

GROUP 54Ae

ACCESSORY

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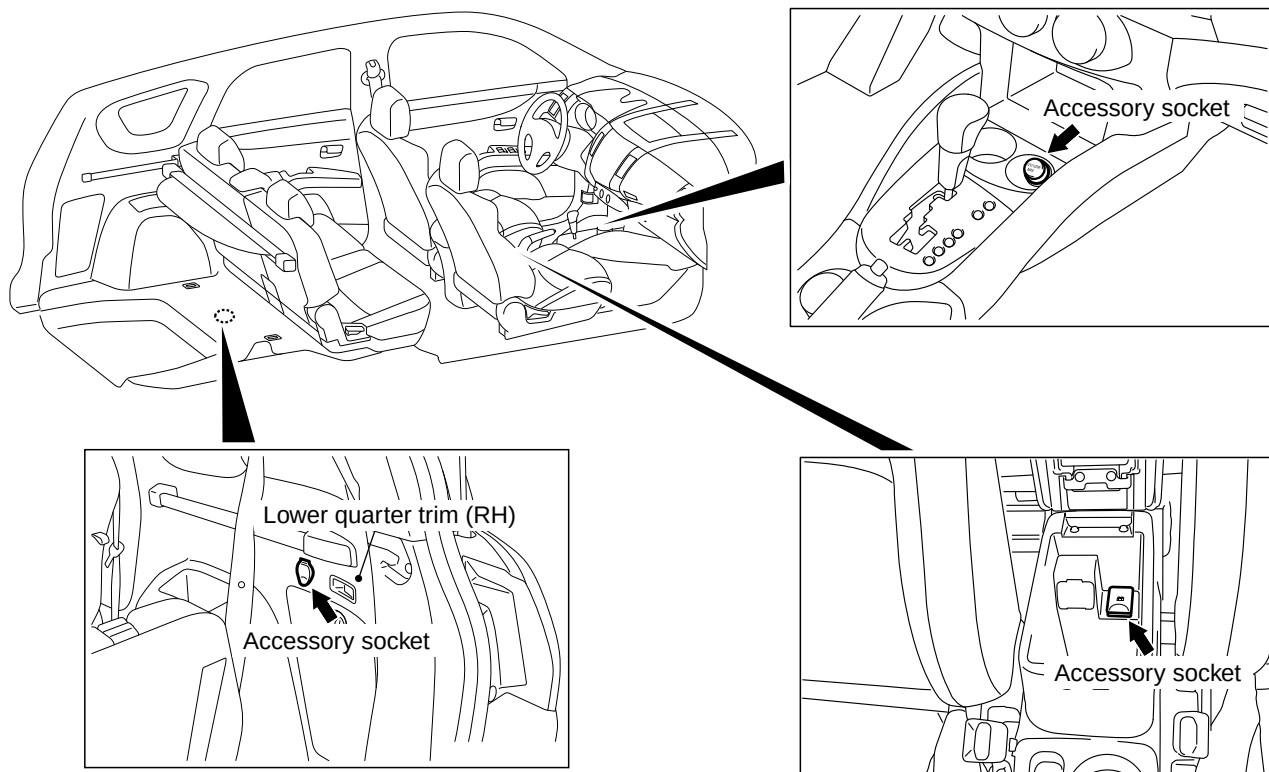
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GENERAL INFORMATION

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ACCESSORY SOCKET

The plug-in type accessory socket has been installed for the convenient use of accessories.



ZC6004910000

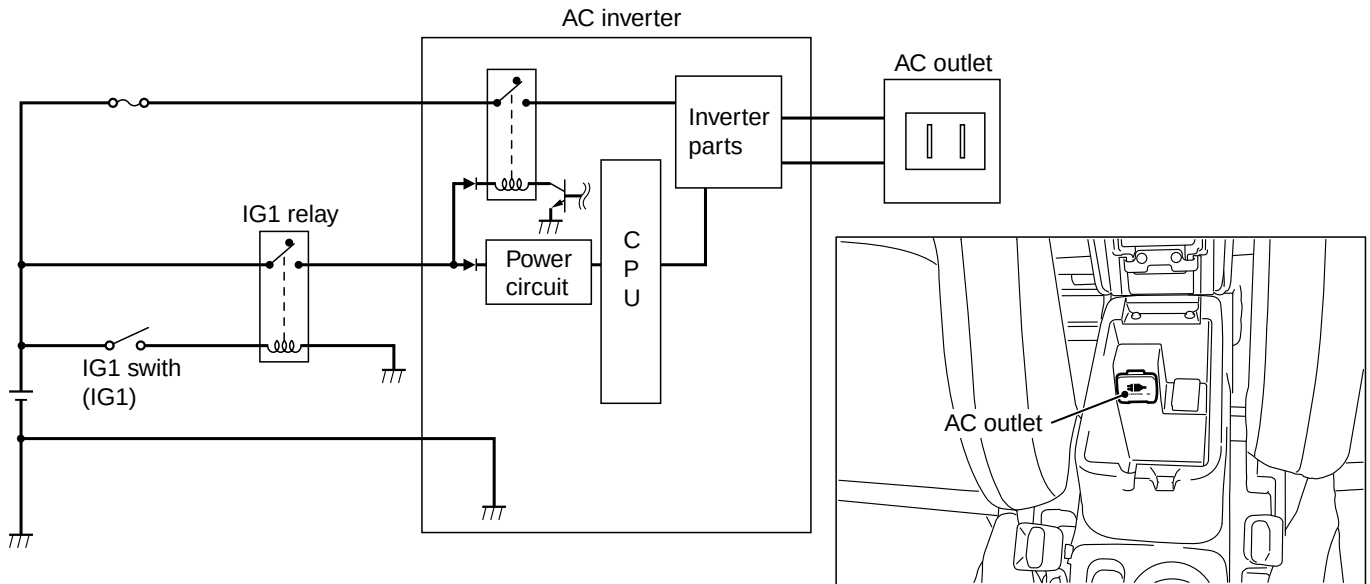
▪Accessory sockets have been added to the front floor console, if so equipped rear floor console and lower quarter trim (RH).

▪The maximum load is 120 W when a single accessory socket is used. When three accessory

sockets are used simultaneously, the combined maximum load for three sockets is 120 W.

AC POWER SUPPLY

The AC power supply which can be used as power supply for home electric appliances has been installed to the rear floor console. <Option>



ZC6004950000

- With the AC inverter, the DC power supply of the vehicle battery can be inverted into the AC power supply and provided from the AC outlet.

- The electric appliance whose power consumption is 100 W or less when 115 V AC is supplied can be used.

NOTE: The home appliance whose power consumption is 100 W or less but requires a large amount of power at startup (such as TV, refrigerator, vacuum cleaner) may not be used.

- To prevent damages caused by overcurrent, overvoltage, low voltage, and overheat* when the power is supplied, the protection function to stop the power supply and prevention function against dead battery have been provided.

NOTE: *: When the inside of the vehicle is held at high temperature (35° C or more) for a long

time (for example under the scorching sun), if the AC power supply is used with the vehicle parked, the operation may automatically stop to prevent the inverter unit from being overheated. After the power supply is cut off, when the AC inverter temperature decreases, the power automatically returns to ON.

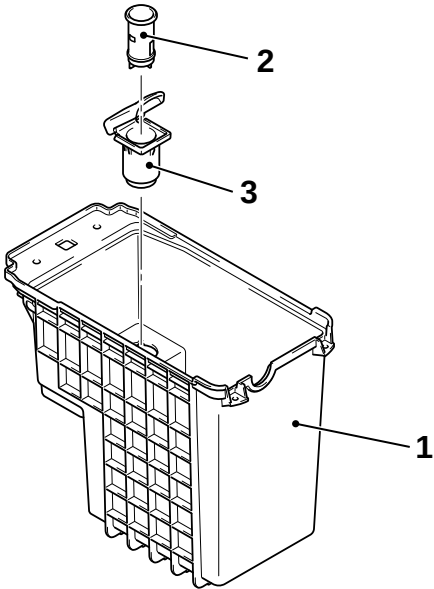
- When the power supply stops, turn the ignition switch to "LOCK" (OFF) position once to inhibit the power supply to the inverter. After that, turn the ignition switch to "ON" again for return.

ACCESSORY SOCKET

REMOVAL AND INSTALLATION

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<REAR FLOOR CONSOLE>



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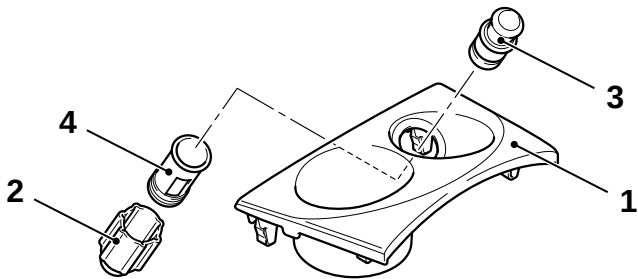
Removal Steps

1. Rear floor console box (Refer to GROUP 52A, Rear Floor Console Assembly P.52A-9.)

Removal Steps

2. Accessory socket
3. Accessory socket cover

<FRONT FLOOR CONSOLE>



ZC6002610000

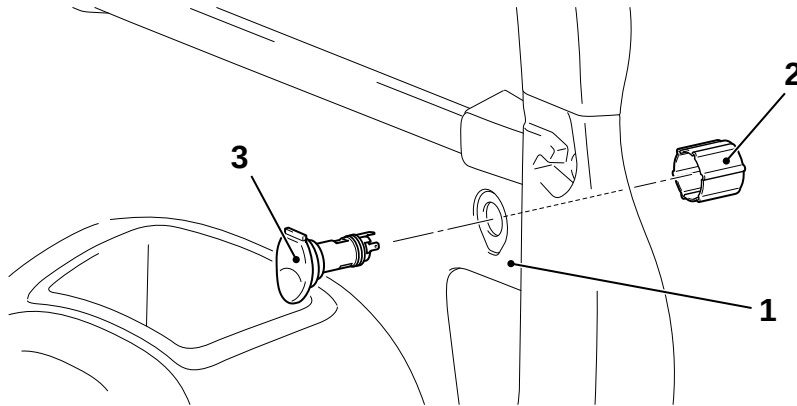
Removal Steps

1. Front floor console panel (Refer to GROUP 52A, Floor Console Assembly P.52A-8.)
2. Accessory socket case

Removal Steps

3. Accessory socket cap
4. Accessory socket

<LOWER QUARTER TRIM (RH)>



ZC3056170000

Removal Steps

1. Lower quarter trim (RH) (Refer to GROUP 52A, Interior Trim P.52A-10.)
2. Accessory socket case

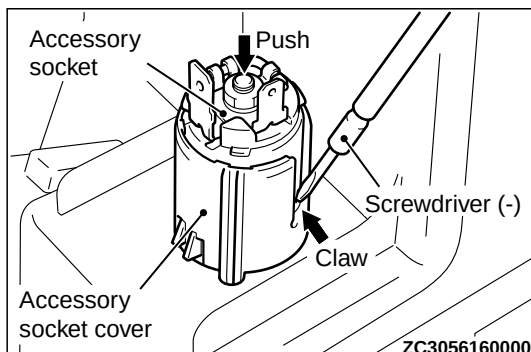
Removal Steps

3. Accessory socket

REMOVAL SERVICE POINT

<<A>> ACCESSORY SOCKET REMOVAL

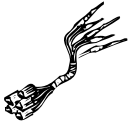
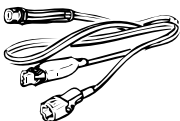
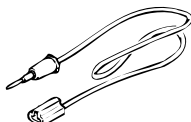
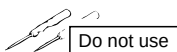
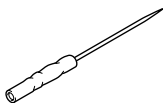
Lift the accessory socket cover tab, then remove by pressing down the accessory socket.



AC POWER SUPPLY

SPECIAL TOOLS

M15410400002USA0000010000

Tool	Tool number and name	Supersession	Application
a  b  c  d  YB9912230000	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector. a. Connector pin contact pressure inspection b. Power circuit inspection c. Power circuit inspection d. Commercial tester connection
 MB992006	MB992006 Extra fine probe	-	Continuity check and voltage measurement at harness wire or connector.

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M15410400004USA0000010000

Refer to GROUP 00, Troubleshooting contents P. 00-6.

TROUBLE SYMPTOM CHART

M15410400005USA0000010000

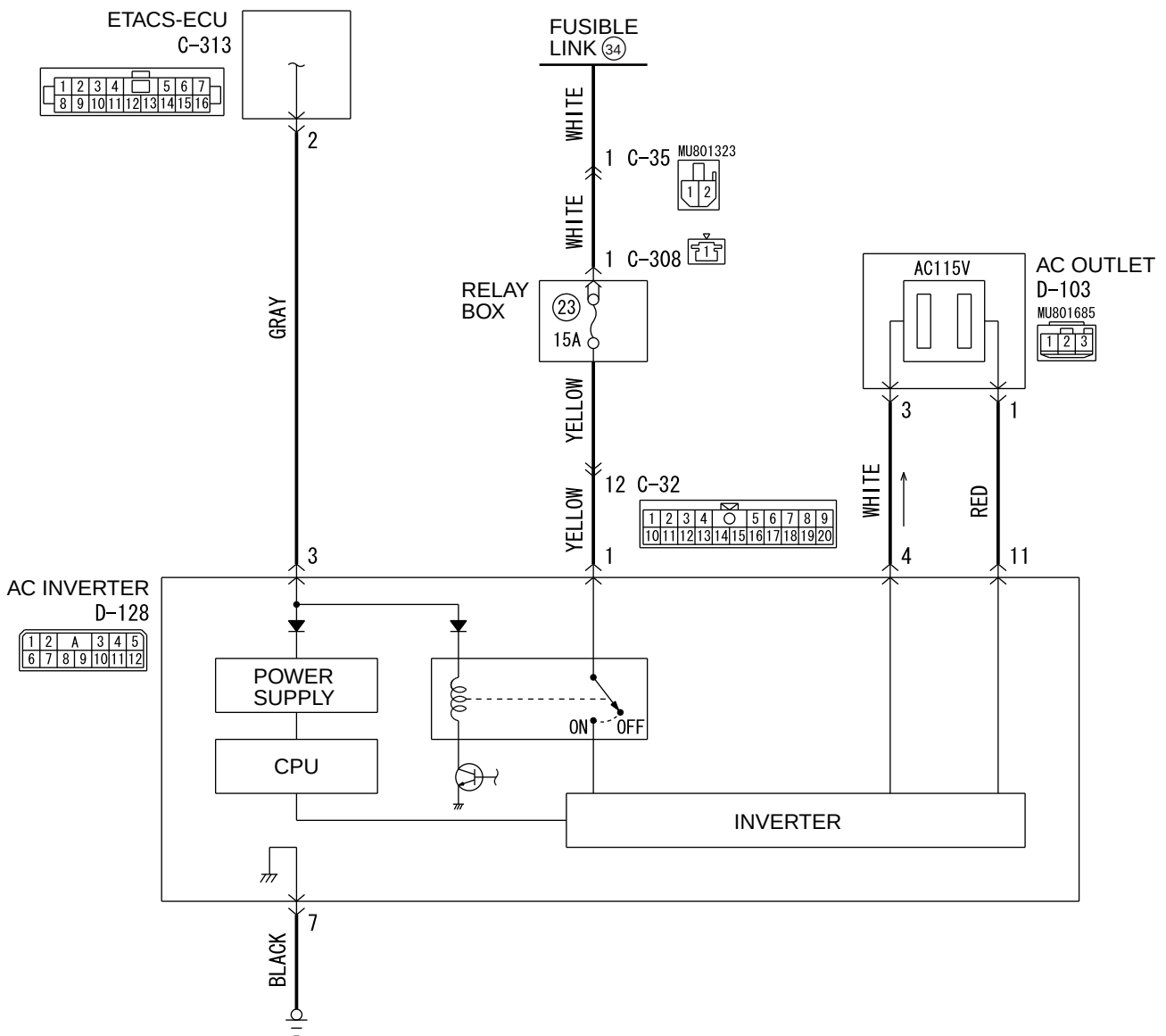
Trouble symptom	Inspection Procedure No.	Reference page
Even when the equipment (power consumption is 100 W or less) is connected, the equipment cannot be used.	1	P. 54Ae-7

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Even when the equipment (power consumption is 100 W or less) is connected, the equipment cannot be used.

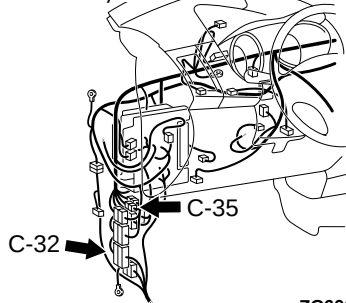
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AC Power Supply Circuit



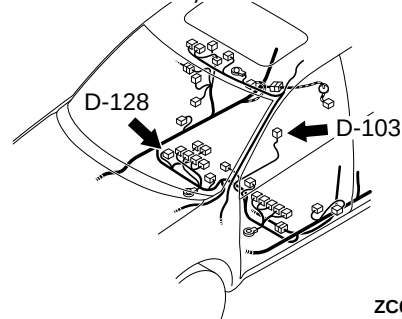
D7G54M012A00

Connector: C-32, C-35



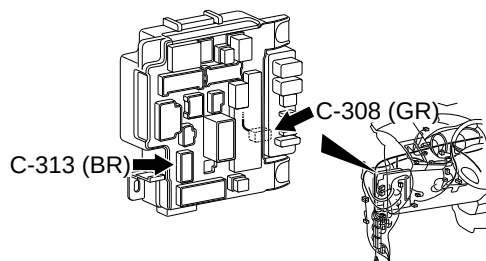
ZC6008750012

Connector: D-103, D-128



ZC6008790001

Connector: C-308, C-313



ZC6008780001

TECHNICAL DESCRIPTION (COMMENT)

The wiring harness or connector between the AC inverter and AC outlet may be failed. When the wiring harness and connector are normal, the AC inverter or AC outlet may be failed.

NOTE: When inside of the vehicle is held at high temperature (35° C or more) for a long time (for example under the scorching sun), if the power supply is used with the vehicle parked, its operation may be automatically stopped to prevent the power supply unit from being overheated. After the AC inverter operation is stopped, when the AC inverter temperature decreases, the power automatically turns to ON. Also, if the equipment is AC 100 V but not 100 W or less, the equipment cannot be used even when it is connected.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The AC inverter may be defective
- The AC outlet may be defective

DIAGNOSIS**Required Special Tools:**

- MB991223: Harness set
- MB 992006: Extra fine probe

STEP 1. Check AC inverter connector D-128 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is AC inverter connector D-128 in good condition?

YES: Go to Step 2.

NO: Repair the damaged parts.

STEP 2. Measure the voltage at AC inverter connector D-128.

(1) Disconnect AC inverter connector D-128, and measure the voltage wiring harness side.

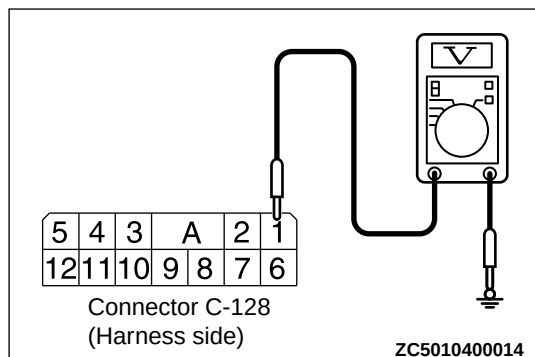
(2) Measure the voltage between AC inverter connector D-128 (terminal No. 1) and the body ground.

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

Q: Does the voltage measure battery voltage?

YES: Go to Step 5.

NO: Go to Step 3.



STEP 3. Check the wiring harness between AC inverter connector D-128 (terminal No. 1) and fusible link (34).

NOTE: Before the wiring harness check, check intermediate connector C-32 and C-35, ETACS-ECU connector C-308, and then repair them if necessary.

Q: Is the wiring harness between AC inverter connector D-128 (terminal No. 1) and fusible link (34) in good condition?

YES: Go to Step 4.

NO: Repair the wiring harness between AC inverter connector D-128 and fusible link (34).

STEP 4. Retest the system

Q: Is the check result normal?

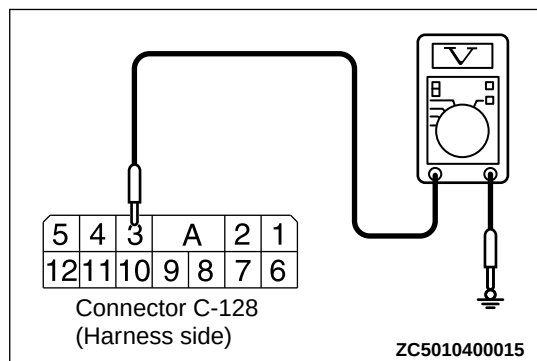
YES: The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction P. 00-15).

NO: Carry out the troubleshooting again.

STEP 5. Measure the voltage at AC inverter connector D-128.

(1) Disconnect the connector, and measure at the wiring harness side.

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



(3) Measure the voltage between AC inverter connector D-128 (terminal No. 3) and the body ground.

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

Q:Does the voltage measure battery voltage?

YES: Go to Step 8.

NO: Go to Step 6.

STEP 6. Check the wiring harness between AC inverter connector D-128 (terminal No. 3) and ETACS-ECU connector C-313 (terminal No. 2).

Q:Is the wiring harness between AC inverter connector D-128 (terminal No. 3) and ETACS-ECU connector C-313 (terminal No. 2) in good condition?

YES: Go to Step 7.

NO: Repair the wiring harness between AC inverter connector D-128 and ETACS-ECU C-313.

STEP 7. Retest the system

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: Carry out the troubleshooting again.

STEP 8. Measure the resistance at AC inverter connector D-128.

(1) Disconnect the AC inverter connector D-128, and measure at the wiring harness side.

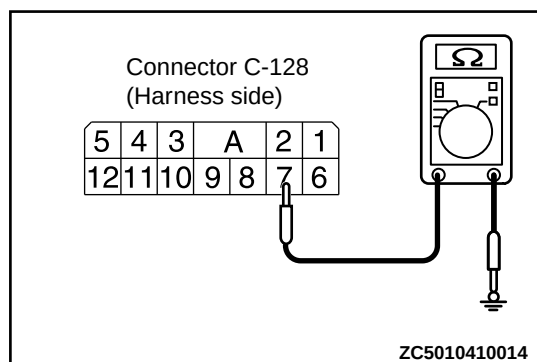
(2) Measure the resistance between AC inverter connector D-128 (terminal No. 7) and the body ground.

•The measured value should be continuity exists (2 Ω or less).

Q:Does the measured resistance value correspond with this range?

YES: Go to Step 11.

NO: Go to Step 9.



STEP 9. Check the wiring harness between AC inverter connector D-128 (terminal No. 7) and the body ground.

Q:Is the wiring harness between AC inverter connector D-128 (terminal No. 7) and the body ground in good condition?

YES: Go to Step 10.

NO: Repair the wiring harness between AC inverter connector D-128 and the body ground.

STEP 10. Retest the system

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: Carry out the troubleshooting again.

STEP 11. Check AC outlet connector D-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

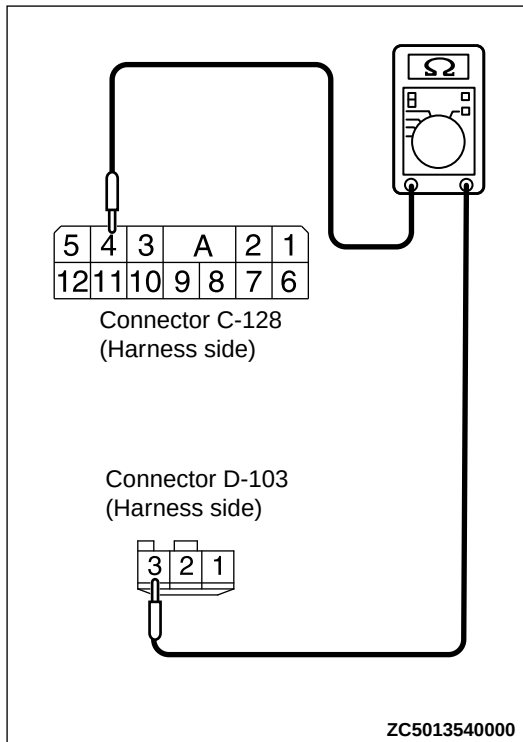
Q: Is AC outlet connector D-103 in good condition?

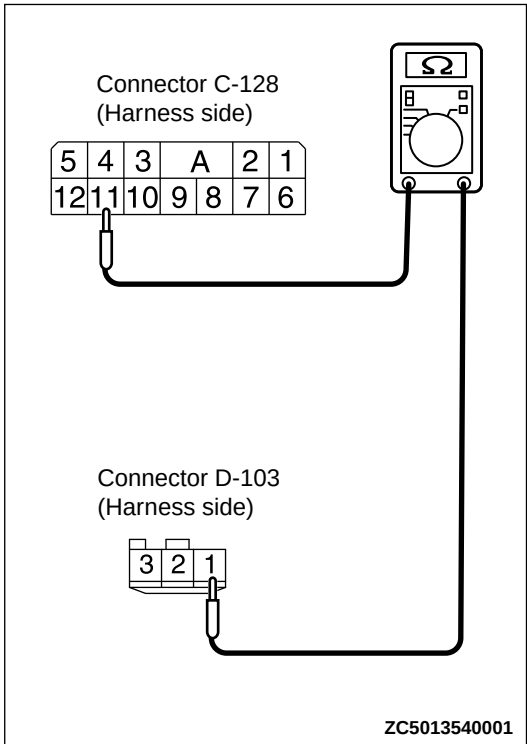
YES: Go to Step 12.

NO: Repair the damaged parts.

STEP 12. Measure the resistance at AC inverter connector D-128 and AC outlet connector D-103.

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between AC inverter connector D-128 (terminal No. 4) and AC outlet connector D-103 (terminal No. 3).
 - The measured value should be 2 Ω or less.





- (3) Measure the resistance between AC inverter connector D-128 (terminal No. 11) and AC outlet connector D-103 (terminal No. 1).
•The measured value should be 2 Ω or less.

Q: Does the measured resistance value correspond with this range?
YES: Go to Step 14.
NO: Go to Step 13.

STEP 13. Check the wiring harness between AC inverter connector D-128 (terminal No. 4,11) and AC outlet connector D-103 (terminal No. 3,1).

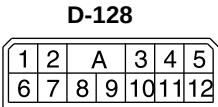
Q: Is the wiring harness between AC inverter connector D-128 (terminal No. 4,11) and AC outlet connector D-103 (terminal No. 3,1) in good condition?
YES: Go to Step 14.
NO: Repair the wiring harness between AC inverter connector D-128 and AC outlet connector D-103.

STEP 14. Retest the system

Q: After the AC outlet replacement, does the AC power supply operate 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 AC inverter.

CHECK AT ECU TERMINALS

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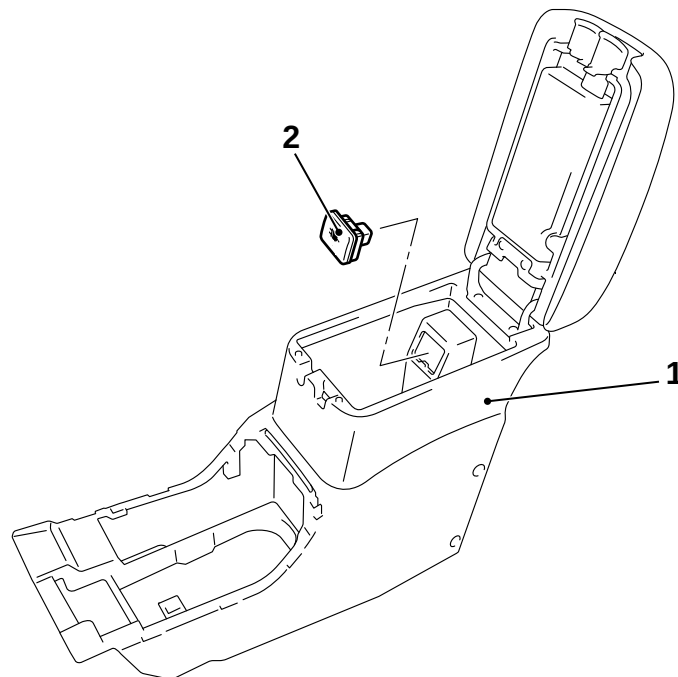
ZC6008700000

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	Always	Battery voltage
3	Ignition switch (IG1) power supply	Ignition switch: ON	Battery voltage
4	AC outlet	Ignition switch: ON	0 V
7	Ground	Always	0 V
11	AC outlet	Ignition switch: ON	0 V

REMOVAL AND INSTALLATION

M15410400010USA0000010000

<AC OUTLET>



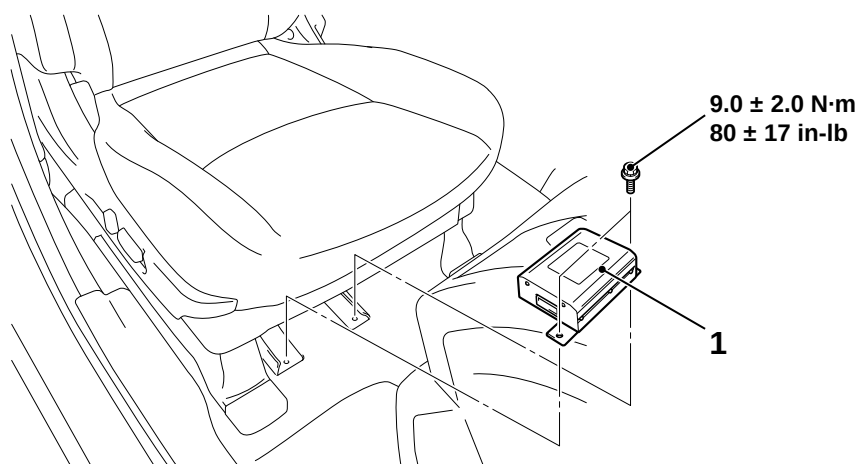
ZC3052130000

Removal Steps

1. Rear floor console box (Refer to GROUP 52A, Rear floor Console Assembly P.52A-9.)

Removal Steps

2. AC outlet

<AC INVERTER>

ZC6002770000

Removal Step

1. AC inverter

HANDS-FREE CELLULAR PHONE SYSTEM**DIAGNOSIS****STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING**

M15410400004USA0000010000

Refer to GROUP 00, Troubleshooting contents P. 00-6.

TROUBLE SYMPTOM CHART

M15410400005USA0000010001

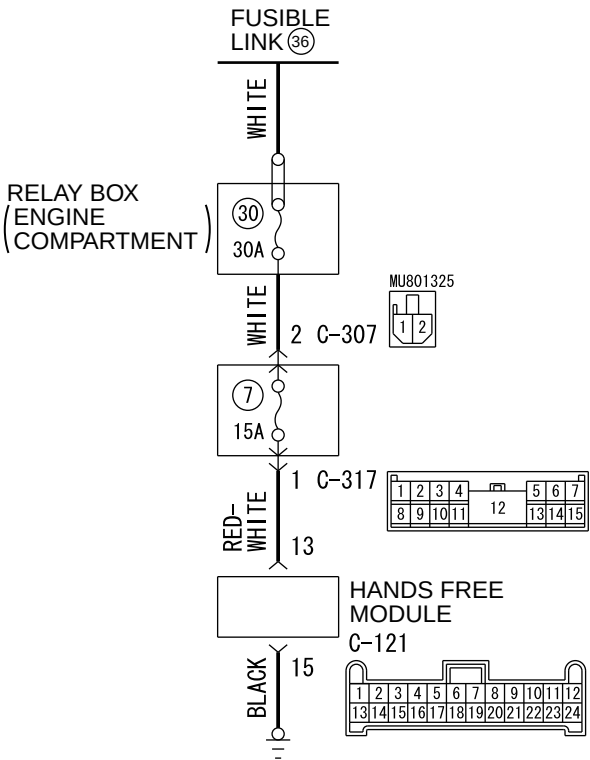
Trouble symptom	Inspection Procedure No.	Reference page
Hands-free cellular phone system does not work normally.	1	P. 54Ae-15
During the conversation with the hands-free system, the speaker's voice cannot be heard by the other party.	2	P. 54Ae-23
During the conversation with the hands-free system, the voice of other party cannot be heard.	3	P. 54Ae-25
Even when the steering voice-control switch is operated, the conversation is not possible.	4	P. 54Ae-27
The cellular phone is not recognized or the connection cannot be established.	5	P. 54Ae-32
Check the hands-free module power supply circuit.	6	P. 54Ae-33

SYMPTOM PROCEDURES

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

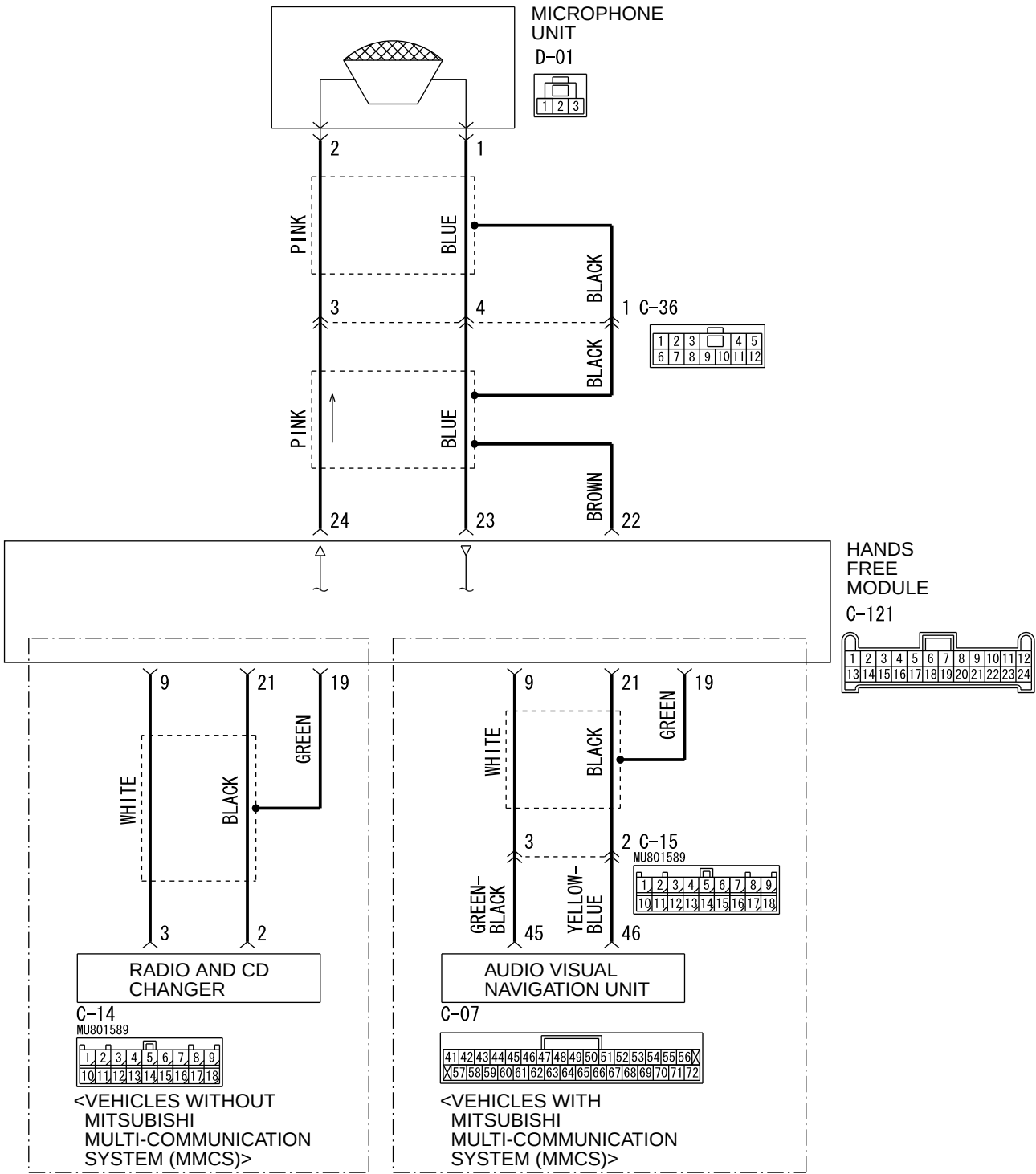
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Hands Free Module Power Supply Circuit

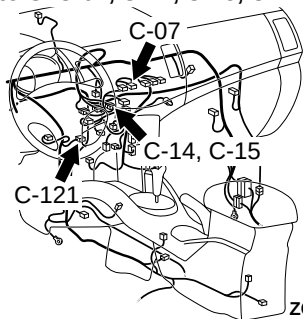


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Hands Free Cellular Phone System Circuit

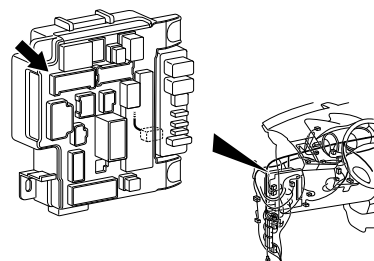


Connectors: C-07, C-14, C-15, C-121



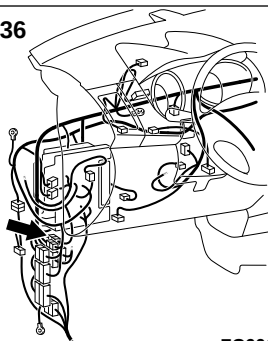
ZC6008760028

Connector: C-317



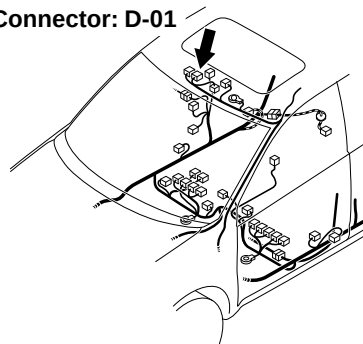
ZC6008780006

Connector: C-36



ZC6008750020

Connector: D-01



ZC6008790017

FUNCTION

During the conversation with the hands-free 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 changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>, and output from the speaker.

control switch, or radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the hands-free module
- Malfunction of the microphone unit
- Malfunction of the steering voice-control switch
- Malfunction of the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>
- Damaged harness wires and connectors

TROUBLE JUDGMENT CONDITIONS

If the hands-free system cannot be used normally, the hands-free module, microphone unit, steering voice-

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. 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: Go to Step 3.

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

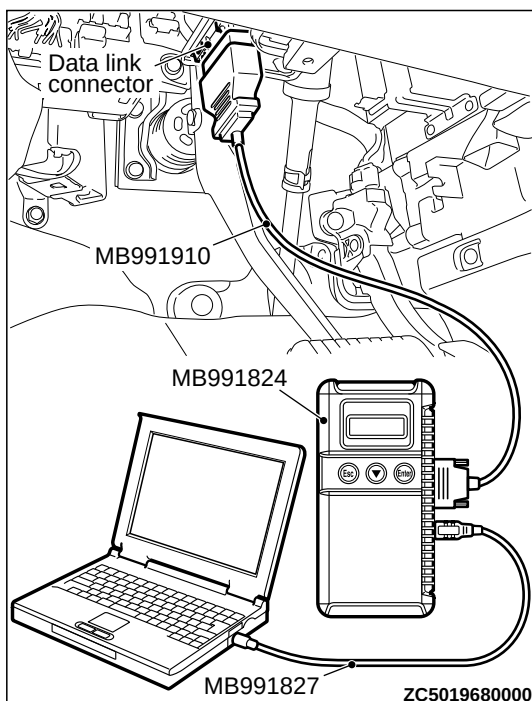
Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III)." ."

- (1) Turn the ignition switch to "ON" position.
- (2) Diagnose the CAN bus line.
- (3) 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 54D, Troubleshooting P. 54D-10.)



STEP 4. Check hands-free module connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

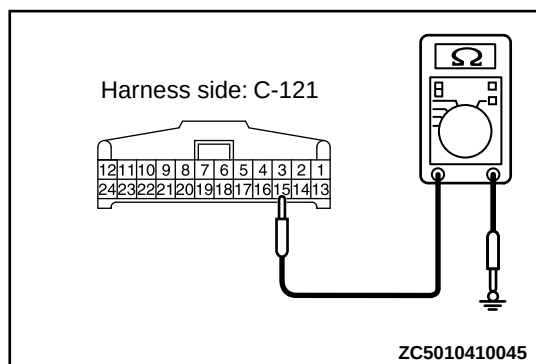
Q: Are hands-free module connector C-121 in good condition?

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-121.

- (1) Disconnect hands-free module connector C-121, 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-121 (terminal 15) and ground.

Q: Is the wiring harness between hands-free module connector C-121 (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-121.

- (1) Disconnect hands-free module connector C-121, and measure the voltage available at the hands-free module side of the connector.

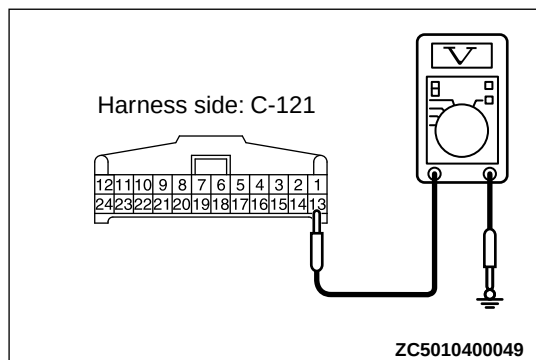
- (2) Measure the voltage between terminal 13 and ground.

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-121 (terminal 13) and ETACS-ECU connector C-317 (terminal 1).

Q: Is the wiring harness between hands-free module connector C-121 (terminal 13) and ETACS-ECU connector C-317 (terminal 1) 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-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is microphone unit connector D-01 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-121 and microphone unit connector D-01.

(1) Disconnect hands-free module connector C-121 and microphone unit connector D-01, and check the wiring harness.

NOTE: Also check intermediate connector C-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-36 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-121 (terminal No.1) and microphone unit connector D-01 (terminal No.22)
- (3) Check the wiring harness between hands-free module connector C-121 (terminal No.1) and microphone unit connector D-01 (terminal No.23)
- (4) Check the wiring harness between hands-free module connector C-121 (terminal No.2) and microphone unit connector D-01 (terminal No.24)

Q: Is the wiring harness between hands-free module connector C-121 and microphone unit connector D-01 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 changer connector C-14 <vehicles without MMCS> or audio visual navigation unit connector C-07 <vehicles with MMCS> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD changer connector C-14 <vehicles without MMCS> or audio visual navigation unit connector C-07 <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-121 and radio and CD changer connector C-14 <vehicles without MMCS> or audio visual navigation unit connector C-07 <vehicles with MMCS>.

- (1) Disconnect hands-free module connector C-121 and radio and CD changer connector C-14 <vehicles without MMCS> or audio visual navigation unit connector C-07 <vehicles with MMCS>, and check the wiring harness.

NOTE: Also check intermediate connector C-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-15 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-121 (terminal No.9) and radio and CD changer connector C-14 (terminal No.3) <vehicles without MMCS>
- (3) Check the wiring harness between hands-free module connector C-121 (terminal No.19) and radio and CD changer connector C-14 (terminal No.2) <vehicles without MMCS>
- (4) Check the wiring harness between hands-free module connector C-121 (terminal No.21) and radio and CD changer connector C-14 (terminal No.2) <vehicles without MMCS>
- (5) Check the wiring harness between hands-free module connector C-121 (terminal No.9) and audio visual navigation unit connector C-07 (terminal No.45) <vehicles without MMCS>
- (6) Check the wiring harness between hands-free module connector C-121 (terminal No.19) and audio visual navigation unit connector C-07 (terminal No.46) <vehicles without MMCS>
- (7) Check the wiring harness between hands-free module connector C-121 (terminal No.21) and audio visual navigation unit connector C-07 (terminal No.46) <vehicles without MMCS>

Q:Is the wiring harness between hands-free module connector C-121 and radio and CD changer connector C-14 <vehicles without MMCS> or audio visual navigation unit connector C-07 <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 system.

Q:Is the normal conversation possible with the hands-free 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 system.

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

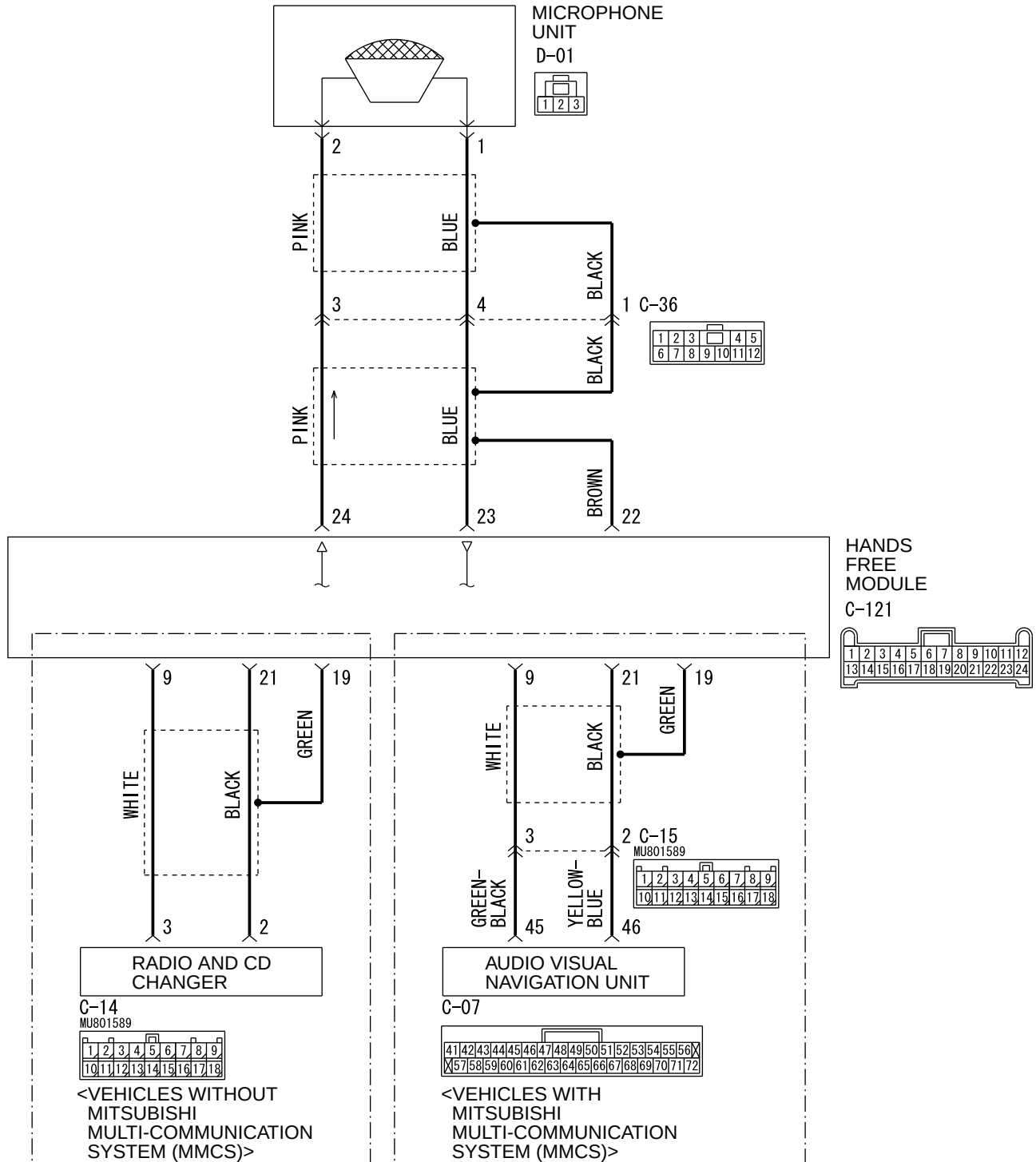
YES: Replace the hands-free module.

NO: Replace the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>.

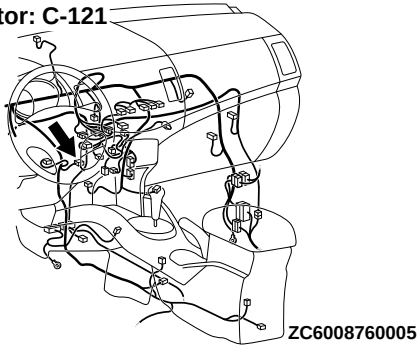
Inspection Procedure 2: During the conversation with the hands-free system, the speaker's voice cannot be heard by the other party.

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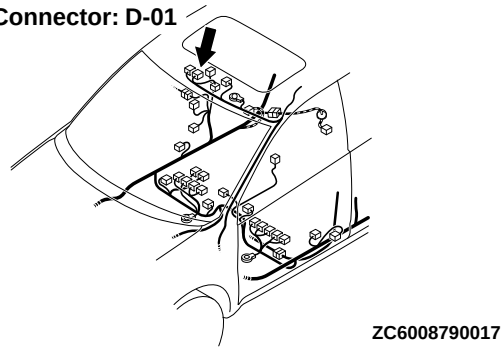
Hands Free Cellular Phone System Circuit



Connector: C-121



Connector: D-01



FUNCTION

During the conversation with the hands-free 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 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

- Malfunction of the hands-free module
- Malfunction of the microphone unit
- 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-121 and microphone unit connector D-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are hands-free module connector C-121 and microphone unit connector D-01 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-121 and microphone unit connector D-01.

- (1) Disconnect hands-free module connector C-121 and microphone unit connector D-01, and check the wiring harness.

NOTE: Also check intermediate connector C-36 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-36 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-121 (terminal No.1) and microphone unit connector D-01 (terminal No.22)
- (3) Check the wiring harness between hands-free module connector C-121 (terminal No.1) and microphone unit connector D-01 (terminal No.23)
- (4) Check the wiring harness between hands-free module connector C-121 (terminal No.2) and microphone unit connector D-01 (terminal No.24)

Q:Is the wiring harness between hands-free module connector C-121 and microphone unit connector D-01 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 system, the voice of other party cannot be heard.

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FUNCTION

During the conversation with the hands-free 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 changer <vehicles without MMCS>

or audio visual navigation unit <vehicles with MMCS>, and then output from the speaker.

TROUBLE JUDGMENT CONDITIONS

During the conversation with the hands-free system, if the voice of other party cannot be heard, the hands-free module, or the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the hands-free module
- Malfunction of the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>

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 changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>.

Check that the sound of radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> is output normally from the speaker.

Q: Is the sound of radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> output normally from the speaker?

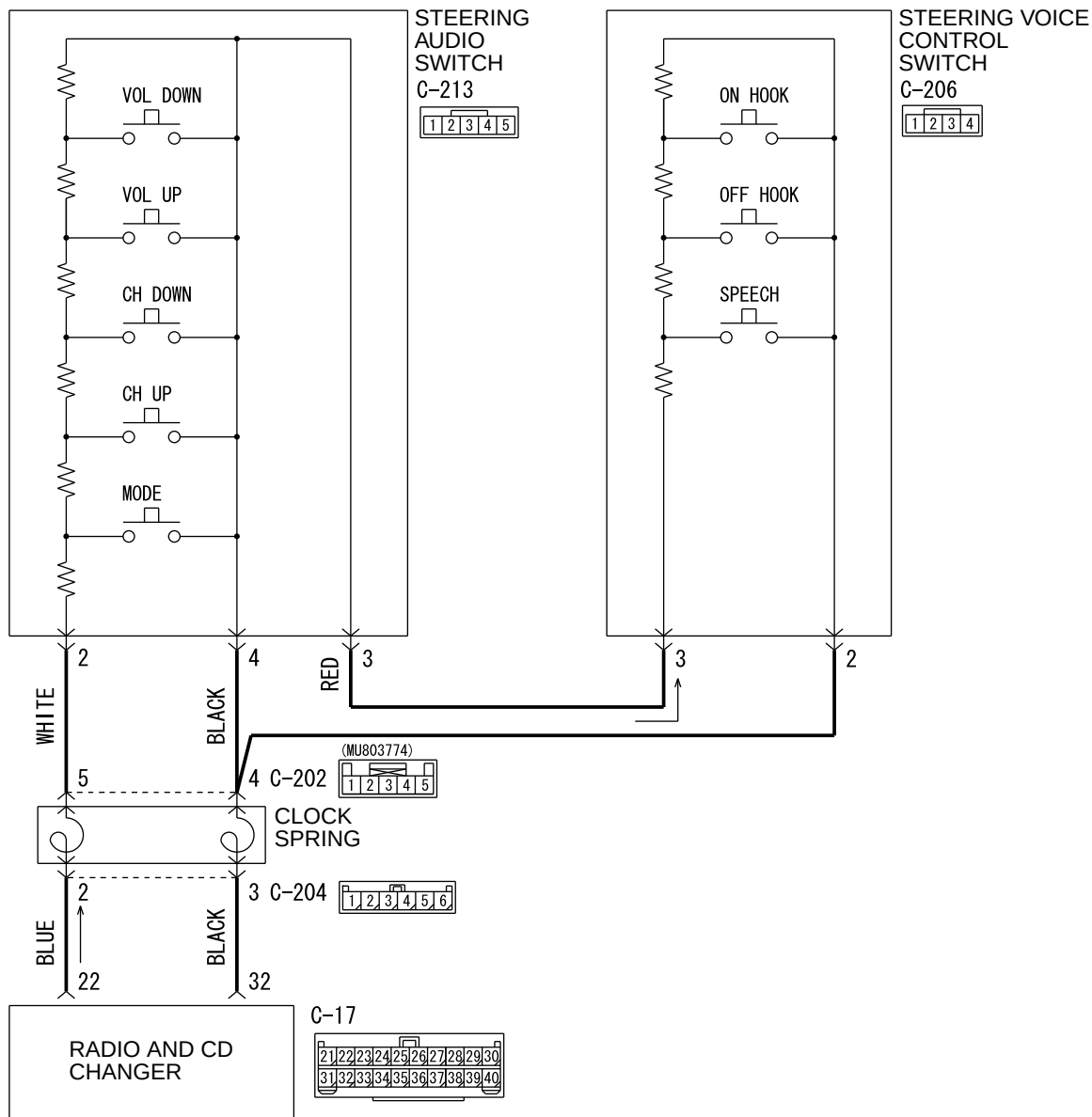
YES: Replace the hands-free module.

NO: Diagnose the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>. Refer to GROUP 54B, Radio and CD player – Diagnosis P.54B-18<vehicles without MMCS> or MMCS – Diagnosis P.54B-74<vehicles with MMCS>.

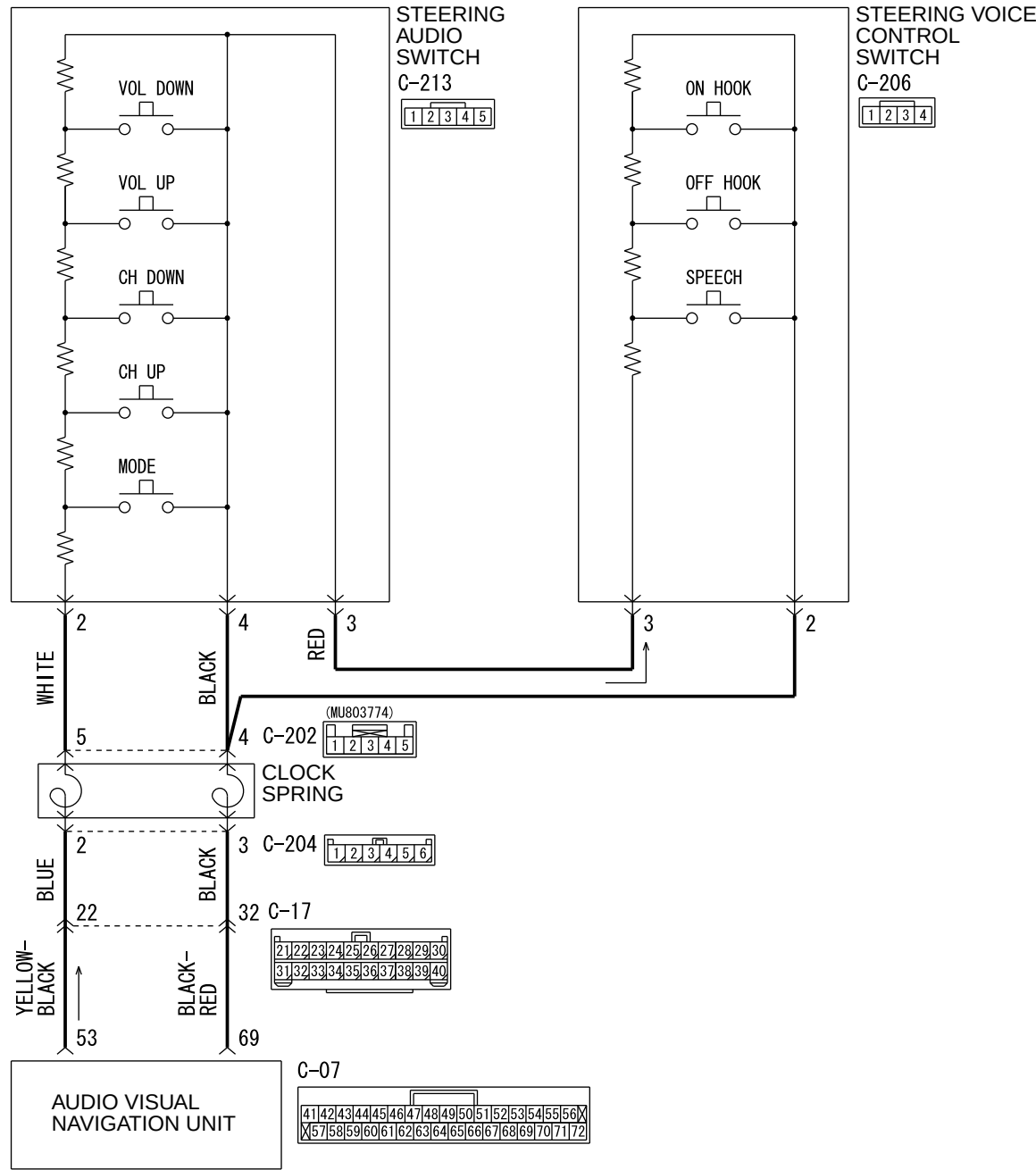
Inspection Procedure 4: Even when the steering voice-control switch is operated, the conversation is not possible.

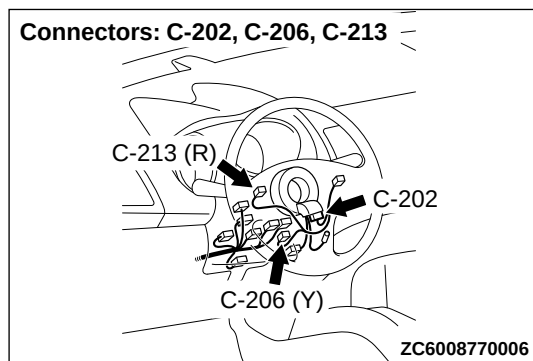
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Steering Voice Control Switch Circuit



Steering Voice Control Switch Circuit





FUNCTION

When the steering wheel voice-control switch is operated, the switch signal is transmitted to the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>. Then, via the CAN communication, the signal is transmitted from the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <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 changer <vehicles without MMCS> or the audio visual navigation unit <vehicles with MMCS> may be defective.

TROUBLESHOOTING HINTS

- Malfunction of the steering wheel voice-control switch
- Malfunction of the hands-free module
- Malfunction of the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>
- Damaged harness wires and connectors

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

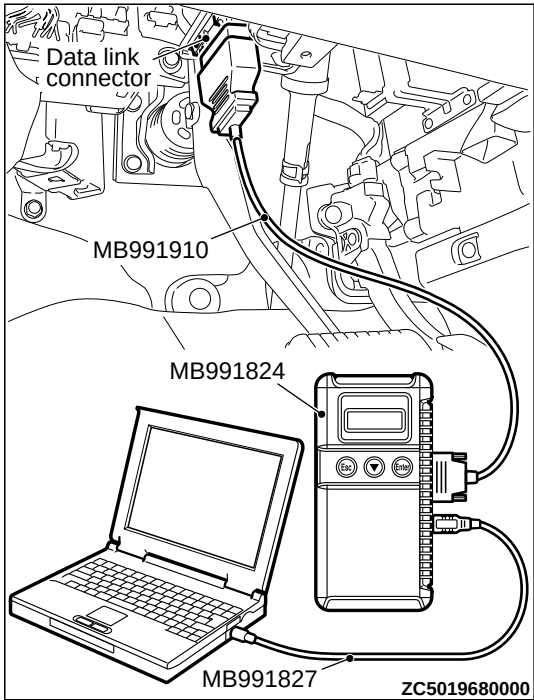
STEP 1. Check the steering audio switch.

Check that the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> can be operated normally using the steering audio switch.

Q:Is it possible to normally operate the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> using the steering audio switch?

YES: Go to Step 2.

NO: Diagnose the steering audio switch. Refer to GROUP 54B, Radio and CD player - Diagnosis P.54B-18<vehicles without MMCS> or MMCS - Diagnosis P.54B-74<vehicles with MMCS>.)



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

Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) ."

- (1) Turn the ignition switch to "ON" position.
- (2) Diagnose the CAN bus line.
- (3) 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 54D, Troubleshooting P. 54D-10.)

STEP 3. Check the steering voice-control switch.

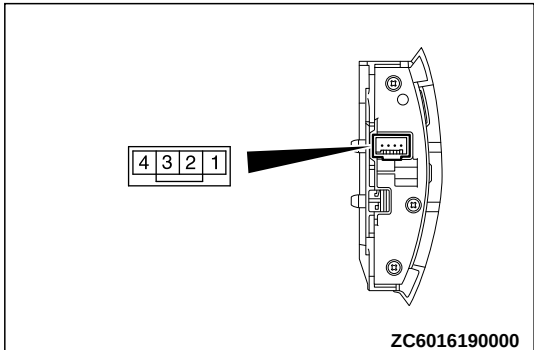
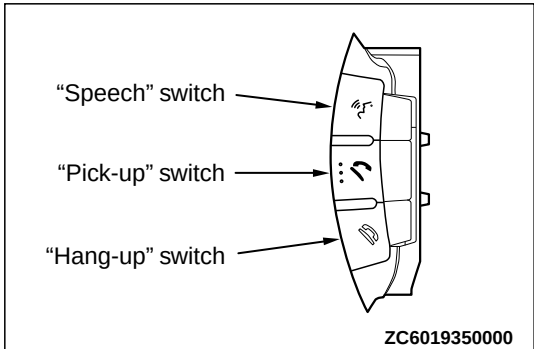
Remove the steering voice-control switch. Then check continuity between the switch terminals.

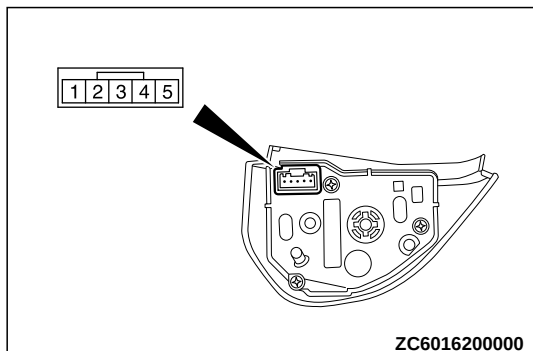
Switch Position	Tester Connection	Measurement Value
No push	2 - 3	Approximately 74 k Ω
"Speech" switch		Approximately 1.5 k Ω
"Pick-up" switch		Approximately 3.3 k Ω
"Hang-up" switch		Approximately 5.0 k Ω

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

YES: Go to Step 4.

NO: Replace the steering voice-control switch.





STEP 4. Check the steering audio switch.

Remove the steering audio switch. Then check continuity between the switch terminals.

Switch Position	Tester Connection	Measurement Value
No push	2 - 3	Approximately 3.1 kΩ

Q: Is the steering audio switch in good condition?

YES: Go to Step 5.

NO: Replace the steering audio switch.

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

Q: Are steering voice-control switch connector C-206 and steering audio 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 voice-control switch connector C-206 (terminal 3) and steering audio switch connector C-213 (terminal 3).

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

Q: Is the wiring harness between steering voice-control switch connector C-206 (terminal 3) and steering audio 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 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 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 voice-control switch is operated.

Q:Check that the hands-free cellular phone system works normally when the steering 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: Replace the radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS>.

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

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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

- Malfunction of the cellular phone
- Malfunction of the hands-free module

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.

By referring to the operation manuals, 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

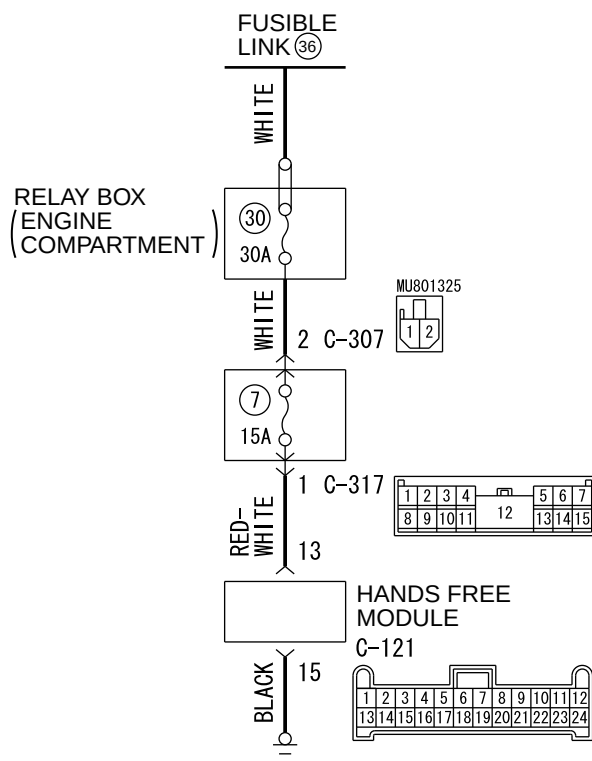
customer prepares the normally-working cellular phone, register the cellular phone to the hands-free module.

NO: Replace the hands-free module.

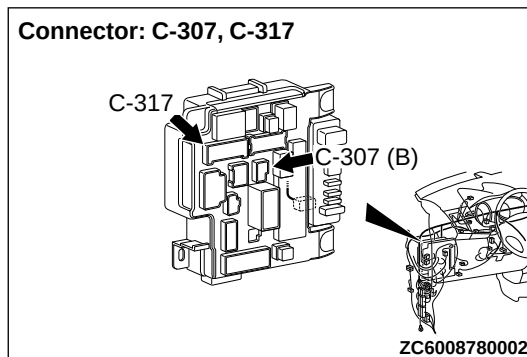
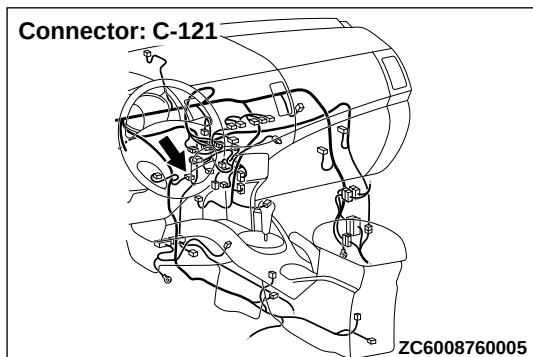
Inspection Procedure 6: Check the hands-free module power supply circuit.

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Hands Free Module Power Supply Circuit



D7G54M066A00



CIRCUIT OPERATION

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

•If the power supply system from the battery is defective, the system operates by the power supply from the ignition switch (IG1).

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-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hands-free module connector C-121 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 hands-free module. Measure the resistance at hands-free module connector C-121.

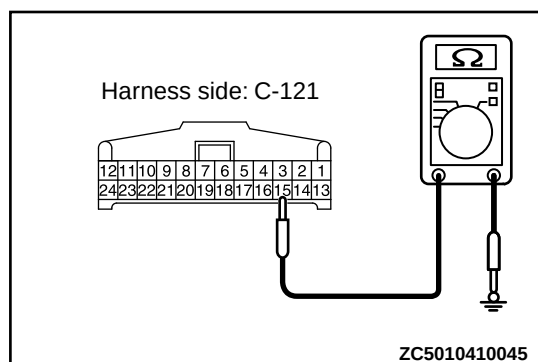
- (1) Disconnect hands-free module connector C-121, and measure at the wiring harness side.
- (2) Measure the resistance value between terminal 15 and ground.

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-121 (terminal 15) and ground.

Q: Is the wiring harness between hands-free module connector C-121 (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-121 (terminal 15) 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 damaged component(s) as described in GROUP 00E, Harness Connector Inspection P. 00E-2.

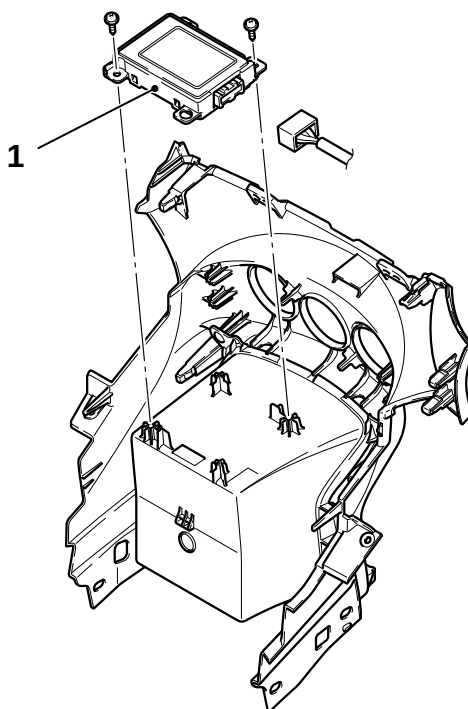
Q:Is the wiring harness between hands-free module connector C-121 (terminal 15) and fusible link (36) in good condition?

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.

REMOVAL AND INSTALLATION

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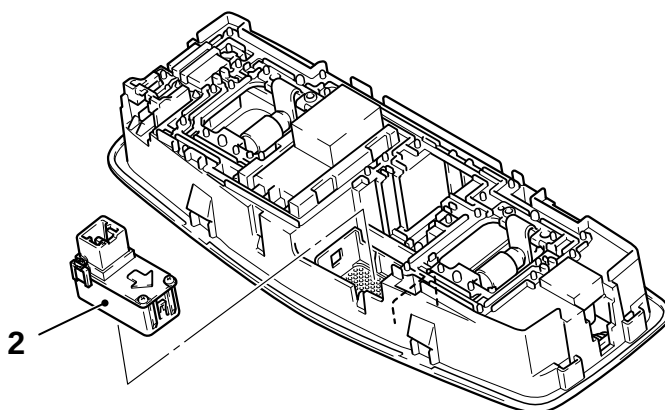
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Hands free module removal steps

Radio and CD changer <vehicles without MMCS> or audio visual navigation unit <vehicles with MMCS> (Refer to GROUP 54B, P. 54B-165<radio and CD changer>

Hands free module removal steps
or P.54B-166<audio visual navigation unit>.)

1. Hands free module



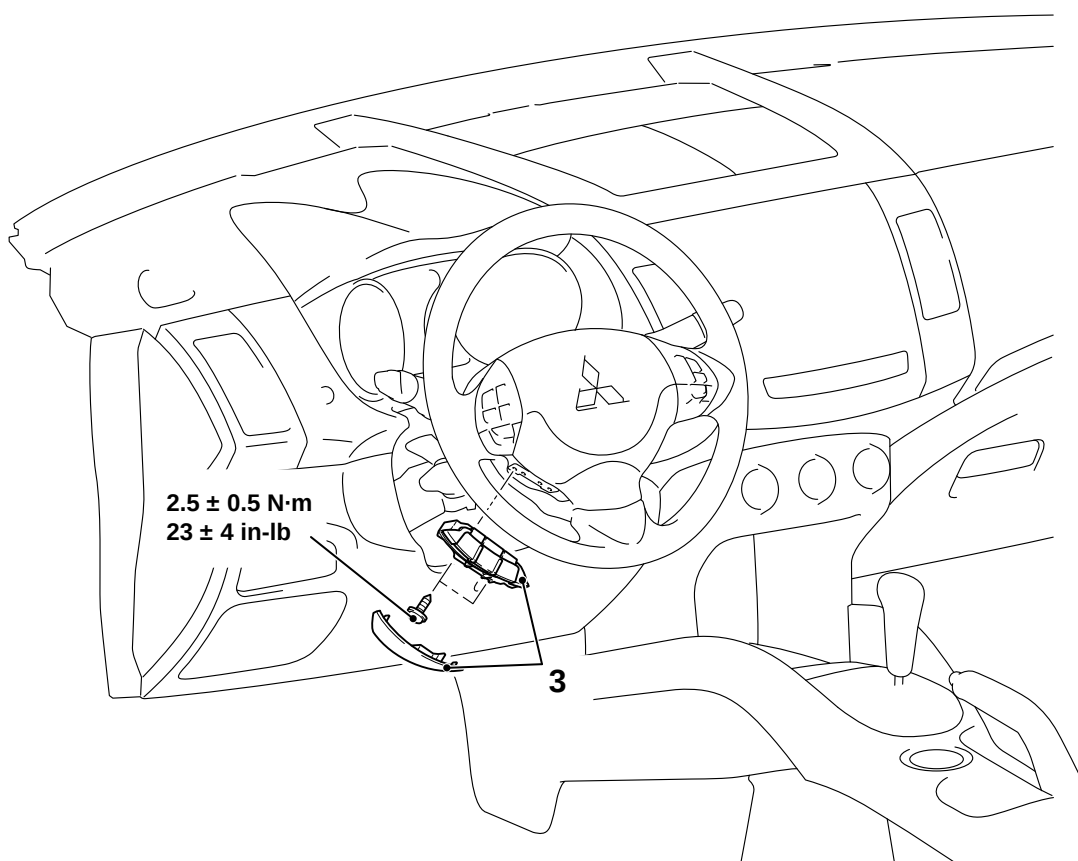
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Microphone unit removal steps

Front dome light assembly (Refer to GROUP 52A, Headlining P.52A-15.)

Microphone unit removal steps

2. Microphone unit



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Steering voice control switch removal step

<<A>>

4. Steering voice control switch

REMOVAL SERVICE POINT

<<A>> STEERING VOICE CONTROL SWITCH REMOVAL

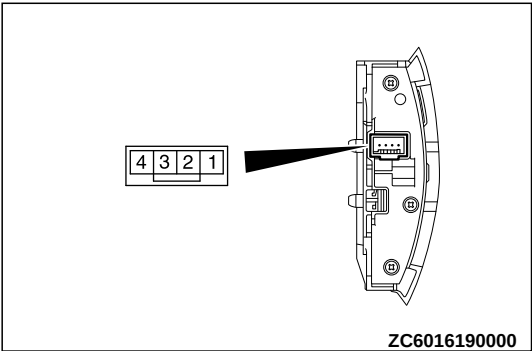
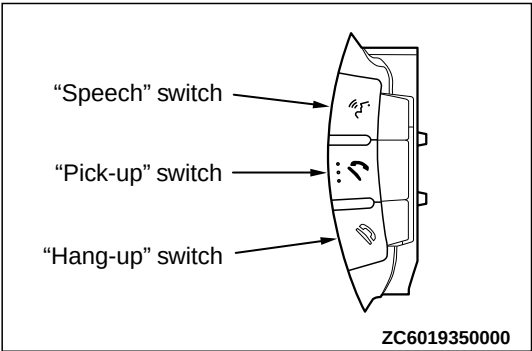
Remove the cover first, and then remove the screw that is used to fix the switch body part.

STEERING WHEEL VOICE-CONTROL SWITCH CONTINUITY CHECK

M15410400024USA0000010000

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 5.0 kΩ



54Ae-38

MEMO