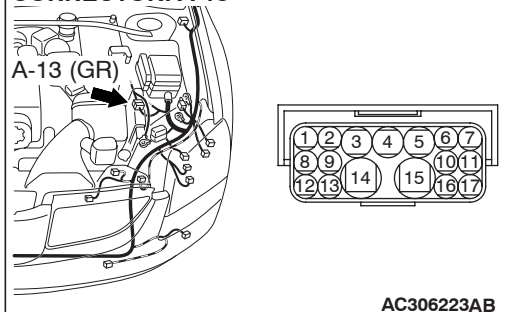
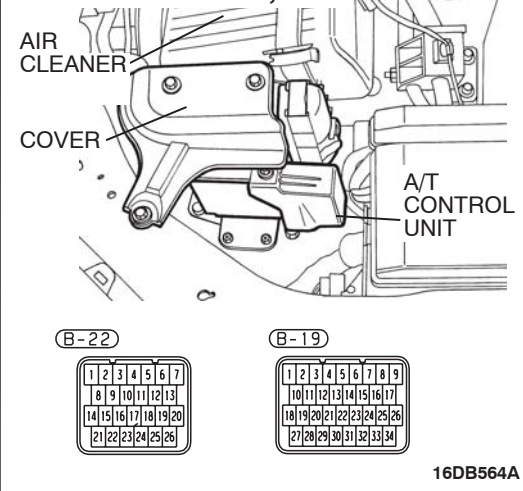
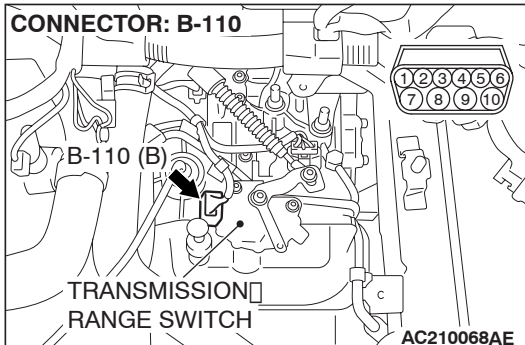
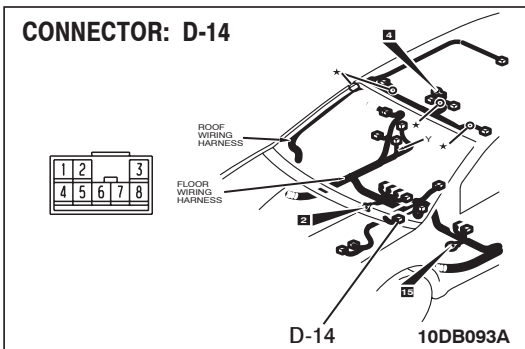
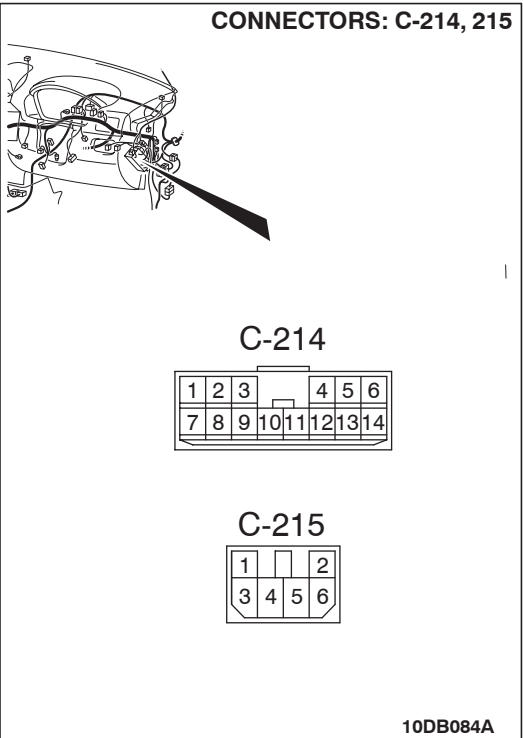


(P0705): Transmission Inhibitor Switch System (Open Circuit)**CAUTION**

If (P0705) has been set, TCL related DTC (C1397) is also set. After (P0705) has been diagnosed, don't forget to erase DTC (C1397).

CONNECTOR: A-13**CONNECTORS: B-19, B-22****CONNECTOR: B-110****CONNECTOR: D-14****CONNECTORS: C-214, 215****CIRCUIT OPERATION**

- Battery positive voltage is applied to the transmission inhibitor switch (terminal 8) when the ignition switch is turned "ON."
- Battery positive voltage is applied to the A/T-ECU connector B-22 (terminal 25) when the transmission range is in the "P" range. The A/T-ECU judges that the transmission range is in the "P" range when the battery positive voltage is applied.

- Battery positive voltage is applied to the A/T-ECU connector B-22 terminal (23, 26 and 24) when the selector lever is in the ("R", "N," and "D," range). The A/T-ECU judges that the selector lever is in the ("R", "N," and "D," range) when the battery positive voltage is applied.

DTC SET CONDITIONS**Check Conditions, Judgement Criteria**

- Transmission inhibitor switch: no signal detected. (30 seconds)

OBD-II DRIVE CYCLE PATTERN

Start the engine, keep the vehicle stopped in "P," "R," "N," and "D" ranges respectively for more than one minute, and turn "LOCK" (OFF) the ignition switch. Then restart the engine, and stop the vehicle in "P," "R," "N," and "D" ranges respectively for more than one minute.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the transmission inhibitor switch
- Malfunction of the ignition switch
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- Refer to component locations GROUP-70

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check data list item 34: Transmission Inhibitor Switch.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to "ON" position.
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 34: Transmission Inhibitor Switch.
 - Move the selector lever to "P," "R," "N," "D" and sport mode positions and confirm that the selected transmission range match the positions shown on diagnostic tool MB991958. (Sport mode is indicated as "D" on the diagnostic tool).
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Does the diagnostic tool indication correspond to the actual transmission range?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-14](#).

NO (no correct transmission range is displayed) : Go to Step 2.

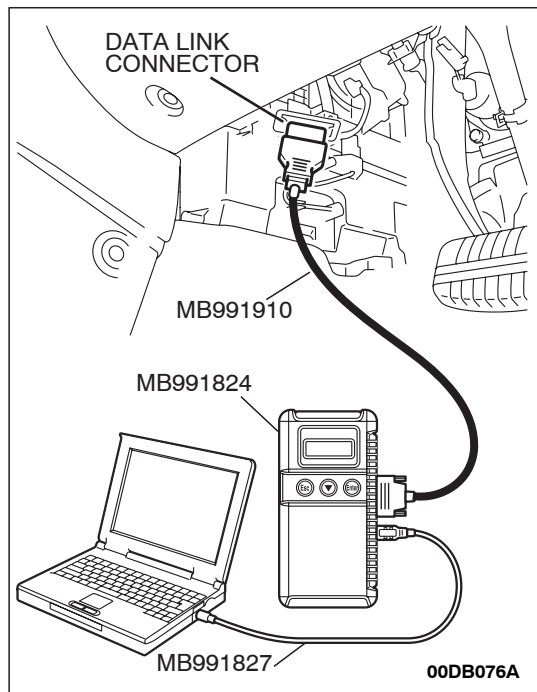
NO (Only "P" position is not displayed correctly) : Go to Step 6.

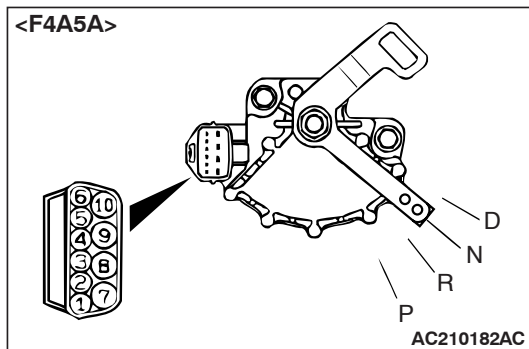
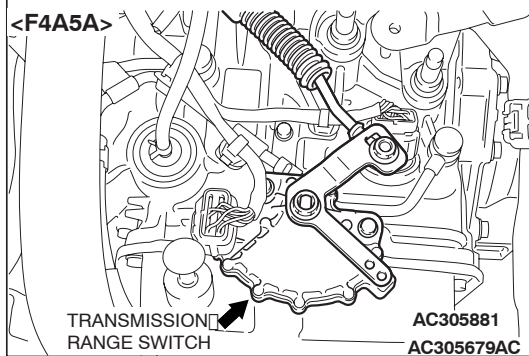
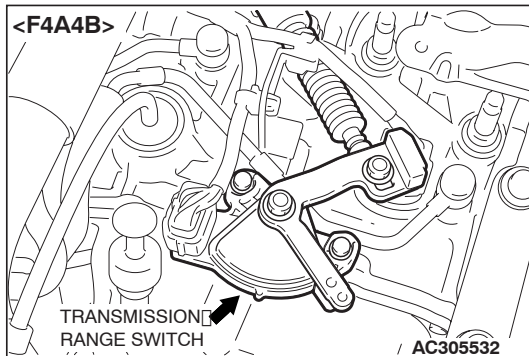
NO (Only "R" position is not displayed correctly) : Go to Step 12.

NO (Only "N" position is not displayed correctly) : Go to Step 17.

NO (Only "D" position is not displayed correctly) : Go to Step 22.

NO [Only sport mode position is not displayed correctly ("D" is not displayed.)] : Go to Step 29.





STEP 2. Check the transmission inhibitor switch.

Measure the resistance between the terminals for each transmission range as indicated in the table below.

TRANSMISSION RANGE	TERMINAL CONNECTION OF TESTER	SPECIFIED CONDITION
P	3 – 8, 9 – 10	Less than 2 ohms.
R	7 – 8	
N	4 – 8, 9 – 10	
D	1 – 8	

Q: Does the resistance measure less than 2 ohms for each transmission range?

YES : Go to Step 3.

NO : Replace the transmission inhibitor switch. Refer to GROUP 23B, Transmission [23B-13](#).

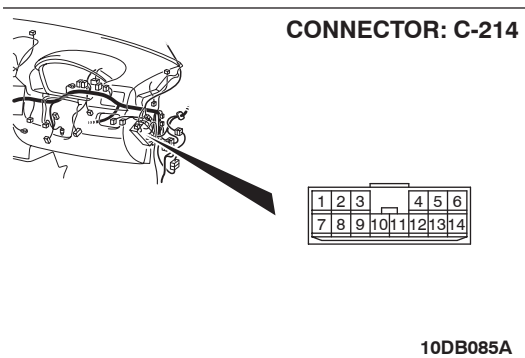
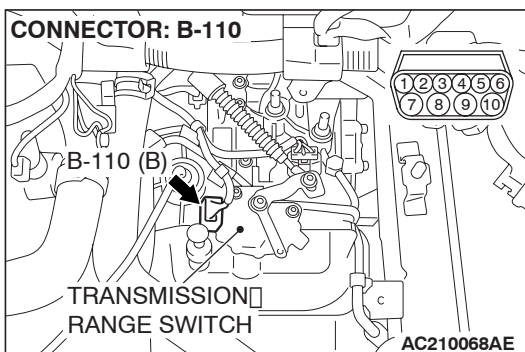
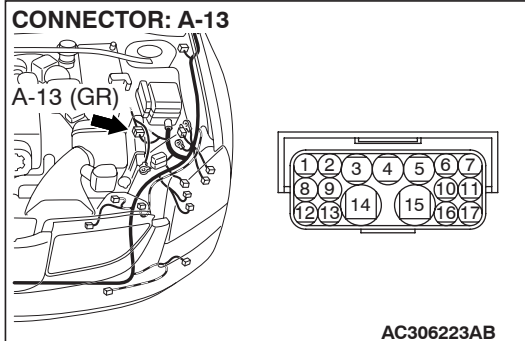
STEP 3. Check intermediate connector A-13, transmission inhibitor switch connector B-110 and junction block connector C-214 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

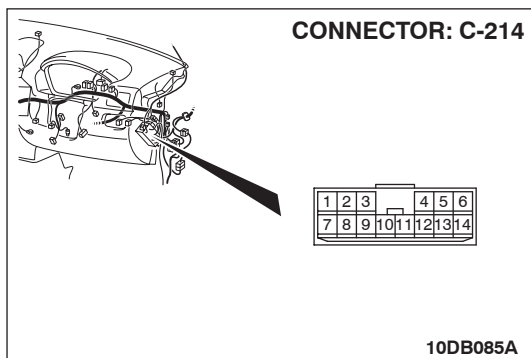
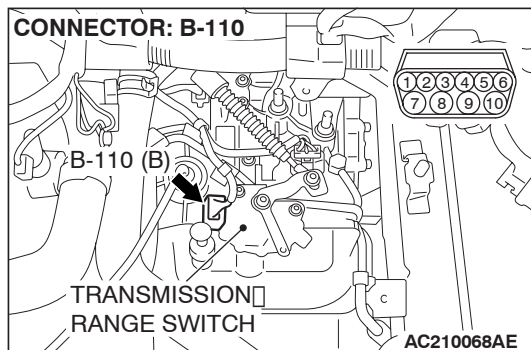
Q: Are the connectors and terminals in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

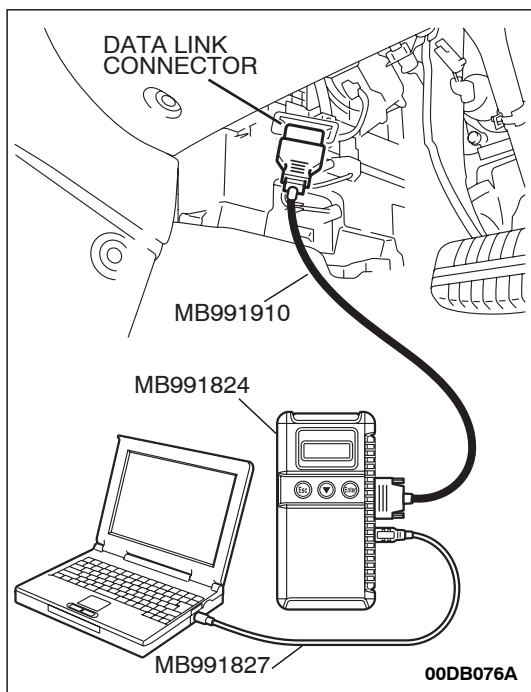




STEP 4. Check harness for open or short circuit to ground between transmission inhibitor switch connector B-110 terminal 8 and junction block connector C-214 terminal 12.
Q: Is the harness wire in good condition?

YES : Go to Step 5.

NO : Repair or replace the harness wire.



STEP 5. Using diagnostic tool MB991958, check data list item 34: Transmission Inhibitor Switch.

⚠ CAUTION

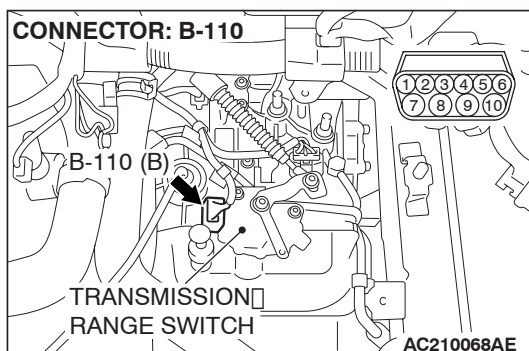
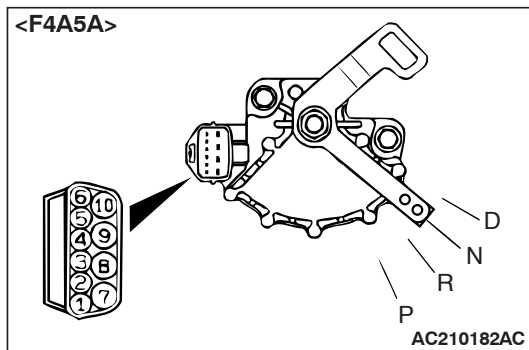
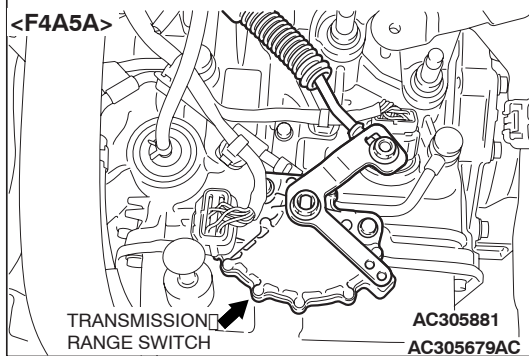
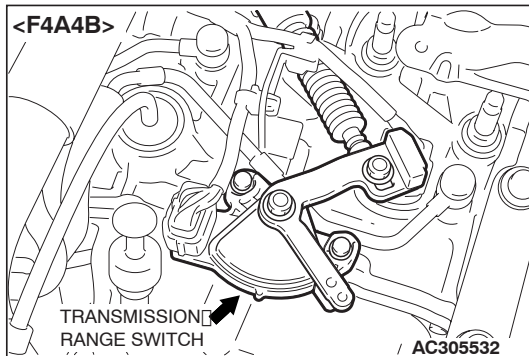
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to "ON" position.
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 34: Transmission Inhibitor Switch.
 - Move the selector lever to "P," "R," "N," "D," and sport mode positions and confirm that the selected transmission range match the positions shown on diagnostic tool MB991958. (Sport mode is indicated as "D" on the diagnostic tool).
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the switch operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-14](#).

NO : Replace the A/T-ECU.



STEP 6. Check the transmission inhibitor switch.

Measure the resistance between the terminals for each transmission range as indicated in the table below.

TRANSMISSION RANGE	TERMINAL CONNECTION OF TESTER	SPECIFIED CONDITION
P	3 – 8, 9 – 10	Less than 2 ohms.
R	7 – 8	
N	4 – 8, 9 – 10	
D	1 – 8	

Q: Does the resistance measure less than 2 ohms for each transmission range?

YES : Go to Step 7.

NO : Replace the transmission inhibitor switch. Refer to GROUP 23B, Transmission [23B-13](#).

STEP 7. Check transmission inhibitor switch connector B-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

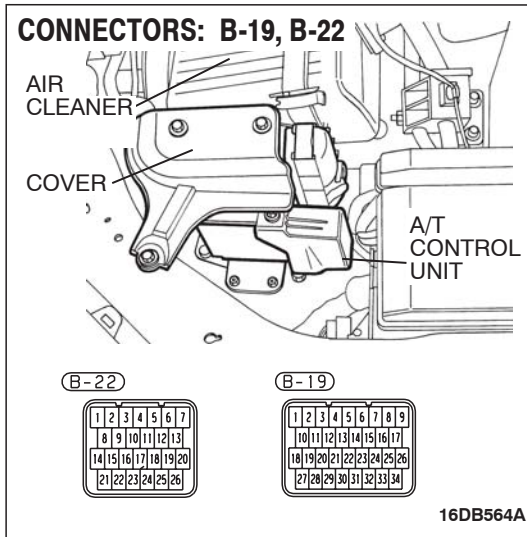
Q: Are the connector and terminals in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

STEP 8. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045.

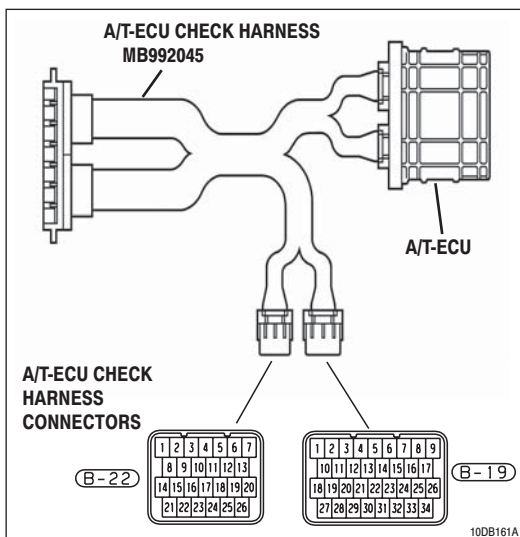
(1) Disconnect all the connectors from the A/T-ECU.



(2) Connect special tool MB992045 (check harness) between the A/T-ECU and the body-side harness connector.

(3) Turn the ignition switch to the "ON" position.

(4) Move the selector lever to the "P" position.



(5) Measure the voltage between connector B-22 terminal 25 and ground.

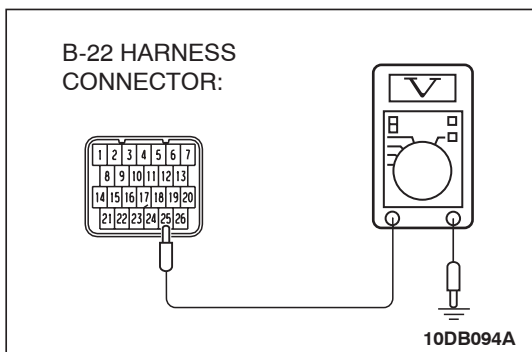
- The voltage should measure battery positive voltage.

(6) Turn the ignition switch to the "LOCK" (OFF) position.

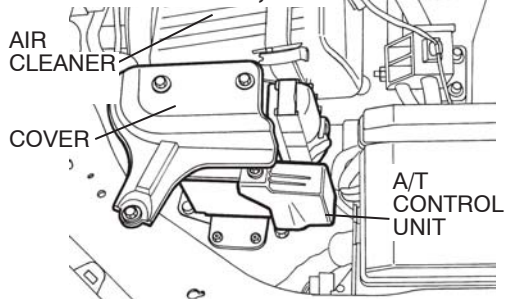
Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 9.



CONNECTORS: B-19, B-22



(B-22)

1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

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STEP 9. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

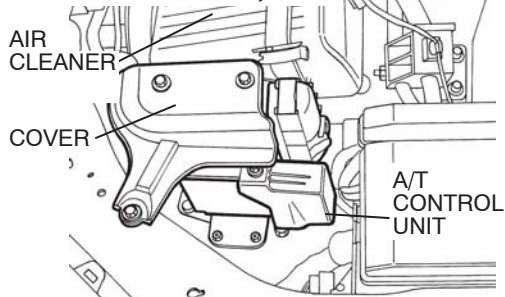
Q: Are the connector and terminals in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

CONNECTORS: B-19, B-22



(B-22)

1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

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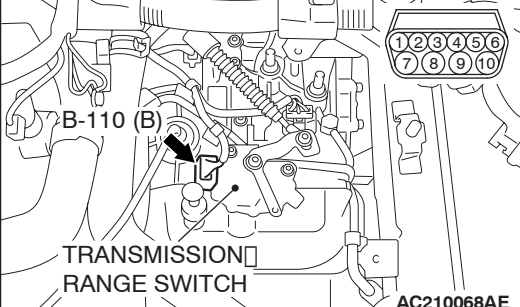
STEP 10. Check harness for open circuit or short circuit to ground between A/T-ECU connector B-22 terminal 25 and transmission inhibitor switch connector B-110 terminal 3.

Q: Is the harness wire in good condition?

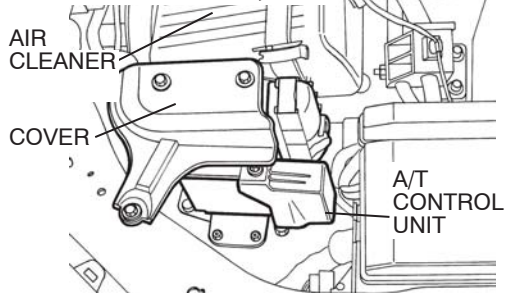
YES : Go to Step 5.

NO : Repair or replace the harness wire.

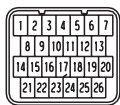
CONNECTOR: B-110



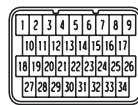
CONNECTORS: B-19, B-22



(B-22)



(B-19)



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STEP 11. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

STEP 12. Check the transmission inhibitor switch.

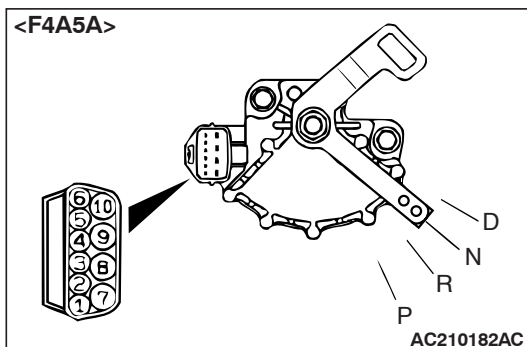
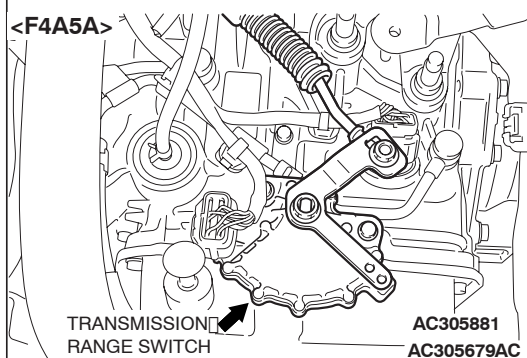
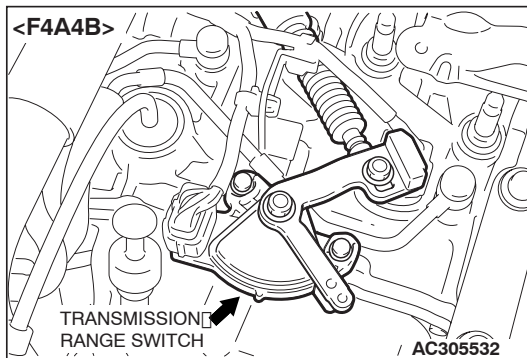
Measure the resistance between the terminals for each transmission range as indicated in the table below.

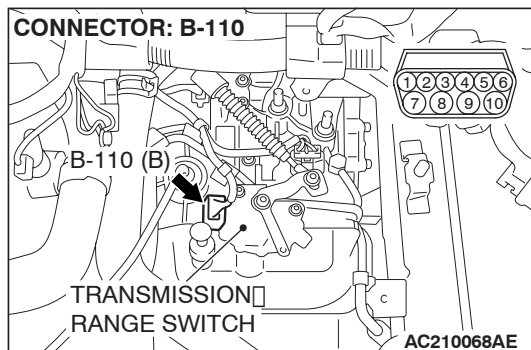
TRANSMISSION RANGE	TERMINAL CONNECTION OF TESTER	SPECIFIED CONDITION
P	3 – 8, 9 – 10	Less than 2 ohms.
R	7 – 8	
N	4 – 8, 9 – 10	
D	1 – 8	

Q: Is the measured resistance less than 2 ohms for each transmission range?

YES : Go to Step 13.

NO : Replace the transmission inhibitor switch. Refer to GROUP 23B, Transmission [23B-13.](#)





STEP 13. Check transmission inhibitor switch connector B-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

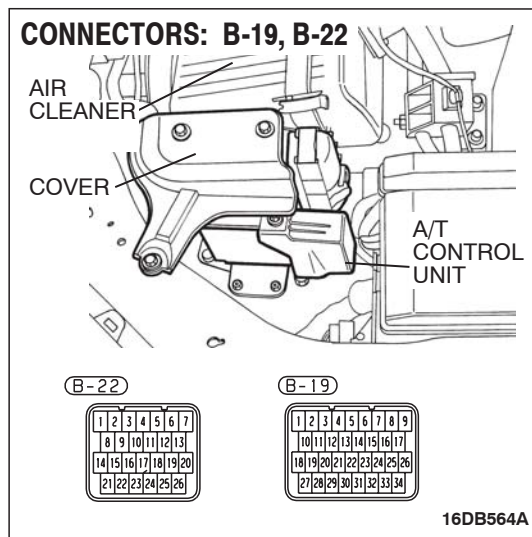
Q: Are the connector and terminals in good condition?

YES : Go to Step 14.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

STEP 14. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045.

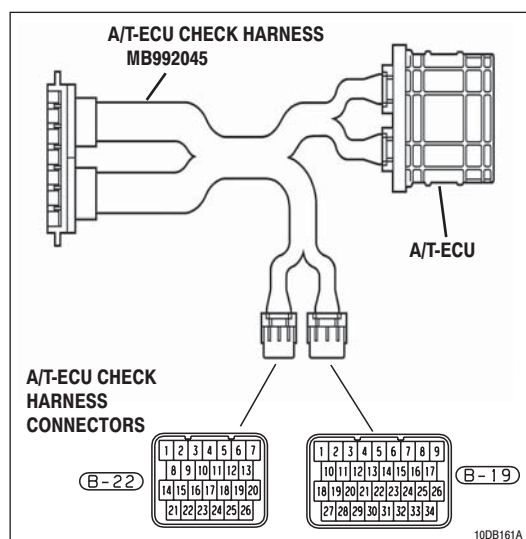
(1) Disconnect all the connectors from the A/T-ECU.



(2) Connect special tool MB992045 (check harness) between the A/T-ECU and the body-side harness connector.

(3) Turn the ignition switch to the "ON" position.

(4) Move the selector lever to the "R" position.



(5) Measure the voltage between connector B-22 terminal 23 and ground.

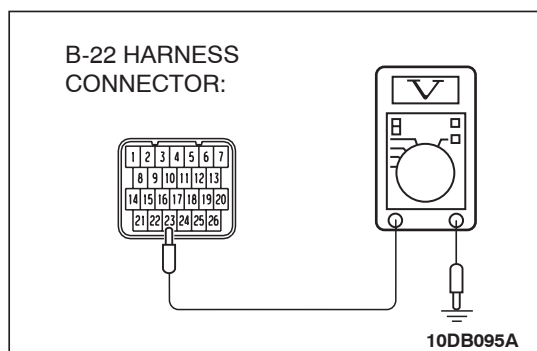
- The voltage should measure below battery positive voltage.

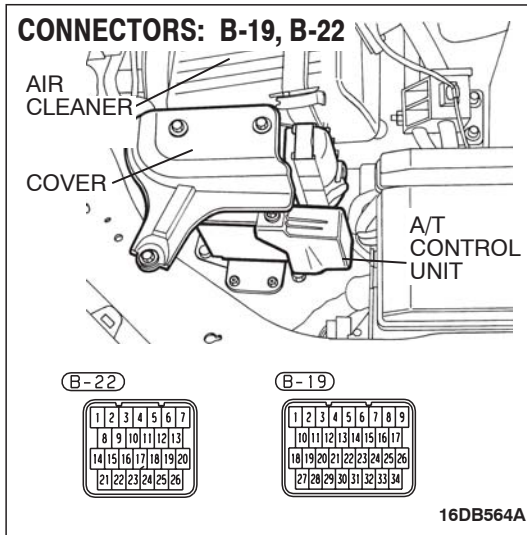
(6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 15.



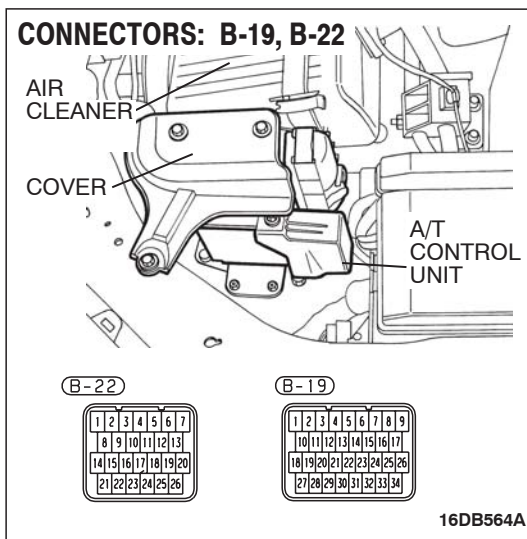


STEP 15. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

YES : Go to Step 16.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

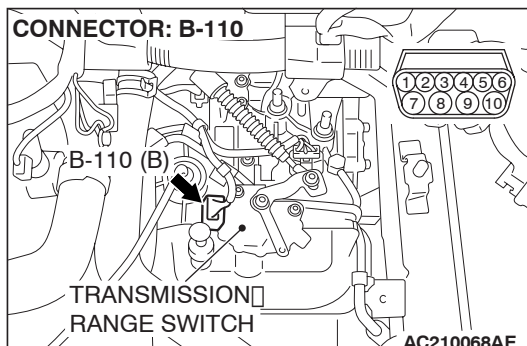


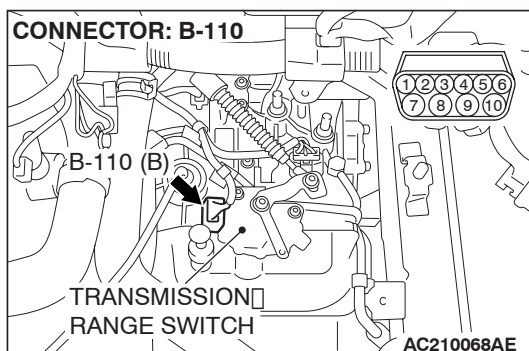
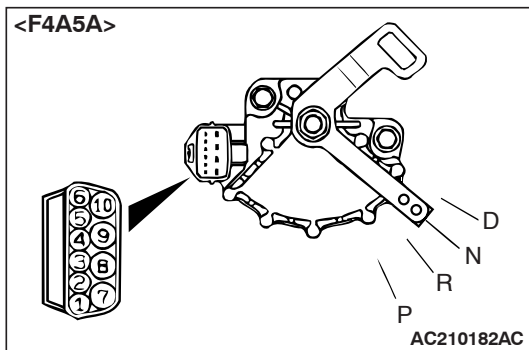
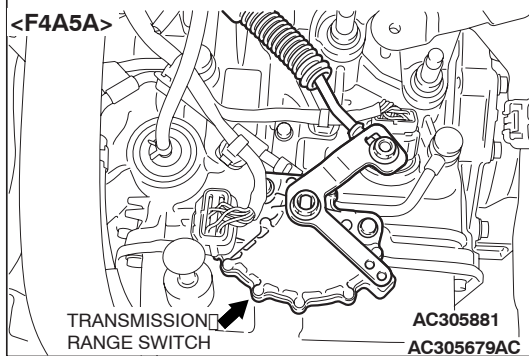
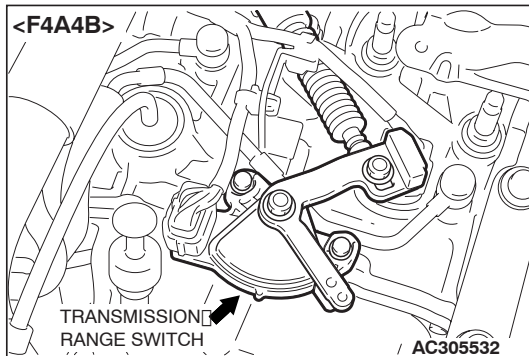
STEP 16. Check harness for open circuit or short circuit to ground between A/T-ECU connector B-22 terminal 23 and transmission inhibitor switch connector B-110 terminal 7.

Q: Is the harness wire in good condition?

YES : Go to Step 5.

NO : Repair or replace the harness wire.





STEP 17. Check the transmission inhibitor switch.

Measure the resistance between the terminals for each transmission range as indicated in the table below.

TRANSMISSION RANGE	TERMINAL CONNECTION OF TESTER	SPECIFIED CONDITION
P	3 – 8, 9 – 10	Less than 2 ohms.
R	7 – 8	
N	4 – 8, 9 – 10	
D	1 – 8	

Q: Is the measured resistance less than 2 ohms for each transmission range?

YES : Go to Step 18.

NO : Replace the transmission inhibitor switch. Refer to GROUP 23B, Transmission [23B-13](#).

STEP 18. Check transmission inhibitor switch connector B-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

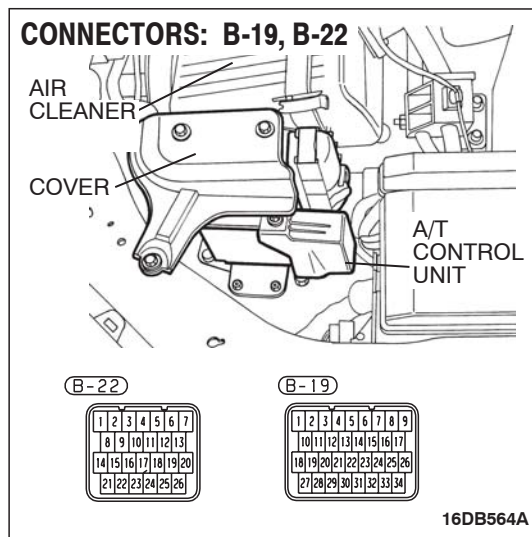
Q: Are the connector and terminals in good condition?

YES : Go to Step 19.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

STEP 19. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045.

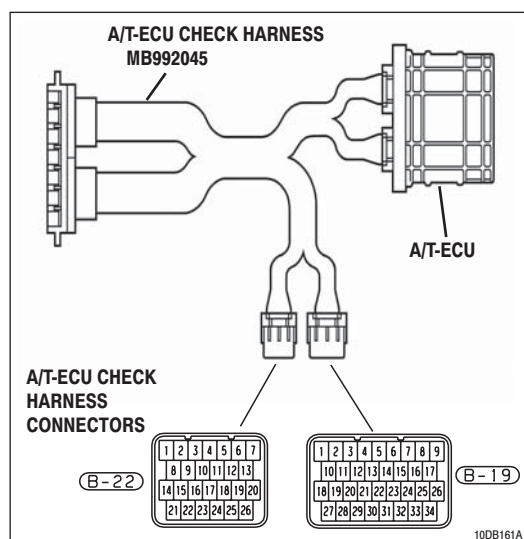
(1) Disconnect all the connectors from the A/T-ECU.



(2) Connect special tool MB992045 (check harness) between the A/T-ECU and the body-side harness connector.

(3) Turn the ignition switch to the "ON" position.

(4) Move the selector lever to the "N" position.



(5) Measure the voltage between connector B-22 terminal 26 and ground.

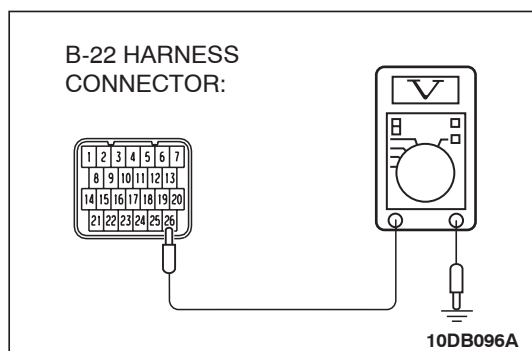
- The voltage should measure battery positive voltage.

(6) Turn the ignition switch to the "LOCK" (OFF) position.

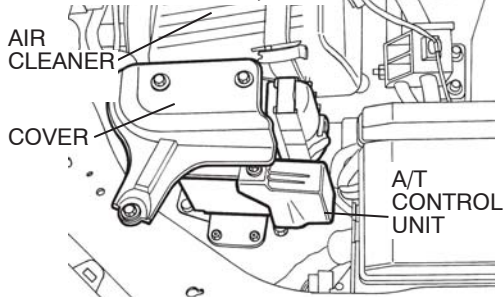
Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 20.



CONNECTORS: B-19, B-22



(B-22)

1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

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STEP 20. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

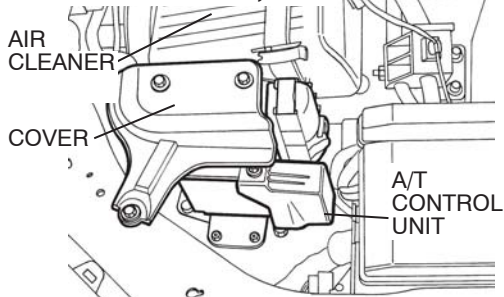
Q: Are the connector and terminals in good condition?

YES : Go to Step 21.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

CONNECTORS: B-19, B-22



(B-22)

1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

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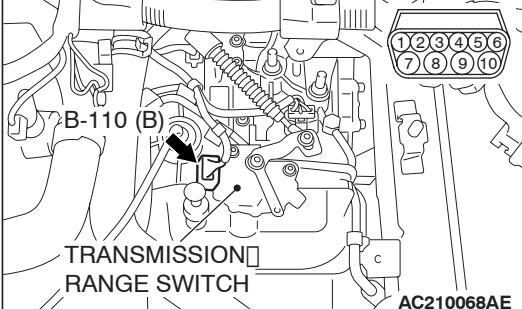
STEP 21. Check harness for open circuit or short circuit to ground between A/T-ECU connector B-22 terminal 26 and transmission inhibitor switch connector B-110 terminal 4.

Q: Is the harness wire in good condition?

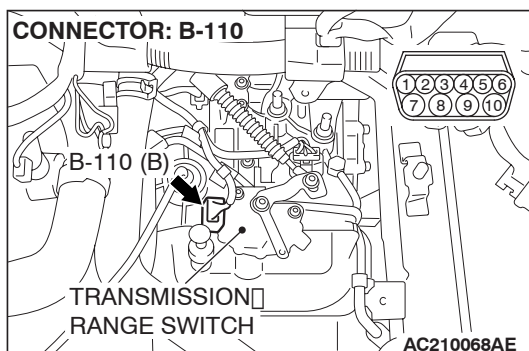
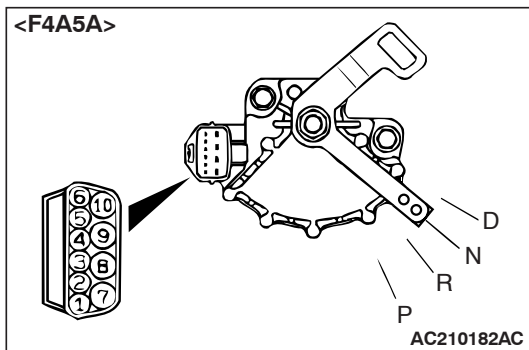
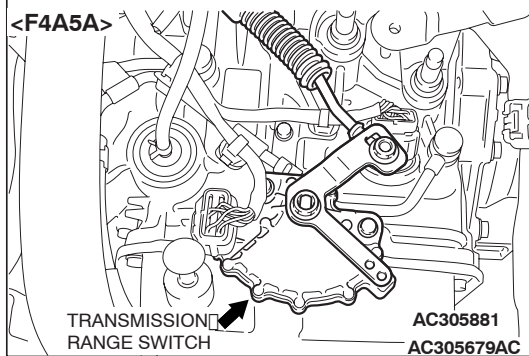
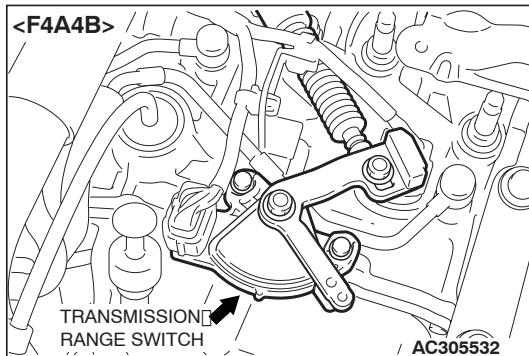
YES : Go to Step 5.

NO : Repair or replace the harness wire.

CONNECTOR: B-110



AC210068AE



STEP 22. Check the transmission inhibitor switch.

Measure the resistance between the terminals for each transmission range as indicated in the table below.

TRANSMISSION RANGE	TERMINAL CONNECTION OF TESTER	SPECIFIED CONDITION
P	3 – 8, 9 – 10	Less than 2 ohms.
R	7 – 8	
N	4 – 8, 9 – 10	
D	1 – 8	

Q: Is the measured resistance less than 2 ohms for each transmission range?

YES : Go to Step 23.

NO : Replace the transmission inhibitor switch. Refer to GROUP 23B, Transmission [23B-13](#).

STEP 23. Check transmission inhibitor switch connector B-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

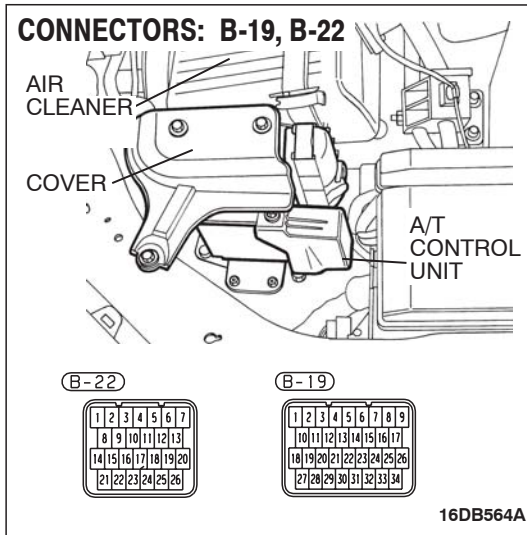
Q: Are the connector and terminals in good condition?

YES : Go to Step 24.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).

STEP 24. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045.

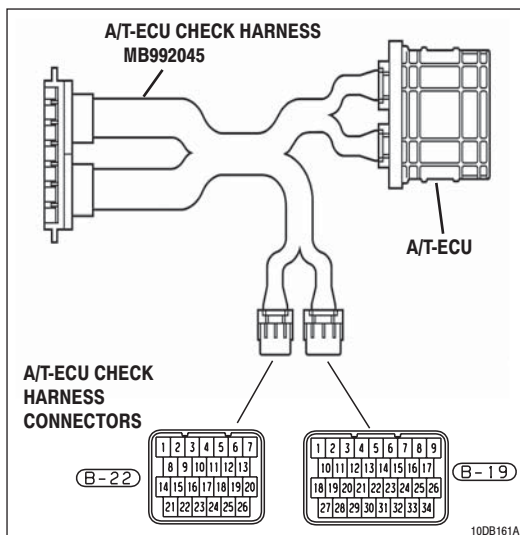
(1) Disconnect all the connectors from the A/T-ECU.



(2) Connect special tool MB992045 (check harness) between the A/T-ECU and the body-side harness connector.

(3) Turn the ignition switch to the "ON" position.

(4) Move the selector lever to the "D" position.



(5) Measure the voltage between connector B-22 terminal 24 and ground.

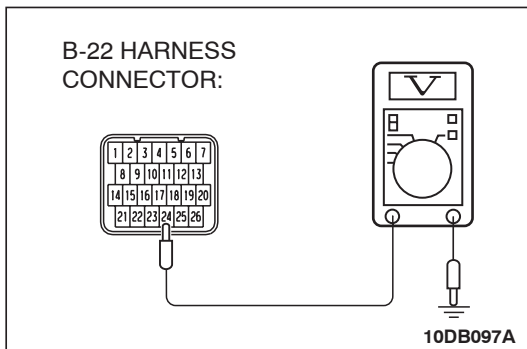
- The voltage should equal battery voltage (approximately 12 volts).

(6) Turn the ignition switch to the "LOCK" (OFF) position.

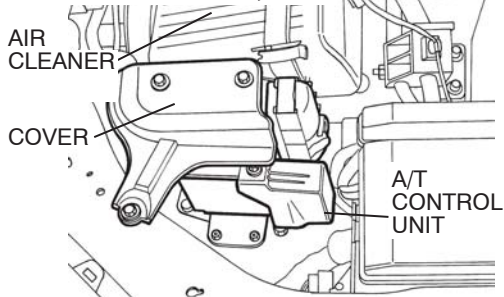
Q: Does the voltage measure battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 25.



CONNECTORS: B-19, B-22



(B-22)

1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

16DB564A

STEP 25. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

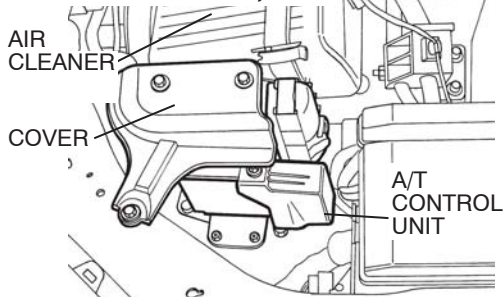
Q: Are the connector and terminals in good condition?

YES : Go to Step 26.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

CONNECTORS: B-19, B-22



(B-22)

1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

16DB564A

STEP 26. Check harness for open circuit or short circuit to ground between A/T-ECU connector B-22 terminal 24 and transmission inhibitor switch connector B-110 terminal 1.

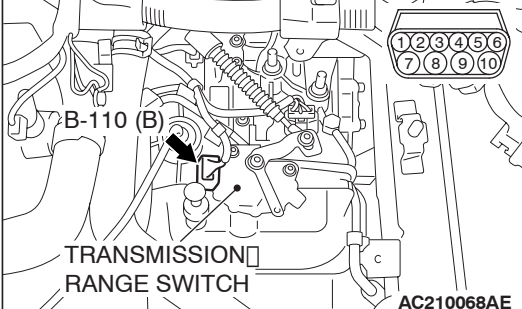
Q: Is the harness wire in good condition?

YES <Vehicles without sport mode> : Go to Step 5.

YES <Vehicles with sport mode> : Go to Step 27.

NO : Repair or replace the harness wire.

CONNECTOR: B-110



AC210068AE

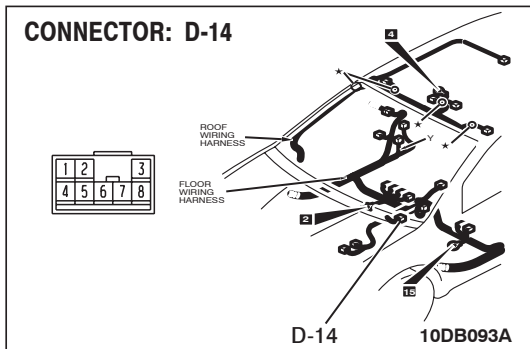
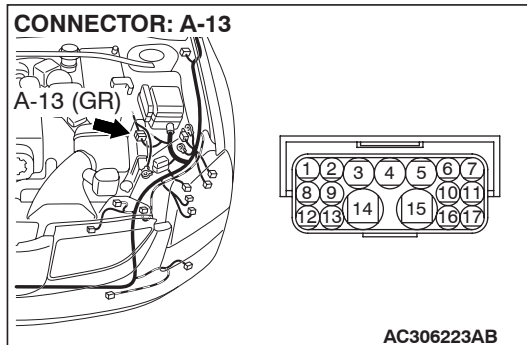
STEP 27. Check intermediate connector A-13 and shift switch assembly connector D-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

YES : Go to Step 28.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

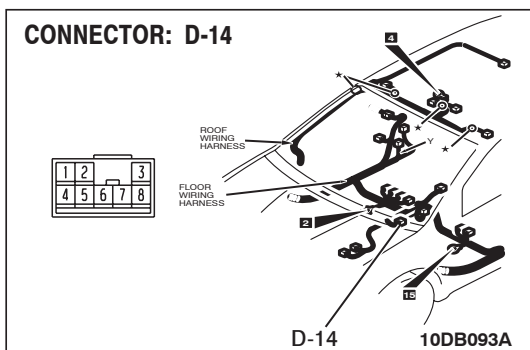
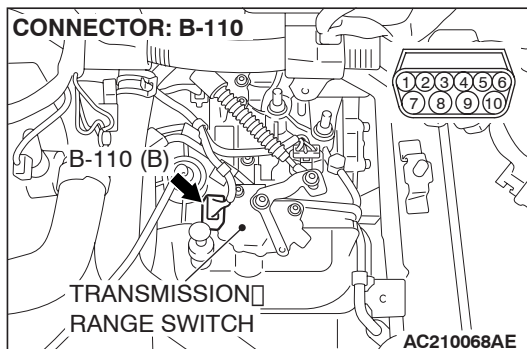


STEP 28. Check harness for short circuit to ground between transmission inhibitor switch connector B-110 terminal 1 and shift switch assembly connector D-14 terminal 1.

Q: Is the harness wire in good condition?

YES : Go to Step 5.

NO : Repair or replace the harness wire.



STEP 29. Check A/T-ECU connector B-19 and shift switch assembly connector D-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

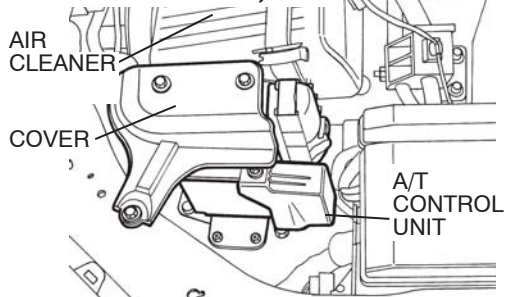
Q: Are the connector and terminals in good condition?

YES : Go to Step 30.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

CONNECTORS: B-19, B-22



(B-22)

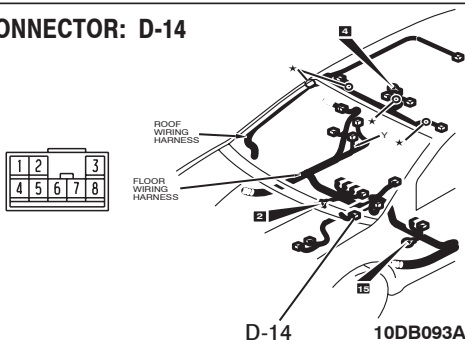
1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

16DB564A

CONNECTOR: D-14



D-14

10DB093A

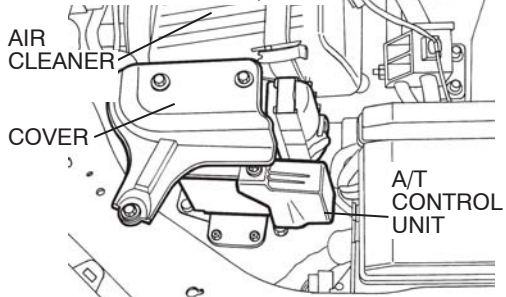
STEP 30 . Check harness for short circuit to ground between A/T-ECU connector B-19 terminal 17 and shift switch assembly connector D-14 terminal 6.

Q: Is the harness wire in good condition?

YES : Go to Step 5.

NO : Repair or replace the harness wire.

CONNECTORS: B-19, B-22



(B-22)

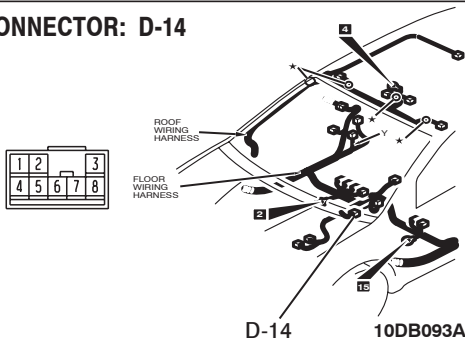
1	2	3	4	5	6	7
8	9	10	11	12	13	
14	15	16	17	18	19	20
21	22	23	24	25	26	

(B-19)

1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	
18	19	20	21	22	23	24	25	26
27	28	29	30	31	32	33	34	

16DB564A

CONNECTOR: D-14



D-14

10DB093A

(P0705): Transmission Inhibitor Switch System (Short Circuit)

⚠ CAUTION

If (P0705) has been set, TCL related DTC (C1397) is also set. After (P0705) has been diagnosed, don't forget to erase DTC (C1397).

**TRANSMISSION INHIBITOR SWITCH
SYSTEM CIRCUIT**

Refer to [P.23A-97](#).

CIRCUIT OPERATION

Refer to [P.23A-97](#).

DTC SET CONDITIONS

Check Conditions, Judgement Criteria

- Transmission inhibitor switch: multiple signal. (30 seconds)

OBD-II DRIVE CYCLE PATTERN

Start the engine, keep the vehicle stopped in "P," "R," "N," and "D" ranges respectively for more than one minute, and turn "LOCK" (OFF) the ignition switch. Then restart the engine, and stop the vehicle in "P," "R," "N," and "D" ranges respectively for more than one minute.

**TROUBLESHOOTING HINTS (THE MOST
LIKELY CAUSES FOR THIS CODE TO BE
SET ARE:)**

- Malfunction of the transmission inhibitor switch circuit
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main harness A

STEP 1. Check the transmission inhibitor switch.

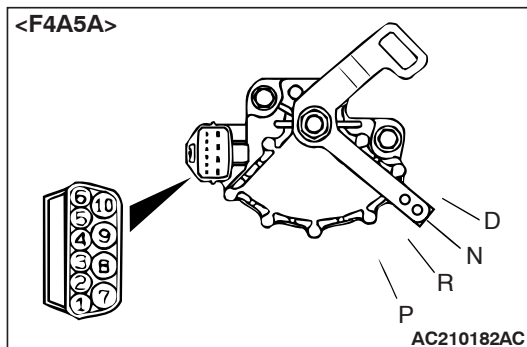
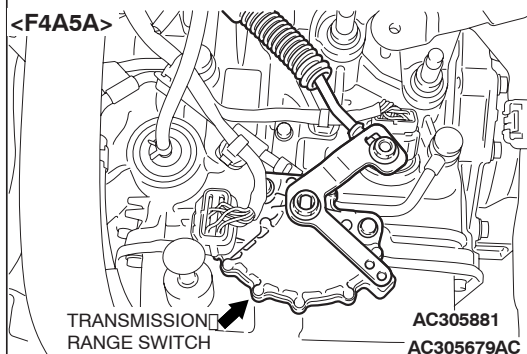
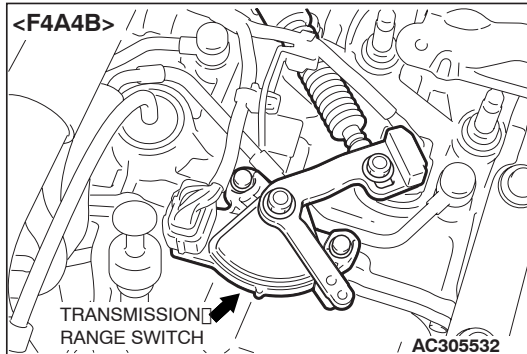
Measure the resistance between the terminals for each transmission range as indicated in the table below.

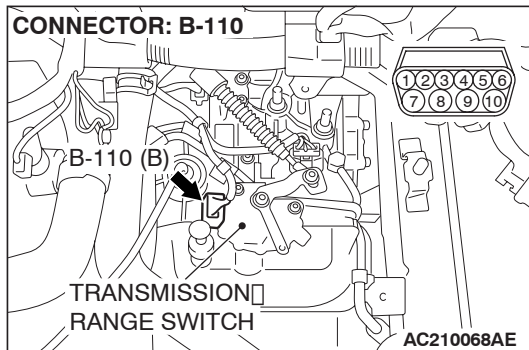
TRANSMISSION RANGE	TERMINAL CONNECTION OF TESTER	SPECIFIED CONDITION
P	3 – 8, 9 – 10	Less than 2 ohms.
R	7 – 8	
N	4 – 8, 9 – 10	
D	1 – 8	

Q: Does the resistance measure less than 2 ohms for each selector position?

YES : Go to Step 2.

NO : Replace the transmission inhibitor switch. Refer to GROUP 23B, Transmission [23B-13](#).





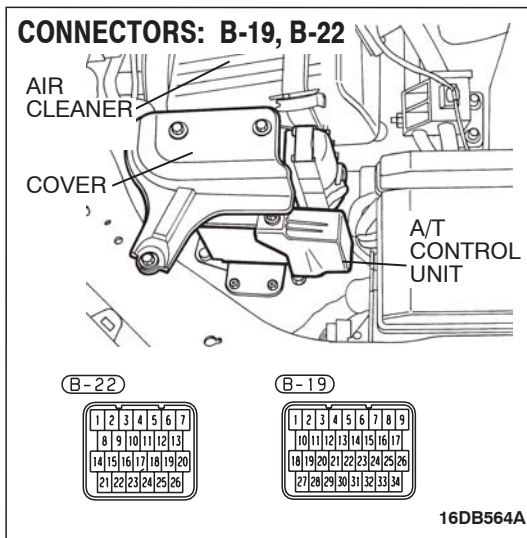
STEP 2. Check transmission inhibitor switch connector B-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)



STEP 3. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

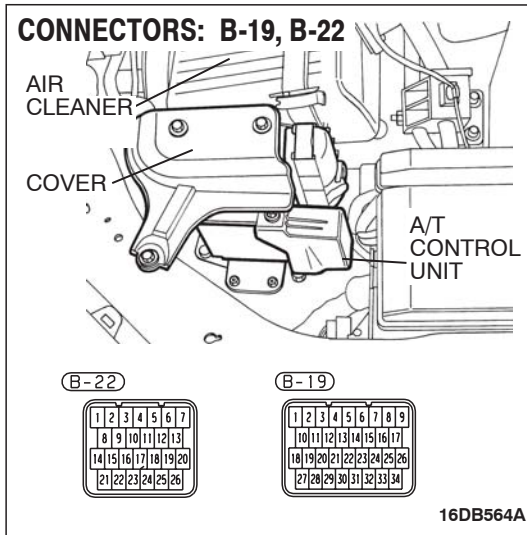
YES : Go to Step 4.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

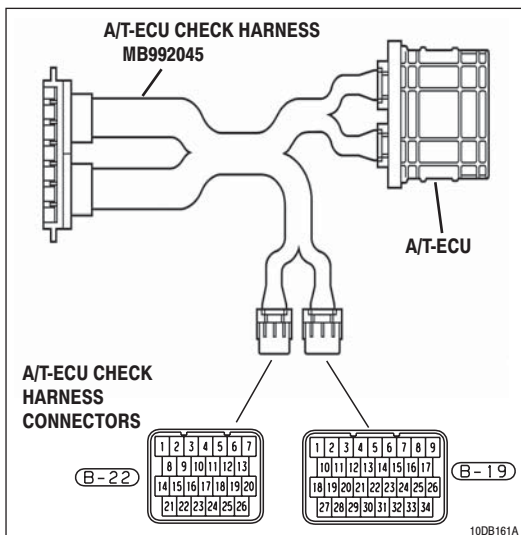
STEP 4. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045. ("P" position)

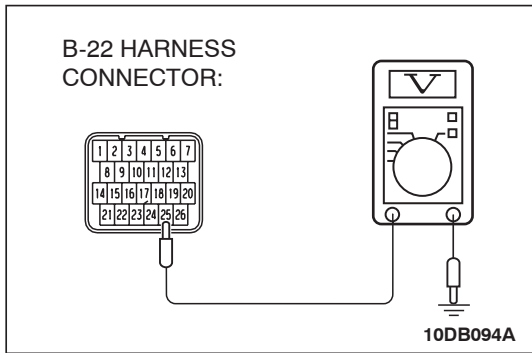
(1) Disconnect all the connectors from the A/T-ECU.



(2) Connect special tool MB992045 (check harness) between the A/T-ECU and the body-side harness connector.

(3) Turn the ignition switch to the "ON" position.





- (4) Measure the voltage between terminal 25 and ground.
- When transmission range is "P," voltage should equal battery positive voltage.
 - When transmission range is "R," voltage should measure 0.5 volt or less.
 - When transmission range is "N," voltage should measure 0.5 volt or less.
 - When transmission range is "D," voltage should measure 0.5 volt or less.
 - When transmission range is sport mode, voltage should measure 0.5 volt or less.

Q: Is the measured voltage within the specified range?

YES : Go to Step 6.

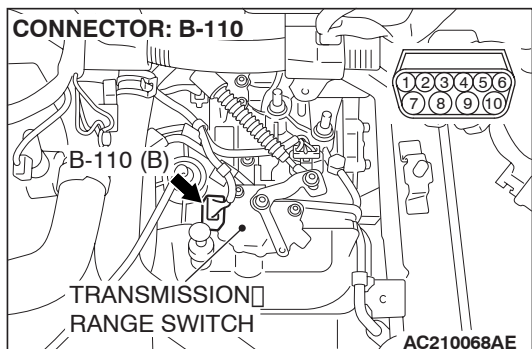
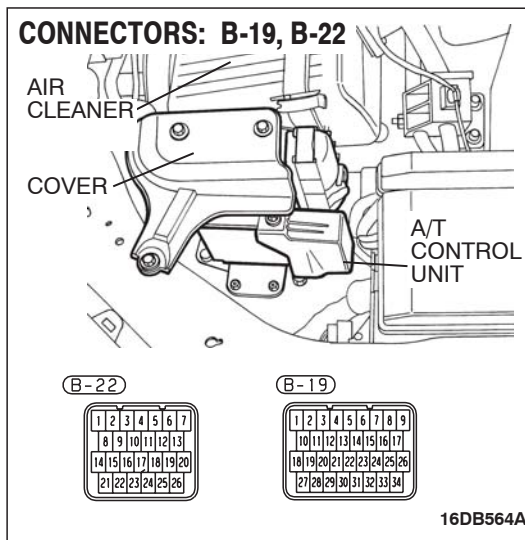
NO : Turn the ignition switch to the "LOCK" (OFF) position.
Go to Step 5.

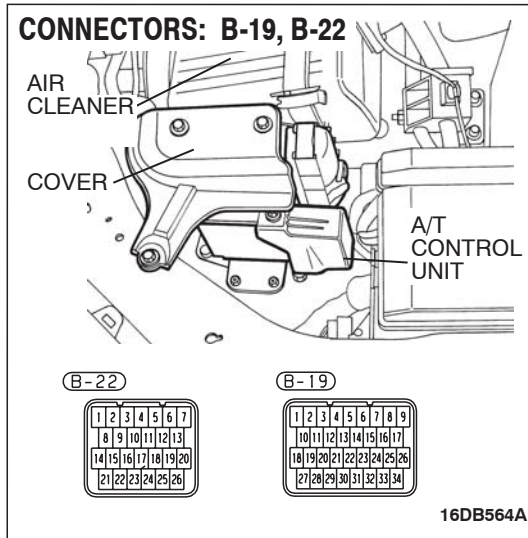
STEP 5. Check harness for damage between A/T-ECU connector B-22 terminal 25 and transmission inhibitor switch connector B-110 terminal 3.

Q: Is the harness wire in good condition?

YES : Go to Step 14.

NO : Repair or replace the harness wire.





STEP 6. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045. ("R" position)

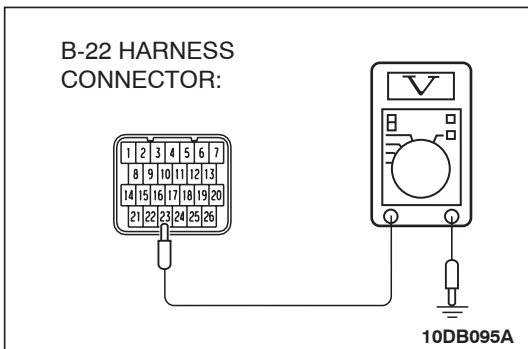
Measure the voltage between terminal 23 and ground.

- When transmission range is "P," voltage should measure 0.5 volt or less.
- When transmission range is "R," voltage should equal battery positive voltage.
- When transmission range is "N," voltage should measure 0.5 volt or less.
- When transmission range is "D," voltage should measure 0.5 volt or less.
- When transmission range is sport mode, voltage should measure 0.5 volt or less.

Q: Is the measured voltage within the specified range?

YES : Go to Step 8.

NO : Turn the ignition switch to the "LOCK" (OFF) position.
Go to Step 7.

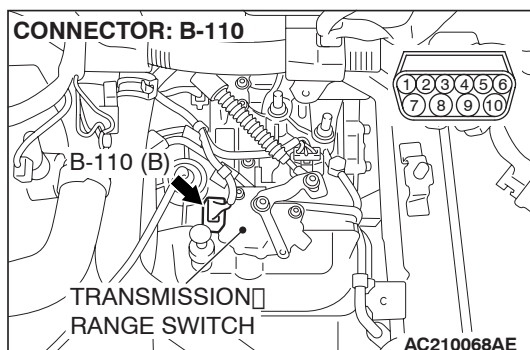
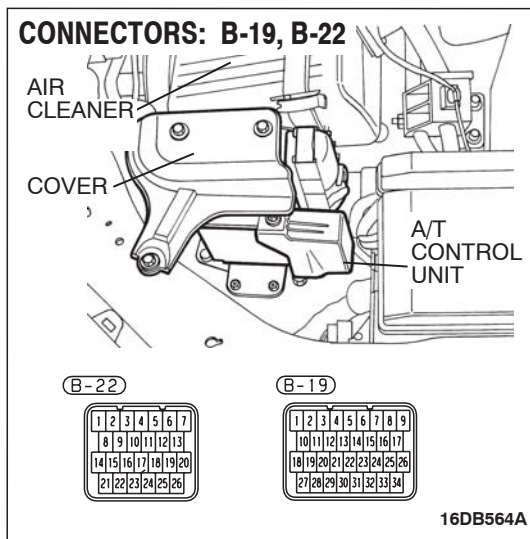


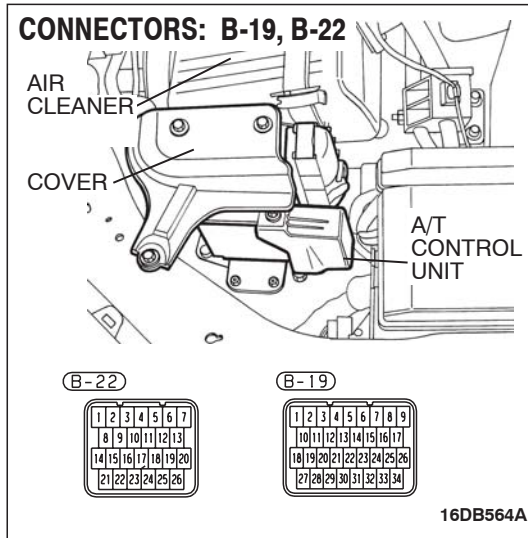
STEP 7. Check the harness for damage between A/T-ECU connector B-22 terminal 23 and transmission inhibitor switch connector B-110 terminal 7.

Q: Is the harness wire in good condition?

YES : Go to Step 14.

NO : Repair or replace the harness wire.





STEP 8. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045. ("N" position)

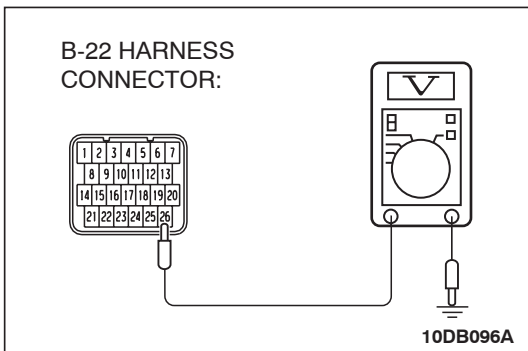
Measure the voltage between terminal 26 and ground.

- When transmission range is "P," voltage should measure 0.5 volt or less.
- When transmission range is "R," voltage should measure 0.5 volt or less.
- When transmission range is "N," voltage should equal battery positive voltage.
- When transmission range is "D," voltage should measure 0.5 volt or less.
- When transmission range is sport mode, voltage should measure 0.5 volt or less.

Q: Is the measured voltage within the specified range?

YES : Go to Step 10.

NO : Turn the ignition switch to the "LOCK" (OFF) position.
Go to Step 9.

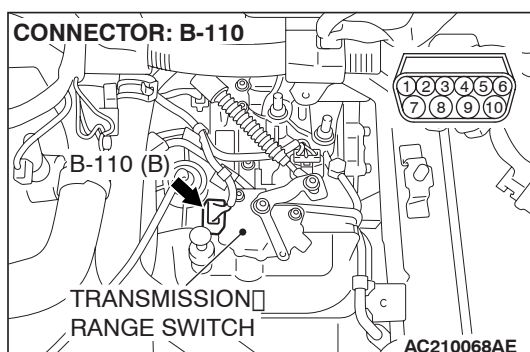
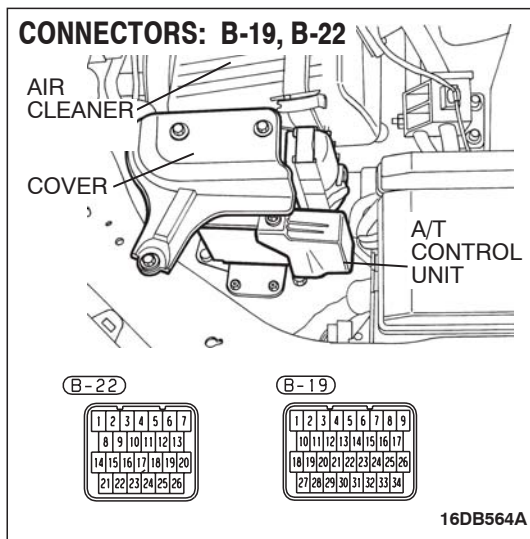


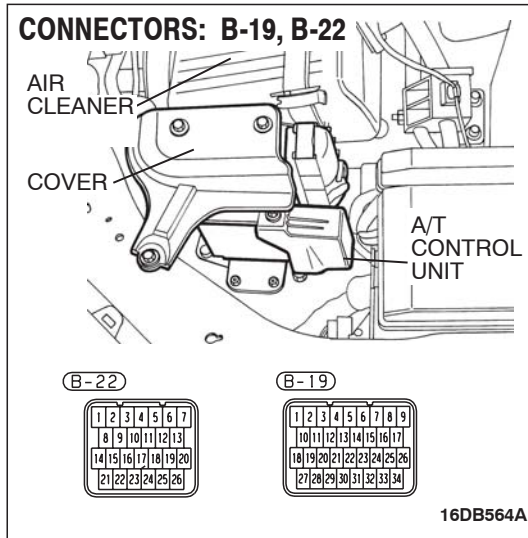
STEP 9. Check the harness for damage between A/T-ECU connector B-22 terminal 26 and transmission inhibitor switch connector B-110 terminal 4.

Q: Is the harness wire in good condition?

YES : Go to Step 14.

NO : Repair or replace the harness wire.





STEP 10. Measure the transmission inhibitor switch output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045. ("D" position)

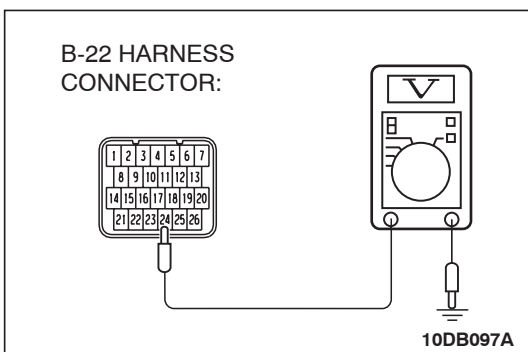
Measure the voltage between terminal 24 and ground.

- When transmission range is "P," voltage should measure 0.5 volt or less.
- When transmission range is "R," voltage should measure 0.5 volt or less.
- When transmission range is "N," voltage should measure 0.5 volt or less.
- When transmission range is "D," voltage should equal battery positive voltage.
- When transmission range is sport mode, voltage should equal battery positive voltage.

Q: Is the measured voltage within the specified range?

YES : Go to Step 14.

NO : Turn the ignition switch to the "LOCK" (OFF) position.
Go to Step 11.

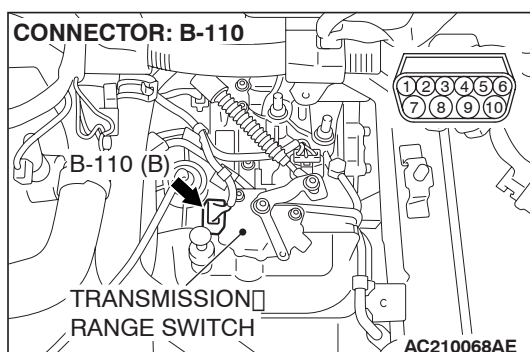
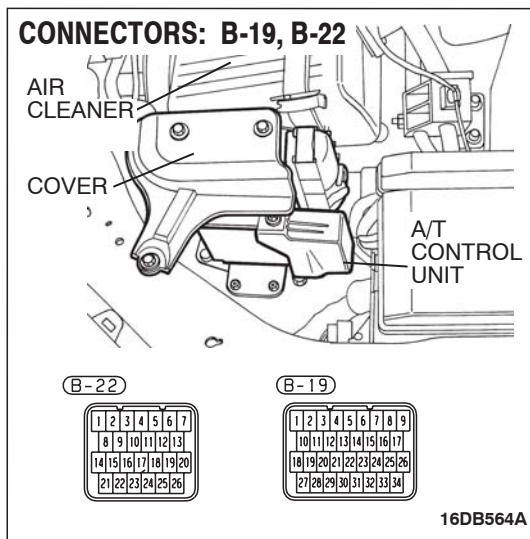


STEP 11. Check the harness for damage between A/T-ECU connector B-22 terminal 24 and transmission inhibitor switch connector B-110 terminal 1.

Q: Is the harness wire in good condition?

YES : Go to Step 12.

NO : Repair or replace the harness wire.



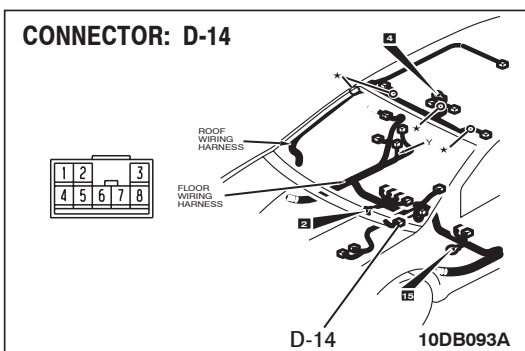
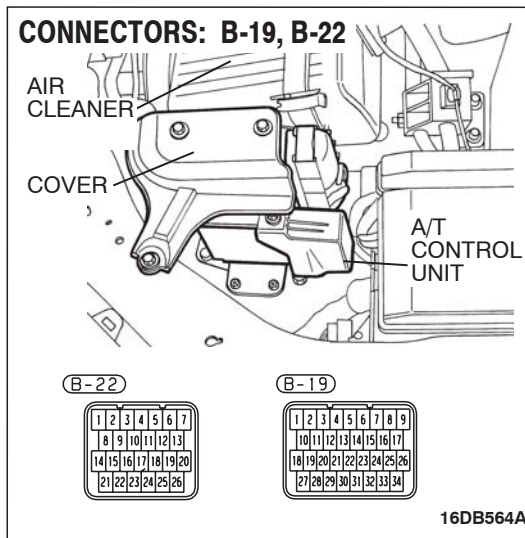
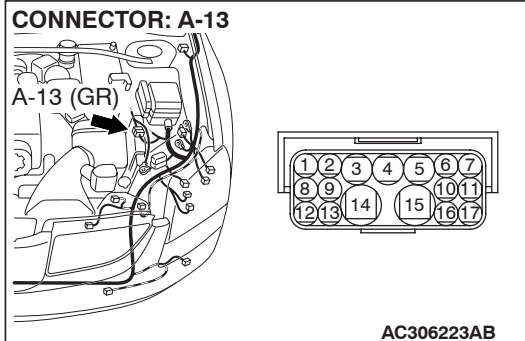
STEP 12. Check intermediate connector A-13, A/T-ECU connector B-19 and shift switch assembly connector D-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

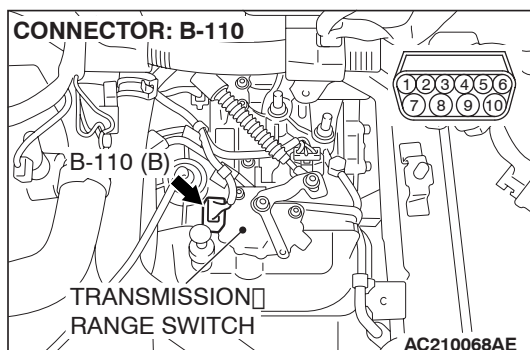
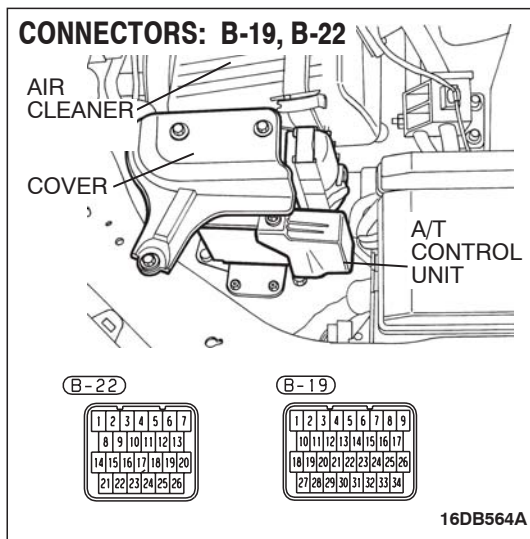


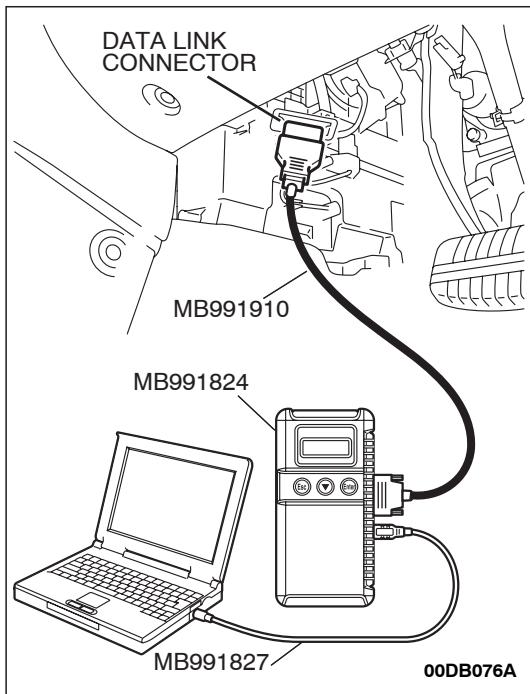
STEP 13. Check the harness for damage between A/T-ECU connector B-19 terminal 17 and transmission inhibitor switch connector B-110 terminal 1.

Q: Is the harness wire in good condition?

YES : Go to Step 14.

NO : Repair or replace the harness wire.





STEP 14. Using diagnostic tool MB991958, check data list item 34: Transmission Inhibitor Switch.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

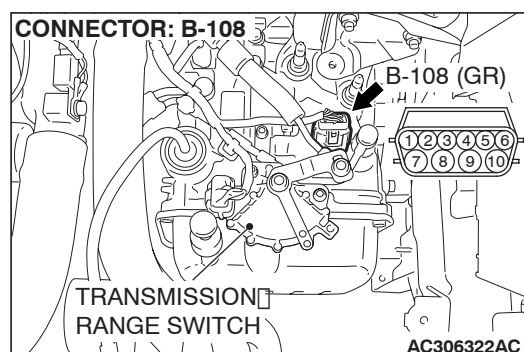
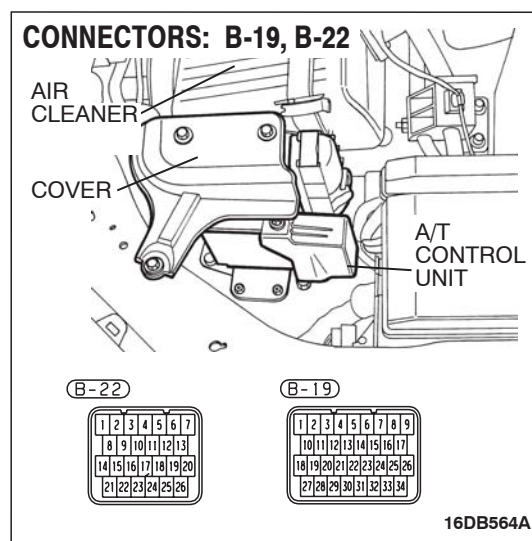
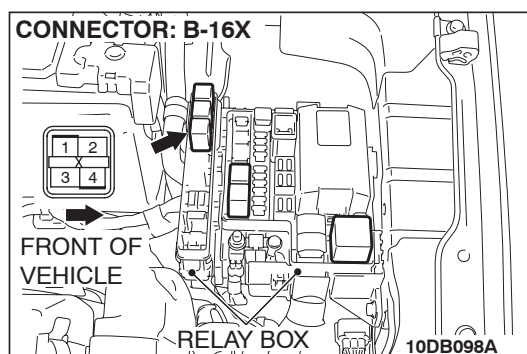
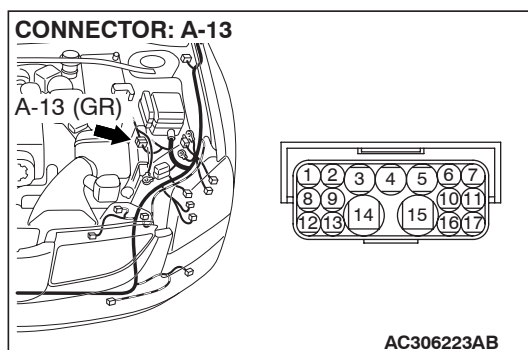
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to data reading mode.
 - Item 34: Transmission Inhibitor Switch.
 - Move the selector lever to "P," "R," "N," "D" and sport mode positions and confirm that the selected transmission ranges match the positions. (Sport mode is indicated as "D" on the diagnostic tool MB991958).
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the switch operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-14](#).

NO : Replace the A/T-ECU.

(P0753): Low-Reverse Solenoid Valve System



CIRCUIT OPERATION

- The A/T control relay supplies battery positive voltage to the solenoid valve assembly (terminals 9 and 10).
- The solenoid valve closes when energized (on), and opens when not energized (off). The A/T-ECU energizes the solenoid valve based on input data from sensors such as the Throttle Position Sensor, Transmission Inhibitor Switch, Stoplight Switch, Input Shaft Speed Sensor, Output Shaft Speed Sensor, and Transmission Fluid Temperature Sensor.
- The A/T-ECU provides the ground to energize the solenoid. The amount of time that the circuit is grounded is displayed on diagnostic tool MB991958 in percent.
- When the solenoid is energized or de-energized, fluid passes through the valve body and transmission passages to apply and release components.

DTC SET CONDITIONS

Check Conditions

- Solenoid status: either solid ON or OFF.
- Shift status: in-gear.
- Voltage of battery: 10 volts or more.

Judgement Criteria

- Solenoid voltage: 3 volts or less. (0.3 second)
- If (P0753) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and keep the vehicle stopped in "P" range for 5 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the low-reverse solenoid valve
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- Refer to component locations GROUP-70

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 01: Low-Reverse Solenoid Valve.

CAUTION

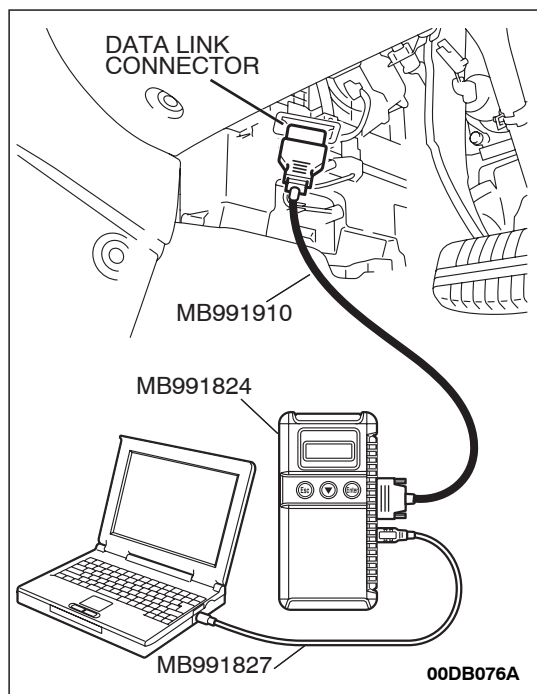
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

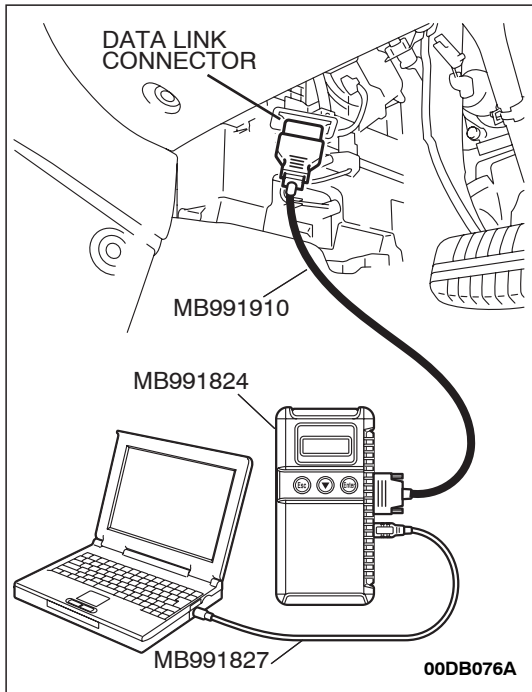
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 01: Low-Reverse Solenoid Valve.
 - An audible clicking or buzzing should be heard when the low-reverse solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions P.00-14.

NO : Go to Step 2.





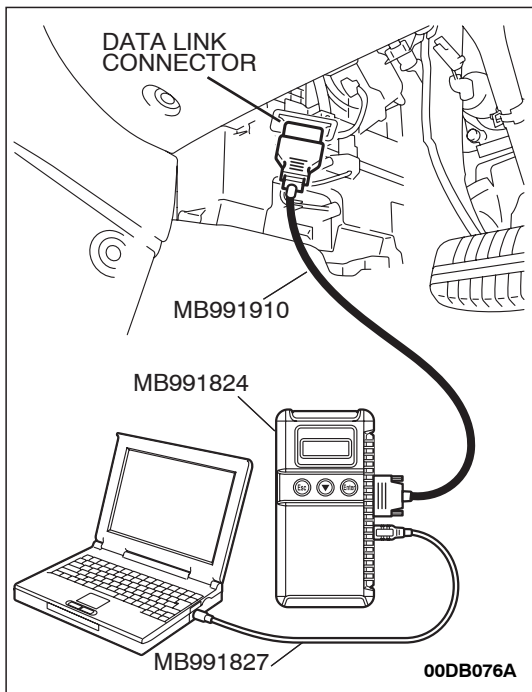
STEP 2. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P1751) set? (P1751 may be set along with multiple DTCs).

YES : Refer to [P.23A-207](#) P1751: A/T Control Relay System.

NO : Go to Step 3.



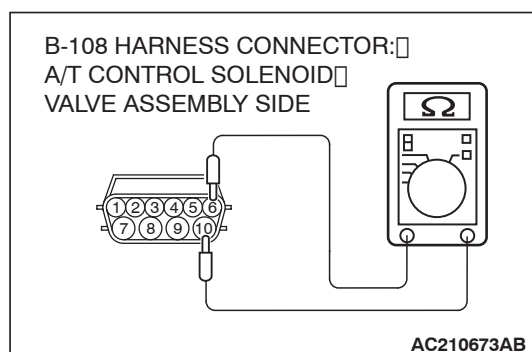
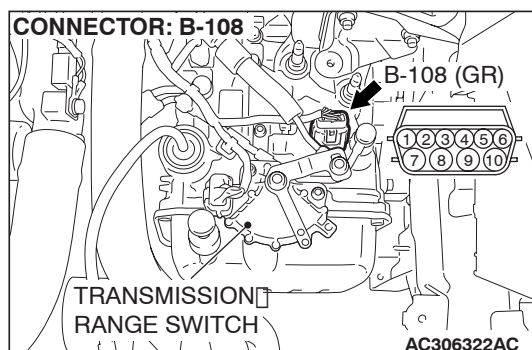
STEP 3. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P0743) set?

YES : Go to Step 8.

NO : Go to Step 4.



STEP 4. Measure the low-reverse solenoid valve resistance at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect connector B-108 and measure at the solenoid valve side.

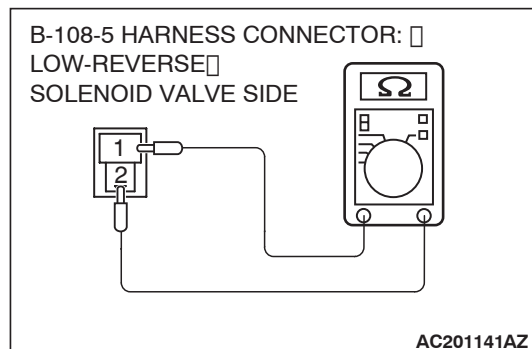
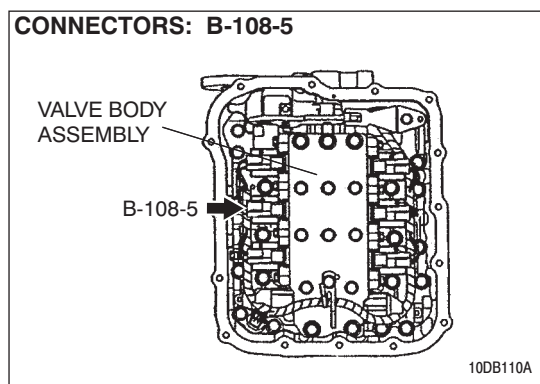
- (2) Measure the resistance between solenoid valve assembly connector B-108 terminals 6 and 10.

Resistance value: 2.7–3.4 Ω [at 20°C]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C]?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Measure the solenoid valve resistance at the low-reverse solenoid valve assembly inside the transmission.

- (1) Disconnect connector B-108-5 and measure at the solenoid valve side.

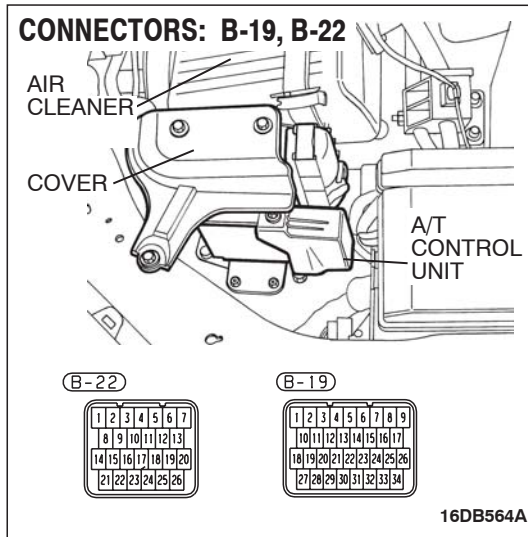
- (2) Measure the resistance between low-reverse solenoid valve terminals 1 and 2.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Replace the harness wire between A/T control solenoid valve assembly connector B-108 and the solenoid valves.

NO : Replace the low-reverse solenoid valve. Refer to GROUP 23B, Valve Body [23B-62](#).



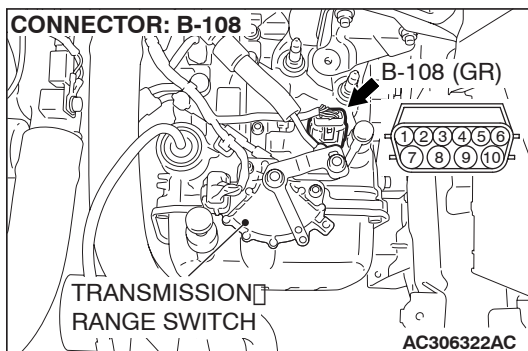
STEP 6. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

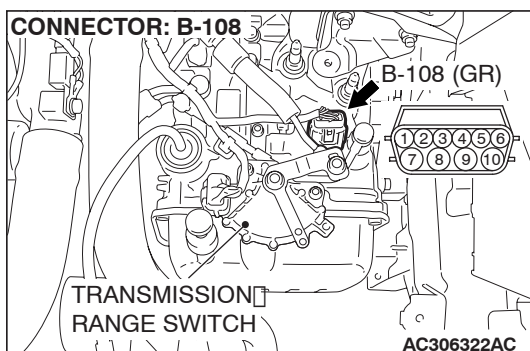
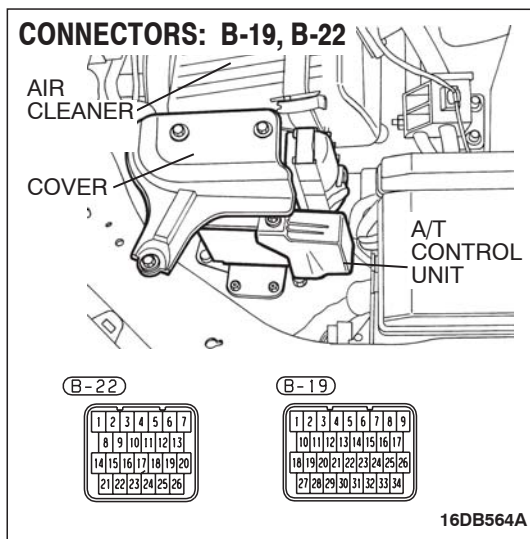


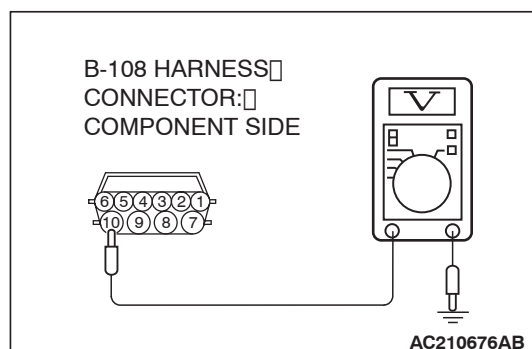
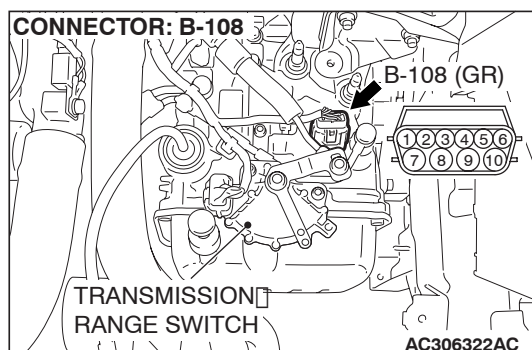
STEP 7. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 terminal 21 and A/T control solenoid valve assembly connector B-108 terminal 6.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Repair or replace the harness wire.





STEP 8. Measure the supply voltage at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect solenoid valve assembly harness connector B-108.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between harness connector B-108 terminal 10 and ground.

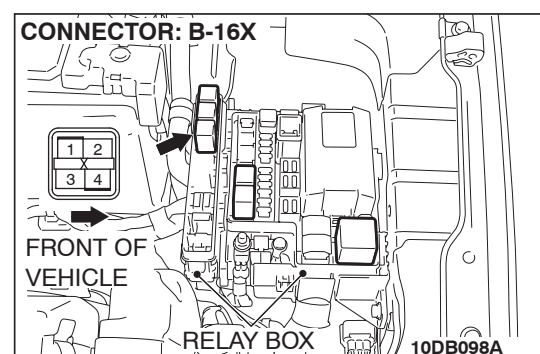
- The voltage should equal battery positive voltage.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 9.



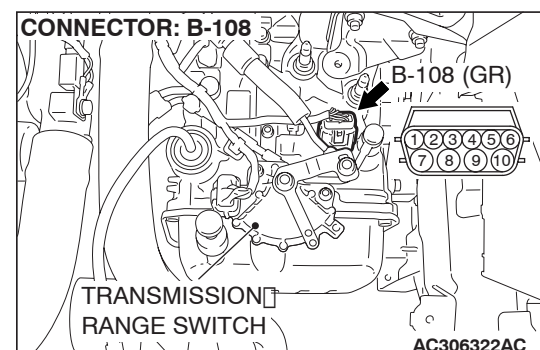
STEP 9. Check A/T control relay connector B-16X in the engine component relay box and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

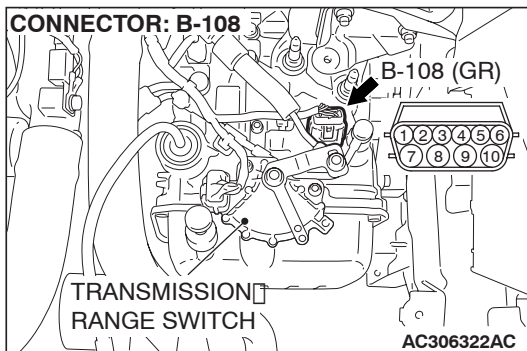
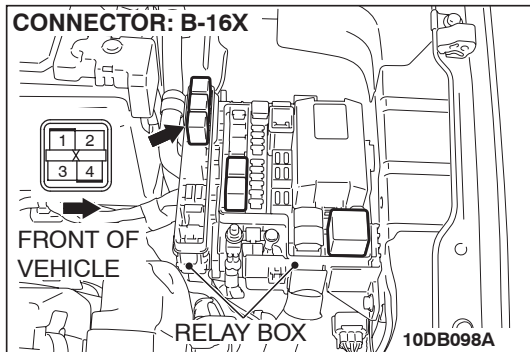


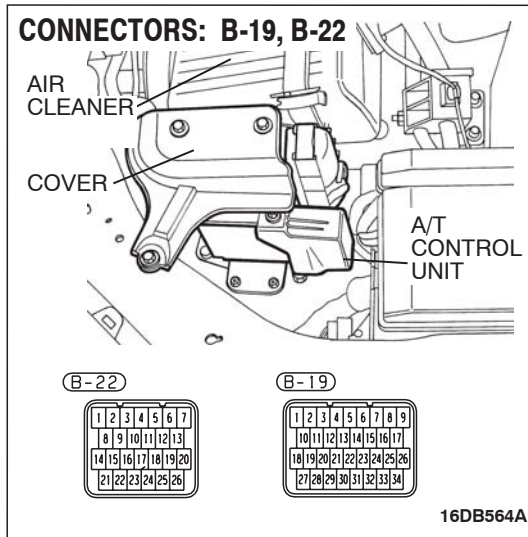
STEP 10. Check the harness for an open circuit or short circuit to ground between A/T control relay connector B-16X terminal 4 in the engine component relay box and A/T control solenoid valve assembly connector B-108 terminal 10.

Q: Is the harness wire in good condition?

YES : Go to Step 11.

NO : Repair or replace the harness wire.





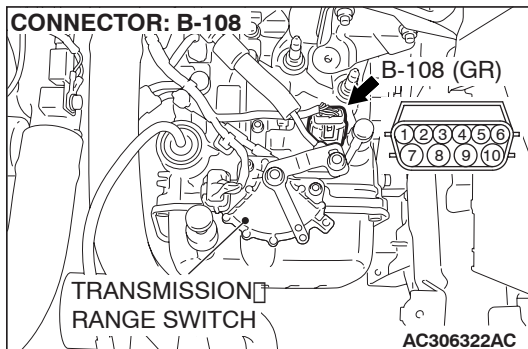
STEP 11. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

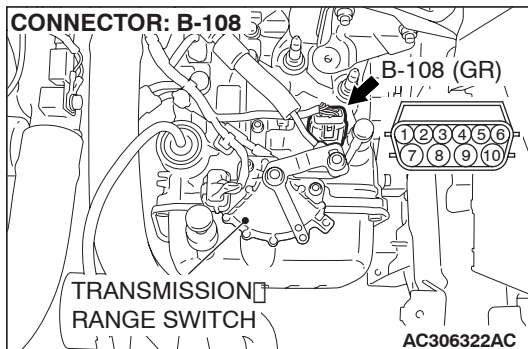
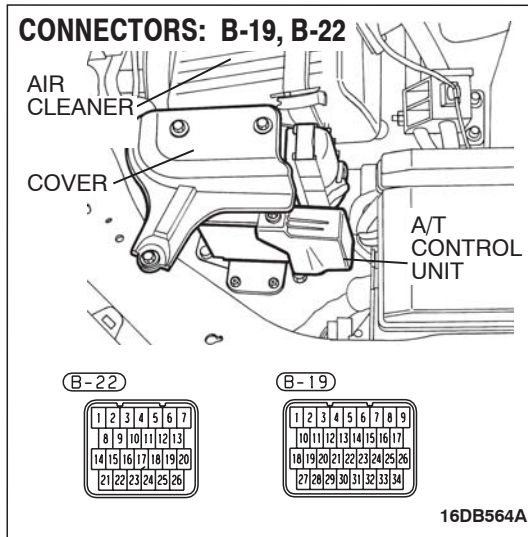


STEP 12. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 (terminals 8, 21 and 15) and A/T control solenoid valve assembly connector B-108 (terminals 7, 6 and 8).

Q: Are the harness wires in good condition?

YES : Go to Step 13.

NO : Repair or replace the harness wire.

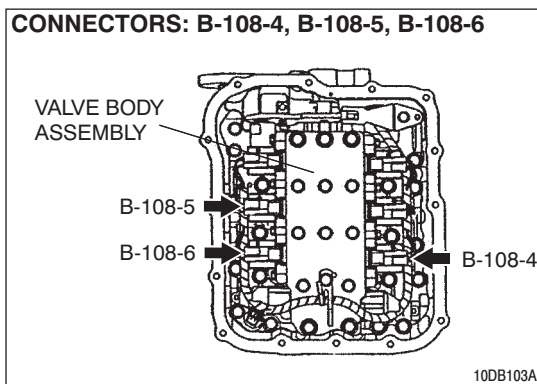
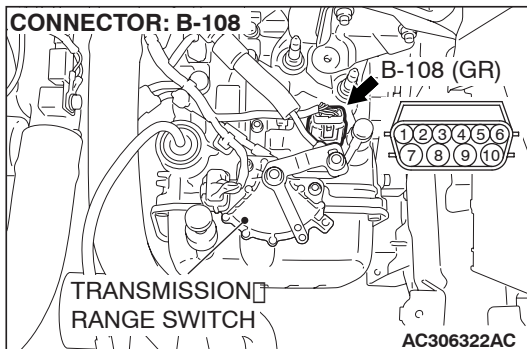


STEP 13. Check the harness for an open or short circuit to ground between A/T control solenoid valve assembly connector B-108 (terminals 6, 7, 8 and 10) and solenoid valve connectors B-108-4, B-108-5 and B-108-6.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Replace the harness wire.



(P0758): Underdrive Solenoid Valve System

SOLENOID VALVE SYSTEM CIRCUIT

Refer to [P.23A-133](#).

CIRCUIT OPERATION

Refer to [P.23A-133](#).

DTC SET CONDITIONS

Check Conditions

- Solenoid status: either solid ON or OFF.
- Shift status: in-gear.
- Voltage of battery: 10 volts or more.

Judgement Criteria

- Solenoid voltage: 3 volts or less. (0.3 second)
- If (P0758) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and keep the vehicle stopped in "P" range for 5 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the underdrive solenoid valve
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 02: Underdrive Solenoid Valve.

CAUTION

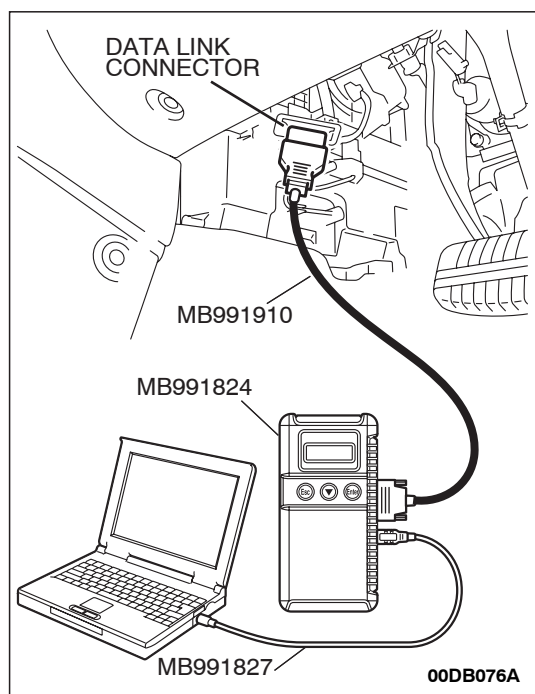
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

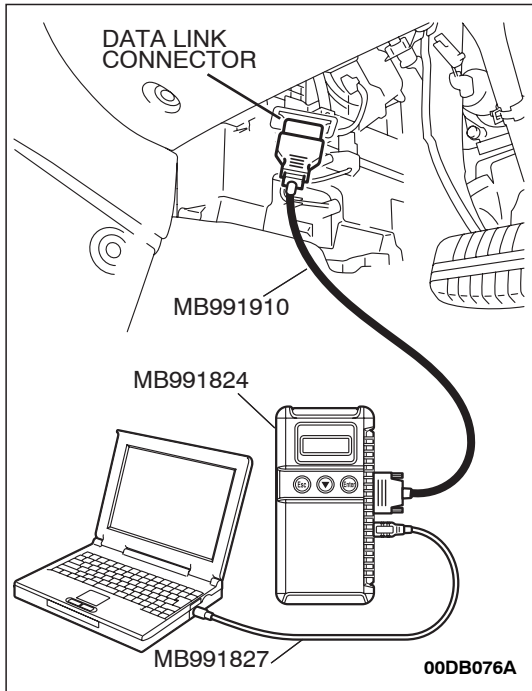
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 02: Underdrive Solenoid Valve.
 - An audible clicking or buzzing should be heard when the underdrive solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to [GROUP 00](#), How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Go to Step 2.





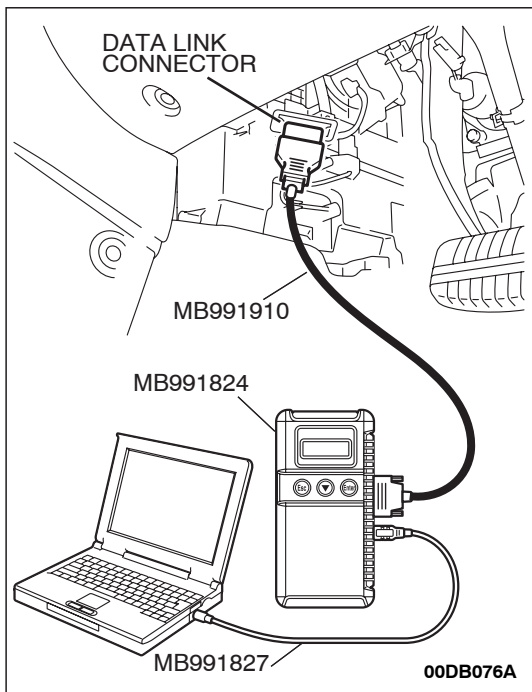
STEP 2. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P1751) set? (P1751 may be set along with multiple DTCs).

YES : Refer to [P.23A-207](#) (P1751): A/T Control Relay System.

NO : Go to Step 3.



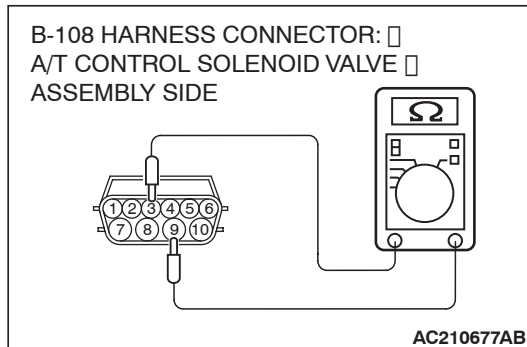
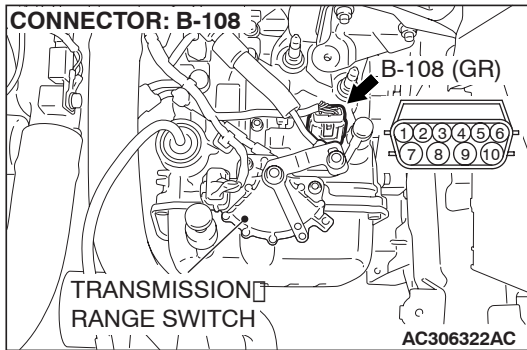
STEP 3. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are (P0763) and (P0768) set? (Multiple DTCs may be set).

YES : Go to Step 8.

NO : Go to Step 4.



STEP 4. Measure the underdrive solenoid valve resistance at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect connector B-108 and measure at the solenoid valve side.

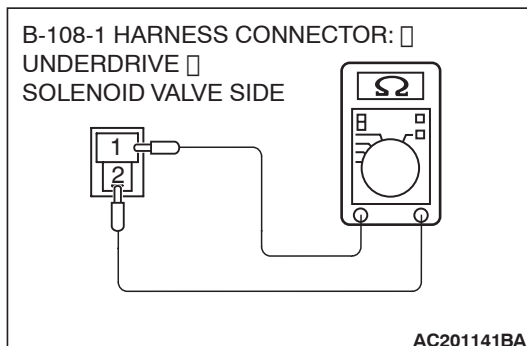
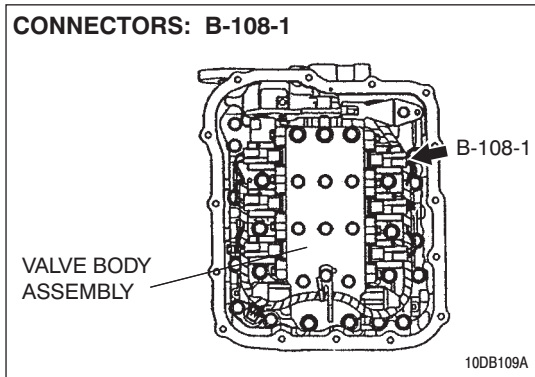
- (2) Measure the resistance between solenoid valve assembly connector B-108 terminals 3 and 9.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Measure the solenoid valve resistance at the underdrive solenoid valve assembly inside the transmission.

- (1) Disconnect connector B-108-1 and measure at the solenoid valve side.

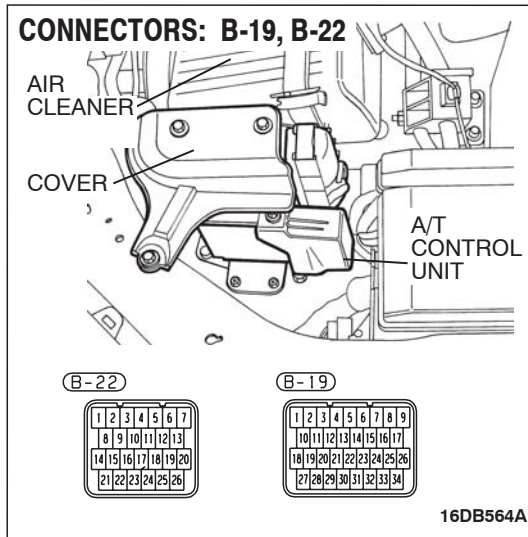
- (2) Measure the resistance between Underdrive solenoid valve terminals 1 and 2.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Replace the harness wire between A/T control solenoid valve assembly connector B-108 and the solenoid valves.

NO : Replace the Underdrive solenoid valve. Refer to GROUP 23B, Valve Body [23B-62](#).



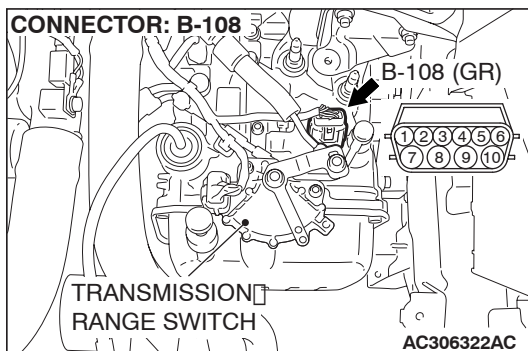
STEP 6. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

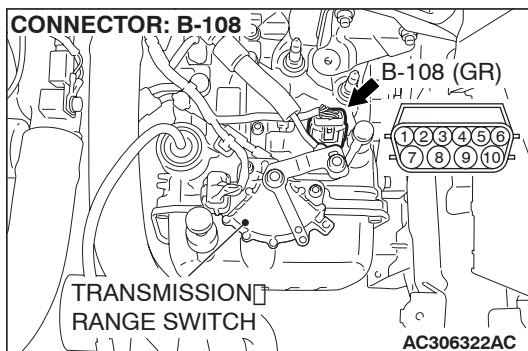
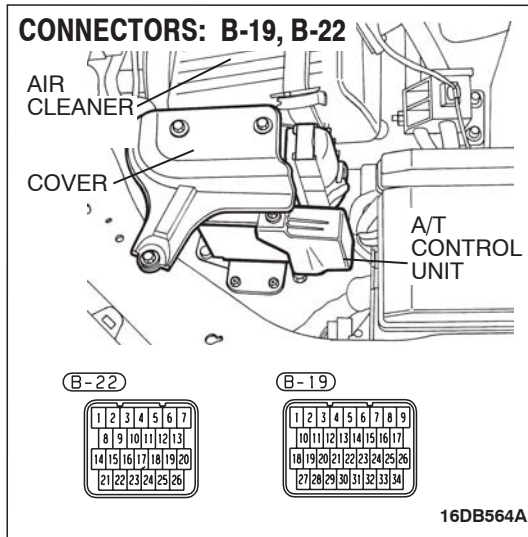


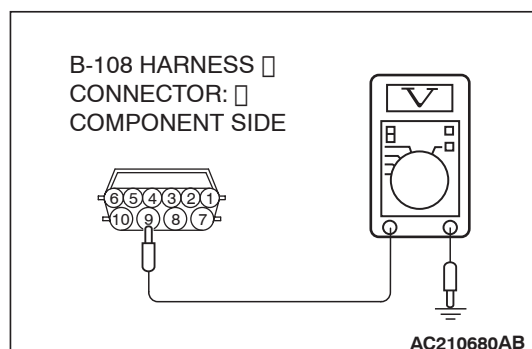
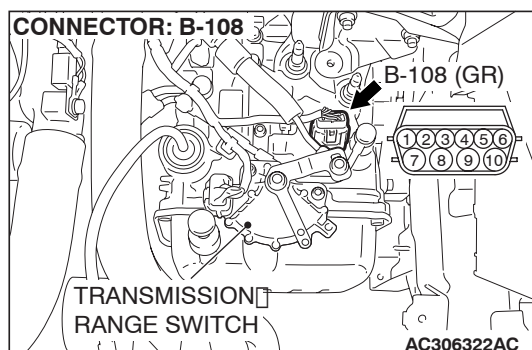
STEP 7. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 terminal 1 and A/T control solenoid valve assembly connector B-108 terminal 3.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Repair or replace the harness wire.





STEP 8. Measure the supply voltage at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect solenoid valve assembly harness connector B-108.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between harness connector B-108 terminal 9 and ground.

- The voltage should equal battery positive voltage.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 9.

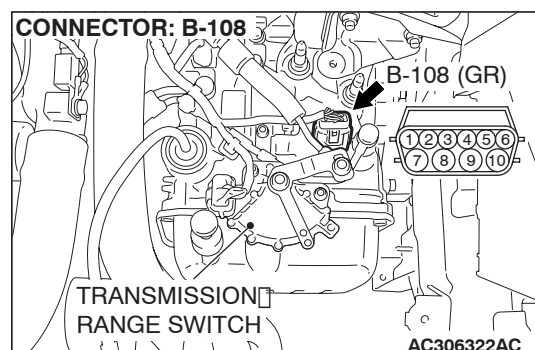
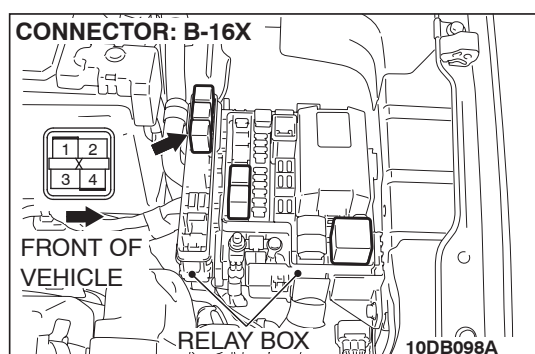
STEP 9. Check A/T control relay connector B-16X in the engine component relay box and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

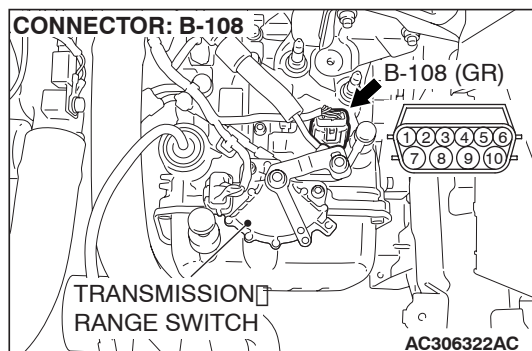
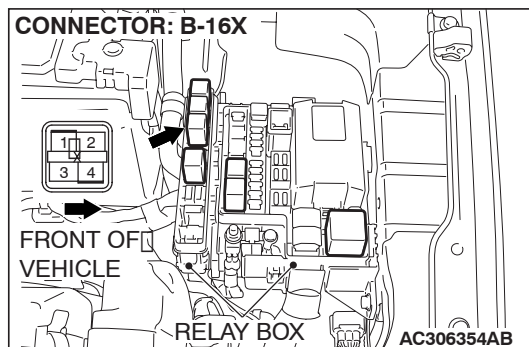


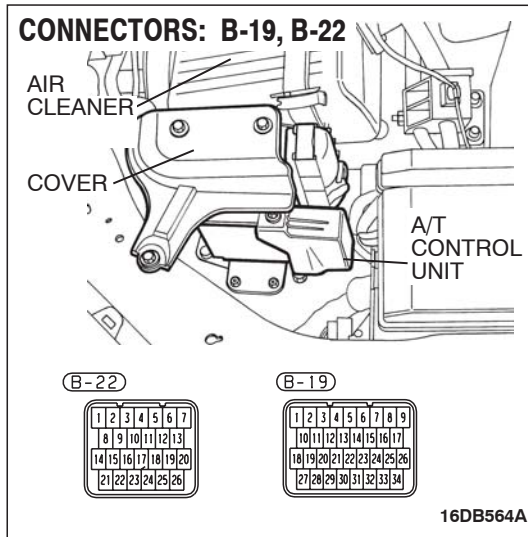
STEP 10. Check the harness for an open circuit or short circuit to ground between A/T control relay connector B-16X terminal 4 in the engine component relay box and A/T control solenoid valve assembly connector B-108 terminal 9.

Q: Is the harness wire in good condition?

YES : Go to Step 11.

NO : Repair or replace the harness wire.





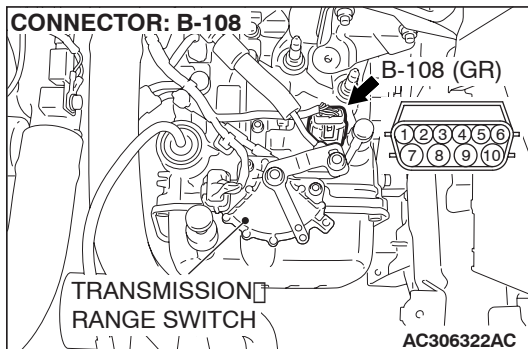
STEP 11. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

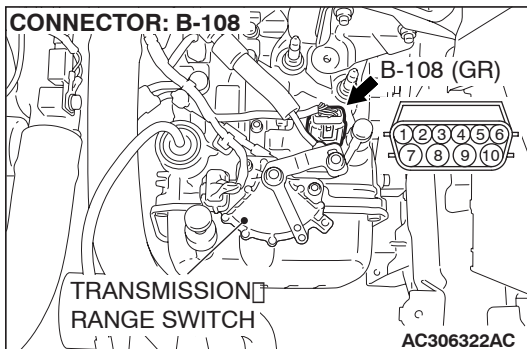
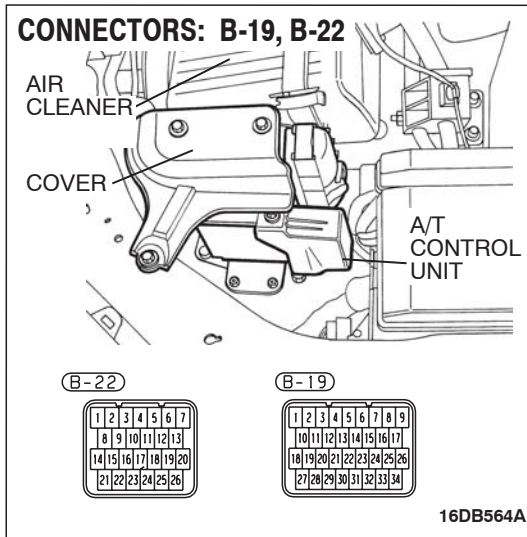


STEP 12. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 (terminals 1, 14 and 2) and A/T control solenoid valve assembly connector B-108 (terminals 3, 4 and 5).

Q: Are the harness wires in good condition?

YES : Go to Step 13.

NO : Repair or replace the harness wire.

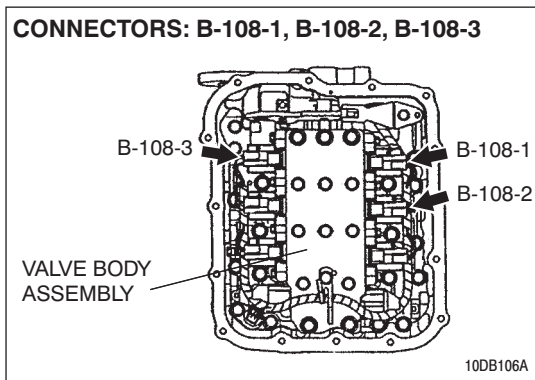
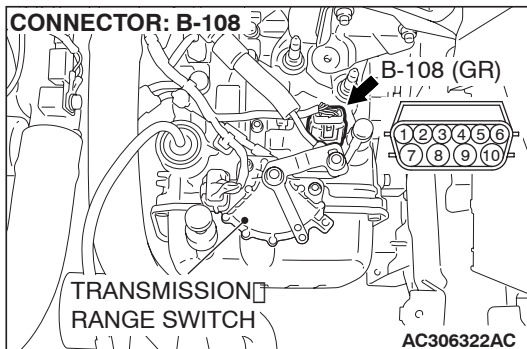


STEP 13. Check the harness for an open or short circuit to ground between A/T control solenoid valve assembly connector B-108 (terminals 3, 4, 5, and 9) and solenoid valve connectors B-108-1, B-108-2 and B-108-3.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Replace the harness wire.



(P0763): Second Solenoid Valve System

SOLENOID VALVE SYSTEM CIRCUIT

Refer to [P.23A-133](#).

CIRCUIT OPERATION

Refer to [P.23A-133](#).

DTC SET CONDITIONS

Check Conditions

- Solenoid status: either solid ON or OFF.
- Shift status: in-gear.
- Voltage of battery: 10 volts or more.

Judgement Criteria

- Solenoid voltage: 3 volts or less. (0.3 second)
- If (P0763) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and keep the vehicle stopped in "P" range for 5 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the second solenoid valve
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 03: Second Solenoid Valve.

CAUTION

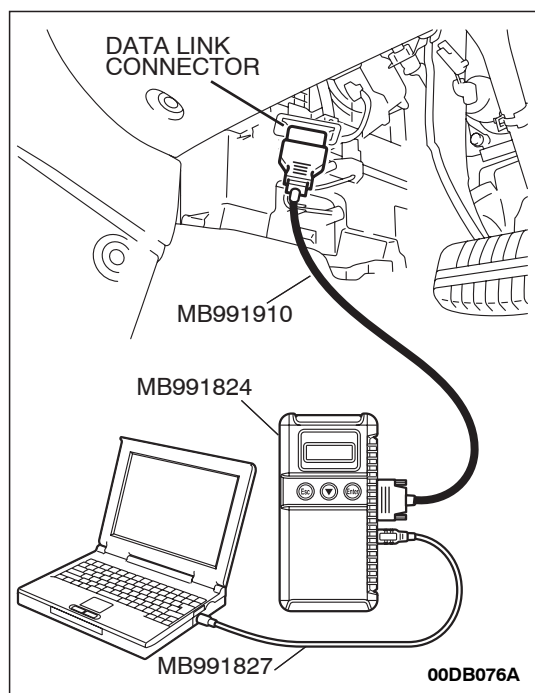
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

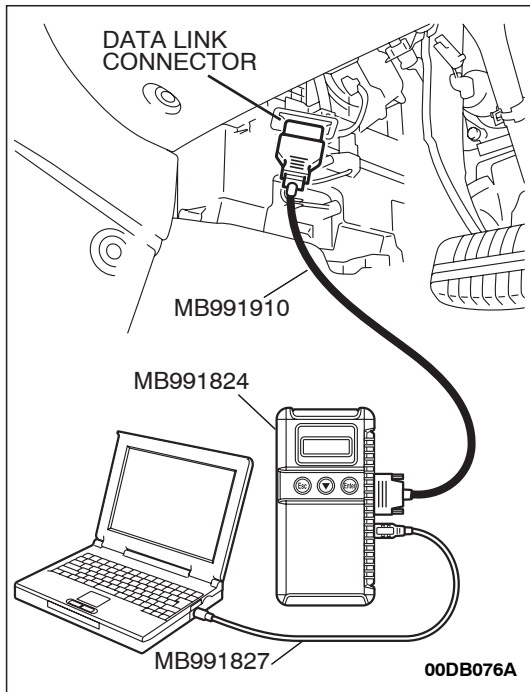
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 03: Second Solenoid Valve.
 - An audible clicking or buzzing should be heard when the second solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Go to Step 2.





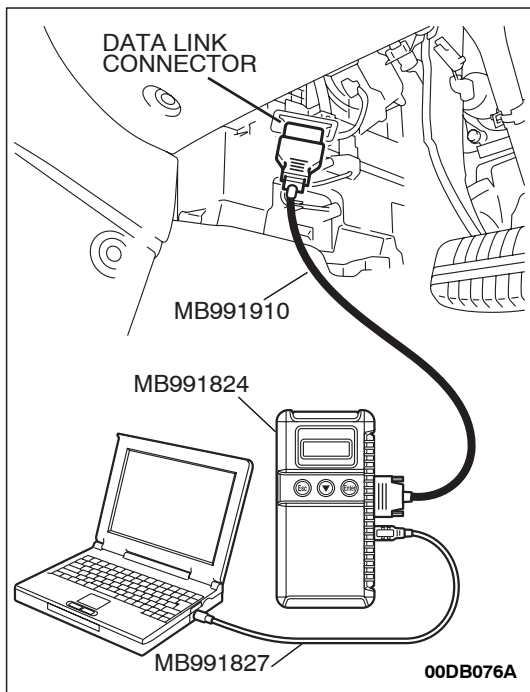
STEP 2. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P1751) set? (P1751 may be set along with multiple DTCs).

YES : Refer to [P.23A-207](#) (P1751): A/T Control Relay System.

NO : Go to Step 3.



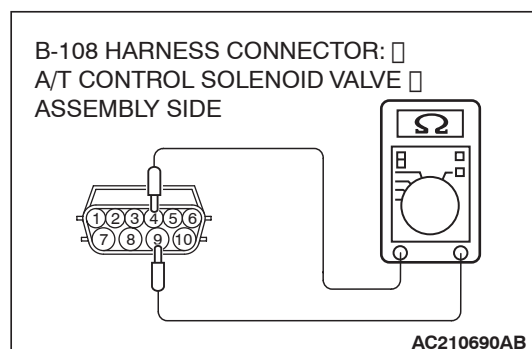
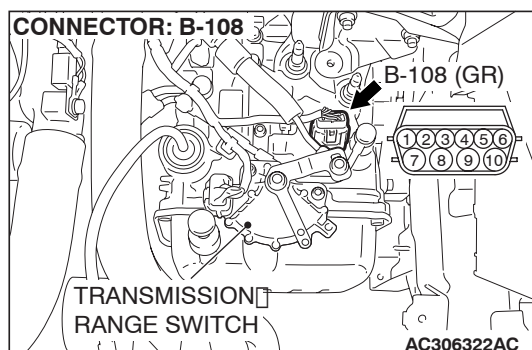
STEP 3. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are (P0758) and (P0768) set? (Multiple DTCs may be set).

YES : Go to Step 8.

NO : Go to Step 4.



STEP 4. Measure the Second solenoid valve resistance at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect connector B-108 and measure at the solenoid valve side.

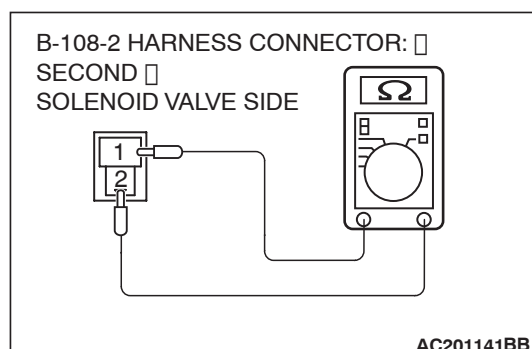
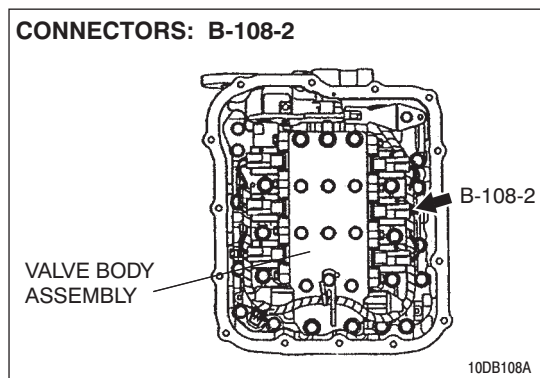
- (2) Measure the resistance between solenoid valve assembly connector B-108 terminals 4 and 9.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Measure the solenoid valve resistance at the second solenoid valve assembly inside the transmission.

- (1) Disconnect connector B-108-2 and measure at the solenoid valve side.

- (2) Measure the resistance between Second solenoid valve terminals 1 and 2.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Replace the harness wire between A/T control solenoid valve assembly connector B-108 and the solenoid valves.

NO : Replace the Second solenoid valve. Refer to GROUP 23B, Valve Body [23B-62](#).

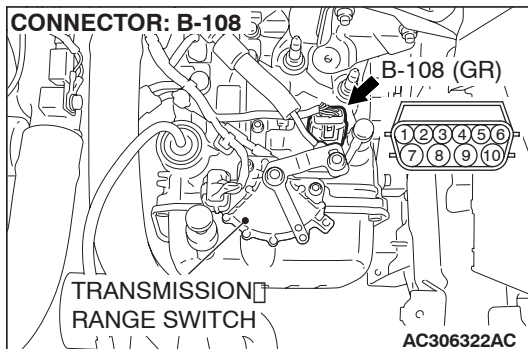
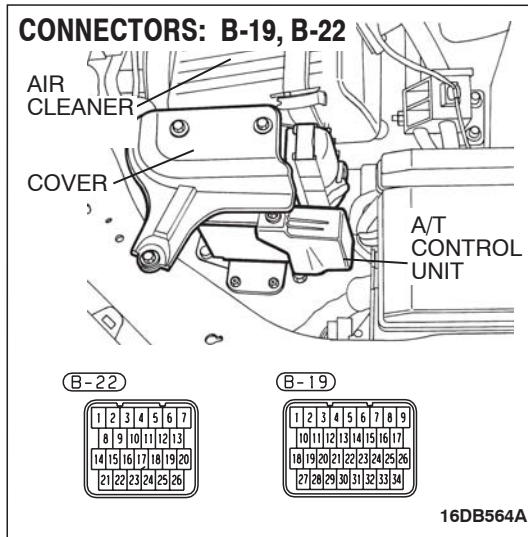
STEP 6. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

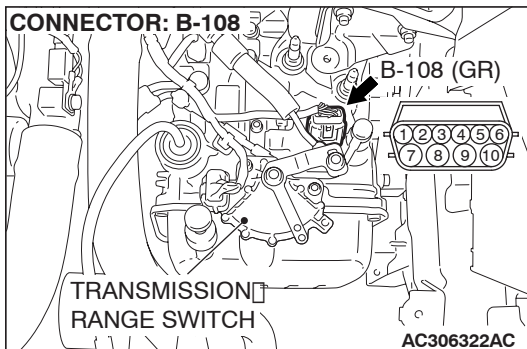
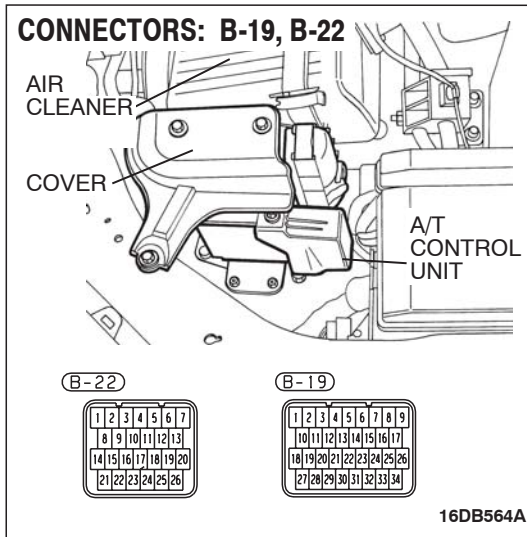


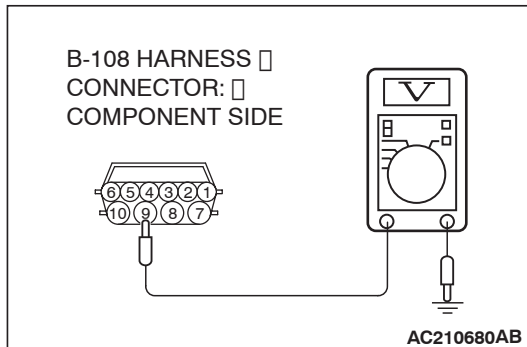
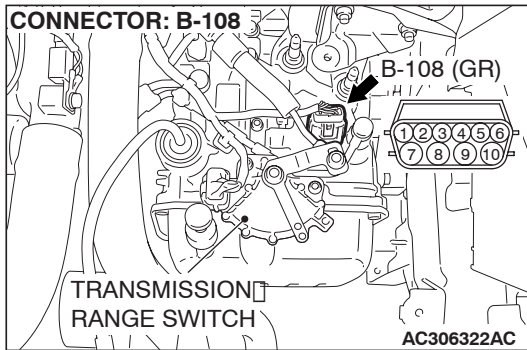
STEP 7. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 terminal 14 and A/T control solenoid valve assembly connector B-108 terminal 4.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Repair or replace the harness wire.





STEP 8. Measure the supply voltage at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect solenoid valve assembly harness connector B-108.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between harness connector B-108 terminal 9 and ground.

- The voltage should equal battery positive voltage.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 9.

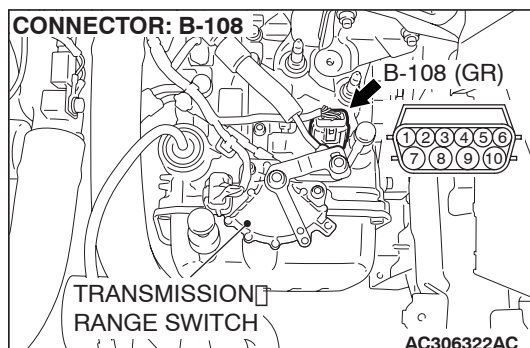
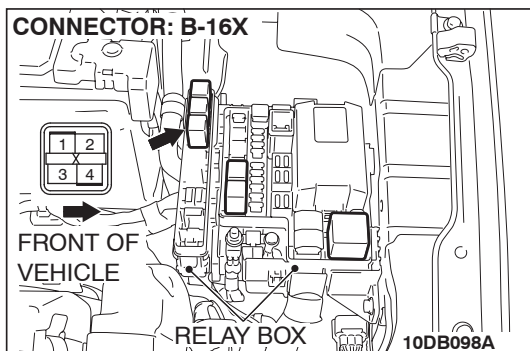
STEP 9. Check A/T control relay connector B-16X in the engine component relay box and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

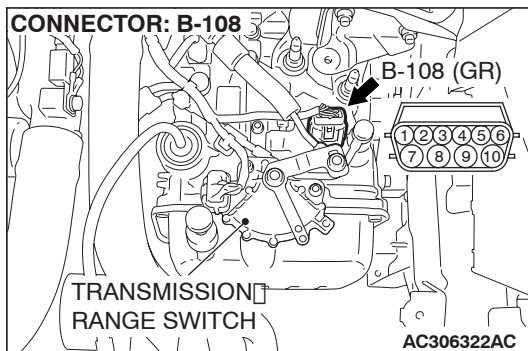
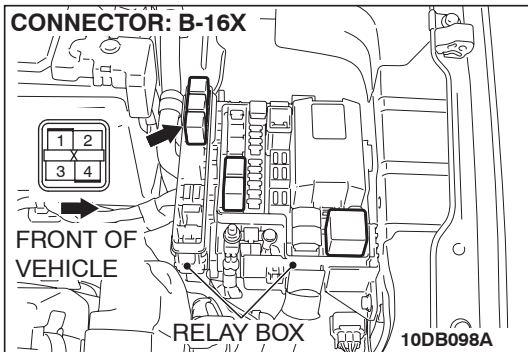


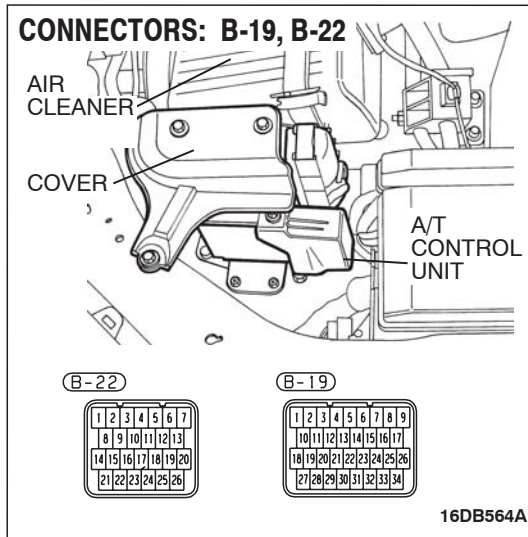
STEP 10. Check the harness for an open circuit or short circuit to ground between A/T control relay connector B-16X terminal 4 in the engine component relay box and A/T control solenoid valve assembly connector B-108 terminal 9.

Q: Is the harness wire in good condition?

YES : Go to Step 11.

NO : Repair or replace the harness wire.





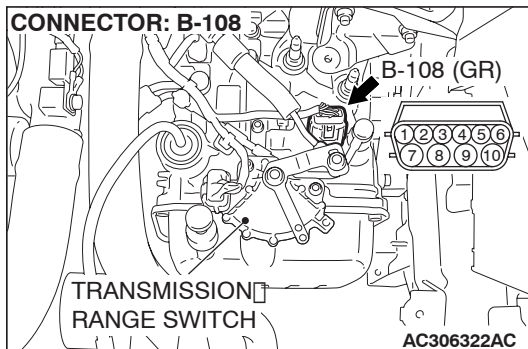
STEP 11. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

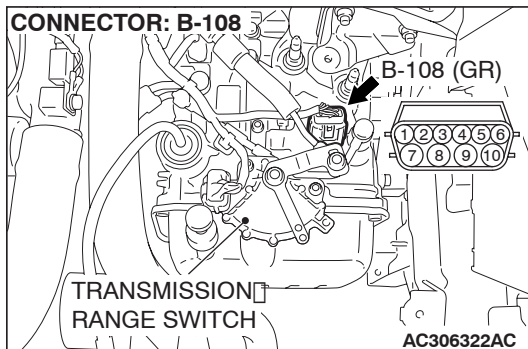
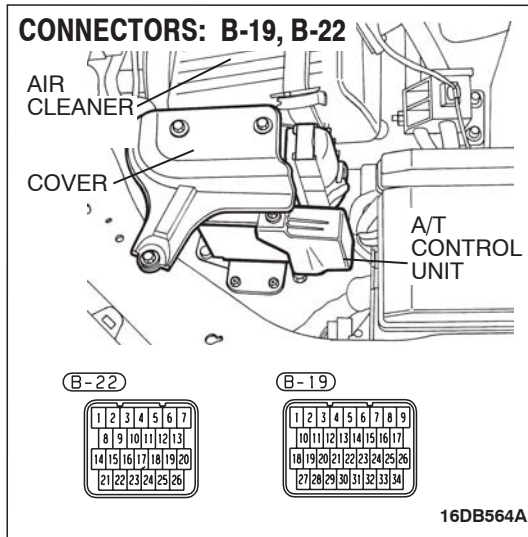


STEP 12. Check the harness for an open or short circuit to ground between A/T-ECU connector B-21 (terminals 1, 14 and 2) and A/T control solenoid valve assembly connector B-108 (terminals 3, 4 and 5).

Q: Are the harness wires in good condition?

YES : Go to Step 13.

NO : Repair or replace the harness wire.

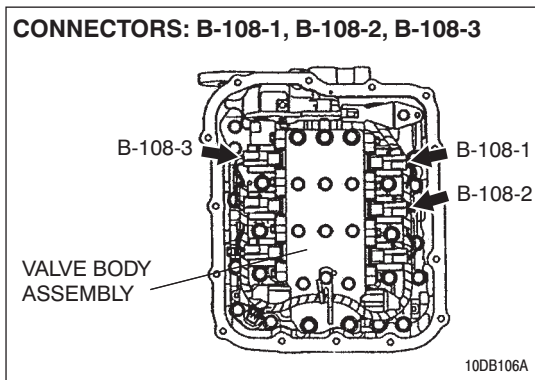
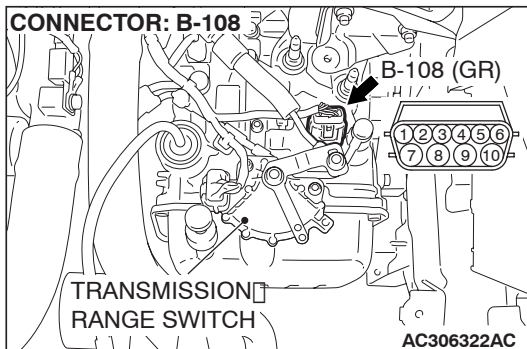


STEP 13. Check the harness for an open or short circuit to ground between A/T control solenoid valve assembly connector B-108 (terminals 3, 4, 5, and 9) and solenoid valve connectors B-108-1, B-108-2 and B-108-3.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Replace the harness wire.



(P0768): Overdrive Solenoid Valve System

SOLENOID VALVE SYSTEM CIRCUIT

Refer to [P.23A-133](#).

CIRCUIT OPERATION

Refer to [P.23A-133](#).

DTC SET CONDITIONS

Check Conditions

- Solenoid status: either solid ON or OFF.
- Shift status: in-gear.
- Voltage of battery: 10 volts or more.

Judgement Criteria

- Solenoid voltage: 3 volts or less. (0.3 second)
- If (P0768) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and keep the vehicle stopped in "P" range for 5 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the overdrive solenoid valve
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 04: Overdrive Solenoid Valve.

CAUTION

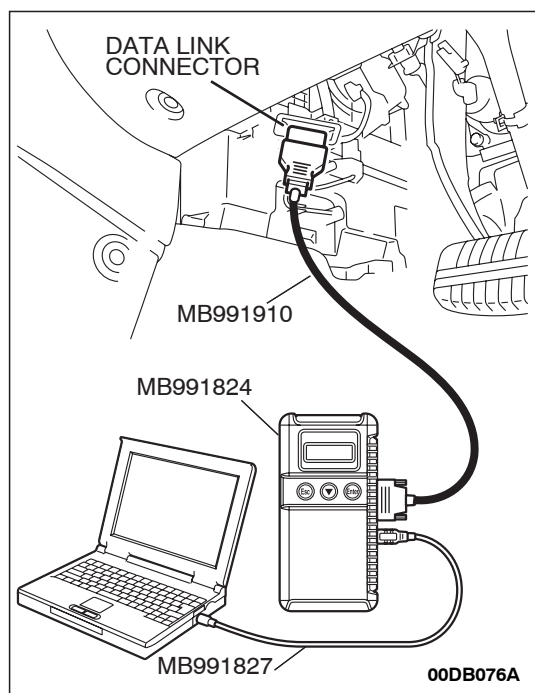
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

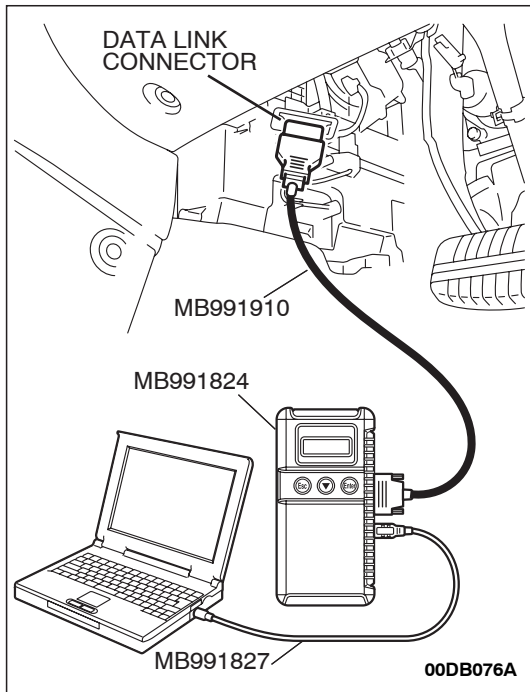
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 04: Overdrive Solenoid Valve.
 - An audible clicking or buzzing should be heard when the overdrive solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Go to Step 2.





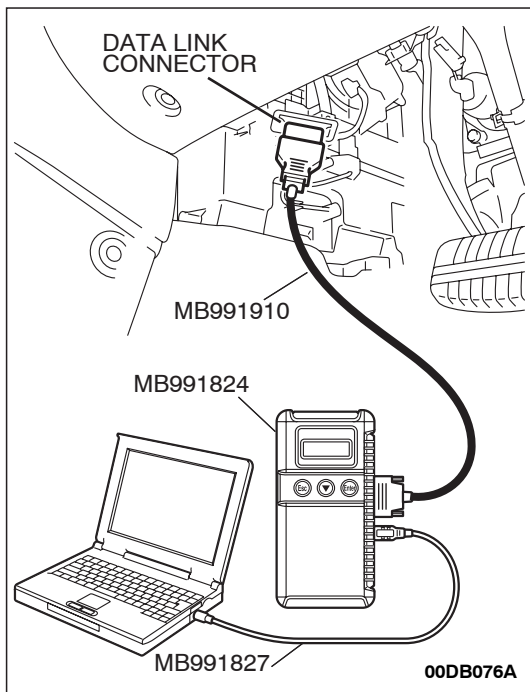
STEP 2. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P1751) set? (P1751 may be set along with multiple DTCs).

YES : Refer to [P.23A-207](#) (P1751): A/T Control Relay System.

NO : Go to Step 3.



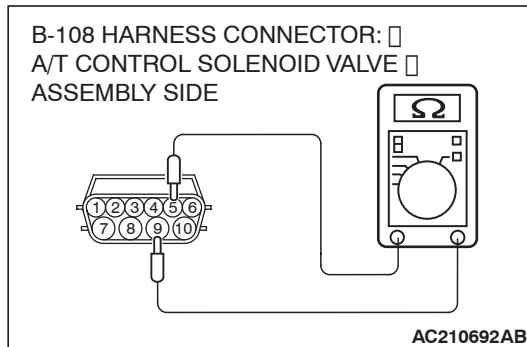
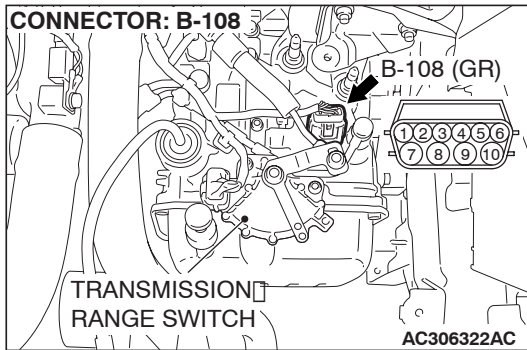
STEP 3. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are (P0758) and (P0763) set? (Multiple DTCs may be set).

YES : Go to Step 8.

NO : Go to Step 4.



STEP 4. Measure the Overdrive solenoid valve resistance at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect connector B-108 and measure at the solenoid valve side.

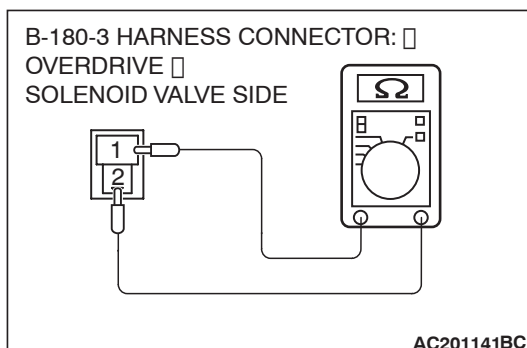
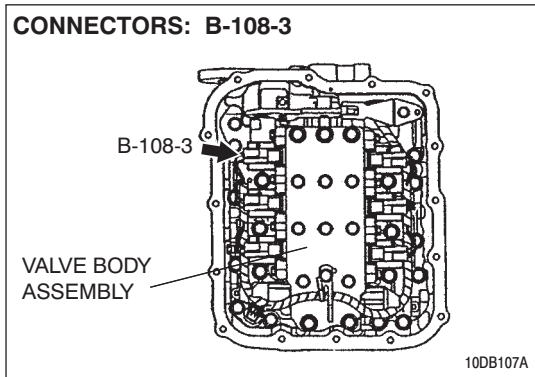
- (2) Measure the resistance between solenoid valve assembly connector B-108 terminals 5 and 9.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Measure the solenoid valve resistance at the overdrive solenoid valve assembly inside the transmission.

- (1) Disconnect connector B-108-3 and measure at the solenoid valve side.

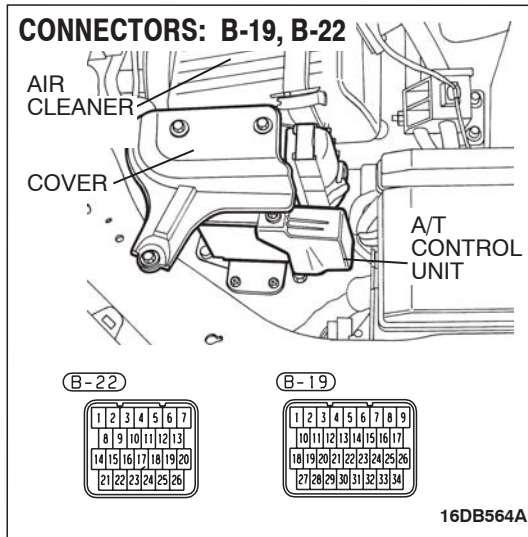
- (2) Measure the resistance between Overdrive solenoid valve terminals 1 and 2.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Replace the harness wire between A/T control solenoid valve assembly connector B-108 and the solenoid valves.

NO : Replace the Overdrive solenoid valve. Refer to GROUP 23B, Valve Body [23B-62](#).



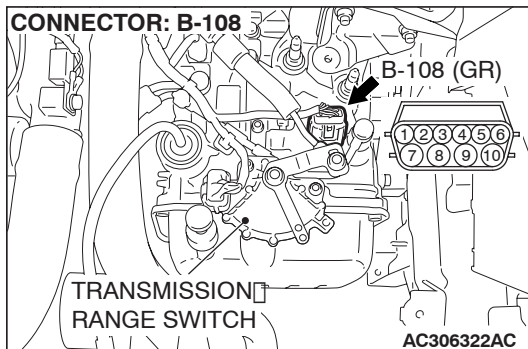
STEP 6. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

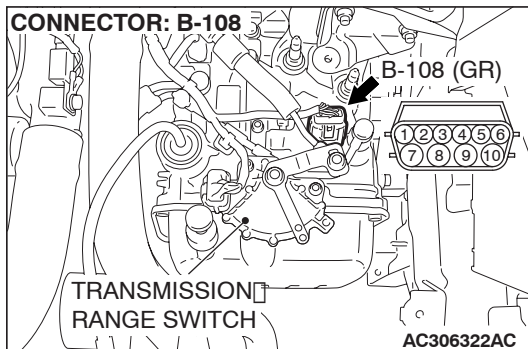
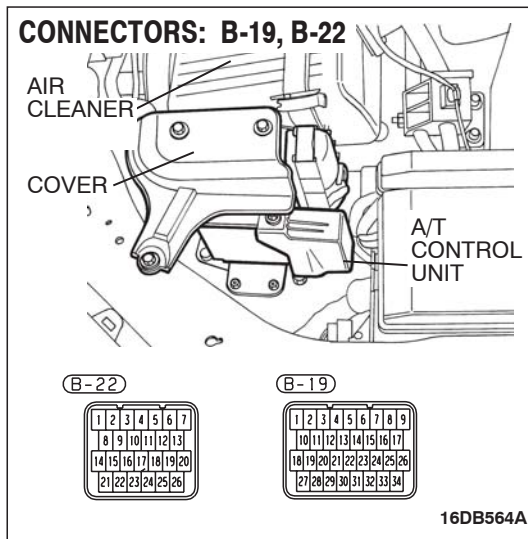


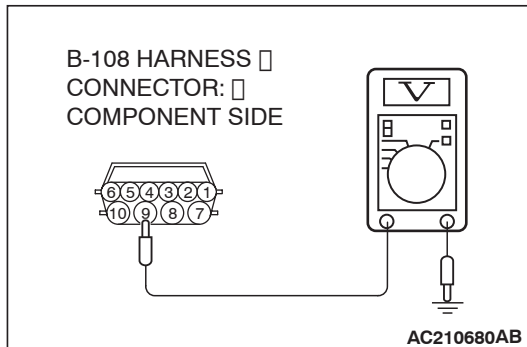
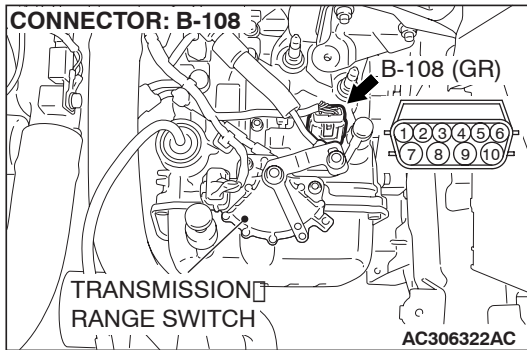
STEP 7. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 terminal 2 and A/T control solenoid valve assembly connector B-108 terminal 5.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Repair or replace the harness wire.





STEP 8. Measure the supply voltage at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect solenoid valve assembly harness connector B-108.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between harness connector B-108 terminal 9 and ground.

- The voltage should equal battery positive voltage.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 9.

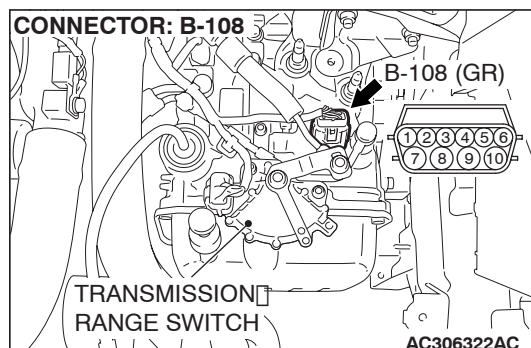
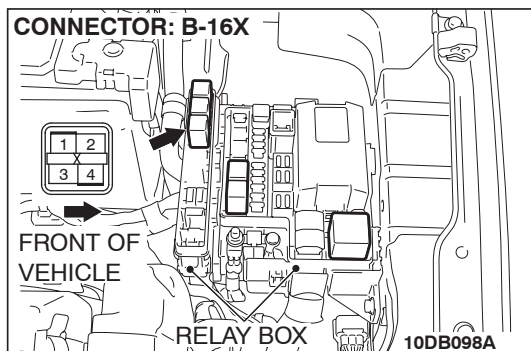
STEP 9. Check A/T control relay connector B-16X in the engine component relay box and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

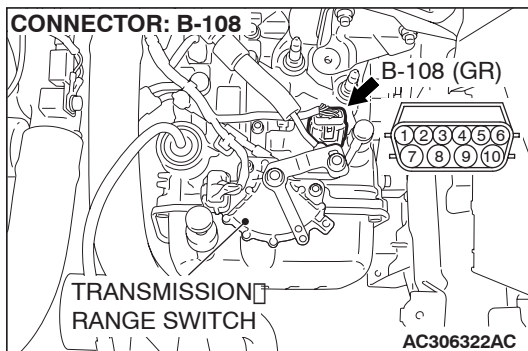
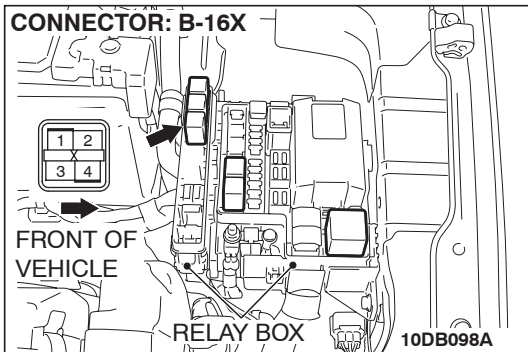


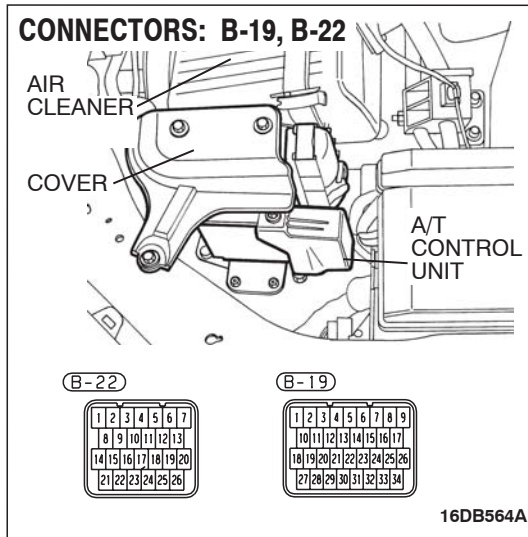
STEP 10. Check the harness for an open circuit or short circuit to ground between A/T control relay connector B-16X terminal 4 in the engine component relay box and A/T control solenoid valve assembly connector B-108 terminal 9.

Q: Is the harness wire in good condition?

YES : Go to Step 11.

NO : Repair or replace the harness wire.





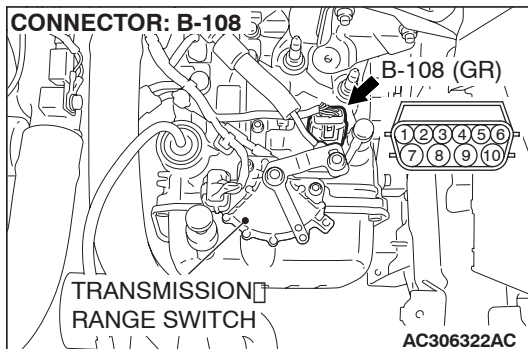
STEP 11. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

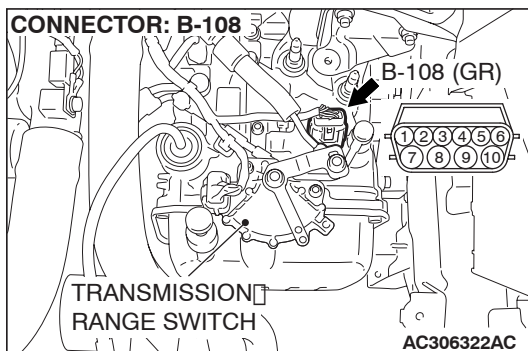
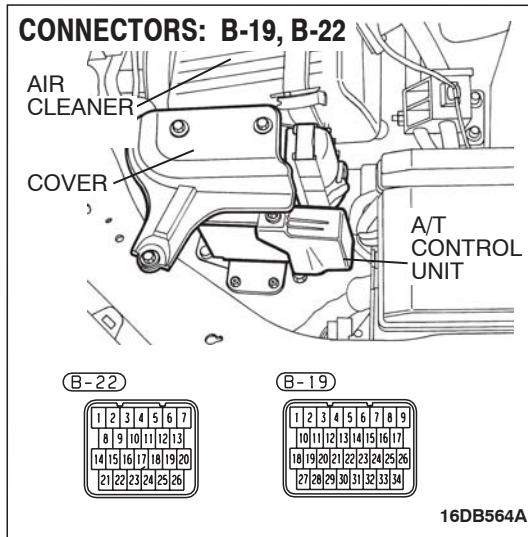


STEP 12. Check the harness for an open or short circuit to ground between A/T-ECU connector B-21 (terminals 1, 14 and 2) and A/T control solenoid valve assembly connector B-108 (terminals 3, 4 and 5).

Q: Are the harness wires in good condition?

YES : Go to Step 13.

NO : Repair or replace the harness wire.

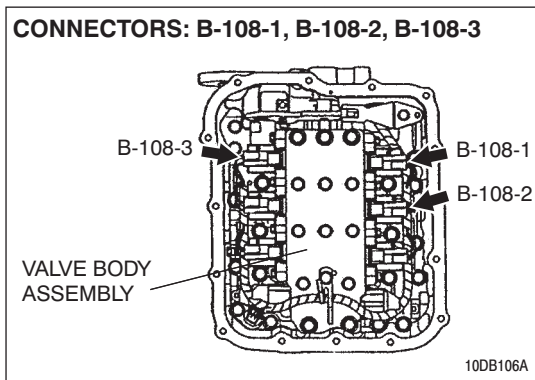
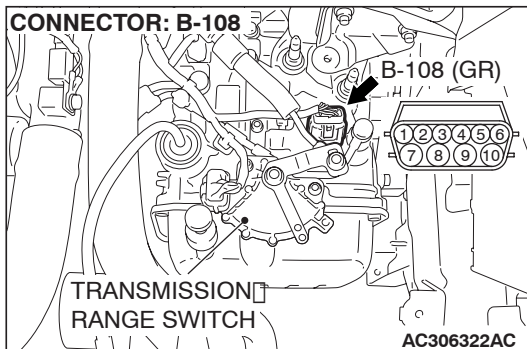


STEP 13. Check the harness for an open or short circuit to ground between A/T control solenoid valve assembly connector B-108 (terminals 3, 4, 5, and 9) and solenoid valve connectors B-108-1, B-108-2 and B-108-3.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Replace the harness wire.



(P0773): Reduction Solenoid Valve System

SOLENOID VALVE SYSTEM CIRCUIT

Refer to [P.23A-133](#).

CIRCUIT OPERATION

Refer to [P.23A-133](#).

DTC SET CONDITIONS

Check Conditions

- Solenoid status: either solid ON or OFF.
- Voltage of battery: 10 volts or more.

Judgement Criteria

- Solenoid voltage: 3 volts or less. (0.3 second)
- If (P0773) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and keep the vehicle stopped in "P" range for 5 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the reduction solenoid valve
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 05: Reduction Solenoid Valve.

⚠ CAUTION

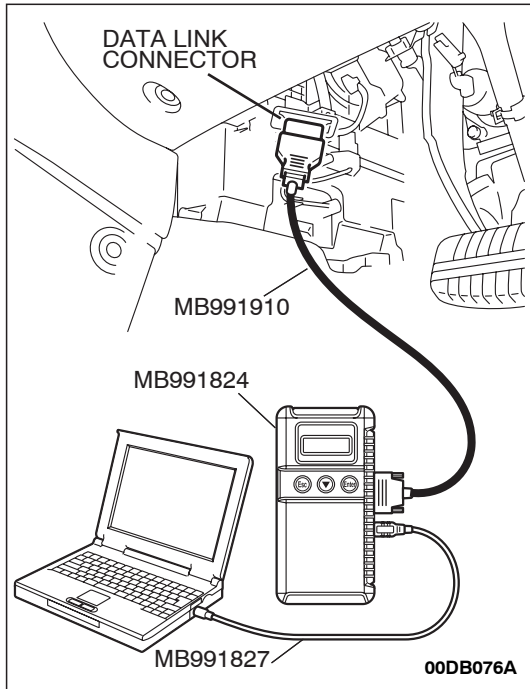
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

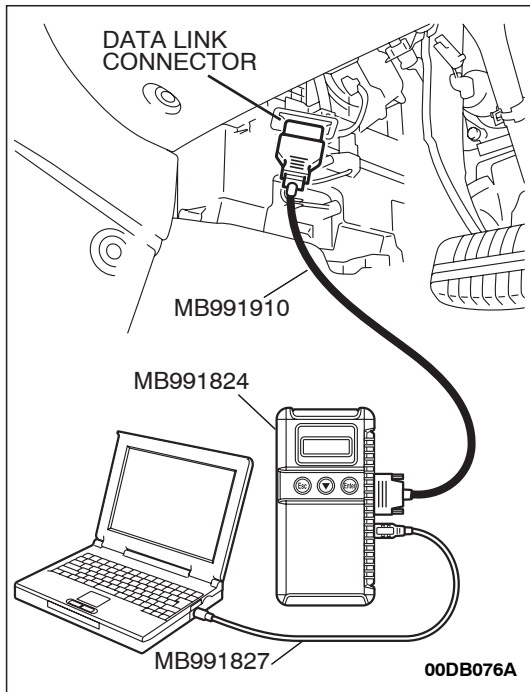
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 05: Reduction Solenoid Valve.
 - An audible clicking or buzzing should be heard when the reduction solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Go to Step 2.





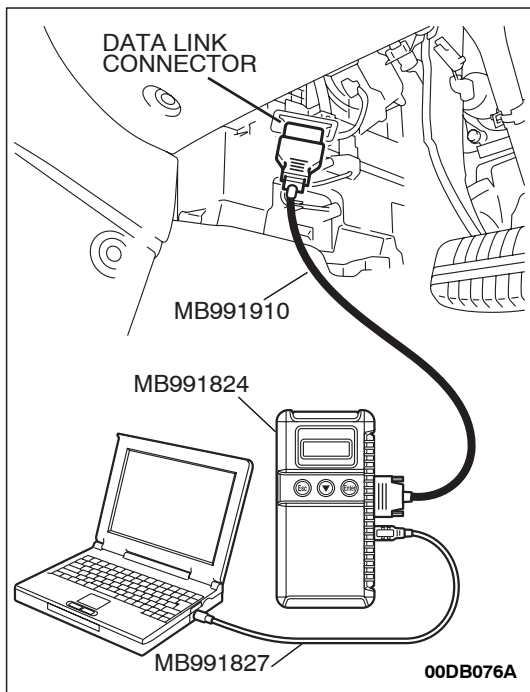
STEP 2. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P1751) set? (P1751 may be set along with multiple DTCs).

YES : Refer to [P.23A-207](#) (P1751): A/T Control Relay System.

NO : Go to Step 3.



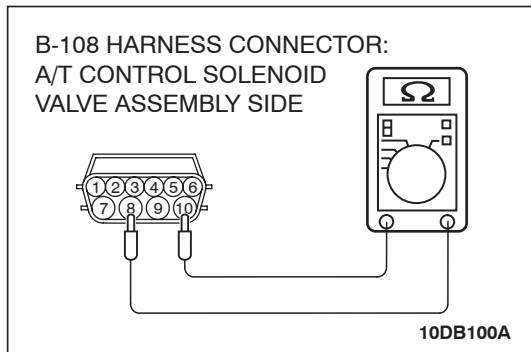
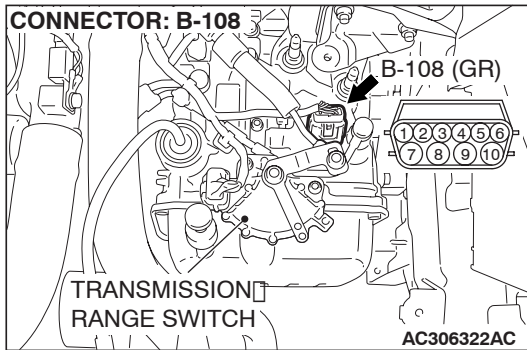
STEP 3. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are (P0753) and (P0743) set? (Multiple DTCs may be set).

YES : Go to Step 8.

NO : Go to Step 4.



STEP 4. Measure the reduction solenoid valve resistance at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect connector B-108 and measure at the solenoid valve side.

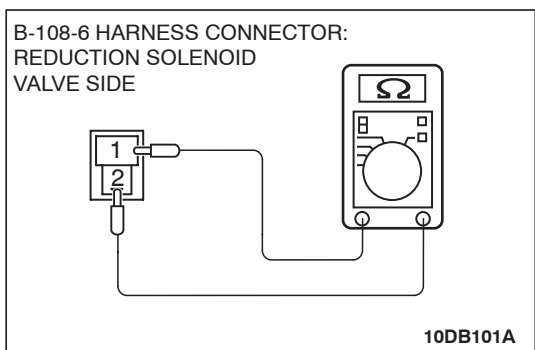
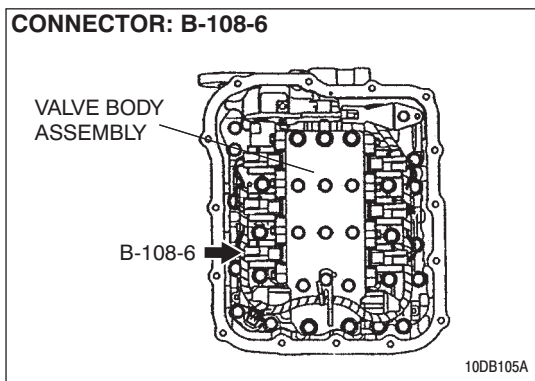
- (2) Measure the resistance between solenoid valve assembly connector B-108 terminals 8 and 10.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Measure the solenoid valve resistance at the reduction solenoid valve assembly inside the transmission.

- (1) Disconnect connector B-108-6 and measure at the solenoid valve side.

- (2) Measure the resistance between reduction solenoid valve terminals 1 and 2.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Replace the harness wire between A/T control solenoid valve assembly connector B-108 and the solenoid valves.

NO : Replace the reduction solenoid valve. Refer to GROUP 23B, Valve Body [23B-62](#).

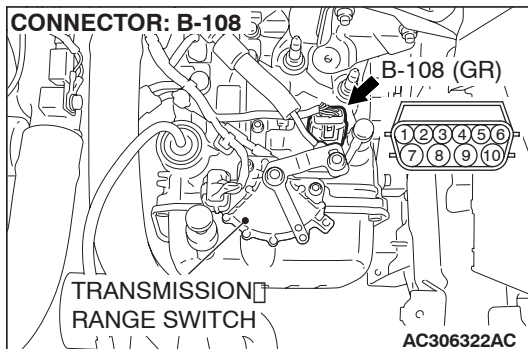
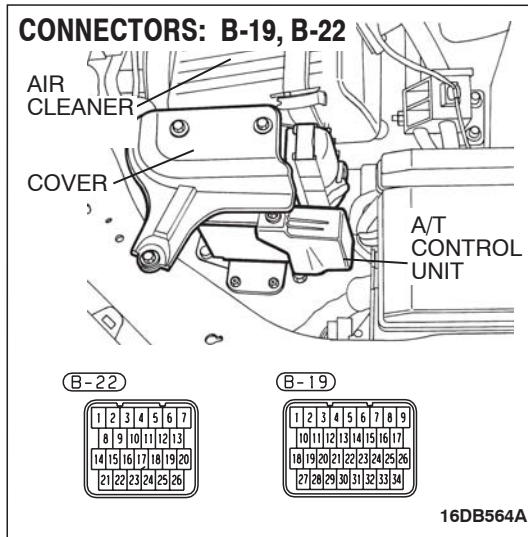
STEP 6. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

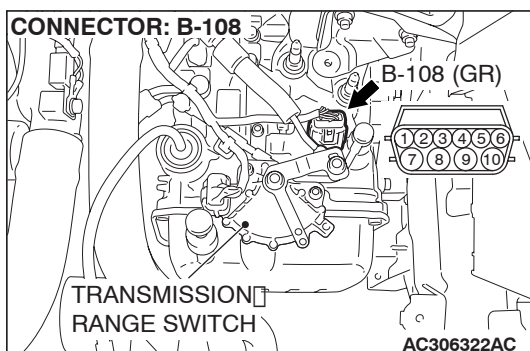
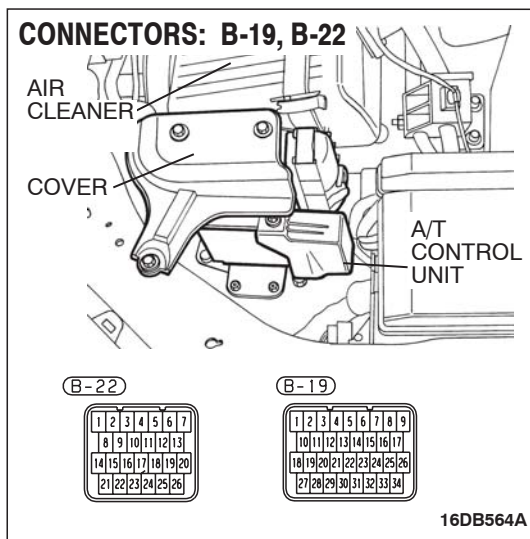


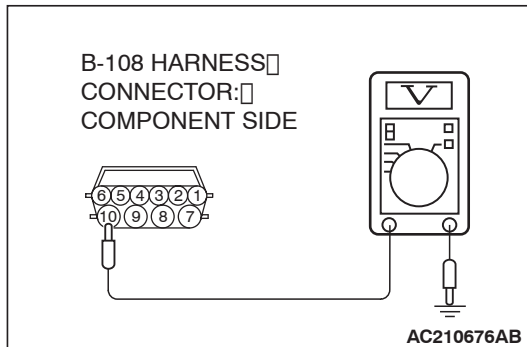
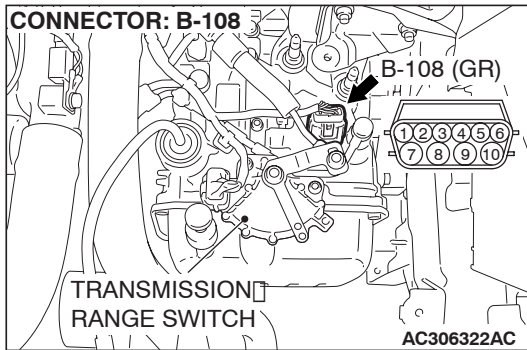
STEP 7. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 terminal 15 and A/T control solenoid valve assembly connector B-108 terminal 8.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Repair or replace the harness wire.





STEP 8. Measure the supply voltage at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect solenoid valve assembly harness connector B-108.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between harness connector B-108 terminal 10 and ground.

- The voltage should equal battery positive voltage.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 9.

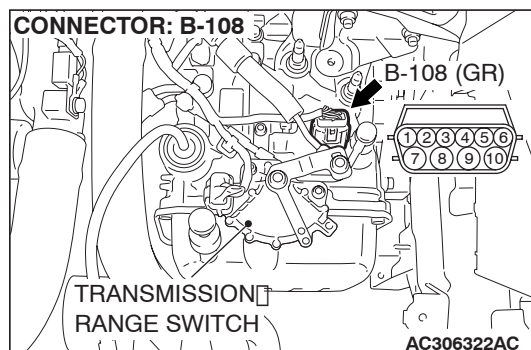
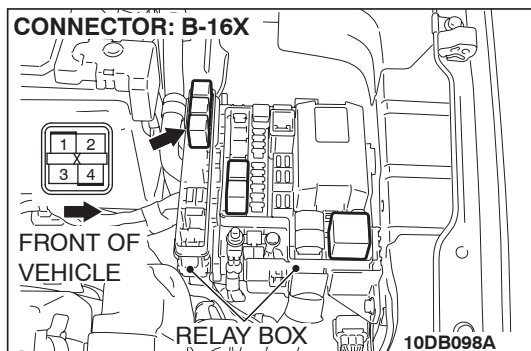
STEP 9. Check A/T control relay connector B-16X in the engine component relay box and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

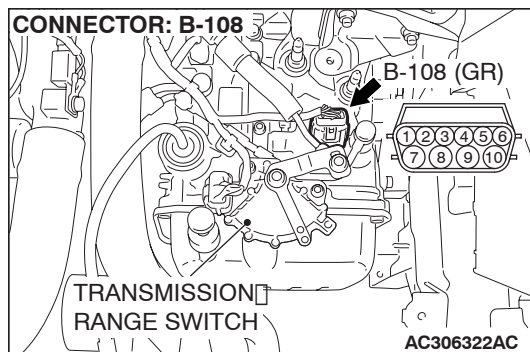
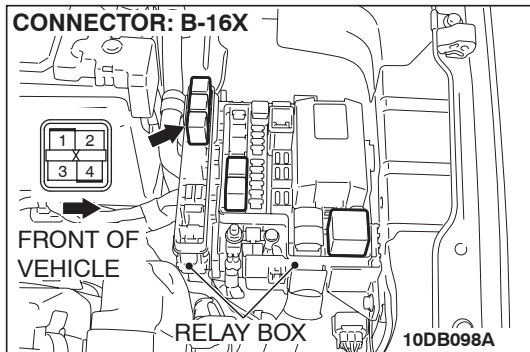


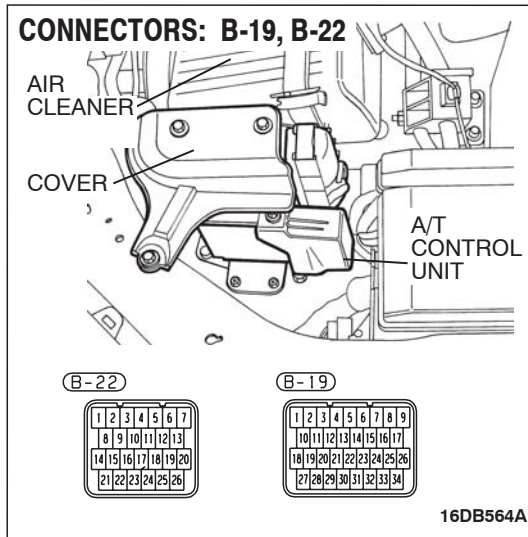
STEP 10. Check the harness for an open circuit or short circuit to ground between A/T control relay connector B-16X terminal 4 in the engine component relay box and A/T control solenoid valve assembly connector B-108 terminal 10.

Q: Is the harness wire in good condition?

YES : Go to Step 11.

NO : Repair or replace the harness wire.





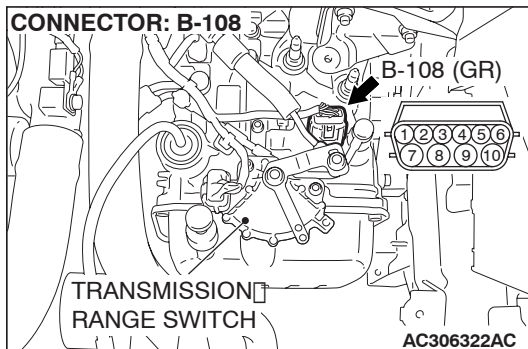
STEP 11. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

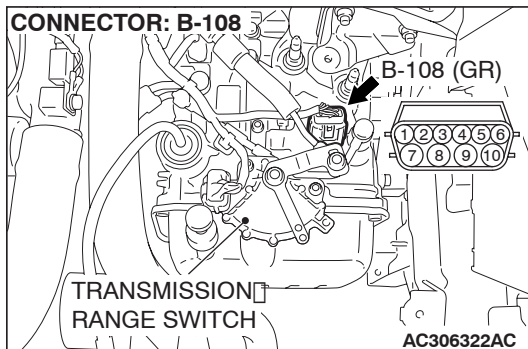
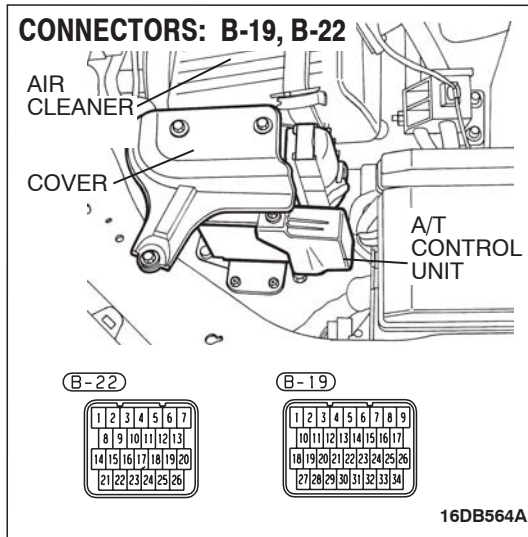


STEP 12. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 (terminals 8, 21 and 15) and A/T control solenoid valve assembly connector B-108 (terminals 7, 6 and 8).

Q: Are the harness wires in good condition?

YES : Go to Step 13.

NO : Repair or replace the harness wire.

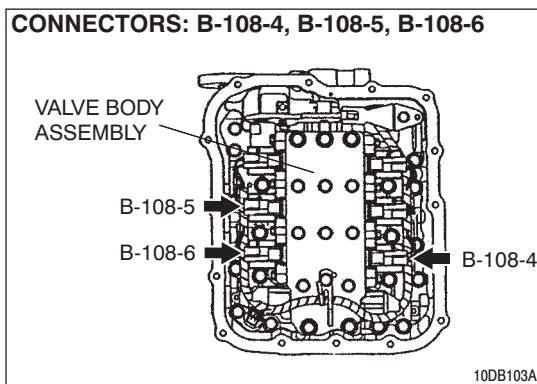
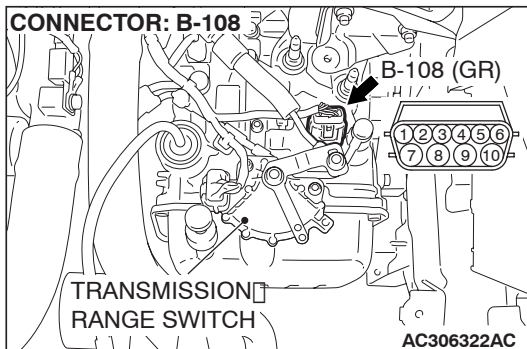


STEP 13. Check the harness for an open or short circuit to ground between A/T control solenoid valve assembly connector B-108 (terminals 6, 7, 8 and 10) and solenoid valve connectors B-108-4, B-108-5 and B-108-6.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Replace the harness wire.



(P0743): Damper Clutch Control Solenoid Valve System

SOLENOID VALVE SYSTEM CIRCUIT

Refer to [P.23A-133](#).

CIRCUIT OPERATION

Refer to [P.23A-133](#).

DTC SET CONDITIONS

Check Conditions

- Solenoid status: either solid ON or OFF.
- Voltage of battery: 10 volts or more.

Judgement Criteria

- Solenoid voltage: 3 volts or less. (0.3 second)
- If (P0743) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and keep the vehicle stopped in "P" range for 5 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the damper clutch control solenoid valve
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 06: Damper Clutch Control Solenoid Valve.

⚠ CAUTION

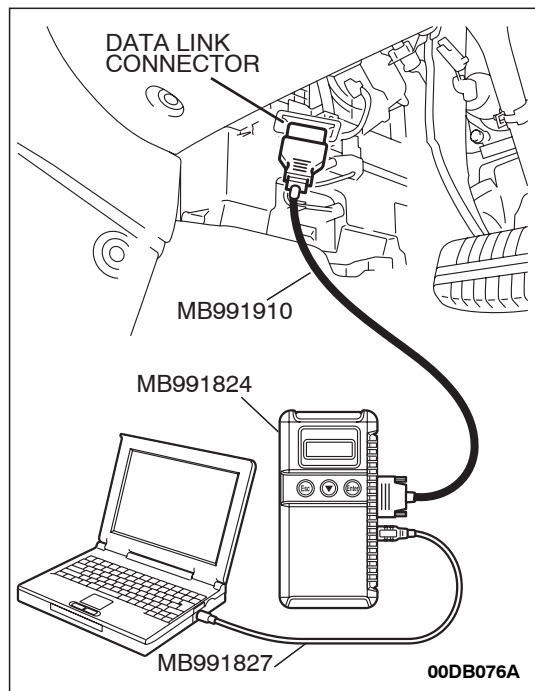
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

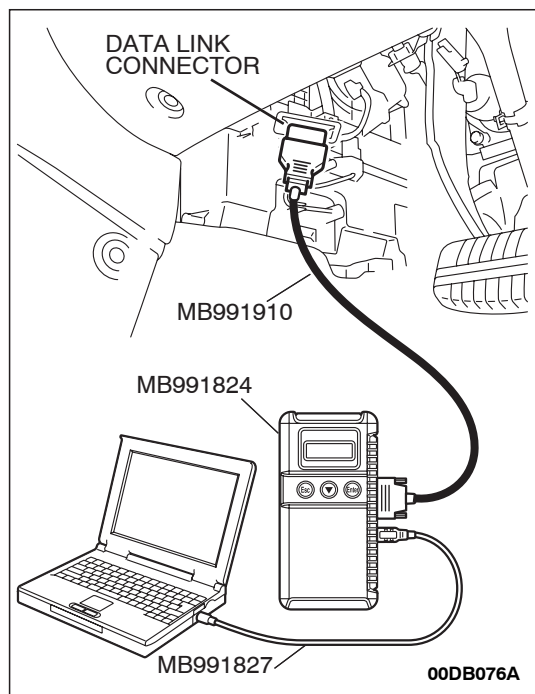
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 06: Damper Clutch Control Solenoid Valve.
 - An audible clicking or buzzing should be heard when the damper clutch control solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions [P.00-14](#).

NO : Go to Step 2.





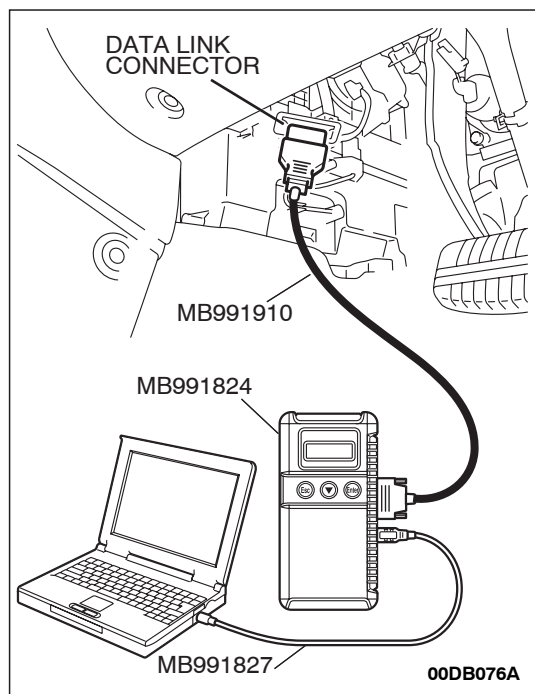
STEP 2. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P1751) set? (P1751 may be set along with multiple DTCs).

YES : Refer to [P.23A-207](#) (P1751): A/T Control Relay System.

NO : Go to Step 3.



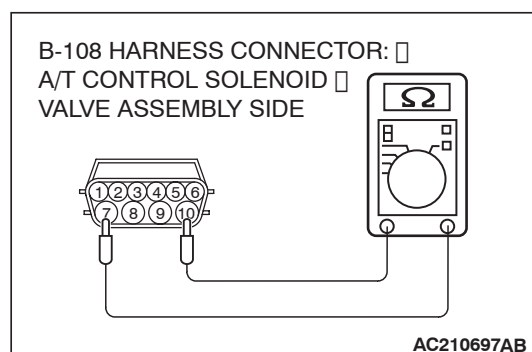
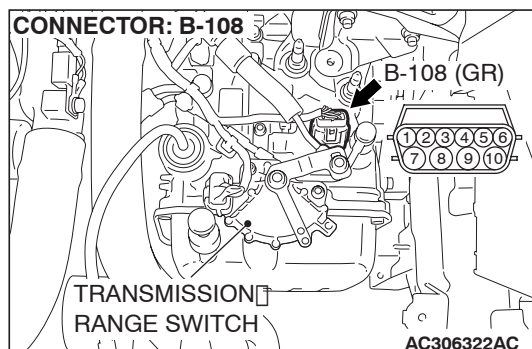
STEP 3. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are (P0753) and (P0773) set? (Multiple DTCs may be set).

YES : Go to Step 8.

NO : Go to Step 4.



STEP 4. Measure the damper clutch control solenoid valve resistance at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect connector B-108 and measure at the solenoid valve side.

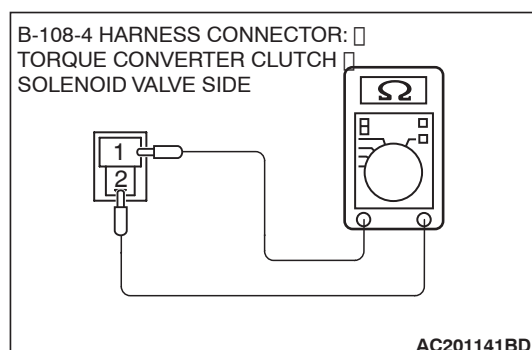
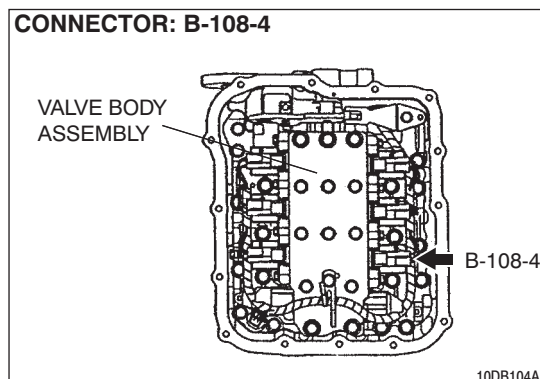
- (2) Measure the resistance between solenoid valve assembly connector B-108 terminals 7 and 10.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Measure the solenoid valve resistance at the damper clutch control solenoid valve assembly inside the transmission.

- (1) Disconnect connector B-108-4 and measure at the solenoid valve side.

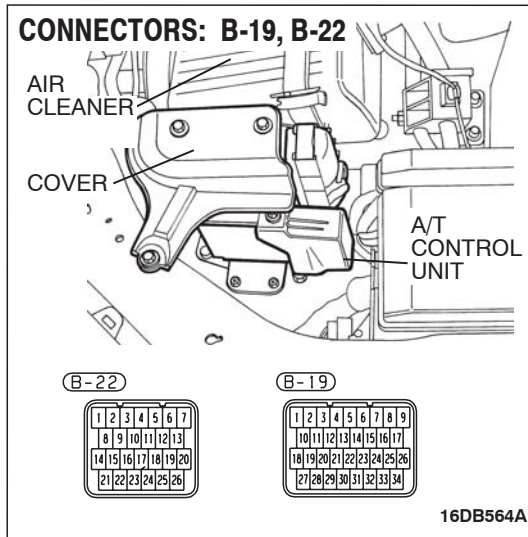
- (2) Measure the resistance between damper clutch control solenoid valve terminals 1 and 2.

Resistance value: 2.7–3.4 Ω [at 20°C (68°F)]

Q: Is the measured resistance 2.7–3.4 Ω [at 20°C (68°F)]?

YES : Replace the harness wire between A/T control solenoid valve assembly connector B-108 and the solenoid valves.

NO : Replace the damper clutch control solenoid valve. Refer to GROUP 23B, Valve Body [23B-62](#).



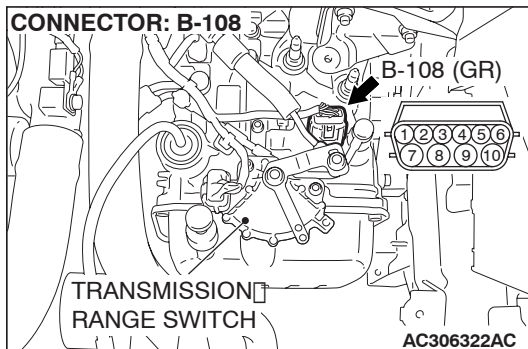
STEP 6. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

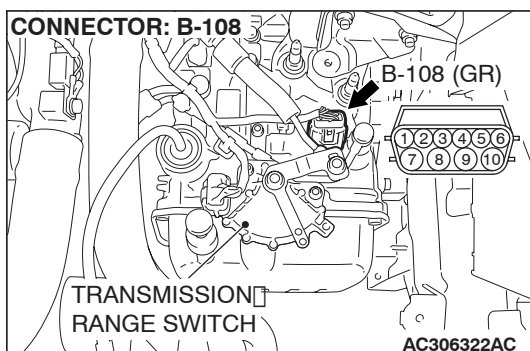
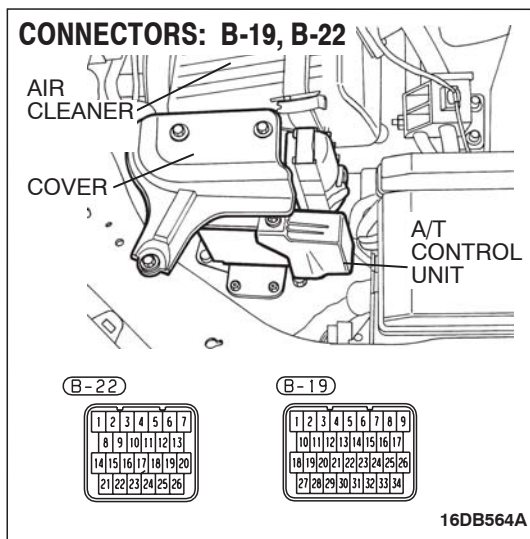


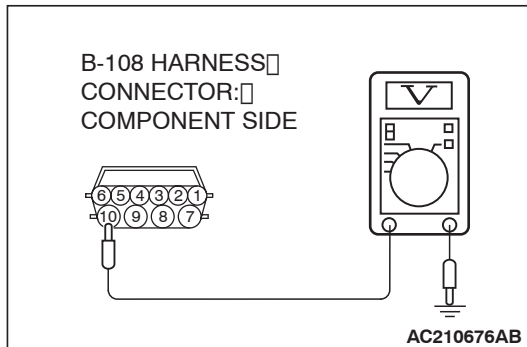
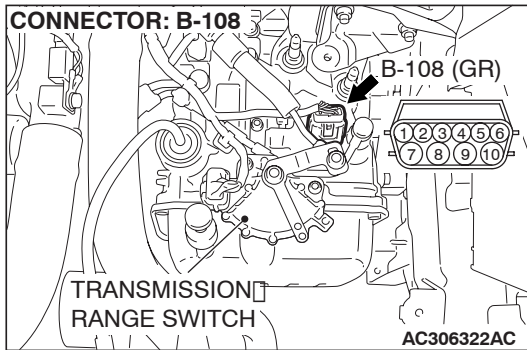
STEP 7. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 terminal 8 and A/T control solenoid valve assembly connector B-108 terminal 7.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Repair or replace the harness wire.





STEP 8. Measure the supply voltage at A/T control solenoid valve assembly connector B-108.

- (1) Disconnect solenoid valve assembly harness connector B-108.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between harness connector B-108 terminal 10 and ground.

- The voltage should equal battery positive voltage.

- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 11.

NO : Go to Step 9.

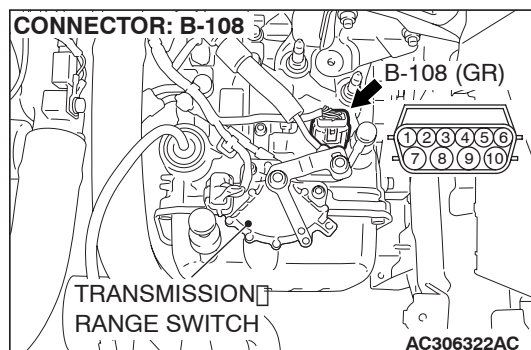
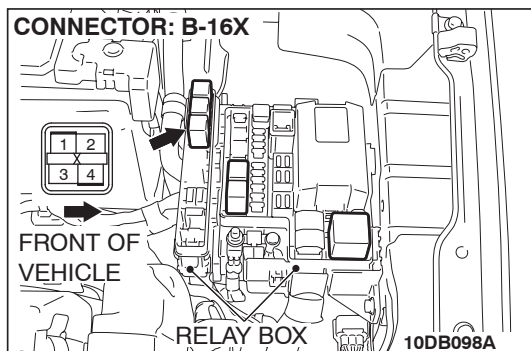
STEP 9. Check A/T control relay connector B-16X in the engine component relay box and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 10.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

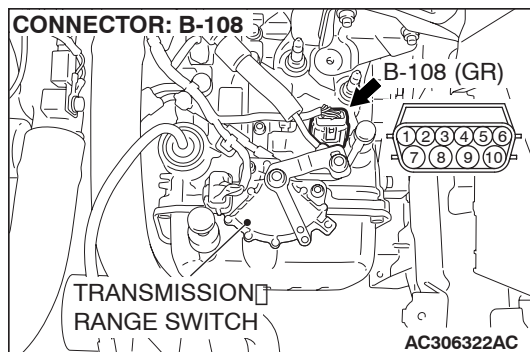
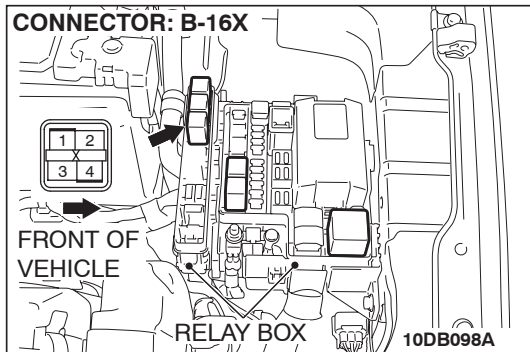


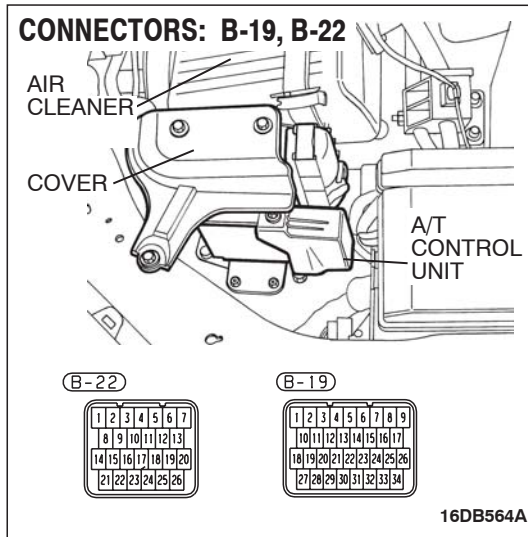
STEP 10. Check the harness for an open circuit or short circuit to ground between A/T control relay connector B-16X terminal 4 in the engine component relay box and A/T control solenoid valve assembly connector B-108 terminal 10.

Q: Is the harness wire in good condition?

YES : Go to Step 11.

NO : Repair or replace the harness wire.





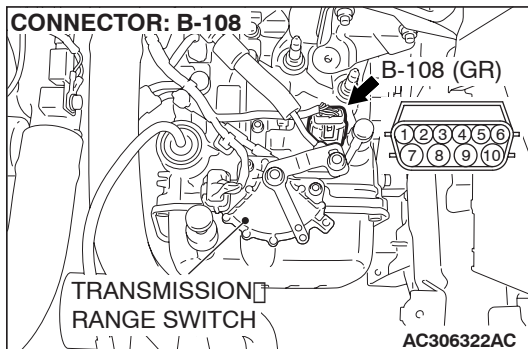
STEP 11. Check A/T-ECU connector B-22 and A/T control solenoid valve assembly connector B-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors and terminals in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

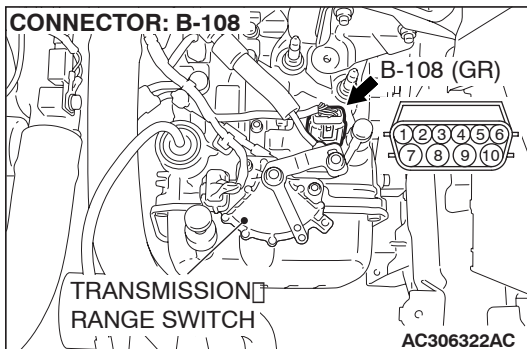
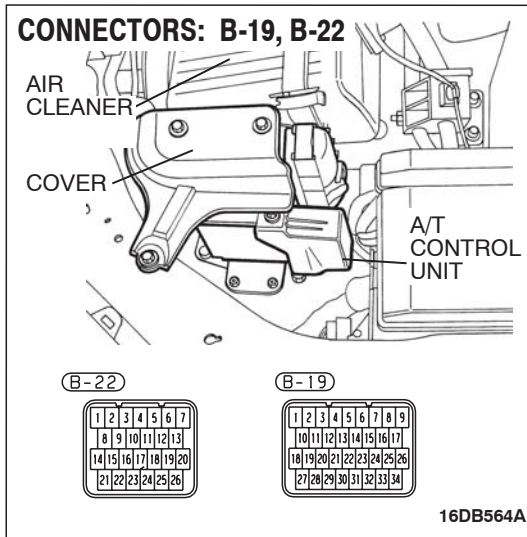


STEP 12. Check the harness for an open or short circuit to ground between A/T-ECU connector B-22 (terminals 8, 21 and 15) and A/T control solenoid valve assembly connector B-108 (terminals 7, 6 and 8).

Q: Are the harness wires in good condition?

YES : Go to Step 13.

NO : Repair or replace the harness wire.

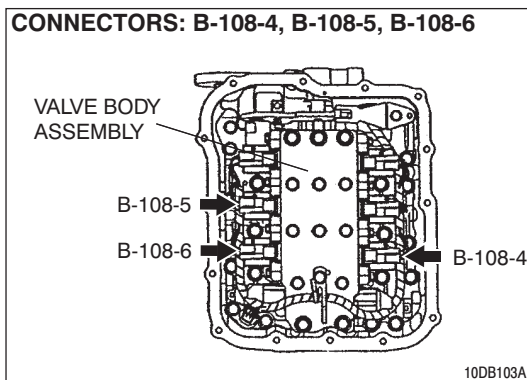
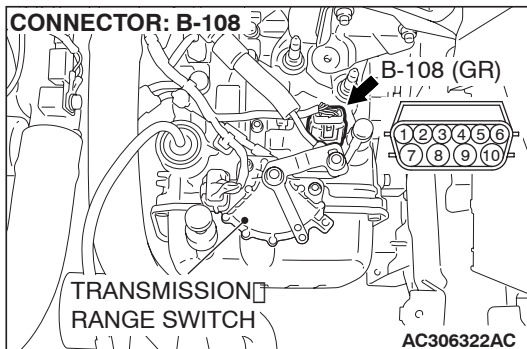


STEP 13. Check the harness for an open or short circuit to ground between A/T control solenoid valve assembly connector B-108 (terminals 6, 7, 8 and 10) and solenoid valve connectors B-108-4, B-108-5 and B-108-6.

Q: Is the harness wire in good condition?

YES : Replace the A/T-ECU.

NO : Replace the harness wire.



(P0731): 1st Gear Incorrect Ratio
(P0732): 2nd Gear Incorrect Ratio
(P0733): 3rd Gear Incorrect Ratio
(P0734): 4th Gear Incorrect Ratio
(P0735): 5th Gear Incorrect Ratio
(P0736): Reverse Gear Incorrect Ratio

CIRCUIT OPERATION

- The input shaft speed sensor generates a pulsed signal of 0 ⇔ 5 volts. The pulsed signal frequency increases with an increase in the input shaft speed.
- The A/T-ECU continuously monitors the input shaft speed signal.
- The output shaft speed sensor generates a pulsed signal of 0 ⇔ 5 volts. The pulsed signal frequency increases with an increase in the output shaft speed.
- The A/T-ECU continuously monitors the output shaft speed signal.

DTC SET CONDITIONS < (P0731)>

Check Conditions

- Engine speed: 450 r/min or more.
- Output speed: 350 r/min or more.
- Shift stage: 1st gear.
- Input speed: more than 0 r/min.

DTC SET CONDITIONS < (P0732)>

Check Conditions

- Engine speed: 450 r/min or more.
- Output speed: 500 r/min or more.
- Shift stage: 2nd gear.
- Input speed: more than 0 r/min.
- Transmission fluid temperature sensor voltage: 4.5 volts or less.
- Voltage of battery: 10 volts or more.
- Transmission inhibitor switch rationality: only one signal.
- Time after shift changing finish: 2 seconds or more.

- Transmission fluid temperature sensor voltage: 4.5 volts or less.
- Voltage of battery: 10 volts or more.
- Transmission inhibitor switch rationality: only one signal.
- Time after shift changing finish: 2 seconds or more.

Judgement Criteria

- Output speed: [(input speed - 200 r/min) / 1st gear ratio] or less. (4 seconds)
- If (P0731) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN < (P0731)>

Start the engine, and drive at 20 km/h (12 mph) or more for 10 seconds, with 1st gear fixed (1st gear in sport mode).

Judgement Criteria

- Output speed: [(input speed + 200 r/min) / 2nd gear ratio] or more. (4 seconds)
- Output speed: [(input speed - 200 r/min) / 2nd gear ratio] or less. (4 seconds)
- If (P0732) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN < (P0732)>

Start the engine, and drive at 30 km/h (19 mph) or more for 10 seconds, with 2nd gear fixed (2nd gear in sport mode).

DTC SET CONDITIONS < (P0733)>

Check Conditions

- Engine speed: 450 r/min or more.
- Output speed: 900 r/min or more.
- Shift stage: 3rd gear.
- Input speed: more than 0 r/min.
- Transmission fluid temperature sensor voltage: 4.5 volts or less.
- Voltage of battery: 10 volts or more.
- Transmission inhibitor switch rationality: only one signal.
- Time after shift changing finish: 2 seconds or more.

Judgement Criteria

- Output speed: [(input speed + 200 r/min) / 3rd gear ratio] or more. (4 seconds)
- Output speed: [(input speed - 200 r/min) / 3rd gear ratio] or less. (4 seconds)
- If (P0733) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN < (P0733)>

Start the engine, and drive at 40 km/h (25 mph) or more for 10 seconds, with 3rd gear fixed (3rd gear in sport mode).

DTC SET CONDITIONS < (P0734)>

Check Conditions

- Engine speed: 450 r/min or more.
- Output speed: 900 r/min or more.
- Shift stage: 4th gear.
- Input speed: more than 0 r/min.
- Transmission fluid temperature sensor voltage: 4.5 volts or less.
- Voltage of battery: 10 volts or more.
- Transmission inhibitor switch rationality: only one signal.
- Time after shift changing finish: 2 seconds or more.

Judgement Criteria

- Output speed: [(input speed + 200 r/min) / 4th gear ratio] or more. (4 seconds)
- Output speed: [(input speed - 200 r/min) / 4th gear ratio] or less. (4 seconds)
- If (P0734) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN < (P0734)>

Start the engine, and drive at 40 km/h (25 mph) or more for 10 seconds, with 4th gear fixed (4th gear in sport mode).

DTC SET CONDITIONS < (P0735)>

Check Conditions

- Engine speed: 450 r/min or more.
- Output speed: 900 r/min or more.
- Shift stage: 5th gear.
- Input speed: more than 0 r/min.
- Transmission fluid temperature sensor voltage: 4.5 volts or less.
- Voltage of battery: 10 volts or more.
- Transmission inhibitor switch rationality: only one signal.
- Time after shift changing finish: 2 seconds or more.

Judgement Criteria

- Output speed: [(input speed + 200 r/min) / 4th gear ratio] or more. (4 seconds)
- Output speed: [(input speed - 200 r/min) / 4th gear ratio] or less. (4 seconds)
- If (P0735) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN < (P0735)>

Start the engine, and drive at 40 km/h (25 mph) or more for 10 seconds, with 5th gear fixed (5th gear in sport mode).

DTC SET CONDITIONS < (P0736)>

Check Conditions

- Engine speed: 450 r/min or more.
- Output speed: 100 r/min or more.
- Shift stage: reverse gear.
- Input speed: more than 0 r/min.
- Transmission fluid temperature sensor voltage: 4.5 volts or less.
- Voltage of battery: 10 volts or more.
- Transmission inhibitor switch rationality: only one signal.
- Time after shift changing finish: 0.5 second or more.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the input shaft speed sensor
- Malfunction of the output shaft speed sensor
- Malfunction of the A/T-ECU
- Malfunction of the underdrive clutch retainer
- Malfunction of the transfer drive gear or driven gear
- Malfunction of the low-reverse brake system (or)

Judgement Criteria

- Output speed: [(input speed + 200 r/min) / reverse gear ratio] or more. (1 second)
- Output speed: [(input speed - 200 r/min) / reverse gear ratio] or less. (1 second)
- If (P0736) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN < (P0736)>

Start the engine, and drive in "R" range at 15 km/h (9 mph) or more for 10 seconds.

- Malfunction of the underdrive clutch system (, , or)
- Malfunction of the second brake system (or)
- Malfunction of the overdrive clutch system (or)
- Malfunction of the reduction clutch system (or)
- Malfunction of the reverse clutch system ()
- Electrical noise generated

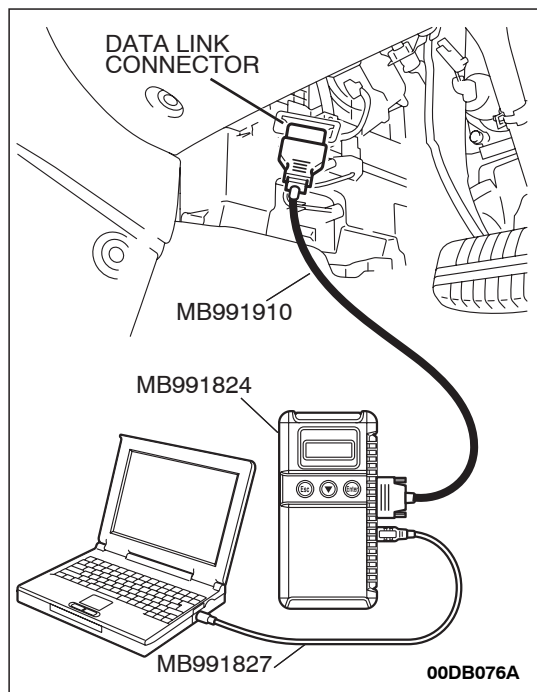
Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is DTC set?

YES <P0715 set> : Refer to [P.23A-55](#), P0715: Input Shaft Speed Sensor System.

YES <P0720 set> : Refer to [P.23A-72](#), P0720: Output Shaft Speed Sensor System.

YES <P0753 set> : Refer to [P.23A-133](#), P0753: Low-Reverse Solenoid Valve System.

YES <P0758 set> : Refer to [P.23A-144](#), P0758: Underdrive Solenoid Valve System.

YES <P0763 set> : Refer to [P.23A-154](#), P0763: Second Solenoid Valve System.

YES <P0768 set> : Refer to [P.23A-164](#), P0768: Overdrive Solenoid Valve System.

YES <P0773 set> : Refer to [P.23A-164](#), P0773: Reduction Solenoid Valve System.

NO : Go to Step 2.

STEP 2. Check the hydraulic pressure.

Each hydraulic pressure of the elements below, which DTCs indicate, should be within the standard value. [P.23A-26](#).

- DTC P0731: Underdrive clutch and low-reverse brake.
- DTC P0732: Underdrive clutch and second brake
- DTC P0733: Underdrive clutch and overdrive clutch
- DTC P0734: Overdrive clutch and second brake
- DTC P0735: Direct clutch and reduction brake
- DTC P0736: Reverse clutch and low-reverse brake

Q: Does the hydraulic pressures meet the standard value range?

YES : Go to Step 5.

NO <out of the range in one place> : Go to Step 4.

NO <out of the range in all places> : Go to Step 3.

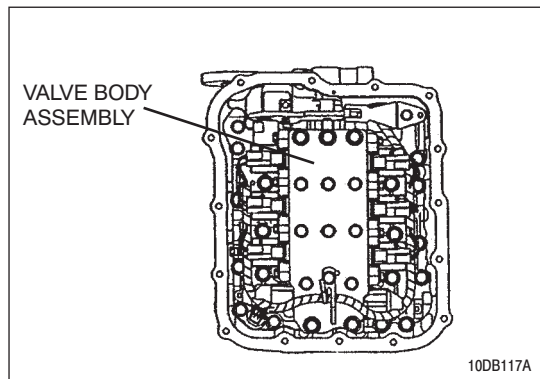
STEP 3. Adjust the line pressure.

Adjust the line pressure. Refer to [P.23A-33](#), Line Pressure Adjustment. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 4.



STEP 4. Disassemble and clean the valve body.

Check the O-ring installation bolts for looseness and the valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 6.

STEP 5. Replace the A/T-ECU.

(1) Replace the A/T-ECU.

(2) Test drive the vehicle.

(3) Check for A/T diagnostic trouble code.

Q: Were any A/T DTCs set?

YES : Go to Step 6.

NO : The procedure is complete.

STEP 6. Overhaul the A/T.

(1) Replace the following parts.

- If P0731, P0732 or P0733 are set individually or in a group, replace the underdrive clutch. Refer to GROUP 23B, Underdrive Clutch and Input Shaft [23B-46](#).
- If P0733 or P0734 are set individually or in a group, replace the overdrive clutch. Refer to GROUP 23B, Reverse and Overdrive Clutch [23B-48](#).
- If P0736 is set, replace the reverse clutch. Refer to GROUP 23B, Reverse and Overdrive Clutch [23B-48](#).
- If P0731 or P0736 are set individually or in a group, replace the low-reverse brake. Refer to GROUP 23B, Transmission [23B-55](#).
- If P0732 or P0734 are set individually or in a group, replace the second brake. Refer to GROUP 23B, Transmission [23B-56](#).
- If P0731 is set, replace the one-way clutch. Refer to GROUP 23B, Planetary Gear [23B-53](#).
- If P0735 is set, check second brake, check overdrive clutch and DIR clutch.

(2) Test drive the vehicle.

(3) Check for A/T diagnostic trouble code.

Q: Are any A/T DTCs set again?

YES : An A/T DTC may have set due to external radio frequency interference (RFI) possibly caused by cellular phone activity, or aftermarket components installed on the vehicle.

NO : The procedure is complete.

(P0741): Damper Clutch Control System

DTC SET CONDITIONS

Check Conditions

- Solenoid status: plunging into connecting condition.
- Transmission inhibitor switch position: D.

Judgement Criteria

- Time during 100% duty: 4 seconds or more.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and drive at 100 km/h (62 mph) for 10 seconds. Then stop the vehicle, and turn OFF the ignition switch. After that, restart the engine, and drive again at 100 km/h (62 mph) for 10 seconds.

TROUBLESHOOTING HINTS (The most likely causes for this code to be set are:)

- Malfunction of the damper clutch control solenoid valve
- Malfunction of the input shaft speed sensor
- Malfunction of the valve body
- Damaged harness or connector
- Malfunction of the A/T-ECU
- Malfunction of the torque converter

Circuit drawings

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- Refer to component locations GROUP-70

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

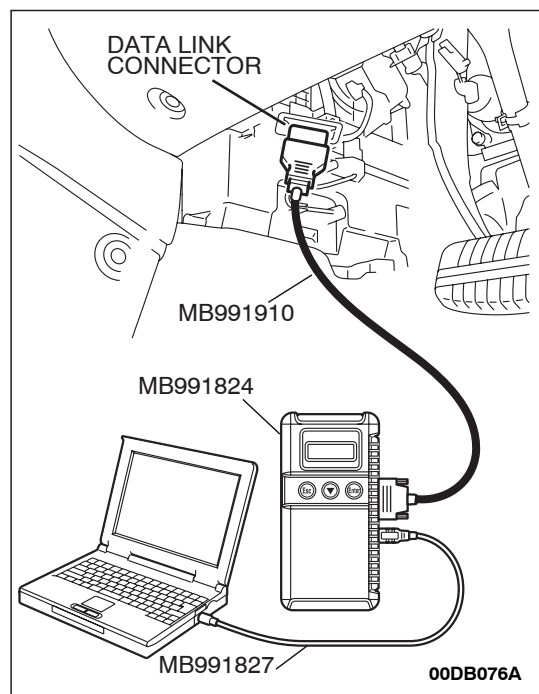
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

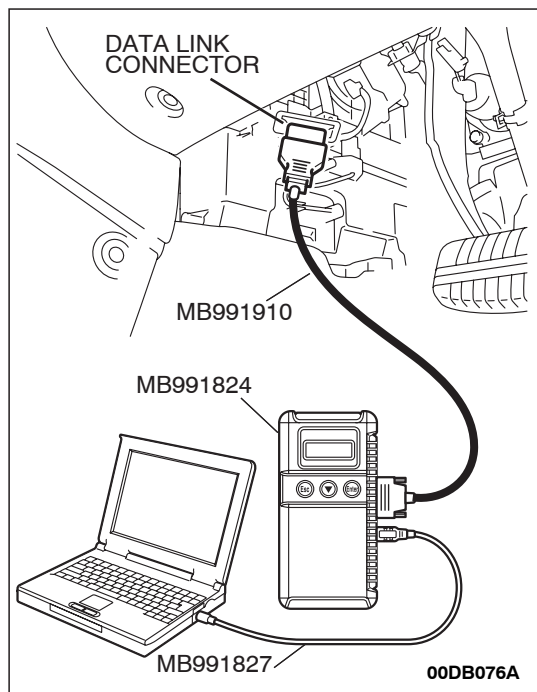
Q: Is (P0715) or (P0743) set?

YES <P0715 set> : Refer to [P.23A-55](#), P0715: Input Shaft Speed Sensor System.

YES <P0743 set> : Refer to [P.23A-185](#), P0743: Damper Clutch Control Solenoid Valve System.

NO : Go to Step 2.





STEP 2. Using diagnostic tool MB991958, check data list item 17: Damper Clutch Control Solenoid Valve Duty%.

CAUTION

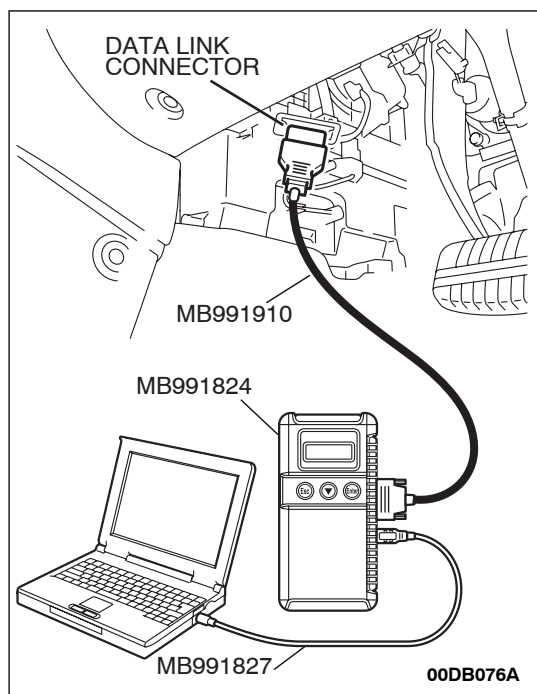
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Start the engine. (Warming up engine)
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 17: Damper Clutch Control Solenoid Valve Duty%.
 - When driving at constant speed of 50 km/h, the display should be "70 – 90%" (Gear range: 3rd gear).
 - When the accelerator pedal is released [at less than 50 km/h], the display should be "70 – 90% → 0%" (decreases gradually as the vehicle speed decreases) (Gear range: 3rd gear).
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : Go to Step 3.

NO : Go to Step 5.



STEP 3. Using diagnostic tool MB991958, check data list item 10: Damper Clutch Control Amount of Slippage.

CAUTION

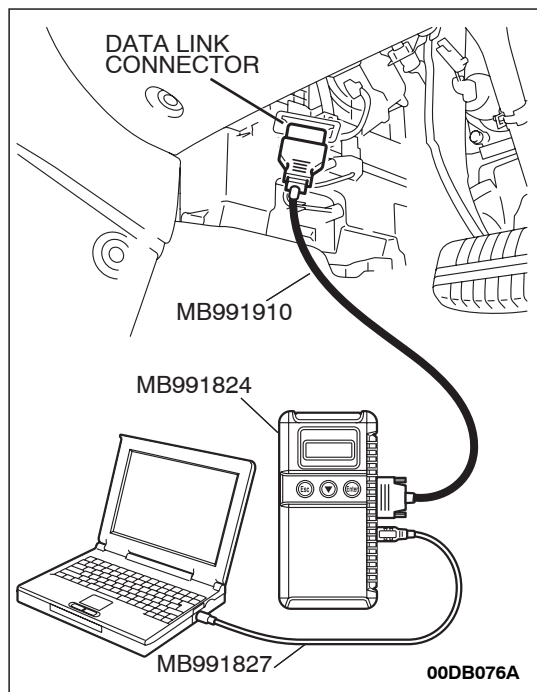
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Start the engine. (Warming up engine)
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 10: Damper Clutch Control Amount of Slippage.
 - Driving at a constant speed of 50 km/h, the display should be "100 to 300 r/min."
 - Driving at a constant speed of 70 km/h, the display should be "0 to 10 r/min."
 - If the accelerator pedal is released, the display on the diagnostic tool changes (50 km/h and less).
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the clutch operating properly?

YES : Go to Step 4.

NO : Go to Step 5.



STEP 4. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is Item 10 set?

YES : Replace the A/T-ECU.

NO : The procedure is complete.

STEP 5. Check the hydraulic pressure (for torque converter).

Measure the hydraulic pressure for torque converter. Check if the hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.

Q: Is the hydraulic pressure within the standard value?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Adjust line pressure.

Adjust line pressure. Refer to [P.23A-33](#), Line Pressure Adjustment. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

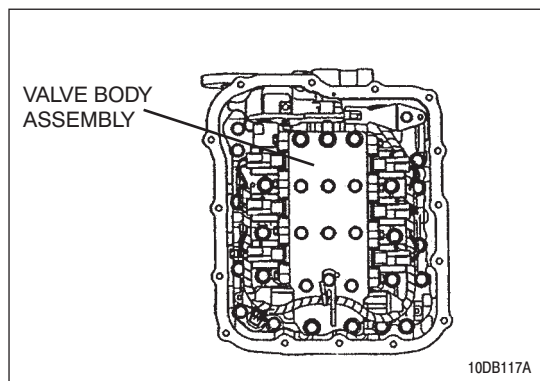
NO : Go to Step 8.

STEP 7. Replace the A/T-ECU.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 8.



STEP 8. Replace the valve body.

- (1) Replace the valve body. Refer to GROUP 23B, Transmission [23B-62](#).
- (2) Test drive the vehicle.
- (3) Check for A/T diagnostic trouble code.

Q: Is A/T Item 10 set?

YES : Replace the torque converter. Refer to GROUP 23B, Transmission [23B-13](#).

NO : The procedure is complete.

(P0742): Damper Clutch Control is Stuck On

DTC SET CONDITIONS

Check Conditions

- Throttle position sensor voltage: 1.5 volts or more.
- Output speed: 1,000 r/min or more.
- Solenoid status: OFF.
- Transmission inhibitor switch position: D, 3, 2 or L.
- Time after lock up clutch release: 5 seconds or more.

Judgement Criteria

- Calculated slip (engine speed - input speed): 5 r/min or more. (5 seconds)
- Calculated slip (engine speed - input speed): -5 r/min or less. (5 seconds)

OBD-II DRIVE CYCLE PATTERN

Start the engine, and drive at 30 km/h for 30 seconds. Then stop the vehicle, and turn "LOCK" (OFF) the ignition switch. After that, restart the engine, and drive again at 30 km/h (19 mph) for 30 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the damper clutch control solenoid valve
- Malfunction of the valve body
- Damaged harness or connector
- Malfunction of the A/T-ECU

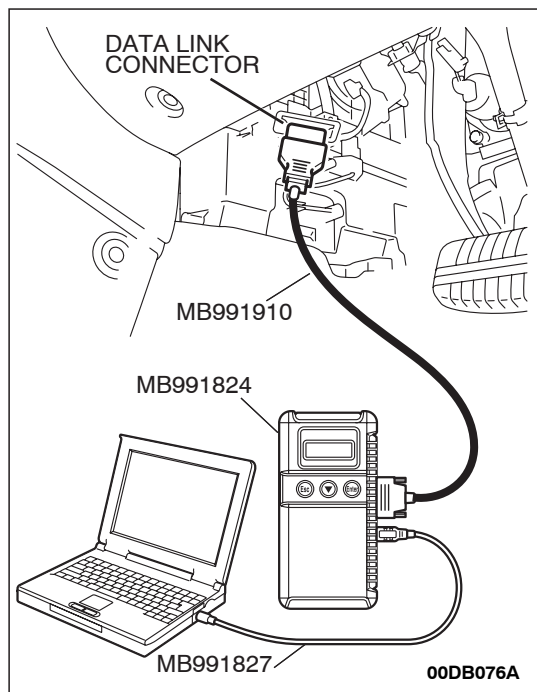
Circuit drawings

- Refer to circuit diagrams GROUP-[90](#)
- Refer to configuration diagrams GROUP-[80](#)
- Refer to component locations GROUP-[70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

⚠ CAUTION

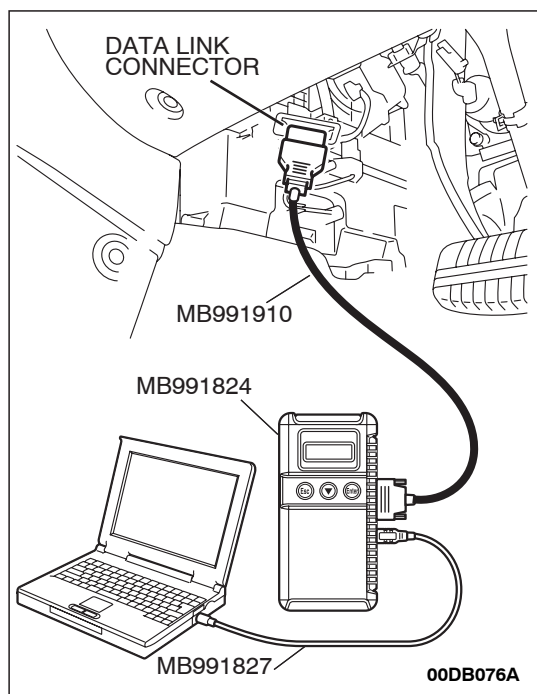
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is (P0743) set?

YES : Refer to [P.23A-185](#), (P0743): Damper Clutch Control Solenoid Valve System.

NO : Go to Step 2.



STEP 2. Using diagnostic tool MB991958, check A/T data list item 10: Amount of Damper Clutch Control Slippage.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Start the engine. (Warming up engine)
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 10: Damper Clutch Control Amount of Slippage.
 - Driving at a constant speed of 60 km/h, the display should be "-10 to 10 r/min."
 - If the accelerator pedal is released, the display on the diagnostic tool changes (50 km/h and less).
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the damper clutch control slippage within the specified range?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-14](#).

NO : Go to Step 3.

STEP 3. Replace the A/T-ECU.

- (1) Replace the A/T-ECU.
- (2) Test drive the vehicle.
- (3) Check for A/T diagnostic trouble code.

Q: Is (P0742) set?

YES : Go to Step 4.

NO : The procedure is complete.

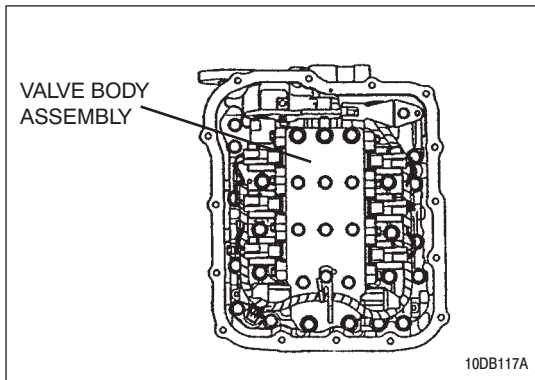
STEP 4. Replace the valve body.

- (1) Replace the valve body. Refer to GROUP 23B, Transmission [23B-62](#).
- (2) Test drive the vehicle.
- (3) Check for A/T diagnostic trouble code.

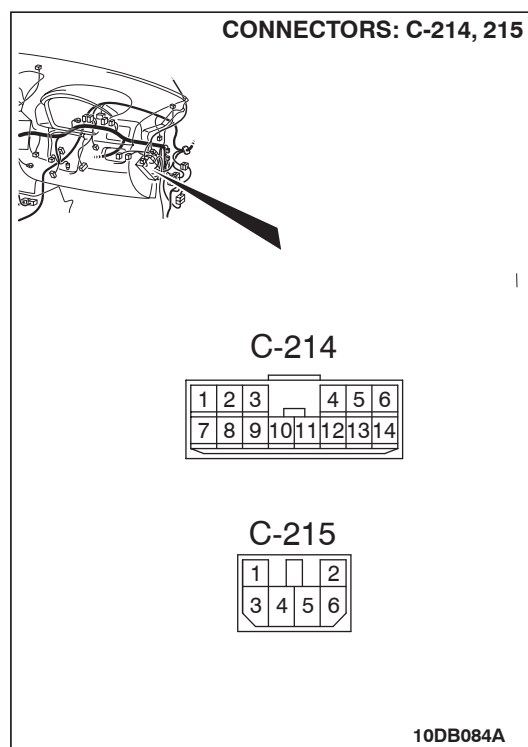
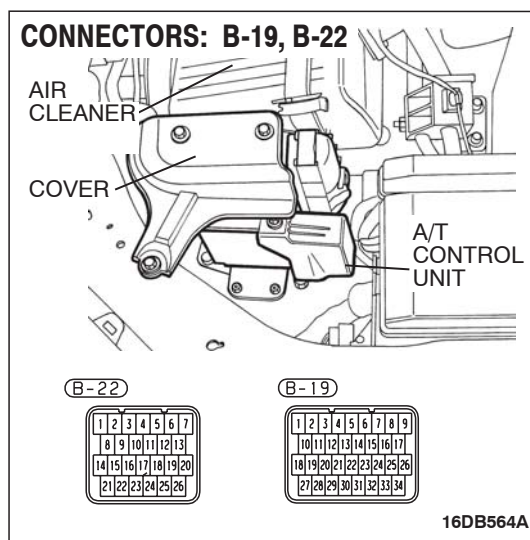
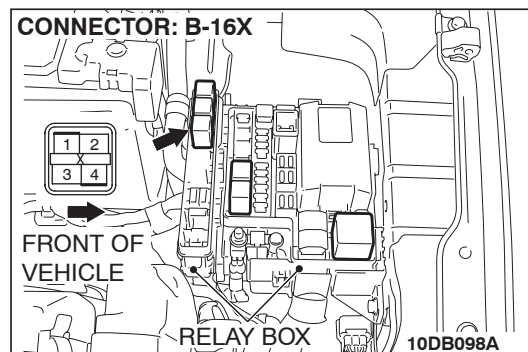
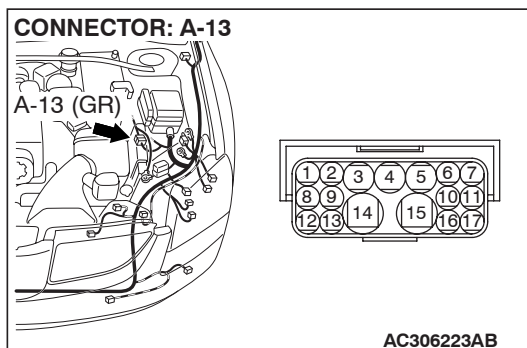
Q: Is (P0742) set?

YES : Replace the Torque Converter. Refer to GROUP 23B, Transmission [23B-13](#).

NO : The procedure is complete.



(P1751): A/T Control Relay System



CIRCUIT OPERATION

- A/T control relay (terminal 1) receives the battery positive voltage through a dedicated 20 amp fuse.
- When the ignition switch is turned to the "ON" position, the A/T-ECU connector B-22 (terminal 4) receives battery voltage from the ignition switch. The A/T-ECU connector B-22 (terminal 4) applies voltage to energize the A/T control relay (terminal 3). With the A/T control relay energized, system voltage is applied to the A/T-ECU connector B-22 (terminals 9 and 3).

DTC SET CONDITIONS

Check Conditions

- Voltage of battery: 9 volts or more.
- Time after A/T-ECU turns on A/T control relay: 0.5 second or more.

Judgement Criteria

- A/T control relay output voltage: 7 volts or less. (0.1 second)

- If (P1751) is set consecutively four times, the transmission is locked into 3rd gear as a fail-safe measure, and the "N" range light flashes once per second.

OBD-II DRIVE CYCLE PATTERN

Start the engine, and keep the vehicle stopped in "P" range for 5 seconds.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CODE TO BE SET ARE:)

- Malfunction of the A/T control relay
- Damaged harness or connector
- Malfunction of the A/T-ECU

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check data list item 8: A/T Control Relay Output Voltage.

⚠ CAUTION

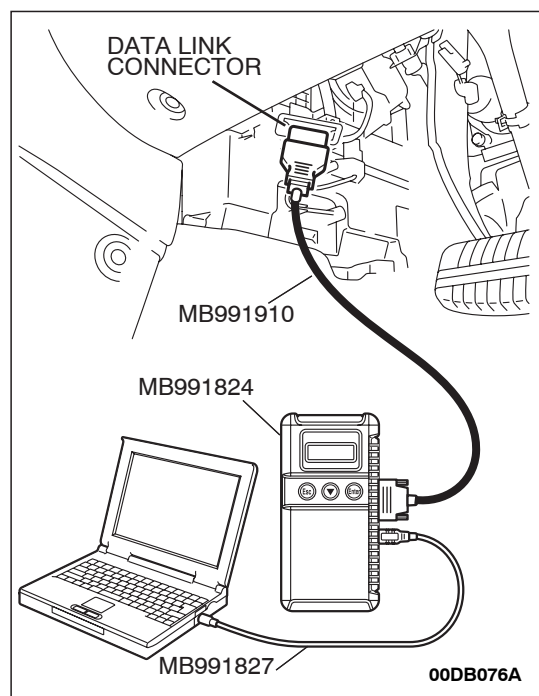
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

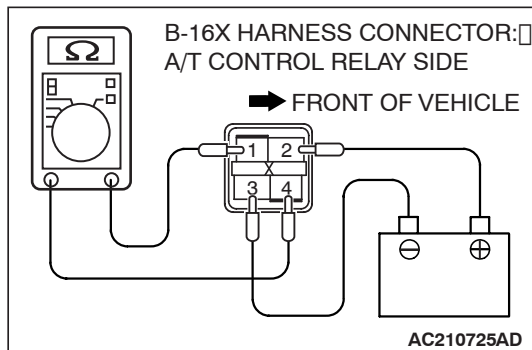
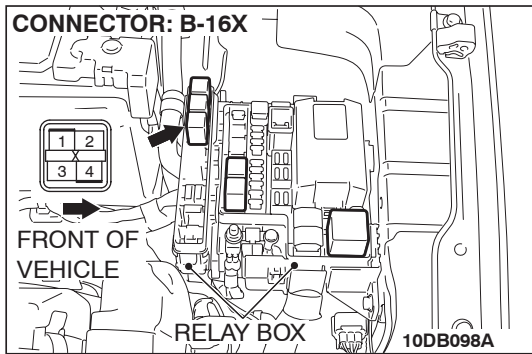
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 8: A/T Control Relay Output Voltage.
 - The voltage should equal battery positive voltage.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage equal battery positive voltage?

YES : It can be assumed that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-14](#).

NO : Go to Step 2.





STEP 2. Check the A/T control relay.

(1) Remove the A/T control relay from the engine component relay box connector B-16X.

(2) Using jumper wires, connect terminal 2 to the positive battery terminal, and terminal 3 to the negative battery terminal.

(3) Measure the resistance between terminals 1 and 4 of the A/T control relay.

- The resistance should be measured less than 2 ohms.
- Disconnect the jumper wires. The resistance between terminals 1 and 4 should measure over limits (open circuit).

Q: Is the measured resistance less than 2 ohms when the relay is energized, and open circuit when the relay is de-energized?

YES : Go to Step 3.

NO : Replace the A/T control relay.

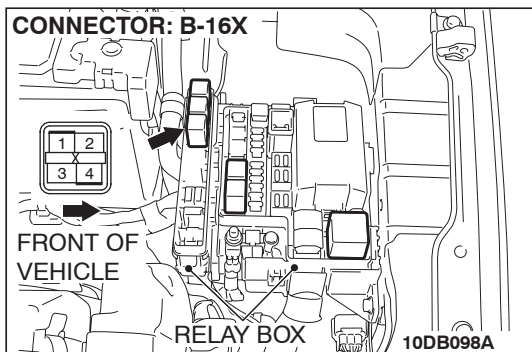
STEP 3. Check A/T control relay socket B-16X in the engine compartment relay box for loose, corroded or damaged terminals, or terminals pushed back in the socket.

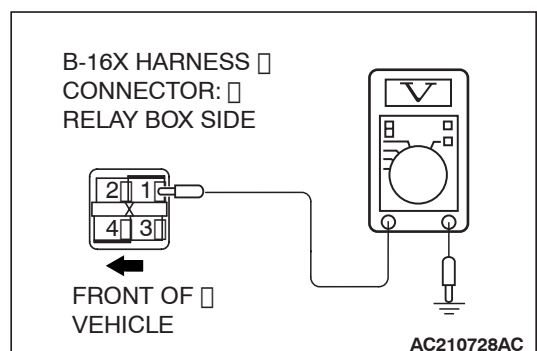
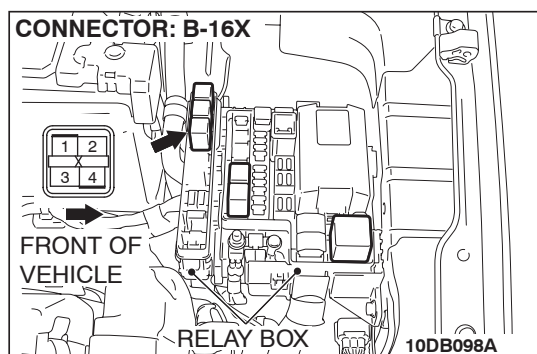
Q: Is the relay connector in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)





STEP 4. Measure the supply voltage at A/T control relay connector B-16X in the engine component relay box.

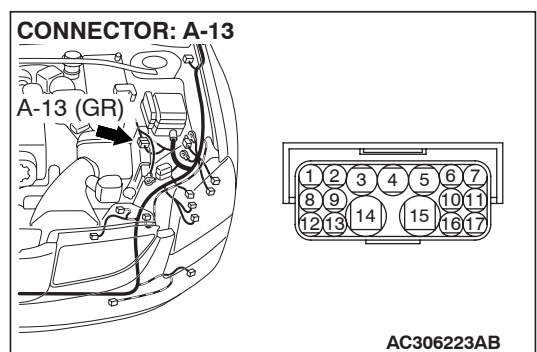
(1) Disconnect the A/T control relay.

(2) Measure the voltage between terminal 1 and ground.
 • The measured voltage should equal battery positive voltage.

Q: Is the measured voltage equal to battery positive voltage?

YES : Go to Step 7.

NO : Go to Step 5.



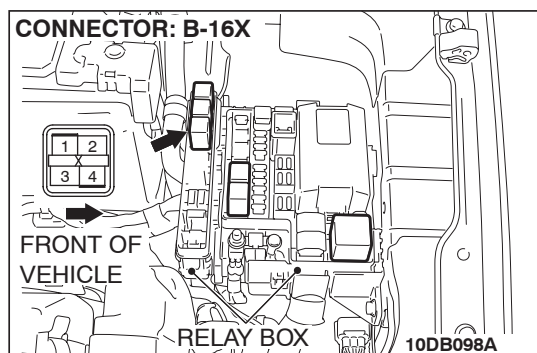
STEP 5. Check intermediate connector A-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

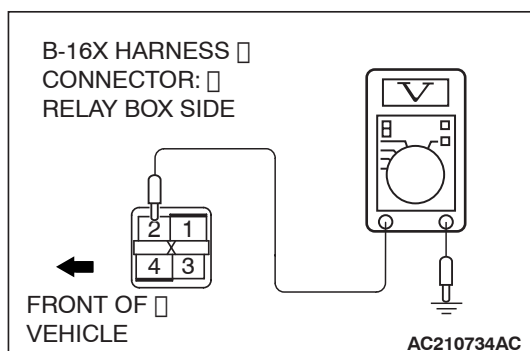
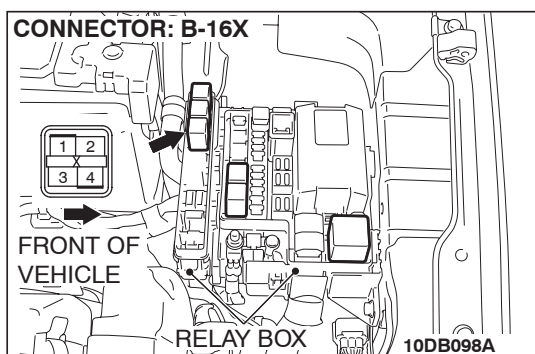


STEP 6. Check the harness for open circuit or short circuit to ground between A/T control relay connector B-16X terminal 1 in the engine component relay box and battery.

Q: Is the harness wire in good condition?

YES : Go to Step 15.

NO : Repair or replace the harness wire.



STEP 7. Measure the supply voltage at A/T control relay connector B-16X in the engine component relay box.

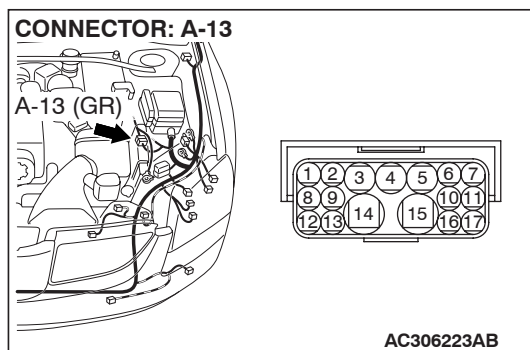
- (1) Disconnect the A/T control relay.
- (2) Turn the ignition switch to the "ON" position.

- (3) Measure the voltage between terminal 2 and ground.
 - The measured voltage should equal battery positive voltage.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage equal to battery positive voltage?

YES : Go to Step 10.

NO : Go to Step 8.



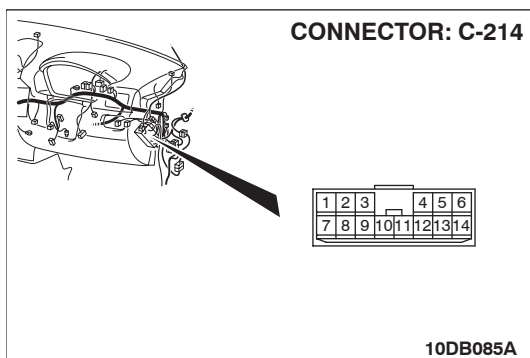
STEP 8. Check intermediate connector A-13 and junction block connector C-214 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connectors in good condition?

YES : Go to Step 9.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

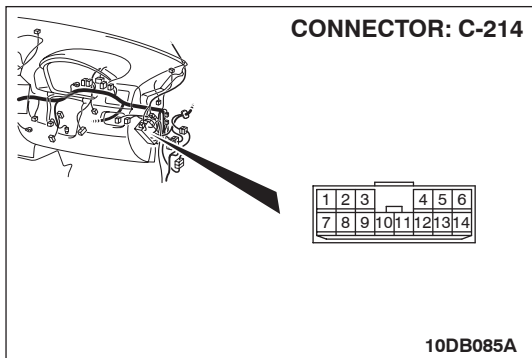
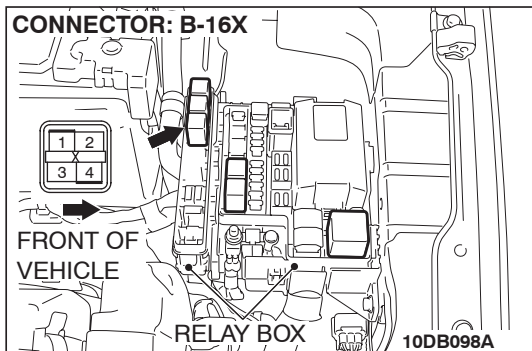


STEP 9. Check the harness for open circuit or short circuit to ground between A/T control relay connector B-16X terminal 2 in the engine component relay box and junction block connector C-214 terminal 12.

Q: Is the harness wire in good condition?

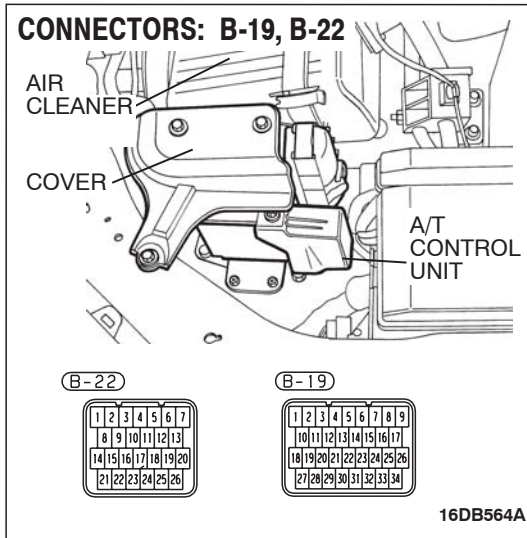
YES : Go to Step 15.

NO : Repair or replace the harness wire.

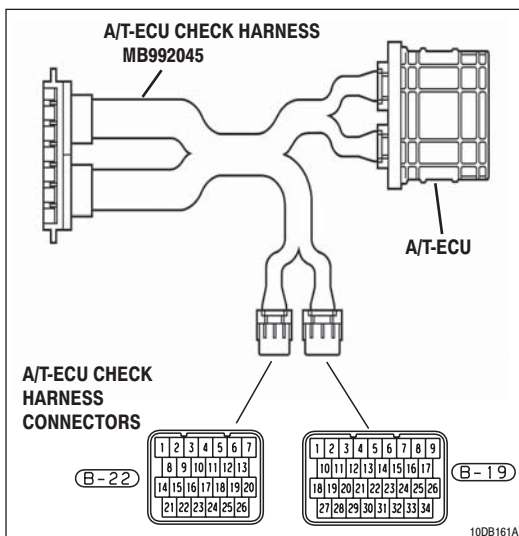


STEP 10. Measure the A/T control relay output voltage at A/T-ECU connector B-22 by using check harness special tool MB992045.

(1) Disconnect all the connectors from the A/T-ECU.

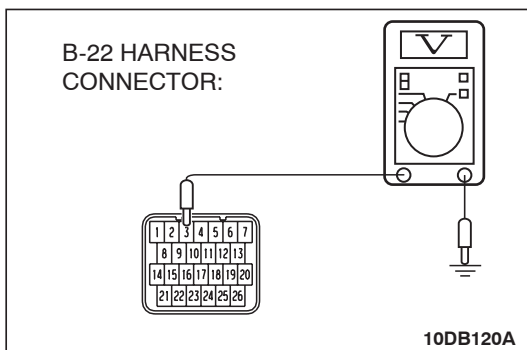


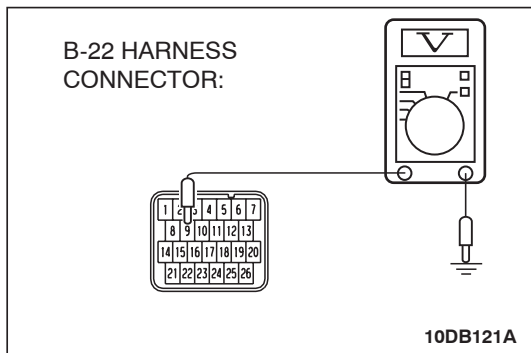
(2) Connect special tool MB992045 (check harness) between the A/T-ECU and the body-side harness connector.
(3) Turn the ignition switch to the "ON" position.



(4) Measure the voltage between connector B-22 terminal 3 and ground.

- The measured voltage should equal battery positive voltage.



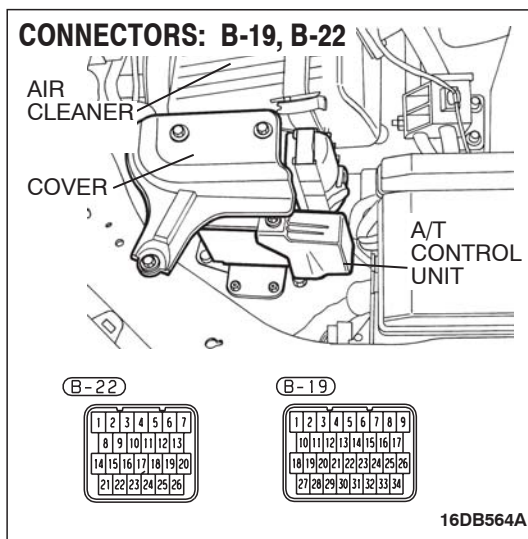


- (5) Measure the voltage between connector B-22 terminal 9 and ground.
- The measured voltage should equal battery positive voltage.
- (6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage equal to battery positive voltage between terminal 3 and ground, and between terminal 9 and ground?

YES : Go to Step 13.

NO : Go to Step 11.



STEP 11. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

YES : Go to Step 12.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

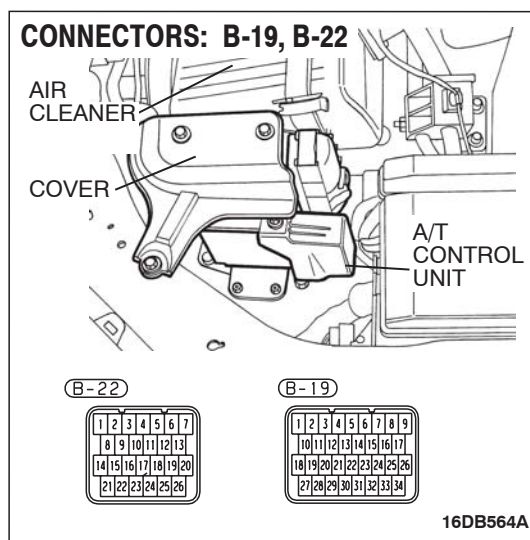
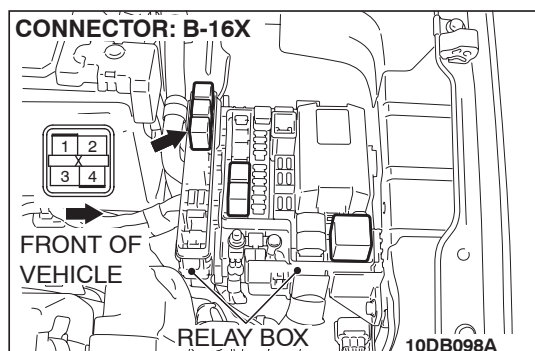
[P.00E-2.](#)

STEP 12. Check harness for open circuit or short circuit to ground between A/T control relay connector B-16X (terminal 4) in the engine component relay box and A/T-ECU connector B-22 (terminals 3 and 9).

Q: Is the harness wire in good condition?

YES : Go to Step 15.

NO : Repair or replace the harness wire.



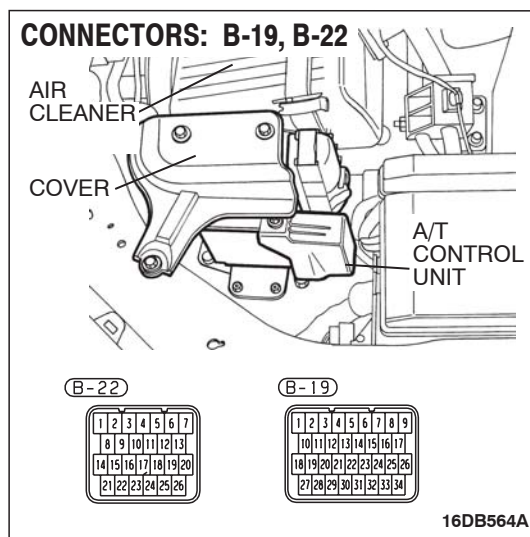
STEP 13. Check A/T-ECU connector B-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are the connector and terminals in good condition?

YES : Go to Step 14.

NO : Repair or replace the damaged components. Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2.](#)

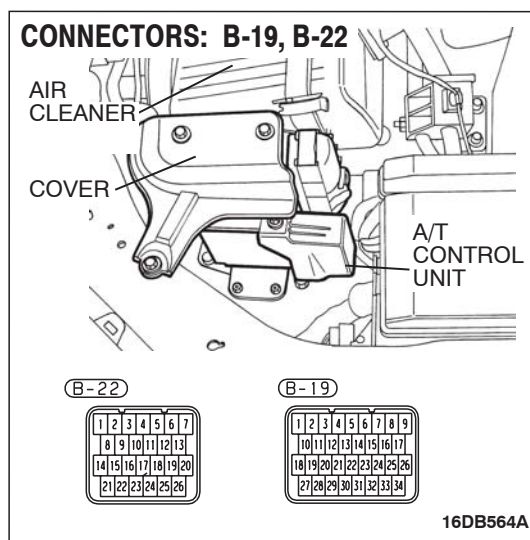
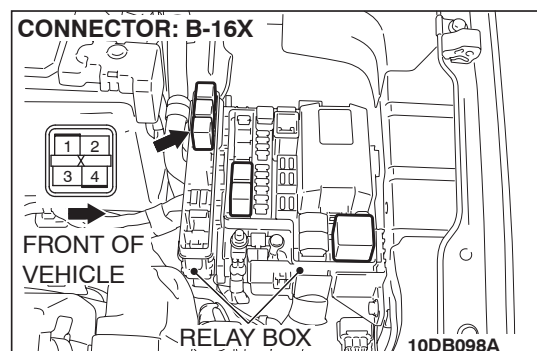


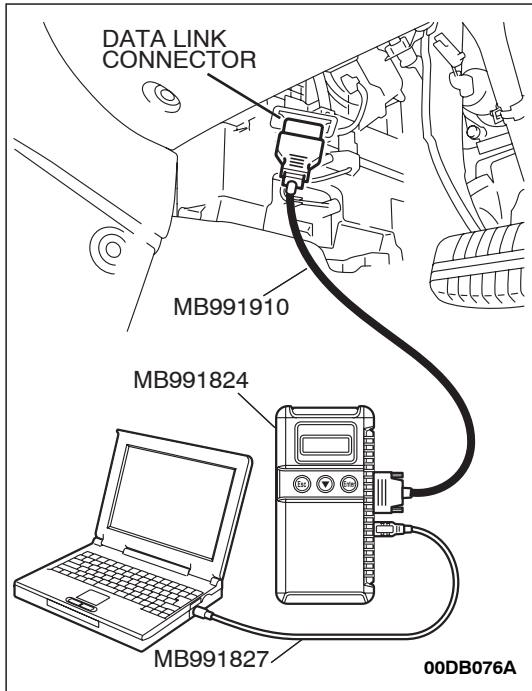
STEP 14. Check harness for open circuit or short circuit to ground between A/T control relay connector B-16X terminal 3 in the engine component relay box and A/T-ECU connector B-22 terminal 4.

Q: Is the harness wire in good condition?

YES : Go to Step 15.

NO : Repair or replace the harness wire.





STEP 15. Using diagnostic tool MB991958, check A/T data list item 8: A/T control relay output Voltage.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 8: A/T Control Relay Output Voltage.
 - The voltage should equal battery positive voltage.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage equal battery positive voltage?

YES : It can be that this malfunction is intermittent. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction [P.00-14](#).

NO : Replace the A/T-ECU.

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Engine does not Crank

COMMENT

If the engine does not crank when the selector lever is placed in the "P" or "N" position, the cause is probably a malfunction of the transmission inhibitor switch system, transmission control cable assembly, engine system, torque converter or transmission oil pump.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CONDITION:)

- Malfunction of the transmission inhibitor switch
- Malfunction of the transmission control cable assembly
- Malfunction of the engine system
- Malfunction of the torque converter
- Malfunction of the transmission oil pump
- Check RED brake system.

Circuit drawings

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- Refer to component locations GROUP-70

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, read the A/T diagnostic trouble code.

⚠ CAUTION

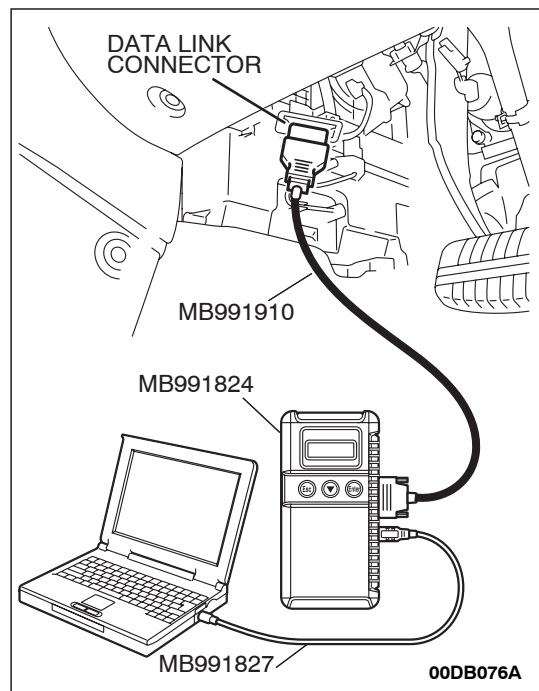
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

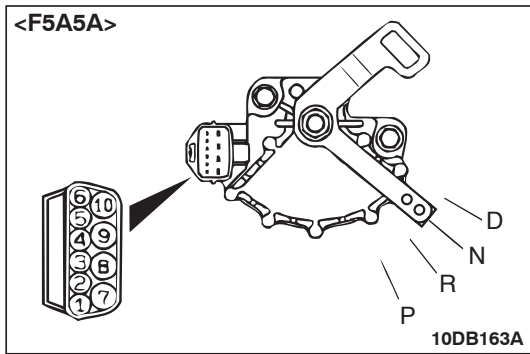
- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check for A/T diagnostic trouble code.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is A/T DTC "(P0705)" set?

YES <(P0705) set> : Refer to [P.23A-97](#): Transmission Inhibitor Switch System (Open Circuit) or refer to [P.23A-119](#): Transmission Inhibitor Switch System (Short Circuit).

NO : Go to Step 2.





STEP 2. Check the transmission control cable assembly.

Move the selector lever to each position. The manual control lever position of the transmission inhibitor switch should match the transmission range.

Q: Is the manual control lever position correct?

YES : Go to Step 3.

NO : Repair the transmission control cable. Refer to [P.23A-299](#), Transmission Inhibitor Switch and Control Cable Adjustment. Retest the system to verify the repair.

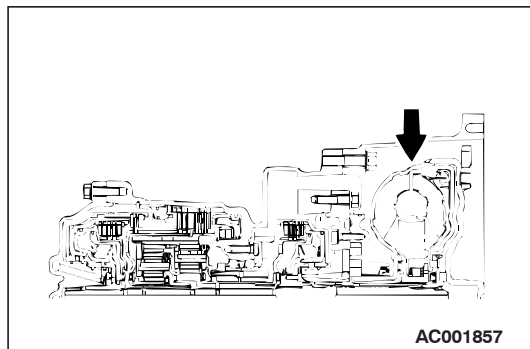
STEP 3. Check the engine system.

Refer to GROUP 13A, Diagnosis – Trouble Symptom Chart – Starting [13A-21](#).

Q: Is the inspection result good?

YES : Go to Step 4.

NO : Repair or replace the appropriate engine components.



STEP 4. Check the torque converter.

- (1) Remove the starter.
- (2) Turn the torque converter and check for a binding or sticking condition. Check the ring gear for damaged or missing teeth.

NOTE: Since the torque converter drives the oil pump, turning the torque converter also check for a binding oil pump. If either of these components are damaged the transmission will need to be removed for inspection.

Q: Does the torque converter turn freely without any missing or damaged teeth?

YES : Go to Step 5.

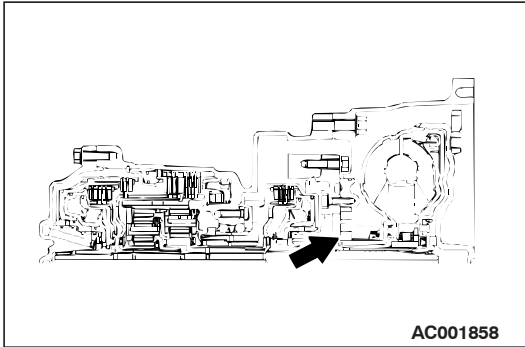
NO : Replace the torque converter. Refer to GROUP 23B, Transmission [P.23B-13](#).

STEP 5. Repair or replace the starter.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 6.



STEP 6. Check the oil pump.

- (1) Remove the transmission assembly.
- (2) Check the oil pump (incorrect installation, damage and etc.) and replace the oil pump assembly if necessary (The oil pump cannot be disassembled). Refer to GROUP 23B, Transmission [P.23B-13](#). Confirm that the malfunction symptom is eliminated.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

INSPECTION PROCEDURE 2: Does not Move Forward

COMMENT

If the engine is idling and the selector lever is shifted from "N" to "D" range and the vehicle does not drive forward then the cause is due to line pressure defect, under drive clutch or valve body malfunction.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CONDITION:)

- Abnormal line pressure
- Malfunction of the underdrive solenoid valve
- Malfunction of the underdrive clutch
- Malfunction of the oil pump
- Malfunction of the valve body
- Malfunction of the A/T-ECU system
- Check RED brake system.

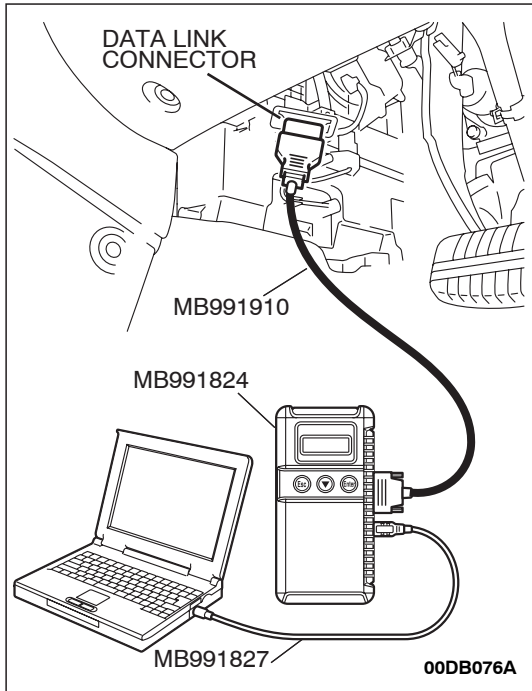
Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using diagnostic tool MB991958, check actuator test item 02: Underdrive Solenoid Valve.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 02: Underdrive Solenoid Valve.
 - An audible clicking or buzzing should be heard when the underdrive solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : Go to Step 2.

NO : Repair or replace the underdrive solenoid valve. Refer to GROUP 23B, Valve Body [P.23B-62](#). Then confirm that the symptom is eliminated.

STEP 2. Check the hydraulic pressure.

Shift the selector lever to the sport mode then measure the hydraulic pressure of each element in 1st speed to check and see if each respective hydraulic pressure is within the range of standard pressure. Refer to [P.23A-26](#), Hydraulic Pressure Test.

Q: Is the hydraulic pressure within the standard value?

YES : Go to Step 3.

NO : Go to Step 4.

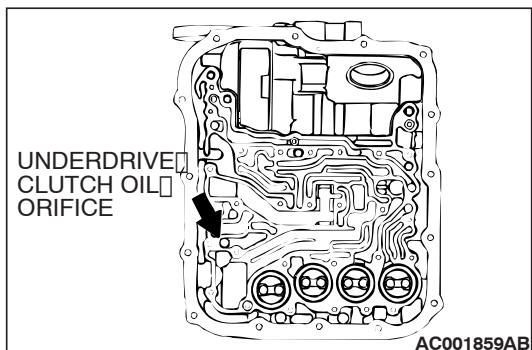
STEP 3. Check the underdrive clutch system.

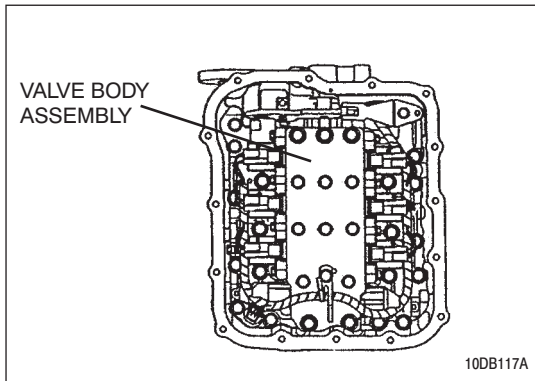
- (1) Remove the valve body cover and valve body. Refer to [P.23A-304](#), Transmission Assembly and GROUP 23B, Transmission [P.23B-13](#).
- (2) Blow 108 kPa (15psi) compressed air into the underdrive clutch oil orifice of the transmission case, and check if the underdrive clutch piston moves and air pressure is maintained in that condition.

Q: Is the air pressure maintained?

YES : Go to Step 4.

NO : Go to Step 6.





STEP 4. Disassemble and clean the valve body.

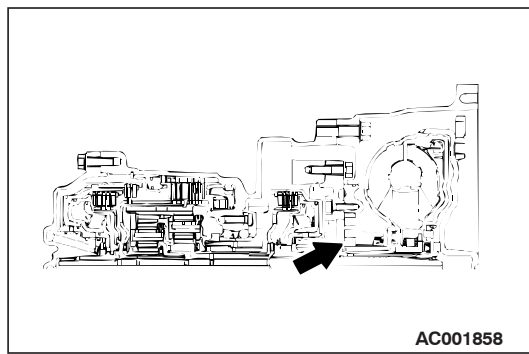
Check the O-ring installation bolts for looseness and valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 5.



STEP 5. Check the oil pump.

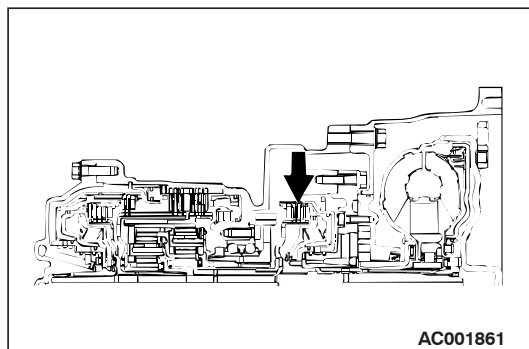
(1) Remove the transmission assembly.

(2) Check the oil pump (incorrect installation, damage and etc.) and replace the oil pump assembly if necessary (The oil pump cannot be disassembled). Refer to GROUP 23B, Transmission [P.23B-13](#). Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.



STEP 6. Check the underdrive clutch.

(1) Remove the transmission assembly.

(2) Check the facing for seizure and the piston seal ring for damage and interference with the retainer. Repair or replace the faulty parts. Refer to GROUP 23B, Underdrive Clutch and Input Shaft [P.23B-46](#). Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

INSPECTION PROCEDURE 3: Does not Reverse

COMMENT

If the vehicle does not reverse when the selector lever is shifted from "N" to "R" range while the engine is idling, the cause is probably abnormal pressure or a malfunction of the reverse clutch, low-reverse brake, or valve body.

TROUBLESHOOTING HINTS (The most likely causes for this condition:)

- Abnormal reverse clutch pressure
- Abnormal low-reverse brake pressure
- Malfunction of the low-reverse solenoid valve
- Malfunction of the reverse clutch
- Malfunction of the low-reverse brake
- Malfunction of the valve body
- Malfunction of the A/T-ECU system
- Check RED brake system.

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 01: Low-Reverse Solenoid Valve.

CAUTION

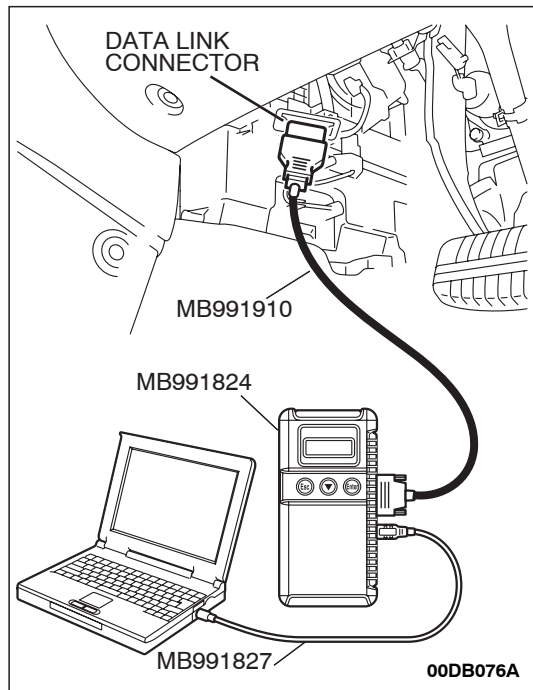
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 01: Low-Reverse Solenoid Valve.
 - An audible clicking or buzzing should be heard when the low-reverse solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : Go to Step 2.

NO : Repair or replace the low-reverse solenoid valve. Refer to [GROUP 23B, Valve Body P.23B-62](#). Then confirm that the symptom is eliminated.



STEP 2. Check the hydraulic pressure (for reverse clutch).

Measure the hydraulic pressure for the reverse clutch when the selector lever is at the "R" range, and check if the hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.

Q: Is the hydraulic pressure within the standard value?

YES : Go to Step 3.

NO : Go to Step 5.

STEP 3. Check the hydraulic pressure (for low-reverse brake).

Measure the hydraulic pressure for the low-reverse brake when the selector lever is at the "R" range, and check if the hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.

Q: Is the hydraulic pressure within the standard value?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Check the reverse clutch system and low-reverse brake system.

- (1) Remove the valve body cover and valve body. Refer to [P.23A-304](#) <F5A5A>, Transmission Assembly and GROUP 23B, Transmission [P.23B-13](#).
- (2) Blow 108 kPa (15psi) compressed air into the reverse clutch oil orifice of the transmission case. Then check if the reverse clutch piston moves and air pressures are maintained in that condition. Repeat for the low-reverse brake.

Q: Are the reverse clutch, low-reverse brake or both air pressures maintained?

YES : Go to Step 5.

NO : Go to Step 6.

STEP 5. Disassemble and clean the valve body.

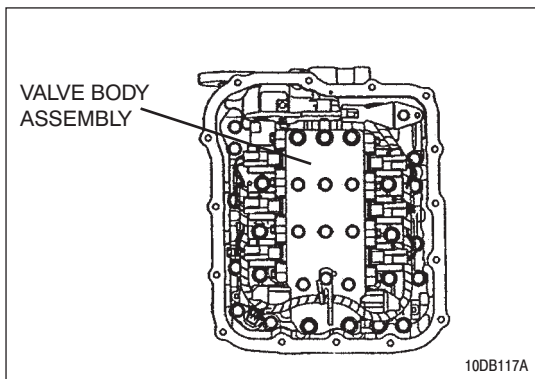
Check the O-ring installation bolts for looseness and valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

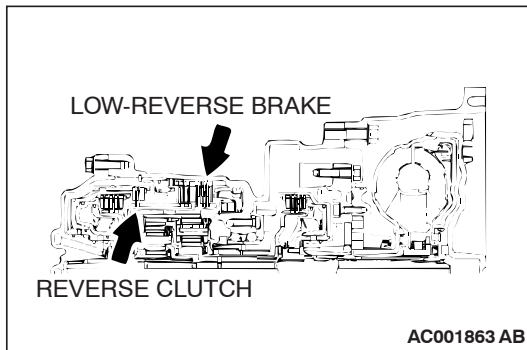
Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.





STEP 6. Check the reverse clutch, low-reverse brake or both. Remove the transmission.

Check the facing for seizure and the piston seal ring for damage and interference with the retainer. Repair or replace the faulty parts. Refer to GROUP 23B, Transmission [P.23B-13](#), Reverse and Overdrive Clutch [P.23B-48](#). Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

INSPECTION PROCEDURE 4: Does not Move (Forward or Reverse)

COMMENT

If the vehicle does not move forward or reverse when the selector lever is shifted to any position while the engine is idling, the cause is probably abnormal line pressure, or a malfunction of the powertrain, oil pump or valve body.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CONDITION:)

- Abnormal line pressure
- Malfunction of the powertrain
- Malfunction of the oil pump
- Malfunction of the valve body
- Low transmission fluid level
- Malfunction of the A/T-ECU system
- Check RED brake system.

Circuit drawings

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- Refer to component locations GROUP-70

DIAGNOSIS

STEP 1. Check the hydraulic pressure.

Measure the hydraulic pressure of each element when the transmission is in 1st, 2nd or reverse. Check if each hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test. If some elements pressures are within the standard value and some are not, recheck the symptom.

Q: Are all pressures within the standard value?

YES : Check transmission fluid level and condition. If not OK, repair or replace as necessary, then retest the system. If OK, go to Step 3.

NO : Go to Step 2.

STEP 2. Disassemble and clean the valve body.

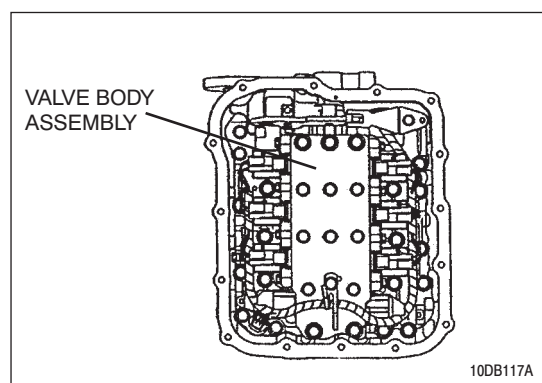
Check the O-ring installation bolts for looseness and valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then retest the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 4.



STEP 3. Check the transmission powertrain components.

Disassemble the transmission and check the planetary gear and output shaft, etc. Repair or replace the damaged parts. Refer to GROUP 23B, Transmission [P.23B-13](#), Planetary Carrier Assembly [P.23B-53](#), Direct Planetary Carrier [P.23B-57](#), Differential [P.23B-60](#). Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

STEP 4. Check the oil pump.

(1) Remove the transmission.

(2) Check the oil pump (incorrect installation, damage and etc.) and replace the oil pump assembly if necessary (The oil pump cannot be disassembled). Refer to GROUP 23B, Transmission [P.23B-13](#). Confirm that the malfunction symptom is eliminated.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

INSPECTION PROCEDURE 5: Engine Stalls when Moving Selector Lever from "N" to "D" or "N" to "R"

COMMENT

If the engine stalls when the selector lever is shifted from "N" to "D" or "R" range while the engine is idling, the cause is probably a malfunction of the engine system, damper clutch control solenoid valve, valve body or torque converter (damper clutch control malfunction).

TROUBLESHOOTING HINTS (The most likely causes for this condition:)

- Malfunction of the engine system
- Malfunction of the damper clutch control solenoid
- Malfunction of the valve body
- Malfunction of the torque converter (Malfunction of the damper clutch control)
- Malfunction of the A/T-ECU system
- Check RED brake system.

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

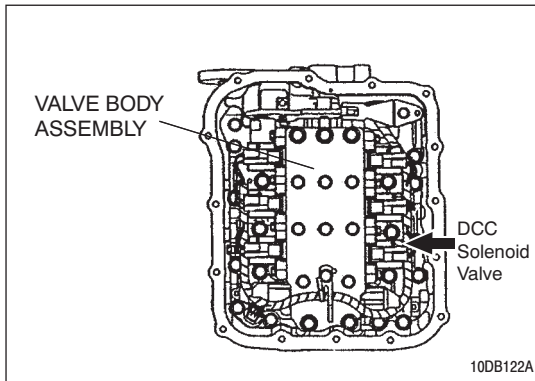
STEP 1. Check the engine system.

Refer to GROUP 13A <3.8L Engine>, Diagnosis – Trouble Symptom Chart – When the engine is hot, it stalls at idle [13A-21](#).

Q: Is the inspection result good?

YES : Go to Step 2.

NO : Repair or replace the engine components.

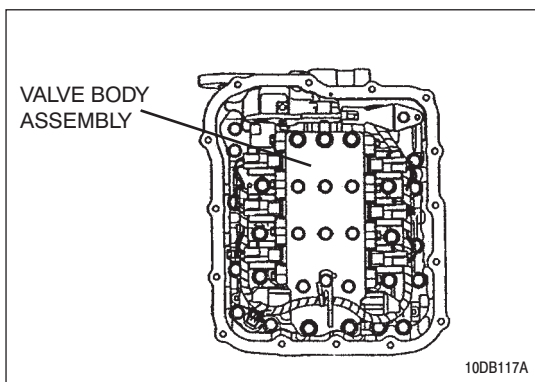


STEP 2. Replace the damper clutch control solenoid valve.
Replace the damper clutch control solenoid valve. Refer to GROUP 23B, Valve Body [P.23B-62](#). Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 3.



STEP 3. Disassemble and clean the valve body.

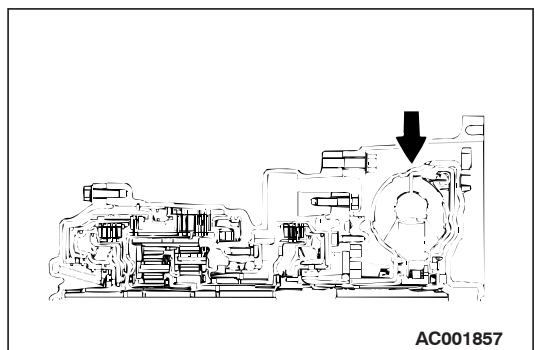
Check the O-ring installation bolts for looseness and valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the repair possible and the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 4.



STEP 4. Replace the torque converter assembly.

(1) Remove the transmission.

(2) Replace the torque converter assembly. Refer to GROUP 23B, Transmission [P.23B-13](#). Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

INSPECTION PROCEDURE 6: Shift Shock when Shifting from "N" to "D" and Long Delay

COMMENT

If abnormal shock or delay of two seconds or more occurs when the selector lever is shifted from "N" to "D" range while the engine is idling, the cause is probably abnormal underdrive clutch pressure or a malfunction of the underdrive clutch, valve body or TP sensor.

TROUBLESHOOTING HINTS (The most likely causes for this condition:)

- Abnormal underdrive clutch pressure
- Malfunction of the underdrive solenoid valve
- Malfunction of the underdrive clutch
- Malfunction of the valve body
- Malfunction of the TP sensor
- Malfunction of the A/T-ECU system
- Check RED brake system

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 02: Underdrive Solenoid Valve.

⚠ CAUTION

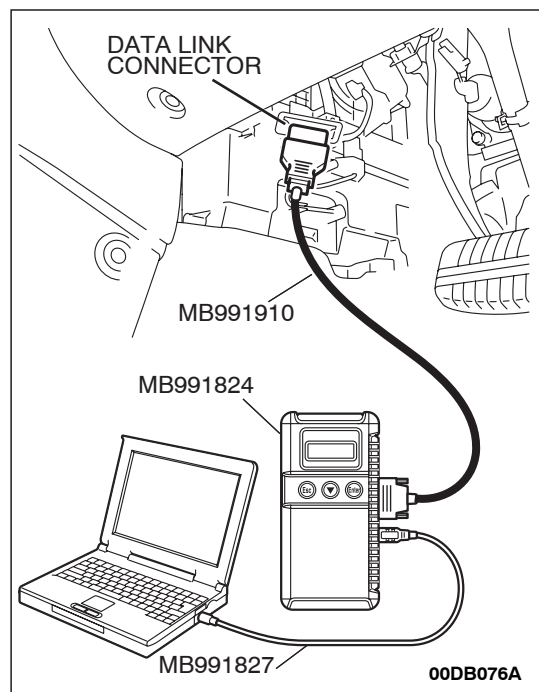
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 02: Underdrive Solenoid Valve.
 - An audible clicking or buzzing should be heard when the underdrive solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : Go to Step 2.

NO : Repair or replace the underdrive solenoid valve. Refer to [GROUP 23B](#), Valve Body [P.23B-62](#). Then confirm that the symptom is eliminated.



STEP 2. Check when shift shock occurs.

Q: When does the shift shock occur?

When engaging from "N" to "D" : Go to Step 3.

When the vehicle starts moving : Go to Step 6.

STEP 3. Check the hydraulic pressure (for underdrive clutch).

Measure the hydraulic pressure for underdrive clutch when the selector lever is shifted from "N" to "D" range. Check if the hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.

Q: Is the hydraulic pressure within the standard value?

YES : Go to Step 4.

NO : Go to Step 8.

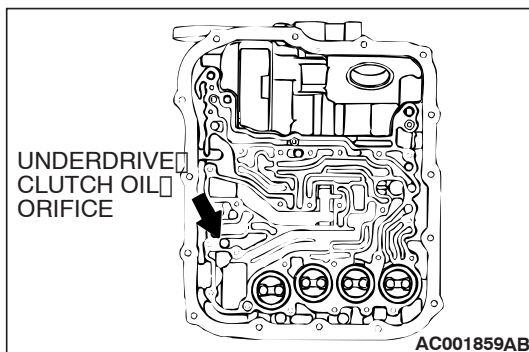
STEP 4. Check the underdrive clutch system.

- (1) Remove the valve body cover and valve body. Refer to [P.23A-304](#) <F5A5A>, Transmission Assembly and GROUP 23B, Transmission [P.23B-13](#).
- (2) Blow 108 kPa (15 psi) compressed air into the underdrive clutch oil orifice of the transmission case, and check if the underdrive clutch piston moves and air pressure is maintained in that condition.

Q: Is the air pressure maintained?

YES : Go to Step 8.

NO : Go to Step 5.



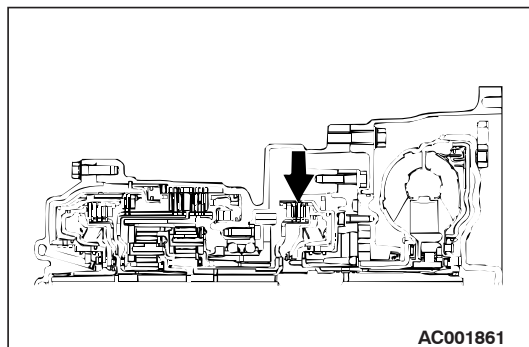
STEP 5. Check the underdrive clutch.

- (1) Remove the transmission assembly.
- (2) Check the facing for seizure and the piston seal ring for damage and interference with the retainer. Repair or replace the faulty parts. Refer to GROUP 23B [P.23B-46](#), Underdrive Clutch and Input Shaft. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

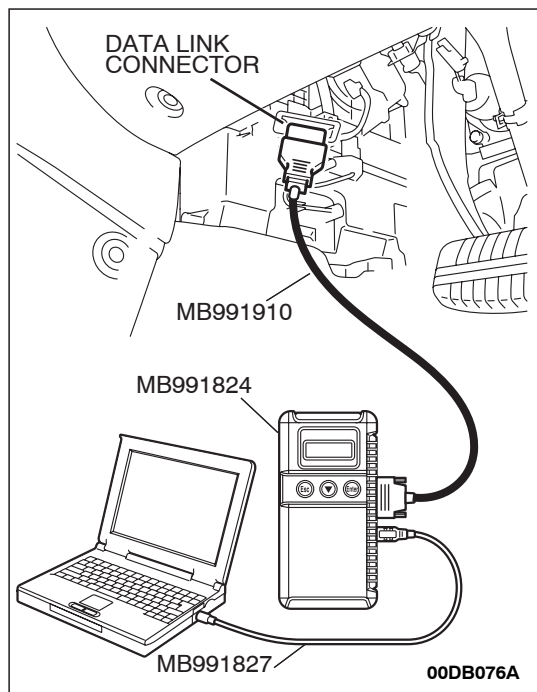


STEP 6. Check shift shock.

Q: Does shift shock occur?

YES : Go to Step 7.

NO : Go to Step 8.



STEP 7. Using diagnostic tool MB991958, check MPI data list item 13: TP Sensor (main).

⚠ CAUTION

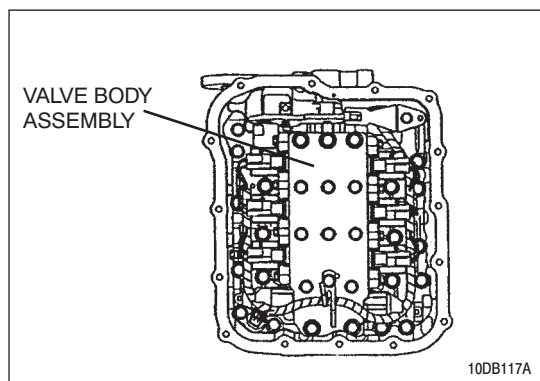
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 13: TP Sensor (main).
 - With the throttle valve in idle position, voltage should measure between 1100 and 1200 mV.
 - With the throttle valve in full-open position, voltage should measure 4,000 mV or more.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage between 1100 and 1200 mV at idle, and 4,000 mV or more at the full-open position?

YES : Go to Step 8.

NO : Check the TP sensor. Refer to GROUP13A ,Diagnostic Trouble Code Procedures [13A-17](#), DTCs P0122, P0123: TP Sensor System. Then check the symptom.



STEP 8. Disassemble and clean the valve body.

Check the O-ring installation bolts for looseness and the valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Replace the valve body assembly. Then check the symptom. Start over at Step 1.

INSPECTION PROCEDURE 7: Shift Shock when Shifting from "N" to "R" and Long Delay

COMMENT

If abnormal shock or delay of two seconds or more occurs when the selector lever is shifted from "N" to "R" range while the engine is idling, the cause is probably abnormal reverse clutch pressure or low-reverse brake pressure, or a malfunction of the reverse clutch, low-reverse brake, valve body or TP sensor.

TROUBLESHOOTING HINTS (The most likely causes for this condition:)

- Abnormal reverse clutch pressure
- Abnormal low-reverse brake pressure
- Malfunction of the low-reverse solenoid valve
- Malfunction of the reverse clutch
- Malfunction of the low-reverse brake
- Malfunction of the valve body
- Malfunction of the TP sensor
- Malfunction of the A/T-ECU system

Circuit drawings

- Refer to circuit diagrams GROUP-90
- Refer to configuration diagrams GROUP-80
- Refer to component locations GROUP-70

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A

STEP 1. Using diagnostic tool MB991958, check actuator test item 01: Low-Reverse Solenoid Valve.

CAUTION

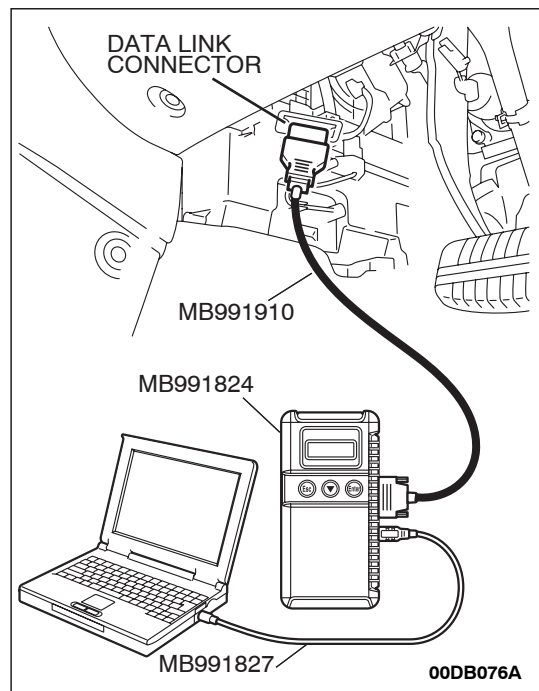
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode.
 - Item 01: Low-Reverse Solenoid Valve.
 - An audible clicking or buzzing should be heard when the low-reverse solenoid valve is energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the solenoid valve operating properly?

YES : Go to Step 2.

NO : Repair or replace the low-reverse solenoid valve. Refer to GROUP 23B, Valve Body P.23B-62. Then confirm that the symptom is eliminated.



STEP 2. Check when shift shock occurs.

Q: When does the shift shock occur?

When engaging from "N" to "R" : Go to Step 3.

When the vehicle starts moving : Go to Step 7.

STEP 3. Check the hydraulic pressure (for reverse clutch).

Measure the hydraulic pressure for reverse clutch when the selector lever is at the "R" range. Check if the hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.

Q: Is the hydraulic pressure within the standard value?

YES : Go to Step 4.

NO : Go to Step 9.

STEP 4. Check the hydraulic pressure (for low-reverse brake).

Measure the hydraulic pressure for low-reverse brake when the selector lever is at the "R" range. Check if the hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.

Q: Is the hydraulic pressure within the standard value?

YES : Go to Step 5.

NO : Go to Step 9.

STEP 5. Check the reverse clutch system and low-reverse brake system.

- (1) Remove the valve body cover and valve body. Refer to [P.23A-304](#) <F5A5A>, Transmission Assembly and GROUP 23B, Transmission [P.23B-13](#).
- (2) Blow 108 kPa (15 psi) compressed air into the reverse clutch oil orifice of the transmission case, and check if the reverse clutch piston moves and air pressures are maintained in that condition. Repeat for the low-reverse brake.

Q: Are both air pressures maintained?

YES : Go to Step 6.

NO : Go to Step 9.

STEP 6. Check the reverse clutch and low-reverse brake.

- (1) Remove the transmission assembly.
- (2) Check the facing for seizure and the piston seal ring for damage and interference with the retainer. Repair or replace the faulty parts. Refer to GROUP 23B, Transmission [P.23B-13](#), Reverse and Overdrive Clutch [P.23B-48](#). Then Retest the system.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

STEP 7. Check shift shock.

Q: Does shift shock occur sometimes?

YES : Go to Step 8.

NO : Go to Step 9.

STEP 8. Using diagnostic tool MB991958, check MPI data list item 13: TP Sensor (main).

⚠ CAUTION

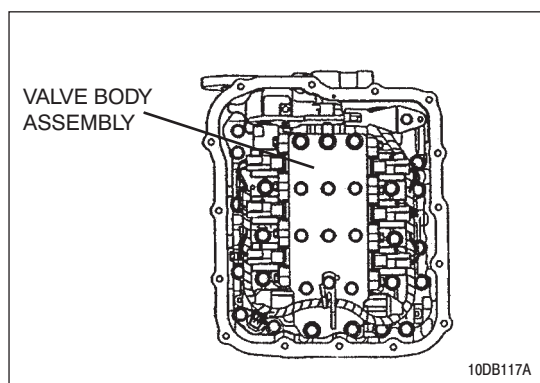
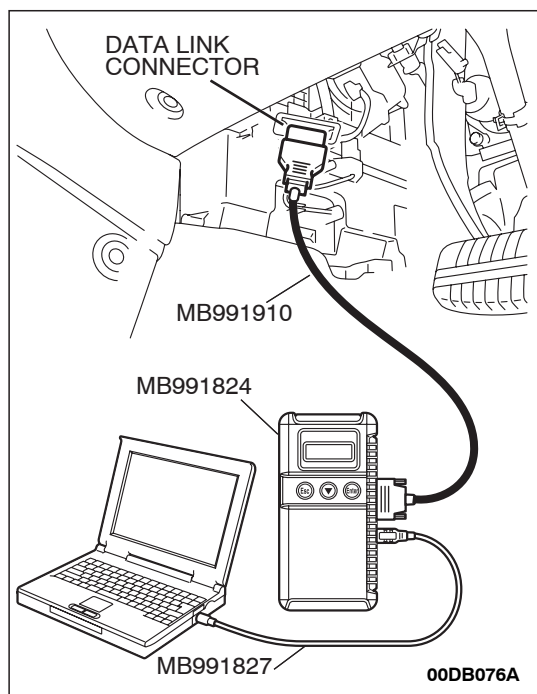
To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the data reading mode.
 - Item 13: TP Sensor (main).
 - With the throttle valve in idle position, voltage should measure between 1100 and 1200 mV.
 - With the throttle valve in full-open position, voltage should measure 4,000 mV or more.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the measured voltage between 1100 and 1200 mV at idle, and 4,000 mV or more at the full-open position?

YES : Go to Step 9.

NO : Check the TP sensor. Refer to GROUP13A <3.8L Engine>, Diagnostic Trouble Code Procedures [13A-17](#), DTCs P0122, P0123: TP Sensor System. Then check the symptom.



STEP 9. Disassemble and clean the valve body.

Check the O-ring installation bolts for looseness and the valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

INSPECTION PROCEDURE 8: Shift Shock when Shifting from "N" to "D," "N" to "R" and Long Delay

COMMENT

If abnormal shock or delay of two seconds or more occurs when the selector lever is moved from "N" to "D" range or from "N" to "R" range while the engine is idling, the cause is probably abnormal line pressure or a malfunction of the oil pump or valve body.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CONDITION:)

- Abnormal line pressure
- Malfunction of the oil pump
- Malfunction of the valve body
- Malfunction of the A/T-ECU system

Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

STEP 1. Check the hydraulic pressure.

- (1) Measure the hydraulic pressure of each element when the transmission is in 1st, 2nd or reverse. Check if each hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.
- (2) If some elements pressures are within the standard value and some are not, recheck the symptom.

Q: Are all hydraulic pressures within the standard value?

- YES :** Go to Step 3.
NO : Go to Step 2.

STEP 2. Adjust line pressure.

Adjust line pressure. Refer to [P.23A-33](#), Line Pressure Adjustment. Then check the symptom.

Q: Is the symptom eliminated?

- YES :** The procedure is complete.
NO : Go to Step 3.

STEP 3. Check when shift shock occurs.

Q: When does the shift shock occur?

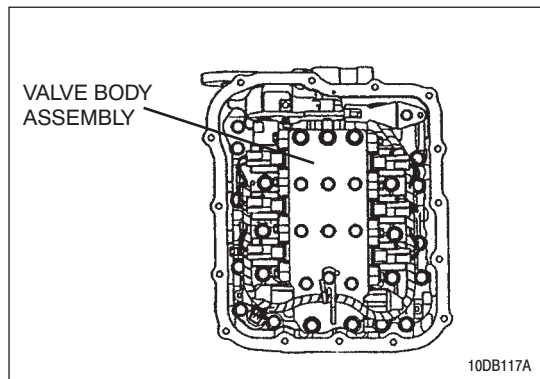
- When engaging from "N" to "D" and "N" to "R" :** Go to Step 4.
When the vehicle starts moving : Go to Step 5.

STEP 4. Check the oil pump.

- (1) Remove the transmission.
- (2) Check the oil pump (incorrect installation, damage and etc.) and replace the oil pump assembly if necessary (The oil pump cannot be disassembled). Refer to [GROUP 23B](#), Transmission [P.23B-13](#). Confirm that the malfunction symptom is eliminated.

Q: Is the symptom eliminated?

- YES :** The procedure is complete.
NO : Start over at Step 1.



STEP 5. Disassemble and clean the valve body.

Check the installation bolts for looseness and the O-ring, valves and valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

INSPECTION PROCEDURE 9: Shift Shock and Slipping

COMMENT

If shift shock when driving is due to upshifting or downshifting and the transmission speed become higher than the engine speed, the cause is probably abnormal line pressure or a malfunction of a solenoid valve, oil pump, valve body or of a brake or clutch.

TROUBLESHOOTING HINTS (THE MOST LIKELY CAUSES FOR THIS CONDITON:)

- Abnormal line pressure
- Malfunction of each solenoid valve
- Malfunction of the oil pump
- Malfunction of the valve body
- Malfunction of each brake or each clutch
- Malfunction of the A/T-ECU system

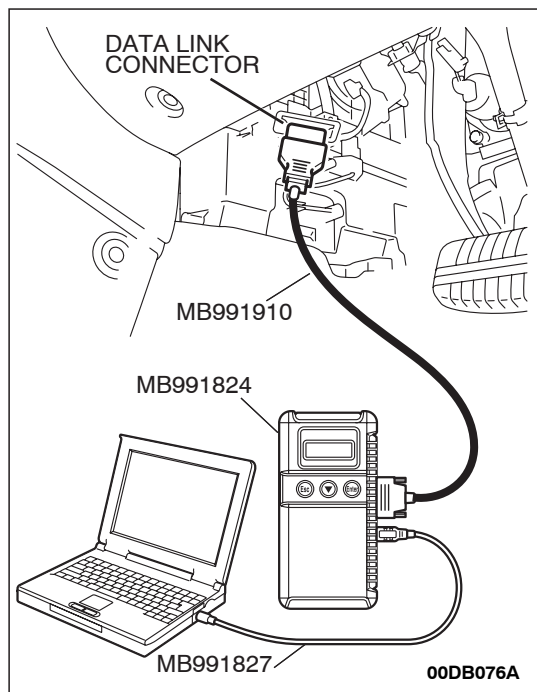
Circuit drawings

- Refer to circuit diagrams [GROUP-90](#)
- Refer to configuration diagrams [GROUP-80](#)
- Refer to component locations [GROUP-70](#)

DIAGNOSIS

Required Special Tool:

- MB991958: Diagnostic Tool (MUT-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: MUT-III USB Cable
 - MB991910: MUT-III Main Harness A



STEP 1. Using diagnostic tool MB991958, check actuator test.

⚠ CAUTION

To prevent damage to diagnostic tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting diagnostic tool MB991958.

- (1) Connect diagnostic tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set diagnostic tool MB991958 to the actuator test mode for following items.
 - a. Item 01: Low-reverse solenoid valve
 - b. Item 02: Underdrive solenoid valve
 - c. Item 03: Second solenoid valve
 - d. Item 04: Overdrive solenoid valve
 - e. Item 05: Reduction solenoid valve
 - An audible clicking or buzzing should be heard when the solenoid valves are energized.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Are the solenoid valves operating properly?

YES : Go to Step 2.

NO : Repair or replace the solenoid valves. Refer to GROUP 23B, Valve Body [P.23B-62](#). Then confirm that the symptom is eliminated.

STEP 2. Check the hydraulic pressure.

- (1) Measure the hydraulic pressure of each element. Check if each hydraulic pressure is within the standard value. Refer to [P.23A-26](#), Hydraulic Pressure Test.
- (2) If some elements pressure are within the standard value and some are not, recheck the symptom.

Q: Are all hydraulic pressures within the standard value?

YES : Go to Step 6.

NO : Go to Step 3.

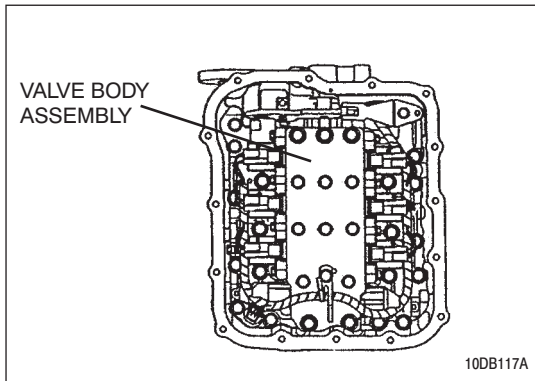
STEP 3. Adjust the line pressure.

Adjust the line pressure. Refer to [P.23A-33](#), Line Pressure Adjustment. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 4.



STEP 4. Disassemble and clean the valve body.

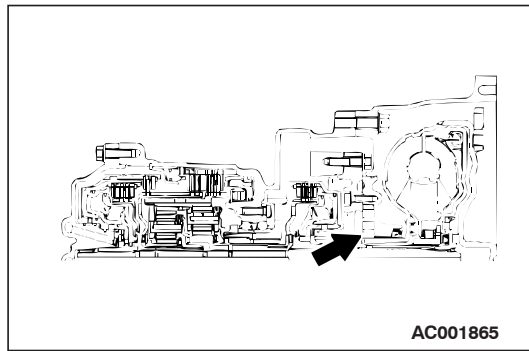
Check the O-ring installation bolts for looseness and the valve body for damage. Repair or replace the faulty parts. Refer to GROUP 23B, Valve Body [P.23B-62](#).

Replace the valve body assembly if the damages are thought to be irreparable. Then check the symptom.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Go to Step 5.



STEP 5. Check the oil pump.

(1) Remove the transmission.

(2) Check the oil pump (incorrect installation, damage and etc.) and replace the oil pump assembly if necessary (The oil pump cannot be disassembled). Refer to GROUP 23B, Transmission [P.23B-13](#). Confirm that the malfunction symptom is eliminated.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

STEP 6. Check each brake and clutch.

(1) Remove the transmission.

(2) Check the facing for seizure and piston seal ring for damage and interference with retainer. Repair or replace the faulty parts. Refer to GROUP 23B, Transmission [P.23B-13](#), Underdrive Clutch and Input Shaft [P.23B-46](#), Reverse and Overdrive Clutch [P.23B-48](#). Then Retest the system.

Q: Is the symptom eliminated?

YES : The procedure is complete.

NO : Start over at Step 1.

[NEXT PAGE](#)