# HEADLIGHT, FRONT SIDE MARKER LIGHT AND POSITION LIGHT ASSEMBLY

## LIGHTING SYSTEM DIAGNOSIS

### HEADLIGHT DIAGNOSIS

M1542010500605

### INTRODUCTION

The headlights are controlled by the Simplified Wiring System (SWS). For troubleshooting, refer to GROUP 54B, SWS Diagnosis P.54B-22.

### TROUBLESHOOTING STRATEGY

M1542010600152

⚠ ***WARNING***

***Do not touch the socket and the connector while the headlights are on. High voltage current is flowing in the socket and the connector while the headlights are on. If you fail to handle them correctly, a serious injury or damage may be caused.***

⚠ ***WARNING***

***Do not attempt to use a tester to check them. If a tester is used, a serious injury or damage may be caused by high-voltage current.***

⚠ ***WARNING***

***Do not turn on the headlights while the controller or the bulb is removed. If the headlights are turned on while the controller or the bulb is removed, serious injury or damage may be caused.***

⚠ ***WARNING***

***Before service work, ensure that the battery terminal and the controller connector is disconnected. Do not touch the components with wet hands. If you work on the components with wet hands or in wet conditions, serious injury may be caused.***

⚠ **CAUTION**

**Do not illuminate the bare headlight bulb. If the headlight bulb illuminates without fitting it in the headlight unit, it may burst due to rise in its internal pressure.**

⚠ **CAUTION**

**If the discharge headlight is damaged, strictly observe "How to check discharge headlight components." If you fail to observe "How to check discharge headlight components," the vehicle may be damaged.**

#### How to check discharge headlight components.

**Visual check of the controller (case)**

If any of the defects below are found, replace the controller.

| Items to be checked | Why the controller should be replaced |
|---|---|
| Obvious deformation (warping, twisting, dents, nicks, cracks, chipped edges) of the controller case | Because the printed circuit board or the element(s) may be cracked |
| Damaged connector (chipped or cracked plastics, or deformed terminal) | Because the damaged part(s) may cause poor connection |

**Check the wiring harness between the controller and the bulb.**
If any of the defects below are found, replace the wiring harness between the controller and the bulb.

**⚠ CAUTION**
**If the wiring harness between the controller and the bulb is defective, always replace it. Attempting to repair the wiring harness may cause a melted harness wire.**

| Items to be checked | Why the controller should be replaced |
|---|---|
| Wiring harness shield damaged (breakage) | Causing abnormal noise |
| Damaged connector (chipped or cracked plastics, or deformed terminal) | Because the damaged part(s) may cause poor connection |

**Checking while the headlights are on**
If any of the defects below are found, replace the controller.

**⚠ CAUTION**
**While the headlights are on, do not touch the headlight bulbs. There is a high risk of scalding, as the headlight bulb will become extremely hot.**

*NOTE: Ensure that the headlight control system and its circuit (power supply control at engine start and during steady illumination, high-voltage generating circuit, etc.) are working normally. Then check whether internal breakage has occurred in the controller. However, some internal breakage may not be able to be found.*

| Check how the lights illuminate. |
|---|
| Turn on and off the headlights several times when they are cold and warm. Observe how the headlights illuminate. |
| Observe the headlights until they illuminate steadily (approximately five minutes after switching on them). Check that the headlights do not flash or flicker. |
| Turn on the headlights for thirty minutes. Check that the brightness is the same between right and left lights. |
| Turn on the headlights for thirty minutes. Check that the headlights do not flash or flicker. |

## How to diagnose the discharge headlights

1. Check that the connectors are connected securely and the fuse has not been blown.
2. Before starting the diagnosis, read through the "Symptom chart" to understand what and how you should do. Follow all the procedures carefully.

3. The components should be checked with their connectors disconnected.

## Symptom chart

| ITEM TO BE CHECKED | SYMPTOM | | |
|---|---|---|---|
| | THE HEADLIGHTS DO NOT ILLUMINATE. | THE HEADLIGHTS FLICKER. | THE HEADLIGHTS ARE DIM. |
| Fuse | 1 | – | – |
| Wiring harness and connector | 2 | 1 | – |
| Column switch | 3 | – | – |
| Bulb | 4 | 2 | 1 |
| Controller | 5 | 3 | 2 |

*NOTE:*

1. *The numbers indicate the sequence in which the component is checked.*
2. *Refer to GROUP 54B for the troubleshooting other than above. (Refer to GROUP 54B, Troubleshooting, symptom chart P.54B-22.)*
3. *If the ETACS-ECU failed, only the low-beam headlights will illuminate as a fail-safe measure.*

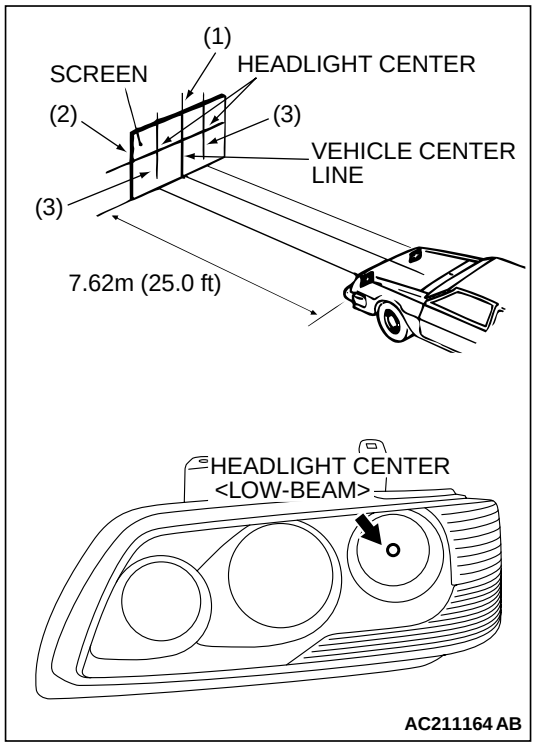
# ON-VEHICLE SERVICE

## HEADLIGHT AIMING

M1542000900419

### PRE-AIMING INSTRUCTIONS

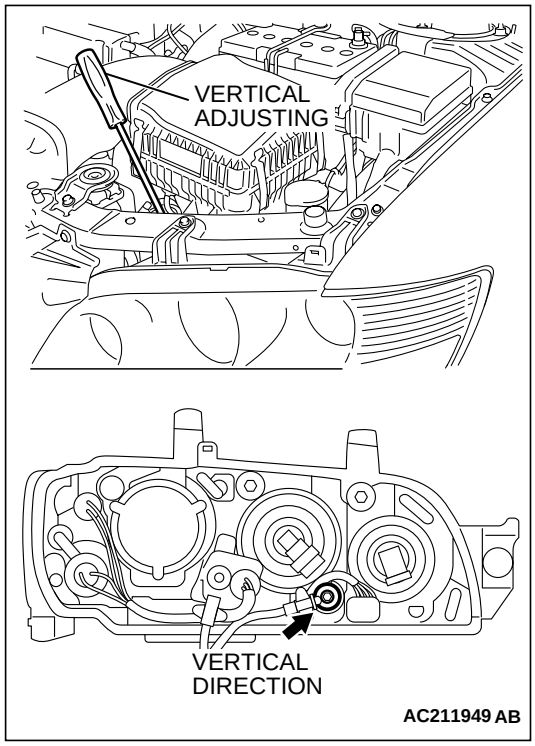
1. Inspect for badly rusted or faulty headlight assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If the fuel tank is not full, place a weight in luggage room of vehicle to simulate weight of a full tank [3 kg (6.5 pounds) per gallon.]
5. There should be no other load in the vehicle other than driver or substituted weight of approximately 70 kg (150 pounds) placed in driver's position.
6. Thoroughly clean the headlight lenses.
7. Set the headlight leveling switch to zero position.
8. Place the vehicle on a level floor, perpendicular to a flat screen 7.62m (25.0 feet) away from the bulb center-marks on the headlight lens.
9. Rock vehicle sideways to allow vehicle to assume its normal position.
10. Bounce the front suspension through three (3) oscillations by applying the body weight to hood or bumper.

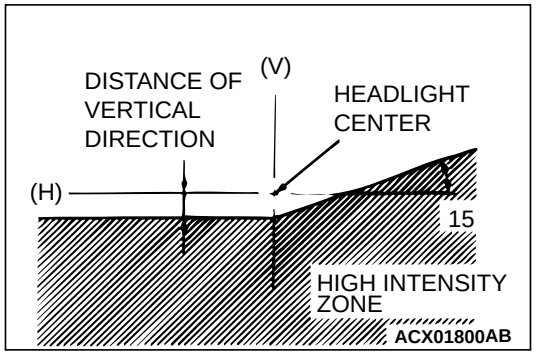



11. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
    (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
    (2) Measure the distance from the center-marks on the headlight lens to the floor. Transfer the measurement to the screen. Horizontal tape or mark on the screen is for reference of vertical adjustment.
    (3) Measure the distance from the center line of the vehicle to the center of each headlight. Transfer the measurement to the screen. Vertical tape or mark on the screen with reference to the center line of each headlight bulb.

## HEADLIGHT ADJUSTMENT

1. The low beam headlight should project on the screen upper edge of the beam (cut-off).
2. If not the case, turn the adjusting screws to achieve the specified low-beam cut-off location on the aiming screen.






**Standard value:**
**(Vertical direction) Range of headlight center line 53 ± 50 mm (± 2.1 inches)**

*NOTE: There is no horizontal aim adjustment. Horizontal aim is preset and does not require adjustment.*

3. When adjusting one headlight, disconnect the other headlight harness.

**⚠ CAUTION**

**Do not cover a headlight for more than three minutes to prevent the plastic headlight lens deformation.**

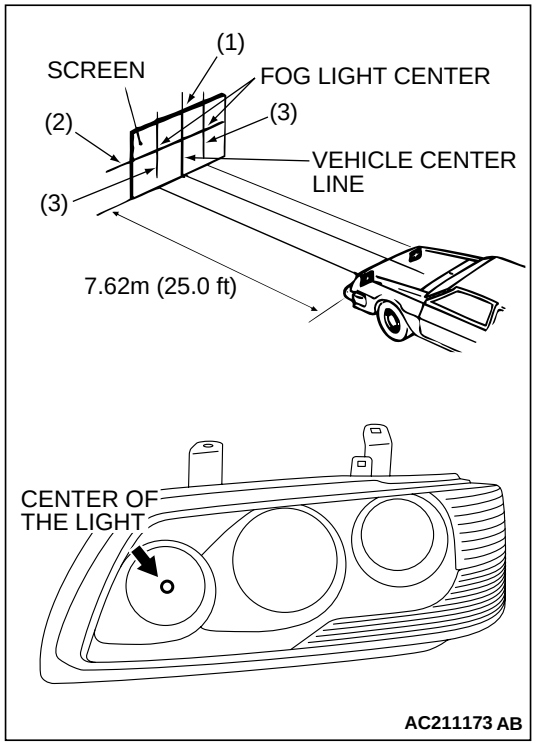
4. High-beam pattern should be correct when the low-beams are adjusted properly.

## FOG LIGHT AIMING

M1542001100405

## PRE-AIMING INSTRUCTIONS

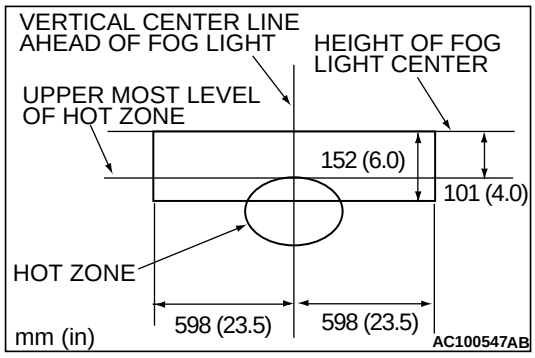
1. Inspect for badly rusted or faulty fog light assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tire inflation, and adjust if necessary.
4. If fuel tank is not full, place a weight in the trunk of the vehicle to simulate weight of a full tank [3 kilograms (6.5 pounds) per gallon.]
5. There should be no other load in the vehicle other than driver or substituted weight of approximately 70 kilograms (150 pounds) placed in driver's position.
6. Thoroughly clean the fog light lenses.
7. Place the vehicle on a level floor, perpendicular to a flat screen 7.62 meters (25.0 feet) away from the bulb center-marks on the headlight lens.
8. Rock the vehicle sideways to allow the vehicle to assume its normal position.
9. Bounce the front suspension through three (3) oscillations by applying the body weight to the hood or bumper.

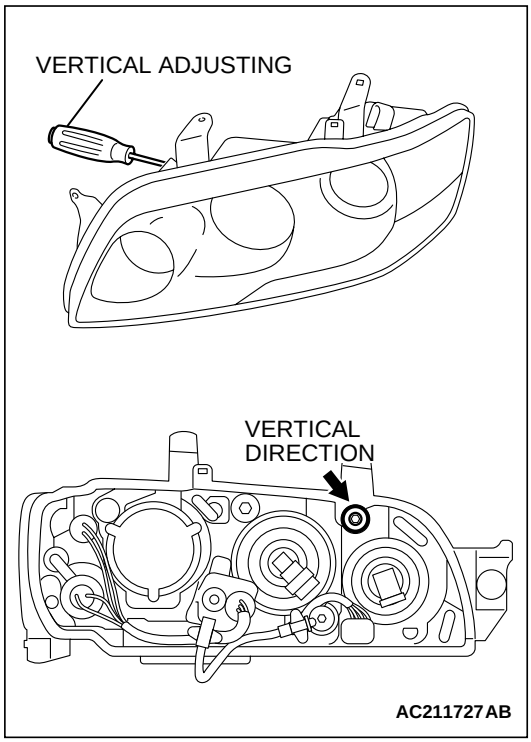



10. Measure the center of the fog lights as shown in the illustration.
11. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
    (1) Position a vertical tape or mark so that it is aligned with the vehicle center line.
    (2) Measure the distance from the center of the fog light lens to the floor. Transfer the measurement to the screen. Horizontal tape or mark on the screen is for reference of vertical adjustment.
    (3) Measure the distance from the center line of the vehicle to the center of each fog light. Transfer the measurement to the screen. Vertical tape or mark on the screen is for reference to the center line of each fog light.

## FOG LIGHT ADJUSTMENT

1. Check if the beam shining onto the screen is at the standard value.






2. If it is not within the standard value range, adjust by turning the adjusting screw.

   **Standard value:**
   **(Vertical direction): Top of the hot zone should be 101 mm (4.0 inches) (0.76°) downward from the height of the fog light center.**

   **Limit:**
   **(Vertical direction): Top of the hot zone should be 152mm (6.0 inches) (1.14°) in maximum downward from the height of the fog light center.**

*NOTE: The horizontal direction is non-adjustable. If deviation of the light beam axis exceeds the standard value, check that the mounting location or some other points are not faulty.*

## INTENSITY MEASUREMENT

M1542001000334

1. Set the headlights to high-beam
2. Using a photometer, and following its manufacturer's instruction manual, measure the headlight center intensity and check to be sure that the limit value is satisfied.

   **Limit: 40,000 cd or more {When a screen is set 18.3m (60.0 feet) ahead of the vehicle}**

*NOTE: When measuring the intensity, maintain an engine speed of 2,000 r/min, with the battery fully charged.*
*There may be special local regulations pertaining to headlight intensity. Be sure to make any adjustments necessary to satisfy such regulations.*
*If an illuminometer is used to make the measurements, convert its values to photometer values by using the following formula.*

**I =Er2 Where:**
- I = intensity (cd)
- E = illumination (lux)
- r = distance (m) from headlights to illuminometer

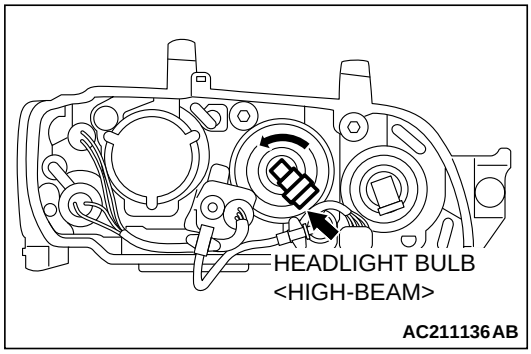
**⚠ CAUTION**

1. **On the headlight not yet adjusted, perform aiming with connector removed and the lights switched off, if applicable. in addition, care should be taken to prevent a change of optical axis when connector is reconnected.**
2. **Plastic outer lens are equipped with headlights. When lens surface is covered with materials for not penetrating light, headlight operation time should be within 3 minutes. In addition, masking such as taping should not be performed.**

## BULB REPLACEMENT

M1542001300498

### Headlight Bulb <HIGH-BEAM>



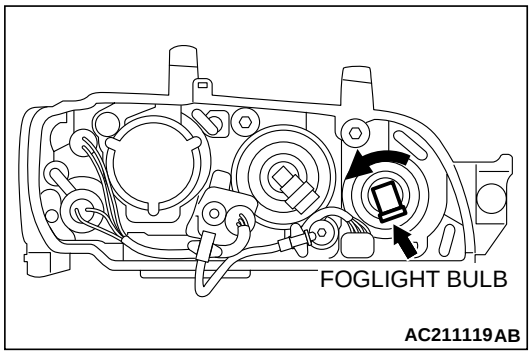

1. Disconnect the battery.
2. Disconnect the connector.

**⚠ CAUTION**

**Do not touch the surface of the bulb with hands or dirty gloves as the bulb may pop after a short time. If the surface does become dirty, clean it with alcohol or thinner, and let it dry thoroughly before installing.**

3. Screw out the head light bulb.
4. Replace the valve, and connect securely the connector.

### Foglight Bulb



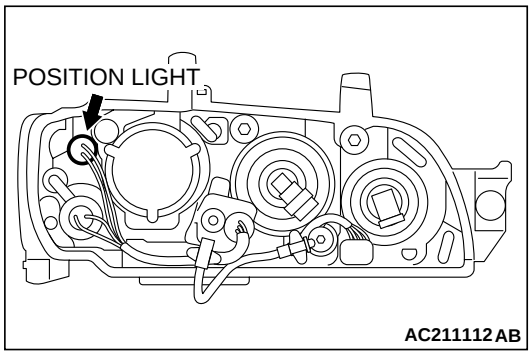

1. Disconnect the battery.
2. Disconnect the connector.

**⚠ CAUTION**

**Do not touch the surface of the bulb with hands or dirty gloves as the bulb may pop after a short time. If the surface does become dirty, clean it with alcohol or thinner, and let it dry thoroughly before installing.**

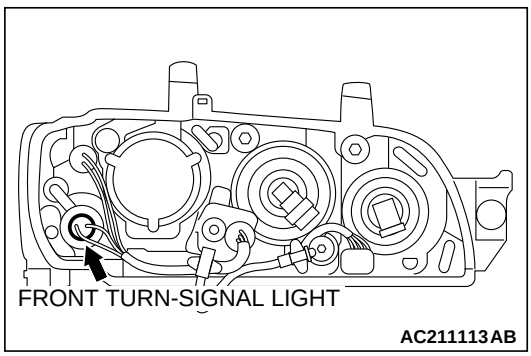
3. Screw out the fog light bulb.
4. Replace the valve, and connect securely the connector.

### Position Light Bulb




1. Remove the splash shield.
2. Screw out the position light socket.

### Front Turn Signal Light bulb

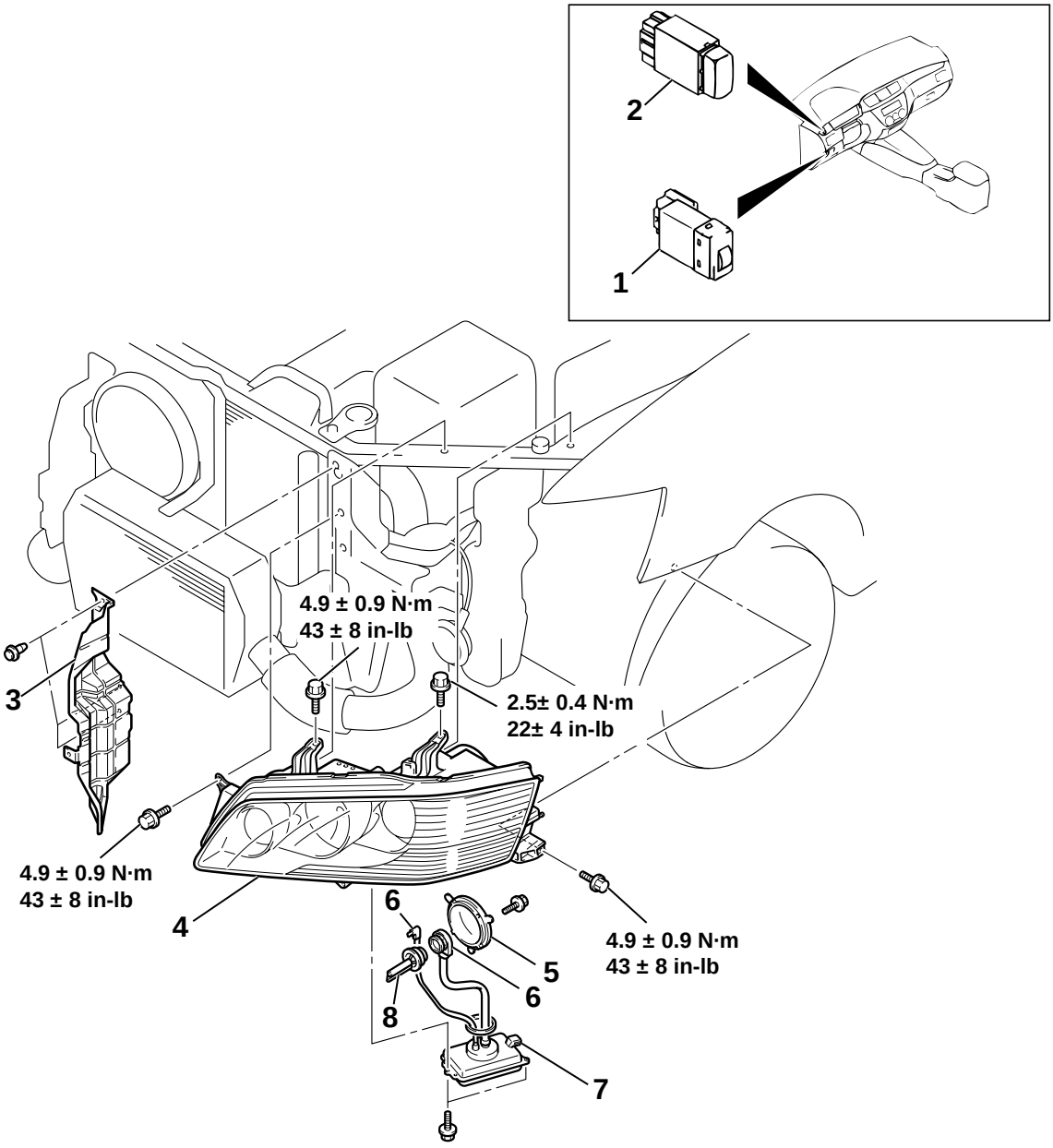



1. Remove the splash shield.
2. Screw out the front turn signal socket.

# HEADLIGHT

## REMOVAL AND INSTALLATION

M1542002700273

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**HEADLIGHT LEVELING SWITCH REMOVAL STEPS**

- SWITCH PANEL (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)

1. HEADLIGHT LEVELING SWITCH

**FOG LIGHT SWITCH REMOVAL STEPS**

- INSTRUMENT PANEL ORNAMENT (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)

2. FOG LIGHT SWITCH

**HEADLIGHT ASSEMBLY REMOVAL STEPS**

3. AIR GUIDE PANEL
4. HEADLIGHT ASSEMBLY
5. SOCKET COVER
6. CONNECTOR
7. CONTROLLER
8. BULB

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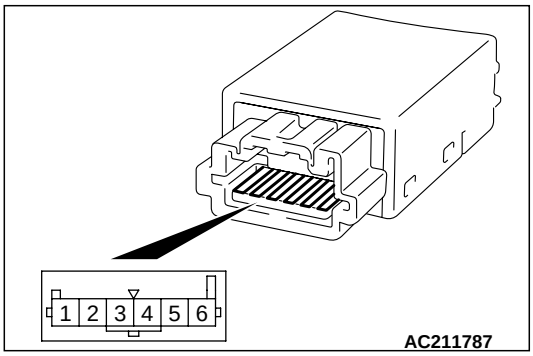
## INSPECTION

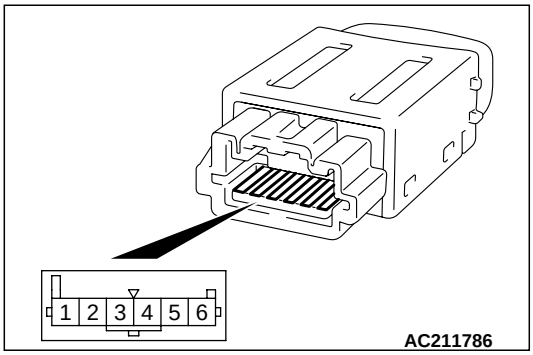
M1542011200748

### HEAD LIGHT LEVELING SWITCH CONTINUITY CHECK



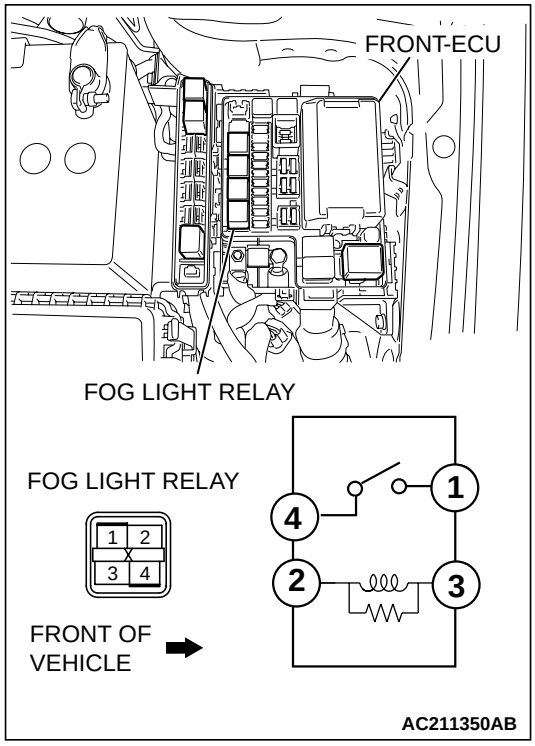

| SWITCH POSITION | TESTER CONNECTION | SPECIFIED CONDITION |
|---|---|---|
| 0 | 4 – 5 | 120 ohms |
| 1 | 4 – 5 | 300 ohms |
| 2 | 4 – 5 | 620 ohms |
| 3 | 4 – 5 | 1.1 Kohms |
| 4 | 4 – 5 | 2 Kohms |

### FOG LIGHT SWITCH CONTINUITY CHECK




| SWITCH POSITION | TESTER CONNECTION | SPECIFIED CONDITION |
|---|---|---|
| ON | 1 – 2 | Less than 2 ohms |
| OFF | 1 – 2 | Open circuit |

### FOG LIGHT RELAY CHECK




| BATTERY VOLTAGE | TESTER CONNECTION | SPECIFIED CONDITION |
|---|---|---|
| Not applied | 1 – 4 | Open circuit |
| • Connect terminal 2 to the positive battery terminal<br>• Connect terminal 3 to the negative battery terminal | 1 – 4 | Less than 2 ohms |

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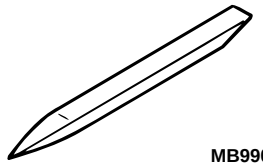
# TURN-SIGNAL LIGHT

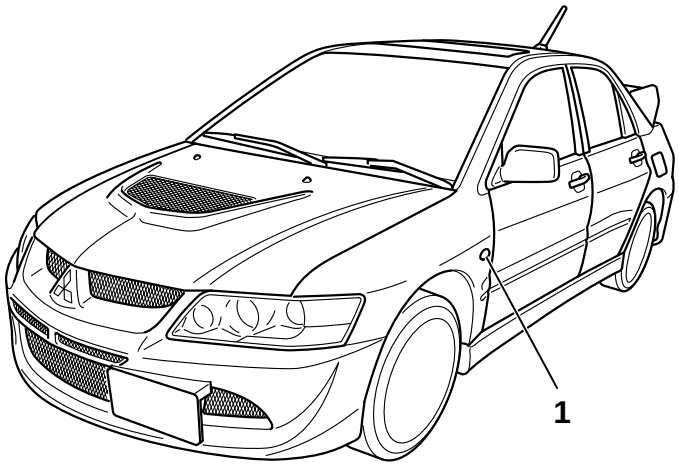
## SPECIAL TOOL

M1542000600485

| TOOL | TOOL NUMBER AND NAME | SUPERSESSION | APPLICATION |
|---|---|---|---|
|  MB990784 | MB990784 Ornament remover | General service tool | Side turn-signal light removal |

## REMOVAL AND INSTALLATION

M1542003300052

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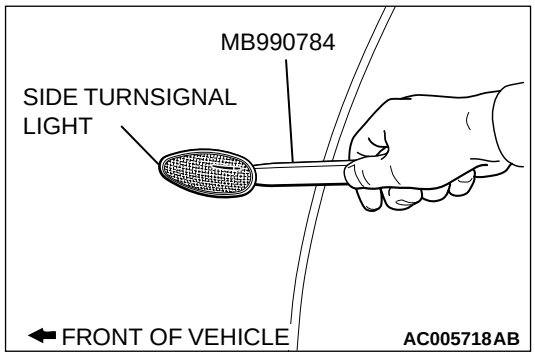
**REMOVAL STEP**

**<<A>> >>A<<** 1. SIDE TURN SIGNAL LIGHT

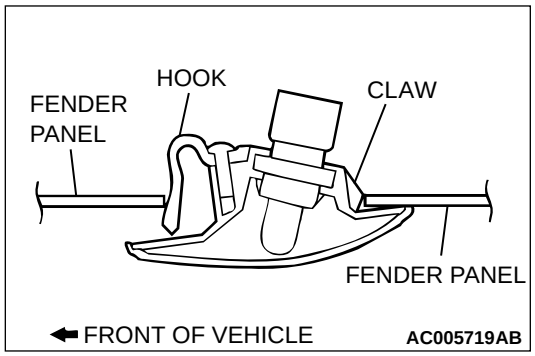
**Required Special Tools:**

- MB990784: Ornament Remover

## REMOVAL SERVICE POINT




**<<A>> SIDE TURN SIGNAL LIGHT REMOVAL**
Use special tool MB990784, etc. to press and deflect the hook to vehicle front from fender, and unhook the pawls to remove the side turn-signal light.



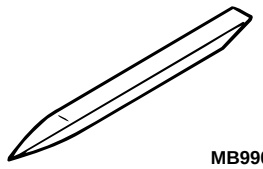

## INSTALLATION SERVICE POINT

**>>A<< SIDE TURN SIGNAL LIGHT INSTALLATION**
Insert the pawls into the fender panel and install the side turn-signal light.

# REAR COMBINATION LIGHT

## SPECIAL TOOL

M1542000600496

| TOOL | TOOL NUMBER AND NAME | SUPERSESSION | APPLICATION |
|---|---|---|---|
|  MB990784 | MB990784 Ornament remover | General service tool | Rear combination light removal |

## DIAGNOSIS

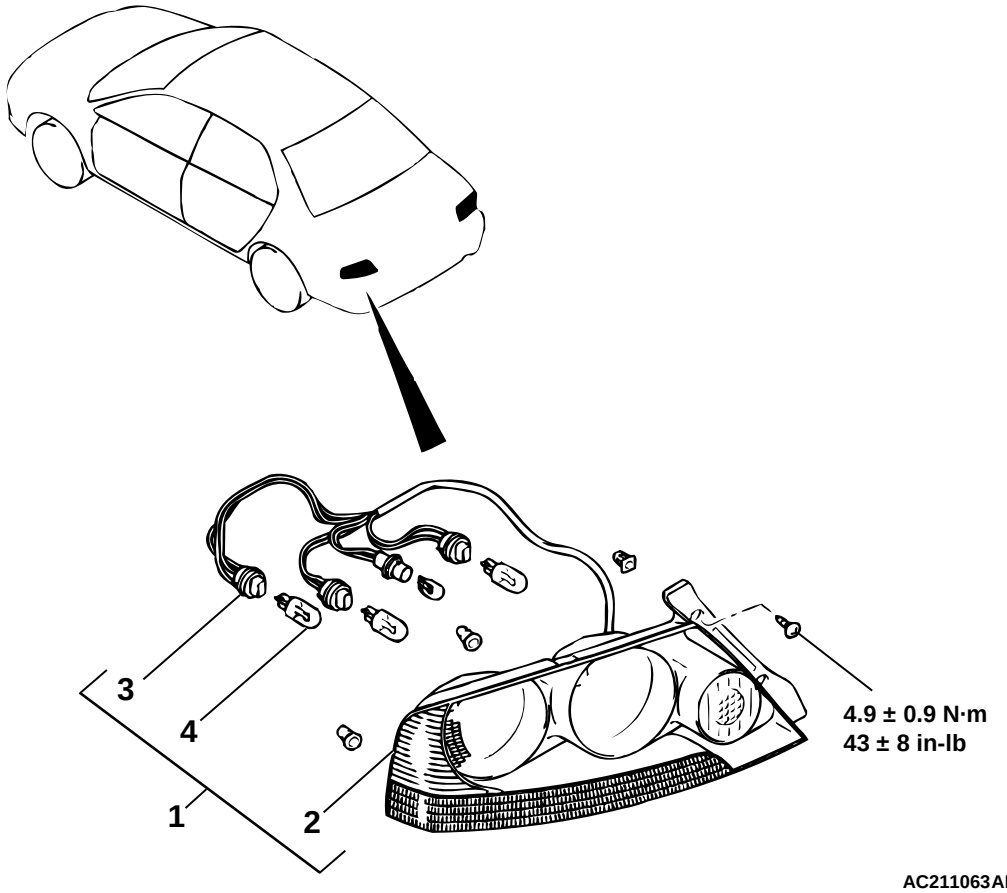
M1542000700943

The taillights and turn-signal lights are controlled by the Simplified Wiring System (SWS). For trouble-shooting, refer to GROUP 54B, SWS Diagnosis P.54B-6.

## REAR COMBINATION LIGHT

### REMOVAL AND INSTALLATION

M1542003900355

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**REMOVAL STEPS**
1. REAR COMBINATION LAMP ASSEMBLY
2. REAR COMBINATION LIGHT BODY

**REMOVAL STEPS (Continued)**
3. SOCKET ASSEMBLY
4. BULB

# DOME LIGHT

## LIGHTING SYSTEM DIAGNOSIS

### DOME LIGHT DIAGNOSIS

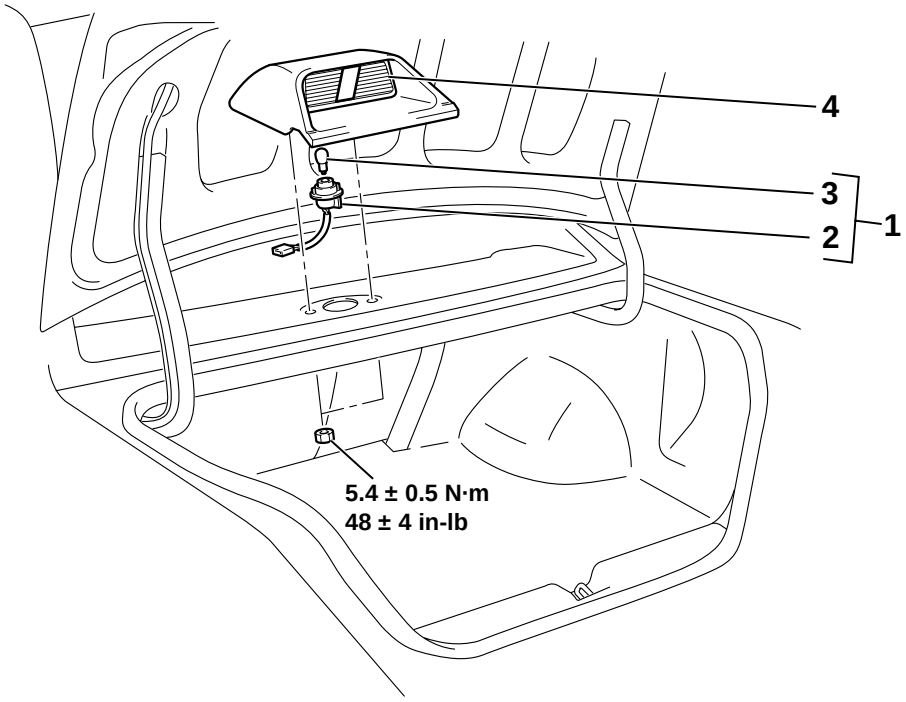
M1542010500616

The dome light is controlled by the Simplified Wiring System (SWS). For troubleshooting, refer to GROUP 54B, SWS Diagnosis P.54B-22.

# HIGH-MOUNTED STOPLIGHT

## REMOVAL AND INSTALLATION

M1542005100344

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**REMOVAL STEPS**
1. SOCKET ASSEMBLY
2. SOCKET

**REMOVAL STEPS (Continued)**
3. BULB
4. HIGH-MOUNTED STOPLIGHT

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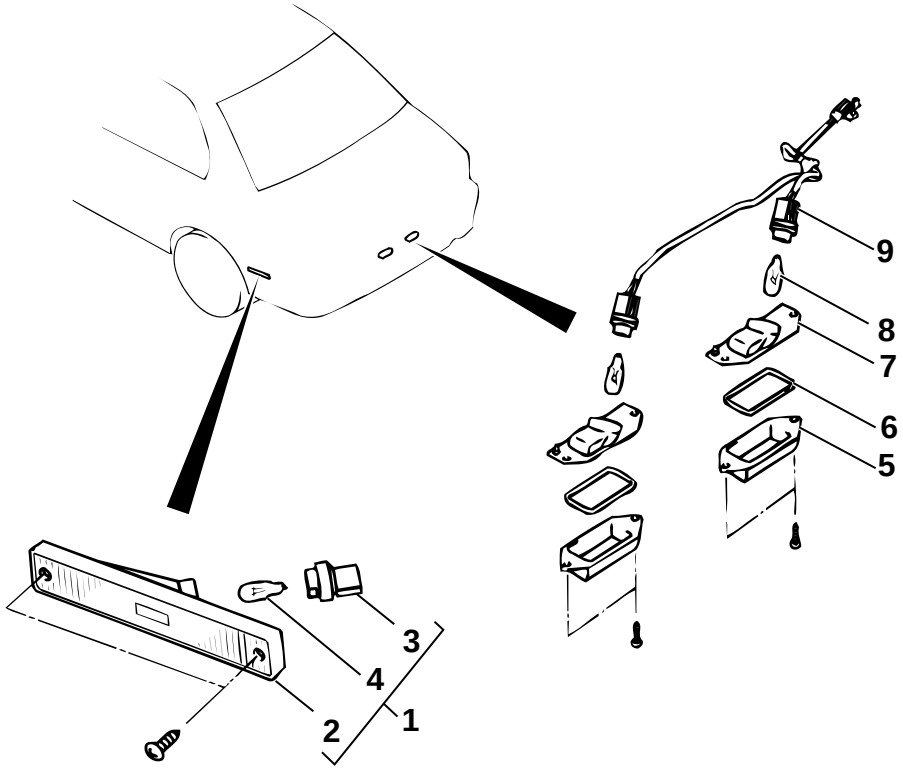
# LICENSE PLATE LIGHT

## REMOVAL AND INSTALLATION

M1542004200111

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**REAR SIDE MARKER LIGHT REMOVAL STEPS**

1. REAR SIDE MARKER LIGHT ASSEMBLY
2. REAR SIDE MARKER LIGHT LENS
3. SOCKET
4. BULB

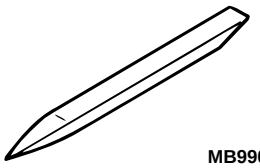
**LICENSE PLATE LIGHT REMOVAL STEPS**

5. LICENSE PLATE LIGHT LENS
6. PACKING
7. LICENSE PLATE LIGHT BODY
8. BULB
- REAR BUMPER (REFER TO GROUP 51, REAR BUMPER ASSEMBLY P.51-5.)
9. SOCKET ASSEMBLY

# HAZARD WARNING LIGHT SWITCH

## SPECIAL TOOL

M1542000600504

| TOOL | TOOL NUMBER AND NAME | SUPERSESSION | APPLICATION |
|---|---|---|---|
|  MB990784 | MB990784 Ornament remover | General service tool | Center panel assembly removal |

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## DIAGNOSIS

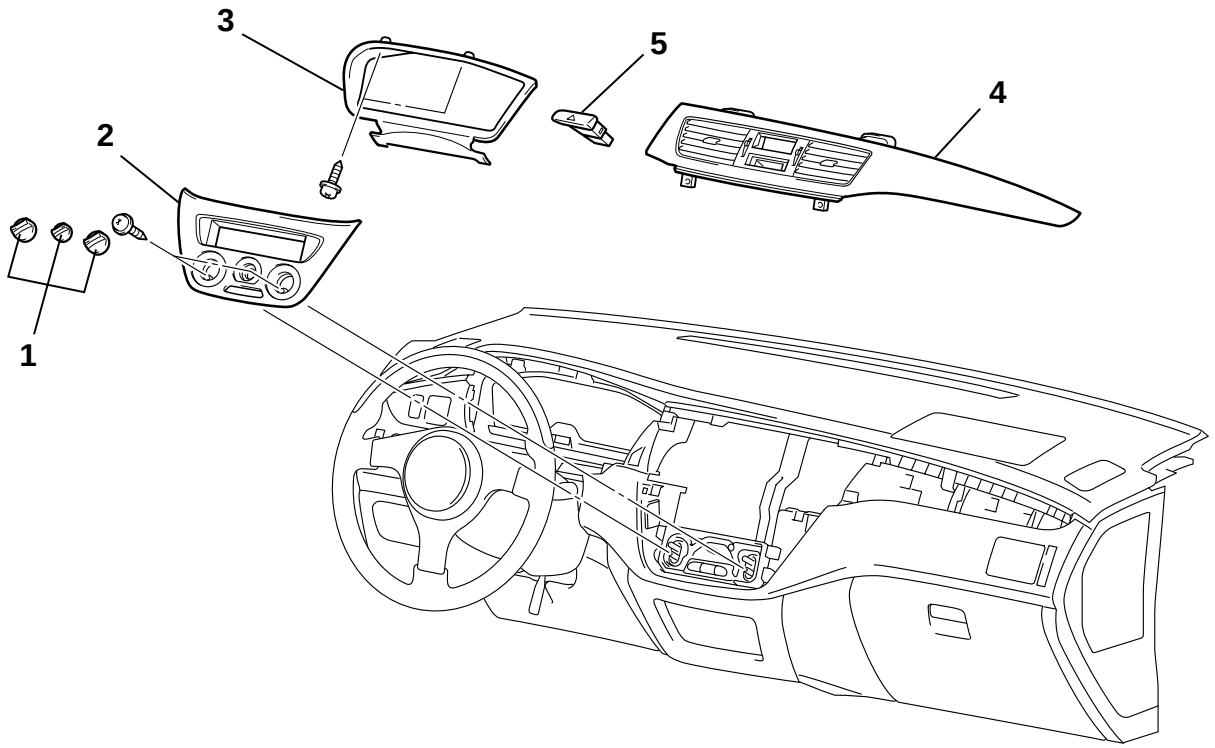
M1542000700954

The hazard warning lights are controlled by the Simplified Wiring System (SWS). For troubleshooting, refer to GROUP 54B, SWS Diagnosis P.54B-6.

## HAZARD WARNING LIGHT SWITCH

### REMOVAL AND INSTALLATION

M1542006600353

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**HAZARD WARNING LIGHT SWITCH REMOVAL STEPS**

1. KNOB ASSEMBLY (REFER TO GROUP 55, HEATER CONTROL ASSEMBLY, A/C SWITCH P.55-76.)
2. CENTER PANEL ASSEMBLY (REFER TO GROUP 52A INSTRUMENT PANEL P.52A-3.)

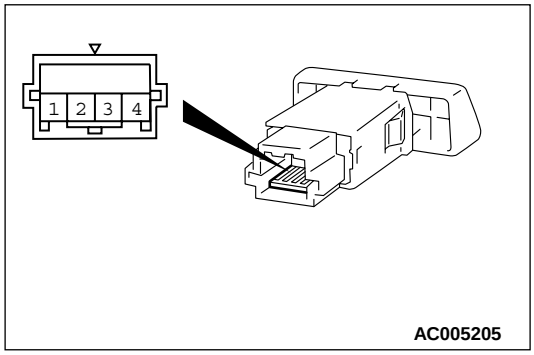
**HAZARD WARNING LIGHT SWITCH REMOVAL STEPS (Continued)**

3. METER BEZEL (REFER TO P.54A-81.)
4. CENTER AIR OUTLET PANEL (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)
5. HAZARD WARNING LIGHT SWITCH

## INSPECTION

M1542011200566

### HAZARD WARNING LIGHT SWITCH CONTINUITY CHECK

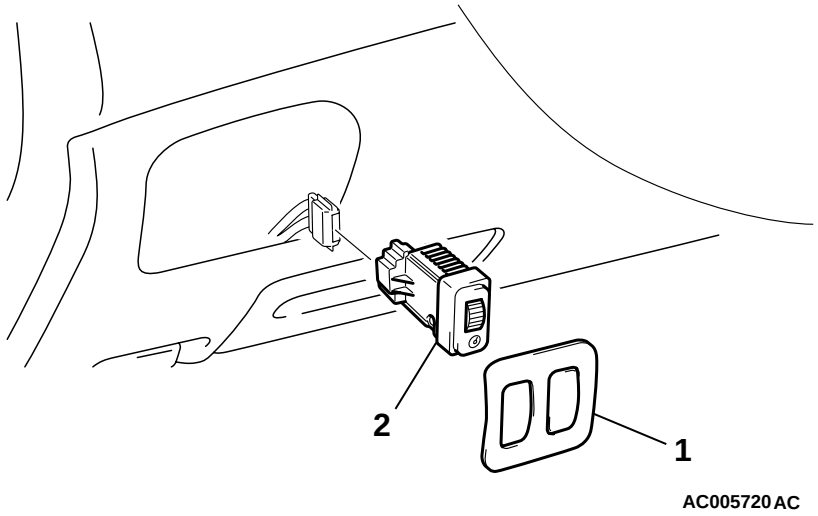



| SWITCH POSITION | TESTER CONNECTION | SPECIFIED CONDITION |
|---|---|---|
| OFF | 1 – 2 | Open Circuit |
| ON | 1 – 2 | Less than 2 ohms |

# RHEOSTAT

## REMOVAL AND INSTALLATION

M1542006000232



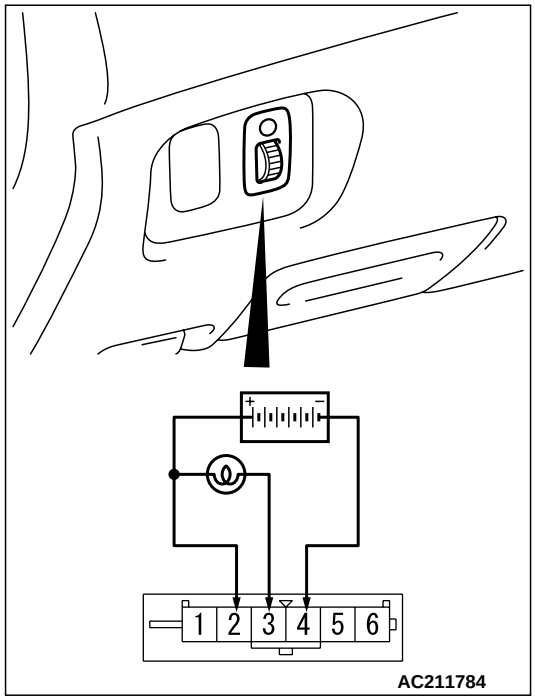

**RHEOSTAT REMOVAL STEPS**

1. SWITCH PANEL
2. RHEOSTAT

## INSPECTION

M1543019501987

### RHEOSTAT CHECK

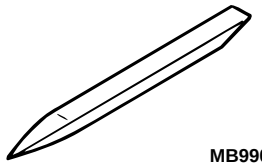



1. Connect a test light (40 W) as shown in the illumination.
2. Operate the rheostat, If the luminance of the lamp changes steadily with no flashing, the rheostat is functioning normally.

# COLUMN SWITCH

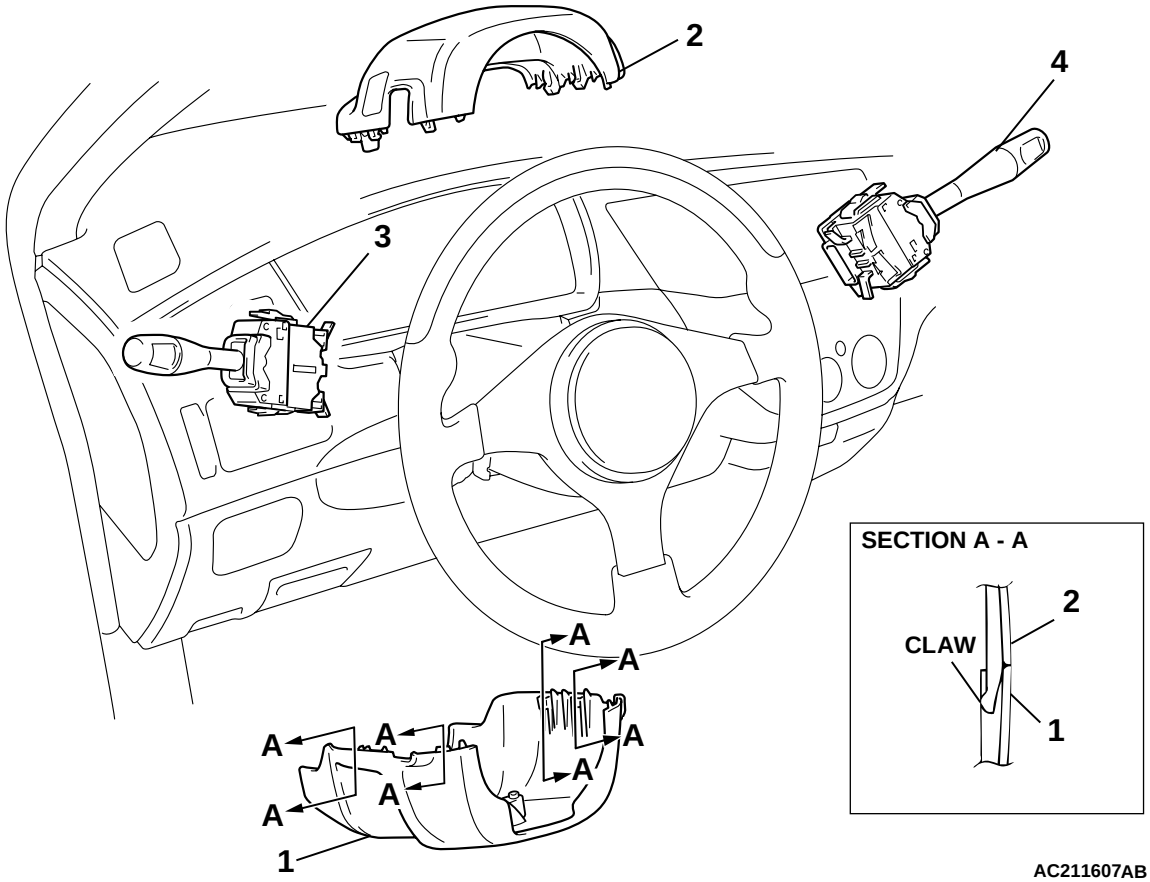
## SPECIAL TOOL

M1542000600515

| TOOL | TOOL NUMBER AND NAME | SUPERSESSION | APPLICATION |
|---|---|---|---|
|  MB990784 | MB990784 Ornament remover | General service tool | Center panel assembly removal |

## REMOVAL AND INSTALLATION

M1543009100316




**REMOVAL STEPS**
1. COLUMN COVER LOWER
2. COLUMN COVER UPPER

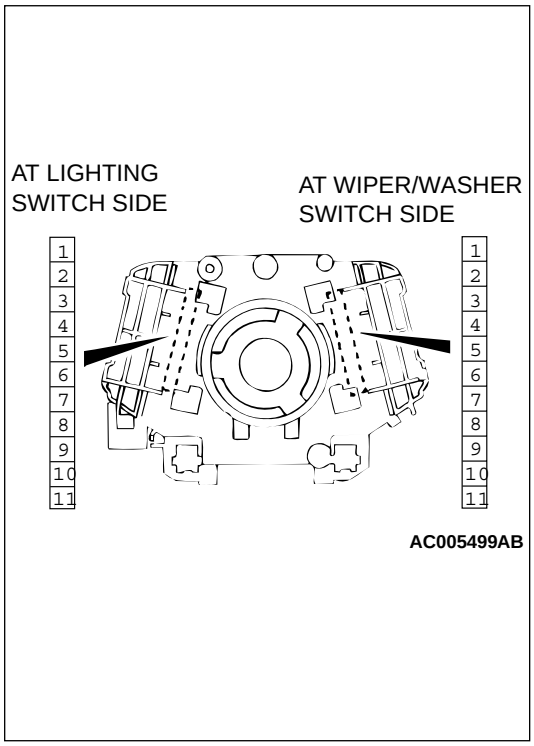
**REMOVAL STEPS (Continued)**
3. TURN-SIGNAL AND LIGHTING SWITCH
4. WINDSHIELD WIPER AND WINDSHIELD WASHER SWITCH

## INSPECTION

M1543019501998

Integrated column ECU does not allow lighting switch continuity test. For inspection, troubleshooting in GROUP 54B should be performed P.54B-22.

## COLUMN SWITCH CONTINUITY CHECK (AT SWITCH BODY)




1. Remove the lighting switch and the wiper/washer switch.
2. Among individual connectors of the column switch body remaining in the steering column, check for continuity between same number terminals (No. 3-11).

| COLUMN SWITCH BODY | TERMINAL NO. | SPECIFIED CONDITION |
|---|---|---|
| Connector at the lighting switch side<br>Connector at the wiper/washer switch side | 3 – 3<br>4 – 4<br>5 – 5<br>6 – 6<br>7 – 7<br>8 – 8<br>9 – 9<br>10 – 10<br>11 – 11 | Less than 2 ohms |

# HORN

## HORN DIAGNOSIS <VEHICLE WITH KEYLESS ENTRY SYSTEM>

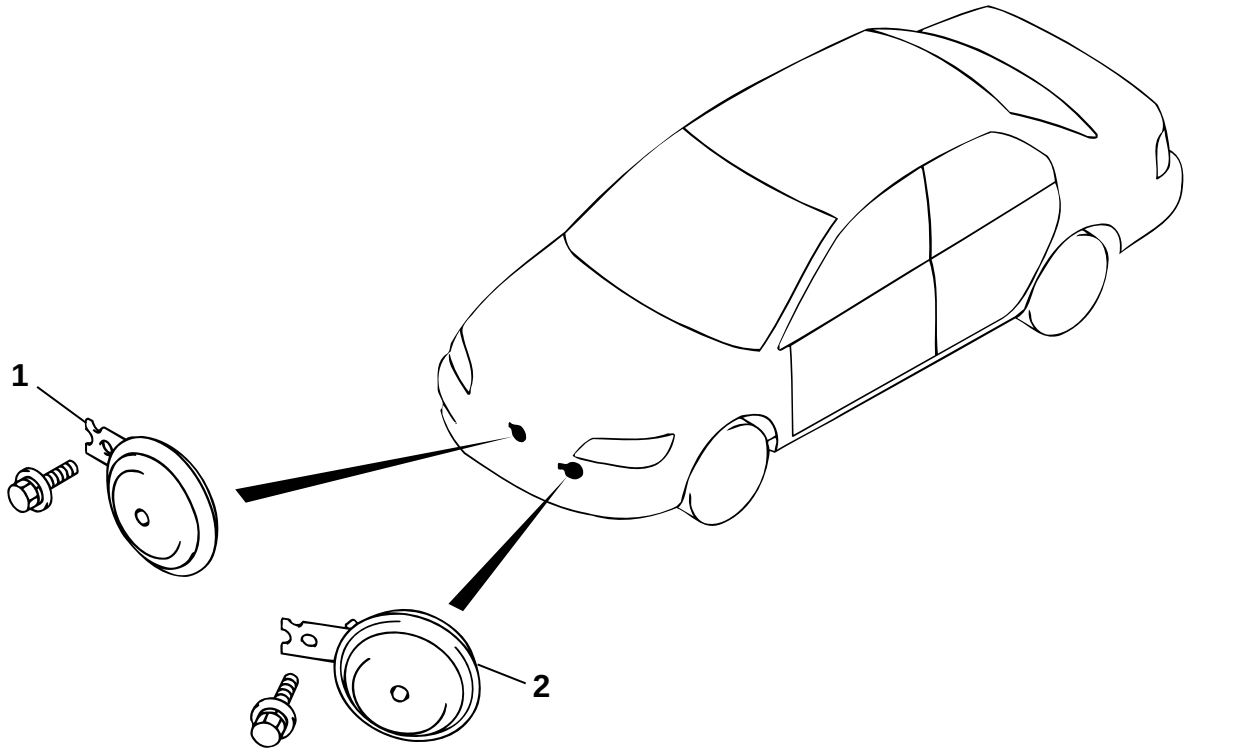
M1543000700764

The keyless entry system horn answerback is controlled by the Simplified Wiring System (SWS). For troubleshooting, refer to GROUP 54B, SWS Diagnosis P.54B-22.

# HORN

## REMOVAL AND INSTALLATION

M1543007900338




AC211783AB

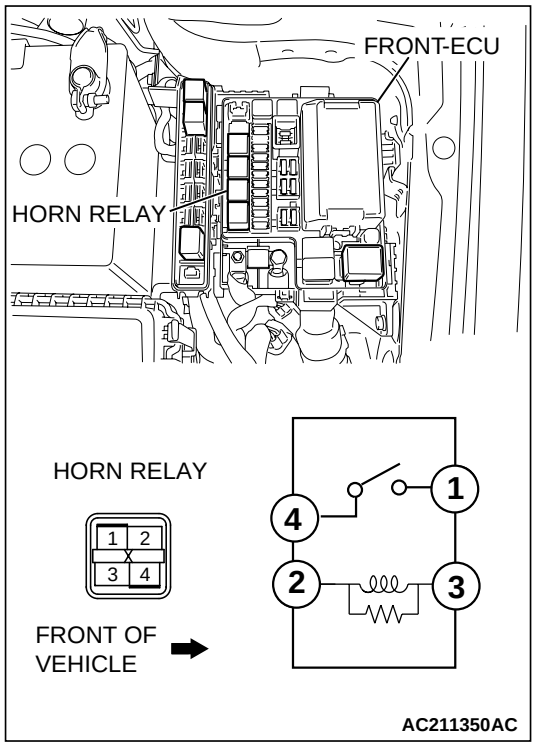
**REMOVAL STEPS**

1. HORN (LOW)
2. HORN (HI)

## INSPECTION

M1543019502009

## HORN RELAY CONTINUITY CHECK

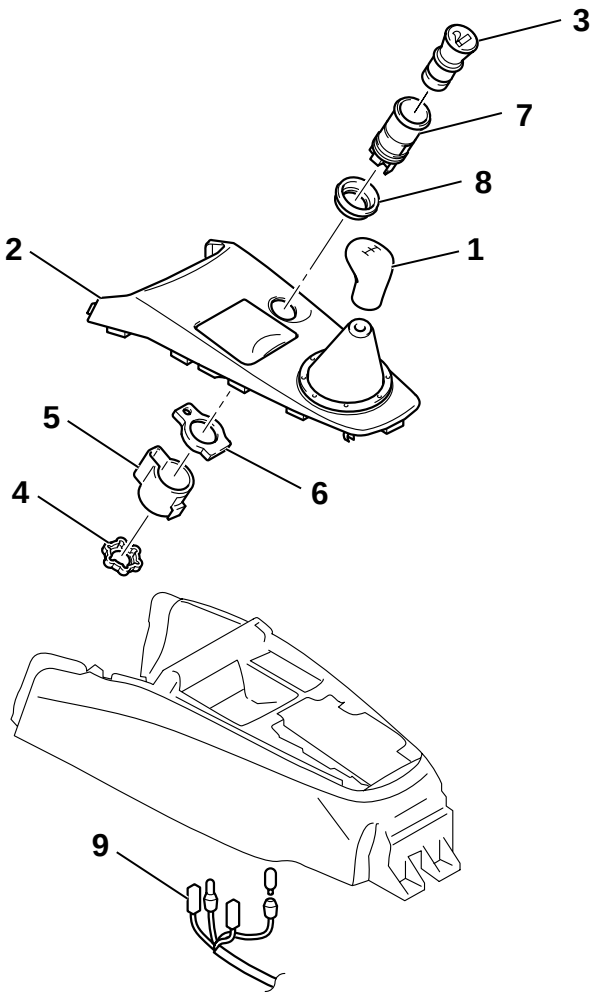



| BATTERY VOLTAGE | TESTER CONNECTION | SPECIFIED CONDITION |
|---|---|---|
| Not applied | 1 – 4 | Open circuit |
| • Connect terminal 2 to the positive battery terminal<br>• Connect terminal 3 to the negative battery terminal | 1 – 4 | Less than 2 ohms |

# CIGARETTE LIGHTER AND ACCESSORY SOCKET

## REMOVAL AND INSTALLATION

M1543013500210




AC211042 AB

**CIGARETTE LIGHTER REMOVAL STEPS**

1. GEARSHIFT LEVER KNOB
2. FRONT FLOOR CONSOLE (REFER TO GROUP52A, FRONT FLOOR CONSOLE P.52A-7.)
3. PLUG

**CIGARETTE LIGHTER REMOVAL STEPS (Continued)**

4. FIXING RING
5. SOCKET CASE
6. SOCKET WASHER
7. SOCKET
8. PROTECTOR
9. HARNESS

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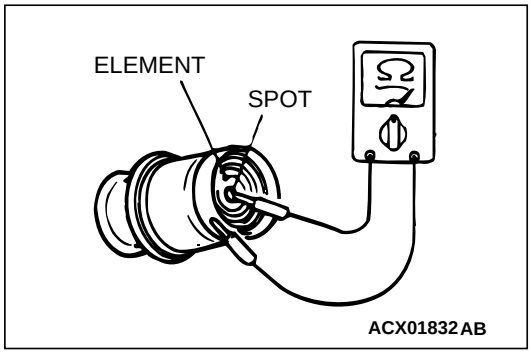
## INSPECTION

M1543019502010

### CIGARETTE LIGHTER CHECK

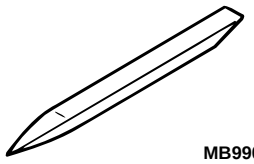



- Take out the plug, and check for a worn edge on the element spot connection, and for shreds of tobacco or other material on the element.
- Using an ohmmeter, check that the element resistance value is 1.7 ohms.

# CLOCK

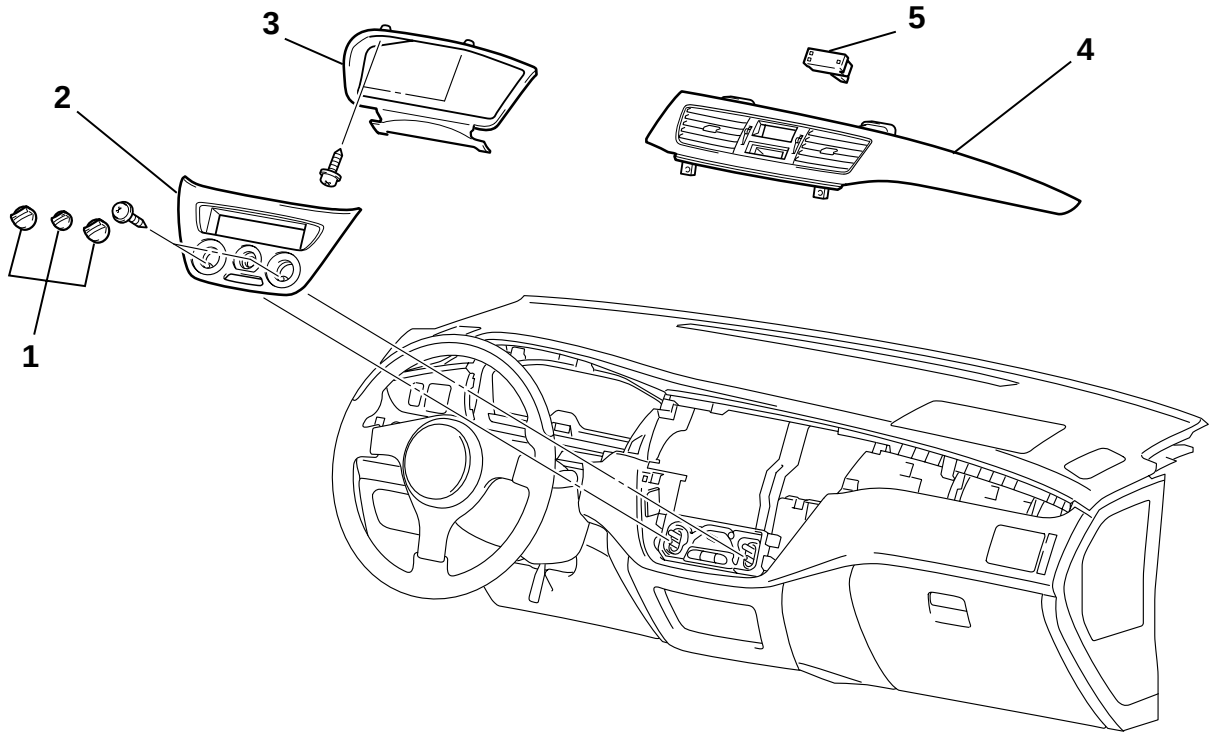
## SPECIAL TOOL

M1542000600526

| TOOL | TOOL NUMBER AND NAME | REPLACED BY MILLER TOOL NUMBER | APPLICATION |
|---|---|---|---|
|  MB990784 | MB990784 Ornament remover | General service tool | Hood panel and center hood removal |

## REMOVAL AND INSTALLATION

M1543005900116

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**CLOCK SWITCH REMOVAL STEPS**

1. KNOB ASSEMBLY (REFER TO GROUP 55, HEATER CONTROL ASSEMBLY, A/C SWITCH P.55-76.)
2. CENTER PANEL ASSEMBLY (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)

**CLOCK SWITCH REMOVAL STEPS**

3. METER BEZEL (REFER TO P.54A-81.)
4. CENTER AIR OUTLET PANEL (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)
5. CLOCK

# RADIO AND TAPE PLAYER

## DIAGNOSIS

### INTRODUCTION

M1543009901092

### INTRODUCTION TO AUDIO SYSTEM DIAGNOSIS

The diagnosis for symptoms such as noise being emitted, no sound being played, or sound coming only out of one side while listening to the audio system or tape is provided.

### TROUBLESHOOTING STRATEGY

M1544004800324

Use these steps to plan your diagnostic strategy. If you follow them carefully, you will be sure that you have exhausted most of the possible ways to find audio system fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find the malfunction by following the Symptom Chart.
4. Verify malfunction is eliminated.

### TROUBLE SYMPTOM CHART

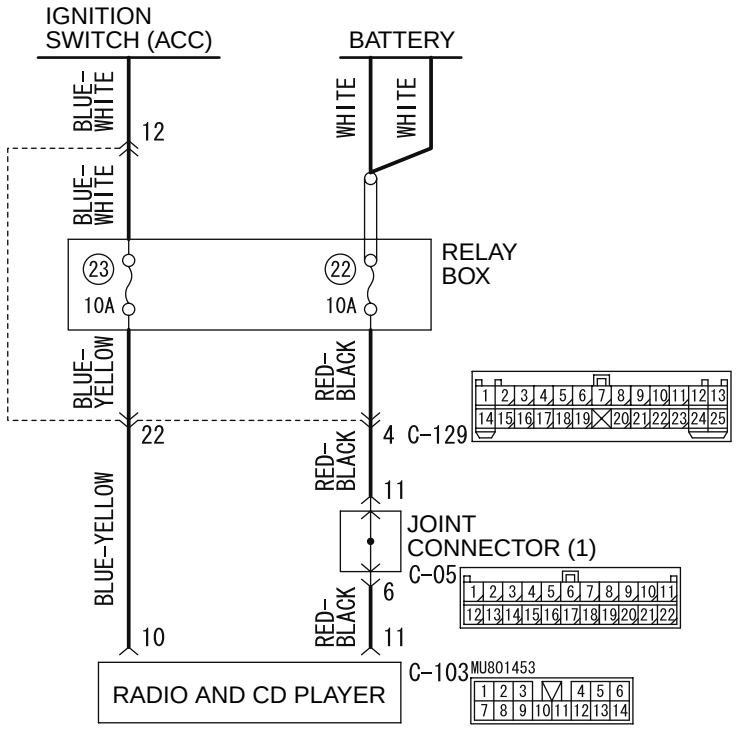
M1544004900343

| SYMPTOMS | INSPECTION PROCEDURE | REFERENCE PAGE |
|---|---|---|
| When power switch is turned "ON," no power is available. | 1 | P.54A-109 |
| No sound from one speaker. | 2 | P.54A-112 |
| CD auto changer does not operate. | 3 | P.54A-127 |

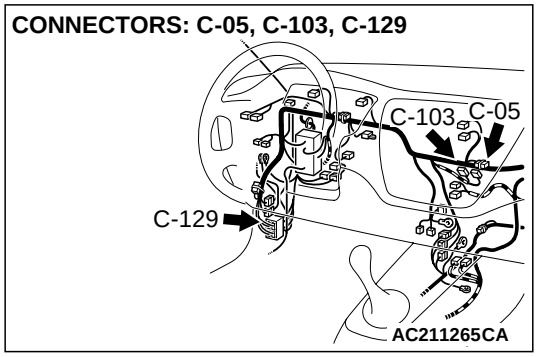
| SYMPTOMS | | INSPECTION PROCEDURE | REFERENCE PAGE |
|---|---|---|---|
| Noise | Noise appears at certain places when traveling (AM). | 4 | P.54A-127 |
| | Noise appears at certain places when traveling (FM). | 5 | P.54A-128 |
| | Mixed with noise, only at night (AM). | 6 | P.54A-129 |
| | Broadcasts can be heard but both AM and FM have a lot of noise. | 7 | P.54A-129 |
| | There is more noise on either AM or FM. | 8 | P.54A-130 |
| | There is noise when starting the engine. | 9 | P.54A-131 |
| | Some noise appears when there is vibration or shocks during traveling. | 10 | P.54A-132 |
| | Noise sometimes appears on FM during traveling. | 11 | P.54A-133 |
| | Ever-present noise. | 12 | P.54A-134 |
| Radio | There is noise but no reception for both AM and FM or no sound from AM, or no sound from FM. | 13 | P.54A-134 |
| | Poor reception. | 14 | P.54A-135 |
| | Distortion on AM or on both AM and FM. | 15 | P.54A-136 |
| | Distortion on FM only. | 16 | P.54A-136 |
| | Using the auto select function, too few automatic stations are selected. | 17 | P.54A-137 |
| | Preset stations are erased. | 18 | P.54A-138 |
| CD player | CD can not be inserted. | 19 | P.54A-140 |
| | No sound (CD only). | 20 | P.54A-141 |
| | CD sound skips. | 21 | P.54A-141 |
| | Sound quality is poor. | 22 | P.54A-142 |
| | CD cannot be ejected. | 23 | P.54A-142 |

# SYMPTOM PROCEDURES

## INSPECTION PROCEDURE 1: When Power Switch is Turned "ON," No Power is Available.




W3J16M08AA




### CIRCUIT OPERATION

Power is supplied to the radio and CD player when the ignition switch is in the "ACC" position or "ON" position. When the ignition is switched on, the radio and CD player will return to the previous state when the ignition was switch off at the last time.

### TECHNICAL DESCRIPTION (COMMENT)

The cause is probably a faulty radio and CD player power supply circuit system circuit.

### TROUBLESHOOTING HINTS

- Damaged wiring harness or connector.
- Malfunction of the radio and CD player.

## DIAGNOSIS

**Required Special Tool:**
- MB991223: Harness set

**STEP 1. Check to see that the radio and CD player is energized when the power switch is turned ON.**

(1) Turn the ignition switch to "ACC" position.
(2) Turn ON the radio and CD player power switch.

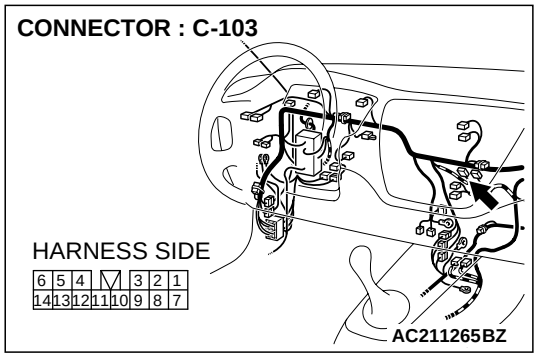
**Q: Is the radio and CD player energized when the power switch is turned ON?**

**YES :** Go to Step 2.
**NO :** Go to Step 5.

**STEP 2. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is radio and CD player connector C-103 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. If the power switch is turned on, the radio and CD player should operate normally.

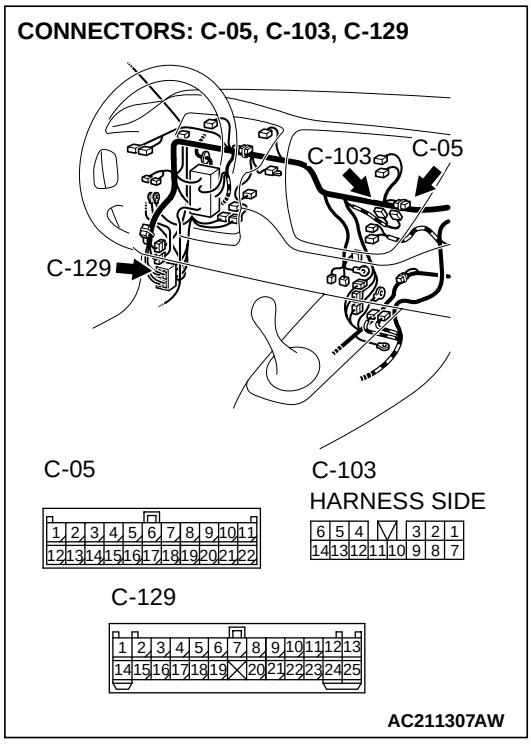



**STEP 3. Check the wiring harness between radio and CD player connector C-103 (terminal 11) and the battery.**

*NOTE: Also check intermediate connector C-129 and joint connector C-05 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 or joint connector C-05 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between radio and CD player connector C-103 (terminal 11) and battery in good condition?**

**YES :** Go to Step 4.
**NO :** Repair the wiring harness. If the power switch is turned on, the radio and CD player should operate normally.



**STEP 4. Check the installation condition of the radio and CD player.**

*NOTE: The radio and CD player are grounded to the instrument panel center reinforcement directly.*

**Q: Are the radio and CD player installed correctly?**

**YES :** Repair or replace the radio and CD player. If the power switch is turned on, the radio and CD player should operate normally.

**NO :** Install the radio and CD player properly. If the power switch is turned on, the radio and CD player should operate normally.

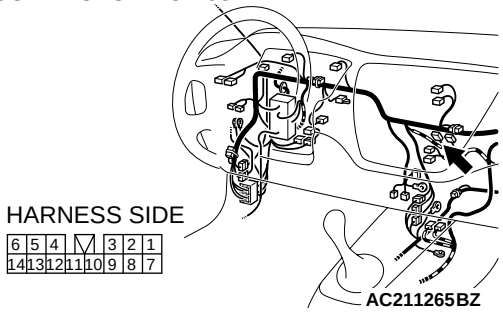
**STEP 5. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is radio and CD player connector C-103 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. If the power switch is turned on, the radio and CD player should operate normally.

**CONNECTOR : C-103**




**STEP 6. Check the wiring harness between radio and CD player connector C-103 (terminal 10) and ignition switch (ACC).**

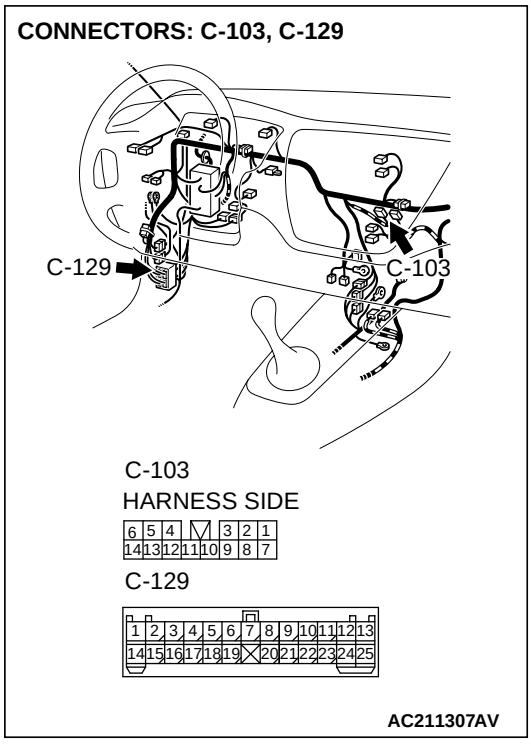
*NOTE: Also check intermediate connector C-129 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between radio and CD player connector C-103 (terminal 10) and ignition switch (ACC) in good condition?**

**YES :** Go to Step 7.

**NO :** Repair the wiring harness. If the power switch is turned on, the radio and CD player should operate normally.

**CONNECTORS: C-103, C-129**



**STEP 7. Check the installation condition of the radio and CD player.**

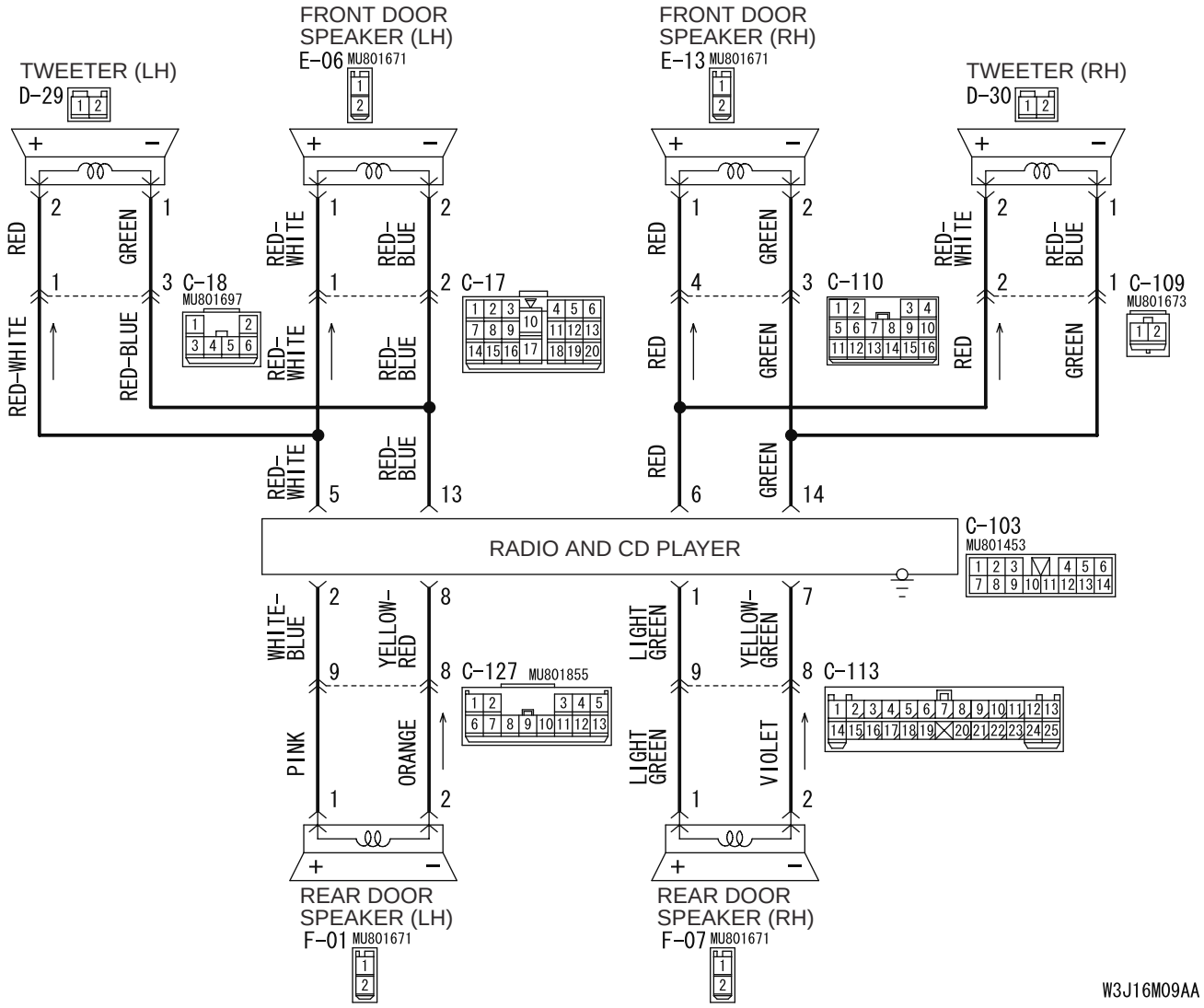
*NOTE: The radio and CD player are grounded to the instrument panel center reinforcement directly.*

**Q: Are the radio and CD player installed correctly?**

**YES :** Repair or replace the radio and CD player. If the power switch is turned on, the radio and CD player should operate normally.

**NO :** Install the radio and CD player properly. If the power switch is turned on, the radio and CD player should operate normally.

## INSPECTION PROCEDURE 2: No sound From One Speaker.

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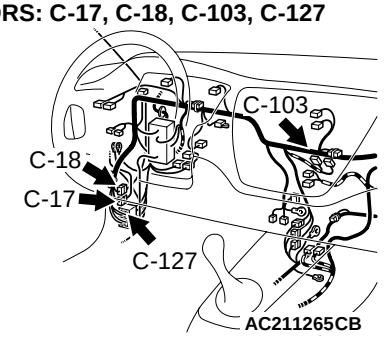
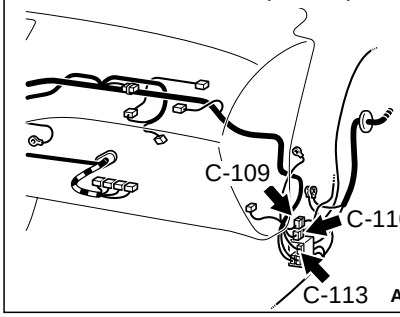
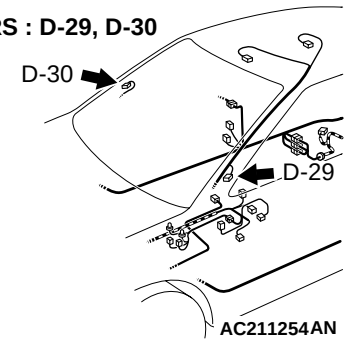
**CONNECTORS: C-17, C-18, C-103, C-127**



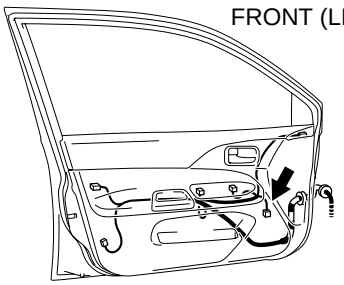

**CONNECTORS: C-109, C-110, C-113**



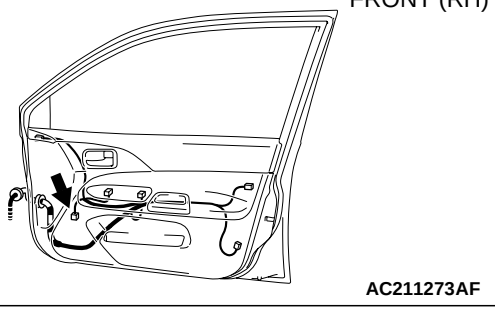

**CONNECTORS : D-29, D-30**



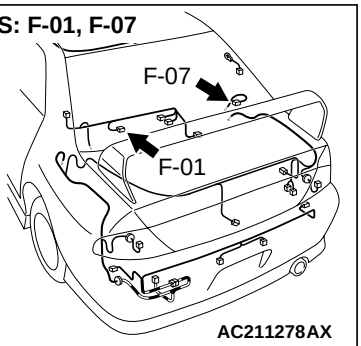

**CONNECTOR: E-06**




**CONNECTOR: E-13**




**CONNECTORS: F-01, F-07**




## CIRCUIT OPERATION

- The sound is heard from the speaker according to audio signal output from the radio and CD player.

## TROUBLESHOOTING HINTS

- Malfunction of the speaker.

## TECHNICAL DESCRIPTION (COMMENT)

The cause is probably a faulty speaker circuit system.

- Damaged harness wire or connector.
- Malfunction of the radio and CD player.

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## DIAGNOSIS

**STEP 1. Check which speaker has no sound.**

(1) Use the speaker test to determine which speaker does not sound.

**Q: Which speaker has no sound?**

**The front door speaker (LH) and the tweeter (LH) do not sound. :** Go to Step 2.

**The front door speaker (RH) and the tweeter (RH) do not sound. :** Go to Step 4.

**Only the front door speaker (LH) does not sound. :** Go to Step 6.

**Only the front door speaker (RH) does not sound. :** Go to Step 10.

**Only the rear door speaker (LH) does not sound. :** Go to Step 14.

**Only the rear door speaker (RH) does not sound. :** Go to Step 18.

**The tweeter (LH) does not sound. :** Go to Step 22.

**The tweeter (RH) does not sound. :** Go to Step 26.

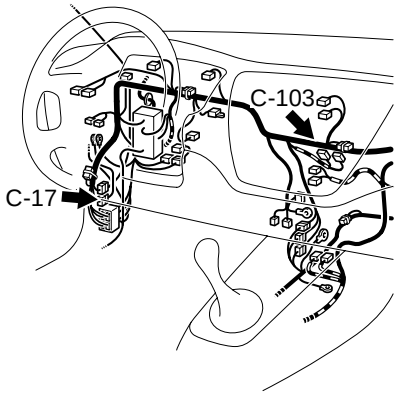
**STEP 2. Check radio and CD player connector C-103 and intermediate connector C-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Are radio and CD player connector C-103 and intermediate connector C-17 in good condition?**

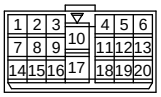
**YES :** Go to Step 3.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The door speaker (LH) should sounds.

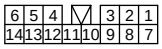
**CONNECTORS: C-17, C-103**




C-17

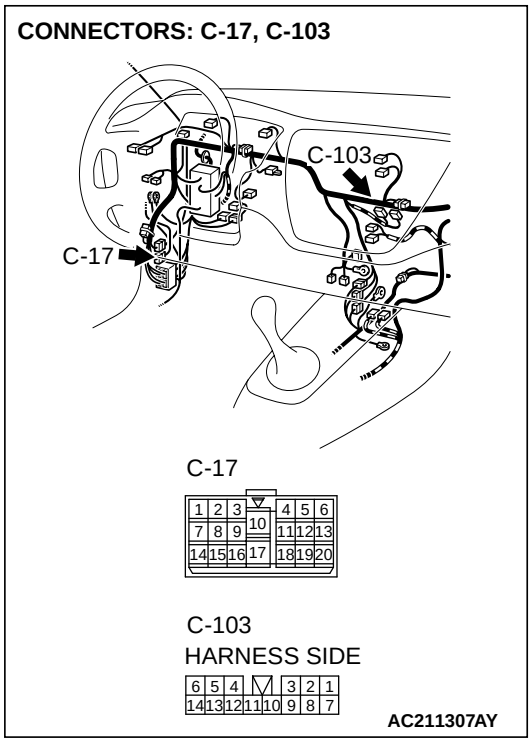



C-103
HARNESS SIDE




AC211307AY

**CONNECTORS: C-17, C-103**



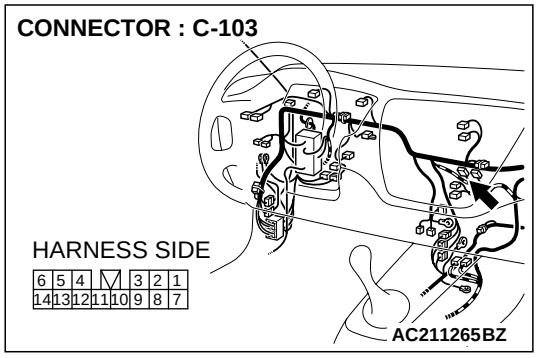

**STEP 3. Check the wiring harness between intermediate connector C-17 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 5 and 13).**

**Q: Is the wiring harness between intermediate connector C-17 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 5 and 13) in good condition?**

**YES :** Repair or replace the radio and CD player. The front door speaker (LH) and tweeter (LH) should sound.

**NO :** Repair the wiring harness. The front door speaker (LH) and tweeter (LH) should sounds.

**CONNECTOR : C-103**



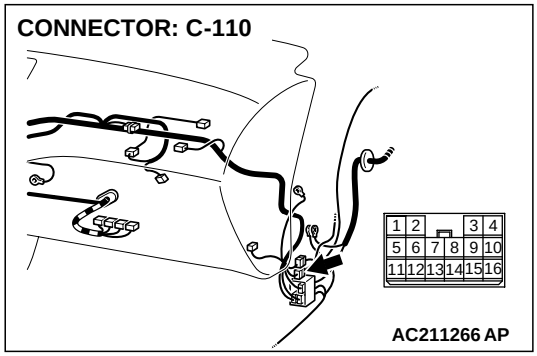

**STEP 4. Check radio and CD player connector C-103 and intermediate connector C-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

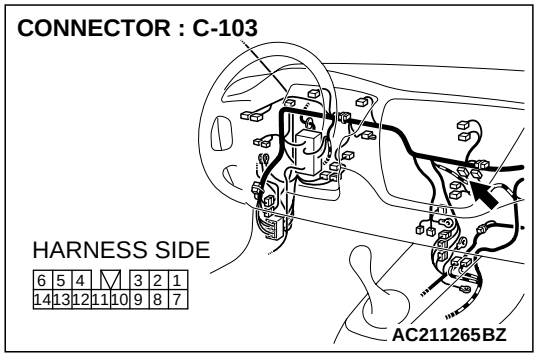
**Q: Is radio and CD player connector C-103 and intermediate connector C-110 in good condition?**

**YES :** Go to Step 5.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The front door speaker (RH) and tweeter (RH) should sounds.

**CONNECTOR: C-110**



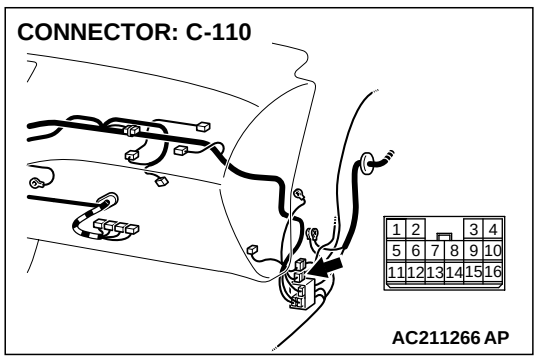



**STEP 5. Check the wiring harness between and intermediate connector C-110 (terminals 3 and 4) and radio and CD player connector C-103 (terminals 14 and 6).**

**Q: Is the wiring harness between and intermediate connector C-110 (terminals 3 and 4) and radio and CD player connector C-103 (terminals 14 and 6) in good condition?**

**YES :** Repair or replace the radio and CD player. The front door speaker (RH) and tweeter (RH) should sounds.

**NO :** Repair the wiring harness. The front door speaker (RH) and tweeter (RH) should sounds.

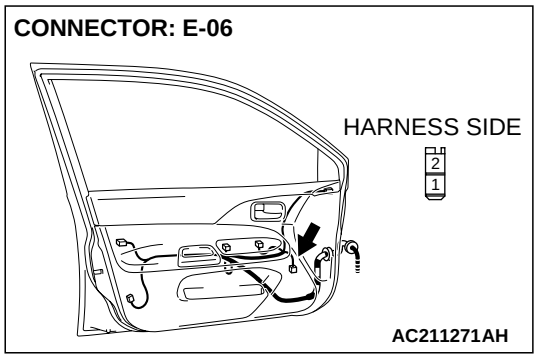



**STEP 6. Check front door speaker (LH) connector E-06 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is front door speaker (LH) connector E-06 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. The door speaker (LH) should sound.




**STEP 7. Check the front door speaker (LH).**

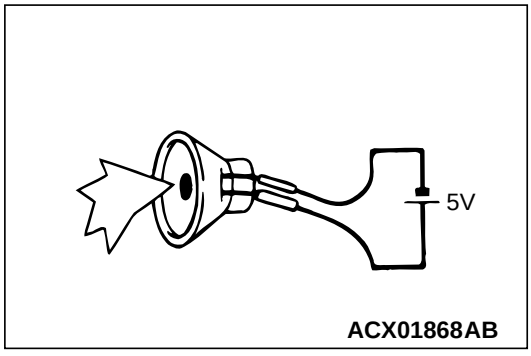
(1) Remove the front door speaker (LH). Refer to P.54A-147.

(2) Check that the front door speaker (LH) generates noise when a five-volt voltage is applied on the front door speaker (LH) terminal.

**Q: Is the front door speaker (LH) generating noise?**

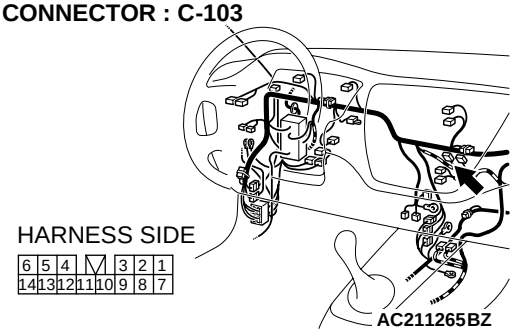
**YES :** Go to Step 8.

**NO :** Replace the front door speaker (LH). The front door speaker (LH) should sound.




**TSB Revision**

**CONNECTOR : C-103**



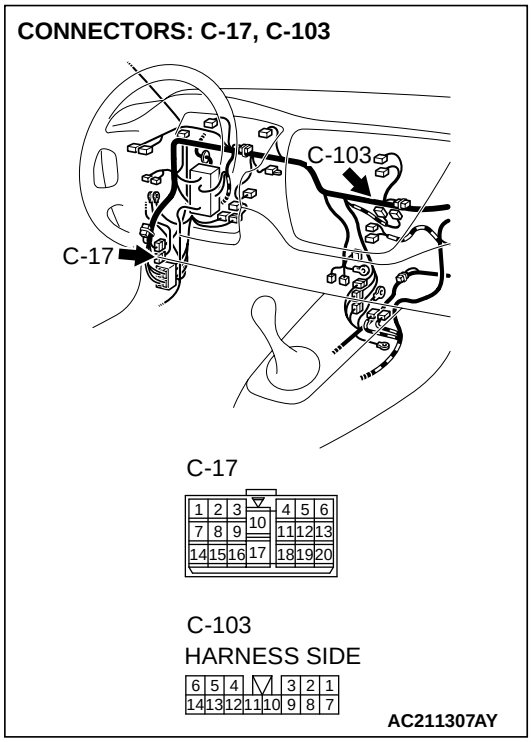

**STEP 8. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is radio and CD player connector C-103 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. The door speaker (LH) should sound.

**CONNECTORS: C-17, C-103**




**STEP 9. Check the wiring harness between front door speaker (LH) connector E-06 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 5 and 13).**

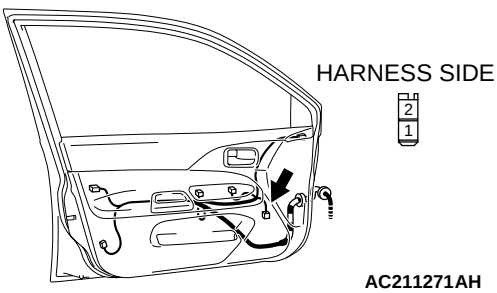
*NOTE: Also check intermediate connector C-17 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-17 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

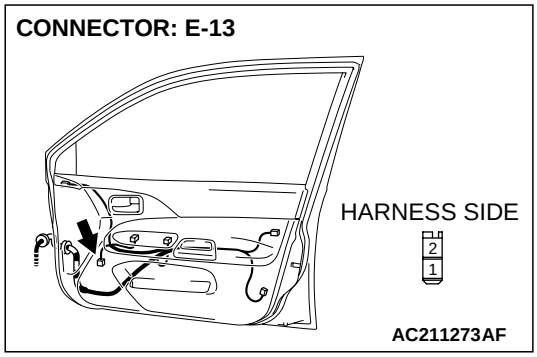
**Q: Is the wiring harness between front door speaker (LH) connector E-06 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 5 and 13) in good condition?**

**YES :** Repair or replace the radio and CD player. The front door speaker (LH) should sound.

**NO :** Repair the wiring harness. The front door speaker (LH) should sound.

**CONNECTOR: E-06**



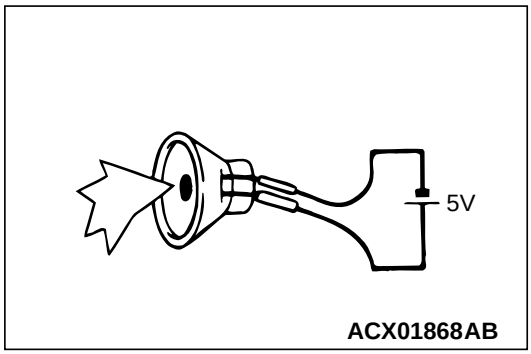



**STEP 10. Check front door speaker (RH) connector E-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is front door speaker (RH) connector E-13 in good condition?**

**YES :** Go to Step 11.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The door speaker (LH) should sound.




**STEP 11. Check the front door speaker (RH).**

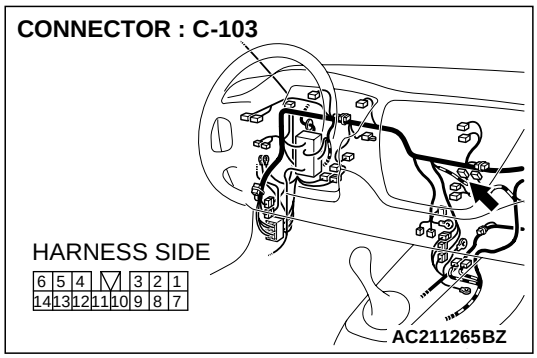
(1) Remove the front door speaker (RH). Refer to P.54A-147.

(2) Check that the front door speaker (RH) generates noise when a five-volt voltage is applied on the front door speaker (RH) terminal.

**Q: Is the front door speaker (RH) generating noise?**

**YES :** Go to Step 12.

**NO :** Replace the front door speaker (RH). The front door speaker (RH) should sound.



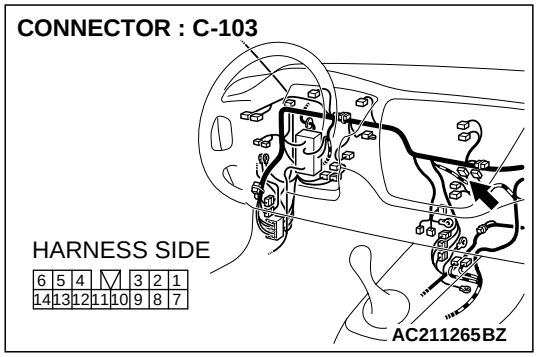

**STEP 12. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

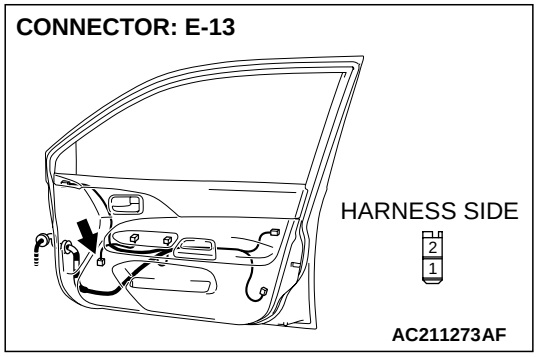
**Q: Is radio and CD player connector C-103 in good condition?**

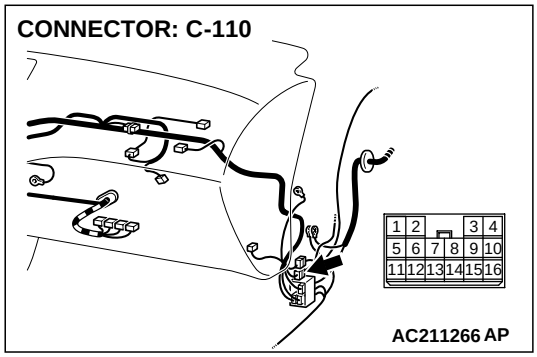
**YES :** Go to Step 13.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The door speaker (LH) should sound.

**STEP 13. Check the wiring harness between front door speaker (RH) connector E-13 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 6 and 14).**




*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 front door speaker (RH) connector E-13 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 6 and 14) in good condition?**

**YES :** Repair or replace the radio and CD player. The front door speaker (RH) should sound.

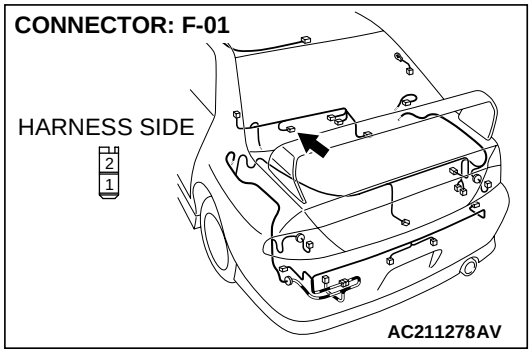
**NO :** Repair the wiring harness. The front door speaker (RH) should sound.

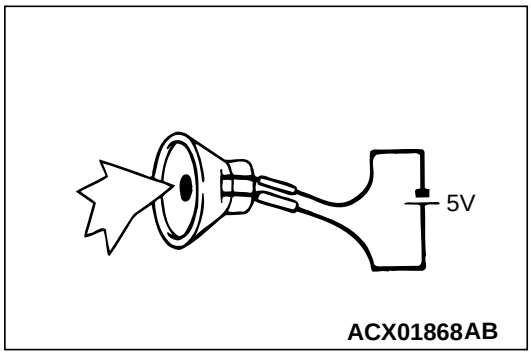
**STEP 14. Check rear door speaker (LH) connector F-01 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is rear door speaker (LH) connector F-01 in good condition?**

**YES :** Go to Step 15.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear door speaker (LH) should sound.



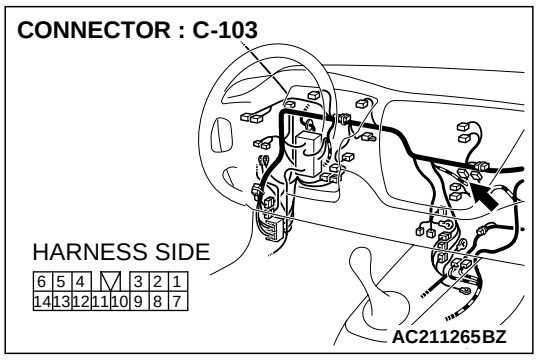



**STEP 15. Check the rear door speaker (LH).**

(1) Remove the rear door speaker (LH). Refer to P.54A-147.
(2) Check that the rear door speaker (LH) generates noise when a five-volt voltage is applied on the rear door speaker (LH) terminal.

**Q: Is the rear door speaker (LH) generating noise?**

**YES :** Go to Step 16.
**NO :** Replace the rear door speaker (LH). The rear door speaker (LH) should sound.

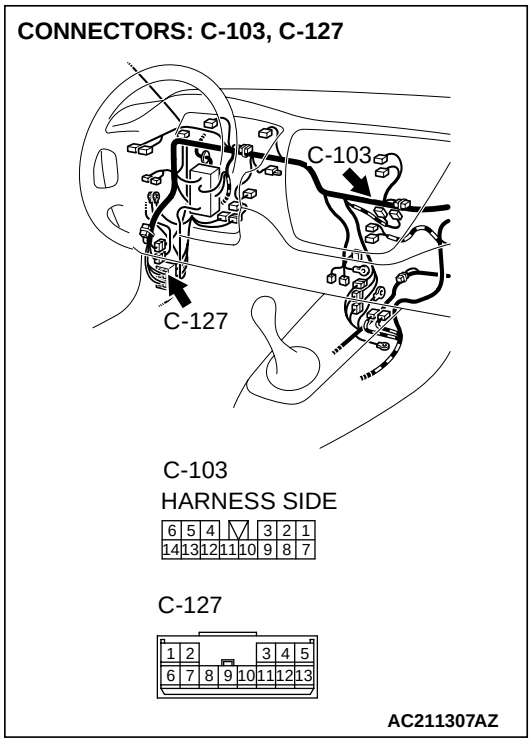



**STEP 16. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is radio and CD player connector C-103 in good condition?**

**YES :** Go to Step 17.
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear door speaker (LH) should sound.

**CONNECTORS: C-103, C-127**




**STEP 17. Check the wiring harness between rear door speaker (LH) connector F-01 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 2 and 8).**

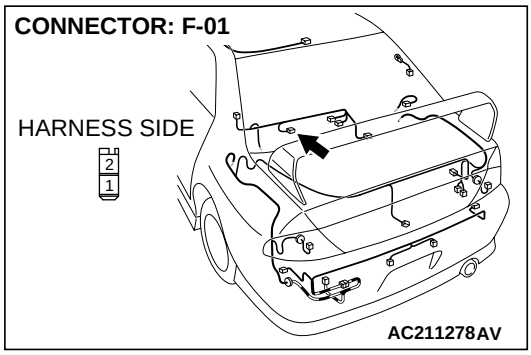
*NOTE: Also check intermediate connector C-127 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-127 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between the rear door speaker (LH) connector F-01 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 2 and 8) in good condition?**

**YES :** Repair or replace the radio and CD player. The rear door speaker (LH) should sound.

**NO :** Repair the wiring harness. The rear door speaker (LH) should sound.

**CONNECTOR: F-01**



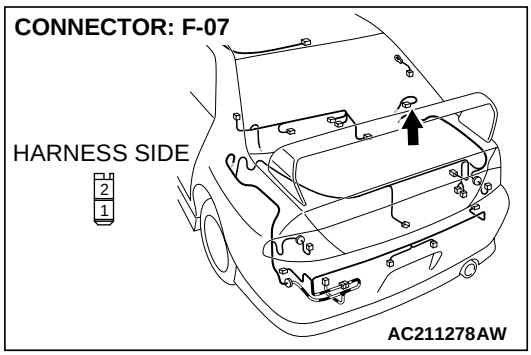

**STEP 18. Check rear door speaker (RH) connector F-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

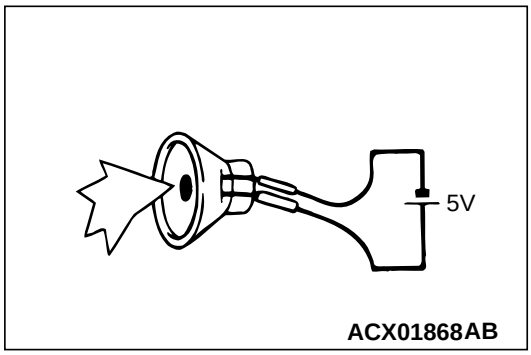
**Q: Is rear door speaker (RH) connector F-07 in good condition?**

**YES :** Go to Step 19.

**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear door speaker (LH) should sound.

**CONNECTOR: F-07**



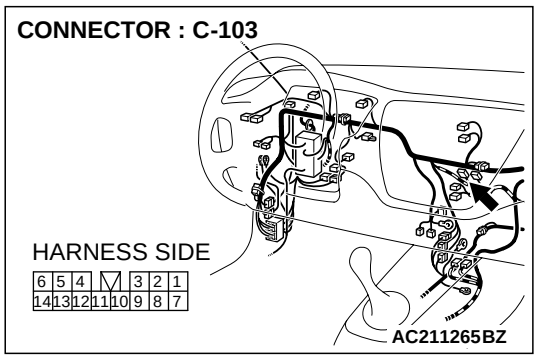



**STEP 19. Check the rear door speaker (RH).**

(1) Remove the rear door speaker (RH). Refer to P.54A-147.
(2) Check that the rear door speaker (RH) generates noise when a five-volt voltage is applied on the rear door speaker (RH) terminal.

**Q: Is the rear door speaker (RH) generating noise?**

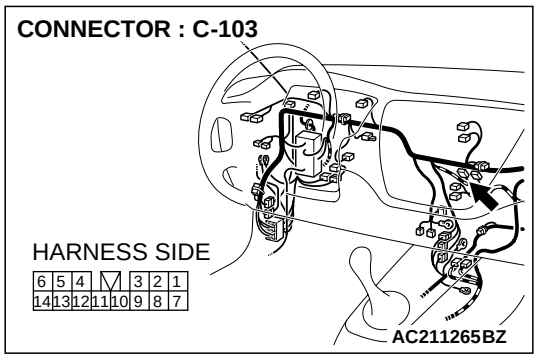
**YES :** Go to Step 20.
**NO :** Replace the rear door speaker (RH). The rear door speaker (RH) should sound.



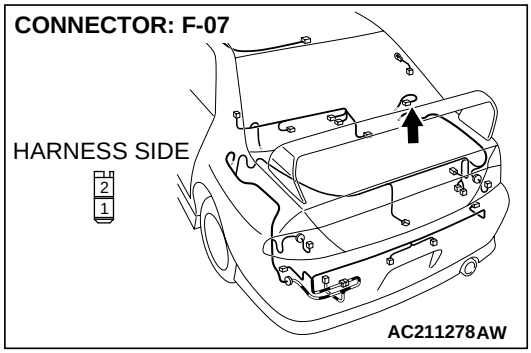

**STEP 20. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is radio and CD player connector C-103 in good condition?**

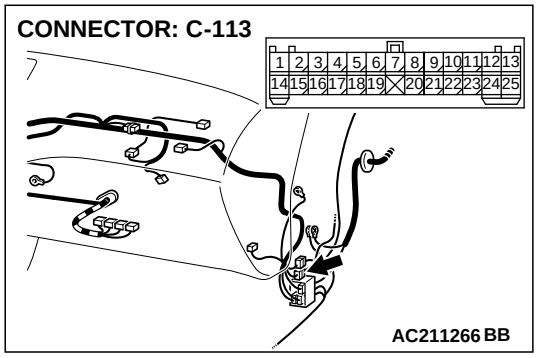
**YES :** Go to Step 21.
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear door speaker (LH) should sound.




**STEP 21. Check the wiring harness between rear door speaker (RH) connector F-07 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 1 and 7).**




**TSB Revision**



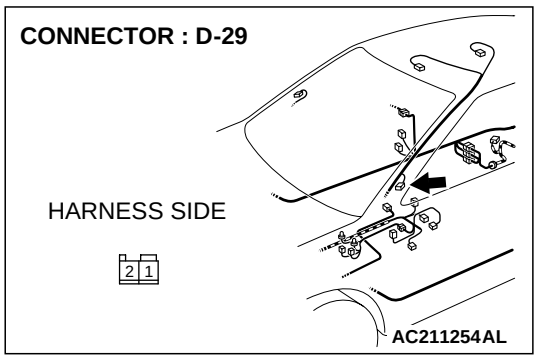

*NOTE: Also check intermediate connector C-113 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-113 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between rear door speaker (RH) connector F-07 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 1 and 7) in good condition?**

**YES :** Repair or replace the radio and CD player. The rear door speaker (RH) should sound.

**NO :** Repair the wiring harness. The rear door speaker (RH) should sound.

**STEP 22. Check tweeter (LH) connector D-29 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**




**Q: Is tweeter (LH) connector D-29 in good condition?**

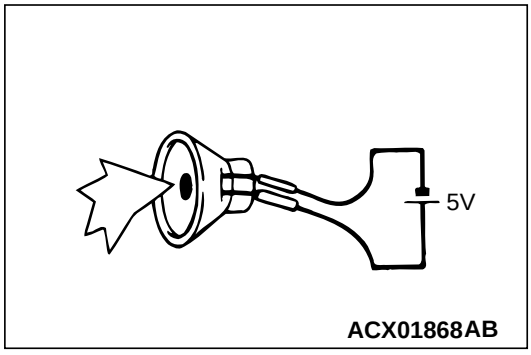
**YES :** Go to Step 23.

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

**STEP 23. Check the tweeter (LH).**

(1) Remove the tweeter (LH). Refer to P.54A-147.

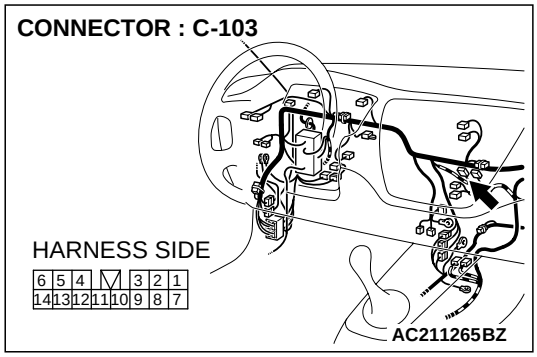
(2) Check that the tweeter (LH) generates noise when a five-volt voltage is applied on the tweeter (LH) terminal.




**Q: Is the tweeter (LH) generating noise?**

**YES :** Go to Step 24.

**NO :** Replace the tweeter (LH). The tweeter (LH) should sound.

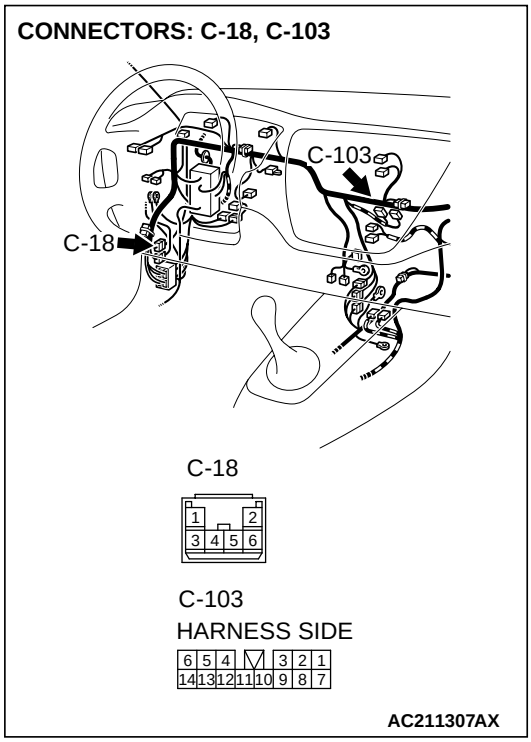



**STEP 24. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is radio and CD player connector C-103 in good condition?**

**YES :** Go to Step 25

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



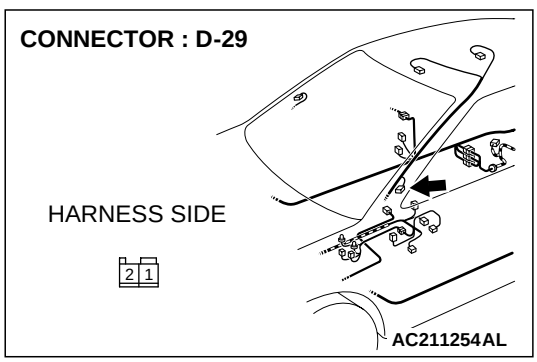

**STEP 25. Check the wiring harness between tweeter (LH) connector D-29 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 13 and 5).**

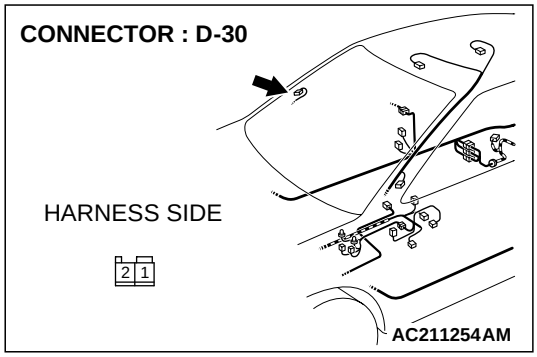
*NOTE: Also check intermediate connector C-18 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-18 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between the tweeter (LH) connector D-29 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 13 and 5) in good condition?**

**YES :** Repair or replace the radio and CD player. The tweeter (LH) should sound.

**NO :** Repair the wiring harness. The tweeter (LH) should sound.



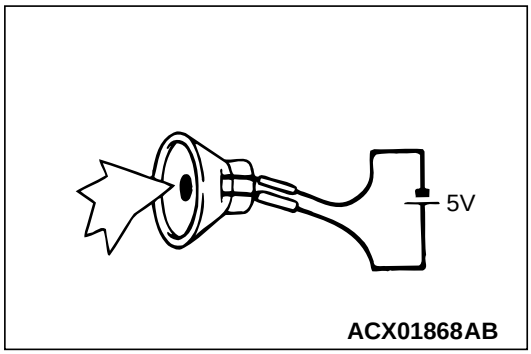



**STEP 26. Check tweeter (RH) connector D-30 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is tweeter (RH) connector D-30 in good condition?**

**YES :** Go to Step 27.

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




**STEP 27. Check the tweeter (RH).**

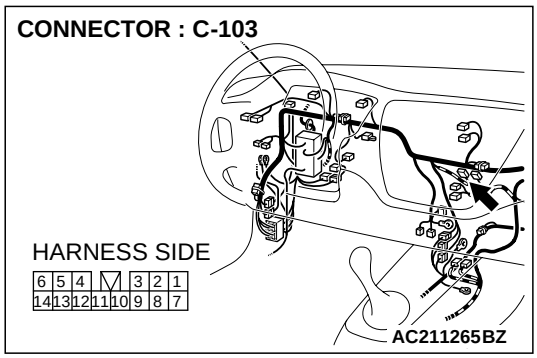
(1) Remove the tweeter (RH). Refer to P.54A-147.

(2) Check that the tweeter (RH) generates noise when a five-volt voltage is applied on the tweeter (RH) terminal.

**Q: Is the tweeter (RH) generating noise?**

**YES :** Go to Step 28.

**NO :** Replace the tweeter (RH). The tweeter (RH) should sound.



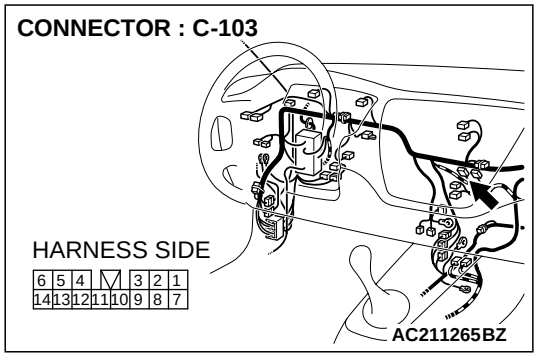

**STEP 28. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

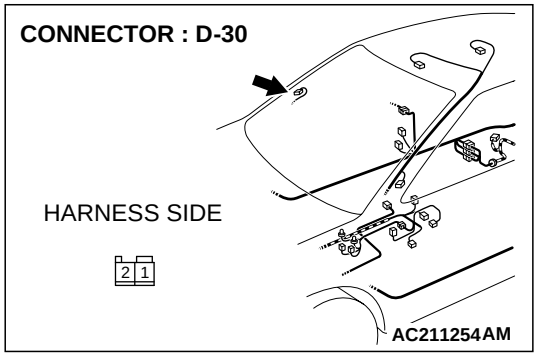
**Q: Is radio and CD player connector C-103 in good condition?**

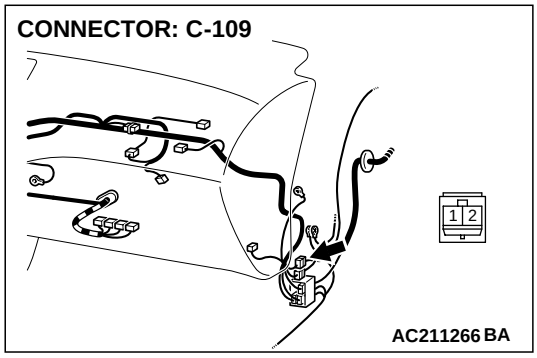
**YES :** Go to Step 29.

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

**STEP 29. Check the wiring harness between tweeter (RH) connector D-30 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 14 and 6).**




*NOTE: Also check intermediate connector C-109 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-109 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Is the wiring harness between tweeter (RH) connector D-30 (terminals 1 and 2) and radio and CD player connector C-103 (terminals 14 and 6) in good condition?**

**YES :** Repair or replace the radio and CD player. The tweeter (RH) should sound.

**NO :** Repair the wiring harness. The tweeter (RH) should sound.

**INSPECTION PROCEURE 3: CD Auto Changer does Not Operate.**

**TECHNICAL DESCRIPTION (COMMENT)**
The CD auto changer is connected via only the DIN cable to the radio and CD player. Therefore, if the DIN cable is defective, the audio system does not operate normally.

**TROUBLESHOOTING HINTS**
- Damaged DIN cable.
- Malfunction of the CD auto changer.
- Malfunction of the radio and CD player.

## DIAGNOSIS

If the DIN cable between CD auto changer and radio and CD player is damaged, repair or replace it. The CD auto changer should operate normally.
If the DIN cable is in good condition, repair or replace the CD auto changer or radio and CD player. The CD auto changer should operate normally.

**INSPECTION PROCEDURE 4: Noise Appears at Certain Places When Traveling (AM).**

## DIAGNOSIS

**STEP 1. Check the noise occur when entering or near a particular structure (building, tunnel, mountain, etc.)**

**Q: Dose the noise occur when entering or near a particular structure (building, tunnel, mountain, etc.)?**
**YES :** Go to Step 3.
**NO :** Go to Step 2.

**STEP 2. After taking the following measures to prevent the noise, check that no noise appears.**
(1) Change to a different station with a stronger wave to boost resistance to interference.
(2) Suppress high tones to reduce noise.
(3) Extend antenna completely.

**Q: Do the following measures eliminate the noise?**
**YES :** The following causes can be considered.
**NO :** Go to Step 4.

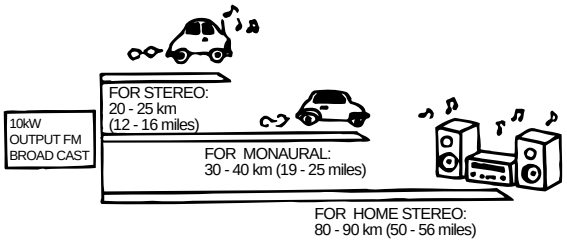
**STEP 3. Ask the owner about the state of the noise.**
(1) Find out the following information from the owner.
(2) Place where the noise occurs.
(3) Locality conditions (valley, mountain, etc.)
(4) Name and frequency of stations affected by noise

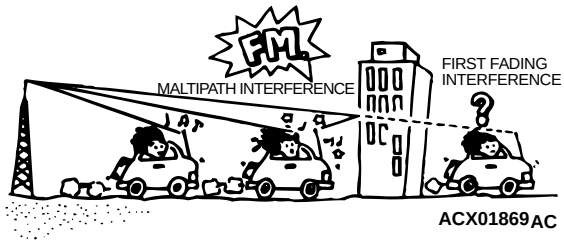
**Q: Which is the noise, vehicle noise or external noise?**
**Vehicle noise :** It may not be possible to prevent noise if the signal is weak.
**External noise :** In almost all cases, prevention on the receiver side is impossible. Weak signals especially are susceptible to interference. Go to Step 4.

**STEP 4. Check that there is no noise.**

**Q: Does noise still exist?**
**YES :** If there is more noise than on radios in other vehicles, find out the noise condition and the name and frequency of the receiving stations from the owner, and consult with the radio manufacturer's service center.
**NO :** Normal.

**INSPECTION PROCEDURE 5: Noise Appears at Certain Places When Traveling (FM).**




## DIAGNOSIS

*NOTE: About FM waves: FM waves have the same properties as light, and can be deflected and blocked. Wave reception is not possible in the shadow of obstructions such as buildings or mountains.*

1. The signal becomes weak as the distance from the station's transmission antenna increases. This may depend on the signal strength of the transmitting station and intervening geographical formation of buildings. Generally speaking, the area of good reception is approximately 20 - 25 km (12 – 16 miles) for stereo reception, and 30 – 40 km (19 – 25 miles) for monaural reception.
2. The signal becomes weak when an area of shadow from the transmitting antenna (places where there are obstructions such as mountains or buildings between the station transmitter and the vehicle), and noise will appear. <This is called first fading, and gives a steady buzzing noise.>
3. If a direct signal hits the antenna at the same time as a signal reflected by obstructions such as mountains or buildings, interference of the two signals will generate noise. During traveling, noise will appear each time the vehicle's antenna passes through this kind of obstructed area. The strength and interval of the noise varies according to the signal strength and the conditions of deflection. <This is called multipath noise, and is a repetitive buzzing.>
4. Since FM stereo transmission and reception has a weaker field than monaural, it is often accompanied by a hissing noise.

After taking measures to prevent the noise, check that no noise occurs.

5. Change to a different station with a stronger wave to boost resistance to interference.
6. Suppress high tones to reduce noise.
7. Extend antenna completely.

If there is noise, the following causes can be considered.

8. If due to vehicle noise: It may not be possible to prevent noise if the signal is weak.
9. If due to external noise: In almost all cases, prevention on the receiver side is impossible. Weak signals especially are susceptible to interference.

If there is more noise than on radios in other vehicles, find out the noise condition and the name and frequency of the receiving stations from the owner, and consult with the radio manufacturer's service center.

## INSPECTION PROCEDURE 6: Mixed With Noise, Only at Night (AM).

The following factors can be considered as possible causes of noise appearing at night.

1. Factors due to signal conditions: Due to the fact that long-distance signals are more easily received at night, even stations that are received without problem during the day may experience interference in a general worsening of reception conditions. The weaker a station is the more susceptible it is to interference, and a change to different station or the appearance of a beating sound* may occur.

   *NOTE: Beat sound*: Two signals close in frequency interfere with each other, creating a repetitious high-pitched sound. This sound is generated not only by sound signals but electrical waves as well.*

2. Factors due to vehicles noise: Generator noise may be a cause.

### DIAGNOSIS

**STEP 1. Check that the noise still obvious even when the lights are off.**

**Q: Is the noise still obvious even when the lights are off?**
**YES :** Go to Step 2.
**NO :** Go to Step 3.

**STEP 2. Check hat the following actions.**

(1) Tune to a station with a stronger wave.
(2) Tune to a station with a stronger wave without completely extending the antenna (Whip antenna).

**Q: Is there more noise than on radio in other vehicles?**
**YES :** Consult the radio manufacturer's service center.
**NO :** Check that there is no noise.

**STEP 3. Check that the noise fades away when the vehicle harness is moved away from the radio (if the harness is not in the proper position).**

**Q: Does the noise fade away when the vehicle harness is moved any from the radio (If the harness is not in the proper position)?**
**YES :** Consult the radio manufacturer's service center.
**NO :** If there is more noise than other radios, consult the radio manufacturer's service center.

## INSPECTION PROCEDURE 7: Broadcasts can be Heard but Both AM and FM have a Lot of Noise.

### DIAGNOSIS

**STEP 1. Check the state of the antenna.**

**Q: Is the roof antenna pole assembled?**
**YES :** Go to Step 2.
**NO :** Assemble the roof antenna pole. Check to see that the noise is gone.

**STEP 2. Check that the noise occur when the engine is stopped or the engine is running.**

**Q: Does noise occur when the engine is stopped or the engine is running?**
**When the engine is stopped :** Go to Step 3.
**When the engine is running :** Check the vehicle's noise suppressor. (Refer to Inspection Procedure 11 P.54A-131.)

**STEP 3. Check that the following actions disappear the noise.**

(1) Tune to a station with a stronger wave.
(2) Extend the antenna completely (roof antenna pole).
(3) Adjust the sound quality to suppress high tones.

**Q: Is the noise eliminated?**
**YES :** Consult the radio manufacturer's service center.
**NO :** Go to Step 4.

**STEP 4. Check that the radio is correctly grounded**

The radio is connected to the ground with an assembling screw.

**Q: Is the radio correctly grounded?**
**YES :** Go to Step 5.
**NO :** Consult the radio manufacturer's service center.

**STEP 5. Check the connection of the antenna plug and radio and CD player.**

**Q: Is the antenna plug thoroughly connected to the radio and CD player?**
**YES :** Go to Step 7.
**NO :** Go to Step 6.

**STEP 6. Check that the noise is eliminated when the antenna plug is properly attached.**

**Q: Is the noise eliminated?**
**YES :** Consult the radio manufacturer's service center.
**NO :** Go to Step 7.

**STEP 7. Check that the antenna is in good condition and is it properly mounted.**

**Q: Is the antenna in good condition and is it properly mounted?**
**YES :** Consult the radio manufacturer's service center.
**NO :** Either repair or replace the antenna assembly. Check to see that the noise is gone.

**INSPECTION PROCEDURE 8: There is More Noise on Either AM or FM.**

## DIAGNOSIS

There is much noise only on AM. Due to differences in AM and FM systems, AM is more susceptible to noise interference.

**STEP 1. Check that there is noise under the following state(s).**

- A motorcycle was passing.
- Lighting was flashing.
- A vehicle passed close by, but it appeared to be a vehicle generating a particularly large amount of noise radiation.
- Passed beneath a power line.
- Passed beneath a telephone line.
- Passed close by a signal generator.
- Passed close by some other sources of electrical noise.
- Passed under a bridge.

**Q: Is there noise in the above states?**
**YES :** Go to Step 3.
**NO :** Go to Step 2.

**STEP 2. Continue to check for static; when static is detected, check for the conditions listed above.**

**Q: Is there noise in the state described in Step 1?**
**YES :** Noise prevention on the radio side is difficult. If the problem is particularly worse than other radios, consult a service center.
**NO :** Go to Step 3.

**STEP 3. Check noise prevention on the radio side is difficult.**

**Q: Is the noise level worse than other radios?**

**YES :** Consult a service center. Noise encountered during FM reception only. Due to differences in FM and AM systems, FM is not as susceptible as AM to interference from engines, power lines, lighting, etc. On the other hand, due to the characteristics of FM waves, there are sometimes cases of noise or distortion which are generated by typical noise interference (first fading and multipath). (Refer to Inspection Procedure 8 P.54A-129.) <Noise (hissing) occurs in weak signal areas such as mountainous regions, but this is not due to Furthermore, the amount of interference will be comparatively less for vehicles equipped with a diversity antenna system*. If there is an equivalent amount of distortion in vehicles or radios of the same type, then differences will be because of differences in antenna systems, and this should be explained to the user. a problem with the radio.> Furthermore, the amount of interference will be comparatively less for vehicles equipped with a diversity antenna system*. If there is an equivalent amount of distortion in vehicles or radios of the same type, then differences will be because of differences in antenna systems, and this should be explained to the user.

**NO :** f the noise level is roughly the same as other radios, there is no action to be taken.

## INSPECTION PROCEDURE 9: There is Noise When Starting the Engine.

### DIAGNOSIS

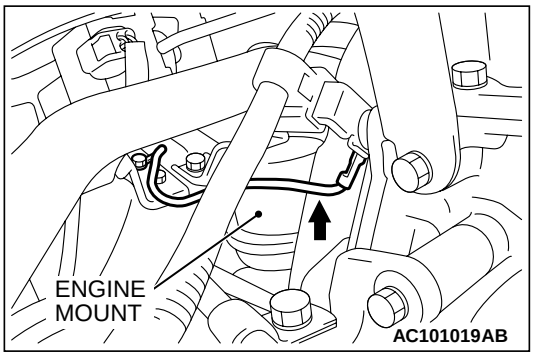
**⚠ CAUTION**

- **Connecting a high tension cable to the noise filter may destroy the noise filter and should never be done.**
- **Check that there is no external noise. Since failure to do this may result in an incorrect diagnosis due to the inability to identify the noise source, this operation must be performed.**
- **Noise prevention should be performed by suppressing strong sources of noise step by step.**

*NOTE: Capacitor: The capacitor does not pass DC current, but as the number of waves increases when it passes AC current, impedance (resistance against AC) decreases, and current flow is facilitated. A noise suppressing capacitor which take advantage of this property is inserted between the power line for the noise source and the ground. This suppresses noise by grounding the noise component (AC or pulse signal) to the body of the vehicle.*

*NOTE: Coil: The coil passes DC current, but impedance rises as the number of waves increases relative to the AC current. A noise suppressing coil which takes advantage of this property is inserted into the power line for the noise source, and works by preventing the noise component from flowing or radiating out of the line.*

| NOISE TYPE SOUNDS ARE IN PARENTHESES | CONDITIONS | CAUSE | REMEDY |
|---|---|---|---|
| AM or FM: ignition noise (popping, snapping, cracking, buzzing) | • Increasing the engine speed causes the generator whine sound to speed up and the volume to decrease<br>• Disappears when the ignition switch turned to "ACC." | • Mainly due to the spark plugs<br>• Due to engine noise | • Check or replace the ground cable.<br>• Check or replace the noise capacitor. |
| Other electrical components | – | Noise may occur as the electrical components become older. | Repair or replace the electrical components. |
| Static electricity (cracking, crinkling) | • Disappears when the vehicle is completely stopped.<br>• Severe when the clutch is engaged | Occurs when parts or wiring move for some reason and contact metal parts of the body. | Return parts or wiring to their proper position. |
| Static electricity (cracking, crinkling) | • Various noise are produced depending on the body part of the vehicle. | Due to removal of the front hood, bumpers, exhaust pipe and muffler, suspension, etc. | Ground parts by bonding. Cases where the problem is not eliminated by a signal response to one area are common, due to several body parts being imperfectly grounded. |




**INSPECTION PROCEDURE 10: Some Noise Appears When There is Vibration or Shocks During Traveling.**

## DIAGNOSIS

**STEP 1. Check radio and CD player connector C-102 and amplifier connector D-27 <with amplifier> for damage.**

**Q: Are radio and CD player connector C-102 and amplifier connector D-27 <with amplifier> in good condition?**

**YES :** Go to Step 2.
**NO :** Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that there is no noise.

**TSB Revision**

**STEP 2. Check that noise appear when the radio switch is turned on while the vehicle is stopped and the radio is tapped while tuned away from a station.**

*NOTE: Static electricity noise: Body static electric from the shock absorber rubber bushings used to prevent vibration, tires, etc. occurs because of separation from the ground, causing a buzzing noise. Since no measures can be taken to discharge the static electricity of the vehicle body. Check that there is no noise.*

**Q: Does noise appear when the radio switch is turned on while the vehicle is stopped and the radio is tapped while tuned away from a station?**
**YES :** Go to Step 3.
**NO :** It may be static electricity noise.

**STEP 3. Check that the radio correctly grounded.**
The radio is connected to the ground with an assembling screw.

**Q: Is the radio correctly grounded?**
**YES :** Go to Step 4.
**NO :** Tighten the screw securely. Check that there is no noise.

**STEP 4. Check by replacing radio and CD player.**

**Q: Are operations normal when using another radio and CD player?**
**YES :** Either repair or replace the radio and CD player. Check that there is no noise.
**NO :** Either repair or replace the antenna assembly. Check that there is no noise.

**INSPECTION PROCEDURE 11: Noise Sometimes Appears on FM During Traveling.**

## DIAGNOSIS

**STEP 1. Check the state of the antenna.**

**Q: Is the roof antenna pole assembled?**
**YES :** Go to Step 2.
**NO :** Assemble the roof antenna pole. Check that there is no noise.

**STEP 2. The check after adjusting the radio.**

**Q: Readjust the radio. Is the noise eliminated?**
**YES :** Check that there is no noise.
**NO :** Go to Step 3.

**STEP 3. Check with several broadcasting stations.**

*NOTE: Multipath noise and fading noise: Because of the frequency of FM waves in extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.*

- *Multipath noise*
  *This describes the echo that occurs when the broadcast signal is reflected by a large obstruction and enters the receiver with a slight time delay relative to the direct signal (repetitious buzzing).*
- *Fading noise*
  *This is a buzzing noise that occurs when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.*

**Q: Is the abnormality in reception generated only within a certain range?**
**YES :** The effect of an electrical field condition (multipath noise, fading noise) could be the cause. Check that there is not noise.
**NO :** Go to Step 4.

**STEP 4. Check that noise appears when the radio switch is turned on while the vehicle is stopped.**

*NOTE: Static electricity noise: Body static electric from the shock absorber rubber bushings used to prevent vibration, tires, etc. occurs because of separation from the ground, causing a buzzing noise. There is no measures to discharge the static electricity of the vehicle body. Check that there is no noise.*

**Q: Does noise appear when the radio switch is turned on while the vehicle is stopped and the radio is tapped while tuned away from a station?**
**YES :** Go to Step 5.
**NO :** It may be static electricity noise.

**STEP 5. Check that the radio is correctly grounded.**

The radio is connected to the ground with an assembling screw.

**Q: Is the radio correctly grounded?**
**YES :** Go to Step 6.
**NO :** Tighten the screw securely. Check that there is no noise.

**STEP 6. Check by replacing radio and CD player.**

**Q: Are operations normal when using another radio and CD player?**
**YES :** Either repair or replace the radio and CD player. Check that there is no noise.
**NO :** Either repair or replace the antenna assembly. Check that there is no noise.

**INSPECTION PROCEDURE 12: Ever-Present Noise.**

## DIAGNOSIS

Noise is often created by the following factors, and often the radio is OK when it is checked individually.
- Traveling conditions of the vehicle
- Terrain of area traveled through
- Surrounding buildings
- Signal conditions
- Time period

For this reason, if there are still problems with noise even after the measures described in inspection procedure 7 to 14 have been taken, get information on the factors listed above as well as determining whether the problem occurs with AM or FM, the station names, frequencies, etc. and contact the radio manufacturer's service center.

**INSPECTION PROCEDURE 13: There is Noise but No Reception for Both AM and FM or No Sound from AM, or No Sound from FM.**

## DIAGNOSIS

**STEP 1. Check the state of the antenna.**

**Q: Is the roof antenna pole assembled?**
**YES :** Go to Step 2.
**NO :** Assemble the roof antenna pole. The radio should sound normally.

**STEP 2. Check to see if inspections are taking place is an area exposed to special electric fields.**

**Q: Are inspections taking place under special electric field conditions? (underground garage, inside a building, etc.)?**
**YES :** Go to Step 3.
**NO :** Go to Step 4.

**STEP 3. Relocate and check.**

Automatically receive in a good reception area that is not exposed to special electric fields.

**Q: Is reception of the strongest radio frequency possible within the area?**
**YES :** There is no action to be taken.
**NO :** Go to Step 4.

**STEP 4. Tune then check.**

**Q: Did the sensitivity improve after tuning?**
**YES :** There is no action to be taken.
**NO :** Go to Step 5.

**STEP 5. Check the connection of the antenna plug and radio and CD player.**

**Q: Is the antenna plug thoroughly connected to the radio and CD player?**
**YES :** Go to Step 6.
**NO :** Thoroughly connect the antenna plug and the radio and CD player. The radio should sound normally.

**STEP 6. Check by replacing radio and CD player.**

**Q: Are operations normal when using another radio and CD player?**
**YES :** Either repair or replace the radio and CD player. The radio should sound normally.
**NO :** Either repair or replace the antenna assembly. The radio should sound normally.

**INSPECTION PROCEDURE 14: Poor Reception.**

## DIAGNOSIS

**STEP 1. Check the state of the antenna.**

**Q: Is the roof antenna pole assembled?**
**YES :** Go to Step 2.
**NO :** Assemble the roof antenna pole. Check that a poor reception is resolved.

**STEP 2. Check to see if inspections are taking place is an area exposed to special electric fields.**

**Q: Are inspections taking place under special electric field conditions? (underground garage, inside a building, etc.)?**
**YES :** Go to Step 3.
**NO :** Go to Step 4.

**STEP 3. Relocate and check.**
Automatically receive in a good reception area that is not exposed to special electric fields.

**Q: Is reception of the strongest radio frequency possible within the area?**
**YES :** Check that a poor reception is resolved.
**NO :** Go to Step 4.

**STEP 4. Tune then check.**

**Q: Did the sensitivity improve after tuning?**
**YES :** Check that a poor reception is resolved.
**NO :** Go to Step 5.

**STEP 5. Check with several broadcasting stations.**

*NOTE: Multipath noise and fading noise: Because the frequency of FM waves is extremely high, it is highly susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in several ways.*

- *Multipath noise*
  *This describes the echo that occurs when the broadcast signal is reflected by a large obstruction and enters the receiver with a slight time delay relative to the direct signal (repetitious buzzing).*
- *Fading noise*
  *This is a buzzing noise that occurs when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.*

**Q: Is the abnormality in reception generated only within a certain range?**
**YES :** Check that a poor reception is resolved.
**NO :** Go to Step 6.

**STEP 6. Check the connection of the antenna plug and radio and CD player.**

**Q: Is the antenna plug thoroughly connected to the radio and CD player?**
**YES :** Go to Step 7.
**NO :** Thoroughly connect the antenna plug and the radio and CD player. Check that a poor reception is resolved.

**STEP 7. Check by replacing radio and CD player.**

**Q: Are operations normal when using another radio and CD player?**
**YES :** Either repair or replace the radio and CD player. Check that a poor reception is resolved.
**NO :** Either repair or replace the antenna assembly. Check that a poor reception is resolved.

**INSPECTION PROCEDURE 15: Distortion on AM or on Both AM and FM.**

## DIAGNOSIS

**STEP 1. Check the degree in which distortion is generated.**

**Q: How much distortion is generated?**
**Occasional distortion :** Go to Step 2.
**Constant distortion :** Go to Step 3.

**STEP 2. Check by the transmission antenna.**

**Q: Is there distortion by the transmission antenna?**
**YES :** The input from the antenna is too big.
**NO :** Go to Step 3.

**STEP 3. Check how the speakers are setup.**

**Q: Are any cords coming in contact with the paper cones of the speakers?**
**YES :** Move the cords so that they do not come in contact with the paper cones of the speaker. Check that a distortion is resolved.
**NO :** Go to Step 4.

**STEP 4. Check the speakers.**

1. Remove the speakers.
2. Check to see if there is any ripping of the paper cones or any foreign obstacles in the paper cone.

**Q: Are the speakers normal?**
**YES :** Go to Step 5.
**NO :** Repair or replace the speakers. Check that a distortion is resolved.

**STEP 5. Check how the speakers are setup.**

**Q: Check to see if the speakers are setup in a deformed manner.**
**YES :** Correct the way the speakers are setup so they are securely setup. Check that a distortion is resolved.
**NO :** Repair or replace the radio and CD player. Check that a distortion is resolved.

**INSPECTION PROCEDURE 16: Distortion on FM Only.**

## DIAGNOSIS

**STEP 1. Check with another broadcasting station.**

**Q: Is there distortion when turning to another broadcasting station?**
**YES :** Go to Step 2.
**NO :** The signal from that station is too weak.

**STEP 2. Relocate the reception area and check.**

**Q: When relocating the reception area does the distortion increase or decrease?**
**YES :** The cause may be multipath noise.
**NO :** Repair or replace the radio and CD player. Check that a distortion is resolved.

**INSPECTION PROCEDURE 17: Using the Auto Select Function, Too Few Automatic Stations are Selected.**

## DIAGNOSIS

**STEP 1. Check the state of the antenna.**

**Q: Is the roof antenna pole assembled?**
**YES :** Go to Step 2.
**NO :** Assemble the roof antenna pole. The auto-select function should operate normally.

**STEP 2. Check the number of radio stations.**

**Q: Are there sufficient numbers of radio stations within the area?**
**YES :** Go to Step 3.
**NO :** Go to Step 4.

**STEP 3. Check the distance from the transmission antenna.**

**Q: Is there a transmission antenna within a range of 2 miles?**
**YES :** Go to Step 5.
**NO :** Go to Step 4.

**STEP 4. The check if there are not that many radio stations and when there is no transmission antenna in the vicinity.**
Execute automatic selection and check to see that the strongest radio frequency is receivable within the area.

**Q: Is reception of the strongest radio frequency possible within the area?**
**YES :** There is no action to be taken.
**NO :** Go to Step 5.

**STEP 5. Check to see if inspections are taking place is an area exposed to special electric fields.**

**Q: Are inspections taking place under special electric field conditions? (underground garage, inside a building, etc.)?**
**YES :** Go to Step 6.
**NO :** Go to Step 7.

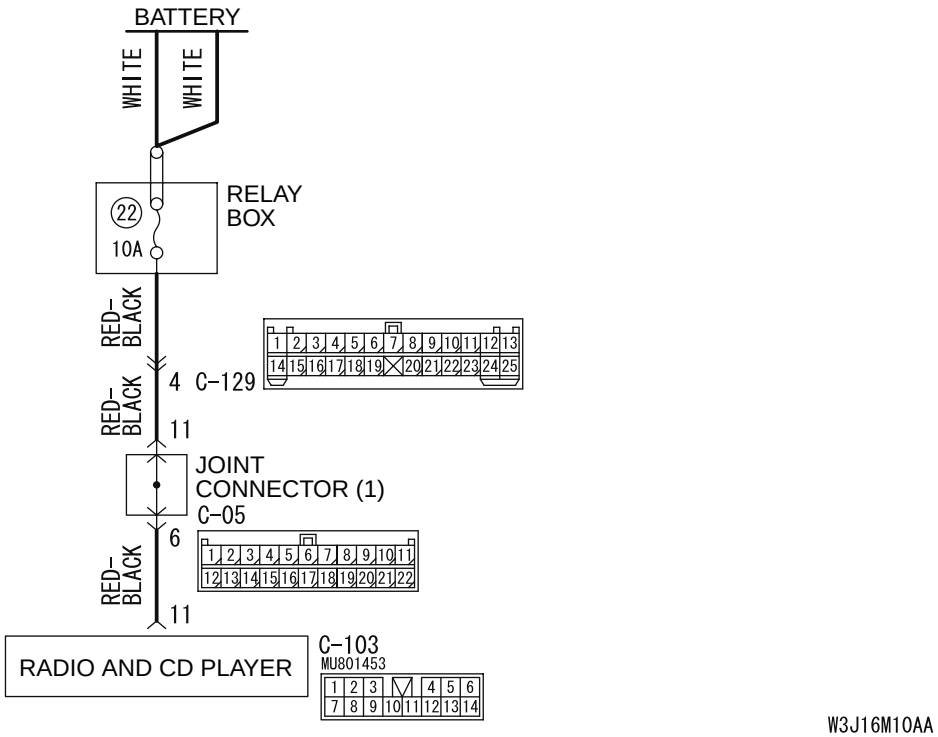
**STEP 6. Relocate and check.**
Automatically receive in a good reception area that is not exposed to special electric fields.

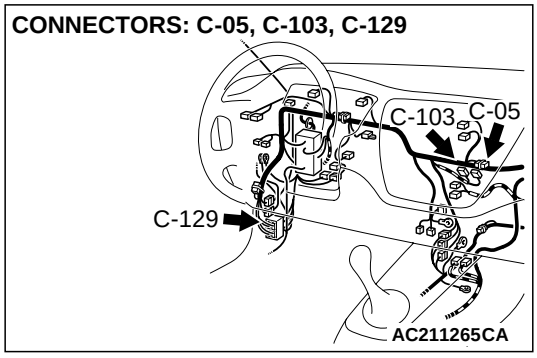
**Q: Is reception of the strongest radio frequency possible within the area?**
**YES :** There is no action to be taken.
**NO :** Go to Step 7.

**STEP 7. Check the connection of the antenna plug and radio and CD player.**

**Q: Is the antenna plug thoroughly connected to the radio and CD player?**
**YES :** Repair or replace the radio and CD player. The auto-select function should operate normally.
**NO :** Thoroughly connect the antenna plug and the radio and CD player. The auto-select function should operate normally.

## INSPECTION PROCEDURE 18: Preset Station are Erased.




### CIRCUIT OPERATION
The power is constantly supplied to the radio and CD player.

### TECHNICAL DESCRIPTION (COMMENT)
The cause is probably a faulty radio and CD player memory backup power supply circuit system.

### TROUBLESHOOTING HINTS
- Damaged harness wire or connector.
- Malfunction of the radio and CD player.

## DIAGNOSIS

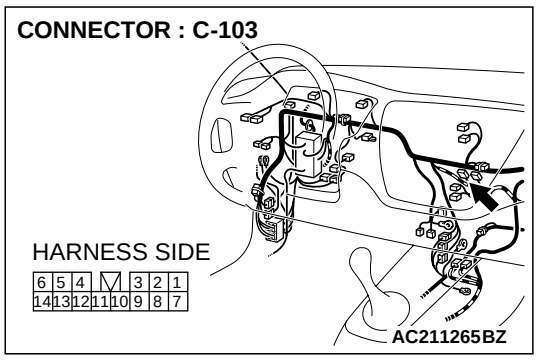
**Required Special Tool:**
- MB991223: Harness set

**STEP 1. Check radio and CD player connector C-103 for loose, corroded or damaged terminals, or terminals pushed back in the connector.**

**Q: Is radio and CD player connector C-103 in good condition?**

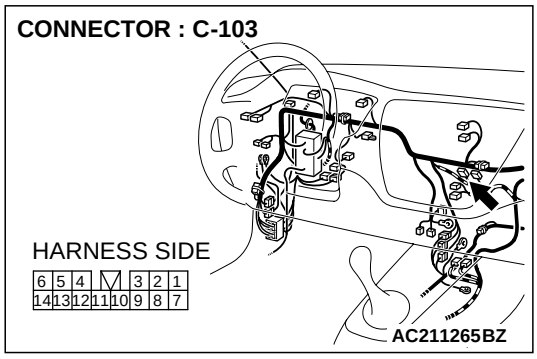
**YES :** Go to Step 2.

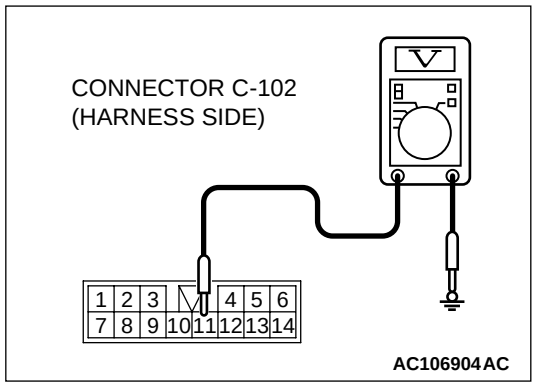
**NO :** Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that a memory is retained.




**STEP 2. Check at radio and CD player connector C-103 by backprobing in order to check the power supply circuit to the radio and CD player (through the battery).**

(1) Do not disconnect radio and CD player connector C-103.



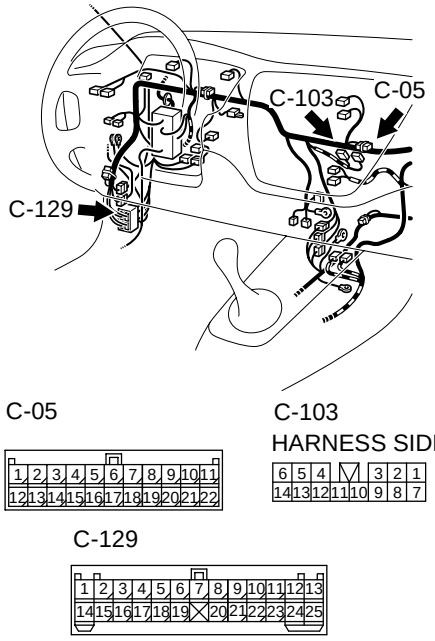

(2) Measure the voltage between terminal number 11 and ground by backprobing.
- The measured value should be approximately 12 volts (battery positive voltage).

**Q: Does the measured voltage correspond with this range?**

**When YES <radio and CD player does not execute memory save then.> :** Either repair or replace the radio and CD player. Check that a memory is retained.

**NO :** Go to Step 3.

CONNECTORS: C-05, C-103, C-129




**STEP 3. Check the wiring harness between radio and CD player connector C-103 (terminal 11) and battery.**

*NOTE: Also check intermediate connector C-129 and joint connector C-05 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-129 or joint connector C-05 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.*

**Q: Are the wiring harness between radio and CD player connector C-103 (terminal 11) and battery in good condition?**

**YES :** Repair or replace the radio and CD player. Check that a memory is retained.

**NO :** Repair the wiring harness. Check that a memory is retained.

## INSPECTION PROCEDURE 19: CD can Not be Inserted.

## DIAGNOSIS

**STEP1. Check that a CD has been already loaded.**

**Q: Has a CD been already loaded?**

**NO :** Go to Step 2.

**YES :** Take out the CD (If the CD can not be ejected, refer to INSPECTION PROCEDURE 24 P.54A-142.) Check that a CD can be inserted.

**STEP 2. Check how a CD is inserted.**

- Ensure that the ignition switch is at "ACC" or "ON".

*NOTE: If you try to load a CD when the ignition switch is at the positions other than "ACC" or "ON", the CD will not be inserted completely and then rejected.*

**Q: If you try to load the CD, does the CD stops halfway and then rejected?**

**YES :** Refer to INSPECTION PROCEDURE 24 P.54A-142.

**NO :** Go to Step 3.

**STEP3. Check after the CD is loaded.**

*NOTE: Even though the CD is loaded, "E" (error) is sometimes displayed with the CD rejected because of vibration/shock or dew on the CD face or optical lens.*

**Q: Though the CD is inserted completely, is "E" (error) displayed and the CD ejected?**

**YES :** Go to Step 4.

**NO :** There is no action to be taken.

**STEP 4. Check the CD.**

Check the CD for the conditions below:

- Is the CD loaded with its label facing down?
- Is the recorded face dirty or scratched?
- Is there dew on the recorded face?

**Q: Is the CD in good condition?**

**YES :** Go to Step 5.

**NO :** The original CD is defective. Check that a CD can be inserted.

**STEP 5. Check again using a normal CD, which is not dirty or scratched.**

- Load another normal CD.
- Check that the CD player recognizes and play the CD.

**Q: When you substitute another normal CD, is the CD loaded correctly?**

**YES :** The original CD is defective. Check that a CD can be inserted.

**NO :** Replace or repair the CD player. Check that a CD can be inserted.

## Inspection Procedure 20: No sound. (CD only)

**DIAGNOSIS**

**STEP 1. Check again using a normal CD, which is not dirty or scratched.**

**Q: When you substitute another normal CD, is the CD played normally?**

**YES :** The original CD is defective. The CD player should sound normally.

**NO :** Go to Step 2.

**STEP 2. Check power supply to the CD player when the ignition switch is at "ACC" or "ACC".**

**Q: Is the radio and CD player energized when the ignition switch is turned to the "ACC" or "ON position?**

**YES :** Replace or repair the CD player. The CD player should sound normally.

**NO :** Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P.54A-109.

## INSPECTION PROCEDURE 21: CD Sound Skips.

**DIAGNOSIS**

**STEP 1. Check the state in which the sound on the CD jumps.**

**Q: Does the sound jump when the car is parked?**

**YES :** Go to Step 2.

**NO :** Go to Step 4.

**STEP 2. Check the surface of the CD.**

**Q: Are there any scratches or soiling on the CD?**

**YES :** The CD is defective if there are any scratches. Clean the CD surface if it is dirty. Check that a CD sound skip is resolved.

**NO :** Go to Step 3.

**STEP 3. Check when replacing with a CD that can be played normally without any scratches or soiling.**

**Q: Does the CD play normally when replaced with a CD that is not scratched or dirty and can play normally?**

**YES :** Defective CD used. Check that a CD sound skip is resolved.

**NO :** Go to Step 4.

**STEP 4. Check by tapping the radio and CD player.**

*NOTE: Check by using a proper CD which is free from scratches, dirt or any other abnormality.*

**Q: Does the sound jump when tapping the radio and CD player?**

**YES :** Securely mount the radio and CD player. Check that a CD sound skip is resolved.

**NO :** Either repair or replace the radio and CD player. (Take the following measures if a servicing shop is closely).

1. Investigate in detail the state when the sound jumps while driving the car.
2. Describe the state to the service shop for consultation.
3. Either repair or replace the radio and CD player according to the instructions of the service shop.

Check that a CD sound skip is resolved.

## INSPECTION PROCEDURE 22: Sound Quality is Poor.

### DIAGNOSIS

**Check to see that the CD can be played normally and that it is free of any scratches or soiling.**

Replace with better sound quality CD.

**Q: Is the sound quality better replacing the CD with a clean CD without any scratches that can be played?**

**YES :** The CD is defective. The sound quality should return to normal.

**NO :** Repair or replace the CD payer. The sound quality should return to normal.

## INSPECTION PROCEDURE 23: CD can Not be Ejected.

### DIAGNOSIS

**Check the power of ignition switch "ACC".**

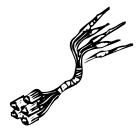
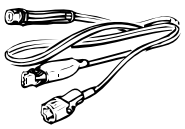
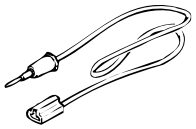
**Q: Does the radio and CD player power turn ON when the ignition switch is in the "ACC" or "ON" position?**

**YES :** Either repair or replace the radio and CD player. Check that a CD can be ejected normally.

**NO :** Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P.54A-109.

## SPECIAL TOOLS

M1544000600306

| TOOL | TOOL NUMBER AND NAME | SUPERSESSION | APPLICATION |
|---|---|---|---|
| A<br>  <br>B<br>  <br>C<br>  <br>D<br>  <br>MB991223AC | MB991223<br>A: MB991219<br>B: MB991220<br>C: MB991221<br>D: MB991222<br>Harness set<br>A: Test harness<br>B: LED harness<br>C: LED harness adapter<br>D: Probe | MB991223 | Making voltage and resistance measurements during troubleshooting<br>A: Connect pin contact pressure inspection<br>B: Power circuit inspection<br>C: Power circuit inspection<br>D: Commercial tester connection |

## ON-VEHICLE SERVICE

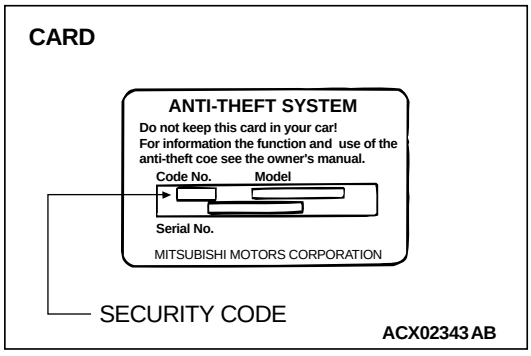
### PROCEDURE FOR INPUT OF ANTI-THEFT CODE FOR ANTI-THEFT SYSTEM

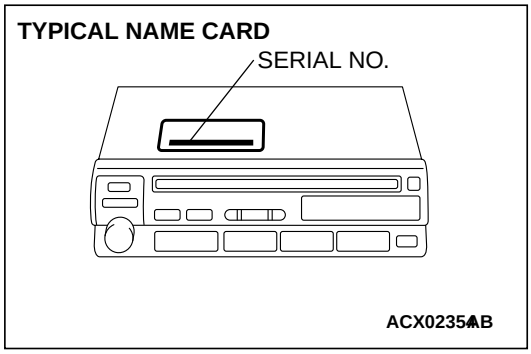
M1544004400229

The radio and CD player do not work under the following conditions:
Power supply to the radio and CD player has been suspended for more than an hour continuously by removing the cable from the battery terminal or disconnecting the harness connectors.
The power supply to the radio and CD player has been suspended for more than an hour due to a blown fuse or discharged battery.
If the radio and CD player does not work for these conditions, enter the security code as follows:
The radio and CD player has been replaced.

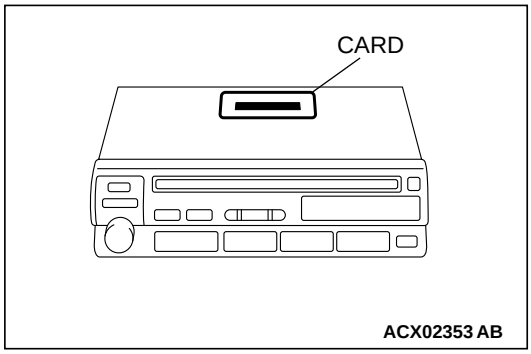
1. Confirm the security code using any of the following methods.
   (1) Use the security code indicated on the cards retained in the vehicle.

CARD





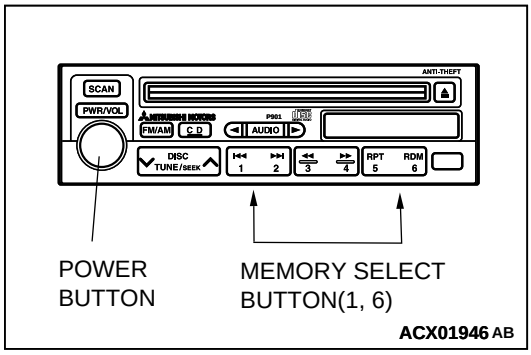

(2) If the security code is unknown owing to the owner's loss of the card:
   *a.* Remove the radio and CD player referring to P.54A-146.
   *b.* Read the serial number stamped on the radio and CD player.
   *c.* Look up the security code (anti-theft code table) corresponding to the serial number.



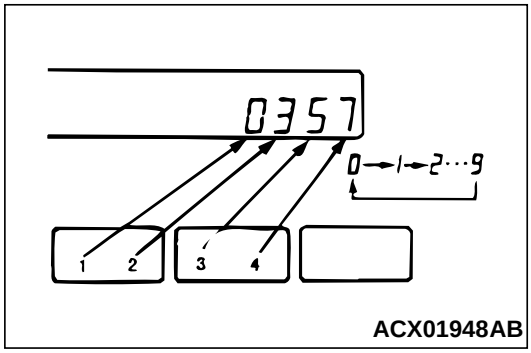

(3) When the radio and CD player is replaced: Use the security code on the cards attached to the upper surface of the replacement radio and CD player.

*NOTE: Deliver the two cards to the owner.*

2. Connect the radio to the vehicle harness.
3. Turn the ignition key to the "ACC" or "ON" position.




4. Press the "PWR" button, and "codE" will be displayed.




5. Press number 1 through number 4 memory select button to set the four-digit security code shown on the card. Every time each digit key is pressed, the figure changes as follows: 0 to 1 to 2 to 3 to 4 to 5 to 6 to 7 to 8 to 9 to 0
6. Press the "CD" button, and a beep will be heard. If entered correctly, the radio and will work.
7. If the security code is not accepted, "Err" is displayed. In a few seconds, it will change to "code." Then repeat steps 5 and 6.

*NOTE:*
- *NOTE: The anti-theft system will allow three attempts maximum to input the correct code.*
- *NOTE: The second error is displayed as "2 Err." When the third error is made, "3 Err" is displayed and then the display changes to "oFF." If this should occur, the unit will not work any more.*
- *NOTE: To input the security code again, turn the ignition switch to the "ACC" or "ON" position and wait for one hour when "oFF" is displayed. After "oFF" disappears on the display, press the "PWR" button and "codE" will be displayed. The security code can be input again.*

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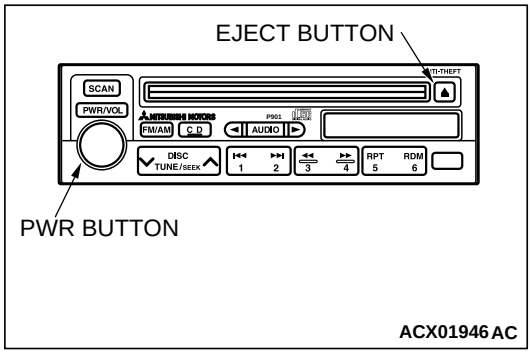
## Three-minute operation mode

To facilitate replacement or check, the radio and CD player can be operated for three minutes without inputting the security code.

1. Press the "PWR" button and "EJECT" button together to operate the radio and CD player.
2. In three minutes the unit will not be able to work. Then the radio and CD player will be switched off.

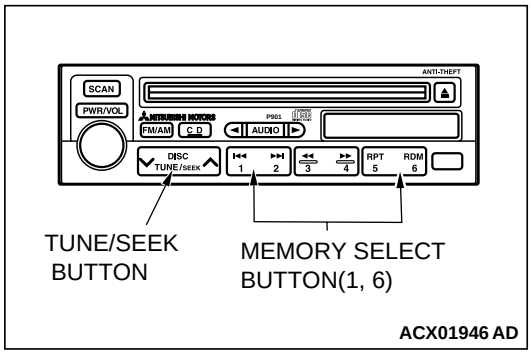



## SPEAKER TEST

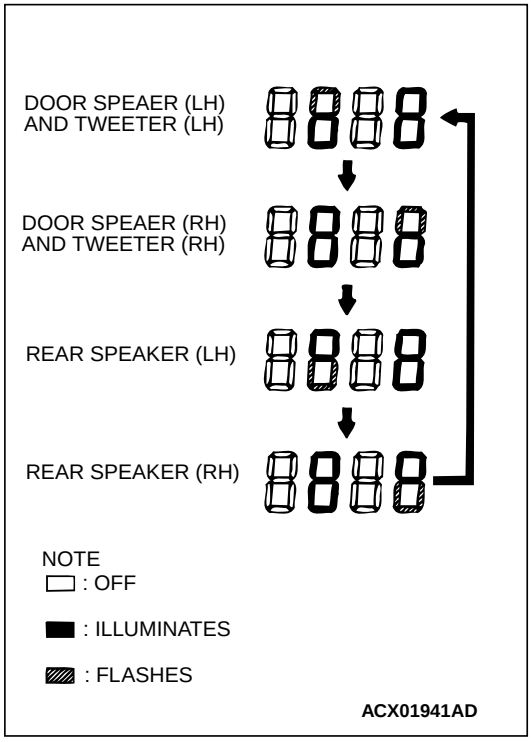
M1544005400211

Enter the speaker test 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) Memory select "1" button
   (2) "TUNE/SEEK (DOWN)" button
   (3) "TUNE/SEEK (UP)" button
   (4) Memory select "6" button



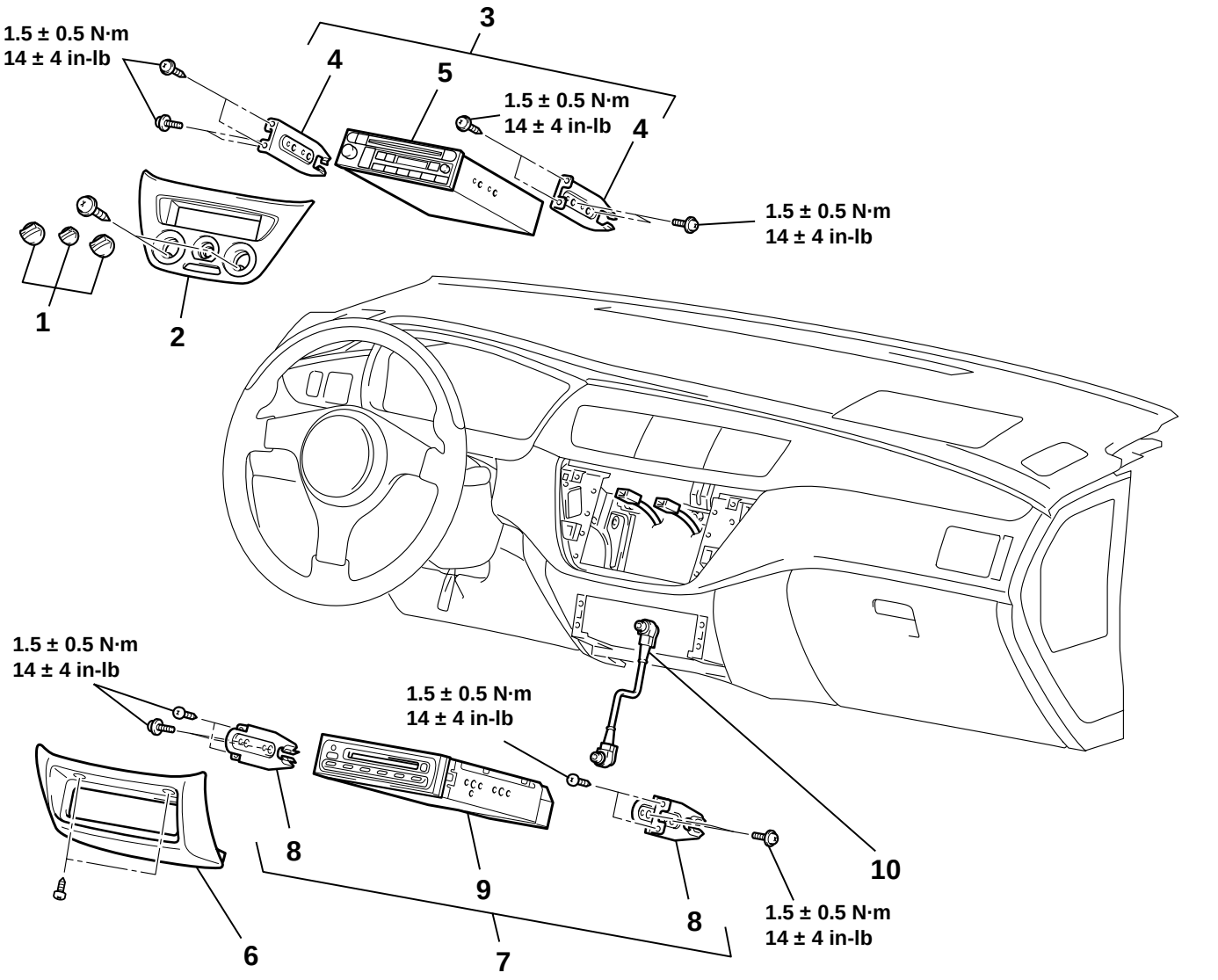

3. Check that the speaker, which is displayed on the multi-center display, sounds (If the memory select "6" button is pressed, the speaker will be changed).
4. If a button other than the memory select "6" button and "EJECT" button is pressed, or the ignition switch is turned to "LOCK" (OFF) position, you will exit from the speaker test mode.



# RADIO WITH TAPE PLAYER AND CD PLAYER

## REMOVAL AND INSTALLATION

M1544001400275




AC211626AB

**RADIO REMOVAL STEPS**

1. KNOB ASSEMBLY (REFER TO GROUP 55, HEATER CONTROL ASSEMBLY, A/C SWITCH P.55-76.)
2. CENTER PANEL ASSEMBLY (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)
3. RADIO AND CD PLAYER ASSEMBLY
4. RADIO BRACKET
5. RADIO AND CD PLAYER

**CD AUTO CHANGER REMOVAL STEPS**

6. CENTER LOWER CASE (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)
7. CD AUTO CHANGER ASSEMBLY
8. CD AUTO CHANGER BRACKET
9. CD AUTO CHANGER
10. DIN CABLE

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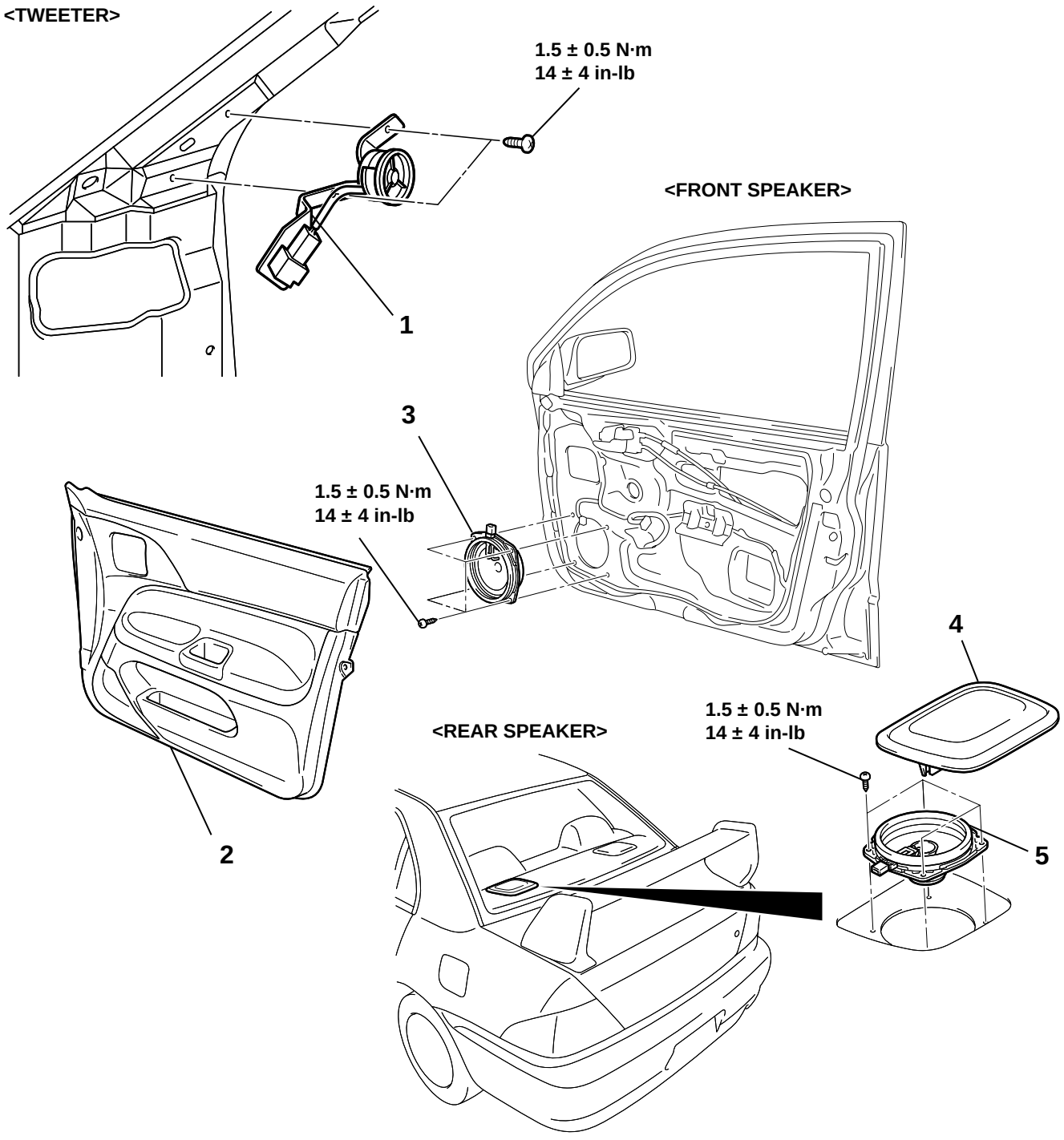
# SPEAKER

## REMOVAL AND INSTALLATION

M1544002600368




AC211402 AB

**TWEETER REMOVAL STEPS**

- FRONT PILLAR TRIM (REFER TO GROUP 52A, TRIMS P.52A-11.)

1. TWEETER

**FRONT SPEAKER REMOVAL STEPS**

2. DOOR TRIM (REFER TO GROUP 42 DOOR TRIM AND WATERPROOF FILM .)
3. FRONT DOOR SPEAKER

**REAR SPEAKER REMOVAL STEPS**

4. REAR SPEAKER GARNISH
5. REAR SPEAKER

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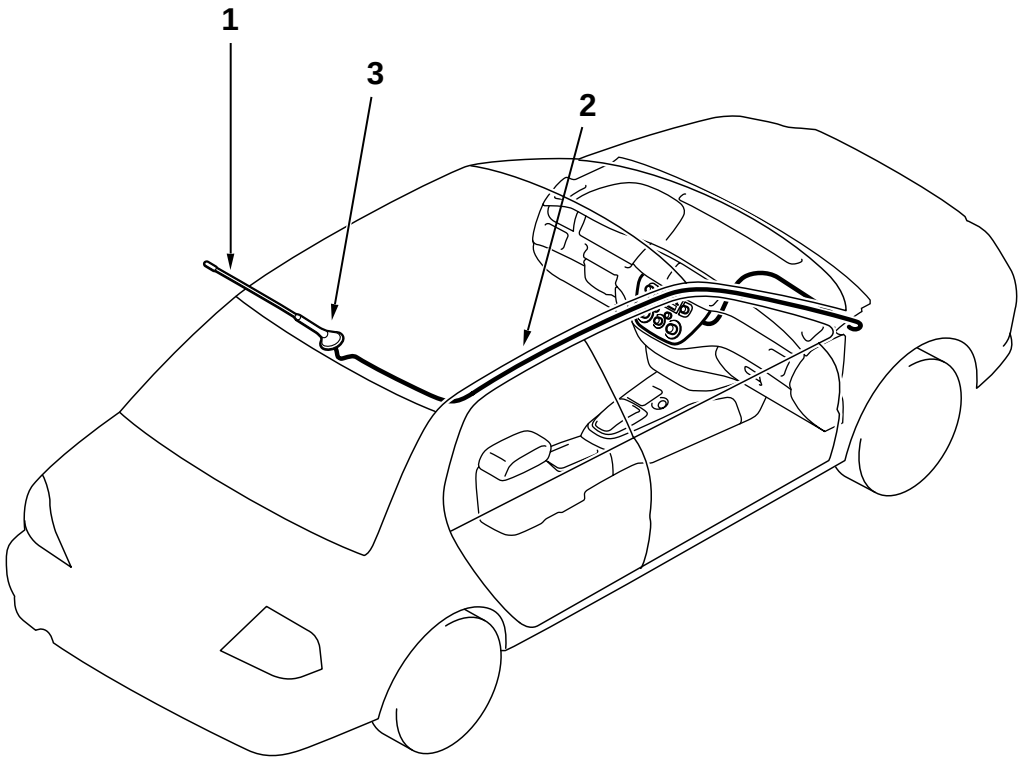
# ANTENNA

## REMOVAL AND INSTALLATION

M1544002900488

**Pre-removal and Post-installation Operation**
- Front Pillar Trim, Rear Trim and Lower/Upper Center Pillar Trim Removal and Installation (Refer to GROUP 52A - Trim P.52A-11.)
- Assist Strap Removal and Installation (Refer to GROUP 52A - Headlining P.52A-18.)
- Front Dome Light and Rear Dome Light Removal and Installation
- Headlining Removal and Installation (Refer to GROUP 52A - Headlining P.52A-18.)




AC005156AB

1. ROOF ANTENNA POLE.

**ANTENNA FEEDER CABLE REMOVAL STEPS**

2. ROOF ANTENNA BASE.
- INSTRUMENT PANEL (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-3.)

3. ANTENNA FEEDER CABLE

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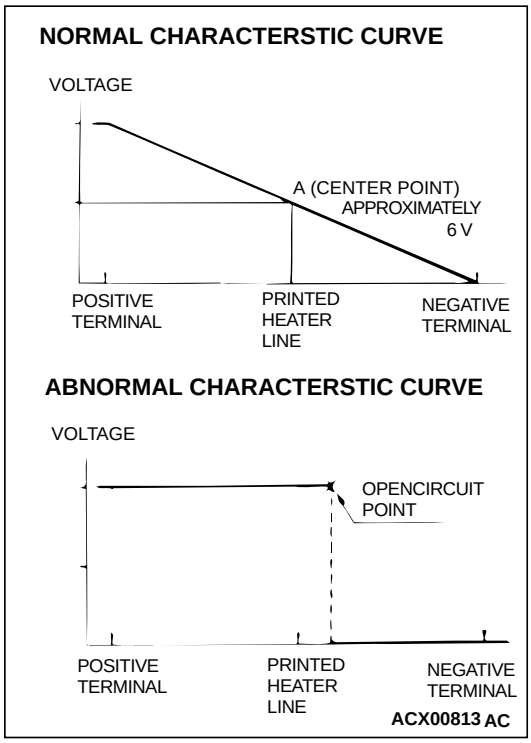
# REAR WINDOW DEFOGGER

## ON-VEHICLE SERVICE

### PRINTED-HEATER LINES CHECK

M1543001800225




1. Run engine at 2,000 r/min. Check heater element with battery at full.
2. Turn "ON" rear window defogger switch. Measure heater element voltage with circuit tester at rear window glass centre A. Condition is good if it indicates about 6 V.
3. If 12 V is indicated at A, there is a break in the negative terminals from A. Move test bar slowly to negative terminal to detect where voltage changes suddenly (0V).
4. If 0 V is indicated at A, there is a break in the positive terminals from A. Defect where the voltage changes suddenly (12 V) in the same method described above.

## REAR WINDOW DEFOGGER SWITCH

### REMOVAL AND INSTALLATION

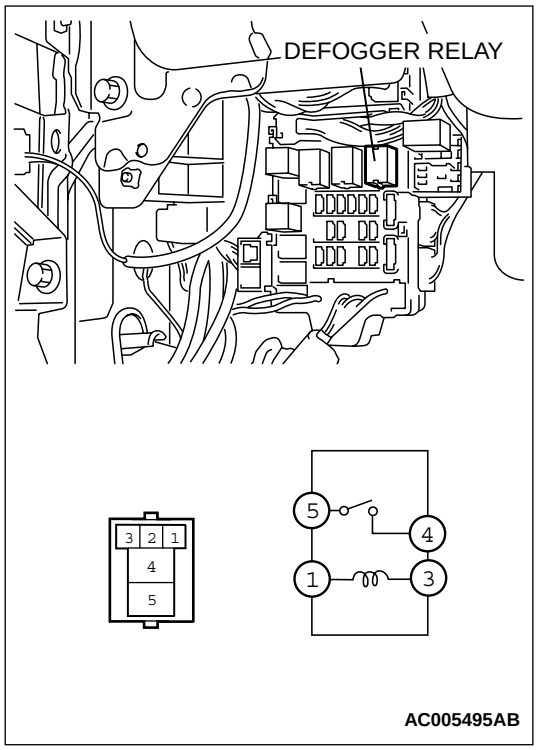
M1543006200239

Refer to GROUP 55, Heater Control Assembly and Blower Switch Assembly P.55-76.

## INSPECTION

M1543019502021

## DEFOGGER RELAY CHECK




| BATTERY VOLTAGE | TESTER CONNECTION | SPECIFIED CONDITION |
|---|---|---|
| Not applied | 5 – 4 | Open circuit |
| • Connect terminal 1 to the positive battery terminal<br>• Connect terminal 3 to the negative battery terminal | 5 – 4 | Less than 2 ohms |

# SPECIFICATIONS

## FASTENER TIGHTENING SPECIFICATIONS

M1544004600223

| ITEMS | SPECIFICATIONS |
|---|---|
| Door speaker mounting screw | 1.5 ±0.5 N·m (14 ± 4 in-lb) |
| Engine coolant temperature gauge unit | 10.5 ± 0.5 N·m (93 ± 4 in-lb) |
| Headlight mounting bolt | 4.9 ±0.9 N·m (43 ± 8 in-lb) |
| High-mounted stop light mounting bolt | 5.4 ±0.5 N·m (48 ± 4 in-lb) |
| Radio, tape player, CD player and CD auto changer mounting screw | 1.5 ± 0.5 N·m (14 ± 4 in-lb) |
| Radio bracket mounting bolt | 1.5 ± 0.5 N·m (14 ± 4 in-lb) |
| Rear combination light mounting nut | 4.9 ±0.9 N·m (43 ± 8 in-lb) |
| Rear speaker mounting screw | 1.5 ± 0.5 N·m (14 ± 4 in-lb) |
| Tweeter mounting nut | 1.5 ± 0.5 N·m (14 ± 4 in-lb) |

## SERVICE SPECIFICATIONS

M1543000300227

### <COMBINATION METER>

| ITEMS | | STANDARD VALUE |
|---|---|---|
| Speedometer indication allowance range mph (km/h) | 20 (32) | 19 – 22 (31 – 35) |
| | 40 (64) | 38 – 44 (61 – 71) |
| | 60 (97) | 57 – 66 (92 – 106) |
| | 80 (129) | 76 – 88 (122 – 142) |
| | 100 (161) | 94 – 110 (151 – 177) |
| Tachometer indication allowance range r/min | 700 | +120 |
| | 3,000 | – 100 +225 |
| | 5,000 | – 125 +325 |
| | 6,000 | – 125 +375 |
| Fuel gauge unit resistance Ω | Float point "F" | 3 ± 0.8 |
| | Float point "E" | 110 ± 2.5 |
| Fuel gauge unit float height mm (in) | A (Float point "F") | 24.1 ± 2 (0.95) |
| | B (Float point "E") | 151.6 ± 2 (5.97) |
| Engine coolant temperature gauge unit resistance Ω | | 104 ± 13.5 |
| Combination meter internal resistance Ω | Water temperature gauge to ground | 233 ± 3 |
| | Fuel gauge to earth | 181 ± 2 |

### <HEADLIGHT>

| ITEMS | | STANDARD VALUE | LIMIT |
|---|---|---|---|
| Headlight aiming | Vertical direction | Headlight center line53 mm (2.1 inches) | – |
| Headlight intensity cd | | – | 40,000 or more |

## SEALANTS AND ADHESIVE

M1543000500209

### <COMBINATION METER>

| ITEM | SPECIFIED SEALANT | REMARK |
|---|---|---|
| Engine coolant temperature gauge unit threaded portion | 3M™ADD part No. 2310 or equivalent | Drying sealant |

**NOTES**