

SERVICE BULLETIN

APPLICABILITY 1993 - 1999 Impreza Service Manuals**DATE 12-2-98****SUBJECT Service Manual Corrections**

Replace the following pages into the applicable Service Manuals listed below:

YEAR	VOL #	MSA #	SECTION	PAGES	REFERENCE
1993-94	2	MSA5M9305A	5-5	21 / 22	[T5C3] / [T5D0]
1995	4	MSA5M9603A	1-1	3 / 4	[S108] / [S109]
1995	4	MSA5M9603A	2-7B	371 / 372	[T1BQ4] / [T10BQ5]
1997	7	MSA5M9707A	2-7	417 / 418	[T10CJ3] / [T10CJ4]
1998	10	MSA5M9805A	2-7	353 / 354	[T10CM3] / [T10CM4]
1998	10	MSA5M9805A	4-4	123 / 124	[T10Y4] / [T10Y5]
1999	11	MSA5M9904A	3-2	53 / 54	[W11B3] / [W11B3]
1999	13	MSA5M9906A	6-3	55 / 56	[D6E2] / [D6F1]

Please perform these corrections promptly to ensure the most correct information is conveyed when the Service Manuals are used.

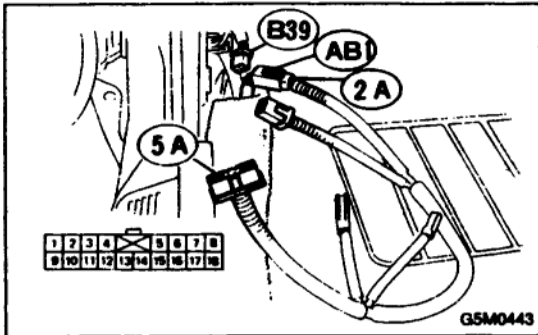
CAUTION

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.



2. AIRBAG MAIN HARNESS INSPECTION

- 1) Go to step 2) below after performing diagnostics on airbag system as per flowchart under "1. Air Bag Control Module Inspection" previously outlined.
- 2) Turn ignition switch "OFF", disconnect battery ground terminal and then wait at least 20 seconds.



Test harness A-PN96299PA000

- 3) Disconnect bulk harness connector (B39) from connector (AB1) at front lower pillar, and connect connector (AB1) to test harness-A connector (2A).
- 4) Measure resistance between test harness-A connector (5A) terminal and test harness-B connector (5B) terminal.

Connector & terminal / Specified resistance:

(5A) No. 1 — (5B) No. 2 / 10 Ω, or less

- 5) Measure resistance between terminals of connectors (5A) and (5B).

(5A) Terminal / Specified resistance:

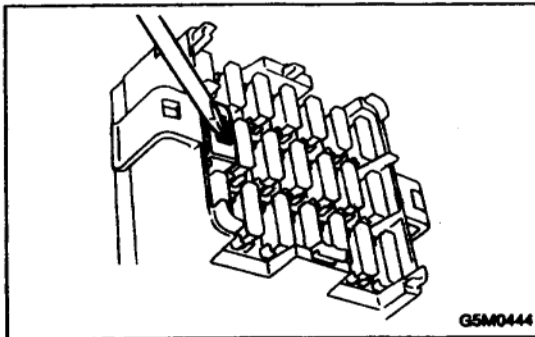
No. 1 — Body / 10 kΩ, or more

(5B) Terminal / Specified resistance:

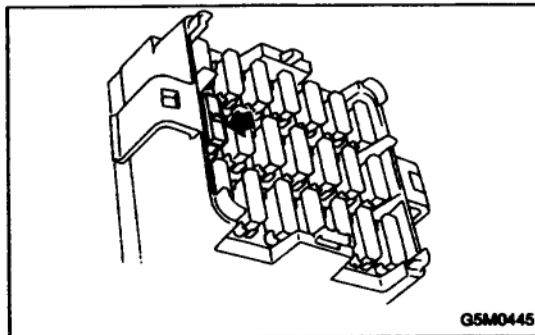
No. 2 — Body / 10 kΩ, or more

3. FUSE NO. 8 INSPECTION

- 1) Turn ignition switch "OFF", and remove airbag fuse protector.

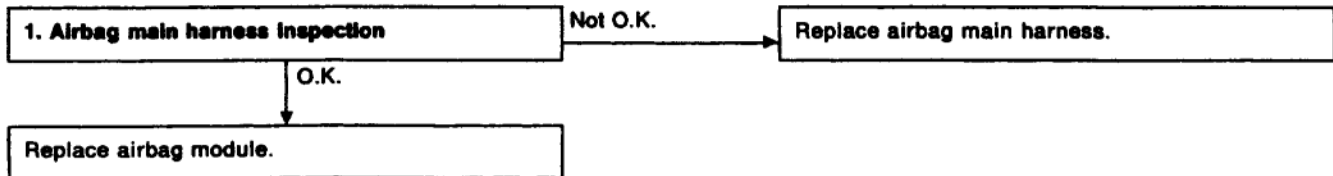


- 2) Remove and visually check fuse No. 8.

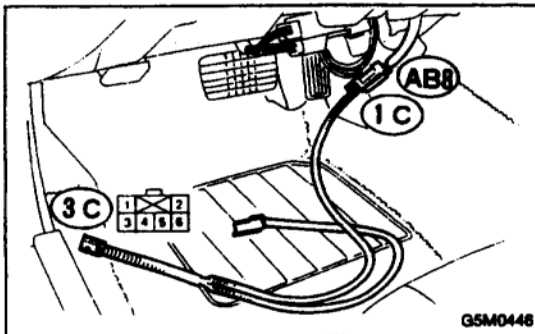


D: TROUBLE CODE 12**DIAGNOSIS:**

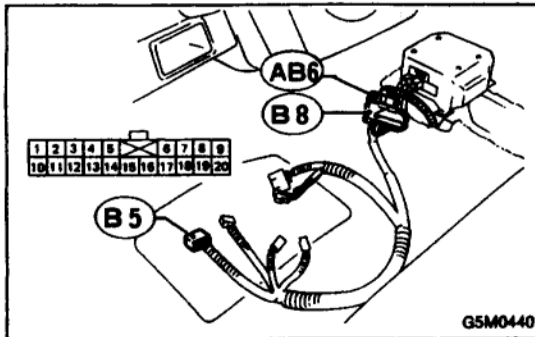
- Airbag main harness circuit is open.
- Airbag module harness circuit is open.
- Roll connector circuit is open.
- Airbag control module is faulty.

**CAUTION:**

Before performing diagnostics on airbag system, turn ignition switch "OFF", disconnect battery ground cable and then wait at least 20 seconds.

**1. AIRBAG MAIN HARNESS INSPECTION**

1) Remove lower cover panel <Ref. to 5-4 [W1A0].>, and connect connector (AB8) below steering column to test harness-C connector (1C).



2) Disconnect connector (AB6) <Ref. to 5-5 [W5A0].> from airbag control module, and connect it to test harness-B connector (8B) terminal.

3) Measure resistance between test harness-B connector (5B) and test harness-C connector (3C) terminals.

Connector & terminal / Specified resistance:

(5B) No. 14 — (3C) No. 4 / 10 Ω, or less

(5B) No. 1 — (3C) No. 3 / 10 Ω, or less

Test harness B-PN98299PA010
Test harness C-PN98299PA020

SPECIFICATIONS

[S108] 1-1
1. 2-door Coupe

4. TRANSMISSION

Model		FWD	AWD		
Transmission type		4AT*1	5MT*2	4AT*2	
Clutch type		TCC	DSPD	TCC	
Gear ratio	1st	2.785	3.545	2.785	
	2nd	1.545	2.111	1.545	
	3rd	1.000	1.448	1.000	
	4th	0.694	1.068	0.694	
	5th	—	0.825 (1800 cc model) 0.780 (2200 cc model)	—	
	Reverse	2.272	3.416	2.272	
Reduction gear (Front drive)	1st reduction	Type of gear	Helical	—	Helical
		Gear ratio	1.000	—	1.000
	Final reduction	Type of gear	Hypoid	Hypoid	Hypoid
		Gear ratio	3.900	3.900	4.111
Reduction gear (Rear drive)	Transfer reduction	Type of gear	—	Helical	—
		Gear ratio	—	1.000	—
	Final reduction	Type of gear	—	Hypoid	Hypoid
		Gear ratio	—	3.900	4.111

4AT*1: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse

5MT*2: 5-forward speeds with synchromesh and 1-reverse – with center differential and viscous coupling

4AT*2: Electronically controlled fully-automatic, 4-forward speeds and 1-reverse – with hydraulically controlled transfer clutch

DSPD: Dry Single Plate Diaphragm

TCC: Torque Converter Clutch

5. STEERING

Type	Rack and Pinion	
Turns, lock to lock	3.2	
Minimum turning circle	m (ft)	Curb to curb: 10.2 (33.5), Wall to wall: 11.0 (36.1)

6. SUSPENSION

Front	Macpherson strut type, Independent, Coil spring
Rear	Dual link strut type, Independent, Coil spring

7. BRAKE

Model	Brighton	L	LX
Service brake system	Dual circuit hydraulic with vacuum suspended power unit		
Front	Ventilated disc brake		
Rear	Drum brake		Disc brake
Parking brake	Mechanical on rear brakes		

Model	1800			2200	
	FWD	AWD		AWD	
	L	Brighton	L	L	LX
Size	P175/70R14 84S			P195/60R15 87H	
Type	Steel belted radial, Tubeless				

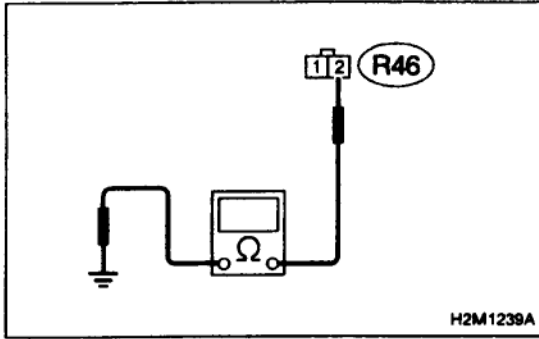
9. CAPACITY

Model		ℓ (US gal, Imp gal)	FWD	AWD	
			4AT	5MT	4AT
Fuel tank			50 (13.2, 11.0)		
Engine oil	Upper level	ℓ (US qt, Imp qt)	4.0 (4.2, 3.5)		
	Lower level	ℓ (US qt, Imp qt)	3.0 (3.2, 2.6)		
Transmission gear oil		ℓ (US qt, Imp qt)	—	4.0 (4.2, 3.5)	—
Automatic transmission fluid		ℓ (US qt, Imp qt)	7.9 (8.4, 7.0)	—	7.9 (8.4, 7.0)
AT differential gear oil		ℓ (US qt, Imp qt)	1.2 (1.3, 1.1)	—	1.2 (1.3, 1.1)
AWD rear differential gear oil		ℓ (US qt, Imp qt)	—	0.8 (0.8, 0.6)	
Power steering fluid		ℓ (US qt, Imp qt)	0.7 (0.7, 0.6)		
Engine coolant		ℓ (US qt, Imp qt)	1800 cc model: 6.2 (6.6, 5.5) 2200 cc model: 5.8 (6.1, 5.1)		

10. WEIGHT

Model — America —			1800	
			FWD	AWD
			L	Brighton
			4AT	5MT
Curb weight (C.W.)	Front	kg (lb)	725 (1,600)	700 (1,540)
	Rear	kg (lb)	440 (965)	480 (1,060)
	Total	kg (lb)	1,165 (2,565)	1,180 (2,600)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	860 (1,900)	860 (1,900)
	Rear	kg (lb)	770 (1,700)	815 (1,800)
	Total	kg (lb)	1,635 (3,600)	1,680 (3,700)

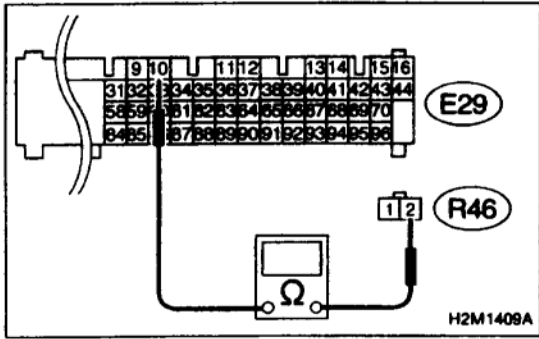
Model — America —			2200			
			AWD			
			L		LX	
			5MT	4AT	5MT	4AT
Curb weight (C.W.)	Front	kg (lb)	730 (1,610)	760 (1,680)	720 (1,585)	750 (1,655)
	Rear	kg (lb)	500 (1,105)	505 (1,110)	520 (1,145)	520 (1,150)
	Total	kg (lb)	1,230 (2,715)	1,265 (2,790)	1,240 (2,730)	1,270 (2,805)
Gross vehicle weight (G.V.W.)	Front	kg (lb)	885 (1,950)			
	Rear	kg (lb)	815 (1,800)			
	Total	kg (lb)	1,700 (3,750)			



10BQ3 CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM.
- 3) Measure resistance of harness between fuel tank pressure control solenoid valve connector and chassis ground.

- CHECK** : Connector & terminal (R46) No. 2 — Chassis ground: Is the resistance less than 10 Ω?
- YES** : Repair short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
- NO** : Go to next step 4).

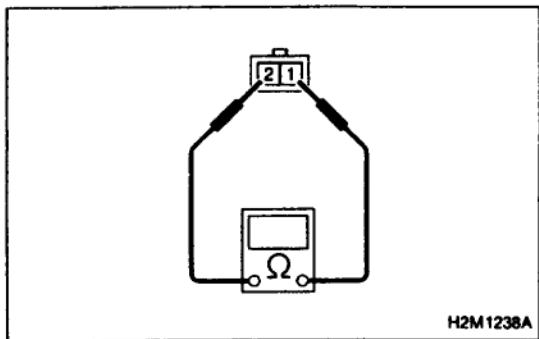


- 4) Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.

- CHECK** : Connector & terminal (E29) No. 10 — (R46) No. 2: Is the resistance less than 1 Ω?
- YES** : Go to step 10BQ4.
- NO** : Repair harness and connector.

NOTE:
In this case, repair the following:

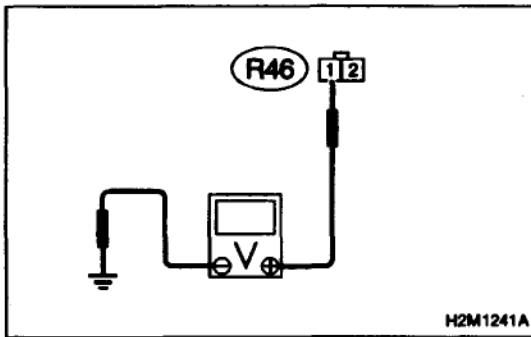
- Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B101, B85 and R14)



10BQ4 CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

- CHECK** : Terminals No. 1 — No. 2: Is the resistance between 10 and 100 Ω?
- YES** : Go to step 10BQ5.
- NO** : Replace fuel tank pressure control solenoid valve.

**10BQ5****CHECK POWER SUPPLY TO FUEL TANK PRESSURE CONTROL SOLENOID VALVE.**

- 1) Turn ignition switch to ON.
- 2) Measure voltage between fuel tank pressure control solenoid valve and chassis ground.

CHECK : **Connector & terminal (R46) No. 1 (+) — Chassis ground (-):**
Is the voltage more than 10 V?

YES : Go to next **CHECK** .

NO : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B85 and R14)
- Poor contact in main relay connector

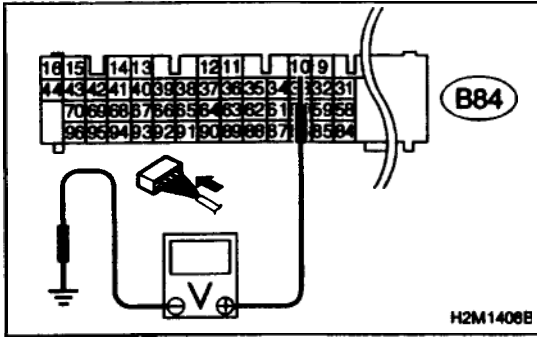
CHECK : **Is there poor contact in fuel tank pressure control solenoid valve connector?**

YES : Repair poor contact in fuel tank pressure control solenoid valve connector.

NO : Contact with SOA service.

NOTE:

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



10CJ1 CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal

(B84) No. 10 (+) — Chassis ground (-):

CHECK : Is the voltage more than 10 V?

YES : Go to step 10CJ2.

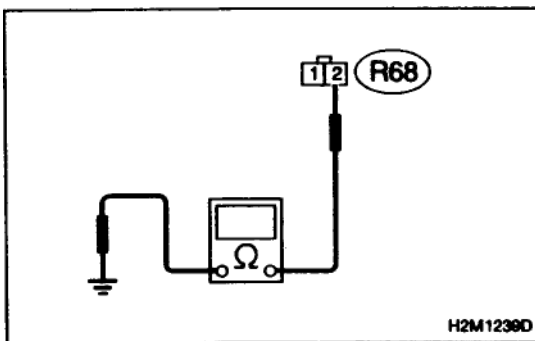
NO : Go to step 10CJ3.

10CJ2 CHECK POOR CONTACT.

WORD

CHECK

YES



10CJ3 CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM.
- 3) Measure resistance of harness between fuel tank pressure control solenoid valve connector and chassis ground.

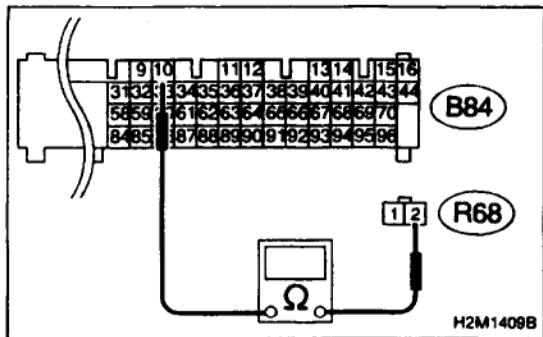
Connector & terminal

(R68) No. 2 — Chassis ground:

CHECK : Is the resistance less than 10 Ω?

YES : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.

NO : Go to next step 4).



4) Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.

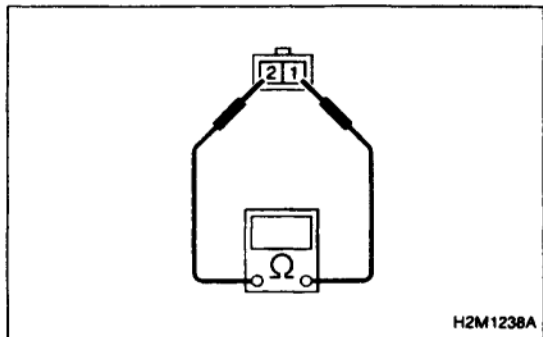
Connector & terminal
(B84) No. 10 — (R68) No. 2:

- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10CJ4.
- NO** : Repair harness and connector.

NOTE:

In this case, repair the following:

- Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B99 and R15)



10CJ4	CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.
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Measure resistance between fuel tank pressure control solenoid valve terminals.

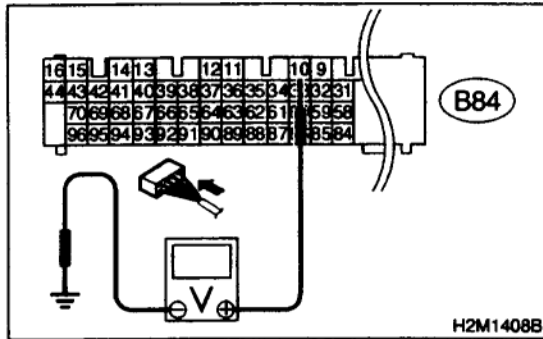
Terminals
No. 1 — No. 2:

- CHECK** : Is the resistance between 10 and 100 Ω?
- YES** : Go to step 10CJ5.
- NO** : Replace fuel tank pressure control solenoid valve.

10CM1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B84) No. 10 (+) — Chassis ground (-):



- CHECK** : **Is the voltage more than 10 V?**
- YES** : Go to step 10CM2.
- NO** : Go to step 10CM3.

10CM2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆6>

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

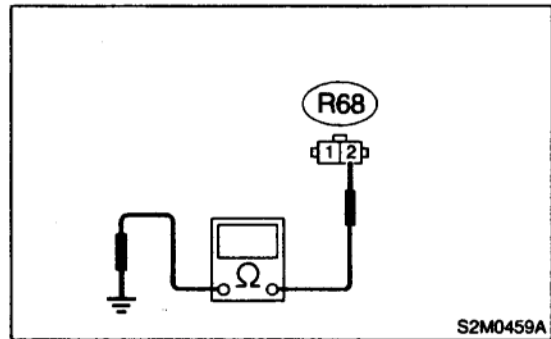
NOTE:

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

10CM3 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

- 1) Turn ignition switch to OFF.
- 2) Disconnect connectors from fuel tank pressure control solenoid valve and ECM.
- 3) Measure resistance of harness between fuel tank pressure control solenoid valve connector and chassis ground.

Connector & terminal
(R68) No. 2 — Chassis ground:

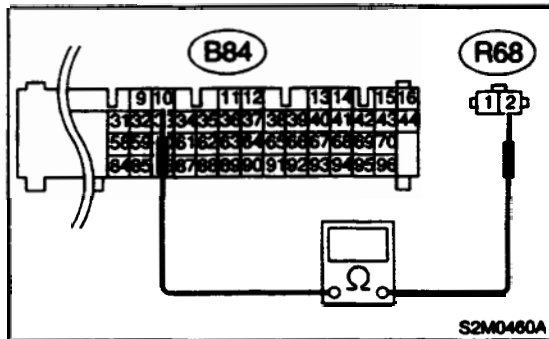


- CHECK** : **Is the resistance less than 10 Ω?**
- YES** : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
- NO** : Go to step 10CM4.

10CM4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.

Connector & terminal
(B84) No. 10 — (R68) No. 2:



- CHECK** : Is the resistance less than 1 Ω?
- YES** : Go to step 10CM5.
- NO** : Repair harness and connector.

NOTE:

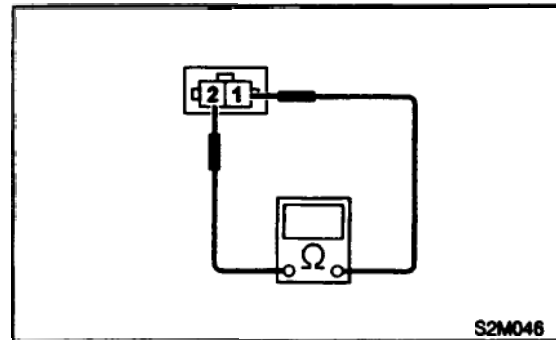
In this case, repair the following:

- Open circuit in harness between ECM and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B98 and R57)

10CM5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

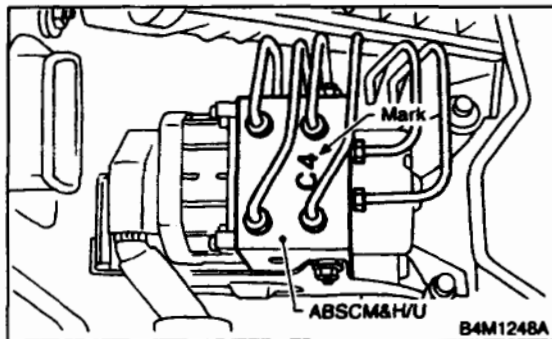
Terminals
No. 1 — No. 2:



- CHECK** : Is the resistance between 10 and 100 Ω?
- YES** : Go to step 10CM6.
- NO** : Replace fuel tank pressure control solenoid valve.

10Y1 : CHECK SPECIFICATIONS OF THE ABSCM&H/U.

Check specifications of the mark to the ABSCM&H/U.



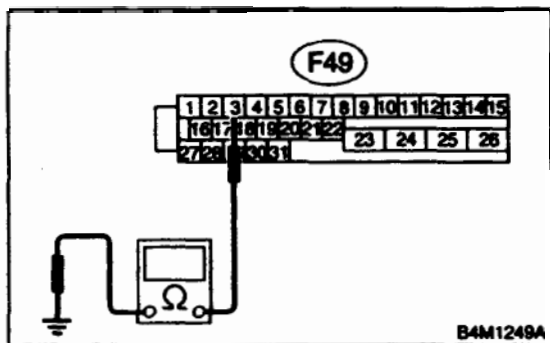
Mark	Model
C3	AWD AT
C4	AWD MT

- CHECK** : Is an ABSCM&H/U for AT model installed on a MT model?
- YES** : Replace ABSCM&H/U.
- NO** : Go to step 10Y2.

10Y2 : CHECK GROUND SHORT OF HARNESS.

- 1) Turn ignition switch to OFF.
- 2) Disconnect two connectors from TCM.
- 3) Disconnect connector from ABSCM&H/U.
- 4) Measure resistance between ABSCM&H/U connector and chassis ground.

Connector & terminal
(F49) No. 3 — Chassis ground:

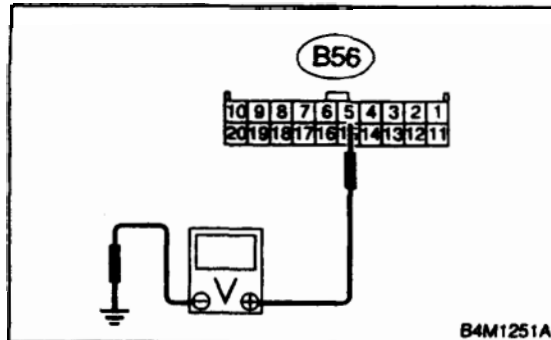


- CHECK** : Is the resistance more than 1 MΩ?
- YES** : Go to step 10Y3.
- NO** : Repair harness between TCM and ABSCM&H/U.

10Y3 : CHECK TCM.

- 1) Connect all connectors to TCM.
- 2) Turn ignition switch to ON.
- 3) Measure voltage between TCM connector terminal and chassis ground.

Connector & terminal
(B56) No. 5 (+) — Chassis ground (-):



- CHECK** : Is the voltage more than 8.5V?
- YES** : Go to step 10Y5.
- NO** : Go to step 10Y4.

10Y4 : CHECK AT.

- CHECK** : Is the AT functioning normally?
- YES** : Replace TCM.
- NO** : Repair AT.

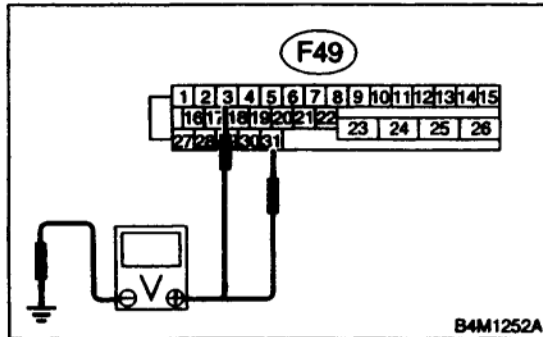
10Y5 : CHECK OPEN CIRCUIT OF HARNESS.

Measure voltage between ABSCM&H/U connector and chassis ground.

Connector & terminal

(F49) No. 3 (+) — Chassis ground (-):

(F49) No. 31 (+) — Chassis ground (-):



- CHECK** : *Is the voltage more than 10 V?*
- YES** : Go to step 10Y6.
- NO** : Repair harness/connector between AT control module and ABSCM&H/U.

10Y6 : CHECK POOR CONTACT IN CONNECTORS.

- CHECK** : *Is there poor contact in connectors between AT control module and ABSCM&H/U? <Ref. to FOREWORD [T3C1].☆6>*
- YES** : Repair connector.
- NO** : Go to step 10Y7.

10Y7 : CHECK ABSCM&H/U.

- 1) Connect all connectors.
- 2) Erase the memory.
- 3) Perform inspection mode.
- 4) Read out the trouble code.

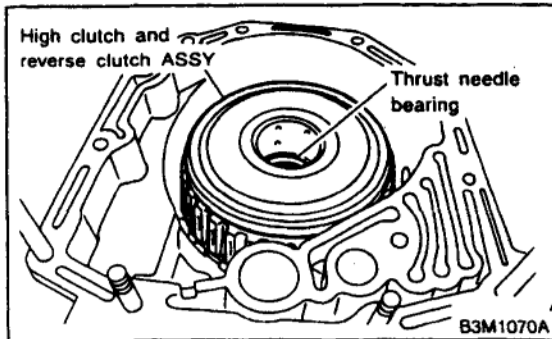
- CHECK** : *Is the same trouble code as in the current diagnosis still being output?*
- YES** : Replace ABSCM&H/U.
- NO** : Go to step 10Y8.

10Y8 : CHECK ANY OTHER TROUBLE CODES APPEARANCE.

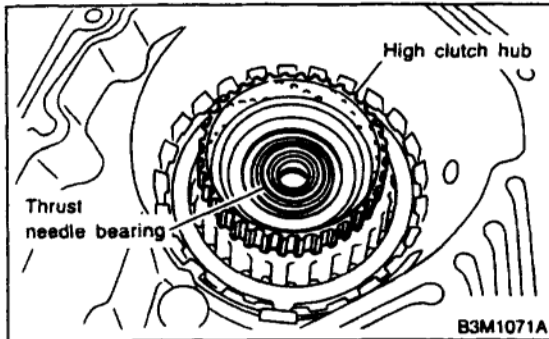
- CHECK** : *Are other trouble codes being output?*
- YES** : Proceed with the diagnosis corresponding to the trouble code.
- NO** : A temporary poor contact.

13) Take out the high clutch and reverse clutch assembly.

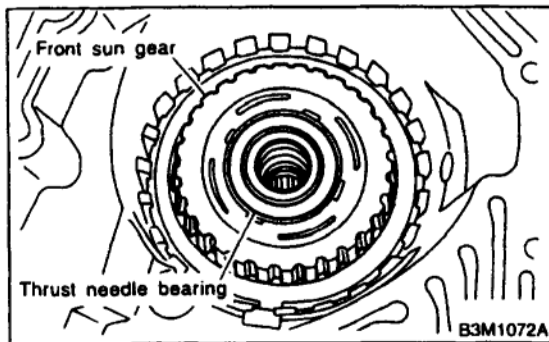
CAUTION:
Be careful not to lose thrust needle bearing.



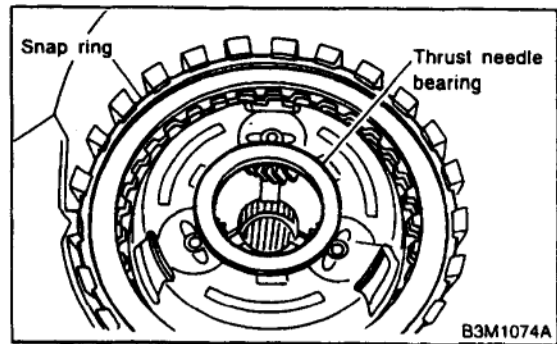
14) Take out the high clutch hub and the thrust bearing.



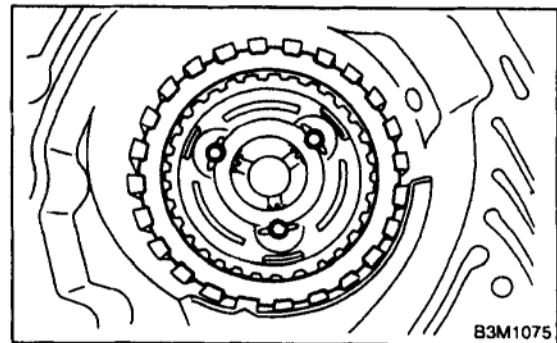
15) Take out the front sun gear and the thrust bearing.



16) Remove snap ring and thrust needle bearing.

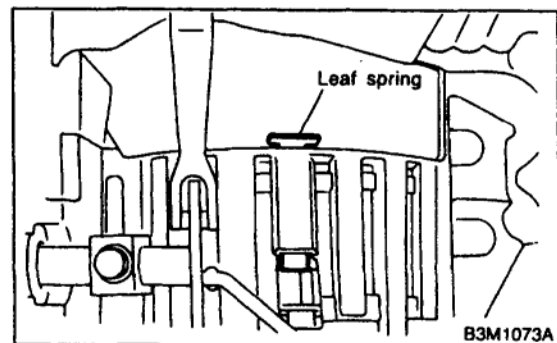


17) Take out retaining plate, drive plate and driven plate of 2-4 brake.



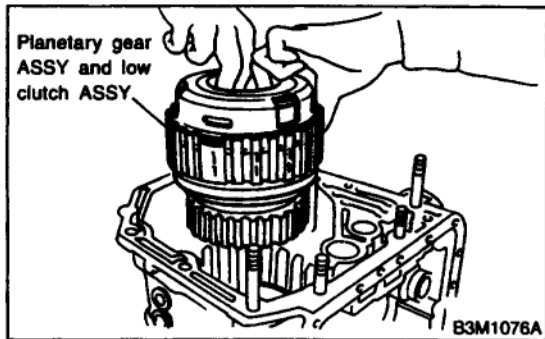
18) Pull out leaf spring.

CAUTION:
Be careful not to bend leaf spring during removal.

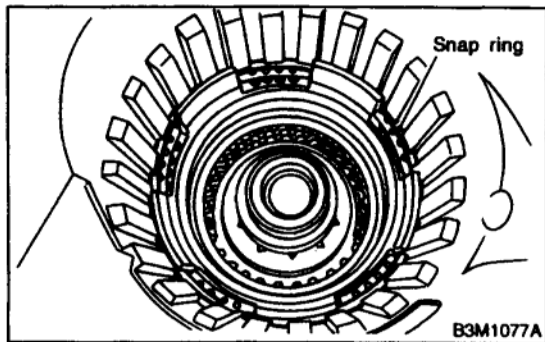


11. Overall Transmission

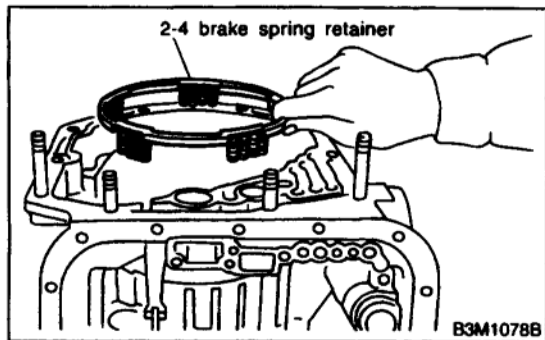
19) Take out the thrust needle bearing, planetary gear assembly and the low clutch assembly.



20) Remove snap ring.



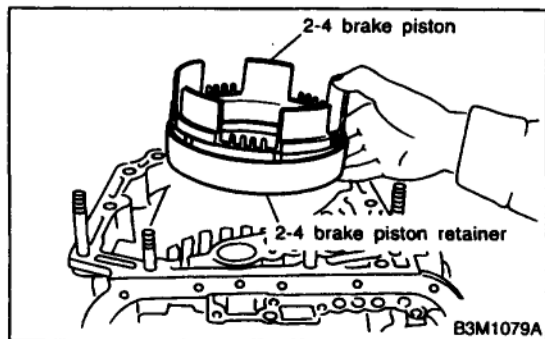
21) Take out 2-4 brake spring retainer.



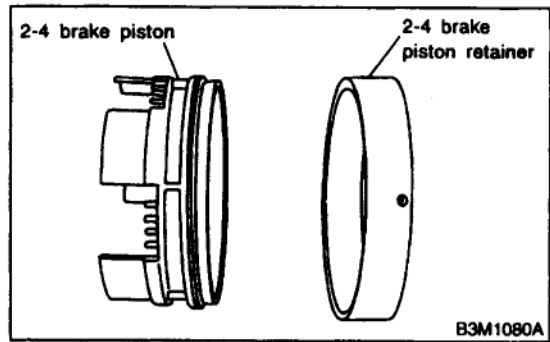
22) Take out 2-4 brake piston and piston retainer.

CAUTION:

When removing the brake piston 2-4 and piston retainer, be careful not to rub or bump them against the transmission case.



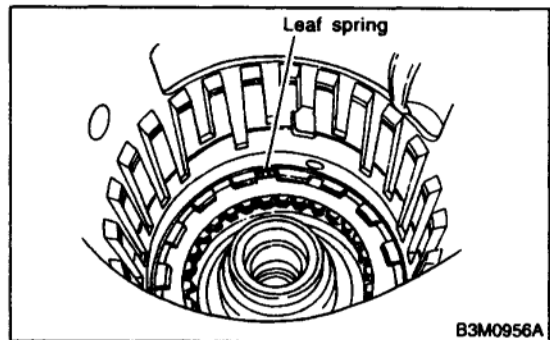
23) Separate 2-4 brake piston and piston retainer.



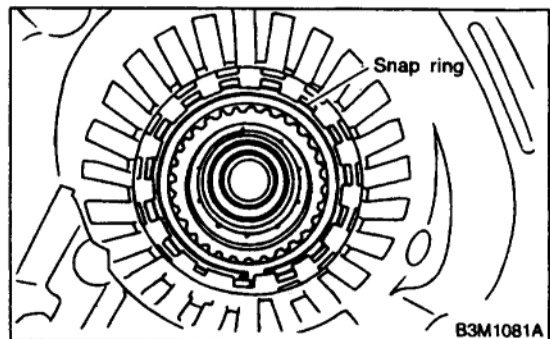
24) Pull out leaf spring.

CAUTION:

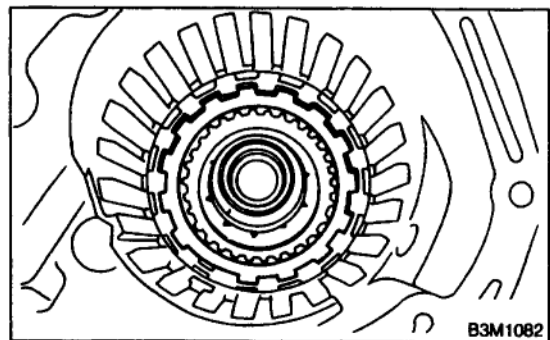
Be careful not to bend leaf spring during removal.



25) Remove snap ring.



26) Take out retaining plate, drive plate, driven plate and dish plate.

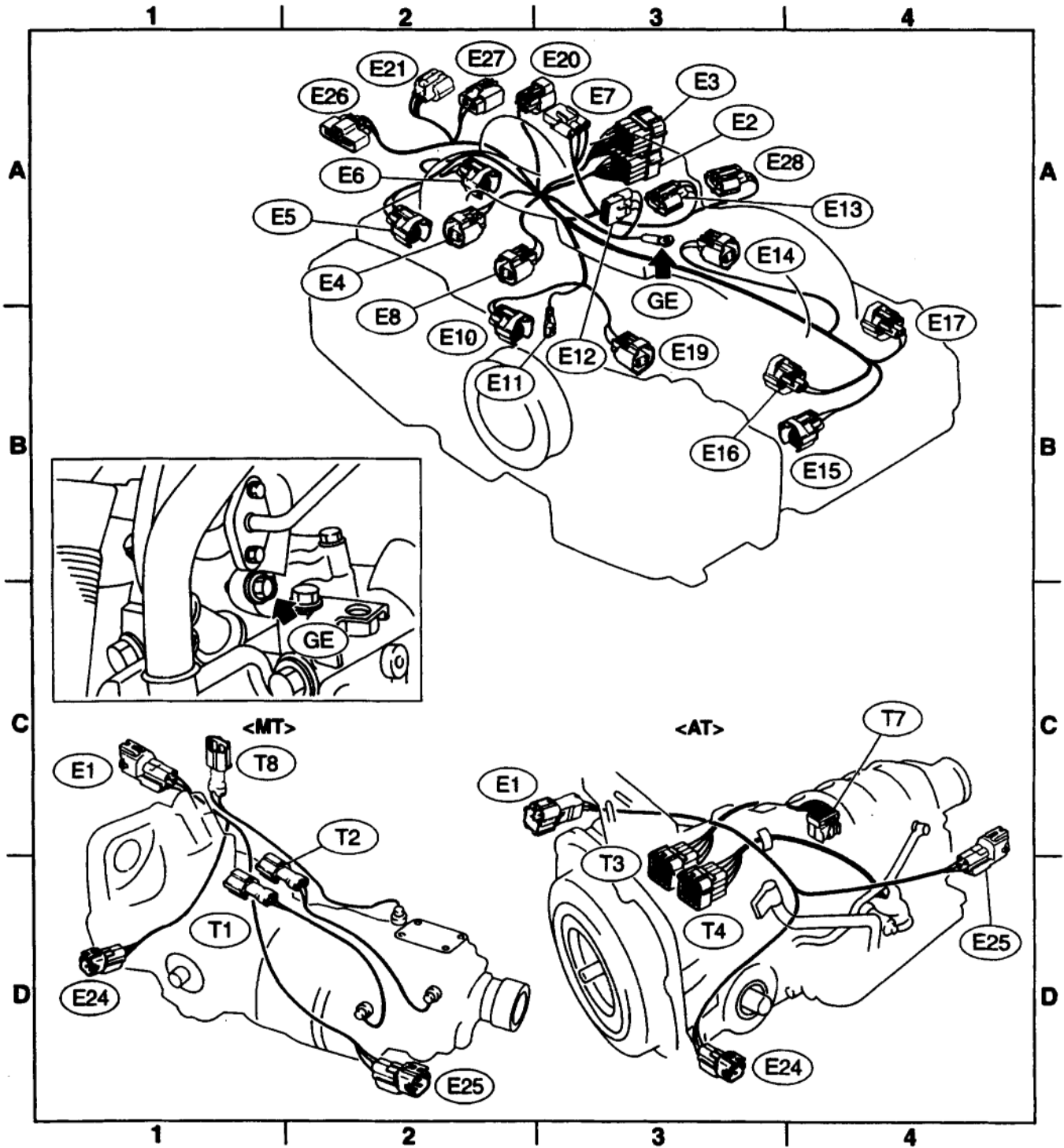


WIRING DIAGRAM

[D6E2] 6-3

6. Electrical Wiring Harness and Ground Point

2. LOCATION



H6M0566A

F: INSTRUMENT PANEL WIRING HARNESS

1. LIST OF ITEMS

Connector				Connecting to	
No.	Pole	Color	Area	No.	Name
i1	24	Blue	B-2	B36	Bulkhead wiring harness
i2	16	★	B-2	B37	
i10	10	★	B-2		Combination meter
i11	16	★	B-2		
i12	18	★	B-2		
i18	8	★	B-3		Rear defogger switch
i22	8	★	B-3		Hazard switch

★: Non-colored