

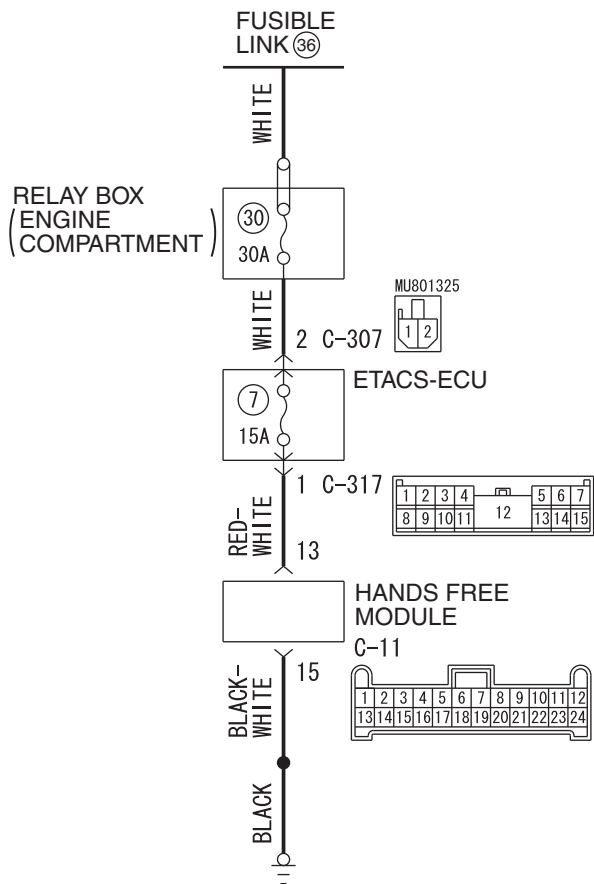
SYMPTOM PROCEDURES

Inspection Procedure 1: Hands free cellular phone system does not work normally.

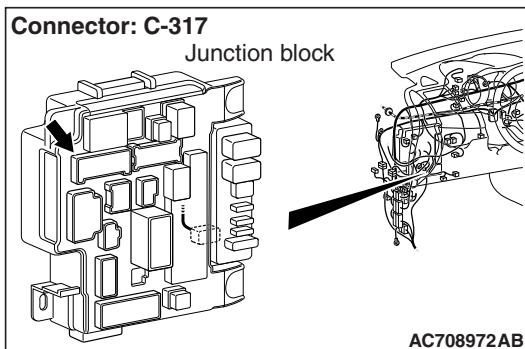
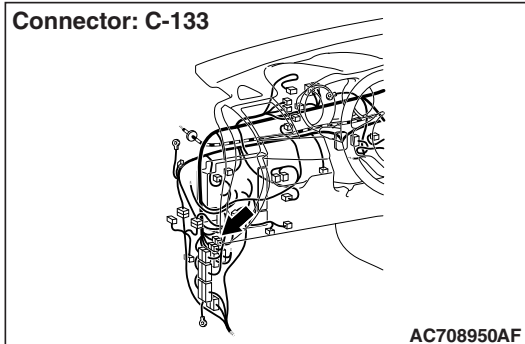
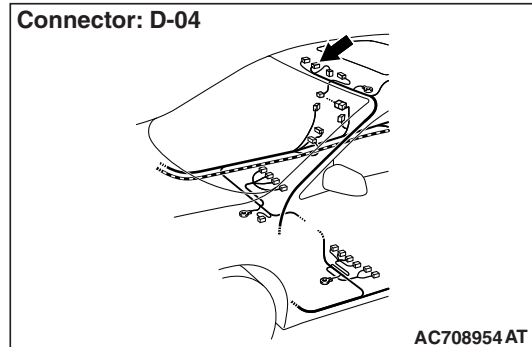
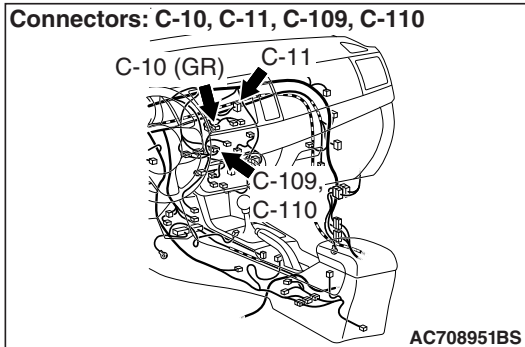
CAUTION

Before replacing the module, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Hands Free Module Power Supply Circuit



W9H54M082A



FUNCTION

During the conversation with the hands free cellular phone system, the signal of speaker's voice is transmitted from the microphone unit to the hands free module. Then the signal is transmitted from the hands free module to the cellular phone. The voice of other party is transmitted from the cellular phone to the hands free module. Then, the voice is transmitted from the hands free module to the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>, and output from the speaker.

TROUBLE JUDGMENT CONDITIONS

If the hands free cellular phone system cannot be used normally, the hands free module, microphone unit, steering wheel voice control switch, or radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- The hands free module may be defective.
- The microphone unit may be defective.
- The steering wheel voice control switch may be defective.
- The radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> may be defective.
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check the cellular phone.

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.

NO : Repair or replace the cellular phone.

STEP 2. Temporarily replace the cellular phone, and check the trouble symptom.

Temporarily register a separate Bluetooth®-supported cellular phone, and check that the hands-free cellular phone system operates normally.

Q: Is the normal conversation possible with the hands free cellular phone system?

YES : Ask the customer to have the cellular phone repaired or replaced. Then, delete the temporarily registered cellular phone. Once the customer prepares the normally-working cellular phone, register the cellular phone to the hands free module.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

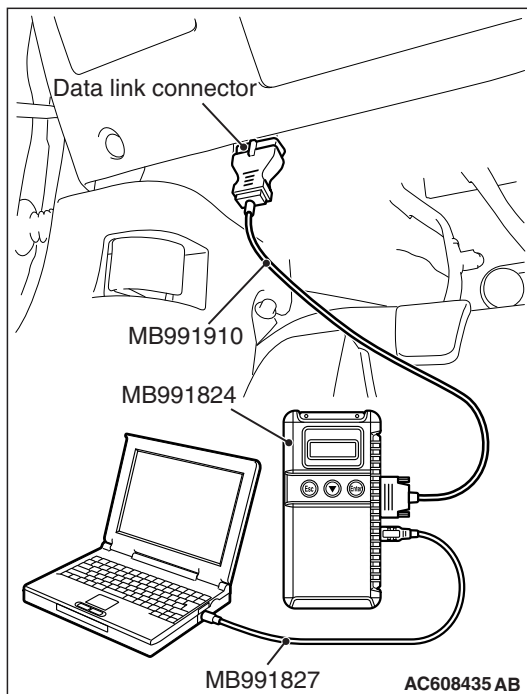
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-513."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 4.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 4. Check hands free module connector C-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are hands free module connector C-11 in good condition?

YES : Go to Step 5.

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

STEP 5. Check the ground circuit to the hands free module. Measure the resistance at hands free module connector C-11.

(1) Disconnect hands free module connector C-11, and measure at the wiring harness side.

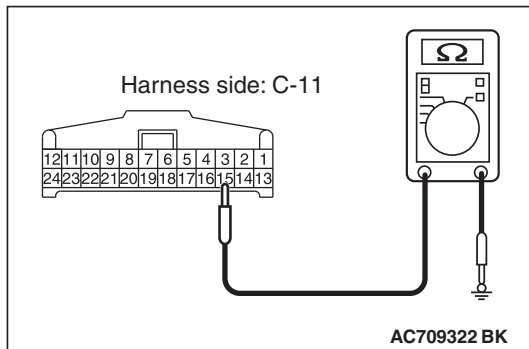
(2) Measure resistance between terminal 15 and ground.

OK: The resistance should be 2 ohm or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 7.

NO : Go to Step 6.



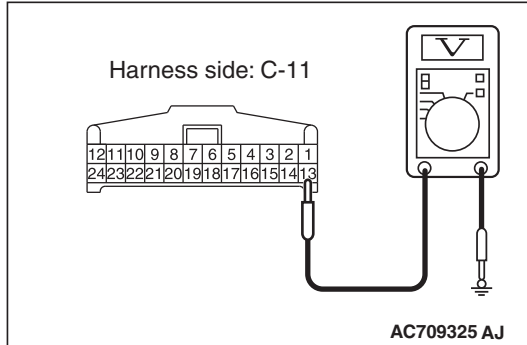
STEP 6. Check the wiring harness between hands free module connector C-11 (terminal 15) and ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between hands free module connector C-11 (terminal 15) and ground in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.



STEP 7. Check the power supply circuit to the hands free module. Measure the voltage at hands free module connector C-11.

- (1) Disconnect hands free module connector C-11, and measure the voltage available at the hands free module side of the connector.
- (2) Measure the voltage between terminal 13 and ground.

OK: The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 9.

NO : Go to Step 8.

STEP 8. Check the wiring harness between hands free module connector C-11 (terminal 13) and fusible link (36).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between hands free module connector C-11 (terminal 13) and fusible link (36) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 9. Check microphone unit connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is microphone unit connector D-04 in good condition?

YES : Go to Step 10.

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

STEP 10. Check the wiring harness between hands free module connector C-11 and microphone unit connector D-04.

- Check the communication lines for open circuit and short circuit.
- (1) Disconnect hands free module connector C-11 and microphone unit connector D-04, and check the wiring harness.

NOTE: Also check intermediate connector C-133 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-133 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- (2) Check the wiring harness between hands free module connector C-11 (terminal 24) and microphone unit connector D-04 (terminal 2)
- (3) Check the wiring harness between hands free module connector C-11 (terminal 23) and microphone unit connector D-04 (terminal 1)

Q: Is the wiring harness between hands free module connector C-11 and microphone unit connector D-04 in good condition?

YES : Go to Step 11.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 11. Check radio and CD player connector C-109 <vehicles without MMCS> or multivision display connector C-10 <vehicles with MMCS> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player connector C-109 <vehicles without MMCS> or multivision display connector C-10 <vehicles with MMCS> in good condition?

YES : Go to Step 12.

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

STEP 12. Check the wiring harness between hands free module connector C-11 and radio and CD player connector C-109 <vehicles without MMCS> or multivision display connector C-10 <vehicles with MMCS>.

- Check the communication lines for open circuit and short circuit.
- (1) Disconnect hands free module connector C-11 and radio and CD player connector C-109 <vehicles without MMCS> or multivision display connector C-10 <vehicles with MMCS>, and check the wiring harness.

NOTE: Also check intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-110 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2. <vehicles with MMCS>

- (2) Check the wiring harness between hands free module connector C-11 (terminal 9) and radio and CD player connector C-109 (terminal 3) <vehicles without MMCS>
- (3) Check the wiring harness between hands free module connector C-110 (terminal 21) and radio and CD player connector C-109 (terminal 2) <vehicles without MMCS>
- (4) Check the wiring harness between hands free module connector C-11 (terminal 9) and multivision display connector C-10 (terminal 45) <vehicles with MMCS>
- (5) Check the wiring harness between hands free module connector C-11 (terminal 21) and multivision display connector C-10 (terminal 46) <vehicles with MMCS>

Q: Is the wiring harness between hands free module connector C-11 and radio and CD player connector C-109 <vehicles without MMCS> or multivision display connector C-10 <vehicles with MMCS> in good condition?

YES : Go to Step 13.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 13. Temporarily replace the microphone unit, and check the trouble symptom.

Check that the normal conversation is possible with the hands free cellular phone system.

Q: Is the normal conversation possible with the hands free cellular phone system?

YES : Replace the microphone unit.

NO : Go to Step 14.

STEP 14. Temporarily replace the hands free module, and check the trouble symptom.

Check that the normal conversation is possible with the hands free cellular phone system.

Q: Is the normal conversation possible with the hands free cellular phone system?

YES : Replace the hands free module.

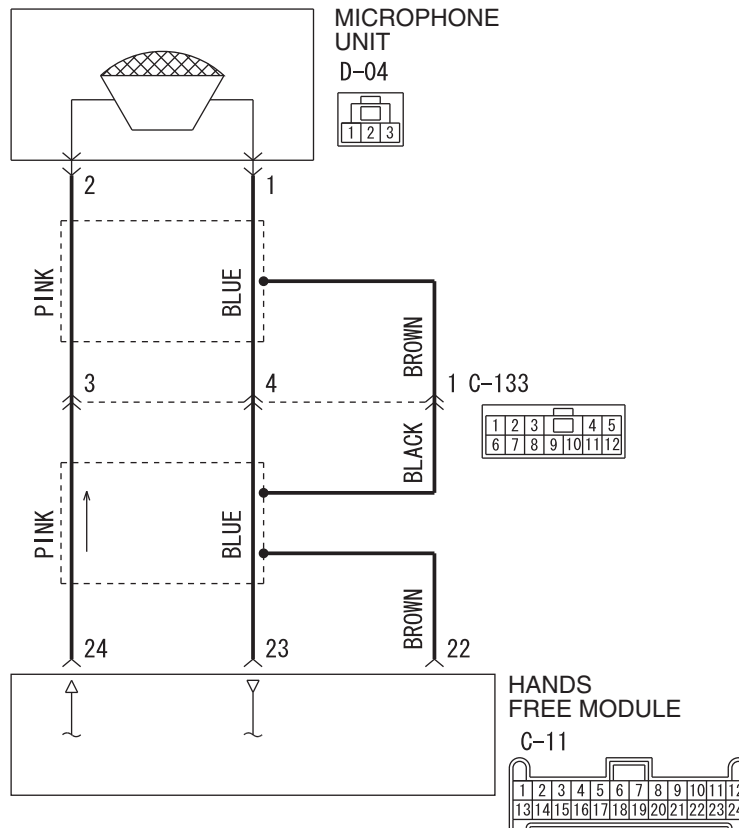
NO : Replace the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>.

Inspection Procedure 2: During the conversation with the hands free cellular phone system, the speaker's voice cannot be heard by the other party.

CAUTION

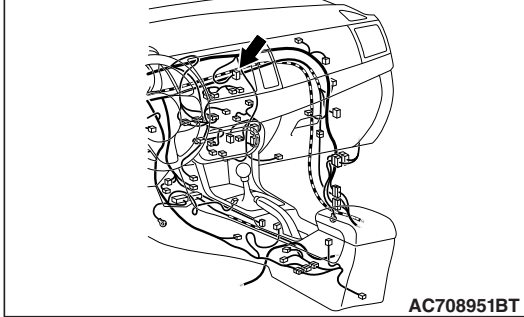
Before replacing the module, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Hands Free Cellular Phone System Circuit

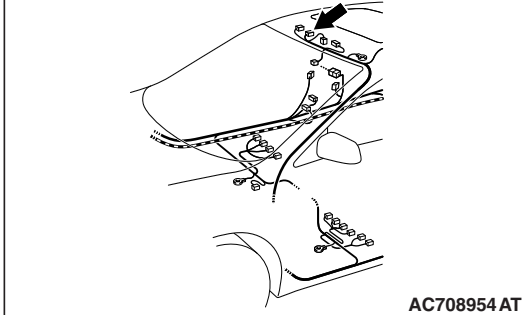


W8G54M125A

Connector: C-11



Connector: D-04

**FUNCTION**

During the conversation with the hands free cellular phone system, the signal of speaker's voice is transmitted from the microphone unit to the hands free module. Then the signal is transmitted from the hands free module to the cellular phone.

TROUBLE JUDGMENT CONDITIONS

During the conversation with the hands free cellular phone system, if the speaker's voice cannot be heard by the other party, the hands free module or microphone unit may be defective.

TROUBLESHOOTING HINTS

- The hands free module may be defective.
- The microphone unit may be defective.
- Damaged harness wires and connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the cellular phone.

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.

NO : Repair or replace the cellular phone.

STEP 2. Check hands free module connector C-11 and microphone unit connector D-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Are hands-free module connector C-11 and microphone unit connector D-04 in good condition?**

YES : Go to Step 3.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

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

STEP 3. Check the wiring harness between hands free module connector C-11 and microphone unit connector D-04.

- Check the communication lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-133 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-133 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- (1) Disconnect hands free module connector C-11 and microphone unit connector D-04, and check the wiring harness.
- (2) Check the wiring harness between hands-free module connector C-11 (terminal 24) and microphone unit connector D-04 (terminal 2)
- (3) Check the wiring harness between hands-free module connector C-11 (terminal 23) and microphone unit connector D-04 (terminal 1)

Q: Is the wiring harness between hands free module connector C-11 and microphone unit connector D-04 in good condition?

YES : Go to Step 4.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 4. Temporarily replace the microphone unit, and check the trouble symptom.

Check that the normal conversation is possible with the hands-free system.

Q: Is the normal conversation possible with the hands free system?

YES : Replace the microphone unit.

NO : Replace the hands free module.

Inspection Procedure 3: During the conversation with the hands free cellular phone system, the voice of other party cannot be heard.

⚠ CAUTION

Before replacing the module, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

FUNCTION

During the conversation with the hands free cellular phone system, the voice signal of other party is transmitted from the cellular phone to the hands free module. Then, the signal is transmitted from the hands free module to the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>, and then output from the speaker.

TROUBLE JUDGMENT CONDITIONS

During the conversation with the hands free cellular phone system, if the voice of other party cannot be heard, the hands free module, or the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- The hands free module may be defective.
- The radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> may be defective.

DIAGNOSIS

STEP 1. Check the cellular phone.

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.

NO : Repair or replace the cellular phone.

STEP 2. Check the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>.

Check that the sound of radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> is output normally from the speaker.

Q: Is the sound of radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> output normally from the speaker?

YES : Replace the hands free module.

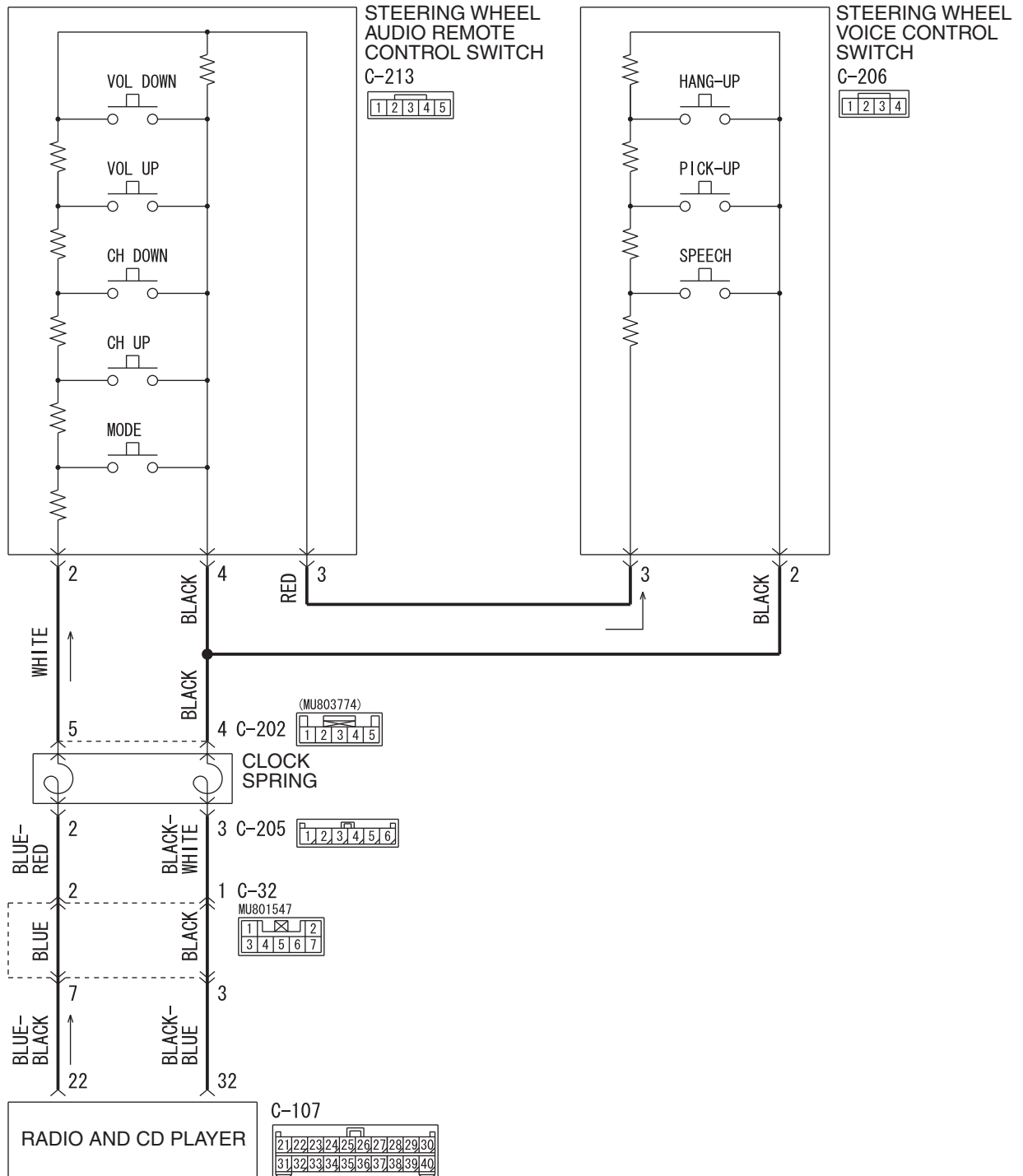
NO : Diagnose the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> (Refer to [P.54A-356](#) <vehicles without MMCS> or [P.54A-457](#) <vehicles with MMCS>).

Inspection Procedure 4: Even when the steering wheel voice control switch is operated, the conversation is not possible.

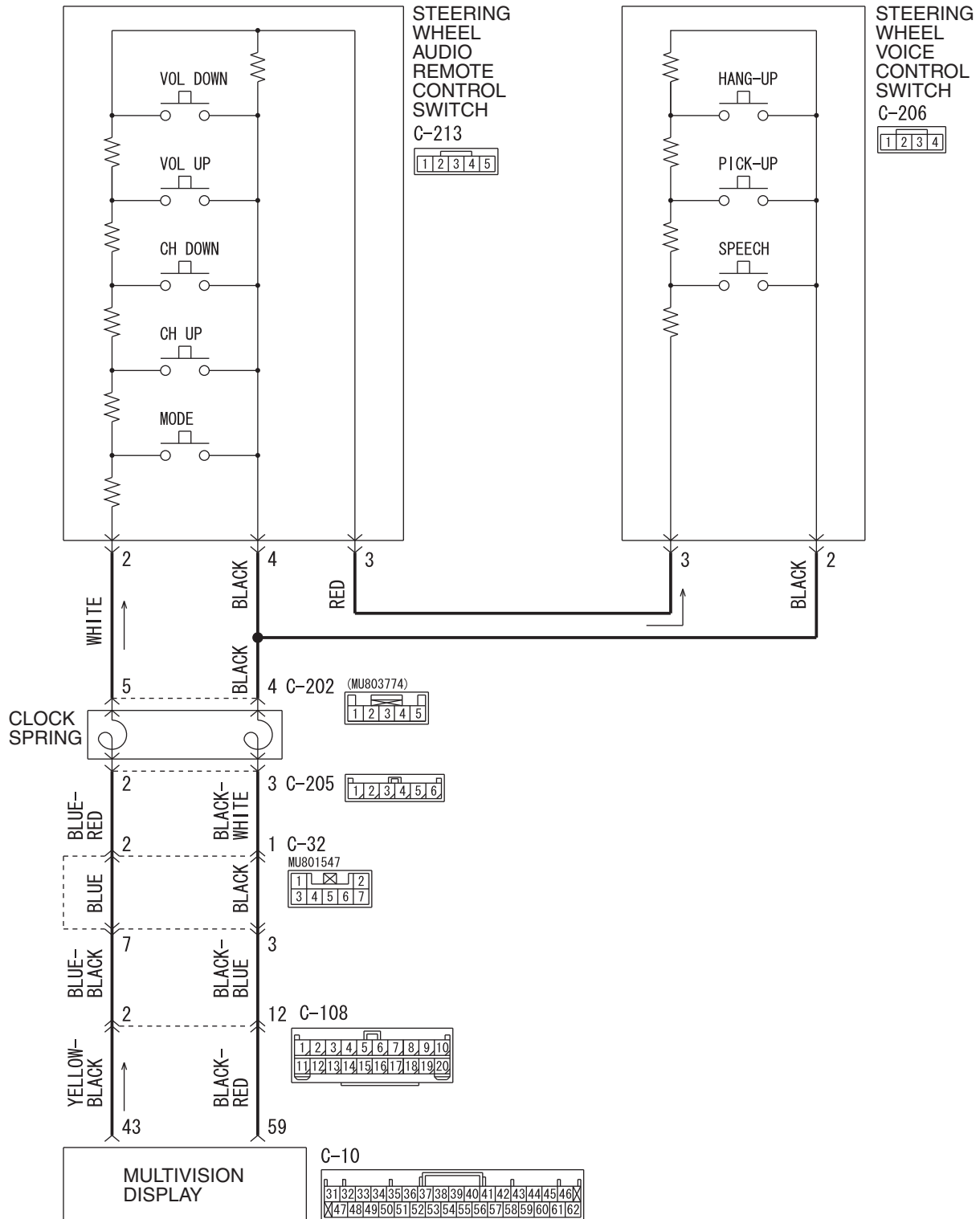
CAUTION

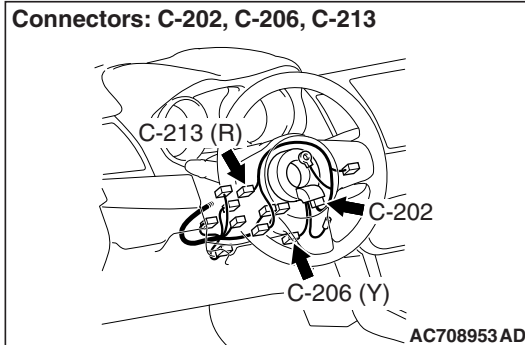
Before replacing the module, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Wheel Voice Control Switch Circuit <Vehicles Without MMCS>



Steering Wheel Voice Control Switch Circuit <Vehicles With MMCS>





FUNCTION

When the steering wheel voice control switch is operated, the switch signal is transmitted to the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>. Then, via the CAN communication, the signal is transmitted from the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> to the hands free module.

TROUBLE JUDGMENT CONDITIONS

If the conversation is not possible even when the steering wheel voice control switch is operated, the steering wheel voice control switch or radio and CD player <vehicles without MMCS> or the multivision display <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- The steering wheel voice control switch may be defective.
- The hands free module may be defective.
- The radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> may be defective.
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

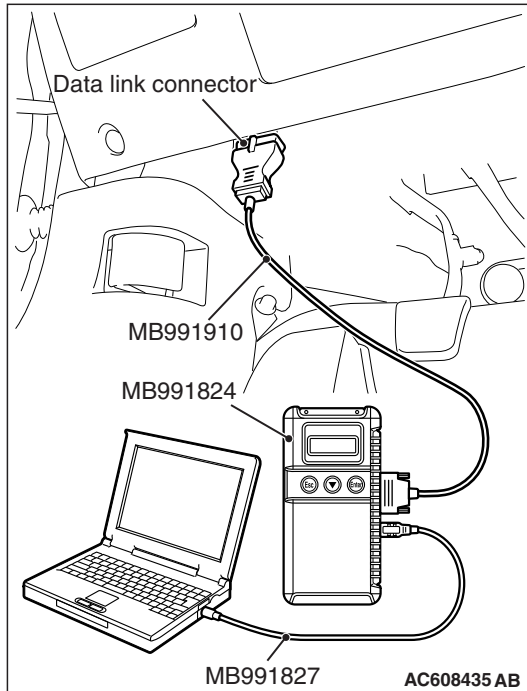
STEP 1. Check the steering wheel audio remote control switch.

Check that the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> can be operated normally using the steering wheel audio remote control switch.

Q: Is it possible to normally operate the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> using the steering wheel audio remote control switch?

YES : Go to Step 2.

NO : Diagnose the steering wheel audio remote control switch (Refer to [P.54A-356](#) <vehicles without MMCS> or [P.54A-457](#) <vehicles with MMCS>.)



STEP 2. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-513."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

STEP 3. Check the steering wheel voice control switch.

Remove the steering wheel voice control switch. Then check continuity between the switch terminals. (Refer to P.54A-576)

Q: Is the steering wheel voice control switch in good condition?

YES : Go to Step 4.

NO : Replace the steering wheel voice control switch.

STEP 4. Check the steering wheel audio remote control switch.

Remove the steering wheel audio remote control switch. Then check continuity between the switch terminals. (Refer to P.54A-593)

Q: Is the steering wheel audio remote control switch in good condition?

YES : Go to Step 5.

NO : Replace the steering wheel audio remote control switch.

STEP 5. Check steering wheel voice control switch connector C-206 and steering wheel audio remote control switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are steering wheel voice control switch connector C-206 and steering wheel audio remote control switch connector C-213 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

[P.00E-2](#). The steering remote control switch should work normally.

STEP 6. Check the wiring harness between steering wheel voice control switch connector C-206 (terminal 3) and steering wheel audio remote control switch connector C-213 (terminal 3).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between steering wheel voice control switch connector C-206 (terminal 3) and steering wheel audio remote control switch connector C-213 (terminal 3) in good condition?

YES : Go to Step 7.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check the wiring harness between steering wheel voice control switch connector C-206 (terminal 2) and clock spring connector C-202 (terminal 4).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between steering wheel voice control switch connector C-206 (terminal 2) and clock spring connector C-202 (terminal 4) in good condition?

YES : Go to Step 8.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 8. Retest the system

Check that the hands-free cellular phone system works normally when the steering wheel voice control switch is operated.

Q: Check that the hands-free cellular phone system works normally when the steering wheel voice control switch is operated.

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : Go to Step 9.

STEP 9. Substitute a known good radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>, and check the trouble symptom.

Q: Is the check result normal?

YES : Replace the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>.

NO : Replace the hands free module.

Inspection Procedure 5: The cellular phone is not recognized or the connection cannot be established.

⚠ CAUTION

Before replacing the module, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

FUNCTION

With the hands free cellular phone system, the cellular phone and hands free module communicate with each other by using Bluetooth®.

TROUBLE JUDGMENT CONDITIONS

When the cellular phone cannot be recognized or the communication cannot be established, the cellular phone or hands-free module may be defective.

TROUBLESHOOTING HINTS

- The cellular phone may be defective.
- The hands free module may be defective.

DIAGNOSIS**STEP 1. Check the cellular phone.**

Check that the cellular phone can be used normally as a unit.

Q: Is it possible to use the cellular phone normally?

YES : Go to Step 2.

NO : Repair or replace the cellular phone.

STEP 2. Check the position of cellular phone.

Check that the function becomes normal when the cellular phone is moved closer to the hands free module.

Q: Does the function become normal when the cellular phone is moved closer to the hands free module?

YES : No action is necessary and testing is complete.

NO : Go to Step 3.

STEP 3. Check the registration method of cellular phone.

Check that the cellular phone was registered to the hands free module by following the normal procedure.

Q: Was the cellular phone registered by following the normal procedure?

YES : Check the trouble symptom, and finish when it is normal. When the abnormality is present, go to Step 4.

NO : Register a cellular phone according to a regular procedure.

STEP 4. Temporarily replace the cellular phone, and check the trouble symptom.

Temporarily register a separate Bluetooth®-supported cellular phone, and check that the hands free cellular phone system operates normally.

Q: Is the normal conversation possible with the hands free system?

YES : Ask the customer to have the cellular phone repaired or replaced. Then, delete the temporarily registered cellular phone. Once the customer prepares the normally-working cellular phone, register the cellular phone to the hands free module.

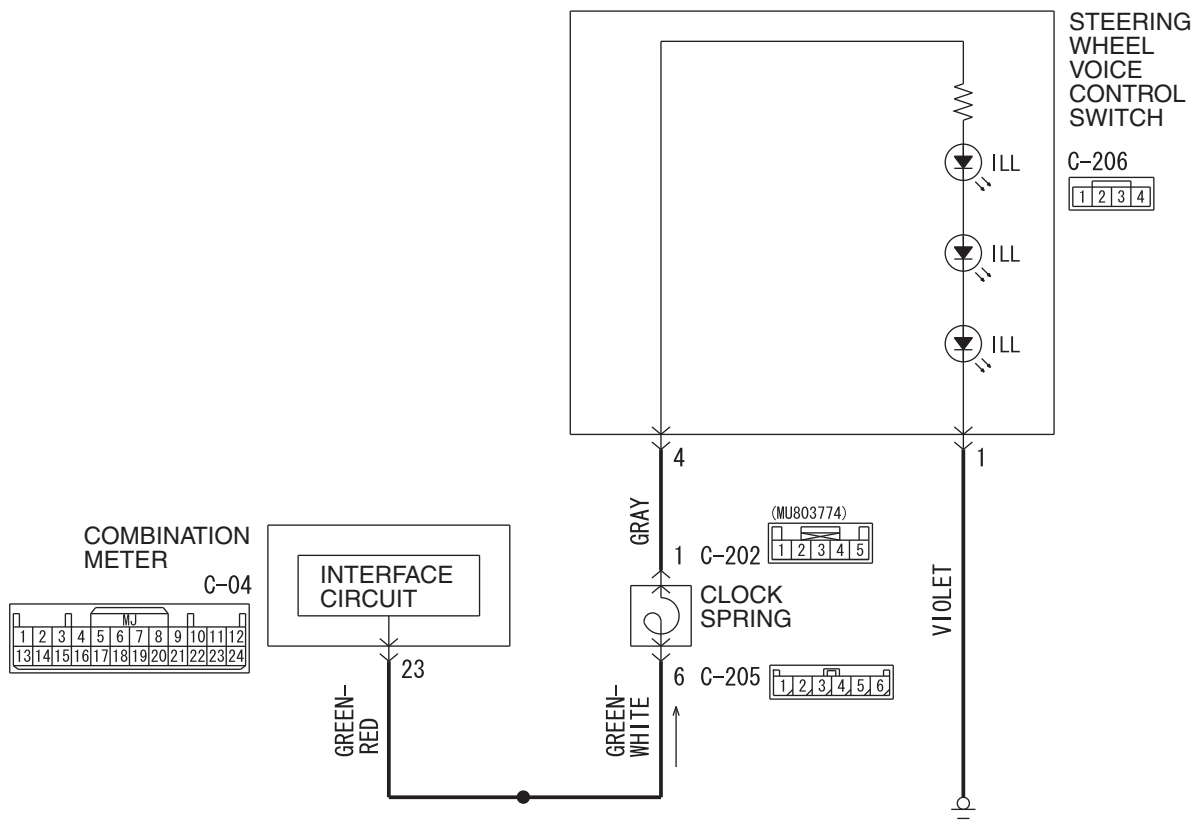
NO : Replace the hands free module.

Inspection Procedure 6: Steering wheel voice control switch illumination does not come on.

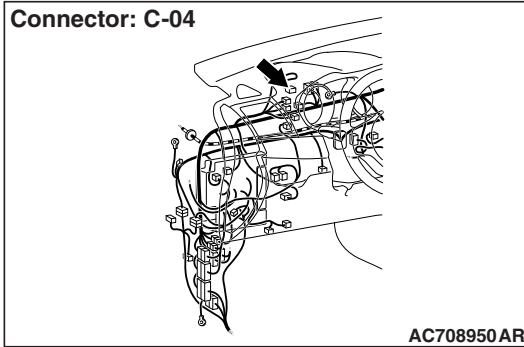
CAUTION

Before replacing the module, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Wheel Voice Control Switch Illumination Circuit

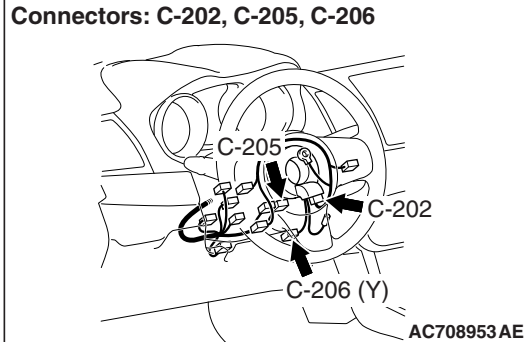


Connector: C-04



AC708950AR

Connectors: C-202, C-205, C-206



AC708953AE

TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the steering wheel voice-control switch, the steering wheel voice control switch, the combination meter, or the clock spring may be defective.

TROUBLESHOOTING HINTS

- The steering wheel voice control switch may be defective.
- The combination meter may be defective.
- The clock spring may be defective.
- Damaged harness wires and connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the combination meter.

Check whether the combination meter works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Diagnose the combination meter (Refer to [P.54A-32](#)).

STEP 2. Check the steering wheel voice control switch.

(Refer to [P.54A-593](#)).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the clock spring.

STEP 3. Check steering wheel voice control switch connector C-206 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is steering wheel voice-control switch connector C-206 in good condition?**

YES : Go to Step 4.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). The steering remote control switch should work normally.

STEP 4. Check the wiring harness between steering wheel voice control switch connector C-206 (terminal 1) and the ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between steering wheel voice-control switch connector C-206 (terminal 1) and the ground in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Check clock spring connectors C-202 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connectors C-202 and C-205 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). The steering remote control switch should work normally.

STEP 6. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B –Driver's air bag module and clock spring [P.52B-419](#)).

Q: Is the check result normal?

YES : Go to Step 7.

NO : Replace the clock spring.

STEP 7. Check the wiring harness between steering wheel voice control switch connector C-206 (terminal 4) and clock spring connector C-202 (terminal 1).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between steering wheel voice-control switch connector C-206 (terminal 4) and clock spring connector C-202 (terminal 1) in good condition?

YES : Go to Step 8.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 8. Check combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?

YES : Go to Step 9.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). The steering remote control switch should work normally.

STEP 9. Check the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6) in good condition?

YES : Go to Step 10.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 10. Retest the system

Check whether the illumination of the steering remote control switch comes on normally.

Q: Does the illumination of the steering remote control switch come on normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).

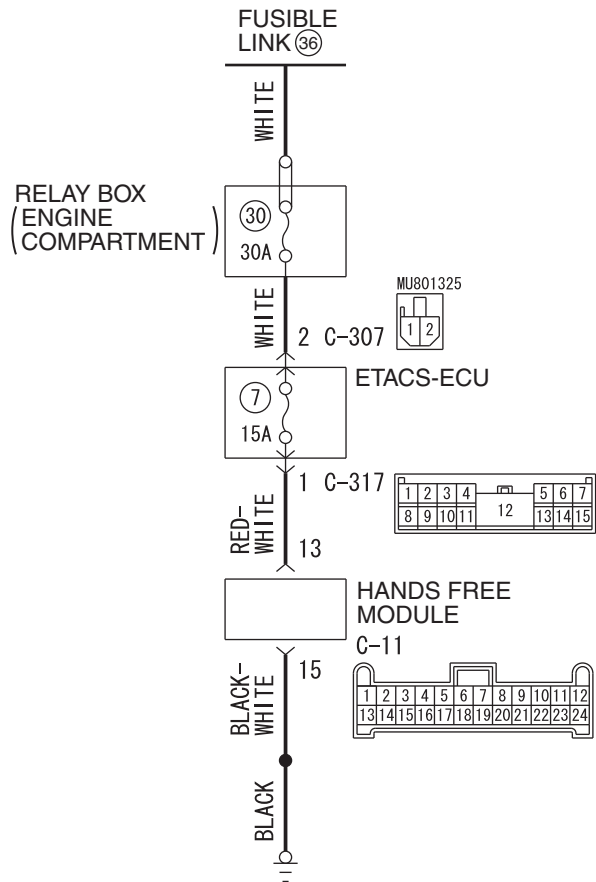
NO : Replace the steering wheel voice control switch.

Inspection Procedure 7: Check the hands free module power supply circuit.

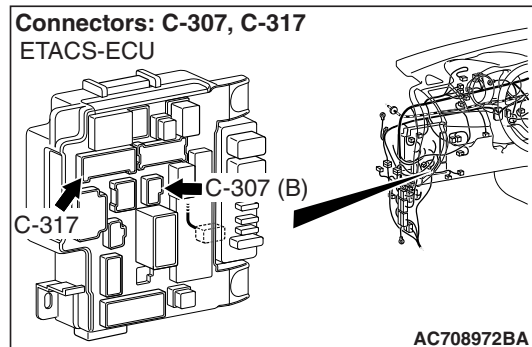
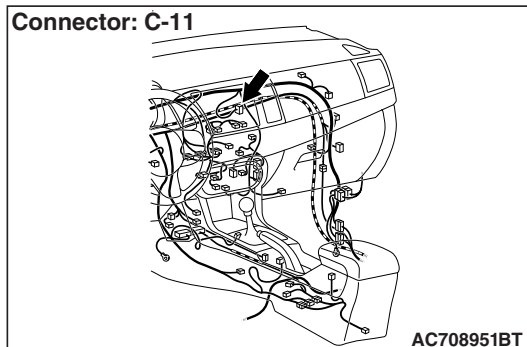
CAUTION

Before replacing the module, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Hands Free Module Power Supply Circuit



W9H54M082A



CIRCUIT OPERATION

The power supply to the hands free module is provided by the fusible link (36).

TECHNICAL DESCRIPTION (COMMENT)

If the hands free cellular phone system don't work, power supply and ground system to the hands free module, or the hands free module itself may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The hands free module may be defective

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check hands free module connector C-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hands free module connector C-11 in good condition?

YES : Go to Step 2.

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

STEP 2. Check the ground circuit to the hands free module. Measure the resistance at hands free module connector C-11.

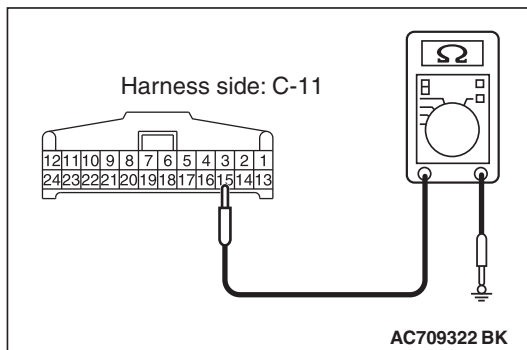
- (1) Disconnect hands-free module connector C-11, and measure at the wiring harness side.
- (2) Measure the resistance value between terminal 15 and ground.

OK: The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Go to Step 3.



STEP 3. Check the wiring harness between hands-free module connector C-11 (terminal 15) and ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between hands free module connector C-11 (terminal 15) and ground in good condition?

YES : Replace the hands free module. The system should communicate with the hands free module normally.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 4. Check the wiring harness between hands free module connector C-11 (terminal 13) and fusible link (36).

- Check the power supply line for open circuit and short circuit.

NOTE: Also check ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-307 or C-317 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between hands-free module connector C-11 (terminal 13) and fusible link (36) in good condition?

- YES :** Replace the hands free module. The system should communicate with the hands free module normally.
- NO :** The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

ON-VEHICLE SERVICE

PAIRING A CELLULAR PHONE OR DELETING A PHONE

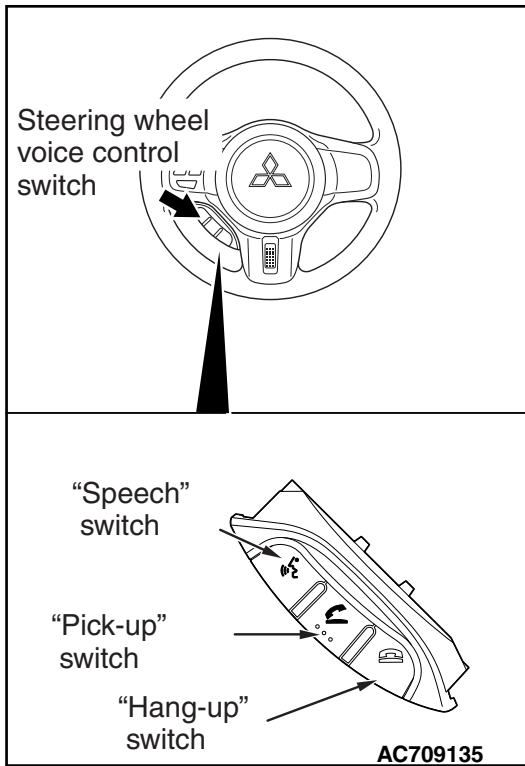
M1544403700010

NOTE:

- Several Bluetooth® cellular phones may not be compatible with the hands free-ECU
- A maximum of seven Bluetooth® cellular phones can be registered.
- The hands free cellular phone system can not be used when a battery of Bluetooth® cellular phone was exhausted.

PAIRING A CELLULAR PHONE

1. Shift the selector lever to "P" (parking) position <TC-SST> or shift lever to "N" (neutral) position <M/T> and pull the parking brake lever.
2. Turn the ignition switch to "ACC" or "ON" position.



3. Press the "Speech" switch.
4. Say "Setup."
5. Say "Pairing options."
6. The voice guide will say "Do you want to Pair a phone, delete a phone or list paired phones?"
7. Say "Pair a phone."
8. The voice guide will say "Please say a 4-digit pin number."
9. Say a 4 digit number. The 4 digit number will be registered as a pin number for the phone.
 - When the confirmation function is on, the system will confirm whether the number said is acceptable. Answer "Yes" to go Step 10. Say "No" to return to pin number selection.

NOTE:

- The pin number entered here is only used for the Bluetooth® connection certification. It is any 4-digit number the user would like to select.
 - Remember the pin number as it needs to be keyed into the phone later in the pairing process.
 - Depending on the selected Bluetooth® connection settings, entry of the pairing code may be required each time the Bluetooth® cellular phone attempts to connect to the hands free cellular phone system. Refer to your cellular phone owner's manual for connection defaults and settings.
10. The voice guide will say "Start pairing procedure on phone. See phone's manual for instructions." Refer to the owner's manual for your cellular phone and enter into the phone the pin number that was registered in Step 9.
 11. When the hands free cellular phone system finds a Bluetooth® cellular phone, the voice guide will say "Please say the name of the phone after the beep."
 12. After you hear the beep, name the phone by saying a name of your preference.
- NOTE:**
- When the hands free cellular phone system cannot recognize the Bluetooth® cellular phone, the pairing process will end and the system will beep and then return to normal status.
 - Try the pairing process again after reconfirming whether or not the Hands free cellular phone system supports your Bluetooth® compatible cellular phone.
13. The voice guide will say "Assign a priority level between 1 and 7. 1 is the highest priority."
 14. Say a number between 1 and 7 to set a priority level for the cellular phone.
 - If you selected a priority level that has already been set for a different phone, the hands free cellular phone system will ask you whether you wish to overwrite that priority level. To overwrite the priority level, answer "Yes." Answer "No" to return to the priority level selection in Step 13.

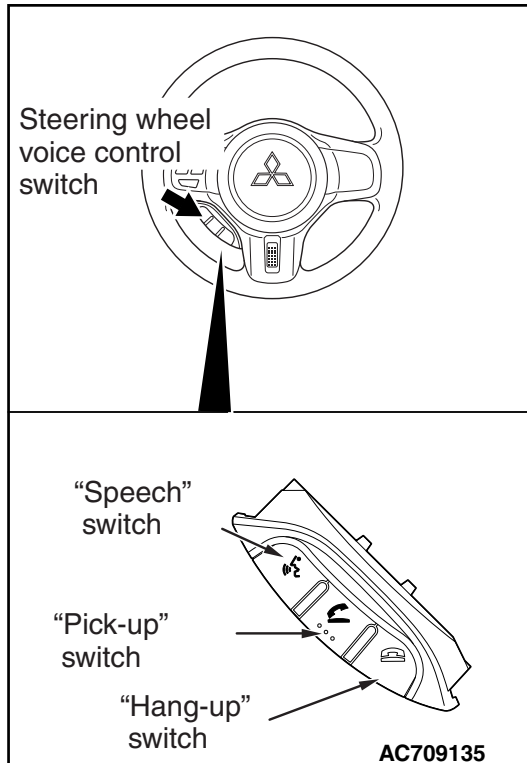
15. After the voice guide says "<phone tag> set to priority <priority>," the hands free cellular phone system will start the pairing process. Wait a moment for the pairing process to complete.
 - When the confirmation function is "ON", the hands free cellular phone system will confirm the assigned phone name and priority again. Answer "Yes" to go to next step, or answer "No" to return to the priority level selection in Step 13.
16. When the pairing process is completed, the voice guide will say "Pairing Complete." The hands free cellular phone system will then beep and the voice recognition mode will be deactivated.

DELETING A PHONE

1. Turn the ignition switch to "ACC" or "ON" position.
2. Press the "Speech" switch.
3. Say "Setup."
4. Say "Pairing options"
5. The voice guide will say "Do you want to Pair a phone, delete a phone or list paired phones?"
6. Say "Delete a phone."
7. After the voice guide says "Please say," it will read out each priority number and phone name pair in order, starting with the phone that has the highest priority level (from 1 to 7). After it completes reading all pairs, the voice guide will say "or all."
8. Say the priority number of the phone that you want to delete from the hands free cellular phone system. If you want to delete all paired phones from the hands free cellular phone system, say "All."
9. For confirmation purposes, the voice guide will say "Removing <phone tag> (all) is this correct?" Answer "Yes" to delete the phone(s). If you answer "No," the voice guide will ask "Which phone please?" Say again the priority number of the phone that you want to delete from the hands free cellular phone system.
10. When the phone deletion process is completed, the voice guide will say "Deleted." The hands free cellular phone system will then beep and the voice recognition mode will be deactivated.
 - If the phone deletion process fails for some reason, the voice guide will say "Delete failed." The hands free cellular phone system will then beep and the voice recognition mode will be deactivated. Start over again from Step 1.

ERASE THE PASSCODE

M1544403800028



The 4-digit passcode set by security function can be erased by operating the hang-up switch.

1. Turn the ignition switch to the "ON" or "ACC" position, and check if the radio and CD player, or the multivision display is activated.
2. Check that the hands free cellular phone system is not in voice recognition mode.
3. Press and hold the hang-up switch for approximately 2 seconds (1.5 seconds or more).
4. Within approximately 10 seconds after performing step 3, press and hold the hang-up switch for approximately 2 seconds (1.5 seconds or more) twice again.

NOTE: Even if the passcode is erased, guidance such as voice guide is not provided.

5. After the operation, check if the lock with the passcode is unlocked. If the lock is not unlocked, repeat from step 2.

SERVICE DATA

M1544401300061

Item No.	Scan tool display	Check condition	Normal condition
1	VR switch	When the "Speech" switch is pushed	ON
2	On hook switch	When the "Hang-up" switch is pushed	ON
3	Off hook switch	When the "Pick-up" switch is pushed	ON

ACTUATOR TEST TABLE

M1544404000014

The following actuators can be forcibly operated using scan tool.

Item No.	Item name	Test item	Driven component
1	VR switch	"Speech" switch short press	Perform the operation when the "Speech" switch is pressed shortly. (Start the voice recognition mode)
2	On hook switch	"Hang-up" switch short press	Perform the operation when the "Hang-up" switch is pressed shortly. (Hangs up the phone while the call is in progress)
3	Off hook switch	"Pick-up" switch short press	Perform the operation when the "Pick-up" switch is pressed shortly. (Take incoming calls)

REMOVAL AND INSTALLATION

M1544401000112

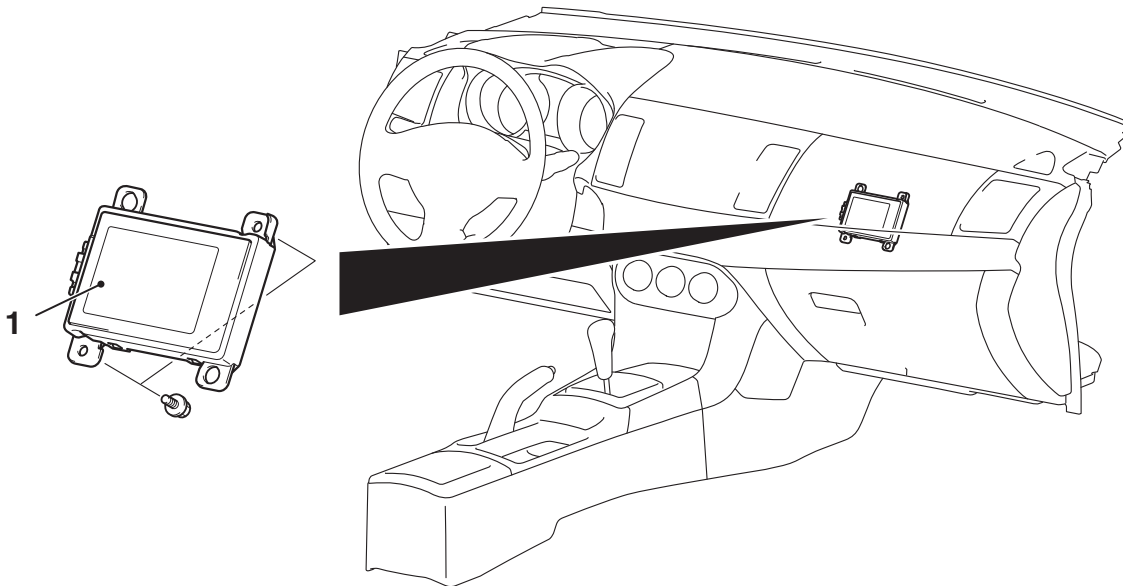
HANDS FREE MODULE

Pre-removal operation

- Removal of glove box upper cover (Refer to GROUP 52A -Glove Box Assembly P.52A-7.)

Post-installation operation

- Installation of glove box upper cover (Refer to GROUP 52A -Glove Box Assembly P.52A-7.)



AC709148AB

Hands Free Module Removal Step

1. Hands free module

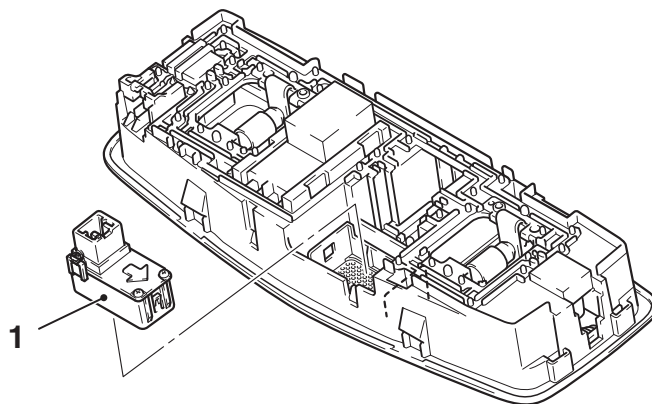
MICROPHONE UNIT

Pre-removal operation

- Removal of front dome light assembly (Refer to GROUP 54A -Dome light P.54A-279)

Post-installation operation

- Installation of front dome light assembly (Refer to GROUP 54A -Dome light P.54A-279)

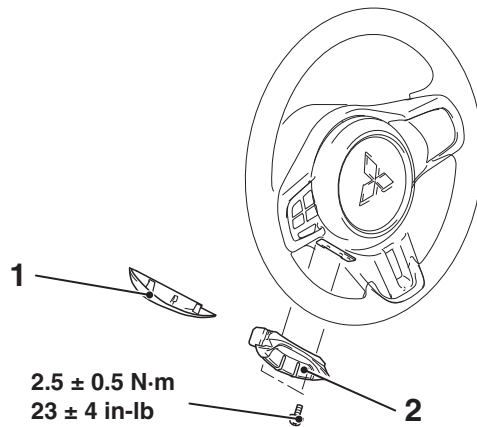


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Microphone Unit Removal Step

1. Microphone unit

STEERING WHEEL VOICE CONTROL SWITCH



AC709152AB

**Steering Wheel Voice Control
Switch Removal Step**

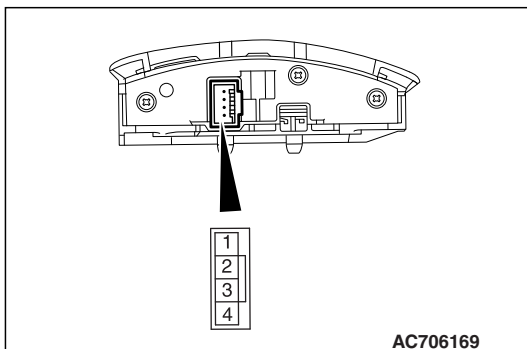
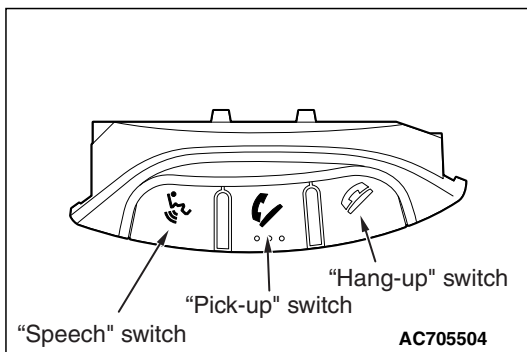
1. Steering wheel voice control switch cover
2. Steering wheel voice control switch

**STEERING WHEEL VOICE CONTROL SWITCH
CONTINUITY CHECK**

M1544401100250

**STEERING WHEEL VOICE CONTROL SWITCH
CHECK**

Use an ohmmeter to measure the resistance value between the terminal.

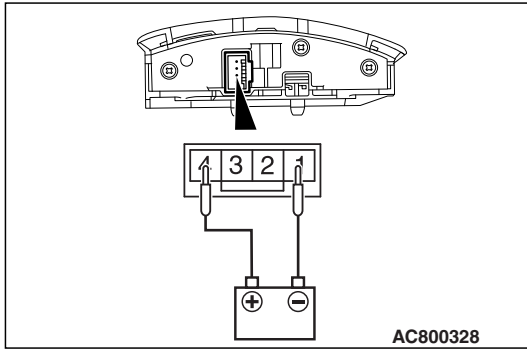


Switch position	Tester connection	Measurement value
No push	2 -3	Approximately 74 kΩ
"Speech" switch		Approximately 1.5 kΩ
"Pick-up" switch		Approximately 3.3 kΩ
"Hang-up" switch		Approximately 6.0 kΩ

ILLUMINATION CHECK

Apply the battery voltage of steering wheel voice control switch connector terminal No. 4 and 1, and check if the steering wheel voice control switch illuminates.

NOTE: Make sure that the polarity is correct.



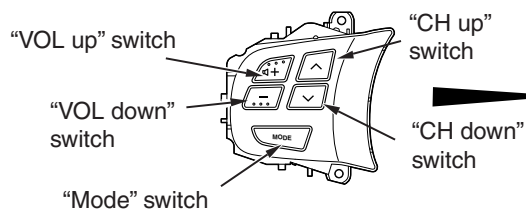
STEERING WHEEL AUDIO REMOTE CONTROL SWITCH

GENERAL INFORMATION

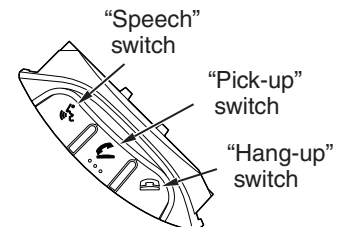
M1544000100419

On the steering wheel spoke, the steering wheel audio remote control switch and steering wheel voice control switch have been established.

<Steering wheel audio remote control switch>



<Steering wheel voice control switch>



AC705510AB

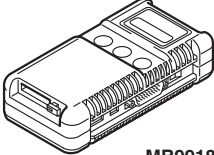
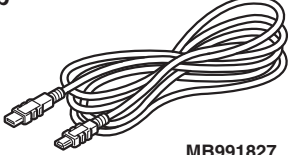
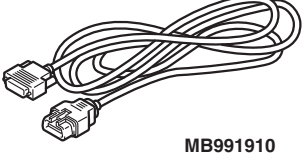
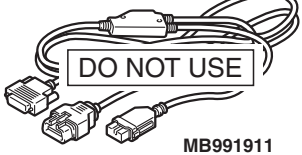
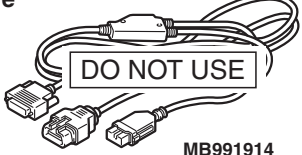
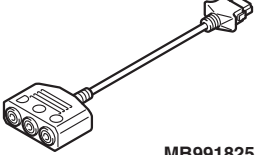
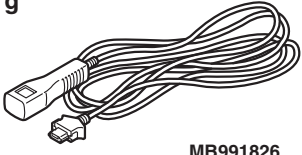
STEERING WHEEL AUDIO REMOTE CONTROL SWITCH


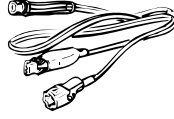
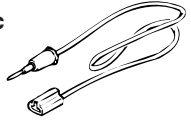

With the steering wheel audio remote control switch, the sound volume adjustment, mode changeover, CD track up/down and other operation of multivision display, radio, and CD player are available.

STEERING WHEEL VOICE CONTROL SWITCH

With the steering wheel voice control switch, the hands free cellular phone system can be operated. (Refer to [P.54A-510.](#))

SPECIAL TOOLS

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.</p> <p>CAN bus diagnostics or service data check.</p>

Tool	Tool number and name	Supersession	Application
<p>a </p> <p>b </p> <p>c </p> <p>d  DO NOT USE MB991223</p>	<p>MB991223</p> <p>a. MB991219</p> <p>b. MB991220</p> <p>c. MB991221</p> <p>d. MB991222</p> <p>Harness set</p> <p>a. Test harness</p> <p>b. LED harness</p> <p>c. LED harness adaptor</p> <p>d. Probe</p>	<p>General service tools</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p> <p>a. Connector pin contact pressure inspection</p> <p>b. Power circuit inspection</p> <p>c. Power circuit inspection</p> <p>d. Commercial tester connection</p>

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800584

Refer to GROUP 00, Troubleshooting contents [P.00-7](#).

TROUBLE SYMPTOM CHART

M1544004901324

Inspection Procedure No.	Trouble symptom	Reference page
1	Steering wheel audio remote control switch does not function.	<vehicles with radio and CD player> P.54A-580
2		<vehicles with MMCS> P.54A-585
3	Steering wheel audio remote control switch illumination does not come on.	P.54A-589

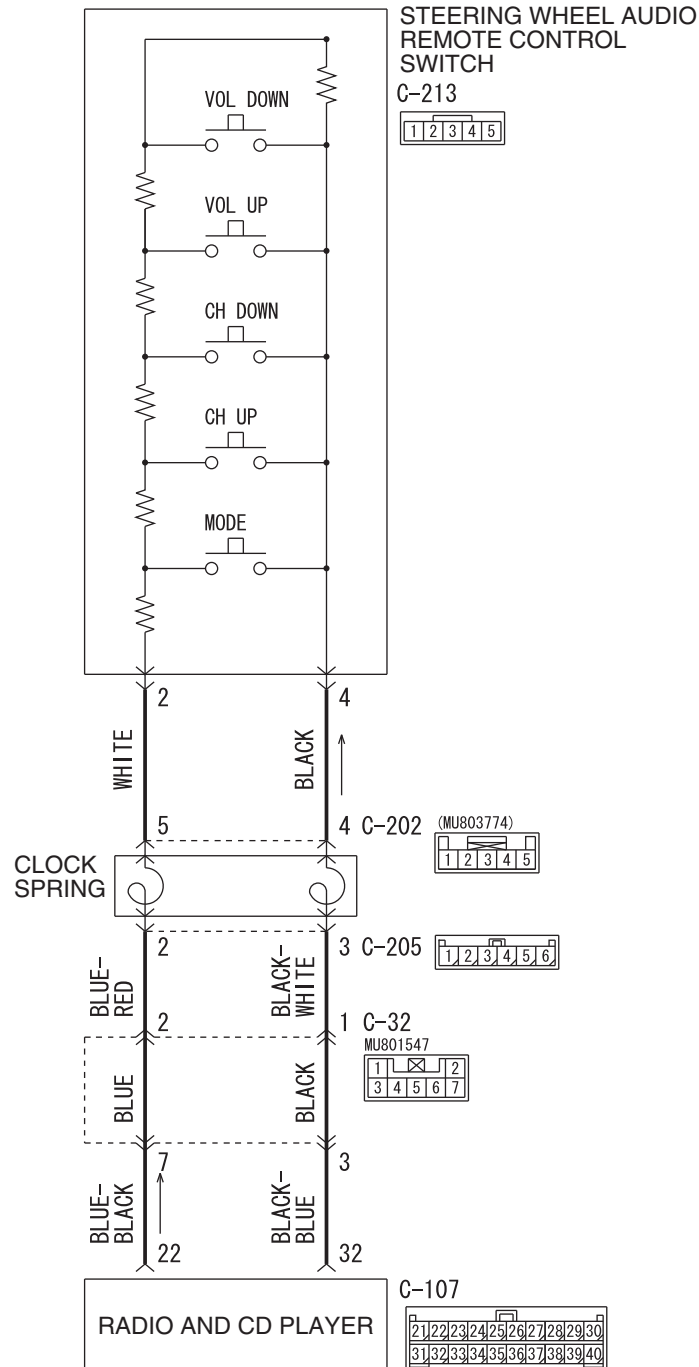
SYMPTOM PROCEDURES

Inspection Procedure 1: Steering wheel audio remote control switch does not Function. <Vehicles with radio and CD player>

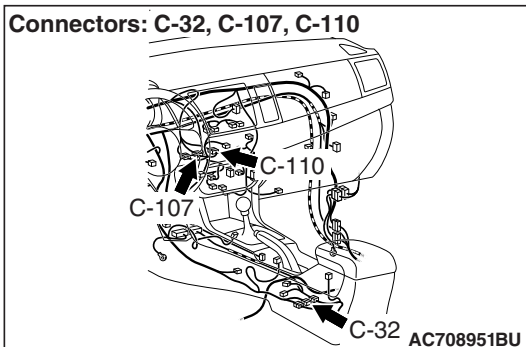
CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Wheel Audio Remote Control Switch Circuit



Connectors: C-32, C-107, C-110



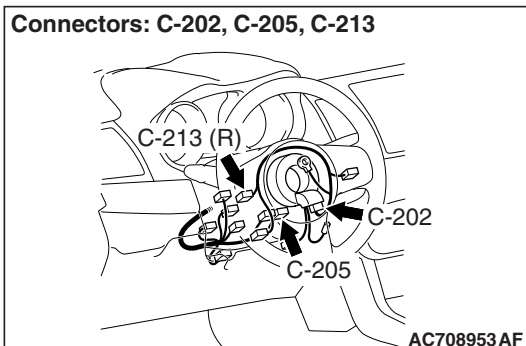
TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the steering wheel audio remote control switch, the steering wheel audio remote control switch, the radio and CD player, or the clock spring may be defective.

TROUBLESHOOTING HINTS

- The steering wheel audio remote control switch may be defective.
- The radio and CD player may be defective.
- The clock spring may be defective.
- Damaged harness wires and connectors

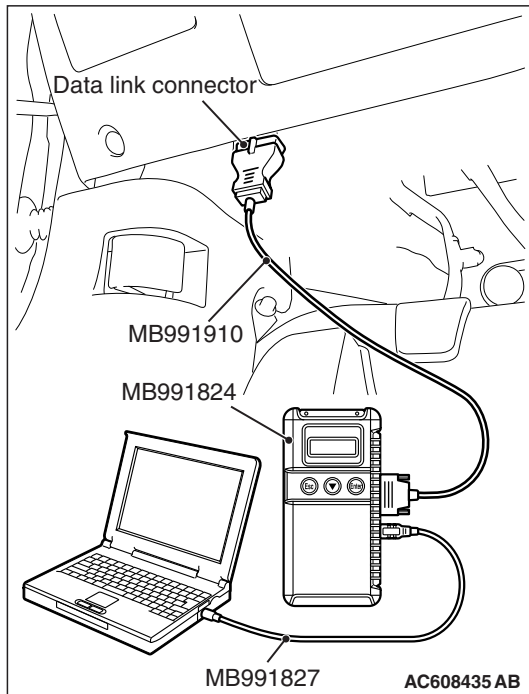
Connectors: C-202, C-205, C-213



DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A

**STEP 1. Using scan tool MB991958, check data list.**

Check whether the service data below are normal.

- (1) Turn the ignition switch to "ON" position.
- (2) Operate each switch of the steering remote control. Check whether the normal conditions listed below are displayed.
(Refer to P.54A-407.)

Item No.	Item name	Normal condition
Item 1	RADIO remoto SW (SEEK-)	ON
Item 2	RADIO remoto SW (SEEK+)	ON
Item 3	RADIO remoto SW (MODE)	ON
Item 4	RADIO remoto SW (VOL-)	ON
Item 5	RADIO remoto SW (VOL+)	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 9.

NO : Go to Step 2.

STEP 2. Check the steering wheel audio remote control switch.

Remove the steering wheel audio remote control switch. Then check continuity between the switch terminals.

Switch Position	Tester Connection	Measurement Value
No push	2 -4	Approximately 71 k Ω
Mode		Approximately 270 Ω
CH up		Approximately 740 Ω
CH down		Approximately 1.3 k Ω
VOL up		Approximately 2.1 k Ω
VOL down		Approximately 3.1 k Ω

Q: Is the steering wheel audio remote control switch in good condition?

YES : Go to Step 3.

NO : Replace the steering wheel audio remote control switch.

STEP 3. Check clock spring connector C-202 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-202 and C-205 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The steering remote control switch should work normally.

STEP 4. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B, Driver's air bag module and clock spring [P.52B-419](#)).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the clock spring.

STEP 5. Check radio and CD player connector C-107 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player connector C-107 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The steering remote control switch should work normally.

STEP 6. Check the wiring harness between radio and CD player connector C-107 (terminal 22, 32) and clock spring connector C-205 (terminal 2, 3).

NOTE: Also check intermediate connector C-32 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-32 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

- Check the communication lines for open and short circuit.

Q: Is the wiring harness between radio and CD player connector C-107 (terminal 22, 32) and clock spring connector C-205 (terminal 2, 3) in good condition?

YES : Go to Step 7.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check steering remote control switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering remote control switch connector C-213 in good condition?

YES : Go to Step 8.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The steering remote control switch should work normally.

STEP 8. Check the wiring harness between steering wheel audio remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4).

- Check the communication lines for open and short circuit.

Q: Is the wiring harness between steering remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4) in good condition?

YES : Go to Step 9.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 9. Retest the system

Check whether you can operate the radio and CD player by using the steering remote control.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).

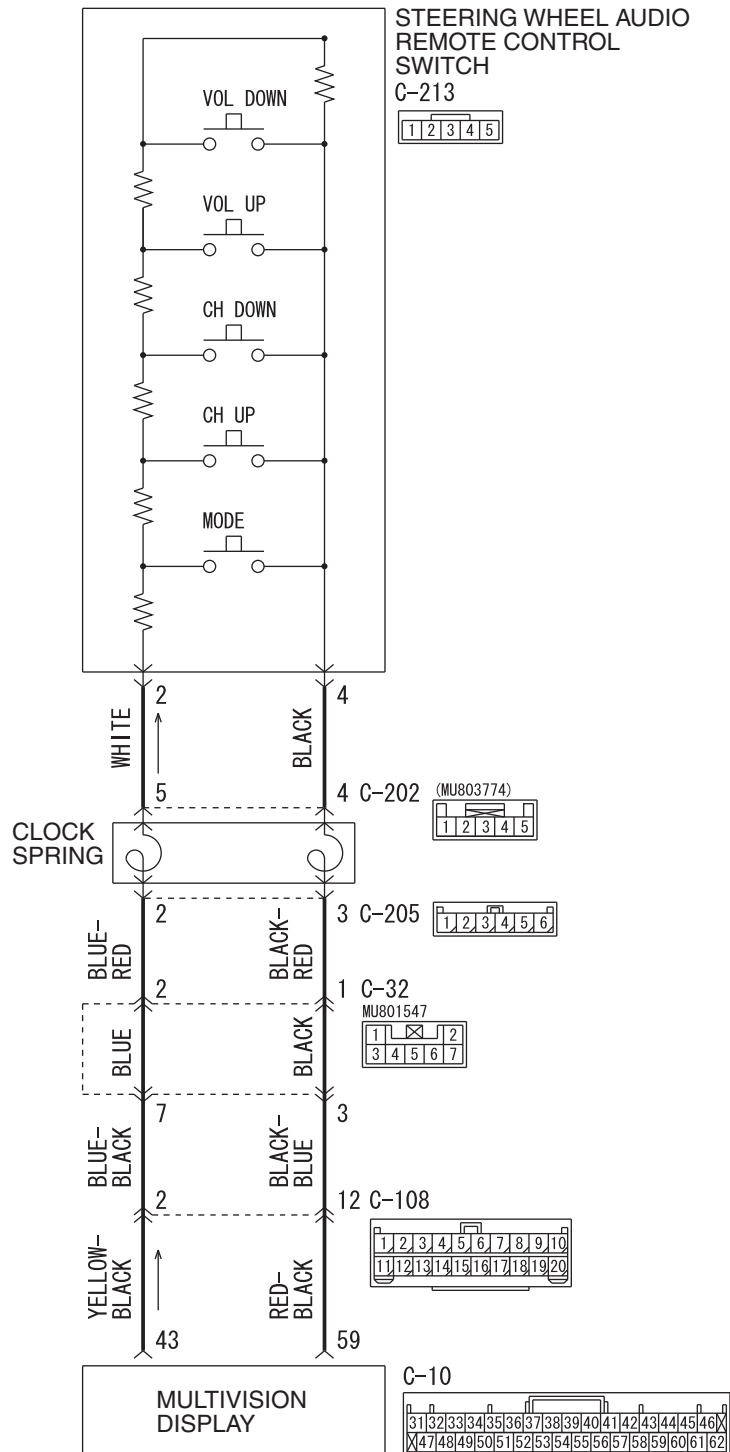
NO : Replace the radio and CD player.

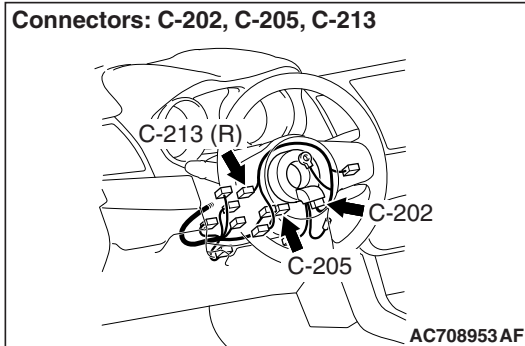
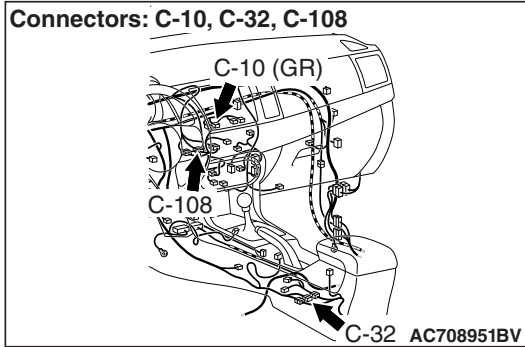
Inspection Procedure 2: Steering Wheel Audio Remote Control Switch does not Function. <Vehicles with MMCS>

CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Wheel Audio Remote Control Switch Circuit





TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the steering wheel audio remote control switch, the steering wheel audio remote control switch, the multivision display, or the clock spring may be defective.

TROUBLESHOOTING HINTS

- The steering wheel audio remote control switch may be defective.
- The multivision display may be defective.
- The clock spring may be defective.
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the steering wheel audio remote control switch.

Remove the steering wheel audio remote control switch. Then check continuity between the switch terminals. (Refer to P.54A-593.)

Switch Position	Tester Connection	Measurement Value
No push	2 -4	Approximately 71 kΩ
Mode		Approximately 270 Ω
CH up		Approximately 740 Ω
CH down		Approximately 1.3 kΩ
VOL up		Approximately 2.1 kΩ
VOL down		Approximately 3.1 kΩ

Q: Is the steering wheel audio remote control switch in good condition?

YES : Go to Step 2.

NO : Replace the steering wheel audio remote control switch.

STEP 2. Check clock spring connector C-202 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-202 and C-205 in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). The steering wheel audio remote control switch should work normally.

STEP 3. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B, Driver's air bag module and clock spring [P.52B-419](#)).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the clock spring.

STEP 4. Check multivision display connector C-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multivision display connector C-10 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). The steering wheel audio remote control switch should work normally.

STEP 5. Check the wiring harness between multivision display connector C-10 (terminal 43, 59) and clock spring connector C-205 (terminal 2, 3).

NOTE: Also check intermediate connector C-108, C-32 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-108, C-32 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

- Check the communication lines for open and short circuit.

Q: Is the wiring harness between multivision display connector C-10 (terminal 43, 59) and clock spring connector C-205 (terminal 2, 3) in good condition?

YES : Go to Step 6.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 6. Check steering wheel audio remote control switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering wheel audio remote control switch connector C-213 in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). The steering wheel audio remote control switch should work normally.

STEP 7. Check the wiring harness between steering wheel audio remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4).

- Check the communication lines for open and short circuit.

Q: Is the wiring harness between steering wheel audio remote control switch connector C-213 (terminal 2, 4) and clock spring connector C-202 (terminal 5, 4) in good condition?

YES : Go to Step 8.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 8. Retest the system

Check whether you can operate the multivision display by using the steering remote control.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).

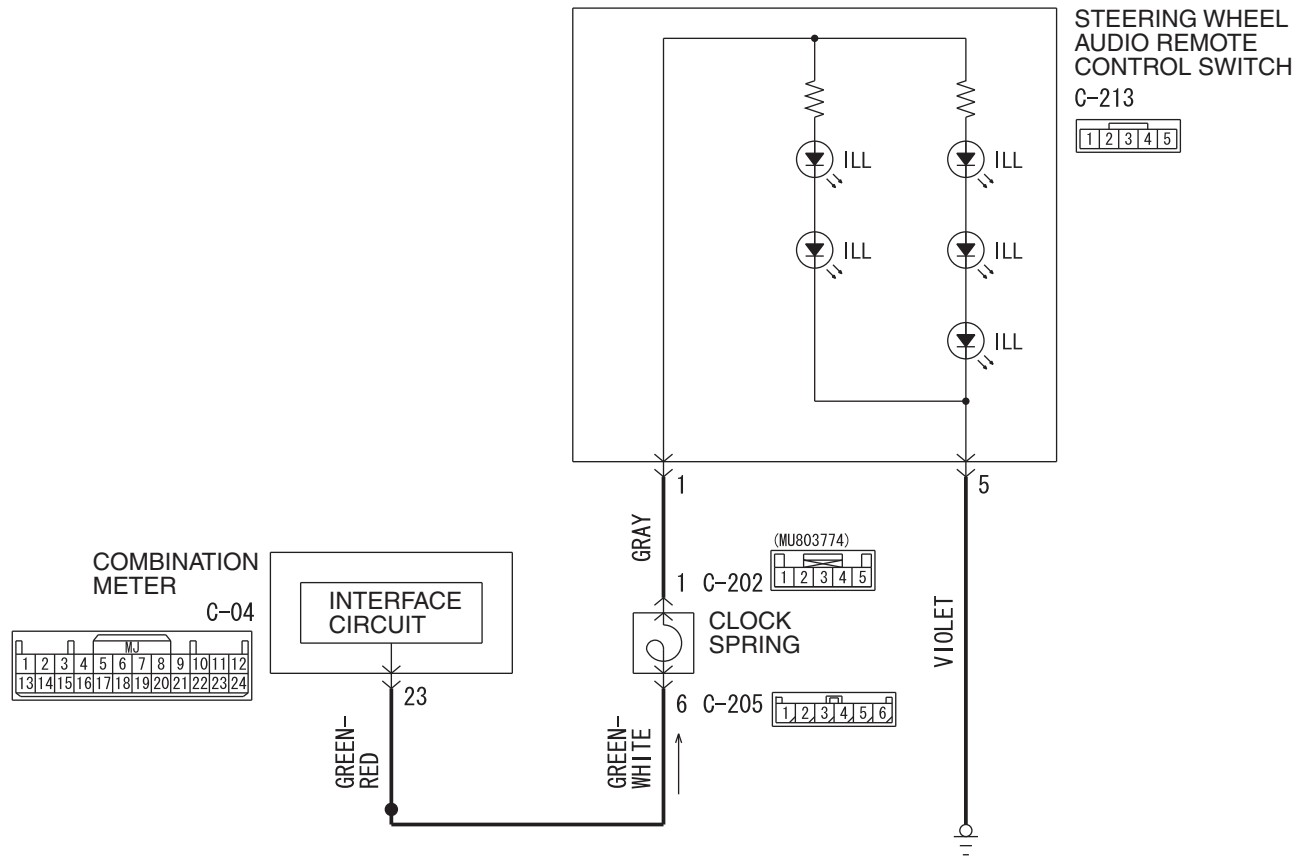
NO : Replace the multivision display.

Inspection Procedure 3: Steering wheel audio remote control switch illumination does not come on.

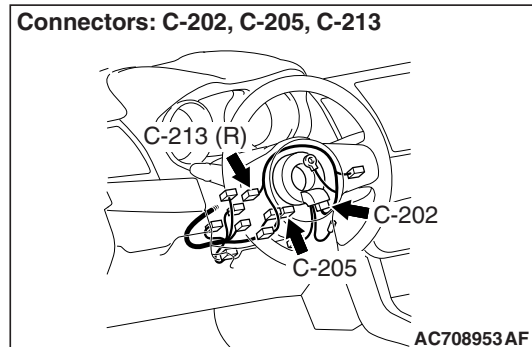
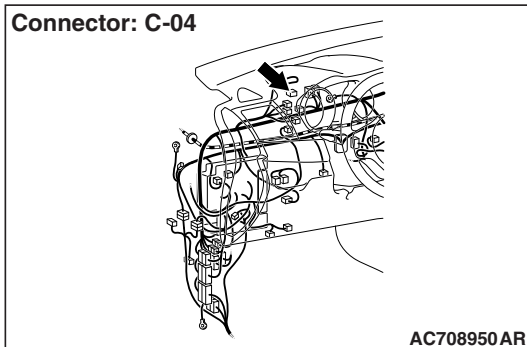
CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Steering Wheel Audio Remote Control Switch Illumination Circuit



W9H54M086A



TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the steering wheel audio remote control switch, the steering wheel audio remote control switch, the combination meter, or the clock spring may be defective.

TROUBLESHOOTING HINTS

- The steering wheel audio remote control switch may be defective.
- The clock spring may be defective.
- Damaged harness wires and connectors

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the combination metre.

Check whether the combination meter works normally.

Q: Does the combination meter operate normally?

YES : Go to Step 2.

NO : Diagnose the combination meter (Refer to [P.54A-32](#)).

STEP 2. Check the steering wheel voice control switch.

(Refer to [P.54A-593](#)).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the clock spring.

STEP 3. Check steering wheel audio remote control switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is steering wheel audio remote control switch connector C-213 in good condition?**

YES : Go to Step 4.

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

STEP 4. Check the wiring harness between steering wheel audio remote control switch connector C-213 (terminal 5) and ground.

- Check the ground wire for open circuit.

Q: Is the wiring harness between steering wheel audio remote control switch connector C-213 (terminal 5) and ground in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Check clock spring connectors C-202 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connectors C-202 and C-205 in good condition?

YES : Go to Step 6.

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

STEP 6. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B, Driver's air bag module and clock spring [P.52B-419](#)).

Q: Is the check result normal?

YES : Go to Step 7.

NO : Replace the clock spring.

STEP 7. Check the wiring harness between steering wheel audio remote control switch connector C-213 (terminal 1) and clock spring connector C-202 (terminal 1).

- Check the power supply line for open circuit and short circuit.

Q: Is the wiring harness between steering wheel audio remote control switch connector C-213 (terminal 1) and clock spring connector C-202 (terminal 1) in good condition?

YES : Go to Step 8.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 8. Check combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?

YES : Go to Step 9.

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

STEP 9. Check the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6).

- Check the power supply line for open circuit and short circuit.

Q: Is the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6) in good condition?

YES : Go to Step 10.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 10. Retest the system

Check whether the illumination of the steering wheel audio remote control switch comes on normally.

Q: Does the illumination of the steering wheel audio remote control switch come on normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-15).

NO : Replace the steering wheel audio remote control switch.

REMOVAL AND INSTALLATION

M1544015600119

⚠ CAUTION

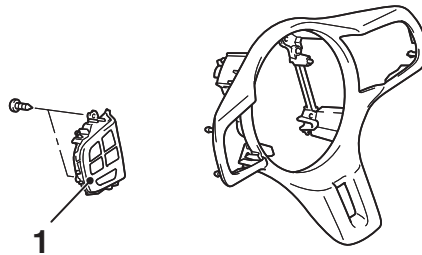
- To remove the driver air bag module, refer to GROUP 52B –Service Precautions P.52B-24 and Driver's Air Bag Module and Clock Spring P.52B-413.
- When the steering wheel sensor is replaced, always carry out calibration to make ASC-ECU learn the neutral point. (Refer to GROUP 35C –On-vehicle Service-Steering Wheel Sensor Calibration P.35C-289.)

Pre-removal operation

- Removal of garnish (Refer to GROUP37 –Steering wheel P.37-29.)

Post-installation operation

- Installation of garnish (Refer to GROUP37 –Steering wheel P.37-29.)



Removal Step

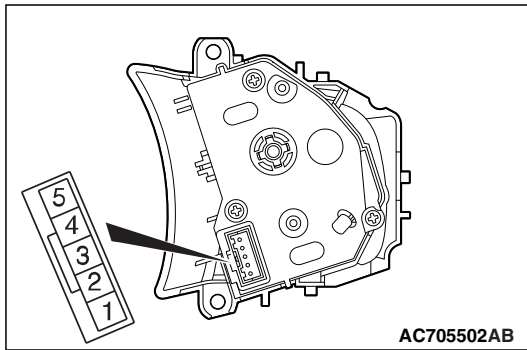
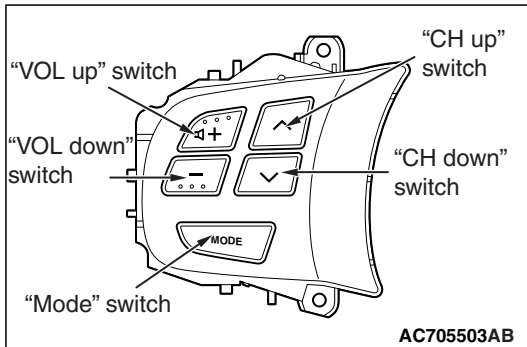
1. Steering wheel audio remote control switch

STEERING WHEEL AUDIO REMOTE CONTROL SWITCH INSPECTION

M1544015700279

STEERING WHEEL AUDIO REMOTE CONTROL SWITCH CHECK

Use an ohmmeter to measure the resistance value between the terminal.



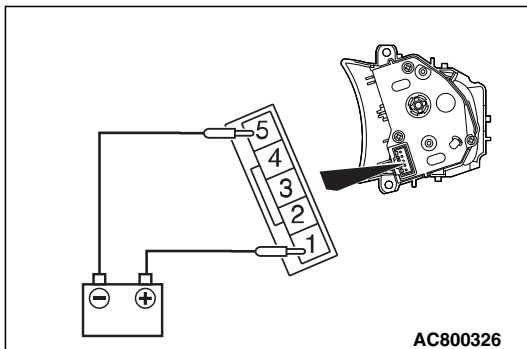
Switch Position	Tester Connection	Measurement Value
No push	2 -3	Approximately 3.1 kΩ
	2 -4	Approximately 71 kΩ
"Mode" switch		Approximately 270 Ω
"CH up" switch		Approximately 740 Ω
"CH down" switch		Approximately 1.3 kΩ
"VOL up" switch		Approximately 2.1 kΩ
"VOL down" switch		Approximately 3.1 kΩ

On the steering wheel audio remote control switch connector, check the continuity between terminals.

ILLUMINATION CHECK

Apply the battery voltage of steering wheel audio remote control switch connector terminal No. 1 and 5, and check if the steering wheel audio remote control switch illuminates.

NOTE: Make sure that the polarity is correct.



SATELLITE RADIO TUNER

GENERAL INFORMATION

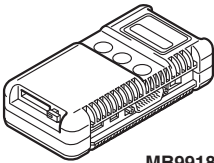
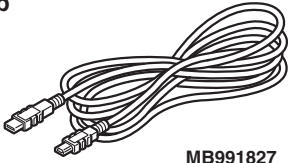
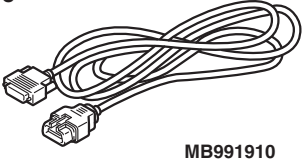
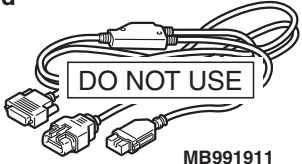
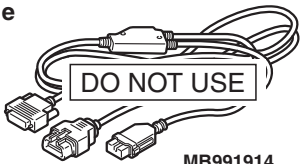
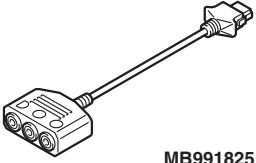
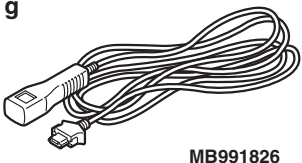
M1544000100271


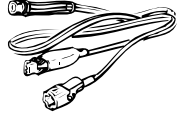
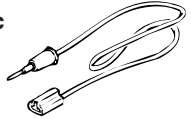

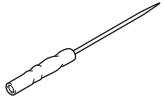
SATELLITE RADIO

- The satellite radio is a broadcast technology that offers a clear digital sound directly by using satellites.
- The registered service provider is SIRIUS™ satellite radio.
- This service offers listeners more than 100 programs such as news, sports, music, and entertainment.

SPECIAL TOOLS

M1544000600577

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub-assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.</p> <p>CAN bus diagnostics or data list check.</p>

Tool	Tool number and name	Supersession	Application
<p>a </p> <p>b </p> <p>c </p> <p>d </p>	<p>MB991223</p> <p>a. MB991219</p> <p>b. MB991220</p> <p>c. MB991221</p> <p>d. MB991222</p> <p>Harness set</p> <p>a. Check harness</p> <p>b. LED harness</p> <p>c. LED harness adapter</p> <p>d. Probe</p>	<p>General service tool (jumper)</p>	<p>Continuity check and voltage measurement at harness wire or connector</p> <p>a. For checking connector pin contact pressure</p> <p>b. For checking power supply circuit</p> <p>c. For checking power supply circuit</p> <p>d. For connecting a locally sourced tester</p>
<p></p> <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector</p>

DIAGNOSIS

INTRODUCTION TO SATELLITE RADIO DIAGNOSIS

M1544004700361

ERROR CODE (SIRIUS SATELLITE RADIO)

The display displays the error codes if an abnormality related to the satellite radio is detected. (Refer to [P.54A-317.](#))

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544016500041

Refer to GROUP 00, Troubleshooting contents [P.00-7.](#)

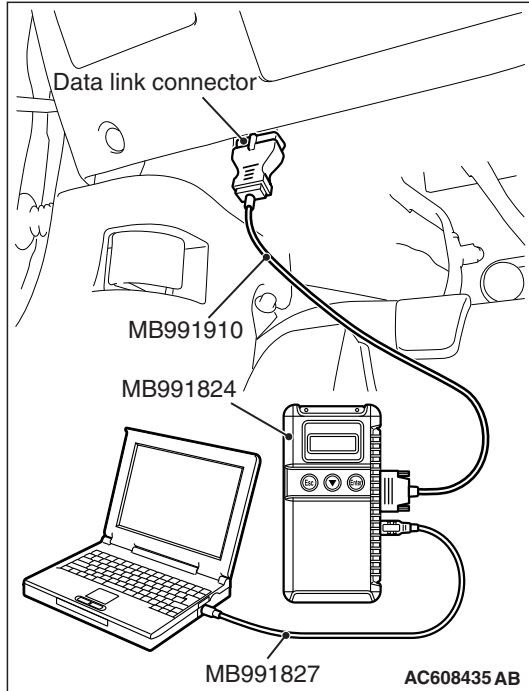
DIAGNOSIS FUNCTION

M1544013200193

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

**⚠ CAUTION**

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

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.

7. Start the scan tool system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "Meter" from "System List," and press the "OK" button.

NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.

6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using scan tool MB991958.

When detecting fault and storing the diagnostic trouble code, the ECU connected to CAN bus line obtains the data before the determination of the diagnostic trouble code and the data when the diagnostic trouble code is determined, and then stores the ECU status of that time. By analyzing each data from scan tool MB991958, the troubleshooting can be performed more efficiently. The displayed items are as the table below.

Display item list

Item No.	Item name	Content	Unit
1	Odometer	Total driving distance after the diagnostic trouble code is generated	mile
2	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
4	Accumulated minute	Cumulative time for current malfunction of diagnostic trouble code	min

DIAGNOSTIC TROUBLE CODE CHART

DTC No.	Trouble content	Reference page
B2222	Radio receiver internal fail	P.54A-598
U0019	Bus off (CAN-B)	P.54A-600
U0141	ETACS CAN timeout	P.54A-601
U0151	SRS-ABG CAN timeout	P.54A-603
U0154	OCM (Occupant Classification-Module) CAN timeout	P.54A-605
U0155	Meter CAN timeout	P.54A-607
U0164	A/C CAN timeout	P.54A-609
U0168	WCM CAN timeout	P.54A-611
U0184	Audio CAN timeout	P.54A-613
U0197	Hands free module CAN timeout	P.54A-615

DIAGNOSTIC TROUBLE CODE PROCEDURES**DTC B2222: Radio receiver internal fail****⚠ CAUTION**

If there is any problem in the CAN bus lines, an incorrect diagnostic trouble code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.

⚠ CAUTION

Before replacing the satellite radio tuner, be sure to check that the power supply circuit, ground circuit, and communication circuit are normal.

TROUBLE JUDGMENT

When the ignition switch is ON and the system voltage is from 10 V to 16 V (data from ETACS-ECU), if the satellite radio tuner receives abnormal status by signal conditioning 10 times consecutively, DTC B2222 is stored.

COMMENTS ON TROUBLE SYMPTOM

The satellite radio tuner or CAN bus line may have a problem.

PROBABLE CAUSES

- The satellite radio tuner may be defective.
- The CAN bus line may be defective

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

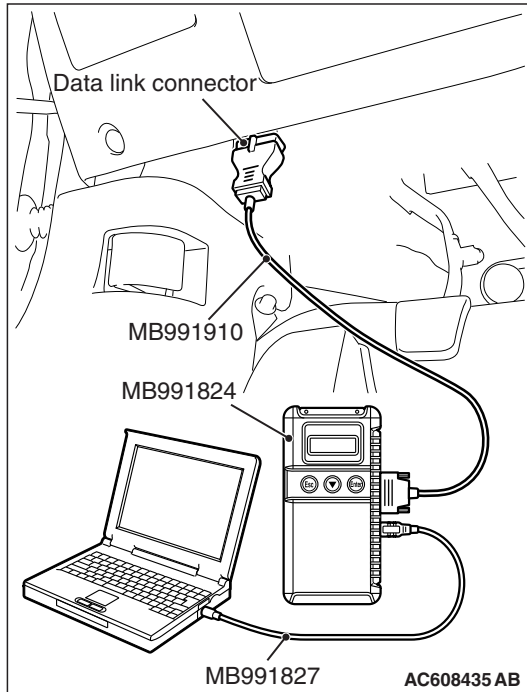
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to "ON" position.
- (3) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-15.) On completion, go to Step 2.



STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if the DTC is set.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-15).

DTC U0019: Bus off (CAN-B)**CAUTION**

If DTC U0019 is set, be sure to diagnose the CAN bus line.

CAUTION

When replacing the satellite radio tuner, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the CAN-B circuit malfunction occurs, the satellite radio tuner sets DTC U0019.

JUDGMENT CRITERIA

With the ignition switch at the ON position and the system voltage at 10 –16 volts (data from ETACS-ECU), if the Satellite radio tuner becomes unable to transmit data normally due to the CAN-B bus circuit malfunction, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS

The satellite radio tuner may be defective

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**CAUTION**

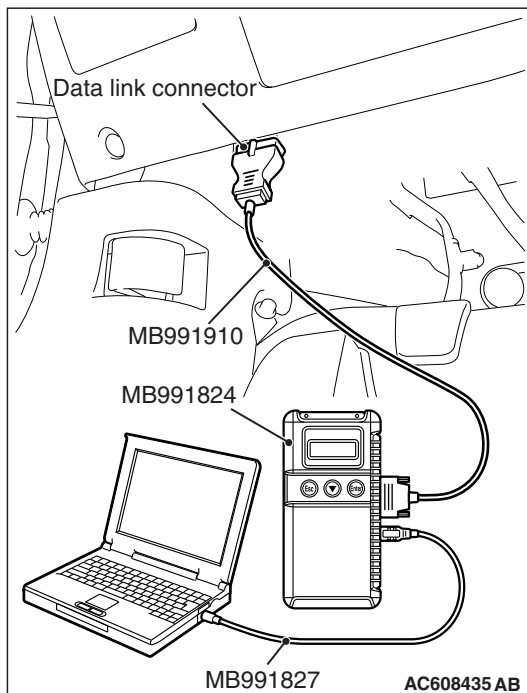
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-428."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Check for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Erase the diagnostic trouble code. The procedure is complete.

NO : Check the power supply circuit of the satellite radio tuner, and repair if necessary.

DTC U0141: ETACS CAN timeout

⚠ CAUTION

If DTC U0141 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the satellite radio tuner sets the DTC U0141.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 –16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with ETACS-ECU cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

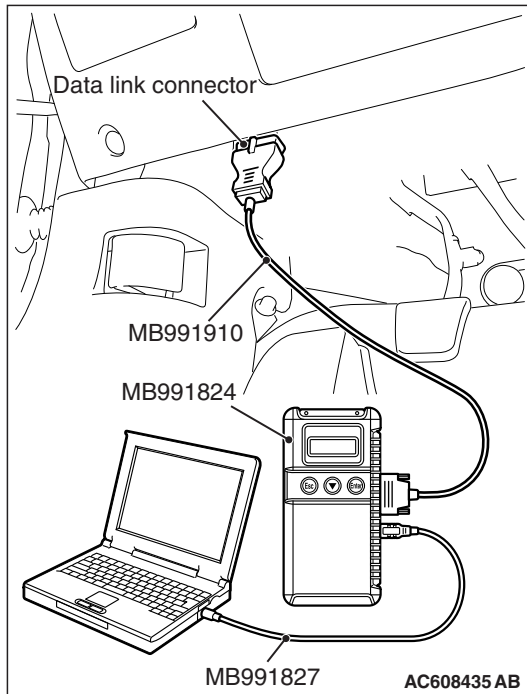
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The satellite radio tuner may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-646).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if DTC U0141 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0151: SRS-ECU CAN timeout

 **CAUTION**

- If DTC U0151 is set, be sure to diagnose the CAN bus line.
- When replacing the satellite radio tuner, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from SRS-ECU cannot be received, the satellite radio tuner sets DTC U0151.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10-16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with SRS-ECU cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The satellite radio tuner may be defective
- The SRS-ECU may be defective

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line**⚠ CAUTION**

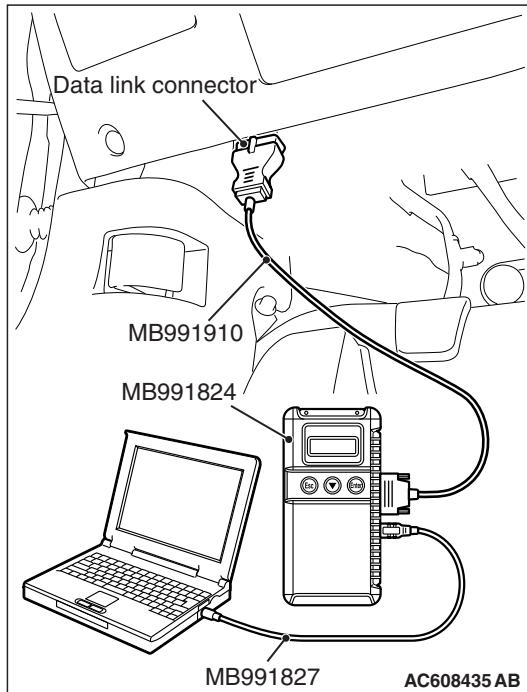
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code**

Check again if the DTC is set to the SRS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-30).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if the DTC U0151 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the SRS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0154: OCM (occupant classification-ECU) CAN timeout

 **CAUTION**

If DTC U0154 is set, be sure to diagnose the CAN bus line.

 **CAUTION**

When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the satellite radio tuner sets DTC U0154.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 –16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with occupant classification-ECU cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The satellite radio tuner may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

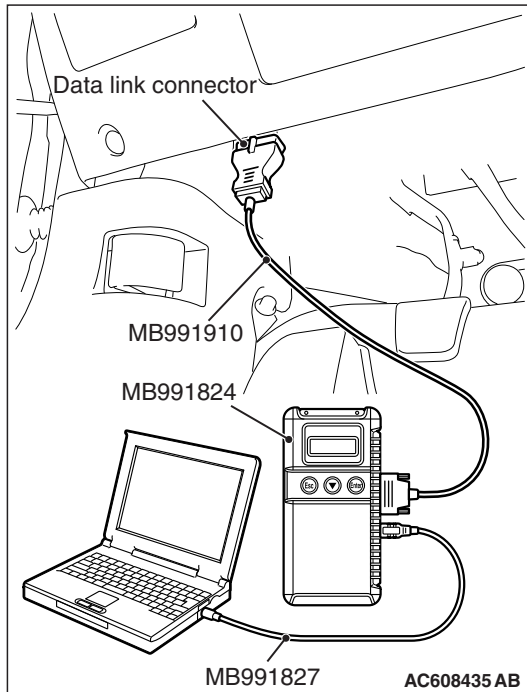
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the occupant classification-ECU diagnostic trouble code.**

Check if DTC is set to the occupant classification-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-316).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if the DTC U0154 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0155: Meter CAN timeout

 CAUTION

If DTC U0155 is set in the satellite radio tuner, diagnose the CAN main bus line.

 CAUTION

Whenever the satellite radio tuner is replaced, ensure that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from combination meter cannot be received, the satellite radio tuner sets DTC U0155.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 –16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with combination meter cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The satellite radio tuner may be defective.
- The combination meter may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: V.C.I.
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A

STEP 1. Using scan tool MB991958, diagnose the CAN bus line**⚠ CAUTION**

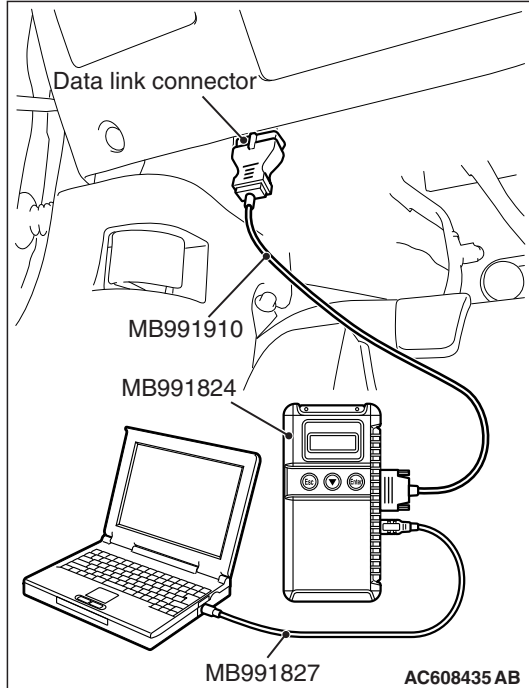
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958 read the combination meter diagnostic trouble code.**

Check whether a combination meter DTCs are set or not.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check for combination meter DTCs.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 3.

NO : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-32).

STEP 3. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the combination meter.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0164: A/C CAN timeout

 **CAUTION**

- If DTC U0164 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the satellite radio tuner sets DTC U0164.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10-16 volts (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with A/C-ECU cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The satellite radio tuner may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

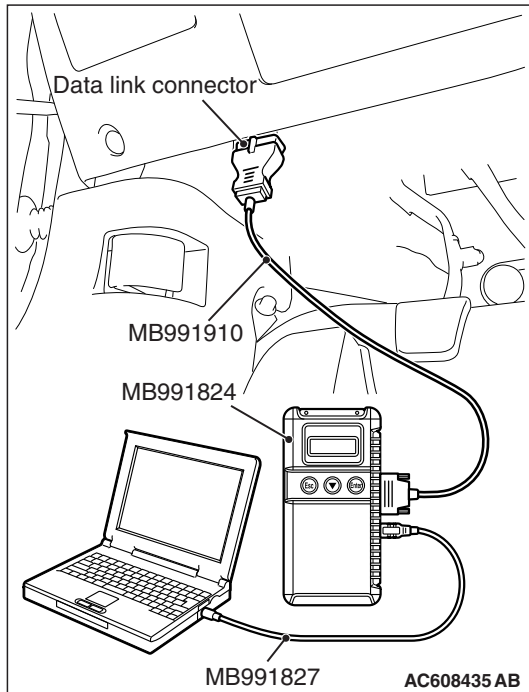
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.**

Check if DTC is set to the A/C-ECU.

Q: Is the DTC set?

YES : Troubleshoot the A/C-ECU (Refer to GROUP 55, Manual A/C Diagnosis P.55-10).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS diagnostic trouble code.

Check if the DTC U0164 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0168: WCM CAN timeout

CAUTION

- If DTC U0168 is set, be sure to diagnose the CAN bus line.
- When replacing the satellite radio tuner, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be received, the satellite radio tuner sets DTC U0168.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 –16 V (data from ETACS-ECU), power supply fuse (IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communication with KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The KOS-ECU may be defective. <vehicles with KOS>
- The WCM may be defective. <vehicles with WCM>
- The satellite radio tuner may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

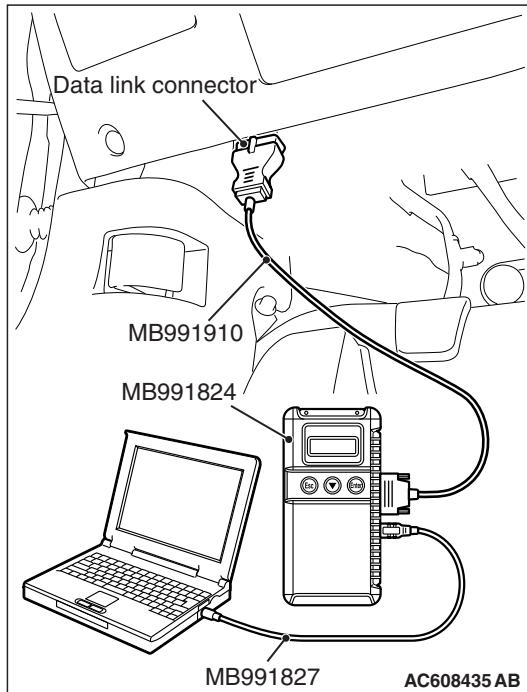
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> diagnostic trouble code.**

Check again if the DTC is set to the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM>.

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-23 <KOS> or GROUP 42C, Diagnosis P.42C-14 <WCM>), and then go to Step 3.

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

DTC U0184: Audio CAN timeout

⚠ CAUTION

- If DTC U0184 is set to the satellite radio tuner, always diagnose the CAN bus line.
- Before replacing the satellite radio tuner, ensure that the communication circuit is normal.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLE JUDGMENT

If the signal from radio and CD player cannot be received, the satellite radio tuner sets DTC U0184.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the radio and CD player cannot be established for 0.6 second or more, the satellite radio tuner determines that a problem has occurred.

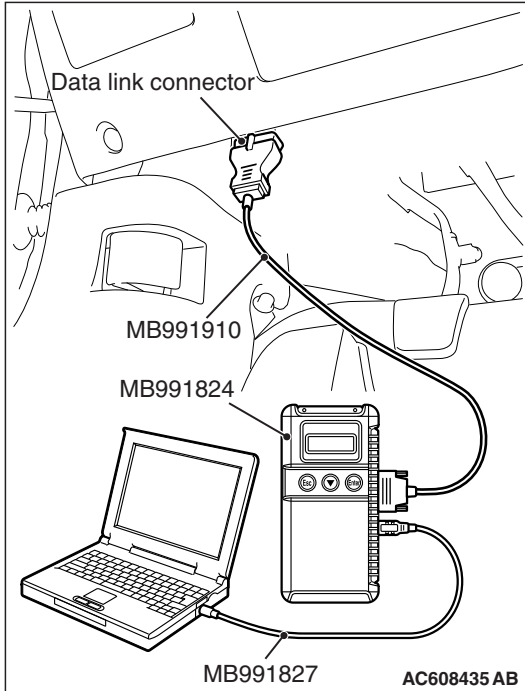
TROUBLESHOOTING HINTS

- The radio and CD changer may be defective.
- The satellite radio tuner may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

STEP 2. Using scan tool MB991958, read the radio and CD player diagnostic trouble code.

Check if DTC is set to the radio and CD player.

Q: Is the DTC set?

YES : Troubleshoot the radio and CD player (Refer to P.54A-322).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS diagnostic trouble code.

Check if the DTC U0184 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0197: Hands free module CAN timeout

CAUTION

- If DTC U0197 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from hands free module cannot be received, the satellite radio tuner sets DTC U0197.

JUDGMENT CRITERIA

With the ignition switch in the ON position, system voltage between 10 –16 volts (data from ETACS-ECU), power supply fuse(IOD fuse) is OK, or odometer value is 80.5 km (50 miles) or more, and the communications with hands free module cannot be established for 2,500 ms or more, the satellite radio tuner determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The satellite radio tuner may be defective.
- The hands free module may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicles Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

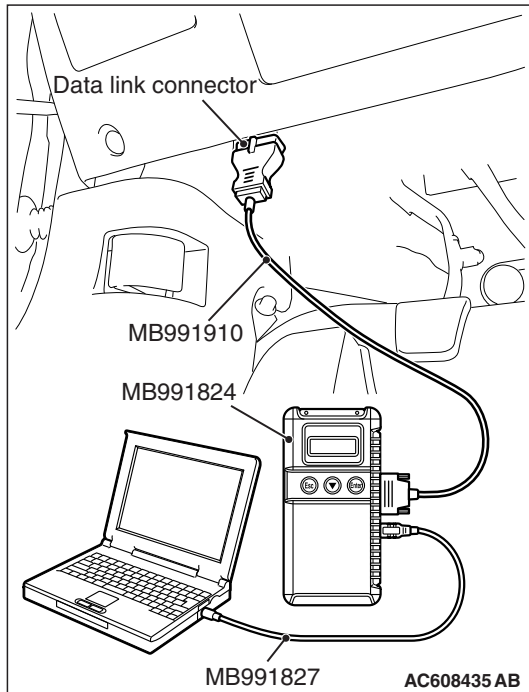
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-595."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.**

Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands free cellular phone system. (Refer to P.54A-516.)

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the DTC U0197 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the satellite radio tuner.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

TROUBLE SYMPTOM CHART

M1544016400033

Inspection Procedure No.	Trouble symptom	Reference page
1	A satellite radio cannot be received.	P.54A-618
2	Check the satellite radio tuner power supply circuit.	P.54A-623
3	The error code "ANTENNA ERROR" is displayed on the display.	P.54A-626

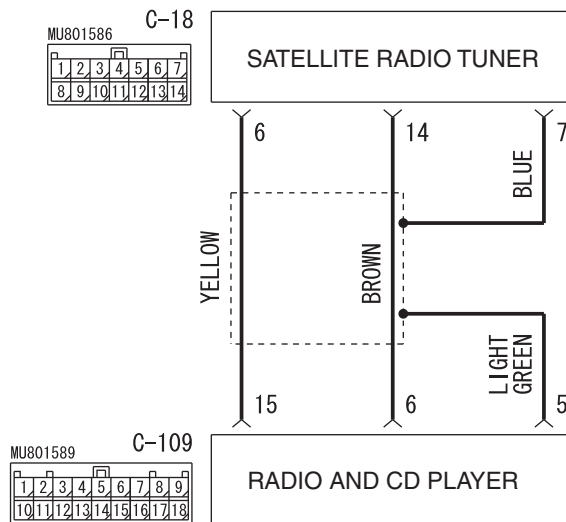
SYMPTOM PROCEDURES

Inspection Procedure 1: A satellite radio cannot be received.

CAUTION

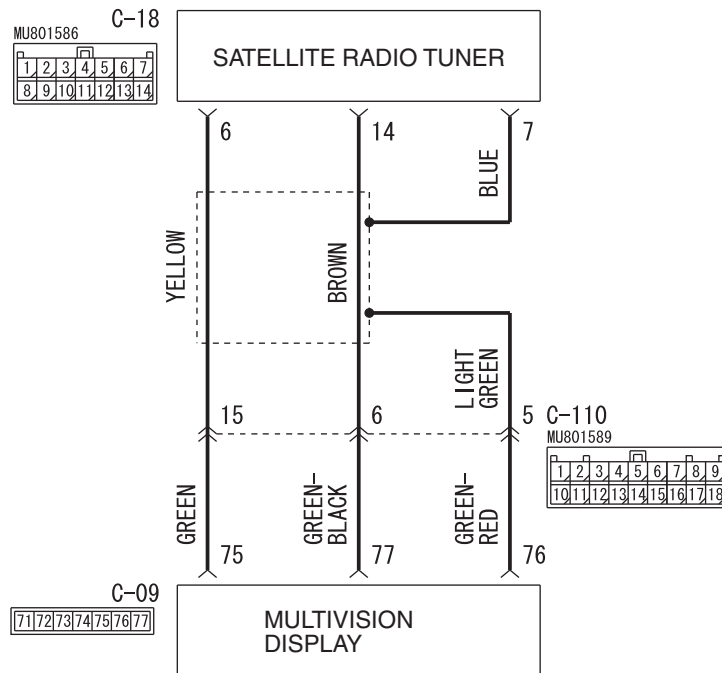
Before replacing the satellite radio tuner, antenna feeder, radio and CD player <vehicles with radio and CD player> or multivision display <vehicles with MMCS>, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Satellite Radio Tuner Communication Circuit <Vehicles with Radio and CD Player>



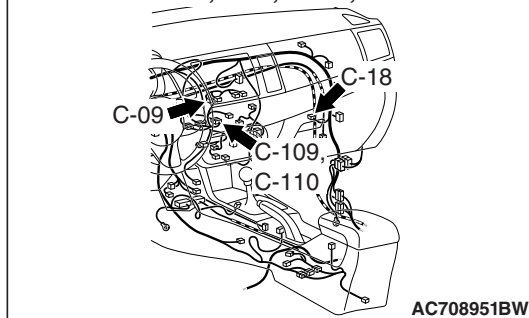
W8G54M139A

Satellite Radio Tuner Communication Circuit <Vehicles with MMCS>



W8G54M140A

Connectors: C-09, C-18, C-109, C-110



COMMENTS ON TROUBLE SYMPTOM

There may be a failure in the wiring harness from the satellite radio tuner to the radio and CD player <vehicles with radio and CD player> or multivision display <vehicles with MMCS>, its respective connector(s), the satellite radio tuner, the CD changer <vehicles with radio and CD player> or the multivision display <vehicles with MMCS>.

PROBABLE CAUSES

- The satellite radio tuner may be defective.
- The radio and CD player <vehicles with radio and CD player> or multivision display <vehicles with MMCS> may be defective.
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A

STEP 1. Check whether AM or FM broadcast frequency is received.

Check whether AM or FM broadcast frequency is received.

Q: Is AM or FM broadcast frequency received?

YES : Go to Step 2.

NO : Diagnose the radio <vehicles with radio and CD player> or the multivision display <vehicles with MMCS> (Refer to [P.54A-356](#) <vehicles with radio and CD player> or [P.54A-457](#) <vehicles with MMCS>).

STEP 2. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

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

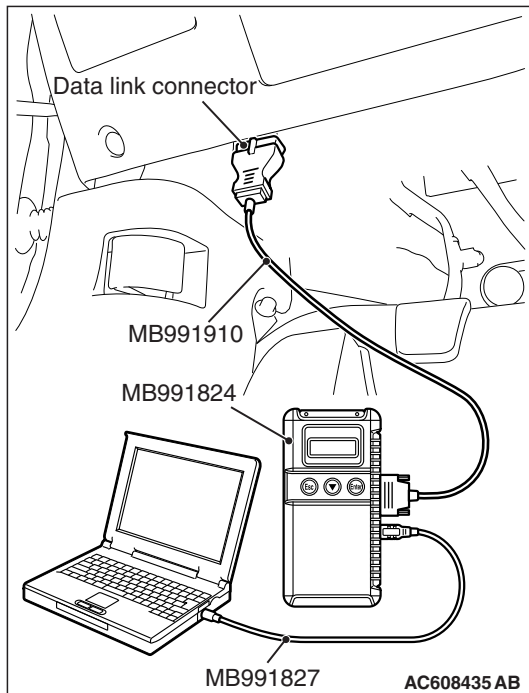
- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) [P.54A-595](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES <vehicles with radio and CD player> : Go to Step 3.

YES <vehicles with MMCS> : Go to Step 6.

NO <vehicles with radio and CD player or MMCS> :
Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis [P.54C-15](#)).

**STEP 3. Check satellite radio tuner connector C-18 and radio and CD player connector C-109 for loose, corroded or damaged terminals, or terminals pushed back in the connector.****Q: Is satellite radio tuner connector C-18 or radio and CD player connector C-109 in good condition?**

YES : Go to Step 4.

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

STEP 4. Check the wiring harness between satellite radio tuner connector C-18 (terminal 6, 14, 7) and radio and CD player connector C-109 (terminal 15, 6, 5).

- Check the communication lines for open circuit and short circuit.

Q: Is the wiring harness between satellite radio tuner connector C-18 (terminal 6, 14, 7) and radio and CD player connector C-109 (terminal 15, 6, 5) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Substitute a known good radio and CD player, and check the trouble symptom.

Check whether satellite radio broadcast can be received.

Q: Can a satellite radio be received?

YES : Replace the radio and CD player.

NO : Replace the satellite radio tuner.

STEP 6. Check satellite radio tuner connector C-18 and multivision display connector C-09 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connector C-18 or multivision display connector C-09 in good condition?

YES : Go to Step 7.

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

STEP 7. Check the wiring harness between satellite radio tuner connector C-18 (terminal 6, 14, 7) and multivision display connector C-09 (terminal 75, 77, 76).

- Check the communication lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-110 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-110 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between satellite radio tuner connector C-18 (terminal 6, 14, 7) and multivision display connector C-09 (terminal 75, 77, 76) in good condition?

YES : Go to Step 8.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 8. Substitute a known good multivision display, and check the trouble symptom.

Check whether satellite radio broadcast can be received.

Q: Can a satellite radio be received?

YES : Replace the multivision display.

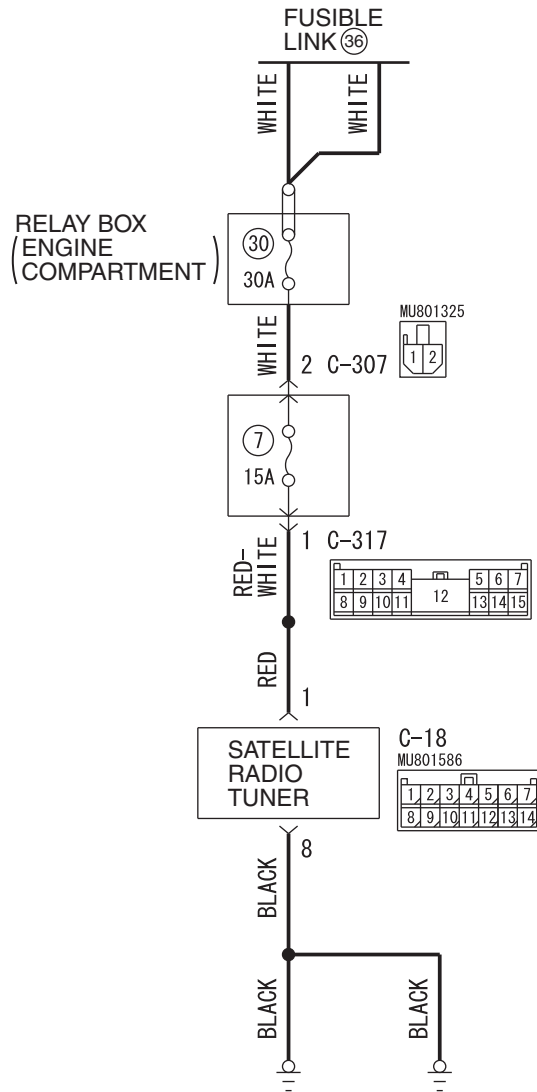
NO : Replace the satellite radio tuner.

Inspection Procedure 2: Check the satellite radio tuner power supply circuit.

CAUTION

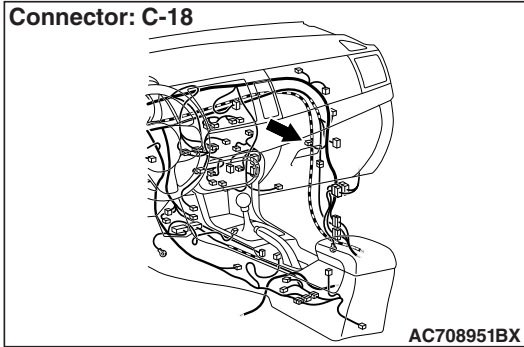
Before replacing the satellite radio tuner, antenna feeder cable, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Satellite Radio Tuner Supply Circuit



W8G54M141A

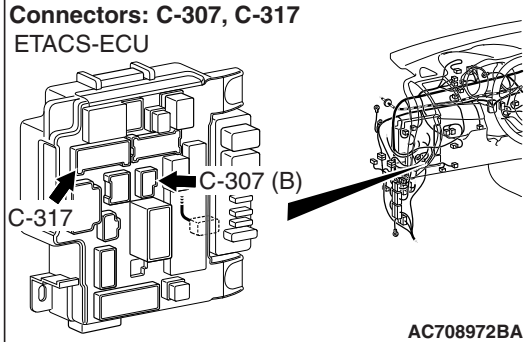
Connector: C-18

**TECHNICAL DESCRIPTION (COMMENT)**

If the satellite radio tuner functions do not work at all, the satellite radio tuner power supply system, ground system, or satellite radio tuner may have a problem.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The satellite radio tuner may be defective

Connectors: C-307, C-317
ETACS-ECU**DIAGNOSIS****Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

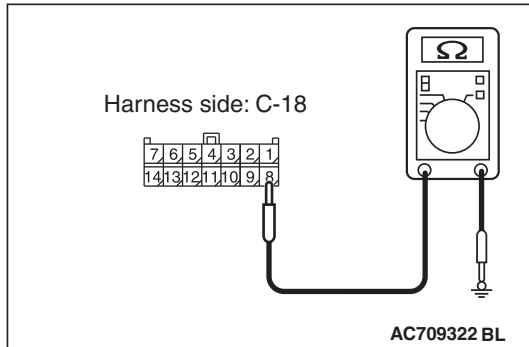
STEP 1. Check satellite radio tuner connectors C-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connectors C-18 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection

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



STEP 2. Check the ground circuit to the satellite radio tuner. Measure the resistance at satellite radio tuner connectors C-18.

- (1) Disconnect satellite radio tuner connector C-18 and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between satellite radio tuner connector C-18 terminal 8 and ground.
 - The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

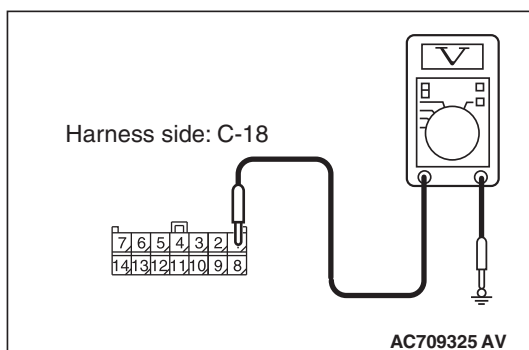
NO : Go to Step 3.

STEP 3. Check the wiring harness between satellite radio tuner connector C-18 (terminal 8) and ground.

Q: Is the wiring harness between satellite radio tuner connector C-18 (terminal 8) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.



STEP 4. Check the power supply circuit to the satellite radio tuner. Measure the voltage at satellite radio tuner connector C-18.

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Measure the voltage between terminal 1 and ground.

OK: Battery positive voltage

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between satellite radio tuner connector C-18 (terminal 1) and fusible link (36).

NOTE: Also check ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If ETACS-ECU connector C-307 or C-317 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between satellite radio tuner connector C-18 (terminal 1) and fusible link (36) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the satellite radio tuner normally.

STEP 6. Retest the system

Check if the satellite radio tuner works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

NO : Replace the satellite radio tuner.

Inspection Procedure 3: The error code "ANTENNA ERROR" is displayed on the display.**⚠ CAUTION**

Before replacing the satellite radio tuner, antenna feeder cable, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

When there is a failure in the antenna base, antenna rod, or there is an open circuit or improper connection in the antenna feeder, and the satellite radio tuner cannot receive normal voltage value or current value, the error code "ANTENNA ERROR" is displayed on the display.

TROUBLESHOOTING HINTS

- Malfunction of the antenna rod.
- Malfunction of the antenna base.
- Malfunction of the antenna feeder cable.
- Malfunction of the satellite radio tuner.

DIAGNOSIS

STEP 1. Check if the antenna base or antenna rod are damaged.

Q: Are the antenna base or antenna rod damaged?

YES : Replace the antenna base or antenna rod.

NO : Go to Step 2.

STEP 2. Check the connection between the antenna base and the antenna feeder.

Q: Is the connection between the antenna base and the antenna feeder normal?

YES : Go to Step 3.

NO : Repair the connection.

STEP 3. Check if the antenna feeder is damaged.

Q: Is the antenna feeder damaged or bent?

YES : Repair or replace the antenna feeder.

NO : Go to Step 4.

STEP 4. Check the connection between the antenna feeder cable and the satellite radio tuner.

Q: Is the connection between the antenna feeder and the satellite radio tuner normal?

YES : Go to Step 5.

NO : Repair the connection.

STEP 5. Temporarily replace the antenna base, and check if "ANTENNA ERROR" is displayed on the display.

Q: Is "ANTENNA ERROR" displayed on the display?

YES : Replace the satellite radio tuner.

NO : Replace the antenna base.

ON-VEHICLE SERVICE

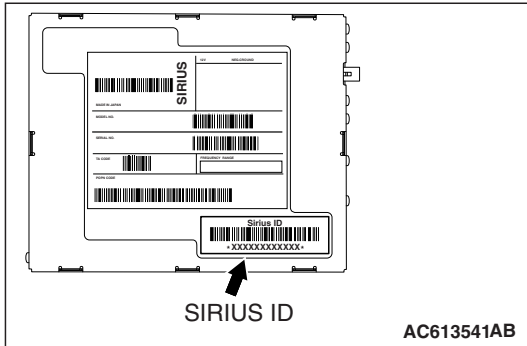
HOW TO READ SIRIUS ID

M1544018300021

READ THE SIRIUS ID DIRECTLY FROM THE
SATELLITE RADIO TUNER.

When the SIRIUS ID (12 digits) cannot be displayed by operating the multivision display, or radio and CD player, it can be read directly by the satellite radio tuner.

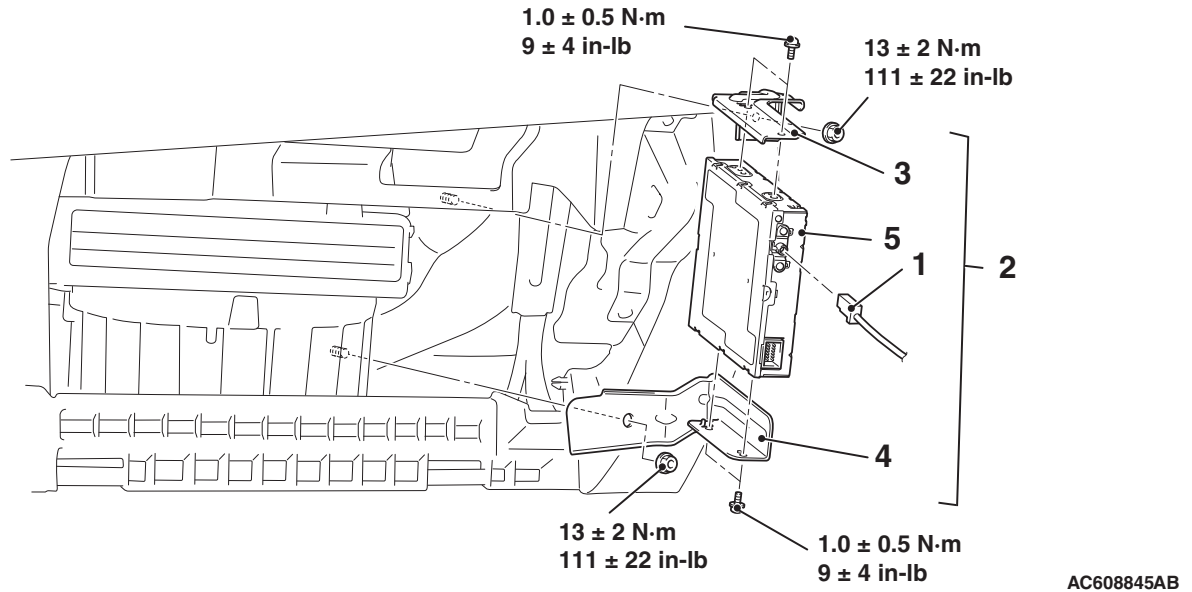
1. Remove the satellite radio tuner. Refer to P.54A-628.
2. Read the SIRIUS ID (12 digits) from the satellite radio tuner.



REMOVAL AND INSTALLATION

M1544016100043

<p>Pre-removal operation</p> <ul style="list-style-type: none"> • Removal of glove box, bottom cover (Refer to GROUP 52A –Glove Box P.52A-7.) 	<p>Post-installation operation</p> <ul style="list-style-type: none"> • Installation of glove box, bottom cover (Refer to GROUP 52A –Glove Box P.52A-7.)
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Removal Steps

1. Satellite radio tuner connector
2. Satellite radio tuner assembly
3. Audio equip bracket (upper)

Removal Steps (Continued)

4. Audio equip bracket (lower)
5. Satellite radio tuner

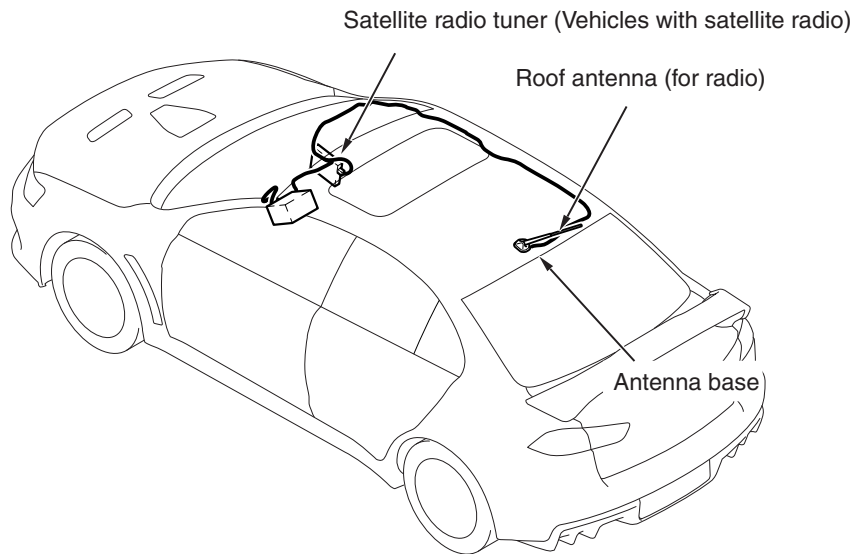
ANTENNA

GENERAL INFORMATION

M1544200500024

The roof antenna has been adopted for the radio.
The antenna base incorporates the radio amplifier.
When the satellite radio tuner is installed, the
antenna base that also corresponds to the satellite
radio is installed.

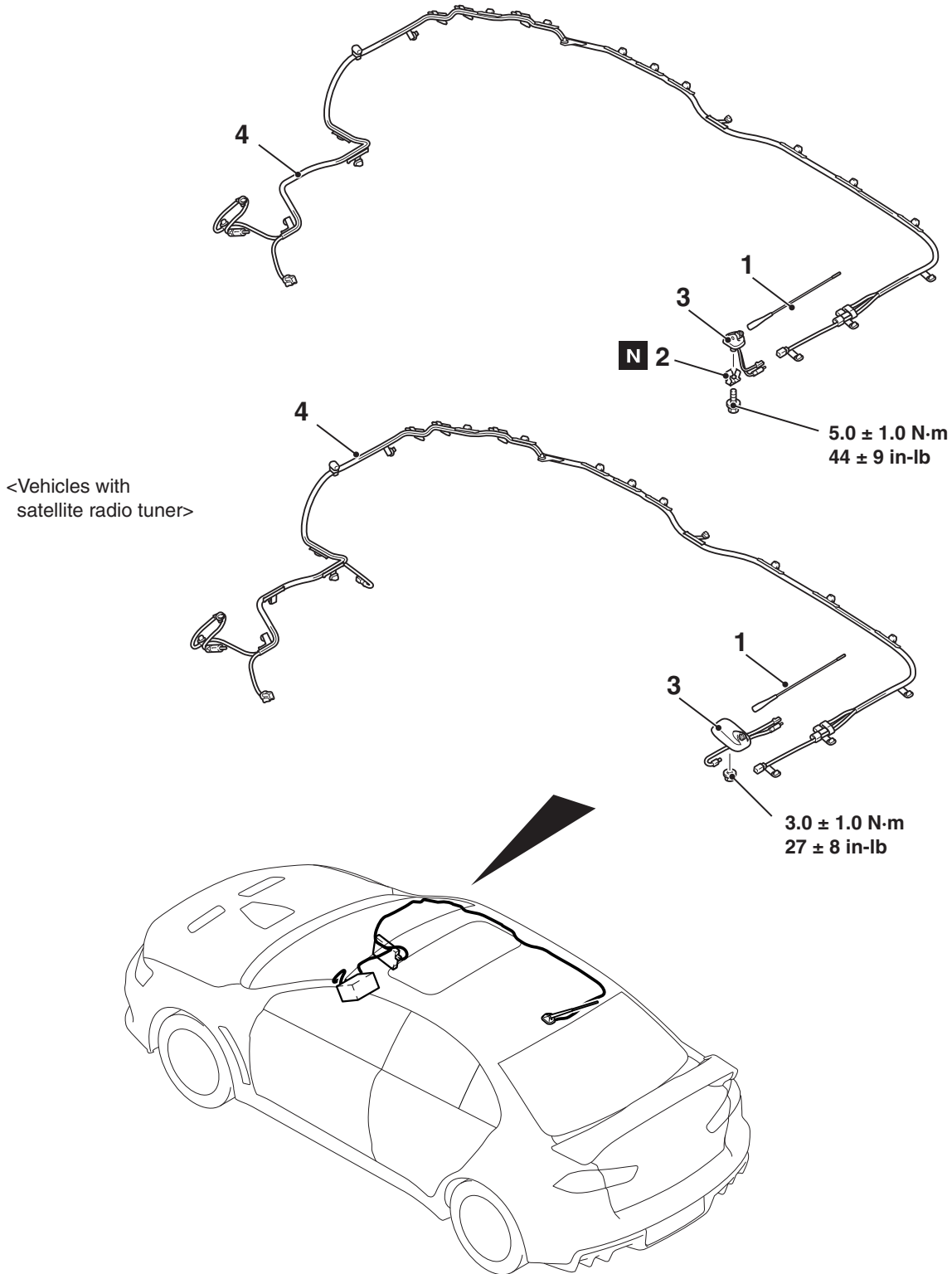
CONSTRUCTION DIAGRAM



AC708816AB

REMOVAL AND INSTALLATION

M1544200200294



- Removal Steps**
1. Antenna rod
 - Headlining (Refer to GROUP 52A – Headlining [P.52A-18](#)).

- Removal Steps (Continued)**
2. Antenna spring <Vehicles without satellite radio tuner>
 3. Antenna base

AC708876AB

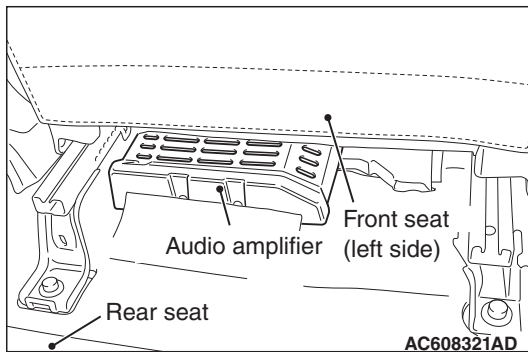
Removal Steps (Continued)

- Radio and CD player (Refer to [P.54A-408](#)). <Vehicles with radio and CD player>
 - Multivision display assembly (Refer to [P.54A-408](#)). <Vehicles with MMCS>
 - Glove box cover (Refer to GROUP 52A –Glove Box [P.52A-7](#)).
 - Rear side roof energy absorption box (RH) <Vehicle with sunroof>(Refer to GROUP 52A – Headlining [P.52A-18](#)).
4. Antenna feeder

AMPLIFIER

GENERAL INFORMATION

M1544000100925



The 8-ch high-power audio amplifier with integrated DSP (total maximum output of 650 W) equipped with the front seat (left side) has been combined with the 9-speaker 7-position system, adopting the Rockford Fosgate® premium sound system. The audio amplifier offers the clear treble without distortion.

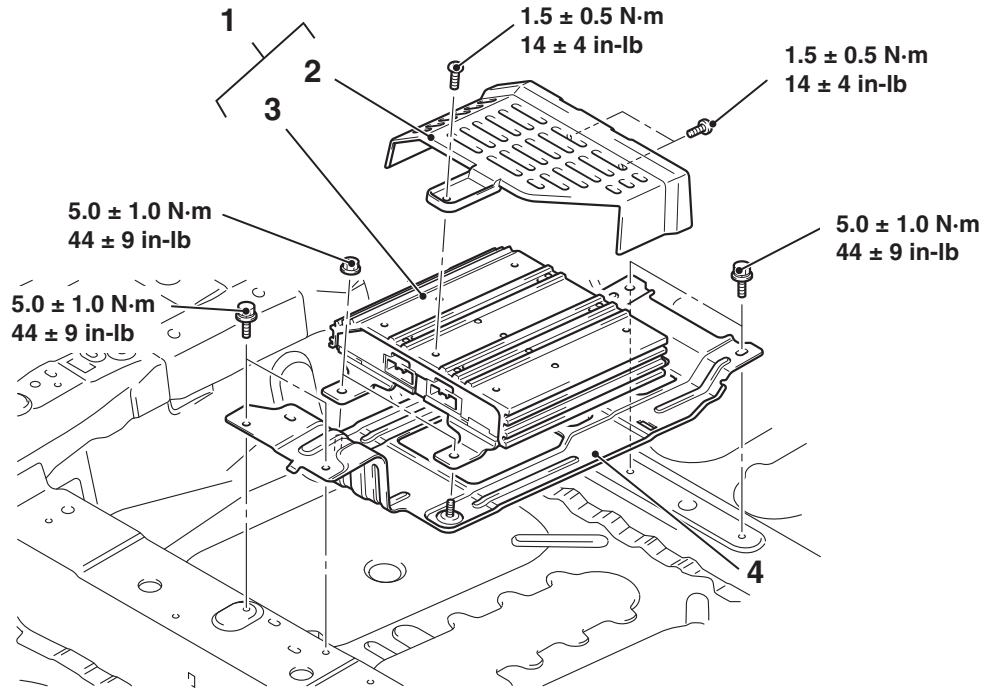
REMOVAL AND INSTALLATION

M1544004100477

CAUTION

To remove the front seat assembly of vehicle with side air bag, refer to GROUP 52B –Service Precautions P.52B-24 and Curtain Air Bag Module(s) P.52B-436.

<p>Pre-removal operation Removal of front seat assembly (Refer to GROUP 52A – Front Seat Assembly P.52A-21).</p>	<p>Post-installation operation Installation of front seat assembly (Refer to GROUP 52A – Front Seat Assembly P.52A-21).</p>
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AC608802 AB

Removal Steps

1. Audio amplifier assembly
2. Audio amplifier cover

<<A>>

Removal Steps (Continued)

3. Audio amplifier
4. Audio amplifier box bracket

REMOVAL SERVICE POINT

<<A>> REMOVAL OF AUDIO AMPLIFIER BOX BRACKET

Turn up the carpet, and remove the audio amplifier box bracket.

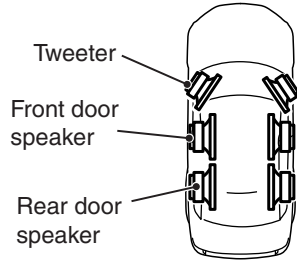
SPEAKER

GENERAL INFORMATION

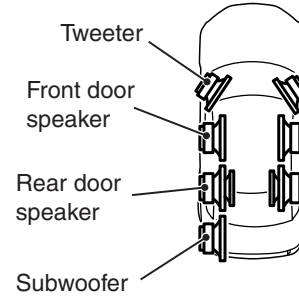
M1544101000100

The following two types of speakers are available.

<6 speakers>



<9 speakers 7 position system>



AC705512AB

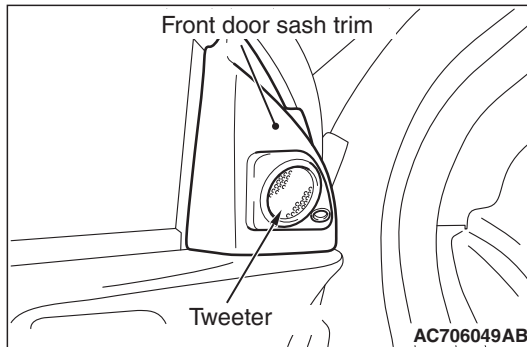
- 6 speakers (tweeter: 3.5 cm, front door: 16 cm, rear door: 16 cm)

- 9 speakers 7 position system (tweeter: 3.5 cm, front door: 16 cm, rear door: 2-way coaxial 16 cm, subwoofer: 25 cm) <Rockford Fosgate® premium sound system>

Specification

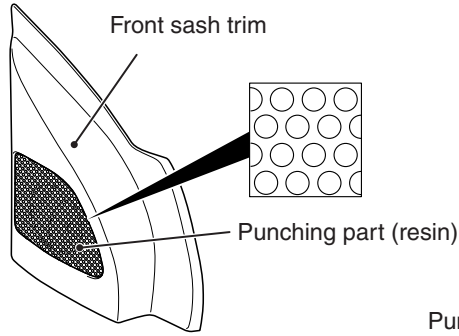
Item	<Vehicles with 6 speakers>		<Vehicles with 9 speakers 7 position system>	
	Allowable input power	Rated input power	Allowable input power	Rated input power
Front tweeter	25W	3W	50W	25W
Front door speaker	35W	15W	75W	50W
Rear door speaker	35W	15W	80W	50W
Subwoofer	-	-	150W/150W	75W/75W

TWEETER

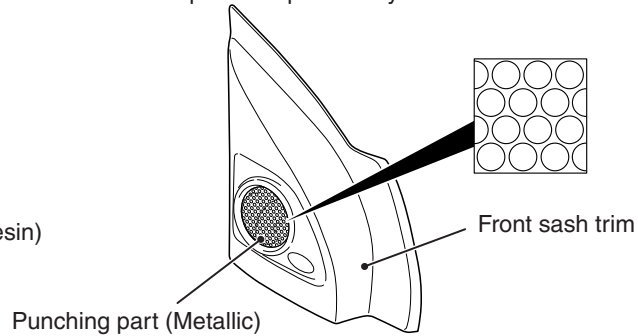


For the front door sash trim, two types of tweeters, the balance dome tweeter <Vehicles with 6 speakers> and soft dome tweeter <Vehicles with 9 speakers 7 position system>, have been established. The soft dome tweeter can play clearer treble with less distortion compared to the balance dome tweeter.

<Vehicles with 6 speaker>



<Vehicles with 9 speaker 7 position system>



AC704906AB

Also, two types of front sash trim, a resin type <vehicles with 6 speakers> and punching metal type <vehicles with 9 speaker 7 position system>, are available. With the punching metal type, the metal is adopted for the punching part to enlarge the punching opening, enabling the playback of cleaner treble.

DOOR SPEAKER

Front door speaker

- For vehicles with 6-speaker, the 16-cm paper cone speaker has been established.
- For vehicles with 9-speaker 7-position system, the 16-cm PP (polypropylene) cone speaker has been established.

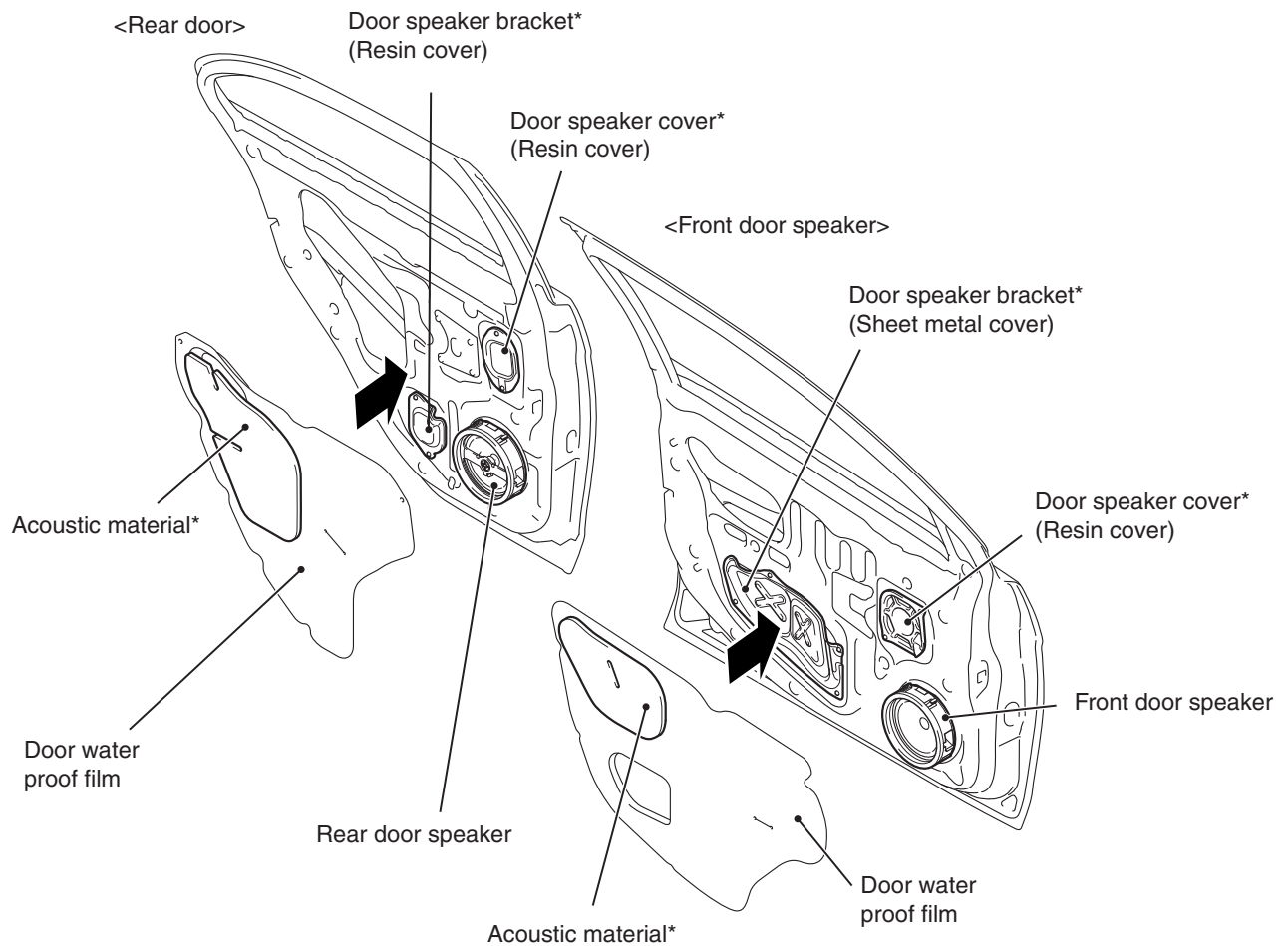
Compared to the paper cone speakers, the PP (polypropylene) cone speakers can playback crisper bass.

Rear door speaker

- For vehicles with 6-speaker, the 16-cm paper cone speaker has been established.
- For vehicles with 9-speaker 7-position system, the 16-cm PP (polypropylene) cone 2-way coaxial speaker has been established.

As for the PP (polypropylene) cone 2-way coaxial speaker, high/low-pitched speakers have been arranged on the same axle, corresponding to the well-balanced and wide pitch ranges.

Door speaker box



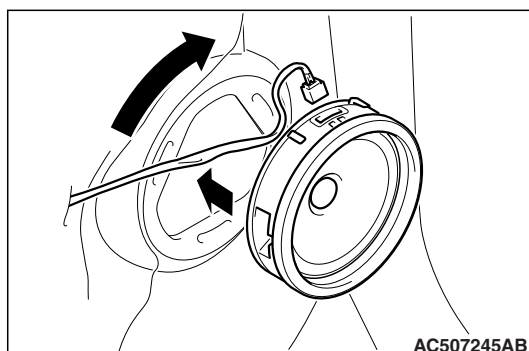
AC608347AC

NOTE: The parts with "*" are installed exclusively to the vehicles with 9 speaker 7 position system (Rockford Fosgate premium sound system).

For vehicles with 9-speaker 7-position system, the door opening of the vehicle has been blocked by the door speaker bracket (front: sheet metal cover, rear: resin cover), door speaker cover (resin cover), and acoustic material of door water proof film to make the door into a speaker box, thus improving the sound quality. As an advantage of the door speaker bracket

(sheet metal cover), the rigidity of the areas around the speaker has been increased, and the higher sound pressure, suppression of high harmonic, and suppression of dumping are achieved to improve sound quality.

Serviceability

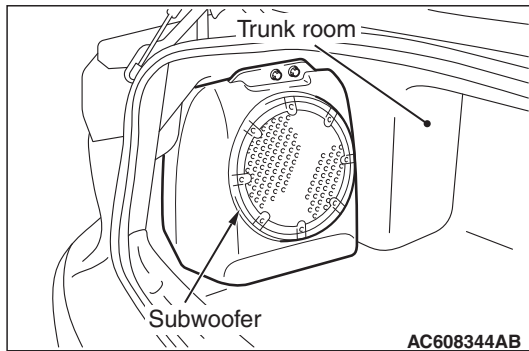


AC507245AB

The one-touch installable speaker (with 3 tabs, fixed by rotating) has been adopted to improve serviceability.

SUBWOOFER <VEHICLES WITH 9 SPEAKER 7 POSITION SYSTEM>

To the trunk room, a 25-cm dual voice coil subwoofer and a 20-liter subwoofer sealed box are installed. The punched sound with dynamic deep bass and rhythm can be played back.

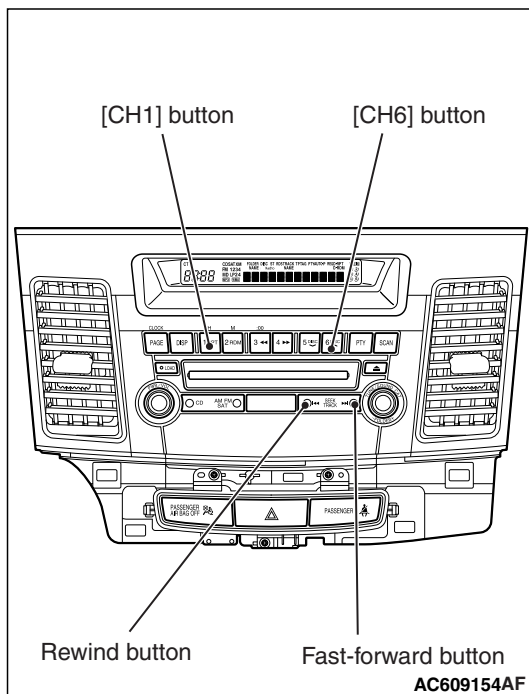
**ON-VEHICLE SERVICE****SPEAKER TEST <VEHICLES WITH RADIO AND CD PLAYER>**

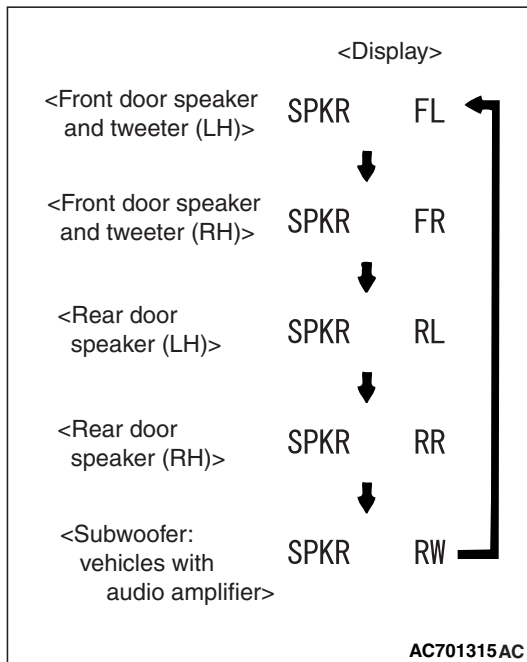
M1544100500511

SPEAKER CONNECTION CHECK MODE

Enter the speaker connection check mode according to the following steps:

1. Turn the Ignition switch to the "ACC" or "ON" position and switch off the radio and CD player.
2. Press the following buttons in that order within sixty seconds from step (1).
 - (1) [CH1] button
 - (2) Rewind button
 - (3) Fast-forward button
 - (4) [CH6] button





3. Check that the speaker, which is displayed on the center panel display, sounds (If the [CH6] button is pressed, the speaker will be changed).

NOTE: The display of "FL", "FR", "RL", "RR", "RW" blinks.

4. If a button other than the [CH6] button is pressed, or the ignition switch is turned to "LOCK" (OFF) position, you will exit from the speaker connection check mode.

BUZZ NOISE CHECK MODE

Inserting a CD during the speaker connection check mode shifts the mode to the buzz noise check mode, and the buzz noise sound of each speaker can be checked.

As with the speaker connection check mode, press the [CH6] button to switch the output speaker of the buzz noise check sound.

Check that the buzz noise sound is output from the output speaker of buzz noise check sound.

NOTE: "SPKR" is displayed as "BUZZ" during buzz noise check mode.

SPEAKER TEST <VEHICLES WITH MMCS>

M1544100500209

Refer to [P.54A-413](#)

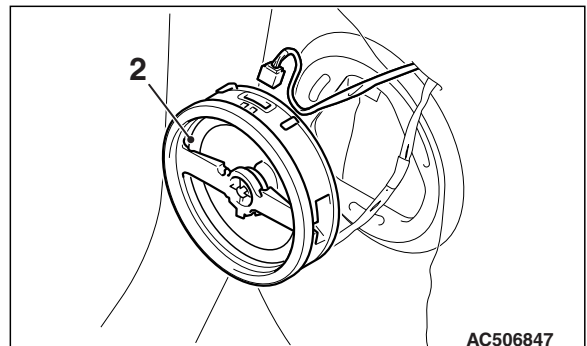
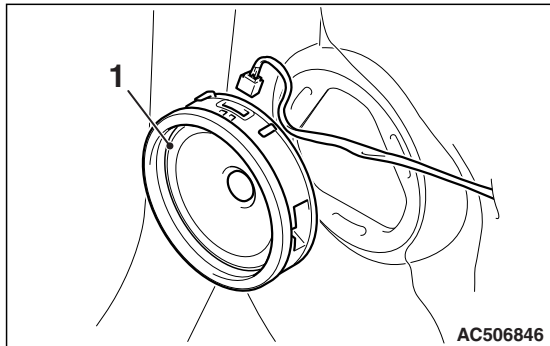
REMOVAL AND INSTALLATION

M1544100300335

DOOR SPEAKER

Pre-removal Operation

Learning of the power window fully closed position (Refer to GROUP 42A -Door, On-vehicle service [P.42A-123](#)).



AC507216 AB

Front Door Speaker Removal Steps

- Front door trim (Refer to GROUP 52A -Door Trim [P.52A-16](#)).
1. Front door speaker

Rear Door Speaker Removal Steps

- Rear door trim (Refer to GROUP 52A -Door Trim [P.52A-16](#)).
2. Rear door speaker

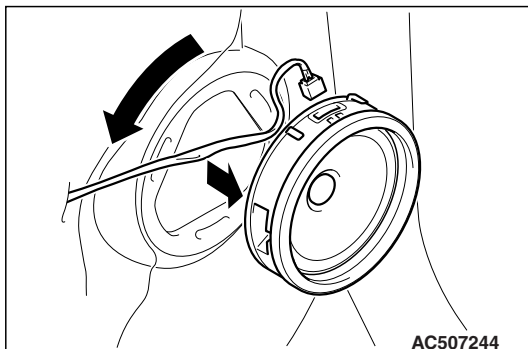
<<A>>

<<A>>

REMOVAL SERVICE POINT

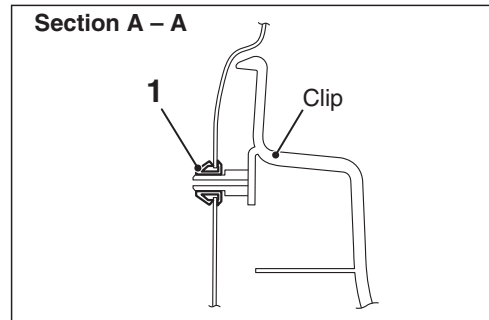
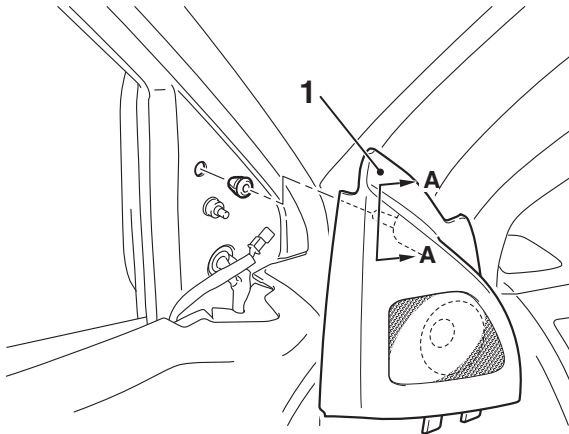
<<A>> REMOVAL OF FRONT DOOR SPEAKER AND REAR DOOR SPEAKER

Disconnect the connector, and remove by twisting as shown in the figure.

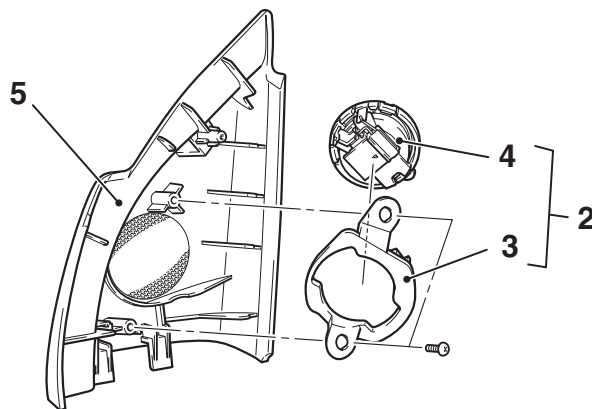


AC507244

TWEETER



AC804034AB



AC608782AB

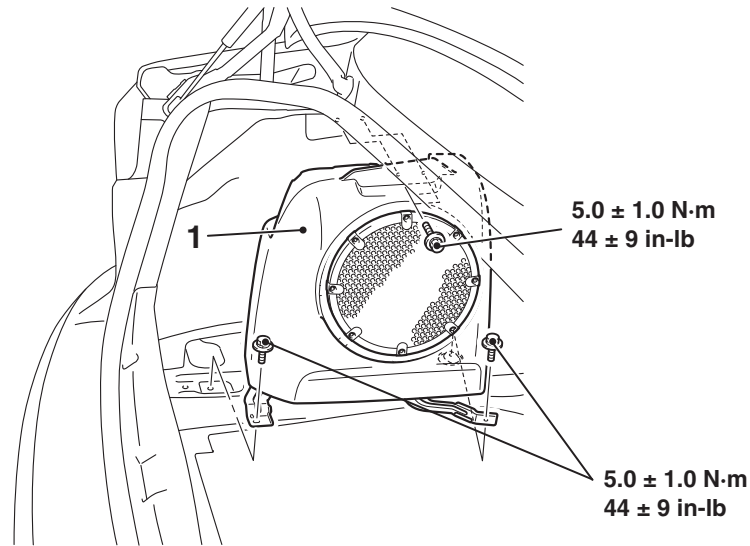
Removal Steps

1. Front door sash trim assembly
2. Tweeter bracket and Tweeter
3. Tweeter bracket

Removal Steps (Continued)

4. Tweeter
5. Front door sash trim

SUBWOOFER



AC608803AB

Removal Step

1. Rear speaker box assembly

ETACS

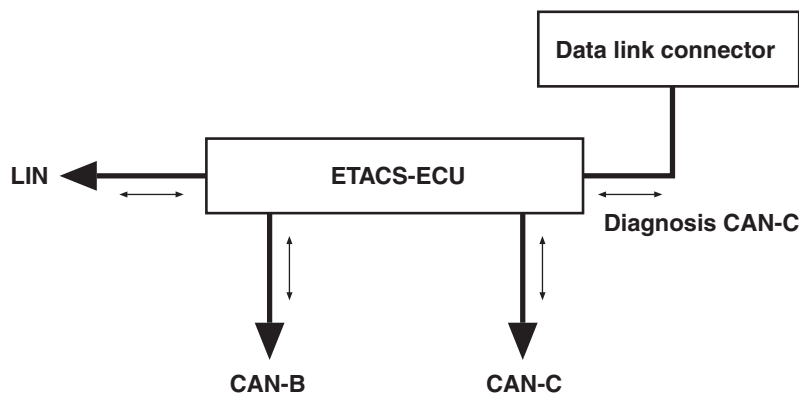
GENERAL INFORMATION

ETACS* -ECU has three main functions (gateway function, coding function and body electrical equipment control function).

M1545000100285

NOTE: *: ETACS (Electronic Time and Alarm Control System)

GATEWAY FUNCTION



AC605856 AE

As a central ECU for the on-vehicle communication network system established in the vehicle, the gateway function is integrated into ETACS-ECU. The gateway function offers the following functions:

- Data transfer among four networks*
Transfers the data flowing in a network to another network in real time.

*NOTE: *: CAN-C (power train network), CAN-B (middle-speed body network), LIN (low-speed body network), diagnosis CAN-C (diagnosis exclusive network)*

- Diagnosis of each network communication line
Detects and stores an open circuit and short circuit of communication line.
- Communication error diagnosis of network ECUs
Detects and stores the ECU that is not properly transmitting data.

CODING FUNCTION

By writing the coding data such as vehicle model, destination, and equipment level to ECUs, the functions of ECUs can be changed. There are two types of coding method, the local coding and global coding.

BODY ELECTRICAL EQUIPMENT CONTROL FUNCTION

This function controls the following electrical equipment.

- Exterior lights
- Wiper, washer
- Central door locking system
- Interior light
- Keyless entry, keyless operation system
- Theft alarm system

- Power supply control
- Fan control

FUNCTION AND CONTROL

ACC POWER SUPPLY AUTOMATIC SHUTDOWN FUNCTION <INITIAL CONDITION: WITH FUNCTION (30 MINUTES)>

The function to shutdown the ACC power supply after 30 or 60 minutes with the ignition switch being ACC has been adopted.

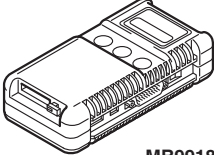
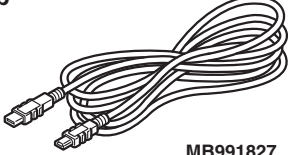
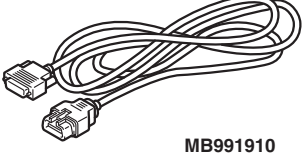
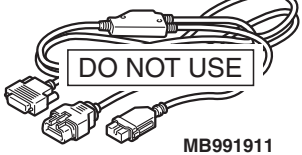
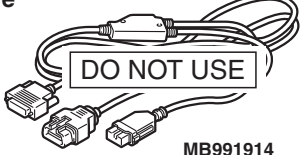
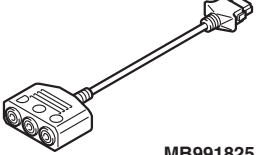
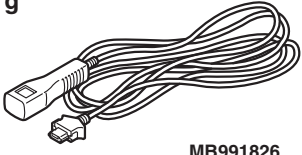
ENGINE CONTROL

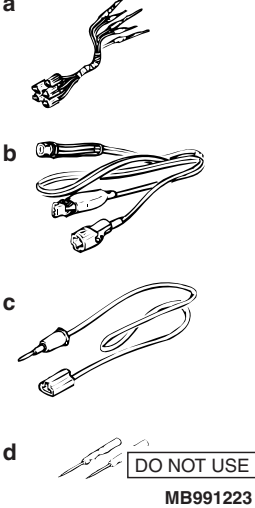
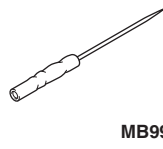
After the ignition switch is turned to the LOCK (OFF) position and the engine stops running, it takes approximately 1 second until the power of the vehicle is turned off. During the period until engine is stopped, the gear engagement in TC-SST is released in order to start the engine smoothly at the next startup.

FAN CONTROL

Even after the engine is stopped, if the temperature in engine compartment is high, the engine compartment temperature is lowered by the operation of cooling fan for a specified period.

SPECIAL TOOL

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub-assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.</p> <p>ETACS-ECU check (Diagnostic trouble code, service data)</p>

Tool	Tool number and name	Supersession	Application
	<p>MB991223</p> <p>a. MB991219 b. MB991220 c. MB991221 d. MB991222</p> <p>Harness set</p> <p>a. Test harness b. LED harness c. LED harness adaptor d. Probe</p>	<p>General service tools</p>	<p>Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector.</p> <p>a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection</p>
	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Making voltage and resistance measurement during troubleshooting</p>

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

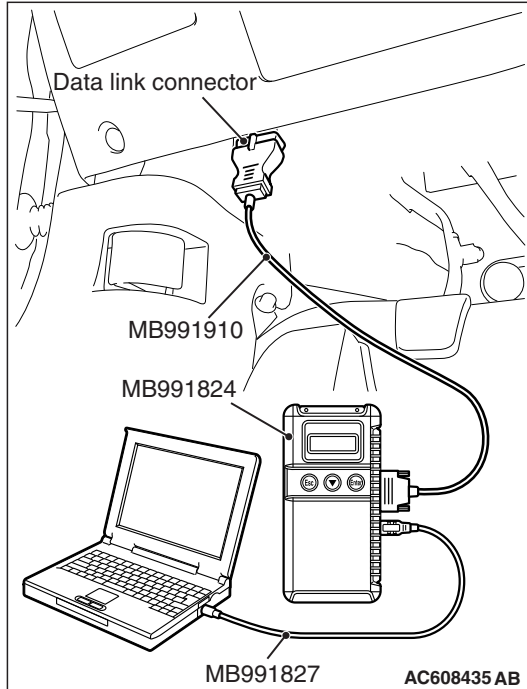
Refer to GROUP 00, Contents of troubleshooting [P.00-7](#). M1545000900076

DIAGNOSTIC FUNCTION

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III) M1545001000195

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

**⚠ CAUTION**

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

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.

7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.

6. Select "Diagnostic Trouble Code" to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)

- MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)
1. Connect scan tool MB991958 to the data link connector.
 2. Turn the ignition switch to the "ON" position.
 3. Select "CAN bus diagnosis" from the start-up screen.
 4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
 5. Select the "view vehicle information" button.
 6. Enter the vehicle information and select the "OK" button.
 7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
 8. Select the "OK" button.
 9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the scan tool (GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

When detecting fault and storing the DTC, the ECU connected to CAN bus line obtains the data before the determination of the DTC and the data when the DTC is determined, and then stores the ECU status of that time. By analyzing the data from scan tool, the troubleshooting can be performed more efficiently. The displayed items are as shown in the table below.

DISPLAY ITEM LIST

Item No.	Item name	Data item	Unit
01	Odometer	Total driving distance after the diagnostic trouble code is generated	mile ^{*1}
02	Ignition cycle	Number of times the ignition switch is turned "ON" or "LOCK (OFF)" after the past failure transition	Number of counts is displayed.
03	Elapsed time after failure	Total elapsed time after a diagnostic trouble code is generated	min ^{*2}
04	Current trouble accumulative time	Cumulative time for current malfunction of diagnostic trouble code	min

NOTE:

- ^{*1}: If a failure occurs to both the ASC-ECU and ETACS-ECU, 0000 mile or FFFF mile is displayed to the scan tool MB991958.
- ^{*2}: Total elapsed time can be stored up to 65,534 minutes (45.5 days). The display of scan tool is fixed to 65,534 minutes after 65,534 minutes have elapsed. Or, if the battery is disconnected, the total elapsed time cannot be measured prop-

erly. Thus, 65,535 minutes (null value) is displayed. Because it is calculated based on the ETACS-ECU information, the correct display may not be shown if the ETACS-ECU has had a time-out.

DIAGNOSTIC TROUBLE CODE CHART

M1545001100824

DTC No.	Trouble content	Reference page	
U0001	Bus off (CAN-C)	P.54A-647	
U0019	Bus off (CAN-B)		
U0100	Engine control module CAN timeout	P.54A-649	
U0101	TC-SST-ECU CAN timeout	P.54A-651	
U0103	Shift lever CAN timeout	P.54A-653	
U0121	ASC-ECU CAN timeout	P.54A-655	
U0126	Steering wheel sensor CAN timeout	P.54A-657	
U0136	S-AWC-ECU CAN timeout	P.54A-659	
U0151	SRS-ECU CAN timeout	P.54A-661	
U0154	Occupant classification-ECU CAN timeout	P.54A-663	
U0155	Combination meter CAN timeout	P.54A-665	
U0164	A/C-ECU or heater control unit CAN timeout	P.54A-667	
U0168	WCM or KOS-ECU CAN timeout	P.54A-669	
U0184	Audio CAN timeout	P.54A-671	
U0195	Satellite radio tuner CAN timeout	P.54A-673	
U0197	Hands free module CAN timeout	P.54A-675	
U0245	CAN box unit CAN timeout	P.54A-677	
U1108	Excess CAN-B ECU detection	P.54A-679	
U1120	Bus line (CAN-C) low input	P.54A-681	
U1121	Bus line (CAN-C) high input		
U0169	Sunroof LIN timeout <Vehicles with sunroof>	Refer to GROUP 54B, Diagnosis P.54B-6.	
U0215	P/W SW (DR) LIN timeout		
U0231	Lighting control sensor LIN timeout <Vehicles with auto light function>		
U1109	Column SW LIN timeout		
U150B	Column SW checksum error		
U150C	P/W SW (DR) checksum error		
U1511	Sunroof checksum error <Vehicles with sunroof>		
U1512	Lighting control sensor checksum error <Vehicles with auto light function>		
U1514	Bit error (LIN)		
U1515	No-Bus activity error (LIN)		
U0331*	ECU internal error		P.54A-682
B1034	Ambient air temperature sensor system (short circuit)		Refer to GROUP 55, Auto A/C Diagnosis P.55-10.
B1035	Ambient air temperature sensor system (open circuit)		
B16A0	Taillight (RH) open circuit	P.54A-217	
B16A1	Taillight (LH) open circuit		

DTC No.	Trouble content	Reference page
B16A2	Blown turn-signal light (LH) bulb	P.54A-119
B16A3	Turn-signal light (LH) short circuit	
B16A4	Blown turn-signal light (RH) bulb	
B16A5	Turn-signal light (RH) short circuit	
B16A6	Turn-signal fuse blown	
B16A7	Taillight (RH) short circuit	P.54A-217
B16A8	Taillight (LH) short circuit	
B1761*	VIN not recorded	P.54A-684
B210A	+B power supply (low input)	P.54A-685
B210B	+B power supply (high input)	
B222C*	Coding incomplete	P.54A-689
B2206*	Chassis number does not match	P.54A-690
B2215*	ECU internal error	P.54A-691
B2350	Lighting switch	P.54A-310
B2351	Wiper switch	
B2353	Ignition power supply (low input)	P.54A-692
B2354	Ignition power supply (high input)	

*NOTE: *: If diagnostic trouble codes No. U0331, B1761, B222C, B2206, or B2215 is set, there may be an error with the coding data stored in the ETACS-ECU.*

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC U0001: Bus off (CAN-C)

DTC U0019: Bus off (CAN-B)

⚠ CAUTION

- If DTC U0001 or U0019 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGEMENT

When the ETACS-ECU is returned from the bus off state, or when the bus off error is indicated to the ETACS-ECU state, the DTC U0001 (CAN-C) or U0019 (CAN-B) is stored.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU may have a malfunction, or the ETACS-ECU power supply or ground circuit may have a problem.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

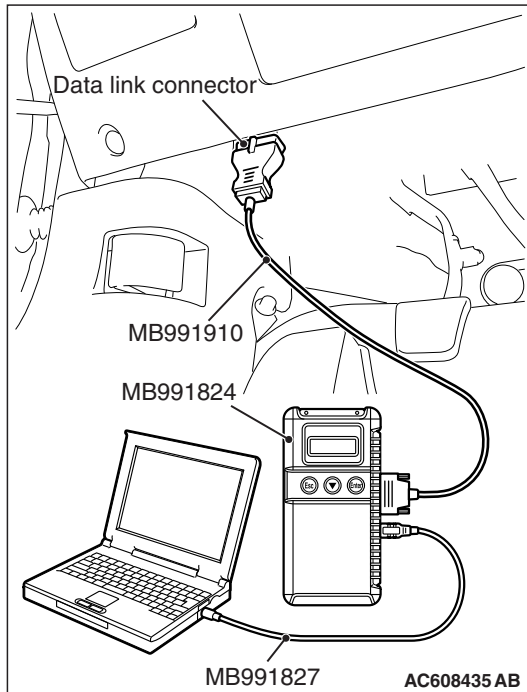
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Recheck for diagnostic trouble code.**

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-15).

DTC U0100: Engine control module CAN timeout

CAUTION

- If DTC U0100 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from engine control module cannot be received, the ETACS-ECU sets DTC U0100.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the engine control module cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The Engine control module may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

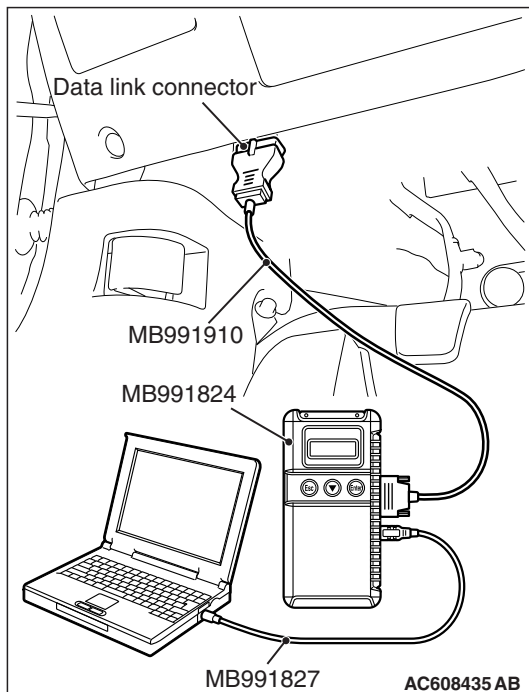
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the engine control module diagnostic trouble code.

Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the engine (Refer to GROUP 13A, Diagnostic Trouble Code Chart [P.13A-48](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if DTC U0100 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the engine control module.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the engine control module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the engine control module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0101: TC-SST-ECU CAN timeout

CAUTION

- If DTC U0101 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from TC-SST-ECU cannot be received, the ETACS-ECU sets the DTC U0101.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the TC-SST-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The TC-SST-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

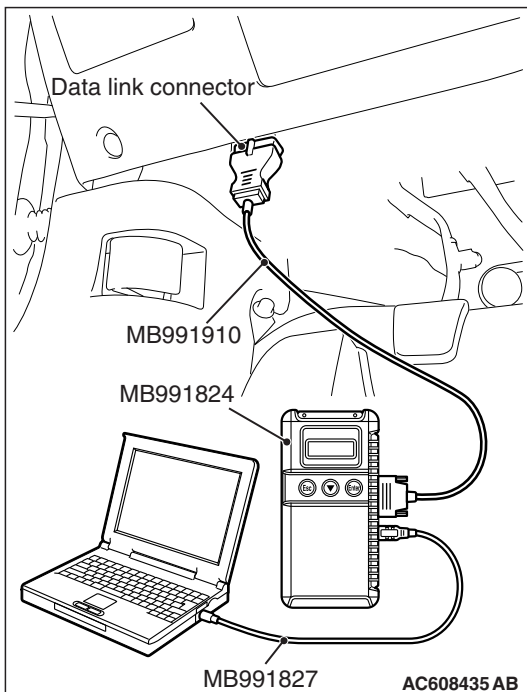
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the TC-SST diagnostic trouble code.

Check if DTC is set to the TC-SST-ECU (Refer to GROUP 22C, Diagnosis [P.22C-15](#)).

Q: Is the DTC set?

YES : Troubleshoot the TC-SS.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the engine control module diagnostic trouble code.

Check if the DTC U0101 is set to the engine control module.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the TC-SST-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the TC-SST-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the TC-SST-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0103: Shift lever CAN timeout

CAUTION

- If DTC U0103 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLE JUDGMENT

If the signal from shift lever cannot be received, the ETACS-ECU sets DTC U0103.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the shift lever cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The shift lever may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

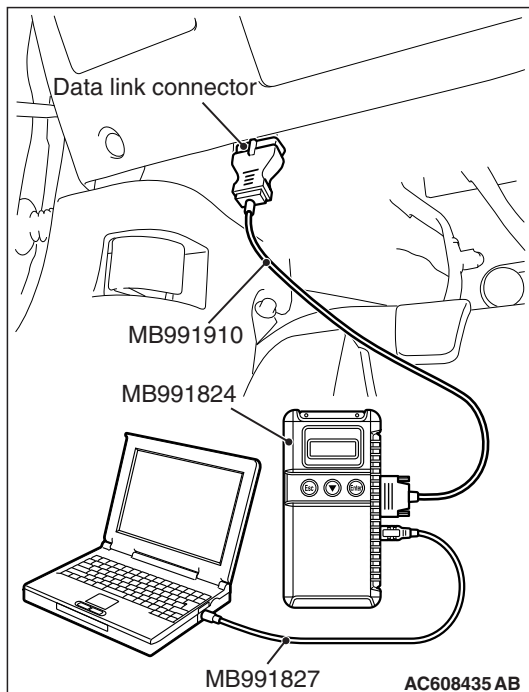
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the shift lever diagnostic trouble code.

Check if DTC is set to the shift lever (Refer to GROUP 22C, Diagnosis [P.22C-370](#)).

Q: Is the DTC set?

YES : Troubleshoot the shift lever.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the TC-SST-ECU diagnostic trouble code.

Check if the DTC U0103 is set to the TC-SST-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the shift lever.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the shift lever and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the shift lever and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0121: ASC-ECU CAN timeout

CAUTION

- If DTC U0121 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLE JUDGMENT

If the signal from ASC-ECU cannot be received, the ETACS-ECU sets DTC U0121.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the ASC-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The ASC-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

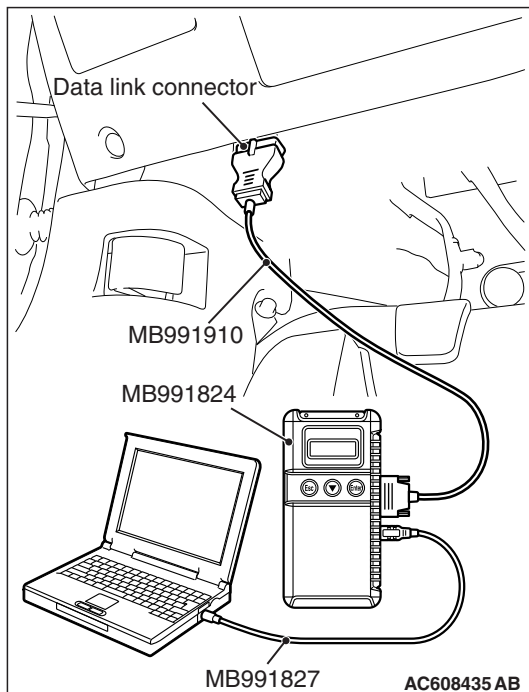
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the ASC diagnostic trouble code.

Check if DTC is set to the ASC-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ASC (Refer to GROUP 35C, Diagnosis [P.35C-22](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the TC-SST diagnostic trouble code.

Check if the DTC U0121 is set to the TC-SST-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ASC-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ASC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ASC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0126: Steering wheel sensor CAN timeout

CAUTION

- If DTC U0126 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLE JUDGMENT

If the signal from steering wheel sensor cannot be received, the ETACS-ECU sets DTC U0126.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the steering wheel sensor cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The steering wheel sensor may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

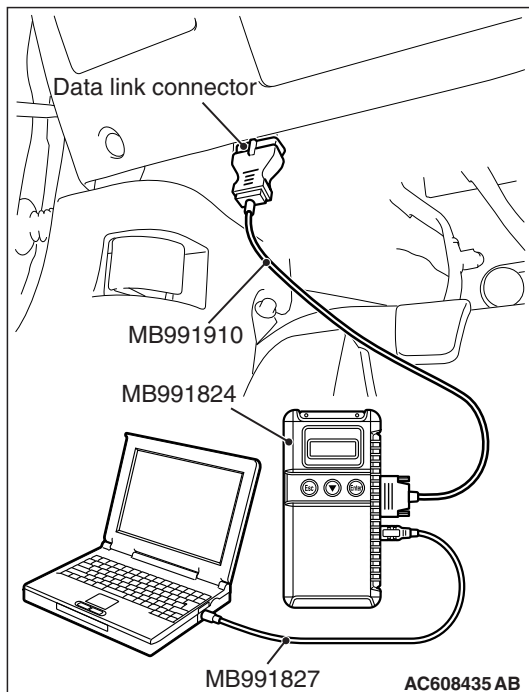
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the steering wheel sensor diagnostic trouble code.

Check if DTC is set to the steering wheel sensor.

Q: Is the DTC set?

YES : Troubleshoot the steering wheel sensor (Refer to GROUP 35C, Diagnosis [P.35C-22](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ASC-ECU diagnostic trouble code.

Check if the DTC U0126 is set to the ASC-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the steering wheel sensor.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the steering wheel sensor and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the steering wheel sensor and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0136: AWC-ECU CAN timeout

CAUTION

- If DTC U0136 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from AWC-ECU cannot be received, the ETACS-ECU sets DTC U0136.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the AWC-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The AWC-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

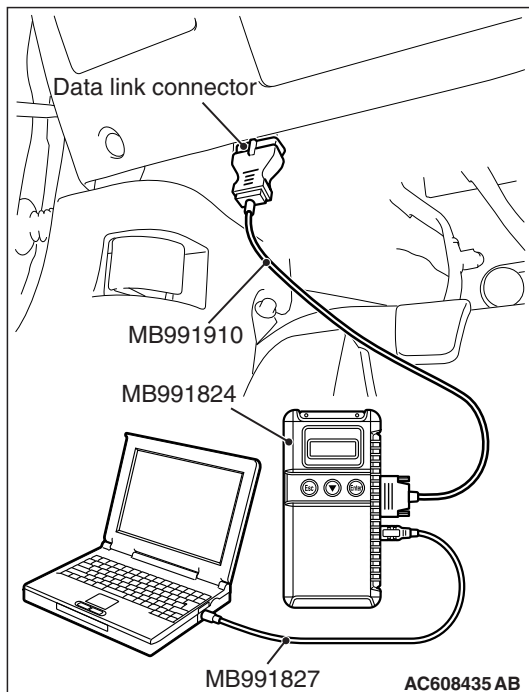
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the AWC-ECU diagnostic trouble code.

Check if DTC is set to the AWC-ECU.

Q: Is the DTC set?

YES : Troubleshoot the AWC (Refer to GROUP 22A, Diagnosis [P.22A-12](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ASC-ECU diagnostic trouble code.

Check if the DTC U0136 is set to the ASC-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the AWC-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the AWC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the AWC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0151: SRS-ECU CAN timeout

CAUTION

- If DTC U0151 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from SRS-ECU cannot be received, the ETACS-ECU sets DTC U0151.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the SRS-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The SRS-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

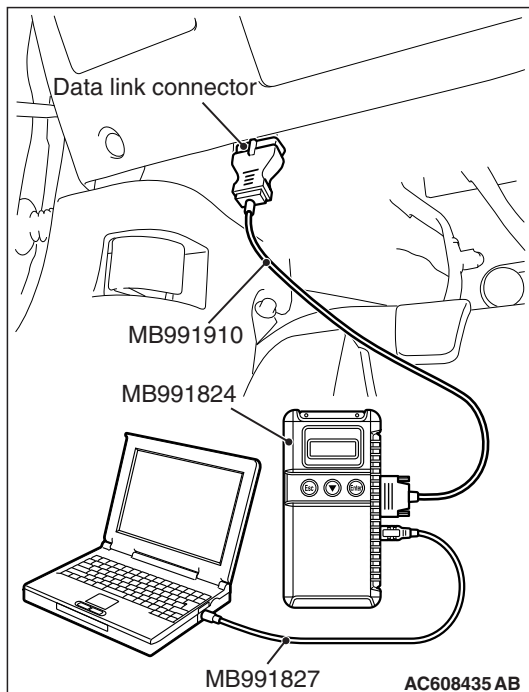
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code

Check if DTC is set to the SRS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis [P.52B-30](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0151 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the SRS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0154: Occupant classification-ECU CAN timeout

CAUTION

- If DTC U0154 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from occupant classification-ECU cannot be received, the ETACS-ECU sets DTC U0154.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the occupant classification-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The occupant classification-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

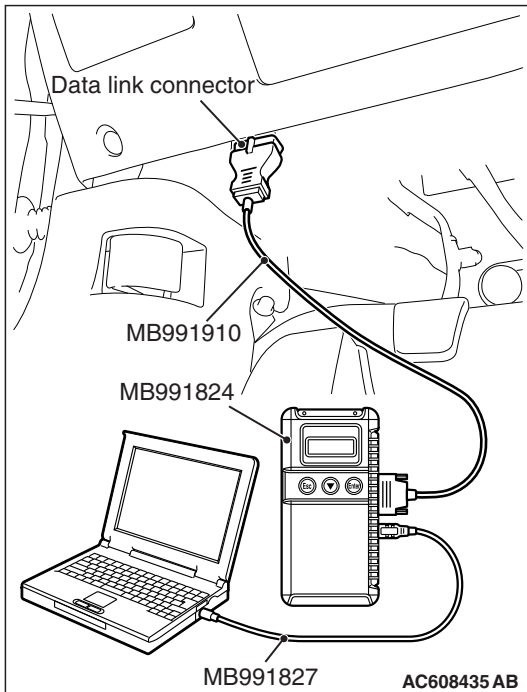
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the occupant classification-ECU diagnostic trouble code.

Check if DTC is set to the occupant classification-ECU.

Q: Is the DTC set?

YES : Troubleshoot the occupant classification-ECU (Refer to GROUP 52B, Diagnosis [P.52B-316](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if the DTC U0154 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0155: Combination meter CAN timeout

CAUTION

- If DTC U0155 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLE JUDGMENT

If the signal from combination meter cannot be received, the ETACS-ECU sets DTC U0155.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the combination meter cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The combination meter may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

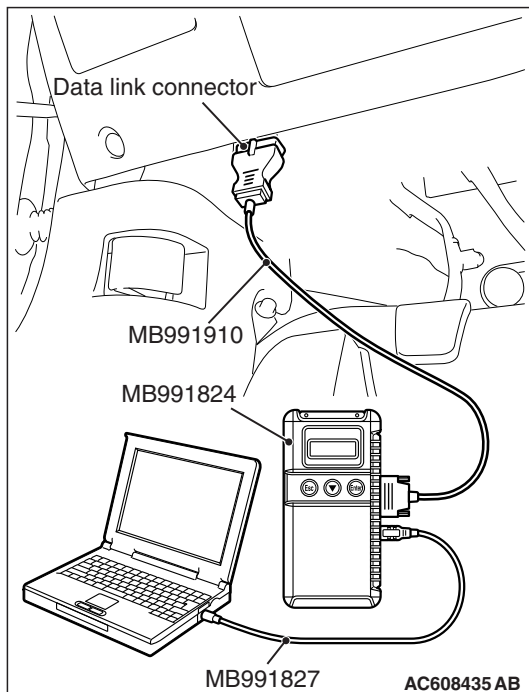
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if DTC is set to the combination meter.

Q: Is the DTC set?

YES : Troubleshoot the combination meter (Refer to [P.54A-32](#)).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the combination meter.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0164: A/C-ECU or heater control unit CAN timeout

⚠ CAUTION

- If DTC U0164 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from A/C-ECU <vehicles with automatic A/C> or heater control unit <vehicles without automatic A/C> cannot be received, the ETACS-ECU sets DTC U0164.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the A/C-ECU or heater control unit cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

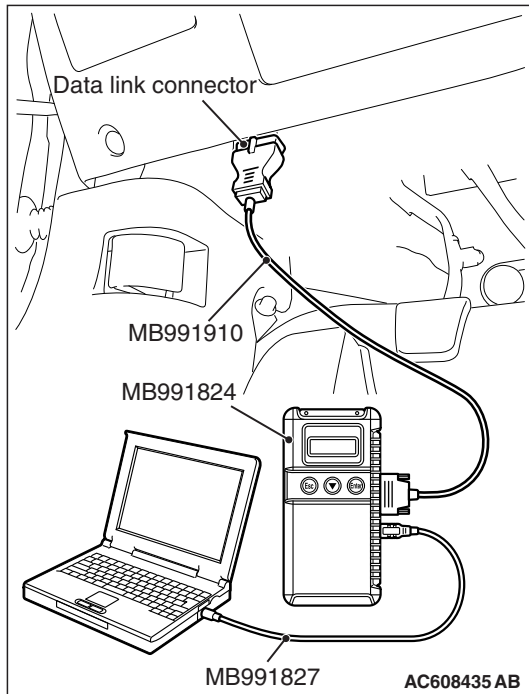
TROUBLESHOOTING HINTS

- The A/C-ECU or heater control unit may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

STEP 2. Using scan tool MB991958, read the A/C-ECU or heater control unit diagnostic trouble code.

Check if DTC is set to the A/C-ECU or heater control unit.

Q: Is the DTC set?

YES : Troubleshoot the A/C-ECU or heater control unit (Refer to GROUP 55, A/C Diagnosis P.55-10).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if the DTC U0164 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU or heater control unit.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU or heater control unit and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU or heater control unit and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0168: WCM or KOS-ECU CAN timeout

CAUTION

- If DTC U0168 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLE JUDGMENT

If the signal from WCM or KOS-ECU cannot be received, the ETACS-ECU sets DTC U0168.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the WCM or KOS-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The WCM may be defective.
- The KOS-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

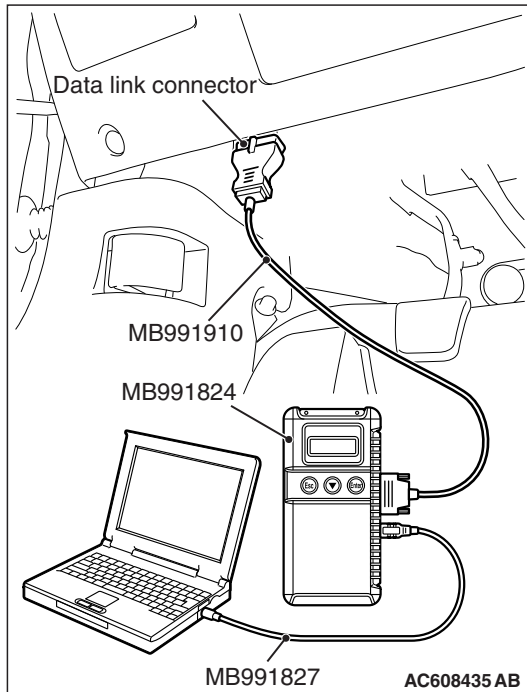
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the WCM or KOS-ECU diagnostic trouble code.**

Check if DTC is set to the WCM or KOS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the WCM or KOS (Refer to GROUP 42B, Diagnosis P.42B-23 <KOS> or GROUP 42C, Diagnosis P.42C-14 <WCM>).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code.

Check if the DTC U0168 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0184: Audio CAN timeout

CAUTION

- If DTC U0184 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLE JUDGMENT

If the signal from radio and CD player or CD changer cannot be received, the ETACS-ECU sets DTC U0184.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the radio and CD player or CD changer cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The radio and CD player or CD changer may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

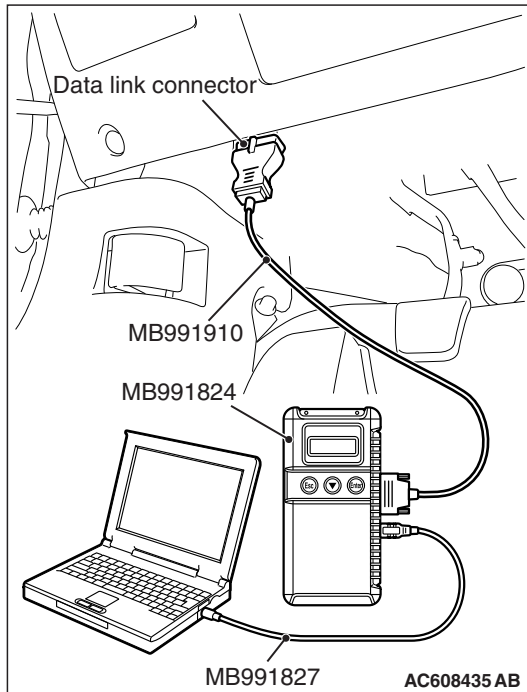
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the audio diagnostic trouble code.**

Check if DTC is set to the audio.

Q: Is the DTC set?

YES : Troubleshoot the audio (Refer to P.54A-322).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if the DTC U0184 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player or CD changer.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player or CD changer and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player or CD changer and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0195: Satellite radio tuner CAN timeout

CAUTION

- If DTC U0195 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from satellite radio tuner cannot be received, the ETACS-ECU sets DTC U0195.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the satellite radio tuner cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The satellite radio tuner may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

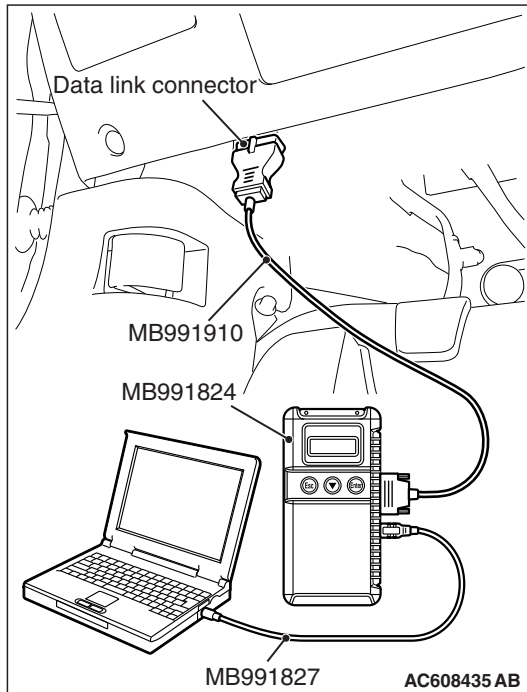
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the satellite radio tuner diagnostic trouble code.**

Check if DTC is set to the satellite radio tuner.

Q: Is the DTC set?

YES : Troubleshoot the satellite radio (Refer to P.54A-617).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code.

Check if the DTC U0195 is set to the SRS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0197: Hands free module CAN timeout

CAUTION

- If DTC U0197 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from hands free module cannot be received, the ETACS-ECU sets DTC U0197.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the hands free module cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The hands free module may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

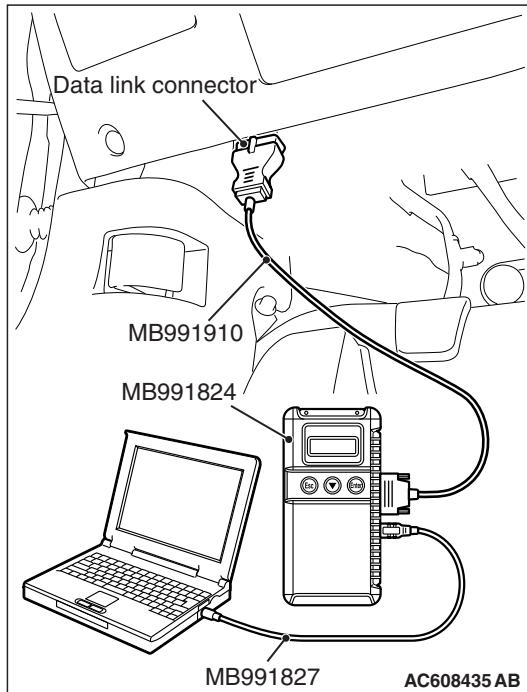
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.**

Check if DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands free telephone system (Refer to P.54A-516).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the SRS-ECU diagnostic trouble code.

Check if the DTC U0197 is set to the SRS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U0245: CAN box unit CAN timeout

CAUTION

- If DTC U0245 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the communication circuit is normal.

TROUBLE JUDGMENT

If the signal from CAN box unit (MMCS) cannot be received, the ETACS-ECU sets DTC U0245.

JUDGMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the CAN box unit (MMCS) cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.

- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10-16 volts.

TROUBLESHOOTING HINTS

- The CAN box unit may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

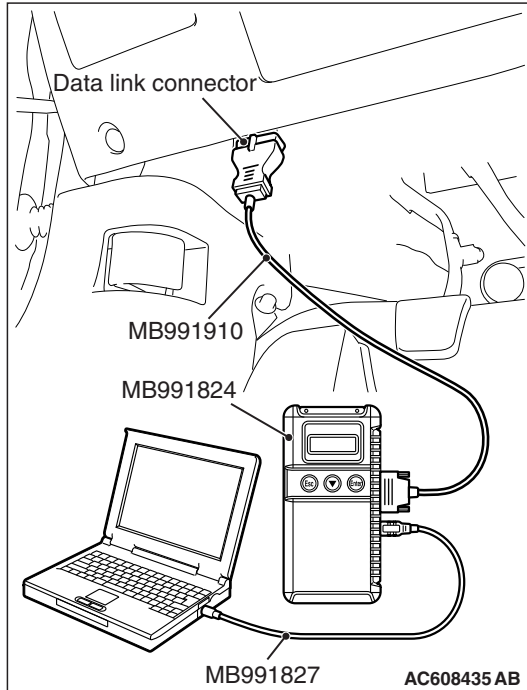
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

**STEP 2. Using scan tool MB991958, read the MMCS diagnostic trouble code.**

Check if DTC is set to the MMCS.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-430).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.

Check if the DTC U0245 is set to the combination meter.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit (MMCS).

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (MMCS) and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (MMCS) and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

DTC U1108: Excess CAN-B ECU Detection

CAUTION

If the DTC U1108 is set to the ETACS-ECU, always diagnose the CAN bus line.

TROUBLE JUDGEMENT

If the ETACS-ECU receives the signal from the CAN-B line ECU which does not exist in the written variant code information, the ETACS-ECU sets DTC U1108.

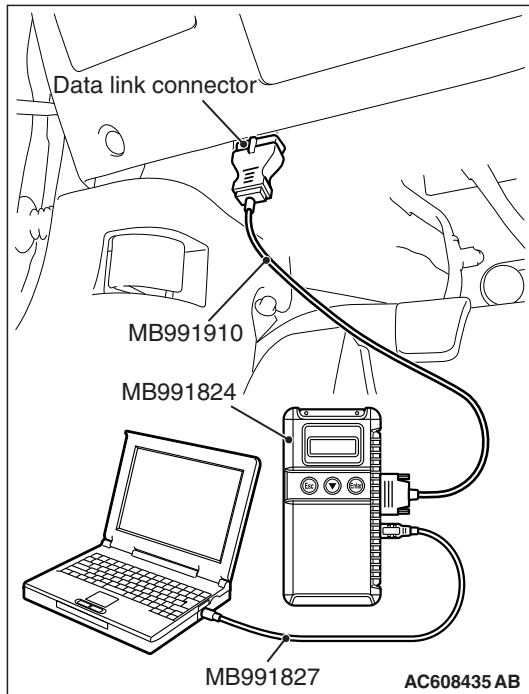
TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

STEP 2. Variant code check.

Check the variant code written to the ETACS-ECU, and check whether it matches the ECU connected to the CAN-B line.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Make a correction so that the ECU connected to the CAN-B line matches with the variant code information, and then go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : This diagnosis is complete.

DTC U1120: Bus line (CAN-C) low input
DTC U1121: Bus line (CAN-C) high input

TROUBLE JUDGEMENT

When the CAN bus line voltage is in the following states, the ETACS-ECU set the DTC.

- If the CAN bus line voltage is 0.3 volt or less, DTC U1120 is set.

- If the CAN bus line voltage is 4.7 volts or more, DTC U1121 is set.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

CAUTION

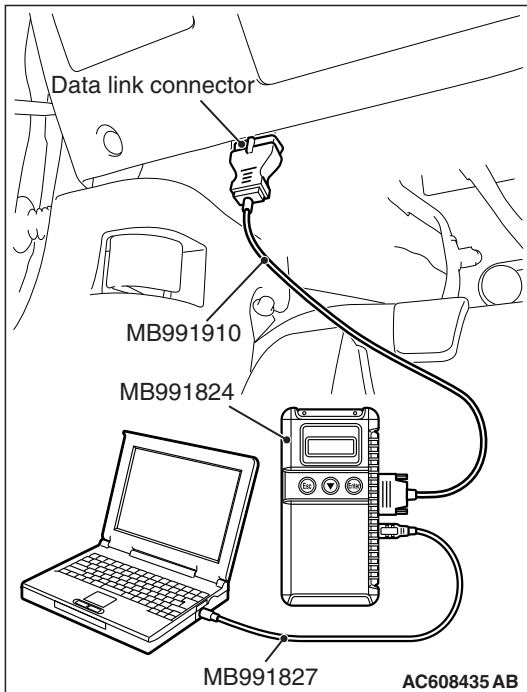
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

DTC U0331: ECU internal error

TROUBLE JUDGEMENT

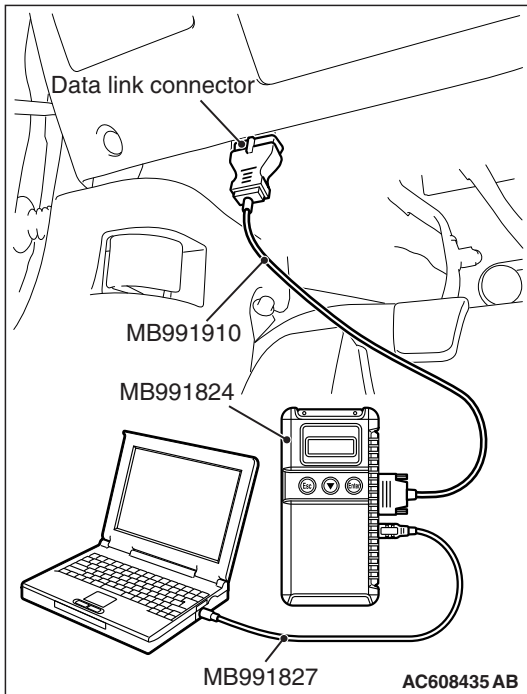
If the ETACS-ECU error counter value is detected to be "255," DTC U0331 is set, and the ETACS-ECU is reset. The DTC U0331 exists only as past trouble.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Erase the DTC.
- (4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (5) Check if DTC is set.
- (6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

DTC B1761: VIN not recorded**TROUBLE JUDGEMENT**

If the VIN is not written to the ETACS-ECU, the ETACS-ECU sets DTC B1761.

TROUBLESHOOTING HINTS

- Chassis number not recorded
- The ETACS-ECU may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

⚠ CAUTION

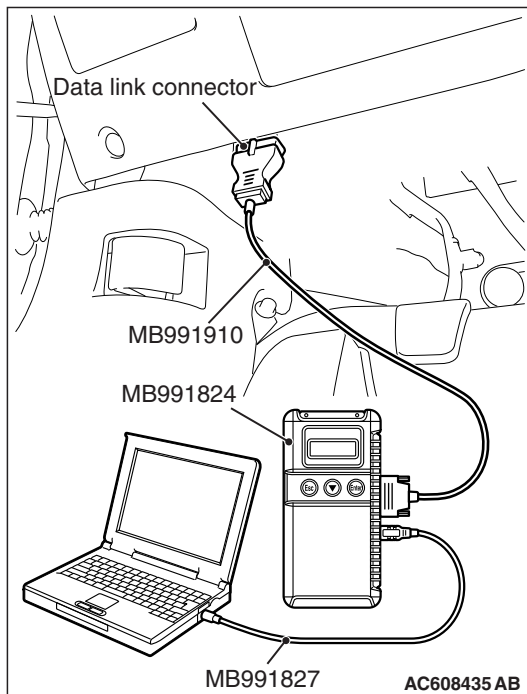
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Erase the DTC.
- (4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (5) Check if DTC is set.
- (6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.

NO : The diagnosis is complete.

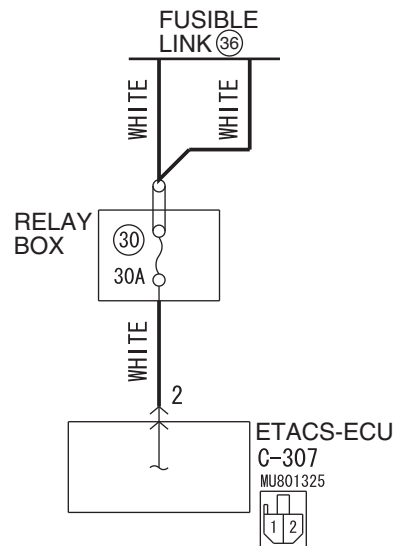


DTC B210A: +B power supply (low input)
DTC B210B: +B power supply (high input)

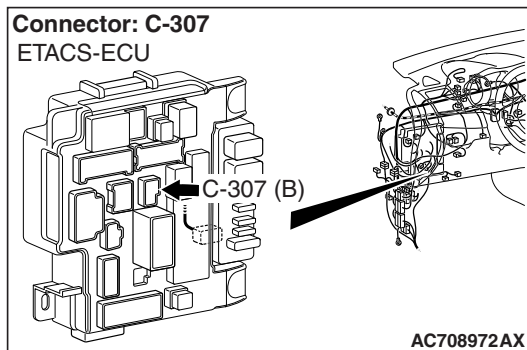
CAUTION

Before replacing the ECU, ensure that the input and output signal circuits are normal.

ETACS-ECU Power Supply Circuit



W8G54M069A



TECHNICAL DESCRIPTION (COMMENT)

The power supply fuse or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- The power supply fuse may be defective.
- The ETACS-ECU may be defective.
- The battery may be defective.
- The generator may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

TROUBLE JUDGMENT

The ETACS-ECU sets DTC B210A if the power supply fuse voltage decreases to the specified value or less, and sets DTC B210B if the power supply fuse voltage increases to the specified value or more. However, when the status returns to normal, the ETACS-ECU automatically erases DTCs B210A and B210B.

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Power supply fuse check.**Q: Is the fuse in good condition?**

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

STEP 2. Wiring harness check between C-307 ETACS-ECU connector and fuse No. 30.

- (1) Disconnect ETACS-ECU connector C-307.
- (2) Remove fuse No. 30.
- (3) Check the continuity (short to ground) between C-307 ETACS-ECU connector terminal No. 2 and the ground.

OK: No continuity

Q: Is the check result normal?

- YES** : Replace the fuse No.30.
NO : A short circuit may be present in the power supply circuit. Check the wiring harness between ETACS-ECU connector C-307 terminal No. 2 and fuse No. 30, and repair if necessary and replace fuse No. 30.

STEP 3. Battery check

Refer to [P.54A-9](#).

Q: Is the battery in good condition?

- YES** : Go to Step 4.
NO : Charge or replace the battery.

STEP 4. Charging system check

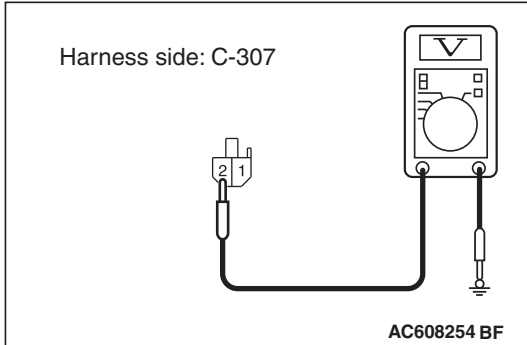
Refer to GROUP 16 –Output Current Test [P.16-8](#).

Q: Is the charging system in good condition?

- YES** : Go to Step 5.
NO : Repair or replace the charging system component(s).

STEP 5. Check ETACS-ECU connector C-307 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is ETACS-ECU connector C-307 in good condition?**

- YES** : Go to Step 6.
NO : Repair or replace the component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#).



STEP 6. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-307.

- (1) Disconnect ETACS-ECU connector C-307 and measure the voltage available at the wiring harness side of the connector.
- (2) Measure the voltage between terminal 2 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 8.

NO : Go to Step 7.

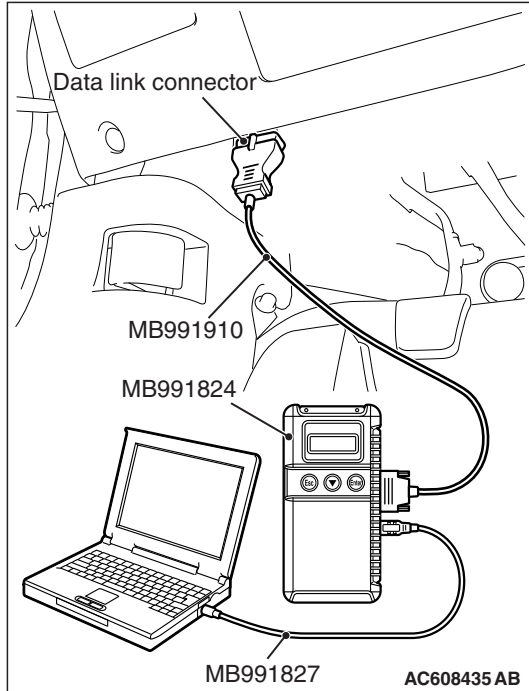
STEP 7. Check the wiring harness between ETACS-ECU connector C-307 (terminal 2) and the fusible link (36).

Check the power supply line for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-307 (terminal 2) and the fusible link (36) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

**STEP 8. Using scan tool MB991958, check data list.**

Check the power supply fuse voltage.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Check the ETACS data list.
 - Turn the ignition switch to the "LOCK" (OFF) position.

Item No.	Item name	Normal condition
Item 253	Voltage sensing of IOD Line	Approximately 12 volts (battery positive voltage)

Q: Do the scan tool MB991958 display the item "voltage sensing of IOD Line" is normal condition?

YES : Go to Step 9.

NO : Replace the ETACS-ECU.

STEP 9. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-15).

DTC B222C: Coding incomplete

TROUBLE JUDGEMENT

If the ETACS-ECU is in the initial state or the variant coding is incomplete, the ETACS-ECU sets DTC B222C.

TROUBLESHOOTING HINTS

- Variant code not written
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

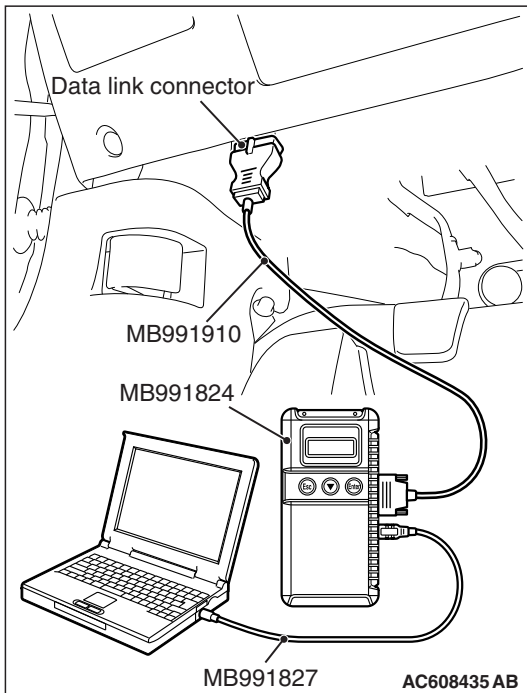
⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Perform the variant coding to the ETACS-ECU.
- (4) Erase the DTC.
- (5) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (6) Check if DTC is set.
- (7) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

- YES** : Replace with the coded ETACS-ECU.
NO : The diagnosis is complete.



DTC B2206: Chassis number does not match**CAUTION**

If DTC B2206 is set, always diagnose the CAN bus line.

TROUBLE JUDGEMENT

If the registered chassis number is different from the chassis number transmitted on the CAN bus lines, the ETACS-ECU sets DTC B2206.

JUDGEMENT CRITERIA

If the chassis number registered to ETACS-ECU and the chassis number on CAN bus lines do not match, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS

- Chassis number not written
- The ETACS-ECU may be defective.
- The engine control module may be defective.
- The CAN bus line may be defective.

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**CAUTION**

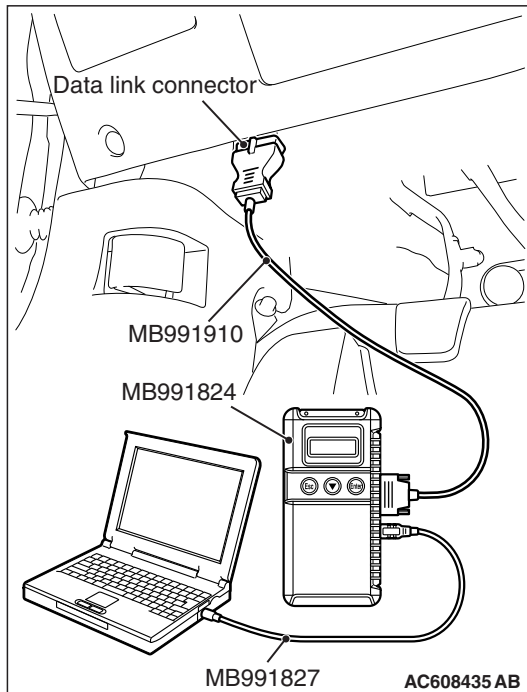
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the engine control module diagnostic trouble code.

Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the engine (Refer to GROUP 13A, Diagnostic Trouble Code Chart [P.13A-48](#)).

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the ETACS-ECU.

(1) Erase the DTC.

(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.

NO : The diagnosis is complete.

DTC B2215: ECU internal error

TROUBLE JUDGEMENT

When the ETACS-ECU internal error count reaches "255," DTC B2215 is set.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective.

DIAGNOSIS

Replace the ETACS-ECU.

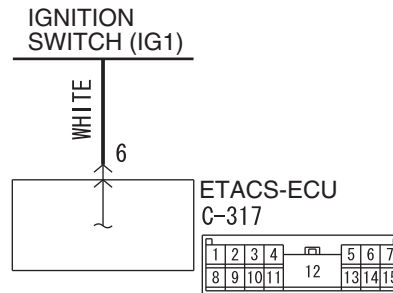
DTC B2353: Ignition power supply (low input)

DTC B2354: Ignition power supply (high input)

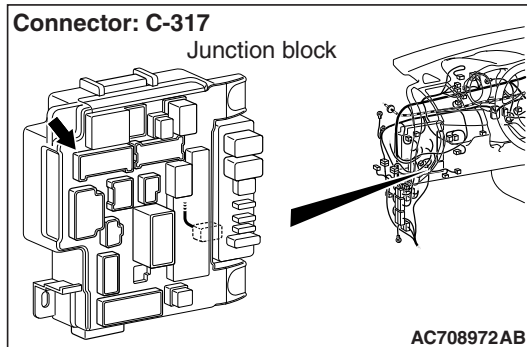
CAUTION

Before replacing the ECU, ensure that the input and output signal circuits are normal.

Ignition Switch (IG1) Input Circuit



W8G54M071A

**TECHNICAL DESCRIPTION (COMMENT)**

The power supply circuit or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

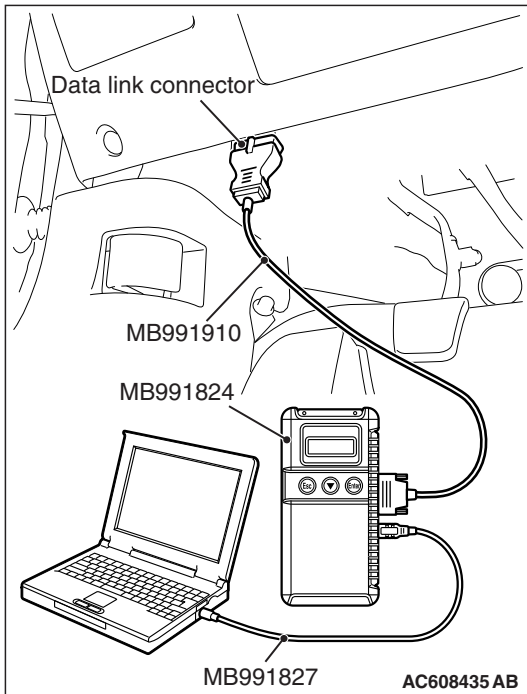
- The power supply circuit may be defective.
- The battery may be defective.
- The generator may be defective.
- The ETACS-ECU may be defective.
- The ignition switch may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.

TROUBLE JUDGMENT

These DTCs are set when the ignition power supply voltage decreases to the specified value or less (DTC B2353) or increases to the specified value or more (DTC B2354). However, when the status returns to normal, the DTCs B2353 and B2354 are automatically erased.

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827 M.U.T.-III USB Cable
 - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, check data list.

Check the ignition power supply voltage.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Check the ETACS data list.
 - Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 254	IG voltage	Approximately 12 volts (battery positive voltage)

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

Q: Do the scan tool MB991958 display the item "IG voltage" is normal condition?

- YES :** Go to Step 4.
NO : Go to Step 2.

STEP 2. Battery check

Refer to P.54A-9.

Q: Is the battery in good condition?

- YES :** Go to Step 3.
NO : Charge or replace the battery.

STEP 3. Charging system check

Refer to GROUP 16 –Output Current Test P.16-8.

Q: Is the charging system in good condition?

- YES :** Refer to GROUP 54A, Diagnosis - Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" P.54A-706.
NO : Repair or replace the charging system component(s).

STEP 4. Recheck for diagnostic trouble .

Check again if the DTC is set to the ETACS-ECU.

- (1) Erase the DTC.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

- YES :** Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-15).

SERVICE DATA

M1545001300293

NOTE: For some information result read out by the ECU, the specific items may not be displayed.

Item No.	Display on scan tool	Check condition	Normal condition
1	CAN-H voltage (CAN-C)	–	2.0-4.5 V
2	CAN-L voltage (CAN-C)	–	0.5-3.0 V
200	Original VIN writing status	When writing status is normal	Comp/Unperformed or Comp and locked
		When writing status is abnormal	ECU internal Err
201	Current VIN writing status	When writing status is normal	Comp/Unperformed
		When writing status is abnormal	ECU internal Err
202	Internal error	When no error is present	No error
		When an error is present	EEPROM error or Boot loader Err or EEPROM/Boot or ADC Error or ADC/EEPROM error or ADC/Boot error or ADC/Boot/EEPROM or PLL Error or PLL/EEPROM error or PLL/EEPROM error or PLL/Boot/EEPROM or PLL/ADC error or PLL/ADC/EEPROM or PLL/ADC/Boot or PLL/ADC/Boot/ROM
203	Process error	When no error is present	No error
		When an error is present	Interrupt error or Switch error or Sequence error or Stck pointer Err or Dispatch call Er or Other error
204	Coding counter	–	0-255 times
205	Coding counter Option	–	0-255 times
206	Headlight LO ON duty	When low-beam headlights are on	100 %
		When low-beam headlights are off	0 %
207	Fan control relay ON duty	When the fan is in operation	100 %
		When the fan is stopped	0 %
208	Dome light ON duty	When the room light is turned from ON to OFF	When the light is dimmed from 100% (when ON) to 0%

Item No.	Display on scan tool	Check condition	Normal condition
209	Gate light ON duty	When the trunk is opened	100 %
		When the trunk is closed	0 %
210	IG key illumination	When the door is opened	100 %
		When the door is closed	0 %
211	Headlight Hi	When high-beam headlights are on	ON
		When high-beam headlights are off	OFF
212	Front fog light	When fog lights are on	ON
		When fog lights are off	OFF
213	Horn theft horn	When the theft alarm is active	ON
		When the theft alarm is not active	OFF
215	Security indicator	When the theft alarm is active	ON
		When the theft alarm is not active	OFF
216	IG1-2 fuel pump	Ignition switch: ON position	ON
		Ignition switch: Other than ON	OFF
218	Taillight	When taillights and position lights are on	ON
		When taillights and position lights are off	OFF
219	Turn RH/LH light	When turn-signal lights are on	ON
		When turn-signal lights are off	OFF
220	Blower fan	Ignition switch: ON position	ON
		Ignition switch: Other than ON	OFF
221	Defogger	1. Engine: ON (2000 r/min) 2. Defogger switch: ON	ON →OFF (20 minutes after)
		Other than above	OFF
222	Interior light cut	When the interior light is ON	ON
		When the light is turned off by the activation of interior light automatic cut function	OFF
224	Door lock	When locking is performed by the central door lock	ON
		Other than above	OFF
227	Door unlock	When unlocking is performed by the central door lock	ON
		Other than above	OFF
228	Dr door unlock	When unlocking is performed by the central door lock	ON
		Other than above	OFF

Item No.	Display on scan tool	Check condition	Normal condition
230	Trunk/gate opener	Trunk open switch: ON	ON
		Other than above	OFF
232	ACC Relay	Ignition switch: ACC or ON	ON
		Ignition switch: Other than ACC or ON	OFF
233	Fan Lo	When the fan is in Lo operation	ON
		When the fan is stopped	OFF
234	Fan Hi	When the fan is in Hi operation	ON
		When the fan is stopped	OFF
235	Front wiper ACT	When the windshield wiper is in operation	ON
		Other than above	OFF
236	Front wiper Lo/Hi	When the windshield wiper is in high-speed operation	ON
		Other than above	OFF
237	Front washer	The windshield washer is in operation	ON
		Other than above	OFF
240	Power window	Ignition switch: ON position	ON
		Ignition switch: 30 seconds after turned to the OFF position	ON →OFF
252	Ambient temperature sensor	Ignition switch: ON position	0-5 V
253	Voltage sensing of IOD Line	Always	Battery positive voltage
254	IG voltage	Ignition switch: ON position	Battery positive voltage
256	Dr door ajar switch	Driver's door: Open	Open
		Driver's door: Closed	Close
257	As door ajar switch	Front passenger's door: Open	Open
		Front passenger's door: Closed	Close
258	RR door ajar switch	Rear right door: Open	Open
		Rear right door: Closed	Close
259	RR door ajar switch	Rear left door: Open	Open
		Rear left door: Closed	Close
260	Trunk/gate trunk ajar switch	Trunk lid: Open	Open
		Trunk lid: Closed	Close
264	Handle lock switch	When the ignition key is inserted into the ignition key cylinder	Key in
		When the ignition key is removed from the ignition key cylinder	Key out

Item No.	Display on scan tool	Check condition	Normal condition
265	Hazard switch	While the hazard switch is pressed	ON
		Other than above	OFF
266	Hood switch	Hood: Open	ON
		Hood: Closed	OFF
268	Trunk/gate opener switch	Not used	OFF
270	Dr door lock switch	When the driver's door is locked	Lock
		Other than above	Not lock
271	Dr door unlock switch	When the driver's door is unlocked	Unlock
		Other than above	Not Unlock
272	As door unlock switch	When the front passenger's door is unlocked	Unlock
		Other than above	Not Unlock
273	Except Dr/As door unlock switch	Not used	OFF
274	Door key lock switch	Not used	OFF
275	Dr door key unlock switch	Not used	OFF
276	Door key unlock switch	Not used	OFF
277	Power lock switch	Not used	OFF
278	Power unlock switch	Not used	OFF
279	Brake fluid switch	When the brake fluid level is normal	ON
		When the brake fluid level is low	OFF
281	ASC/TCL OFF switch	ASC OFF switch: During ON operation	ON
		Other than above	OFF
287	Starter switch	Ignition switch: START position	ON
		Ignition switch: Other than the START position	OFF
288	ACC switch	Ignition switch: ACC or ON	ON
		Ignition switch: Other than ACC or ON	OFF
289	Backup light or shift reverses SW	The shift lever is in the reverse position.	ON
		Other than above	OFF
290	Stoplight switch	Brake pedal depressed	ON
		Other than above	OFF
291	Front wiper auto stop switch	When the windshield wiper is in operation	ON
		Other than above	OFF
293	Process error information	-	-
294	Process error counter	-	0-255 times

Item No.	Display on scan tool	Check condition	Normal condition
340	Headlight switch(tail)	Lighting switch: Position light position	ON
		Other than above	OFF
341	Headlight switch	Lighting switch: Headlight position	ON
		Other than above	OFF
342	Headlight switch(Dimmer)	Lighting switch: During dimmer switch operation	ON
		Other than above	OFF
343	Turn switch left	Turn-signal light switch: LH position	ON
		Other than above	OFF
344	Turn switch right	Turn-signal light switch: RH position	ON
		Other than above	OFF
345	Fog light ON	Fog light switch: During ON operation	ON
		Other than above	OFF
346	Fog light OFF	Fog light switch: During OFF operation	ON
		Other than above	OFF
347	Switch type	-	LHD
348	Headlight switch(auto)	Lighting switch: AUTO position	ON
		Other than above	OFF
349	Headlight cleaner	Not used	OFF
350	Headlight switch(flasher)	Lighting switch: During dimmer switch operation	ON
		Other than above	OFF
351	Column ECU sleep	Ignition switch: Other than ON or START position	OK
		Ignition switch: ON or START position	NG
352	Front wiper(INT)	Wiper switch: INT position	ON
		Other than above	OFF
353	Front wiper(LO)	Wiper switch: LO position	ON
		Other than above	OFF
354	Front wiper(HI)	Wiper switch: HI position	ON
		Other than above	OFF
355	Front wiper(washer)	Wiper switch: During washer operation	ON
		Other than above	OFF
356	Rear wiper	Not used	OFF
357	Rear wiper(washer)	Not used	OFF

Item No.	Display on scan tool	Check condition	Normal condition
358	Front wiper(MIST)	Wiper switch: During MIST operation	ON
		Other than above	OFF
359	Front wiper(interval volume)	Variable intermittent wiper control switch is switched from (+) to (-).	The value changes from 0 (+) to 254 (-).
360	Wiper switch lever fail	When normal	No fail
		When abnormality is present	Fail
361	Turn/Light switch lever fail	When normal	No fail
		When abnormality is present	Fail

TROUBLE SYMPTOM CHART

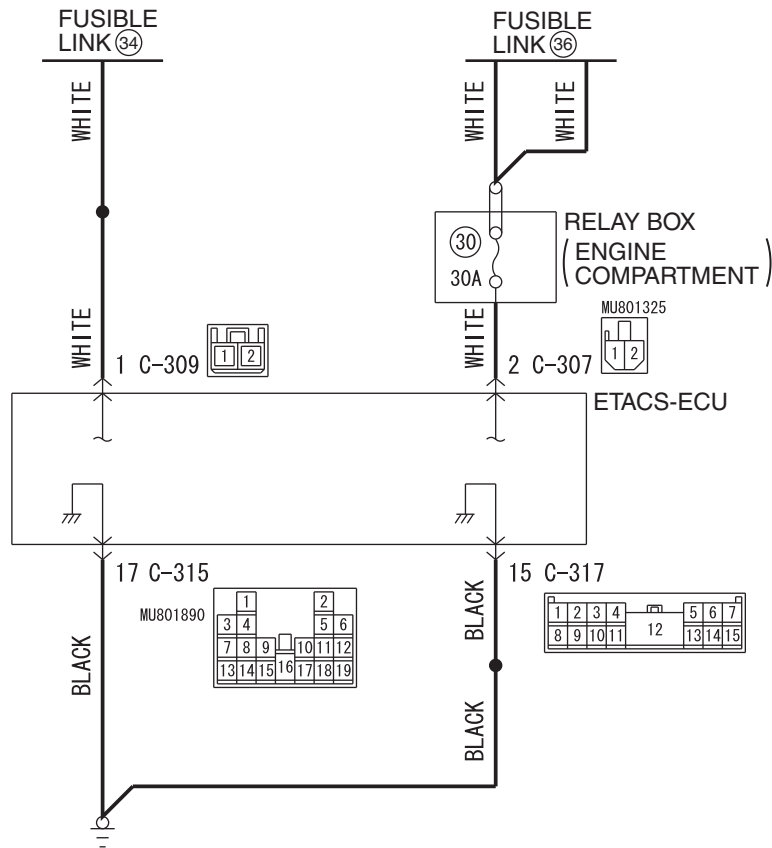
M1545001200111

Trouble symptom	Reference page
Malfunction of ETACS-ECU power supply circuit	P.54A-700

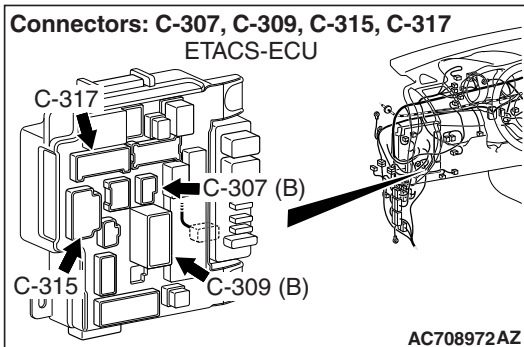
SYMPTOM PROCEDURES

Malfunction of ETACS-ECU power supply circuit

ETACS-ECU Power Supply Circuit



WAH54M038A



TECHNICAL DESCRIPTION (COMMENT)

If the ETACS-ECU functions do not work at all, the ETACS-ECU power supply system, ground system, or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check ETACS-ECU connectors C-315 and C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-315 and C-317 in good condition?

YES : Go to Step 2.

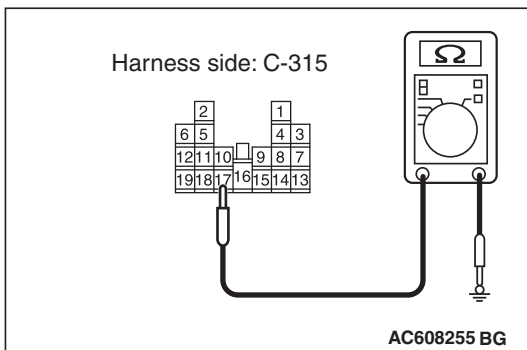
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 2. Check the ground circuit to the ETACS-ECU. Measure the resistance at ETACS-ECU connectors C-315 and C-317.

(1) Disconnect ETACS-ECU connector C-315 and C-317 and measure the resistance available at the wiring harness side of the connector.

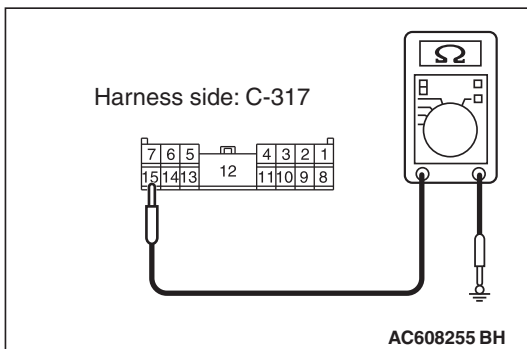
(2) Measure the resistance value between ETACS-ECU connector C-315 terminal 17 and ground.

- The resistance should be 2 ohms or less.



(3) Measure the resistance value between ETACS-ECU connector C-317 terminal 15 and ground.

- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between ETACS-ECU connector C-315 (terminal 17) or C-317 (terminal 15) and the ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminal 17) or C-317 (terminal 15) and the ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 4. Check ETACS-ECU connectors C-307 and C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-307 and C-309 in good condition?

YES : Go to Step 5.

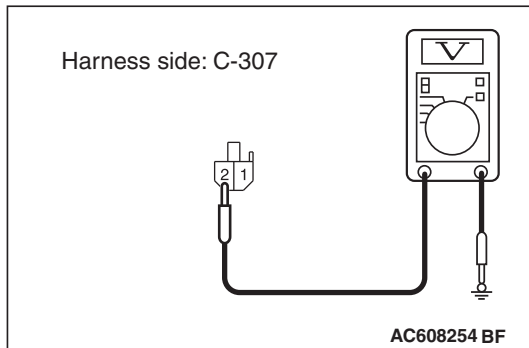
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 5. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connectors C-307 and C-309.

(1) Disconnect ETACS-ECU connectors C-307 and C-309 measure the voltage available at the wiring harness side of the connector.

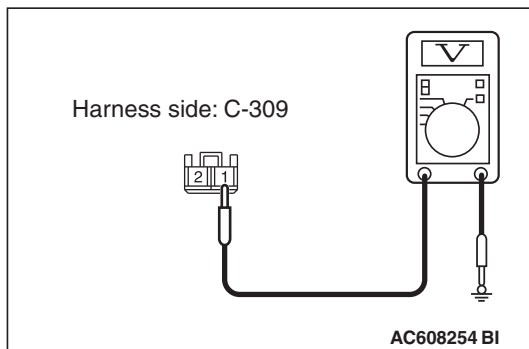
(2) Measure the voltage between ETACS-ECU connector C-307 terminal 2 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).



(3) Measure the voltage between ETACS-ECU connector C-309 terminal 1 and ground.

- The voltage should measure approximately 12 volts (battery positive voltage).



Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between ETACS-ECU connectors C-307 (terminal 2) or C-309 (terminal 1) and the fusible link (36) or (34).

- Check the power supply line (battery supply) for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connectors C-307 (terminal 2) or C-309 (terminal 1) and the fusible link (36) or (34) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. The system should communicate with the ETACS-ECU normally.

STEP 7. Retest the system

Check that the ETACS-ECU functions work normally.

Q: Is the check result satisfactory?

YES : The procedure is complete (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

NO : Replace the ETACS-ECU.

TROUBLE SYMPTOM CHART FOR INPUT SIGNAL

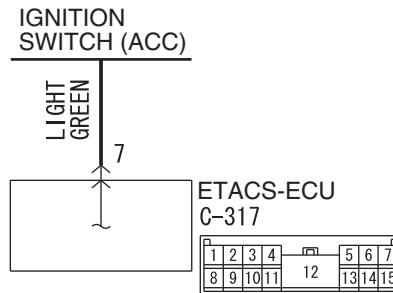
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Trouble symptom	Inspection Procedure No.	Reference page
Malfunction of the ignition switch (ACC) input/output signal	1	P.54A-704
Malfunction of the ignition switch (IG1) input/output signal	2	P.54A-706
ETACS-ECU does not receive any signal from the key reminder switch.	3	P.54A-709
ETACS-ECU does not receive any signal from the front door lock actuator.	4	P.54A-712
ETACS-ECU does not receive any signal from the front door switch (LH).	5	P.54A-719
ETACS-ECU does not receive any signal from the front door switch (RH).	6	P.54A-721
ETACS-ECU does not receive any signal from the rear door switch (LH).	7	P.54A-724
ETACS-ECU does not receive any signal from the rear door switch (RH).	8	P.54A-726
ETACS-ECU does not receive any signal from the trunk lid latch.	9	P.54A-729
ETACS-ECU does not receive any signal from the hazard warning light switch.	10	P.54A-732
ETACS-ECU does not receive any signal from the column switch signal.	11	P.54A-734
ETACS-ECU does not receive any signal from the hood switch.	12	P.54A-735

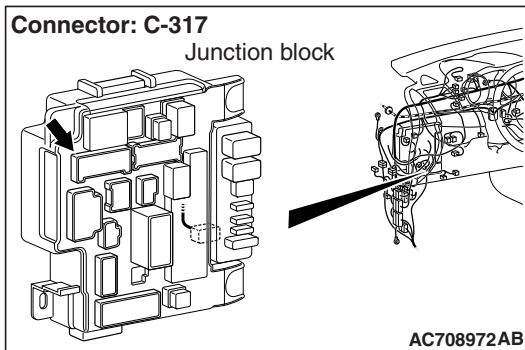
INPUT SIGNAL PROCEDURES

Inspection Procedure 1: Malfunction of the ignition switch (ACC) input/output signal

Ignition Switch (ACC) Input Circuit



W8G54M059A

**TECHNICAL DESCRIPTION (COMMENT)**

If there is an error to the ignition switch (ACC) input signal, or the ACC relay inside the ETACS-ECU does not operate, the ignition switch (ACC) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- The ignition switch may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

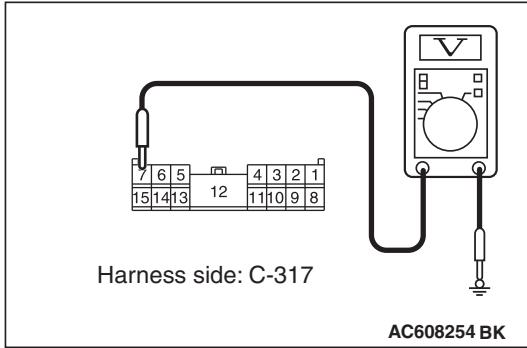
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of ignition switch (ACC) is normal.



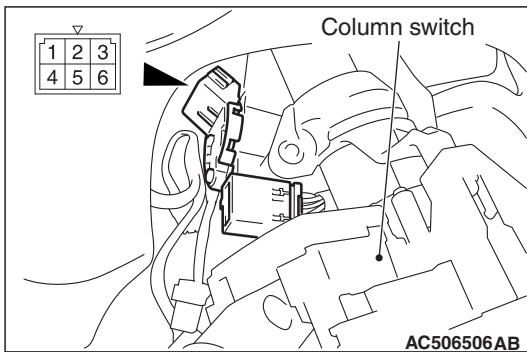
STEP 2. Check the ignition switch (ACC) line of the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-317.

- (1) Disconnect ETACS-ECU connector C-317 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ACC" position.
- (3) Measure the voltage between terminal 7 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 5.

NO : Go to Step 3.



STEP 3. Check the ignition switch.

Remove the ignition switch. Then check continuity between the switch terminal.

Ignition key position	Terminal number	Normal condition
LOCK	1 -2, 1 -4, 1 -5, 1 -6	No continuity
ACC	1 -6	Continuity exists (2 ohms or less)
ON	1 -2 -4 -6	Continuity exists (2 ohms or less)
START	1 -2 -5	Continuity exists (2 ohms or less)

Q: Is the ignition switch in good condition?

YES : Go to Step 4.

NO : Replace the ignition switch. Check that the input signal of ignition switch (ACC) is normal.

STEP 4. Check the wiring harness between ETACS-ECU connector C-317 (terminal 7) and the ignition switch (ACC).

Check the power supply line (ACC) for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 7) and ignition switch (ACC) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of ignition switch (ACC) is normal.

STEP 5. Using scan tool MB991958, check data list.

- Ignition switch: ACC

Item No.	Item name	Normal condition
Item 288	ACC switch	ON

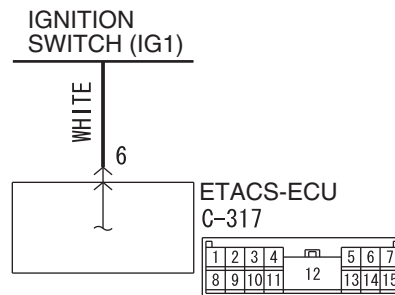
OK: Normal condition is displayed.

Q: Is the check result normal?

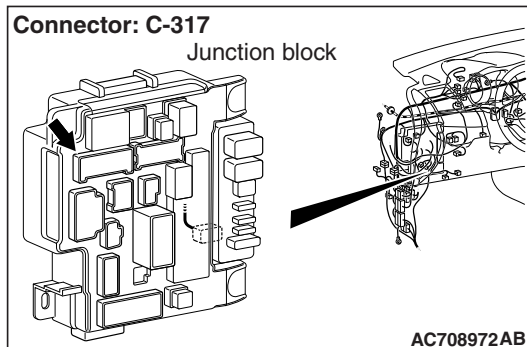
- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).
- NO :** Refer to Inspection Procedure 2 "Defective power supply system of the ignition switch" [P.54A-20](#)

Inspection Procedure 2: Malfunction of the ignition switch (IG1) input/output signal

Ignition Switch (IG1) Input Circuit



W8G54M058A



TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the ignition switch (IG1) input signal, or the IG1 relay inside the ETACS-ECU does not operate, the ignition switch (IG1) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The ignition switch may be defective
- The ETACS-ECU may be defective
- The fuse may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of ignition switch (IG1) is normal.

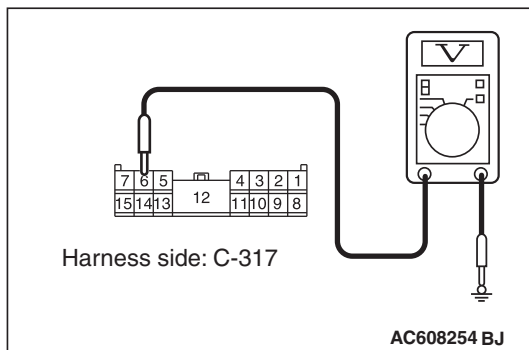
STEP 2. Check the ignition switch (IG1) line of the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-317.

- (1) Disconnect ETACS-ECU connector C-317 and measure the voltage available at the junction block side of the connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Measure the voltage between terminal 6 and ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

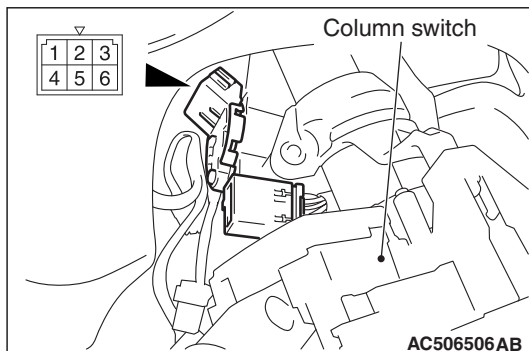
YES : Go to Step 5.

NO : Go to Step 3.



STEP 3. Check the ignition switch.

Remove the ignition switch. Then check continuity between the switch terminal.



Ignition key position	Terminal number	Normal condition
LOCK	1 -2, 1 -4, 1 -5, 1 -6	No continuity
ACC	1 -6	Continuity exists (2 ohms or less)
ON	1 -2 -4 -6	Continuity exists (2 ohms or less)
START	1 -2 -5	Continuity exists (2 ohms or less)

Q: Is the ignition switch in good condition?

YES : Go to Step 4.

NO : Replace the ignition switch. Check that the input signal of ignition switch (IG1) is normal.

STEP 4. Check the wiring harness between ETACS-ECU connector C-317 (terminal 6) and the ignition switch (IG1). Check the power supply line (IG1) for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 6) and ignition switch (IG1) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of ignition switch (IG1) is normal.

STEP 5. Using scan tool MB991958, check data list.

- Ignition switch: ON

Item No.	Item name	Normal condition
Item 254	IG voltage	Battery positive voltage

OK: Normal condition is displayed.

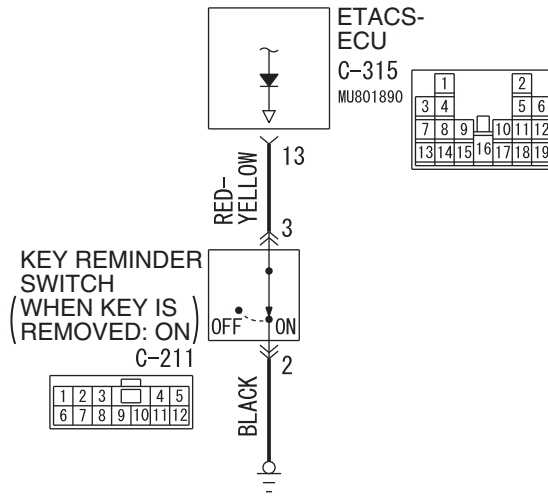
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction [P.00-15](#)).

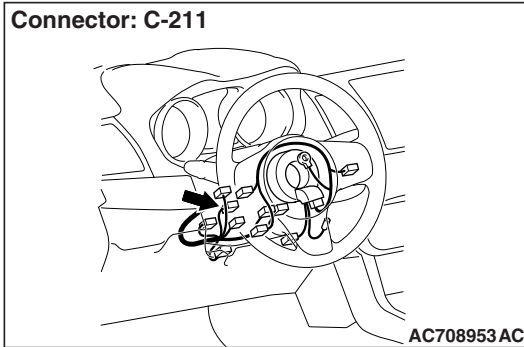
NO : Refer to Inspection Procedure 2 "Defective power supply system of the ignition switch" [P.54A-20](#)

Inspection Procedure 3: ETACS-ECU does not receive any signal from the key reminder switch.

Key Reminder Switch Input Circuit



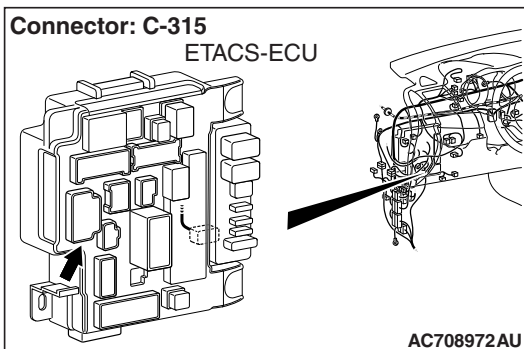
W8G54M168A



COMMENTS ON TROUBLE SYMPTOM

The key reminder switch input signal is used for the operation judgment of the functions below. If the signal is abnormal, these functions will not work.

- Ignition key reminder function
- Central door locking
- Keyless entry system
- KOS
- Ignition key cylinder illumination light
- Interior light



TROUBLESHOOTING HINTS

- The key reminder switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check key reminder switch connector C-211 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector C-211 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of key reminder switch is normal.

STEP 2. Check the key reminder switch.

Disconnect key reminder switch connector C-211. Then check continuity between terminals.

Ignition key	Tester connection	Specified condition
Removed	2 -3	Open circuit
Inserted	2 -3	Continuity exists (2 ohms or less)

Q: Is the key reminder switch in good condition?

YES : Go to Step 3.

NO : Replace the key reminder switch. Check that the input signal of key reminder switch is normal.

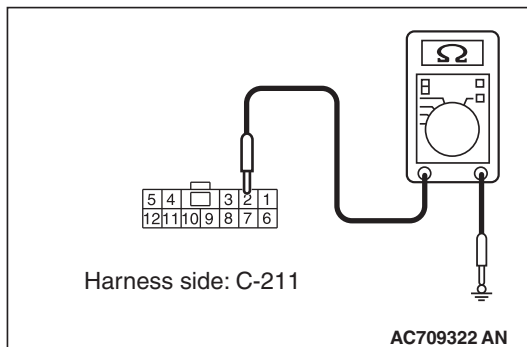
STEP 3. Check the ground circuit to the key reminder switch. Measure the resistance at key reminder switch connector C-211.

- (1) Disconnect key reminder switch connector C-211 and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between terminal 2 and ground.
 - The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between key reminder switch connector C-211 (terminal 2) and ground.

Check the ground wires for open circuit.

Q: Is the wiring harness between key reminder switch connector C-211 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of key reminder switch is normal.

STEP 5. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of key reminder switch is normal.

STEP 6. Check the wiring harness between key reminder switch connector C-211 (terminal 3) and ETACS-ECU connector C-315 (terminal 13).

Check the output lines for open circuit and short circuit.

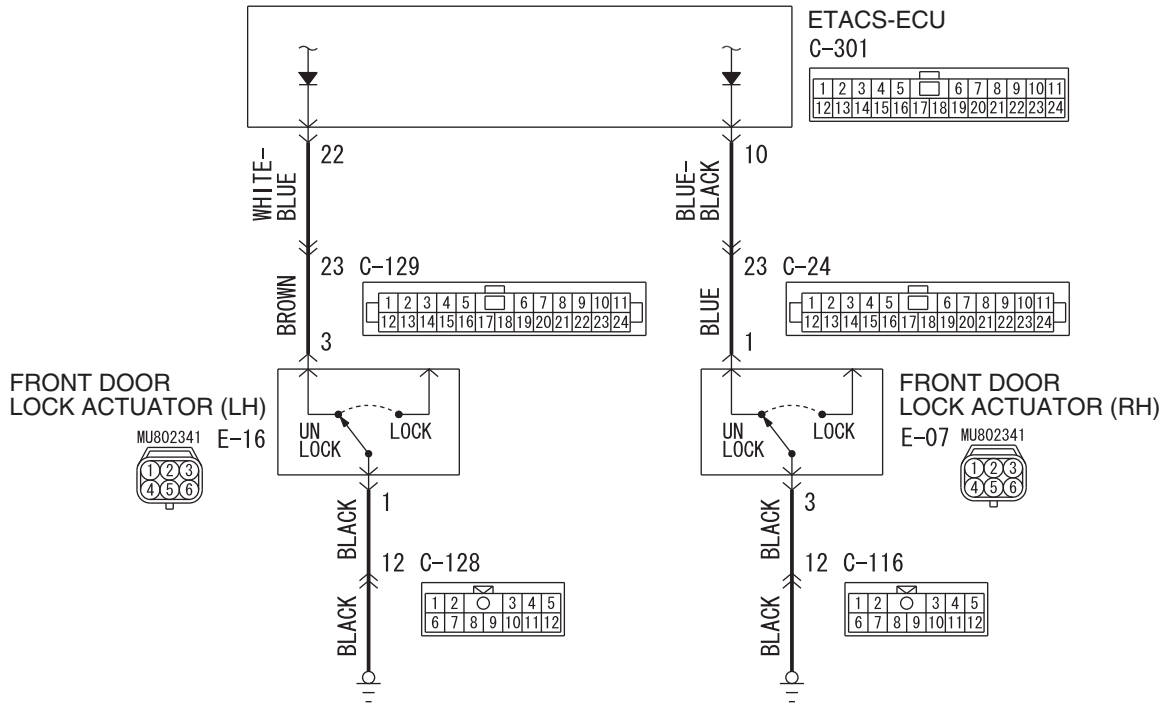
Q: Is the wiring harness between key reminder switch connector C-211 (terminal 3) and ETACS-ECU connector C-315 (terminal 13) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of key reminder switch is normal.

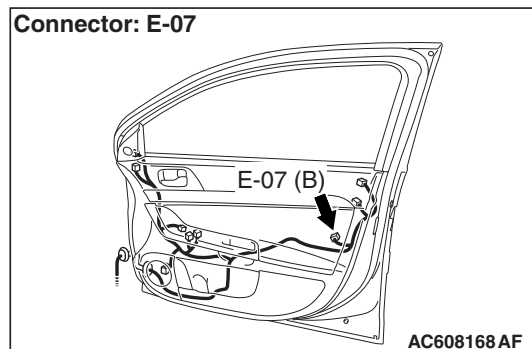
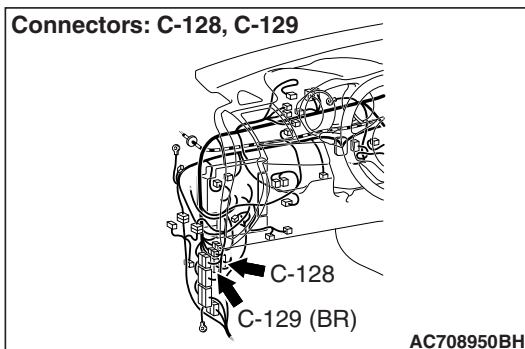
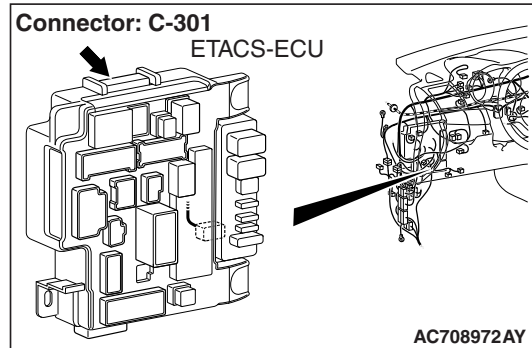
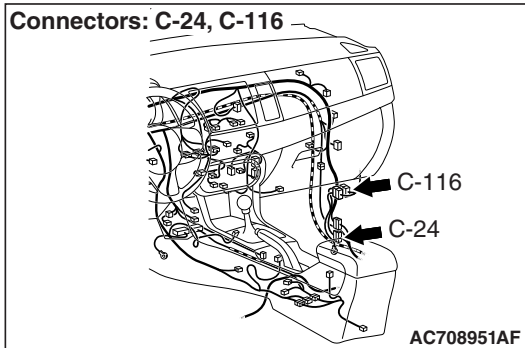
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of key reminder switch is normal.

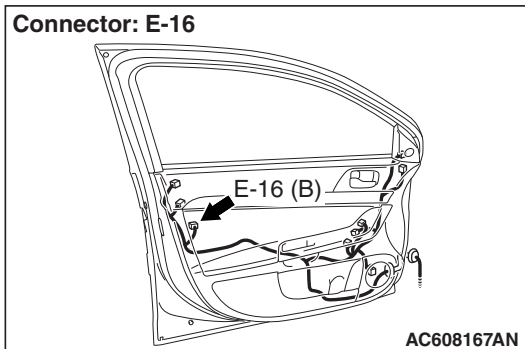
Inspection Procedure 4: ETACS-ECU does not receive any signal from the front door lock actuator.

Door Lock Actuator Input Circuit



W9H54M088A





- Key reminder function
- Central door locking
- KOS
- Keyless entry system
- Interior light

PROBABLE CAUSES

- The front door lock actuator (LH) may be defective
- The front door lock actuator (RH) may be defective <vehicles with KOS>
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

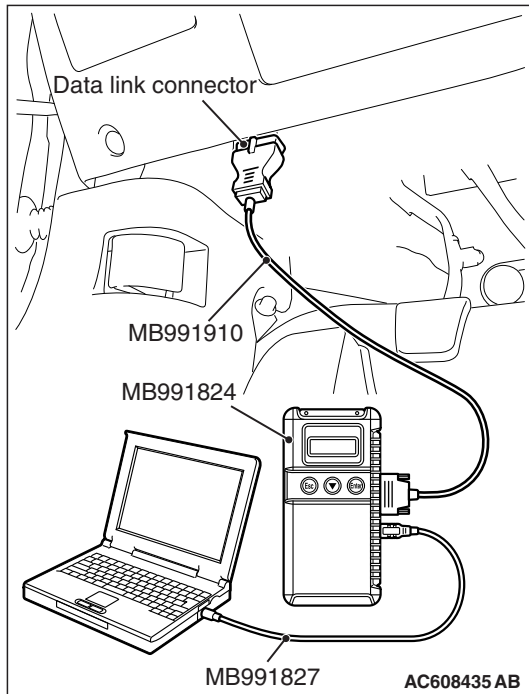
COMMENTS ON TROUBLE SYMPTOM

The front door lock actuator (LH) or front door lock actuator (RH) <vehicles with KOS> input signal is used for the operation judgment of the functions below. If the signal is abnormal, these functions will not work normally.

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827 M.U.T.-III USB Cable
 - MB991910 M.U.T.-III Main Harness A

**STEP 1. Using scan tool MB991958, check data list.**

Check the input signals from the front door lock actuators.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check the ETACS data list.
 - Set the driver's door to "UNLOCK."

Item No.	Item name	Normal condition
Item 271	Dr door unlock switch	Unlock

- Set the front passenger's door to "UNLOCK." <vehicles with KOS>

Item No.	Item name	Normal condition
Item 272	As door unlock switch	Unlock

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

Q: Are normal conditions displayed on the "Dr door unlock switch" and "As door unlock switch"?

YES <Normal conditions are displayed for all the items>

: No action is necessary and testing is complete.

NO <Normal condition is not displayed for item No.271>

: Go to Step 2.

NO <Normal condition is not displayed for item No.272>

: Go to Step 8.

STEP 2. Check front door lock actuator (LH) connector E-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (LH) connector E-16 in good condition?

YES : Go to Step 3.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (LH) is normal.

STEP 3. Check the front door lock actuator (LH).

Disconnect front door lock actuator (LH) connector E-16. Then check continuity between the terminals.

Lever position	Tester connection	Specified condition
UNLOCK	1 -3	Continuity exists (2 ohms or less)
LOCK	1 -3	Open circuit

Q: Is the front door lock actuator (LH) in good condition?

YES : Go to Step 4.

NO : Replace the front door lock actuator (LH). Check that the input signal of front door lock actuator (LH) is normal.

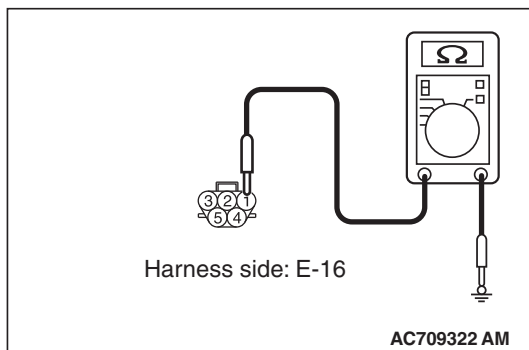
STEP 4. Check the ground circuit to the front door lock actuator (LH). Measure the resistance at front door lock actuator (LH) connector E-16.

- (1) Disconnect front door lock actuator (LH) connector E-16 and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between terminal 1 and ground.
 - The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between front door lock actuator (LH) connector E-16 (terminal 1) and ground.

Check the ground wires for open circuit.

NOTE: Also check intermediate connector C-128 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-128 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front door lock actuator (LH) connector E-16 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (LH) is normal.

STEP 6. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of front door lock actuator (LH) is normal.

STEP 7. Check the wiring harness between front door lock actuator (LH) connector E-16 (terminal 3) and ETACS-ECU connector C-301 (terminal 22).

Check the input lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between front door lock actuator (LH) connector E-16 (terminal 3) and ETACS-ECU connector C-301 (terminal 22) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door lock actuator (LH) is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (LH) is normal.

STEP 8. Check front door lock actuator (RH) connector E-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (RH) connector E-07 in good condition?

YES : Go to Step 9.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of front door lock actuator (RH) is normal.

STEP 9. Check the front door lock actuator (RH).

Disconnect front door lock actuator (RH) connector E-07. Then check continuity between the terminals.

Lever position	Tester connection	Specified condition
UNLOCK	1 -3	Continuity exists (2 ohms or less)
LOCK	1 -3	Open circuit

Q: Is the front door lock actuator (RH) in good condition?

YES : Go to Step 10.

NO : Replace the front door lock actuator (RH). Check that the input signal of front door lock actuator (RH) is normal.

STEP 10. Check the ground circuit to the front door lock actuator (RH). Measure the resistance at front door lock actuator (RH) connector E-07.

(1) Disconnect front door lock actuator (RH) connector E-07 and measure the resistance available at the wiring harness side of the connector.

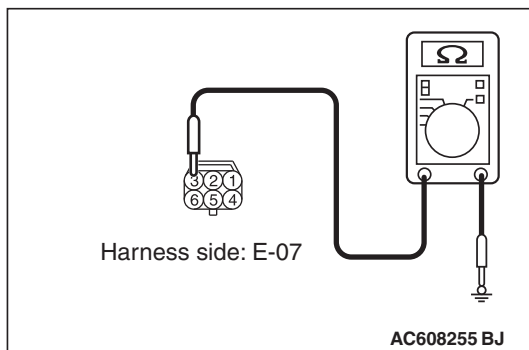
(2) Measure the resistance value between terminal 3 and ground.

- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 12.

NO : Go to Step 11.



STEP 11. Check the wiring harness between front door lock actuator (RH) connector E-07 (terminal 3) and ground.

Check the ground wires for open circuit.

NOTE: Also check intermediate connector C-116 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-116 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front door lock actuator (RH) connector E-07 (terminal 3) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (RH) is normal.

STEP 12. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of front door lock actuator (RH) is normal.

STEP 13. Check the wiring harness between front door lock actuator (RH) connector E-07 (terminal 1) and ETACS-ECU connector C-301 (terminal 10).

Check the input lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-24 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-24 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

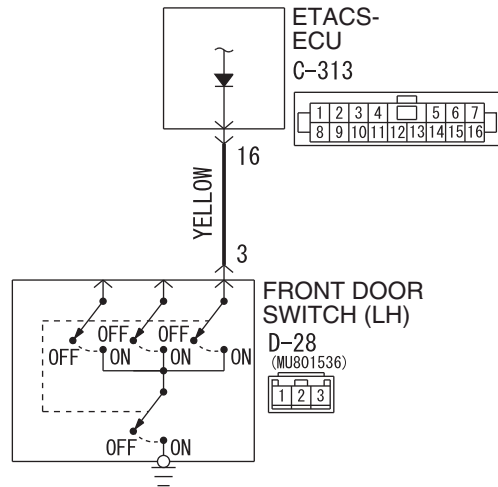
Q: Is the wiring harness between front door lock actuator (RH) connector E-07 (terminal 1) and ETACS-ECU connector C-301 (terminal 10) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door lock actuator (RH) is normal.

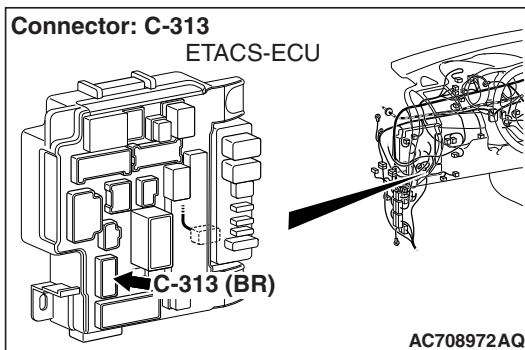
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (RH) is normal.

Inspection Procedure 5: ETACS-ECU does not receive any signal from the front door switch (LH).

Front Door Switch (LH) Input Circuit



W8G54M170A

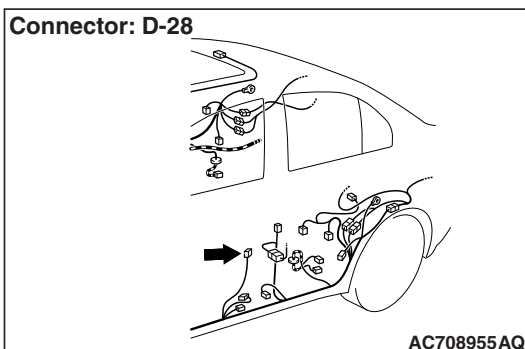


TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the front door switch (LH) input signal, the front door switch (LH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The front door switch (LH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector



DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check front door switch (LH) connector D-28 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (LH) connector D-28 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of front door switch (LH) is normal.

STEP 2. Check the front door switch (LH).

Remove the front door switch (LH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the driver's door switch in good condition?

YES : Go to Step 3.

NO : Replace the front door switch (LH). Check that the input signal of front door switch (LH) is normal.

STEP 3. Measure at the lower metal part of the front door switch (LH) in order to check the ground circuit to the front door switch (LH).

NOTE: Check that the front door switch (LH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of front door switch (LH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of front door switch (LH) is normal.

STEP 5. Check the wiring harness between driver's door switch connector D-28 (terminal 3) and ETACS-ECU connector C-313 (terminal 16).

Check the input lines for open circuit and short circuit.

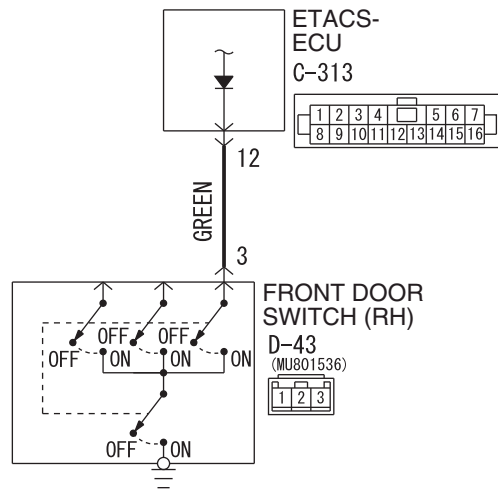
Q: Is the wiring harness between driver's door switch connector D-28 (terminal 3) and ETACS-ECU connector C-313 (terminal 16) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door switch (LH) is normal.

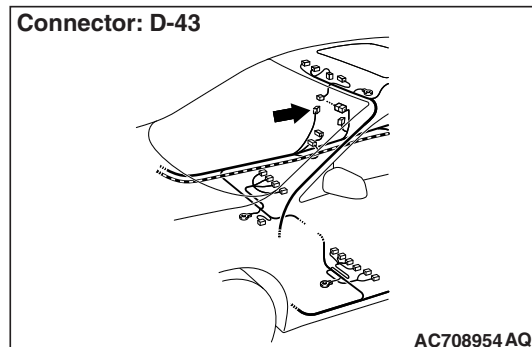
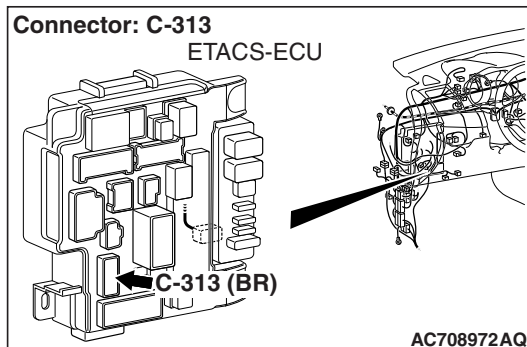
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door switch (LH) is normal.

Inspection Procedure 6: ETACS-ECU does not receive any signal from the front door switch (RH).

Front Door Switch (RH) Input Circuit



W8G54M171A



TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the front door switch (RH) input signal, the front door switch (RH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The front door switch (RH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check front door switch (RH) connector D-43 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (RH) connector D-43 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the input signal of front door switch (RH) is normal.

STEP 2. Check the front door switch (RH).

Remove the front door switch (RH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the front door switch (RH) in good condition?

YES : Go to Step 3.

NO : Replace the front door switch (RH). Check that the input signal of front door switch (RH) is normal.

STEP 3. Measure at the lower metal part of the front door switch (RH) in order to check the ground circuit to the front door switch (RH).

NOTE: Check that the front door switch (RH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of front door switch (RH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the input signal of front door switch (RH) is normal.

STEP 5. Check the wiring harness between front door switch (RH) connector D-43 (terminal 3) and ETACS-ECU connector C-313 (terminal 12).

Check the input lines for open circuit and short circuit.

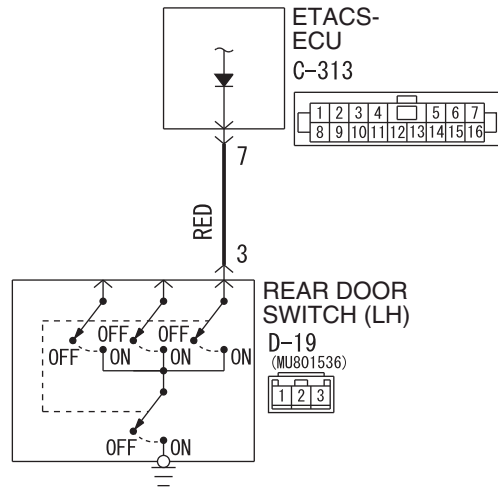
Q: Is the wiring harness between driver's door switch connector D-43 (terminal 3) and ETACS-ECU connector C-313 (terminal 12) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door switch (RH) is normal.

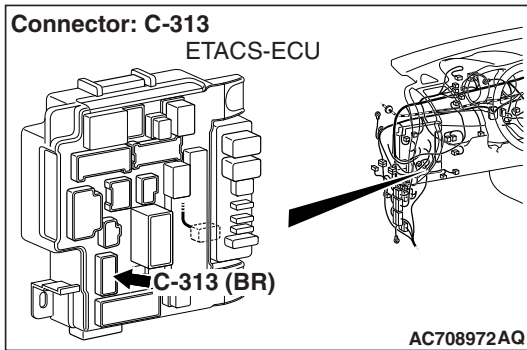
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door switch (RH) is normal.

Inspection Procedure 7: ETACS-ECU does not receive any signal from the rear door switch (LH).

Rear Door Switch (LH) Input Circuit



W8G54M172A

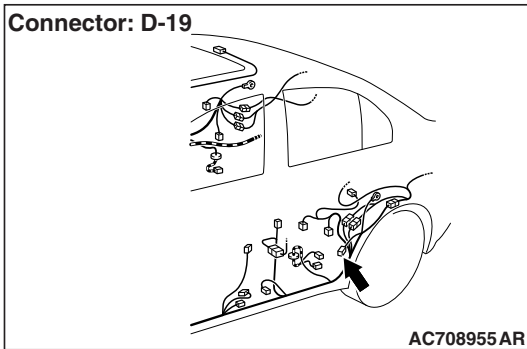


TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the rear door switch (LH) input signal, the rear door switch (LH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The rear door switch (LH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector



DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check rear door switch (LH) connector D-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (LH) connector D-19 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of rear door switch (LH) is normal.

STEP 2. Check the rear door switch (LH).

Remove the rear door switch (LH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the rear door switch in good condition?

YES : Go to Step 3.

NO : Replace the rear door switch (LH). Check that the input signal of rear door switch (LH) is normal.

STEP 3. Measure at the lower metal part of the rear door switch (LH) in order to check the ground circuit to the rear door switch (LH).

NOTE: Check that the rear door switch (LH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of rear door switch (LH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of rear door switch (LH) is normal.

STEP 5. Check the wiring harness between driver's door switch connector D-19 (terminal 3) and ETACS-ECU connector C-313 (terminal 7).

Check the input lines for open circuit and short circuit.

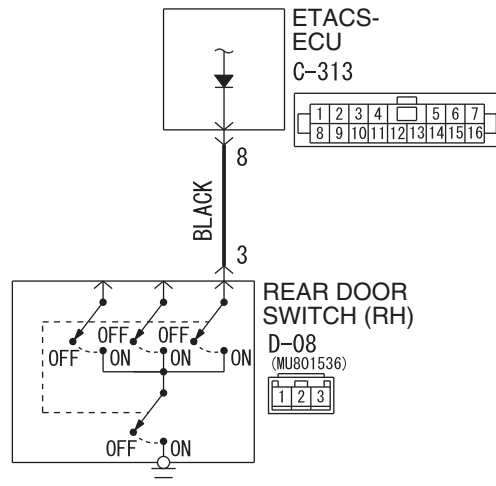
Q: Is the wiring harness between rear door switch connector D-19 (terminal 3) and ETACS-ECU connector C-313 (terminal 7) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of rear door switch (LH) is normal.

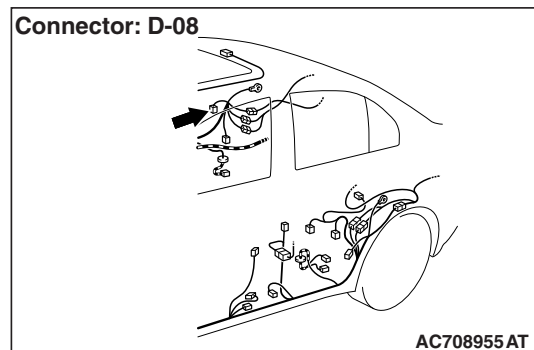
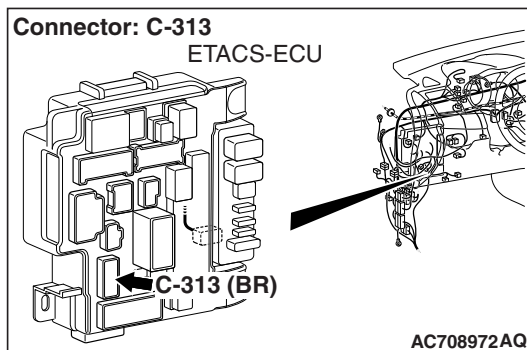
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of rear door switch (LH) is normal.

Inspection Procedure 8: ETACS-ECU does not receive any signal from the rear door switch (RH).

Rear Door Switch (RH) Input Circuit



W8G54M173A



TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the rear door switch (RH) input signal, the rear door switch (RH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The rear door switch (RH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check rear door switch (RH) connector D-08 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (RH) connector D-08 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of rear door switch (RH) is normal.

STEP 2. Check the rear door switch (RH).

Remove the rear door switch (RH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the rear door switch in good condition?

YES : Go to Step 3.

NO : Replace the rear door switch (RH). Check that the input signal of rear door switch (RH) is normal.

STEP 3. Measure at the lower metal part of the rear door switch (RH) in order to check the ground circuit to the rear door switch (RH).

NOTE: Check that the rear door switch (RH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of rear door switch (RH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of rear door switch (RH) is normal.

STEP 5. Check the wiring harness between driver's door switch connector D-08 (terminal 3) and ETACS-ECU connector C-313 (terminal 8).

Check the input lines for open circuit and short circuit.

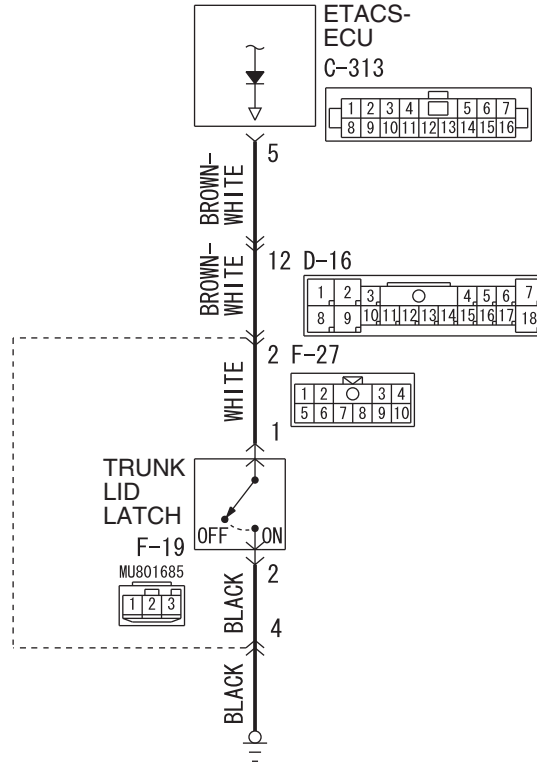
Q: Is the wiring harness between rear door switch connector D-08 (terminal 3) and ETACS-ECU connector C-313 (terminal 8) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of rear door switch (RH) is normal.

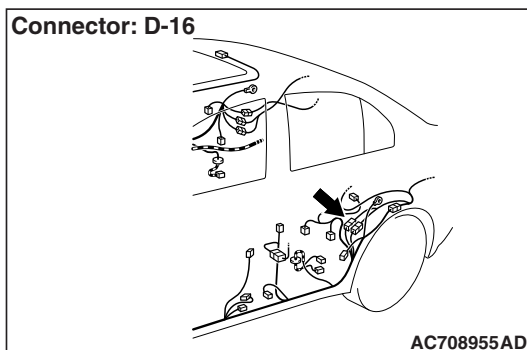
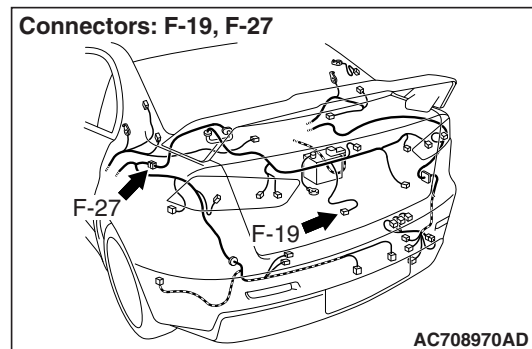
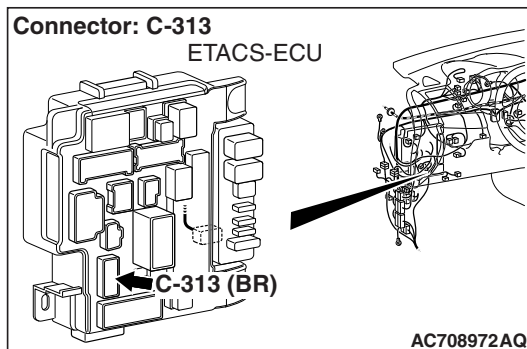
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of rear door switch (RH) is normal.

Inspection Procedure 9: ETACS-ECU does not receive any signal from the trunk lid latch.

Trunk Lid Actuator and Switch Input Circuit



W9H54M089A



TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the trunk lid latch input signal, the trunk lid latch signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The trunk lid latch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check trunk lid latch connector F-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is trunk lid latch connector F-19 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of trunk lid latch is normal.

STEP 2. Check the trunk lid latch.

Disconnect trunk lid latch connector F-19. Then check continuity between terminals.

Ignition key	Tester connection	Specified condition
Released	1 -2	Continuity exists (2 ohms or less)
Pressed	1 -2	Open circuit

Q: Is the trunk lid latch in good condition?

YES : Go to Step 3.

NO : Replace the trunk lid latch. Check that the input signal of trunk lid latch is normal.

STEP 3. Check the ground circuit to the trunk lid latch.

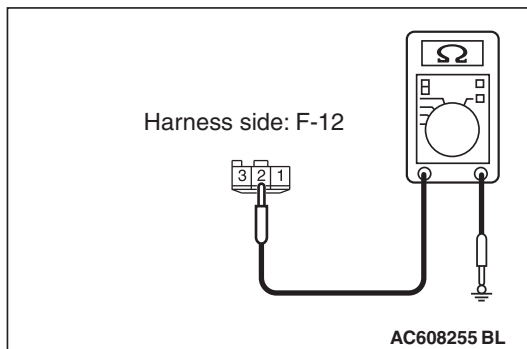
Measure the resistance at trunk lid latch connector F-19.

- (1) Disconnect trunk lid latch connector F-19 and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between terminal 2 and ground.
 - The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between trunk lid latch connector F-19 (terminal 2) and ground.

Check the ground wires for open circuit.

NOTE: Also check intermediate connector F-27 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-27 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between trunk lid latch connector F-19 (terminal 2) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of trunk lid latch is normal.

STEP 5. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of trunk lid latch is normal.

STEP 6. Check the wiring harness between trunk lid latch connector F-19 (terminal 1) and ETACS-ECU connector C-313 (terminal 5).

Check the output lines for open circuit and short circuit.

NOTE: Also check intermediate connectors F-27 and D-16 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-27 or D-16 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

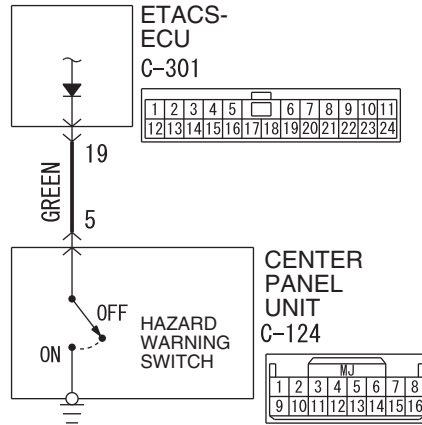
Q: Is the wiring harness between trunk lid latch connector F-19 (terminal 1) and ETACS-ECU connector C-313 (terminal 5) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of trunk lid latch is normal.

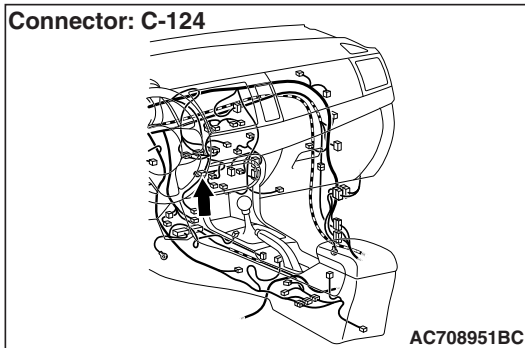
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of trunk lid latch is normal.

Inspection Procedure 10: ETACS-ECU does not receive any signal from the hazard warning light switch.

Hazard Warning Switch Input Circuit



W8G54M175A

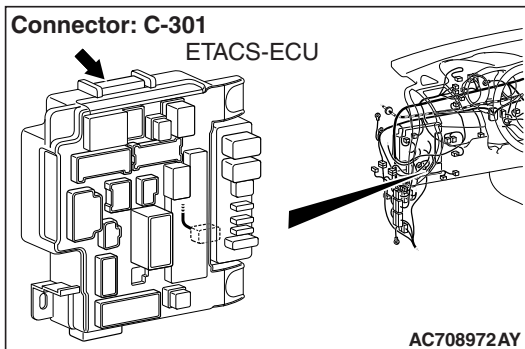


TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the hazard warning light switch input signal, the hazard warning light switch signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The center panel unit may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector



DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check center panel unit connector C-124 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is center panel unit connector C-124 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of hazard warning light switch is normal.

STEP 2. Check the hazard warning light switch.

Remove the center panel unit. Then check continuity between the switch terminal and switch body.

Switch position	Tester connection	Specified condition
Released	5 –switch body	Continuity exists (2 ohms or less)
Pressed	5 –switch body	Open circuit

Q: Is the hazard warning light switch in good condition?

YES : Go to Step 3.

NO : Replace the center panel unit. Check that the input signal of hazard warning light switch is normal.

STEP 3. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#)). Check that the input signal of hazard warning light switch is normal.

STEP 4. Check the wiring harness between center panel unit connector C-124 (terminal 5) and ETACS-ECU connector C-301 (terminal 19).

Check the input lines for open circuit and short circuit.

Q: Is the wiring harness between center panel unit connector C-124 (terminal 5) and ETACS-ECU connector C-301 (terminal 19) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of hazard warning light switch is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of hazard warning light switch is normal.

Inspection Procedure 11: ETACS-ECU does not receive any signal from the column switch signal.**TECHNICAL DESCRIPTION (COMMENT)**

The ETACS-ECU receives the column switch signal via the LIN communication. If there is an abnormality to column switch or LIN bus line, the lights and wiper/washer do not work normally.

TROUBLESHOOTING HINTS

- The column switch may be defective
- The LIN bus line may be defective

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, read the ETACS diagnostic trouble code.

Check the DTC is set to the ETACS-ECU.

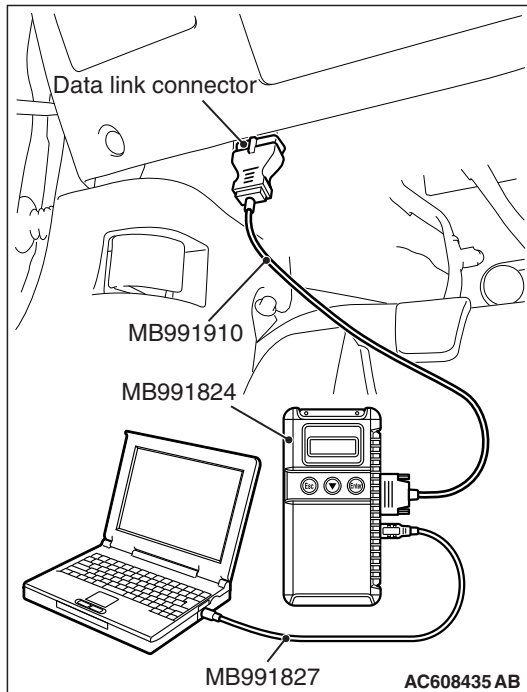
⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-646).
NO : Go to Step 2.



STEP 2. Column switch check

- Check the continuity for windshield wiper and windshield washer switch (Refer to P.54A-313).
- Check the continuity for column switch (switch body part) (Refer to P.54A-314).

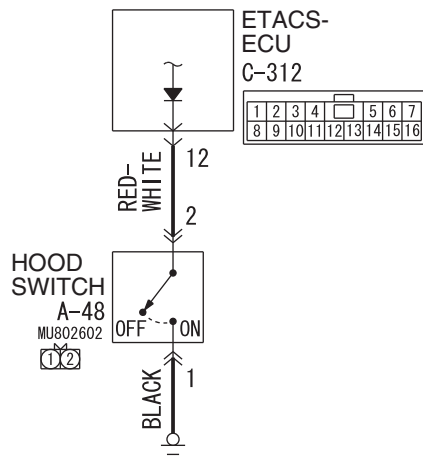
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

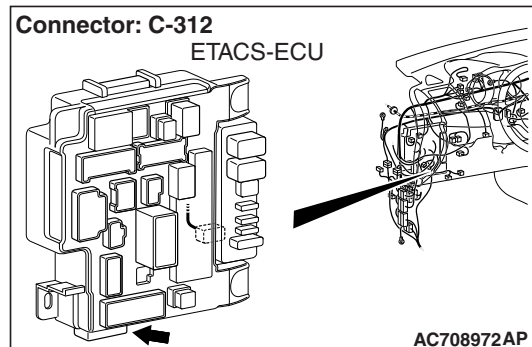
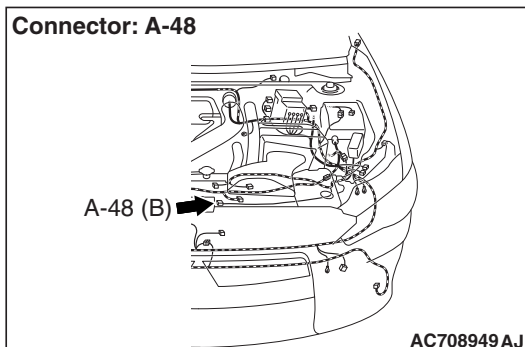
NO : Replace the column switch.

Inspection Procedure 12: ETACS-ECU does not receive any signal from the hood switch.

Hood Switch Input Circuit



W8G54M176A



TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the hood switch input signal, the hood switch signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The hood switch may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check hood switch connector A-48 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hood switch connector A-48 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the input signal of hood switch is normal.

STEP 2. Check the hood switch.

Remove the hood switch. Then check continuity between the switch terminals.

Switch position	Tester connection	Specified condition
Released	1 -2	Less than 2 ohms
Pressed	1 -2	Open circuit

Q: Is the hood switch in good condition?

YES : Go to Step 3.

NO : Replace the hood switch. Check that the input signal of hood switch is normal.

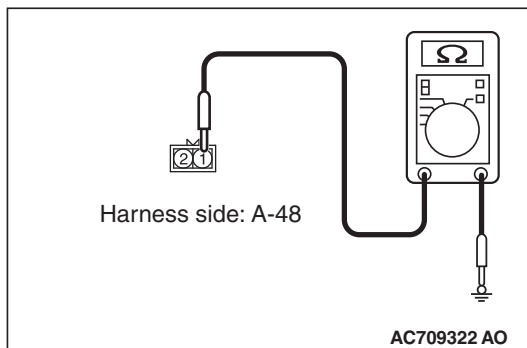
STEP 3. Check the ground circuit to the hood switch. Test at hood switch connector A-48.

- (1) Disconnect hood switch connector A-48 and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance value between terminal 1 and ground.
 - The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between hood switch connector A-48 (terminal 1) and ground.

Check the ground wires for open circuit.

Q: Is the wiring harness between hood switch connector A-48 (terminal 1) and the ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of hood switch is normal.

STEP 5. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 in good condition?

YES : Go to Step 6.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the input signal of hood switch is normal.

STEP 6. Check the wiring harness between driver's door switch connector A-48 (terminal 2) and ETACS-ECU connector C-312 (terminal 12).

Check the input lines for open circuit and short circuit.

Q: Is the wiring harness between driver's door switch connector A-48 (terminal 2) and ETACS-ECU connector C-312 (terminal 12) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of hood switch is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of hood switch is normal.

ON-VEHICLE SERVICE**CUSTOMIZATION FUNCTION**

M1545002500869

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjusting content (scan tool display)	Adjusting content
ACC power auto cut	Time to ACC power cut-off when the ignition switch is in the ACC position	Disable	No function
		30 min	30 minutes (initial condition)
		60 min	60 minutes
Turn power source	Adjustment of turn-signal light operation condition	ACC or IG1	Operable with ACC or ON position
		IG1	Operable with ON position (initial condition)
Comfort flasher	With/without comfort flasher function	Disable	No function
		Enable	With function (initial condition)
Comfort flasher switch time	Switch operation time to activate the comfort flasher function	Normal	0.4 second (initial condition)
		Long	0.8 second
Hazard answer back	Adjustment of the number of keyless hazard warning light answer back flashes	Lock:1, Unlock:2	LOCK: Flashes once, UNLOCK: Flashes twice (initial condition)
		Lock:1, Unlock:0	LOCK: Flashes once, UNLOCK: No flash
		Lock:0, Unlock:2	LOCK: No flash, UNLOCK: Flash twice
		Lock:2, Unlock:1	LOCK: Flash twice, UNLOCK: Flash once
		Lock:2, Unlock:0	LOCK: Flash twice, UNLOCK: No flash
		Lock:0, Unlock:1	LOCK: No flash, UNLOCK: Flash once
		Lock:0, Unlock:0	No function

Adjustment item (scan tool display)	Adjustment item	Adjusting content (scan tool display)	Adjusting content
Front wiper operation	Adjustment of the intermittent windshield wiper operation <vehicles without auto light>	Normal INT	Intermittent wiper interval is fixed to 4 seconds.
		Variable INT	Intermittent wiper interval is calculated only by the wiper volume control.
		Speed Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and vehicle speed (initial condition).
	Adjustment of the intermittent windshield wiper operation <vehicles with auto light>	Normal INT	Intermittent wiper interval is fixed to 4 seconds.
		Variable INT	Intermittent wiper interval is calculated only by the wiper volume control.
		Speed Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and vehicle speed.
		Rain Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and lighting control sensor (initial condition).
	Front wiper washer	Disabling or enabling washer-linked wiper function	Only Washer
Washer & Wiper			With function: Without delayed finishing wipe function (Initial condition)
With after wipe			With function: With delayed finishing wipe function
Intelligent washer	With/without intelligent washer function	Disable	No function
		Enable	With function (initial condition)
Sensitivity for auto light	Lighting control sensor sensitivity (illumination intensity) <vehicles with auto light>	Level 1 bright	High-high ambient brightness
		Level 2 bright	High ambient brightness
		Level 3	Standard ambient brightness (initial condition)
		Level 4 dark	Low ambient brightness
		Level 5 dark	Low-low ambient brightness
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0 sec	0 second (no delay shutdown time)
		7.5 sec	7.5 seconds
		15 sec	15 seconds
		30 sec	30 seconds (initial condition)
		60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds
Headlight auto cut customize	Adjustment of headlight automatic shutdown function	Disable	No function
		Enable (C-spec.)	With function (initial condition)

Adjustment item (scan tool display)	Adjustment item	Adjusting content (scan tool display)	Adjusting content
Welcome light	Disabling or enabling welcome light function	Disabled	No function
		Small light	Tail light illuminates. (initial condition)
		Head light	Headlight illuminates.
Coming home light	Disabling or enabling coming home light function	Disabled	No function
		15 sec	Headlight illuminates for 15 seconds.
		30sec	Headlight illuminates for 30 seconds. (initial condition)
		60 sec	Headlight illuminates for 60 seconds.
		180 sec	Headlight illuminates for 180 seconds.
Interior light auto cut timer	Adjustment of interior light automatic shutdown function operation time	Disable	No function
		3 min	3 minutes
		30 min	30 minutes (initial condition)
		60 min	60 minutes
Door unlock mode	Adjustment of power door locks with selective unlocking	All doors unlock	Without function: The first operation of keyless entry system or unlock operation by KOS unlocks all doors.
		Dr door unlock	With function: The first operation of keyless entry system or unlock operation by KOS unlocks the driver's door only, and the second unlock operation within 2 seconds after that unlocks all doors. (initial condition)
Auto door unlock	Adjustment of the auto door unlock function	Disabled	Without function (initial condition) <M/T, TC-SST>
		Always (P pos)	With function: Operates when the shift lever or the selector lever is moved to the P position. <TC-SST>
		P/W unlock (P)	With function: Operates when the shift lever or the selector lever is moved to the P position with the power window lock switch in the OFF position. <TC-SST>
		Always(Lock pos)	With function: Operates when the ignition switch is moved to the LOCK (OFF) position. <M/T, TC-SST>
		P/W unlock(Lock)	With function: Operates when the ignition switch is turned to the LOCK (OFF) position with the power window lock switch in the OFF position. <M/T, TC-SST>
Duration of horn chirp	Horn sounding time during horn answer back	Short	0.01 second (initial condition)
		Long	0.02 second

Adjustment item (scan tool display)	Adjustment item	Adjusting content (scan tool display)	Adjusting content
Horn chirp by keyless	Horn chirp by keyless entry system <vehicles without auto light>	Not sound horn	No horn answerback function
		Lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed once.
		W lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed twice. (initial condition)
		Not sound horn	No horn answerback function
	Horn chirp by keyless entry system <vehicles with auto light>	Lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed once.
		Lock/auto ON	During daytime, while the lighting switch is in the AUTO position, the horn sounds once when the lock is pressed once.
		W lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed twice. (initial condition)
		Not sound buzzer	No function
Tone alarm answer back <Vehicles with KOS>	Adjusts the tone alarm answer back function	At keyless	Sounds when the keyless entry system is activated.
		At F.A.S.T.	Sounds when KOS is activated (initial condition).
		At Both	Sounds when the keyless entry system or KOS is activated.
		30 sec	30 seconds (initial condition)
Timer lock timer	Timer lock period adjustment	60 sec	60 seconds
		120 sec	120 seconds
		180 sec	180 seconds
		Disable	No function
Panic alarm switch	With/without panic alarm function	Enable	With function (initial condition)
		Enable	No function
F.A.S.T.* key detect out fm window	With/without KOS key exterior detection function	Disable	With function (initial condition)
		Both enable	All KOS functions are enabled (initial condition).
F.A.S.T.* feature	KOS function adjustment	DoorEntry enable	Only door entry function is enabled.
		ENG strt enable	Only engine starting function is enabled.
		Both disabled	All KOS functions are disabled.
		0 sec	0 second
F.A.S.T.* unlock disable time	Adjusts the door unlock inhibition period after door lock is activated	3 sec	3 seconds (initial condition)
		5 sec	5 seconds

NOTE: *: F.A.S.T. (Free-hand Advanced Security Transmitter)

ETACS-ECU

REMOVAL AND INSTALLATION

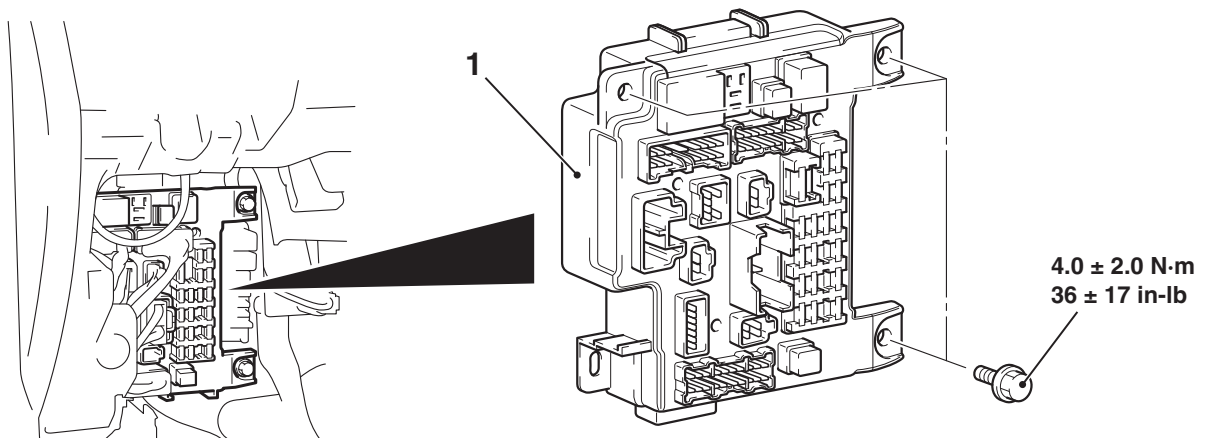
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⚠ WARNING

- Before removing the ETACS-ECU and knee air bag module, refer to **GROUP 52B, Service Precautions P.52B-24** and **Knee Air Bag Module P.52B-425**.
- When removing and installing the ETACS-ECU, do not let it bump against the knee air bag module.

⚠ CAUTION

When the ETACS-ECU is replaced, chassis number writing and coding must be performed. When diagnostic trouble code No.B1761 "Chassis No. not programmed" or No.B222C "Coding not completed" is set to the ETACS-ECU, perform chassis number writing and coding. Refer to the "M.U.T.-III Owner's Manual" and perform coding.



AC610001AB

Removal Steps

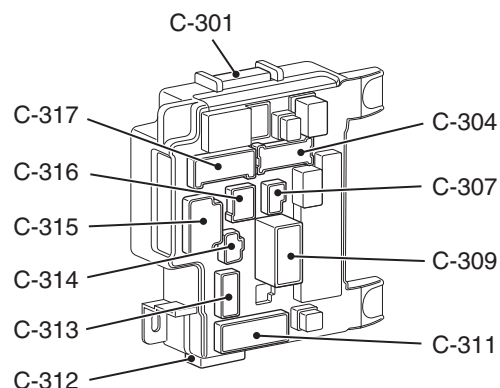
- Instrument panel cover assembly (Refer to **GROUP 52A, Instrument Lower Panel P.52A-9**).

Removal Steps (Continued)

- Knee air bag module (Refer to **GROUP 52B, Knee Air Bag Module P.52B-425**).
- 1. ETACS-ECU

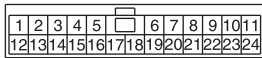
CHECK WITH TERMINAL VOLTAGE

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AC507027AB

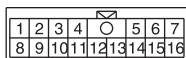
CONNECTOR: C-301



AC507030AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Input from power window main switch or front power window sub switch (central door lock switch)	central door lock switch: Locked	1 V or less
3-9	–	–	–
10	Input from front passenger's door lock actuator (unlock)	Front passenger's door lock: Unlocked	1 V or less
11	–	–	–
12	Output to defogger switch	Defogger switch: ON	1 V or less
13-18	–	–	–
19	Input from hazard warning light switch	Hazard warning light switch: ON	1 V or less
20	–	–	–
21	Input from windshield wiper backup switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	1 V or less
22	Input from driver's door lock actuator (unlock)	Driver's door lock: Unlocked	1 V or less
23, 24	–	–	–

CONNECTOR: C-304



AC507031AB

Terminal No.	Check item	Check condition	Normal condition
1	Stop light switch power supply	Stop light switch: ON	Battery positive voltage
2	–	–	–
3	Output to position light (LH)	When position light is illuminated	Battery positive voltage
4	–	–	–
5	Output to windshield wiper (HI)	When windshield wipers are operating at high speed	Battery positive voltage
6	Output to windshield wiper (LO)	When windshield wipers are operating at low speed	Battery positive voltage
7	Output position light (RH)	When position light illuminated	Battery positive voltage

Terminal No.	Check item	Check condition	Normal condition
8	Input from windshield wiper auto stop switch	When windshield wipers are operating	Battery positive voltage
9	Output to front and side turn-signal light (LH)	When front and side turn-signal light (LH) is illuminated	Battery positive voltage
10	Output to engine control module (IG1)	Ignition switch: ON	Battery positive voltage
11	Input from engine control module (fuel control)	Engine: Started	1 V or less
12	Output to windshield wiper (ACC)	Ignition switch: ACC	Battery positive voltage
13	Output to windshield washer	When windshield washer is operating	Battery positive voltage
14	–	–	–
15	Output to engine control module (START)	Ignition switch: START	Battery positive voltage
16	Output to front and side turn-signal light (RH)	When front and side turn-signal light (RH) is illuminated	Battery positive voltage

CONNECTOR: C-307

AC507032AB

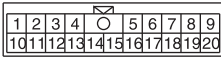
Terminal No.	Check item	Check condition	Normal condition
1	Fuel pump power supply	Ignition switch: ON	Battery positive voltage
2	Battery power supply	Always	Battery positive voltage

CONNECTOR: C-309

AC507033AB

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	Always	Battery positive voltage
2	Battery power supply	Always	Battery positive voltage

CONNECTOR: C-311



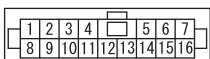
AC507035AB

Terminal No.	Check item	Check condition	Normal condition
1	Output to trunk lid lock actuator	When trunk is locked	Battery positive voltage
2	Backup light power supply	When backup light is illuminated	Battery positive voltage
3	Input from luggage compartment light	When luggage compartment light is illuminated	1 V or less
4, 5	–	–	–
6	Output to rear door lock actuator (unlock)	When rear door is unlocked	Battery positive voltage
7, 8	–	–	–
9	Output to rear door lock actuator (lock)	When rear door is locked	Battery positive voltage
10	Output to taillight (LH) and side maker light (LH) and license plate light	When taillight (LH) and side maker light (LH) and license plate light are illuminated	Battery positive voltage
11	–	–	–
12	Rear power window motor power supply	Ignition switch: ON	Battery positive voltage
13	Output to taillight (RH) and side maker light (RH) and glove box light	When taillight (RH) and side maker light (RH) and glove box light are illuminated	Battery positive voltage
14, 15	–	–	–
16	Output to accessory socket 1	Ignition switch: ACC	Battery positive voltage
17	Output to luggage compartment light	When luggage compartment light is illuminated	Battery positive voltage
18	Output to rear turn-signal light (LH)	When rear turn-signal light (LH) is illuminated	Battery positive voltage
19	Output to rear turn-signal light (RH)	When rear turn-signal light (RH) is illuminated	Battery positive voltage
20	–	–	–

CONNECTOR: C-312

AC507034AB

Terminal No.	Check item	Check condition	Normal condition
1	Input from brake fluid level switch	Brake fluid level switch: ON	1 V or less
2	Output to radiator fan relay	When radiator fan is operating	1 V or less
3	–	–	–
4	Output to fog lights	Fog light switch: ON	1 V or less
5	–	–	–
6	Output to headlight (LO)	Headlight switch: ON	1 V or less
7	Input from ambient temperature sensor	Always	0.2 –2.72 volts
8	Output to condenser fan relay	When condenser fan is operating	1 V or less
9	Output to fan control relay	When fan control is operating	1 V or less
10	Output to daytime running light	Ignition switch: ON	1 V or less
11	Output to horn	When horn sounds	1 V or less
12	Input from hood switch	Hood switch: ON (hood open)	1 V or less
13	Output to Headlight (HI)	Dimmer switch: ON	1 V or less
14	Ground (ambient temperature sensor)	Always	1 V or less
15	Output to theft-alarm horn	When theft-alarm horn sounds	1 V or less
16	Input from stoplight switch	Stoplight switch: ON	Battery positive voltage

CONNECTOR: C-313

AC610017

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Ignition switch (IG1) power supply	Ignition switch: ON	Battery positive voltage
3	–	–	–
4	Ignition switch (IG1) power supply	Ignition switch: ON	Battery positive voltage
5	Input from trunk lid actuator and switch	Trunk lid actuator and switch: ON (trunk lid open)	1 V or less
6	–	–	–
7	Input from rear door switch (LH)	Rear door switch (LH): ON (door open)	1 V or less

Terminal No.	Check item	Check condition	Normal condition
8	Input from rear door switch (RH)	Rear door switch (RH): ON (door open)	1 V or less
9-11	–	–	–
12	Input from front door switch (RH)	Front door switch (RH): ON (door open)	1 V or less
13-15	–	–	–
16	Input from front door switch (LH)	Front door switch (LH): ON (door open)	1 V or less

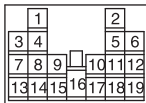
CONNECTOR: C-314



AC507037AB

Terminal No.	Check item	Check condition	Normal condition
1	Output to fuel pump	Engine: Started	Battery positive voltage
2	–	–	–

CONNECTOR: C-315



AC507029AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Output to front door lock actuator (LH) (unlock)	When front door (LH) is unlocked	Battery positive voltage
3	–	–	–
4	Battery power supply	Always	Battery positive voltage
5	Output to front door lock actuator (RH) (unlock)	When front door (RH) is unlocked	Battery positive voltage
6	Output to central door locking (for locking the doors)	When the door lock actuators lock the doors	Battery positive voltage
7	Ignition switch (START) power supply	Ignition switch: START	Battery positive voltage
8	Power window motor power supply	Ignition switch: ON	Battery positive voltage
9	Ignition switch (ACC) power supply	Ignition switch: ACC	Battery positive voltage
10	Power window main switch power supply	Ignition switch: ON	Battery positive voltage

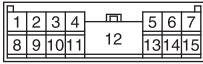
Terminal No.	Check item	Check condition	Normal condition
11	Output to accessory socket 2	Ignition switch: ACC	Battery positive voltage
12	Output to accessory socket 3	Ignition switch: ACC	Battery positive voltage
13	Input from key reminder switch	Key reminder switch: ON (ignition key removed)	1 V or less
14	–	–	–
15	Input from power window main switch or front power window sub switch (central door lock switch)	Central door lock switch: Unlocked	1 V or less
16	Output to blower motor	Blower motor in operation	Battery positive voltage
17	Ground (signal)	Always	1 V or less
18	Output to ignition key cylinder illumination light	When ignition key cylinder illumination is ON	Battery positive voltage
19	Input from horn switch	Horn switch: ON	1 V or less

CONNECTOR: C-316

AC507038AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Sunroof motor assembly power supply	Always	Battery positive voltage
3, 4	–	–	–
5	Input from dome light	When dome light is illuminated	1 V or less
6	Output to dome light output	When dome light is illuminated	Battery positive voltage

CONNECTOR: C-317



AC507028AB

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	Always	Battery positive voltage
2	Battery power supply	Always	Battery positive voltage
3, 4	–	–	–
5	Ignition switch (IG1) power supply	Ignition switch: ON	Battery positive voltage
6	Input from ignition switch (IG1)	Ignition switch: ON	Battery positive voltage
7	Input from ignition switch (ACC)	Ignition switch: ACC	Battery positive voltage
8	–	–	–
9	Output to theft-alarm indicator light	When theft-alarm indicator light is illuminated	1 V or less
10	Battery power supply	Always	Battery positive voltage
11-14	–	–	–
15	Ground	Always	1 V or less

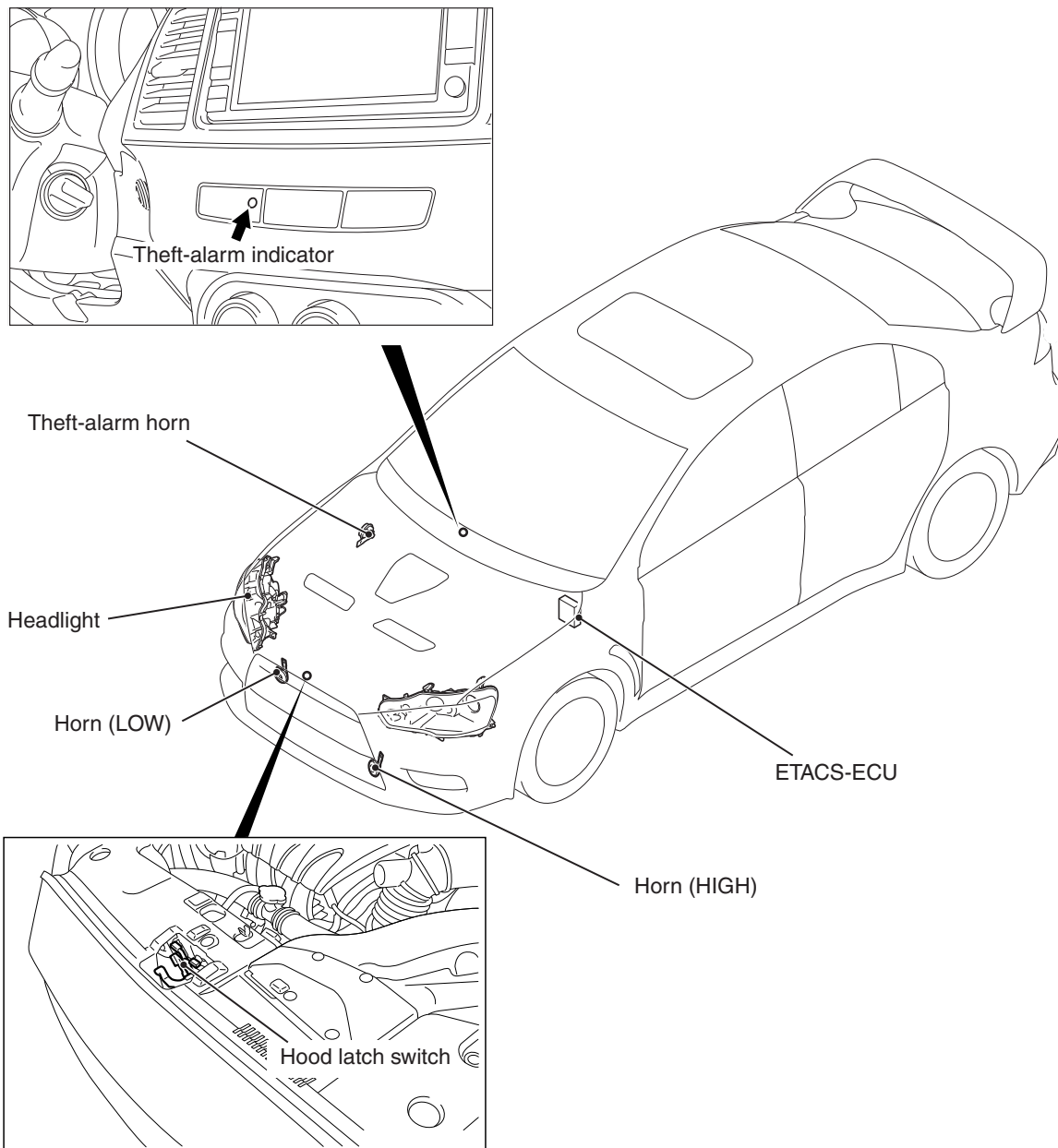
THEFT ALARM

GENERAL INFORMATION

M1547000100139

When the doors are locked using the keyless entry function or KOS (except when locked by using the key cylinder or door lock switch), the improper opening of door or trunk causes the ETACS-ECU function and control to give off an alarm with the flashing of headlights and the intermittent sounding of horns. Also, the ETACS-ECU warns that the theft-alarm system is being set by flashing the theft-alarm indicator

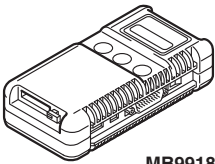
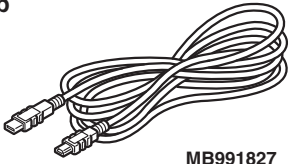
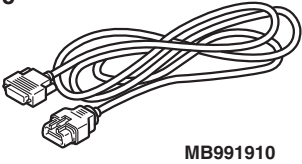
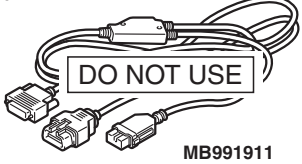
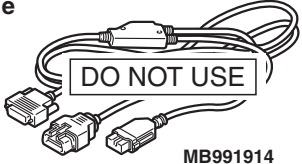
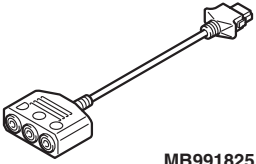
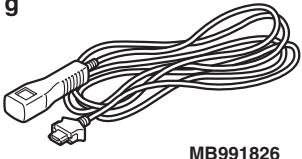
Construction diagram

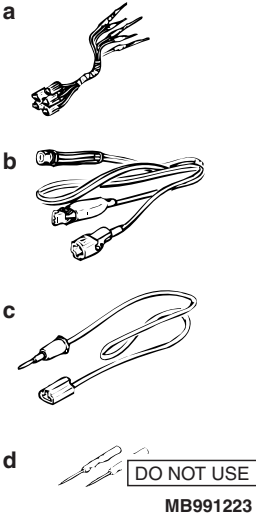
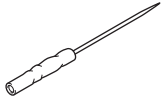


AC705524AB

SPECIAL TOOLS

M154700600372

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824</p> <p>b. MB991827</p> <p>c. MB991910</p> <p>d. MB991911</p> <p>e. MB991914</p> <p>f. MB991825</p> <p>g. MB991826</p> <p>M.U.T.-III sub-assembly</p> <p>a. Vehicle communication interface (V.C.I.)</p> <p>b. M.U.T.-III USB cable</p> <p>c. M.U.T.-III main harness A (Vehicles with CAN communication system)</p> <p>d. M.U.T.-III main harness B (Vehicles without CAN communication system)</p> <p>e. M.U.T.-III main harness C (for Chrysler models only)</p> <p>f. M.U.T.-III measurement adapter</p> <p>g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.</p> <p>Reading diagnostic trouble code and data list.</p>

Tool	Tool number and name	Supersession	Application
	<p>MB991223</p> <p>a. MB991219 b. MB991220 c. MB991221 d. MB991222</p> <p>Harness set</p> <p>a. Check harness b. LED harness c. LED harness adapter d. Probe</p>	<p>General service tool (jumper)</p>	<p>Continuity check and voltage measurement at harness wire or connector</p> <p>a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector</p>

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 –Contents of troubleshooting P.00-7.

M1547001200173

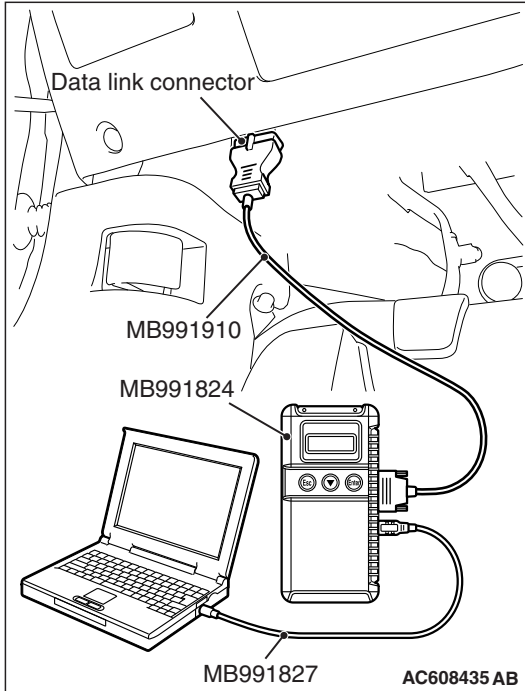
DIAGNOSTIC FUNCTION

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

M1547001300040

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



⚠ CAUTION

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

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.

7. Start the scan tool system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

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

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.

6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
 - If they match, go to Step 8.
 - If not, go to Step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

TROUBLE SYMPTOM CHART

M1547001500260

Trouble symptom	Inspection Procedure No.	Reference page
The theft-alarm is not armed (the theft-alarm indicator does not illuminate).	1	P.54A-755
The interior alarm does not work normally while the theft-alarm is triggered.	2	P.54A-762
Theft-alarm horn does not sound while the theft-alarm system is triggered.	3	P.54A-768
Horn (HIGH or LOW) does not sound while the theft-alarm system is triggered.	4	P.54A-768

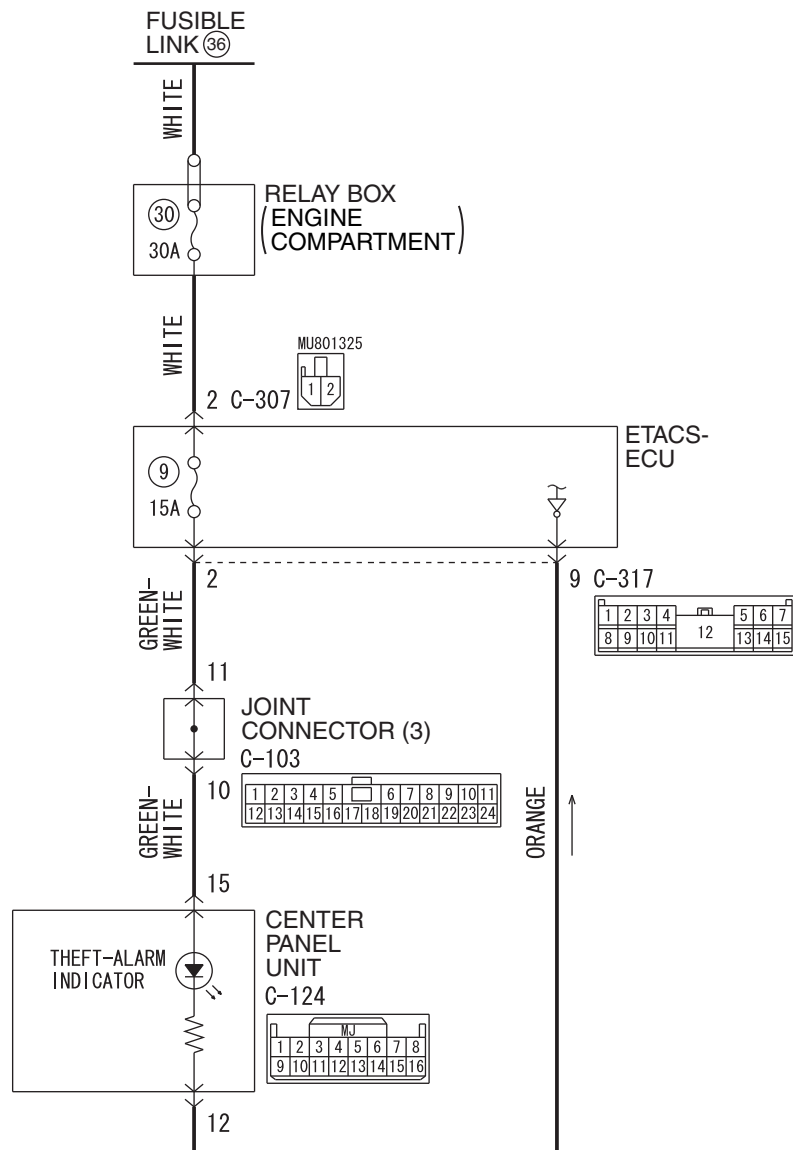
SYMPTOM PROCEDURES

Inspection Procedure 1: The theft-alarm is not armed (the theft-alarm indicator does not illuminate).

CAUTION

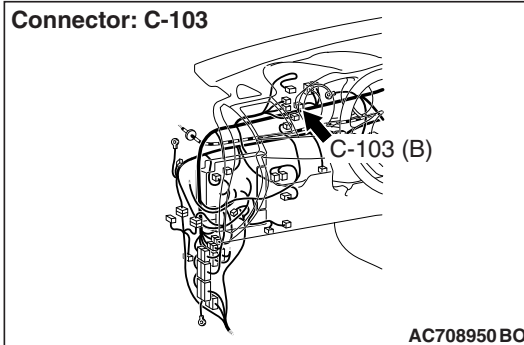
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Theft-alarm Indicator Circuit

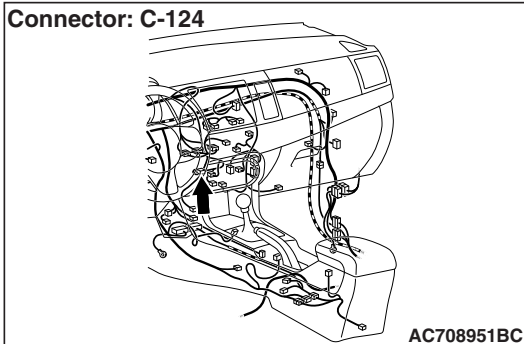
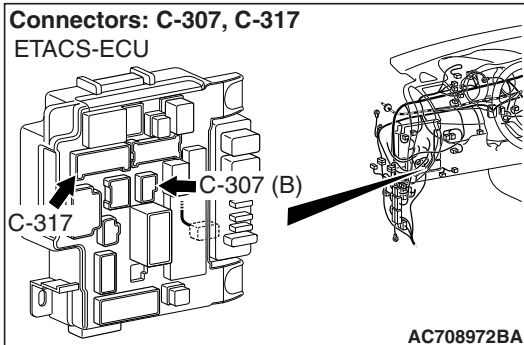


WAH54M039A

Connector: C-103



Connector: C-124

Connectors: C-307, C-317
ETACS-ECU**TECHNICAL DESCRIPTION (COMMENT)**

If this function does not work normally, the input signal circuits to the components below, the theft-alarm indicator, the ETACS-ECU or the CAN bus line may have a problem.

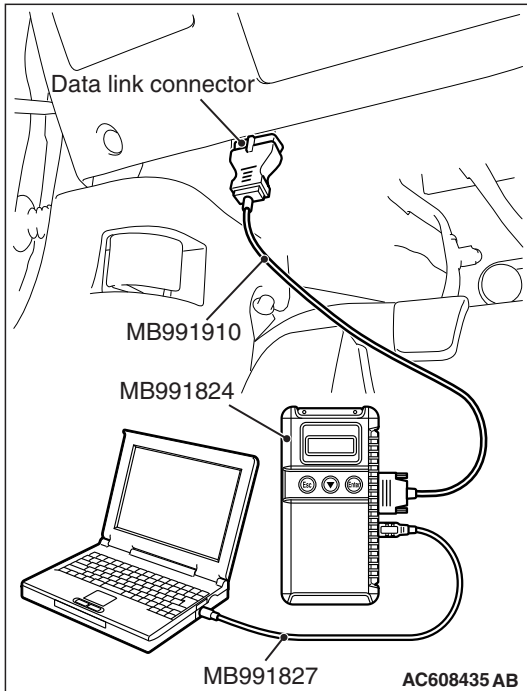
- Keyless entry transmitter
- Key reminder switch
- Ignition switch (ACC)
- Hood latch switch
- Door switches
- Trunk latch switch

TROUBLESHOOTING HINTS

- CAN bus line may be defective
- Theft-alarm indicator may be defective
- Keyless entry transmitter may be defective
- The key reminder switch may be defective
- Door switch may be defective
- Trunk latch switch may be defective
- Hood latch switch may be defective
- The KOS-ECU may be defective
- The WCM may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-752."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

STEP 2. Using scan tool MB991958, check for any diagnostic trouble code.

Check if DTC is set to the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM>.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check whether the KOS or WCM related DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-23).

YES <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-14).

NO : Go to Step 3.

STEP 3. Check the keyless operation key <KOS> or keyless entry transmitter <WCM>.

Check that the doors can be open by keyless operation key <KOS> or keyless entry transmitter <WCM>.

Q: is the keyless operation key <KOS> or keyless entry transmitter <WCM> normally?

YES : Go to Step 4.

NO <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-23).

NO <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-14).

STEP 4. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the theft-alarm function.

- Turn the ignition switch to the "ACC" position.
- Open the hood.
- Open each door.
- Open the Trunk.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 260	Trunk/gate trunk ajar switch	Open
Item 264	Handle lock switch	Key in
Item 266	Hood switch	ON
Item 288	ACC switch	ON

- Close each door.
- Close the Trunk.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Close
Item 257	As door ajar switch	Close
Item 258	RR door ajar switch	Close
Item 259	RL door ajar switch	Close
Item 260	Trunk/gate trunk ajar switch	Close

- Turn the ignition switch to the "LOCK" (OFF) position (with ignition key <vehicles with WCM> or emergency key <vehicles with KOS> inserted).

Item No.	Item name	Normal condition
Item 264	Handle lock switch	Key in
Item 288	ACC switch	OFF

Q: Does scan tool MB991958 display the items "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch", "Handle lock switch", "Hood switch" and "ACC switch" as normal condition?

YES <Normal conditions are displayed for all items.> :

Go to Step 5.

NO <Normal condition is not displayed for item No.

256.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)"

[P.54A-719.](#)

NO <Normal condition is not displayed for item No.

257.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)"

[P.54A-721.](#)

NO <Normal condition is not displayed for item No.

258.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)"

[P.54A-724.](#)

NO <Normal condition is not displayed for item No.

259.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)"

[P.54A-726.](#)

NO <Normal condition is not displayed for item No.

260.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 9 "ETACS-ECU does not receive any signal from the trunk lid actuator and switch [P.54A-729.](#)

NO <Normal condition is not displayed for item No.

264.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 3 "ETACS-ECU does not receive any signal from key reminder switch"

[P.54A-709.](#)

NO <Normal condition is not displayed for item No.

266.> : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 10 "ETACS-ECU does not receive any signal from the hood latch switch" [P.54A-735.](#)

NO <Normal condition is not displayed for item No.

288.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 1 "ETACS-ECU does not receive any signal from the ignition switch (ACC) signal" [P.54A-704.](#)

STEP 5. Check center panel unit connector C-124 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is center panel unit connector C-124 in good condition?

YES : Go to Step 6.

NO : Repair the damaged parts.

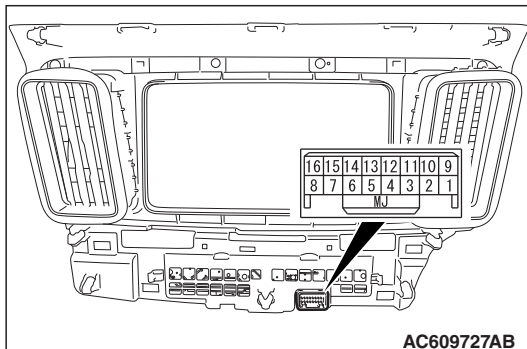
STEP 6. Check the theft-alarm indicator.

Refer to [P.54A-773](#).

Q: Is the theft-alarm indicator in good condition?

YES : Go to Step 7.

NO : Replace the center panel unit.



STEP 7. Check ETACS-ECU connector C-307 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the ETACS-ECU connector C-307 in good condition?

YES : Go to Step 8.

NO : Repair the damaged parts.

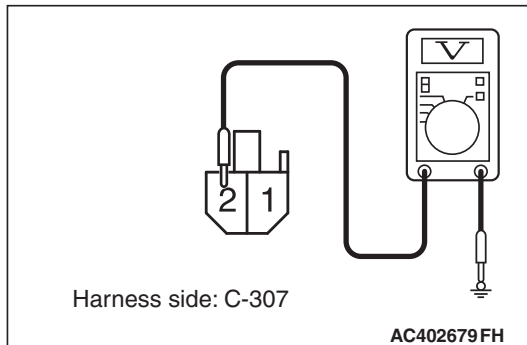
STEP 8. Measure the voltage at ETACS-ECU connector C-307.

- (1) Disconnect ETACS-ECU connector C-307, and measure the voltage wiring harness side.
- (2) Measure the voltage between ETACS-ECU connector-307 (terminal No. 2) and the body ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 10.

NO : Go to Step 9.



STEP 9. Check the Wiring harness between ETACS-ECU connector C-307 (terminal No. 2) and fusible link (36).

- Check the power supply line for open circuit and short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : Repair the wiring harness between ETACS-ECU connector C-307 and fusible link (36).

STEP 10. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 11.

NO : Repair the damaged parts.

STEP 11. Check the Wiring harness between ETACS-ECU connector C-317 (terminal No. 2,9) and center panel unit connector C-124 (terminal No. 15,12).

NOTE: Also check joint connector C-103 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-103 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

- Check the input/output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 12.

NO : Repair the wiring harness between ETACS-ECU connector C-317 and center panel unit connector C-124.

STEP 12. Retest the system.

Q: Does the theft-alarm work normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : Replace the ETACS-ECU.

Inspection Procedure 2: The interior alarm does not work normally while the theft-alarm is triggered.**⚠ CAUTION**

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

If the interior alarm does not work normally, ETACS-ECU, or combination meter built-in tone alarm may have a problem.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective
- Combination meter may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS**Required Special Tools:**

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, diagnose the CAN bus line.**⚠ CAUTION**

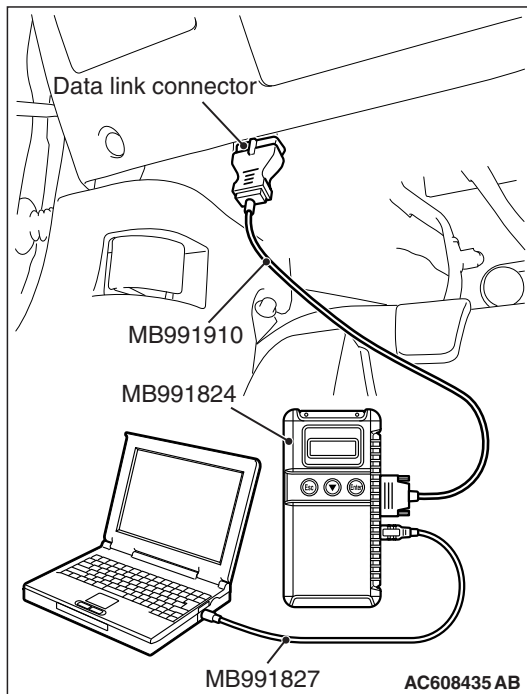
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).



STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check whether the ETACS-ECU DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to [P.54A-646](#)), and then go to Step 3.

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set scan tool MB991958 to the actuator test mode.
 - Item 12: Tone alarm
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the combination meter.

STEP 4. Retest the system.

Check that the theft-alarm works normally.

Q: Does the theft-alarm work normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-15](#)).

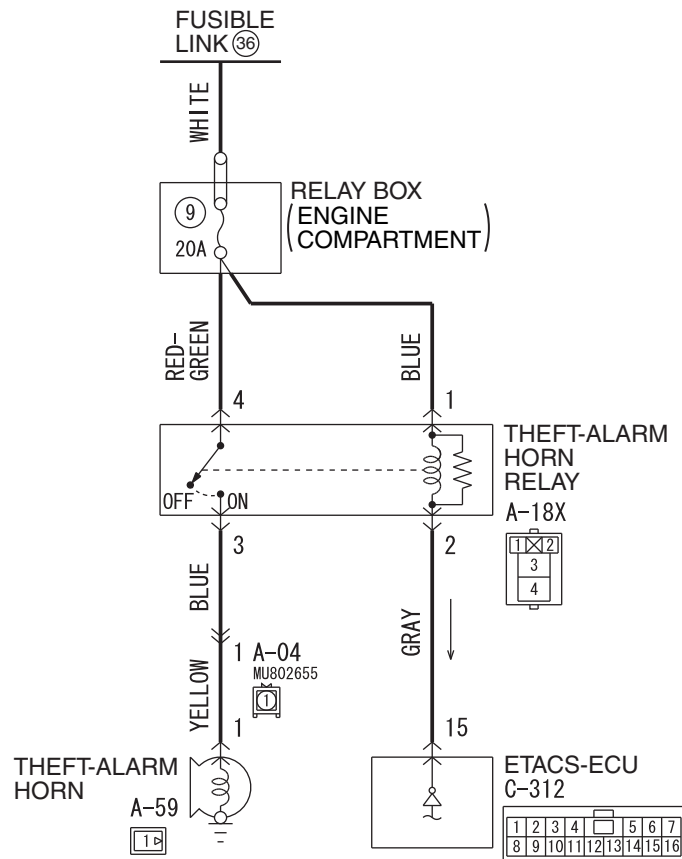
NO : Replace the ETACS-ECU.

Inspection Procedure 3: Theft-alarm horn does not sound while the theft-alarm system is triggered.

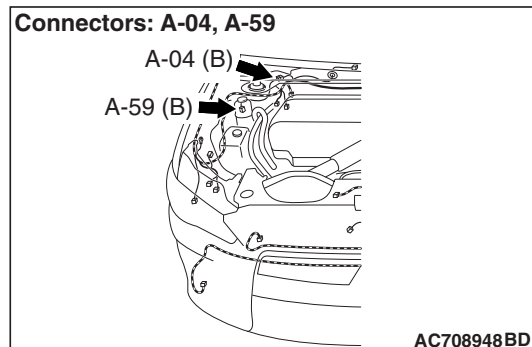
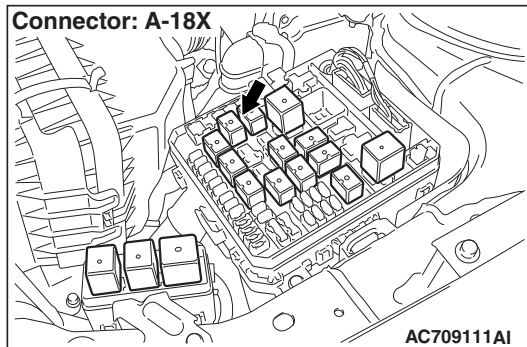
CAUTION

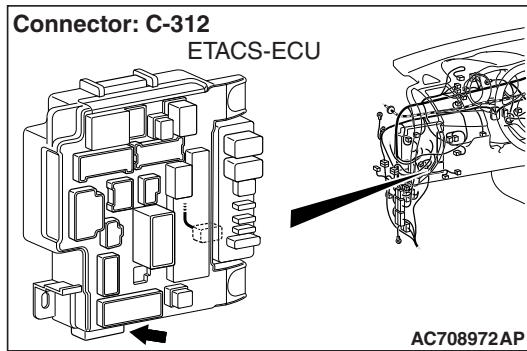
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Theft-alarm Horn Circuit



WAH54M040A





TECHNICAL DESCRIPTION (COMMENT)

If theft-horn does not sound, the theft-horn input signal circuit or the ETACS-ECU may be defective. Also, the theft-alarm function and horn may have been disabled with a configuration function.

TROUBLESHOOTING HINTS

- Theft-alarm horn may be defective
- Theft-alarm horn relay may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

CAUTION

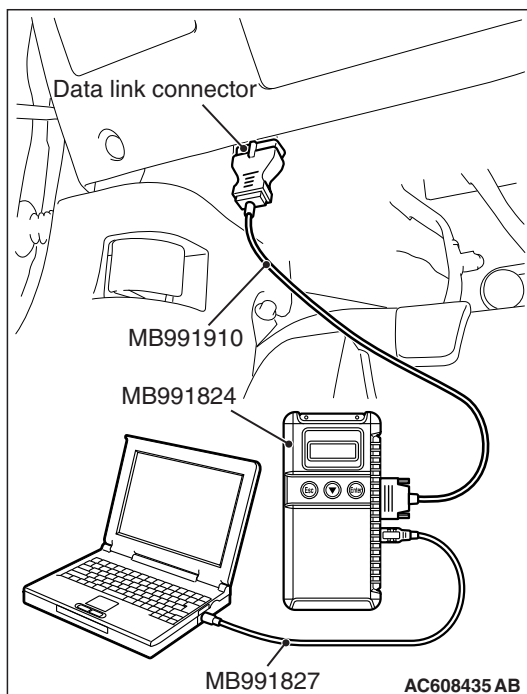
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

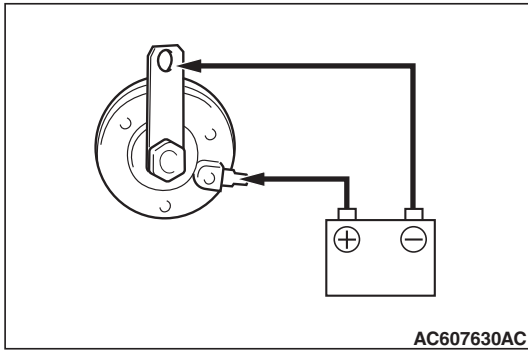
- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54A-752."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check whether the ETACS-ECU related DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to P.54A-646.

NO : Go to Step 2.



**STEP 2. Check the theft-alarm horn work normally.**

Connect the battery as shown, and verify that the theft-alarm horn sounds.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the theft-alarm horn. go to Step 3.

STEP 3. Check theft-alarm horn connector A-59 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is theft-alarm horn connector A-59 in good condition?**

YES : Go to Step 4.

NO : Repair the damaged parts.

STEP 4. Check theft-alarm horn relay connector A-18X for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is theft-alarm horn relay connector A-18X in good condition?**

YES : Go to Step 5.

NO : Repair the damaged parts.

STEP 5. Check the theft-alarm horn relay.

Refer to [P.54A-773](#).

Q: Is the theft-alarm horn relay in good condition

YES : Go to Step 6.

NO : Replace the theft-alarm horn relay.

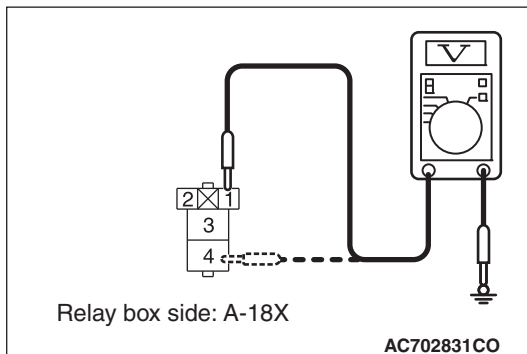
STEP 6. Measure the voltage at theft-alarm horn relay A-18X.

- (1) Remove the relay, and measure at the relay box side.
- (2) Measure the voltage between theft-alarm horn relay connector A-18X (terminal No. 1,4) and the body ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 8.

NO : Go to Step 7.



STEP 7. Check the Wiring harness between theft-alarm horn relay connector A-18X (terminal No. 1,4) and fusible link (36).

Check the power supply line for open circuit and short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

NO : Repair the wiring harness between theft-alarm horn relay connector A-18X and fusible link (36).

STEP 8. Check theft-alarm horn connector A-59 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is theft-alarm horn connector A-59 in good condition?

YES : Go to Step 9.

NO : Repair the damaged parts.

STEP 9. Check the Wiring harness between theft-alarm horn connector A-59 (terminal No. 1) and theft-alarm horn relay connector A-18X (terminal No. 3).

Check the output lines for open circuit and short circuit.

NOTE: Before the wiring harness check, check intermediate connector A-04, and then repair them if necessary.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness between theft-alarm horn connector A-59 and theft-alarm horn relay connector A-18X.

STEP 10. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 in good condition?

YES : Go to Step 11.

NO : Repair the damaged parts.

STEP 11. Check the Wiring harness between theft-alarm horn relay connector A-18X (terminal No. 2) and ETACS-ECU connector C-312 (terminal No. 15).

Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 12.

NO : Repair the wiring harness between theft-alarm horn relay connector A-18X and ETACS-ECU connector C-312.

STEP 12. Retest the system.

Q: Does the theft-alarm work normally?

YES : he trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

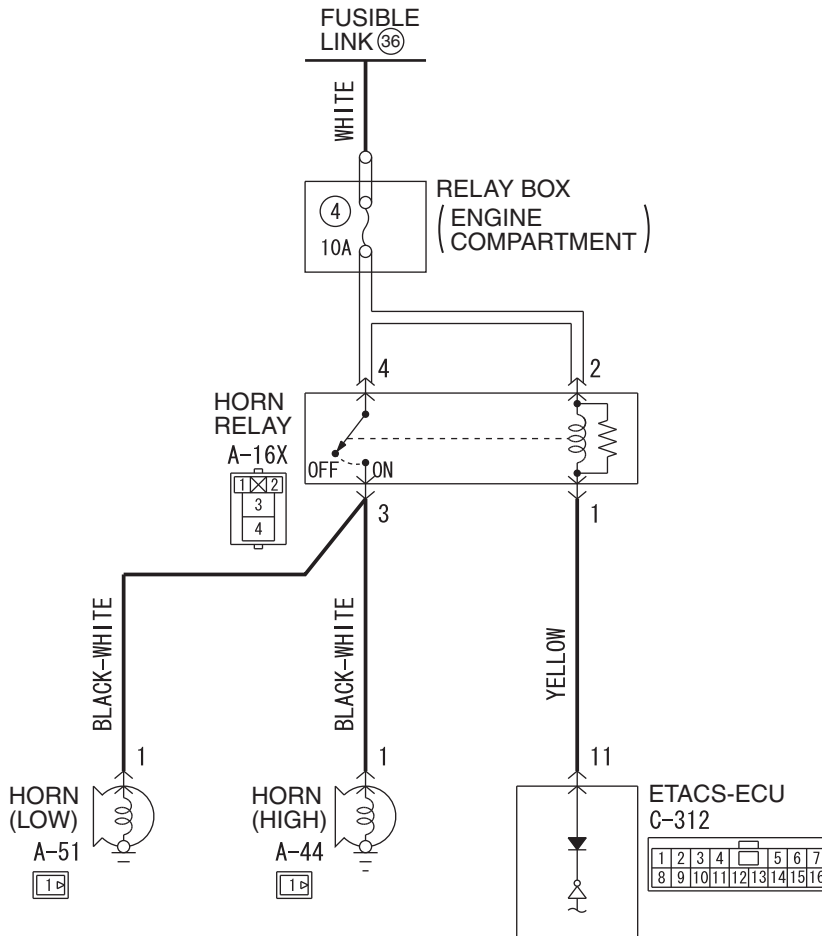
NO : Replace the ETACS-ECU.

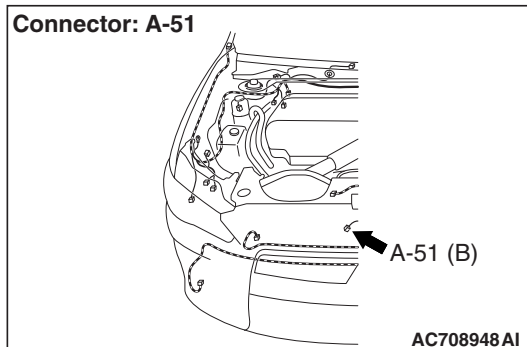
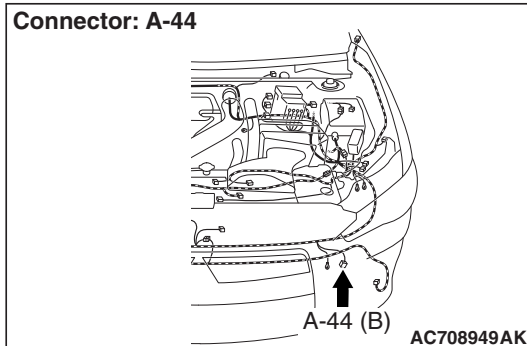
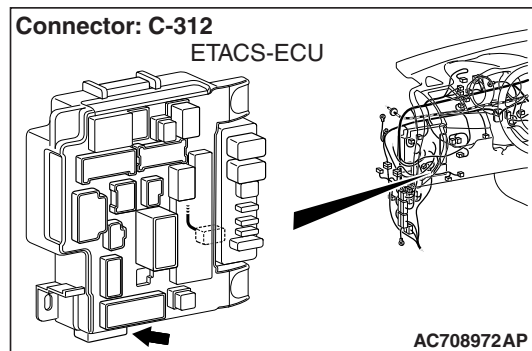
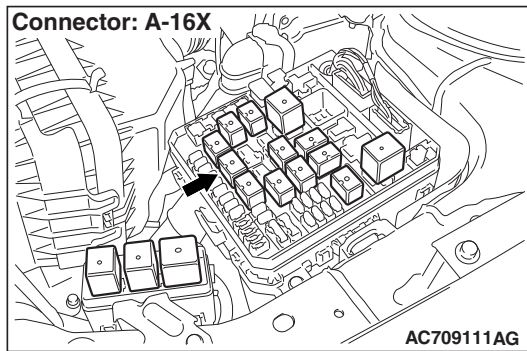
Inspection Procedure 4: Horn (HIGH or LOW) does not sound while the theft-alarm system is triggered.

CAUTION

Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Horn Circuit





TECHNICAL DESCRIPTION (COMMENT)

If horns do not sound, the horn input signal circuit or the ETACS-ECU may be defective.

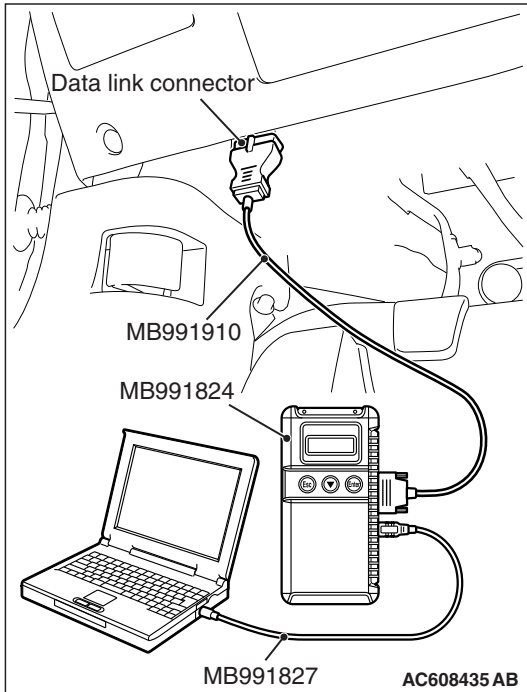
TROUBLESHOOTING HINTS

- Horns may be defective
- Horn relay may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) [P.54A-752](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check whether the ETACS-ECU related DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to [P.54A-646](#).

NO : Go to Step 2.

STEP 2. Check horn relay connector A-16X for loose, corroded or damaged terminals, or terminals pushed back in the connector.
Q: Is horn relay connector A-16X in good condition?

YES : Go to Step 3.

NO : Repair the damaged parts.

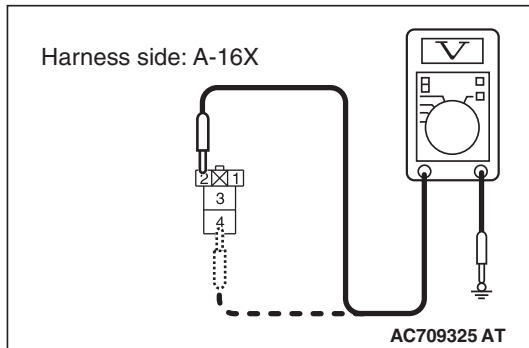
STEP 3. Check the horn relay.

Refer to [P.54A-773](#).

Q: Is the horn relay in good condition

YES : Go to Step 4.

NO : Replace the theft-alarm horn relay.



STEP 4. Measure the voltage at horn relay A-16X.

- (1) Remove the relay, and measure at the relay box side.
- (2) Measure the voltage between horn relay connector A-16X (terminal No. 2,4) and the body ground.
 - The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

- YES :** Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the Wiring harness between horn relay connector A-16X (terminal No. 2,4) and fusible link (36). Check the power supply line for open circuit and short circuit.

Q: Is the check result normal?

- YES :** The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction [P.00-15](#)).
- NO :** Repair the wiring harness between horn relay connector A-12X and fusible link (36).

STEP 6. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 in good condition?

- YES :** Go to Step 7.
NO : Repair the damaged parts.

STEP 7. Check the Wiring harness between theft-alarm horn relay connector A-16X (terminal No. 1) and ETACS-ECU connector C-312 (terminal No. 11). Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

- YES :** Go to Step 8.
NO : Repair the wiring harness between horn relay connector A-12X and ETACS-ECU connector C-312.

STEP 8. Check horn (HIGH) connector A-44 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is Horn (HIGH) connector A-44 in good condition?

- YES :** Go to Step 9.
NO : Repair the damaged parts.

STEP 9. Check the Wiring harness between horn (HIGH) connector A-44 (terminal No. 1) and horn relay connector A-16X (terminal No. 3).

Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 10.

NO : Repair the wiring harness between horn (HIGH) connector A-44 and horn relay connector A-16X.

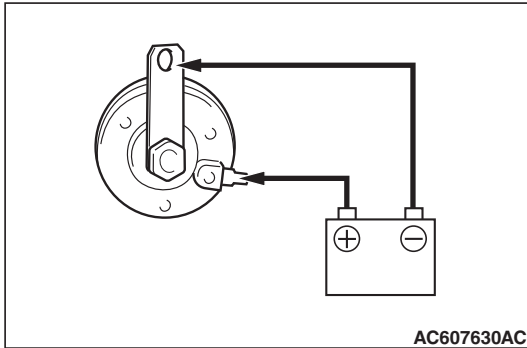
STEP 10. Check the horn (HIGH) work normally.

Connect the battery as shown, and verify that the horn sounds.

Q: Is the check result normal?

YES : Go to Step 11.

NO : Replace the horn (HIGH). go to Step 14.



STEP 11. Check horn (LOW) connector A-51 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is Horn (LOW) connector A-51 in good condition?

YES : Go to Step 12.

NO : Repair the damaged parts.

STEP 12. Check the Wiring harness between horn (LOW) connector A-51 (terminal No. 1) and horn relay connector A-16X (terminal No. 3).

Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 13.

NO : Repair the wiring harness between horn (LOW) connector A-51 and horn relay connector A-16X.

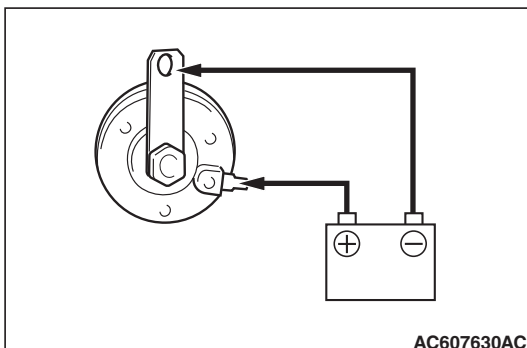
STEP 13. Check the horn (LOW) work normally.

Connect the battery as shown, and verify that the horn sounds.

Q: Is the check result normal?

YES : Go to Step 14.

NO : Replace the horn (LOW). go to Step 14.



STEP 14. Retest the theft-alarm system.

Q: Does the theft-alarm system work normally?

YES : he trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-15).

NO : Replace the ETACS-ECU.

REMOVAL AND INSTALLATION

M1547001000403

Theft-alarm system component parts

- Headlight assembly (Refer to P.54A-202).
- Horn (Refer to P.54A-289).
- Door switch (Refer to GROUP 42A –Door, Door Assembly P.42A-128).
- Front and rear door lock actuator (Refer to GROUP 42A –Door, Door Handle and Latch P.42A-136).
- Trunk lid latch assembly (Refer to GROUP 42A – Trunk Lid P.42A-153).

- Hood latch (Refer to GROUP 42A –Hood P.42A-7).
- Key reminder switch (Refer to P.52A-8).
- Theft-alarm indicator (Refer to GROUP 52A – Instrument Center Panel P.52A-3).

Panic alarm system component parts

- Headlight assembly (Refer to P.54A-202).
- Horn (Refer to P.54A-289).

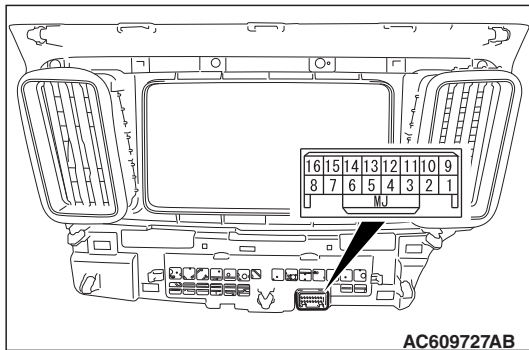
INSPECTION

THEFT-ALARM INDICATOR CHECK

M1547001100206

1. Remove the center panel.
2. Connect the battery (+) terminal with the center panel connector (terminal No. 15). Then, check if the theft-alarm indicator is illuminated when the battery (-) terminal and the center panel connector (terminal No. 12) are connected.
3. If the theft-alarm indicator is illuminated, it is judged good.

NOTE: Make sure that the polarity is correct.



PANIC ALARM

GENERAL INFORMATION

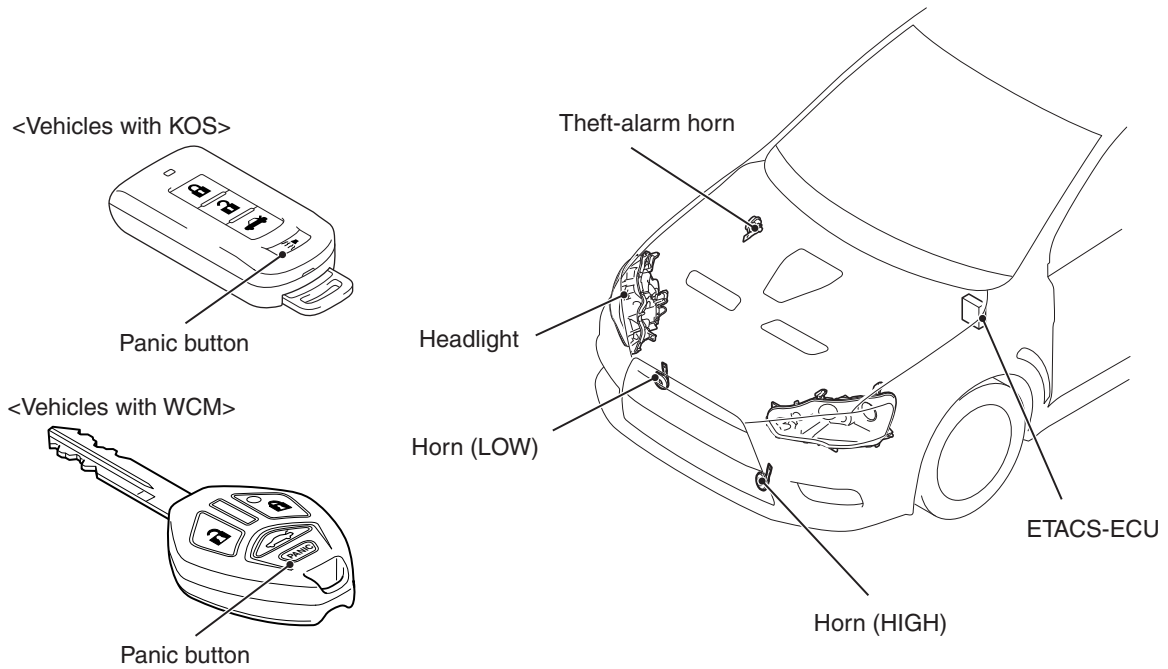
M1547000100140

If danger is perceived near the vehicle and if the ignition switch is in the OFF position or the key has been removed, press the panic button on the ignition key or the keyless operation key for one second, then the headlights flash and the horn sounds for approximately 3 minutes.

Panic alarm system operation table

Operation of keyless operation key or transmitter		System operation
Panic button	Press once	Starts the panic alarm (headlights flash and horn honks for about three minutes)
Lock button, Unlock button, Trunk button, Panic button	Press again	Stops the panic alarm in progress

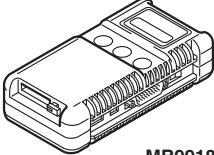
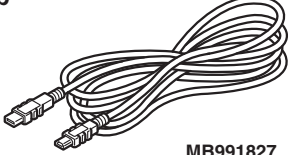
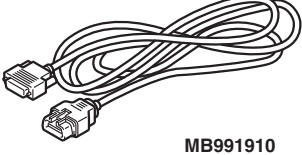
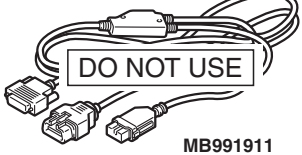
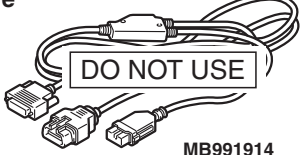
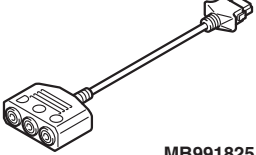
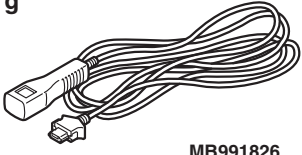
Construction diagram



AC709446AB

SPECIAL TOOLS

M154700600242

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>MB991824</p> <p>b</p>  <p>MB991827</p> <p>c</p>  <p>MB991910</p> <p>d</p>  <p>MB991911</p> <p>e</p>  <p>MB991914</p> <p>f</p>  <p>MB991825</p> <p>g</p>  <p>MB991826 MB991958</p>	<p>MB991958</p> <p>a. MB991824 b. MB991827 c. MB991910 d. MB991911 e. MB991914 f. MB991825 g. MB991826</p> <p>M.U.T.-III sub-assembly</p> <p>a. Vehicle communication interface (V.C.I.) b. M.U.T.-III USB cable c. M.U.T.-III main harness A (Vehicles with CAN communication system) d. M.U.T.-III main harness B (Vehicles without CAN communication system) e. M.U.T.-III main harness C (for Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness</p>	<p>MB991824-KIT</p> <p><i>NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.</i></p>	<p>⚠ CAUTION</p> <p>M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.</p> <p>Reading diagnostic trouble code.</p>

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 –Contents of troubleshooting

P.00-7.

M1547001200184

DIAGNOSTIC FUNCTION

M1547001300051

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

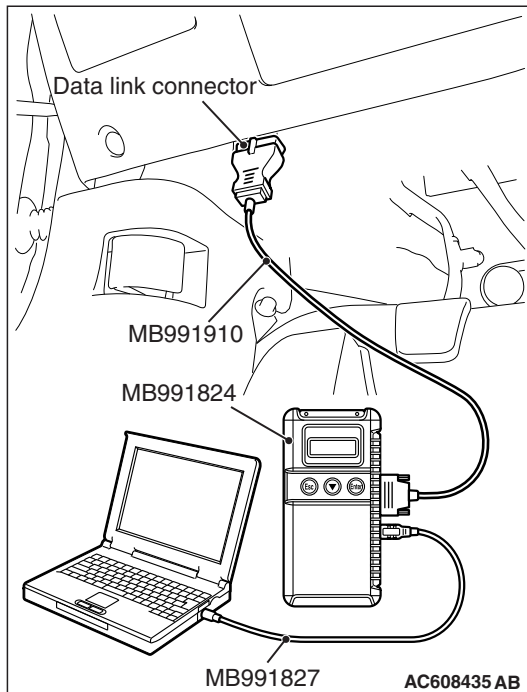
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.

7. Start the scan tool system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.



HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

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

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.

6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

TROUBLE SYMPTOM CHART

M1547001500282

Trouble symptom	Reference page
Panic alarm does not work normally.	P.54A-755

SYMPTOM PROCEDURES

Panic alarm does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

If keyless operation system <KOS> or keyless entry system <WCM> is normal, the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Keyless operation system <KOS> or keyless entry system <WCM> may be defective
- The ETACS-ECU may be defective
- Function is not set with the customization.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827 M.U.T.-III USB Cable
 - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check if the theft-alarm is normally set and the exterior protection can be executed.

Check that the theft-alarm works normally.

Q: Does the theft-alarm work normally?

YES : Go to Step 2.

NO : Troubleshoot the theft-alarm (Refer to [P.54A-754](#)).

STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the KOS-ECU <Vehicles with KOS> or WCM <Vehicles with WCM>.

⚠ CAUTION

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

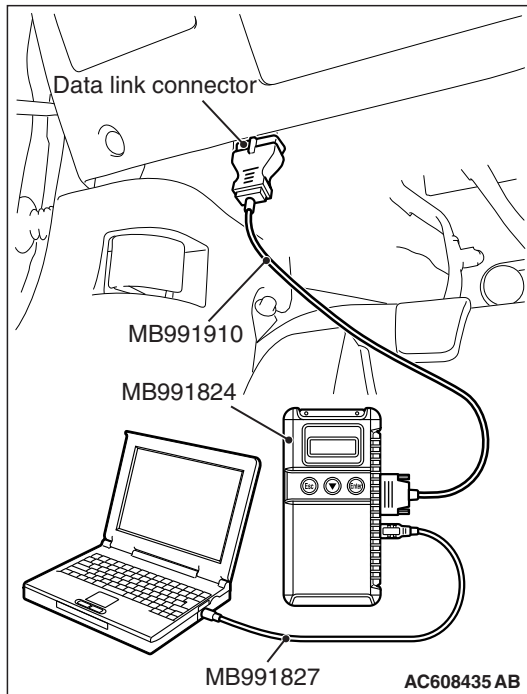
- (1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) [P.54A-776](#)."
- (2) Turn the ignition switch to the "ON" position.
- (3) Check whether the KOS or WCM related DTC is set.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS [P.42B-23](#)).

YES <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM [P.42C-14](#)).

NO : Go to Step 3.

**STEP 3. Check keyless operation system <KOS> or keyless entry system <WCM>.**

Check that the doors can be open by keyless operation key <KOS> or keyless entry transmitter <WCM>.

Q: Do keyless operation system <KOS> or keyless entry system <WCM> work normally?

YES : Go to Step 4.

NO <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS [P.42B-152](#)).

NO <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM [P.42C-91](#)).

STEP 4. Using scan tool MB991958, check the customaization function.

- (1) Turn the ignition switch to the "ON" position.
- (2) Use the ETACS-ECU customization function to check that the "Panic alarm switch" is set to "Enable".
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the "Panic alarm switch" set to "Enable"?

YES : Replace the ETACS-ECU.

NO : Use the ETACS-ECU customization function to set the "Panic alarm switch" to "Enable"(Refer to [P.54A-779](#)).

REMOVAL AND INSTALLATION

M1547002600044

Panic alarm system component parts

- Headlight assembly (Refer to [P.54A-202](#)).
- Horn (Refer to [P.54A-289](#)).
- Key reminder switch (Refer to [P.52A-8](#)).

ON-VEHICLE SERVICE

CUSTOMIZATION FUNCTION

M1547003400214

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjustment contents (scan tool display)	Adjusting contents
Panic alarm switch	With/without panic alarm function	Disable	Without function
		Enable	With function (default)

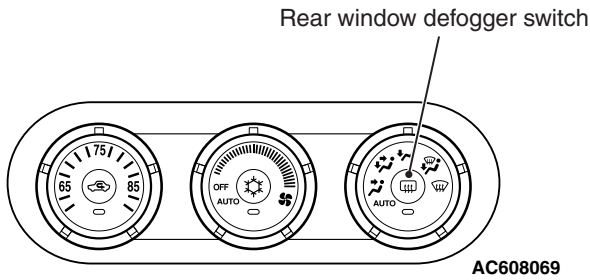
DEFOGGER

GENERAL INFORMATION

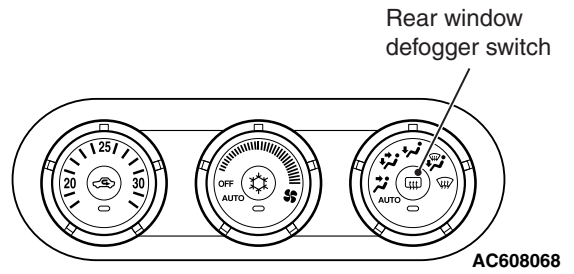
M154050000017

The rear window defogger has been established to the rear window glass. To prevent battery discharge, A/C-ECU controls the rear window defogger to be automatically turned off 20 minutes after the rear window defogger switch is turned ON. (Only when engine is running)

<Vehicles for USA>



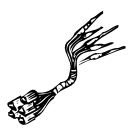
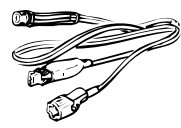
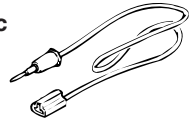

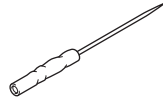
<Vehicles for CANADA>



AC708613AC

SPECIAL TOOLS

M1547000600264

Tool	Tool number and name	Supersession	Application
<p>a</p>  <p>b</p>  <p>c</p>  <p>d</p> 	<p>MB991223</p> <p>a. MB991219</p> <p>b. MB991220</p> <p>c. MB991221</p> <p>d. MB991222</p> <p>Harness set</p> <p>a. Check harness</p> <p>b. LED harness</p> <p>c. LED harness adapter</p> <p>d. Probe</p>	<p>General service tool (jumper)</p>	<p>Continuity check and voltage measurement at harness wire or connector</p> <p>a. For checking connector pin contact pressure</p> <p>b. For checking power supply circuit</p> <p>c. For checking power supply circuit</p> <p>d. For connecting a locally sourced tester</p>
 <p>MB992006</p>	<p>MB992006</p> <p>Extra fine probe</p>	<p>–</p>	<p>Continuity check and voltage measurement at harness wire or connector</p>

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540500700016

Refer to GROUP 00 –Contents of troubleshooting

[P.00-7.](#)

SYMPTOM CHART

M1540500800013

⚠ CAUTION

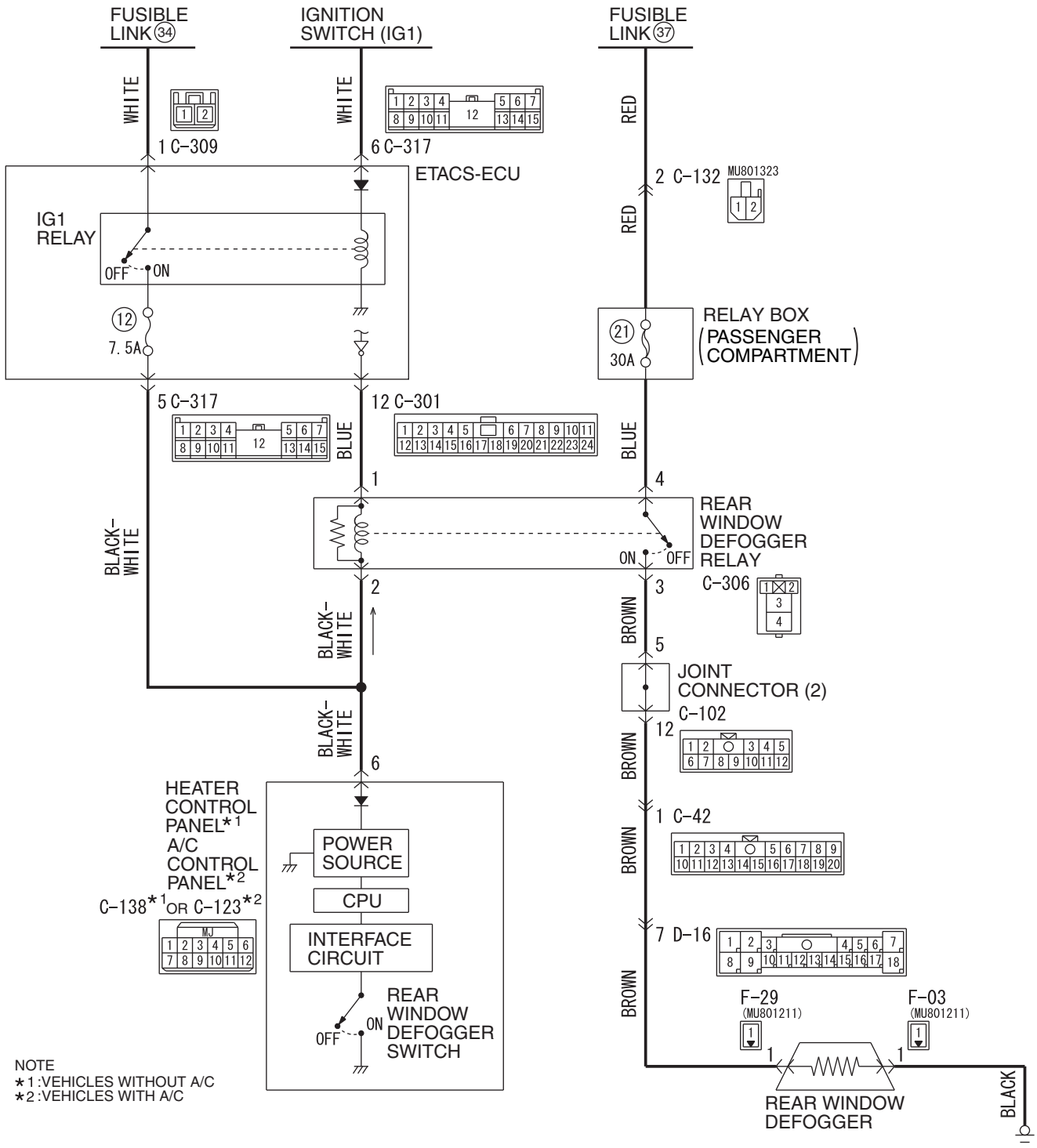
During diagnosis, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

Symptom	Reference page
Rear window defogger does not operate.	P.54A-782

SYMPTOM PROCEDURES

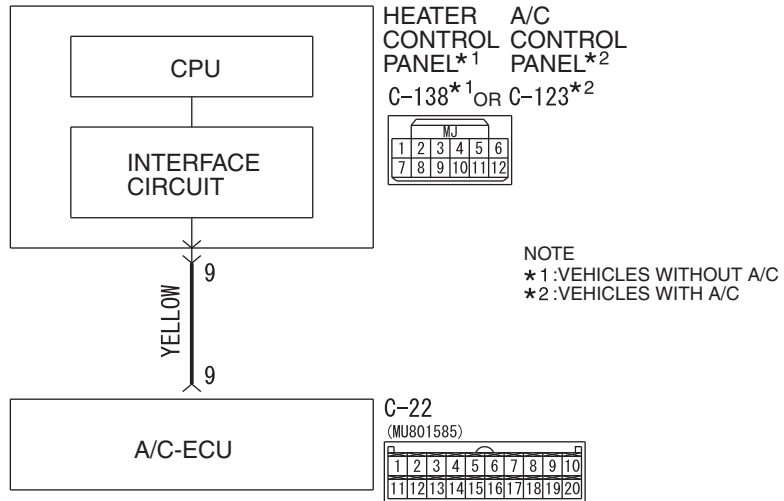
Rear window defogger does not operate.

Rear Window Defogger Circuit

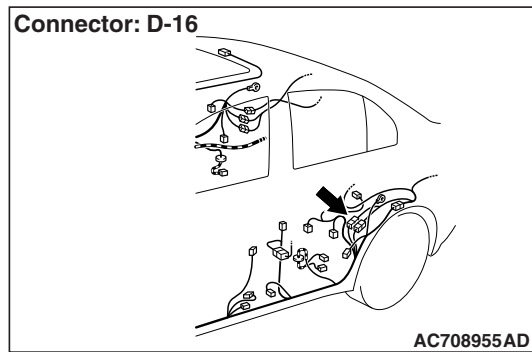
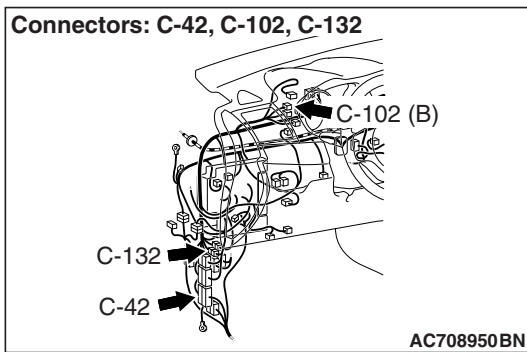
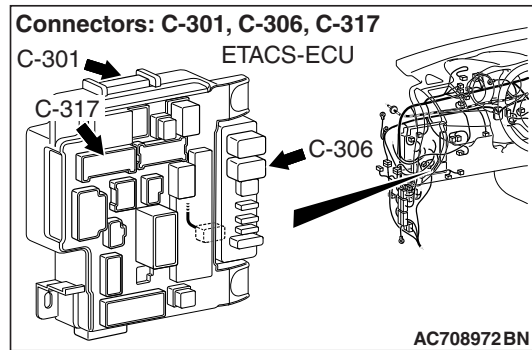
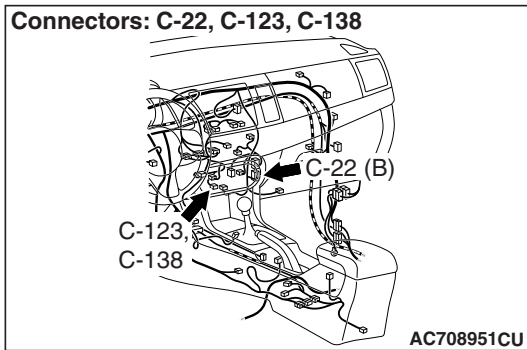


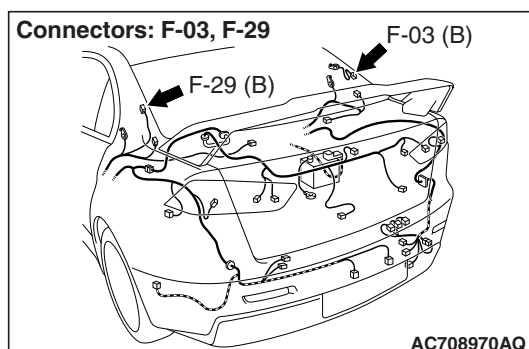
NOTE
*1: VEHICLES WITHOUT A/C
*2: VEHICLES WITH A/C

A/C Control Panel Circuit



WAH54M043A





TECHNICAL DESCRIPTION (COMMENT)

The rear window defogger is able to turn on while engine is running. If the defogger does not operate when the rear window defogger switch is turned on, the rear window defogger relay system may be defective.

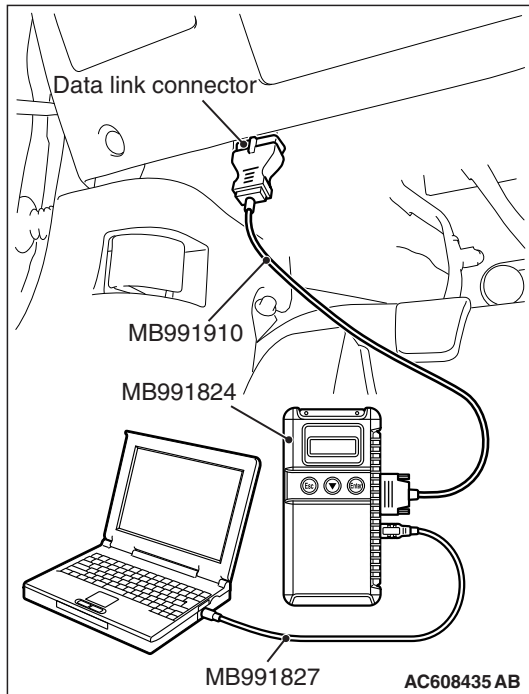
TROUBLESHOOTING HINTS

- The A/C-ECU may be defective.
- The rear window defogger relay may be defective.
- The A/C control panel <vehicles with A/C> or heater control panel <vehicles without A/C> may be defective.
- The ETACS-ECU may be defective.
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
 - MB991824: Vehicle Communication Interface (V.C.I.)
 - MB991827: M.U.T.-III USB Cable
 - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)
- MB991223: Harness Set
- MB992006: Extra Fine Probe



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

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

- (1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-643."
- (2) Turn the ignition switch to the "ON" position.
- (3) Diagnose the CAN bus line.
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the CAN bus line found to be normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-15).

STEP 2. Check the A/C and outside/inside air selection damper control motor operation.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check the engine running.
- (3) Check the operations of outside/inside air selection damper control motor and A/C.

Q: Do the A/C and outside/inside air selection damper control motor work normally?

YES : Go to Step 3.

NO : Refer to GROUP 55 - Inspection procedure 2, "Malfunction of the A/C-ECU power supply system P.55-124 <vehicles with A/C> or GROUP 55 - Inspection procedure 1, "Malfunction of the heter control unit power supply system P.55-97 <vehicles without A/C>."

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check that the A/C-ECU has not set a DTC.

Q: Is the DTC set?

YES : Carry out the DTC procedures. Refer to GROUP 55 - Diagnosis P.55-10.

NO : Go to Step 4.

STEP 4. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check that the ETACS-ECU has not set a DTC.

Q: Is the DTC set?

YES : Carry out the DTC procedures. Refer to [P.54A-646](#).

NO : Go to Step 5.

STEP 5. Using scan tool MB991958, check data list.

Use the A/C-ECU data list to check the signals related to the rear window defogger switch.

- Start the engine.
- Turn the rear window defogger switch from off to on.

Item No.	Item name	Normal conditions
Item 60	Rear defogger switch	OFF →ON

Q: Does scan tool MB991958 display the items "ON", and "OFF" as normal condition?

YES : Go to Step 6

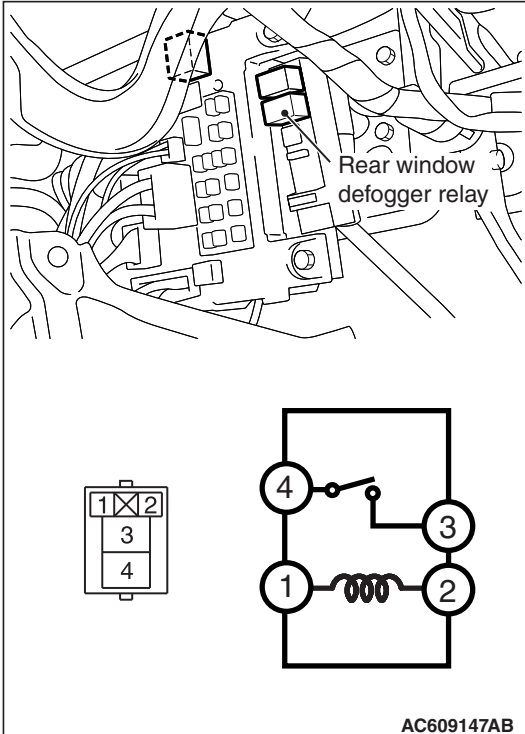
NO : Replace the A/C control panel.

STEP 6. Check rear window defogger relay connector C-306 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**Q: Is rear window defogger relay connector C-306 in good condition?**

YES : Go to Step 7.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The rear window defogger system should work normally.

STEP 7. Check the rear window defogger relay continuity.
Follow the table below to check the rear window defogger relay for continuity.



Battery voltage	Terminal number	Normal condition
With no current applied	3 -4	No continuity
With current applied [terminal 1 (-), terminal 2 (+)]		Continuity exists (Less than 2 ohms)

Q: Is the rear window defogger relay in good condition?

YES : Go to Step 8.

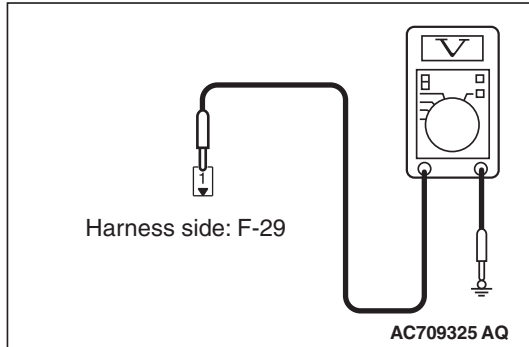
NO : Replace the rear window defogger relay. The rear window defogger system should work normally.

STEP 8. Check rear window defogger connector F-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are rear window defogger connector F-29 in good condition?

YES : Go to Step 9.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The rear window defogger system should work normally.

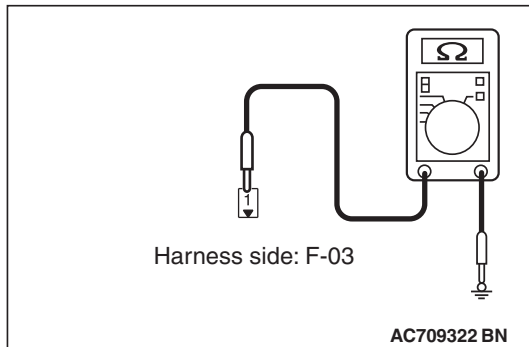
**STEP 9. Measure the voltage at rear window defogger connector F-29.**

- (1) Disconnect rear window defogger connector F-29, and measure the voltage at the harness side.
- (2) Start the engine.
- (3) Rear window defogger switch: ON (measure within 20 minutes after the switch is turned on)
- (4) Measure the voltage between rear window defogger connector F-29 terminal No.1 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 10.

NO : Go to Step 11.

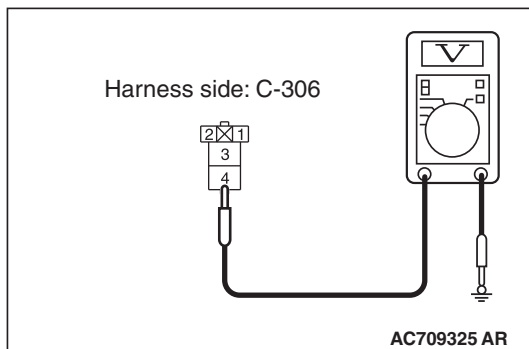
**STEP 10. Measure the resistance at rear window defogger connector F-03.**

- (1) Disconnect rear window defogger connector F-03, and measure at the wiring harness side.
- (2) Measure the resistance between terminal 1 and ground.
 - The measured value should be 2 ohms or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 19.

NO : Repair the wiring harness. Check that the rear window defogger system works normally.

**STEP 11. Measure the voltage at rear window defogger relay connector C-306.**

- (1) Disconnect rear window defogger relay connector C-306, and measure the voltage at the junction block side.
- (2) Measure the voltage between terminal 4 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 13.

NO : Go to Step 12.

STEP 12. Check the wiring harness between rear window defogger relay connector C-306 (terminal 4) and the fusible link (37).

NOTE: Also check intermediate connector C-132 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-132 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 4) and the fusible link (37) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-15).

NO : Repair the wiring harness. Check that the rear window defogger system works normally.

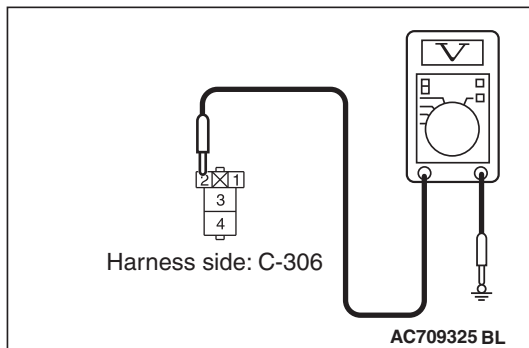
STEP 13. Measure the voltage at rear window defogger relay connector C-306.

- (1) Disconnect rear window defogger relay connector C-306, and measure the voltage at the junction block side.
- (2) Turn the ignition switch to the "ON" position.
- (3) Measure the voltage between terminal 2 and ground.
 - The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 14.

NO : Go to Step 16.



STEP 14. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 15.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 15. Check the wiring harness between rear window defogger relay connector C-306 (terminal 1) and ETACS-ECU C-301 (terminal 12).

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 1) and ETACS-ECU connector C-301 (terminal 12) in good condition?

YES : Replace the ETACS-ECU.

NO : Repair the wiring harness. Check that the rear window defogger system works normally.

STEP 16. Check A/C control panel connector C-123 <vehicles with A/C> or heater control panel connector C-138 <vehicles without A/C> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C control panel connector C-123 <vehicles with A/C> or heater control panel connector C-138 <vehicles without A/C> in good condition?

YES : Go to Step 17.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). The rear window defogger system should work normally.

STEP 17. Check the wiring harness between rear window defogger relay connector C-306 (terminal 2) and ETACS-ECU connector C-317 (terminal 5).

- Check the wiring harness for open circuit and short circuit.

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 2) and ETACS-ECU connector C-317 (terminal 5) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction [P.00-15](#)).

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the rear window defogger system works normally.

STEP 18. Check the wiring harness between rear window defogger relay connector C-306 (terminal 3) and rear window defogger connector F-29 (terminal 1).

NOTE: Also check intermediate connectors C-42 and D-16, and joint connector C-102 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-42 and D-16, and joint connector C-102 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection [P.00E-2](#).

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 3) and rear window defogger connector F-29 (terminal 1) in good condition?

YES : Replace the ETACS-ECU.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the rear window defogger system works normally.

STEP 19. Check A/C-ECU connector C-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-22 in good condition?

YES : Go to Step 20.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the rear window defogger system works normally.

STEP 20. Check the wiring harness between A/C-ECU connector C-22 (terminal 9) and A/C control panel connector C-123 <vehicles with A/C> or heater control panel connector C-138 <vehicles without A/C> (terminal 1).

- Check the wiring harness for open circuit and short circuit.

Q: Are the wiring harness between A/C-ECU connector C-22 (terminals 9 and 10) and A/C control panel connector C-123 (terminals 1 and 9) in good condition?

YES : Go to Step 21.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection [P.00E-2](#). Check that the rear window defogger system works normally.

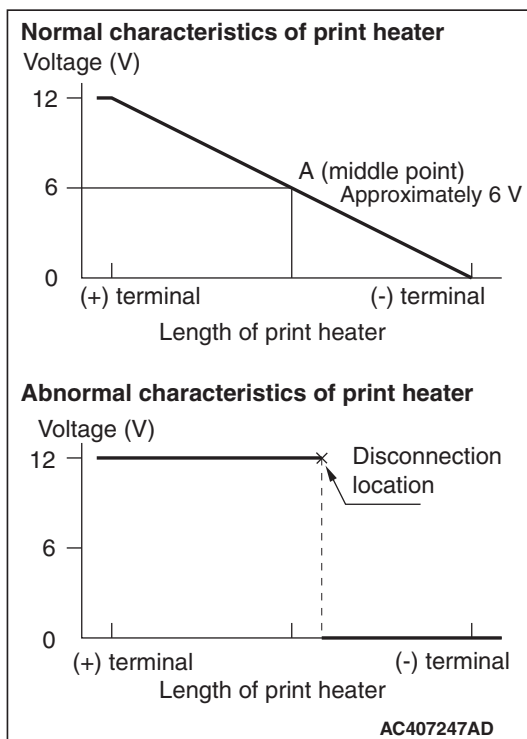
STEP 21. Check the rear window defogger.

- (1) Let the engine run at 2,000 r/min, and check the printed heater with the battery fully charged.
- (2) Turn on the rear window defogger switch, and use a voltmeter to measure the voltage in each printed heater at middle point A on the rear window glass.
 - The value should be approximately 6 volts.

Q: Does the rear window defogger work normally?

YES : Return to Step 1.

NO : Replace the rear window defogger.



REMOVAL AND INSTALLATION

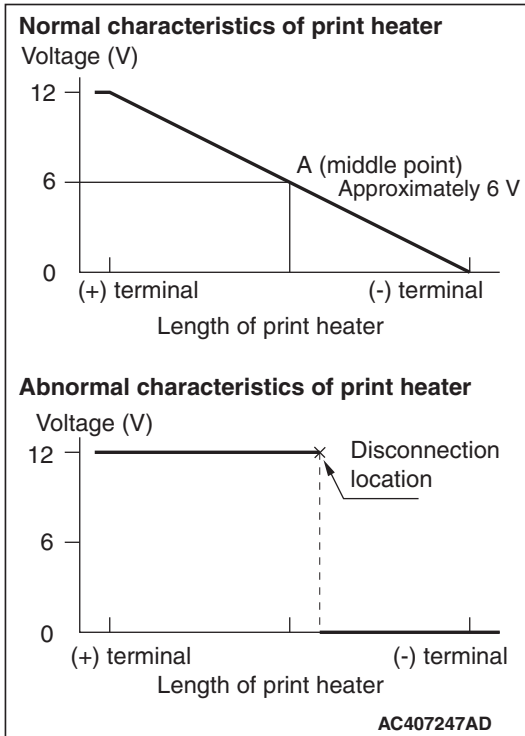
Refer to GROUP 55 –Heater control unit [P.55-171](#).

M1540600200171

ON-VEHICLE SERVICE

PRINTED HEATER CHECK

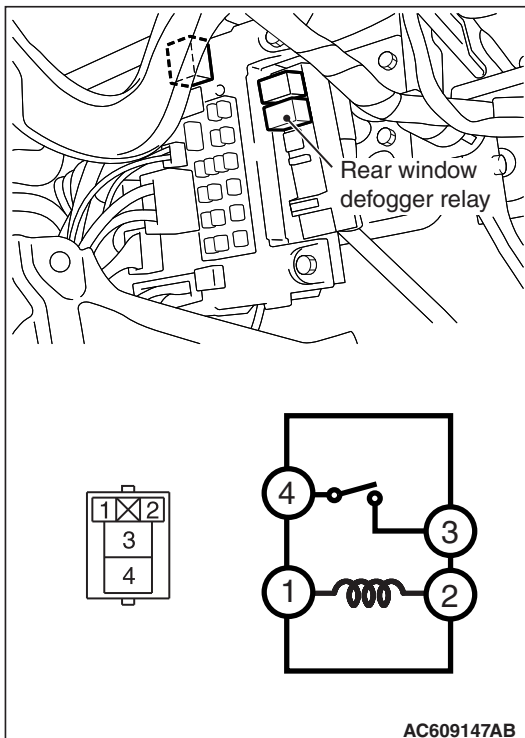
M1540500500379



1. Let the engine run (2,000 r/min), and check the printed heater with the battery fully charged.
2. With the rear window defogger switch "ON," use the circuit tester to measure the voltage of each printed heater at the rear window glass center A point. If approximately 6 V is indicated, it is judged good.
3. If the voltage of 12 V is indicated at the A point, there is an open circuit between the A point and negative terminal. Therefore, by moving the test bar slowly to the negative side, search and determine the location where the voltage changes suddenly (0 V). The location of voltage change indicates the open circuit position.
4. Also, if the voltage indicates 0 V at the A point, there is an open circuit between the A point and positive terminal. Therefore, search and determine the location of voltage change (12 V) using the above mentioned method.
5. If a malfunction such as open circuit occurs, replace the rear window glass.(Refer to GROUP 42A, Rear Window Glass P.42A-23.)

REAR WINDOW DEFOGGER RELAY CHECK

M1540500600246



Battery voltage	Terminal number	Normal condition
At no energization	3 -4	No continuity
With current supply [terminal 1 (-), terminal 2 (+)]		Continuity exists (Less than 2 ohms)