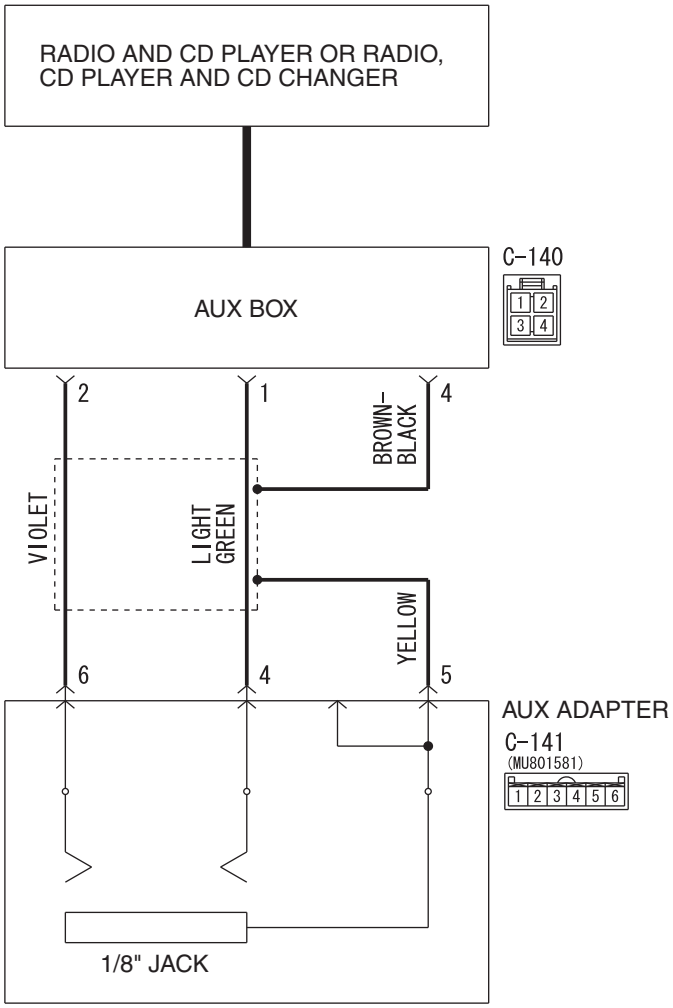
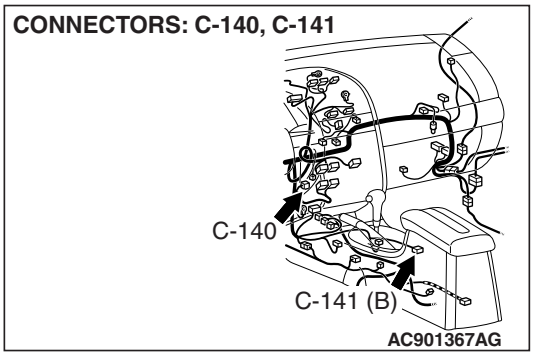
Inspection Procedure 8: The sound of external input is not played.

⚠ CAUTION
Before replacing the radio and CD player, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Aux Adapter Circuit



WAP54M037A



COMMENTS ON TROUBLE SYMPTOM

If the external input sound is not output, the radio and CD player or radio and CD player with CD changer, audio communication line of radio and CD player or radio and CD player with CD changer, or audio adapter may have a problem.

PROBABLE CAUSES

- The audio adapter may be defective.
- The radio and CD player or radio and CD player with CD changer may be defective.
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the Radio and CD player or radio and CD player with CD changer.

Check that the Radio and CD player or radio and CD player with CD changer operates normally, and the sound is output.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Troubleshoot the radio and CD player or radio and CD player with CD changer (Refer to P.54A-167).

STEP 2. Check the AUX mode.

Check if the AUX mode of the radio and CD player or radio and CD player with CD changer is set.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Set the AUX mode.

STEP 3. Check the AUX adapter.

Check if the AUX adapter is normal. (Refer to P.54A-262.)

Q: Is the check result normal?

YES : Go to step 4.
NO : Replace the AUX adapter.

STEP 4. Check that the AUX adapter and the AUX box are connected to the DIN cable normally.

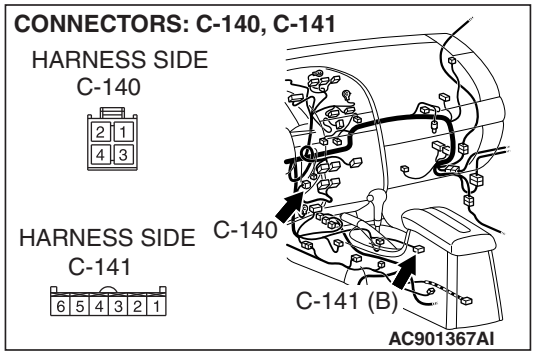
Q: Are they connected to the DIN cable normally?

YES : Go to Step 5.
NO : Repair the connection.

STEP 5. Check if the DIN cable is damaged.

Q: Is the DIN cable damaged or bent?

YES : Repair or replace the DIN cable.
NO : Go to Step 6.

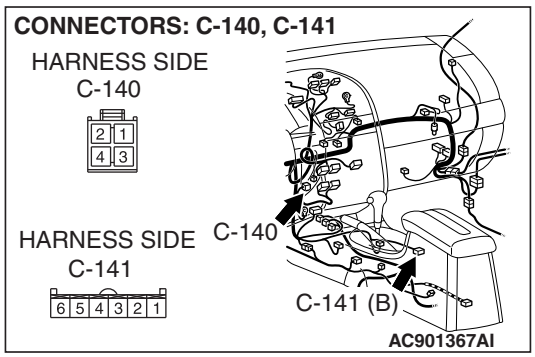


STEP 6. Check AUX adapter connector C-141 and AUX box connector C-140 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are AUX adapter connector C-141 and AUX box connector C-140 in good condition?

YES : Go to step 7.

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



STEP 7. Check the wiring harness between AUX adapter connector C-141 (terminal 4, 6) and AUX box connector C-140 (terminal 1, 2).

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

Q: Is the wiring harness between AUX adapter connector C-141 (terminal 4, 6) and AUX box connector C-140 (terminal 1, 2) in good condition?

YES : Replace the audio adapter, and go to Step 8.

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

STEP 8. Replace the radio and CD player or radio and CD player with CD changer temporarily, and check the trouble symptom.

Replace the radio and CD player or radio and CD player with CD changer temporarily, and check that the sound is output from the speaker.

Q: Is the check result normal?

YES : Replace the radio and CD player or radio and CD player with CD changer.

NO : Replace the AUX box.

INSPECTION PROCEDURE 9: Noise is Present while Moving (AM).

DIAGNOSIS

STEP 1. Ask the driver about 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: What type of noise is detected, vehicle noise or external noise?

Vehicle noise : It may not be possible to prevent noise if the signal is weak. Go to step 2.

External noise : In almost all cases, prevention on the receiver side is next to impossible when the signal is weak. Go to Step 4.

STEP 2. Ask the driver about the location where the noise occurs.

Q: Does the noise occur when entering or near a particular structure (building, tunnel, mountain, etc)?

YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. Check if the noise can be eliminated by adjusting the radio.

(1) Adjust the radio as follows.
(2) Change to a different station with a stronger signal. This will boost the systems resistance to outside interference.
(3) Suppress high tones to reduce noise.

Q: Has the noise been eliminated?

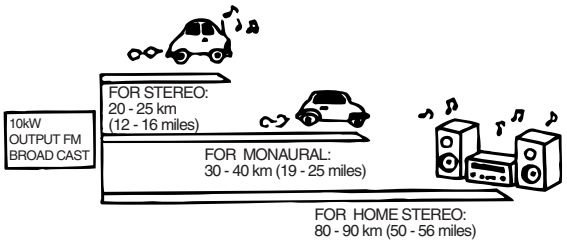
YES : The noise has now been eliminated. Inform the customer that it is normal to hear noise while receiving a weak station.
NO : Go to Step 4.

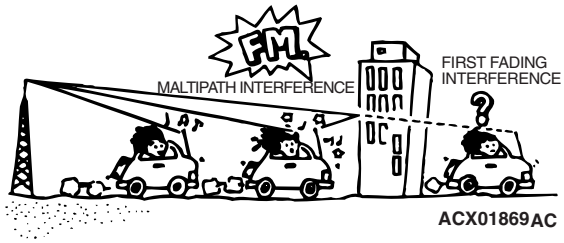
STEP 4. Check for the noise.

Q: Does noise still exist?

YES : If there is still more noise than on other similar radio's find out the type of noise. Ask the owner for the name and frequency of the affected stations, and consult with the radio manufacturer service center.
NO : System is operating normally.

INSPECTION PROCEDURE 10: Noise is Present while Moving (FM).





DIAGNOSIS

NOTE: FM waves have the same properties as light, and can be deflected and blocked. FM signal reception is severely degraded in the shadow of obstructions such as buildings or mountains. An FM receiver will then only receive a reflected signal.

1. The signal becomes weak as the distance from the station's transmission antenna increases. The signal strength received depends on the signal strength of the transmitting station and intervening obstructions such as buildings and hills. 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 will 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. When moving, 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. Does vehicle have an antenna which extend? If not eliminate this step.

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 not possible. 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 11: Sound mixed with Noise, Only at Night (AM).

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

1. It is significantly easier to receive long-distance signals at night. This means that even stations that are received without a problem during the day may experience problems at night. Remember that the weaker station is more susceptible to interference. The appearance of a beat sound may occur in the evening. A beat sound is created when two signals close in frequency interfere with each other. A common sign of this type of interference is a repetitious high-pitched sound that may over power the desired radio station. This sound is generated not only by sound signals but electrical waves as well.
2. The changing system may also be a source of noise. When diagnosing radio noise, do not over look the possibility of a problem with the vehicles generator.

DIAGNOSIS

STEP 1. Check the vehicles lighting system.

Q: Does the noise disappear when the vehicles headlights are turned "OFF"?
YES : Go to Step 2.
NO : Go to Step 3.

STEP 2. Check that the following actions disappear the noise.
Tune to a station with a stronger signal.

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 12: Noise is Overpowering both AM and FM.

DIAGNOSIS

STEP 1. Verify 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 2.
When the engine is running : Check the vehicle's noise suppressor. (Refer to Inspection Procedure 13 P.54A-230).

STEP 2. Verify that the following actions disappear the noise.
(1) Tune to a station with a stronger wave.
(2) 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 3.

STEP 3. Verify that the radio is correctly grounded

Q: Is the radio correctly grounded?
YES : Go to Step 4.
NO : Consult the radio manufacturer's service center.

STEP 4. Check the connection of the antenna plug and radio and CD player or radio, CD player and CD changer.

Q: Is the antenna plug thoroughly connected to the radio and CD player or radio, CD player and CD changer?
YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Verify 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 6.

STEP 6. Verify 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 : Go to Step 7.

STEP 7. Clean the antenna plug and ground wire mounting area. Mount the antenna securely.

NOTE: Noise encountered during FM reception only due to differences in FM and AM system, 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 9 P.54A-226.) <Noise (hissing) occurs in weak signal areas such as mountainous regions, but this is not due to a problem with the radio.>

NOTE: 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.*

NOTE: Diversity antenna system: A system where two types of antenna (glass main antenna and glass sub antenna) are equipped and the antenna that provides the best reception car be selected.*

Q: Is the antenna in good condition?
YES : Consult the radio manufacturer's service center.
NO : Clean or repair it. Check the noise is eliminated. If the noise is not eliminated, consult the radio manufacturer's service center.

INSPECTION PROCEDURE 13: Excessive Noise on AM and FM.

DIAGNOSIS

Radio reception can be affected by Radio Frequency (RF) emissions from a variety of sources. The disturbance is even greater if the station is weak or poorly tuned. FM reception is not as sensitive to disturbances as AM. AM reception is sensitive to electrical disturbances such as power lines, lightening and other types of similar electrical phenomena.

STEP 1. Check if the customer heard the noise under any of the following conditions.

- A motorcycle was passing.
- Lighting was flashing.
- Passed beneath a power line.
- Passed beneath a telephone line.
- Passed by a signal generator.
- Passed by any other sources of electrical noise.
- Passed under a bridge or through a tunnel.

Q: Did the noise occur during any of the circumstances listed above?
YES : The observed noise is normal.
NO : Go to Step 2.

STEP 2. Compare the customers radio to another identical model.

Operate the radio in a vehicle with a known good audio system of the same type as the customer's.

Q: Is there more noise on the customers radio?
YES : Check all power and ground connections. If all connections are in good condition, consult the radio manufacturers service center.
NO : The observed noise is normal.

INSPECTION PROCEDURE 14: Noise is Detected with Engine Running.

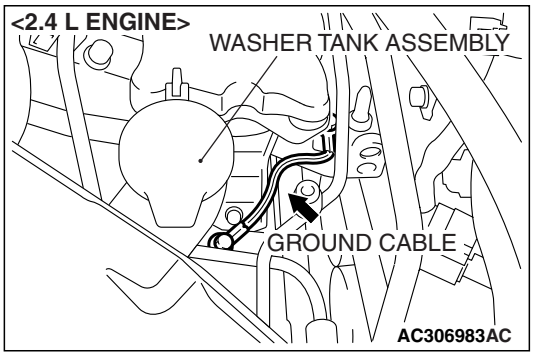
DIAGNOSIS

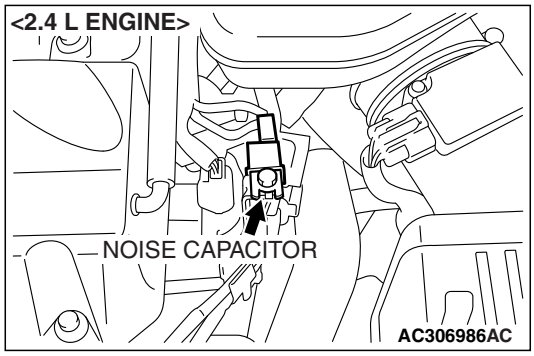
⚠ CAUTION

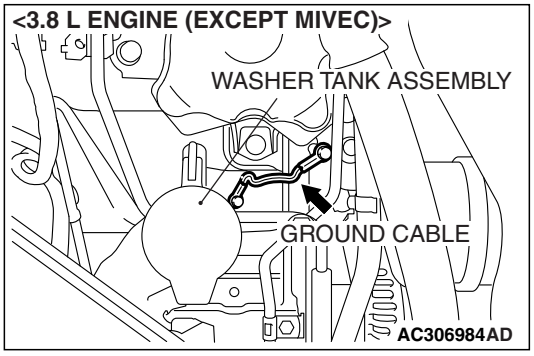
- **Never connect a noise filter to the high tension cable (spark plug wire). Spark plug wires incorporate resistors which have the effect of suppressing noise. If a spark plug wire is found to be causing noise, it must be replaced.**
- **Confirm that the noise is not from an external source.**
- **Noise prevention should be performed by suppressing strong sources of noise first.**

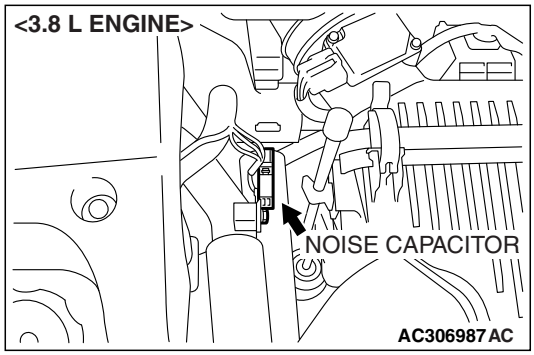
NOTE: Voltage surges can be induced in the electrical system by the collapse of a field (i.e. When power is removed from the coil in an A/C compressor clutch). This induced voltage surge will radiate a Radio Frequency (RF) signal that is picked up by the audio unit. In the case of the compressor clutch a "pop" will be heard through the speakers. The capacitor, installed on this vehicle, will store the excess voltage and prevent the production of RF noise. This is because the capacitor will charge and discharge as the voltage fluctuates. This has the effect of "attracting" noise and bleeding it to ground without interfering with the normal flow of current through the system.

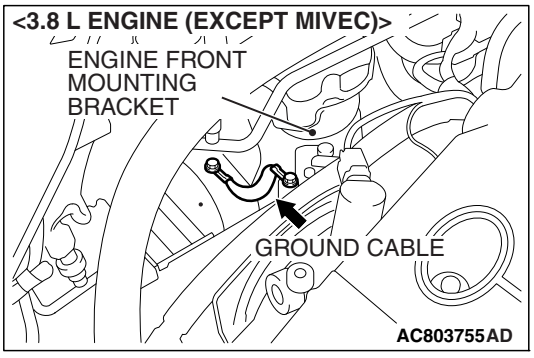
DESCRIPTION OF NOISE	CONDITIONS	CAUSE	SOLUTION
AM, FM: ignition noise (popping, snapping, cracking, buzzing)	• Increasing the engine speed causes the generator whine to speed up and the volume to decrease. • Disappears when the ignition switch turned to "ACC", and engine is off.	• Electrical interference from the spark plugs. • Engine noise.	• Check or replace the ground cable. • Check or replace spark plug wires. • Check or replace the noise capacitor.
Other electrical components	–	• Noise may intensify due to aging electrical components.	• Repair or replace the electrical components.
Static electricity (cracking, crinkling)	Noise disappears when the vehicle is completely stopped.	• Noise occurs when parts or wiring move and contact vehicle body.	• Return parts or wiring to their proper position.
Static electricity (cracking, crinkling)	• Various noises are produced depending on the body part of the vehicle.	• This may be due to the recent removal of the front hood, bumpers, exhaust pipe and muffler, suspension, etc.	• Properly ground parts. • Properly ground all body parts.


<2.4 L ENGINE>
WASHER TANK ASSEMBLY
GROUND CABLE
AC306983AC


<2.4 L ENGINE>
NOISE CAPACITOR
AC306986AC


<3.8 L ENGINE (EXCEPT MIVEC)>
WASHER TANK ASSEMBLY
GROUND CABLE
AC306984AD


<3.8 L ENGINE>
NOISE CAPACITOR
AC306987AC


<3.8 L ENGINE (EXCEPT MIVEC)>
ENGINE FRONT MOUNTING BRACKET
GROUND CABLE
AC803755AD

INSPECTION PROCEDURE 15: Noise Appears During Vibration or Shocks.

DIAGNOSIS

STEP 1. Check the fit of antenna feeder cable.

Q: Is the antenna feeder cable fitted securely?

YES : Go to Step 2.

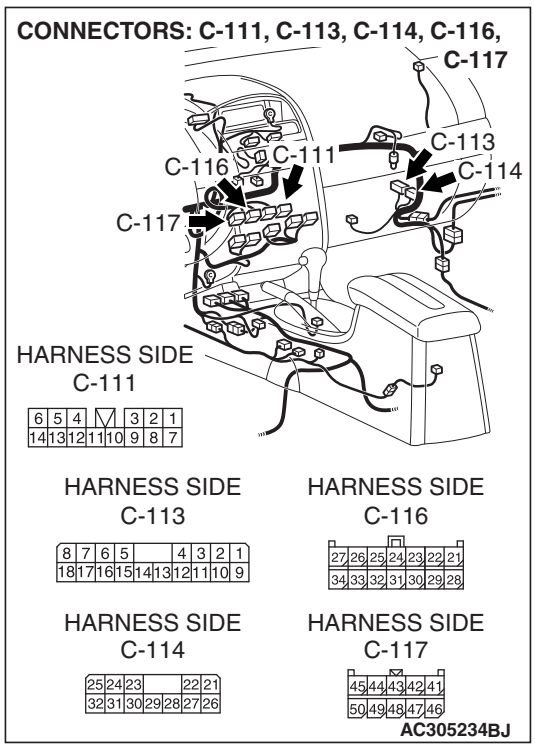
NO : Ensure that the antenna base and the radio and CD player or radio, CD player and CD changer are fitted securely. Check that there is no noise.

STEP 2. Check radio and CD player connector C-111 or radio, CD player and CD changer connector C- 111, C- 116, C-117 and amplifier connector C-113, C-114 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are radio and CD player connector C-111 or radio, CD player and CD changer connector C- 111, C- 116, C-117 and amplifier connector C-113, C-114 in good condition?

YES : Go to Step 3.

NO : Repair or replace the component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that there is no noise.



STEP 3. Check that noise appears when the radio switch is turned on while the vehicle is stopped and the radio is tapped while tuned away from a station.

NOTE: Body static electricity 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 4.

NO : It may be static electricity noise.

TSB Revision

STEP 4. Verify that the radio is correctly grounded.

Q: Is the radio correctly grounded?

YES : Go to Step 5.
NO : Check that there is no noise.

STEP 5. Check by replacing radio and CD player or radio, CD player and CD changer.

Q: Do the other radio and CD player or radio, CD player and CD changer work normally?

YES : Either repair or replace the original radio and CD player or radio, CD player and CD changer. Check that there is no noise.
NO : Either repair or replace the antenna assembly. Check that there is no noise.

INSPECTION PROCEDURE 16: Noise is Present While Moving (FM).

DIAGNOSIS

STEP 1. Check the radio after adjusting it.

Q: Readjust the radio. Is the noise eliminated?

YES : Check that there is no noise.
NO : Go to Step 2.

STEP 2. Check with several broad casting.

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 signal is disrupted by obstructing objects and the signal strength fluctuates intricately within a narrow range.

Q: Is the problem station or location specific?

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 3.

STEP 3. Check that noise appears when the radio switch is turned on while the vehicle is stopped.

NOTE: Body static electricity 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 4.
NO : It may be static electricity noise.

STEP 4. Verify that the radio is correctly grounded.

Q: Is the radio correctly grounded?

YES : Go to Step 5.
NO : Check that there is no noise.

STEP 5. Check by replacing radio and CD player or radio, CD player and CD changer.

Q: Do the other radio and CD player or radio, CD player and CD changer work normally?

YES : Either repair or replace the original radio and CD player or radio, CD player and CD changer. Check that there is no noise.
NO : Either repair or replace the antenna assembly. Check that there is no noise.

INSPECTION PROCEDURE 17: Constant Noise.

DIAGNOSIS

Use the Symptom Chart to diagnose the possible cause(s) of the noise. Noise is often created by the following factors:

- Traveling conditions of the vehicle
- Terrain of area traveled through
- Surrounding buildings
- Signal conditions
- Time period

If there are still problems with noise, even after performing inspection procedures 9 to 16, obtain information on the factors listed above. Determine whether the problem occurs on AM or FM, the station names, frequencies, etc. and contact the radio manufacturer's service center.

INSPECTION PROCEDURE 18: No Reception (AM).

DIAGNOSIS

STEP 1. 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 2.
NO : Go to Step 3.

STEP 2. Move the vehicle and check the radio.
Move the vehicle to 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 3.

STEP 3. Tune the radio, and then check it.

Q: Did the sensitivity improve after tuning?

YES : There is no action to be taken.
NO : Go to Step 4.

STEP 4. Check the connection of the antenna plug and radio and CD player or radio, CD player and CD changer.

Q: Is the antenna plug thoroughly connected to the radio and CD player or radio, CD player and CD changer?

YES : Go to Step 5.
NO : Thoroughly connect the antenna plug and the radio and CD player or radio, CD player and CD changer. The radio should sound normally.

STEP 5. Check by replacing radio and CD player or radio, CD player and CD changer.

Q: Do the other radio and CD player or radio, CD player and CD changer work normally?

YES : Either repair or replace the original radio and CD player or radio, CD player and CD changer. The radio should sound normally.
NO : Either repair or replace the antenna assembly. The radio should sound normally.

INSPECTION PROCEDURE 19: Poor Reception.

DIAGNOSIS

STEP 1. 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 2.
NO : Go to Step 3.

STEP 2. Move the vehicle and check the radio.

Move the vehicle to 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 3.

STEP 3. Tune the radio, and then check it.

Q: Did the sensitivity improve after tuning?

YES : Check that a poor reception is resolved.
NO : Go to Step 4.

STEP 4. Check with several broadcasting stations.

NOTE: Two types of noise are addressed in this procedure, multipath and fading noise. The frequency of FM waves is extremely high. This makes them susceptible to effects from geological formations and buildings. These effects disrupt the broadcast signal and obstruct reception in many ways.

- *Multipath noise is 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).*
- *A fading or buzzing noise may occur when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates 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 5.

STEP 5. Check the connection of the antenna plug and radio and CD player or radio, CD player and CD changer.

Q: Is the antenna plug thoroughly connected to the radio and CD player or radio, CD player and CD changer?

YES : Go to Step 6.

NO : Thoroughly connect the antenna plug and the radio and CD player or radio, CD player and CD changer. Check that a poor reception is resolved.

STEP 6. Check by replacing radio and CD player or radio, CD player and CD changer.

Q: Do the other radio and CD player or radio, CD player and CD changer work normally?

YES : Either repair or replace the original radio and CD player or radio, CD player and CD changer. Check that a poor reception is resolved.

NO : Either repair or replace the antenna assembly. Check that a poor reception is resolved.

INSPECTION PROCEDURE 20: Distortion on AM and/or FM.

DIAGNOSIS

STEP 1. Check the level of distortion.

Q: How much distortion is there?

Occasional distortion : Go to Step 2.

Constant distortion : Go to Step 3.

STEP 2. Check the location of the distortion.

Q: Is there distortion when the vehicle is near the radio station?

YES : The antenna is receiving too strong a signal.

NO : Go to Step 3.

STEP 3. Check the wires at each speaker.

Q: Are the speaker wires contacting the paper speaker cone?

YES : Move the speaker wires away from the paper speaker cone. The speaker should now be free of distortion.

NO : Go to Step 4.

STEP 4. Remove the speakers, and check the paper cone for foreign material or damage.

Q: Is there foreign material or damage on the paper cone of the speaker?

YES : Repair or replace the speakers. The speaker should now be free of distortion.

NO : Go to Step 5.

STEP 5. Check for distortion with the speaker installed.

Q: Does a distortion occur?

YES : Install the speaker securely. The speaker should now be free of distortion.

NO : Repair or replace the radio and CD player or radio, CD player and CD changer. The speaker should now be free of distortion.

INSPECTION PROCEDURE 21: Distortion on FM Only.

DIAGNOSIS

STEP 1. Check that the distortion is present when the radio is tuned to another station.

Q: Does the distortion persist when the radio is tuned to another station?

YES : Go to Step 2.

NO : The signal from that station is too weak.

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

Q: When relocating the reception area does the distortion increase or decrease?

YES : The cause may be multipath or fading noise. Multipath noise is 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). A fading or buzzing noise may occur when the broadcast beam is disrupted by obstructing objects and the signal strength fluctuates within a narrow range.

NO : Replace the radio and CD player or radio, CD player and CD changer. Check that a distortion is resolved.

INSPECTION PROCEDURE 22: Auto Select Function Inoperative, too Few Automatic Stations are Selected.

DIAGNOSIS

STEP 1. Check the number of radio stations.

Q: Are there sufficient numbers of radio stations within the area?

YES : Go to Step 2.

NO : Go to Step 3.

STEP 2. Check the distance from the transmission antenna.

Q: Is there a transmission antenna within a range of 2 miles?

YES : Go to Step 4.
NO : Go to Step 3.

STEP 3. 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 4.

STEP 4. 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 5.
NO : Go to Step 6.

STEP 5. 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 6.

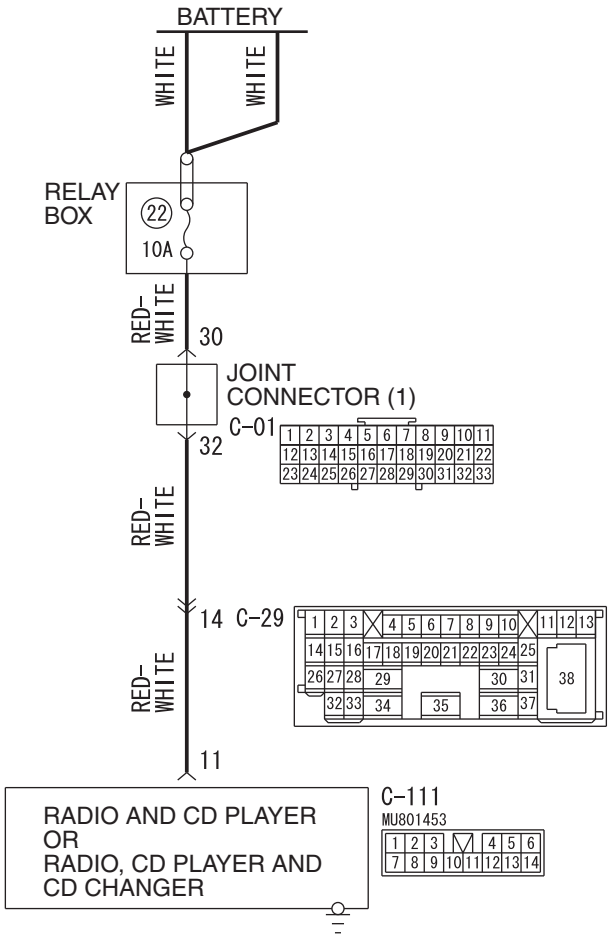
STEP 6. Check the connection of the antenna feeder cable and radio and CD player or radio, CD player and CD changer.

Q: Is the antenna feeder cable thoroughly connected to the radio and CD player or radio, CD player and CD changer?

YES : Repair or replace the radio and CD player or radio, CD player and CD changer. The auto-select function should operate normally.
NO : Thoroughly connect the antenna feeder cable and the radio and CD player or radio, CD player and CD changer. The auto-select function should operate normally.

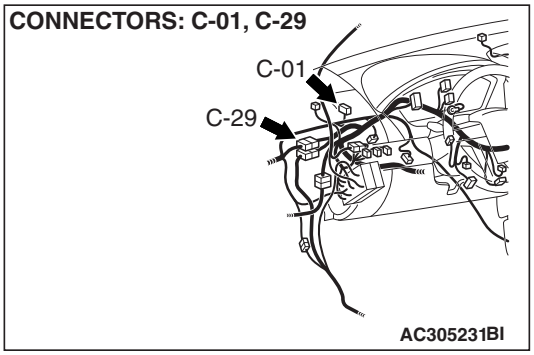
INSPECTION PROCEDURE 23: Preset Stations are Erased.

Memory Backup Power Circuit

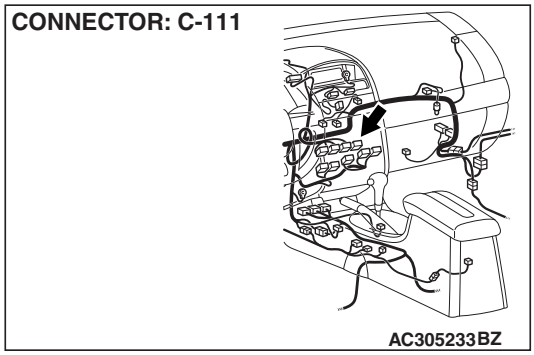


WAP54M036A

CONNECTORS: C-01, C-29



CONNECTOR: C-111



CIRCUIT OPERATION

Power is continuously supplied to the radio and CD player or radio, CD player and CD changer.

TECHNICAL DESCRIPTION (COMMENT)

The cause is probably a faulty radio and CD player or radio, CD player and CD changer memory backup power supply system circuit.

TSB Revision

TROUBLESHOOTING HINTS

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

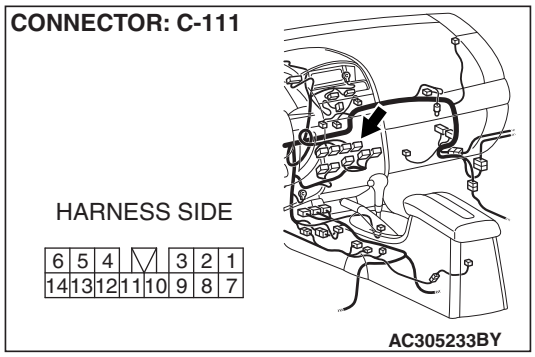
DIAGNOSIS

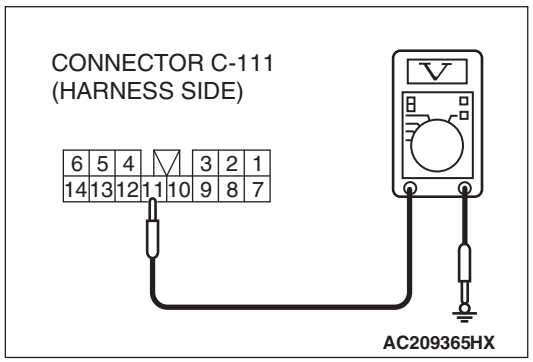
Required Special Tool:

- MB991223: Harness set

STEP 1. Measure at radio and CD player or radio, CD player and CD changer connector C-111 in order to check the power supply circuit to the radio and CD player or radio, CD player and CD changer (through the battery).

(1) Disconnect radio and CD player or radio, CD player and CD changer connector C-111, and measure at the wiring harness side.





(2) Measure the voltage between terminal number 11 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Either repair or replace the radio and CD player or radio, CD player and CD changer. Check that a memory is retained.

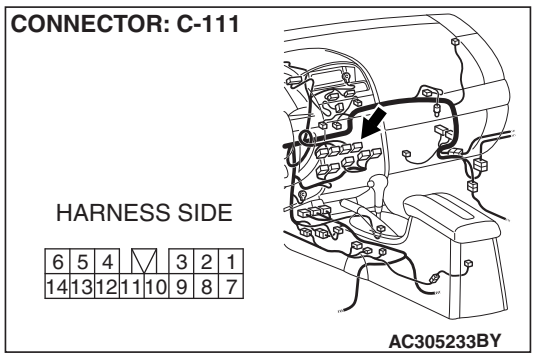
NO : Go to Step 2.

STEP 2. Check radio and CD player or radio, CD player and CD changer connector C-111 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player or radio, CD player and CD changer connector C-111 in good condition?

YES : Go to Step 3.

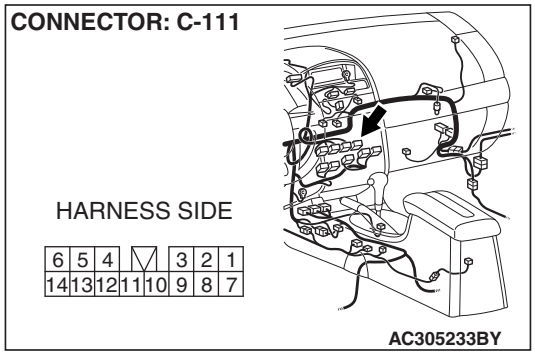
NO : Repair or replace the component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that a memory is retained.

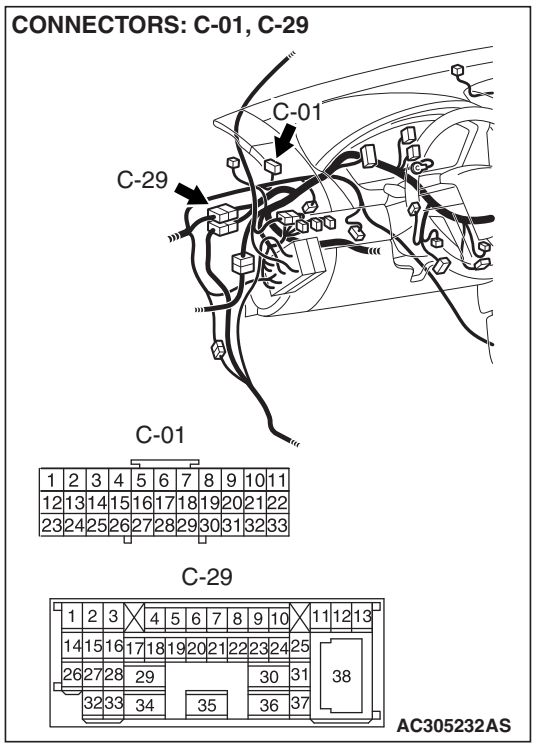


STEP 3. Check the wiring harness between radio and CD player or radio, CD player and CD changer connector C-111 (terminal 11) and the battery.

- Check the wiring harness for open circuit and short circuit.

NOTE:





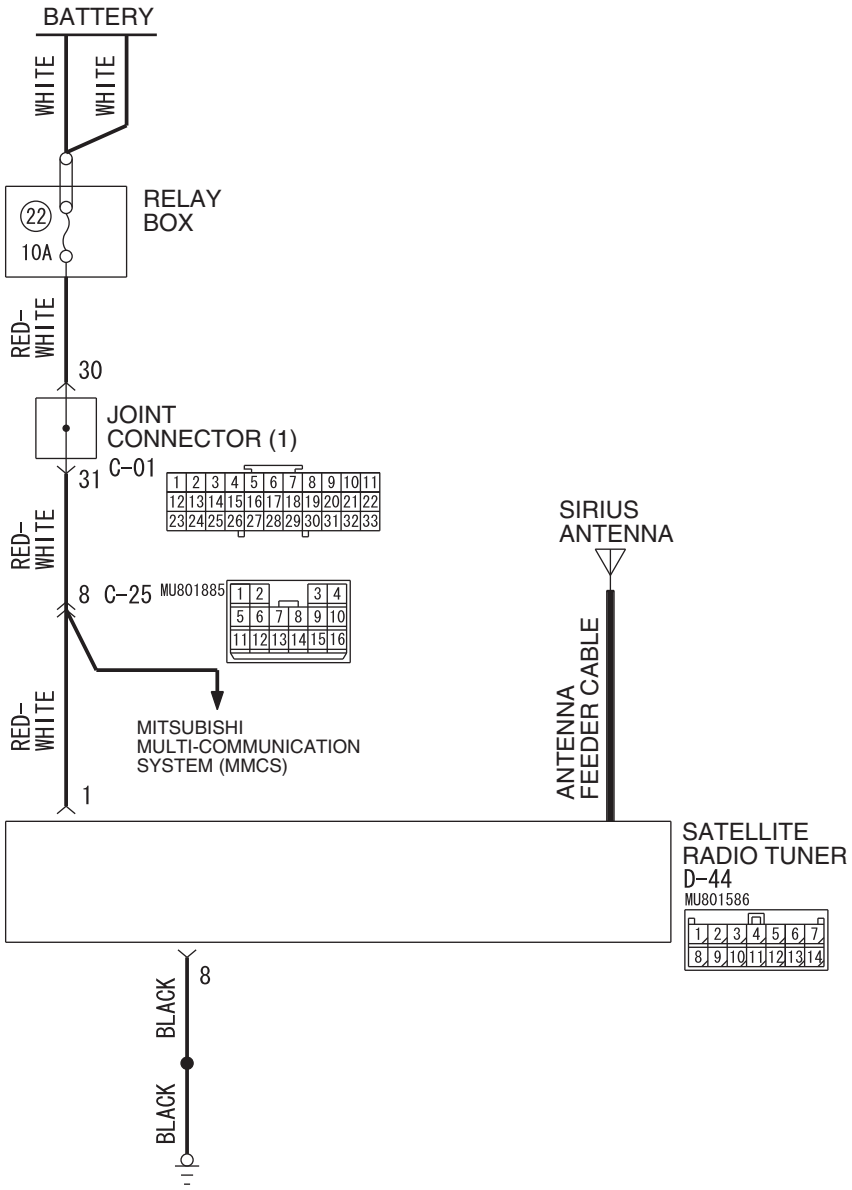
Also check intermediate connector C-29 and joint connector(1) C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-29 or joint connector(1) C-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between radio and CD player or radio, CD player and CD changer connector C-111 (terminal 11) and the battery in good condition?

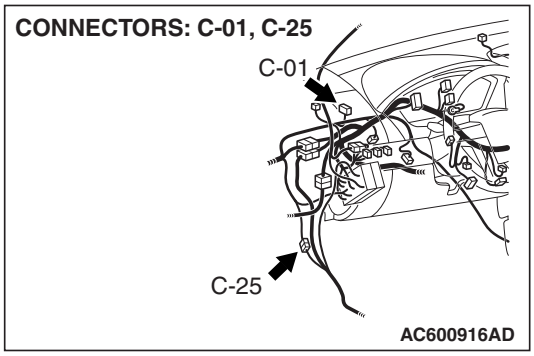
YES : Repair or replace the radio and CD player or radio, CD player and CD changer. Check that a memory is retained.

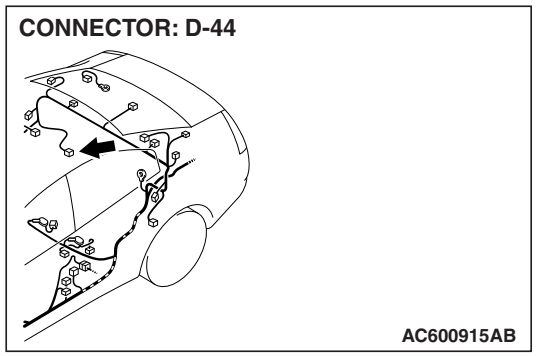
NO : Repair the wiring harness. Check that a memory is retained.

INSPECTION PROCEDURE 24: Only the satellite radio cannot be heard normally.



W7P54M153A





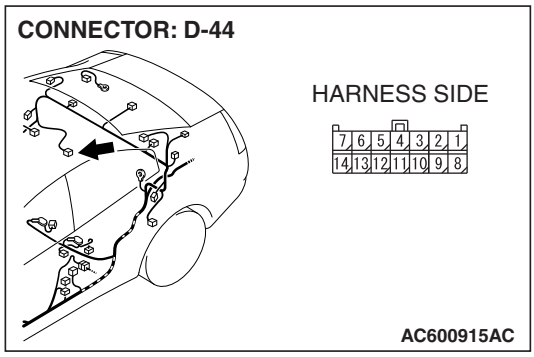
TSB Revision

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The satellite radio tuner may be defective
- The radio, CD player and CD changer may be defective
- The DIN cable may be defective
- The antenna feeder cable may be defective.

DIAGNOSIS

STEP 1. Check satellite radio tuner connector D-44 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

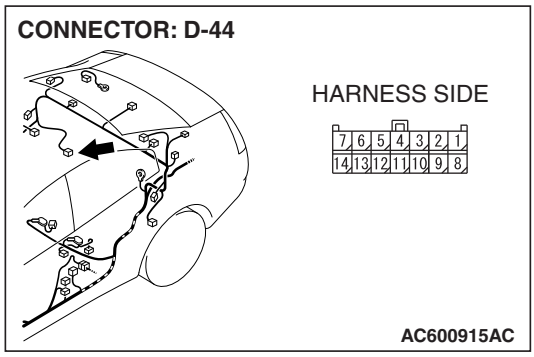


Q: Is satellite radio tuner connector D-44 in good condition?

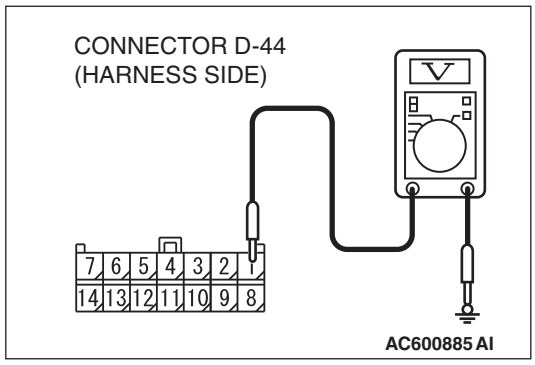
YES : Go to Step 2.

NO : Repair the damaged parts. Then, check that the satellite radio is normal.

STEP 2. Check the battery power supply circuit to the satellite radio tuner. Measure the voltage at satellite radio tuner connector D-44.



(1) Disconnect satellite radio tuner connector D-44 and measure the voltage available at the wiring harness side of the connector.



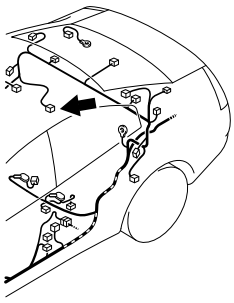
(2) Measure the voltage between terminal 1 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

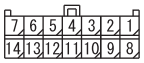
YES : Go to Step 4.

NO : Go to Step 3.

CONNECTOR: D-44

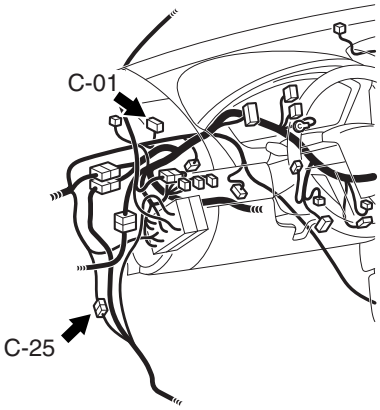


HARNESS SIDE

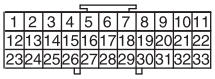


AC600915AC

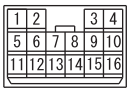
CONNECTORS: C-01, C-25



C-01



C-25



AC600917AE

STEP 3. Check the wiring harness between satellite radio tuner connector D-44 (terminal 1) and the battery.

- Check the wiring harness for open circuit and short circuit.

NOTE:

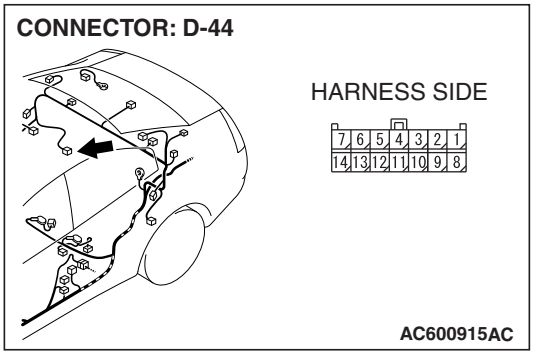
Also check joint connector C-01 and intermediate connector C-25 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 and intermediate connector C-25 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between satellite radio tuner connector D-44 (terminal 1) and battery in good condition?

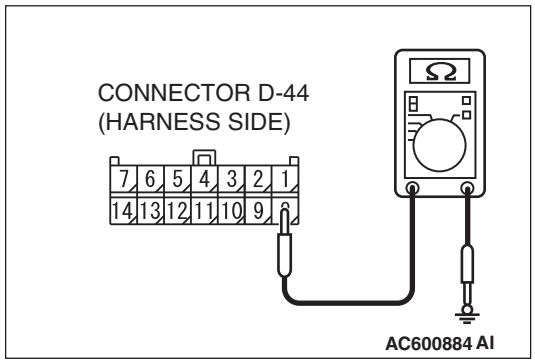
YES : No action is necessary and testing is complete.

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

STEP 4. Check the ground circuit to the satellite radio tuner. Measure the resistance at satellite radio tuner connector D-44.



(1) Disconnect satellite radio tuner connector D-44 and measure the resistance available at the wiring harness side of the connector.



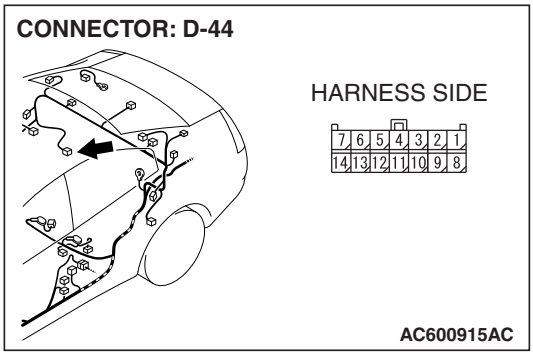
(2) Measure the resistance value between terminal 8 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between satellite radio tuner connector D-44 (terminal 8) and ground.

- Check the ground wire for open circuit.



Q: Is the wiring harness between satellite radio tuner connector D-44 (terminal 8) and ground in good condition?

YES : No action is necessary and testing is complete.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the satellite radio is normal.

STEP 6. Check the DIN cable connector shape and engagement between the satellite radio tuner and the radio, the CD player, and CD changer.

Q: Is there any abnormality to the DIN cable connector shape and engagement between the satellite radio tuner and the radio, the CD player, and CD changer?

YES : Go to Step 7.
NO : Replace the DIN cable, the satellite radio tuner, or the radio, CD player and CD changer. Check that the satellite radio is normal.

STEP 7. DIN cable inspection between the satellite radio tuner and the radio, CD player, and CD changer

Q: Is the DIN cable between the satellite radio tuner and the radio, CD player, and CD changer normal?

YES : Go to Step 8.
NO : Replace the DIN cable. Check that the satellite radio is normal.

STEP 8. Temporarily replace the satellite radio tuner, and check that it is possible to listen to the satellite radio.

Q: When the satellite radio tuner is temporarily replaced, is it possible to listen to the satellite radio?

YES : Replace the satellite radio tuner. Check that the satellite radio is normal.
NO : Replace the antenna feeder cable. Check that the satellite radio is normal.

INSPECTION PROCEDURE 25: CD can not be Inserted.

DIAGNOSIS

STEP 1. Check that a CD has been already loaded.

Q: Has a CD been already loaded?

YES : Take out the CD (If the CD can not be ejected, refer to INSPECTION PROCEDURE 29 P.54A-250). Check that a CD can be inserted.
NO : Go to Step 2.

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 29 P.54A-250.
NO : Go to Step 3.

STEP 3. Check after the CD is loaded.

NOTE: Even though the CD is loaded, 'E01' [Vehicles with multi-center display (low grade type)] or 'ERROR 01' [Vehicles with multi-center display (middle grade type)] 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 'E01' displayed and the CD ejected?

YES : Go to Step 4.
NO : There is no action to be taken.

TSB Revision

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 26: No Sound (CD Only).

DIAGNOSIS

STEP 1. Check again using another 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 "ON" position.

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

YES : Replace the radio and CD player or radio, CD player and CD changer. The CD player should sound normally.

NO : Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P.54A-168.

INSPECTION PROCEDURE 27: 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 or radio, CD player and CD changer.

NOTE: Check by using a known-good CD which is free from scratches, dirt or any other abnormality.

Q: Does the sound jump when tapping the radio and CD player or radio, CD player and CD changer?

YES : Securely mount the radio and CD player or radio, CD player and CD changer. Check that a CD sound skip is resolved.
NO : Either replace the audio system or take the following measures if a servicing shop is nearby.

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

Check that a CD sound skip is resolved.

INSPECTION PROCEDURE 28: 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 : Replace the audio. The sound quality should return to normal.

INSPECTION PROCEDURE 29: CD cannot be Ejected.

DIAGNOSIS

Check the power of ignition switch "ACC".

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

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

NO : Check the memory backup power supply circuit. Refer to Inspection Procedure 1 P.54A-168.

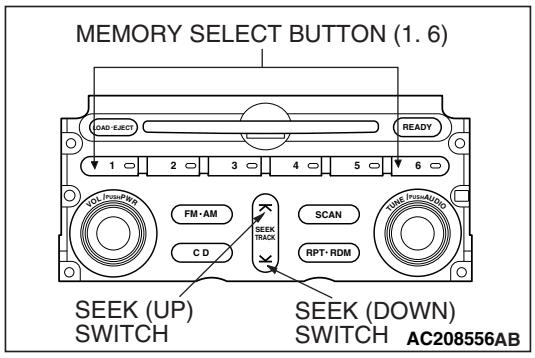
ON-VEHICLE SERVICE

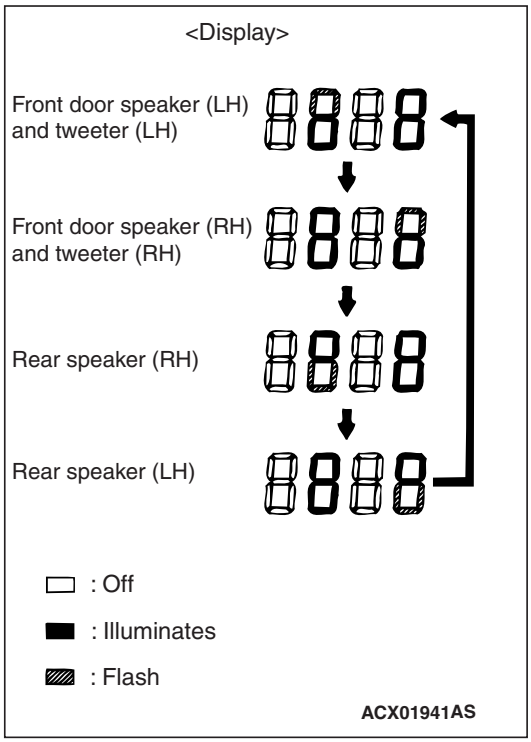
SPEAKER TEST

M1544005400880

Operate the radio panel switches to test the speakers. The multi-center display (middle grade type) shows which speaker is sounding. Enter the speaker test mode according to the following steps:

1. Turn the ignition switch to "ACC" position and switch off the audio.
2. Press the following buttons in that order within 60 seconds from step (1).
   (1) Memory select "1" button
   (2) "SEEK" switch (down side)
   (3) "SEEK" switch (up side)
   (4) Memory select "6" button





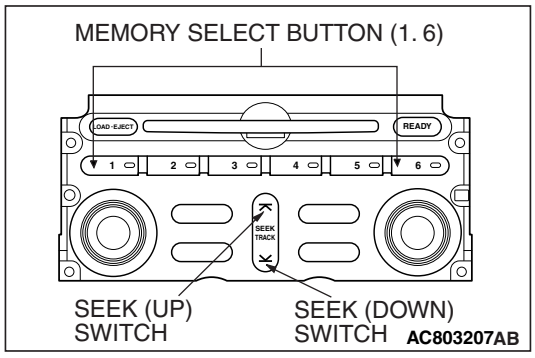
3. Check that the speaker, which is displayed on the multi-center display, sounds (If the memory select "6" button is pressed, the speaker will be changed).
4. If a button other than the memory select "6" button and "EJECT" button (CD) is pressed, or the ignition switch is turned to "LOCK" (OFF) position,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

SPEAKER TEST <VEHICLES WITH MMCS>

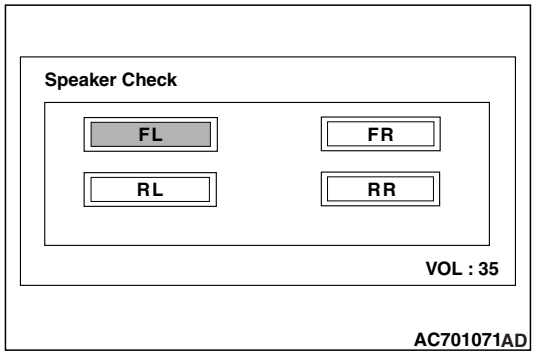
M1544005400761

Operate the radio panel switches to test the speakers. The multi-center display shows which speaker is sounding. Enter the speaker test mode according to the following steps:

1. Turn the ignition switch to "ACC" position and switch off the audio.
2. Press the following buttons in that order within 60 seconds from step (1).
   (1) Memory select "1" button
   (2) "SEEK" switch (down side)
   (3) "SEEK" switch (up side)
   (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).

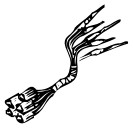
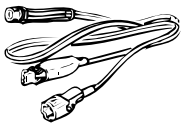
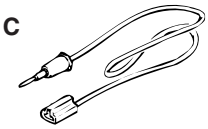
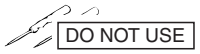
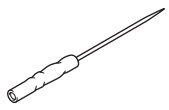


Display	Sound speaker
FL	Front door speaker (LH) and tweeter (LH)
FR	Front door speaker (RH) and tweeter (RH)
RL	Rear speaker (LH)
RR	Rear speaker (RH)

4. If a button other than the memory select "6" button and "EJECT" button (CD) is pressed, or the ignition switch is turned to "LOCK" (OFF) position, you will exit from the speaker test mode.

SPECIAL TOOL

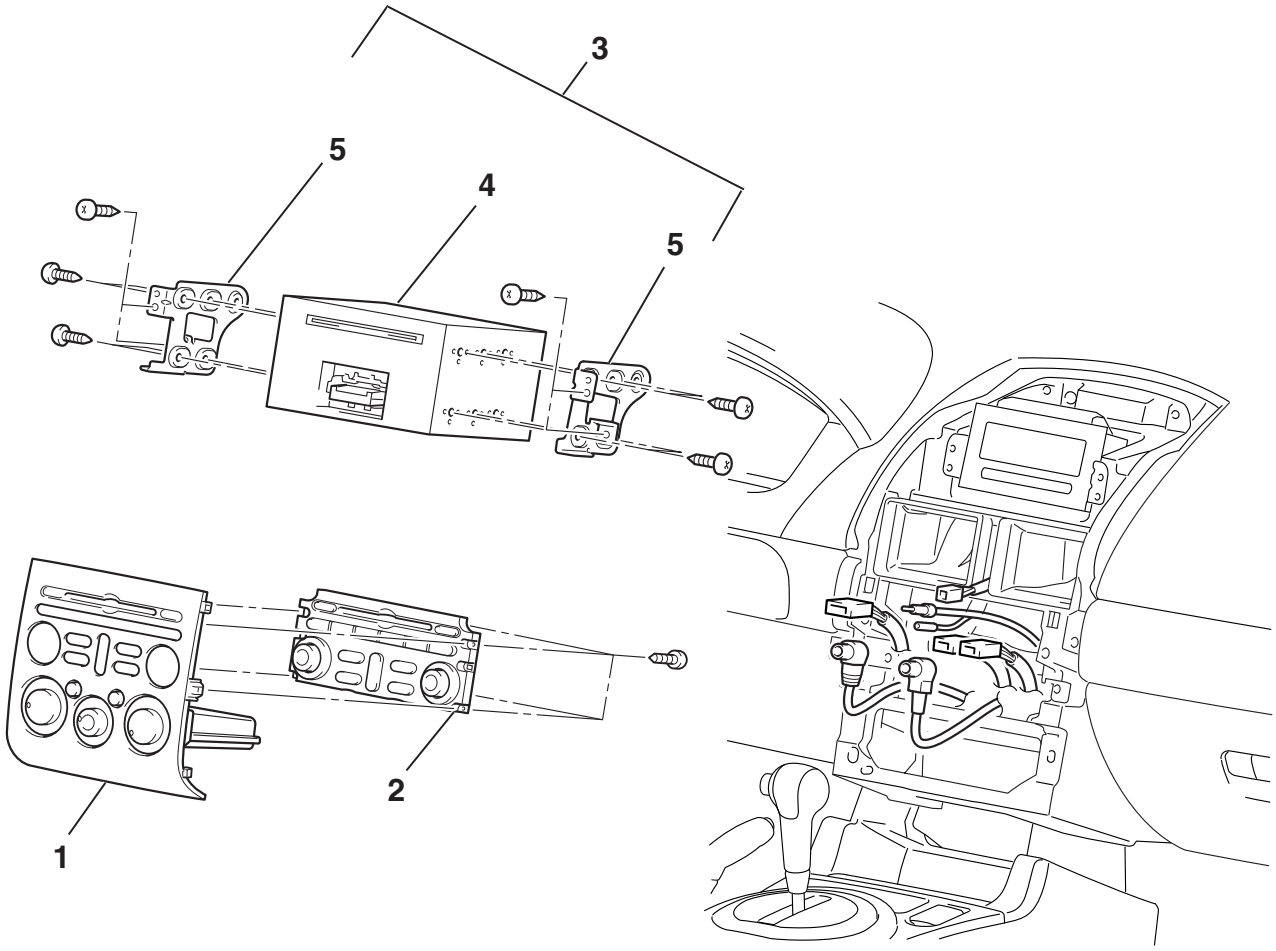
M1544000600511

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  B  C  D  MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: Test harness B: LED harness C: LED harness adapter D: Probe	General service tool (jumper)	Making voltage and resistance measurements during troubleshooting A: Connect pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection
 MB992006	MB992006 Extra fine probe	–	Making voltage and resistance measurement during troubleshooting

RADIO AND CD PLAYER

REMOVAL AND INSTALLATION

M1544010900289



AC306990AB

RADIO REMOVAL STEPS

1. INSTRUMENT CENTER PANEL ASSEMBLY (REFER TO GROUP 52A, INSTRUMENT PANEL P.52A-15.)
2. RADIO PANEL

RADIO REMOVAL STEPS (Continued)

3. RADIO, CD PLAYER AND CD CHANGER ASSEMBLY
4. RADIO, CD PLAYER AND CD CHANGER
5. AUDIO EQUIP BRACKET

TSB Revision

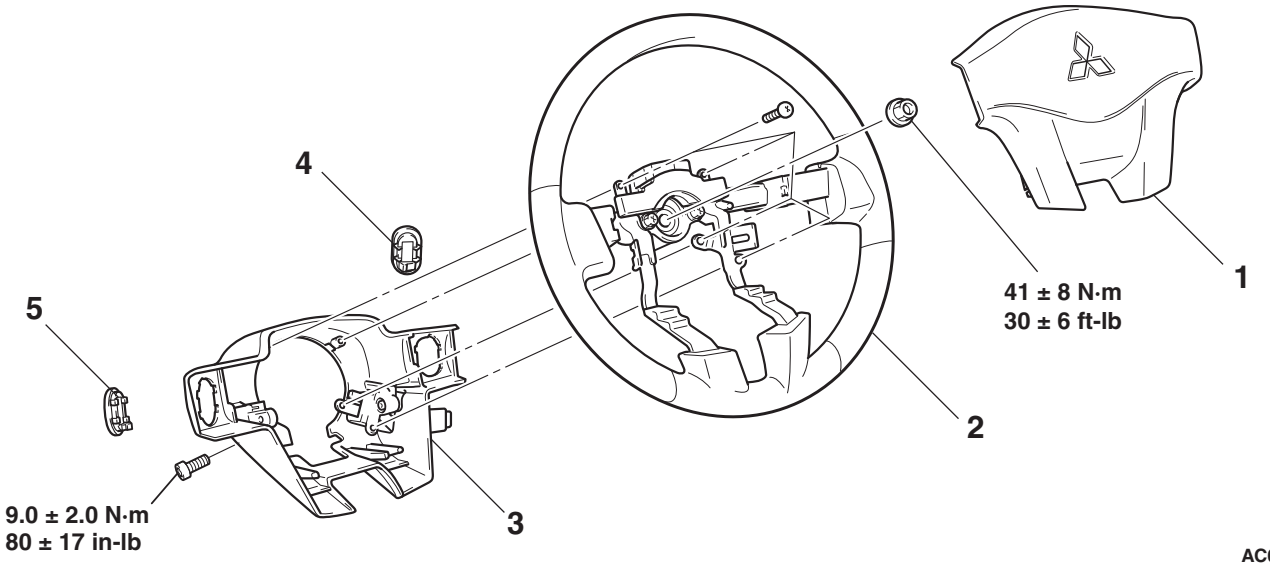
STEERING WHEEL AUDIO REMOTE CONTROL SWITCH

REMOVAL AND INSTALLATION

M1544010100227

⚠ WARNING

- ***Before removing the air bag module, refer to GROUP 52B, Service Precautions P.52B-26 and Air Bag Module and Clock Spring P.52B-435.***
- ***When removing and installing the steering wheel, do not let it bump against the air bag module.***



AC601758AC

REMOVAL STEPS

1. AIR BAG MODULE ASSEMBLY (REFER TO GROUP 52B, AIR BAG MODULE(S) AND CLOCK SPRING P.52B-435.)
2. STEERING WHEEL ASSEMBLY (REFER TO GROUP 37, STEERING WHEEL P.37-28.)

<<A>>

<<A>>

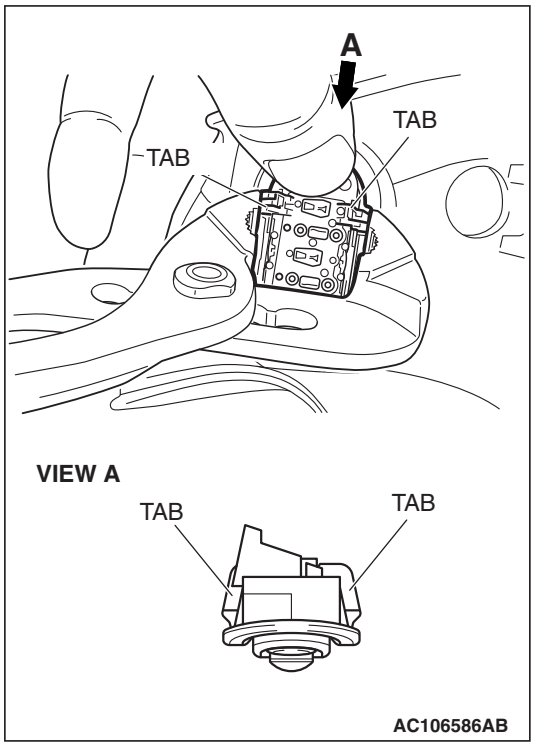
REMOVAL STEPS (Continued)

3. LOWER COVER CAP
4. REMOTE CONTROLLED RADIO SWITCH RH
5. REMOTE CONTROLLED RADIO SWITCH LH

REMOVAL SERVICE POINT

<<A>> REMOTE CONTROLLED RADIO SWITCH RH/LH REMOVAL

Use a tool to hold the tabs on the remote controlled radio switch, and push out the switch by your finger.

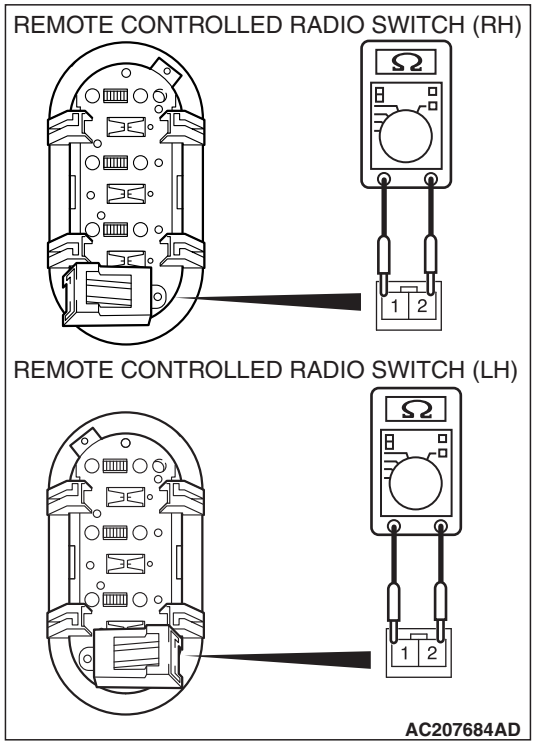


INSPECTION

M1544009700399

REMOTE CONTROLLED RADIO SWITCH CONTINUITY CHECK

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



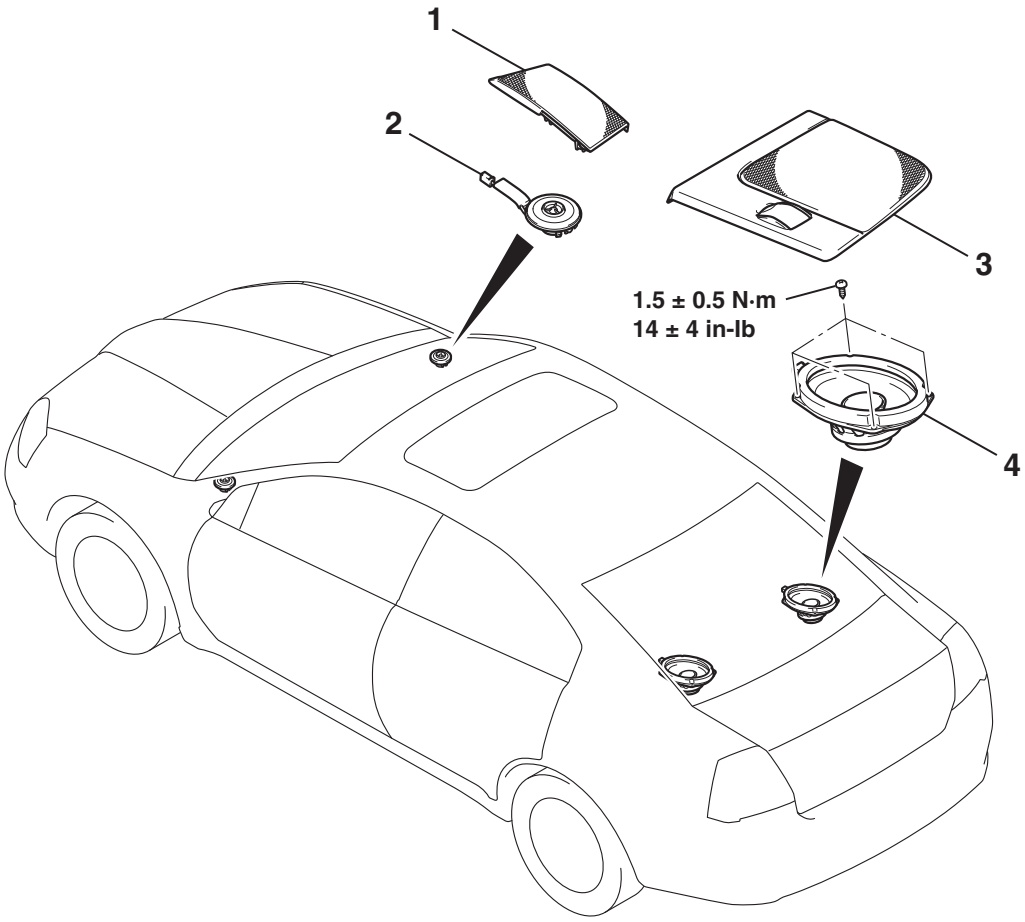
SWITCH POSITION	MEASUREMENT VALUE (RH)	MEASUREMENT VALUE (LH)
No push	Approximately 24.0 kΩ	Open circuit
Upper	Approximately 6.8 kΩ	Approximately 1.2 kΩ
Center	Less than 2 ohms	Approximately 470 kΩ
Lower	Approximately 15.0 kΩ	Approximately 3.3 kΩ

SPEAKER

REMOVAL AND INSTALLATION

<TWEETER/REAR SPEAKER>

M1544002600896



AC307015AC

TWEETER REMOVAL STEPS

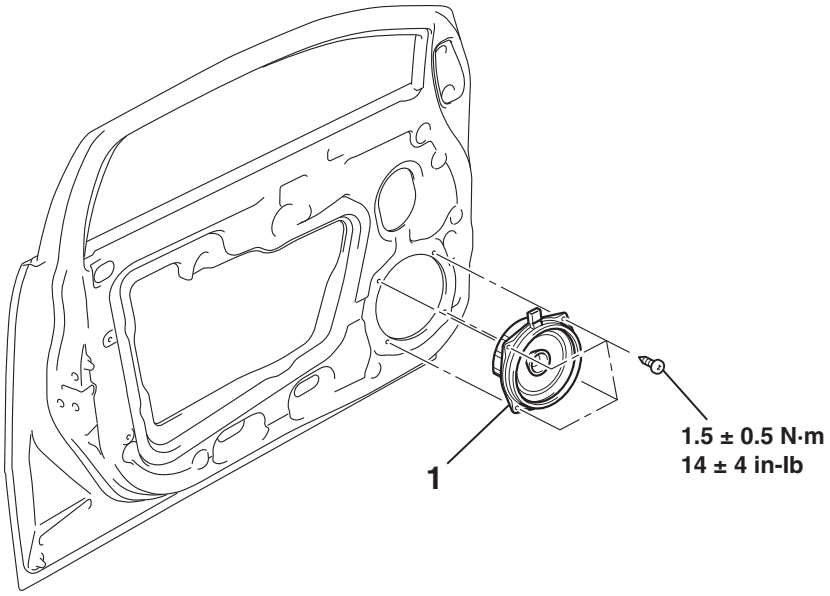
- FRONT DOOR OPENING TRIM, FRONT PILLAR TRIM (REFER TO GROUP 52A, TRIMS P.52A-22.)

1. FRONT SPEAKER GARNISH
2. TWEETER

REAR SPEAKER REMOVAL STEPS

3. REAR SHELF SPEAKER GARNISH (REFER TO GROUP 52A, TRIMS P.52A-22.)
4. REAR SPEAKER

<FRONT DOOR SPEAKER>



AC307181AB

FRONT DOOR SPEAKER REMOVAL STEPS

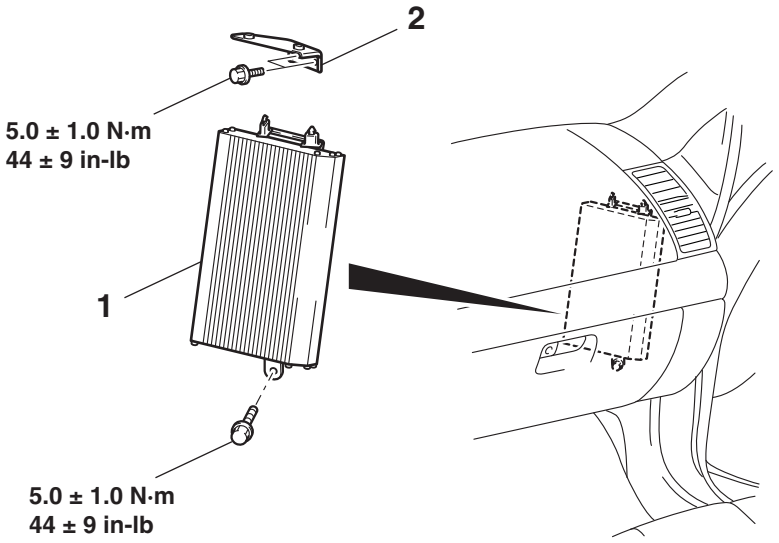
- FRONT DOOR TRIM ASSEMBLY (REFER TO GROUP 52A, DOOR TRIM P.52A-25.)

1. FRONT DOOR SPEAKER

AMPLIFIER

REMOVAL AND INSTALLATION

M1544004100358



AC307102AB

REMOVAL STEPS

- GLOVEBOX ASSEMBLY, INSTRUMENT PANEL PARCEL BOX (REFER TO GROUP 52A, INSTRUMENT PANEL ASSEMBLY P.52A-15.)
- FRONT SCUFF PLATE (RH), COWL SIDE TRIM (RH) (REFER TO GROUP 52A, TRIMS P.52A-22.)

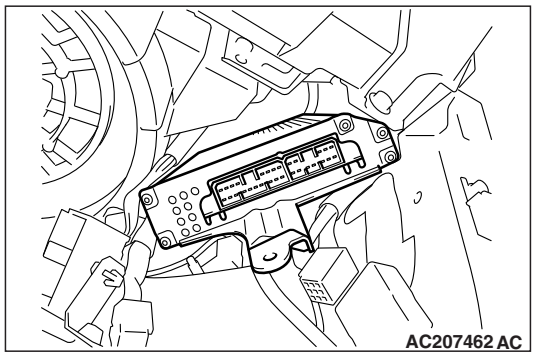
REMOVAL STEPS (Continued)

<<A>> ≪>A< 1. AUDIO AMPLIFIER
2. AMPLIFIER BOX BRACKET

REMOVAL SERVICE POINT

<<A>> AUDIO AMPLIFIER REMOVAL

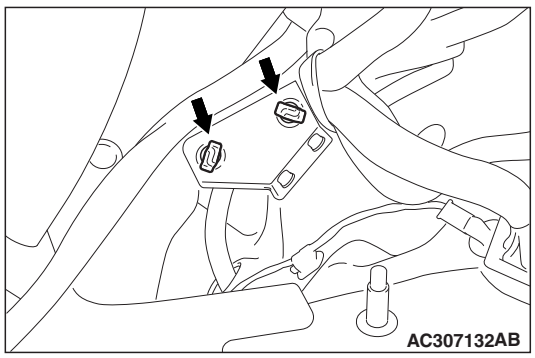
Move the audio amplifier wiring harness to one side, and then maneuver out the audio amplifier.



INSTALLATION SERVICE POINT

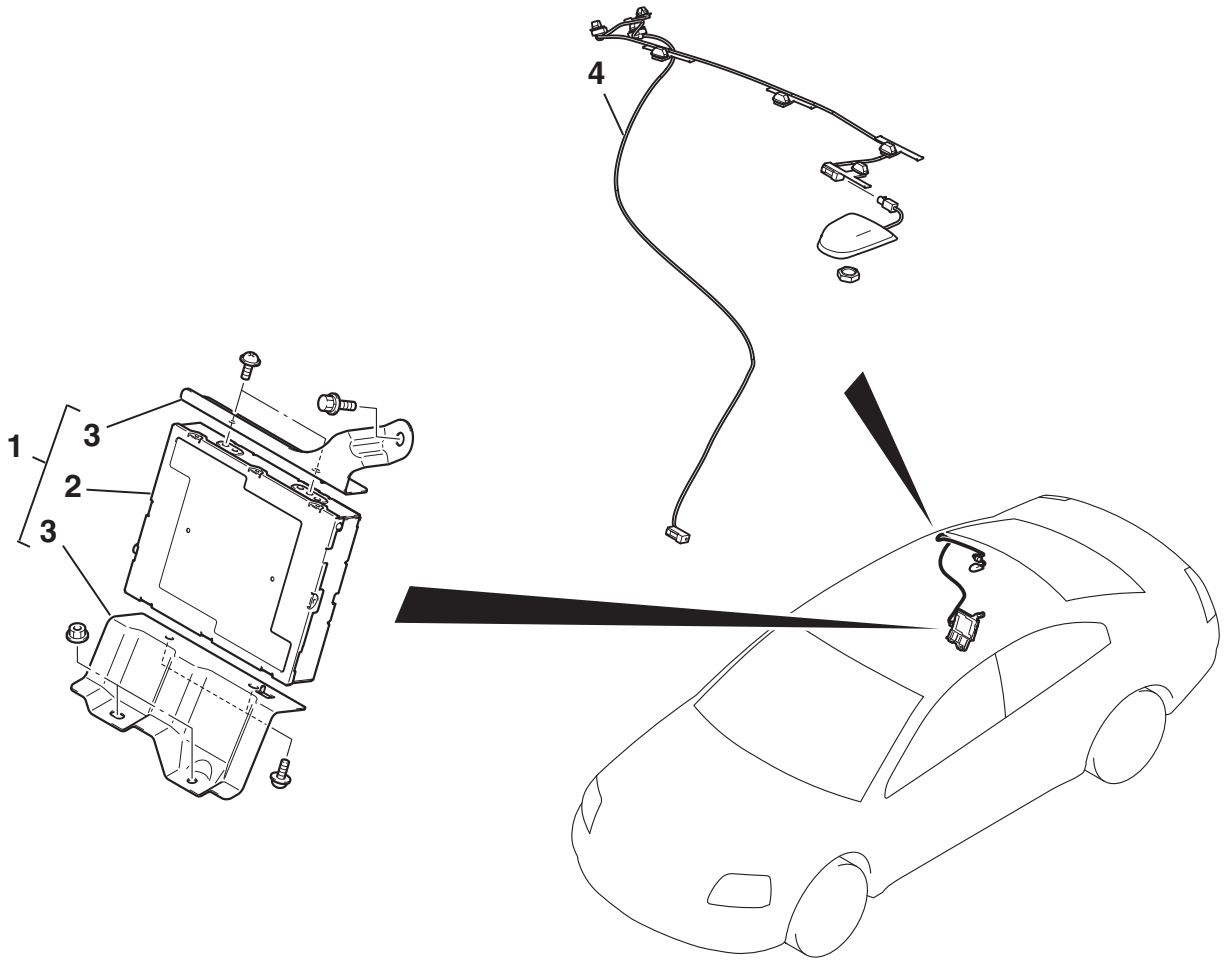
>>A<< AUDIO AMPLIFIER INSTALLATION

Install while aligning with the amplifier mounting hole.



SATELLITE RADIO TUNER AND ANTENNA <VEHICLES WITH SATELLITE RADIO> REMOVAL AND INSTALLATION

M1546019100015



AC601553AB

REMOVAL STEPS

- REAR SEAT CUSHION ASSEMBLY (GROUP 52A, REAR SEAT ASSEMBLY P.52A-42.)
- REAR SEAT BACK ASSEMBLY (GROUP 52A, REAR SEAT ASSEMBLY P.52A-42.)

1. SATELLITE RADIO TUNER ASSEMBLY

REMOVAL STEPS (Continued)

2. SATELLITE RADIO TUNER
3. SATELLITE RADIO TUNER BRACKET

- ANTENNA FEEDER CABLE CLAMP

4. ANTENNA FEEDER CABLE

TSB Revision

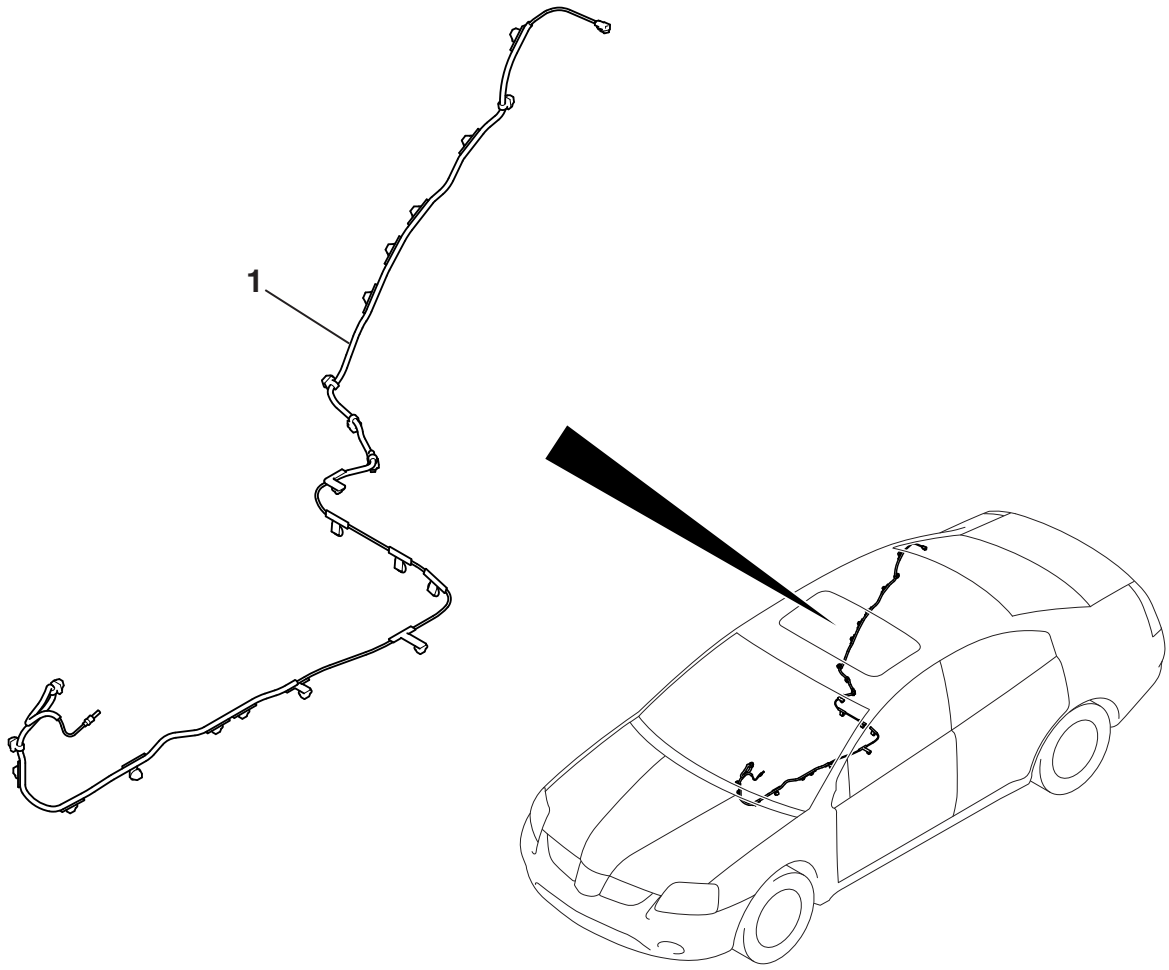
ANTENNA

REMOVAL AND INSTALLATION

M1544002900897

⚠ ***WARNING***

When removing and installing the passenger seat, be sure to carry out advanced air bag special function (accuracy testing and calibration) after the seat has been installed in the vehicle. (Refer to GROUP 52B, On-Vehicle Service P.52B-422.)



AC504226AB

REMOVAL STEPS

- REAR SEAT CUSHION ASSEMBLY (GROUP 52A, REAR SEAT ASSEMBLY P.52A-42.)
- REAR SCUFF PLATE, FRONT DOOR OPENING TRIM (CENTER PILLAR SIDE), REAR DOOR OPENING TRIM (CENTER PILLAR SIDE), FRONT SCUFF PLATE (REFER TO GROUP 52A, TRIMS P.52A-22.)
- FRONT SEAT BELT UPPER AND LOWER CONNECTION (REFER TO GROUP 52A, FRONT SEAT BELT P.52A-45.)

REMOVAL STEPS (Continued)

- CENTER PILLAR TRIM LOWER, COWL SIDE TRIM (REFER TO GROUP 52A, TRIMS P.52A-22.)
- GEARSHIFT LEVER PANEL, FRONT BOX, FLOOR CONSOLE ASSEMBLY (REFER TO GROUP 52A, FLOOR CONSOLE ASSEMBLY P.52A-21.)
- FRONT SEAT ASSEMBLY (REFER TO GROUP 52A, FRONT SEAT ASSEMBLY P.52A-33.)
- TRUNK LID RELEASE HANDLE COVER (REFER TO GROUP 42, TRUNK LID P.42-66.)

TSB Revision

REMOVAL STEPS (Continued)

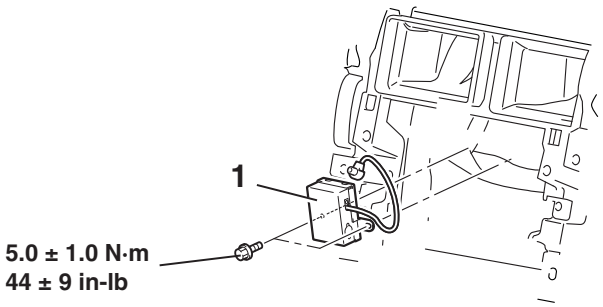
- ACCELERATOR STOPPER (REFER TO GROUP 17, ACCELERATOR CABLE AND PEDAL P.17-9.)
- FLOOR CARPET
- RADIO AND CD PLAYER OR RADIO, CD PLAYER AND CD CHANGER (REFER TO P.54A-253.)
- REAR SEATBACK ASSEMBLY (REFER TO GROUP 52A, REAR SEAT ASSEMBLY P.52A-42.)
- REAR DOOR OPENING TRIM (REAR PILLAR SIDE), REAR PILLAR TRIM, REAR SHELF SPEAKER GARNISH, REAR SHELF TRIM (REFER TO GROUP 52A, TRIMS P.52A-22.)

1. ANTENNA FEEDER CABLE
- ANTENNA FEEDER CABLE CLAMP

AUX ADAPTER

REMOVAL AND INSTALLATION

M1544020000027



AC900955AB

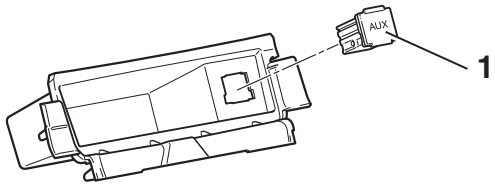
REMOVAL STEPS

- RADIO, CD PLAYER ASSEMBLY OR RADIO, CD PLAYER AND CD CHANGER ASSEMBLY (REFER TO P.54A-253.)

1. AUX BOX

REMOVAL AND INSTALLATION

M1544019900026



AC900952AB

REMOVAL STEPS

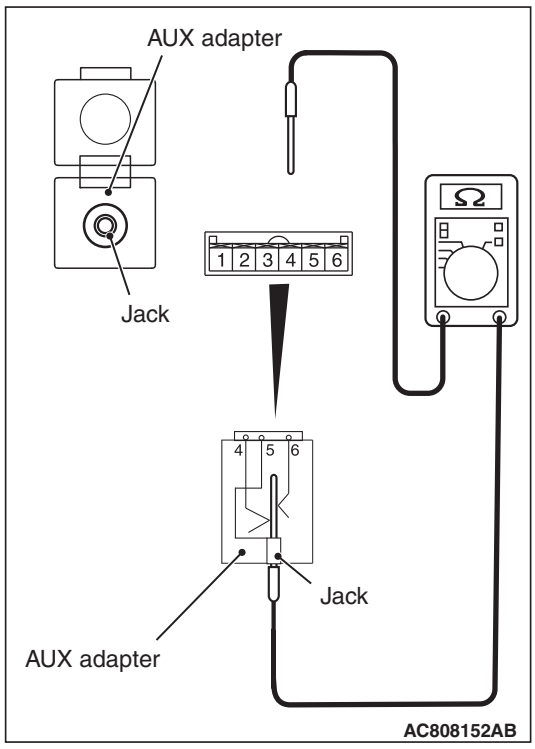
- FRONT BOX (REFER TO GROUP 52A INTERIOR P.52A-21.)

1. AUX ADAPTER

AUX ADAPTER INSPECTION

M1544019800018

1. Remove the AUX adapter. (Refer to P.54A-262.)
2. Check that continuity exists between the terminal and the jack of AUX adapter.



AC808152AB

Terminal number	Measurement value
4	Continuity exists (2 Ω or less)
5	
6	

HANDS-FREE CELLULAR PHONE SYSTEM

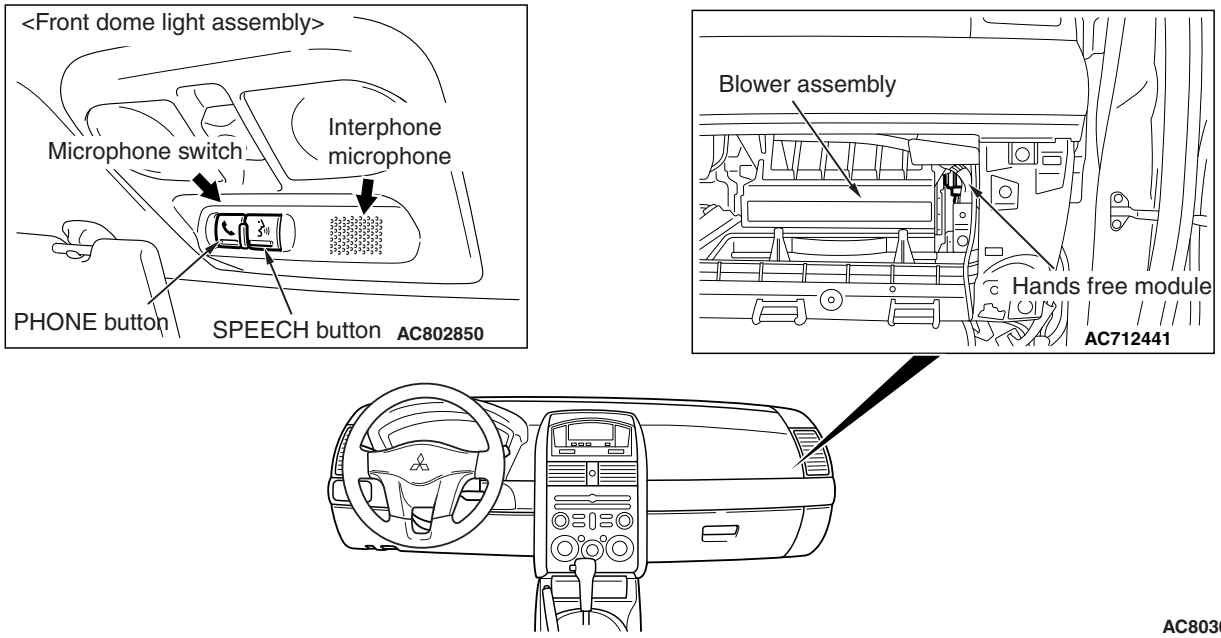
GENERAL DESCRIPTION

M1544401200149

The hands-free module that can make a wireless connection to the Bluetooth®* support cellular phone has been installed to the right side of the blower assembly. In addition, the interphone microphone and microphone switch (PHONE button, SPEECH button) have been installed to the front dome light assembly. The hands-free cellular phone system can be used through the communication between the hands-free module and the audio device.<Option>

NOTE:

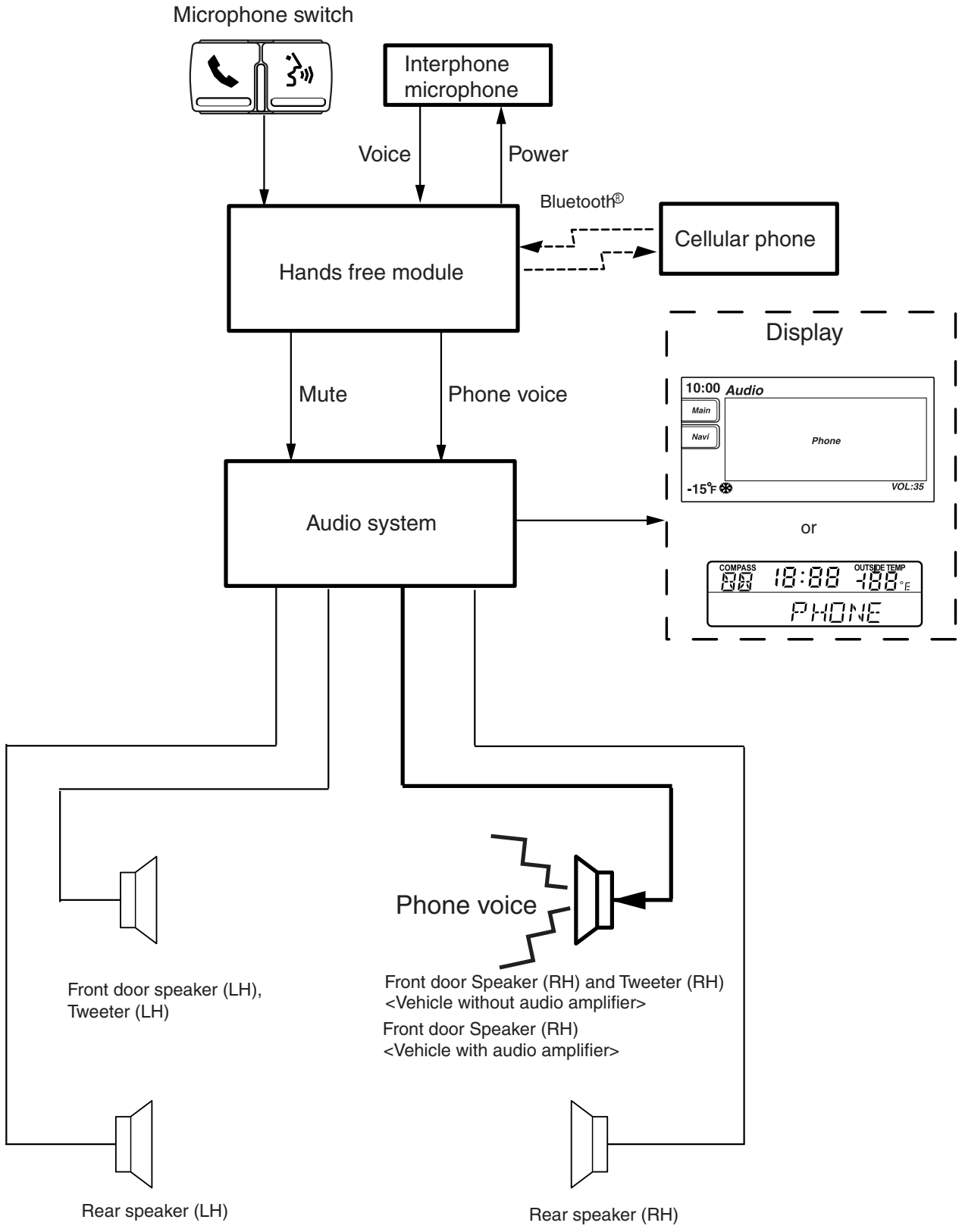
- **: Bluetooth® is registered trademark of BLUETOOTH SIG, INC.*
- *Bluetooth® is the short-distance digital wireless communication technology using 2.45 GHz frequency band. The communication effective area is within 10 m, and the feature is that the communication can be achieved even when an obstacle is present between the communicating devices. However, if a metal obstacle is present, it may interfere with the Bluetooth® communication.*
- *Some Bluetooth® cellular phones may not be compatible with the hands free module*



- Pairing can be performed with 7 cellular phones at the maximum.(Some Bluetooth® cellular phones may not be compatible with the hands free module)
- When the hands free cellular phone system is used, the communication speech and voice information are output from the front door speaker (RH) and tweeter (RH) <vehicles without audio amplifier> or front door speaker (RH) <vehicles with audio amplifier>.
- While output is made from the hands-free module to the audio system, the audio system mutes audio output from the front door speaker (RH) and tweeter (RH) <vehicles without audio amplifier> or from the front door speaker (RH) <vehicles with audio amplifier> except communication speech and voice information.
- The hands-free module can store 32 registration names (4 telephone numbers for each name) per language.
- During a call, the voice output from the interphone microphone to the cellular phone can be stopped by voice operation.
- The use languages can be changed among American English, Canadian French, and American Spanish.
- While the hands-free cellular phone system is activated, the display shows "Phone" or "PHONE". However, on the multi-center display (7-inch wide liquid crystal monitor display type), "Phone" disappears in approximately 10 seconds when the screen is other than the audio screen.

TSB Revision

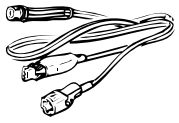
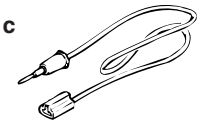
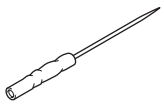
SYSTEM BLOCK DIAGRAM



TSB Revision

SPECIAL TOOLS

M1544403500072

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
a b  c  d MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Check harness b. LED harness c. LED harness adapter d. Probe	General service tool (jumper)	Continuity check and voltage measurement at harness wire or connector a. For checking connector pin contact pressure b. For checking power supply circuit c. For checking power supply circuit d. For connecting a locally sourced tester
 MB992006	MB992006 Extra fine probe	–	Continuity check and voltage measurement at harness wire or connector

DIAGNOSIS

INTRODUCTION TO HANDS FREE CELLULAR PHONE DIAGNOSIS

M1544404500019

Prior to the troubleshooting, check if the causes below can be the case. If any, take actions according to the solution method.

Pairing of the cellular phone and hands-free module cannot be made.
The hands-free module does not recognize the cellular phone.
The Bluetooth® connection between the cellular phone and hands-free module cannot be made.

Cause	SOLUTION
The power of the cellular phone is off.	With the power of the cellular phone turned on, check the trouble symptom again.
The model of the cellular phone is not applicable to the pairing with the hands-free module.	Check the specifications of the cellular phone on the website (www.mitsubishicars.com/owners). If the model is applicable, perform pairing registration in the vehicle (near the glove box).
In addition to the cellular phone to be recognized, two or more cellular phones exist in the vehicle, and the connection is made to the one with high priority level.	With the voice operation, select the cellular phone to be connected. Or, change the priority level.
Power is not supplied to the hands-free module.	Turn the ignition switch to the "ON" position, and check the trouble symptom. If the voice information is not output when the SPEECH button is pressed with the ignition switch turned to the "ON" position, communication of the microphone switch may have an error, or the power system to the hands-free module may have a problem. Perform the Inspection Procedure 1 "When the SPEECH button is pressed, the voice information is not output." of the troubleshooting. (Refer to P.54A-269.)

Calling cannot be made using the hands-free cellular phone system.

Cause	SOLUTION
The Bluetooth® connection is not made between the hands-free module and cellular phone.	Connect the cellular phone to the hands-free module via Bluetooth®.
The vehicle is not located in the communication area of the cellular phone.	Move the vehicle to the communication area of the cellular phone.

The voice recognition operation cannot be performed.
The communication voice cannot be heard by the other party.

Cause	SOLUTION
During the conversation, the interphone microphone is set to mute.	During the conversation, press the SPEECH button and set to mute off by voice recognition.
The hands-free module cannot recognize the speech voice because of noise or others.	Minimize the noise by turning off the A/C, closing the window, and stopping the engine, and then clearly speak up near the interphone microphone. Or, customize the voice recognition using the speaker enrollment function.
The interphone microphone, or the connection has a problem.	The interphone microphone may have a problem. Perform Inspection Procedure 2 "When the SPEECH button is pressed, the voice information is output, but the voice recognition is not performed." of the troubleshooting. (Refer to P.54A-280.) Or, with the special operation of the PHONE button, the connection of the interphone microphone can be checked. (Refer to P.54A-290.)
The SPEECH button, or the connection has a problem.	If the voice information is not output when the SPEECH button is operated, the microphone switch has a problem. Perform the Inspection Procedure 1 "When the SPEECH button is pressed, the voice information is not output." of the troubleshooting. (Refer to P.54A-269.)

A call cannot be received when the PHONE button is pressed.
The voice information and communication voice cannot be output from the speaker.

Cause	SOLUTION
The Bluetooth® connection is not made between the hands-free module and cellular phone.	Connect the cellular phone to the hands-free module via Bluetooth®.
The PHONE button, or the connection has a problem.	If the voice information is not output when the SPEECH button is operated, the microphone switch has a problem. Perform the Inspection Procedure 1 "When the SPEECH button is pressed, the voice information is not output." of the troubleshooting. (Refer to P.54A-269.)
The interphone microphone, or the connection has a problem.	The interphone microphone may have a problem. Perform Inspection Procedure 2 "When the SPEECH button is pressed, the voice information is output, but the voice recognition is not performed." of the troubleshooting. (Refer to P.54A-280.) Or, with the special operation of the PHONE button, the connection of the interphone microphone can be checked. (Refer to P.54A-285.)

The sound of other party cannot be heard from the speaker in the vehicle although the sound at the vehicle side can be heard by the other party.

Cause	SOLUTION
The communication between the hands-free module and audio system has a problem	Check if the voice is normally output from the front door speaker (RH) and the tweeter (RH) with the audio system. If the voice is output normally, the communication between the hands-free module and audio system has a problem. Perform the Inspection Procedure 1 "When the SPEECH button is pressed, the voice information is not output." of the troubleshooting. (Refer to P.54A-269.)

TSB Revision

TROUBLESHOOTING STRATEGY

M1540203800260

Use these steps to plan your diagnostic strategy. Follow through with each step to ensure that you have exhausted all possible methods of finding a combination meter fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find and repair the malfunction by following the symptom chart.
4. Verify that the malfunction has been eliminated.

TROUBLE SYMPTOM CHART

M1546001800837

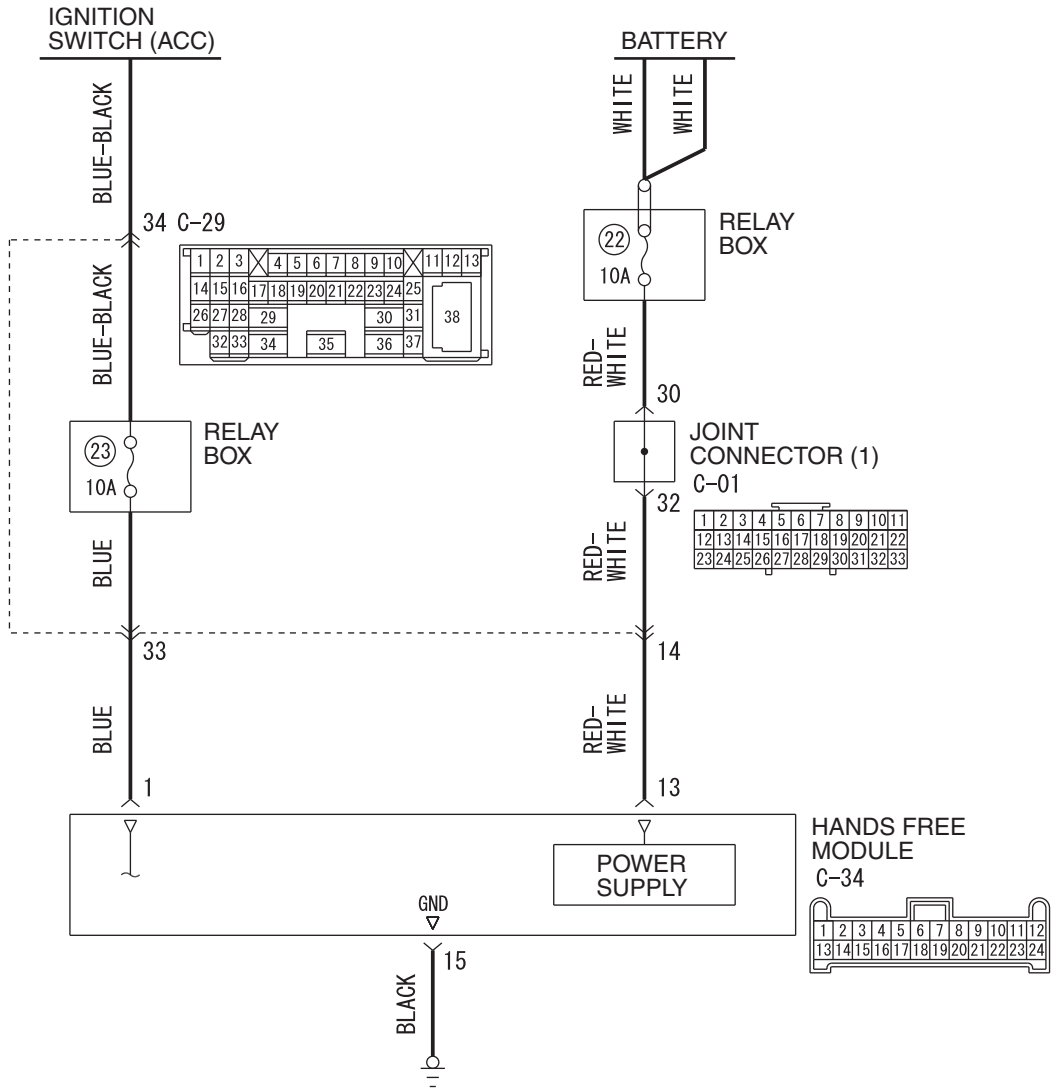
Inspection Procedure No.	Trouble symptom	Reference page
1	When the SPEECH button is pressed, the voice information is not output.	P.54A-269
2	When the SPEECH button is pressed, the voice information is output, but the voice recognition is not performed.	P.54A-280
3	When the hands-free cellular phone system is activated, the audio system is not set to mute. "PHONE (phone)" is not shown on the display.	P.54A-283

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: When the SPEECH button is pressed, the voice information is not output.

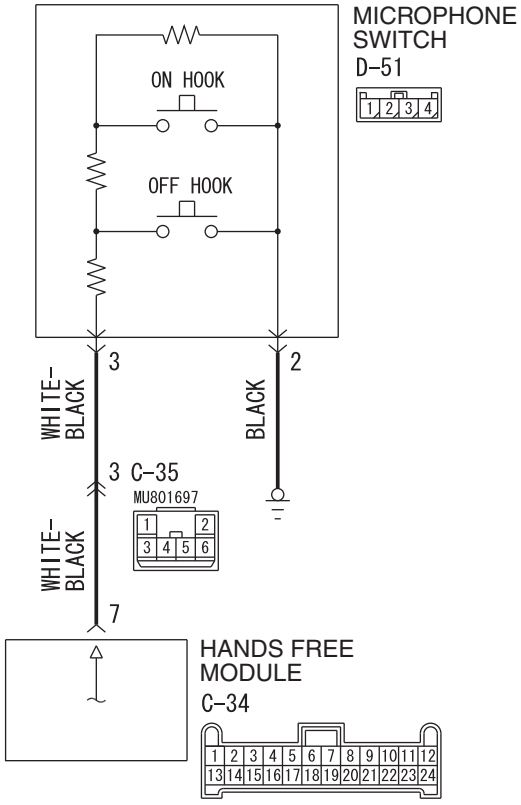
⚠ CAUTION
Before replacing the module, ensure that the power supply circuit and the ground circuit are normal.

Hands Free Module Power Supply Circuit



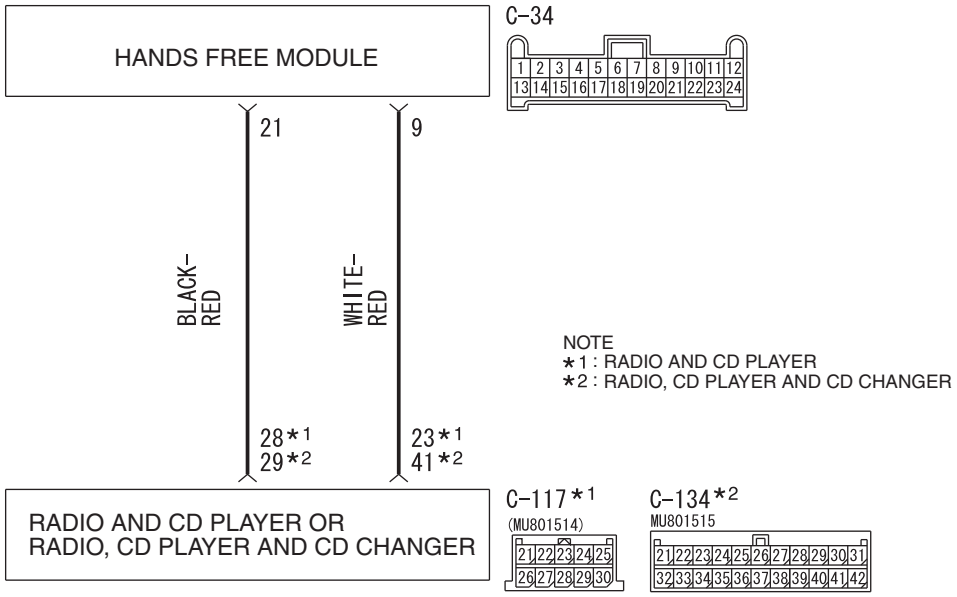
W9P54M050A

Microphone Switch Circuit



WAP54M038A

Hands Free Cellar Phone System Circuit

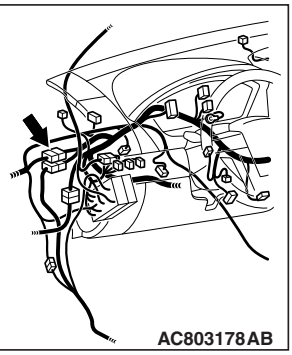


NOTE
*1 : RADIO AND CD PLAYER
*2 : RADIO, CD PLAYER AND CD CHANGER

W9P54M053A

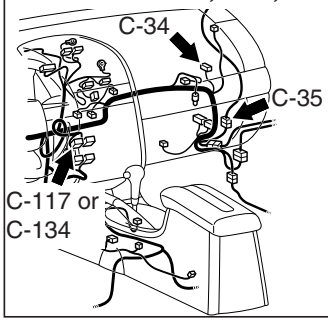
TSB Revision

Connector: C-29



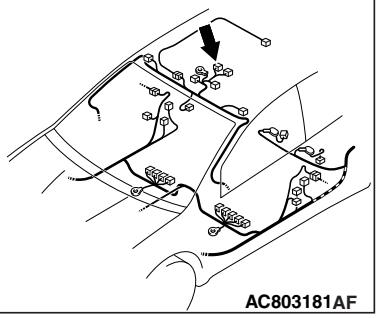
AC803178AB

Connectors: C-34, C-35, C-117, C-134



AC803179AB

Connector: D-51



AC803181AF

CIRCUIT OPERATION

With the operation of the SPEECH button of the microphone switch, the hands-free module starts output to the radio and CD player <vehicles without audio amplifier> or radio, CD player and CD changer <vehicles with audio amplifier> for voice information. At this time, the voice information is output from the front door speaker (RH) and tweeter (RH) for the radio and CD player <vehicles without audio amplifier>, and from the front speaker for the radio, CD player and CD changer <vehicles with audio amplifier>.

TECHNICAL DESCRIPTION (COMMENT)

If the voice information is not output when the SPEECH button is pressed, the microphone switch, hands-free module, radio and CD player <vehicles without audio amplifier>, radio, CD player and CD changer <vehicles with audio amplifier>, or power supply circuit to the hands-free module may be faulty.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunctions of microphone switch
- Malfunction of hands free module
- Malfunction of radio and CD player <vehicle without audio amplifier> or radio, CD player and CD changer <vehicle with audio amplifier>

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the audio system.

Check that the audio system is activated normally, the voice is output from each speaker, and each of the audio information is shown on the display.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to G54A - radio with CD player Diagnosis P.54A-167.

STEP 2. Check the microphone switch.

Refer to P.54A-290.

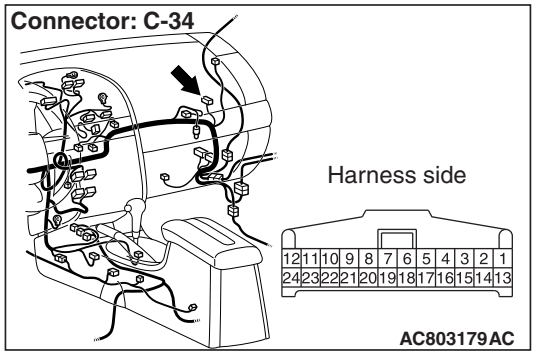
Q: Is the check result normal?

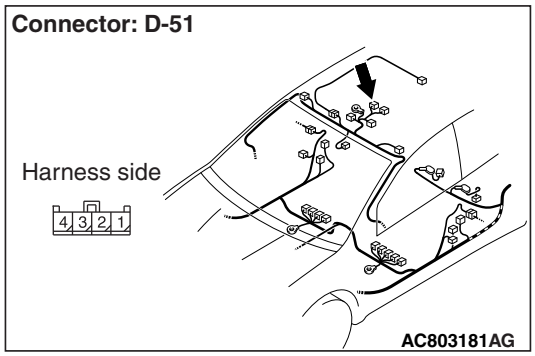
YES : Go to Step 3.

NO : Replace the microphone switch.

TSB Revision

STEP 3. Check hands-free module connector C-34 and microphone switch connector D-51 for loose, corroded or damaged terminals, or terminals pushed back in the connector.





Q: Are hands-free module connector C-34 and microphone switch connector D-51 in good condition?

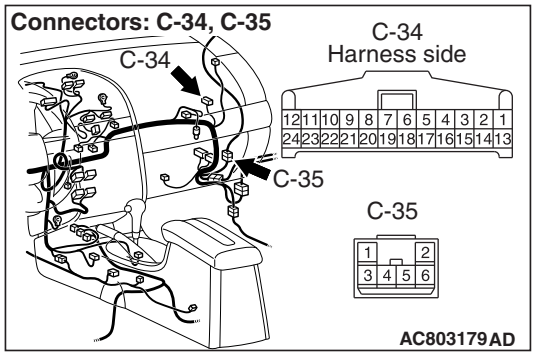
YES : Go to Step 4.

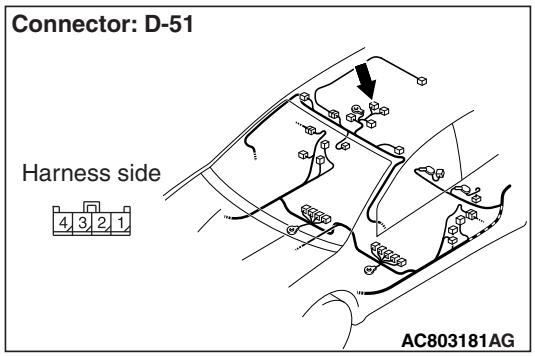
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector InspectionP.00E-2.

STEP 4. Check the wiring harness between hands free module connector C-34 (terminal 7) and microphone switch connector D-51 (terminal 3).

- Check the wiring harness for open circuit and short circuit.

  NOTE: Also check intermediate connector C-35 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-35 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector InspectionP.00E-2.



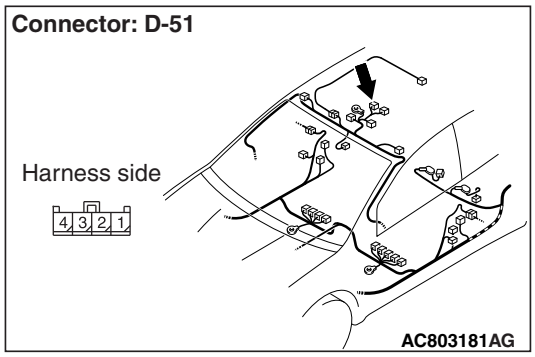


Q: Is the wiring harness between hands free module connector C-34 (terminal 7) and microphone switch connector D-51 (terminal 3) in good condition?

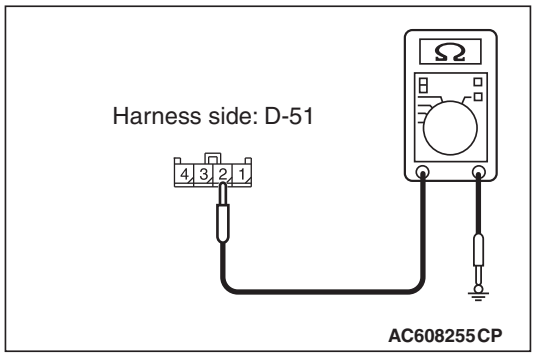
YES : Go to Step 5.

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

STEP 5. Check the ground circuit to the microphone switch. Measure the resistance at microphone switch connector D-51.



(1) Disconnect hands free microphone switch connector D-51, and measure at the wiring harness side.



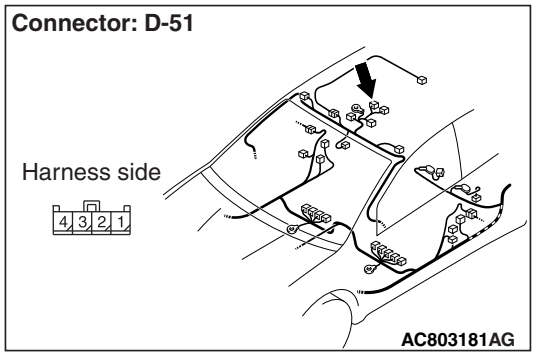
(2) Measure resistance between terminal 2 and ground.

OK: The resistance should be 2 ohm or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 7.
NO : Go to Step 6.

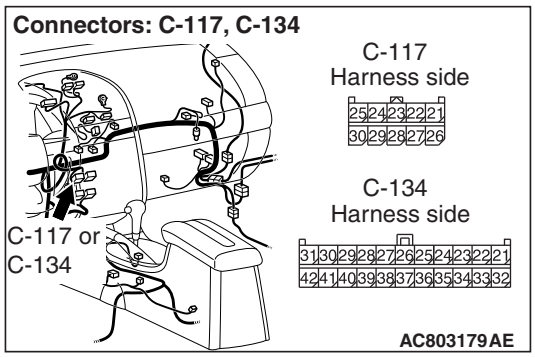
STEP 6. Check the wiring harness between microphone switch connector D-51 (terminal 2) and ground.



- Check the ground wire for open circuit.

Q: Is the wiring harness between microphone switch connector D-51 (terminal 2) and ground in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

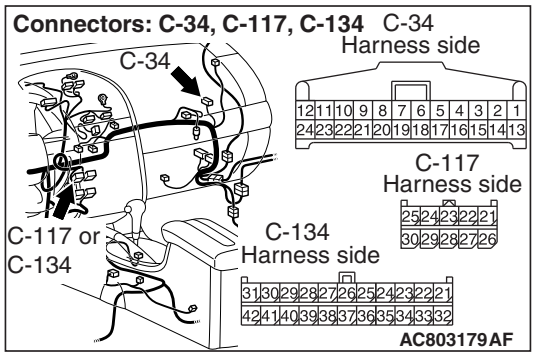


STEP 7. Check radio and CD player C-117 <vehicle without audio amplifier> or radio, CD player and CD changer C-134 <vehicle with audio amplifier> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are radio and CD player C-117 <vehicle without audio amplifier> or radio, CD player and CD changer C-134 <vehicle with audio amplifier> in good condition?

YES : Go to Step 8.

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



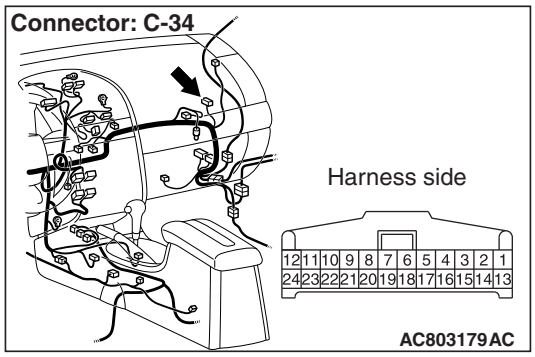
STEP 8. Check the wiring harness between radio and CD player C-117 (terminal 23, 28) <vehicle without audio amplifier> or radio, CD player and CD changer C-134 (terminal 41, 29) <vehicle with audio amplifier> and hands free module connector C-34 (terminal 9, 21).

- Check the wiring harness for open circuit and short circuit.

Q: Is the wiring harness between radio and CD player C-117 (terminal 23, 28) <vehicle without audio amplifier> or radio, CD player and CD changer C-134 (terminal 41, 29) <vehicle with audio amplifier> and hands free module connector C-34 (terminal 9, 21) in good condition?

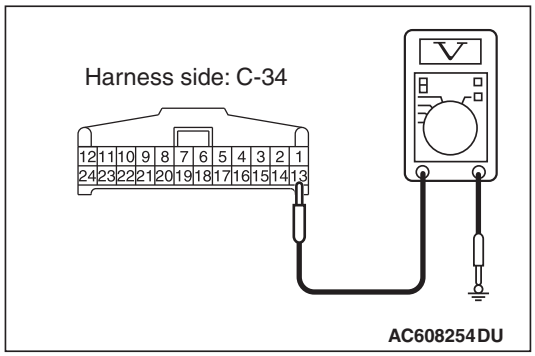
YES : Go to Step 9.

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



STEP 9. Check the power supply circuit to the hands free module. Measure the voltage at hands free module connector C-34.

(1) Disconnect hands free module connector C-34, and measure the voltage available at the hands free module side of the connector.

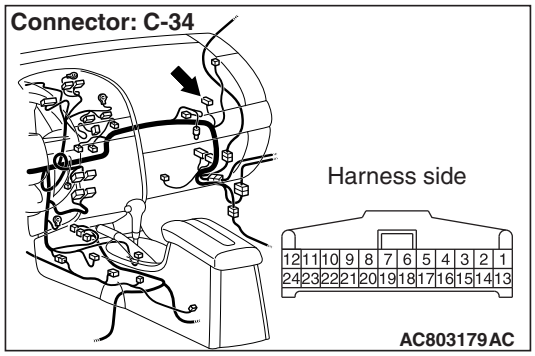


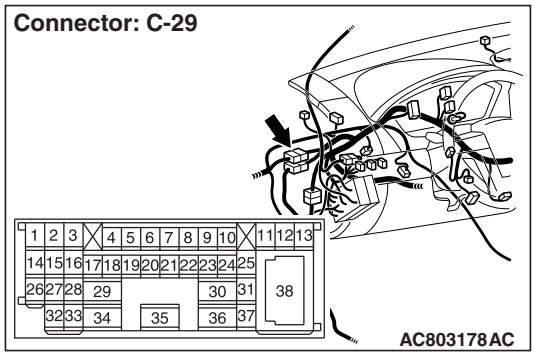
(2) Measure the voltage between terminal 13 and ground.

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

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

YES : Go to Step 11.
NO : Go to Step 10.





STEP 10. Check the wiring harness between hands free module connector C-34 (terminal 13) and battery.

- Check the wiring harness for open circuit and short circuit.

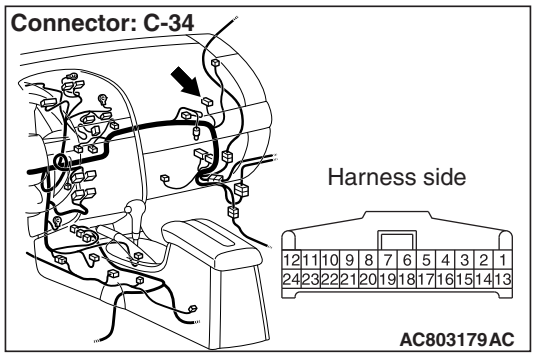
NOTE:

Also check intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between hands free module connector C-34 (terminal 13) and battery in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

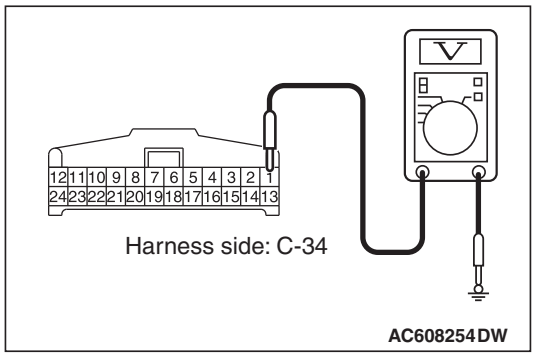
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.



STEP 11. Check the power supply circuit to the hands free module. Measure the voltage at hands free module connector C-34.

(1) Disconnect hands free module connector C-34, and measure the voltage available at the hands free module side of the connector.

(2) Ignition switch "ACC" position.



(3) Measure the voltage between terminal 1 and ground.

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

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

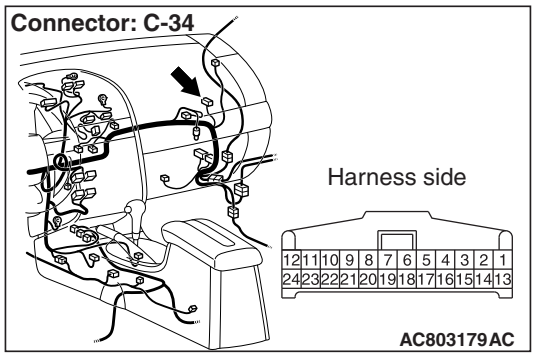
YES : Go to Step 13.

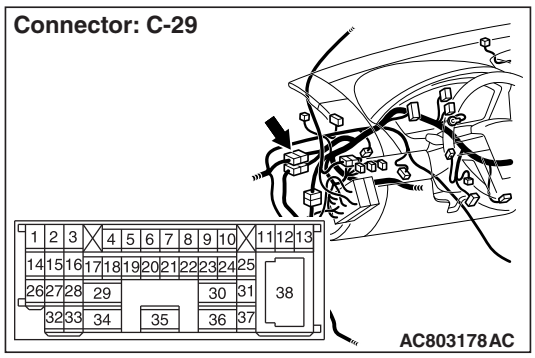
NO : Go to Step 12.

STEP 12. Check the wiring harness between hands free module connector C-34 (terminal 1) and ignition switch (ACC).

- Check the wiring harness for open circuit and short circuit.

NOTE:





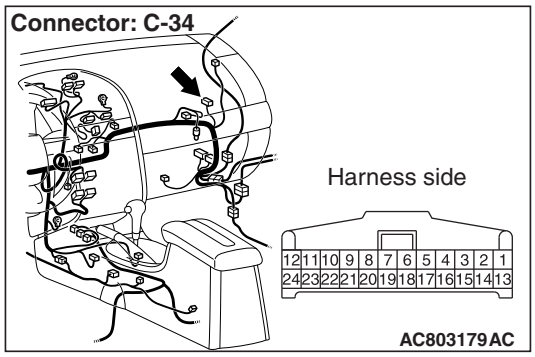
Also check intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection.

Q: Is the wiring harness between hands free module connector C-34 (terminal 1) and ignition switch (ACC) in good condition?

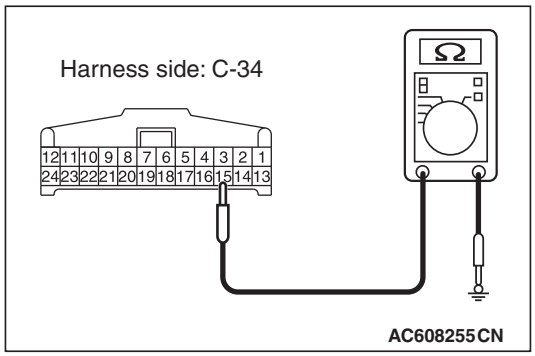
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).

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

STEP 13. Check the ground circuit to the hands free module. Measure the resistance at hands free module connector C-34.



(1) Disconnect hands free module connector C-34, and measure at the wiring harness side.



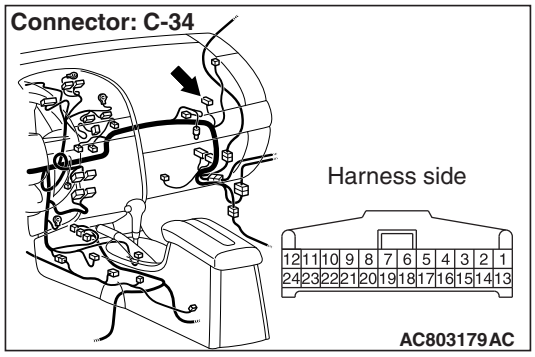
(2) Measure resistance between terminal 15 and ground.

OK: The resistance should be 2 ohm or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 15.
NO : Go to Step 14.

STEP 14. Check the wiring harness between hands free module connector C-34 (terminal 15) and ground.



- Check the ground wire for open circuit.

Q: Is the wiring harness between hands-free module connector C-34 (terminal 15) and ground in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-14).
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 15. Temporarily replace the hands ree module, and check the trouble symptom.

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

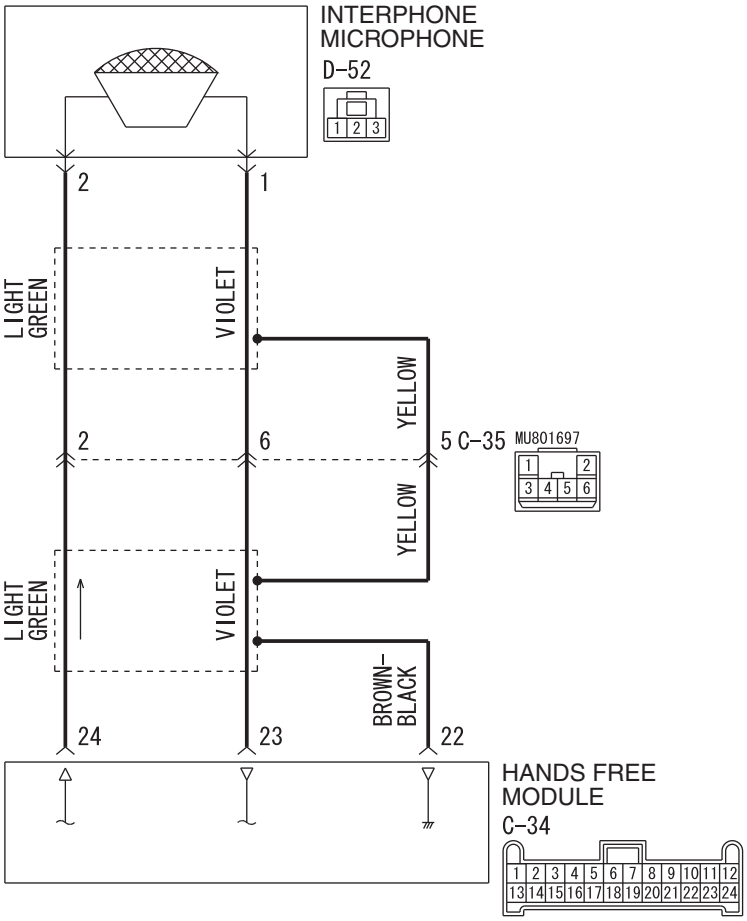
Q: Is the normal conversation possible with the hands free cellular phone system?

YES : Replace the hands free module.
NO : Replace the radio and CD player <vehicle without audio amplifier> or radio, CD player and CD changer <vehicle with audio amplifier>.

INSPECTION PROCEDURE 2: When the SPEECH button is pressed, the voice information is output, but the voice recognition is not performed.

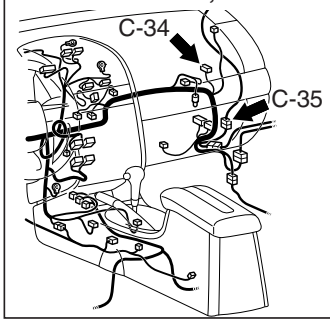
⚠ CAUTION
Before replacing the module, ensure that the power supply circuit and the ground circuit are normal.

Hands Free Cellular Phone System Circuit



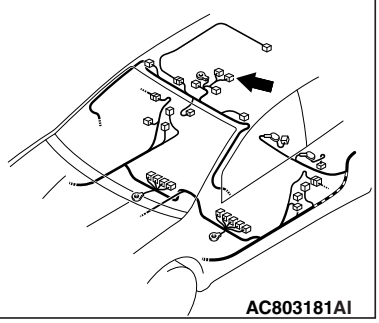
WAP54M039A

Connectors: C-34, C-35



AC803179AG

Connector: D-52



AC803181AI

TSB Revision

CIRCUIT OPERATION

With the operation of the SPEECH button, the hands-free module starts voice recognition. In addition, the power source is supplied by the hands-free module.

TECHNICAL DESCRIPTION (COMMENT)

If the voice recognition cannot be performed, the interphone microphone or hands-free module may be faulty.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunctions of interphone microphone
- Malfunction of hands free module

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the interphone microphone.

Refer to P.54A-290.

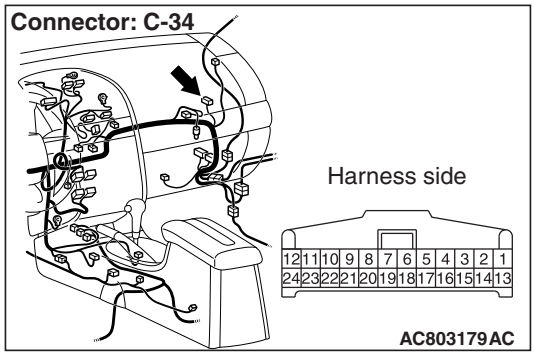
Q: Is the check result normal?

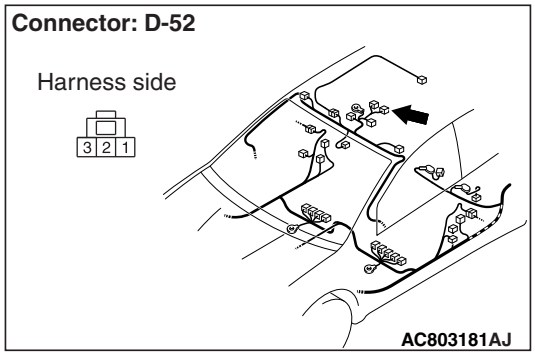
YES : Go to Step 4.
NO : Go to Step 2.

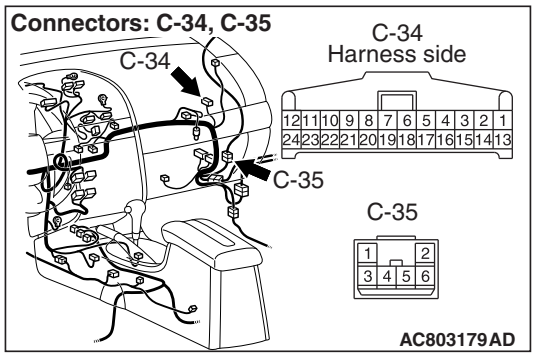
STEP 2. Check hands free module connector C-34 and interphone microphone connector D-52 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

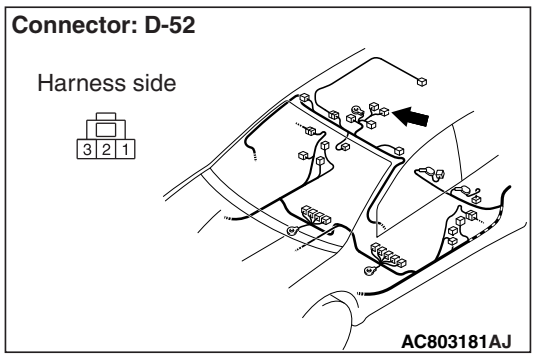
Q: Are hands free module connector C-34 and interphone microphone connector D-52 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.









STEP 3. Check the wiring harness between hands free module connector C-34 (terminal 24, 23) and interphone microphone connector D-52 (terminal 2, 1).

- Check the wiring harness for open circuit and short circuit.

  NOTE: Also check intermediate connector C-35 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-35 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between hands free module connector C-34 (terminal 24, 23) and interphone microphone connector D-52 (terminal 2, 1) in good condition?

YES : Go to Step 4.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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

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

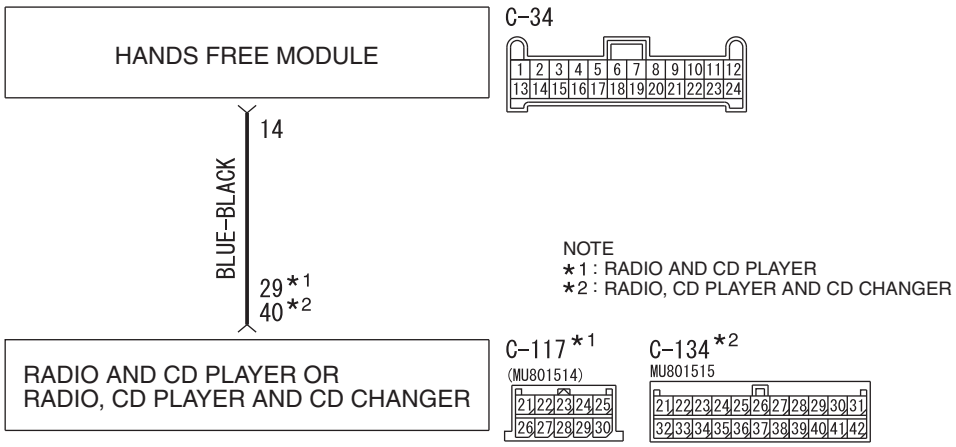
Q: Is the normal conversation possible with the hands free cellular phone system?

YES : Replace the interphone microphone.
NO : Replace the hands free module.

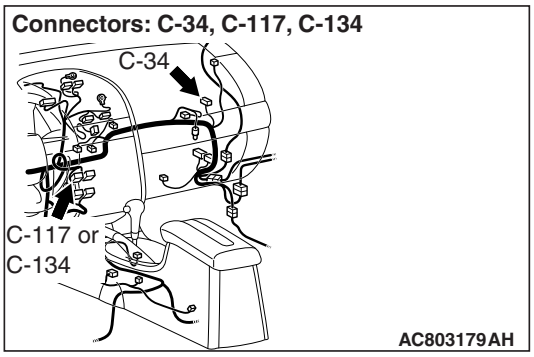
INSPECTION PROCEDURE 3: When the hands-free cellular phone system is activated, the audio system is not set to mute. "PHONE (phone)" is not shown on the display.

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

Hands Free Cellar Phone System Circuit



W9P54M058A



CIRCUIT OPERATION

If the radio and CD player <vehicles without audio amplifier> or the radio, CD player and CD changer <vehicles with audio amplifier> receives the signal for MUTE activation from the hands free module, the output from all the speakers other than the front door speaker (RH) or tweeter (RH) is set to 0 in any case.

TECHNICAL DESCRIPTION (COMMENT)

If the audio system is not set to mute while the hands-free cellular phone system is activated, the radio and CD player <vehicles without audio amplifier>, radio, CD player and CD changer <vehicles with audio amplifier>, or the hands-free module may be faulty.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunctions of radio and CD player <vehicle without audio amplifier> or radio, CD player and CD changer <vehicle with audio amplifier>
- Malfunction of hands free module

DIAGNOSIS

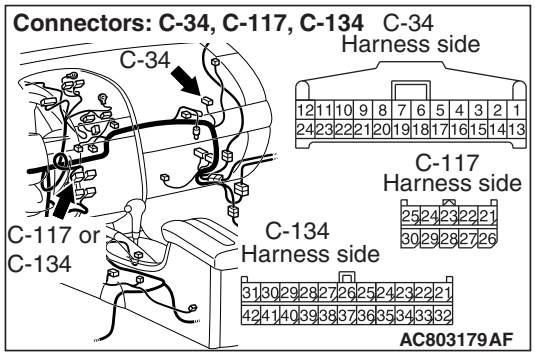
Required Special Tools:
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the audio system.
Check that the audio system is activated normally, the voice is output from each speaker, and each of the audio information is shown on the display.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to G54A - radio with CD player Diagnosis P.54A-167.

STEP 2. Check hands free module C-34 and radio and CD player C-117 <vehicle without audio amplifier> or radio, CD player and CD changer C-134 <vehicle with audio amplifier> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

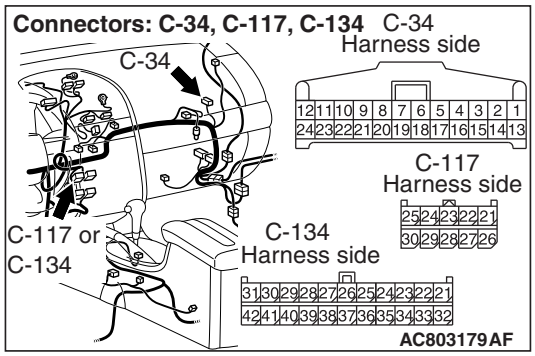


Q: Are hands free module C-34 and radio and CD player C-117 <vehicle without audio amplifier> or radio, CD player and CD changer C-134 <vehicle with audio amplifier> in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 3. Check the wiring harness between radio and CD player C-117 (terminal 29) <vehicle without audio amplifier> or radio, CD player and CD changer C-134 (terminal 40) <vehicle with audio amplifier> and hands free module connector C-34 (terminal 14).

- Check the wiring harness for open circuit and short circuit.



Q: Is the wiring harness between radio and CD player C-117 (terminal 29) <vehicle without audio amplifier> or radio, CD player and CD changer C-134 (terminal 40) <vehicle with audio amplifier> and hands free module connector C-34 (terminal 14) in good condition?

YES : Go to Step 4.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 4. Temporarily replace the hands free module, and check the trouble symptom.
Check that the normal conversation is possible with the hands free cellular phone system.

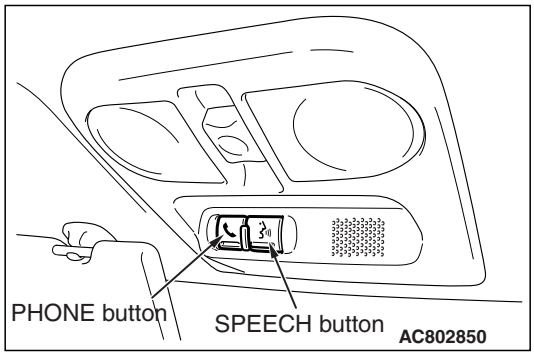
Q: Is the normal conversation possible with the hands free cellular phone system?
YES : Replace the hands free module.
NO : Replace the radio and CD player <vehicle without audio amplifier> or radio, CD player and CD changer.

ON-VEHICLE SERVICE

PAIRING A CELLULAR PHONE OR DELETING A PHONE

M1544403700173

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



PAIRING A CELLULAR PHONE

1. Shift the selector lever to "P" (parking) position and pull the parking brake lever.
2. Turn the ignition switch to "ACC" or "ON" position.
3. Press the SPEECH button.
4. Say "Setup."
5. Say "Pairing options."
6. The voice guide will say "Do you want to Pair a phone, delete a phone or list paired phones?"
7. Say “Pair a phone.”
8. The voice guide will say "This operation should only be performed while the vehicle is parked. Please say continue to perform this operation." Say "Continue."
9. The voice guide will say "Please say a 4-digit pairing code."
10. Say a 4 digit code. The 4 digit code will be registered as a pairing code for the phone.
    - When the confirmation function is on, the system will confirm whether the number said is acceptable. Answer "Yes" to go Step 10. Say "No" to return to pairing code selection.

    NOTE:
    - *The pairing code entered here is only used for the Bluetooth® connection certification. It is any 4-digit code the user would like to select.*
    - *Remember the pairing code as it needs to be keyed into the phone later in the pairing process.*
    - *Depending on the selected Bluetooth® connection settings, entry of the paring code may be required each time the Bluetooth® cellular phone attempts to connect to the hands free cellular phone system. Refer to your cellular phone owner's manual for connection defaults and settings.*

11. The voice guide will say “Start pairing procedure on phone. See phone’s manual for instructions.” Refer to the owner’s manual for your cellular phone and enter into the phone the pairing code that was registered in Step 10.
12. When the hands free cellular phone system finds a Bluetooth® cellular phone, the voice guide will say "Please say the name of the phone after the beep."
13. After you hear the beep, name the phone by saying a name of your preference.

    NOTE:
    - *When the hands free cellular phone system cannot recognize the Bluetooth® cellular phone, the pairing process will end and the system will beep and then return to normal status.*
    - *Try the pairing process again after reconfirming whether or not the Hands free cellular phone system supports your Bluetooth® compatible cellular phone.*
14. The voice guide will say "Assign a priority for this phone between 1 and 7 where 1 is the phone used most often."
15. Say a number between 1 and 7 to set a priority level for the cellular phone.
    - If you selected a priority level that has already been set for a different phone, the hands free cellular phone system will ask you whether you wish to override that priority level. To override the priority level, answer "Yes." Answer "No" to return to the priority level selection in Step 14.
16. After the voice guide says "<phone tag> set to priority <priority>," the hands free cellular phone system will start the pairing process. Wait a moment for the pairing process to complete.
    - When the confirmation function is "ON", the hands free cellular phone system will confirm the assigned phone name and priority again. Answer "Yes" to go to next step, or answer "No" to return to the priority level selection in Step 13.
17. When the pairing process is completed, the voice guide will say "Pairing Complete." The hands free cellular phone system will then beep and the voice recognition mode will be deactivated.

DELETING A PHONE

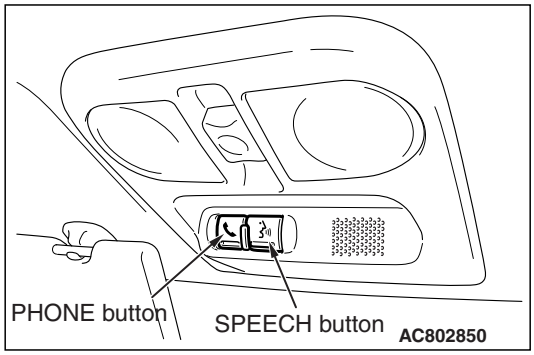
1. Turn the ignition switch to "ACC" or "ON" position.
2. Press the "SPEECH" button.
3. Say “Setup.”
4. Say “Pairing options”
5. The voice guide will say “Do you want to Pair a phone, delete a phone or list paired phones?”
6. Say “Delete a phone.”

7. After the voice guide says "Please say," it will read out each priority number and phone name pair in order, starting with the phone that has the highest priority level (from 1 to 7). After it completes reading all pairs, the voice guide will say "or all, or say cancel to return to main menu."
8. Say the priority number of the phone that you want to delete from the system.
   Say "All" to delete all paired phones from the system, or "Cancel" to end the deletion process and return to the main menu.
9. For confirmation purposes, the voice guide will say "Removing <phone tag> (all) is this correct?" Answer "Yes" to delete the phone(s). If you answer "No," the voice guide will ask "Which phone please?" Say again the priority number of the phone that you want to delete from the hands free cellular phone system.
10. When the phone deletion process is completed, the voice guide will say "Deleted." The hands free cellular phone system will then beep and the voice recognition mode will be deactivated.
    - If the phone deletion process fails for some reason, the voice guide will say "Delete failed." The hands free cellular phone system will then beep and the voice recognition mode will be deactivated. Start over again from Step 1.

ERASE THE PASSCODE

M1544403800181

The 4-digit passcode set by security function can be erased by operating the PHONE button.



1. Turn the ignition switch to the "ON" or "ACC" position.
2. Check that the hands free cellular phone system is not in voice recognition mode.
3. Press and hold the PHONE button for approximately 2 seconds (1.5 seconds or more).
4. Within approximately 10 seconds after performing step 3, press and hold the PHONE button for approximately 2 seconds (1.5 seconds or more) twice again.

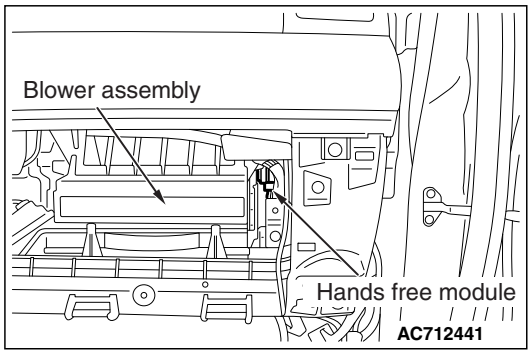
NOTE: Even if the passcode is erased, guidance such as voice guide is not provided.

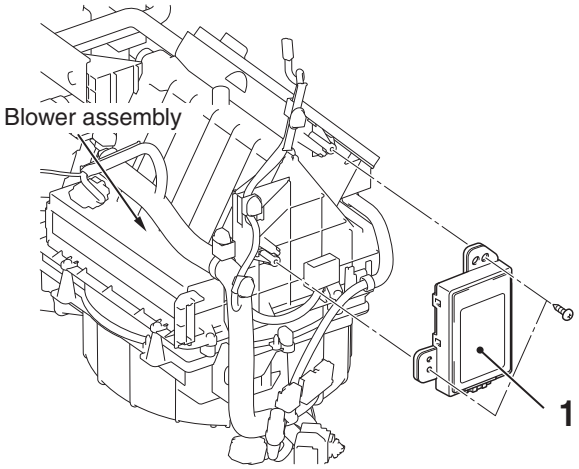
5. After the operation, check if the lock with the passcode is unlocked. If the lock is not unlocked, repeat from step 2.

REMOVAL AND INSTALLATION

M1544401000264

HANDS FREE MODULE





AC803144AB

Removal Steps

- FRONT SCUFF PLATE (RH), COWL SIDE TRIM (RH) (REFER TO GROUP 52A, TRIMS P.52A-22.)
- INSTRUMENT PANEL PARCEL BOX, INSTRUMENT PANEL UNDER PASSENGER SIDE COVER, INSTRUMENT PANEL SIDE AIR OUTLET (REFER TO GROUP 52A – INSTRUMENT PANEL ASSEMBLY P.52A-15).

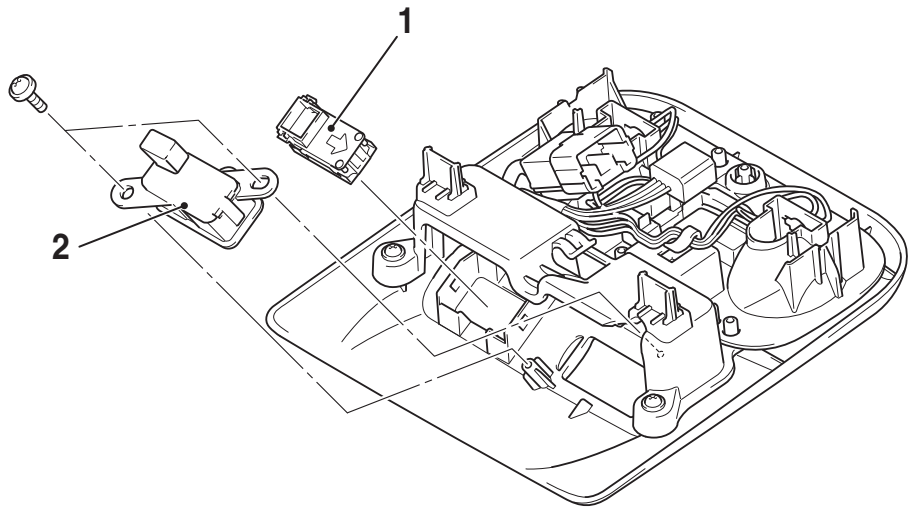
Removal Steps (Continued)

- AUDIO AMPLIFIER (REFER TO GROUP 54A – AMPLIFIER P.54A-257). <VEHICLE WITH AUDIO AMPLIFIER>

1. HANDS FREE MODULE

TSB Revision

MICROPHONE SWITCH/INTERPHONE MICROPHONE



AC803146AB

Removal Steps

- FRONT DOME LIGHT ASSEMBLY (REFER TO GROUP 54A – DOME LIGHT P.54A-139).

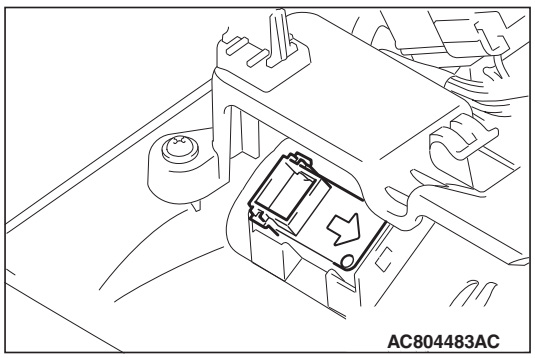
Removal Steps (Continued)

>>A<< 1. INTERPHONE MICROPHONE
2. MICROPHONE SWITCH

INSTALLATION SERVICE POINTS

>>A<< INTERPHONE MICROPHONE INSTALLATION

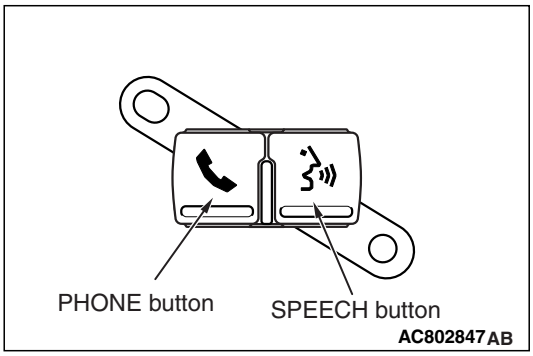
It's installed so that an arrow of a interphone microphone may face inside the front dome light.



INSPECTION

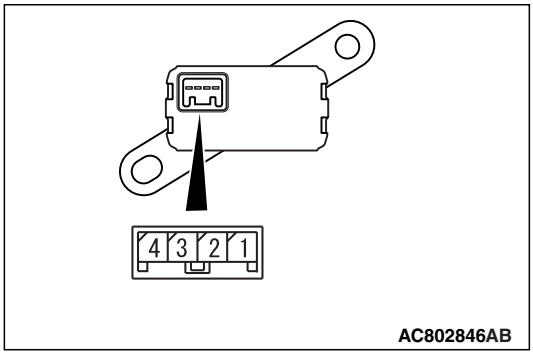
M1544404100011

MICROPHONE SWITCH CHECK



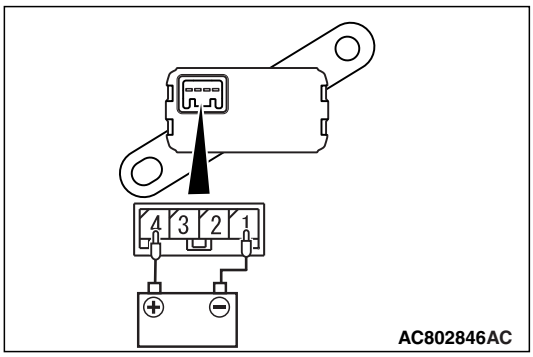
Use an ohmmeter to measure the resistance value between the terminal.

Switch position	Tester connection	Measurement value
No push	2 – 3	Approximately 1.8 kΩ
SPEECH button		Approximately 51 Ω
PHONE button		Approximately 281 Ω



ILLUMINATION CHECK

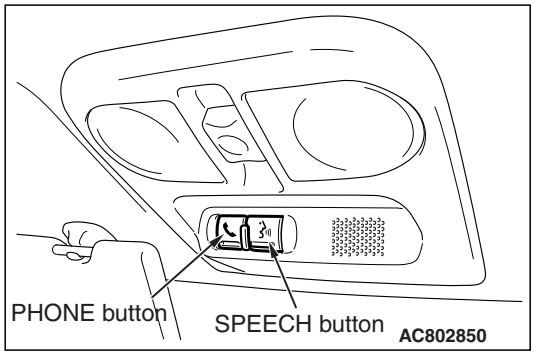
Apply the battery voltage of microphone switch connector terminal No. 4 and 1, and check if the microphone switch illuminates.



INTERPHONE MICROPHONE CHECK

By operating the PHONE button, the connection of the interphone microphone can be checked.

1. Turn the ignition switch to the "ON" or "ACC" position.
2. Check that the hands free cellular phone system is not in voice recognition mode.
3. Press and hold the PHONE button for approximately 5 seconds.
4. The hands-free module checks the connection with the interphone microphone. If no abnormality is present, the voice information "No faults present" is output, and if an abnormality is present, "Microphone faults" is output.



TSB Revision

DEFOGGER

GENERAL DESCRIPTION

M1543000100836

Defogger operation

- The defogger relay turns ON if the defogger switch built-in the A/C-ECU is turned ON when the ignition switch is in the "ON" position. When the defogger relay turns ON, power is supplied to the defogger and the defogger is activated. The defogger comes with a timer function that causes the defogger switch to automatically turn OFF in about 17 minutes after the defogger switch is turned ON.

DEFOGGER DIAGNOSIS

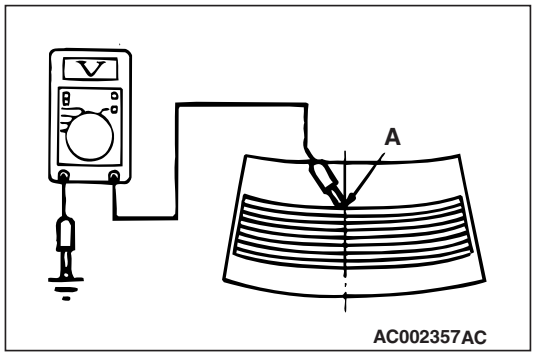
M1543000701648

The defogger is controlled by the A/C-ECU. For troubleshooting, refer to GROUP 55A, Manual A/C Diagnosis – Symptom Chart <Low Type>P.55A-62 or Symptom Chart <Middle Type>P.55A-62 .

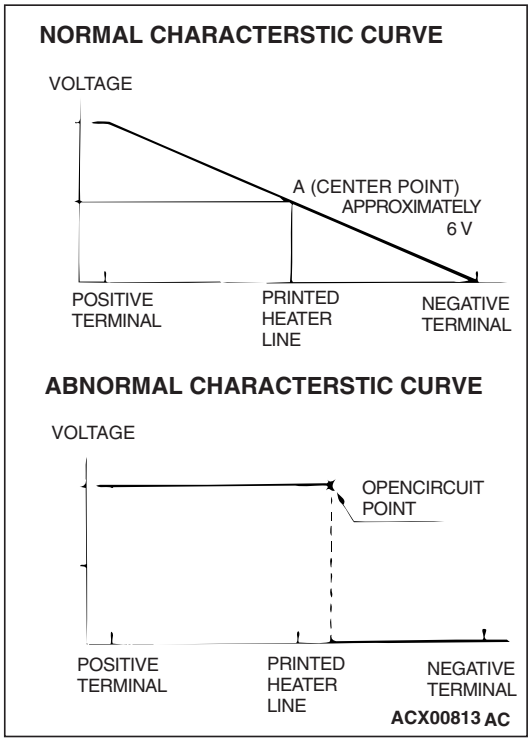
ON-VEHICLE SERVICE

PRINTED-HEATER LINES CHECK

M1543001800474



1. Run the engine at 2,000 r/min. Check the heater element with the battery at full.
2. Turn "ON" the rear window defogger switch. Measure the heater element voltage with an ohmmeter at the rear window glass center 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 the test probe slowly to the 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.
5. If a malfunction such as open circuit occurs, replace the rear window glass.(Refer to GROUP 42, Rear window glass P.42-22.)

REAR WINDOW DEFOGGER SWITCH

REMOVAL AND INSTALLATION

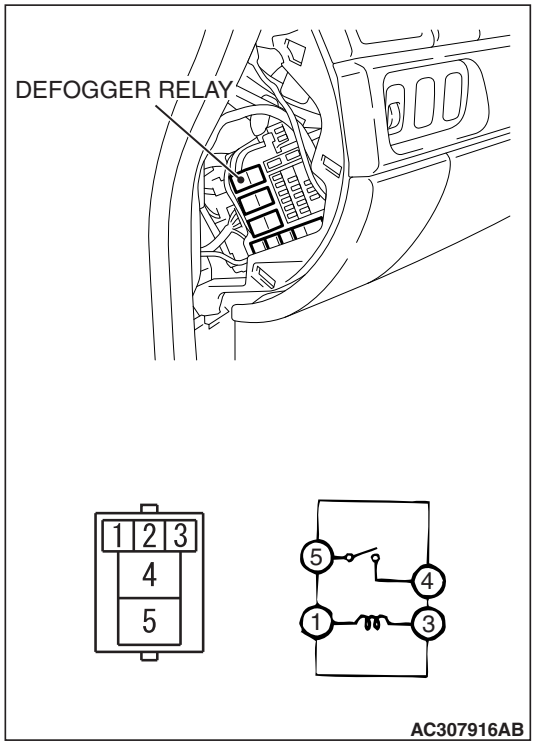
M1543006200499

Refer to GROUP 55A, Heater Control Assembly and A/C Switch P.55A-148.

INSPECTION

M1543019504470

DEFOGGER RELAY CONTINUITY CHECK



BATTERY VOLTAGE	CONNECT TESTER BETWEEN:	SPECIFIED CONDITION
Not applied	4-5	Open Circuit
• Connect terminal 1 to the positive battery terminal • Connect terminal 3 to the negative battery terminal	4-5	Less than 2 ohms

MULTI-CENTER DISPLAY

GENERAL DESCRIPTION

M1543000101011

CHARACTER DISPLAY FUNCTION OF MULTI-CENTER DISPLAY

- Clock display (incorporating clock)
- Audio system operation display (communicating with radio and CD player via M bus)

PRECAUTIONS DURING SERVICE

DIAGNOSIS TIPS CONCERNING THE ENTIRE SYSTEM

- Check that relevant wiring harness connectors are engaged correctly. If a failure is found, repair the connectors and check the trouble symptom again.
- If the wiring harness connectors are engaged correctly, check the wiring harness. If the wiring harness is in good condition, replace relevant components.

DIAGNOSIS TIPS WHEN ONLY SPECIFIC FUNCTIONS IS DEFECTIVE

- Check that the wiring harness connectors related to the specific function are engaged correctly. If a failure is found, repair the connectors and check the trouble symptom again.
- If the wiring harness connectors are engaged correctly, check the wiring harness. If the wiring harness is in good condition, replace relevant components, which controls that function.

TROUBLESHOOTING STRATEGY

M1540203800293

Use these steps to plan your diagnostic strategy. Follow through with each step to ensure that you have exhausted all possible methods of finding a combination meter fault.

1. Gather information from the customer.
2. Verify that the condition described by the customer exists.
3. Find and repair the malfunction by following the symptom chart.
4. Verify that the malfunction has been eliminated.

DIAGNOSIS

SYMPTOM CHART

M1543007202818

⚠ CAUTION

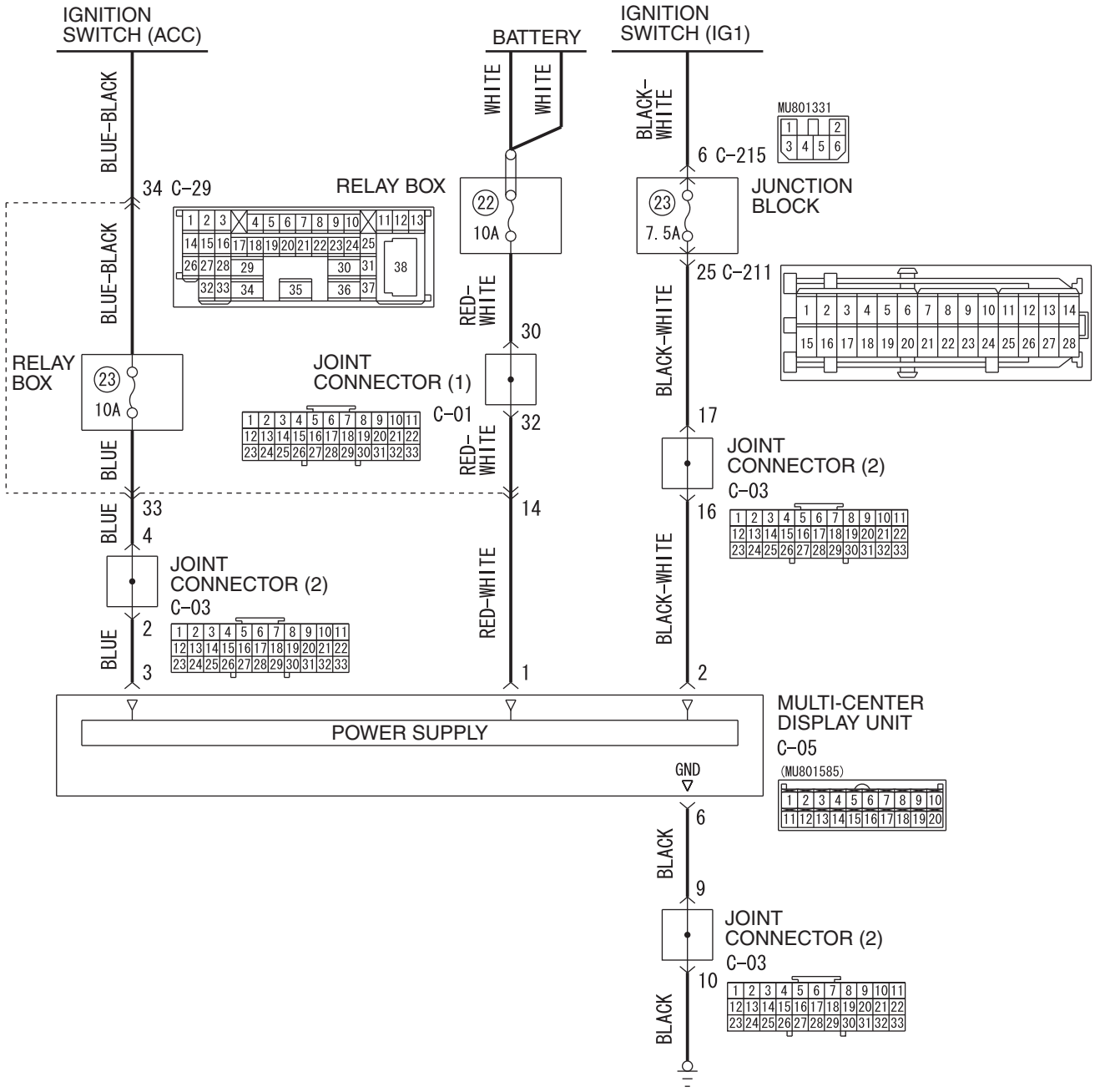
During diagnosis, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

SYMPTOM	INSPECTION PROCEDURE	REFERENCE PAGE
The multi-center display does not show any information.	1	P.54A-294
The audio information is not displayed normally.	2	P.54A-303

SYMPTOM PROCEDURES

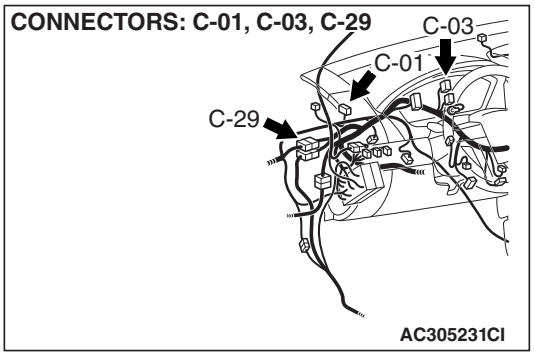
INSPECTION PROCEDURE 1: The Multi-center Display does not Show any Information.

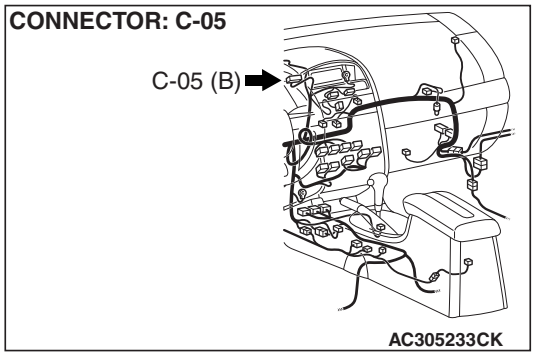
Multi-Center Display Power Supply Circuit

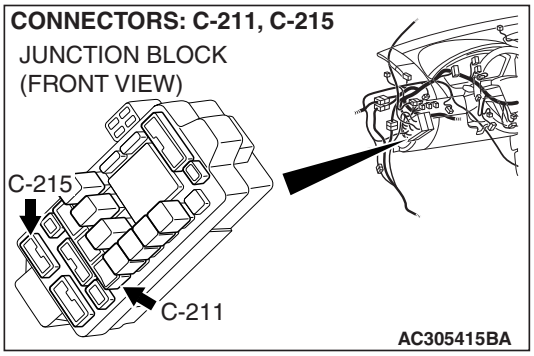


W4P54M133A

TSB Revision







CIRCUIT OPERATION

The multi-center display unit is energized by the battery through the ignition switch (ACC) and (IG1).

TECHNICAL DESCRIPTION (COMMENT)

The ground circuit, the battery circuit, the ignition switch (ACC) circuit or the ignition switch (IG1) circuit is suspected to be open or defective.

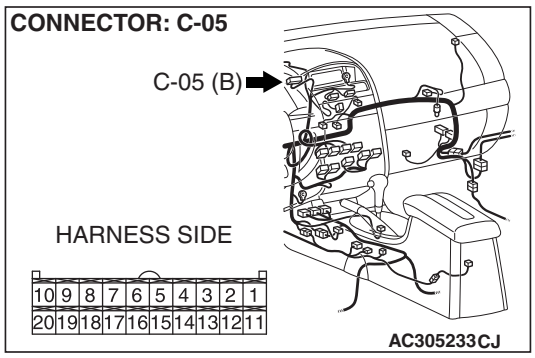
TROUBLESHOOTING HINTS

- Malfunction of the multi-center display unit
- Damaged wiring harness and connectors

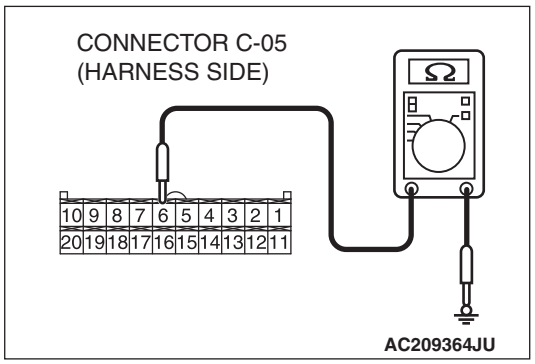
DIAGNOSIS

Required Special Tool:
- MB991223: Harness Set

STEP 1. Check the multi-center display unit ground circuit. Measure the resistance at the multi-center display unit connector C-05.



(1) Disconnect the multi-center display unit connector C-05 and measure at the harness side.

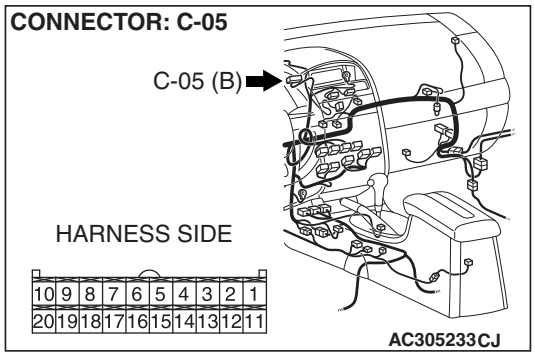


(2) Measure the resistance between terminal 6 and ground.
- The measured value should be 2 ohm or less.

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

YES : Go to Step 4.
NO : Go to Step 2.

STEP 2. Check the multi-center display unit connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



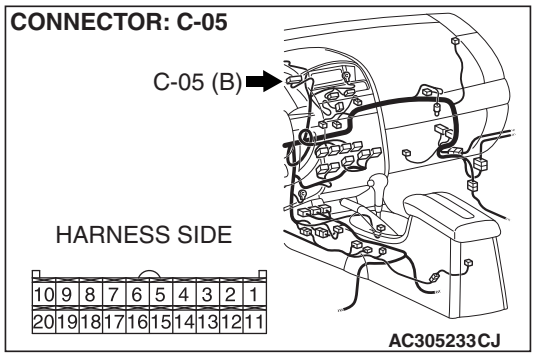
Q: Is the multi-center display unit connector C-05 in good condition?

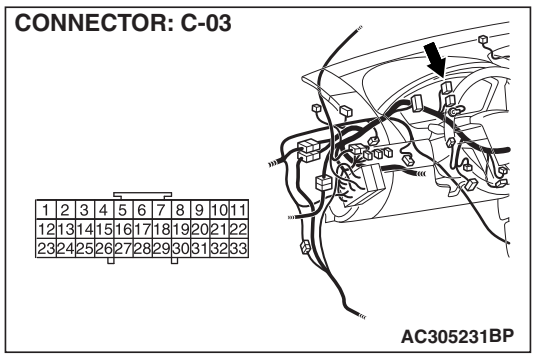
YES : Go to Step 3.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 3. Check the wiring harness between multi-center display unit connector C-05 (terminal 6) and ground.

- Check the ground wire for open circuit.

NOTE:





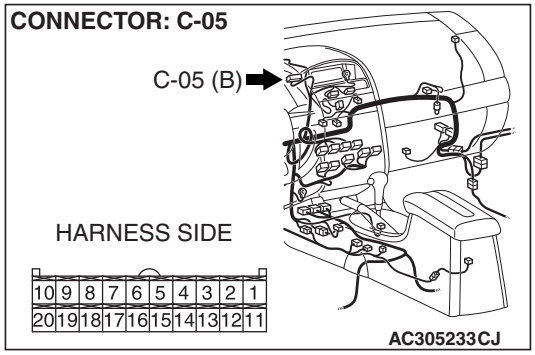
After checking joint connector (2) C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. check the wires. If joint connector (2) C-03 is damaged, repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

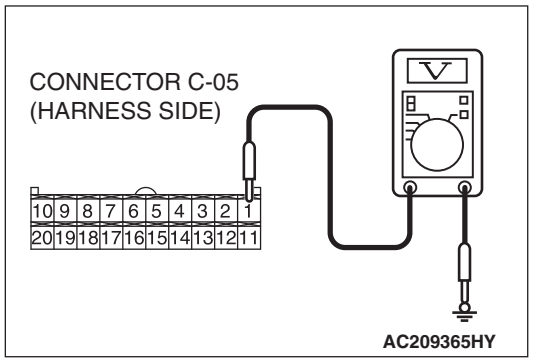
Q: Is the wiring harness between multi-center display unit connector C-05 (terminal 6) and ground in good condition?

YES : There is no action to be taken.
NO : Repair the wiring harness. The multi-center display unit should work normally.

STEP 4. Check the multi-center display unit power supply circuit (battery). Measure the voltage at the multi-center display unit connector C-05.

(1) Disconnect the multi-center display unit connector C-05 and measure at the harness side.



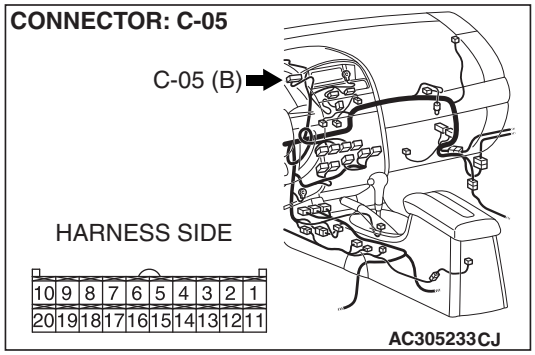


(2) Measure the voltage between terminal 1 and ground.

- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

YES : Go to Step 7.
NO : Go to Step 5.

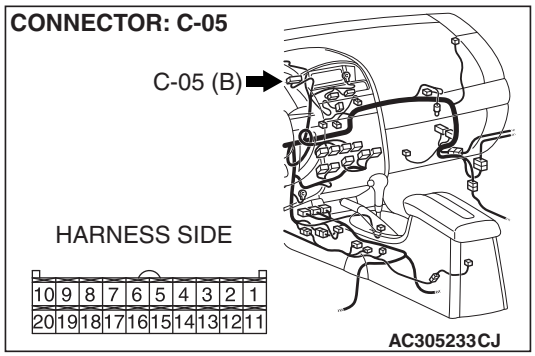


STEP 5. Check multi-center display unit connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multi-center display unit connector C-05 in good condition?

YES : Go to Step 6.

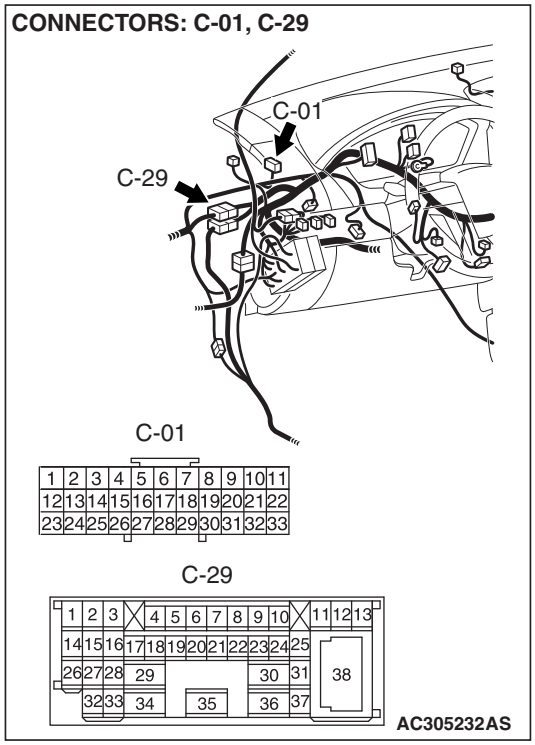
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The multi-center display unit should work normally.



STEP 6. Check the wiring harness between C-05 (terminal 1) and battery.

- Check the wiring harness for open circuit and short circuit.

NOTE:



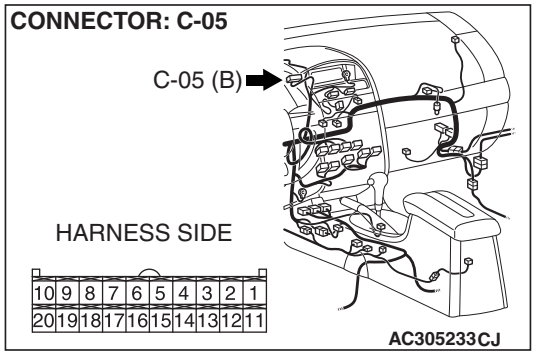
Also check intermediate connector C-29 and joint connector (1) C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29 and joint connector (1) C-01 is damaged, repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between C-05 and battery in good condition?

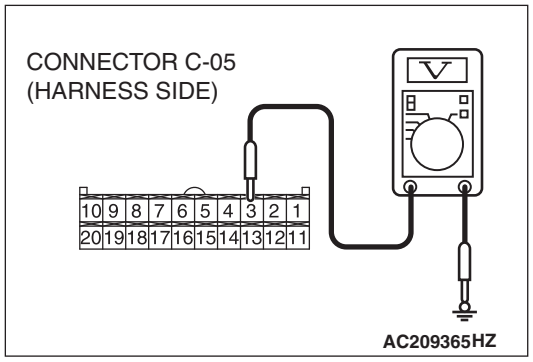
YES : There is no action to be taken.

NO : Repair the wiring harness. The multi-center display unit should work normally.

STEP 7. Check the multi-center display unit power supply circuit [ignition switch (ACC)]. Measure the voltage at the multi-center display unit connector C-05.



(1) Disconnect the multi-center display unit connector C-05 and measure at the harness side.
(2) Turn the ignition switch to "ACC" position.

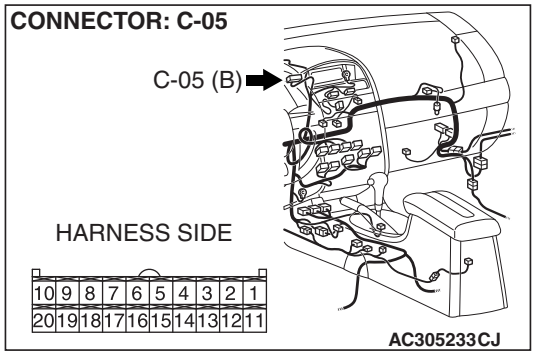


(3) Measure the voltage between terminal 3 and ground by backprobing.
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Does the measured voltage correspond with this range?

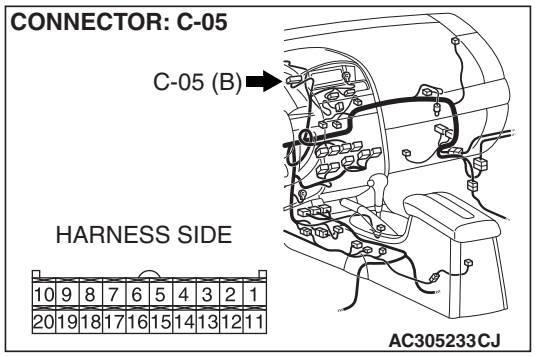
YES : Go to Step 10.
NO : Go to Step 8.

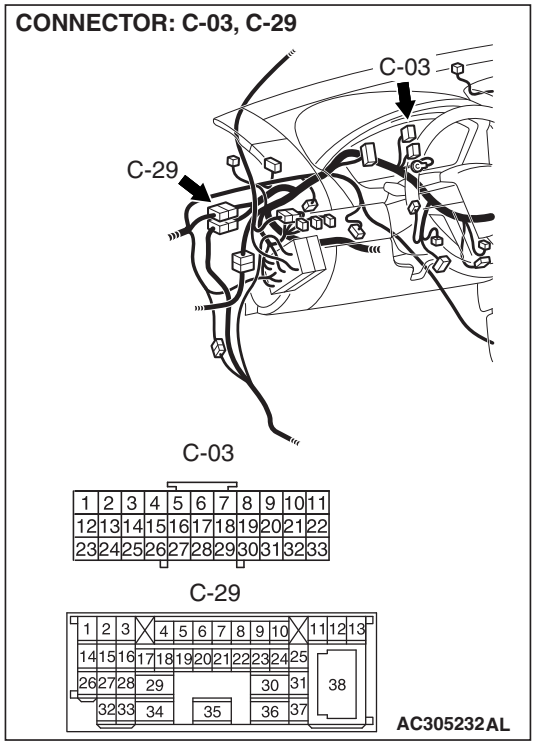
STEP 8. Check multi-center display unit connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



Q: Is multi-center display unit connector C-05 in good condition?

YES : Go to Step 9.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The multi-center display unit should work normally.





STEP 9. Check the wiring harness between C-05 (terminal 3) and ignition switch (ACC).

- Check the wiring harness for open circuit and short circuit.

NOTE:

Also check joint connector (2) C-03, and intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If or joint connector (2) C-03 or intermediate connector C-29 is damaged, repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

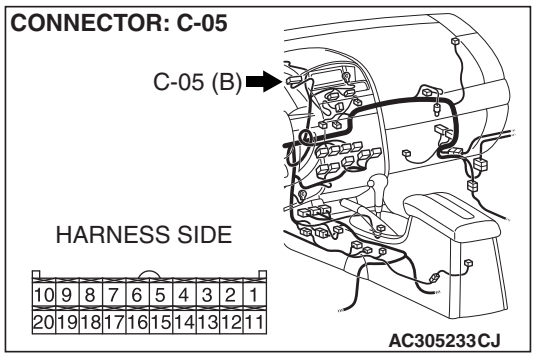
Q: Is the wiring harness between C-05 (terminal 3) and ignition switch (ACC) in good condition?

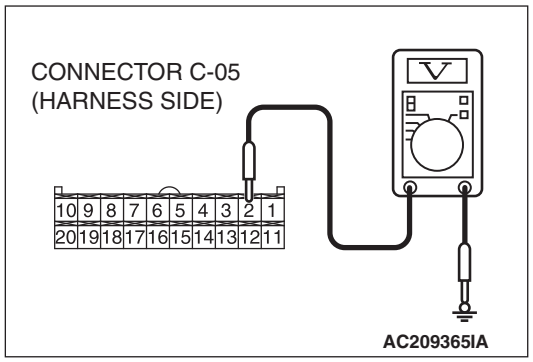
YES : There is no action to be taken.

NO : Repair the wiring harness. The multi-center display unit should work normally.

STEP 10. Check the multi-center display unit (middle grade type) power supply circuit [ignition switch (IG1)]. Measure the voltage at the multi-center display unit (middle grade type) connector C-05.

(1) Disconnect the multi-center display unit connector C-05 and measure at the harness side.
(2) Turn the ignition switch to "ON" position.





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

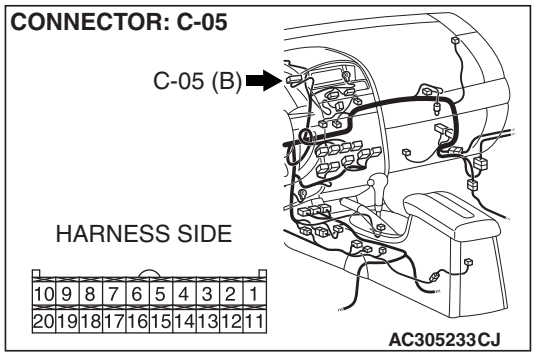
Q: Does the measured voltage correspond with this range?

YES : Replace the multi-center display unit.
NO : Go to Step 11.

STEP 11. Check the multi-center display unit connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multi-center display unit connector C-05 in good condition?

YES : Go to Step 12.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The multi-center display unit should work normally.



STEP 12. Check the wiring harness between multi-center display unit connector C-05 (terminal 2) and ignition switch (IG1).

- Check the wiring harness for open circuit and short circuit.

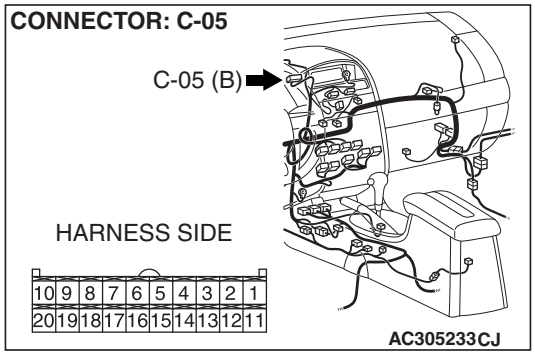
NOTE:

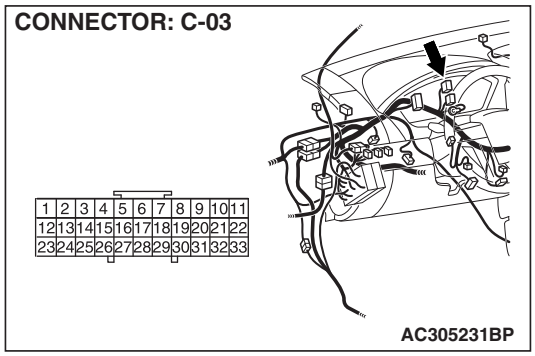
Also check joint connector (2) C-03, junction block connector C-211 and C-215 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector (2) C-03 or junction block connector C-211 or C-215 is damaged, repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

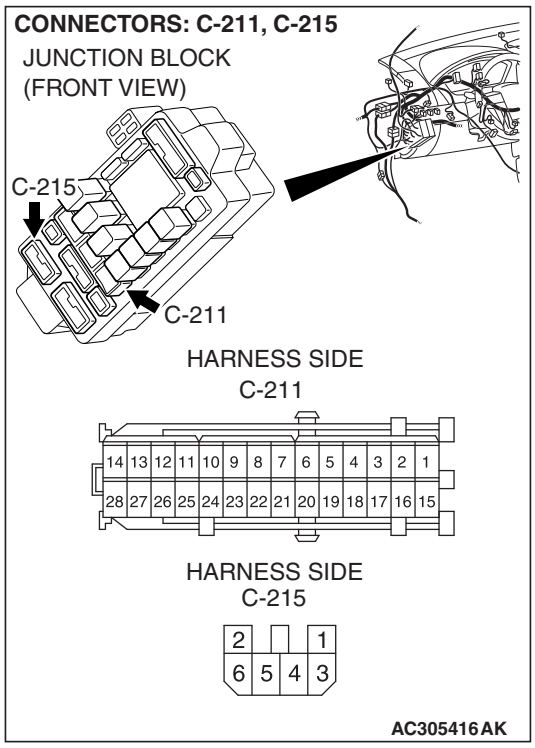
Q: Is the wiring harness between multi-center display unit connector C-05 (terminal 2) and ignition switch (IG1) in good condition?

YES : The procedure is complete.

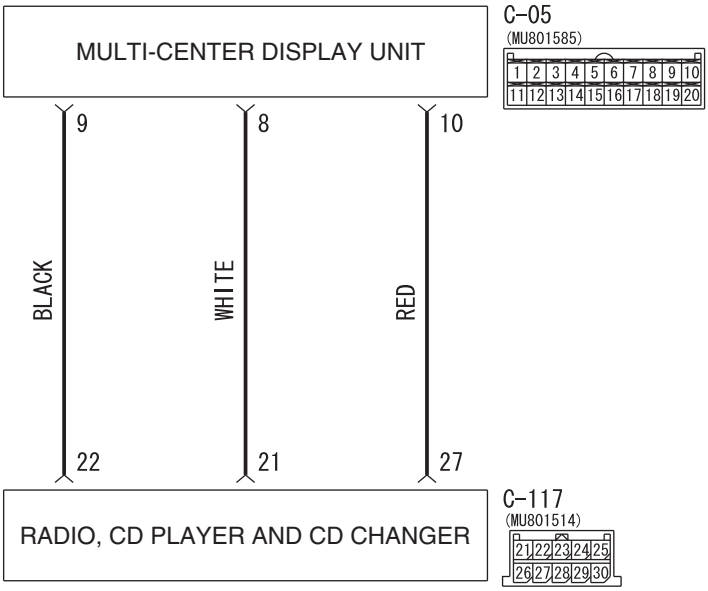
NO : Repair the wiring harness. The multi-center display unit should work normally.



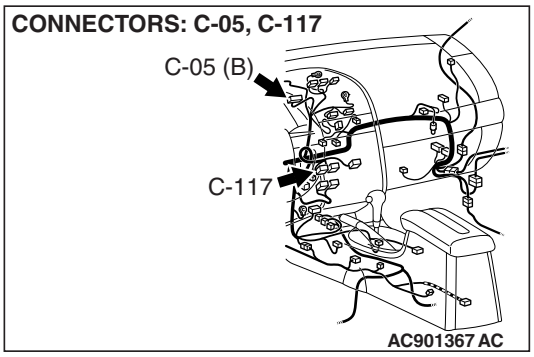




INSPECTION PROCEDURE 2: The audio information is not displayed normally.



WAP54M070A



CIRCUIT OPERATION

The multi-center display unit receives information from the radio and CD player via M bus communication to display the audio system operation condition.

TECHNICAL DESCRIPTION (COMMENT)

The audio system operation screen will be frozen if the multi-center display have received abnormal data from the radio and CD player via M-bus communication within 30 seconds.

TROUBLESHOOTING HINTS

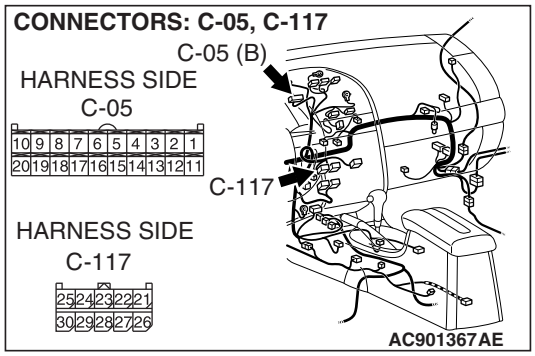
- Malfunction of multi-center display unit
- Malfunction of radio and CD player
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.

TSB Revision

DIAGNOSIS

Required Special Tools:
- MB991223: Harness Set

STEP 1. Check radio and CD player connector C-117 and multi-center display unit connector C-05 for loose, corroded or damaged terminals, or terminals pushed back in the connector.



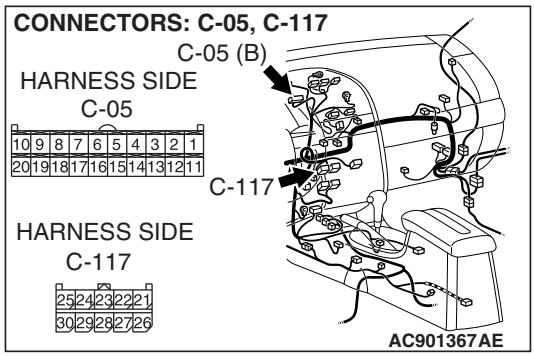
Q: Is radio and CD player connector C-117 and multi-center display unit connector C-05 in good condition?

YES : Go to Step 2.

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

STEP 2. Check the wiring harness between radio and CD player connector C-117 (terminal 22, 21 and 27) and multi-center display unit connector C-05 (terminal 9, 8 and 10).

- Check the wiring harness for open circuit and short circuit.



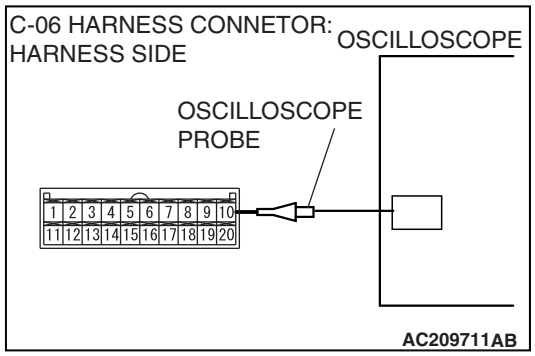
Q: Is the wiring harness between radio and CD player connector C-117 (terminal 22, 21 and 27) and multi-center display unit (middle grade type) connector C-05 (terminal 9, 8 and 10) in good condition?

YES : Go to Step 3.

NO : Repair the wiring harness.

STEP 3.Using the oscilloscope, check the M BUS line.

(1) Connect the multi-center display unit connector C-05 and radio and CD player connector C-117.
(2) Connect the oscilloscope probe to terminal 10 of the multi-center display unit connector by backprobing.
(3) Turn the ignition switch to “ACC” position.
(4) Operate each of the radio and CD player switches.



Q: Is a wave pattern displayed?

YES : Intermittent malfunction (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent malfunction P.00-14.

NO : Replace multi-center display unit and then go to Step 4.

STEP 4. Retest the system
Confirm that the audio operation screen is displayed normally.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Replace radio and CD player and then go to step 5.

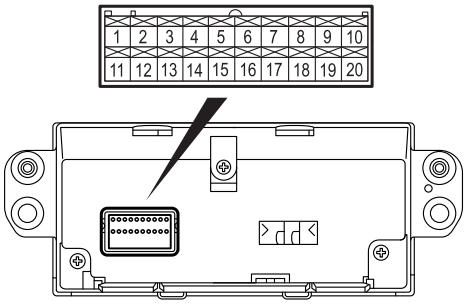
STEP 5. Retest the system
Confirm that the audio operation screen is displayed normally.

Q: Is the check result satisfactory?

YES : The procedure is complete.
NO : Go to step 1.

CHECK AT MULTI-CENTER DISPLAY UNIT TERMINAL

M1543007601426



AC900980

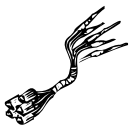
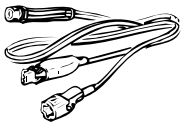
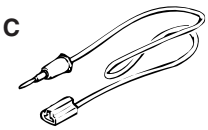
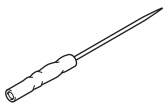
TERMINAL NO.	INPUT/ OUTPUT	SIGNAL SYMBOL	TERMINAL VOLTAGE (V)	HARNESS DISCREPANCY		FAILURE SYMPTOM DUE TO HARNESS DISCREPANCY
1	Input	Battery (Battery power supply)	Battery positive voltage	Open circuit	–	Screen is not displayed. All operations are not possible.
				–	Short circuit	Fuse is blown.
2	Input	Ignition switch (IG1)	Battery positive voltage	Open circuit	–	Screen is not displayed. All operations are not possible.
				–	Short circuit	Fuse is blown.
3	Input	Ignition switch (ACC)	Battery positive voltage	Open circuit	–	Screen is not displayed. All operations are not possible.
				–	Short circuit	Fuse is blown.
4	Input	ILL + (lighting switch)	Hi: Battery positive voltage Lo: 0 – 1	Open circuit	Short circuit	Not lighted.
5	Output	ILL - (illumination light control signal)	0.4	Open circuit	Short circuit	display brightness control is not possible.

TSB Revision

TERMINAL NO.	INPUT/ OUTPUT	SIGNAL SYMBOL	TERMINAL VOLTAGE (V)	HARNESS DISCREPANCY		FAILURE SYMPTOM DUE TO HARNESS DISCREPANCY
6	–	GND	1Volt or less	Open circuit	–	Screen is not displayed.
7	Input/output	SB3	–	–	–	–
8	Input/output	M-DATA (Audio) (M-BUS data signal)	• Hi: 4 – 5 • Lo: 0 – 1	Open circuit	Short circuit	"E" or "E01" to "E03" indications
9	Input/output	M-CLOCK (A/C) (M-BUS clock signal)	• Hi: 4 – 5 • Lo: 0 – 1	Open circuit	Short circuit	"E" or "E01" to "E03" indications
10	Input/output	M-BUSY (Audio)	• Hi: 5 • Lo: 0 – 1	Open circuit	Short circuit	"E" or "E01" to "E03" indications

SPECIAL TOOLS

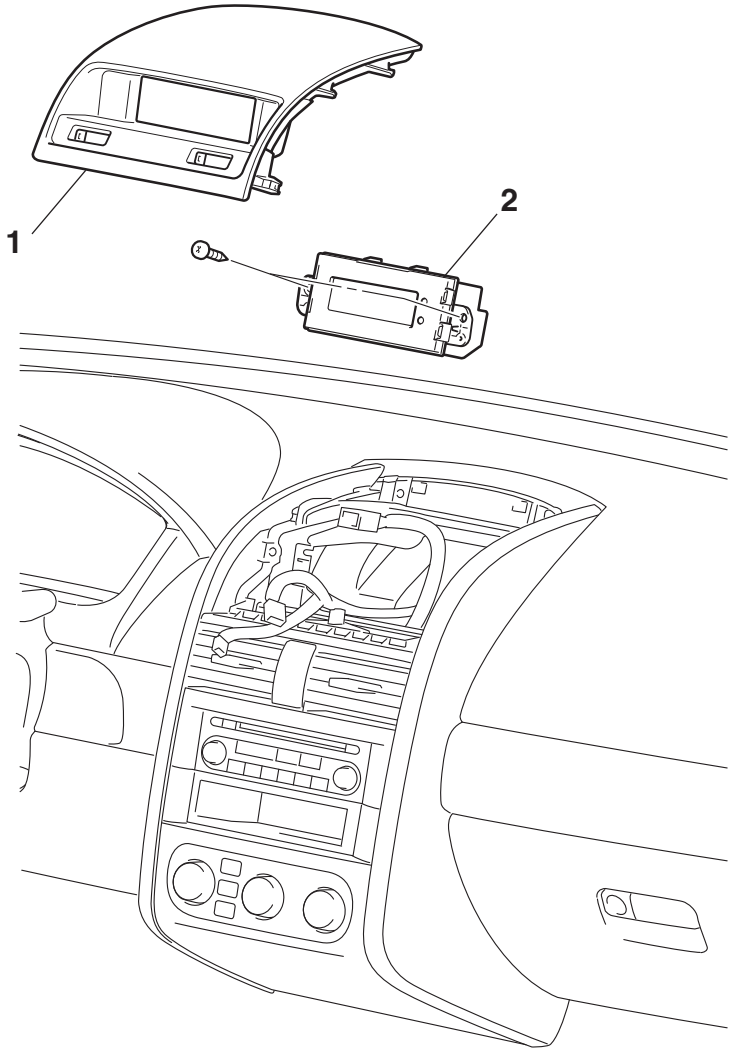
M1543000603540

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  B  C  D MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: Test harness B: LED harness C: LED harness adapter D: Probe	General service tool (jumper)	Making voltage and resistance measurements during troubleshooting A: Connect pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection
 MB992006	MB992006 Extra fine probe	–	Making voltage and resistance measurement during troubleshooting

MULTI-CENTER DISPLAY

REMOVAL AND INSTALLATION

M1543013600251



AC306702 AB

REMOVAL STEPS

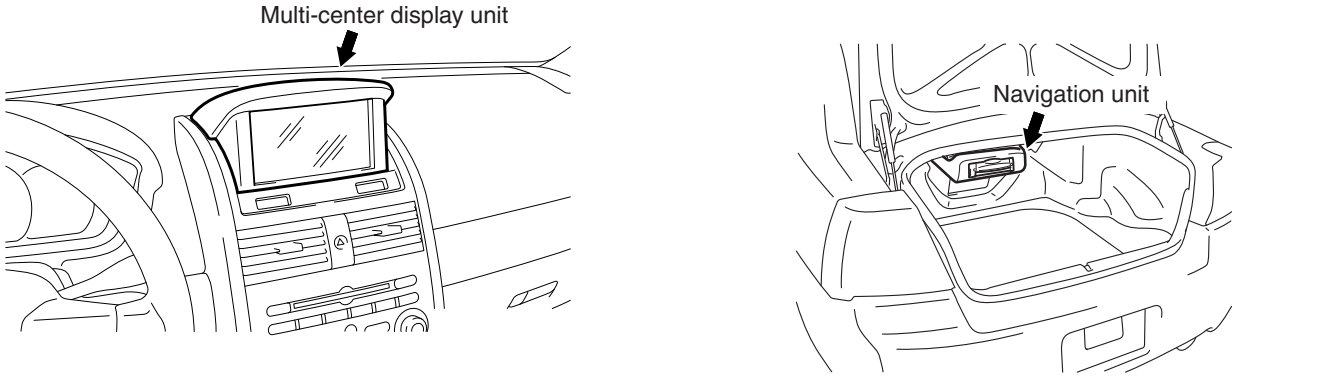
1. CONSOLE METER HOOD (REFER TO GROUP 52A, INSTRUMENT PANEL ASSEMBLY P.52A-15.)
2. MULTI-CENTER DISPLAY

MMCS

GENERAL DESCRIPTION

M1546000100211

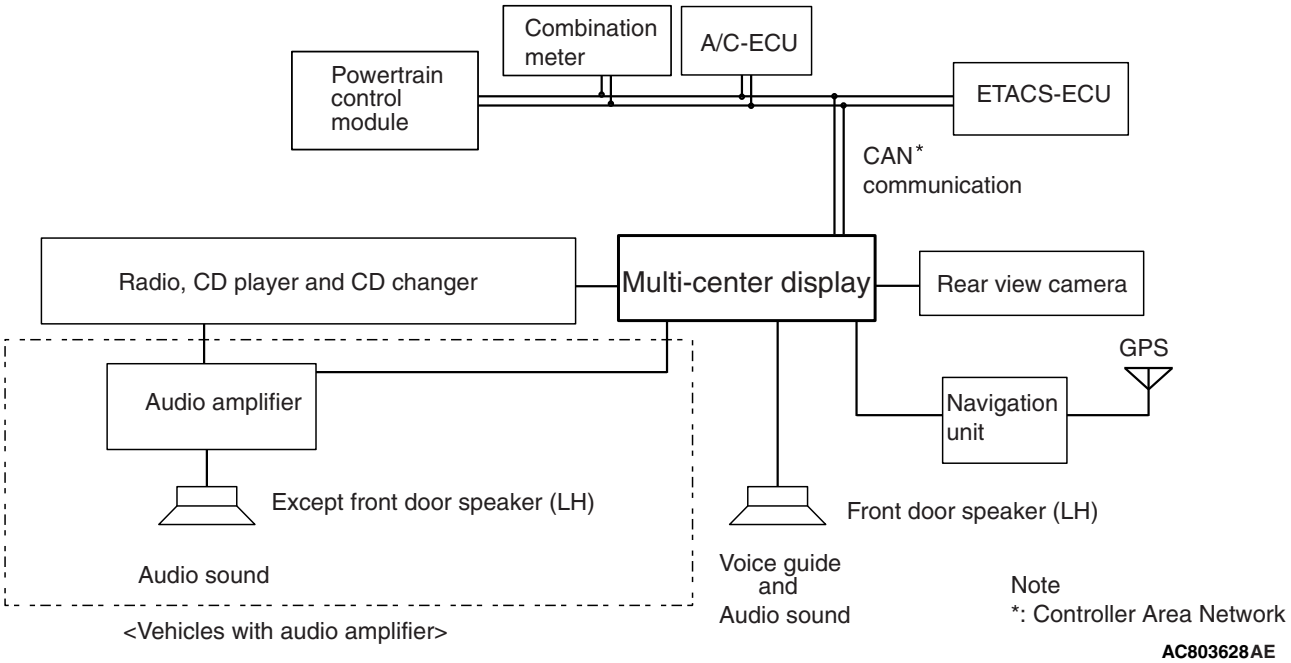
The 7-inch wide liquid crystal type of the multi-center display (effective display range: 154.5 × 87.0 mm) has been installed to the central upper area of the instrument panel. In addition, the navigation unit has been installed in the trunk. The multi-center display can display the clock, driving information (vehicle speed, fuel consumption, etc.), environmental data (altitude, air pressure, etc.) and air conditioning information (A/C setting, temperature, air blowing direction, etc.) as well as navigation. The navigation unit displays the navigation information and current location on the multi-center display according to the GPS information and the DVD map data.



Display item		
Navigation		Displays the information input from the navigation unit. Also, calculates Carpool/HOV lane.
Information screen	Driving	Average vehicle speed, average fuel efficiency, instantaneous fuel consumption
		Possible cruising distance, driving distance after refueling, driving time
		Lap time
	Maintenance	Engine oil, oil filter, rotate tires, air purifier, brake system, etc.
	Calendar	Calendar, schedule, etc. for one month
	A/C display	A/C setting, temperature, air blowing direction, etc.
	Audio display	Radio mode, CD mode, telephone speech interrupt mode, etc.
	Environment	Ambient temperature, altitude, atmospheric pressure
Setting	Picture quality	Brightness and contrast of the screen
	Display	Background wallpaper, interrupt display presence/absence (audio, A/C)
	System	Changeover of driving information display unit, temperature display unit, atmospheric pressure display unit, etc.
	Alarm	Alarm setting of time condition and driving condition
	Equipment	Customization of ETACS-ECU can be performed.
	Screen clear	–
Rear view camera display		Display the image from the rear view camera (Shift position: R)

TSB Revision

SYSTEM BLOCK DIAGRAM



DIAGNOSIS

ERROR MESSAGE

M1546023500050

The multi-center display shows the error messages below if an abnormality is present in itself or communications. If the information of items on the menu/setup screen cannot be obtained, the items are not displayed.

Items not displayed on the Menu screen	Error contents	Action
AUDIO	The system cannot communicate with the radio, CD player and CD changer normally, or it is not connected to the radio, CD player and CD changer.	• Check if voice is output from the radio, CD player and CD changer. If a problem is found, inspect the radio, CD player and CD changer. (Refer to G54A-Radio and CD player, Symptom Chart P.54A-167.) • When voice is output from the radio, CD player and CD changer, if the AUDIO item is not displayed, check the connection status between the multi-center display and the radio, CD player and CD changer. (Refer to P.54A-365.)
A/C	CAN communication with the A/C-ECU is impossible.	Using the scan tool MB991958, check the CAN bus line, and DTC to the multi-center display and A/C-ECU. (GROUP 55A, Manual A/C Diagnosis – Diagnostic Trouble Code Chart P.55A-10 or 55B, Auto A/C Diagnostic Trouble Code Chart P.55B-8.)
Environment	• Ambient temperature sensor error • Communication error in the powertrain control module or A/C-ECU	• Using the scan tool MB991958, check if DTC B1011 or B1012 is set to A/C-ECU. (GROUP 55A, Manual A/C Diagnosis – Diagnostic Trouble Code Chart P.55A-10 or 55B, Auto A/C Diagnostic Trouble Code Chart P.55B-8.) • Using the scan tool MB991958, check the CAN bus line, and check if DTC is set to the powertrain control module and A/C-ECU. (GROUP 55A, Manual A/C Diagnosis – Diagnostic Trouble Code Chart P.55A-10 or 55B, Auto A/C Diagnostic Trouble Code Chart P.55B-8 and GROUP 13A, MFI Diagnosis – Diagnostic Trouble Code Chart P.13A-46 or GROUP 13B, MFI Diagnosis – Diagnostic Trouble Code Chart P.13B-46)
Items not displayed on the Setup screen	**Error contents**	**Action**
Equipment	CAN communication with the ETACS-ECU is impossible.	Using the scan tool MB991958, check the CAN bus line, and DTC to the multi-center display and ETACS-ECU. (Refer to P.54A-328.)

Error messages relating to the multi-center display

Error messages	Error contents	Action

Malfunction - System Communication Error	Error is present in the communication for the audio information screen or the A/C information screen. In addition, it is displayed also when there is an error in the communication with the navigation unit. (When the navigation image from the navigation unit is not input to the multi-center display, the background of the error messages is blue.)	• If this error message is displayed on the audio information screen
		  • Check if voice is output from the radio, CD player and CD changer. If a problem is found, inspect the radio, CD player and CD changer. (Refer to G54A-Radio and CD player, Symptom Chart P.54A-167.)
		  • When voice is output, if the information from the radio, CD player and CD changer is not displayed, check the connection status between the multi-center display and the radio, CD player and CD changer. (Refer to P.54A-365.)
		• If this error message is displayed on the A/C information screen
		  • Using the scan tool MB991958, check the CAN bus line, and DTC to the multi-center display and A/C-ECU. (Refer to GROUP 55A, Manual A/C Diagnosis – Diagnostic Trouble Code Chart P.55A-10 or 55B, Auto A/C Diagnostic Trouble Code Chart P.55B-8.)
		• If this error message is displayed on the navigation screen
		  • There is a problem in the communication between the navigation unit and the multi-center display. Check the power supply system of the navigation unit and the DIN cable. (Refer to P.54A-374.)

Very high temperature inside was detected. System will shutdown in 7 seconds.	The internal temperature of the multi-center display is high. (When 7 seconds have elapsed after the error message is displayed, the screen is blanked until the internal temperature decreases.)	This error message will be shown if the internal temperature of the multi-center display is high. Turn off the ignition switch, and wait until the temperature decreases. Wait for a while, and then turn the ignition switch to the ON position. Check that the same error message does not appear.
Abnormal voltage input(s) was detected System will shutdown in 7 seconds	Power supply voltage problem (low voltage/overvoltage) is detected. (When 7 seconds have elapsed after the error message is displayed, the multi-center display is forcibly terminated. The display recovers from that status when the power supply voltage is in the range from 10 V to 17 V.)	Check if the battery voltage is in the range from 10 V to 17 V. If the voltage has a problem, perform the battery test.(Refer to GROUP 54A - Battery, Battery test.) If the battery voltage has no problem (in the range from 10 V to 17 V), the power supply line from the battery to the multi-center display may have a problem. (Refer to P.54A-354.)

TSB Revision

Error messages relating to the navigation unit

Error messages	Error contents	Action
Malfunction - System Communication Error	It is displayed also when there is an error in the communication with the navigation unit. (When the navigation image from the navigation unit is not input to the multi-center display, the background of the error messages is blue.)	If this error message is displayed on the navigation screen • There is a problem in the communication between the navigation unit and the multi-center display. Check the power supply system of the navigation unit and the DIN cable. (Refer to P.54A-374.)
There is no disk in the DVD player. Please insert map disk	The disk other than the map disk is in the navigation unit.	Set the map disk is in the navigation unit.
There is cannot be read. Please check disk. if this happens again, please have the system inspection at your nearest dealer.	A mechanical error has occurred. Or, the map data cannot be read.	Check that the disk is not inserted upside down or scratched. If there is no abnormality, check the navigation unit. (Refer to P.54A-396.)

Error messages relating to the audio

Error messages	Error contents	Action
HOT	Protection against high temperature	This error code will be displayed if the internal temperature of the radio, CD player and CD changer is high. Turn off the radio, CD player and CD changer, and then wait until the temperature decreases. Wait for a while, and then turn on the radio, CD player and CD changer. Check that the same error message does not appear.
ERROR CODE (01).	Focus error (Normal disk cannot be read.)	If there is any problem on the CD, this error code will be shown. If no error message appears when another disk is inserted, the disk is defective. Check the items below, and take a necessary action. • Contamination, scratch, or deformation • Formation of moisture or grease Insert the disk again, and check that no error appear.
ERROR CODE (02).	Abnormal disk	
ERROR CODE (03).	Mechanical error	This error codes will be shown if there is any internal mechanical or electrical problem in the radio, CD player and CD changer. Replace the radio, CD player and CD changer, and check that no error codes are shown.

Error messages	Error contents	Action
ERROR CODE (04).	Communication error Power supply system error Other errors	• Check if voice is output from the radio, CD player and CD changer. If a problem is found, inspect the radio, CD player and CD changer and the audio amplifier. (Refer to P.54A-168.) • If the information from the radio, CD player and CD changer is not displayed, check the connection status between the multi-center display and the radio, CD player and CD changer. (Refer to P.54A-365.)
ERROR CODE (05).	Disk type error	
Error.	Mechanical fault or bad connection	This code is displayed when the satellite radio tuner has a mechanical problem or when an error occurs in the communication with radio, CD player and CD changer. Check the radio, CD player and CD changer, the satellite radio tuner, and each harness and connector, and replace if necessary.
Antenna Error.	Antenna connection error	This code is displayed when there is a failure, improper connection, or open circuit in the satellite antenna base and the satellite radio tuner cannot receive normal voltage value or current value. Check the satellite radio tuner, the satellite antenna base and the antenna feeder cable, and replace if necessary.
Acquiring Signal	Signals cannot be received.	This code is displayed when the signal is too weak and it cannot be received. Move to a place where the signal can be received easily, or check if there is foreign material that interferes with signal reception on the satellite antenna base, and remove if necessary.
Off Air	Channel not in service	This code is displayed when this channel is not broadcast at this moment, or broadcast of the satellite radio is interrupted. Check the airtime and the broadcast conditions of SIRIUS™ satellite radio.
Invalid Channel	No program is broadcast, or reception is not permitted.	No program is broadcast on this channel now, or this channel cannot be received. Ask SIRIUS™ satellite radio.
Reading	Data reading in progress	This code is displayed when the data received is being read. Wait until reading of the data received is completed.
Updating	Data reading in progress	This code is displayed when SIRIUS™ satellite radio is updating the channel data. Wait until update is completed.
Subscription Update Press Any Key	Data reading in progress	This code is displayed when the contract status is updated. This code disappears when any of the audio switch is pressed.
Call 888-539-SIRIUS	Unauthorized channel	This code is displayed when the channel to be received is not included in the contract with SIRIUS™ satellite radio. Contact SIRIUS™ satellite radio and make a contract for the channel.
No Channel	There is no selectable channel	There is no channel that can be selected. Cancel the SKIP settings so that the channels can be selected.

PRECAUTIONS DURING MMCS SERVICE

M1546003000064

BEFORE REMOVING THE BATTERY

MMCS stores a large volume of information which is input at the discretion of customers. The memory of each information becomes as follows when the battery terminal is removed. Therefore, before removing the battery, the recording of preset channels is necessary. Depending on the time period of battery removal, the current location, destination, and others of the navigation function must be recorded.

Item	Input function	Memory status after the removal of battery terminal
Radio function	Channels selected by search	Deleted after a few seconds
	Preset channels	
Navigation function	Current location and display scale	Not deleted (battery backup)
	Vehicle traveled course	
	Recommended route	
	Display condition	
	Route search condition	
	Sensor initialization data	
Information search function, information display and input functions	Registered location mark	
	Registered location name	
	Destination	
	Routing location	
	Average fuel consumption, average vehicle speed, possible driving distance	Deleted after a few seconds
Clock display function	Current time	
Vehicle model setting of driving information	–	
Monitor backlight brightness setting	Brightness set value	
TV picture quality setting	Picture quality (color tone, contrast) set value	
M-BUS communication information	M-BUS communication quality information	Not deleted (battery backup)
	Bus reset history	Navigation unit: Not deleted (battery backup)
		Multi-display, audio unit: Deleted after a few seconds

DIAGNOSIS TIPS CONCERNING THE ENTIRE SYSTEM

1. When a trouble symptom occurs with which two or more system functions become abnormal simultaneously, the communication error between each unit is strongly suspected. Therefore, check the symptom with the service function link and communication check of the diagnosis service function.
2. When an error code is displayed, check that relevant wiring harness connectors are engaged correctly. If a failure is found, repair the connectors and check the trouble symptom again.
3. When the wiring harness connectors are engaged correctly, check the wiring harness. If the wiring harness is in good condition, replace relevant components. At this time, record the error code and service function data.

NOTE: If a system communication related failure is suspected, carry out the troubleshooting.

DIAGNOSIS TIPS WHEN ONLY SPECIFIC FUNCTION(S) IS DEFECTIVE

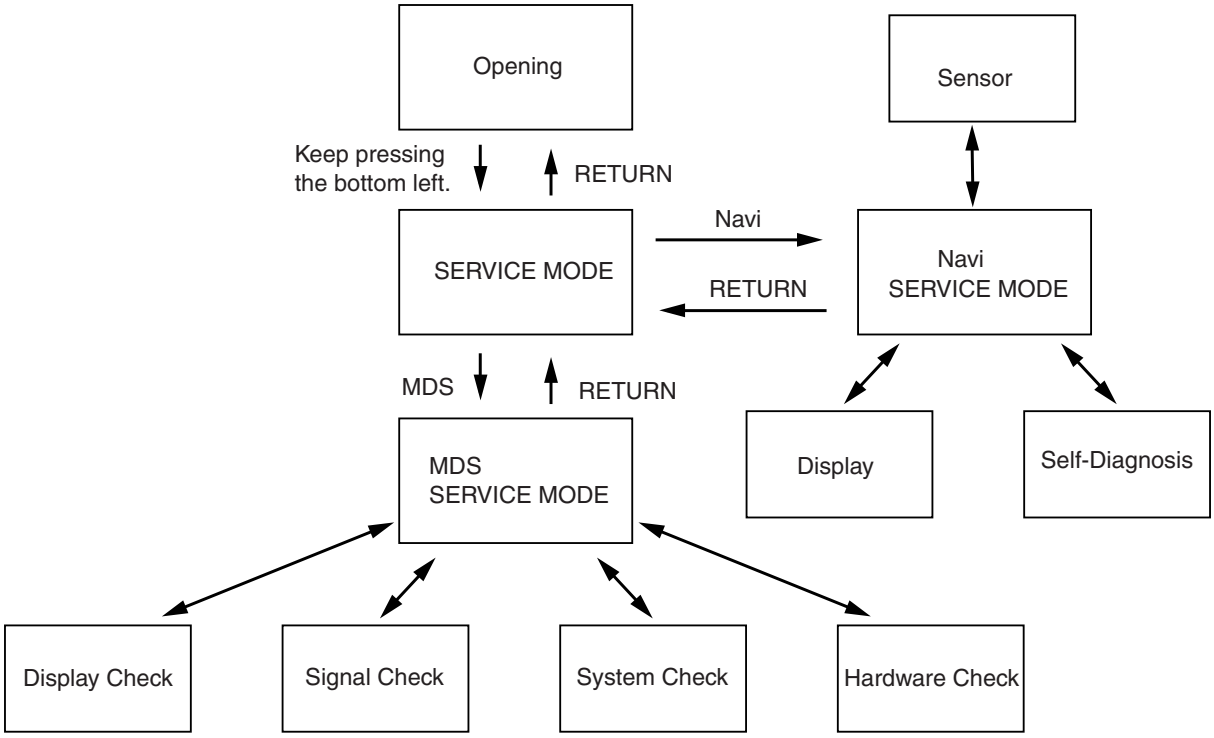
1. When an abnormality occurs only to the specific function, perform the hard switch check of service function audio check.
2. When the switch function is normal, check that the wiring harness connectors related to the specific function are engaged correctly. If a failure is found, repair the connectors and check the trouble symptom again.
3. When the wiring harness connectors are engaged correctly, check the wiring harness. If the wiring harness is in good condition, replace relevant components, which controls that function.

NAVIGATION FUNCTION DIAGNOSIS TIPS

1. The vehicle position accuracy of navigation function has a limitation due to its operation principles. Therefore, depending on the contents of customer claims, the system itself may be normal.
   Before performing the diagnosis, listen to the use status and driving location of the customer sufficiently. When a judgment can be made that it is not a system abnormality, explain to the customer the navigation function operation principle and how to use the function.
2. When the system abnormality is recognized, perform the check according to the symptom procedures of troubleshooting.

DIAGNOSIS SERVICE MODE FUNCTION

M1546003200080



AC600919AC

The multi-center display is equipped with the functions below as the diagnosis service mode function.

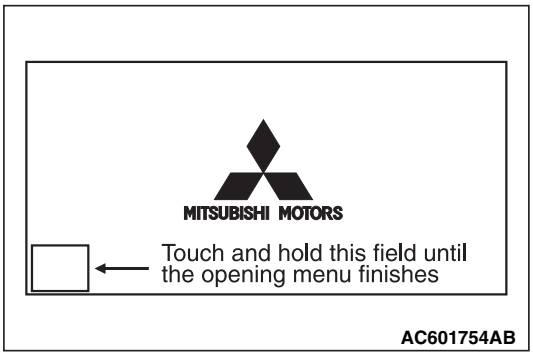
Function			Contents
MDS (multi-center display) SERVICE MODE	Display check (Image check menu mode)	Color bar	Performs the each image check.
		Gray scale	
		White window	
		Navi	
		Rear view	
		Red	
		Green	
		Blue	
		White	
		Black	
	Signal check (Vehicle signal check mode)		Displays the current vehicle status.
	System check (System check menu)	Connect check	Displays the connection status for units and sensors.
		Version check	Displays the version information of each unit.
		Initialize	Initialization of microcomputer RAM, EEPROM
	Hardware check (Hardware check menu)	Touch switch	Touch switch check
		Sound check	Sound output check
		Self test	RTC (Real Time Clock: Clock IC), EEPROM check

TSB Revision

Function			Contents
NAVI SERVICE MODE	Display	Color bar	Performs the each image check.
		Hatching	
		Gray scale	
		Color screen	
	Self-diagnosis	Circuit check	Displays circuit check result
		Signal check	Displays signal check result
		GPS time setting	GPS reception time display setting
		Test tone	Diagnoses test tone
	Sensor	Displays sensor information and clears the value.	

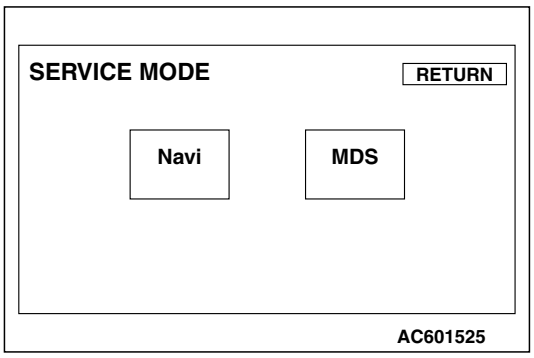
SERVICE MODE ENTRY PROCEDURE

1. Turn the ignition switch from the OFF position to the ACC position.
2. While the three-diamond is displayed, keep pressing the bottom left corner of touch panel until the opening is completed.



3. When the bottom left corner is pressed continuously until the opening is completed, the service mode is entered after the completion of opening.

   NOTE: If the service mode is not entered after the opening is completed, repeat from Step 1.

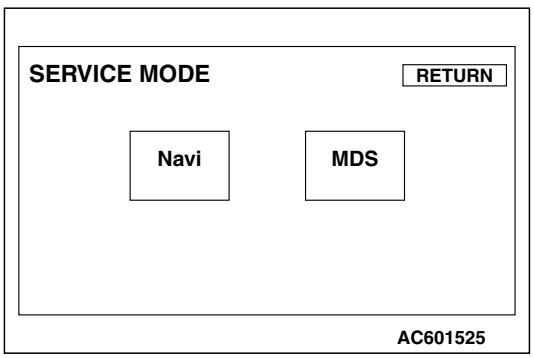


SERVICE MODE TOP MENU

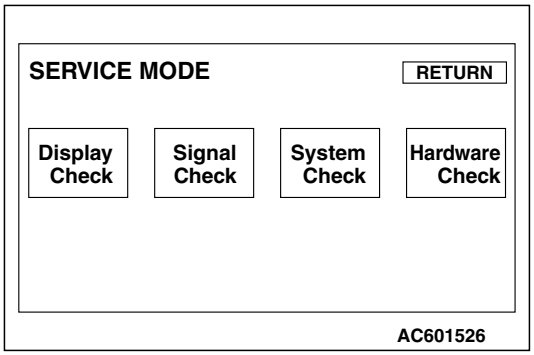
The service mode top menu is the top menu for the service mode. From this menu, a transition to the MDS (multi-center display) or navigation service menu can be performed.

NOTE: When "RETURN" is touched on the service mode top menu screen, the service mode ends and the screen returns to the opening.

- Navi: A transition is made to the navigation service menu.
- MDS (multi-center display): A transition is made to the MDS (multi-center display) or navigation service menu.



MDS (multi-center display) SERVICE MODE

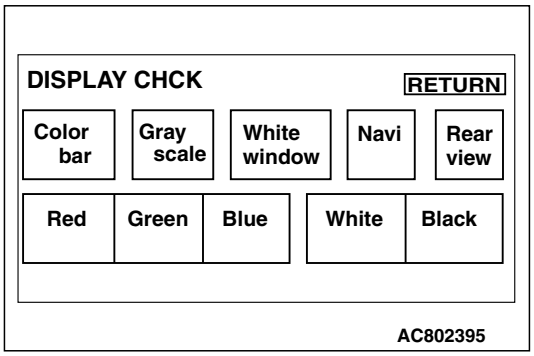


The MDS (multi-center display) service menu is the top menu for the MDS (multi-center display) service mode. From this menu, a transition to various check mode can be performed.

NOTE: When "RETURN" is touched on the MDS (multi-center display) service menu screen, the MDS (multi-center display) service menu ends, and the screen returns to the service mode top menu.

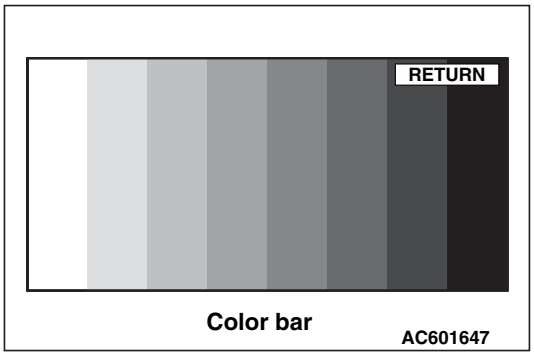
- Display Check: Image check menu (Color bar, Gray scale, White window, Rear view, Navi, full screen display of each color)
- Signal Check: Vehicle signal check mode (key position, ILL, shift position, vehicle speed, battery, fuel amount, internal temperature of multi-center display)
- System Check: System check menu (connection check, version, mode, initialization)
- Hardware Check: Hardware check menu (touch switch, sound check, Self test)

DISPLAY CHECK

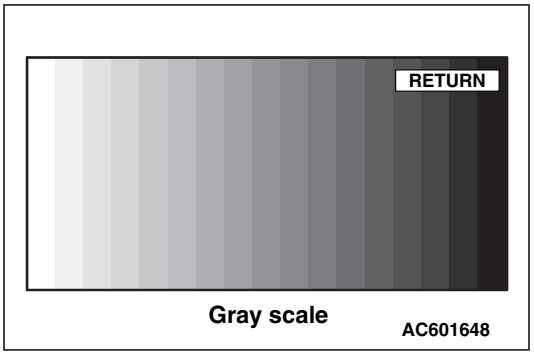


When "Display Check" is touched on the MDS (multi-center display) service menu, the menu is switched to the Display Check menu. From this menu, the switching to various check modes is performed. Also, when "RETURN" is touched on the image check mode screens, the screen returns to the Display Check menu.

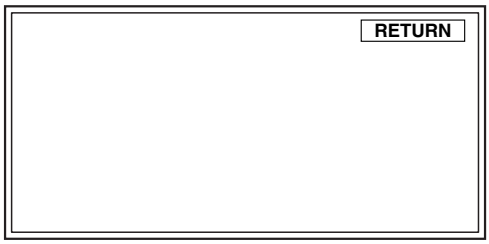
NOTE: When "RETURN" is touched on the Display Check menu screen, the Display Check menu ends, and the screen returns to the MDS (multi-center display) service menu.



- When "Color bar" is touched, the color bar screen is displayed.



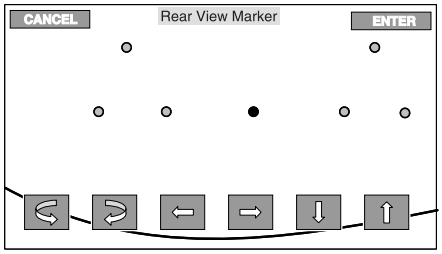
- When "Gray scale" is touched, the gray scale screen is displayed.



White window

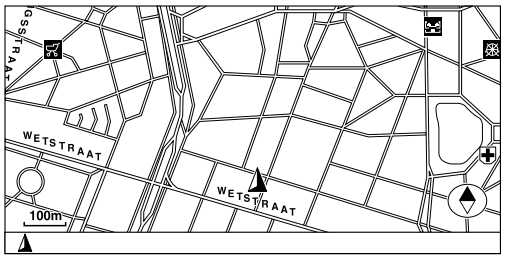
AC601649

- When "White window" is touched, the white window screen is displayed.



AC803162

- When "camera" is touched, the rear view camera image is displayed.



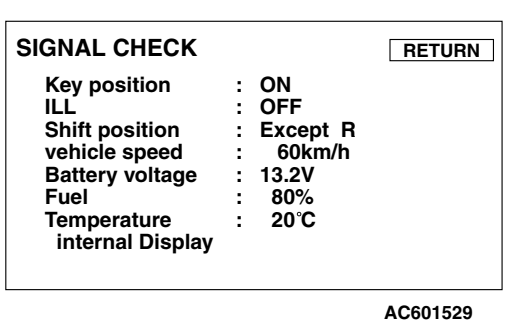
AC601528

- When "Navi" is touched, the navigation image is displayed.
  NOTE:
  - *In advance with the normal system setting, a navigation setting suited for the connected navigation must be performed.*
  - *If the setting for connected navigation is already performed, either of the images is displayed depending on the navigation.*
- When "Red" is touched, the red color screen is displayed.
- When "Green" is touched, the green color screen is displayed.
- When "Blue" is touched, the blue color screen is displayed.
- When "White" is touched, the white color screen is displayed.
- When "Black" is touched, the black color screen is displayed.

SIGNAL CHECK

When "Signal Check" is touched on the MDS (multi-center display) service menu, the mode is switched to the SIGNAL CHECK mode, and the current values for following signals are displayed.

NOTE: When "RETURN" is touched on the SIGNAL CHECK mode screen, the SIGNAL CHECK mode ends, and the screen returns to the MDS (multi-center display) service menu.

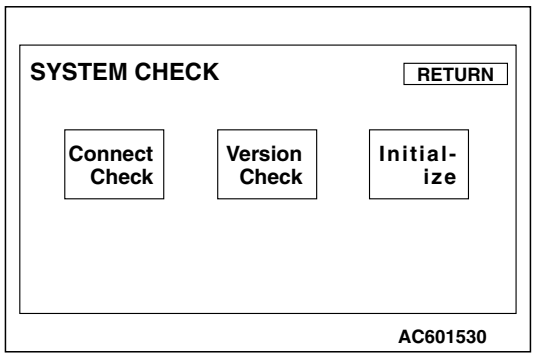


AC601529

- "Key position": Displays "ON" when the ignition key is in the ON position, and displays "ACC" when the ignition key is in the ACC position.
- "ILL": Displays "ON" when the room light is illuminated, and "OFF" when the light is off.

- "Shift position": Displays "R" when the position is in the R (reverse) position, "Except R" when the position is in other than the R (reverse) position, and "–––" when the ignition key is OFF.
- "Vehicle speed": Displays the vehicle speed.
- "Battery voltage": Displays the power supply voltage inside the multi-center display.
- "Fuel": When the fuel tank remaining amount is normal and the ignition key is in the ON position, displays the fuel amount by "0 - 100%". When the ignition key is in the OFF position or when the fuel amount is being judged or is abnormal, displays "–––%".
- "Temperature internal Display": Displays the internal temperature of multi-center display.

SYSTEM CHECK

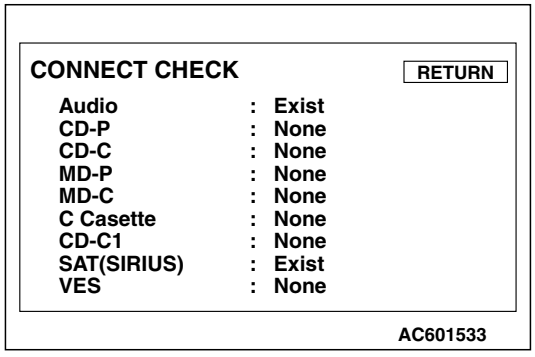


When "System Check" is touched on the MDS (multi-center display) service menu, the menu is switched to the System Check menu. From this menu, the switching to various check modes is performed.

NOTE: When "RETURN" is touched on the System Check menu screen, the System Check mode ends, and the screen returns to the MDS (multi-center display) service menu.

- Connect Check: Displays the connection check screen.
- Version Check: Displays the version check screen.
- Initialize: Displays the memory initialization screen.

CONNECTION CHECK



When "Connect Check" is touched on the System Check menu screen, the screen switches to the connection check screen.

NOTE: When "RETURN" is touched on the connection check screen, the connection check ends, and the screen returns to the System Check menu.

NOTE: Also displays the unconnected equipment.

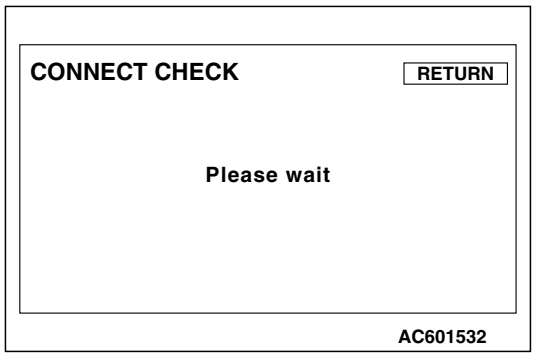
Connection check

- "Audio": Displays "Exist" when the audio head unit is connected, and "None" when not connected.
- "CD-P": Displays "Exist" when the CD player is connected, and "None" when not connected.
- "CD-C": Displays "Exist" when the CD changer is connected, and "None" when not connected.
- "MD-P": Displays "Exist" when the MD player is connected, and "None" not connected.
- "MD-C": Displays "Exist" when the MD changer is connected, and "None" when not connected.
- "C cassette": Displays "Exist" when the C cassette unit is connected, and "None" when not connected.
- "CD-C1": Displays "Exist" when the in-dash CD changer is connected, and "None" when not connected.
- "SAT(SIRIUS)": Displays "Exist" when the satellite radio tuner (SIRIUS) is connected, and "None" when not connected.

- "VES": Displays "Exist" when the Video Entertainment System is connected, and "None" not connected.

Display during the connected equipment check

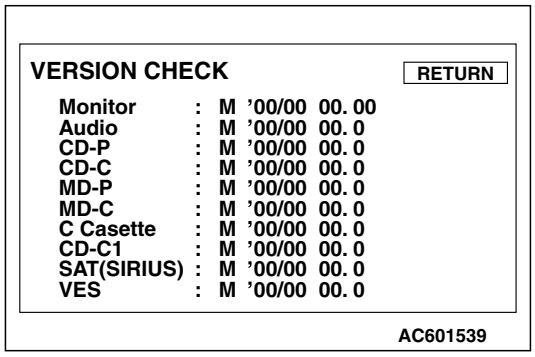
- Immediately after the transition to connection check, the check of each connected equipment is performed. During the check, "Please Wait" is displayed on the center of the screen. Upon the same timing at the completion of connected equipment check, the connection check is performed.



VERSION CHECK

When "Version Check" is touched on the System Check menu screen, the screen switches to the version check screen.

NOTE: When "RETURN" is touched on the version check screen, the version check ends, and the screen returns to the System Check menu.



Version information types

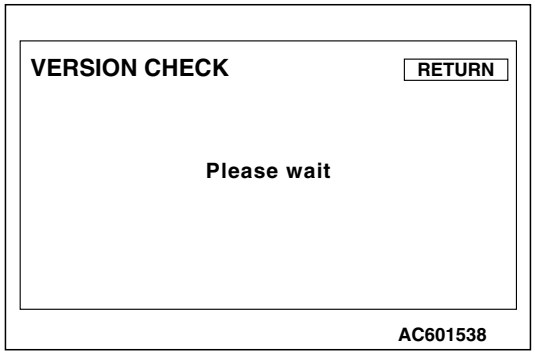
- The version check displays the version information for the units below. (The version is displayed in the order of manufacturer name, year/month, and version.) However, some equipment among the optional audio do not respond to the version request from the monitor. Therefore, for the equipment that does not return a response, the items themselves for the equipment are not displayed.

Version

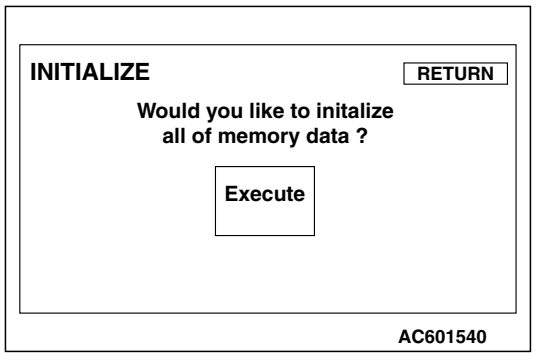
- "Monitor": MDS (multi-center display) version
- "Audio": Audio head unit version
- "CD-P": CD player version
- "CD-C": CD changer version
- "MD-P": MD player version
- "MD-C": MD changer version
- "C cassette": C cassette version
- "CD-C1": In-dash CD changer version
- "SAT(SIRIUS)": Satellite radio tuner (SIRIUS) version
- "VES": Video Entertainment System version

Display during the connected equipment check

- Immediately after the transition to version check, the check of each connected equipment is performed. Therefore, during the check, "Please Wait" is displayed to the center of the screen. Upon the same timing at the completion of connected equipment check, the version check is performed.



INITIALIZE (MEMORY)



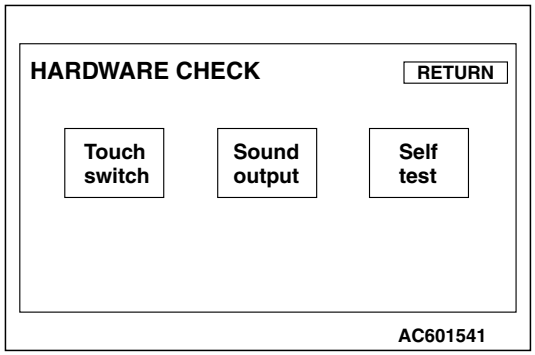
When "Initialize" is touched on the System Check menu screen, the screen switches to the memory initialization screen.

NOTE: When "RETURN" is touched on the memory initialization screen, the initialization ends without performing the memory initialization, and the screen returns to the System Check menu.

When "Execute" is pressed and held, all memory data in the microcomputer RAM and EEPROM (maintenance information) are deleted (initialized).

NOTE: After the memory initialization, the microcomputer is reset, and the multi-center display is rebooted (the opening screen is displayed again).

HARDWARE CHECK MENU

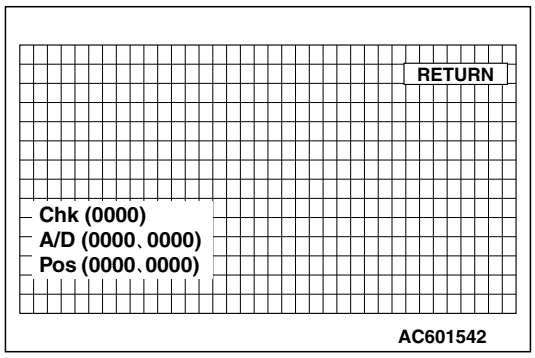


When "Hardware Check" is touched on the MDS (multi-center display) service menu, the menu is switched to the Hardware Check menu. From this menu, the switching to various hardware check modes is performed.

NOTE: When "RETURN" is touched on the Hardware Check menu screen, the Hardware Check mode ends, and the screen returns to the MDS (multi-center display) service menu.

- Touch switch: Displays the touch switch check screen.
- Sound output: Displays the sound output check screen.
- Self test: Displays the self test screen.

TOUCH SWITCH CHECK



When "Touch switch" is touched on the Hardware Check menu screen, the screen switches to the touch switch check screen.

NOTE: When any part of the touch switch check screen is touched, "RETURN" is displayed. With "RETURN" displayed, when "RETURN" is touched, the touch switch check ends, and the screen returns to the Hardware Check menu.

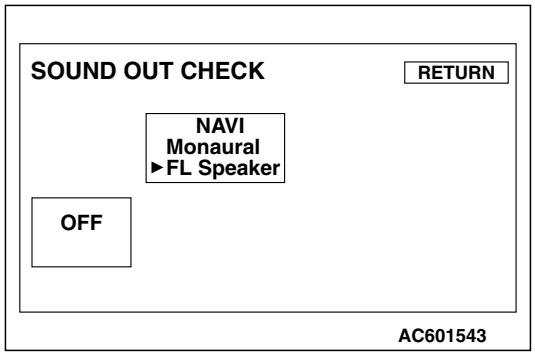
Touch information content

- "Chk": Touch ON/OFF judgment voltage (current value)
- "A/D": The A/D value of touch panel X-axis and Y-axis with the origin at bottom left of the screen (the value of last touch detection)
- "Pos": The touch detection coordinates with the origin at upper left of the screen (the value of last touch detection)

Touch switch check

- With the touch switch check, the Chk value, A/D value, and touch detection coordinates are displayed to any of the four corners of screen, and the red cross mark is displayed to the coordinates of last touch detection.

SOUND OUTPUT CHECK



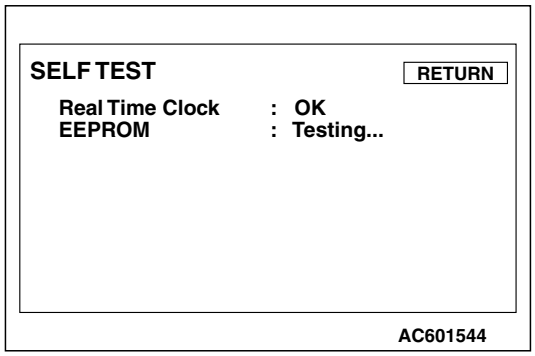
When "Sound output" is touched on the Hardware Check menu screen, the screen switches to the sound output check screen.

NOTE: When "RETURN" is touched on the sound output check screen, the sound output check ends, and the screen returns to the Hardware Check menu.

Sound output check

- With the sound output check, a check is performed to confirm that the navigation sound is output normally.
  - "NAVI Monaural > FL Speaker": Outputs the navigation guidance sound from the FL speaker.
  - "OFF": Stops the navigation guidance sound output.

SELF TEST



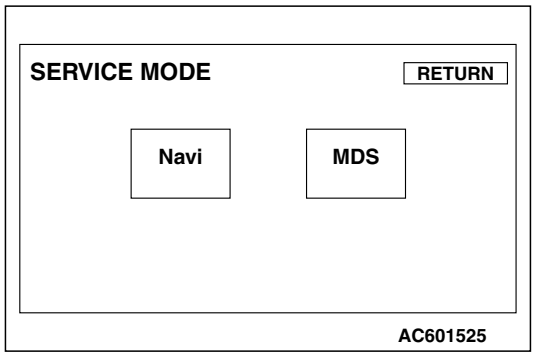
When "Self test" is touched on the Hardware Check menu screen, the screen switches to the self test screen.

NOTE: When "RETURN" is touched on the self test screen, the self test ends, and the screen returns to the Hardware Check menu.

Self test content

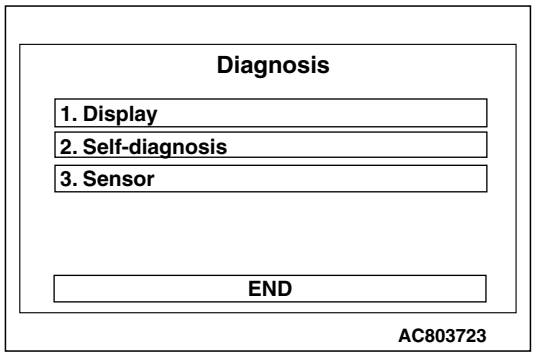
- The self test is automatically started immediately after the transition to the self test screen. Real Time Clock checks the clock IC communication and the time progression. EEPROM checks the writing to EEPROM.
  - "Real Time Clock": Displays "OK" when normal, "NG" when abnormal, and "Testing..." during the test.
  - "EEPROM": Displays "OK" when normal, "NG" when abnormal, and "Testing..." during the test.

NAVI SERVICE MODE



The Navi service menu is the top menu for the Navi service mode. From this menu, a transition to various check modes can be performed.

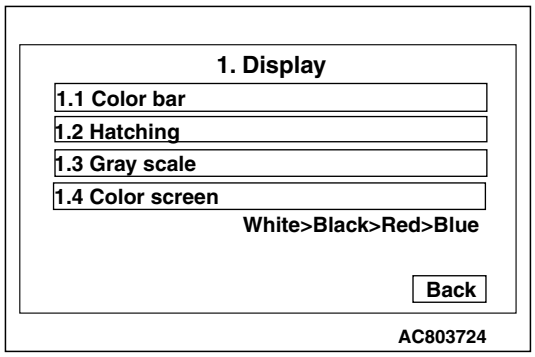
NOTE:



When "END" is touched on the Navi service menu screen, the Navi service menu ends, and the screen returns to the service mode top menu.

- Display: Display menu (color bar, hatching, gray scale, color screen)
- Self-Diagnosis: Vehicle signal check (key position, ILL, shift position, vehicle speed, battery, fuel amount, internal temperature of multi-center display)
- Sensor: Displays and clears the values of the speed sensor pulse, distance calibration level, and gyro calibration level (right and left).

DISPLAY MENU

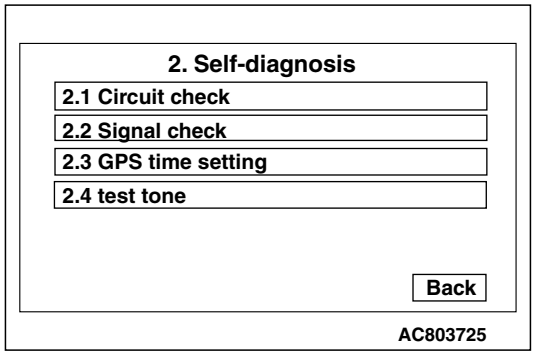


When "Display" is touched on the Navi service menu, the menu is switched to the Display menu. From this menu, the switching to various check modes is made. Also, when "Back" is touched on the image check mode screens, the screen returns to the Display menu.

NOTE: When "Back" is touched on the Display menu screen, the Display menu ends, and the screen returns to the Navi service menu.

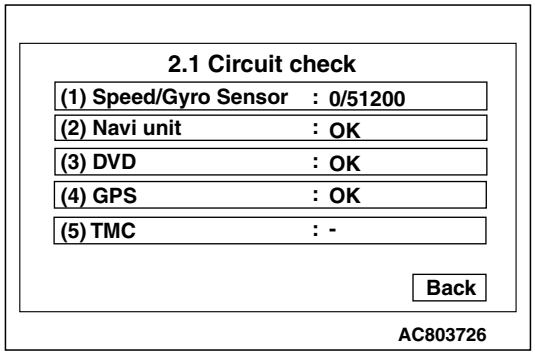
- When "Color bar" is touched, the color bar screen is displayed.
- When "Hatching" is touched, the hatching screen is displayed.
- When "Gray scale" is touched, the gray scale screen is displayed.
- When "Color screen" is touched, the white color screen is displayed.

SELF-DIAGNOSIS MENU



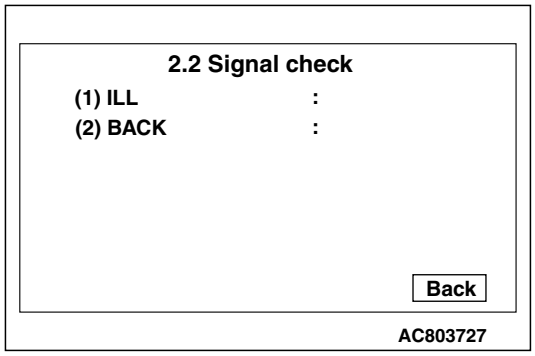
When "Self-Diagnosis" is touched on the Navi service menu, the screen is switched to the Self-Diagnosis menu. From this menu, the switching to the circuit check mode, signal check mode, GPS time setting mode, or test tone mode is performed. Also, when "Back" is touched on the check mode screens, the screen returns to the Self-Diagnosis menu.

NOTE: When "Back" is touched on the Self-Diagnosis menu screen, the Self-Diagnosis menu ends, and the screen returns to the Navi service menu.



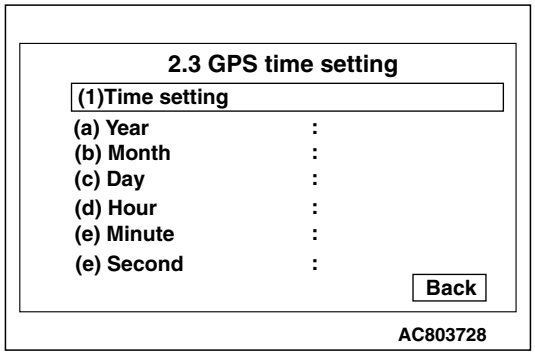
- When "circuit check" is touched, the vehicle speed, gyro angle speed, internal RAM status of navigation unit, DVD drive, or GPS antenna connection status is displayed.

Item	Normal conditions
Speed/Gyro sensor	• Speed: 0 to 255 is displayed [(0: stopped, 1 to 255 (driving)] • Gyro: Displays the angular velocity (center: 51200)
Navi unit	OK
DVD	OK
GPS	OK
TMC	–

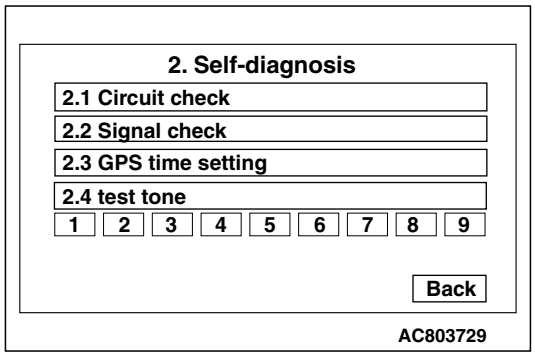


- When "signal check" is touched, the statuses of reverse signal and illumination signal are displayed.

Item	Normal conditions
ILL	• ON: ILL signal from the multi-center display is ON. • OFF: ILL signal from the multi-center display is OFF.
Back	• ON: Shift position signal from the multi-center display is R. • OFF: Shift position signal from the multi-center display is other than R.



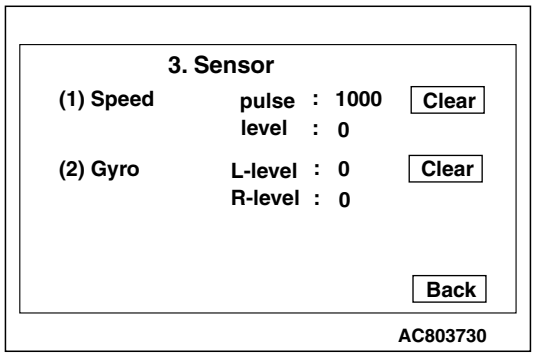
- When "GPS time setting" is touched, the menu is displayed with which the setting of GPS received time can be performed.



- When "test tone" is touched, the test tone screen is displayed.

SENSOR

When "Sensor" is touched on the Navi service menu, the screen is switched to the Sensor menu.
In the Service menu, the calibrated value of Speed or Gyro can be initialized by selecting "Clear".



DIAGNOSIS FUNCTION

M1543007001134

ON-BOARD DIAGNOSTICS

The multi-center display displays input/output signals (some signals all the time and others under specified conditions). When an irregular signal is initially monitored, the multi-center display decides that a malfunction has occurred and records the occurrence as a diagnostic trouble code. There are 9 diagnostic items. The diagnostic results can be read with a scan tool MB991958 (M.U.T.-III sub assembly). Diagnostic trouble codes are kept in memory by direct battery feed. The codes are retained in memory even if the ignition switch is in the "LOCK" (OFF) position. Diagnostic trouble codes will, however, be erased when a battery terminal or the multi-center display connector is disconnected. In addition, the diagnostic trouble code can also be erased by scan tool MB991958 (M.U.T.-III sub assembly).

NOTE: If a connector or sensor is disconnected when the ignition switch is in the "ON" position, a diagnostic trouble code is stored in memory. In this case, erase the DTC using the scan tool.

NOTE: The 9 diagnostic items are displayed in numeric order.

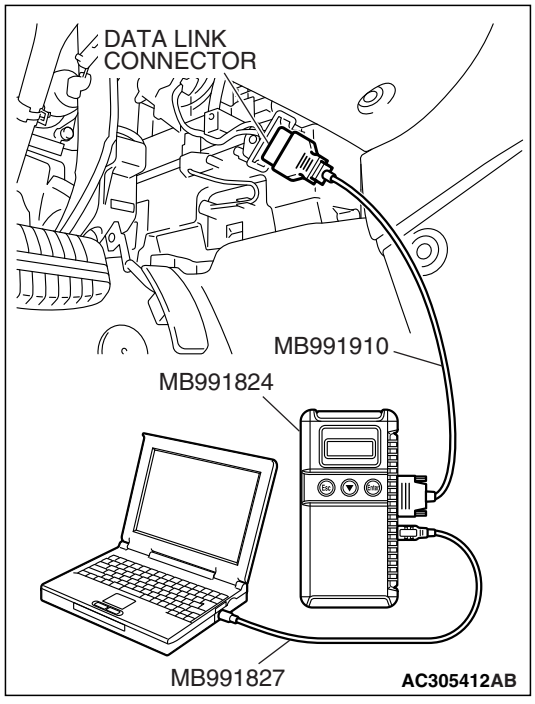
HOW TO CONNECT SCAN TOOL (M.U.T.-III)

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991911: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

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



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

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the M.U.T.-III system on the personal computer.

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

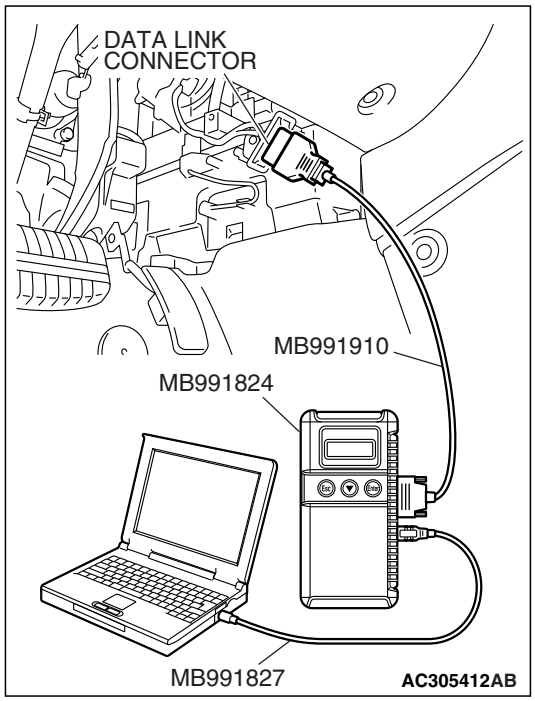
Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991911: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

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

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



1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to "ON" position.
3. Select "Interactive Diagnosis" from the start-up screen.
4. Select "System select."
5. Choose "Display" from the "BODY" tab.
6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

DIAGNOSTIC TROUBLE CODE CHART

M1545001100631

NOTE: During diagnosis, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

DTC NO.	DIAGNOSTIC ITEM	REFERENCE PAGE
10	Bus off	P.54A-328
11*	Powertrain control module time-out (related to engine)	P.54A-330
12*	Powertrain control module time-out (related to A/T)	
13*	A/C-ECU time-out	P.54A-333
14*	Combination meter time-out	P.54A-336
19*	ETACS-ECU time-out	P.54A-339
20	Failures information on powertrain control module (related to engine)	P.54A-342
21	Failures information on combination meter	P.54A-345
22	Failures information on A/C-ECU	P.54A-348

*NOTE: *: When the DTC relating to the CAN communication error are set, make sure of the vehicle equipment. When the vehicle is not equipped with the system the multi-center display unit communicates to, the DTC is always set. This is not abnormal.*

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC 10: Buss Off

⚠ CAUTION
If DTC 10 is set in the multi-center display, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

CIRCUIT OPERATION

The multi-center display is linked to CAN communication lines to communicate with the combination meter, A/C-ECU, ETACS-ECU and the powertrain control module, both of which have a terminator resistor.

DTC SET CONDITION

If the multi-center display ceases communicating once (i.e. bus off) and then returns to it, the multi-center display will not communicate for three minutes immediately after that point. This three-minute period is called "Penalty mode." Immediately after the multi-center display returns to communication, the DTC is set.

TECHNICAL DESCRIPTION (COMMENT)

The CAN bus line wiring harness, connector(s), or the multi-center display unit may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of multi-center display

DIAGNOSIS

Required Special Tools:

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

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

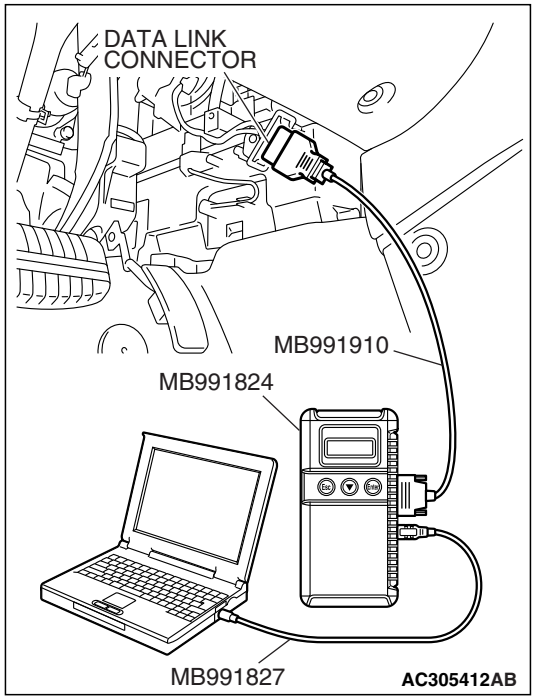
Use scan tool MB991958 to diagnose the CAN bus lines.

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result satisfactory?

YES : Go to Step 2.

NO : Repair the CAN bus lines. (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go to step 2.



STEP 2. Check whether the scan tool MB991958 can communicate with the multi-center display.

Q: Is the check result satisfactory?

YES : Erase the diagnostic trouble code. This diagnosis is complete.

NO : Refer to the Inspection Procedure 2, 5, and 6, and inspect the circuits of the battery, ground, ACC signal, and IG1 signal. (Refer to P.54A-351.)

DTC 11: Powertrain Control Module Time-out (Related to Engine)
DTC 12: Powertrain Control Module Time-out (Related to A/T)

⚠ CAUTION
If DTC 11 or 12 is set in the multi-center display, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

NOTE: When the DTC relating to the CAN communication error are set, make sure of the vehicle equipment. When the vehicle is not equipped with the system the multi-center display communicates to, the DTC is always set. This is not abnormal.

DTC SET CONDITION

11

- The multi-center display receives engine control system-related signals from the powertrain control module via CAN bus lines. If the display unit can not receives the necessary signals, DTC 11 will be set.

12

- The multi-center display receives A/T control system-related signals from the power control module via CAN bus lines. If the display unit can not receive the necessary signals, DTC 12 will be set.

TECHNICAL DESCRIPTION (COMMENT)

⚠ CAUTION
If the ignition switch is turned to the ON position without starting the engine, DTC (past trouble) 13 and 14 may be set on the multi-center display after three minutes.

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the powertrain control module and the multi-center display, the power supply system to the multi-center display, the multi-center display itself, or the powertrain control module may be defective.

Past trouble

- Carry out diagnosis with particular emphasis on connector(s) or wiring harness in the CAN bus lines between the powertrain control module and the multi-center display, and the power supply system to the powertrain control module. For diagnosis procedures, refer to "How to cope with past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-14).

  NOTE: For a past trouble, you may not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14.) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, CAN bus line Diagnostics Flow P.54C-6).

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of powertrain control module.
- Malfunction of multi-center display

DIAGNOSIS

Required Special Tools:

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

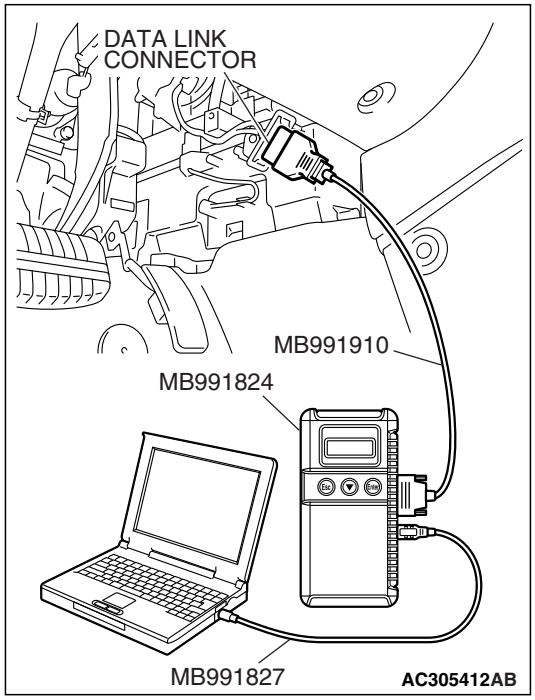
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go to Step 6.



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

Check if an MFI system DTC is set.

Q: Is the DTC set?

YES : Diagnose the MFI system by referring to GROUP 13A, MFI Diagnosis – Diagnostic Trouble Code Chart P.13A-46 <2.4L ENGINE> or GROUP 13B, MFI Diagnosis – Diagnostic Trouble Code Chart P.13B-46 <3.8L ENGINE>.
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code related to the other system.

Check if a DTC, which relates to CAN communication-linked systems below, is set.

ABS-ECU
- DTC U1100: Powertrain control module time-out (related to Engine)
- DTC U1101: Powertrain control module time-out (related to automatic transaxle)

Combination meter
- DTC U1100: Power train control module time-out (related to Engine)
- DTC U1101: Power train control module time-out (related to A/T)

ETACS-ECU
- DTC U1100: Power train control module time-out (related to Engine)
- DTC U1101: Power train control module time-out (related to A/T)

A/C-ECU
- DTC U1100: Power train control module time-out (related to Engine)

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace powertrain control module and then go to step 6.
NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the powertrain control module and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.
Recheck if the DTC is set.
1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace multi-center display and then go to step 6.
NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the powertrain control module and the middle-grade multi-center display unit (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction P.00-14).

STEP 6. Recheck for diagnostic trouble code.
Recheck if the DTC is set.
1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Go to Step 1.
NO : The procedure is complete.

DTC 13: A/C-ECU Time-out

⚠ CAUTION
If DTC 13 is set in the multi-center display, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

NOTE: When the DTC relating to the CAN communication error are set, make sure of the vehicle equipment. When the vehicle is not equipped with the system the multi-center display communicates to, the DTC is always set. This is not abnormal.

CIRCUIT OPERATION
The multi-center display communicates with the A/C-ECU via CAN bus lines.

DTC SET CONDITION
When the multi-center display can not receives necessary signals from the A/C-ECU via CAN bus lines. If the multi-center display can not receives the necessary A/C-ECU signals, DTC 13 will be set.

TECHNICAL DESCRIPTION (COMMENT)

⚠ CAUTION
If the ignition switch is turned to the ON position without starting the engine, DTC (past trouble) 11, 12 and 14 may be set to the multi-center display after three minutes.

Current trouble
- Connector(s) or wiring harness in the CAN bus lines between the A/C-ECU and the multi-center display, the power supply system to the display unit, the multi-center display itself, or the A/C-ECU may be defective.

Past trouble
- Carry out diagnosis with particular emphasis on connector(s) or wiring harness in the CAN bus lines between the A/C-ECU and the multi-center display, and the power supply system to the A/C-ECU. For diagnosis procedures, refer to "How to cope with past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-14).

TSB Revision

NOTE: For a past trouble, you may not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction.) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, CAN bus line Diagnostics Flow P.54C-6).

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of A/C-ECU
- Malfunction of multi-center display

DIAGNOSIS

Required Special Tools:

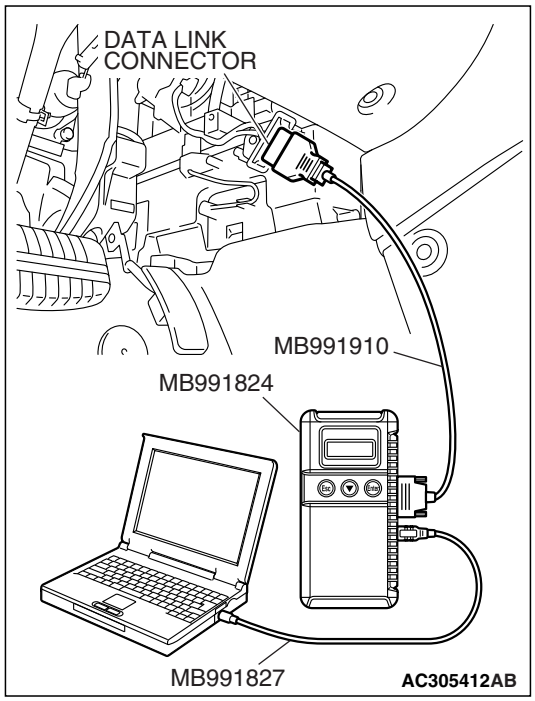
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go to Step 6.



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

Check if an A/C system DTC is set.

Q: Is the DTC set?

YES : Diagnose the A/C system by referring to GROUP 55A, Manual A/C Diagnosis – Diagnostic Trouble Code Chart P.55A-10 or 55B, Auto A/C Diagnostic Trouble Code Chart P.55B-8.

NO : Go to Step 3.

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

Check if a DTC, which relates to CAN communication-linked systems below, is set.

Powertrain control module

- DTC U1110: A/C-ECU time-out

ETACS-ECU

- DTC U1110: A/C-ECU time-out

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace A/C-ECU and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the A/C-ECU and the middle grade multi-center display unit (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace the multi-center display and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the A/C-ECU and the middle grade multi-center display unit (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

TSB Revision

STEP 6. Recheck for diagnostic trouble code.
Recheck if the DTC is set.
1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?
YES : Go to Step 1.
NO : the procedure is complete.

DTC 14: Combination Meter Time-out

⚠ CAUTION
If DTC 14 is set in the multi-center display, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

NOTE: When the DTC relating to the CAN communication error are set, make sure of the vehicle equipment. When the vehicle is not equipped with the system the multi-center display communicates to, the DTC is always set. This is not abnormal.

DTC SET CONDITION
The multi-center display receives signals from the combination meter via CAN bus lines. If the display unit can not receive the necessary combination meter signals, DTC 014 will be set.

TECHNICAL DESCRIPTION (COMMENT)

⚠ CAUTION
If the ignition switch is turned to the ON position without starting the engine, DTC (past trouble) 11, 12 and 13 may be set to the multi-center display after three minutes.

Current trouble
- Connector(s) or wiring harness in the CAN bus lines between the combination meter and the multi-center display, the power supply system to the display unit, the multi-center display itself, or the combination meter may be defective.

Past trouble
- Carry out diagnosis with particular emphasis on connector(s) or wiring harness in the CAN bus lines between the combination meter and the multi-center display, the power supply system to the multi-center display. For diagnosis procedures, refer to "How to cope with past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-14.)

NOTE: For a past trouble, you may not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14.) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, CAN bus line Diagnostics Flow P.54C-6).

TROUBLESHOOTING HINTS
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of combination meter
- Malfunction of multi-center display

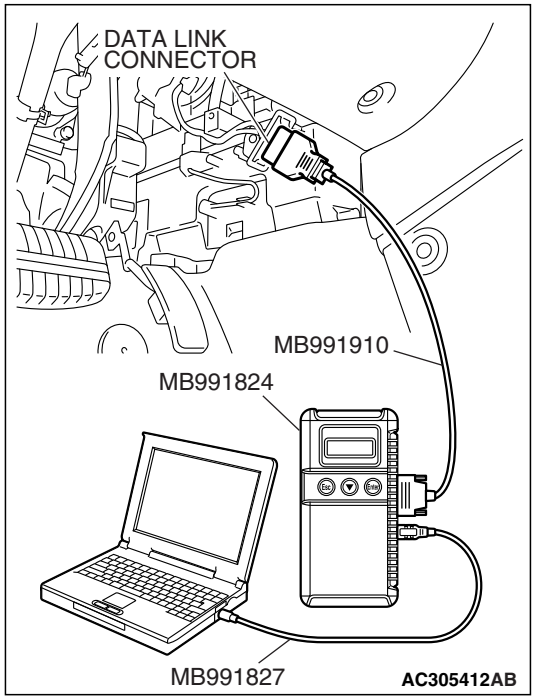
DIAGNOSIS

Required Special Tools:

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

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

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.



Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go Step 6.

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

Check that the combination meter sets a DTC.

Q: Is the DTC set?

YES : Diagnose the combination meter by referring to GROUP 54A, combination meter – Diagnostic Trouble Code Chart P.54A-57.
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code related to the other system.

Check if a DTC, which relates to CAN communication-linked systems below, is set.
Powertrain control module

- DTC U1108: Combination meter time-out

ETACS-ECU

- DTC U1108: Combination meter time-out

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

TSB Revision

STEP 4. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace multi-center display and then go to step 5.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the combination meter and the multi-center display unit (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace multi-center display and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the combination meter and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 6. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Go to Step 1.

NO : The procedure is complete.

DTC 19: ETACS-ECU Time-out

⚠ CAUTION
If DTC 19 is set in the multi-center display, diagnose the CAN main bus line.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

NOTE: When the DTC relating to the CAN communication error are set, make sure of the vehicle equipment. When the vehicle is not equipped with the system the multi-center display communicates to, the DTC is always set. This is not abnormal.

CIRCUIT OPERATION

The multi-center display is linked to CAN communication lines to communicate with the combination meter and the powertrain control module, both of which have a terminator resistor.

DTC SET CONDITION

The multi-center display communicates with the ETACS-ECU via CAN bus lines. If it can not receive all the necessary signals from the ETACS-ECU, DTC 19 is set.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble

- Connector(s) or wiring harness in the CAN bus lines between the ETACS-ECU and the multi-center display, the power supply system to the multi-center display, the multi-center display itself, or the ETACS-ECU may be defective.

Past trouble

- Carry out diagnosis with particular emphasis on connector(s) or wiring harness in the CAN bus lines between the ETACS-ECU and the multi-center display, and the power supply system to the ETACS-ECU. For diagnosis procedures, refer to "How to cope with past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-14).

  NOTE: For a past trouble, you may not find it by the M.U.T.-III CAN bus diagnostics even if there is any failure in CAN bus lines. In this case, refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14.) and check the CAN bus lines. You can narrow down the possible cause of the trouble by referring to the DTC, which is set regarding the CAN communication-linked ECUs (Refer to GROUP 54C, CAN bus line Diagnostics Flow P.54C-6).

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of ETACS-ECU
- Malfunction of multi-center display

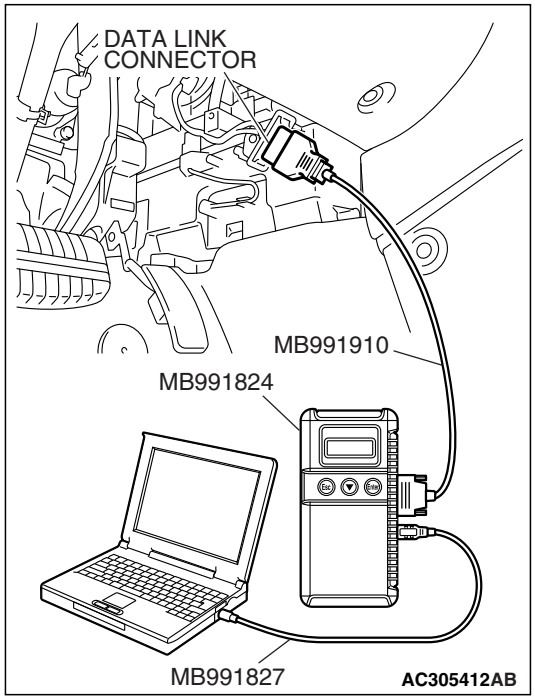
DIAGNOSIS

Required Special Tools:

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

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

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.



Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines. (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go to Step 6.

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

Check that the ETACS-ECU sets a DTC.

Q: Is the DTC set?

YES : Diagnose the SWS system by referring to GROUP 54B, SWS Diagnosis – Diagnostic Trouble Code Chart P.54B-26.
NO : Go to Step 3.

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

Check if a DTC, which relates to CAN communication-linked systems below, is set.
Combination meter

- DTC 1109: ETACS-ECU time-out

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

TSB Revision

STEP 4. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace ETACS-ECU and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the ETACS-ECU and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace multi-center display and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the ETACS-ECU and the multi-center display unit (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 6. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Go to Step 1.

NO : The procedure is complete.

DTC 20: Failures Information on Powertrain Control Module (Related to Engine)

⚠ CAUTION
If DTC 20 is set in the multi-center display, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

DTC SET CONDITION

The multi-center display communicates with the powertrain control module via CAN bus lines. If failure information is sent to the multi-center display, DTC 20 will be set.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble
- The powertrain control module or the multi-center display may be defective.

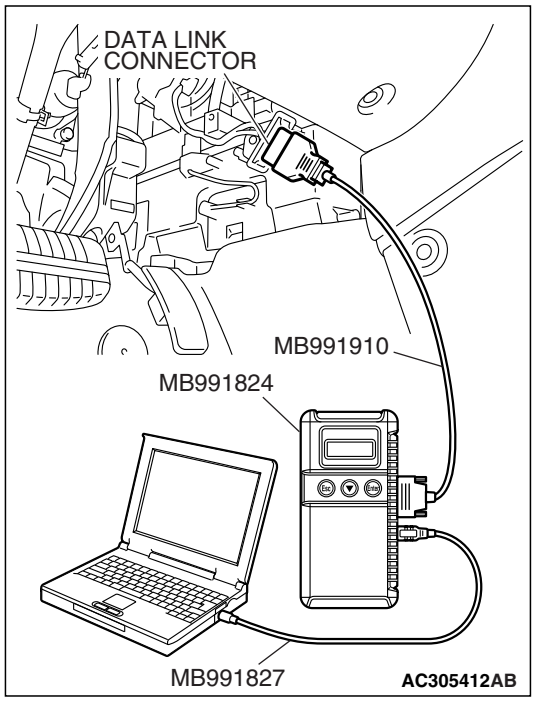
Past trouble
- Carry out diagnosis with particular emphasis on connector(s) or wiring harness between the powertrain control module and the vehicle speed sensor. For diagnosis procedures, refer to "How to cope with past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-14).

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of powertrain control module
- Malfunction of multi-center display

DIAGNOSIS

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



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

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go to Step 6.

STEP 2. Using scan tool MB991958, read MFI system diagnostic trouble code.

Check if an MFI system DTC is set.

Q: Is the DTC set?

YES : Diagnose the MFI system by referring to GROUP 13A, MFI Diagnosis – Diagnostic Trouble Code Chart P.13A-46 <2.4L ENGINE> or GROUP 13B, MFI Diagnosis – Diagnostic Trouble Code Chart P.13B-46 <3.8L ENGINE>.
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code related to the other system.

Check if a DTC, which relates to CAN communication-linked systems below, is set.
ABS-ECU
- DTC U1120: Failure information on powertrain control module (related to engine)

Combination meter
- DTC 1120: Failure information on powertrain control module (related to engine)

A/C-ECU
- DTC U1120: Failure information on powertrain control module (related to engine)

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

TSB Revision

STEP 4. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace powertrain control module and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the lines between the powertrain control module and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace multi-center display and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the lines between the powertrain control module and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 6. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Go to Step 1.

NO : The procedure is complete.

DTC 21: Failures Information on Combination Meter

⚠ CAUTION
If DTC 21 is set in the multi-center display, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

DTC SET CONDITION

The multi-center display communicates with the combination meter via CAN bus lines. If failure information is sent to the combination meter, DTC 21 will be set.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble
- The combination meter or the multi-center display may be defective.

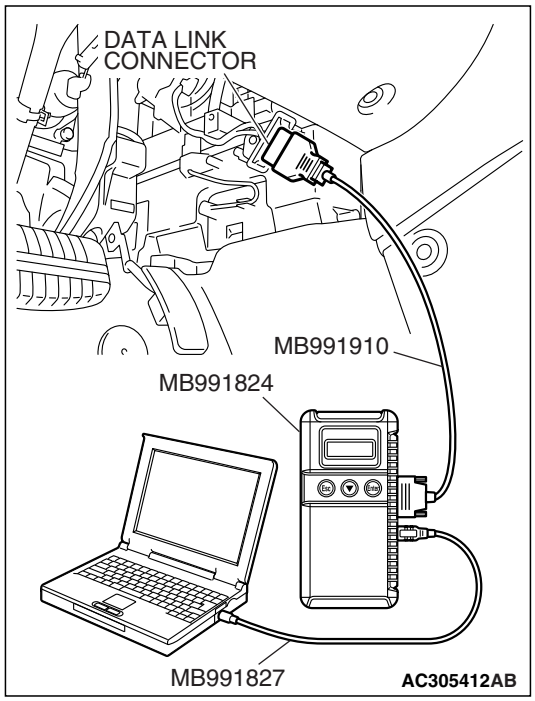
Past trouble
- Carry out diagnosis with particular emphasis on connector(s) or wiring harness between the combination meter and the multi-center display. For diagnosis procedures, refer to "How to cope with past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-14).

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of combination meter
- Malfunction of multi-center display

DIAGNOSIS

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



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

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go to Step 6.

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

Check that the combination meter sets a DTC.

Q: Is the DTC set?

YES : Diagnose the combination meter by referring to GROUP 54A, Combination meter Diagnosis – Diagnostic Trouble Code Chart P.54A-57.
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the diagnostic trouble code related to the other system.

Check if a DTC, which relates to CAN communication-linked systems below, is set.
ETACS-ECU

- DTC U1128: Failure information on combination meter

Q: Is the DTC set?

YES : Go to Step 4.
NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition Switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace combination meter and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the lines between the combination meter and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition Switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace multi-center display and then go to step 6.

NO : A poor connection, open circuit or other intermittent malfunction is present in the lines between the combination meter and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 6. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition Switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Go to Step 1.

NO : The procedure is complete.

DTC 22: Failures Information on A/C-ECU

⚠ CAUTION
If DTC 22 is set in the multi-center display, always diagnose the CAN bus lines.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

DTC SET CONDITION

The multi-center display communicates with the A/C-ECU via CAN bus lines. If the A/C-ECU sends failure information, DTC 22 will be set.

TECHNICAL DESCRIPTION (COMMENT)

Current trouble
- The A/C-ECU or the multi-center display may be defective.

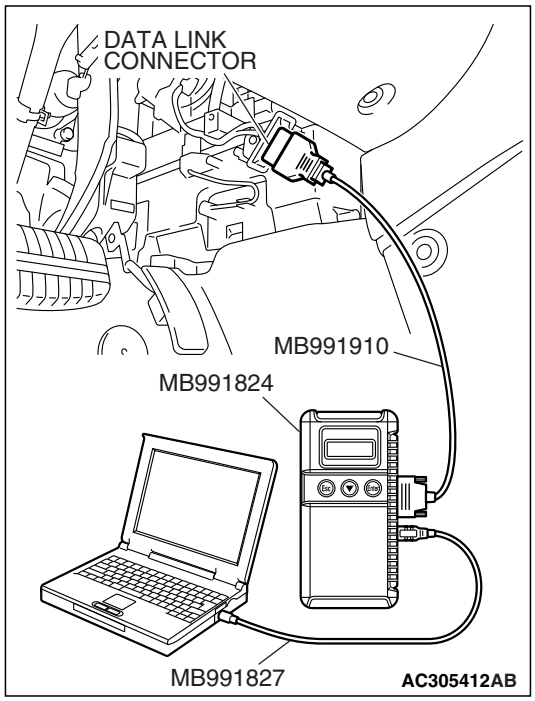
Past trouble
- Carry out diagnosis with particular emphasis on connector(s) or wiring harness between the A/C-ECU and the multi-center display. For diagnosis procedures, refer to "How to cope with past trouble" (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points P.00-14)

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.
- Malfunction of A/C-ECU
- Malfunction of ambient temperature sensor
- Malfunction of multi-center display

DIAGNOSIS

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



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

Use scan tool MB991958 to diagnose the CAN bus lines.
(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result satisfactory?

YES : Go to Step 2.
NO : Repair the CAN bus lines (Refer to GROUP 54C, Diagnosis-Can Bus Diagnostic Chart P.54C-13). On completion, go to Step 5.

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

Check if an A/C-ECU DTC is set.

Q: Is the DTC set?

YES : Diagnose the A/C system by referring to GROUP 55A, Manual A/C Diagnosis – Diagnostic Trouble Code Chart P.55A-10 or 55B, Auto A/C Diagnostic Trouble Code Chart P.55B-8.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace A/C-ECU and then go to step 4.
NO : A poor connection, open circuit or other intermittent malfunction is present in the lines between the A/C-ECU and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 4. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Replace multi-center display and then go to step 5.

NO : A poor connection, open circuit or other intermittent malfunction is present in the lines between the A/C-ECU and the multi-center display (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

STEP 5. Recheck for diagnostic trouble code.

Recheck if the DTC is set.

1. Erase the DTC.
2. Turn the ignition switch to "ON" position.
3. Check if the DTC is set.

Q: Is the DTC set?

YES : Go to Step 1.

NO : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction P.00-14).

TROUBLE SYMPTOM CHART

M1546001800901

Symptom	Inspection procedure number	Reference page
Communication between the scan tool and multi-center display is not possible.	1	P.54A-352
The screen is not displayed with ACC-ON.	2	P.54A-354
The daytime/nighttime display mode on the multi-center display does not switch.	3	P.54A-361
The multi-center display operation tone (beep sound) does not sound.	4	P.54A-363
The audio communication error screen is displayed on the multi-center display.	5	P.54A-365
The "--" is shown on the driving information display, or the display is not normal.	6	P.54A-368
The "--" is shown on the environmental data display, or the display is not normal.	7	
The navigation screen is not displayed at all.	8	P.54A-374
The navigation sound is not output or the noise enters in the sound.	9	P.54A-381
The touch panel operation is ineffective.	10	P.54A-382
The menu operation is possible even during driving. / The current position display (vehicle mark) does not move. (The mark sometimes moves by leaping.)	11	P.54A-384
The vehicle position is not displayed normally: The vehicle position does not move forward inside a tunnel.	12	P.54A-389
The map disk is not read.	13	P.54A-394
The map disk cannot be inserted.	14	
GPS cannot be received.	15	P.54A-395
When in the navigation mode, the messages below are displayed.	16	P.54A-396
The current position display (vehicle mark) only moves forward or backward.	17	P.54A-397
Even when the vehicle turns the traffic intersection, the current position display (vehicle position) does not make a turn.	18	
Only the front left speaker does not sound (including the audio sound).	19	P.54A-398

SYMPTOM PROCEDURES

INSPECTION PROCEDURE 1: Communication between scan tool and multi-center display is not possible.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

COMMENTS ON TROUBLE SYMPTOM

If the communication with scan tool cannot be made, the CAN circuit or power supply circuit may be faulty.

TROUBLESHOOTING HINTS

The CAN bus line may be defective

DIAGNOSIS

Required Special Tools:

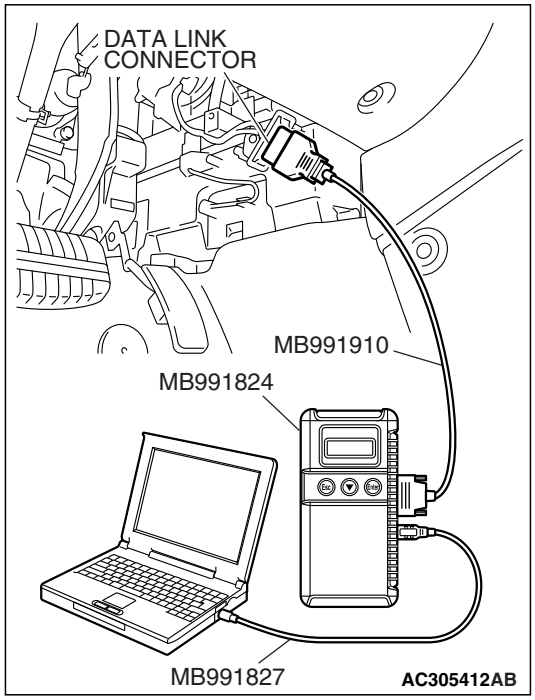
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Perform "SIGNAL CHECK" in the service mode.

(1) Display the SIGNAL CHECK screen. (Refer to P.54A-316.)
(2) Turn the ignition switch to the "ON" position.
(3) Check if "ON" is shown in the field of Key position.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to P.54A-368, and then go to Step 2.



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect SWS monitor P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

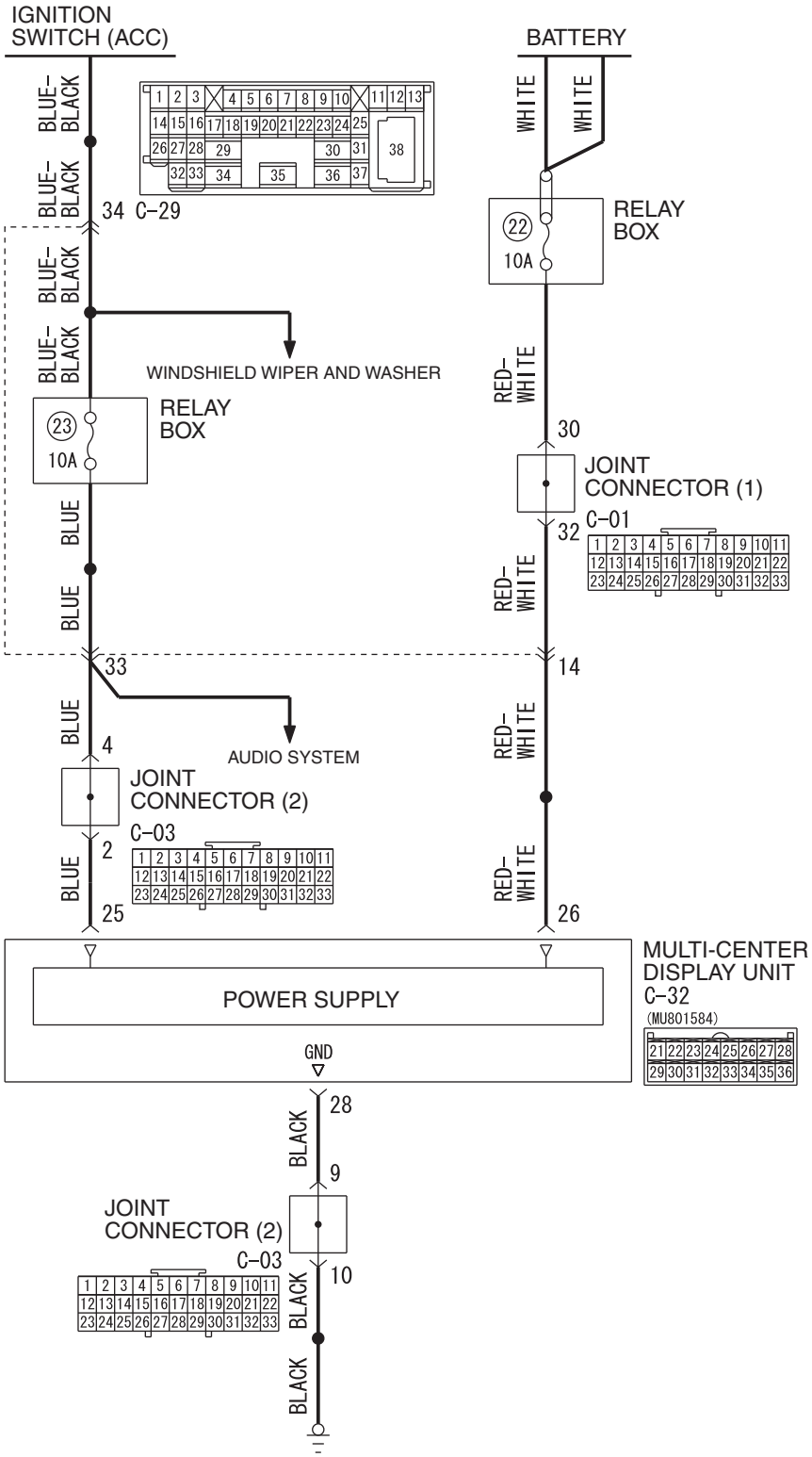
Q: Is the CAN bus line found to be normal?

YES : Replace the multi-center display.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis).

INSPECTION PROCEDURE 2: The screen is not displayed with ACC-ON.

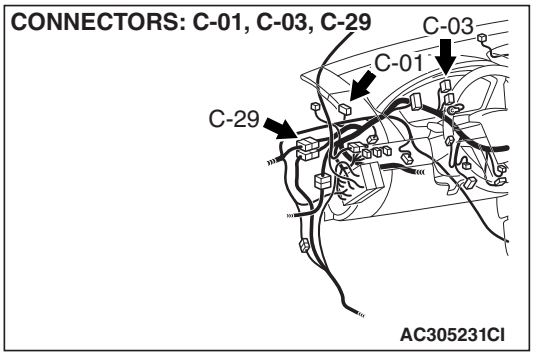
⚠ CAUTION

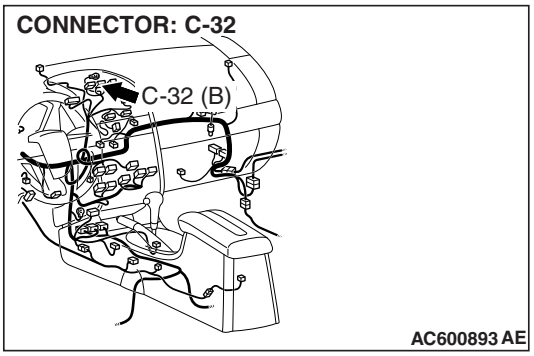
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)



W9P54M056A

TSB Revision





COMMENTS ON TROUBLE SYMPTOM

If the screen is not displayed with ACC-ON, the multi-center display may be faulty, power supply circuit may be faulty or the screen off mode may be set.

TROUBLESHOOTING HINTS

- The multi-center display may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check if the screen off mode is set.

(1) Turn the ignition switch to the "ON" position.
(2) Check that the transition to the screen off mode is performed after a few seconds.

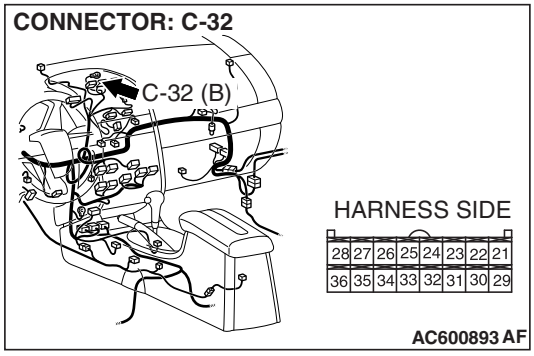
Q: Is the screen off mode set?

YES : Set to cancel the screen off mode. Recheck the trouble.
NO : Go to Step 2.

STEP 2. Check multi-center display connector C-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

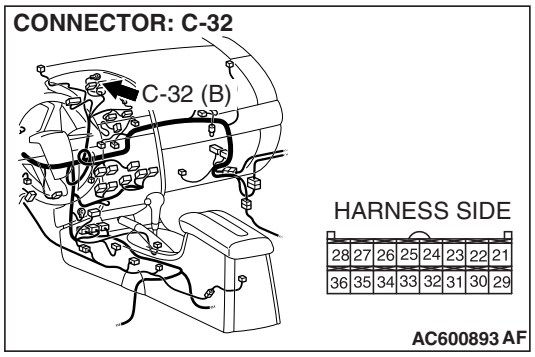
Q: Is multi-center display connector C-32 in good condition?

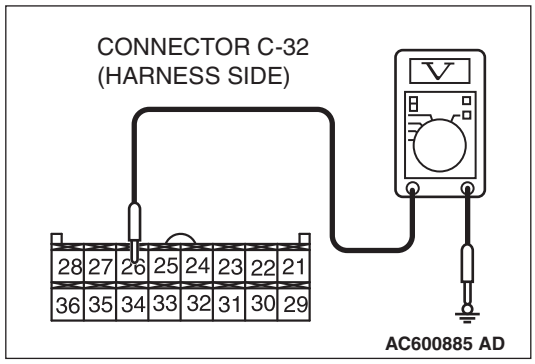
YES : Go to Step 3.
NO : Repair the damaged parts.



STEP 3. Check the battery power supply circuit to the multi-center display. Measure the voltage at multi-center display connector C-32.

(1) Disconnect multi-center display connector C-32 and measure the voltage available at the wiring harness side of the connector.



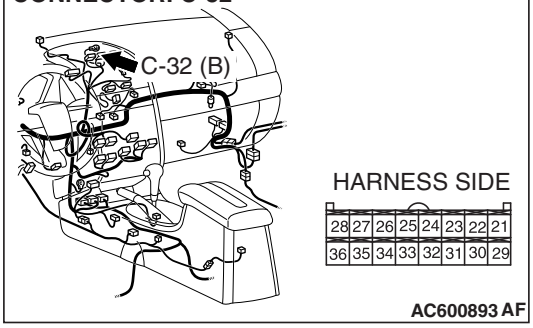


(2) Measure the voltage between terminal 26 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

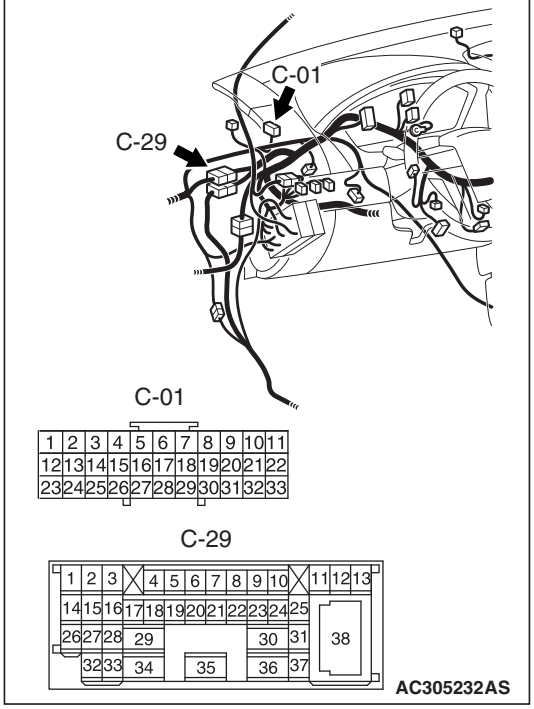
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 5.
NO : Go to Step 4.

CONNECTOR: C-32



CONNECTORS: C-01, C-29



STEP 4. Check the wiring harness between multi-center display connector C-32 (terminal 26) and the battery.

- Check the wiring harness for open circuit and short circuit.

NOTE:

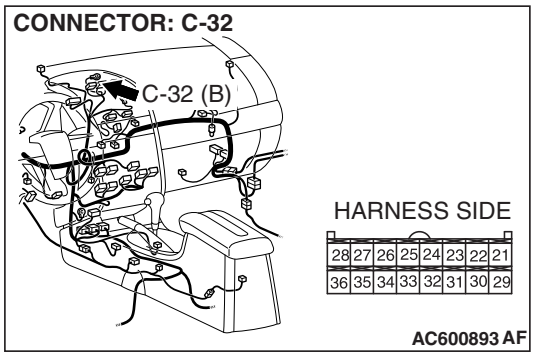
Also check joint connector C-01 and intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-01 and intermediate connector C-29 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multi-center display C-32 connector (terminal 26) and battery in good condition?

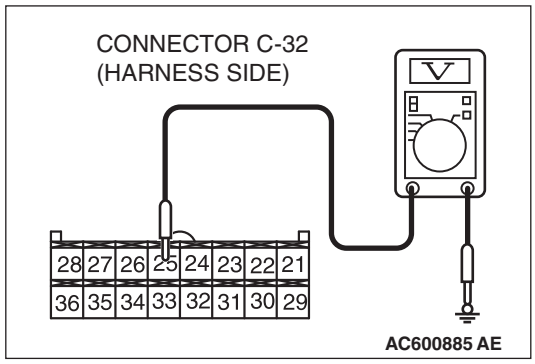
YES : No action is necessary and testing is complete.

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

STEP 5. Check the battery power supply circuit to the multi-center display. Measure the voltage at multi-center display connector C-32.



(1) Disconnect multi-center display connector C-32 and measure the voltage available at the wiring harness side of the connector.
(2) Turn the ignition switch to the "ACC" position.



(3) Measure the voltage between terminal 25 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

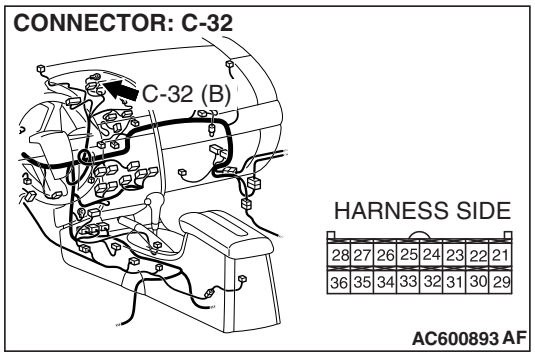
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

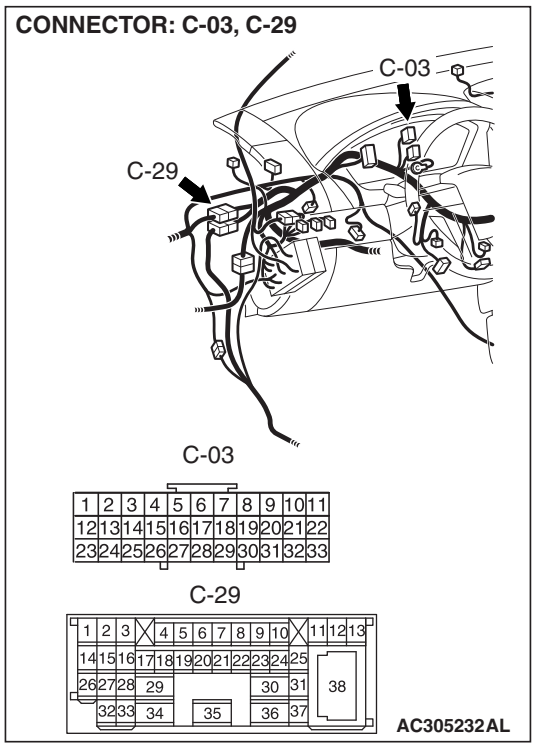
YES : Go to Step 7.
NO : Go to Step 6.

STEP 6. Check the wiring harness between multi-center display connector C-32 (terminal 25) and ignition switch (ACC).

- Check the wiring harness for open circuit and short circuit.

NOTE:





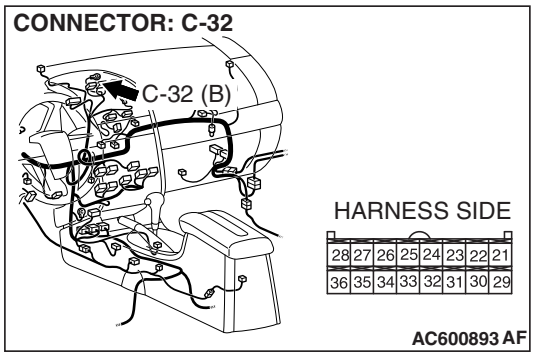
Also check joint connector C-03 and intermediate connector C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 and intermediate connector C-29 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multi-center display C-32 (terminal 25) and ignition switch (ACC) in good condition?

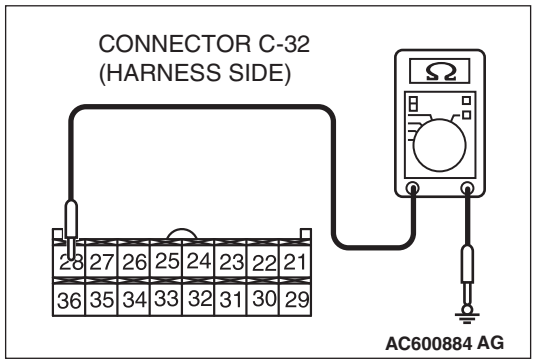
YES : No action is necessary and testing is complete.

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

STEP 7. Check the ground circuit to the multi-center display. Measure the resistance at multi-center display connector C-32.



(1) Disconnect multi-center display connector C-32 and measure the resistance available at the wiring harness side of the connector.



(2) Measure the resistance value between terminal 28 and ground.
- The resistance should be 2 ohms or less.

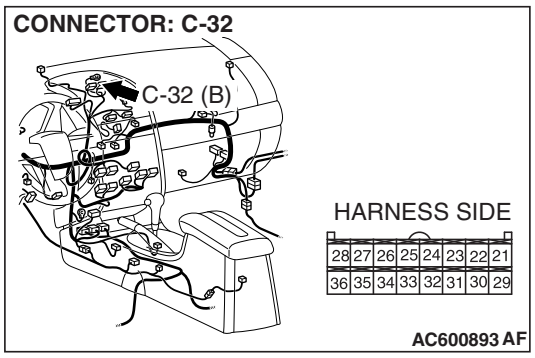
Q: Is the measured resistance 2 ohms or less?

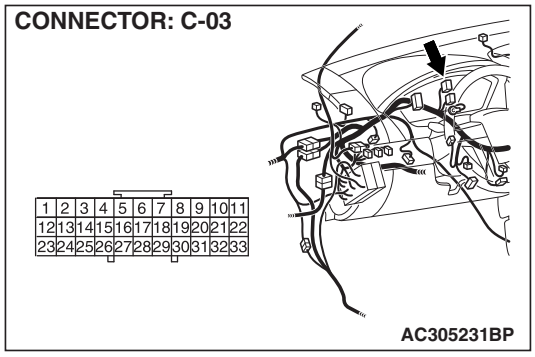
YES : Go to Step 9.
NO : Go to Step 8.

STEP 8. Check the wiring harness between multi-center display connector C-32 (terminal 28) and ground.

- Check the ground wire for open circuit.

NOTE:





Also check joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 is damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multi-center display connector C-32 (terminal 28) and ground in good condition?

YES : No action is necessary and testing is complete.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 9. Check if the screen is displayed with ACC-ON.
(1) Turn the ignition switch to the "ON" position.
(2) Check that the screen is displayed to the multi-center display.

Q: Is the screen is displayed with ACC-ON?

YES : The procedure is complete.
NO : Replace the multi-center display.

INSPECTION PROCEDURE 3: The daytime/nighttime display mode on multi-center display does not switch.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

COMMENTS ON TROUBLE SYMPTOM

Shift between the daytime and nighttime display mode is controlled by the CAN information from ETACS-ECU. If the daytime/nighttime display mode cannot be shifted, the multi-center display, CAN bus line, or ETACS-ECU may be faulty.

TROUBLESHOOTING HINTS

- The multi-center display may be defective
- The ETACS-ECU may be defective
- Malfunction of the CAN bus line

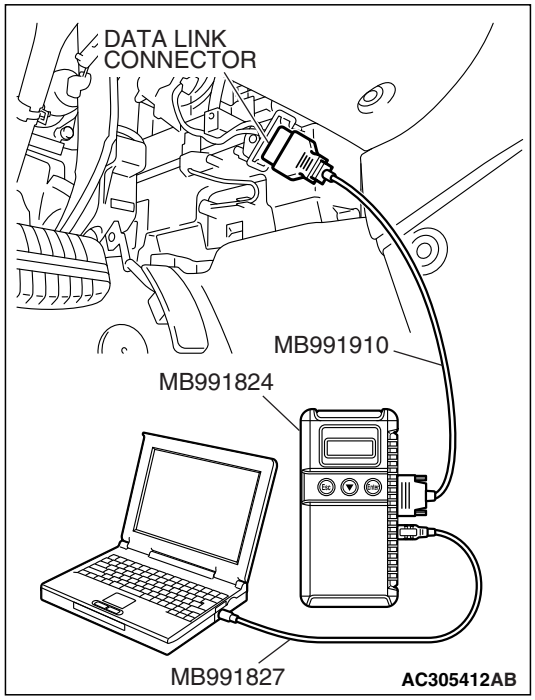
TROUBLESHOOTING HINTS

- The multi-center display may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-13).

STEP 2. Check that the nighttime brightness is set dimmer than the daytime brightness.

Q: Is the nighttime brightness set dimmer than the daytime brightness?

YES : Go to Step 3.
NO : Change the nighttime brightness setting. Check that the switching of daytime/nighttime display mode on multi-center display is performed.

STEP 3. Check that the combination meter brightness is reduced when the taillight is illuminated.

Q: Is the combination meter brightness reduced when the taillight is illuminated?

YES : Replace the multi-center display. Check that the switching of daytime/nighttime display mode on multi-center display is performed.
NO : Replace the ETACS-ECU. Check that the switching of daytime/nighttime display mode on multi-center display is performed.

INSPECTION PROCEDURE 4: The multi-center display operation tone (beep sound) does not sound.

⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

TROUBLESHOOTING HINTS

- The multi-center display may be defective

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check that the multi-center display operation tone setting is set to With the operation tone.

Q: Is the setting of multi-center display operation tone set to With the operation tone?

YES : Go to Step 2.
NO : Set the operation tone setting to With the operation tone. Check that the multi-center display operation tone (beep sound) is output.

STEP 2. Check that the ignition key reminder tone alarm sounds normally.

Q: Does the ignition key reminder tone alarm sound normally?

YES : Go to Step 3.
NO : Carry out the troubleshooting for SWS. Refer to GROUP 54B – Troubleshooting P.54B-57.

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

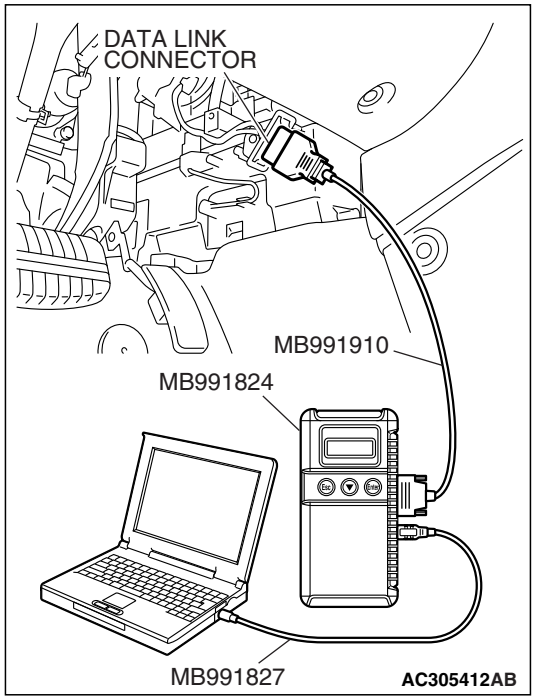
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect SWS monitor P.54B-13."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

YES : Go to Step 4.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-13).



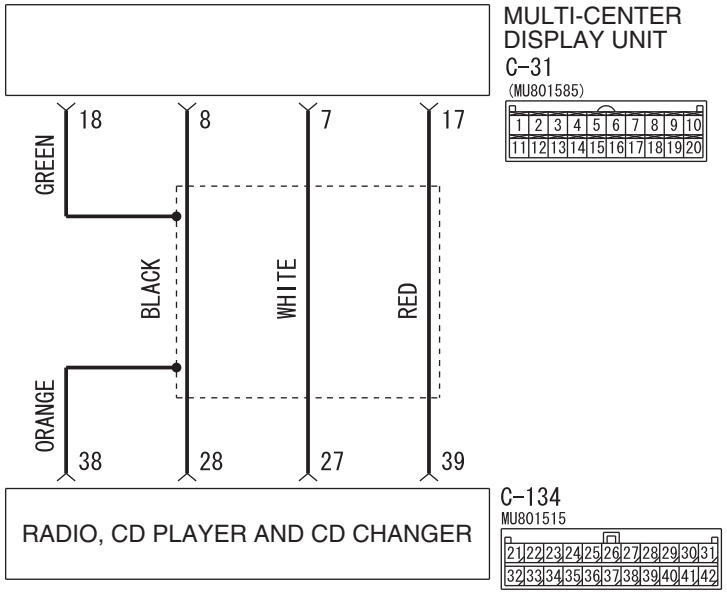
STEP 4. Temporarily replace the multi-center display, and check that the multi-center display operation tone (beep sound) is output.

Q: When the multi-center display is temporarily replaced, does the multi-center display operation tone (beep sound) sound?

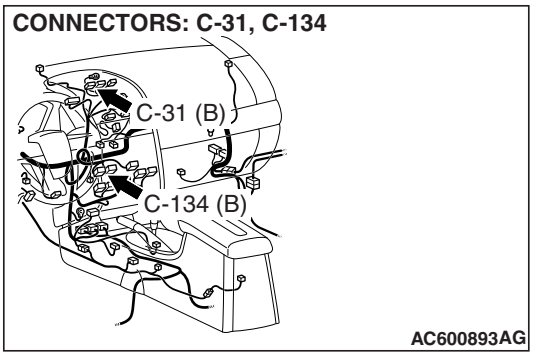
YES : Replace the multi-center display. Check that the multi-center display operation tone (beep sound) is output.
NO : Return to Step 1.

INSPECTION PROCEDURE 5: The audio communication error screen is displayed to the multi-center display.

⚠ CAUTION
Before replacing the multi-center display, or radio, CD player and CD changer , ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)



W9P54M038A



COMMENTS ON TROUBLE SYMPTOM

The multi-center display receives the audio information from the radio, CD player and CD changer and displays it. If the audio communication error (Malfunction - System Communication Error) is displayed, the multi-center display or radio, CD player and CD changer may be defective.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The multi-center display may be defective
- The radio, CD player and CD changer may be defective

TSB Revision

DIAGNOSIS

Required Special Tools:
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check the audio system.
Check if the audio system operates normally and the voice is output.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to G54A - radio with CD player Diagnosis P.54A-167.

STEP 2. Perform "CONNECT CHECK" in the service mode.
(1) Display the CONNECT CHECK screen. (Refer to P.54A-316.)
(2) Check if "Exist" is shown in the field of Audio.

Q: Is the check result normal?

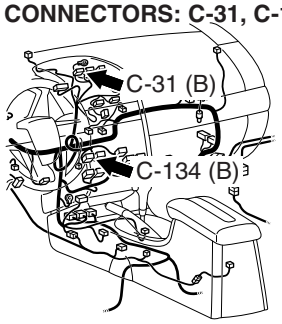
YES : Go to Step 5.
NO : Go to Step 3.

STEP 3. Check multi-center display connector C-31 and radio, CD player and CD changer connector C-134 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

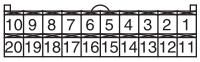
Q: Are multi-center display connector C-31 and radio, CD player and CD changer connector C-134 in good condition?

YES : Go to Step 4.
NO : Repair the damaged parts. Then, check that the audio communication error screen is not displayed to the multi-center display.

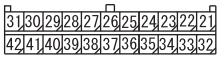
CONNECTORS: C-31, C-134



C-31 HARNESS SIDE

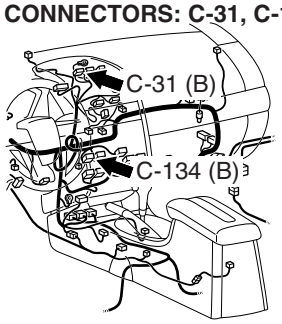


C-134 HARNESS SIDE



AC600891 AC

CONNECTORS: C-31, C-134



C-31 HARNESS SIDE

C-134 HARNESS SIDE

AC600891 AC

STEP 4. Check the wiring harness between multi-center display connector C-31 (terminal 7, 8, 17) and radio, CD player and CD changer connector C-134 (terminal 27, 28, 39).

- Check the wiring harness for open circuit and short circuit.

Q: Are the wiring harness between multi-center display connector C-31 (terminal 7, 8, 17) and radio, CD player and CD changer connector C-134 (terminal 27, 28, 39) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the audio communication error screen is not displayed to the multi-center display.

STEP 5. Temporarily replace the radio as well as the CD player and CD changer, and check if the audio communication error screen is displayed.

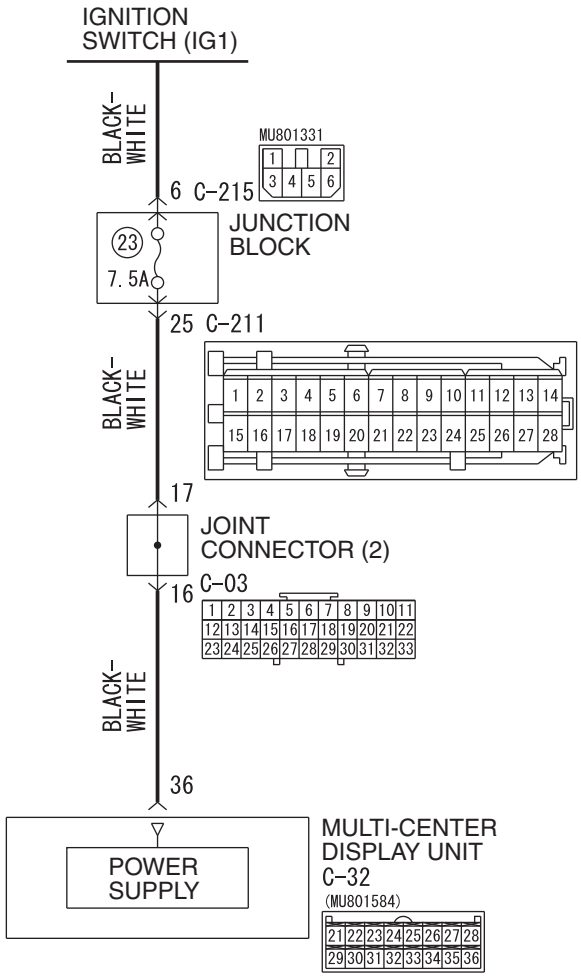
Q: When the radio, and the CD player and CD changer are temporarily replaced, is the audio communication error screen displayed?

YES : Replace the radio, and the CD player and CD changer. Check that the audio communication error screen is not displayed to the multi-center display.

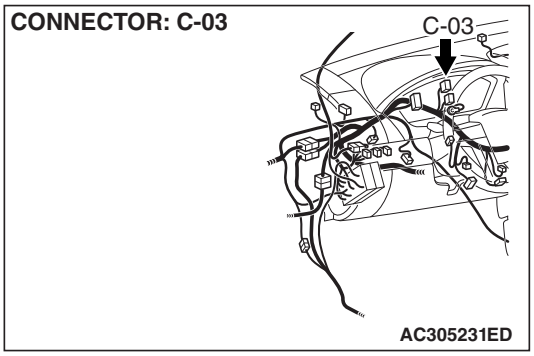
NO : Replace the multi-center display. Check that the audio communication error screen is not displayed to the multi-center display.

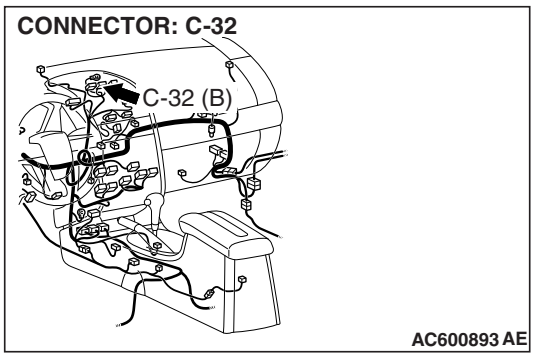
INSPECTION PROCEDURE 6: The "--" is shown on the driving information display, or the display is not normal.
INSPECTION PROCEDURE 7: The "--" is shown on the environmental data display, or the display is not normal.

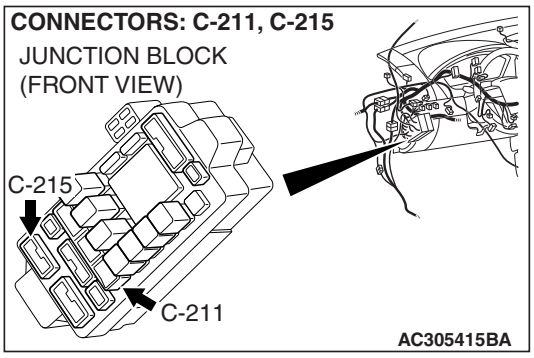
⚠ CAUTION
Before replacing the multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)



W9P54M055A







COMMENTS ON TROUBLE SYMPTOM

Even after driving is continued for a while, if the driving information display or environmental data display shows "--" or the display is not normal, the CAN information is not received because the IG1 circuit of the multi-center display may have a problem, or the multi-center display itself may have a problem.

TROUBLESHOOTING HINTS

- The multi-center display may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Perform "SIGNAL CHECK" in the service mode.

(1) Display the SIGNAL CHECK screen. (Refer to P.54A-316.)
(2) Turn the ignition switch to the "ON" position.
(3) Check if "ON" is shown in the field of Key position.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Refer to P.54A-351, and then go to Step 2.

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

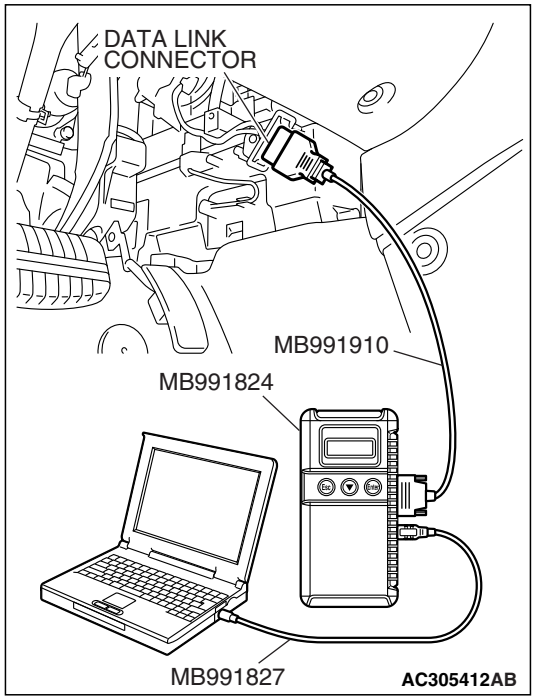
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect SWS monitor P.54A-326."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

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

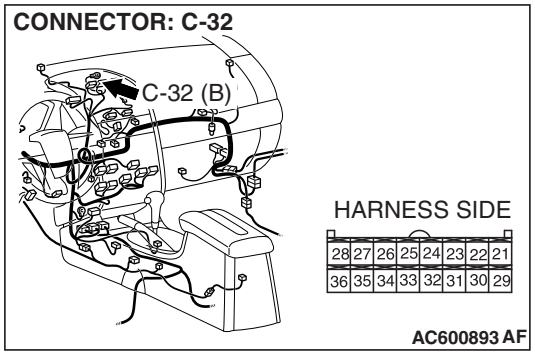
YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis).



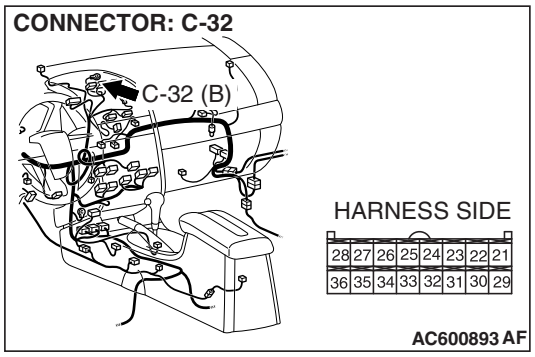
STEP 3. Check multi-center display connector C-32 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multi-center display connector C-32 in good condition?

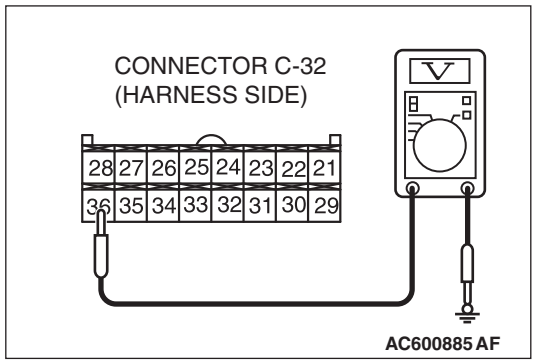
YES : Go to Step 4.
NO : Repair the damaged parts.



STEP 4. Check the battery power supply circuit to the multi-center display. Measure the voltage at multi-center display connector C-32.



(1) Disconnect multi-center display connector C-32 and measure the voltage available at the wiring harness side of the connector.
(2) Turn the ignition switch to the "ON" position.



(3) Measure the voltage between terminal 36 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

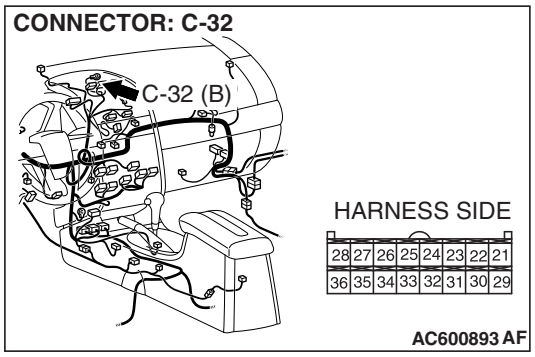
Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

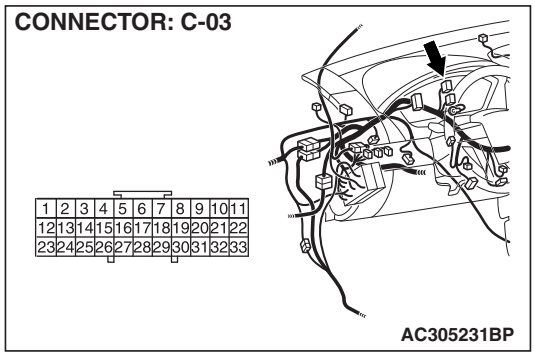
YES : Go to Step 6.
NO : Go to Step 5.

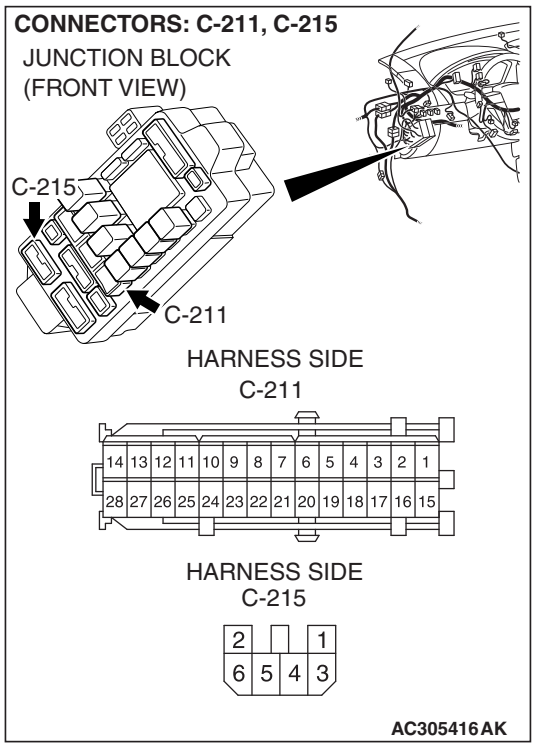
STEP 5. Check the wiring harness between multi-center display connector C-32 (terminal 36) and ignition switch (IG1).

- Check the wiring harness for open circuit and short circuit.

NOTE:







Also check junction block connector C-211, C-215 and joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If junction block connector C-211, C-215 and joint connector C-03 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection.

Q: Is the wiring harness between multi-center display C-32 (terminal 36) and ignition switch (IG1) in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the power supply circuit of multi-center display is normal.

STEP 6. Check the trouble symptom.
Drive for a while, and check if the driving information display and environmental data display shows information correctly.

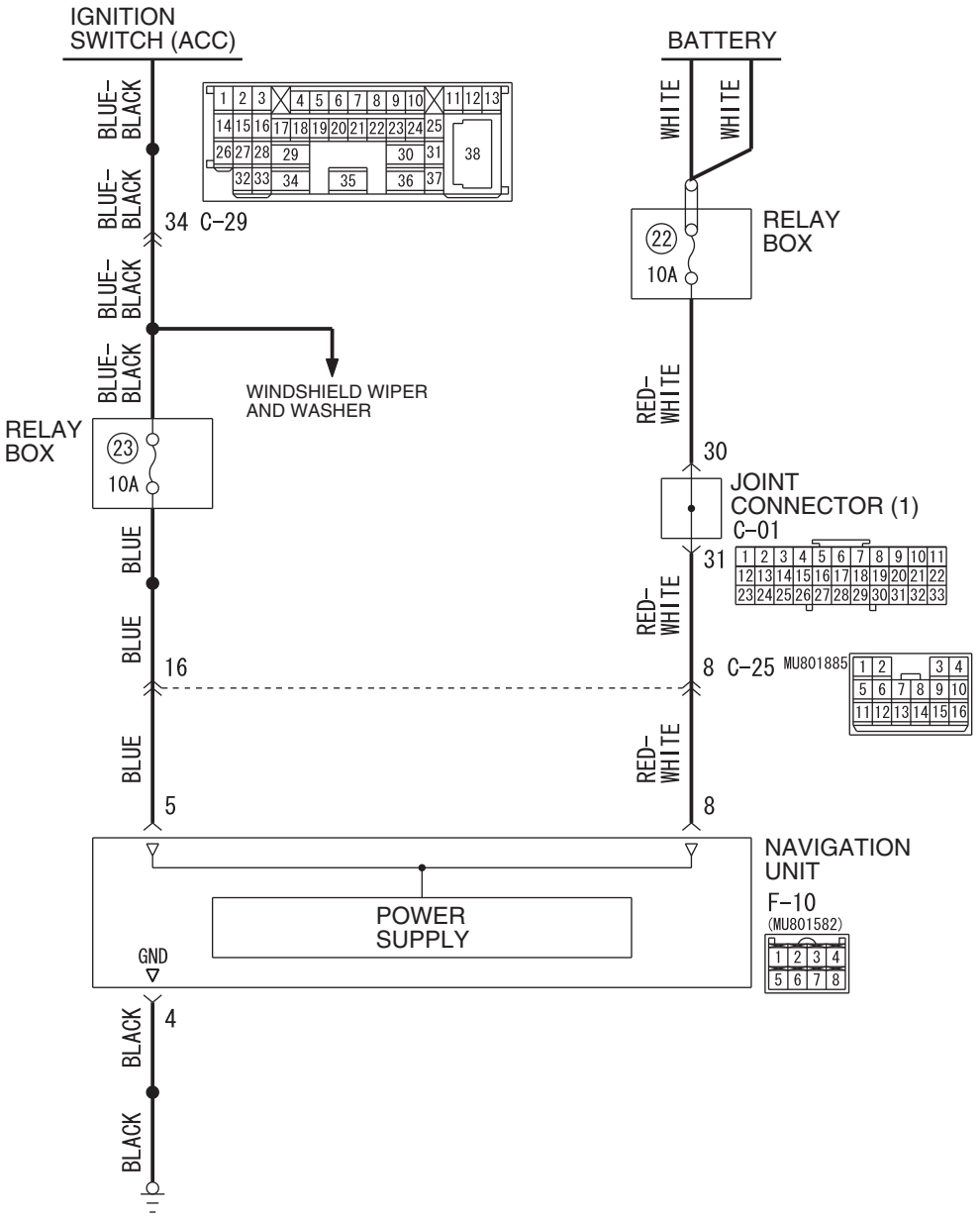
Q: Is the check result normal?

YES : The procedure is complete.
NO : Replace the multi-center display.

INSPECTION PROCEDURE 8: The navigation screen is not displayed at all.

⚠ CAUTION

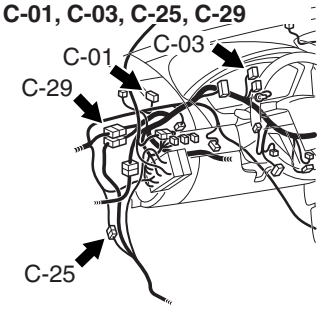
Before replacing the navigation unit or multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)



W7P54M155A

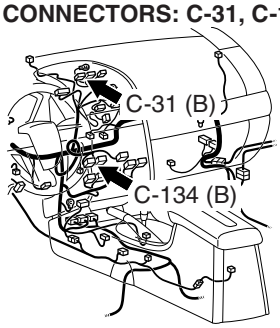
TSB Revision

CONNECTORS: C-01, C-03, C-25, C-29



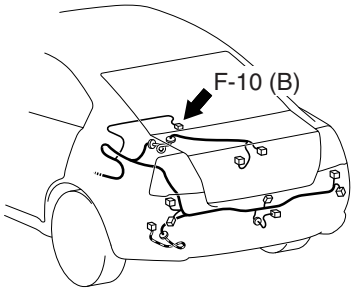
AC600916AB

CONNECTORS: C-31, C-134



AC600893AG

CONNECTOR: F-10



AC600918AB

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The DIN cable may be defective
- The multi-center display may be defective
- The navigation unit may be defective

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set

STEP 1. Check that the navigation system map disk can be inserted and ejected.

Q: Can the navigation system map disk be inserted and ejected?

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

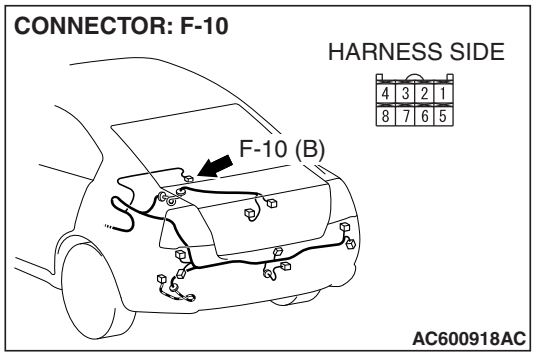
STEP 2. Service mode top menu check

(1) With the service mode top menu displayed, check if "Navi" operation can be accepted. (Refer to P.54A-316.)

Q: Is the check result normal?

YES : Recheck the trouble symptom. If it is not normal, go to Step 10.
NO : Go to Step 3.

STEP 3. Check navigation unit connector F-10 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

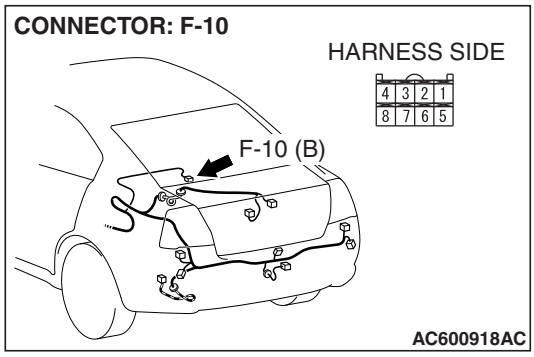


Q: Is navigation unit connector F-10 in good condition?

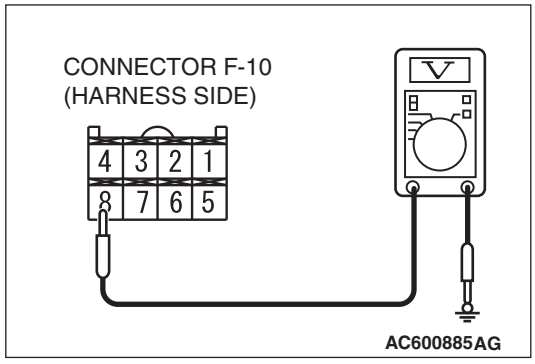
YES : Go to Step 4.

NO : Repair the damaged parts. Then, check that the navigation screen is displayed.

STEP 4. Check the battery power supply circuit to the navigation unit. Measure the voltage at navigation unit connector F-10.



(1) Disconnect navigation unit connector F-10 and measure the voltage available at the wiring harness side of the connector.



(2) Measure the voltage between terminal 8 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

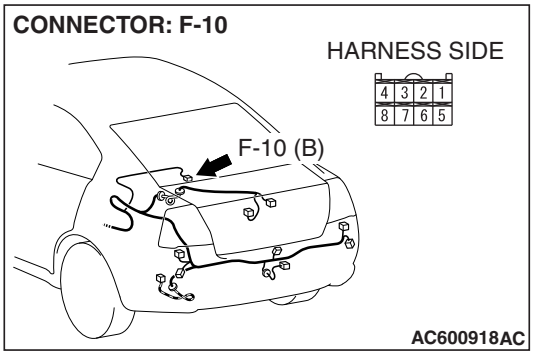
YES : Go to Step 6.

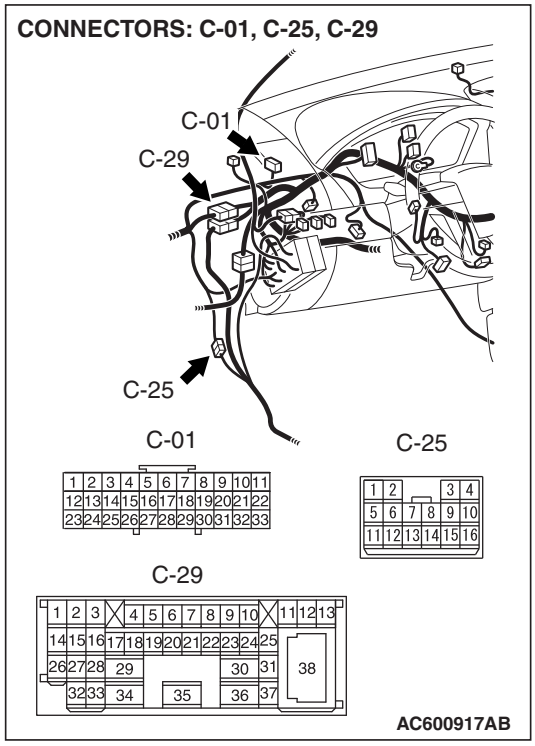
NO : Go to Step 5.

STEP 5. Check the wiring harness between navigation unit connector F-10 (terminal 8) and the battery.

- Check the wiring harness for open circuit and short circuit.

NOTE:



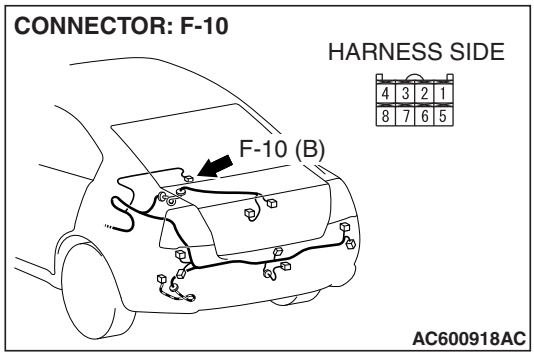


Also check intermediate connector C-29, C-25 and joint connector C-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29, C-25 and joint connector C-01 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between navigation unit connector F-10 (terminal 8) and battery in good condition?

YES : No action is necessary and testing is complete.

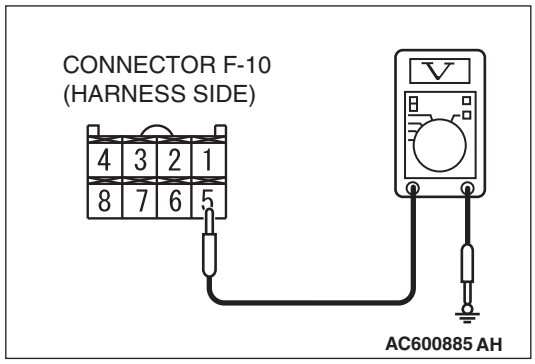
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the navigation screen is displayed.



STEP 6. Check the battery power supply circuit to the navigation unit. Measure the voltage at navigation unit connector F-10.

(1) Disconnect navigation unit connector F-10 and measure the voltage available at the wiring harness side of the connector.

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



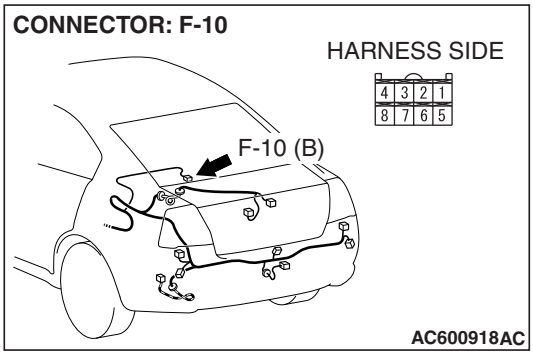
(3) Measure the voltage between terminal 5 and ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

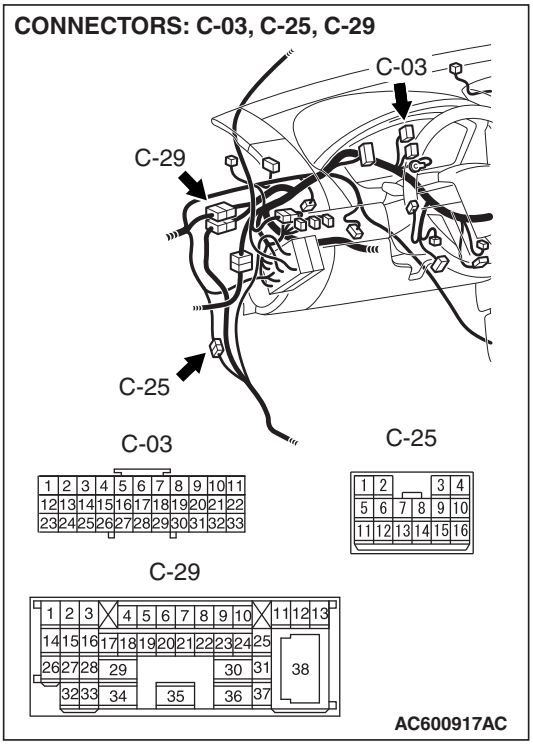
YES : Go to Step 8.

NO : Go to Step 7.

CONNECTOR: F-10



CONNECTORS: C-03, C-25, C-29



STEP 7. Check the wiring harness between navigation unit connector F-10 (terminal 5) and ignition switch (ACC).

- Check the wiring harness for open circuit and short circuit.

NOTE:

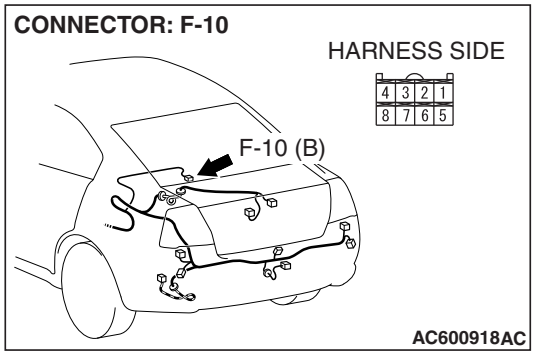
Also check intermediate connector C-29, C-25 and joint connector C-03 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-29, C-25 and joint connector C-03 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between navigation unit connector F-10 (terminal 7) and battery in good condition?

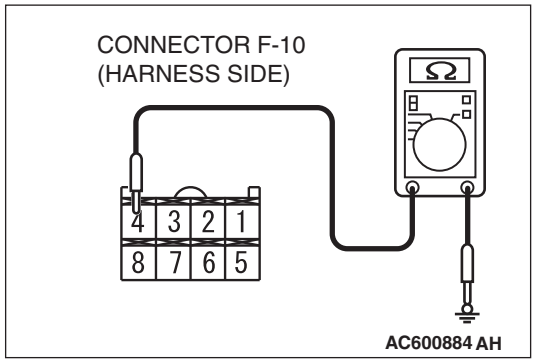
YES : No action is necessary and testing is complete.

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

STEP 8. Check the ground circuit to the navigation unit. Measure the resistance at navigation unit connector F-10.



(1) Disconnect navigation unit connector F-10 and measure the resistance available at the wiring harness side of the connector.

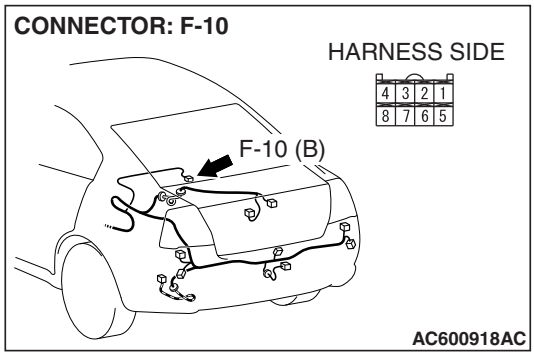


(2) Measure the resistance value between terminal 4 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 10.
NO : Go to Step 9.

STEP 9. Check the wiring harness between navigation unit connector F-10 (terminal 4) and ground.



- Check the ground wire for open circuit.

Q: Is the wiring harness between navigation unit connector F-10 (terminal 4) and ground in good condition?

YES : No action is necessary and testing is complete.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the navigation screen is displayed.

STEP 10. Check the DIN cable connector shape and engagement between the navigation unit and multi-center display.

Q: Is there any abnormality to the DIN cable connector shape and engagement between the navigation unit and the multi-center display?

YES : Go to Step 11.
NO : Replace the DIN cable.

STEP 11. DIN cable inspection between the navigation unit and the multi-center display

Q: Is the DIN cable between the navigation unit and the multi-center display normal?

YES : Go to Step 12.
NO : Replace the DIN cable.

STEP 12. Temporarily replace the navigation unit, and check that the navigation screen is displayed.

Q: When the navigation unit is temporarily replaced, is the navigation screen displayed?

YES : Replace the navigation unit.
NO : Go to Step 13.

STEP 13. Temporarily replace the multi-center display, and check that the navigation screen is displayed.

Q: When the multi-center display is temporarily replaced, is the navigation screen displayed?

YES : Replace the multi-center display.
NO : Replace the DIN cable.

INSPECTION PROCEDURE 9: The navigation sound is not output or the noise enters in the sound.

⚠ CAUTION
Before replacing the navigation unit, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

TROUBLESHOOTING HINTS

- The DIN cable may be defective
- The multi-center display may be defective
- The navigation unit may be defective

DIAGNOSIS

STEP 1. Check if the navigation system sound volume setting is set to MIN.

Q: Is the navigation system sound volume setting set to MIN?

YES : Change the navigation sound volume setting.
NO : Go to Step 2.

STEP 2. Check that the audio sound is output from the front left speaker.

Q: Is the audio sound output from the front left speaker?

YES : Go to Step 3.
NO : INSPECTION PROCEDURE 19: Perform "Only the front left speaker does not sound (including the audio sound)". Refer to P.54A-398.

STEP 3. Check the DIN cable connector shape and engagement between the navigation unit and the multi-center display.

Q: Is there any abnormality to the DIN cable connector shape and engagement between the navigation unit and the multi-center display?

YES : Go to Step 4.
NO : Replace the DIN cable, the navigation unit, or the multi-center display.

STEP 4. DIN cable inspection between the navigation unit and the multi-center display

Q: Is the DIN cable between the navigation unit and the multi-center display normal?

YES : Go to Step 5.
NO : Replace the DIN cable.

STEP 5. Temporarily replace the navigation unit, and check that the guidance sound is normal.

Q: When the navigation unit is temporarily replaced, is the guidance sound normal?

YES : Replace the navigation unit. Check that the guidance sound is normal.
NO : Replace the multi-center display.

INSPECTION PROCEDURE 10: The touch panel operation is ineffective.

⚠ CAUTION
Before replacing the navigation unit or multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The DIN cable may be defective
- The multi-center display may be defective
- The navigation unit may be defective

DIAGNOSIS

STEP 1. Using the service mode function, check that the touch panel operates on the whole surface.

(1) Display the TOUCH SWITCH CHECK. (Refer to P.54A-316.)
(2) Check if the coordinates of the touched point are displayed normally.

Q: Is check result normal?

YES : Go to Step 2.
NO : Replace the multi-center display.

STEP 2. Check if the touch panel is ineffective only with the navigation operation.

Q: Is the touch panel ineffective only with the navigation operation?

YES : Go to Step 3.
NO : Replace the multi-center display.

STEP 3. Check the DIN cable connector shape and engagement between the navigation unit and the multi-center display.

Q: Is check result normal?

YES : Go to Step 4.
NO : Replace the DIN cable.

STEP 4. DIN cable inspection between the navigation unit and the multi-center display

Q: Is the DIN cable between the navigation unit and the multi-center display normal?

YES : Replace the DIN cable.
NO : Go to Step 5.

STEP 5. Temporarily replace the navigation unit, and check that the touch panel operation is normal.

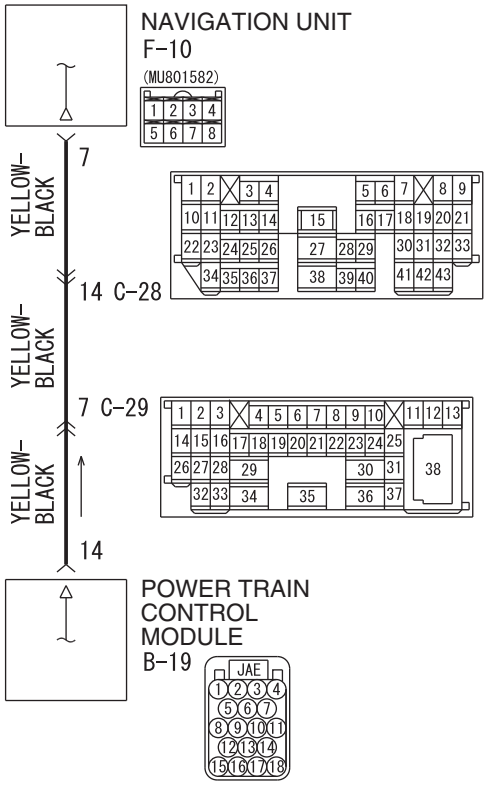
Q: When the navigation unit is temporarily replaced, is the touch panel operation normal?

YES : Replace the navigation unit.
NO : Replace the DIN cable.

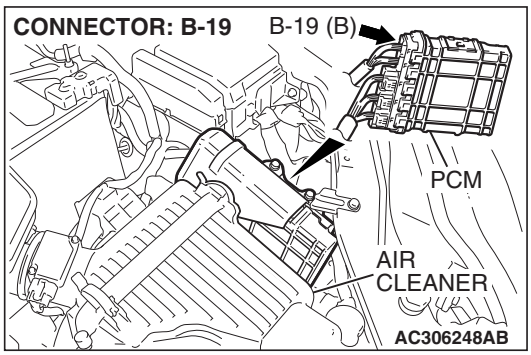
INSPECTION PROCEDURE 11: The menu operation is possible even during driving. /The current position display (vehicle mark) does not move. (The mark sometimes moves by leaping.)

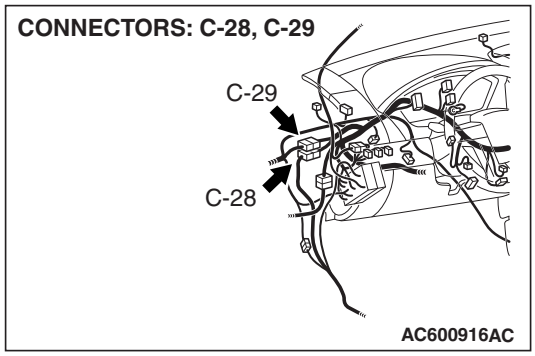
⚠ CAUTION

Before replacing the navigation unit, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

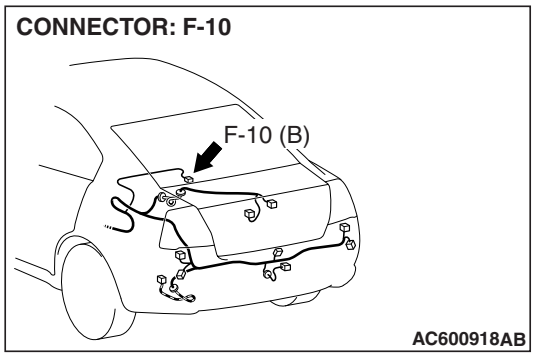


W7P54M157A





TSB Revision



TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The power train control module may be defective
- The navigation unit may be defective

DIAGNOSIS

STEP 1. Using the navi service mode function, check that the vehicle speed pulse is counted.

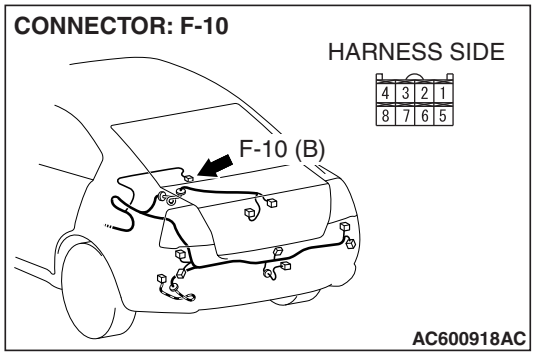
(1) Display the Circuit check. (Refer to P.54A-316.)

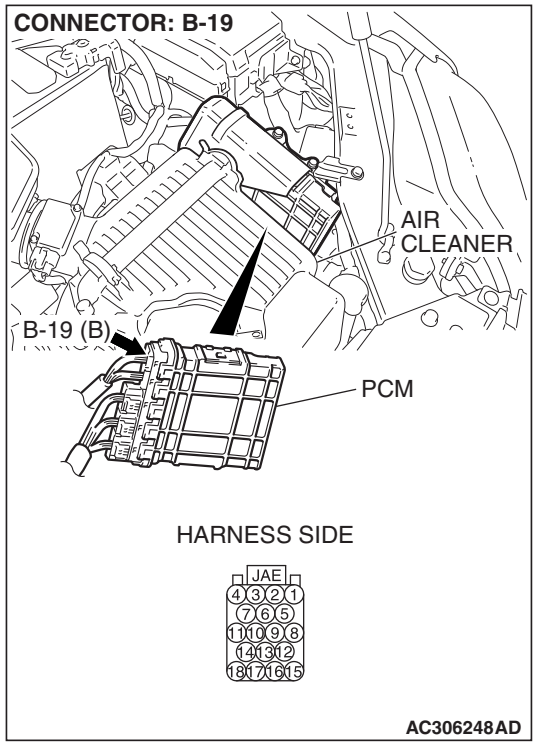
(2) Check that the speed pulse value changes while driving.

Q: Is the vehicle speed pulse counted?

YES : Replace the navigation unit.

NO : Go to Step 2.



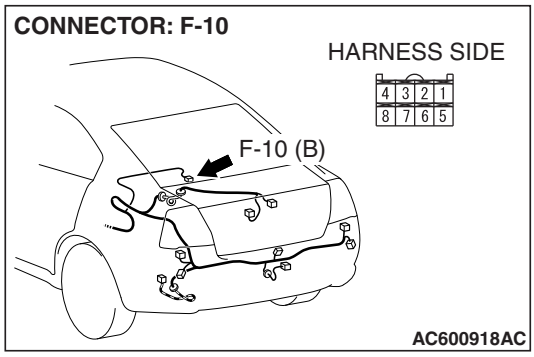


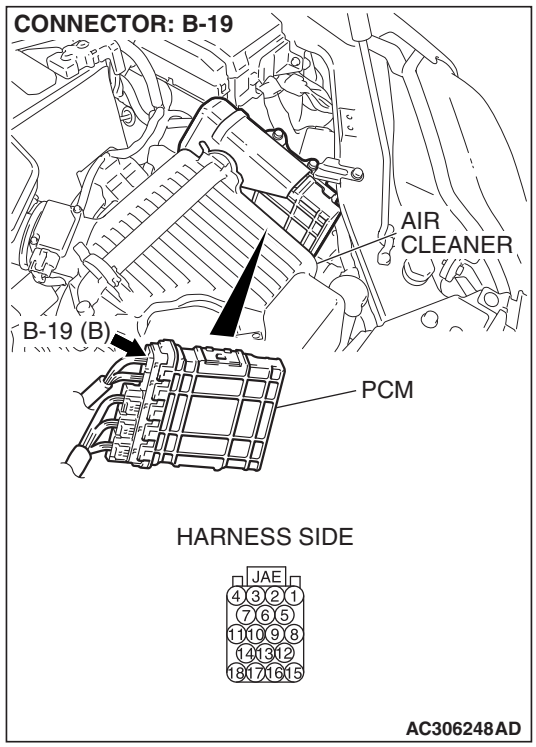
STEP 2. Check navigation unit connector F-10 and power train control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are navigation unit connector F-10 and power train control module connector B-19 in good condition?

YES : Go to Step 3.

NO : Repair the damaged parts. Then, check that the menu operation is not possible during driving, or that the current position display (vehicle mark) is displayed normally.

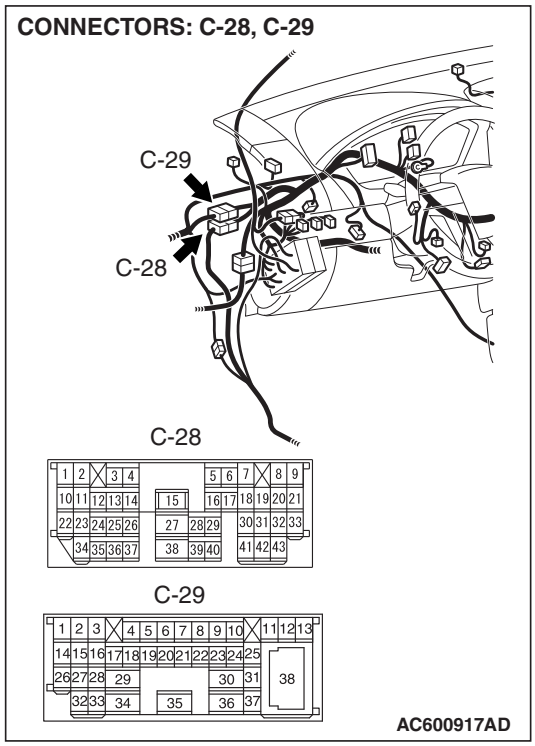




STEP 3. Check the wiring harness between navigation unit connector F-10 (terminal 7) and power train control module connector B-19 (terminal 14).

- Check the wiring harness for open circuit and short circuit.

NOTE:



Also check intermediate connectors C-28 and C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-28 and C-29 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between navigation unit connector F-10 (terminal 7) and power train control module connector B-19 (terminal 14) in good condition?

YES : Go to Step 4.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the menu operation is not possible during driving, or that the current position display (vehicle mark) is displayed normally.

STEP 4. Temporarily replace the navigation unit. Then, check that the menu operation is not possible during driving, or that the current position display (vehicle mark) is displayed normally.

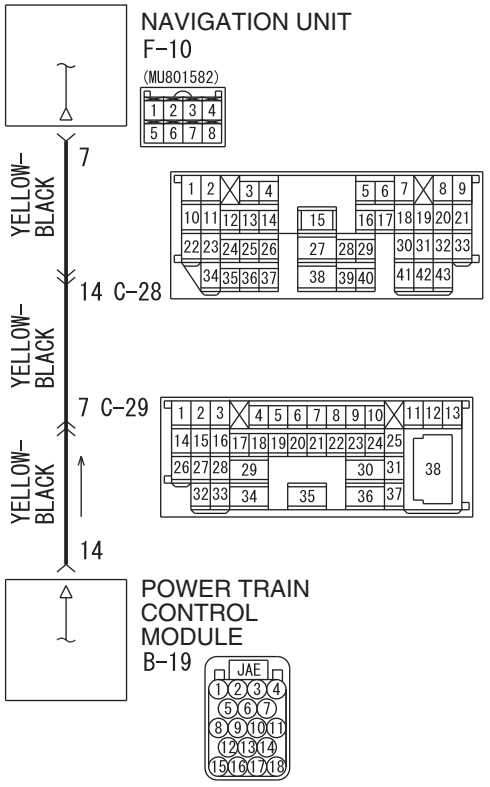
Q: When the navigation unit is temporarily replaced, is the menu operation not possible during driving, or is the current position display (vehicle mark) displayed normally?

YES : Replace the navigation unit.

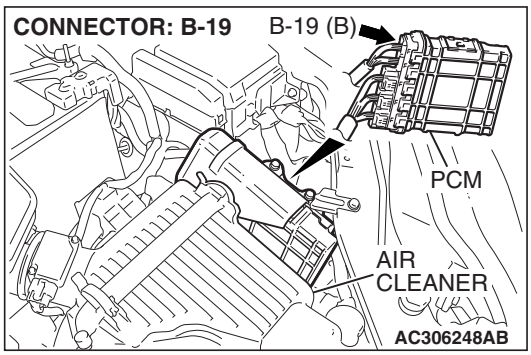
NO : Replace the power train control module.

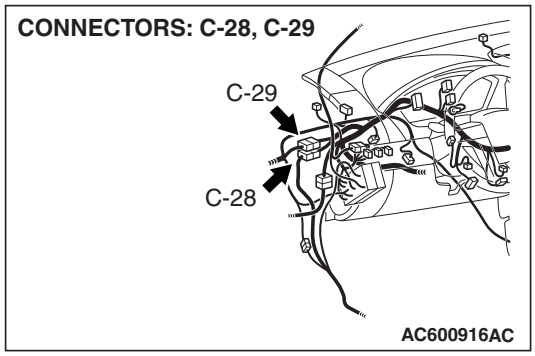
INSPECTION PROCEDURE 12: The vehicle position is not displayed normally/The vehicle position does not move forward inside a tunnel.

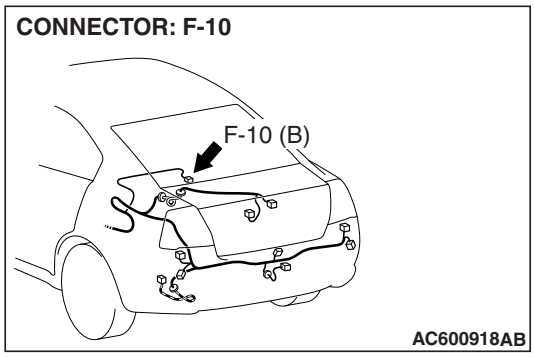
⚠ CAUTION
Before replacing the navigation unit , ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)



W7P54M157A







TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The GPS antenna may be defective.
- The power train control module may be defective
- The navigation unit may be defective

DIAGNOSIS

STEP 1. In the open air, check that the GPS information screen display is in the reception state.

Q: Is the information screen display in the reception state?

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

STEP 2. Using the navi service mode function, check that the GPS is OK.

(1) Display the Circuit check. (Refer to P.54A-316.)
(2) Check that "OK" is shown in the field of GPS.

Q: Is check result normally?

YES : Go to Step 5.
NO : Go to Step 3.

STEP 3. Check the GPS antenna cable.

Q: Is the GPS antenna cable normal?

YES : The procedure is complete.
NO : Go to Step 4.

STEP 4. Temporarily replace the GPS antenna, and check if the vehicle position is displayed correctly.

Q: When the GPS antenna is temporarily replaced, is the vehicle position displayed correctly?

YES : Replace the GPS antenna.
NO : Replace the navigation unit.

STEP 5. Using the navi service mode function, check that the vehicle speed pulse is counted.

(1) Display the Circuit check. (Refer to P.54A-316.)
(2) Check that the speed pulse value changes while driving.

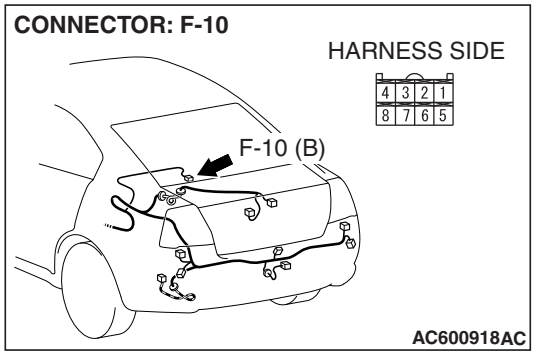
Q: Is the vehicle speed pulse counted?

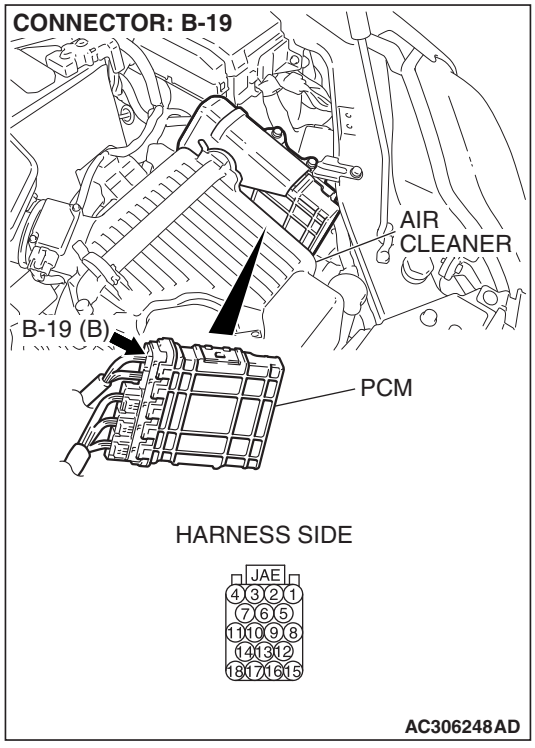
YES : Go to Step 9.
NO : Go to Step 6.

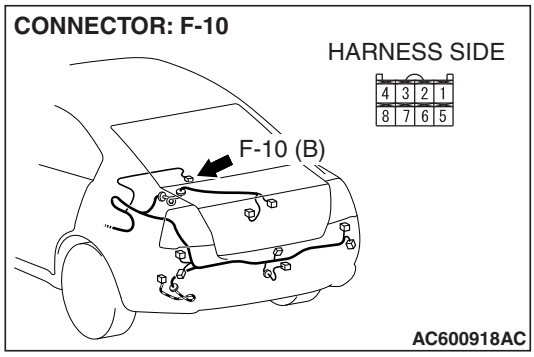
STEP 6. Check navigation unit connector F-10 and power train control module connector B-19 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

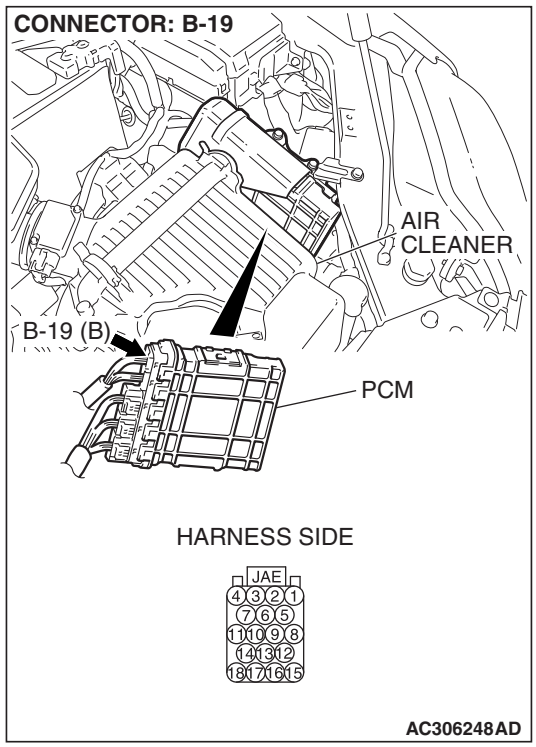
Q: Are navigation unit connector F-10 and power train control module connector B-19 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts. Then, check that the vehicle position is displayed correctly.





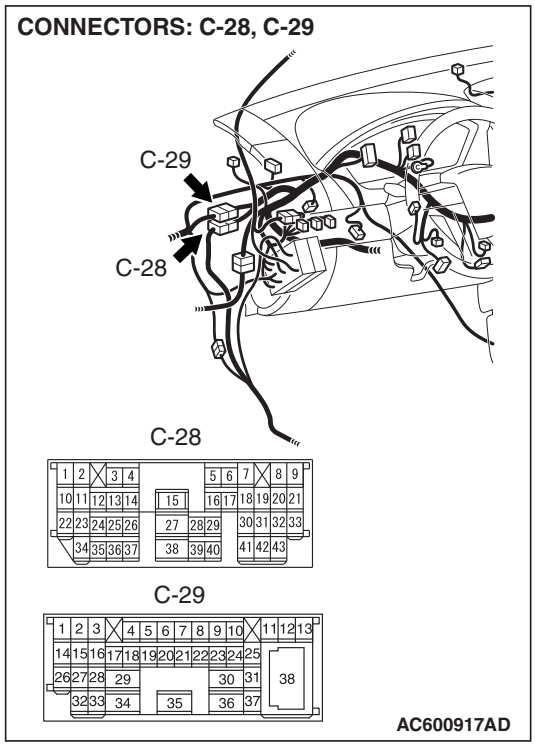




STEP 7. Check the wiring harness between navigation unit connector F-10 (terminal 7) and power train control module connector B-19 (terminal 14).

- Check the wiring harness for open circuit and short circuit.

NOTE:



Also check intermediate connectors C-28 and C-29 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-28 and C-29 are damaged, repair or replace the damaged component(s) as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between navigation unit connector F-10 (terminal 7) and power train control module connector B-19 (terminal 14) in good condition?

YES : Go to Step 8.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the vehicle position is displayed correctly.

STEP 8. Temporarily replace the navigation unit, and check if the vehicle position is displayed correctly.

Q: When the navigation unit is temporarily replaced, is the vehicle position displayed correctly?

YES : Replace the navigation unit.

NO : Replace the power train control module.

STEP 9. Erase the calibrated value for each sensor with the service mode. Then, check that the learning is performed normally when the driving is performed for 20 to 30 minutes.

Q: When the reset is performed and the vehicle is driven for 20 to 30 minutes, is the learning is performed normally?

YES : The procedure is complete.

NO : Replace the navigation unit.

INSPECTION PROCEDURE 13: The map disk is not read.
INSPECTION PROCEDURE 14: The map disk cannot be inserted.

⚠ CAUTION
Before replacing the navigation unit , ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

TROUBLESHOOTING HINTS

- The special map disk may be defective.
- The navigation unit may be defective

DIAGNOSIS

STEP 1. Using the navi service mode function, check that the navigation unit is OK.
(1) Display the Circuit check. (Refer to P.54A-316.)
(2) Check that "OK" is shown in the field of DVD.

Q: Is check result normally?
YES : Go to Step 2.
NO : Replace the navigation unit.

STEP 2. Check that the inserted disk is the special map disk.
*1. When an unusable disk is inserted, "The disk is not a map disk. Please insert the map disk." is displayed.
*2. If the disk is not inserted, "There is no disk in the DVD player. Please insert the map disk." is displayed.

Q: Is an inserted disk the special map disk?
YES : Go to Step 3.
NO : Replace the disk with the special map disk.

STEP 3. Check if the map disk is inserted upside down.

Q: Is the map disk inserted upside down?
YES : Go to Step 4.
NO : Correct the side of the map disk, and then reboot.

STEP 4. Check that the fouling is present to the map disk.

Q: Is there any fouling to the map disk?
YES : Go to Step 5.
NO : Clean the disk signal side, then reboot.

STEP 5. Check that the scratch is present to the map disk.

Q: Is there any scratch to the map disk?
YES : Replace the navigation unit.
NO : Go to Step 6.

STEP 6. Replace the map disk, then check that the disk is scratched again.

Q: Is the disk scratched again?
YES : Replace the navigation unit.
NO : Replace the map disk.

TSB Revision

INSPECTION PROCEDURE 15: GPS cannot be received.

⚠ CAUTION
Before replacing the navigation unit , ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

TROUBLESHOOTING HINTS

- The GPS antenna may be defective.
- The navigation unit may be defective

DIAGNOSIS

STEP 1. Check that the vehicle is situated in a location with a good visibility.

Q: Is the vehicle situated in a location with good visibility?

YES : Go to Step 2.
NO : Move the vehicle to a location with good visibility. Check that the GPS can be received.

STEP 2. GPS reception check

(1) Turn the ignition switch to the "ACC" position.
(2) When 15 minutes has elapsed, check that the GPS can be received.

Q: Is GPS received?

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

STEP 3. Using the navi service mode function, check that the GPS is OK.

(1) Display the Circuit check. (Refer to P.54A-316.)
(2) Check that "OK" is shown in the field of GPS.

Q: Is check result normally?

YES : Go to Step 5.
NO : Go to Step 4.

STEP 4. Check the GPS antenna cable.

Q: Is the GPS antenna cable normal?

YES : Go to Step 5.
NO : Replace the GPS antenna.

STEP 5. Temporarily replace the GPS antenna, and check that the GPS can be received.

Q: When the GPS antenna is temporarily replaced, can GPS be received?

YES : Replace the GPS antenna.
NO : Replace the navigation unit.

INSPECTION PROCEDURE 16: When in the navigation mode, the messages below are displayed.

⚠ CAUTION
Before replacing the navigation unit , ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

TROUBLESHOOTING HINTS

- The special map disk may be defective.
- The navigation unit may be defective

"THE DISK CANNOT BE READ. PLEASE CHECK THE DISK. IF THIS HAPPENS AGAIN, PLEASE HAVE THE SYSTEM INSPECTED AT YOUR NEAREST DEALER."

DIAGNOSIS

STEP 1. Check that no fouling or scratch is present to the DVD (map disk).

Q: Is any fouling or scratch present to DVD (map disk)?

YES : Go to Step 2.
NO : Replace the special map disk.

STEP 2. Using the navi service mode function, check that the navigation unit is OK.

(1) Display the Circuit check. (Refer to P.54A-316.)
(2) Check that "OK" is shown in the field of DVD.

Q: Is check result normally?

YES : Go to Step 3.
NO : Replace the navigation unit.

STEP 3. When the DVD (map disk) is inserted again, check that the map display is normal.

Q: When the DVD (map disk) is inserted again, is the map display normal?

YES : The procedure is complete.
NO : Replace the navigation unit.

"THE DISK IS NOT A MAP DISK. PLEASE INSERT THE MAP DISK."

DIAGNOSIS

STEP 1. Check that the inserted DVD (map disk) is the special map disk.

Q: Is the inserted DVD (map disk) the special map disk?

YES : Go to Step 2.
NO : Replace with the special map disk.

STEP 2. Using the navi service mode function, check that the navigation unit is OK.
(1) Display the Circuit check. (Refer to P.54A-316.)
(2) Check that "OK" is shown in the field of DVD.

Q: Is check result normally?
YES : Go to Step 3.
NO : Replace the navigation unit.

STEP 3. When the DVD (map disk) is inserted again, check that the map display is normal.

Q: When the DVD (map disk) is inserted again, is the map display normal?
YES : The procedure is complete.
NO : Replace the navigation unit.

INSPECTION PROCEDURE 17: The current position display (vehicle mark) only moves forward or backward.
INSPECTION PROCEDURE 18: Even when the vehicle turns the traffic intersection, the current position display (vehicle position) does not make a turn.

⚠ CAUTION
Before replacing the navigation unit , ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)

TROUBLESHOOTING HINTS

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

DIAGNOSIS

STEP 1. Using the navi service mode function, check that the GPS is OK.
(1) Display the Circuit check. (Refer to P.54A-316.)
(2) Check that "OK" is shown in the field of GPS.

Q: Is check result normally?
YES : Go to Step 2.
NO : INSPECTION PROCEDURE 15: GPS cannot be received.". Refer to P.54A-395. and then go to Step 2.

STEP 2. Using the navi service mode function, check that the Gyro sensor is counted.

Q: Is the reverse signal normal?
YES : Go to Step 3.
NO : Replace the navigation unit.

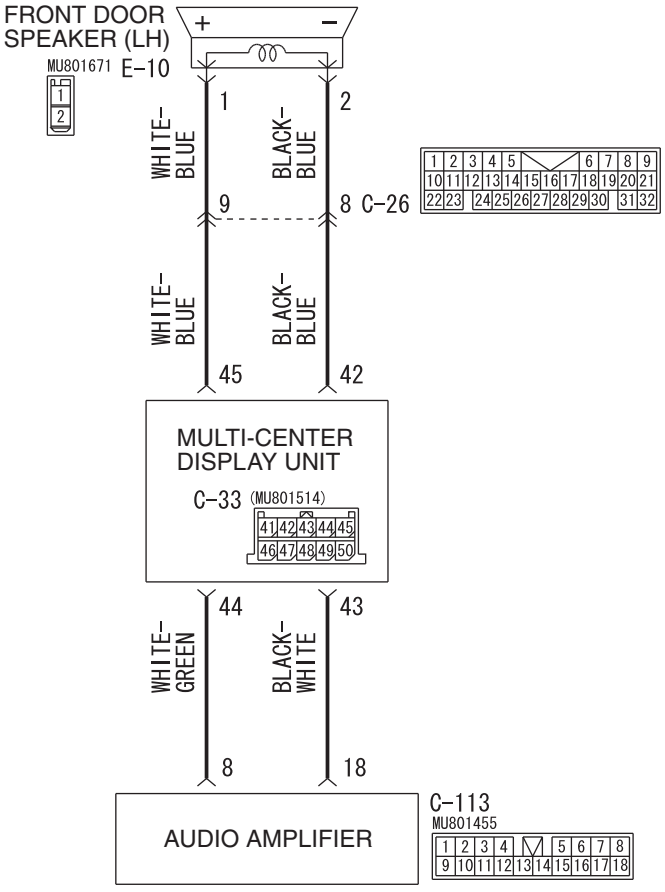
STEP 3. Check the trouble symptom.
Check if the vehicle mark moves normally.

Q: Is the reverse signal normal?

YES : The procedure is complete.
NO : Replace the navigation unit.

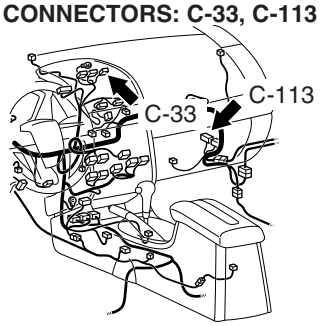
INSPECTION PROCEDURE 19: Only the front left speaker does not sound (including the audio sound).

⚠ CAUTION
Before replacing the audio amplifier or multi-center display, ensure that the power supply circuit and the ground circuit are normal. (Check that the voltage is 10 V or more.)



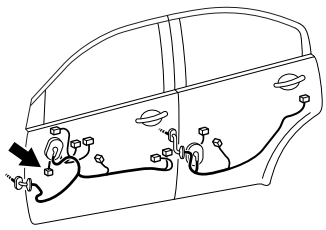
W7P54M152A

CONNECTORS: C-33, C-113



AC600893 AK

CONNECTOR: E-10

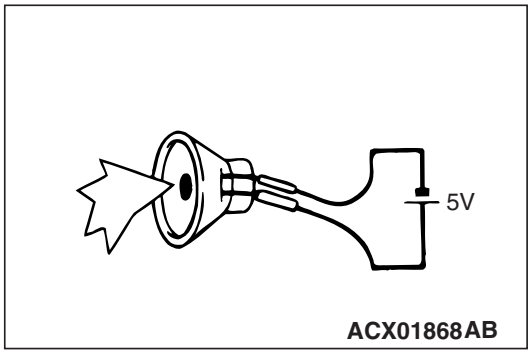


AC305262AP

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The front door speaker (LH) may be defective
- The multi-center display may be defective
- The audio amplifier may be defective

DIAGNOSIS



ACX01868AB

STEP 1. Check the front door speaker (LH).

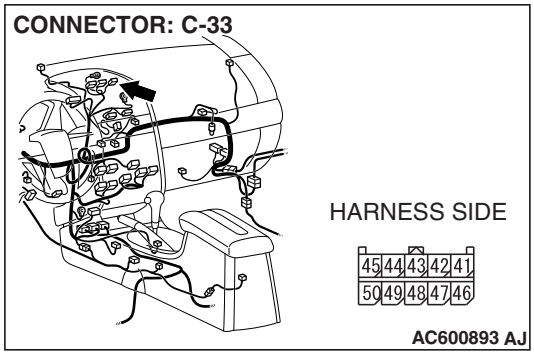
(1) Remove the front door speaker (LH). Refer to P.54A-256.

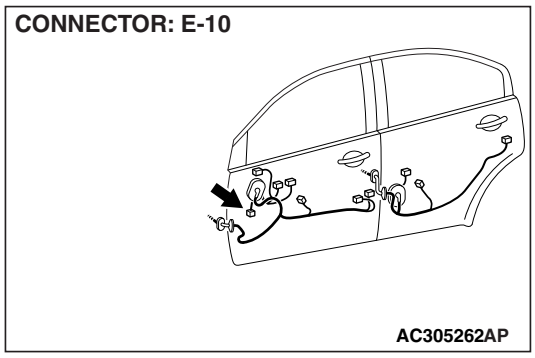
(2) Check that the front door speaker (LH) generates noise when a five-volt voltage is applied on the front door speaker (LH) terminal.

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

YES : Go to Step 2.

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





STEP 2. Check front door speaker (LH) connector E-10 and multi-center display connector C-33 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are front door speaker (LH) connector E-10 and multi-center display connector C-33 in good condition?

YES : Go to Step 3.

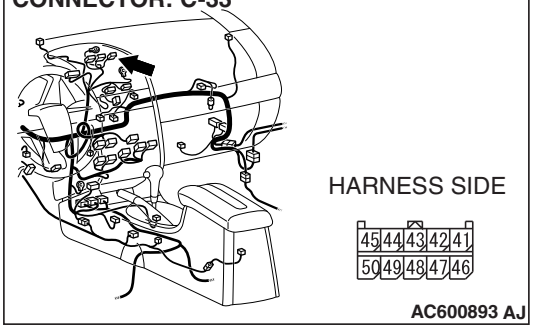
NO : Repair or replace the component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The front door speaker (LH) should sound.

STEP 3. Check the wiring harness between front door speaker (LH) connector E-10 (terminals 1 and 2) and multi-center display connector C-33 (terminals 45 and 42).

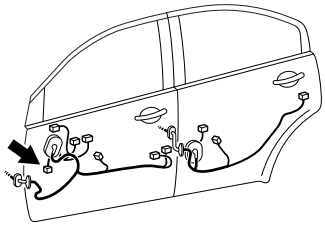
- Check the wiring harness for open circuit and short circuit.

NOTE:

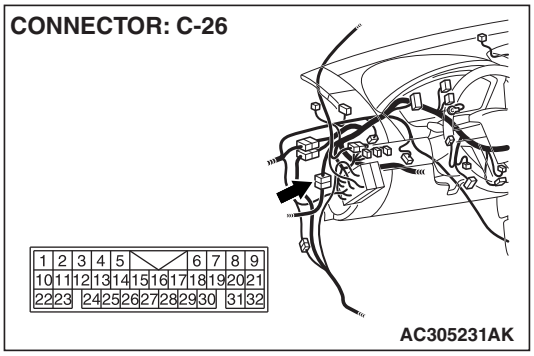
CONNECTOR: C-33



CONNECTOR: E-10



CONNECTOR: C-26



Also check intermediate connector C-26 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-26 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-10 (terminals 1 and 2) and multi-center display connector C-33 (terminals 45 and 42) in good condition?

YES : Go to Step 4.

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

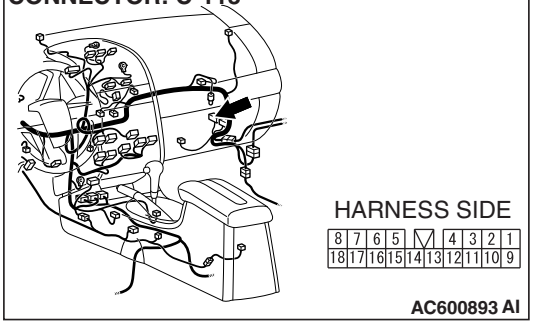
STEP 4. Check audio amplifier connector C-113 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is harness connectors C-113 in good condition?

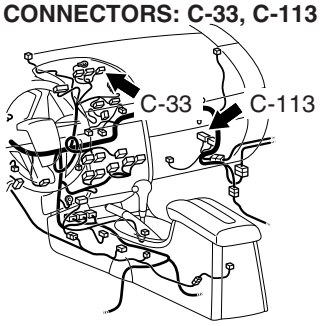
YES : Go to Step 5.

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

CONNECTOR: C-113



CONNECTORS: C-33, C-113



C-33 HARNESS SIDE

C-113 HARNESS SIDE

AC600891 AE

STEP 5. Check the wiring harness between multi-center display connector C-33 (terminals 44 and 43) and audio amplifier connector C-113 (terminals 8 and 18).

- Check the wiring harness for open circuit and short circuit.

Q: Is the wiring harness between multi-center display connector C-33 (terminals 44 and 43) and audio amplifier connector C-113 (terminals 8 and 18) in good condition?

YES : Go to Step 6.

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

STEP 6. Temporarily replace the multi-center display, and check that the sound is output from the front left speaker.

Q: When the multi-center display is temporarily replaced, is the sound output from the front left speaker?

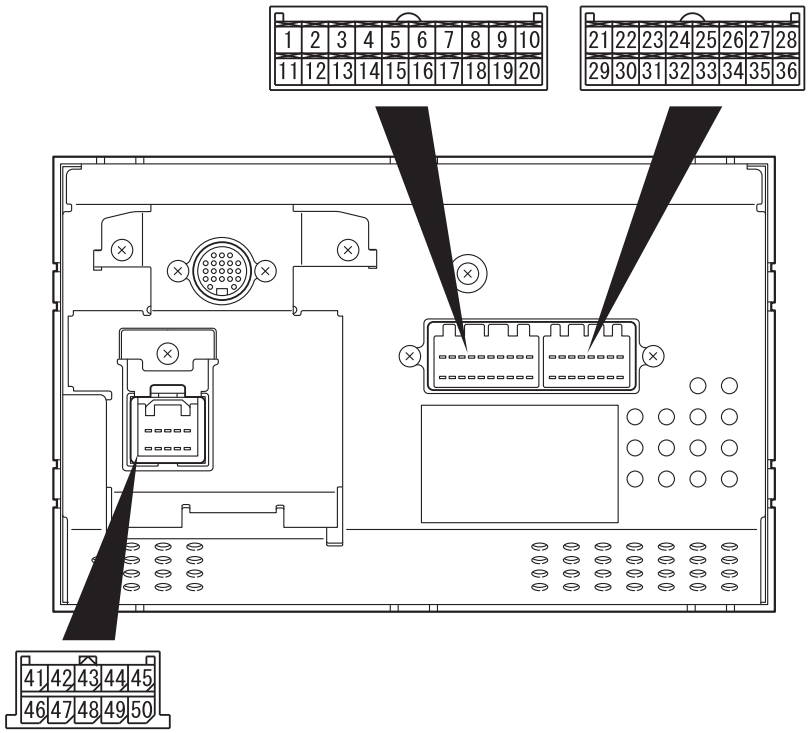
YES : Replace the multi-center display.

NO : Replace the audio amplifier.

MAIN UNIT TERMINAL VOLTAGE

M1546003300559

MULTI-CENTER DISPLAY UNIT



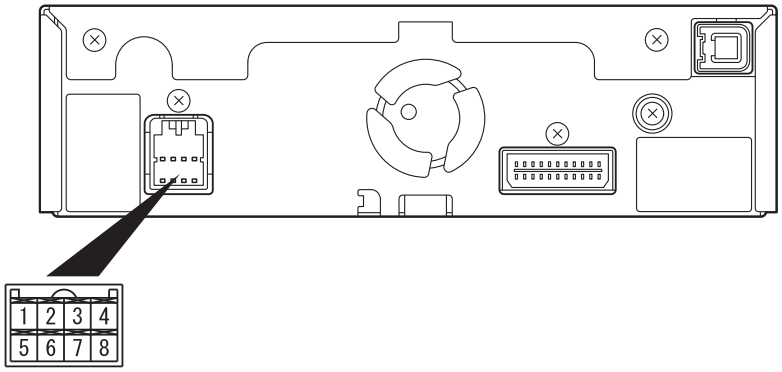
AC600900AB

Terminal No.	Input and output	Signal symbol	Terminal voltage	Defective wiring harness		Trouble symptom due to a defective wiring harness
				Open circuit	Short circuit	
3	Input	CAM(rear view camera signal:NTSC)	1Vp-p	×	×	The image from the rear view camera is not displayed.
5	Input and output	CAN-H	–	×	×	Driving information is not displayed. Function customize does not operate.
7	Input and output	M-DATA	• Hi: 4 – 5 • Lo: 0 – 1	×	×	Audio communication abnormality
8	Input and output	M-CLK	• Hi: 4 – 5 • Lo: 0 – 1	×	×	
12	Input and output	SHIELD-GND	1V or less	–	–	–
15	Input and output	CAN-L	–	×	×	Driving status is not displayed. Function customize does not operate.
17	Input and output	M-BUSY	• Hi: 4 – 5 • Lo: 0 – 1	×	×	Audio communication abnormality

TSB Revision

Terminal No.	Input and output	Signal symbol	Terminal voltage	Defective wiring harness		Trouble symptom due to a defective wiring harness
				Open circuit	Short circuit	
18	Input and output	SHIELD-GND	1V or less	–	–	–
21	Output	PKB FOR NAVI	OpenLo : 0	×	–	Even when the vehicle is stopped, the navigation operation is not possible.
				–	×	When the vehicle is driven, the navigation operation is possible.
25	Input	ACC	Battery positive voltage (AC) • Ignition switch: ACC position	×	–	Screen is not displayed.
				–	×	Melted ACC system fuse.
26	Input	+B	Battery positive voltage	×	–	Screen is not displayed.
				–	×	Melted multi-purpose fuse.
28	–	GND	1V or less	×	–	Screen is not displayed.
29	Output	CCD-EX	1V or less	×	×	The image from the rear view camera is not displayed.
34	Output	ACC-R	6.5 V	×	×	The image from the rear view camera is not displayed.
35	–	GND-R	1V or less	×	–	The image from the rear view camera is not displayed.
36	Input	IG1	Battery positive voltage	×	–	Screen is not displayed.
				–	×	Melted multi-purpose fuse
42	Output	FR (-) OUT	0 V to battery positive voltage (AC)	×	×	Front speaker sound does not come out.
43	Input	FR (-) IN	0 V to battery positive voltage (AC)	×	×	Front speaker sound does not come out.
44	Input	FR (+) IN	0 V to battery positive voltage (AC)	×	×	Front speaker sound does not come out.
45	Output	FR (+) OUT	0 V to battery positive voltage (AC)	×	×	Front speaker sound does not come out.

NAVIGATION UNIT

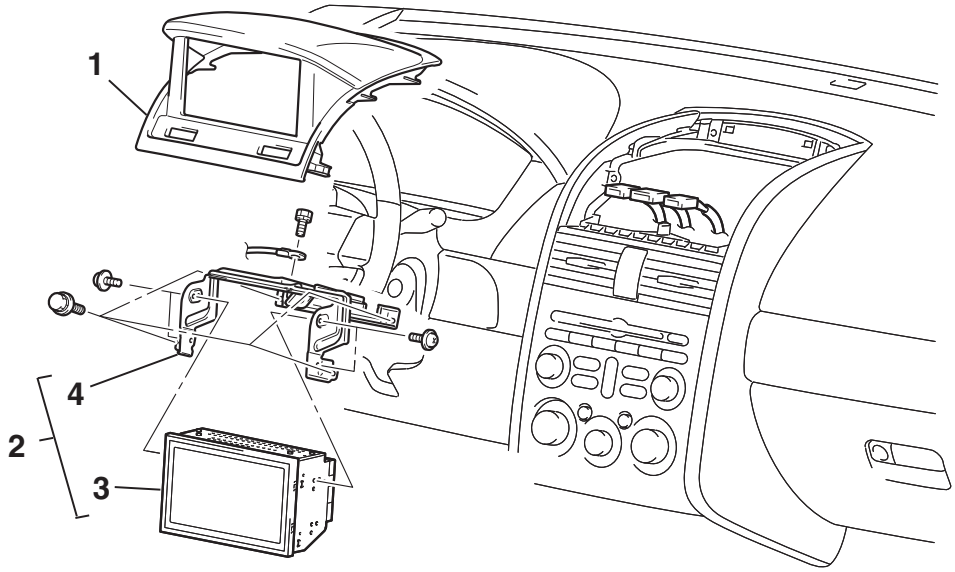


AC600899AB

Terminal No.	Input and output	Signal symbol	Terminal voltage	Defective wiring harness		Trouble symptom due to a defective wiring harness
				Open circuit	Short circuit	
4	–	GND	1V or less	×	–	The navigation does not work.
5	Input	ACC	Battery positive voltage (AC) • Ignition switch: ACC position	×	–	The navigation does not work.
				–	×	ACC system fuse is melted.
7	Input	SPD	Hi: 4 – 5V Lo: 0 –1V	×	×	The navigation vehicle speed is not entered.
8	Input	+B	Battery positive voltage	×	–	The navigation does not work.
				–	×	+B system fuse is melted.

REMOVAL AND INSTALLATION

M1543013600228



AC600921AB

REMOVAL STEPS

1. CONSOLE METER HOOD (REFER TO GROUP 52A, INSTRUMENT PANEL ASSEMBLY P.52A-15.)
2. MULTI-CENTER DISPLAY ASSEMBLY

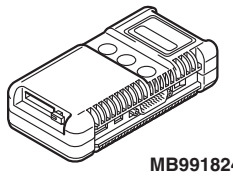
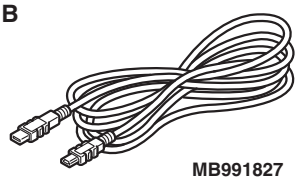
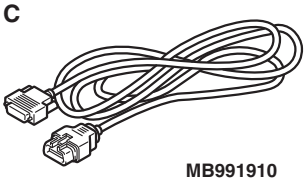
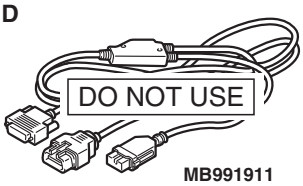
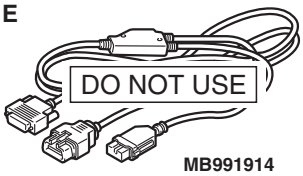
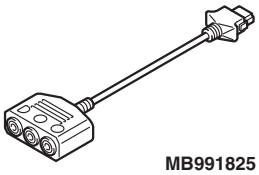
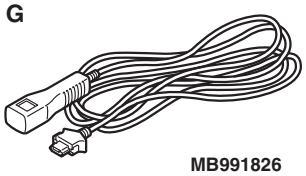
REMOVAL STEPS (Continued)

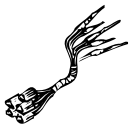
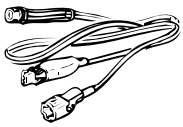
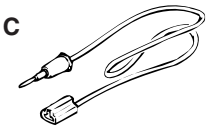
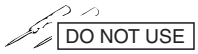
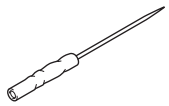
3. MULTI-CENTER DISPLAY
4. MULTI-CENTER DISPLAY BRACKET

TSB Revision

SPECIAL TOOLS

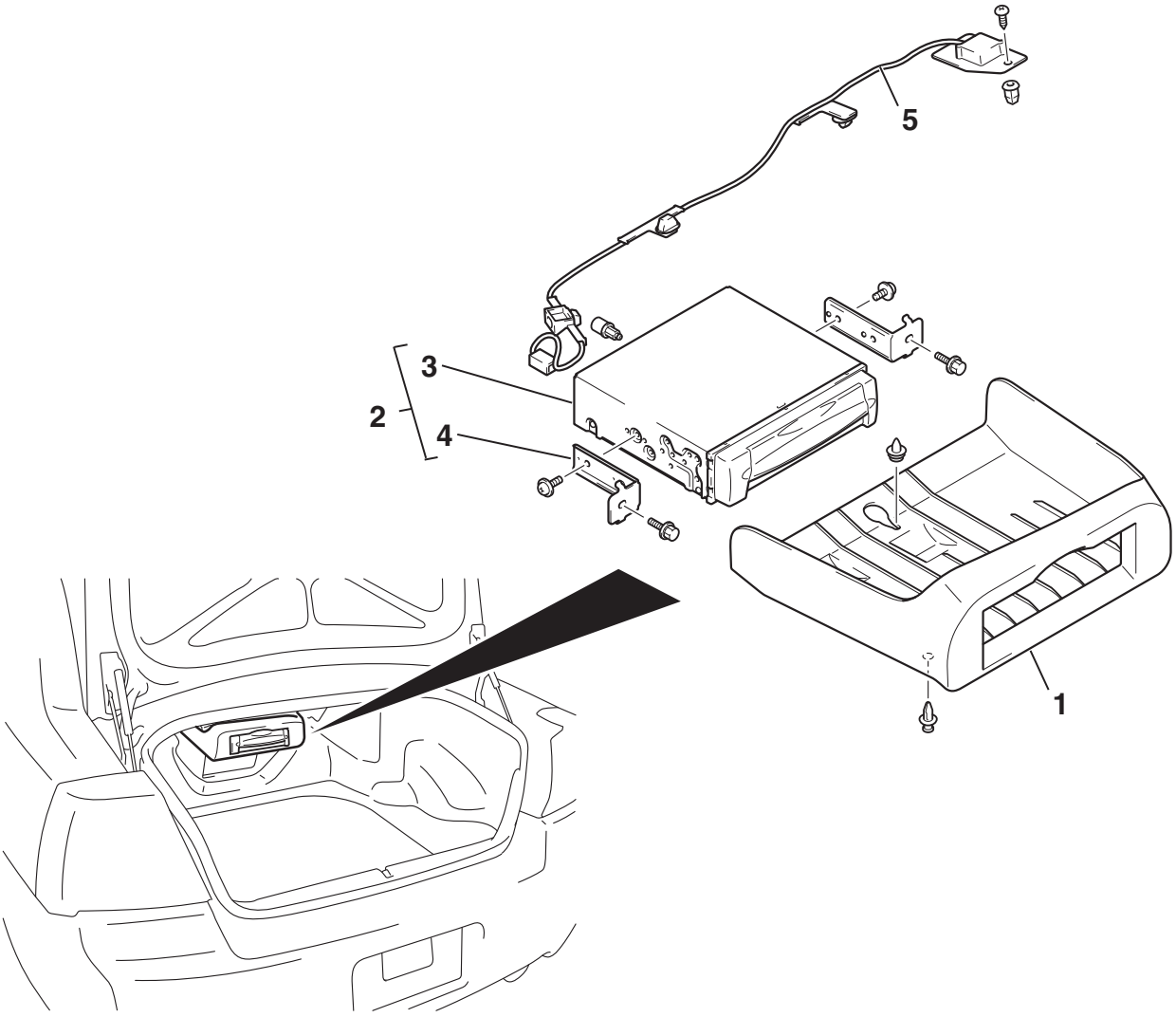
M1546000600261

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  MB991824 B  MB991827 C  MB991910 D  MB991911 E  MB991914 F  MB991825 G  MB991826 MB991958	MB991958 A: MB991824 B: MB991827 C: MB991910 D: MB991911 E: MB991914 F: MB991825 G: MB991826 M.U.T.-III sub assembly A: Vehicle communication interface (V.C.I.) B: M.U.T.-III USB cable C: M.U.T.-III main harness A (Vehicles with CAN communication system) D: M.U.T.-III main harness B (Vehicles without CAN communication system) E: M.U.T.-III main harness C (for Chrysler models only) F: M.U.T.-III measurement adapter G: M.U.T.-III trigger harness	MB991824-KIT *NOTE: G: MB991826 M.U.T.-III Trigger Harness is not necessary when pushing V.C.I. ENTER key.*	**⚠ CAUTION** **For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.** Reading diagnostic trouble code

TOOL	TOOL NUMBER AND NAME	SUPERSESSION	APPLICATION
A  B  C  D  MB991223AZ	MB991223 A: MB991219 B: MB991220 C: MB991221 D: MB991222 Harness set A: Test harness B: LED harness C: LED harness adapter D: Probe	General service tool (jumper)	Making voltage and resistance measurements during troubleshooting A: Connect pin contact pressure inspection B: Power circuit inspection C: Power circuit inspection D: Commercial tester connection
 MB992006	MB992006 Extra fine probe	–	Making voltage and resistance measurement during troubleshooting

NAVIGATION UNIT REMOVAL AND INSTALLATION

M1546017200016



AC600920AB

REMOVAL STEPS

1. NAVIGATION UNIT COVER
2. NAVIGATION UNITASSEMBLY
3. NAVIGATION UNIT

REMOVAL STEPS (Continued)

4. NAVIGATION UNIT BRACKET
5. GPS ANNTENA

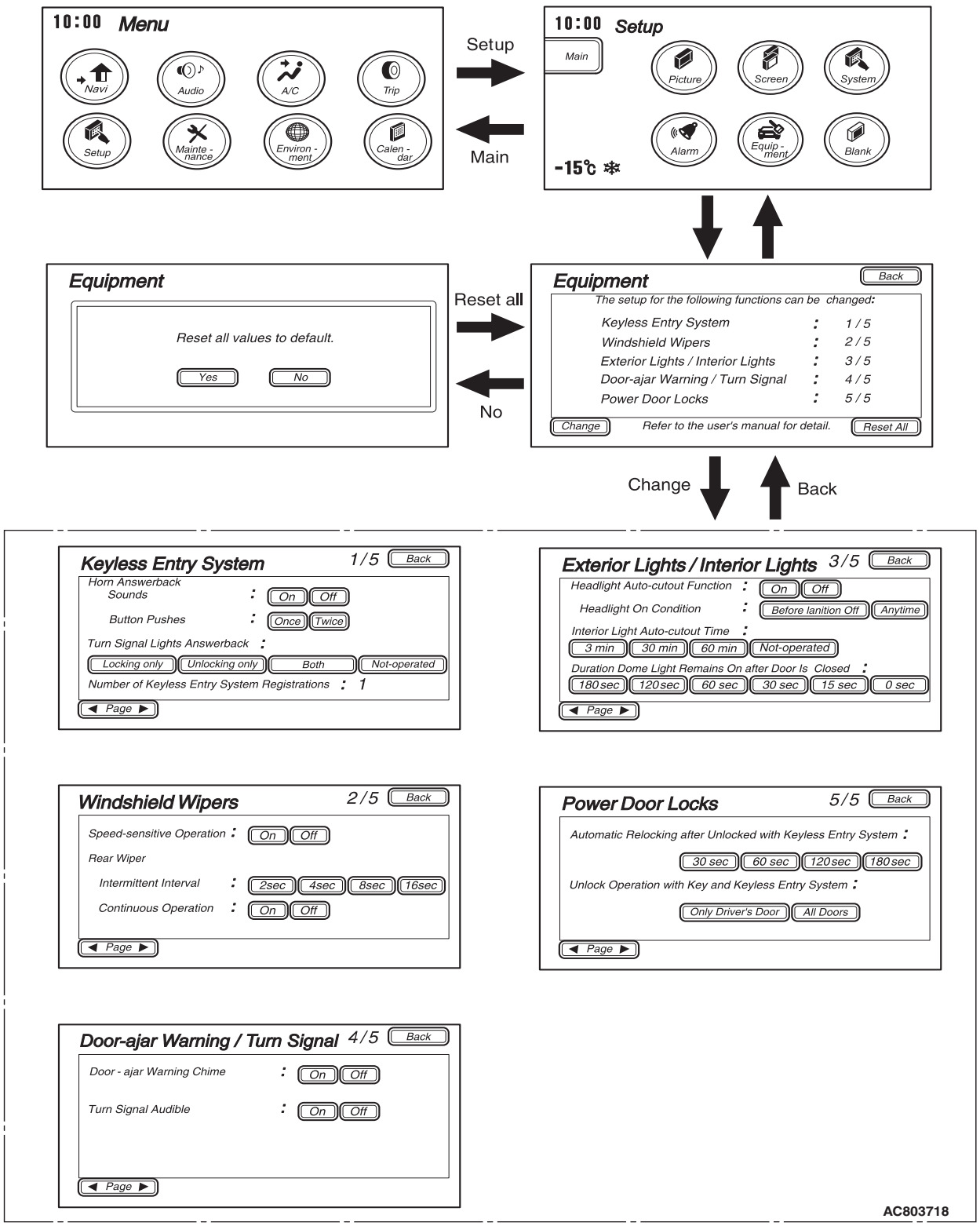
TSB Revision

ON-VEHICLE SERVICE

ETACS CUSTOMIZATION FUNCTION

M1546023000516

Setting procedure



TSB Revision

List of setting items

ITEM (multi-center display)			ADJUSTMENT DETAILS
Keyless entry system (Page1/5)	Horn Answerback	Sounds	The horn answerback can be enabled or disabled. a. ON (initial condition) b. OFF
		Button Pushes	The number of keyless entry button operation can be set when a horn answerback sounds. a. Once b. Twice (initial condition)
	Turn Signal Lights Answerback		The hazard answerback flashing conditions can be set in the following ways. a. Locking only b. Unlocking only c. Both (initial condition) d. Not-operated
Windshield Wipers (Page2/5)	Speed-sensitive Operation		The speed-sensitive wiper function can be activated or deactivated. a. ON (initial condition) b. OFF
	Rear Wiper*	Intermittent Interval	– a. 2sec b. 4sec c. 8sec d. 16sec
		Continuous Operation	– a. ON b. OFF

ITEM (multi-center display)		ADJUSTMENT DETAILS
Exterior Lights / Interior Lights (Page3/5)	Headlight Auto-cutout Function	- a. ON (initial condition) b. OFF
	Headlight On Condition	- a. Before Ignition Off (initial condition) b. Anytime
	Interior Light Auto-cutout Time	The period before the interior illumination is turned off automatically can be set in the following ways. a. 3 minutes b. 30 minutes (initial condition) c. 60 minutes d. No auto-cutout
	Duration Dome Light Remains On after Door is Closed	- a. 180 sec b. 120 sec c. 60 sec d. 30 sec (initial condition) e. 15 sec f. 0 sec
Door-ajar Warning / Turn Signal (Page4/5)	Door - ajar Warning Chime	- a. ON (initial condition) b. OFF
	Turn Signal Audible	- a. ON b. OFF (initial condition)
Power Door Locks (Page5/5)	Automatic Relocking after Unlocked with Keyless Entry System	- a. 30 sec (initial condition) b. 60 sec c. 120 sec d. 180 sec
	Unlock Operation with Key and Keyless Entry System	- a. Only Driver's Door (initial condition) b. All Doors
Reset All		Initialization of above mentioned functions

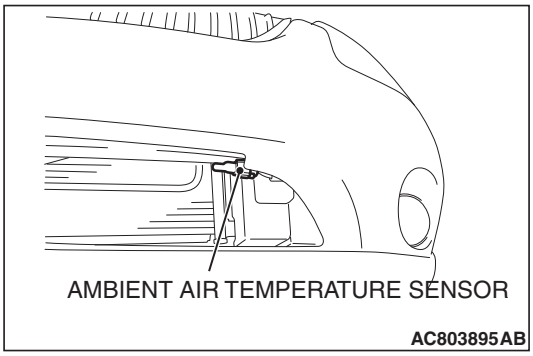
*NOTE: *The item of the rear wiper is shown on the display, but the rear wiper can not be customized because it is not equipped on GALANT.*

AMBIENT TEMPERATURE SENSOR

INSPECTION

M1543019504919

AMBIENT AIR TEMPERATURE SENSOR CHECK



The ambient air temperature sensor should be checked in situ. Once the sensor is removed, it is rendered unserviceable. Measure the resistance between the sensor terminals under at least two temperatures.(Refer to GROUP 55A, HEATER, AIR CONDITIONING – Ambient Temperature Sensor, Inspection P.55A-156)

THEFT ALARM

THEFT-ALARM SYSTEM DIAGNOSIS

M1547000700197

The theft-alarm system and panic alarm system is controlled by the Simplified Wiring System (SWS). For troubleshooting, refer to GROUP 54B, SWS Diagnosis – Symptom Chart P.54B-57.

REMOVAL AND INSTALLATION

M1547001000373

Theft-alarm system component parts

- Horn (Refer to P.54A-149.)
- Door switch (Refer to GROUP 42, Door – Door Assembly P.42-39.)
- Front and rear door lock actuator (Refer to GROUP 42, Door Handle and Latch P.42-48.)
- Hood switch (Refer to GROUP 42, Hood P.42-8.)
- Trunk lid latch assembly (Refer to GROUP 42, Trunk lid P.42-66.)
- Key reminder switch (Refer to P.54A-48.)
- Theft-alarm indicator (Refer to GROUP 52A, Instrument panel assembly P.52A-15.)

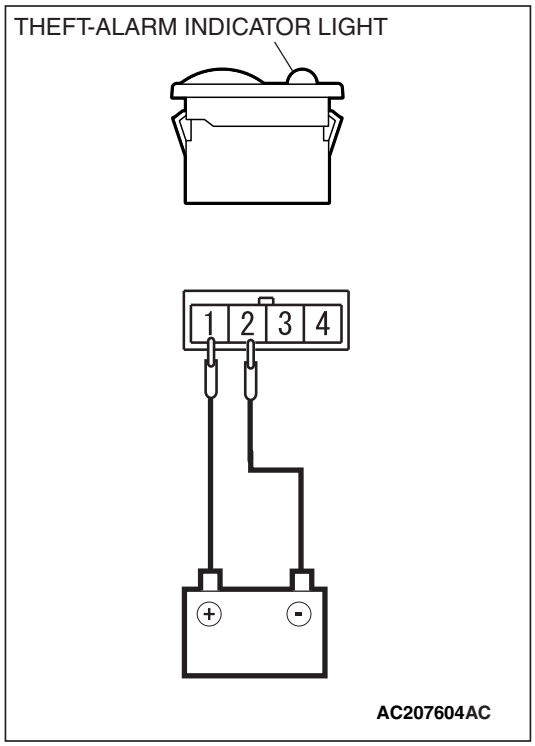
Panic alarm system component parts

- Head light assembly (Refer to P.54A-130.)
- Horn (Refer to P.54A-149.)

INSPECTION

M1547001100176

THEFT-ALARM INDICATOR LIGHT CHECK



Connect the positive battery terminal to theft-alarm indicator light terminal No.1, and connect the negative battery terminal to theft-alarm indicator light terminal No.2. Then, confirm that the theft-alarm indicator light illuminates.

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

M1541001600195

ITEM	SPECIFICATION
Air bag module torx screw	9.0 ± 2.0N·m (80 ± 17 in-lb)
Amplifier box bracket mounting bolts	5.0 ± 1.0 N·m (44 ± 9 in-lb)
Audio amplifier mounting bolt	5.0 ± 1.0 N·m (44 ± 9 in-lb)
Clock spring and column switch assembly mounting screw	2.5 ± 0.5 N·m (23 ± 4 in-lb)
Fog light assembly mounting screw	2.5 ± 0.3 N·m (22 ± 3 in-lb)
Fog light bezel mounting screw	2.5 ± 0.3 N·m (22 ± 3 in-lb)
Front door speaker mounting screw	1.5 ± 0.5 N·m (14 ± 4 in-lb)
Headlight assembly mounting bolts	4.9 ± 0.7 N·m (44 ± 6 in-lb)
Headlight assembly mounting screw	1.5 ± 0.2 N·m (14 ± 1 in-lb)
High-mounted stoplight mounting nuts	5.0 ± 0.7 N·m (44 ± 6 in-lb)
AUX box mounting bolts	5.0 ± 1.0 N·m (44 ± 9 in-lb)
Horn mounting bolts	21 ± 4 N·m (16 ± 2 ft-lb)
Rear combination light mounting nut	5.0 ± 0.7 N·m (44 ± 6 in-lb)
Rear speaker mounting screw	1.5 ± 0.5 N·m (14 ± 4 in-lb)
Steering wheel mounting nuts	41 ± 8 N·m (30 ± 6 ft-lb)
Trunk lid light mounting nut	5.0 ± 0.7 N·m (44 ± 6 in-lb)

TSB Revision

SERVICE SPECIFICATIONS

M1541000300544

<BATTERY>

ITEM	STANDARD VALUE
Specific gravity of battery electrolyte [at 20°C (68°F)]	1.220 – 1.290

<COMBINATION METER>

ITEM			STANDARD VALUE
Speedometer indication tolerance mph (km/h) <Except vehicles for CANADA>		10 (16)	8.5 – 11.5 (13.6 – 18.4)
		25 (40)	23.5 – 25.5 (37.6 – 42.4)
		50 (80)	48.5 – 51.5 (77.6 – 82.4)
		75 (120)	73.5 – 76.5 (117.6 – 122.4)
		100 (161)	98.5 – 102.5 (158.5 – 165.0)
Speedometer indication tolerance km/h (mph) <Vehicles for CANADA>		20 (12.4)	19 – 24 (11.8 – 14.9)
		40 (24.8)	40 – 44 (24.8 – 27.3)
		80 (49.7)	80 – 85 (49.7 – 52.8)
		120 (74.6)	120.5 – 125.5 (74.9 – 78.0)
		160 (99.4)	160.5 – 165.5 (99.7 – 102.8)
Tachometer indication tolerance r/min The value in parentheses is a reference value.		600	500 – 700
		(2,000)	(1,900 – 2,100)
		3,000	2,850 – 3,150
		(4,000)	(3,850 – 4,150)
		5,000	4,850 – 5,150
		6,000	5,850 – 6,150
Fuel level sensor resistance Ω	Fuel level sensor (main)	Point "F" (highest)	6.5
		Point "E" (lowest)	45.1
	Fuel level sensor (sub)	Point "F" (highest)	6.5 ± 1.0
		Point "E" (lowest)	74.9 ± 1.0
Fuel level sensor float height mm (in)	Fuel level sensor (main)	A at point "F"	131.5 (5.1)
		B at point "E"	34.5 (1.3)
	Fuel level sensor (sub)	A at point "F"	24.9 ± 3.0 (0.9 ± 0.1)
		B at point "E"	172.7 ± 3.0 (6.7 ± 0.1)

<HEADLIGHT>

ITEM	STANDARD VALUE	LIMIT
Headlight aiming (vertical direction) [at 7.62 m (25.0 feet)]	Horizontal center line ± 50.5 mm (2.0 in) (0.38°)	–
Headlight intensity cd (at high-beam)	–	40,000 or more {when a screen is set 18.3m(60 feet) ahead of the vehicles}

<FOG LIGHT>

ITEM	STANDARD VALUE	LIMIT
Fog light aiming (vertical direction) [at 7.62 m (25.0 feet)]	Top of the hot zone should be 101 mm (4.0 inches) (0.76°) downward from the height of the fog light center.	Top of the hot zone should be 152 mm (6.0 in) (1.14°) in maximum downward from the height of the fog light center.

LUBRICANT

M1541201600014

<IGNITION SWITCH>

ITEM	SPECIFIED LUBRICANT
Cylinder sub-assembly	Repair kit grease