SUBARU

NUMBER 18-53-98

SERVICE BULLETIN

APPLICABILITY 1996 - 1999 Legacy Service Manuals **DATE** 12-2-98

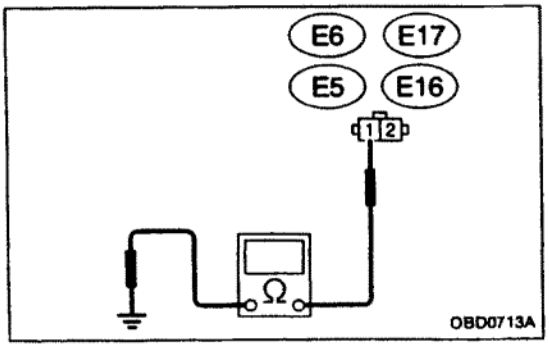
SUBJECT Service Manual Corrections

Insert or replace the following pages into the applicable Service Manuals listed below:

YEAR	VOL #	MSA #	SECTION	PAGES	REFERENCE
1996	4	MSA5T9602A	2-7	189 / 190	[T10T3] / [T10T4]
1996	5	MSA5T9607A	2-7	75 / 76	[T10BU4] / [T10BU5]
1997	6	MSA5T9701A	2-7	407 / 408	[T10CL2] / [T10CL3]
1997	6	MSA5T9701A	2-7	581 / 582	[T11CI2] / [T11CI3]
1997	7	MSA5T9712A	4-4D	159 / 160	[T10Y3] / [T10Y4]
1998	8	MSA5T9801A	1-6	7 / 8	[0100] / [D400]
1998	8	MSA5T9801A	2-2	11/ 12	[W7B2] / [W7B2]
1998	9	MSA5T9802A	2-7	369 / 370	[T10CO3] / [T10CO4]
1998	9	MSA5T9802A	2-7	523 / 524	[T11CK3] / [T11CK4]
1998	9	MSA5T9802A	4-4d	125 / 126	[T10Y4] / [T10Y5]
1998	9	MSA5T9802A	6-3	35 / 36	[D6K0] / [D6L1]
1999	10	MSA5T9901A	2-3	27 / 28	[W4A0] / [W4B0]
1999	11	MSA5T9902A	2-7	417 / 418	[T12CI3] / [T12CI4]
1999	11	MSA5T9902A	2-7	559 / 560	[T13CG3] / [T13CG4]
1999	11	MSA5T9902A	3-2	51 / 52	[W11B3] / [W11B3]
1999	12	MSA5T9903A	6-2b	13 / 14	[T6B5] / [T6B6]
1999	12	MSA5T9903A	6-2c	9 / 10	[T6A9] / [T6A10]

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

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

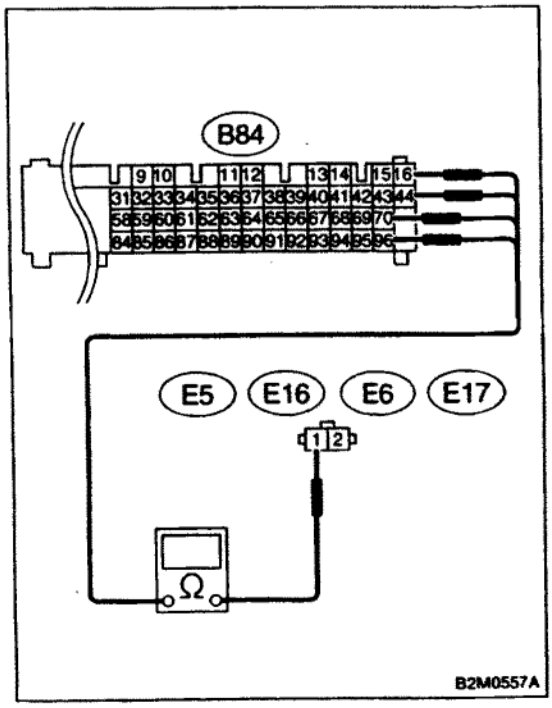


10T3	CHECK HARNESS BETWEEN FUEL INJECTOR AND ECM CONNECTOR.

1) Turn ignition switch to OFF.
2) Disconnect connector from fuel injector on faulty cylinders.
3) Measure resistance 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?

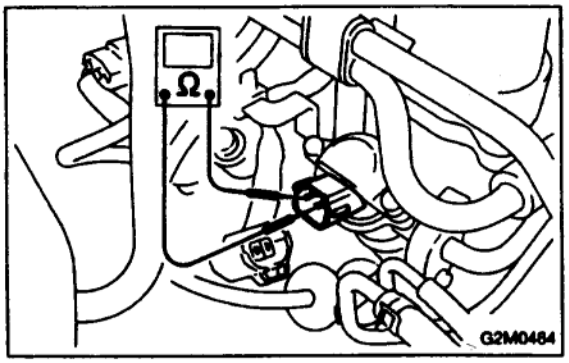
YES : Repair short circuit in harness between fuel injector and ECM connector.
NO : Go to next step 4).



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.



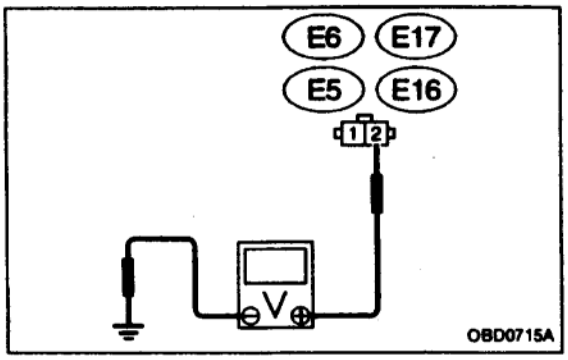
10T4	CHECK FUEL INJECTOR.

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.

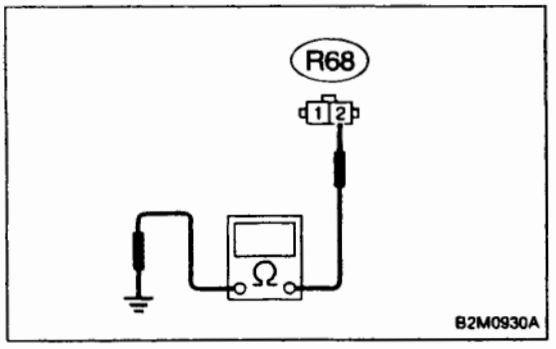
1) Turn ignition switch to ON.
2) Measure voltage between fuel injector and engine ground on faulty cylinders.

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).



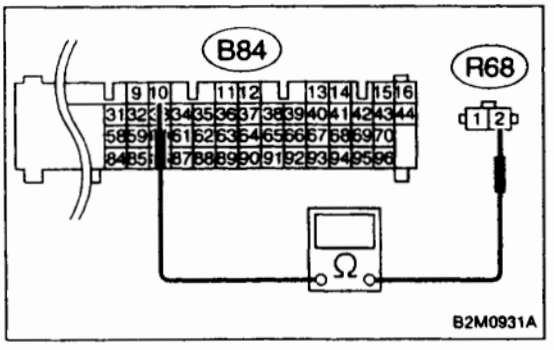
10BU3	CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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***
(R68) 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).



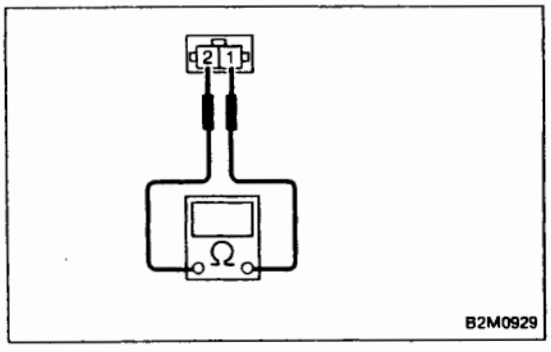
4) Measure resistance of harness between ECM and fuel tank pressure control solenoid valve connector.

CHECK : ***Connector & terminal***
(B84) No. 10 — (R68) No. 2:
Is the resistance less than 1 Ω?

YES : Go to step **10BU4**.

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)



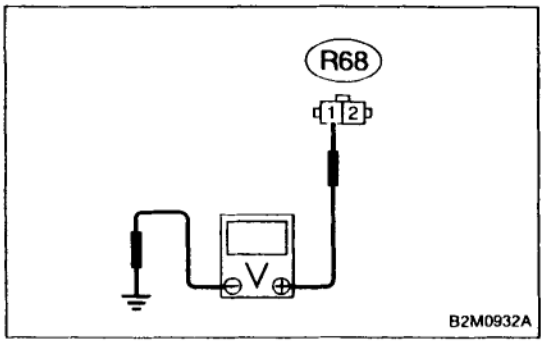
10BU4	CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

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 **10BU5**.

NO : Replace fuel tank pressure control solenoid valve.



10BU5	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 (R68) No. 1 (+) — Chassis ground (–): Is the voltage more than 10 V?***

YES : Go to next CHECK

NO : Repair harness and connector.

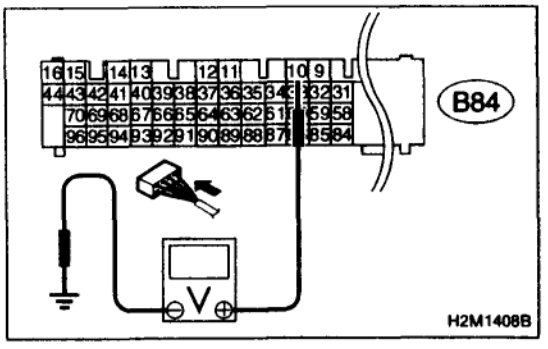
NOTE:
In this case, repair the following:
- Open circuit in harness between main relay and fuel tank pressure control solenoid valve connector
- Poor contact in coupling connectors (B97 and R57)
- Poor contact in main relay connector

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.



10CL1	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK : ***Connector & terminal (B84) No. 10 (+) — Chassis ground (–): Is the voltage more than 10 V?***

YES : Go to next CHECK

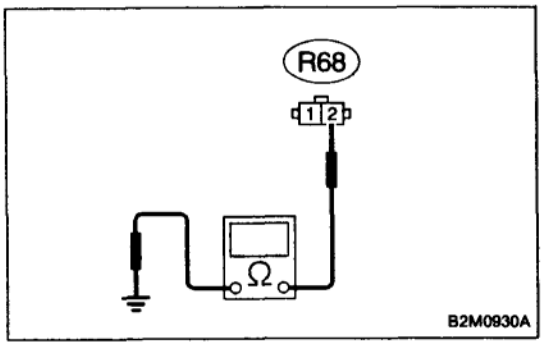
NO : Go to step **10CL2**.

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.



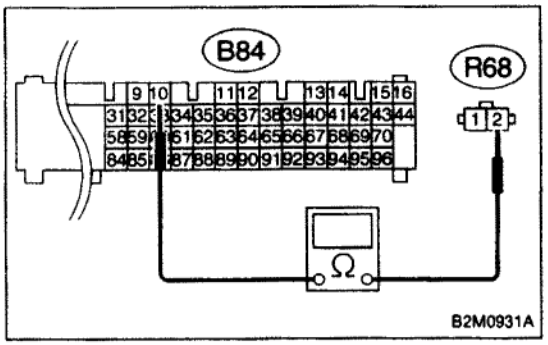
10CL2	CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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 (R68) No. 2 — Chassis ground: 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.

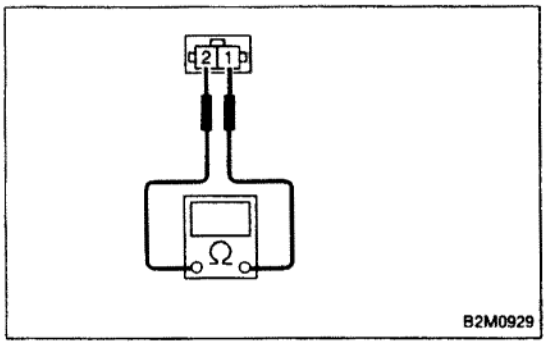
CHECK : ***Connector & terminal (B84) No. 10 — (R68) No. 2: Is the resistance less than 1 Ω?***

YES : Go to step **10CL3**.

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)



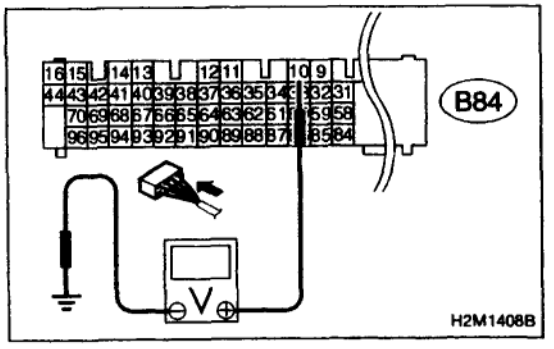
10CL3	CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

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 **10CL4**.

NO : Replace fuel tank pressure control solenoid valve.



11CI1	CHECK OUTPUT SIGNAL FROM ECM.

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

CHECK : ***Connector & terminal***
(B84) No. 10 (+) — Chassis ground (–):
Is the voltage more than 10 V?

YES : Go to next CHECK .

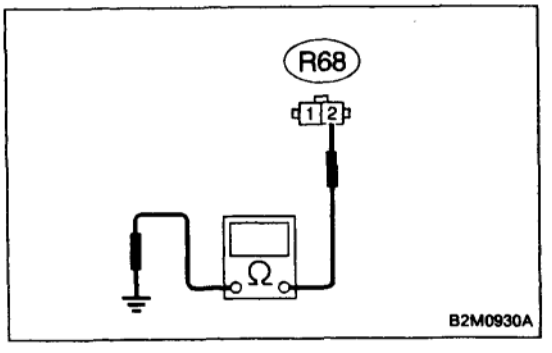
NO : Go to step **11CI2.**

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.



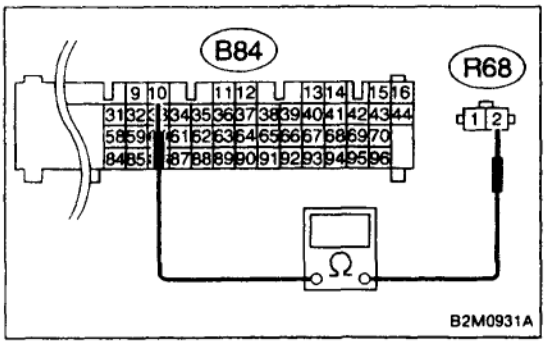
11CI2	CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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***
(R68) No. 2 — Chassis ground:
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.

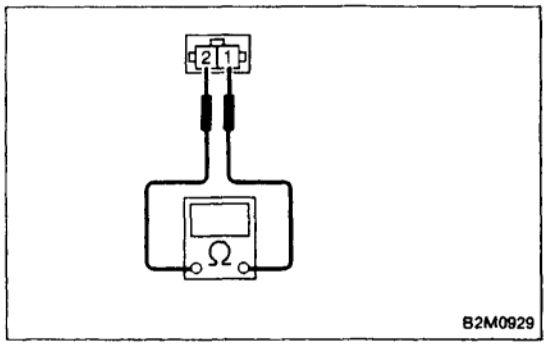
CHECK : ***Connector & terminal***
(B84) No. 10 — (R68) No. 2:
Is the resistance less than 1 Ω?

YES : Go to step **11CI3**.

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 (B97 and R57)



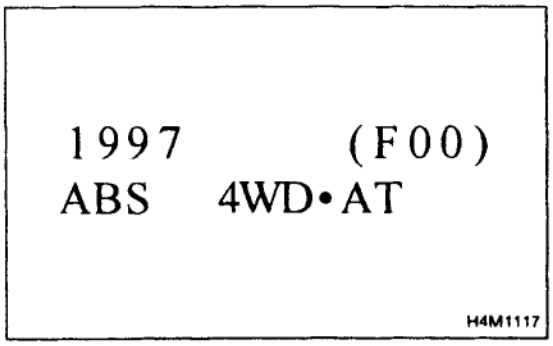
11CI3	CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

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 **11CI4**.

NO : Replace fuel tank pressure control solenoid valve.



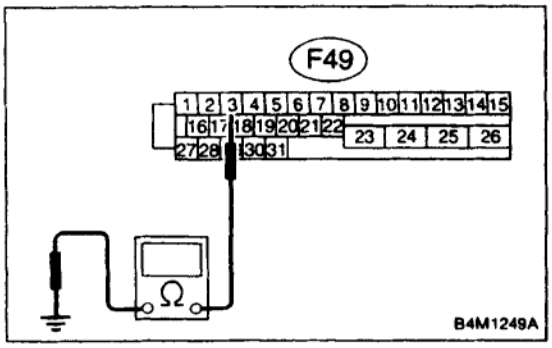
10Y1	CHECK SPECIFICATIONS OF ABSCM&H/U USING SELECT MONITOR.

1) Press [F], [0] and [0] on the select monitor.
2) Read the select monitor display.

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.

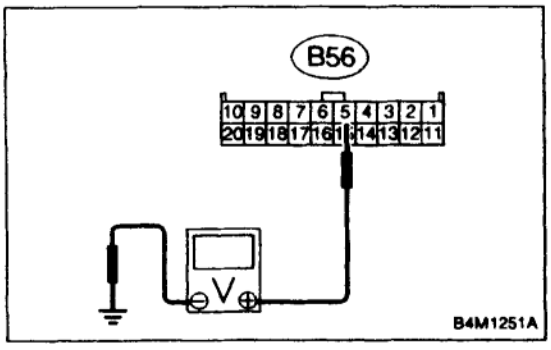
1) Turn ignition switch to OFF.
2) Disconnect two connectors from TCM.
3) Disconnect connector from ABSCM&H/U.
4) Measure resistance between ABSCM&H/U connector and chassis ground.

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 (–):

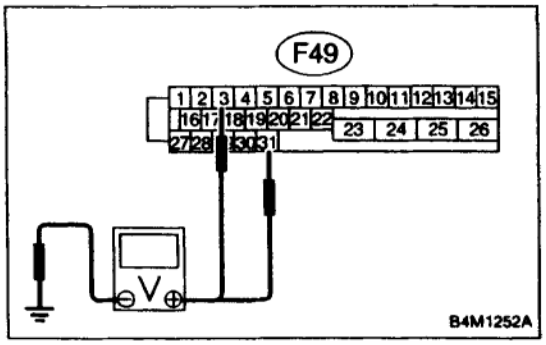
CHECK : ***Is the voltage more than 6.5V?***

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].☆10>***
YES : Repair connector.
NO : Go to step **10Y7**.

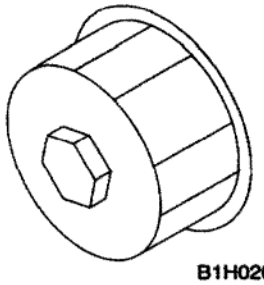
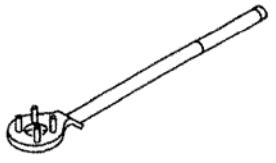
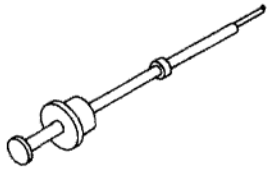
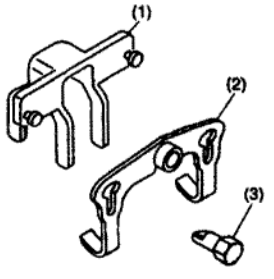
10Y7	CHECK ABSCM&H/U.

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

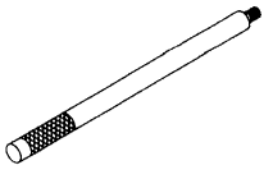
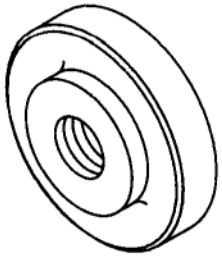
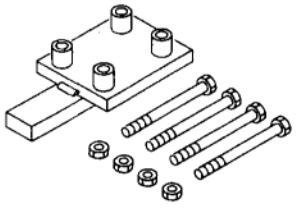
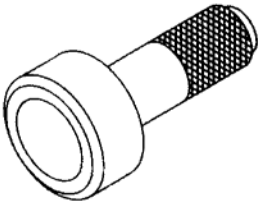
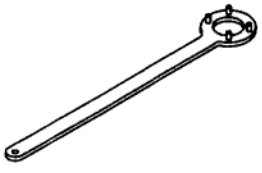
CHECK : ***Is the same trouble code as in the current diagnosis still being output?***
YES : Replace ABSCM&H/U.
NO : Go to step **10Y8**.

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.

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B1H0208	498547000	OIL FILTER WRENCH	Used for removing and installing oil filter.
 B1H0207	499977100	CRANK PULLEY WRENCH	• Used for stopping rotation of crankshaft pulley when losening and tightening crankshaft pulley bolts. • For DOHC engine.
 B1H0200	499097600	PISTON PIN REMOVER ASSY	• Used for removing piston pin. • For DOHC engine.
 H1H0491A	498187100 (Newly adopted tool)	SHIM REPLACER KIT	• Used for valve adjustment. • For DOHC engine. (1) Replacer 1 (49818720) (2) Replacer 2 (49818710) (3) Replacer 3 (49818730)

4. Rear Differential Tools (AWD Models)

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 B1H0230	398477701	HANDLE	Used for installing front and rear bearing cone.
 B1H0235	398477702	DRIFT	Used for press-fitting the bearing cone of differential carrier (front).
 B1H0143	398217700	ATTACHMENT SET	Stand for rear differential carrier disassembly and assembly.
 B1H0236	498447120	DRIFT	Used for installing front oil seal.
 G1H0222	498427200	FLANGE WRENCH	Used for stopping rotation of companion flange when loosening and tightening self-lock nut.

5) Select a shim of suitable thickness using measured valve clearance and shim thickness, using the following table.

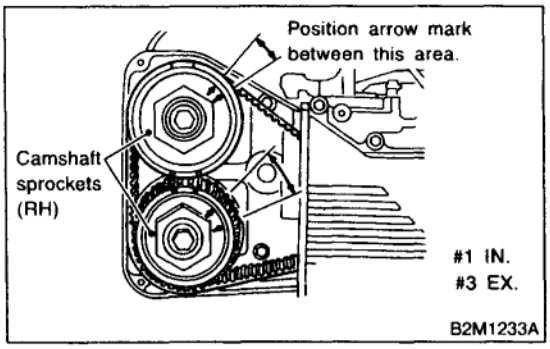
Intake valve (mm): S = (V + T) – C
Exhaust valve (mm): S = (V + T) – C

S: Shim thickness to be used
V: Measured valve clearance
T: Current shim thickness
C: Standard valve clearance
(Intake valve 0.20 +/- 0.02 mm)
(Exhaust valve 0.25 +/- 0.02mm)

Part No.	Thickness mm (in)	Part No.	Thickness mm (in)
13218AC230	2.22 (0.0874)	13218AC480	2.52 (0.0992)
13218AE000	2.23 (0.0878)	13218AC490	2.53 (0.0996)
13218AC240	2.24 (0.0882)	13218AC500	2.54 (0.1000)
13218AE010	2.25 (0.0886)	13218AC510	2.55 (0.1004)
13218AC250	2.26 (0.0890)	13218AC520	2.56 (0.1008)
13218AE020	2.27 (0.0894)	13218AC530	2.57 (0.1012)
13218AC260	2.28 (0.0898)	13218AC540	2.58 (0.1016)
13218AE030	2.29 (0.0902)	13218AC550	2.59 (0.1020)
13218AC270	2.30 (0.0906)	13218AC560	2.60 (0.1024)
13218AE040	2.31 (0.0909)	13218AC570	2.61 (0.1028)
13218AC280	2.32 (0.0913)	13218AC580	2.62 (0.1031)
13218AC290	2.33 (0.0917)	13218AC590	2.63 (0.1035)
13218AC300	2.34 (0.0921)	13218AC600	2.64 (0.1039)
13218AC310	2.35 (0.0925)	13218AC610	2.65 (0.1043)
13218AC320	2.36 (0.0929)	13218AC620	2.66 (0.1047)
13218AC330	2.37 (0.0933)	13218AC630	2.67 (0.1051)
13218AC340	2.38 (0.0937)	13218AC640	2.68 (0.1055)
13218AC350	2.39 (0.0941)	13218AC650	2.69 (0.1059)
13218AC360	2.40 (0.0945)	13218AC660	2.70 (0.1063)
13218AC370	2.41 (0.0949)	13218AE050	2.71 (0.1067)
13218AC380	2.42 (0.0953)	13218AC670	2.72 (0.1071)
13218AC390	2.43 (0.0957)	13218AE060	2.73 (0.1075)
13218AC400	2.44 (0.0961)	13218AC680	2.74 (0.1079)
13218AC410	2.45 (0.0965)	13218AE070	2.75 (0.1083)
13218AC420	2.46 (0.0969)	13218AC690	2.76 (0.1087)
13218AC430	2.47 (0.0972)	13218AE080	2.77 (0.1091)
13218AC440	2.48 (0.0976)	13218AC700	2.78 (0.1094)
13218AC450	2.49 (0.0980)	13218AE090	2.79 (0.1098)
13218AC460	2.50 (0.0984)	13218AC710	2.80 (0.1102)
13218AC470	2.51 (0.0988)	13218AE100	2.81 (0.1106)

6) Install selected shim and recheck valve clearance adjustment. <Ref. to 2-2 [W7A2]. ☆ 12>

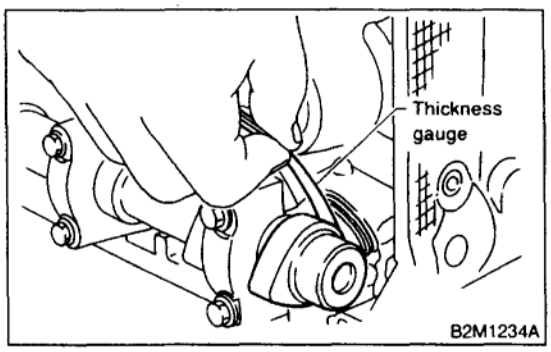
7) Turn crankshaft pulley clockwise until arrow mark on camshaft sprocket is set to position shown in figure.



8) Ensure that #1 cylinder intake valve and #3 cylinder exhaust valve are adjusted to specifications.

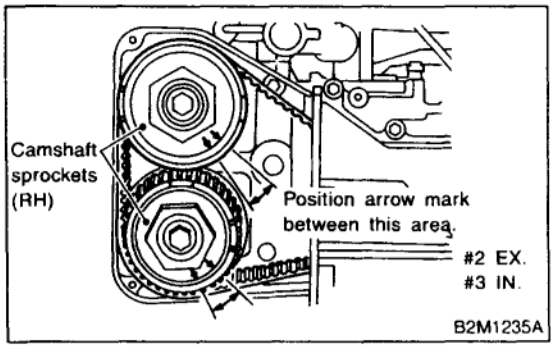
CAUTION:
• Insert the thickness gauge in as horizontal a direction as possible with respect to the shim.
• Adjust exhaust valve clearances while lifting-up the vehicle.

Valve clearance:
Intake: 0.20±0.02 mm (0.0079±0.0008 in)
Exhaust: 0.25±0.02 mm (0.0098±0.0008 in)

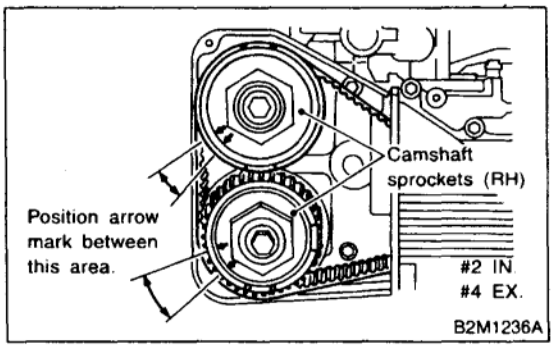


9) Turn crankshaft two complete rotations. Check again to ensure that #1 cylinder intake valve and #3 cylinder exhaust valve clearances are within specifications. If necessary, re-adjust valve clearances.
10) Further turn crankshaft pulley clockwise. Using the same procedures as in two steps before, measure valve clearances.

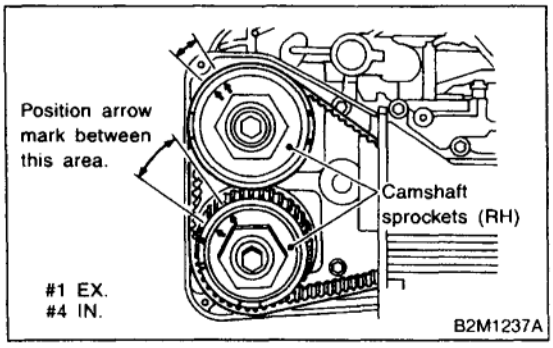
(1) Set arrow mark on camshaft sprocket to position shown in figure, and check #2 cylinder exhaust valve and #3 cylinder intake valve clearances.



(2) Set arrow mark on camshaft sprocket to position shown in figure, and check #2 cylinder intake valve and #4 cylinder exhaust valve clearances.



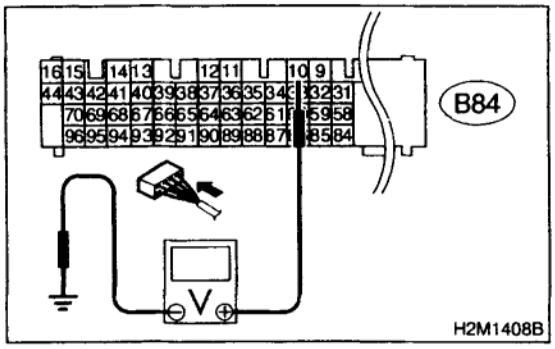
(3) Set arrow mark on camshaft sprocket to position shown in figure, and check #1 cylinder exhaust valve and #4 cylinder intake valve clearances.



10CO1 : 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 **10CO2**.
NO : Go to step **10CO3**.

10CO2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆12>

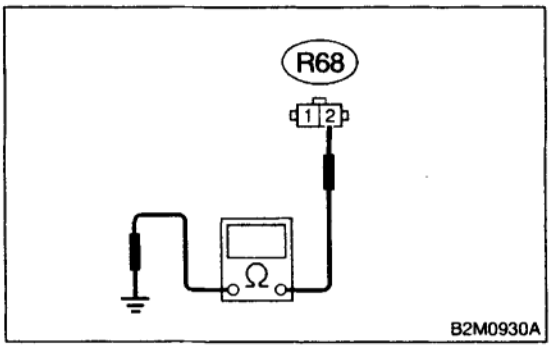
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

10CO3 : 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:

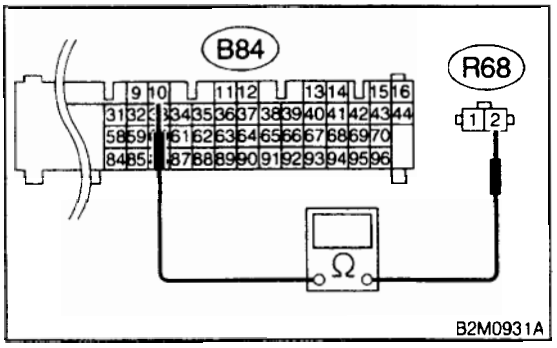


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
NO : Go to step **10CO4**.

10CO4 : 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:



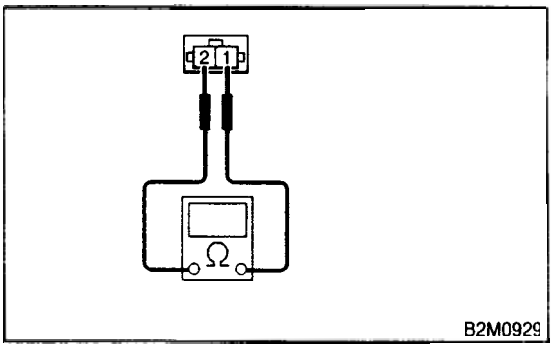
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **10CO5**.
NO : Repair harness and connector.

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)

10CO5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals
No. 1 — No. 2:

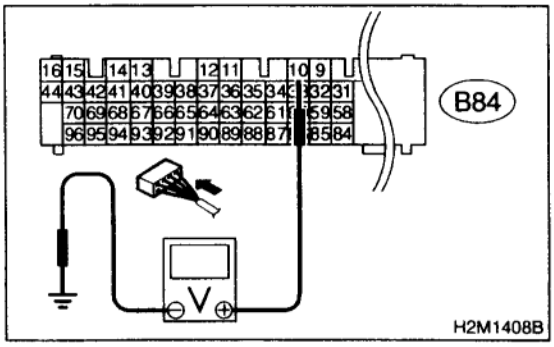


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **10CO6**.
NO : Replace fuel tank pressure control solenoid valve.

11CK1 : 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 **11CK2**.
NO : Go to step **11CK3**.

11CK2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆12>

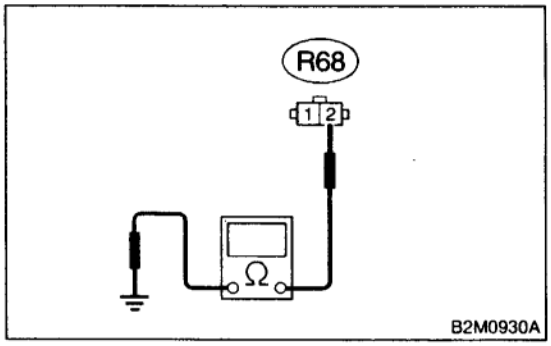
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

11CK3 : 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:

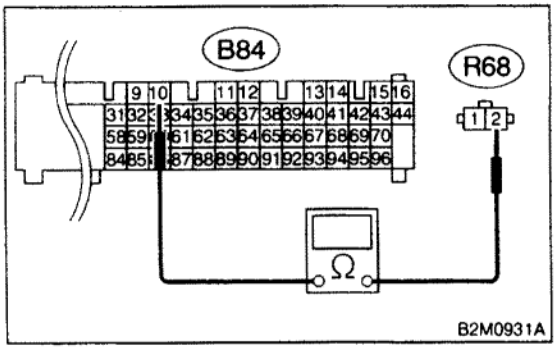


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
NO : Go to step **11CK4**.

11CK4 : 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:



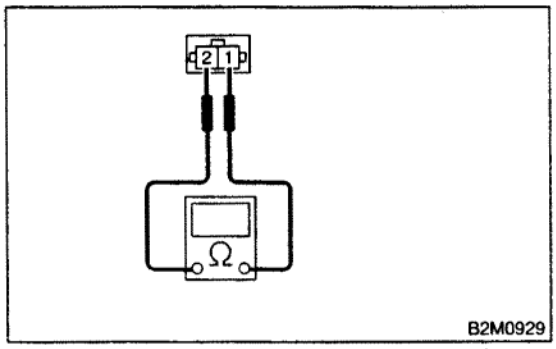
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **11CK5**.
NO : Repair harness and connector.

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 (B97 and R57)

11CK5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

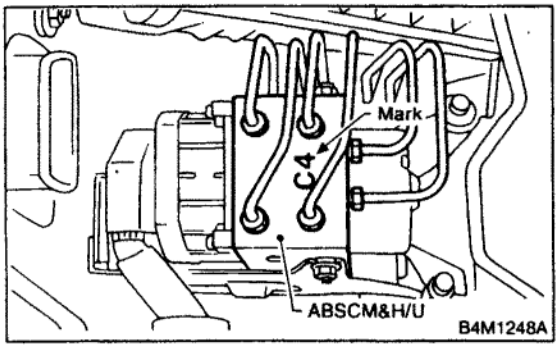
Terminals
No. 1 — No. 2:



CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **11CK6**.
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.



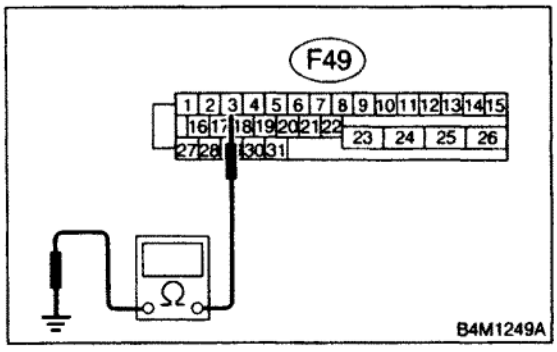
Mark	Model
C1	FWD AT
C3	AWD AT
C4	AWD MT

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:

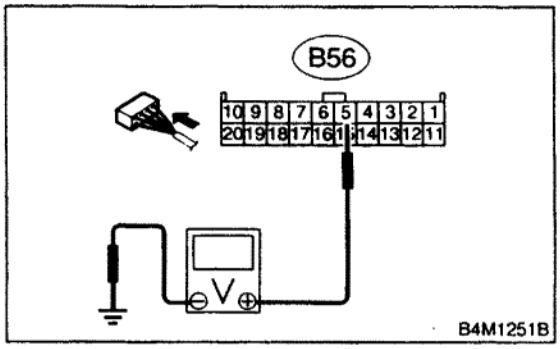


CHECK : ***Is the resistance more than 1 MΩ?***
YES : Go to step **10Y3**.
NO : Repair harness between TCM and ABSCM&H/U.

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 6.5V?***
YES : Go to step **10Y5**.
NO : Go to step **10Y4**.

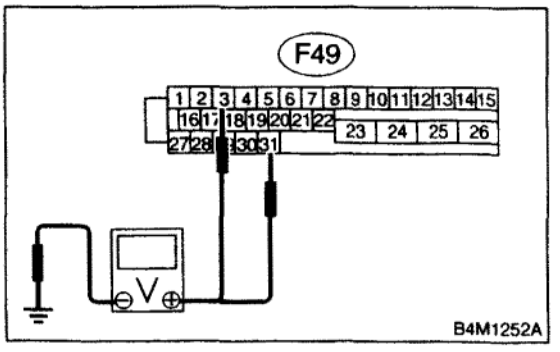
10Y4 : CHECK AT.

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].☆12>***
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**.

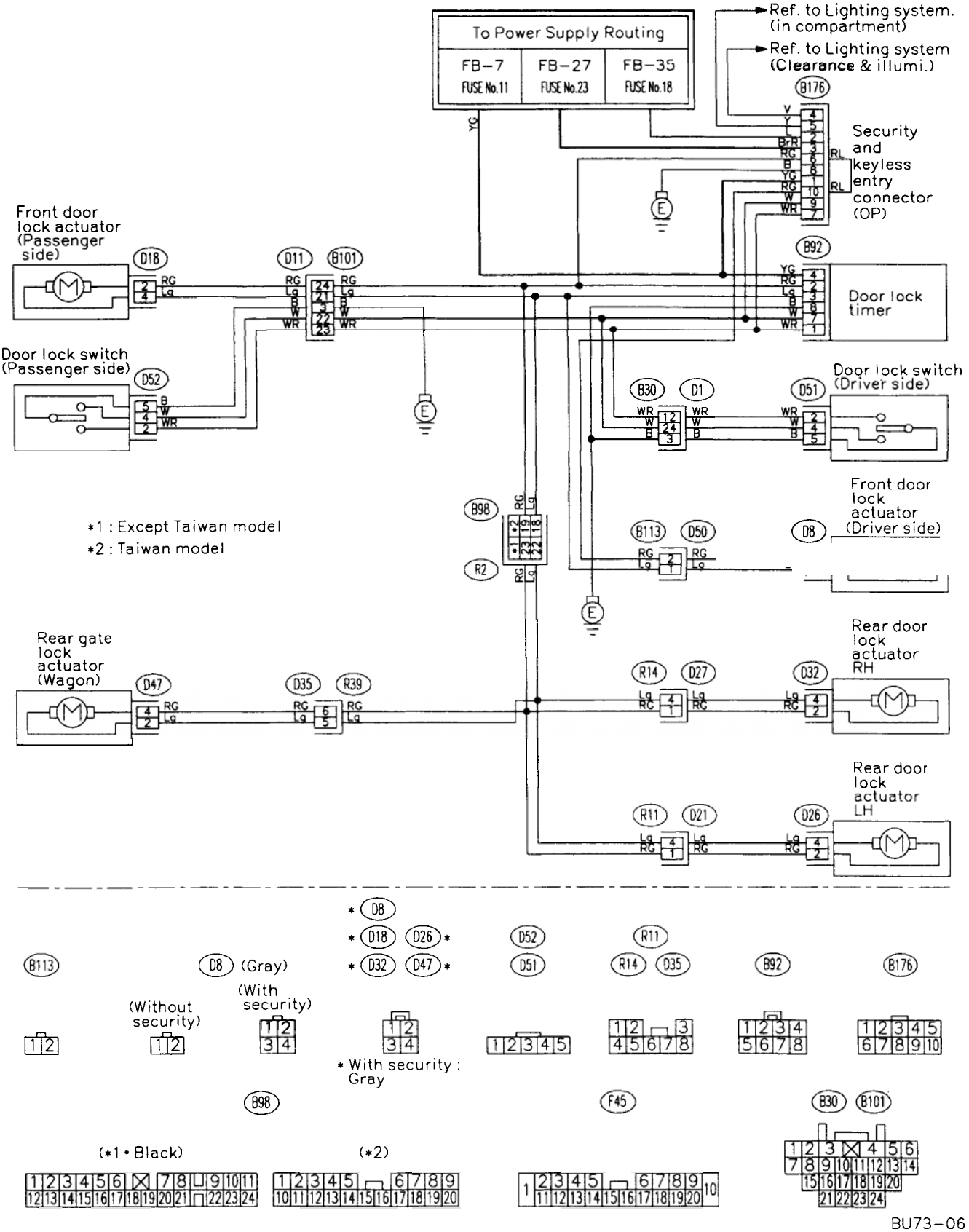
10Y8 : CHECK ANY OTHER TROUBLE CODES APPEARANCE.

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

MEMO:

L: DOOR LOCK SYSTEM

1. LHD MODEL

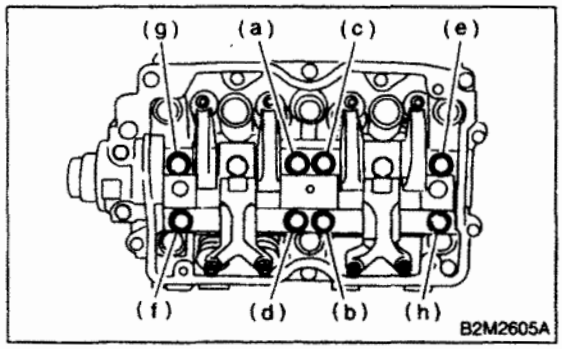


BU73-06

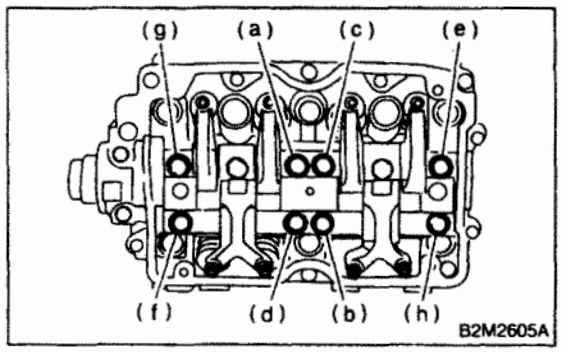
Revised 11/98

1) Disconnect PCV hose and remove rocker cover.
2) Removal of valve rocker assembly
   (1) Remove bolts (a) through (d) in alphabetical sequence.

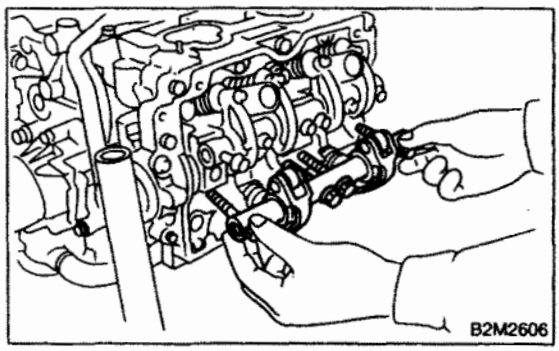
CAUTION:
Leave two or three threads of bolt (a) engaged to retain valve rocker assembly.



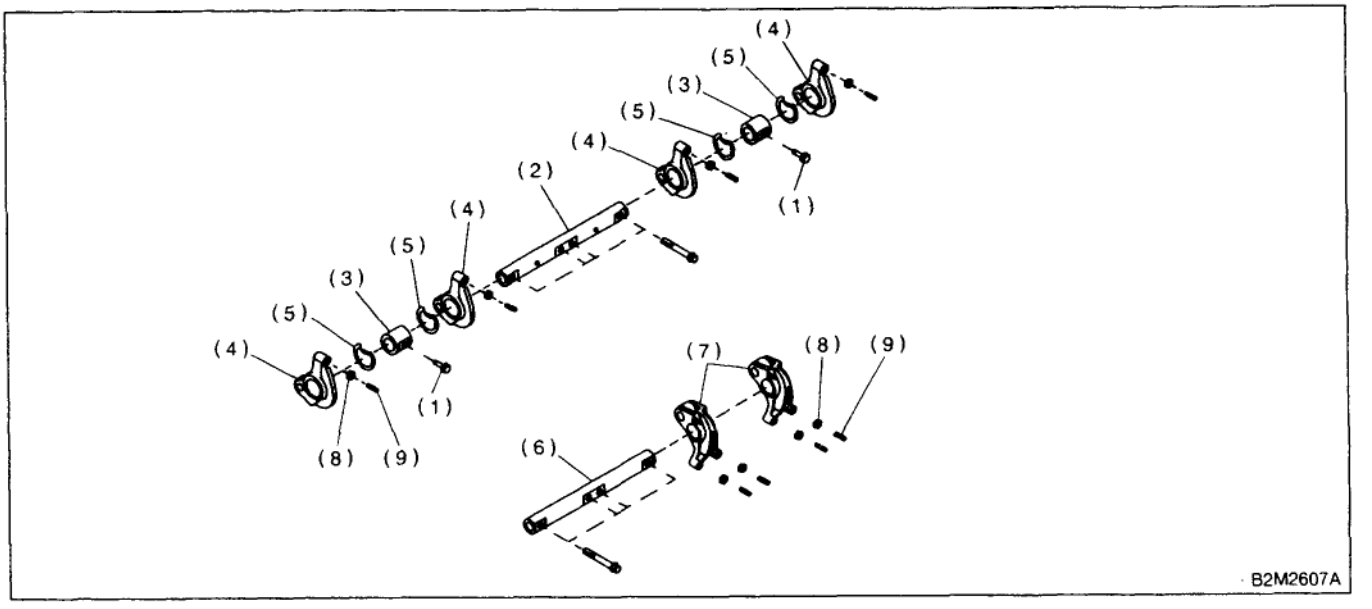
(2) Equally loosen bolts (e) through (h) all the way, being careful that knock pin is not gouged.



(3) Remove valve rocker assembly.



B: DISASSEMBLY



(1) Bolt
(2) Intake valve rocker shaft
(3) Rocker shaft support
(4) Intake valve rocker arm
(5) Spring
(6) Exhaust valve rocker shaft
(7) Exhaust valve rocker arm
(8) Valve rocker nut
(9) Valve rocker adjust screw

1) Remove bolts which secure rocker shaft.
2) Extract rocker shaft. Remove valve rocker arms, springs, plates and shaft supports from rocker shaft.

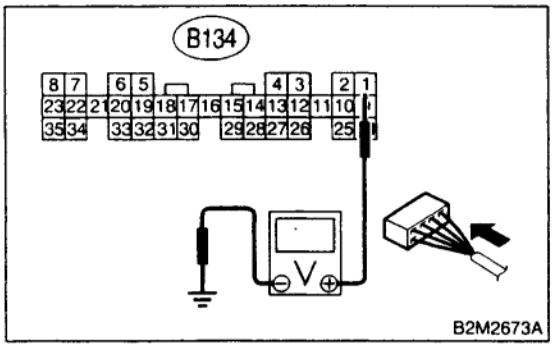
CAUTION:
Arrange all removed parts in order so that they can be installed in their original positions.

3) Remove nut and adjuster screw from valve rocker.

12CI1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B134) No. 1 (+) — Chassis ground (–):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **12CI2.**
NO : Go to step **12CI3.**

12CI2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆14>

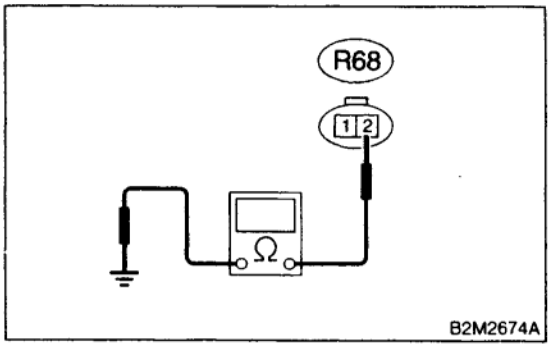
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

12CI3 : 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:

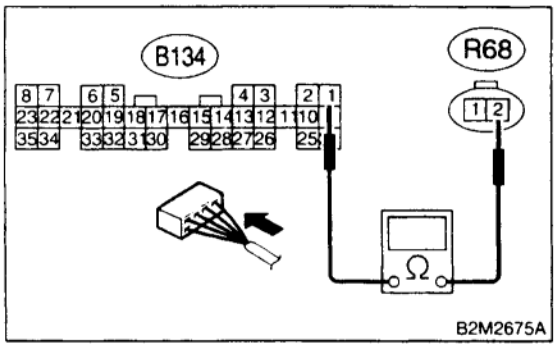


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
NO : Go to step **12CI4.**

12CI4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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

Connector & terminal
(B134) No. 1 — (R68) No. 2:



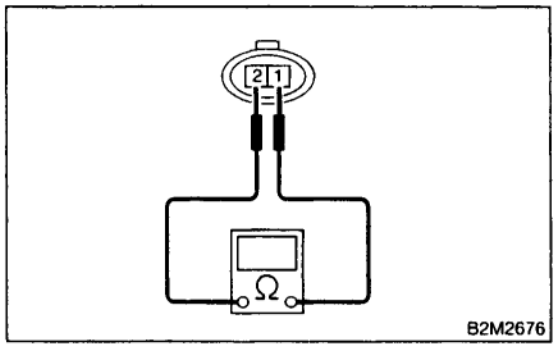
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **12CI5**.
NO : Repair harness and connector.

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)

12CI5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

Terminals
No. 1 — No. 2:

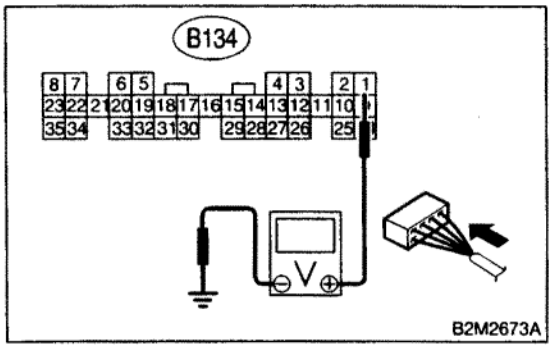


CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **12CI6**.
NO : Replace fuel tank pressure control solenoid valve. <Ref. to 2-1 [W10A0].☆14>

13CG1 : CHECK OUTPUT SIGNAL FROM ECM.

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

Connector & terminal
(B134) No. 1 (+) — Chassis ground (–):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **13CG2**.
NO : Go to step **13CG3**.

13CG2 : CHECK POOR CONTACT.

Check poor contact in ECM connector. <Ref. to FOREWORD [T3C1].☆14>

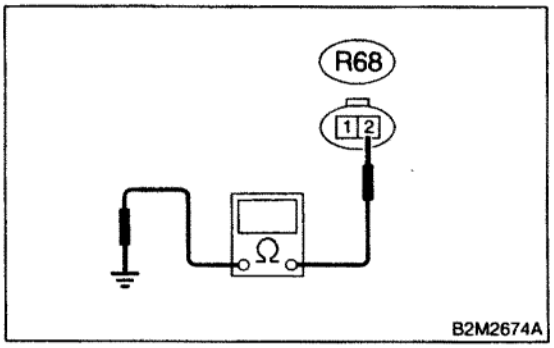
CHECK : ***Is there poor contact in ECM connector?***
YES : Repair poor contact in ECM connector.
NO : Contact with SOA service.

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

13CG3 : 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:

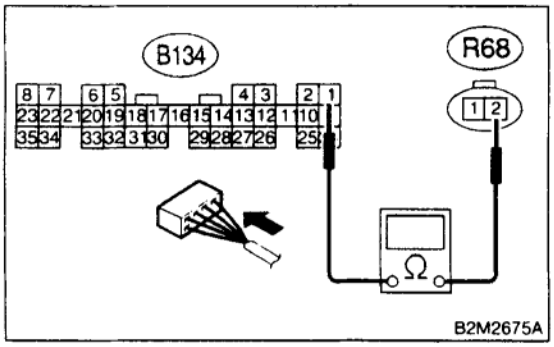


CHECK : ***Is the resistance less than 10 Ω?***
YES : Repair ground short circuit in harness between ECM and fuel tank pressure control solenoid valve connector.
NO : Go to step **13CG4**.

13CG4 : CHECK HARNESS BETWEEN FUEL TANK PRESSURE CONTROL SOLENOID VALVE AND ECM CONNECTOR.

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

Connector & terminal
(B134) No. 1 — (R68) No. 2:



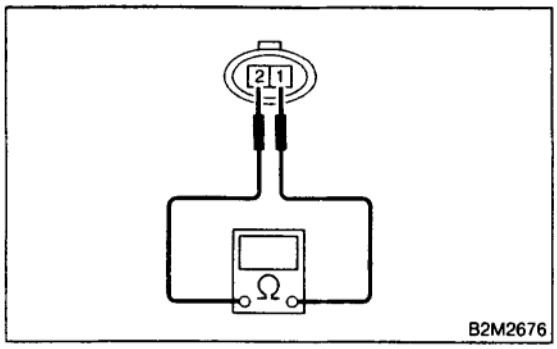
CHECK : ***Is the resistance less than 1 Ω?***
YES : Go to step **13CG5**.
NO : Repair harness and connector.

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 (B97 and R57)

13CG5 : CHECK FUEL TANK PRESSURE CONTROL SOLENOID VALVE.

Measure resistance between fuel tank pressure control solenoid valve terminals.

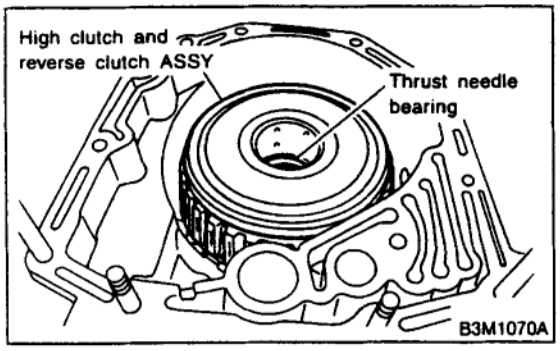
Terminals
No. 1 — No. 2:



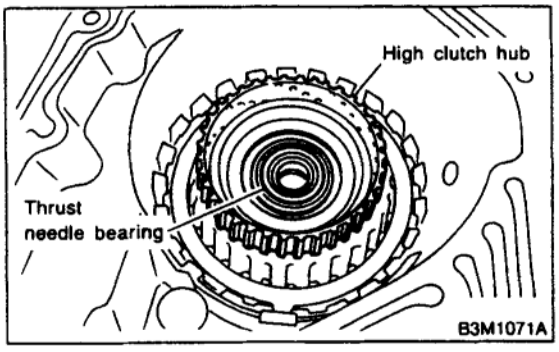
CHECK : ***Is the resistance between 10 and 100 Ω?***
YES : Go to step **13CG6**.
NO : Replace fuel tank pressure control solenoid valve. <Ref. to 2-1 [W10A0].☆14>

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

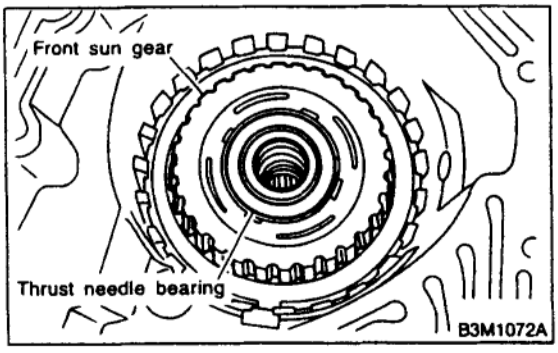
CAUTION:
Be careful not to lose thrust needle bearing.



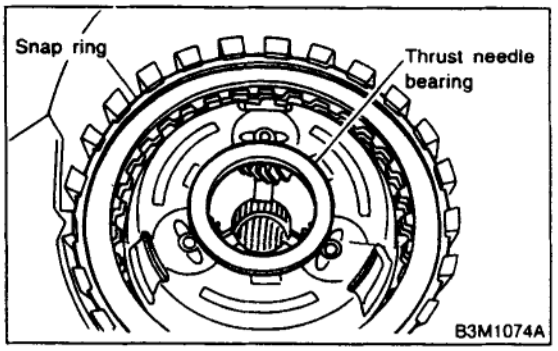
14) Take out the high clutch hub and the thrust bearing.



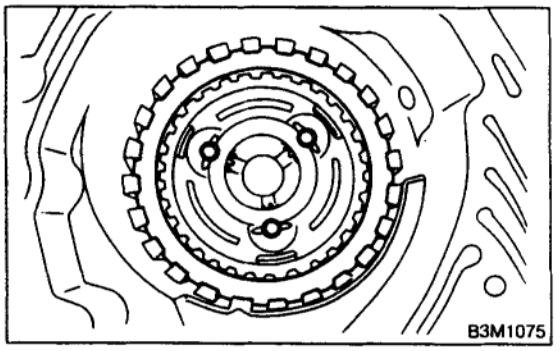
15) Take out the front sun gear and the thrust bearing.



16) Remove snap ring and thrust needle bearing.

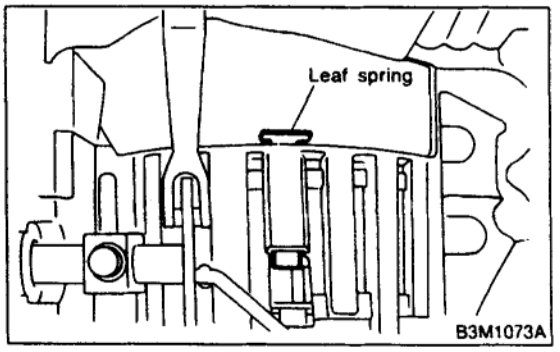


17) Take out retaining plate, drive plate and driven plate of 2-4 brake.

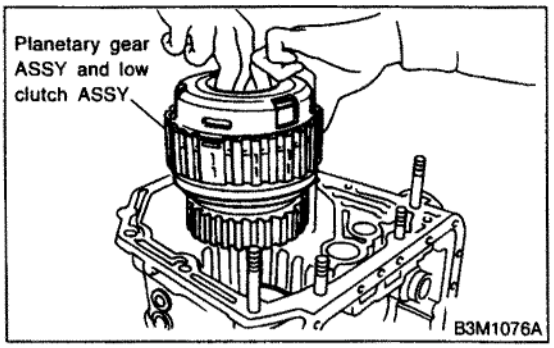


18) Pull out leaf spring.

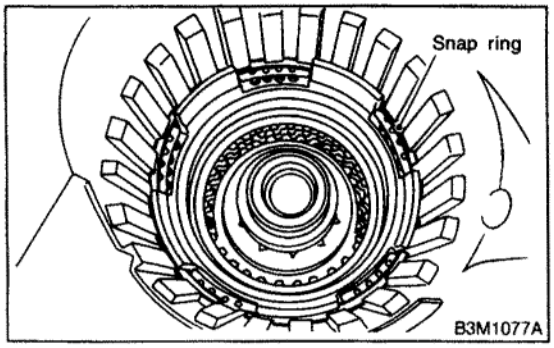
CAUTION:
Be careful not to bend leaf spring during removal.



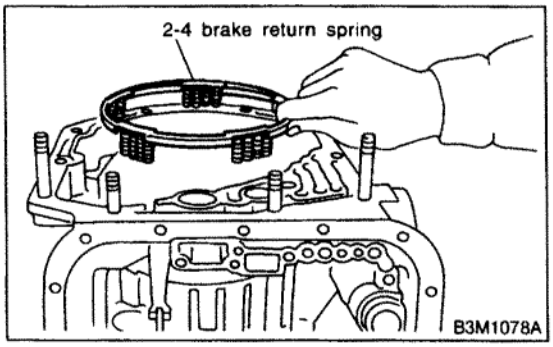
19) Take out the thrust needle bearing, planetary gear assembly and the low clutch assembly.



20) Remove snap ring.

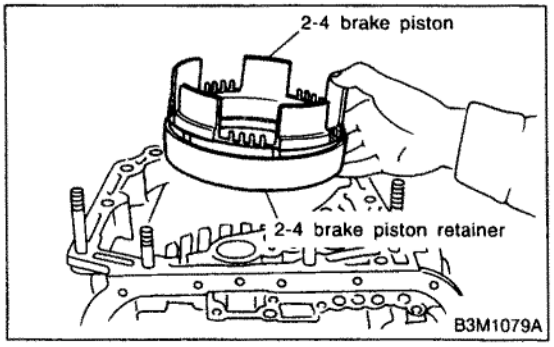


21) Take out 2-4 brake return spring.

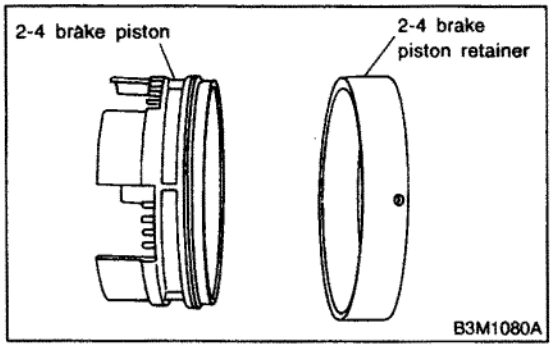


22) Take out 2-4 brake piston and piston retainer.

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

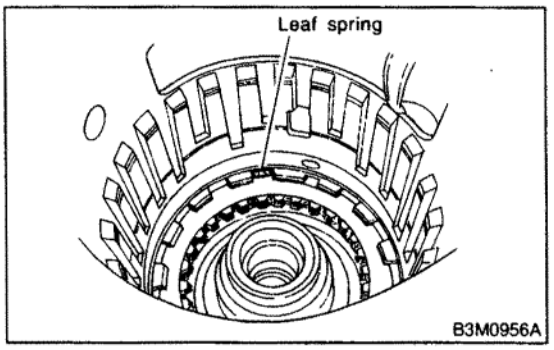


23) Separate 2-4 brake piston and piston retainer.

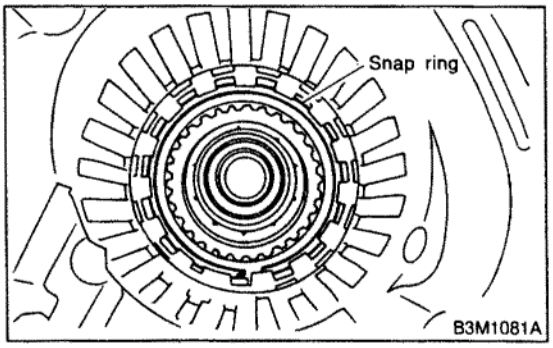


24) Pull out leaf spring.

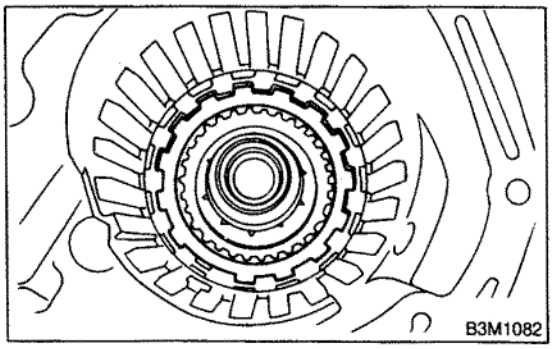
CAUTION:
Be careful not to bend leaf spring during removal.



25) Remove snap ring.



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



B: DIAGNOSTICS ITEM 1

6B1 : CHECK HORN OPERATION.

Press horn pad on steering wheel.

CHECK : ***Does the horn sound?***
YES : Go to step **6B2**.
NO : Repair Horn circuit.

6B2 : SELECT HORN SIGNAL OPERATION.

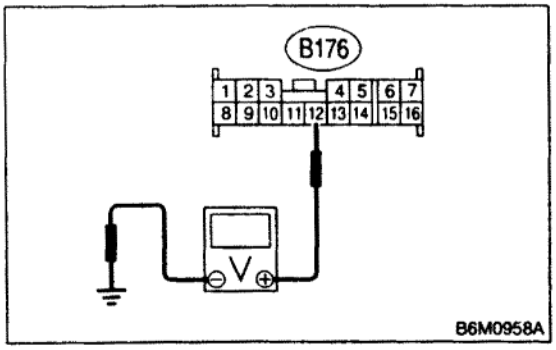
Keep both LOCK/ARM and UNLOCK/DISARM buttons pressed for more than 1.5 seconds.

CHECK : ***Does the horn chirp one time?***
YES : Go to step **6B3**.
NO : Replace keyless entry control module. <Ref. to 6-2 [W2600].☆14>

6B3 : CHECK HORN SIGNAL OUTPUT SIGNAL.

1) Disconnect connector from keyless entry control module.
2) Measure voltage between keyless entry control module connector (B176) and chassis ground.

Connector & terminal
(B176) No. 12 (+) — Chassis ground (–):

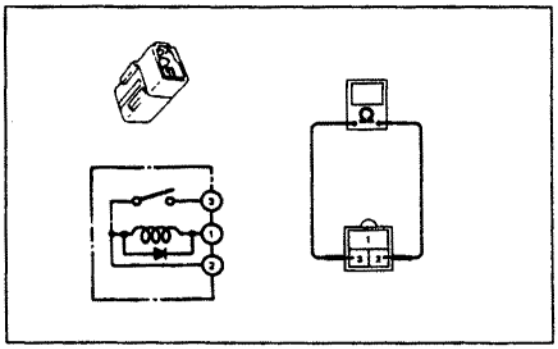


CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **6B4**.
NO : Go to step **6B7**.

6B4 : CHECK HORN RELAY.

1) Remove horn relay.
2) Check continuity between horn relay terminals.

Terminals
No. 2 — No. 3:

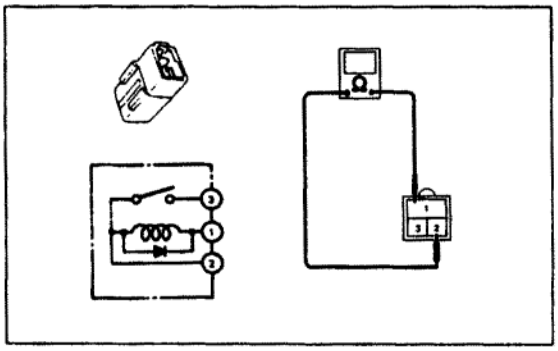


CHECK : ***Does continuity exist?***
YES : Replace horn relay.
NO : Go to step **6B5**.

6B5 : CHECK HORN RELAY.

Check continuity between horn relay terminals.

Terminals
No. 1 — No. 2:

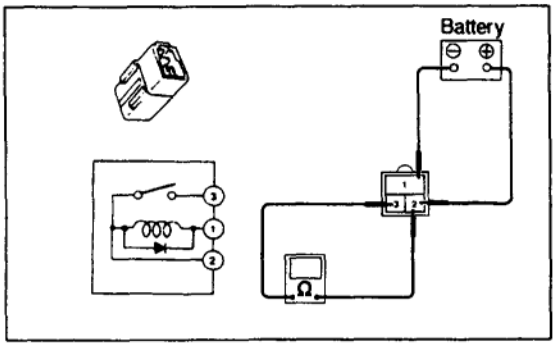


CHECK : ***Does continuity exist?***
YES : Go to step **6B6**.
NO : Replace horn relay.

6B6 : CHECK HORN RELAY.

1) Connect the battery to horn relay terminals No. 1 and No. 2.
2) Check continuity between horn relay terminals.

Terminals
No. 2 — No. 3:



CHECK : ***Does continuity exist?***
YES : Repair wiring harness of horn circuit.
NO : Replace horn relay.

6B7 : CHECK FUSE NO. 12.

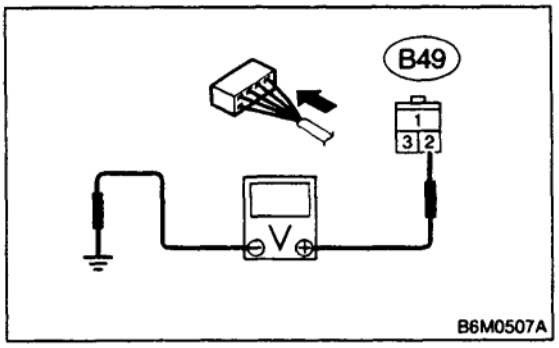
Remove and visually check the fuse No. 12 (in fuse box).

CHECK : ***Is the fuse No. 12 blown?***
YES : Replace fuse (20 A).
NO : Go to step **6B8**.

6B8 : CHECK POWER SUPPLY FOR HORN RELAY.

Measure voltage between horn relay connector (B49) and chassis ground.

Connector & terminal
(B49) No. 2 (+) — Chassis ground (–):



CHECK : ***Is the voltage more than 10 V?***
YES : Go to step **6B9**.
NO : Repair wiring harness between horn relay and battery.

6. Diagnostics Procedure

A: BASIC DIAGNOSTICS PROCEDURE

6A1 : CHECK SECURITY SYSTEM FUNCTION.

1) Perform basic diagnostics procedure of keyless entry system. <Ref. to 6-2b [T600].☆14>
2) Perform pre-inspection.
<Ref. to 6-2c [T200].☆14>
3) Open all windows.
4) Remove ignition key from ignition switch.
5) Set the room light switch in the middle position.
6) Close all doors, rear gate and trunk lid.
7) Press the LOCK/ARM button one time.

CHECK : ***Does the clearance light blink one time?***
YES : Go to step **6A2**.
NO : Go to step **6B1**.

6A2 : CHECK SECURITY SYSTEM FUNCTION.

Check if the security indicator light blinks.

CHECK : ***Does the security indicator light blink every 2 seconds?***
YES : Go to step **6A3**.
NO : Go to step **6C1**.

6A3 : CHECK SECURITY SYSTEM FUNCTION.

Press the UNLOCK/DISARM button one time.

CHECK : ***Does the clearance light blink two times?***
YES : Go to step **6A4**.
NO : Replace security control module.
<Ref. to 6-2 [W2200].☆14>

6A4 : CHECK SECURITY SYSTEM FUNCTION.

Check if the room light activates.

CHECK : ***Does the room light turn on for 30 seconds, and then turn off?***
YES : Go to step **6A5**.
NO : Replace security control module.
<Ref. to 6-2 [W2200].☆14>

6A5 : CHECK SECURITY SYSTEM FUNCTION.

1) Press the LOCK/ARM button one time.
2) Unlock all doors with door locking switch in the front door.
3) Open the front left door.

CHECK : ***Does the security indicator light blink every 1/8 seconds?***
YES : Go to step **6A6**.
NO : Go to step **6D1**.

6A6 : CHECK SECURITY SYSTEM FUNCTION.

Check if the clearance light activates.

CHECK : ***Does the clearance light blinking remain?***
YES : Go to step **6A7**.
NO : Replace security control module.
<Ref. to 6-2 [W2200].☆14>

6A7 : CHECK SECURITY SYSTEM FUNCTION.

Check if the horn activates.

CHECK : ***Does the horn sound remain?***
YES : Go to step **6A8**.
NO : Replace security control module.
<Ref. to 6-2 [W2200].☆14>

6A8 : CHECK SECURITY SYSTEM FUNCTION.

Turn on starter.

CHECK : ***Does the starter motor activate?***
YES : Go to step **6E1**.
NO : Go to step **6A9**.

6A9 : CHECK SECURITY SYSTEM FUNCTION.

Close the front left door.

CHECK : ***Does the horn sound and clearance light blinking deactivate, and starter motor activate after approximately 30 seconds?***
YES : Go to step **6A10**.
NO : Replace security control module.
<Ref. to 6-2 [W2200].☆14>

6A10 : CHECK SECURITY SYSTEM FUNCTION.

Check if the security indicator light activates.

CHECK : ***Does the security indicator light blink every 2 seconds?***
YES : Go to step **6A11**.
NO : Replace security control module. <Ref. to 6-2 [W2200].☆14>

6A11 : CHECK SECURITY SYSTEM FUNCTION.

Open the front right door.

CHECK : ***Does the security indicator light blink every 1/8 seconds, the horn sound, the clearance light blink, and the starter motor deactivate?***
YES : Go to step **6A12**.
NO : Go to step **6F1**.

6A12 : CHECK SECURITY SYSTEM FUNCTION.

Press the UNLOCK/DISARM button.

CHECK : ***Does the security indicator light blink, the horn and clearance light deactivate, and the starter motor activate?***
YES : Go to step **6A13**.
NO : Replace security control module. <Ref. to 6-2 [W2200].☆14>

6A13 : CHECK SECURITY SYSTEM FUNCTION.

1) Close the front right door.
2) Press the LOCK/ARM button.
3) Open the rear left door.

CHECK : ***Does the security indicator light blink every 1/8 seconds, the horn sound, the clearance light blink, and the starter motor deactivate?***
YES : Go to step **6A14**.
NO : Go to step **6G1**.

6A14 : CHECK SECURITY SYSTEM FUNCTION.

1) Close the rear left door.
2) Open the rear right door.

CHECK : ***Does the security indicator light blink every 1/8 seconds, the horn sound, the clearance light blink, and the starter motor deactivate?***
YES : Go to step **6A15**.
NO : Go to step **6H1**.

6A15 : CHECK SECURITY SYSTEM FUNCTION.

Close the rear right door.

CHECK : ***Is the vehicle type wagon?***
YES : Go to step **6A16**.
NO : Go to step **6A17**.

6A16 : CHECK SECURITY SYSTEM FUNCTION.

Open the rear gate.

CHECK : ***Does the security indicator light blink every 1/8 seconds, the horn sound, the clearance light blink, and the starter motor deactivate?***
YES : Go to step **6A18**.
NO : Go to step **6I1**.

6A17 : CHECK SECURITY SYSTEM FUNCTION.

Open the trunk lid.

CHECK : ***Does the security indicator light blink every 1/8 seconds, the horn sound, the clearance light blink, and the starter motor deactivate?***
YES : Go to step **6A18**.
NO : Go to step **6J1**.