B99	
R4	1	Black	B-3		Parking brake switch
R8	2	★	B-3		Seat belt switch
R9	1	★	B-3		Front door switch LH
R11	4	★	B-3	D21	Rear door cord LH
R12	1	★	B-2		Front door switch RH
R14	4	★	B-2	D27	Rear door cord RH
R15	12	★	B-3	R57	Fuel tank cord
R16	1	Brown	B-3		Rear door switch RH
R22	1	Brown	B-4		Rear door switch LH
R26	6	★	A-3		Rear combination light RH
R28	6	★	B-4		Rear combination light LH
R30	2	★	A-3		Diode (Luggage room light)
R32	3	★	A-3		Rear accessory power supply
R36	5	Black	A-3		Rear wiper relay
R37	2	★	A-3	D33	Rear gate cord
R38	4	★	A-3	D34	
R39	4	★	A-3	D35	
R41	4	Blue	B-2		Seat heater RH
R42	4	★	B-3		Seat heater switch RH
R43	4	Blue	B-3		Seat heater switch LH
R44	3	Blue	B-3		Seat heater LH
R46	2	★	B-3	R67	Fuel tank cord
R47	3	★	B-4		Fuel tank pressure sensor
R48	12	★	B-3	B123	Bulkhead wiring harness (ABS)
R50	8	★	B-2	B90	Bulkhead wiring harness
R52	2	★	A-3		Room light
R56	2	★	A-2		Spot light
R57	8	★	B-3	R15	Rear wiring harness
R58	6	★	B-3		Fuel gauge module & fuel pump assembly
R59	2	★	B-3		Fuel gauge sub module
R63	4	★	B-4		License plate light
R67	2	★	B-3	R46	Rear wiring harness
R68	2	★	B-3		Pressure control solenoid valve
R69	2	★	B-3		Drain valve
R70	3	★	B-2		ABS G sensor
R72	2	★	B-3		Rear ABS sensor RH
R73	2	★	B-4		Rear ABS sensor LH
R79	6	★	B-3		Trailer connector
R80	3	★	B-2	D64	Rear door cord RH
R81	3	★	B-3	D63	Rear door cord LH
R82	4	★	A-3		Clock
★: Non-colored					

2. LOCATION



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