

SERVICE BULLETIN

APPLICABILITY 1995 AND 1996 LEGACY SERVICE MANUALS

DATE 07-17-96

SUBJECT SERVICE MANUAL CORRECTIONS

Please replace the pages of the following service manuals and service manual supplements using the chart below.

1995 Service Manual	MSA5T9406A	Volume 1	Page: T3C2, 2-7, 31
1996 Service Manual	MSA5T9602A	Volume 4	Page: 01000, 1-6, 2
1996 Service Manual	MSA5T9602A	Volume 4	Page: S1A1, 3-4, 2
1996 Service Manual	MSA5T9602A	Volume 4	Page: T3C6, 2-7, 35
1996 Service Manual	MSA5T9602A	Volume 4	Page: T5O3, 2-7, 73
1996 Service Manual	MSA5T9602A	Volume 4	Page: T8C2, 2-7, 97
1996 Service Manual	MSA5T9602A	Volume 4	Page: T8D4, 2-7, 102
1996 Service Manual	MSA5T9602A	Volume 4	Page: T8D6, 2-7, 103
1996 Service Manual	MSA5T9602A	Volume 4	Page: T10D2, 2-7, 133
1996 Service Manual	MSA5T9602A	Volume 4	Page: T10M1, 2-7, 170
1996 Service Manual	MSA5T9602A	Volume 4	Page: T10T4, 2-7, 190
1996 Service Manual	MSA5T9602A	Volume 4	Page: T10AI0, 2-7, 240
1996 Service Manual	MSA5T9602A	Volume 4	Page: T10AJ0, 2-7, 242
1996 Service Manual	MSA5T9602A	Volume 4	Page: T10AU5, 2-7, 269
1996 Service Manual Supplement	MSA5T9607A	Volume 5	Page: T10BS2, 2-7, 65
1996 Service Manual Supplement (Enhanced Evaporative Emission Control Equipped Model) - Located in the second half of Volume 5	MSA5T9607A	Volume 5	Page: T10BX1, 2-7, 91

CAUTION

VEHICLE SERVICING PERFORMED BY UNTRAINED PERSONS COULD RESULT IN SERIOUS INJURY TO THOSE PERSONS OR TO OTHERS.

Subaru Service Bulletins are intended for use by professional technicians ONLY. They are written to inform those technicians of conditions that may occur in some vehicles, or to provide information that could assist in the proper servicing of the vehicle. Properly trained technicians have the equipment, tools, safety instructions, and know-how to do the job correctly and safely. If a condition is described, DO NOT assume that this Service Bulletin applies to your vehicle, or that your vehicle will have that condition.

Function mode	Contents	Abbreviation	Unit of measure
F49	Intake manifold absolute pressure signal	MANI. P	kPa
F50	Load data (Freeze frame data)	LOAD-F	%
F51	Engine coolant temperature signal (Freeze frame data)	TW-F	°C
F52	Short term fuel trim (Freeze frame data)	ALPH-F	%
F53	Long term fuel trim (Freeze frame data)	KBLR-F	%
F54	Intake manifold absolute pressure signal (Freeze frame data) <AT vehicles >	MANI-F	kPa
F55	Engine speed signal (Freeze frame data)	EREV-F	rpm
F56	Vehicle speed signal (Freeze frame data)	VSP-F	km/h
FA0	ON ↔ OFF signal	—	—
FA1	ON ↔ OFF signal	—	—
FA2	ON ↔ OFF signal	—	—
FA3	ON ↔ OFF signal	—	—
FA4	ON ↔ OFF signal	—	—
FB0	Diagnostic trouble code (DTC)	INSPECT	—
FB1	Diagnostic trouble code (DTC)	OBD	—
FC0	Clear memory	—	—

NOTE:

- 1) Subaru select monitor is also available for monitoring information other than that used for check and repair of the vehicle.
- 2) The maximum values shown for F33, F34, F35 and F36 do not indicate the actual cylinder misfire rate.

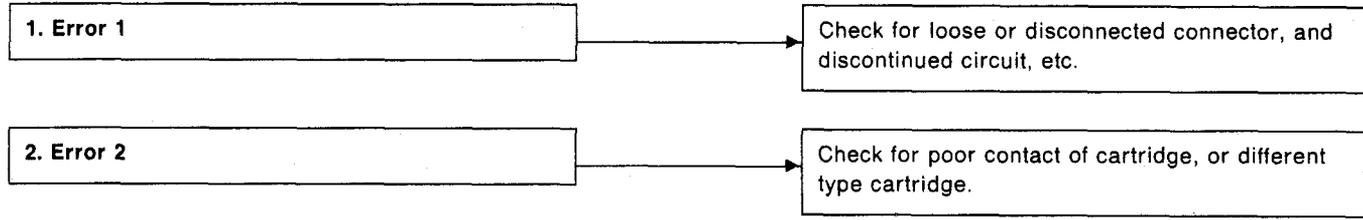
1995 (F00)
2.2 SOHC
OBD0065

● **FUNCTION MODE: F00**
— **ROM ID NUMBER (YEAR)** —

CONDITION:
Ignition switch "ON"

SPECIFIED DATA:
Presentation display

● Probable cause (Item outside "specified data")



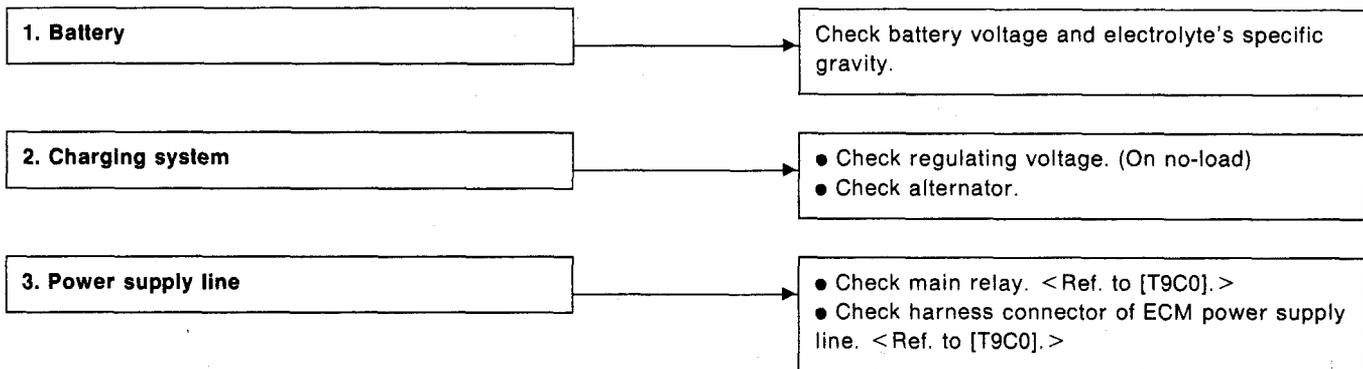
VB (F01)
12.4 V
B2M0270

● **FUNCTION MODE: F01**
— **BATTERY VOLTAGE (VB)** —

CONDITION:
(1) Ignition switch "ON"
(2) Idling after warm-up

SPECIFIED DATA:
(1) 11 ± 1 V
(2) 13 ± 1 V

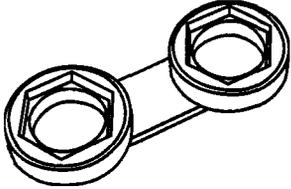
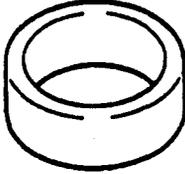
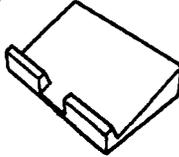
● Probable cause (Item outside "specified data")



SPECIAL TOOLS *1-6*

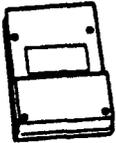
	Page
1. Engine Tools	2
2. Manual Transmission and Differential Tools	
3. Automatic Transmission and Differential Tools	
4. Rear Differential Tools (AWD Models)	
5. Suspension Tools	
6. Wheels and Axles Tools	
7. Steering System Tools	
8. Brake Tools	
9. Body Tools	
10. Supplemental Restraint System Tools	
11. Select Monitor and Cartridge	2

1. Engine Tools

499207300 *	498747300	498267600 *	498267700 *
CAMSHAFT SPROCKET WRENCH	PISTON GUIDE	CYLINDER HEAD TABLE	VALVE GUIDE ADJUSTER
<ul style="list-style-type: none"> • Used to remove and install plastic camshaft sprocket. • For DOHC engine. 	<ul style="list-style-type: none"> • Used to install piston in cylinder. • For 2500 cc engine. 	<ul style="list-style-type: none"> • For replacing valve guides. • Used to remove and install valve springs. • For DOHC engine. 	<ul style="list-style-type: none"> • Used to install intake and exhaust valve guides. • For DOHC engine.
	 G1H0132	 G1H0371	 G1H0143

*Newly adopted tool

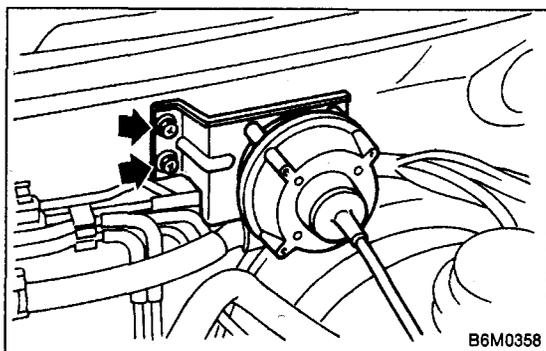
11. Select Monitor and Cartridge

498345700 *
CARTRIDGE
Troubleshooting for electrical systems.
 G1H0288

*Newly adopted tool

AWD SYSTEM **3-4**

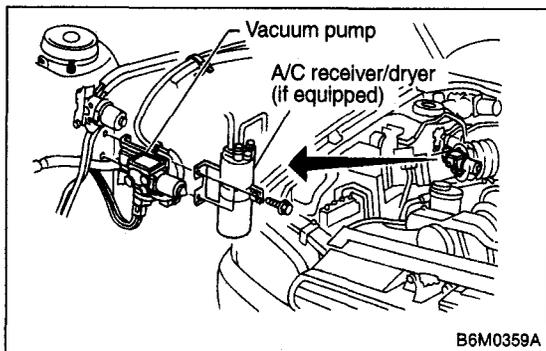
	Page
S SPECIFICATIONS AND SERVICE DATA	2
1. AWD System	2
C COMPONENT PARTS	3
1. Rear Differential Mounting System	3
2. Propeller Shaft	
3. Rear Differential Assembly	
W SERVICE PROCEDURE	
1. Propeller Shaft	
2. Rear Differential	
3. Rear Differential Front Member	
K DIAGNOSTICS	
1. Rear Differential	
2. Propeller Shaft	



- 3) Remove nuts which secure actuator.
- 4) Remove actuator while disconnecting vacuum hose.

Tightening torque:

$7.4 \pm 1.5 \text{ N}\cdot\text{m}$ ($0.75 \pm 0.15 \text{ kg}\cdot\text{m}$, $5.4 \pm 1.1 \text{ ft}\cdot\text{lb}$)



4. VACUUM PUMP AND VALVES

- 1) Disconnect connector from vacuum pump.
- 2) Remove bolts which secure vacuum pump.
- 3) Remove A/C receiver/drier bracket.
- 4) Remove vacuum pump while disconnecting vacuum hose.

Tightening torque:

$7.4 \pm 1.5 \text{ N}\cdot\text{m}$ ($0.75 \pm 0.15 \text{ kg}\cdot\text{m}$, $5.4 \pm 1.1 \text{ ft}\cdot\text{lb}$)

5. STOP AND BRAKE SWITCH

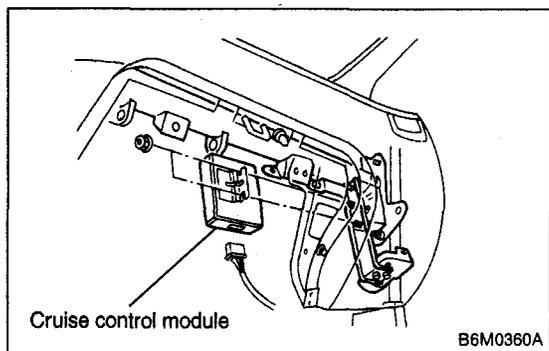
Refer to 4-5 [C101 (MT) or C201 (AT)] as for removal and installation of stop and brake switch.

6. CLUTCH SWITCH (MT)

Refer to 4-5 [C101] as for removal and installation of clutch switch.

7. INHIBITOR SWITCH (AT)

Refer to 3-2 [W4A4] as for removal and installation of inhibitor switch.



8. CRUISE CONTROL MODULE

- 1) Follow the same preparatory procedures when removing door lock timer. <Ref. to 6-2 [W17A2].☆1 >
- 2) Remove nuts which secure cruise control module, and remove cruise control module from bracket while pulling right side lower end of instrument panel.

CAUTION:

Be careful not to damage instrument panel while pulling its right side lower end.

- 3) Disconnect connector from cruise control module.
- 4) Installation is the reverse order of removal.

Function mode	Contents	Abbreviation	Unit of measure
FB1	Diagnostic trouble code (DTC)	OBD	—
FB2	Load data (Freeze frame data)	LOAD-F	%
	Engine coolant temperature signal (Freeze frame data)	TW-F	°C
	Short term fuel trim (Freeze frame data)	ALPH-F	%
	Long term fuel trim (Freeze frame data)	KBLR-F	%
	Intake manifold absolute pressure signal (Freeze frame data)	MANI-F	kPa
	Engine speed signal (Freeze frame data)	EREV-F	rpm
	Vehicle speed signal (Freeze frame data)	VSP-F	km/h
FB3	Mass air flow signal (Freeze frame data)	QA-F (P0100)	V
	Pressure signal (Freeze frame data)	PS-F (P0105)	V
	Pressure signal (Freeze frame data)	PR-F (P0106)	V
	Engine coolant temperature signal (Freeze frame data)	TW-F (P0115)	V
	Throttle position signal (Freeze frame data)	THV-F (P0120)	V
	EGR control solenoid valve signal (Freeze frame data) < AT vehicles >	EGR (P0403)	—*1
	Purge control solenoid valve signal (Freeze frame data)	CPC (P0443)	—*1
	Start switch signal (Freeze frame data)	STSW (P1100)	—*1
	Pressure sources switching solenoid valve signal (Freeze frame data)	BR1 (P1102)	—*1
	Radiator fan relay 1 signal (Freeze frame data)	FAN1 (P1500)	—*1
FC0	Clear memory	—	—
FD01	Compulsory fuel pump relay operation check	FUEL PUMP	—
FD02	Compulsory purge control solenoid valve operation check	CPC SOL	—
FD03	Compulsory radiator fan relay operation check	RAD FAN	—
FD04	Compulsory A/C relay operation check	A/C RELAY	—
FD05	Compulsory EGR control solenoid valve operation check	EGR SOL	—
FD10	Compulsory pressure sources switching solenoid valve operation check	BR SOL	—

NOTE:

1) Subaru select monitor is also available for monitoring information other than that used for check and repair of the vehicle.

2) F42 (Maximum and minimum EGR system pressure value) will not read accurately until the EGR flow diagnosis terminates.

EGR flow diagnosis terminates when LED No. 2 illuminates at function mode FA4.

3) *1: "Hi" or "Low" is shown instead of measured value.

4) Because valve is not installed, FD06, FD07, FD08, FD09 and FD11 will be displayed but non-functional.

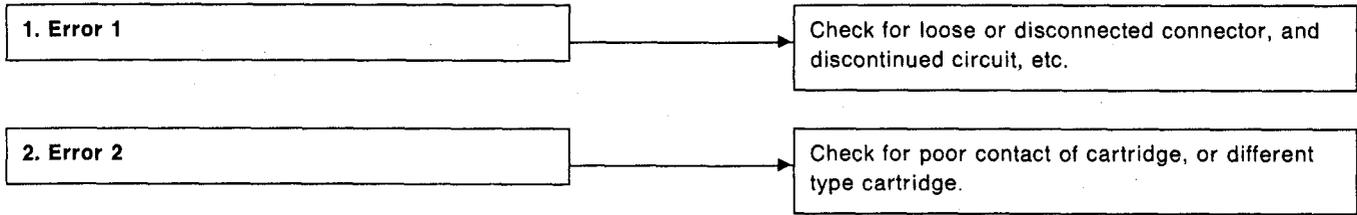
1996	(F00)
2.2	SOHC
B2M0476	

7. FUNCTION MODE: F00
— ROM ID NUMBER (YEAR) —

CONDITION:
 Ignition switch "ON"

SPECIFIED DATA:
 Presentation display

● Probable cause (Item outside "specified data")



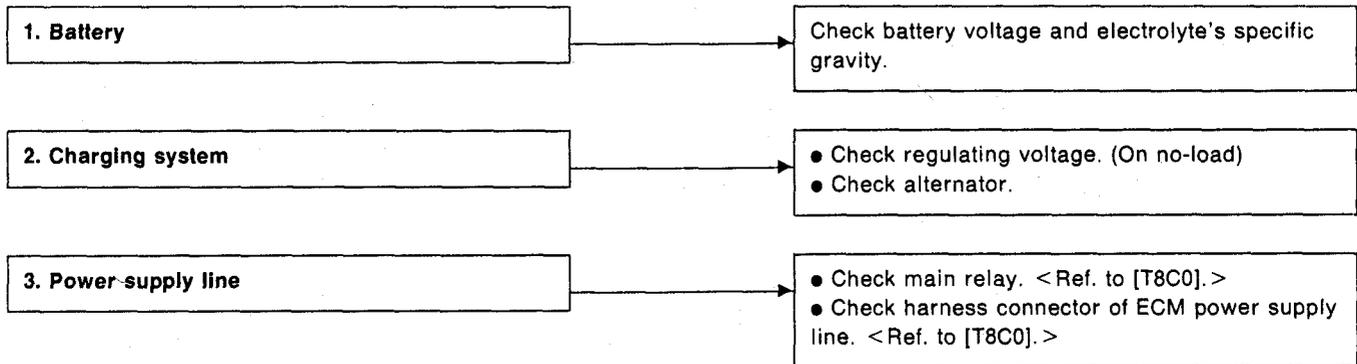
VB	(F01)
12.4 V	
B2M0270	

8. FUNCTION MODE: F01
— BATTERY VOLTAGE (VB) —

CONDITION:
 (1) Ignition switch "ON"
 (2) Idling after warm-up

SPECIFIED DATA:
 (1) 11 ± 1 V
 (2) 13 ± 1 V

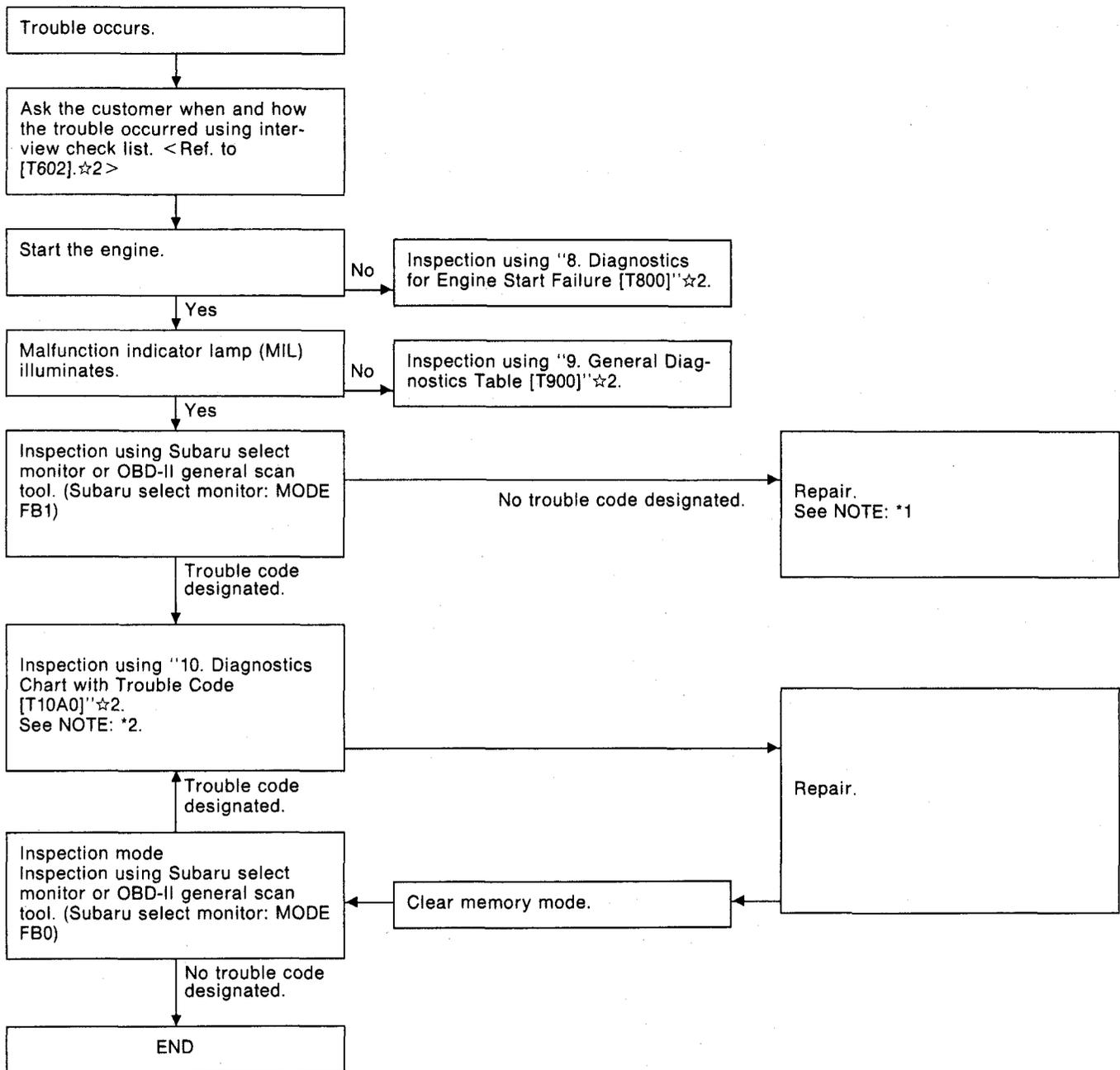
● Probable cause (Item outside "specified data")



Content	Connector No.	Terminal No.	Measuring conditions	Voltage (V)	Resistance to body (ohms)
Throttle position sensor	B54	8	Throttle fully closed.	0.3 — 0.7	—
			Throttle fully open.	4.3 — 4.9	
Throttle position sensor power supply	B56	19	Ignition switch ON (with engine OFF)	4.8 — 5.3	—
ATF temperature sensor	B54	10	ATF temperature 20°C (68°F)	2.9 — 4.0	2.1 k — 2.9 k
			ATF temperature 80°C (176°F)	1.0 — 1.4	275 — 375
Vehicle speed sensor 1	B54	12	Vehicle stopped.	0	450 — 720
			Vehicle speed at least 20 km/h (12 MPH)	More than 1 (AC range)	
Vehicle speed sensor 2	B56	11	When vehicle is slowly moved at least 2 meters (7ft).	Less than 1 ↔ More than 9	—
Engine speed signal	B54	5	Ignition switch ON (with engine OFF).	More than 10.5	—
			Ignition switch ON (with engine ON).	8 — 11	
Cruise set signal	B56	3	When cruise control is set (SET lamp ON).	Less than 1	—
			When cruise control is not set (SET lamp OFF).	More than 6.5	
Torque control signal	B55	16	Ignition switch ON	4 — 6	—
Mass air flow signal	B54	9	Engine idling after warm-up	0.5 — 1.2	—
Shift solenoid 1	B55	14	1st or 4th gear	More than 9	20 — 32
			2nd or 3rd gear	Less than 1	
Shift solenoid 2	B55	13	1st or 2nd gear	More than 9	20 — 32
			3rd or 4th gear	Less than 1	
Shift solenoid 3	B55	15	Selector lever in "N" range (with throttle fully closed).	Less than 1	20 — 32
			Selector lever in "D" range (with throttle fully closed).	More than 9	
Duty solenoid A	B55	8	Throttle fully closed (with engine OFF) after warm-up.	1.5 — 4.0	1.5 — 4.5
			Throttle fully open (with engine OFF) after warm-up.	Less than 1	
Dropping resistor	B55	7	Throttle fully closed (with engine OFF) after warm-up.	5 — 14	12 — 18
			Throttle fully open (with engine OFF) after warm-up.	Less than 0.5	
Duty solenoid B	B55	5	When lock up occurs.	More than 8.5	9 — 17
			When lock up is released.	Less than 0.5	
Duty solenoid C (AWD model only)	B55	3	Fuse on FWD switch	More than 8.5	9 — 17
			Fuse removed from FWD switch (with throttle fully open and with select lever in 1st gear).	Less than 0.5	
Sensor ground line 1	B54	7	—	0	Less than 1
Sensor ground line 2	B56	20	—	0	Less than 1
System ground line	B56	1	—	0	Less than 1
Power system ground line	B55	10	—	0	Less than 1
FWD switch (AWD model only)	B56	2	Fuse removed.	6 — 9.1	—
			Fuse installed.	Less than 1	
Data link signal (Subaru select monitor)	B56	12	—	—	—
		13	—	—	
AT diagnosis signal	B55	11	Ignition switch ON	Less than 1 ↔ More than 4	—

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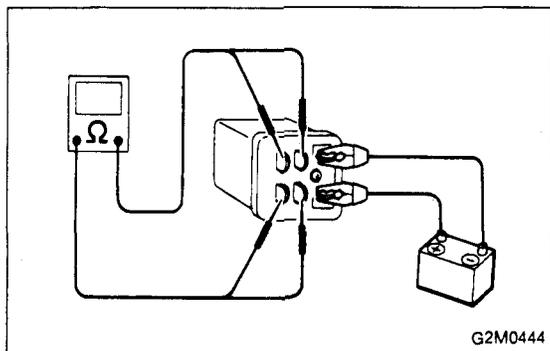
6. Basic Diagnostics Procedure



NOTE:

*1: If trouble code is not shown on display although the MIL illuminates, perform diagnostics of the MIL (CHECK ENGINE LIGHT) circuit or combination meter. <Refer to "7. Diagnostics for CHECK ENGINE Malfunction Indicator Lamp (MIL) [T700].☆2>

*2: Carry out the basic check, only when trouble code about automatic transmission is shown on display. <Ref. to [T601].☆2>



8C1 CHECK MAIN RELAY.

- 1) Turn the ignition switch to OFF.
- 2) Remove main relay.
- 3) Connect battery to main relay terminals No. 1 and No. 2.
- 4) Measure resistance between main relay terminals.

CHECK : **Terminals No. 3 — No. 5:**
Is the resistance less than 10 Ω?

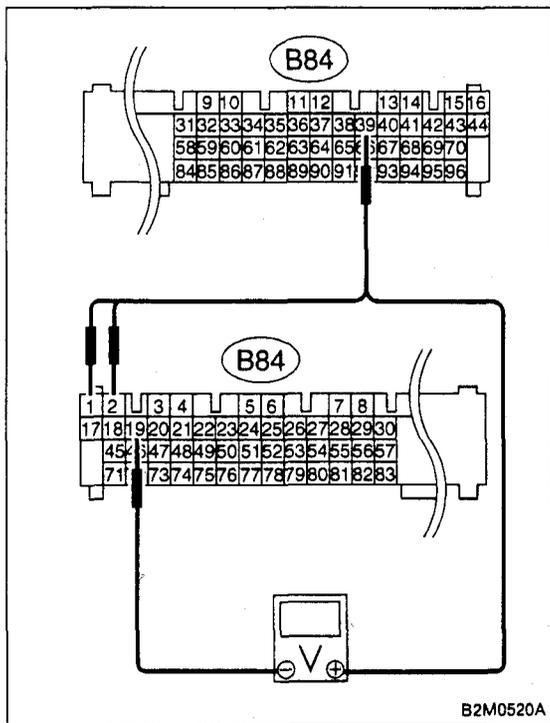
YES : Go to next **CHECK**

NO : Replace main relay.

CHECK : **Terminals No. 4 — No. 6:**
Is the resistance less than 10 Ω?

YES : Go to step **8C2.**

NO : Replace main relay.



8C2 CHECK POWER SUPPLY CIRCUIT OF ECM.

- 1) Install main relay.
- 2) Disconnect connectors from ECM.
- 3) Turn ignition switch to ON.
- 4) Measure power supply voltage between ECM connector terminals.

CHECK : **Connector & terminal (B84) No. 1 (+) — No. 19 (-):**
Is the voltage more than 10 V?

YES : Go to next **CHECK**

NO : Repair harness of power supply circuit.

CHECK : **Connector & terminal (B84) No. 2 (+) — No. 19 (-):**
Is the voltage more than 10 V?

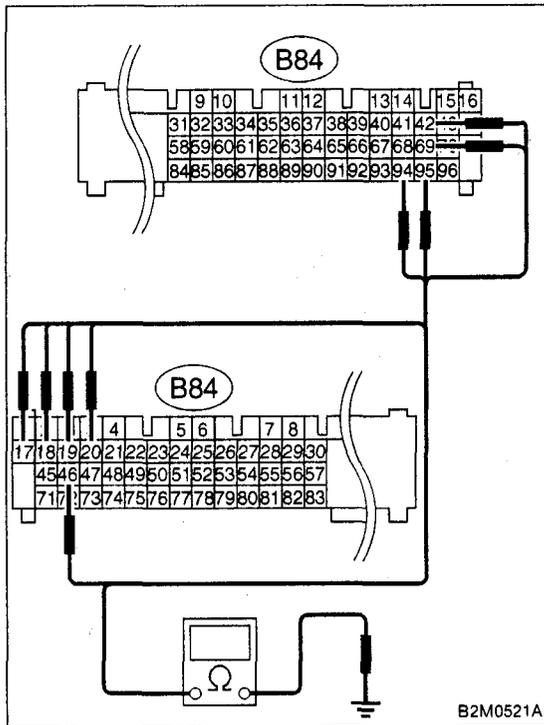
YES : Go to next **CHECK**

NO : Repair harness of power supply circuit.

CHECK : **Connector & terminal (B84) No. 39 (+) — No. 19 (-):**
Is the voltage more than 10 V?

YES : Go to step **8C3.**

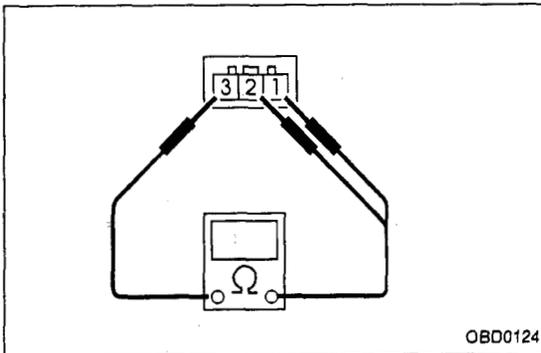
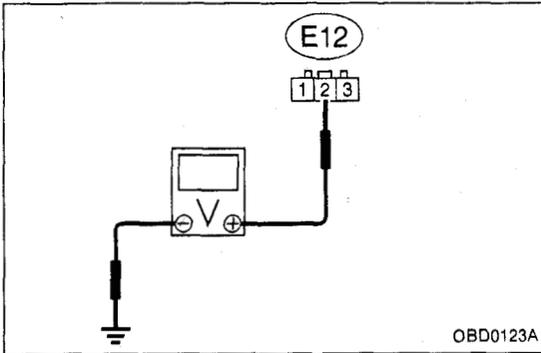
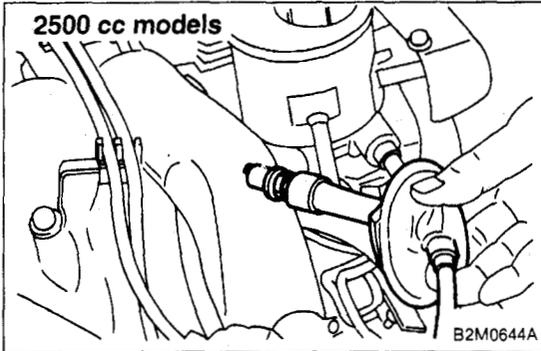
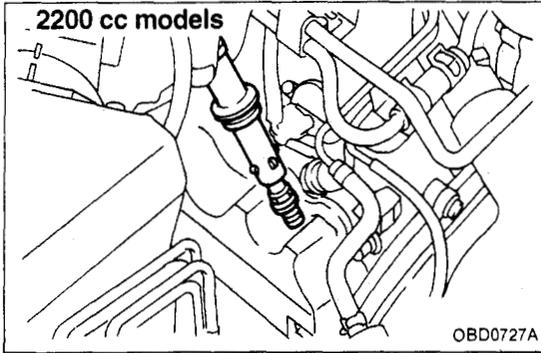
NO : Repair harness of power supply circuit.



8C3 CHECK GROUND CIRCUIT OF ECM.

- 1) Turn ignition switch to OFF.
- 2) Measure resistance of harness connector between ECM and chassis ground.

- CHECK** : Connector & terminal (B84) No. 17 — Chassis ground: Is the resistance less than 5 Ω?
 YES : Go to next CHECK.
 NO : Repair harness between ECM connector and engine grounding terminal.
- CHECK** : Connector & terminal (B84) No. 18 — Chassis ground: Is the resistance less than 5 Ω?
 YES : Go to next CHECK.
 NO : Repair harness between ECM connector and engine grounding terminal.
- CHECK** : Connector & terminal (B84) No. 19 — Chassis ground: Is the resistance less than 5 Ω?
 YES : Go to next CHECK.
 NO : Repair harness between ECM connector and engine grounding terminal.
- CHECK** : Connector & terminal (B84) No. 20 — Chassis ground: Is the resistance less than 5 Ω?
 YES : Go to next CHECK.
 NO : Repair harness between ECM connector and engine grounding terminal.
- CHECK** : Connector & terminal (B84) No. 42 — Chassis ground: Is the resistance less than 5 Ω?
 YES : Go to next CHECK.
 NO : Repair harness between ECM connector and engine grounding terminal.
- CHECK** : Connector & terminal (B84) No. 46 — Chassis ground: Is the resistance less than 5 Ω?
 YES : Go to next CHECK.
 NO : Repair harness between ECM connector and engine grounding terminal.
- CHECK** : Connector & terminal (B84) No. 69 — Chassis ground: Is the resistance less than 5 Ω?
 YES : Go to next CHECK.
 NO : Repair harness between ECM connector and engine grounding terminal.



8D1 CHECK IGNITION SYSTEM FOR SPARKS.

- 1) Remove plug cord cap from each spark plug.
- 2) Install new spark plug on plug cord cap.

CAUTION:

Do not remove spark plug from engine.

- 3) Contact spark plug's thread portion on engine.
- 4) While opening throttle valve fully, crank engine to check that spark occurs at each cylinder.

CHECK : **Does spark occur at each cylinder?**

YES : Check fuel pump system. <Ref. to 2-7 [T8E0].☆2>

NO : Go to step **8D2**.

8D2 CHECK POWER SUPPLY CIRCUIT FOR IGNITION COIL.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ignition coil.
- 3) Turn ignition switch to ON.
- 4) Measure power supply voltage between ignition coil connector and engine ground.

CHECK : **Connector & terminal (E12) No. 2 (+) — Engine ground (-) Is the voltage more than 10 V?**

YES : Go to step **8D3**.

NO : Repair harness between ignition coil and ignition switch connector.

8D3 CHECK IGNITION COIL.

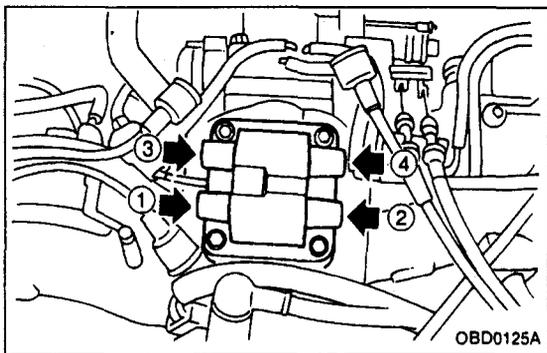
- 1) Measure resistance between ignition coil terminals to check primary coil.

CHECK : **Terminals No. 2 — No. 1: Is the resistance between 0.4 and 1.0 Ω?**

YES : Go to next **CHECK**.

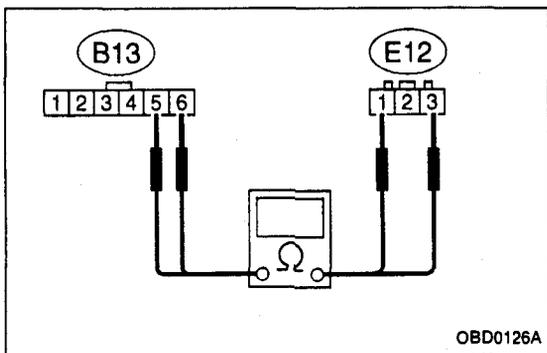
NO : Replace ignition coil.

- CHECK** : **Terminals**
No. 2 — No. 3:
Is the resistance between 0.4 and 1.0 Ω?
- NO** : Replace ignition coil.
- YES** : Go to next step 2).



2) Measure resistance between spark plug cord contact portions to check secondary coil.

- CHECK** : **Terminals**
#1 — #2:
Is the resistance between 18 and 24 Ω?
- YES** : Go to next **CHECK**
- NO** : Replace ignition coil.
- CHECK** : **Terminals**
#3 — #4:
Is the resistance between 18 and 24 Ω?
- YES** : Go to step **8D4**.
- NO** : Replace ignition coil.



8D4 CHECK HARNESS BETWEEN IGNITOR AND IGNITION COIL CONNECTOR.

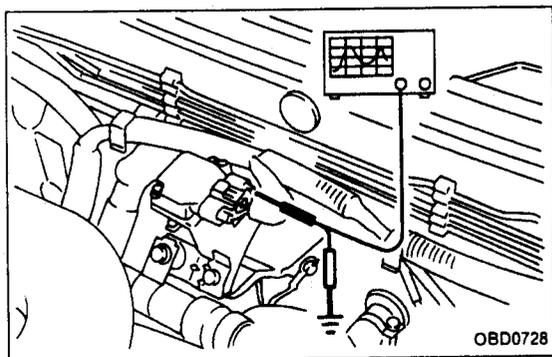
- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ignitor.
- 3) Measure resistance of harness between ignition coil and ignitor connector.

- CHECK** : **Connector & terminal**
(B13) No. 5 — (E12) No. 1:
Is the resistance less than 1 Ω?
- YES** : Go to next **CHECK1**
- NO** : Go to next **CHECK2**
- CHECK1** : **Connector & terminal**
(B13) No. 6 — (E12) No. 3:
Is the resistance less than 1 Ω?
- YES** : Go to step **8D5**.
- NO** : Go to next **CHECK2**

CHECK2 : Is there poor contact in coupling connector (B22)?

YES : Repair poor contact in coupling connector.

NO : Repair harness between ignition coil and ignitor connector.



8D5 CHECK INPUT SIGNAL FOR IGNITOR.

- 1) Connect connector to ignitor.
- 2) Check if voltage varies synchronously with engine spe when cranking, while monitoring voltage between ignitor connector and engine ground.

CHECK : Connector & terminal: (B13) No. 1 (+) — Engine ground (-): Is the voltage more than 10 V?

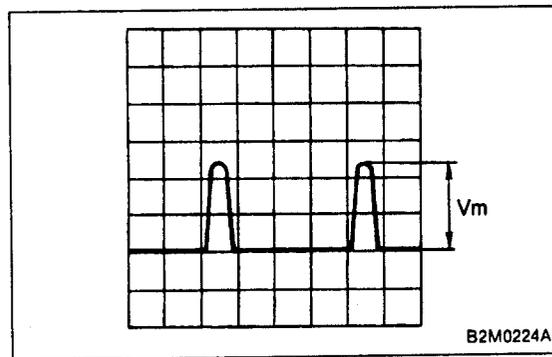
YES : Go to next **CHECK**.

NO : Replace ignitor.

CHECK : Connector & terminal: (B13) No. 2 (+) — Engine ground (-): Is the voltage more than 10 V?

YES : Go to step **8D6**.

NO : Replace ignitor.



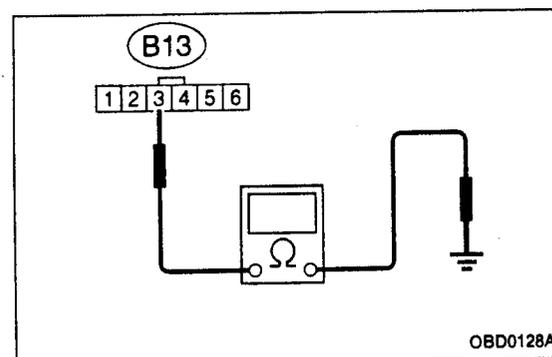
8D6 CHECK HARNESS OF IGNITOR GROUND CIRCUIT.

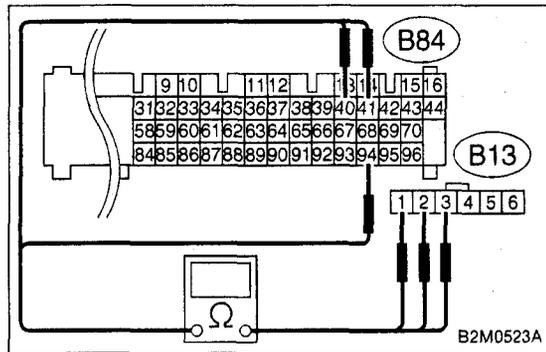
- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from ignitor.
- 3) Measure resistance between ignitor and engine ground.

CHECK : Connector & terminal (B13) No. 3 — Engine ground: Is the resistance less than 5 Ω?

YES : Go to step **8D7**.

NO : Repair harness between ignitor connector and engine grounding terminal.





8D7

CHECK HARNESS BETWEEN ECM AND IGNITOR CONNECTOR.

- 1) Disconnect connector from ECM.
- 2) Measure resistance of harness connector between ECM and ignitor.

CHECK : **Connector & terminal**
(B84) No. 41 — (B13) No. 1:
Is the resistance less than 1 Ω?

YES : Go to next **CHECK**

NO : Repair open circuit in harness between ECM and ignitor connector.

CHECK : **Connector & terminal**
(B84) No. 40 — (B13) No. 2:
Is the resistance less than 1 Ω?

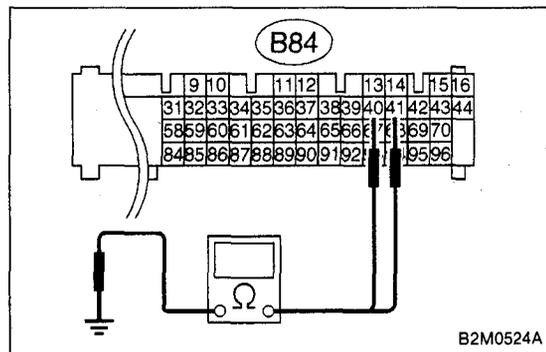
YES : Go to next **CHECK**

NO : Repair open circuit in harness between ECM and ignitor connector.

CHECK : **Connector & terminal**
(B84) No. 94 — (B13) No. 3:
Is the resistance less than 1 Ω?

NO : Repair open circuit in harness between ECM and ignitor connector.

YES : Go to next step 3).



- 3) Measure resistance of harness connector between ECM and chassis ground.

CHECK : **Connector & terminal**
(B84) No. 41 — Chassis ground:
Is the resistance more than 1 MΩ?

YES : Go to next **CHECK**

NO : Repair short circuit in harness between ECM and ignitor connector.

CHECK : **Connector & terminal**
(B84) No. 40 — Chassis ground:
Is the resistance more than 1 MΩ?

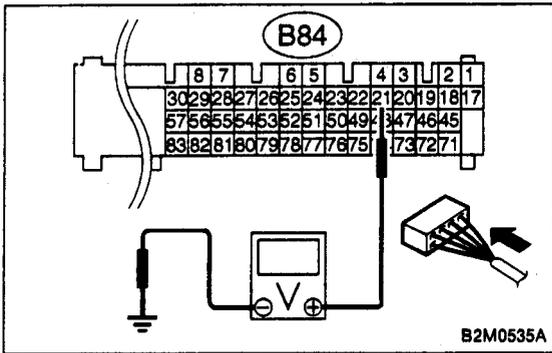
YES : Go to next **CHECK**

NO : Repair short circuit in harness between ECM and ignitor connector.

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

YES : Repair poor contact in ECM connector.

NO : Check fuel pump circuit. <Ref. to 2-7 [T8E0] ☆2>



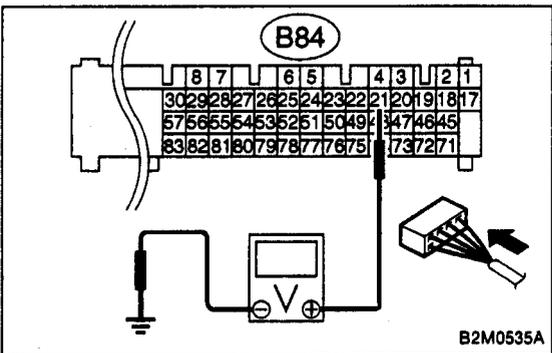
10D2 CHECK INPUT SIGNAL FOR ECM. (USING VOLTAGE METER AND SUBARU SELECT MONITOR.)

1) Measure voltage between ECM connector and chassis ground.

CHECK : Connector & terminal (B84) No. 21 (+) — Chassis ground (-): Is the voltage more than 4.5 V?

YES : Go to next step 2).

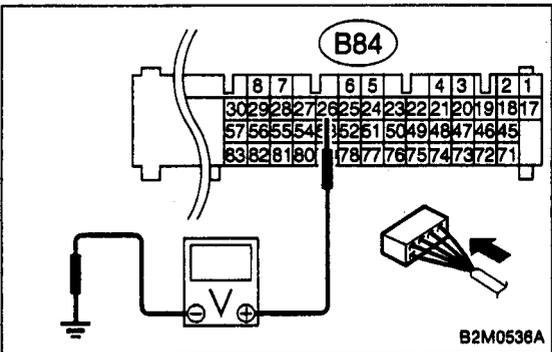
NO : Go to next **CHECK**



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.



2) Measure voltage between ECM and chassis ground.

CHECK : Connector & terminal (B84) No. 26 (+) — Chassis ground (-): Is the voltage less than 0.2 V?

YES : Go to step 10D3.

NO : Go to next step 3).

BARO. P (F 2 0)

100kPa752mmHg

3) Read data on Subaru Select Monitor.

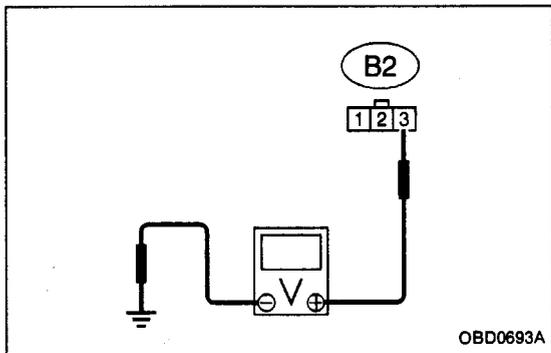
● Subaru Select Monitor Designate mode using function key.

Function mode: F20

● F20: Display shows pressure signal value sent from pressure sensor.

CHECK : Does the value change more than 0 kPa 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 **10D3**.

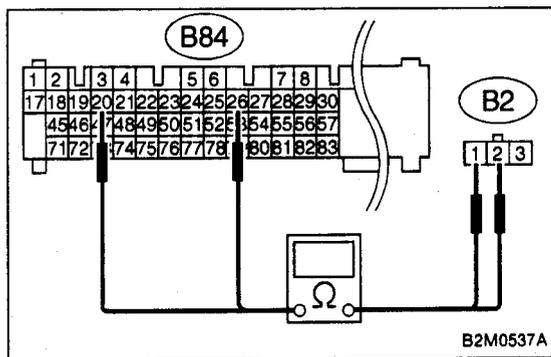


10D3 CHECK HARNESS BETWEEN ECM AND PRESSURE SENSOR CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from pressure sensor.
- 3) Turn ignition switch to ON.
- 4) Measure voltage between pressure sensor connector and engine ground.

CHECK : **Connector & terminal (B2) No. 3 (+) — Engine ground (-): Is the voltage more than 4.5 V?**

- YES** : Go to next step 5).
- NO** : Repair open circuit in harness between ECM and pressure sensor connector.



- 5) Turn ignition switch to OFF.
- 6) Disconnect connector from ECM.
- 7) Measure resistance of harness between ECM and pressure sensor connector.

CHECK : **Connector & terminal (B84) No. 26 — (B2) No. 2: Is the resistance less than 1 Ω?**

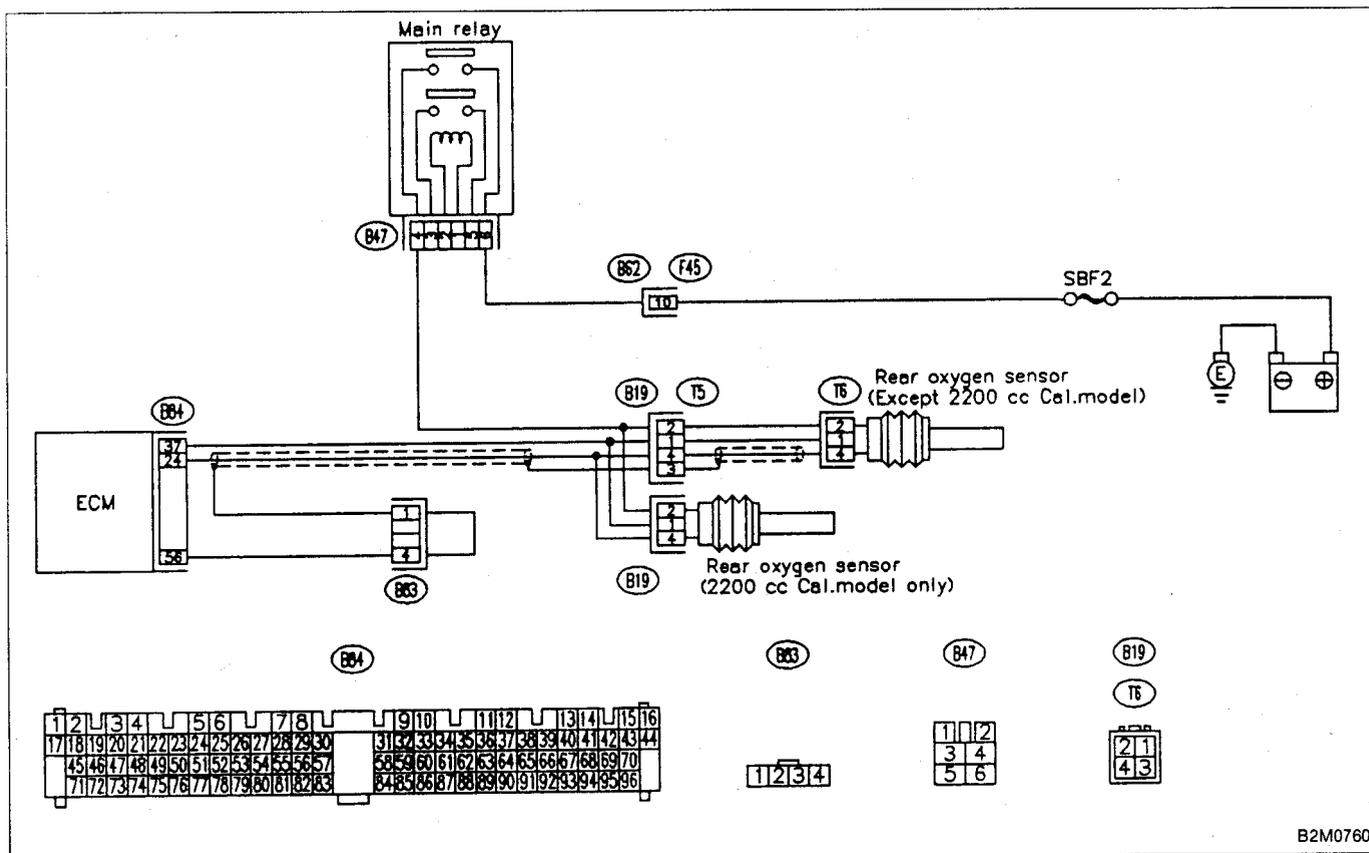
- YES** : Go to next **CHECK**.
- NO** : Repair open circuit in harness between ECM and pressure sensor connector.

CHECK : **Connector & terminal (B84) No. 20 — (B2) No. 1: Is the resistance less than 1 Ω?**

- YES** : Go to next step 8).
- NO** : Repair open circuit in harness between ECM and pressure sensor connector.

18-29-96-19

WIRING DIAGRAM:



B2M0760

18-29-96-20

10M1	CHECK DTC P0130 ON DISPLAY.
-------------	------------------------------------

CHECK : Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0130?

YES : Go to step **10M2**.

NO : Go to step **10M3**.

10M2	CHECK FAILURE CAUSE OF P0130.
-------------	--------------------------------------

Perform the step **10M1** of DTC P0130.

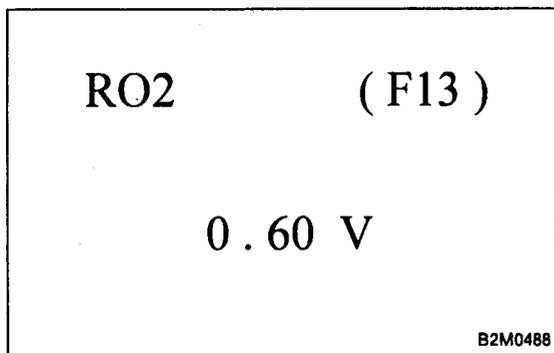
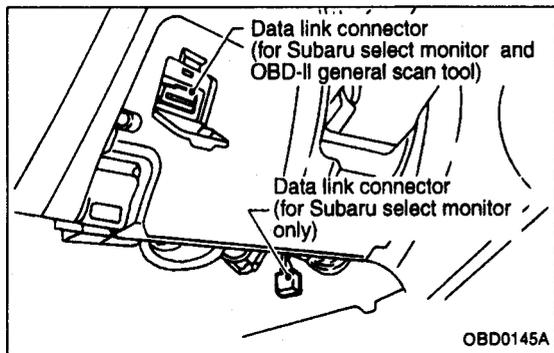
CHECK : Is the failure cause of P0130 in the fuel system?

YES : Check fuel system.

NOTE:

In this case, it is not necessary to inspect DTC P0136.

NO : Go to step **10M3**.



10M3	CHECK REAR OXYGEN SENSOR DATA.
-------------	---------------------------------------

- 1) Turn ignition switch to OFF.
- 2) Connect Subaru Select Monitor or OBD-II general scan tool to data link connector.
- 3) Start the engine, and turn Subaru Select Monitor or OBD-II general scan tool switch to ON.
- 4) Warm-up the engine until engine coolant temperature is above 70°C (160°F), and keep the engine speed at 2,000 rpm to 3,000 rpm for two minutes.

5) Read data on Subaru Select Monitor or OBD-II general scan tool.

- Subaru Select Monitor
Designate mode using function key.

Function mode: F13

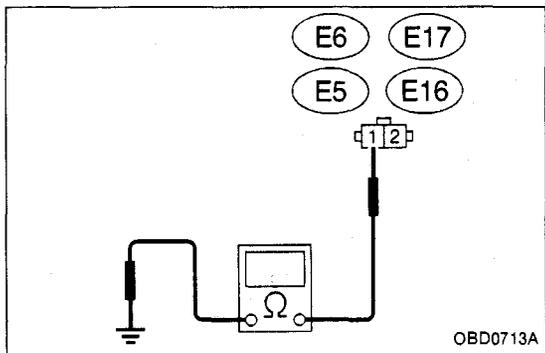
- F13: Rear oxygen sensor output signal is indicated.

CHECK : Does the value fluctuate in function mode F1??

YES : Go to step **10M5**.

NO : Go to next **CHECK**

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



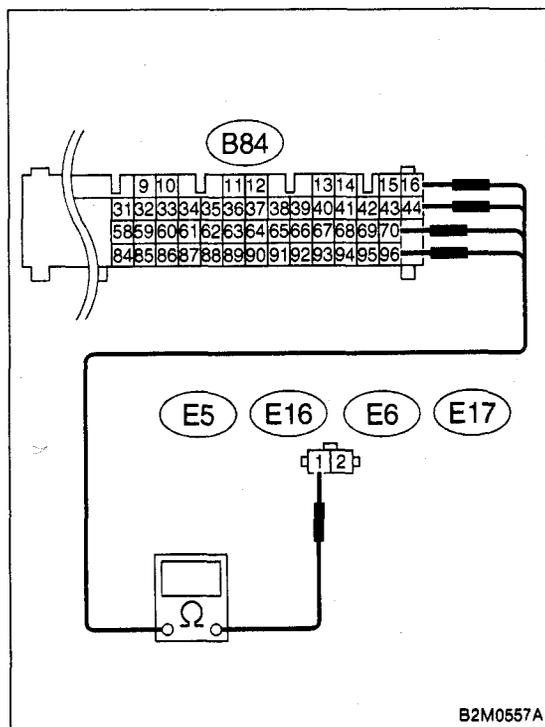
10T3 CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connector from fuel injector on faulty cylinders.
- 3) Measure voltage between ECM connector and engine ground on faulty cylinders.

- CHECK** : Connector & terminal
 - #1 (E5) No. 1 — Engine ground:
 - #2 (E16) No. 1 — Engine ground:
 - #3 (E6) No. 1 — Engine ground:
 - #4 (E17) No. 1 — Engine ground:
 Is the resistance less than 10 Ω?

YES : Repair short circuit in harness between fuel injector and ECM connector.

NO : Go to next step 4).

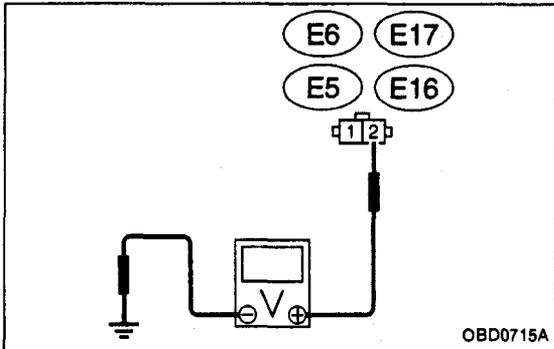
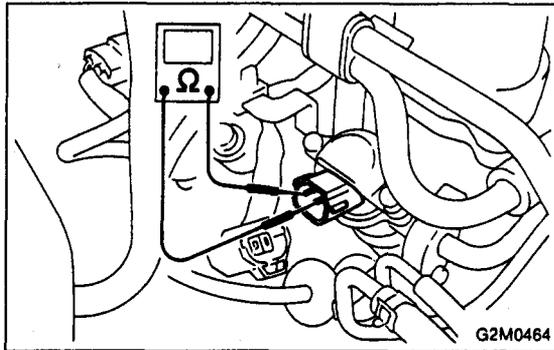


- 4) Measure resistance of harness connector between ECM connector and fuel injector on faulty cylinders.

- CHECK** : Connector & terminal
 - #1 (B84) No. 96 — (E5) No. 1:
 - #2 (B84) No. 70 — (E16) No. 1:
 - #3 (B84) No. 44 — (E6) No. 1:
 - #4 (B84) No. 16 — (E17) No. 1:
 Is the resistance less than 1 Ω?

YES : Go to step 10T4.

NO : Repair open circuit in harness between ECM and fuel injector connector.



10T4 CHECK FUEL INJECTOR.

Measure resistance between fuel injector terminals on faulty cylinder.

CHECK : **Terminals**
No. 1 — No. 2:
Is the resistance between 5 and 20 Ω?

YES : Replace faulty fuel injector.

NO : Go to step **10T5**.

10T5 CHECK POWER SUPPLY LINE.

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel injector and engine ground on faulty cylinders.

CHECK : **Connector & terminal**
#1 (E5) No. 2 (+) — Engine ground (-):
#2 (E16) No. 2 (+) — Engine ground (-):
#3 (E6) No. 2 (+) — Engine ground (-):
#4 (E17) No. 2 (+) — Engine ground (-):
Is the voltage more than 10 V?

YES : Repair poor contact in all connectors in fuel injector circuit.

NO : Repair harness and connector.

NOTE:

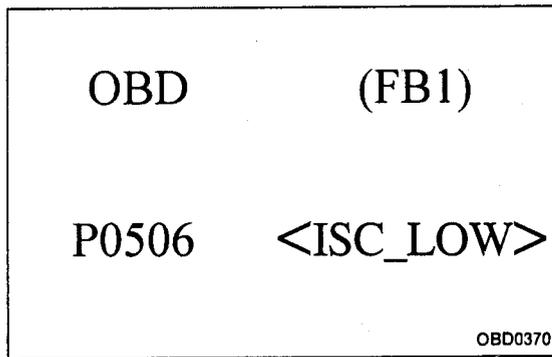
In this case, repair the following:

- Open circuit in harness between main relay and fuel injector connector on faulty cylinders
- Poor contact in main relay connector
- Poor contact in coupling connector (B22).

- CHECK** : **Connector & terminal
(B84) No. 14 — Chassis ground:
Is the resistance less than 10 Ω?**
- YES** : Repair short circuit in harness between ECM and
idle air control solenoid valve connector.
- NO** : Go to next **CHECK** .
- CHECK** : **Is there poor contact in idle air control sole-
noid valve connector?**
- YES** : Repair poor contact in idle air control solenoid
valve connector.
- NO** : Contact with SOA service.

NOTE:

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

**AI: DTC P0506**

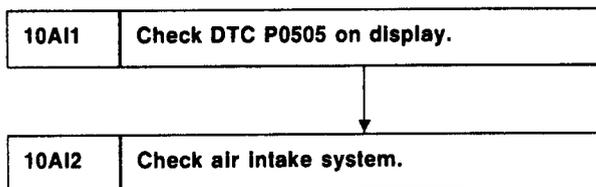
— IDLE CONTROL SYSTEM RPM LOWER THAN EXPECTED (ISC—LOW)—

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

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

**CAUTION:**

After repair or replacement of faulty parts, conduct **CLEAR MEMORY** and **INSPECTION MODES**.

< Ref. to 2-7 [T3D0] and [T3E0].☆2 >

10A11	CHECK DTC P0505 ON DISPLAY.
--------------	------------------------------------

CHECK : *Does the Subaru select monitor or OBD-II general scan tool indicate DTC P0505?*

YES : Inspect DTC P0505 using "10. Diagnostics Chart with Trouble Code 2-7 [T1000]"☆2.

NOTE:

In this case, it is not necessary to inspect DTC P0506.

NO : Go to step **10A12**.

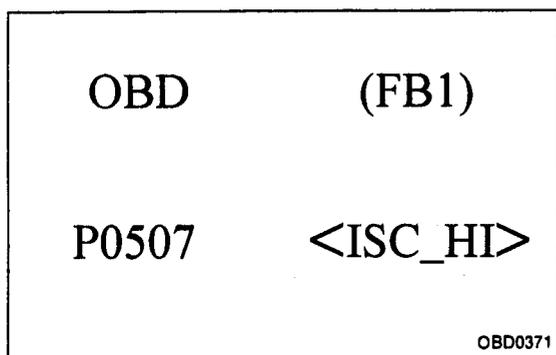
10A12	CHECK AIR INTAKE SYSTEM.
--------------	---------------------------------

- 1) Turn ignition switch to ON.
- 2) Start engine, and idle it.

CHECK : *Is clogging the by-pass line between by-pass hose and intake duct?*

YES : Repair the by-pass line.

NO : Replace idle air control solenoid valve.

**AJ: DTC P0507**

— IDLE CONTROL SYSTEM RPM HIGHER THAN EXPECTED (ISC—HI)—

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

- Engine keeps running at higher revolution than specified idling revolution.

10AJ1	Check DTC P0505 on display.
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10AJ2	Check air intake system.
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CAUTION:

After repair or replacement of faulty parts, conduct **CLEAR MEMORY** and **INSPECTION MODES**.

< Ref. to 2-7 [T3D0] and [T3E0].☆2 >

10AU2	CHECK THROTTLE POSITION SENSOR CIRCUIT.
--------------	--

CHECK : *Is there any trouble in throttle position sensor circuit?*

NOTE:

For the diagnostic procedure on throttle position sensor circuit, refer to 3-2 [T7L0]☆1.

YES : Repair or replace throttle position sensor circuit.

NO : Go to step **10AU3**.

10AU3	CHECK VEHICLE SPEED SENSOR 1 CIRCUIT.
--------------	--

CHECK : *Is there any trouble in vehicle speed sensor 1 circuit?*

NOTE:

For the diagnostic procedure on vehicle speed sensor 1 circuit, refer to 3-2 [T7M0]☆1.

YES : Repair or replace vehicle speed sensor 1 circuit.

NO : Go to step **10AU4**.

10AU4	CHECK VEHICLE SPEED SENSOR 2 CIRCUIT.
--------------	--

CHECK : *Is there any trouble in vehicle speed sensor 2 circuit?*

NOTE:

For the diagnostic procedure on vehicle speed sensor 2 circuit, refer to 3-2 [T7N0]☆1.

YES : Repair or replace vehicle speed sensor 2 circuit.

NO : Go to step **10AU5**.

10AU5	CHECK ENGINE SPEED INPUT CIRCUIT.
--------------	--

CHECK : *Is there any trouble in engine speed input circuit?*

NOTE:

For the diagnostic procedure on engine speed input signal circuit, refer to 3-2 [T7I0]☆1.

YES : Repair or replace engine speed input circuit.

NO : Go to next **CHECK** .

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

YES : Repair poor contact in TCM connector.

NO : Go to next **CHECK** .

CHECK : *Is there any mechanical trouble in automatic transmission?*

YES : Repair or replace automatic transmission.

NO : Replace TCM.

<p>OBD (FB1)</p> <p>P0740 <ATLU_F></p> <p style="text-align: right; font-size: small;">B2M0661</p>
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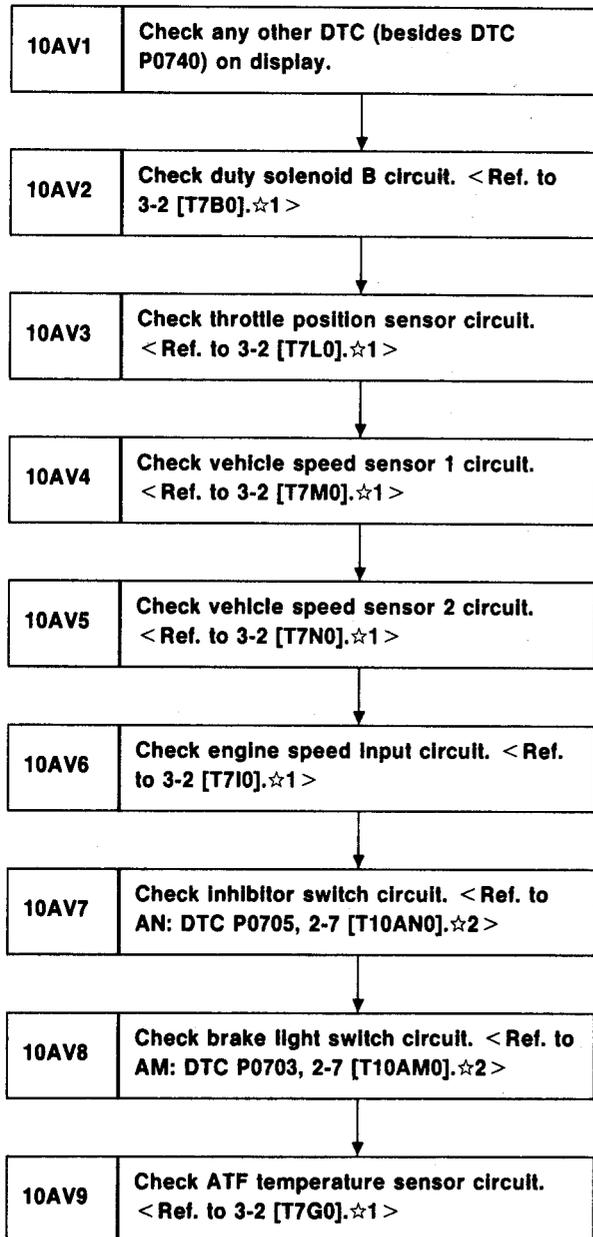
AV: DTC P0740
— TORQUE CONVERTER CLUTCH SYSTEM
MALFUNCTION (ATLU — F) —

DTC DETECTING CONDITION:

- Two consecutive trips with fault

TROUBLE SYMPTOM:

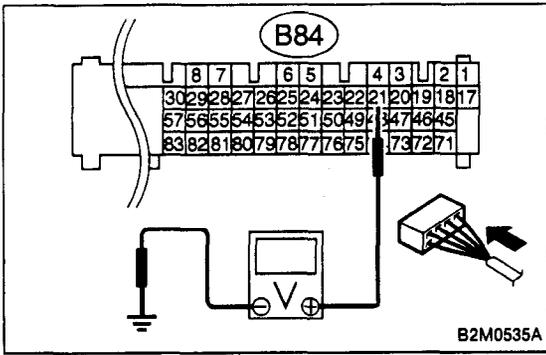
- No lock-up (after engine warm-up)
- No shift or excessive tight corner "braking"



CAUTION:

After repair or replacement of faulty parts, conduct CLEAR MEMORY and INSPECTION MODES.

< Ref. to 2-7 [T3D0] and [T3E0].☆2 >



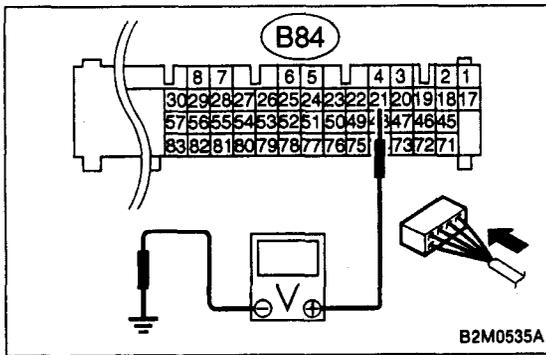
10BS2 **CHECK INPUT SIGNAL FOR ECM. (USING VOLTAGE METER AND SUBARU SELECT MONITOR.)**

1) Measure voltage between ECM connector and chassis ground.

CHECK : **Connector & terminal (B84) No. 21 (+) — Chassis ground (-): Is the voltage more than 4.5 V?**

YES : Go to next step 2).

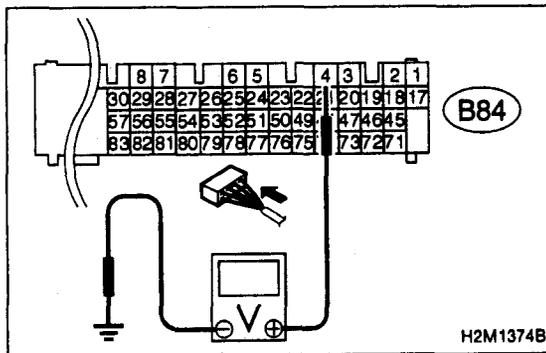
NO : Go to next **CHECK** .



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.



2) Measure voltage between ECM and chassis ground.

CHECK : **Connector & terminal (B84) No. 4 (+) — Chassis ground (-): Is the voltage less than 0.2 V?**

YES : Go to step 10BS3.

NO : Go to next step 3).

TNKP (F43)
 0. 10kPa 1mmHg

H2M1326

3) Read data on Subaru Select Monitor.

● Subaru Select Monitor
 Designate mode using function key.

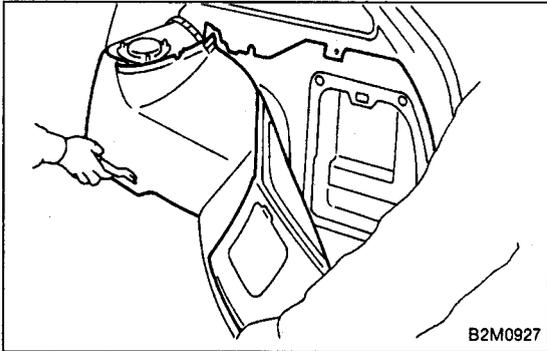
Function mode: F43

● F43: Display shows pressure signal value sent from fuel tank pressure sensor.

CHECK : Does the value change more than -2.8 kPa by shaking harness and connector of ECM while monitoring the value with Subaru select monitor?

YES : Repair poor contact in ECM connector.

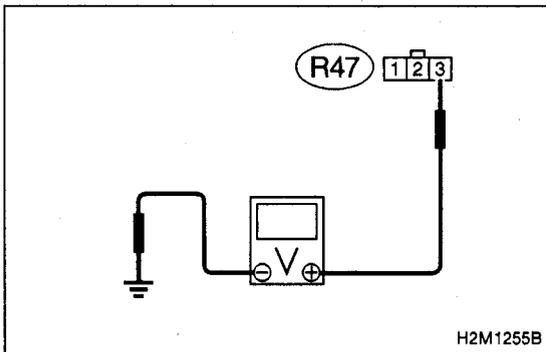
NO : Go to step **10BS3**.



B2M0927

10BS3**CHECK HARNESS BETWEEN ECM AND FUEL TANK PRESSURE SENSOR CONNECTOR.**

- 1) Turn ignition switch to OFF.
- 2) Detach right side trunk side trim panel (Sedan) or right side rear quarter trim panel (Wagon).
- 3) Remove right side rear quarter trim pocket (Wagon model only).
- 4) Detach right side rear quarter insulator (Wagon model only).



H2M1255B

- 5) Disconnect connector from fuel tank pressure sensor.
- 6) Turn ignition switch to ON.
- 7) Measure voltage between fuel tank pressure sensor connector and chassis ground.

CHECK : **Connector & terminal (R47) No. 3 (+) — Chassis ground (-): Is the voltage more than 4.5 V?**

YES : Go to next step 8).

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and fuel tank pressure sensor connector
- Poor contact in coupling connector (B97)

10BX1	CHECK DTC P1402 ON DISPLAY.
--------------	------------------------------------

CHECK : *Does the Subaru select monitor or OBD-II general scan tool indicate DTC P1402?*

YES : Inspect DTC P1402 using "10. Diagnostics Chart with Trouble Code 2-7 [T10A0]"☆2.

NOTE:
In this case, it is not necessary to inspect this trouble.

NO : Replace fuel sending unit and fuel sub meter unit.

MEMO: