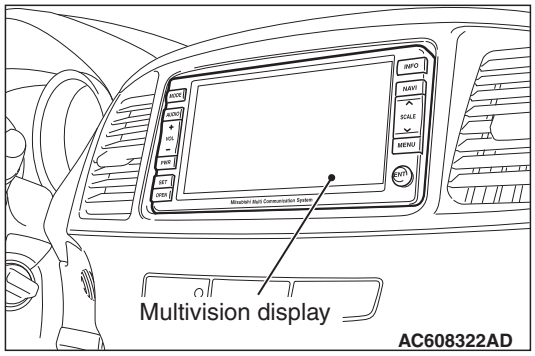
MMCS

GENERAL INFORMATION

M1546000100318

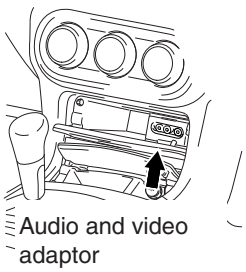


To the Mitsubishi multi-communication system (MMCS), the multivision display (7-inch liquid crystal display of wide 2 DIN size) with built-in hard disk drive (40 GB) and CD/DVD drive has been installed. (The map data includes Hawaii, Alaska, Puerto Rico, and the Virgin Islands.)

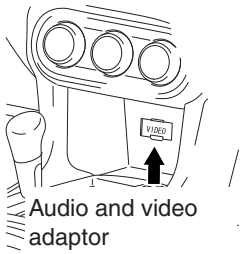
- The NAVTEQ map data has been stored. (Map data stored in hard disk drive)
- The 7-inch wide liquid crystal monitor has been adopted. The operation switch for operability has been equipped.
- Most sophisticated LSI* has been used as one for car navigation system.

  *NOTE: *:LSI stands for Large Scale Integration, and is a large-scale integrated circuit (IC) containing between 1,000 and 100,000 circuit elements.*
- U.S. English, French, and Spanish are available to select.
- Adopting the Rockford Fosgate ® premium sound system enables a great variety of sound and field settings through communication with the audio amplifier.
- The hands free cellular phone system can be used by connecting the hands free module.
- By attaching the satellite radio tuner, the SIRIUS™ satellite radio broadcasting becomes available.
- The language collaboration control between meter and hands free module is supported.
- The multivision display can be operated by the steering wheel audio remote control switch.

<Vehicles without instrument panel console box>



<Vehicles with instrument panel console box>



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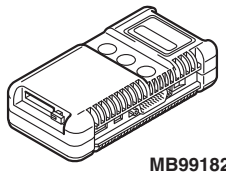
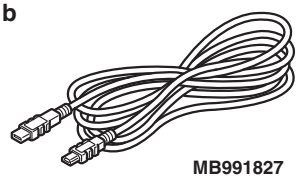
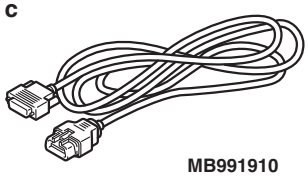
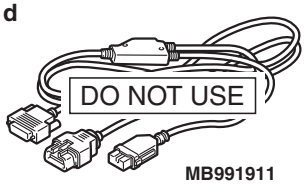
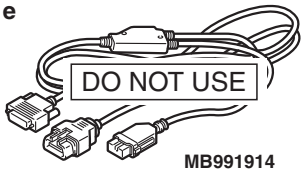
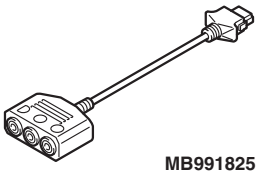
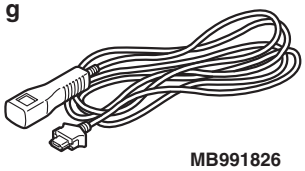
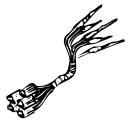
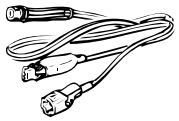
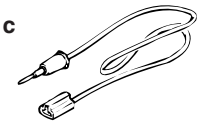
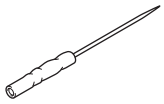
The audio and video adapter has been established to the center tray in order to connect visual equipment such as game machine and video player.

Function	Content
Navigation	• Displays the navigation functions including the map display, search, guidance, information search. Also, calculates Carpool/HOV lane. • The sound volume of the navigation guidance varies according to the vehicle speed by the vehicle speed-linked function.
Current vehicle location	Displays the position information of current location. (Longitude and latitude, altitude, GPS reception status)
CD/DVD	Plays the CD or DVD inserted to the drive (Designed for MP3/WMA file)
Music server	Plays music recorded in the hard disk drive (10 GB: Approximately 2,000 songs) and records a music CD. (The title whose information is acquired from CDDB can be displayed.)
Radio	Displays the receiving station information. Also, the operation of receiving channel can be performed.
Sound control	Adjusts the high/middle/low tone and balance. Function to set music type, sound field, and others when adopting the Rockford Fosgate ® premium sound system
AUX	Plays the image and sound input through the audio and video adapter. (Image cannot be seen during driving because of the driving restriction.)
Drive information	Displays the average fuel consumption, instantaneous fuel consumption, possible cruising distance, driving time, and lap time.
Environmental data	Displays the atmospheric pressure, altitude and ambient temperature.
A/C information	Displays the A/C information.
ETACS function customization	ETACS-ECU customization function
Mobile Phone	Function to operate the cellular phone (calling, receiving, etc.) using the multivision display <Vehicles with hands free module>
SIRIUS	Displays the receiving channel and receiving channel name, and changes the band ranges and channels.<Vehicles with satellite radio tuner>
Calendar	Displays the calendar.

SPECIAL TOOLS

M1540200300095

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** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** CAN bus diagnostics or data list check.

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

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1546001500085

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

Precautions on servicing MMCS

M1546003000105

Prior to disconnecting the vehicle battery

The MMCS stores a lot of information which your customer registers in its memory. All of this information will be cleared when the battery terminals are disconnected. Therefore, the preset channels must be stored before the vehicle battery is disconnected. Vehicle's current position and destinations must be stored if the vehicle battery remains disconnected for long periods.

Diagnosis tips concerning the entire system

1. If at least two system functions are defective at the same time, it is possible that communication between the system components is abnormal. Check the system using the communication and wire connection check in the service mode.
2. If an error 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. If the wiring harness connectors are engaged correctly, check the wiring harness. If the wiring harness is in good condition, replace relevant component(s). Now the error code and the service mode data must be stored.

NOTE: If a system communication related failure is suspected, diagnose the system.

Diagnosis tips concerning the navigation function

1. The precision of the GPS positioning is limited due to its operation principles. So, some of customer reports do not mean that the system is defective.
   Prior to troubleshooting, question your customer about how the navigation system is used and where he/she drives. If you determine that the system is OK, explain to your customer about how the system works and how the customer should operate it.
2. If the system is not OK, diagnose the system according to the trouble symptom chart.

ERROR MESSAGE

M1546023500232

When the multivision display detects its own unintentional operation or malfunction in the loaded disk, it displays the following error messages.

Error messages	Error contents	Cause	Action
The unit is too hot. Please wait...	Malfunction of multivision display by high temperature	The temperature of HDD inside the multivision display is 201° F (94° C) or more.	Wait until the temperature drops to the operable temperature. After the temperature drops, the error message display is terminated, and then returns to the screen before the error message display.
The unit is too cold. Please wait...	Malfunction of multivision display by low temperature	The temperature of HDD inside the multivision display is -4° F (-20° C) or less.	Wait until the temperature rises to the operable temperature by working the air conditioning. After the temperature rises, the error message display is terminated, and the screen returns to the status before displaying the error message.
It is difficult to read the hard disk. Wait for a while until the hard disk is restored.	Malfunction of HDD by vibration	Severe vibration is applied to the multivision display, and the reading of the HDD data is prohibited.	When the multivision display confirms the HDD data reading availability, it restarts automatically. Check if the multivision display is securely installed to the vehicle body.
	HDD Partition Error	System malfunction occurs to the HDD inside the multivision display.	The multivision display checks HDD automatically. "Restart" is displayed after the completion of the check. Select "Restart" to restart the multivision display. If it does not restart, turn the ignition switch to the OFF position to turn off the power supply, and then turn the ignition switch to the ON position to restart. After the restart, check that the OK is displayed for the HDD Drive in the "Network/Connect Line Check" of the MMCS service mode. If not, replace the multivision display.

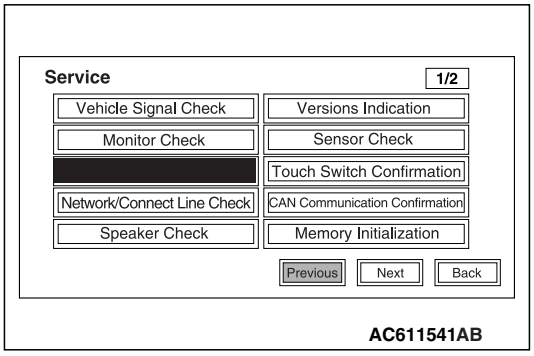
Error messages	Error contents	Cause	Action
Please check the disk.	Disk type error	The specification of the disk used has a problem.	The disk used may have a problem. Check the disk for scratches or dirt. Also, perform the Inspection procedure 8 "CD/DVD cannot be Played" of the troubleshooting. (Refer to P.54A-508.)
Play is impossible due to a focus error. Please eject the disk.	Focus error	The disk used has scratches and dirt, and the data cannot be read.	
Play is impossible. Please eject the disk.	Disk error Seek error Servo startup error TOC read error DVD-Video Disk info error (Disk information cannot be read.)	The data of the disk used has a malfunction, and the data cannot be read.	
Play is impossible due to a Mechanism error.	Power-on error Pickup operation error Mecha stack error Loading/eject error	The DVD drive inside the multivision display has a malfunction.	Perform the Inspection procedure 8 "CD/DVD cannot be Played" of the troubleshooting. (Refer to P.54A-508.)
The region code is incorrect. Please eject the disk.	DVD-Video region code error	The region code of the DVD does not match the specification of the multivision display.	Replace with the DVD that matches the specification of the multivision display.
Please eject the disk. The monitor panel is too hot. Screen display has stopped to protect the liquid crystal panel. Wait until the monitor panel has cooled down.	Monitor high temperature error	The temperature of the monitor is 203° F (95° C) or more for 60 seconds or more.	The monitor turns OFF 5 seconds after the error message appears. Wait until the temperature of the monitor drops. The temperature drops, and then the multivision display returns automatically.

NOTE: "Environment" is not displayed on the "INFO" screen. Ambient temperature is not displayed on the environment screen. If atmospheric pressure or altitude is not displayed on the environment display, the CAN box unit may have a problem in the CAN communication with A/C-ECU or engine control module. Check if a diagnostic trouble code is set in the CAN box unit.

SERVICE MODE

M1546016600408

HOW TO INITIATE THE SERVICE MODE



AC611541AB

1. With the navigation system active, press and hold both the "NAVI" and "SET" buttons for 3.5 seconds.
2. The service mode will be initiated. Then "Service" screen will be displayed.

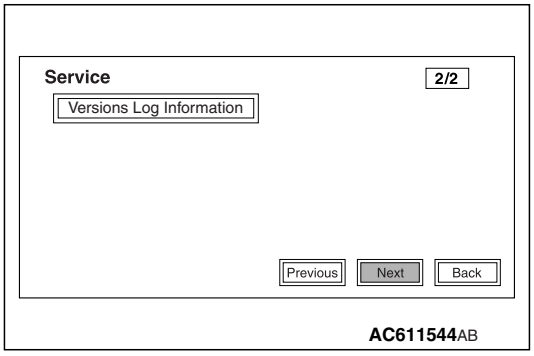
HOW TO TERMINATE THE SERVICE MODE

If the operations below are done, the service mode will be terminated.

- If "Back" button is selected on "Service" screen, the service mode will terminate and then return to the previous screen.
- If "NAVI" button is pressed with the service mode active, the service mode will terminate and change to the navigation screen.

  NOTE: If "NAVI" button is pressed, the following functions of the service mode will terminate.

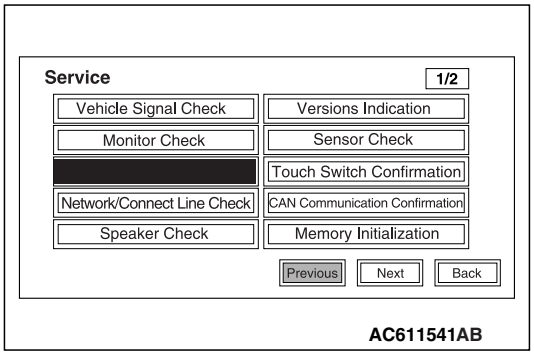
  - *Vehicle Signal Check*
  - *Monitor Check*
  - *Network/Connect Line Check*
  - *Speaker Check*
  - *Versions Indication*
  - *Sensor Check*
  - *Touch Switch Confirmation*
  - *CAN communication Confirmation*
  - *Memory Initialization*
  - *Versions Log Information*



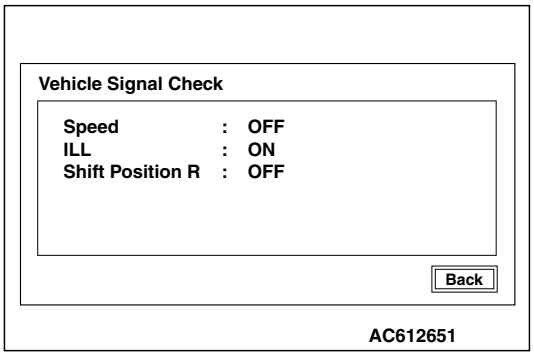
AC611544AB

VEHICLE SIGNAL CHECK

1. Select "Vehicle Signal Check" on "Service" screen.



AC611541AB

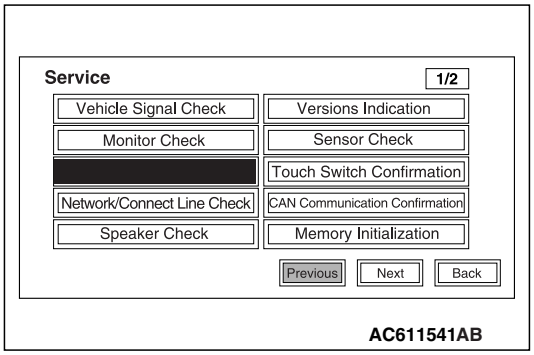


AC612651

2. The check results will be displayed for the items below.
   - "Speed": "ON" when the vehicle speed is 3.7 mph (6 km/h) or more, and "OFF" when the vehicle speed is 2.5 mph (4 km/h) or less.
   - "ILL": "ON" when the lighting switch is on (headlight position), and "OFF" when they are off (except headlight position).
   - "Shift Position R": "ON" when the selector lever is at R position, and "OFF" when it is at the other position.

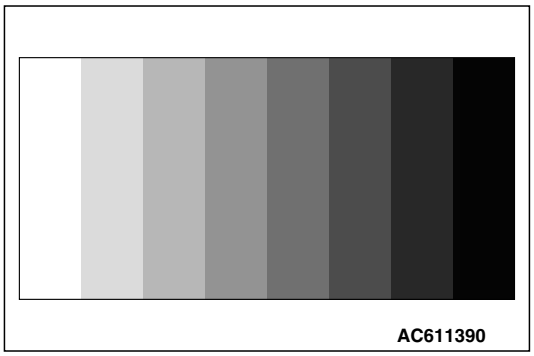
MONITOR CHECK

1. Select "Monitor Check" on "Service" screen.

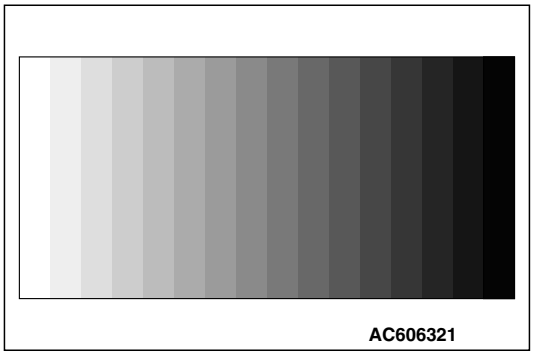


AC611541AB

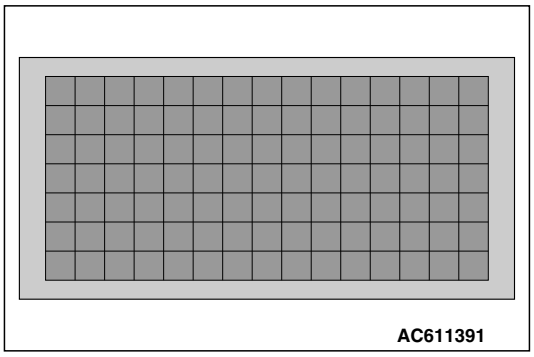
2. Eight color bars will be displayed.

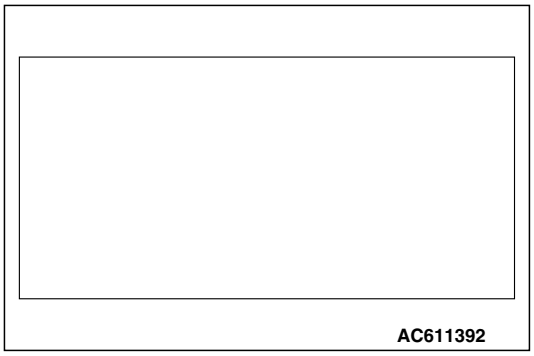

AC611390

3. When "Enter" is pressed on the navigation unit joystick while the eight color bars are shown, gray scale will be displayed with a 16-step gradation.


AC606321

4. When "Enter" is pressed while the gray scale is shown with a 16-step gradation, a crosshatch pattern will be displayed (Each cell should be square).

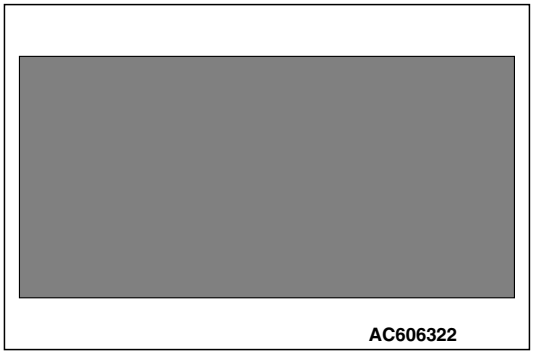

AC611391


AC611392

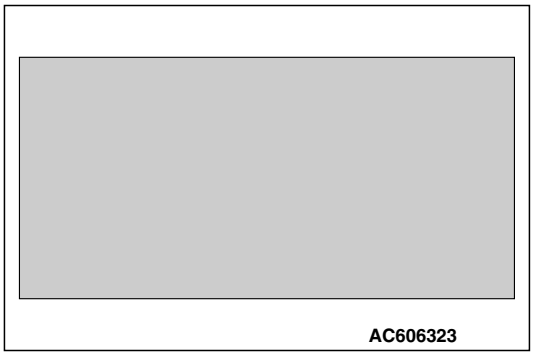
5. When "Enter" is pressed on the navigation unit joystick while the crosshatch pattern is shown, the screen will turn white.


AC611393

6. When "Enter" is pressed on the navigation unit joystick while the screen is white, it will turn black.


AC606322

7. When "Enter" is pressed on the navigation unit joystick while the screen is black, the screen will turn red.


AC606323

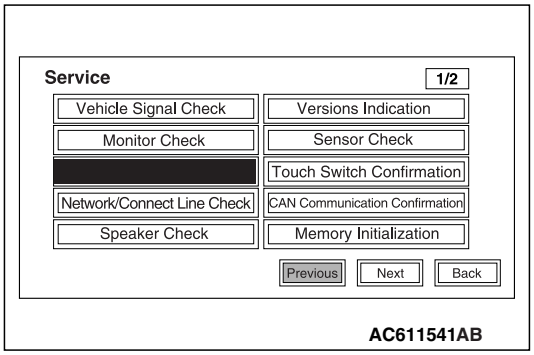
8. When "Enter" is pressed on the navigation unit joystick while the screen is red, it will turn green.


AC606324

9. When "Enter" is pressed on the navigation unit joystick while the screen is green, it will turn blue.
10. When "Enter" is pressed on the navigation unit joystick while the screen is green, it will return to the "Service" screen.

NETWORK AND CONNECT LINE CHECK

1. Select "Network/Connect Line Check" on "Service" screen.



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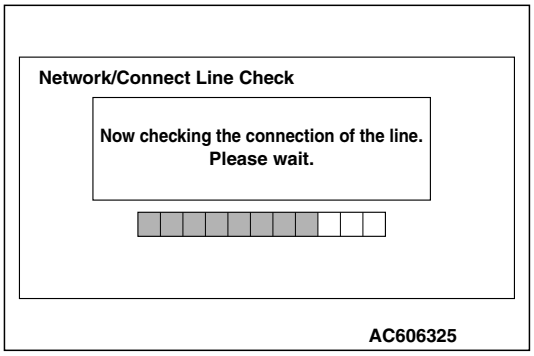
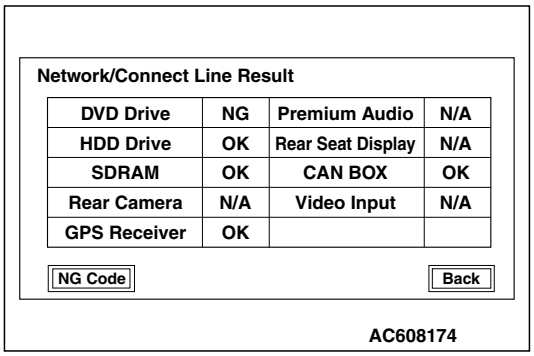
2. A network and connect line check will be initiated. The "Network/Connect Line Check" screen will display how the check is in progress.

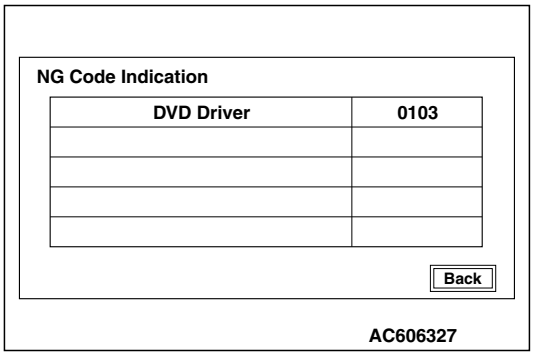


AC606325

3. When the network and connect line check is finished, the screen will change to "Network/Connect Line Result" to show the check results.



AC608174



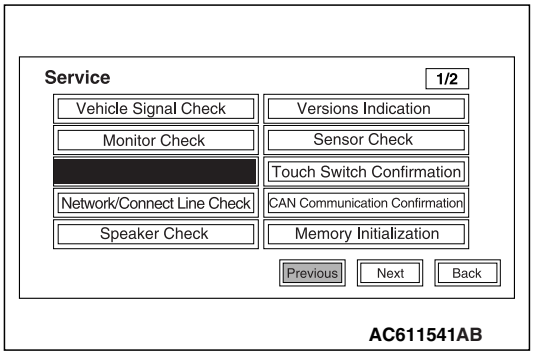
AC606327

NOTE: If there is "NG" or "N/A" as the check results, select "NG Code" on the "Network/Connect Line Result" screen. Then "NG code Indication" screen will show the NG code.

4. If "Back" is selected on "Network/Connect Line Result", the screen will return to "Service" screen.

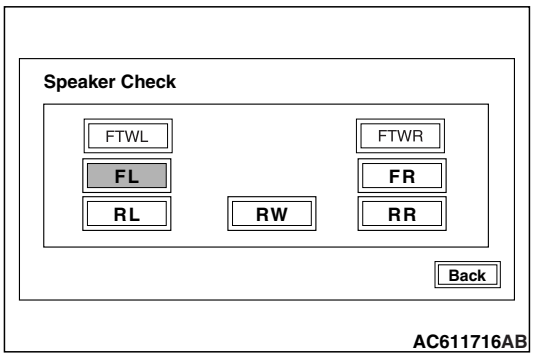
SPEAKER CHECK

1. Select "Speaker Check" on "Service" screen.



2. Select a speaker to be checked, and play test tone through the speaker.

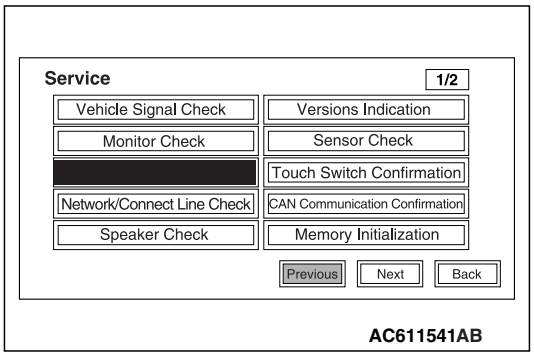
   NOTE:
   - *"FTWL", "FTWR", "RW" are displayed for vehicles with audio amplifier only.*
   - *Volume cannot be adjusted while test tone is being played.*
   - *During the test, only the selected speaker sounds. If "Back" is selected during the test, the test tone will disappear.*



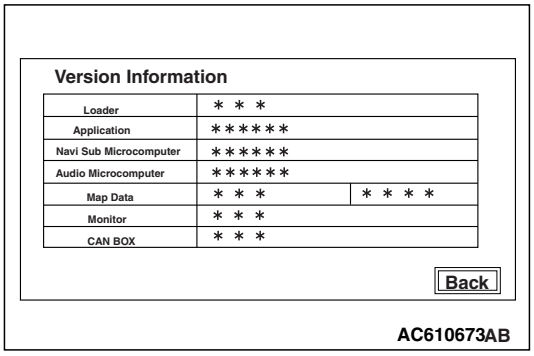
VERSIONS INDICATION

Displays versions indication (Loader, Application, Audio Microcomputer, Navi Sub Microcomputer, Map Data, Monitor, and CAN BOX).

1. Select "Versions Indication" on "Service" screen.



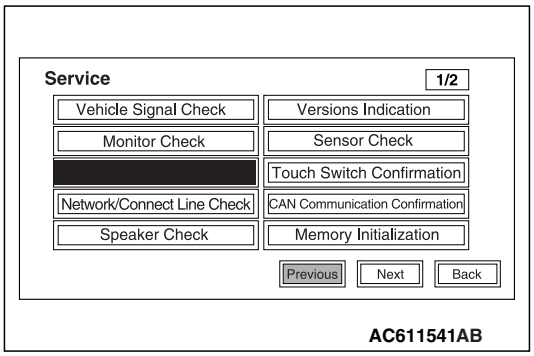
2.3. Versions indication is displayed.



SENSOR CHECK

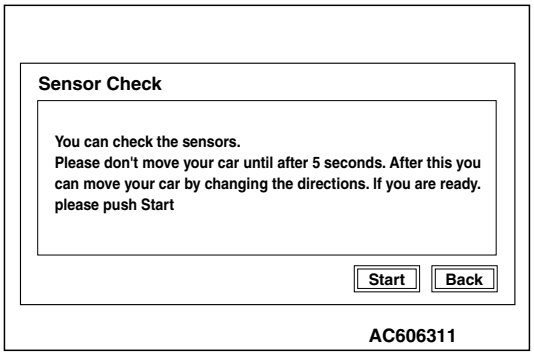
The speed sensor and gyro sensor will be checked, depending on the vehicle conditions such as driving condition, stationary condition and travel direction change.

1. Select "Sensor Check" on "Service" screen.

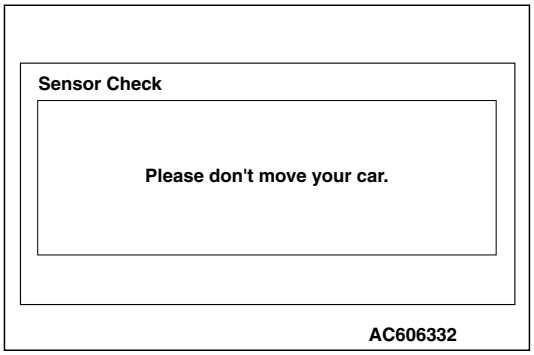


AC611541AB

2. The sensor check with the vehicle stationary will be executed in accordance with the screen.

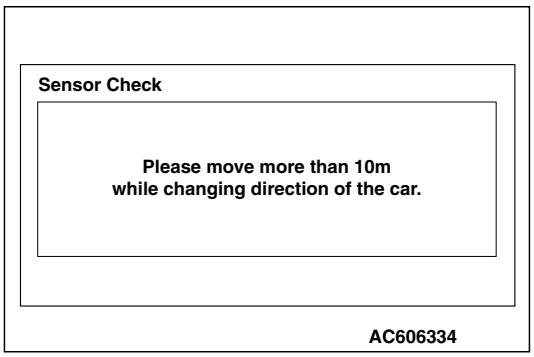


AC606311

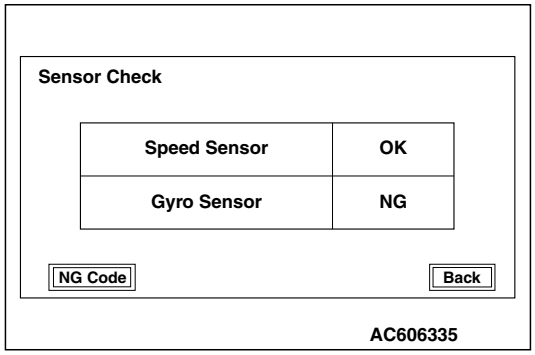


AC606332

3. The sensor check with the vehicle in motion will be executed in accordance with the screen.

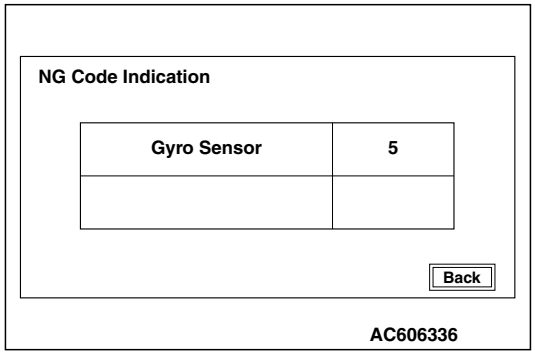


AC606334



4. When the sensor checks are complete, the screen will display the check results.

NOTE:



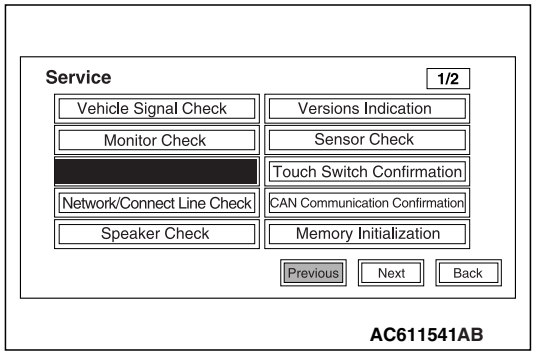
If there is "NG" or "N/A" as the check results, select "NG Code" on the "Sensor Check" screen. Then "NG code Indication" screen will show the NG code.

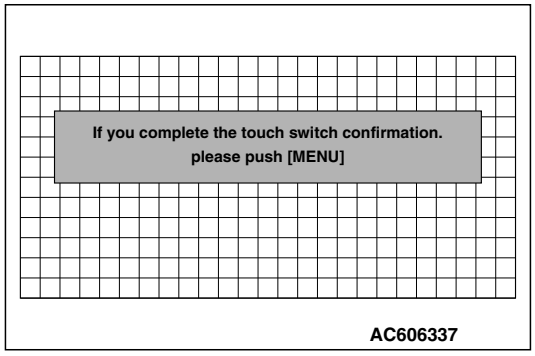
NG CODE REFERENCE TABLE FOR SENSOR CHECK

Sensor classification	NG code No.	Error items
Gyro sensor	1	Offset error while the vehicle is stationary (lower limit error)
	2	Offset error while the vehicle is stationary (upper limit error)
	5	Output error during driving
Speed sensor	6	Output error while the vehicle is stationary

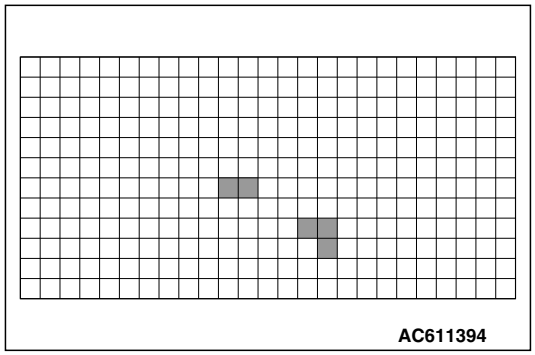
TOUCH SWITCH CONFIRMATION

1. Select "Touch Switch Confirmation" on "Service" screen.



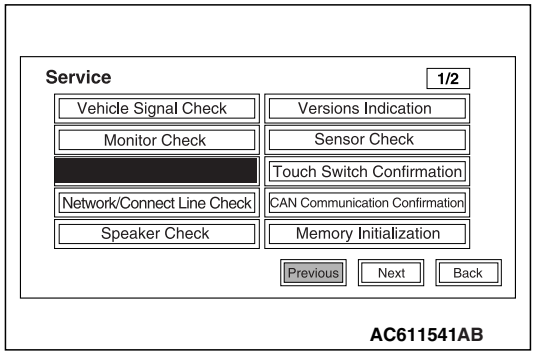


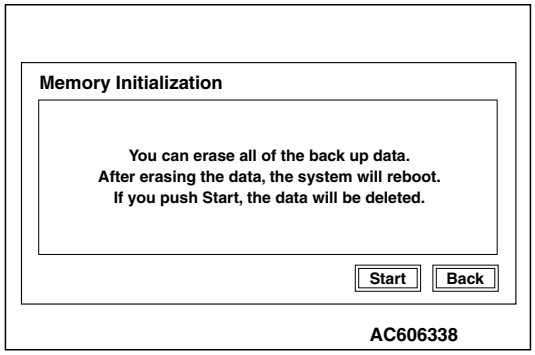
2. If you touch the screen, the color of the dotted coordinate at the touched area will be changed.



MEMORY INITIALIZATION

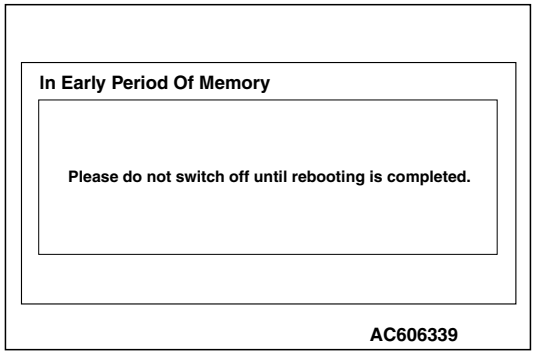
1. Select "Memory Initialization" on "Service" screen.





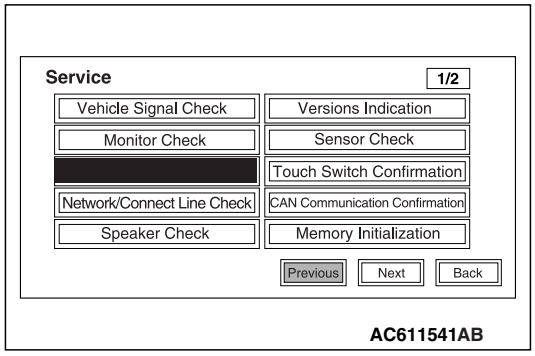
2. If you select "Start" on "Memory Initialization" screen, the settings such as registered locations and music server will be erased (initialized) from the memory.

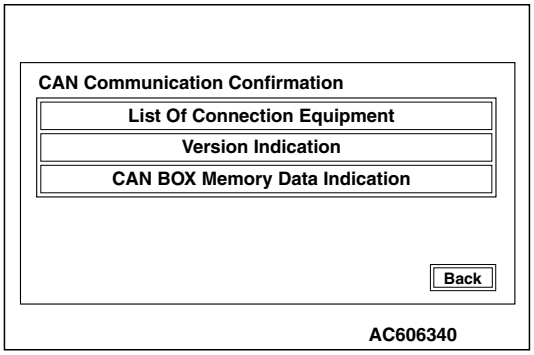
   NOTE: If the ignition switch is turned to "LOCK" (OFF) position during the initialization, the initialization will be suspended. If the ignition switch is turned to "ACC" or "ON" position, the initialization will be resumed.
3. After the memory initialization is complete, the navigation system will restart automatically.



CAN COMMUNICATION CONFIRMATION

1. Select "CAN Communication Confirmation" on "Service" screen.

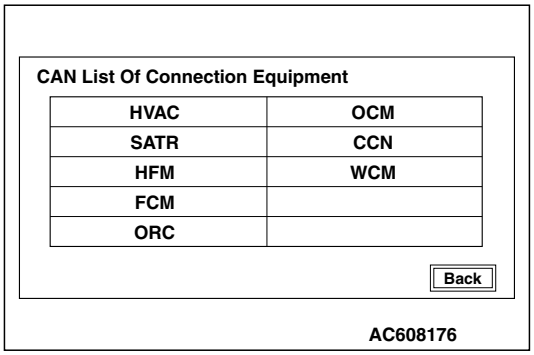




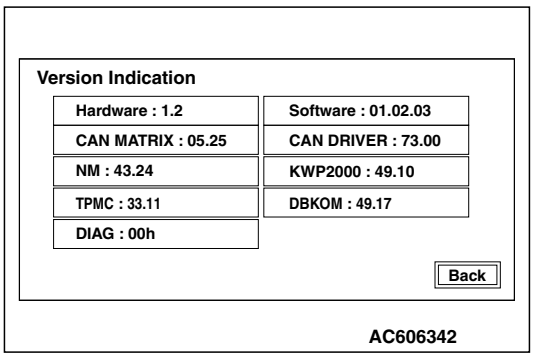
2. If "List Of Connection Equipment" is selected on "CAN Communication Confirmation" screen, the system will determine which equipment is installed according to the connected equipment reference table. Then the equipment which are connected to the CAN box unit will be displayed.

CAN BOX UNIT-CONNECTED EQUIPMENT REFERENCE TABLE

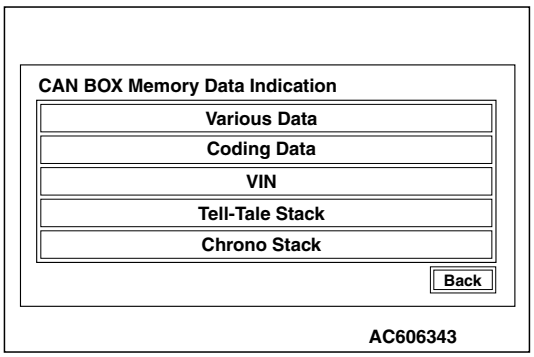
Screen indication	Equipment
HVAC	A/C-ECU
SATR	Satellite radio tuner
HFM	Hands free module
FCM	ETACS-ECU
ORC	SRS-ECU
OCM	Occupant classification-ECU
CCN	Combination meter
WCM	Wireless control module or KOS-ECU



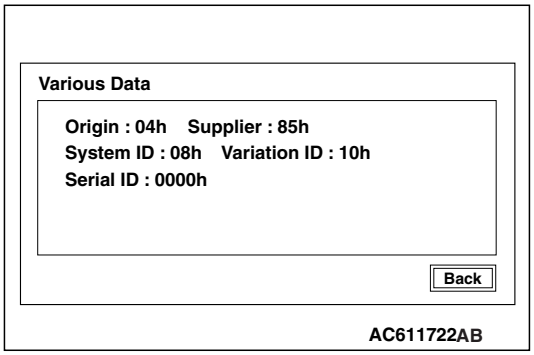
3. If "Version Indication" is selected on "CAN Communication Confirmation" screen, the version for each item is displayed.

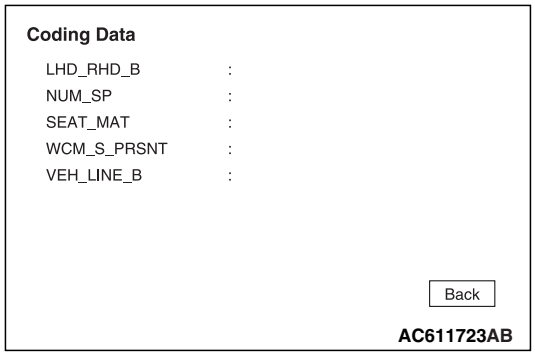


4. If "CAN BOX Memory Data Indication" is selected on "CAN Communication Confirmation" screen, "CAN BOX Memory Data Indication" will be displayed.
5. If any item is selected on "CAN BOX Memory Data Indication" screen, its relevant information is displayed.

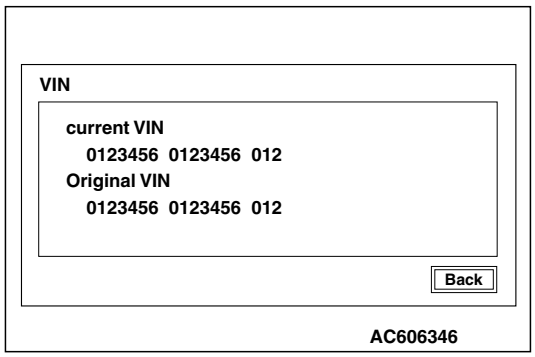


- Various Data

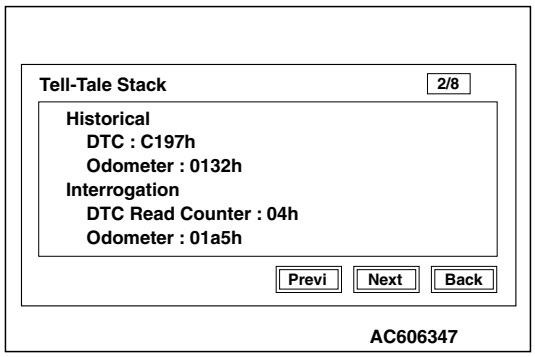




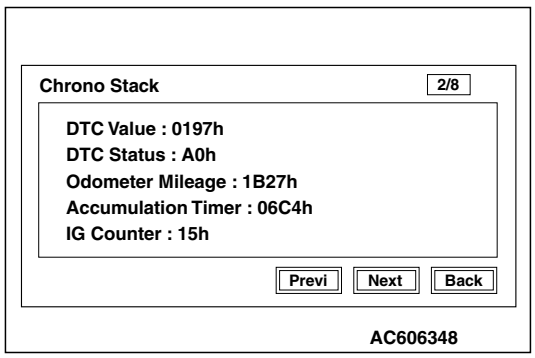
- Coding Data



- VIN



- Tell-Tale Stack



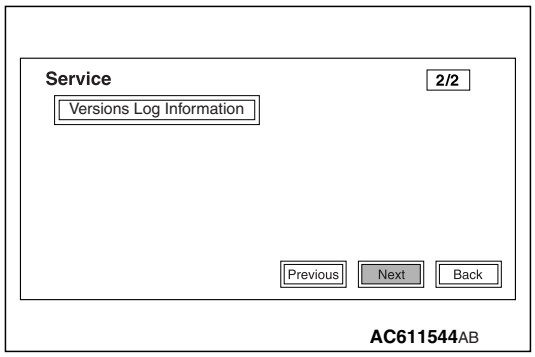
- Chrono Stack

VERSIONS LOG INFORMATION

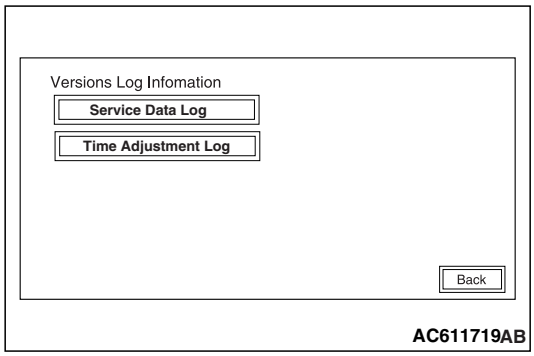
Displays logs for drive and HDD.

Service Data Log

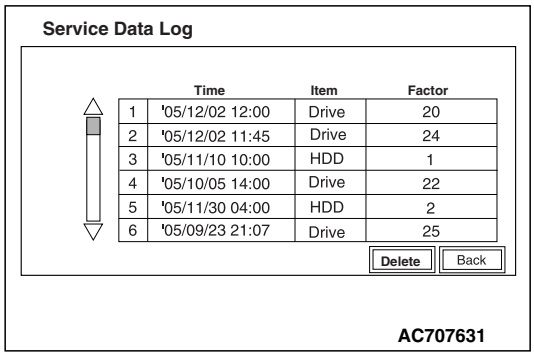
1. Select "Versions Log Information" on "Service" screen.



2. Select "Service Data Log" on the "Versions Log Information" screen.



3. The logs are displayed from the latest one.
4. The log data is erased by pressing "Delete."



EACH LOG INFORMATION: FACTOR CODE TABLE

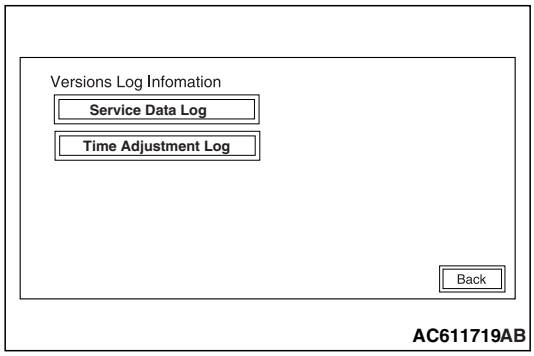
Item	Factor number	Produced log
Drive	20	Log concerning focus
	21	Log concerning disk type
	22	Log concerning disk
	25	Log concerning SEEK
	26	Log concerning servo start-up
	27	Log concerning power-On
	28	Log concerning loading / eject operation
	29	Log concerning pick-up operation
	30	Log concerning state of mechanism
	52	Log concerning TOC reading

Item	Factor number	Produced log
HDD	1	Log concerning high temperature
	2	Log concerning low temperature
Monitor	1	Log concerning high temperature
AMP	0	Log concerning connection
	15	Log concerning communication
SP*1	1,2,4,8	Log concerning number of speakers unexpected
CAR*2	0 -12, 128 -131, 133,160, 192,255	Log concerning vehicle model unexpected

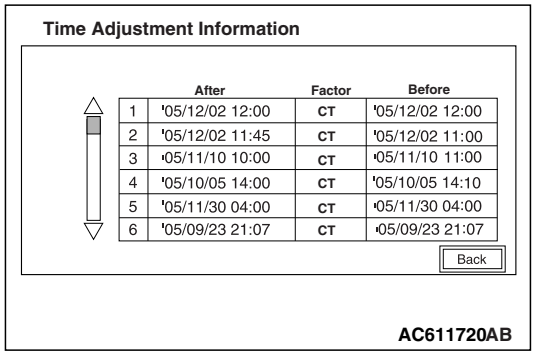
*NOTE: *1: The log is displayed when the number of speakers is unexpected.*

**2: The log is displayed when the vehicle model is unexpected.*

1. Select "Time Adjustment Log" on the "Versions Log Information" screen.



2. The time adjustment logs are displayed.
   As for Factor, the following two types are displayed.
   CT: Automatic adjustment
   MAN: Manual adjustment



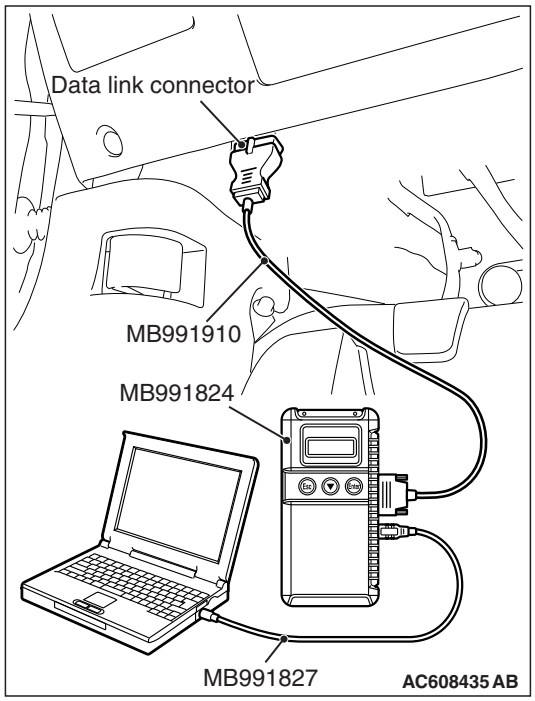
DIAGNOSIS FUNCTION

M1546001600468

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

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

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

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

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

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

CHECK OF FREEZE FRAME DATA

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

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

Display item list

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

DIAGNOSTIC TROUBLE CODE CHART

M1546001700346

⚠ CAUTION
On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Diagnostic trouble code number	Diagnostic item	Reference page
B2226	AND [Audio visual Navigation (HDD) unit] error	P.54A-436
B2240	Communication error with CAN Box	P.54A-438
B2477	VIN not programmed	P.54A-441
U0019	Bus off (CAN-B)	P.54A-442
U0141	ETACS CAN timeout	P.54A-444
U0151	SRS-ECU CAN timeout	P.54A-446
U0154	OCM (occupant classification-ECU) CAN timeout	P.54A-448
U0155	Meter CAN timeout	P.54A-450
U0164	A/C CAN timeout	P.54A-452
U0168	WCM/KOS CAN timeout	P.54A-454
U0195	Satellite radio CAN timeout	P.54A-456
U0197	Hands free module CAN timeout	P.54A-458
U1415	Coding not completed/Data fail	P.54A-460
U1417	Implausible coding data	P.54A-461

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2226: AND [Audio visual Navigation (HDD) unit] error

⚠ CAUTION
- **If DTC B2226 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit or multivision display, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

TROUBLE JUDGMENT

When the CAN box unit receives the signal to indicate an abnormality (service data) occurred in the multivision display, the CAN box unit sets DTC B2226.

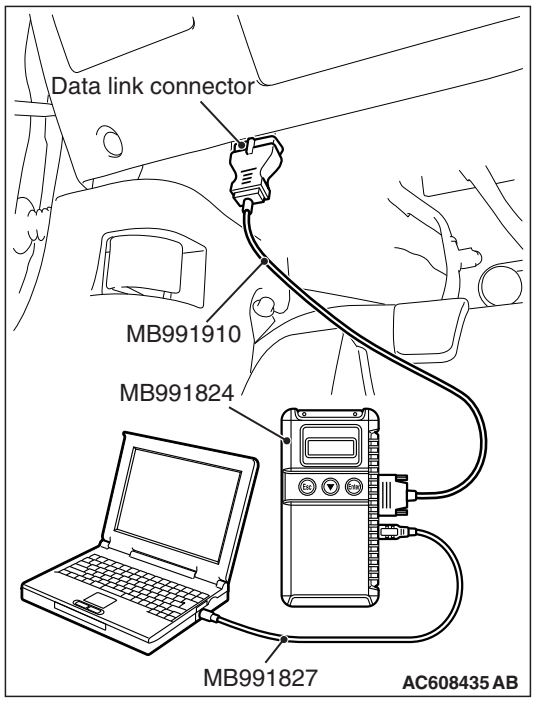
TROUBLESHOOTING HINT

- The CAN box unit may be defective
- The multivision display may be defective

DIAGNOSIS

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

TSB Revision



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).

STEP 2.Check that the of the MMCS service mode.

Check that the FACTOR CODE is set to the service data log in the MMCS service mode "Versions Log Information." (Refer to P.54A-421.)

Q: Is the FACTOR CODE set?

YES : Carry out the diagnosis for the corresponding code.(Refer to Trouble symptom chart P.54A-463)
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Go to Step 4.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

TSB Revision

STEP 4. Recheck for diagnostic trouble code.
Temporarily replace the multivision display, and check if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

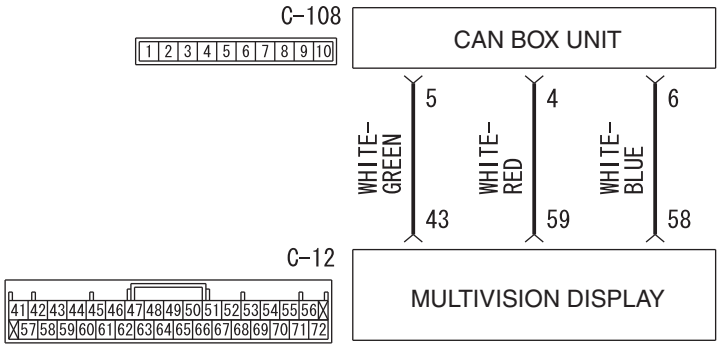
YES : Replace the CAN box unit.
NO : Replace the multivision display.

DTC B2240: Communication error with CAN Box

⚠ CAUTION

- **If DTC B2240 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit or multivision display, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

CAN Box Unit Communication Circuit



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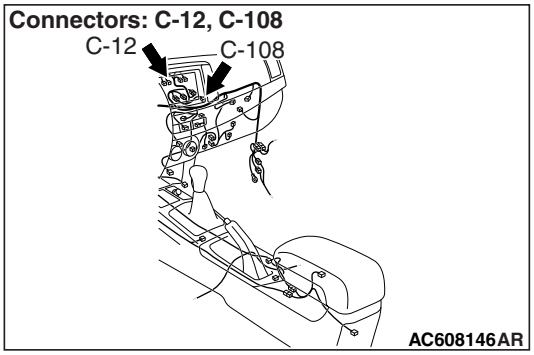


TECHNICAL DESCRIPTION (COMMENT)

When the abnormality occurs in the transmission/reception data between the CAN box unit and multivision display, the CAN box unit sets DTC B2240.

TROUBLESHOOTING HINTS

- multivision display malfunction
- CAN box unit malfunction
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

TSB Revision

DIAGNOSIS

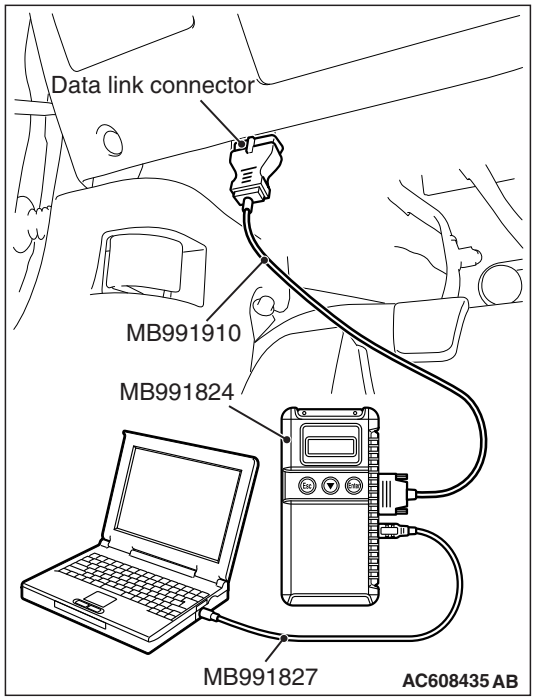
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).

STEP 2. Perform "Network/Connect Line Check" of the MMCS service mode.

Perform "Network/Connect Line Check" of the MMCS service mode, and check that the communication between the CAN box unit and the multivision display is normal. (Refer to P.54A-421.)

OK: "CAN BOX OK" is displayed.

NOTE: When the communication between the multivision display and the CAN box unit is not possible, "CAN BOX" is not displayed.

Q: Is "CAN BOX OK" displayed?

YES : Go to Step 5.
NO : Go to Step 3.

TSB Revision

STEP 3. Check CAN box unit connector C-108 and multivision display connector C-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are CAN box unit connector C-108 and multivision display connector C-12 in good condition?

YES : Go to Step 4.

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

STEP 4. Check the wiring harness between CAN box unit connector C-108 (terminal 5, 4, 6) and multivision display connector C-12 (terminal 43, 59, 58).

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

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 5, 4, 6) and multivision display connector C-12 (terminal 43, 59, 58) 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. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Go to Step 6.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

STEP 6. Recheck for diagnostic trouble code.

Temporarily replace the multivision display, and check if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : Replace the multivision display.

TSB Revision

DTC B2477: VIN not programmed

⚠ CAUTION
- **If DTC B2477 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

TROUBLE JUDGMENT

With the ignition switch at the ON position, if the VIN code is not written to the CAN box unit, DTC B2477 is stored.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The ETACS-ECU may be defective.
- The CAN box unit may be defective.

DIAGNOSIS

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

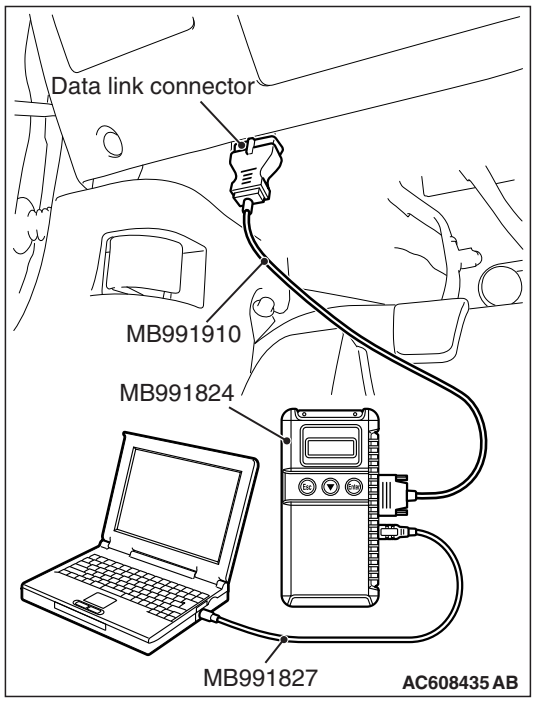
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).



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

Check if the diagnosis code relating to the coding error is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-674), and then go to Step 3.

NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0019: Bus off (CAN-B)

⚠ CAUTION

- **If DTC U0019 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

If the CAN-B circuit malfunction occurs, the CAN box unit sets DTC U0019.

JUDGMENT CRITERIA

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

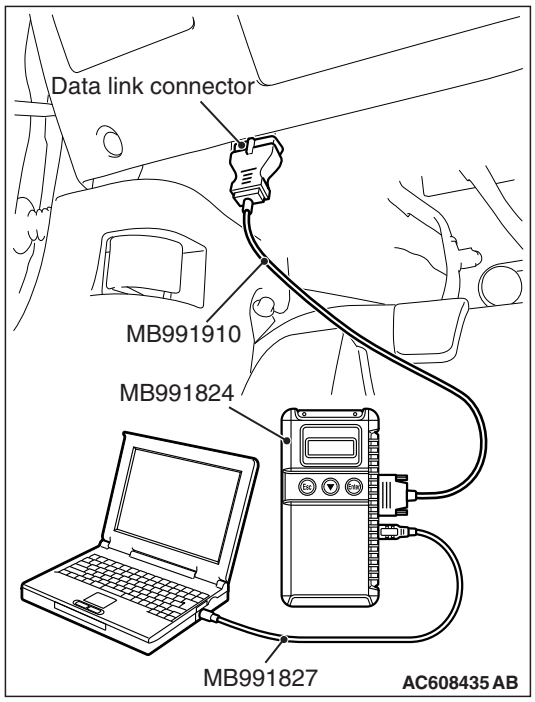
TROUBLESHOOTING HINTS

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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).

STEP 2. Check whether the scan tool MB991958 can communicate with the CAN box unit.

Q: Is the check result normal?

YES : Erase the diagnosis code. The procedure is complete.
NO : Check the power supply circuit of the CAN box unit, and repair if necessary.

DTC U0141: ETACS CAN timeout

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

⚠ CAUTION
When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)

DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the CAN box unit sets the DTC U0141.

JUDGMENT CRITERIA

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

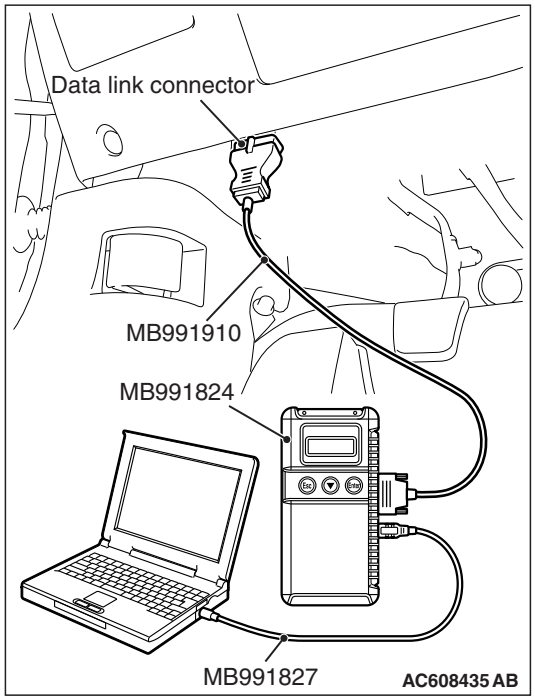
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The CAN box unit may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).

STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-674).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C diagnostic trouble code.
Check if DTC U0141 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION

- **If DTC U0151 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

If the signal from SRS-ECU cannot be received, the CAN box unit sets DTC U0151.

JUDGMENT CRITERIA

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

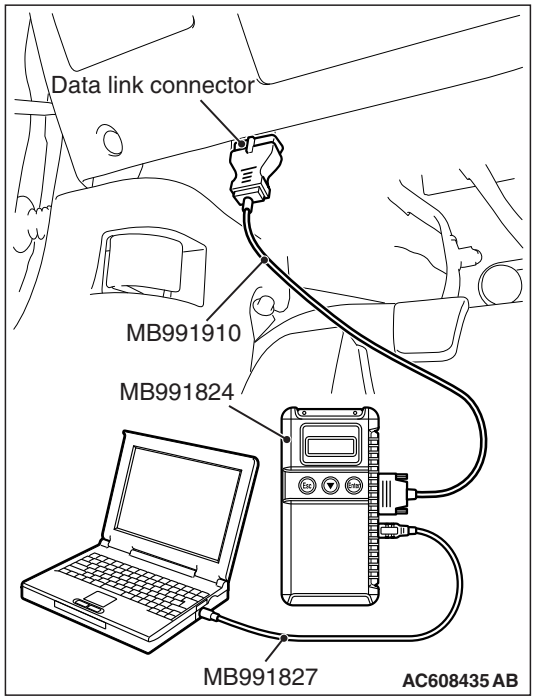
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The SRS-ECU may be defective
- The CAN box unit may be defective

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-32).

NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0151 is set to the A/C-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the SRS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

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

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

⚠ CAUTION
When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)

DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the CAN box unit sets DTC U0154.

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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

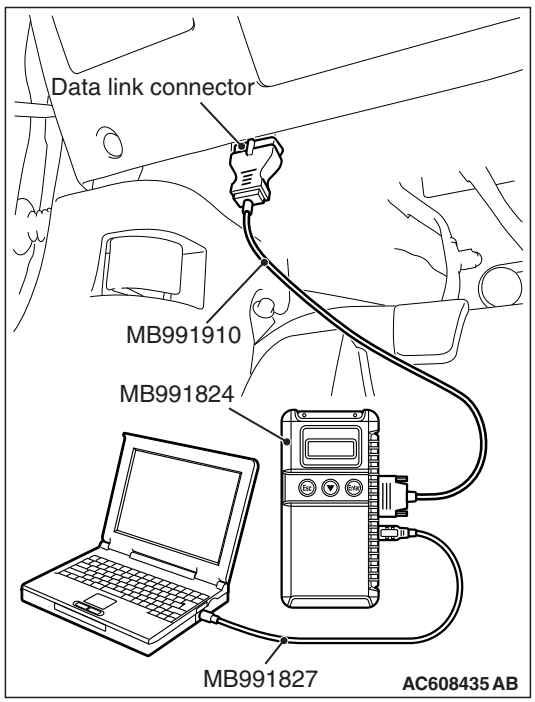
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).



STEP 2. Using scan tool MB991958, read the occupant classification-ECU diagnostic trouble code.
Check if DTC is set to the occupant classification-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-315).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if the DTC U0154 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0155: Meter CAN timeout

⚠ CAUTION

- **If DTC U0155 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

When the signals from combination meter cannot be received, the CAN box unit sets DTC U0155.

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The combination meter may be defective.

DIAGNOSIS

Required Special Tools:

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

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

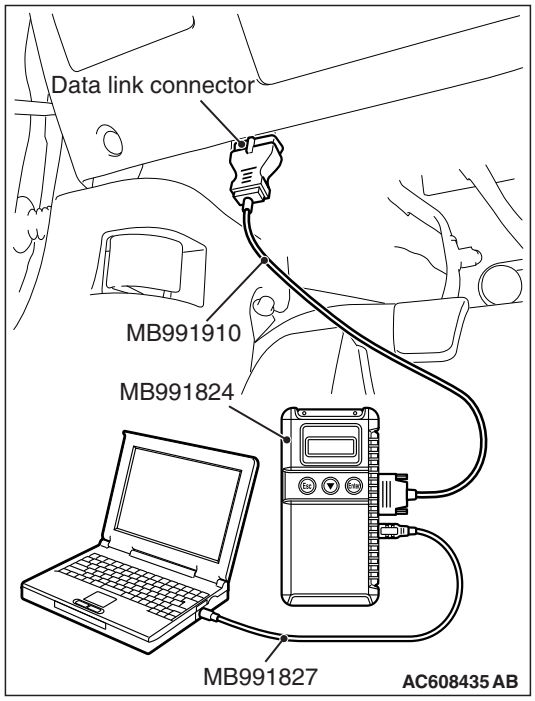
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).



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

Check whether a combination meter DTCs are set or not.

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

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-33).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0164: A/C CAN timeout

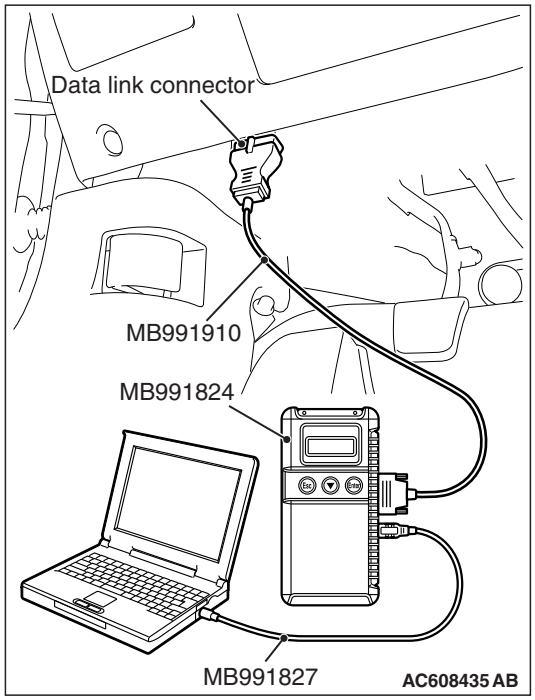
⚠ CAUTION
- **If DTC U0164 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION
If the signal from A/C-ECU cannot be received, the CAN box unit sets DTC U0164.

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

TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The CAN box unit may be defective.

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-436."
(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-16).

STEP 2. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if DTC is set to the A/C-ECU.

Q: Is the DTC set?

YES : Troubleshoot the A/C-ECU (Refer to GROUP 55, Manual A/C Diagnosis P.55-9).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS diagnostic trouble code.
Check if the DTC U0164 is set to the ETACS-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: WCM/KOS CAN timeout

⚠ CAUTION

- **If DTC U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

If the signal from KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be received, the CAN box unit sets DTC U0168.

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

- Malfunction of CAN bus line may be defective.
- Malfunction of the KOS-ECU may be defective. <vehicles with KOS>
- Malfunction of the WCM may be defective. <vehicles with WCM>
- Malfunction of CAN box unit may be defective.

DIAGNOSIS

Required Special Tools:

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

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

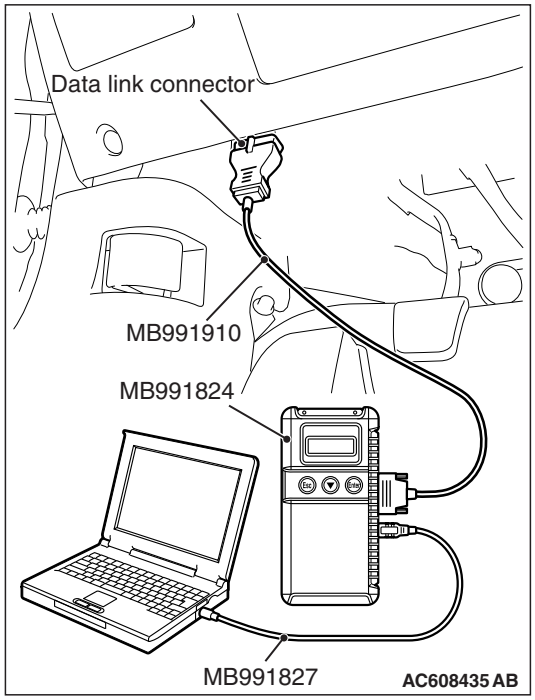
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-30."
(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-16).



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

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

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-31 <KOS> or GROUP 42C, Diagnosis P.42C-18 <WCM>).

NO : Go to Step 3.

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

Check if the DTC U0168 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0195: Satellite radio CAN timeout

⚠ CAUTION
If DTC U0195 is set in the CAN box unit, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the CAN box unit is replaced, ensure that the communication circuit is normal. (Check that the voltage is 10 V or more.)

DIAGNOSTIC FUNCTION

When the signals from satellite radio tuner cannot be received, the CAN box unit sets DTC U0195.

JUDGMENT CRITERIA

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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

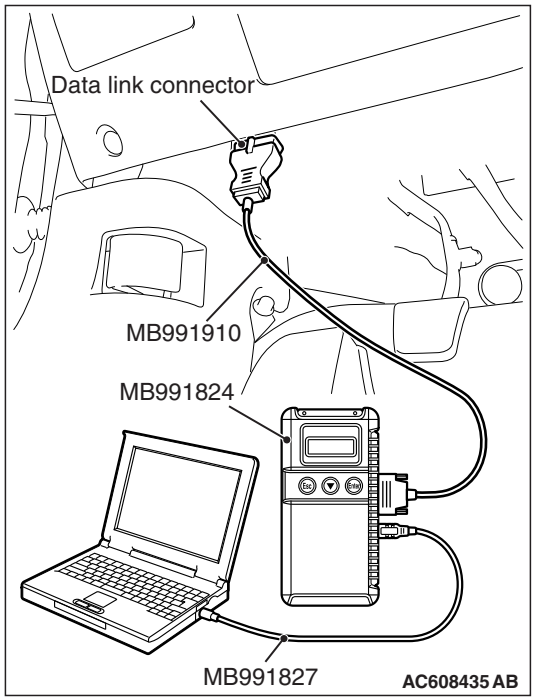
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).



STEP 2. Using scan tool MB991958 read the satellite radio tuner diagnostic trouble code.

Check whether a satellite radio tuner DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for satellite radio tuner DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the satellite radio tuner. (Refer to P.54A-343.)
NO : Go to Step 3.

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

Check if the DTC U0195 is set to the SRS-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0197: Hands free module CAN timeout

⚠ CAUTION

- **If DTC U0197 is set, be sure to diagnose the CAN bus line.**
- **When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)**

DIAGNOSTIC FUNCTION

When the signals from hands free module cannot be received, the CAN box unit sets DTC U0197.

JUDGMENT CRITERIA

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

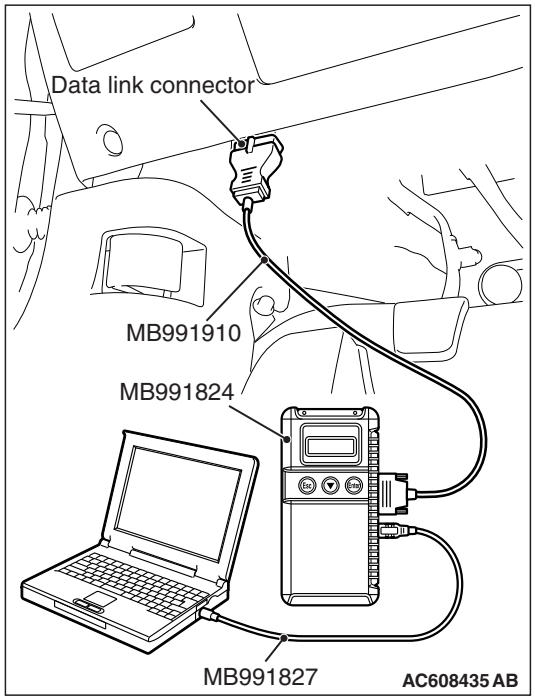
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The hands free module may be defective.

DIAGNOSIS

Required Special Tools:

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



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).

STEP 2. Using scan tool MB991958, read the hands free module diagnostic trouble code.
Check again if the DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands free cellular phone system. (Refer to P.54A-555.)
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the DTC U0197 is set to the ETACS-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the CAN box unit (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U1415: Coding not completed/Data fail

⚠ CAUTION
If DTC U1415 is set, diagnose the CAN bus lines.

⚠ CAUTION
When replacing the CAN box unit, always check that the communication circuit is normal. (Check that the voltage is 10 V or more.)

DIAGNOSTIC FUNCTION

If the vehicle information data is not registered to the CAN box unit, the CAN box unit sets DTC U1415.

JUDGMENT CRITERIA

With the global coding counter value "0," if all the global coding data (vehicle information) are not stored, the CAN box unit determines that a problem has occurred.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The CAN box unit may be defective.
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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

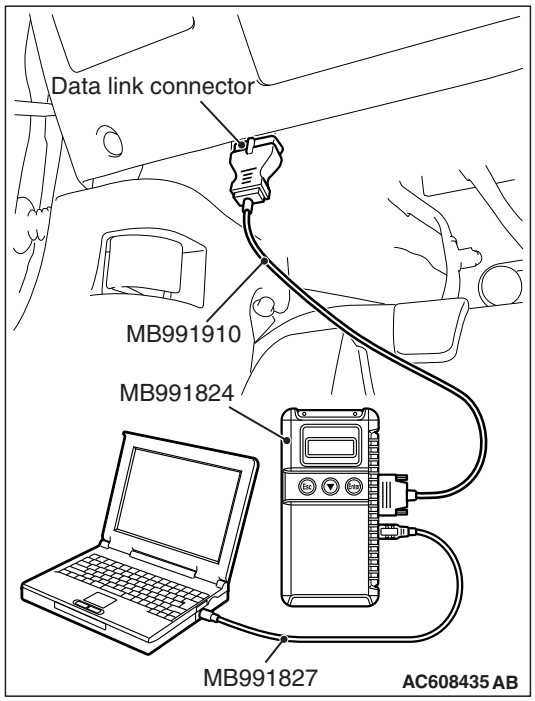
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).



STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the diagnosis code relating to the coding error is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-674), and then go to Step 3.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC No.U1417 Implausible coding data

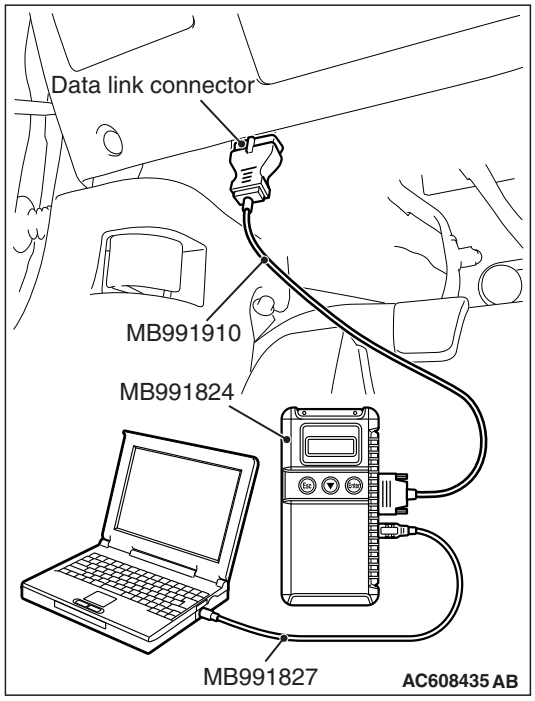
⚠ CAUTION
- **If diagnostic trouble code U1417 is set in CAN box unit, always diagnose the CAN bus lines. If there is any fault in the CAN bus lines, an incorrect diagnostic trouble code may be set. In this case, the set diagnostic trouble code is not highly reliable.**
- **Before replacing the CAN box unit, ensure that the communication circuit is normal. (Check that the voltage is 10 V or more.)**
- **When the diagnostic trouble code U1417 is set in CAN box unit, the diagnostic trouble code may also be set in ETACS-ECU. When the diagnostic trouble code is set in ETACS-ECU, carry out the diagnosis of the diagnostic trouble code for ETACS-ECU first.**

CIRCUIT OPERATION
CAN box unit receives the vehicle information stored in the ETACS-ECU via CAN bus lines.

TECHNICAL DESCRIPTION (COMMENT)
CAN box unit communicates with ETACS-ECU via CAN bus lines. This diagnostic trouble code is set when the vehicle information received from the ETACS-ECU is invalid.

TROUBLESHOOTING HINTS
- Malfunction of ETACS-ECU
- Engine control module malfunction
- ETACS-ECUs have been interchanged between two vehicles.
- CAN box unit malfunction
- External noise interference

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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(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-16).

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

Check if the diagnostic trouble code relating to the coding error is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-674), and then go to Step 3.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the CAN box unit.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

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TROUBLE SYMPTOM CHART

M1546001801034

Inspection procedure No.	Trouble symptom		Reference page
1	No navigation screen is displayed.		P.54A-464
2	No sound is heard.	<Vehicles without audio amplifier>	P.54A-471
		<Vehicles with audio amplifier>	P.54A-475
3	No sound is heard from one of the speakers.	<vehicles without audio amplifier>	P.54A-483
		<vehicles with audio amplifier>	P.54A-490
4	The navigation system can be operated while the vehicle is driven.		P.54A-499
5	The screen is not normal in the navigation mode. (The own vehicle mark is dislocated)		P.54A-502
6	The AM/FM radio broadcasting cannot be received.		P.54A-505
7	GPS signal can not be received.		P.54A-507
8	CD/DVD cannot be played.		P.54A-508
9	Image of a DVD is played, but no sound is played.		P.54A-509
10	Sound of a DVD can be played, but no image is played.		P.54A-510
11	The picture and sound of external input are not played.		P.54A-512
12	Check the CAN box unit power supply circuit.		P.54A-515

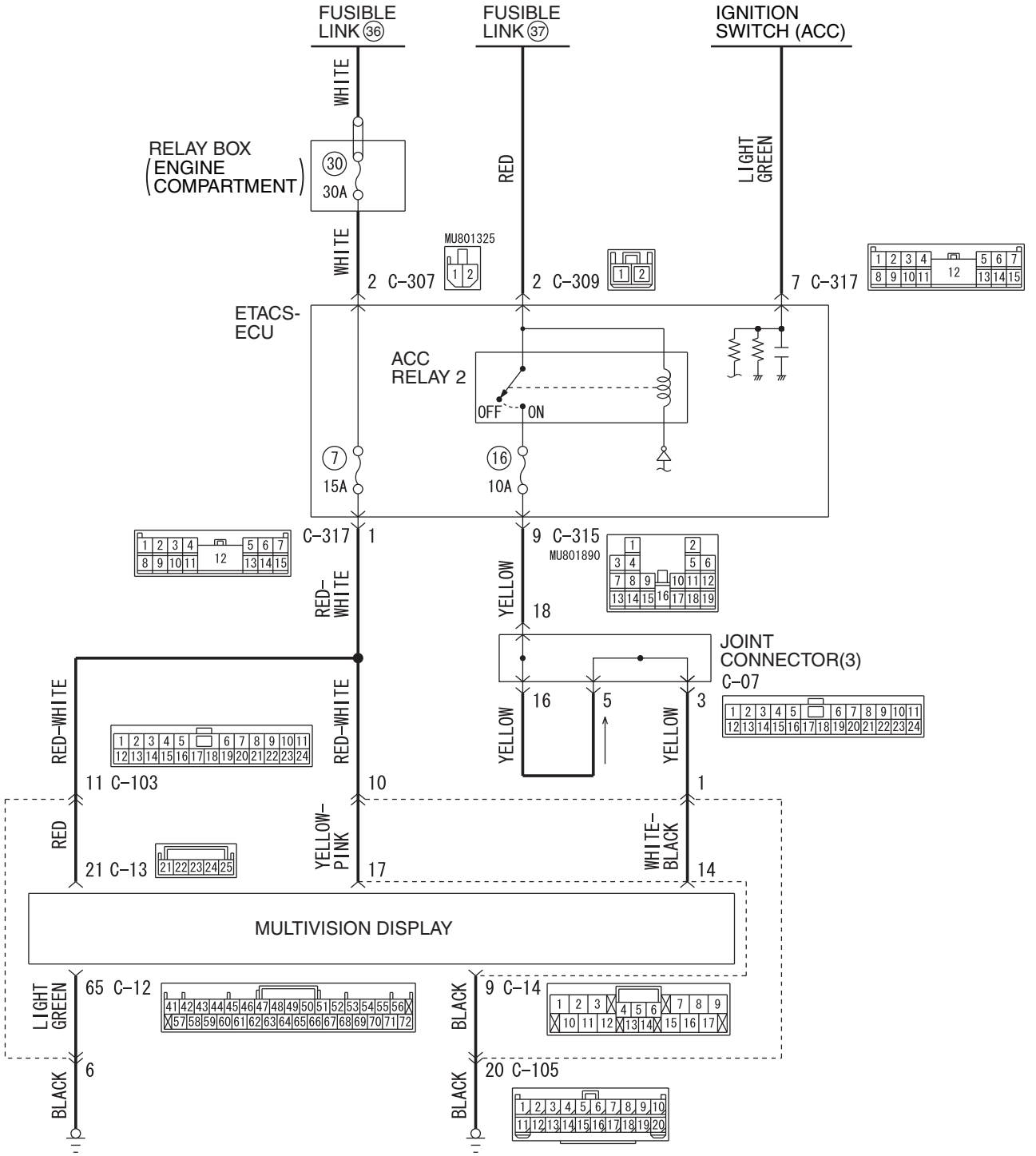
SYMPTOM PROCEDURES

Inspection Procedure 1: No navigation screen is displayed.

⚠ CAUTION

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

Multivision Display Power Supply Circuit



W9S54M001A

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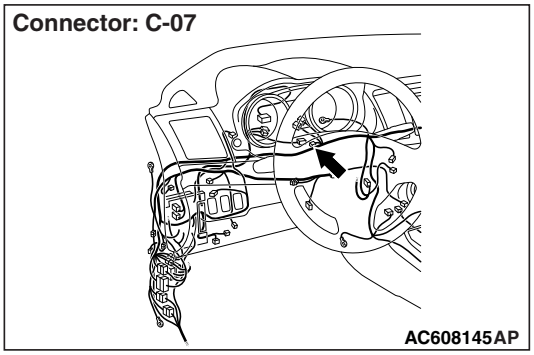
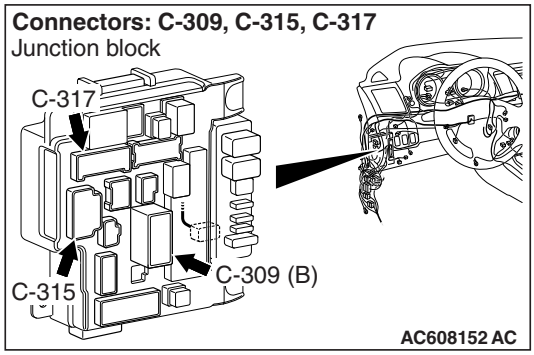
Connector: C-07



AC608145AP

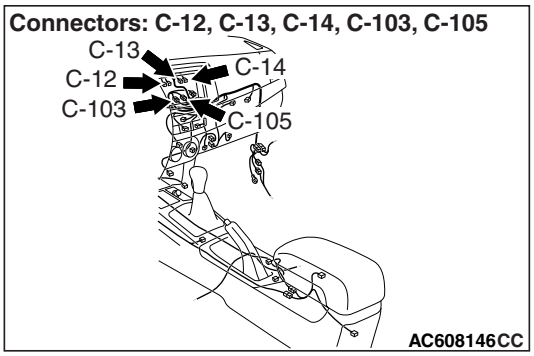
Connectors: C-309, C-315, C-317

Junction block



AC608152 AC

Connectors: C-12, C-13, C-14, C-103, C-105



AC608146CC

⚠ CAUTION

When the ignition switch is turned to the ACC position for 30 minutes with the ETACS-ECU function, the ACC power is cut-off automatically. For this function, the time to cut-off can be changed with ETACS system by the scan tool MB991958 or the MMCS operation. (Refer to P.54A-764 <ETACS> or P.54A-764 <MMCS>)

TECHNICAL DESCRIPTION (COMMENT)

When the ignition switch is turned to the ACC or ON position, if the screen is not displayed at all, the power supply circuit or multivision display may have a problem.

TROUBLESHOOTING HINTS

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

STEP 1. Check multivision display connector C-12, C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multivision display connector C-12, C-14 in good condition?

YES : Go to Step 2.

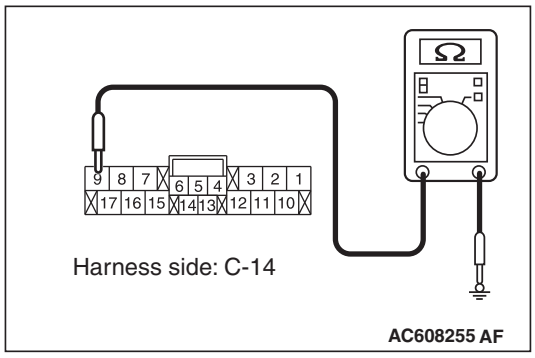
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 2. Check the ground circuit to the multivision display connector. Measure the resistance at multivision display connector C-12, C-14.

(1) Disconnect multivision display connector C-12, C-14, and measure the resistance available at the wiring harness side of the connector.

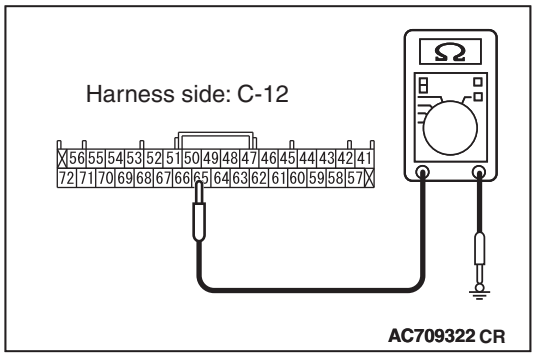
(2) Measure the resistance between multivision display connector C-14 terminal 9 and ground.

OK: The resistance should be 2 ohms or less



(3) Measure the resistance between multivision display connector C-12 terminal 65 and ground.

OK: The resistance should be 2 ohms or less



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between multivision display connector C-14 (terminal 9), C-12 (terminal 65) and ground.

- Check the ground wire for open circuit.

NOTE: Also check intermediate connectors C-105 and C-103 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-105 and C-103 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multivision display connector C-14 (terminal 9), C-12 (terminal 65) 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.00-13).

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

STEP 4. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 5.

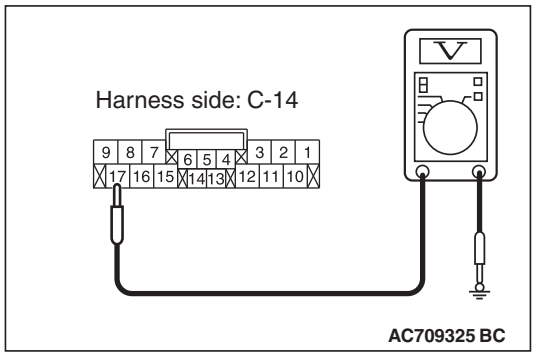
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 5. Check the power supply circuit to the multivision display. Measure the voltage at multivision display connector C-14.

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

(2) Measure the voltage between multivision display connector C-14 terminal 17 and ground.

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and multivision display connector C-14 (terminal 17).

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

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and multivision display connector C-14 (terminal 17) in good condition?

YES : Go to Step 7.

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

STEP 7. Check multivision display connector C-13 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multivision display connector C-13 in good condition?

YES : Go to Step 8.

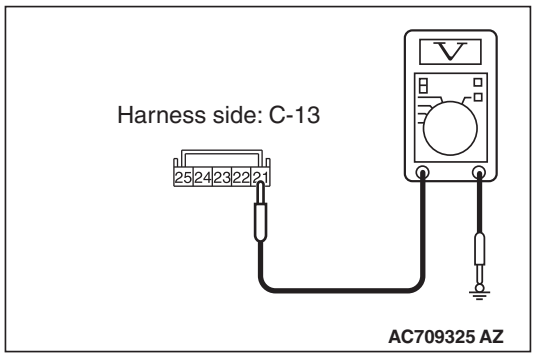
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 8. Check the power supply circuit to the multivision display. Measure the voltage at multivision display connector C-13.

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

(2) Measure the voltage between multivision display connector C-13 terminal 21 and ground.

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

YES : Go to Step 10.

NO : Go to Step 9.

STEP 9. Check the wiring harness between ETACS-ECU connector C-317 (terminal 1) and multivision display connector C-13 (terminal 21).

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

NOTE: Also check intermediate connector C-103 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-103 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 1) and multivision display connector C-13 (terminal 21) in good condition?

YES : Go to Step 10.

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

STEP 10. Using scan tool MB991958, check data list.

Check the input signal of ACC relay.

- Turn the ignition switch to the ACC position.

Item No.	Item name	Normal conditions
Item 288	ACC switch	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 11.

NO : Refer to GROUP 54A, ETACS, Diagnosis –Inspection Procedure 1 "The ignition switch (ACC) signal is not received P.54A-731."

STEP 11. Check ETACS-ECU connector C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-309 in good condition?

YES : Go to Step 12.

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

STEP 12. Check the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-309.

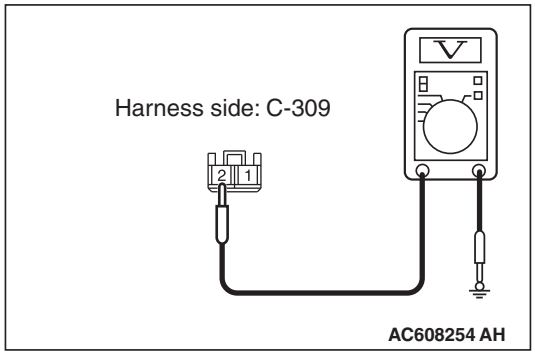
(1) Disconnect the connector, and measure at the wiring harness-side connector.
(2) Turn the ignition switch to the "ACC" position.
(3) Measure the voltage between terminal 2 and ground.

OK: Battery positive voltage

Q: Is the measured voltage battery positive voltage?

YES : Go to Step 14.

NO : Go to Step 13.



STEP 13. Check the wiring harness between ETACS-ECU connector C-309 (terminal 2) and fusible link (37)

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

Q: Is the wiring harness between ETACS-ECU connector C-309 (terminal 2) and fusible link (37) in good condition?

YES : Go to Step 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 14. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 15.

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

STEP 15. Check the wiring harness between multivision display connector C-14 (terminal 14) and ETACS-ECU connector C-315 (terminal 9).

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

NOTE: Also check joint connector C-07 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-07 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multivision display connector C-14 (terminal 14) and ETACS-ECU connector C-315 (terminal 9) in good condition?

YES : Go to Step 16.

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 16. Retest the system

Check if the multivision display power is turned ON.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the multivision display.

TSB Revision

Inspection Procedure 2: No sound is heard. <Vehicles without audio amplifier>

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

TECHNICAL DESCRIPTION (COMMENT)

If the audio sound is not output, the multivision display, audio amplifier, or power supply circuit of audio amplifier may have a problem, or the option coding information may be inconsistent.

TROUBLESHOOTING HINTS

- The multivision display may be defective
- The audio amplifier may be defective
- Option coding information inconsistency

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. Check the multivision display operation.

Q: Check the sources from which the sound is not output.

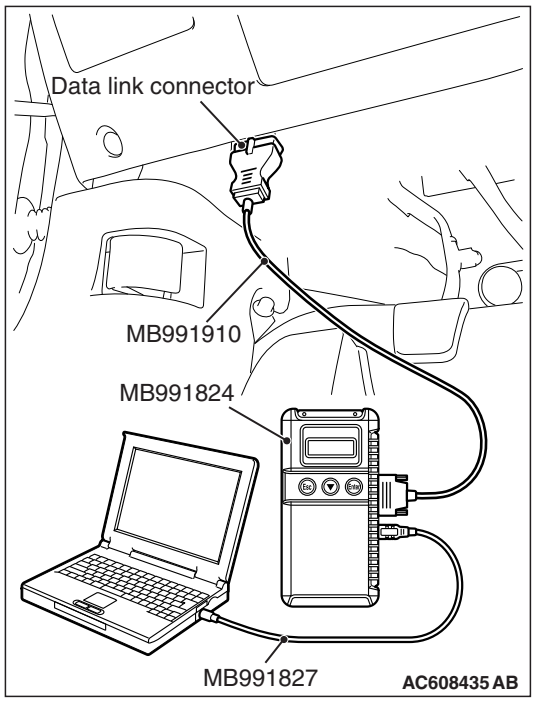
No sound only from radio : Perform Inspection Procedure 6 "The AM/FM Radio Broadcasting cannot be Received." (Refer to P.54A-505.)

No sound only when the CD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played." (Refer to P.54A-508.)

No sound only when the DVD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-508.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-509.)

No sound only when the music server is used : Go to Step 8.

No sound from any of the sources : Go to Step 2.



STEP 2. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-28).
(4) Check that the "Number of speaker" is set to "6 speakers".

Q: Is the check result normal?

YES : Go to Step 3.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "6 speakers" and check the trouble symptom.

STEP 3. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-421)
(2) Check if "6 SPEAKER (2 TWEETER)" is displayed as the number of installed speakers.

Q: Is the check result normal?

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

STEP 4. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-421)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to Step 5.
NO : Go to Step 8.

STEP 5. Using scan tool MB991958, diagnose the CAN bus line.

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

Q: Is the check result normal?

YES : Go to Step 6.
NO : Repair the CAN bus line.

STEP 6. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-436).
NO : Go to Step 7.

STEP 7. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU –Troubleshooting P.54A-674).
NO : Go to Step 8.

STEP 8. Check the service data log for the MMCS service mode.

(1) Display the service data log for the MMCS service mode. (Refer to P.54A-421)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?

YES (The service data log for drive is displayed.) : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-508.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-509.) Go to Step 9.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the multivision display can output the sound at the operable temperature. If it cannot output the sound, go to Step 9.
NO : Go to Step 9.

STEP 9. Perform "Network/Connect Line Check" in the MMCS service mode.

(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-421)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?

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

STEP 10. Retest the system

Check that the audio sound is output.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).
NO : Go to Step 11.

STEP 11. Retest the system

Temporarily replace the multivision display and check if the sound is output.

Q: Is the check result normal?

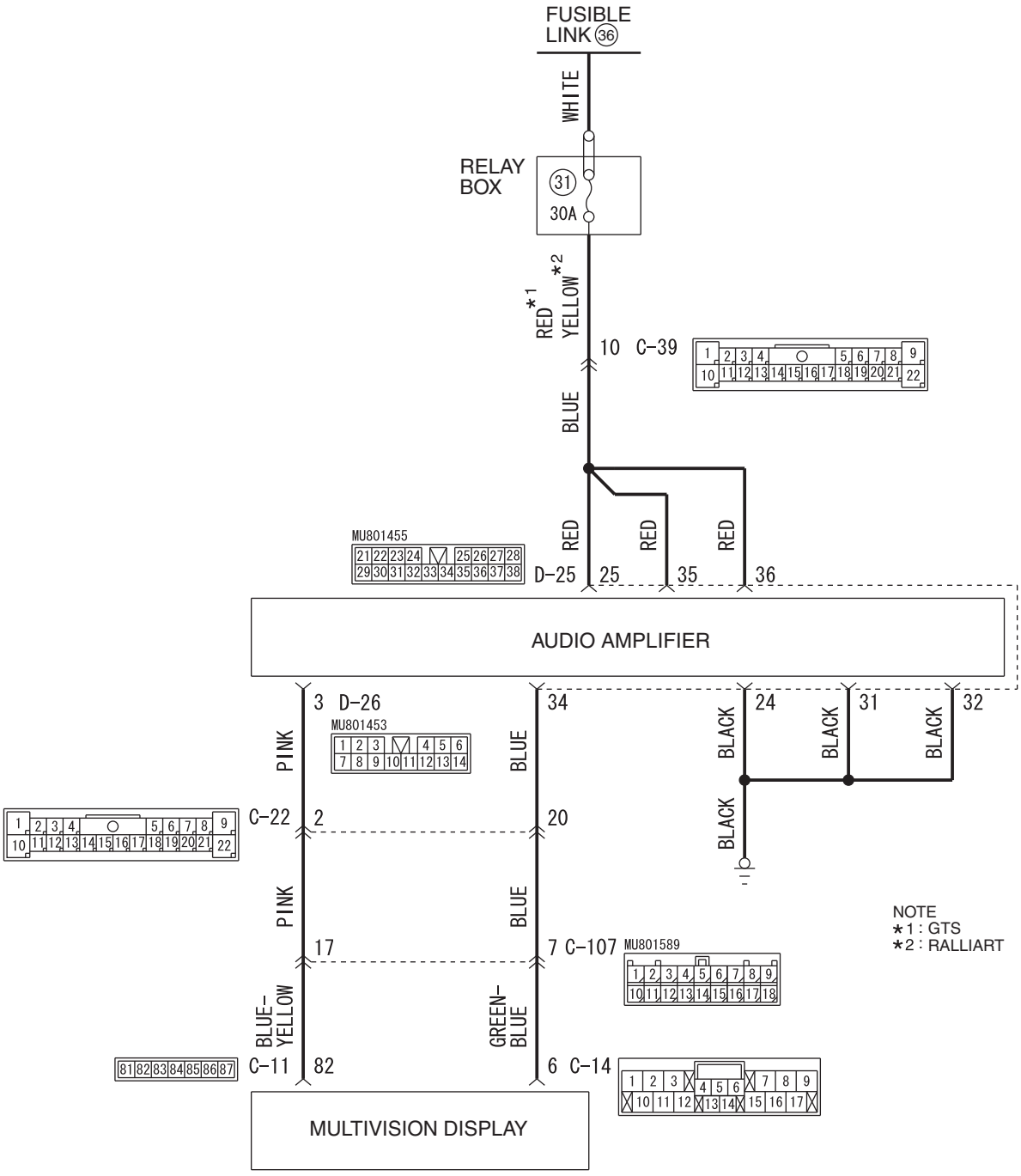
YES : Replace the multivision display.
NO : Perform Inspection Procedure 3 "No sound is heard from one of the speakers. <Vehicles without audio amplifier>" (Refer to P.54A-483.)

Inspection Procedure 2: No sound is heard. <Vehicles with audio amplifier>

⚠ CAUTION

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

Multivision Display System Circuit



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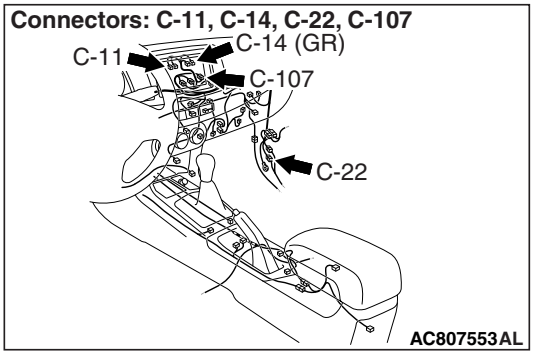
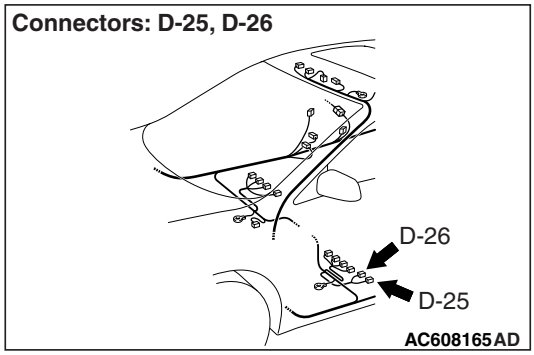
TSB Revision

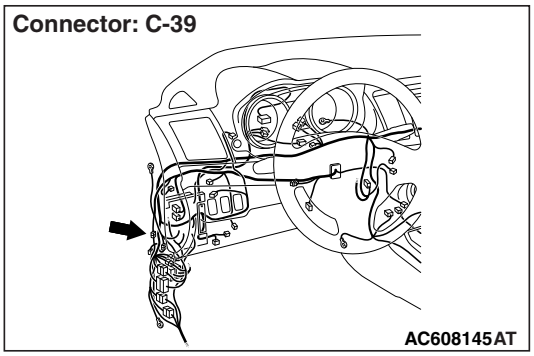
Connectors: C-11, C-14, C-22, C-107



Connectors: D-25, D-26



Connector: C-39



TECHNICAL DESCRIPTION (COMMENT)

If the audio sound is not output, the multivision display, audio amplifier, or power supply circuit of audio amplifier may have a problem, or the option coding information may be inconsistent.

TROUBLESHOOTING HINTS

- Multivision display may be defective
- Audio amplifier may be defective
- Option coding information inconsistency
- 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
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check the multivision display operation.

Q: Check the sources from which the sound is not output.

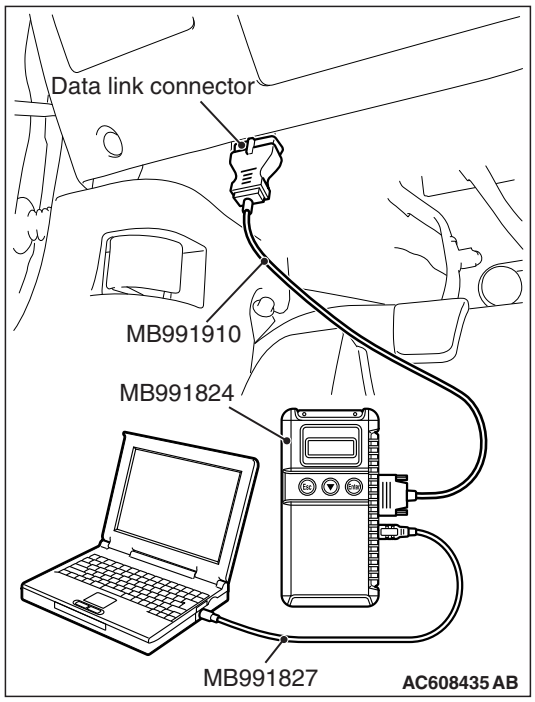
No sound only from radio : Perform Inspection Procedure 6 "The AM/FM Radio Broadcasting cannot be Received." (Refer to P.54A-505.)

No sound only when the CD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played." (Refer to P.54A-508.)

No sound only when the DVD is played : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-508.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-509.)

No sound only when the music server is used : Go to Step 8.

No sound from any of the sources : Go to Step 2.



STEP 2. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-28).
(4) Check that the "Number of speaker" is set to "Premium."

Q: Is the check result normal?

YES : Go to Step 3.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "Premium," and check the trouble symptom.

STEP 3. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-421)
(2) Check if PREMIUM is displayed.

Q: Is the check result normal?

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

STEP 4. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-421)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to Step 5.
NO : Go to Step 8.

STEP 5. Using scan tool MB991958, diagnose the CAN bus line.

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

Q: Is the check result normal?

YES : Go to Step 6.
NO : Repair the CAN bus line.

TSB Revision

STEP 6. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-436).
NO : Go to Step 7.

STEP 7. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU –Troubleshooting P.54A-674).
NO : Go to Step 8.

STEP 8. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-421)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?

YES (The service data log for drive is displayed.) : Perform Inspection Procedure 8 "CD/DVD cannot be Played."(Refer to P.54A-508.) or Inspection Procedure 9 "Image of a DVD is Played, but no Sound is Played." (Refer to P.54A-509.) Go to Step 9.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the multivision display can output the sound at the operable temperature. If it cannot output the sound, go to Step 9.
YES (The service data log for AMP is displayed.) : Go to Step 9.
NO : Go to Step 9.

STEP 9. Perform "Network/Connect Line Check" in the MMCS service mode.
(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-421)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.
(4) Check if "Premium Audio OK" is displayed.

Q: Is the check result normal?

YES : Go to Step 17.
NO : Go to Step 10.

STEP 10. Check audio amplifier connector D-25 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-25 in good condition?

YES : Go to Step 11.

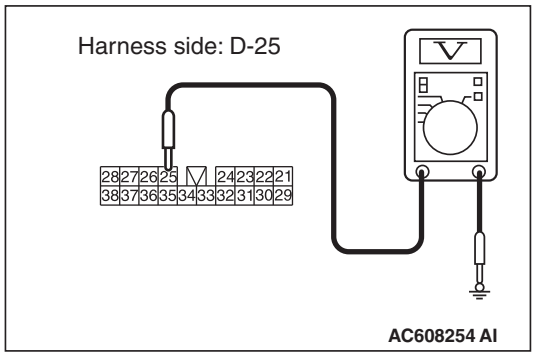
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 11. Check the power supply circuit to the ETACS-ECU. Measure the voltage at audio amplifier connector D-25.

(1) Disconnect audio amplifier connector D-25, and measure the voltage available at the wiring harness-side connector.

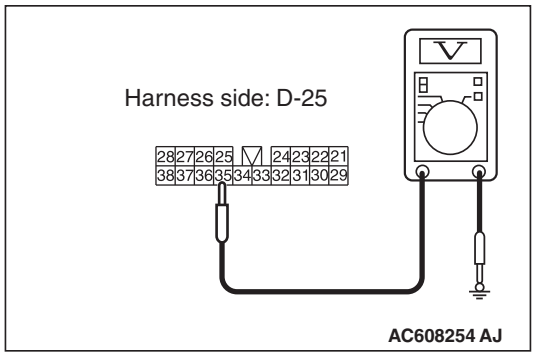
(2) Measure the voltage between terminal 25 and ground.

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



(3) Measure the voltage between terminal 35 and ground.

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



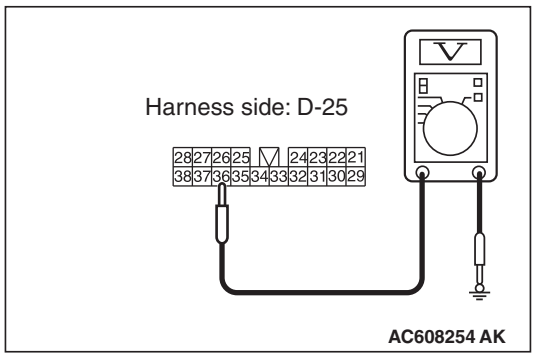
(4) Measure the voltage between terminal 36 and ground.

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 audio amplifier connector D-25 (terminal 25, 35, 36) and fusible link (36).

NOTE: Also check intermediate connector C-39 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-39 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

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

Q: Is the wiring harness between audio amplifier connector D-25 (terminal 25, 35, 36) and fusible link (36) in good condition?

YES : Go to Step 13.

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

STEP 13. Checks multivision display connectors C-11, C-14 and audio amplifier connector D-26 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are multivision display connectors C-11, C-14 and audio amplifier connector D-26 in good condition?

YES : Go to Step 14.

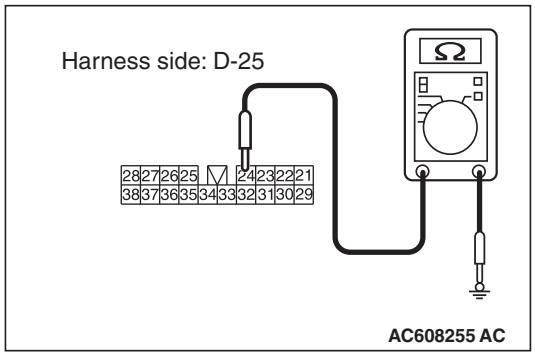
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 14. Check the ground circuit to the rear monitor. Measure the resistance at audio amplifier connector D-25.

(1) Disconnect audio amplifier connector D-25, and measure the resistance available at the wiring harness side of the connector.

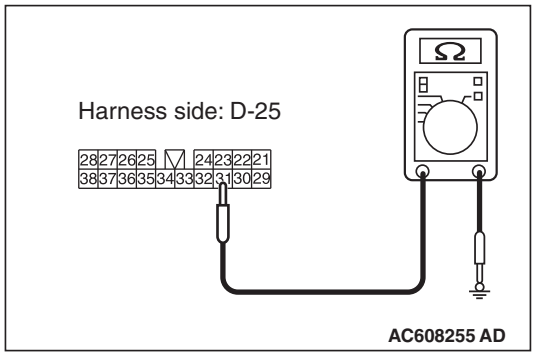
(2) Measure the resistance between terminal 24 and ground.

OK: The resistance should be 2 ohms or less



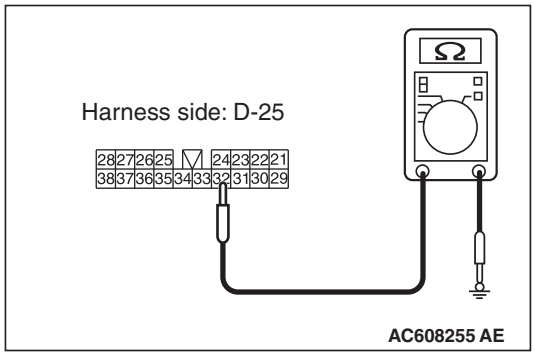
(3) Measure the resistance between terminal 31 and ground.

OK: The resistance should be 2 ohms or less



(4) Measure the resistance between terminal 32 and ground.

OK: The resistance should be 2 ohms or less



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 16.
NO : Go to Step 15.

STEP 15. Check the wiring harness between audio amplifier connector D-25 (terminal 24, 31, 32) and ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between audio amplifier connector D-25 (terminal 24, 31, 32) 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.00-13).
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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STEP 16. Check the wiring harness between multivision display connector C-11 (terminal 82) and audio amplifier connector D-26 (terminal 3) or wiring harness between multivision display connector C-14 (terminal 6) and audio amplifier connector D-26 (terminal 34)

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

NOTE: Also check intermediate connectors C-22 and C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 and C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multivision display connector C-11 (terminal 82) and audio amplifier connector D-26 (terminal 3) or wiring harness between multivision display connector C-14 (terminal 6) and audio amplifier connector D-26 (terminal 34) in good condition?

YES : Go to Step 17.
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 17. Retest the system

Replace the audio amplifier, then check that the audio sound is output.

Q: Is the check result normal?

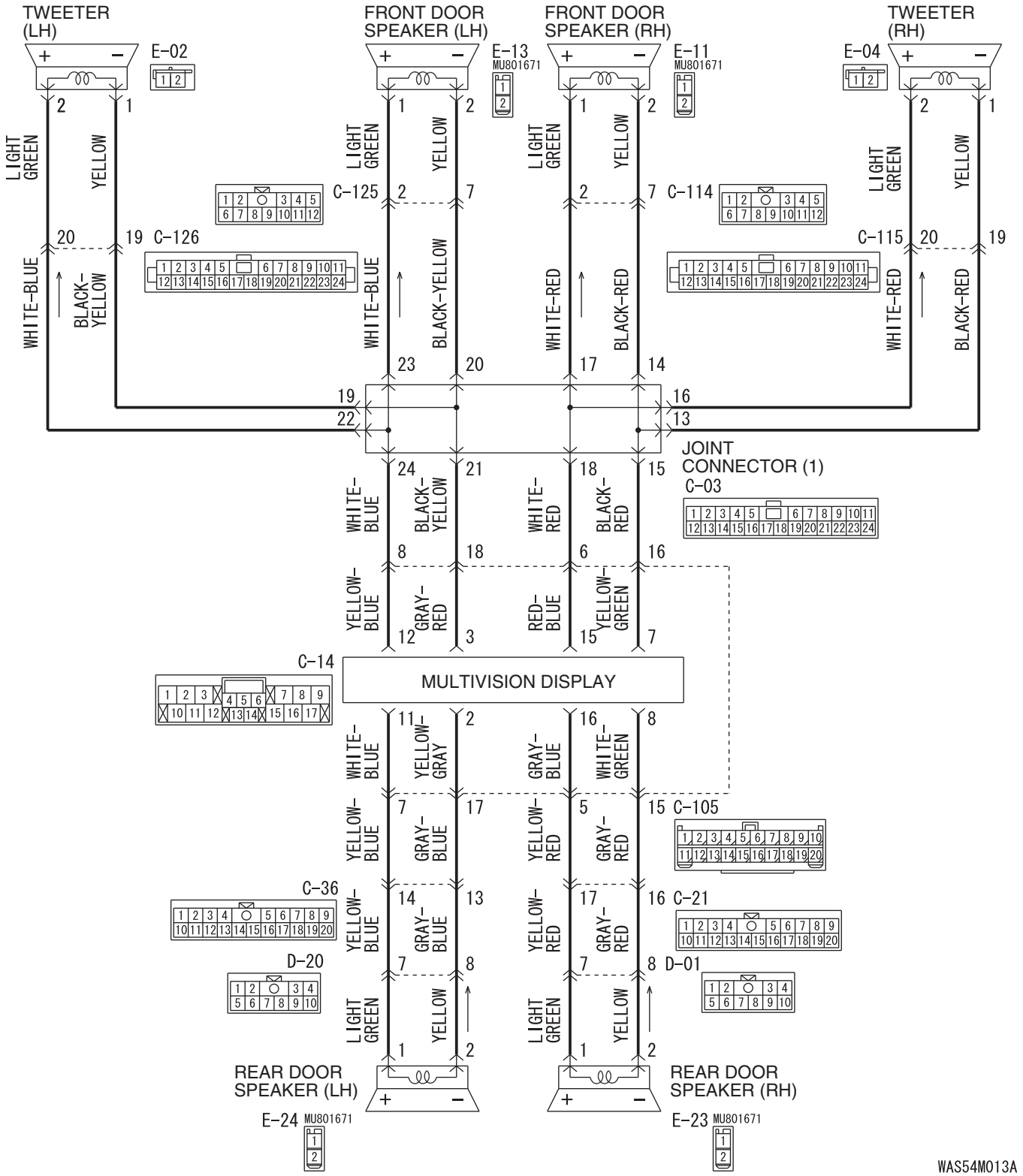
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the multivision display.

Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles without audio amplifier>

⚠ CAUTION

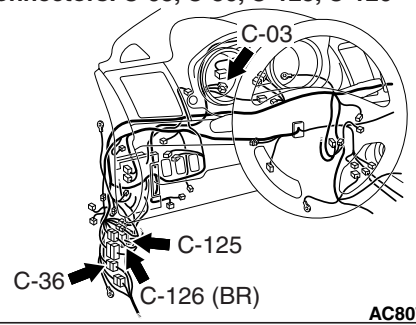
Before replacing the multivision display, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Speaker System Circuit



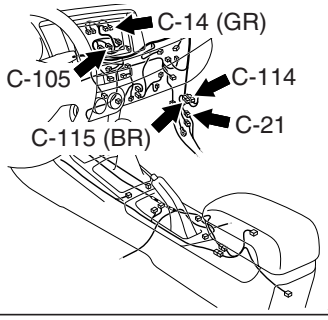
TSB Revision

Connectors: C-03, C-36, C-125, C-126



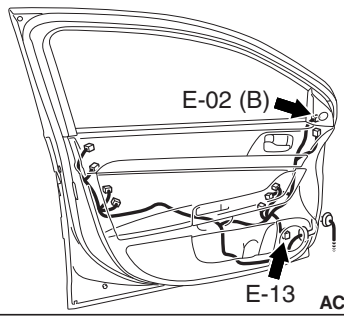
AC807552AW

Connectors: C-14, C-21, C-105, C-114, C-115



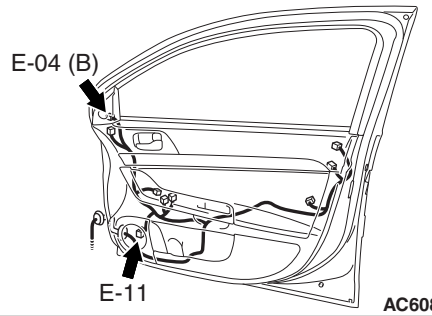
AC807553AM

Connectors: E-02, E-13



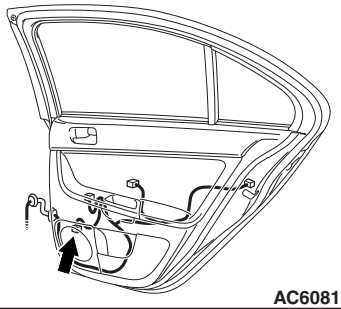
AC608167AB

Connectors: E-04, E-11



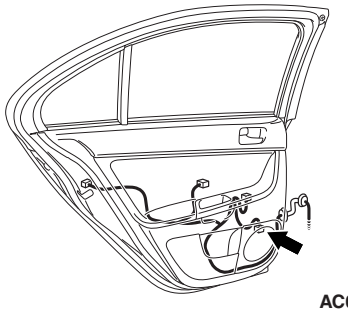
AC608168AO

Connector: E-23



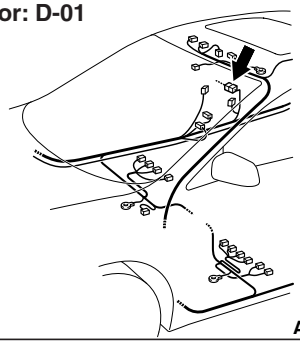
AC608170AB

Connector: E-24



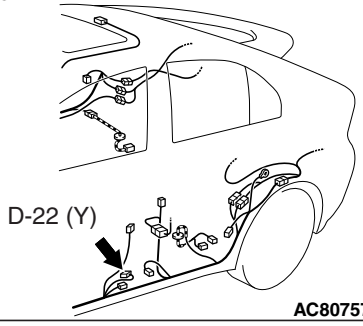
AC608169AB

Connector: D-01



AC807569AG

Connector: D-22



AC807570AO

TECHNICAL DESCRIPTION (COMMENT)

If the sound is not heard from one of the speakers, the speaker, multivision display, communication line from the multivision display to the speaker may have a problem. Also, the option coding information may be inconsistent.

TROUBLESHOOTING HINTS

- Speaker may be defective
- Multivision display may be defective
- Option coding information inconsistency
- 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
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

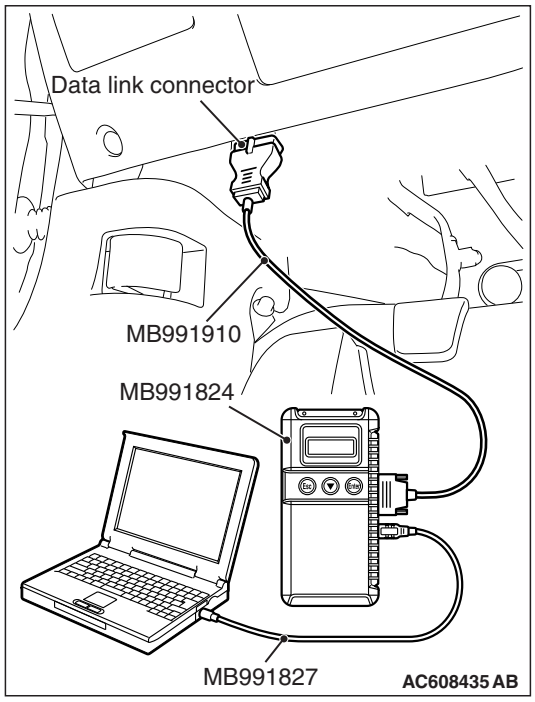
STEP 1. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-28).
(4) Check that the "Number of speaker" is set to "6 speakers".



Q: Is the check result normal?

YES : Go to Step 2.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "6 speakers" and check the trouble symptom.

STEP 2. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-421)
(2) Check if "6 SPEAKER (2 TWEETER)" is displayed as the number of installed speakers.

Q: Is the check result normal?

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

STEP 3. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-421.)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to Step 4.
NO : Go to Step 7.

TSB Revision

STEP 4. Using scan tool MB991958, diagnose the CAN bus line.

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

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the CAN bus line.

STEP 5. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.

Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-436).
NO : Go to Step 6.

STEP 6. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU –Troubleshooting P.54A-674).
NO : Go to Step 7.

STEP 7. Checking with audio speaker check

Perform the audio speaker check, and check which speaker does not output the sound (Refer to P.54A-421).

NOTE: In the following procedure, check the speaker or tweeter that is abnormal.

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).
NO (abnormal for all) : Check the multivision display power supply and ground circuit, and repair if necessary. If the multivision display power supply and ground circuit is normal, replace the multivision display.
NO (Either a speaker is abnormal) : Go to Step 8.

STEP 8. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH> in good condition?

YES : Go to Step 9.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 9. Check the speaker or tweeter.

(1) Remove the speaker or tweeter (Refer to P.54A-626).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal.

Q: Does the speaker or tweeter output the noise?

YES : Go to Step 10.
NO : Replace the speaker or tweeter.

STEP 10. Check multivision display connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multivision display connector C-14 in good condition?

YES : Go to Step 11.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 11. Check the wiring harness between the speaker or tweeter connector terminal and the multivision display connector terminal.

Check the communication lines for open circuit and short circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and multivision display connector C-14 (terminal 12, 3).

  NOTE: Also check joint connector C-03, intermediate connectors C-125 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03,intermediate connector C-03 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and multivision display connector C-14 (terminal 15, 7).

  NOTE: Also check joint connector C-03, intermediate connectors C-114 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03, intermediate connector C-114 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and multivision display connector C-14 (terminal 11, 2).

  NOTE: Also check intermediate connectors D-22, C-36 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors D-22, C-36 and C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and multivision display connector C-14 (terminal 16, 8).

  NOTE: Also check intermediate connectors D-01, C-21 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-01, C-21 and C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 2, 1) and multivision display connector C-14 (terminal 12, 3).

  NOTE: Also check joint connector C-03, intermediate connectors C-126 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03, intermediate connectors C-126 and C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-04 (terminal 2, 1) and multivision display connector C-14 (terminal 15, 7).

  NOTE: Also check joint connect C-03, intermediate connectors C-115 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connect C-03, intermediate connectors C-115 and C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between the speaker or tweeter connector terminal and the audio amplifier connector terminal in good condition?

YES : Go to Step 12.
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 12. Replace the multivision display temporarily, and check the trouble symptom.

Replace the multivision display temporarily, and check that the sound is output from the speaker.

Q: Is the check result normal?

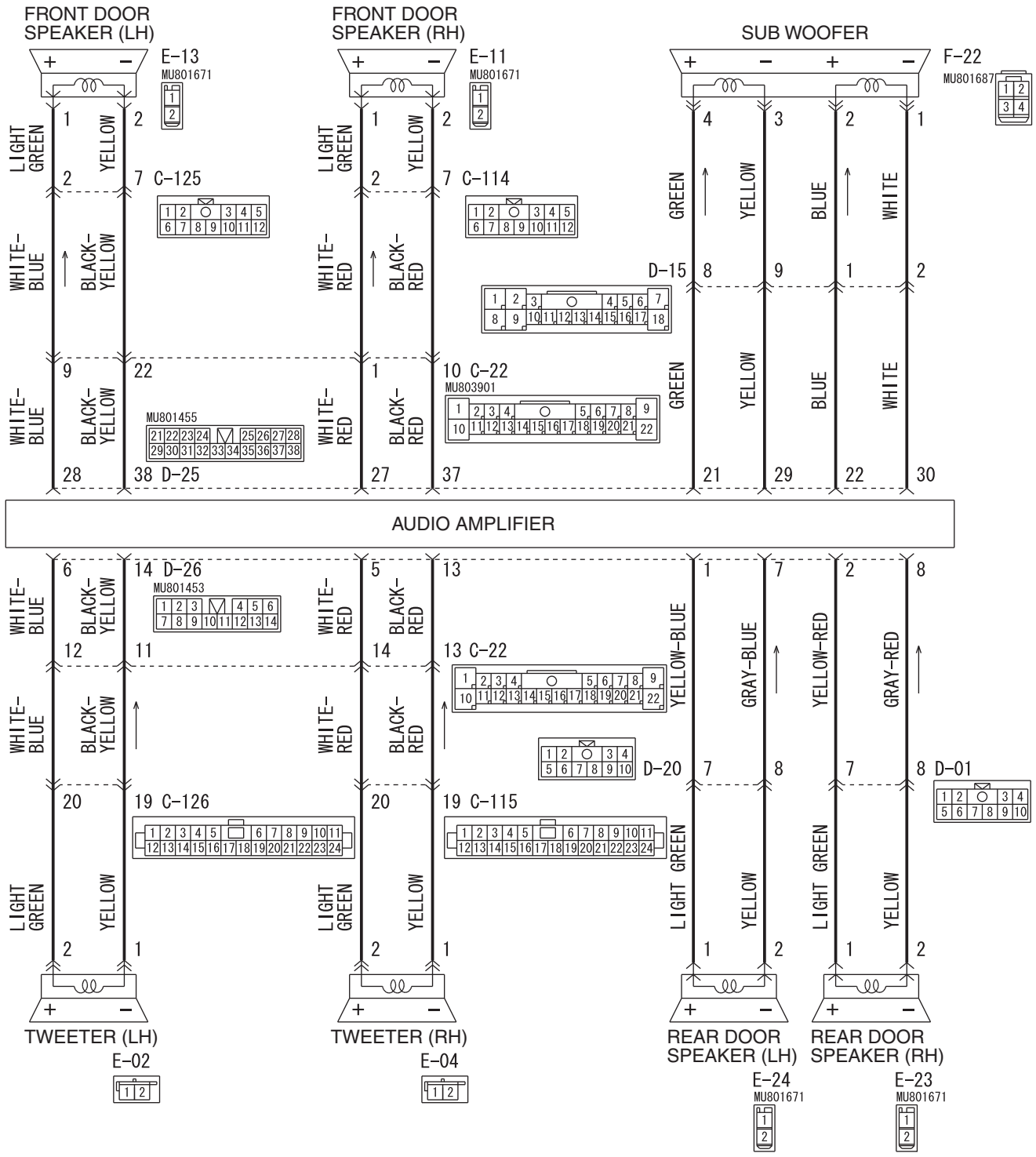
YES : Replace the multivision display.
NO : Replace the speaker or tweeter that does not output sound.

Inspection Procedure 3: No sound is heard from one of the speakers. <Vehicles with audio amplifier>

⚠ CAUTION

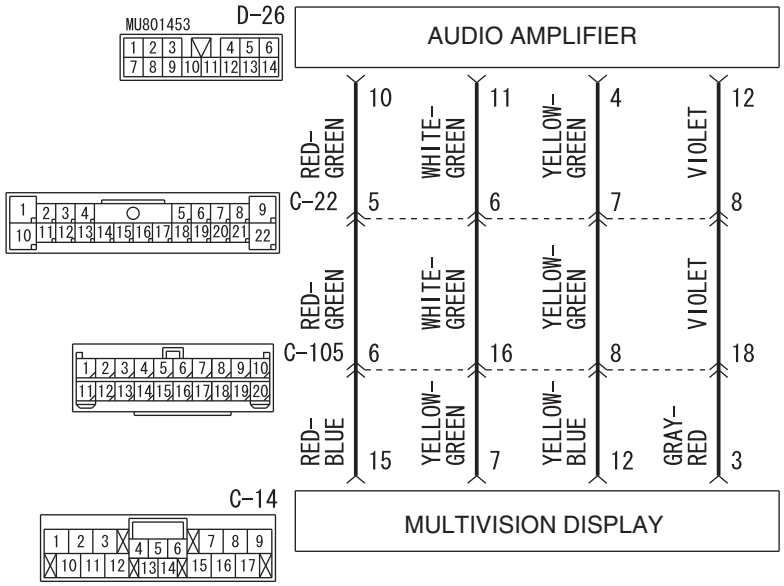
Before replacing the multivision display, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Speaker System Circuit



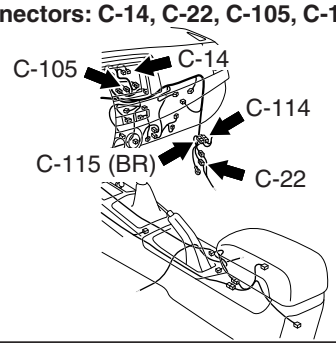
W9S54M004A

TSB Revision



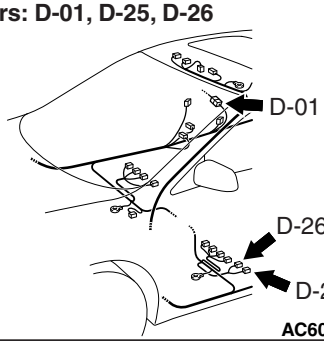
WAS54M014A

Connectors: C-14, C-22, C-105, C-114, C-115



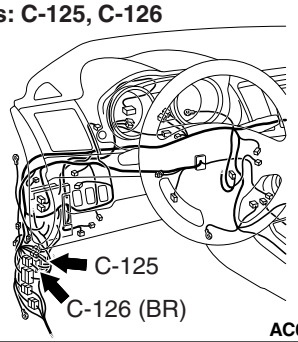
AC608146AP

Connectors: D-01, D-25, D-26



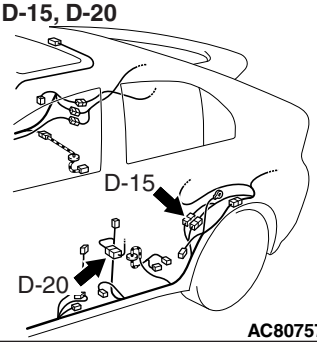
AC608165AF

Connectors: C-125, C-126



AC608145AR

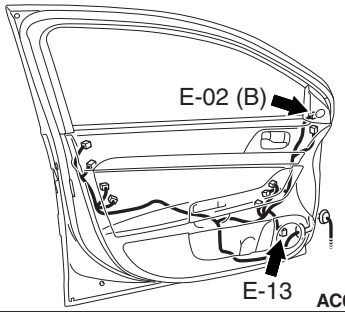
Connectors: D-15, D-20



AC807570AN

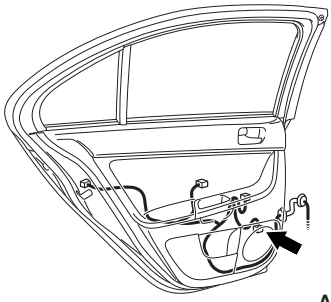
TSB Revision

Connectors: E-02, E-13



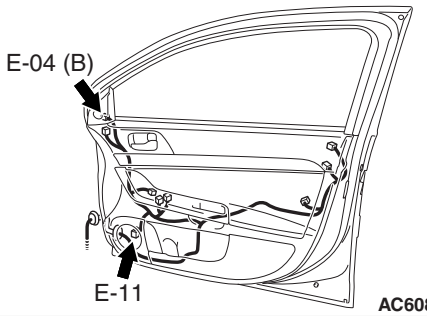
AC608167 AB

Connector: E-24



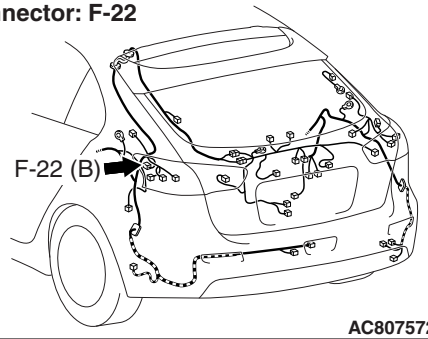
AC608169 AB

Connectors: E-04, E-11



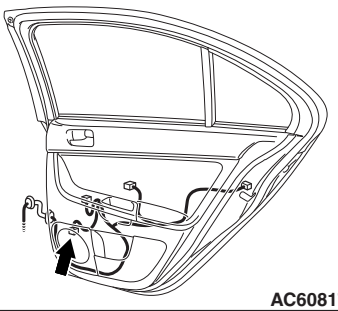
AC608168 AO

Connector: F-22



AC807572 AN

Connector: E-23



AC608170 AB

TECHNICAL DESCRIPTION (COMMENT)

If the sound is not heard from one of the speakers, the speaker, multivision display, audio amplifier, communication line from the multivision display to the audio amplifier, or communication line from the audio amplifier to the speaker may have a problem. Also, the option coding information may be inconsistent.

TROUBLESHOOTING HINTS

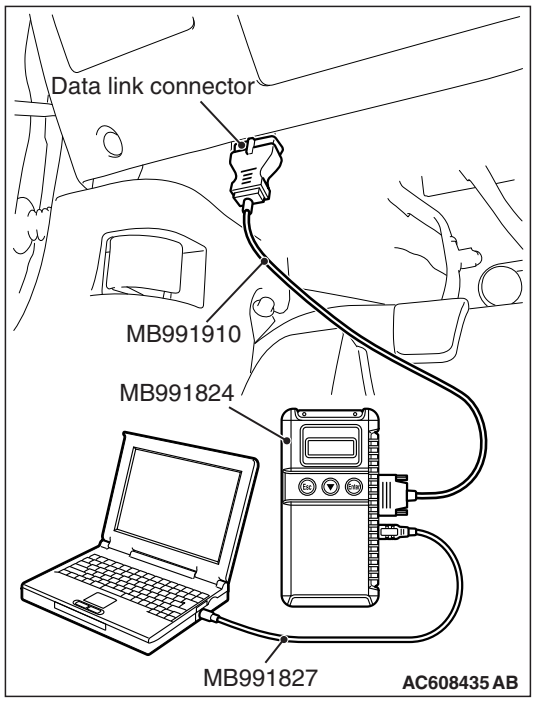
- Speaker may be defective
- Multivision display may be defective
- Malfunction of audio amplifier
- Option coding information inconsistency
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe
- 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

TSB Revision



STEP 1. Check the ETACS-ECU coding data.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-434."
(2) Turn the ignition switch to "ON" position.
(3) Operate the scan tool MB991958 to read the ETACS-ECU option coding information (Refer to GROUP 00, Coding Table P.00-28).
(4) Check that the "Number of speaker" is set to "Premium."

Q: Is the check result normal?

YES : Go to Step 2.
NO : Operate scan tool MB991958 to set the option coding "Number of speaker" to "Premium," and check the trouble symptom.

STEP 2. Check the MMCS service mode, CAN communication confirmation, and coding data.

(1) Display the CAN Communication Confirmation and Coding Data of the MMCS service mode. (Refer to P.54A-421)
(2) Check if PREMIUM is displayed.

Q: Is the check result normal?

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

STEP 3. Check the service data log for the MMCS service mode.

With the service data log of MMCS service mode displayed, check if the service data log for SP (speaker) is displayed. (Refer to P.54A-421.)

Q: Is the service data log for SP (speaker) displayed?

YES : Go to Step 4.
NO : Go to Step 7.

STEP 4. Using scan tool MB991958, diagnose the CAN bus line.

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

Q: Is the check result normal?

YES : Go to Step 5.
NO : Repair the CAN bus line.

TSB Revision

STEP 5. Using scan tool MB991958, read the CAN box unit diagnostic trouble code.
Check again if the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-436).
NO : Go to Step 6.

STEP 6. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the diagnostic trouble code is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU –Troubleshooting P.54A-674).
NO : Go to Step 7.

STEP 7. Checking with audio speaker check
Perform the audio speaker check, and check which speaker does not output the sound (Refer to P.54A-421).

NOTE: In the following procedure, check the speaker, tweeter or subwoofer that is abnormal.

Q: Is the check result normal?

YES (normal for all) : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).
NO (abnormal for all) : Refer to Inspection Procedure 2 "No sound is heard" P.54A-475.
NO (Either a speaker, a tweeter or a subwoofer is abnormal) : Go to Step 8.

STEP 8. Check door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH>, or subwoofer connector F-22 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is door speaker connector E-13 <front-LH>, E-11 <front-RH>, E-24 <rear-LH> or E-23 <rear-RH>, or tweeter connector E-02 <LH> or E-04 <RH>, or subwoofer connector F-22 in good condition?

YES : Go to Step 9.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 9. Check the speaker, tweeter or subwoofer.

(1) Remove the speaker, tweeter or subwoofer (Refer to P.54A-626).
(2) Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the speaker or tweeter connector terminal. <speaker or tweeter>
(3) Check that the subwoofer outputs the noise when the voltage of 5 V is applied to the subwoofer connector terminal. <subwoofer>

Q: Does the speaker, tweeter or subwoofer output the noise?

YES : Go to Step 10.
NO : Replace the speaker, tweeter or subwoofer.

STEP 10. Check audio amplifier connector D-25 <front door speaker or sub woofer> or D-26 <tweeter or rear door speaker> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is audio amplifier connector D-25 <front door speaker or sub woofer> or D-26 <tweeter or rear door speaker> in good condition?

YES : Go to Step 11.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 11. Check the wiring harness between the speaker or tweeter connector terminal and the audio amplifier connector terminal.

Check the communication lines for open circuit and short circuit.

- <Front door speaker (LH)> Check the wiring harness between front door speaker (LH) connector E-13 (terminal 1, 2) and audio amplifier connector D-25 (terminal 28, 38).

  NOTE: Also check intermediate connectors C-22 and C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Front door speaker (RH)> Check the wiring harness between front door speaker (RH) connector E-11 (terminal 1, 2) and audio amplifier connector D-25 (terminal 27, 37).

  NOTE: Also check intermediate connectors C-22 and C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (LH)> Check the wiring harness between rear door speaker (LH) connector E-24 (terminal 1, 2) and audio amplifier connector D-26 (terminal 1, 7).

  NOTE: Also check intermediate connector D-20 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-20 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Rear door speaker (RH)> Check the wiring harness between rear door speaker (RH) connector E-23 (terminal 1, 2) and audio amplifier connector D-26 (terminal 2, 8).

  NOTE: Also check intermediate connector D-01 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-01 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Tweeter (LH)> Check the wiring harness between tweeter (LH) connector E-02 (terminal 1, 2) and audio amplifier connector D-26 (terminal 14, 6).

  NOTE: Also check intermediate connectors C-22 and C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

- <Tweeter (RH)> Check the wiring harness between tweeter (RH) connector E-04 (terminal 1, 2) and audio amplifier connector D-26 (terminal 13, 5).

  NOTE: Also check intermediate connectors C-22 and C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.
- <Subwoofer> Check the wiring harness between subwoofer connector F-22 (terminal 1, 2, 3, 4) and audio amplifier connector D-25 (terminal 30, 22, 29, 21).

  NOTE: Also check intermediate connector D-15 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between the speaker, tweeter or subwoofer connector terminal and the audio amplifier connector terminal in good condition?

YES <front door speaker> : Go to Step 12.
YES <except front door speaker> : Go to Step 14.
NO (harness wire is abnormal) : 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 12. Check multivision display connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multivision display connector C-14 in good condition?

YES : Go to Step 13.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 13. Check the wiring harness between multivision display connector C-14 (terminal 3, 7, 12, 15) and audio amplifier connector D-26 (terminal 12, 11, 4, 10).

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

NOTE: Also check intermediate connectors C-22 and C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-22 or C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multivision display connector C-14 (terminal 3, 7, 12, 15) and audio amplifier connector D-26 (terminal 12, 11, 4, 10) in good condition?

YES : Check the trouble symptom, go to Step 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 14. Replace the audio amplifier temporarily, and check the trouble symptom.

Replace the audio amplifier temporarily, and check that the sound is output from the speaker.

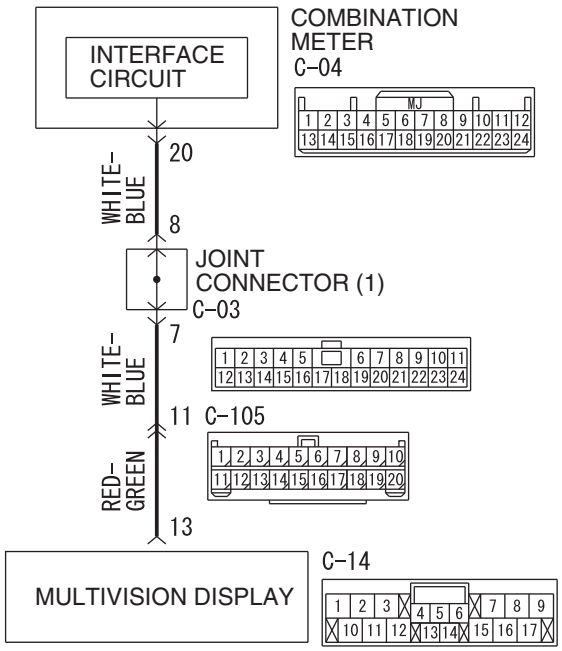
Q: Is the check result normal?

YES : Replace the audio amplifier.
NO : Replace the multivision display.

Inspection Procedure 4: The navigation system can be operated while the vehicle is driven.

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

Multivision Display Communication Circuit



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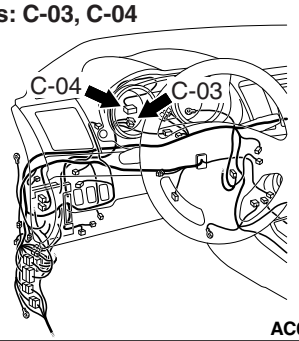
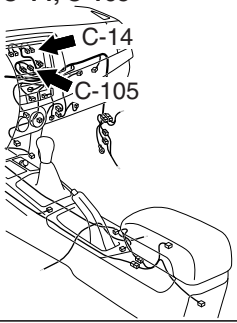
Connectors: C-03, C-04



AC608145AV

Connectors: C-14, C-105



AC608146AQ

TECHNICAL DESCRIPTION (COMMENT)

There is a failure in the wiring harness between the combination meter and the multivision display, the respective connector(s), the combination meter or the multivision display.

TROUBLESHOOTING HINTS

- Combination meter may be defective
- Multivision display may be defective
- 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
- MB992006: Extra Fine Probe

STEP 1. Perform "Vehicle Signal Check" in the MMCS service mode.
Perform "Vehicle Signal Check" in the MMCS service mode to check whether vehicle speed signal is normal (Refer to P.54A-421).

Q: Is the vehicle speed signal transmitted normally?
YES : Replace the multivision display.
NO : Go to Step 2.

STEP 2. Check the speed meter.
Check whether the speed meter works normally. (Refer to P.54A-112.)

Q: Does the speed meter work normally?
YES : Go to Step 3.
NO : Diagnose the combination meter (Refer to Combination meter –Troubleshooting P.54A-73).

STEP 3. Check combination meter connector C-04 and multivision display connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 and multivision display connector C-14 in good condition?
YES : Go to Step 4.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 4. Check the wiring harness between combination meter connector C-04 (terminal 20) and multivision display connector C-14 (terminal 13).

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

NOTE: Also check joint connector C-03 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-04 (terminal 20) and multivision display connector C-14 (terminal 13) in good condition?

YES : Go to Step 5.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 5. Substitute a known good multivision display, and check the trouble symptom.

Check that no menus are active during driving.

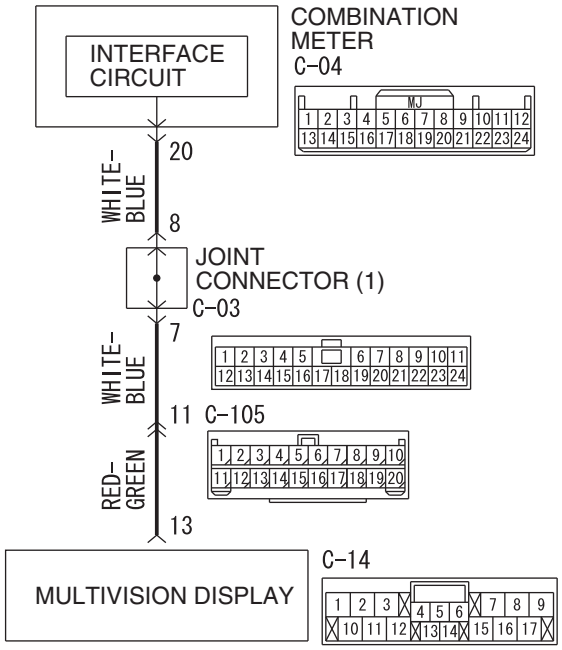
Q: Is the check result normal?

YES : Replace the multivision display.
NO : Replace the combination meter.

Inspection Procedure 5: The screen is not normal in the navigation mode. (The own vehicle mark is dislocated.)

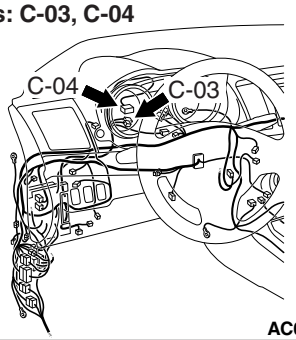
⚠ CAUTION
Before replacing the multivision display, ensure that the power supply circuit, the ground circuit, and the communication circuit are normal. (Check that the voltage is 10 V or more.)

Multivision Display Communication Circuit



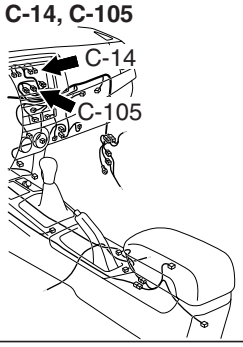
WAS54M015A

Connectors: C-03, C-04



AC608145AV

Connectors: C-14, C-105



AC608146AQ

TECHNICAL DESCRIPTION (COMMENT)

There is a failure in the wiring harness between the combination meter and the multivision display, the GPS antenna, the respective connector(s), the combination meter or the multivision display.

TROUBLESHOOTING HINTS

- GPS may be defective
- Combination meter may be defective
- Multivision display may be defective
- 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
- MB992006: Extra Fine Probe

STEP 1. Confirmation in MMCS service mode
Check the items below in the MMCS service mode. (Refer to P.54A-421.)
- Perform "Network/Connect Line Check" in the MMCS service mode to check that the communication and wire connection with the GPS are in good condition.
- Perform "Vehicle Signal Check", and then check the status of the vehicle speed signal.
- Perform "Sensor Check", and then check the status of the vehicle speed sensor and the gyro sensor.

Q: Is the check result normal?

YES (OK for all) : Go to Step 6.
NO <GPS is not OK> : Go to Step 2.
NO <The vehicle speed sensor is not OK, or vehicle speed pulse does not increase after starting from a standstill> : Go to Step 3.
NO <Gyro sensor is not OK> : Go to Step 6.

STEP 2. GPS reception check
(1) Start the multivision display.
(2) Press the [INFO] button.
(3) Select [Vehicle Position].
(4) Check if the GPS signals are received.

Q: Is the check result normal?

YES : Go to Step 6.
NO : Perform Inspection Procedure 7 "GPS signal cannot be received" (Refer to P.54A-507.), and then go to Step 6.

STEP 3. Check the speed meter.
Check whether the speed meter works normally.

Q: Does the speedometer work normally?

YES : Go to Step 4.
NO : Diagnose the combination meter (Refer to Combination meter –Diagnosis P.54A-73).

STEP 4. Check combination meter connector C-04 and multivision display connector C-14 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 and multivision display connector C-14 in good condition?

YES : Go to Step 5.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 5. Check the wiring harness between combination meter connector C-04 (terminal 20) and multivision display connector C-14 (terminal 13).

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

NOTE: Also check joint connector C-03 and intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-03 or intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between combination meter connector C-04 (terminal 20) and multivision display connector C-14 (terminal 13) in good condition?

YES : Go to Step 6.

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

STEP 6. Check of the troubles

Drive the vehicle for some time with the GPS signals being received, and check if the own vehicle mark is dislocated.

Q: Is the check result normal?

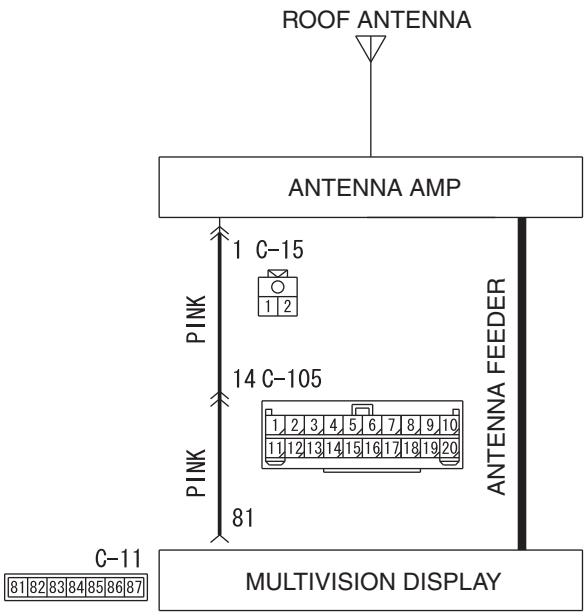
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the multivision display.

Inspection Procedure 6: The AM/FM radio broadcasting cannot be received.

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

Antenna Circuit



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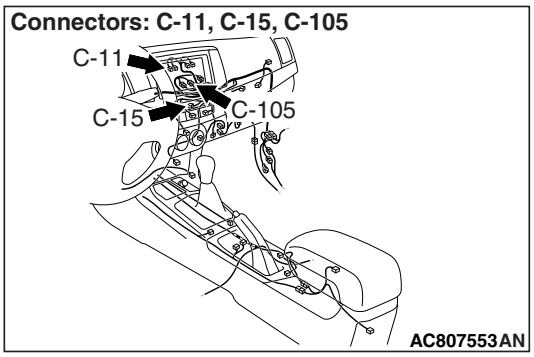


TECHNICAL DESCRIPTION (COMMENT)

In case of AM/FM radio broadcasting cannot be received., the roof antenna (antenna rod, antenna base), antenna fender or multivision display may have a problem.

NOTE: The radio wave may not be received if the vehicle is placed in the area which is exposed to a special electric field. Thus, check that the radio broadcasting can be received using the radio of another vehicle before carrying out diagnosis.

TROUBLESHOOTING HINTS

- Malfunction of roof antenna (antenna rod, antenna base)
- Antenna feeder malfunction
- Malfunctions of multivision display
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

STEP 1. Check the state of the antenna rod and antenna base.

Q: Is the roof antenna assembled?
YES : Go to Step 2.
NO : Assemble antenna rod and antenna base.

TSB Revision

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

Q: Is the reception area exposed to special electric fields?
YES : Go to Step 3.
NO : Go to Step 4.

STEP 3. 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 the check result normal?
YES : Diagnosis complete.
NO : Go to Step 4.

STEP 4. Check damage in the roof antenna (the antenna rod, the antenna base).

Q: Is the check result normal?
YES : Go to Step 5.
NO : Replace antenna rod or antenna base.

STEP 5. Check the connection of the antenna plug and multivision display.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the antenna rod, antenna base and antenna fender.

STEP 6. Check multivision display connector C-11 and radio antenna connector C-15 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are multivision display connector C-11 and radio antenna connector C-15 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 multivision display connector C-11 (terminal 81) and radio antenna connector C-15 (terminal 1).

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

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multivision display connector C-11 (terminal 81) and antenna feeder C-15 (terminal 1) in good condition?
YES : Go to Step 8.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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

Q: Is the check result normal?
YES : Replace the multivision display.
NO : Either repair or replace the antenna rod and antenna base.

Inspection Procedure 7: GPS signal can not be received.

⚠ CAUTION
Whenever the multivision display is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

TECHNICAL DESCRIPTION (COMMENT)

The GPS antenna or the multivision display may be defective.

TROUBLESHOOTING HINTS

- The GPS antenna may be defective
- The multivision display may be defective

DIAGNOSIS

STEP 1. Confirmation in MMCS service mode
Perform "Network/Connect Line Check" in the MMCS service mode to check that the communication and wire connection with the GPS antenna are OK. (Refer to P.54A-421.)

Q: Is the check result normal?

YES : Go to Step 2.
NO : Check that the GPS antenna is correctly connected to the multivision display, and go to Step 2.

STEP 2. Check for the vehicle's current position.
Check that the vehicle is parked at the place without the shield.

Q: Is the vehicle parked on the place without the shield?

YES : Go to Step 3.
NO : Move the vehicle to the place without the shield.

STEP 3. Confirming GPS signal reception
(1) Activate the multivision display.
(2) Press the [INFO] button.
(3) Select [Vehicle Position].
(4) Wait for 5 minutes, and then check whether GPS signal can be received.

Q: Can GPS signal be received?

YES : The procedure is complete. (There is no failure)
NO : Go to Step 4.

STEP 4. Substitute a known good multivision display, and check the trouble symptom.
(1) Temporarily replace the multivision display.
(2) Activate the multivision display.
(3) Press the [INFO] button.
(4) Select [Vehicle Position].
(5) Check if the GPS signals are being received after 5 minutes have elapsed.

Q: Is the check result normal?

YES : Replace the multivision display.
NO : Replace the GPS antenna.

Inspection Procedure 8: CD/DVD cannot be played.

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

TECHNICAL DESCRIPTION (COMMENT)

The CD/DVD or the multivision display may be defective.

TROUBLESHOOTING HINTS

- Defective CD/DVD
- The multivision display may be defective

DIAGNOSIS

STEP 1. Check if the error message is displayed on the monitor.
(Refer to P.54A-419.)

Q: Is the error message displayed on the monitor?
YES : Refer to ERROR MESSAGE (refer to P.54A-419), and take necessary steps. If the CD or DVD is still not played, go to Step 2.
NO : Go to Step 2.

STEP 2. Check the CD/DVD insertion surface.
Check that the CD/DVD is inserted with the correct surface facing up.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Check the disk insertion surface, and reinsert the disk. (In case of a single-sided disk, insert it with its label facing upward.)

STEP 3. Check the CD/DVD.
- Check that the DVD has the correct region code.
- Check if the CD corresponds with the multivision display.

Q: Is the check result normal?
YES : Go to Step 4.
NO : Use a DVD with a correct region code. Or, use a CD corresponds with the multivision display.

STEP 4. Check the CD/DVD.
Check that the CD/DVD is free of dirt or scratch.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Clean the disk, use a disk without scratches and burrs, or remove the burrs from the disk, and then reinsert the disk.

STEP 5. Temporarily replace the CD /DVD with another CD or DVD, and check the trouble symptom.
Check that the new CD/DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the used CD/DVD.
NO : Go to Step 6.

STEP 6. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-421.)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?
YES (The service data log for drive is displayed.) : Check for foreign materials or condensation. Repair if there is an abnormality, and then go to Step 7.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check that the multivision display can play the disk at the operable temperature. If it cannot be played normally, go to Step 7.
NO : Go to Step 7.

STEP 7. Perform "Network/Connect Line Check" in the MMCS service mode.
(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-421.)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the multivision display.

TSB Revision

STEP 8. Check of the troubles
Check that the new CD/DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : The diagnosis is complete.
NO : Go to Step 9.

STEP 9. Temporarily replace the multivision display, and check the trouble symptom.
After temporary replacement of the multivision display, check that the new CD/DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the multivision display.
NO : Replace the CD/DVD.

Inspection Procedure 9: Image of a DVD is played, but no sound is played.

⚠ CAUTION
Whenever the multivision display is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

TECHNICAL DESCRIPTION (COMMENT)
The DVD or the multivision display may be defective.

TROUBLESHOOTING HINTS
- Defective DVD
- Malfunctions of multivision display

DIAGNOSIS

STEP 1. Check if the error message is displayed on the monitor.
(Refer to P.54A-419.)

Q: Is the error message displayed on the monitor?
YES : Refer to ERROR MESSAGE (refer to P.54A-419), and take necessary steps. If the DVD sound is still not output, go to Step 2.
NO : Go to Step 2.

STEP 2. Check whether other sounds are emitted.
Check whether sound other than DVD is emitted.
(1) Check if the sound is output when the music server is used.
(2) Check if the sound is output when the radio is used.
(3) Check if the sound is output when the CD is used.

Q: Is sound other than DVD emitted?
YES : Go to Step 3.
NO : Troubleshoot the MMCS. (Refer to P.54A-463.)

STEP 3. Check a DVD to be inserted.
Check if the sound is recorded in the DVD, using other DVD players.

Q: Is sound data recorded in the DVD?
YES : Go to Step 4.
NO : Use a DVD containing sound data.

STEP 4. Check the DVD.
Check that the DVD is free of dirt or scratch.

Q: Is the check result normal?
YES : Go to Step 5.
NO : Clean the disk, use a disk without scratches and burrs, or remove the burrs from the disk, and then reinsert the disk.

STEP 5. Temporarily replace the DVD with another DVD, and check the trouble symptom.
Check if the DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the used DVD.
NO : Go to Step 6.

STEP 6. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-421.)
(2) Check if the service data log for drive and HDD is displayed.

Q: Is the service data log displayed?
YES (The service data log for drive is displayed.) : Check for foreign materials or condensation. Repair if there is an abnormality, and then go to Step 7.
YES (The service data log for HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check that the multivision display can play the disk at the operable temperature. If it cannot be played normally, go to Step 7.
NO : Go to Step 7.

STEP 7. Perform "Network/Connect Line Check" in the MMCS service mode.
(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-421.)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?
YES : Go to Step 8.
NO : Replace the multivision display.

STEP 8. Check of playing method
Check whether the disk was played normally and not with special playback (fast rewind, fast forward, slow, pause). Also, check whether the mute mode was selected. After that, check if the DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : This diagnosis is complete.
NO : Go to Step 9.

STEP 9. Temporarily replace the multivision display, and check the trouble symptom.
After temporary replacement of the multivision display, check that the new DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the multivision display.
NO : Replace the DVD.

Inspection Procedure 10: Sound of a DVD can be played, but no image is played.

⚠ CAUTION
Whenever the multivision display is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

TECHNICAL DESCRIPTION (COMMENT)
The DVD or the multivision display may be defective.

TROUBLESHOOTING HINTS
- Defective DVD
- The multivision display may be defective

DIAGNOSIS

STEP 1. Check if the error message is displayed on the monitor.
(Refer to P.54A-419.)

Q: Is the error message displayed on the monitor?
YES : Refer to ERROR MESSAGE (refer to P.54A-419), and take necessary steps. If the CD or DVD is still not played, go to Step 2.
NO : Go to Step 2.

STEP 2. Check the DVD.
Check that the DVD is free of dirt or scratch.

Q: Is the check result normal?
YES : Go to Step 3.
NO : Clean the disk, use a disk without scratches and burrs, or remove the burrs from the disk, and then reinsert the disk.

STEP 3. Temporarily replace the DVD with another DVD, and check the trouble symptom.
Check if another DVD is played normally when it is inserted.

Q: Is the check result normal?
YES : Replace the used DVD.
NO : Go to Step 4.

STEP 4. Check the service data log for the MMCS service mode.
(1) Display the service data log for the MMCS service mode. (Refer to P.54A-421.)
(2) Check that the service data log for drive is displayed.
(3) Check that the service data log for monitor is displayed.
(4) Check that the service data log for HDD is displayed.

Q: Is the error log displayed?
YES (The service data log for drive is displayed.) : Check for foreign materials or condensation. Repair if there is an abnormality, and then go to Step 5.
YES (The service data log for monitor or HDD is displayed.) : Abnormalities relating to high or low temperature may be present. Check if the DVD image is displayed on the monitor within the temperature range where the navigation and menu screens can be displayed. If the image is not displayed, go to Step 5.
NO : Go to Step 5.

STEP 5. Perform "Network/Connect Line Check" in the MMCS service mode.
(1) Display "Network/Connect Line Check" in the MMCS service mode. (Refer to P.54A-421.)
(2) Check if "DVD Drive OK" is displayed.
(3) Check if "HDD Drive OK" is displayed.

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the multivision display.

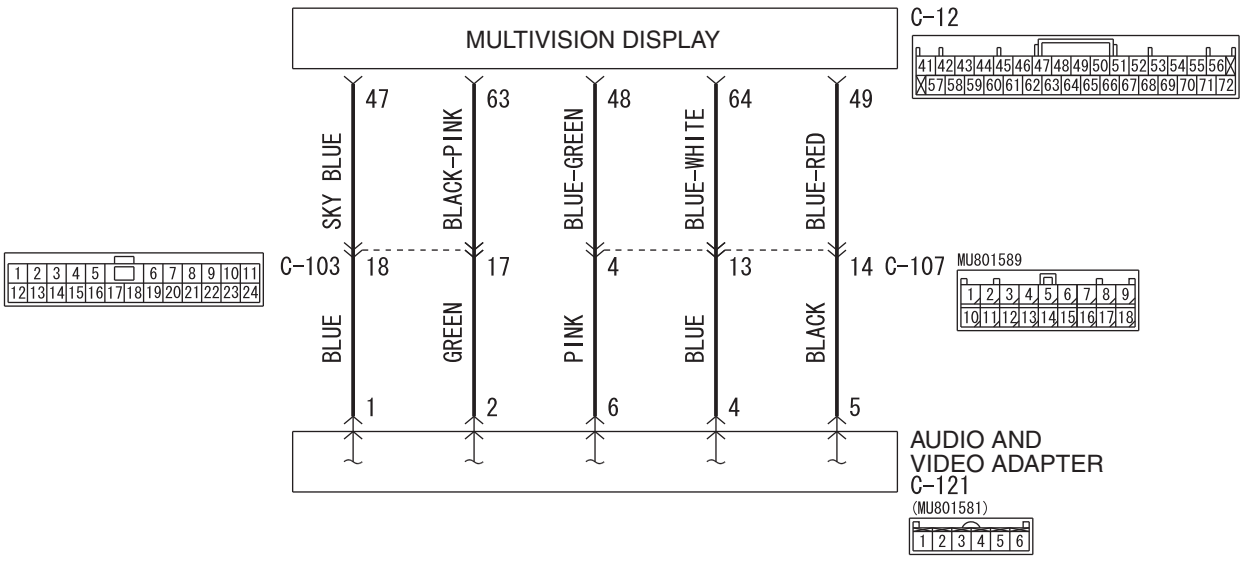
STEP 6. Temporarily replace the multivision display, and check the trouble symptom.
After temporary replacement of the multivision display, check if the DVD image is displayed.

Q: Is the check result normal?
YES : Replace the multivision display.
NO : Replace the DVD.

Inspection Procedure 11: The picture and sound of external input are not played.

⚠ CAUTION
Whenever the multivision display is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

Audio and Video Adapter Communication Circuit



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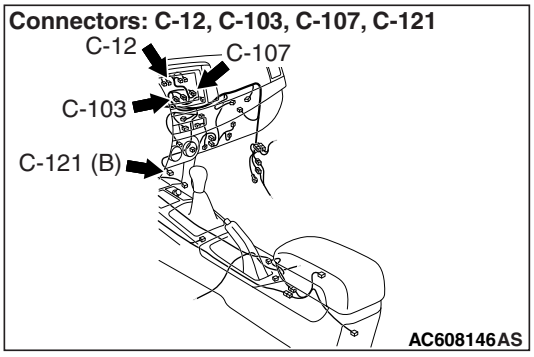


TECHNICAL DESCRIPTION (COMMENT)

The wiring harness between audio and video adapter and multivision display, audio and video adapter, or multivision display may have a problem.

NOTE: Problem of the device to be connected and the connection problem between the audio and video adapter and the device is suspected. Thus, check the operation condition and connecting method of the devices to be connected to the multivision display and audio and video adapter before diagnosis.

TROUBLESHOOTING HINTS

- The multivision display may be defective
- The audio and video adaptor may be defective
- Damaged harness wires and connectors

TSB Revision

DIAGNOSIS

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

STEP 1. Check of DVD picture
Check that the DVD picture is displayed normally.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Perform the troubleshooting related to the MMCS (Refer to P.54A-463).

STEP 2. Check the audio and video adapter.
Inspect the audio and video adapter.(Refer to P.54A-529)

Q: Is the check result normal?

YES : Go to Step 3.
NO : Replace the audio and video adapter.

STEP 3. Check multivision display connector C-12 and audio and video adaptor connector C-121 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are multivision display connector C-12 and audio and video adaptor connector C-121 in good condition?

YES : Go to Step 4.
NO : Repair the connector concerned.

STEP 4. Check the wiring harness between multivision display connector C-12 (terminal 47, 63, 48, 64, 49) and audio and video adaptor connector C-121 (terminal 1, 2, 6, 4, 5).

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

NOTE: Also check intermediate connectors C-103 and C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-103 or C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multivision display connector C-12 (terminal 47, 63, 48, 64, 49) and audio and video adaptor connector C-121 (terminal 1, 2, 6, 4, 5) in good condition?

YES : Go to Step 5.

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

STEP 5. Retest the system

Check that the external input is normal.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

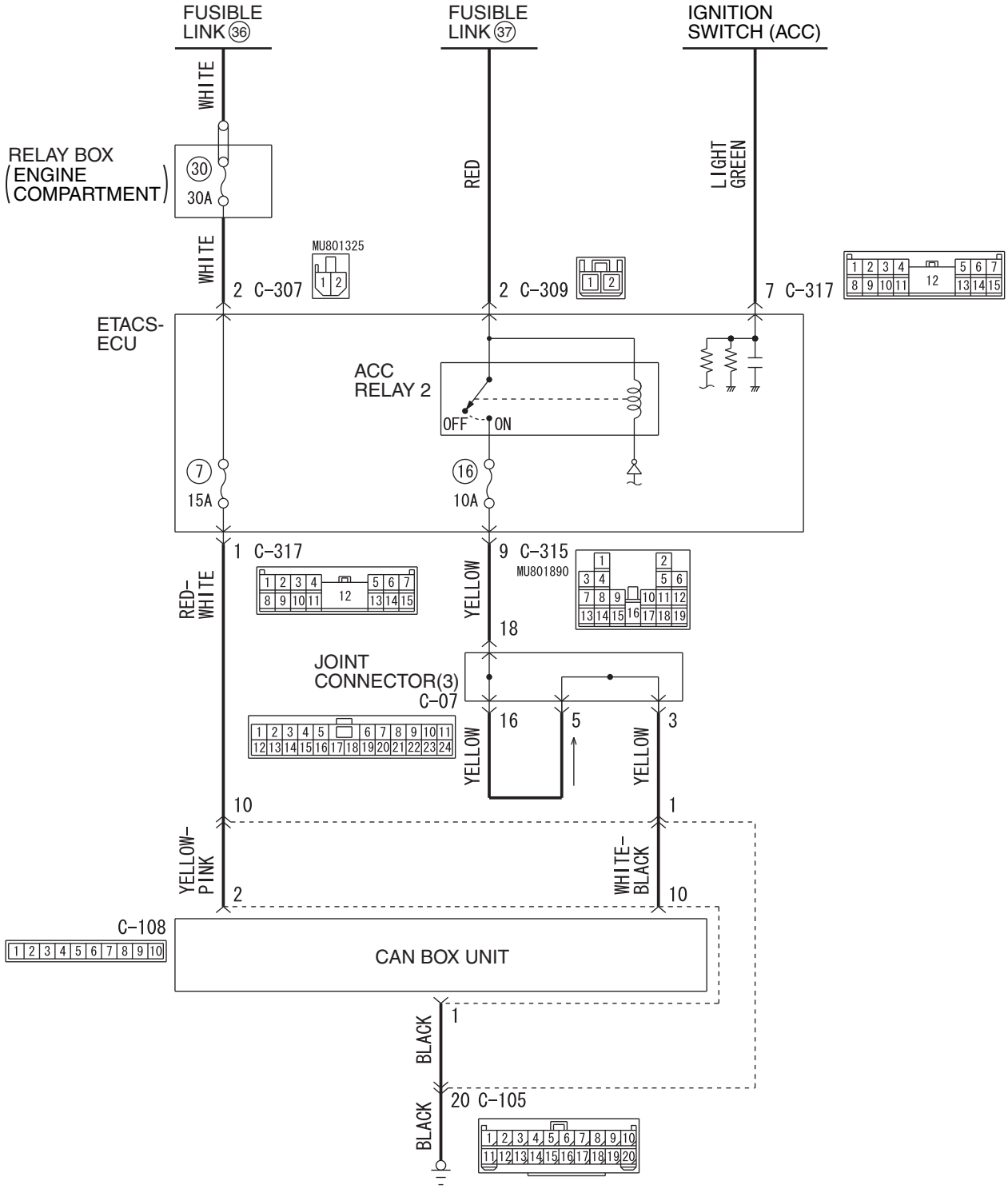
NO : Replace the audio and video adaptor.

Inspection Procedure 12: Check the CAN box unit power supply circuit.

⚠ CAUTION

Whenever the CAN box unit is replaced, ensure that the power supply circuit and the grounding circuit are normal. (Check that the voltage is 10 V or more.)

CAN Box Unit Power Supply Circuit



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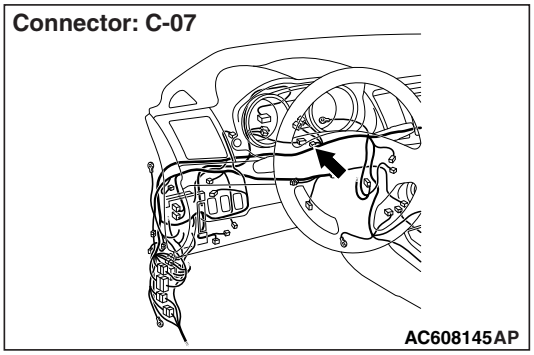
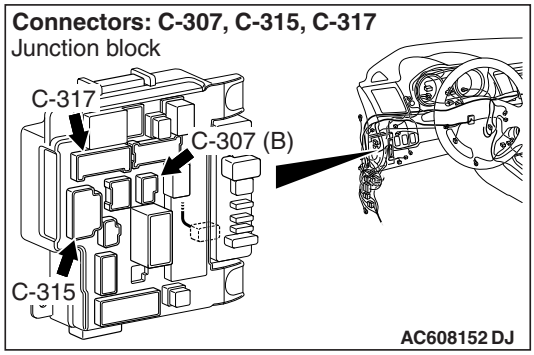
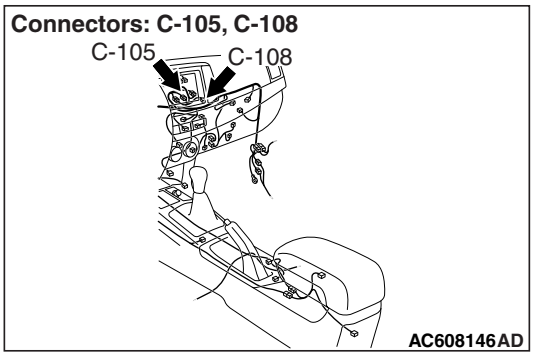
TSB Revision







TECHNICAL DESCRIPTION (COMMENT)

If the CAN box unit functions do not work at all, the CAN box unit power supply system, ground system, or CAN box unit may have a problem.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The CAN box unit may be defective

DIAGNOSIS

Required Special Tools:

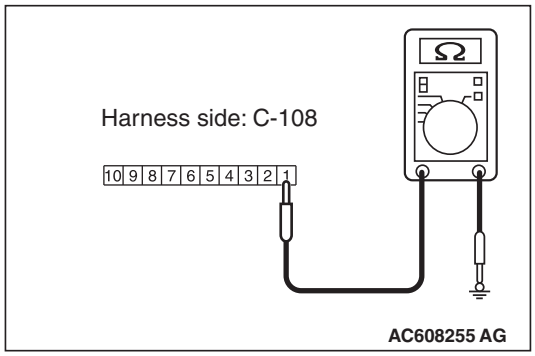
- MB991223: Harness Set
- MB992006: Extra Fine Probe
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

STEP 1. Check CAN box unit connectors C-108 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is CAN box unit connectors C-108 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the ground circuit to the CAN box unit. Measure the resistance at CAN box unit connector C-108.

(1) Disconnect CAN box unit connector C-108 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between CAN box unit connector C-108 terminal 1 and ground.

OK: The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between CAN box unit connector C-108 (terminal 1) and the ground.

- Check the ground wire for open circuit.

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 1) and the ground 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. Check the battery power supply circuit to the CAN box unit. Measure the voltage at CAN box unit connectors C-108.

(1) Disconnect CAN box unit connectors C-108 measure the voltage available at the wiring harness side of the connector.

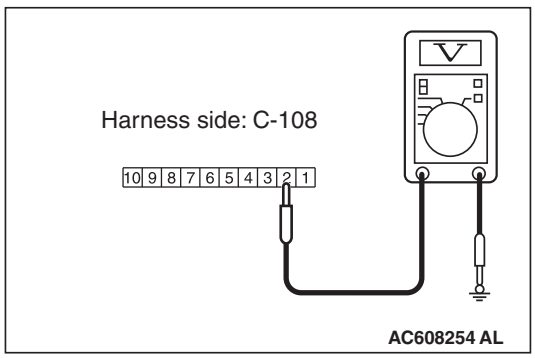
(2) Measure the voltage between CAN box unit connector C-108 terminal 2 and ground.

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 6.

NO : Go to Step 5.



STEP 5. Check the wiring harness between CAN box unit connector C-108 (terminal 2) and fusible link (36).

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

NOTE: Also check intermediate connector C-105 and ETACS-ECU connectors C-307 and C-317 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 or ETACS-ECU connector C-307 or C-317 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between CAN box unit connector C-108 (terminal 2) and fusible link (36) in good condition?

YES : Go to Step 6.

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

STEP 6. Using scan tool MB991958, check data list.

Check the input signal of ACC relay.

- Turn the ignition switch to the ACC position.

Item No.	Item name	Normal conditions
Item 288	ACC switch	ON

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 7.

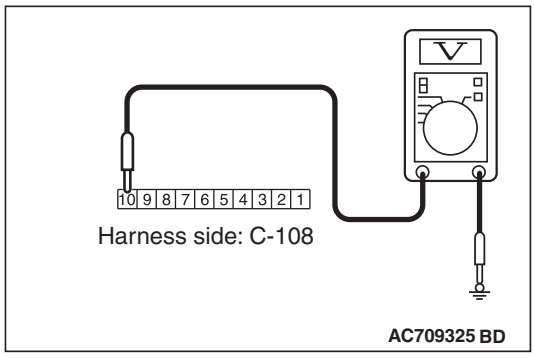
NO : Refer to GROUP 54A, ETACS, Diagnosis –Inspection Procedure 1 "The ignition switch (ACC) signal is not received P.54A-731."

STEP 7. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 8.

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



STEP 8. Check the battery power supply circuit to the CAN box unit. Measure the voltage at CAN box unit connectors C-108.

(1) Disconnect CAN box unit connectors C-108 measure the voltage available at the wiring harness side of the connector.
(2) Measure the voltage between CAN box unit connector C-108 terminal 10 and ground.

OK: Battery positive voltage.

Q: Is the measured voltage battery positive voltage?

YES : Replace the CAN box unit.
NO : Go to Step 9.

STEP 9. Check the wiring harness between CAN box unit connectors C-108 (terminal 10) and ETACS-ECU connector C-315 (terminal 9).

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

NOTE: Also check joint connector C-07, intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If joint connector C-07, intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between CAN box unit connectors C-108 (terminal 10) and ETACS-ECU connector C-315 (terminal 9) 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.

ETACS CUSTOMIZATION FUNCTION

M1546023000527

The following ETACS functions can be customized by selecting "Equipment" on the "Settings" screen of the multivision display.

Group name	Setting item	Setting value
Keyless Entry System	Turn Signal Lights Answerback	Lock:Once Unlock:Twice (default)
		Lock:Once Unlock:Off
		Lock:Off Unlock:Twice
		Lock:Twice Unlock:Once
		Lock:Off Unlock:Once
		Lock:Twice Unlock:Off
		Lock:Off Unlock:Off
	Horn Answerback Sounds at Keyless Entry Lock <Vehicles without auto light>	Off
		One Button Push
		Two Button Pushes (default)
	Horn Answerback Sounds at Keyless Entry Lock <Vehicles with auto light>	Off
		One Button Push
		One Button Push at Daytime
		Two Button Pushes at Daytime (default)
	Duration of Horn Answerback Sounds	Short (default)
		Long

Group name	Setting item	Setting value
Keyless Operation System	Turn Signal Lights Answerback	Lock:Once Unlock:Twice (default)
		Lock:Once Unlock:Off
		Lock:Off Unlock:Twice
		Lock:Twice Unlock:Once
		Lock:Off Unlock:Once
		Lock:Twice Unlock:Off
		Lock:Off Unlock:Off
	Horn Answerback Sounds at Keyless Entry Lock <Vehicles without auto light>	Off
		One Button Push
		Two Button Pushes (default)
	Horn Answerback Sounds at Keyless Entry Lock <Vehicles with auto light>	Off
		One Button Push
		One Button Push at Daytime
		Two Button Pushes at Daytime (default)
	Duration of Horn Answerback Sounds	Short (default)
		Long
	Door Entry and Engine Start Function	Both Function On (default)
		Door Entry Function On
		Engine Start Function On
		Both Function Off
	Keyless Operation Answerback Beep Sounds	Off
		Sound at Keyless Operation (default)
		Sound at Keyless Entry
		Sound at both Keyless Entry and Keyless Operation
	Time for Remote Unlock Inactivation after Locking	Off
		3 seconds (default)
		5 seconds

Group name	Setting item	Setting value
Wipers	Windshield Wipers Intermittent Operation <vehicle without auto light>	4 seconds
		Variable
		Variable & Speed Sensitive (default)
	Windshield Wipers Intermittent Operation <vehicle with auto light>	4 seconds
		Variable
		Variable & Speed Sensitive
		Variable & Rain Sensitive (default)
	Wipers Linked to Washer	Off
		On (default)
	Rear Wiper Intermittent Interval	0 second
		4 seconds
		8 seconds (default)
		16 seconds
	Rear Wiper Continuous Operation	Off (default)
		On
Exterior Lamps/Interior Lamps	Headlamp Auto-cutout Function	Off
		On (default)
	Sensitivity for Auto Lamp <Vehicle with auto light>	Early
		Somewhat Early
		Normal (default)
		Somewhat Late
		Late
	Interior Lamp Auto-cutout Time	Off
		3 minutes
		30 minutes (default)
		60 minutes
	Duration Dome Light Remains On after Door is Closed	0 second
		7.5 seconds
		15 seconds
		30 seconds (default)
		60 seconds
		120 seconds
		180 seconds
Theft Alarm	Panic Alarm	Off
		On (default)
Turn Signal	Operation in Key Position	Ignition Switch On or Accessory
		Ignition Switch On (default)
	Lane-change Signals (Flash Three Times with 1 Touch)	Off
		On (default)

TSB Revision

Group name	Setting item	Setting value
Power Door Locks	Automatic Relocking after Unlocked by Remote	30 seconds (default)
		60 seconds
		120 seconds
		180 seconds
	Unlock Operation	All Doors
		Only Driver Door (default)
	Automatic Unlock when Transmission Shifted to Park	Off (default)
		On
Others	Auto Cut of ACC Power	No Auto Cut
		Auto Cut after 30 minutes (default)
		Auto Cut after 60 minutes

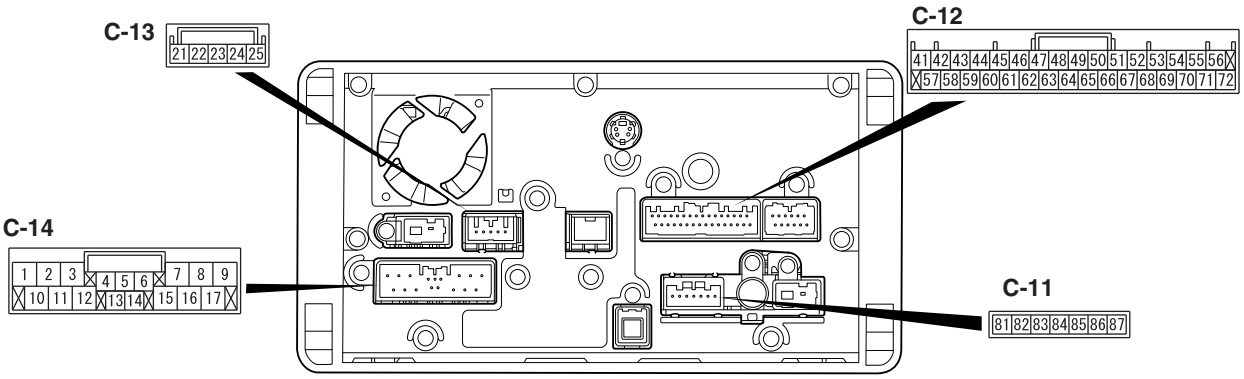
NOTE:

- *If the setting of "Wipers Linked to Washer" is changed, it cannot be reset to the initial value by the multivision display.*
- *Some items (e.g. "Coming home light", "Welcome light", "Deadlock Button Operation") cannot be set by the multivision display. (Refer to P.54A-764.)*

MAIN UNIT TERMINAL VOLTAGE

M1546003300485

MULTIVISION DISPLAY



AC611894AC

C-11

Terminal No.	Signal symbol	Check condition	Terminal voltage
81	ANTENNA POWER ON	Ignition switch: ACC position	Battery positive voltage (DC)
82	AMP POWER ON	Ignition switch: ACC position	Battery positive voltage (DC)
85	SIRIUS-L	When the satellite radio tuner operation	1.2 Vrms (AC)
86	S-GND(SIRIUS-L/R)	Always	1 volt or less
87	SIRIUS-L	When the satellite radio tuner operation	1.2 Vrms (AC)

C-12

Terminal No.	Signal symbol	Check condition	Terminal voltage
43	CAN-BOX DATA RX	Ignition switch: ACC position	2 - Battery positive voltage(pulse)
45	HFM SIGNAL (+)	When the hands free system operation	1.2 Vrms (AC)
46	HFM SIGNAL (-)	When the hands free system operation	1.2 Vrms (AC)
47	VIDEO2-IN	When the image is input	1Vp-p (AC)
48	VIDEO2-R	When the sound is input	1.2Vrms (AC)
49	SEIELD (VIDEO2-L/R)	Always	1 volt or less
53	AUDIO REMOTE	Ignition switch: ACC position	3.3V (DC)
58	CAN-BOX DATA CLK	Ignition switch: ACC position	1 - 5V (pulse)
59	CAN-BOX DATA TX	Ignition switch: ACC position	5V (DC)
63	SEIELD (VIDEO2-IN)	Always	1 volt or less

TSB Revision

Terminal No.	Signal symbol	Check condition	Terminal voltage
64	VIDEO2-L	When the sound is input	1.2Vrms (AC)
65	VIDEO2 DETECT	Always	1 volt or less
69	SEIELD (STEERING REMO)	Always	1 volt or less

C-13

Terminal No.	Signal symbol	Check condition	Terminal voltage
21	BATTERY (+)	Always	Battery positive voltage
24	PS-R	• Sift lever <M/T, TC-SST> or selector lever <CVT>: R position • Ignition switch: ON position	Hi : 5Mid : OpenLo : 0
25	GND	Always	1 volt or less

C-14

Terminal No.	Signal symbol	Check condition	Terminal voltage
2	SPEAKER RL (-)	When the sound is output	0 - Battery positive voltage (AC)
3	SPEAKER FL (-)	When the sound is output	0 - Battery positive voltage (AC)
6	AMP DATA	Ignition switch: ON	Battery positive voltage (DC)
7	SPEAKER FR (-)	When the sound is output	0 - Battery positive voltage (AC)
8	SPEAKER RR (-)	When the sound is output	0 - Battery positive voltage (AC)
9	MAIN GND	Always	1 volt or less
10	ILLUMINATION (+)	Taillight switch: ON	Battery positive voltage (DC)
11	SPEAKER RL (+)	When the sound is output	0 - Battery positive voltage (AC)
12	SPEAKER FL (+)	When the sound is output	0 - Battery positive voltage (AC)
13	VSS	Ignition switch: ON	0 - Battery positive voltage (pulse)
14	ACCESSORY (+)	Ignition switch: ACC position	Battery positive voltage (DC)

Terminal No.	Signal symbol	Check condition	Terminal voltage
15	SPEAKER FR (+)	When the sound is output	0 - Battery positive voltage (AC)
16	SPEAKER RR (+)	When the sound is output	0 - Battery positive voltage (AC)
17	BATTERY (+)	Always	Battery positive voltage (DC)

CAN BOX UNIT

AC611333

C-108

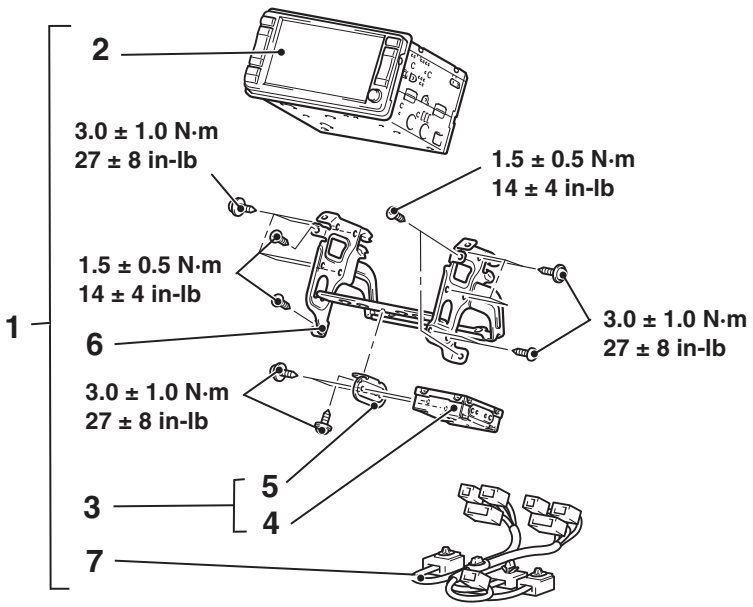
Terminal No.	Signal symbol	Check condition	Terminal voltage
1	GND	Always	1 volt or less
2	BATTERY (+)	Always	Battery positive voltage (DC)
4	TX (AND)	Ignition switch: ACC position	5V (DC)
5	RX (AND)	Ignition switch: ACC position	2 - Battery positive voltage (DC)
6	CAN-BOX DATA CLK	Ignition switch: ACC position	1 - 5V (pulse)
8	CAN-H	–	–
9	CAN-L	–	–
10	ACCESSORY (+)	Ignition switch: ACC position	Battery positive voltage (DC)

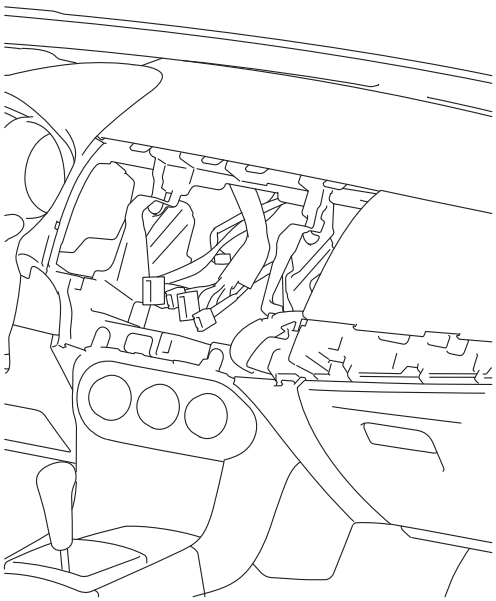
REMOVAL AND INSTALLATION

M1546001000604

Multivision display

Pre-removal operation	Post-installation operation
• Removal of Instrument center panel (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7)	• Installation of Instrument center panel (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7)





AC609098AE

Removal Step

1. Multivision display assembly
2. Multivision display
3. CAN box unit assembly
4. CAN box unit

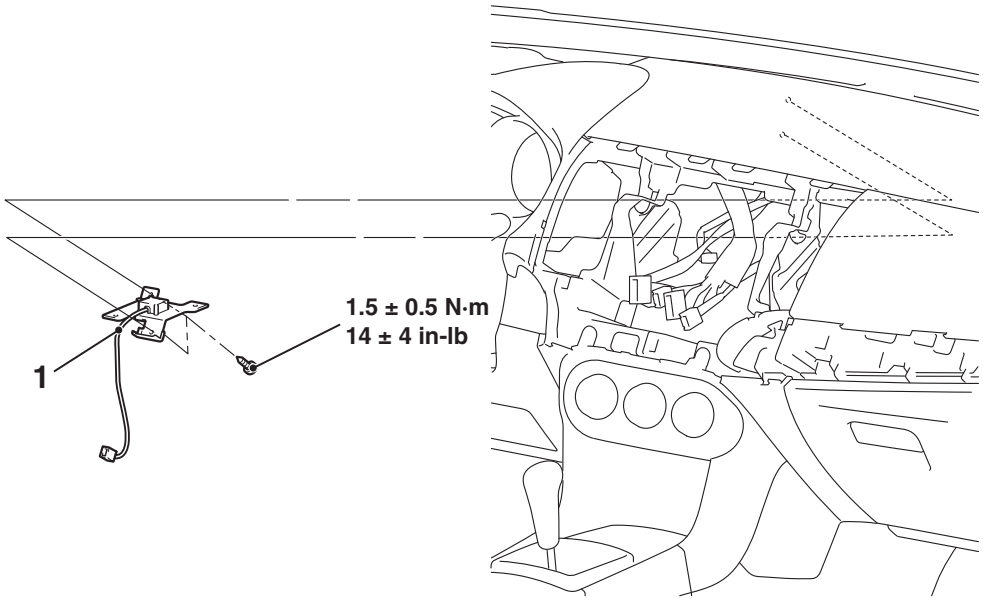
Removal Step (Continued)

5. CAN box unit bracket
6. Bracket (LH/RH)
7. Navigation harness

TSB Revision

GPS antenna

Pre-removal operation	Post-installation operation
• Removal of multivision display assembly	• Installation of multivision display assembly



AC709281

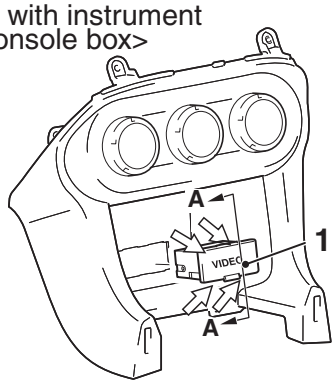
Removal Step

1. GPS antenna

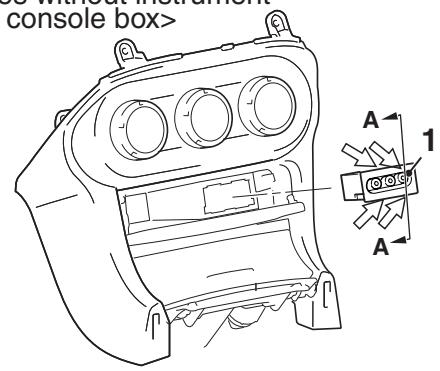
Audio and video adaptor

Pre-removal operation	Post-installation operation
• Removal of instrument panel center lower (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7)	• Installation of instrument panel center lower (Refer to GROUP 52A –Instrument Center Panel assembly P.52A-7)

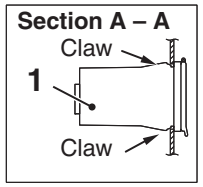
<Vehicles with instrument panel console box>



<Vehicles without instrument panel console box>



Note
⇦ : Claw positions



AC800095AD

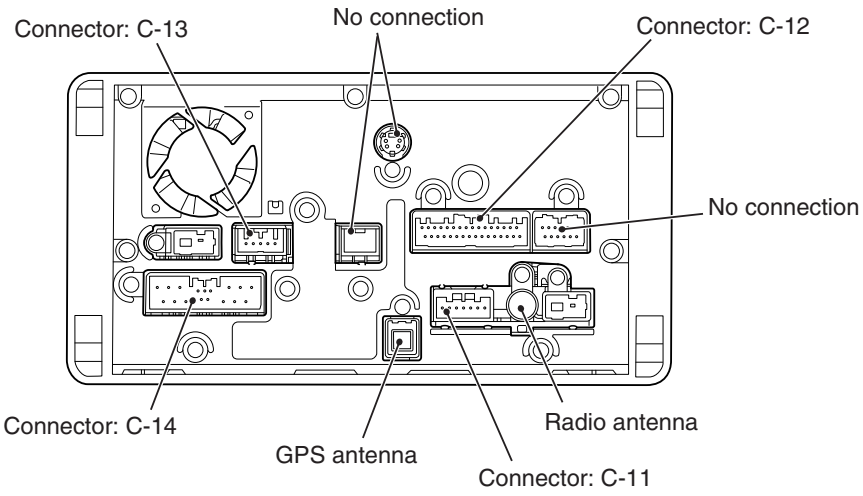
Removal Step

1. Audio and video adaptor

TSB Revision

INSTALLATION SERVICE POINT

>>A<< MULTIVISION DISPLAY



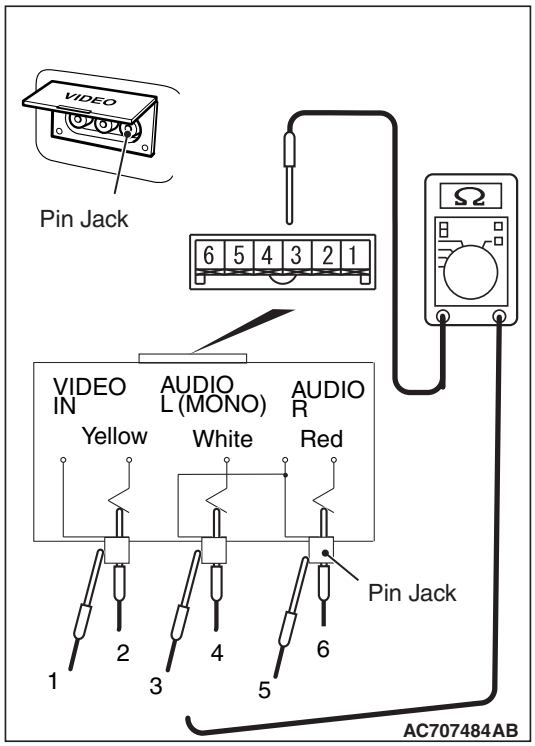
The connectors, antenna and cables connected to the multivision display are shown in the figure.

INSPECTION

AUDIO AND VIDEO ADAPTER INSPECTION

M1546312900055

1. Remove the audio and video adapter. (Refer to P.54A-527.)
2. Check that continuity exists between the terminal and the pin jack of audio and video adapter.



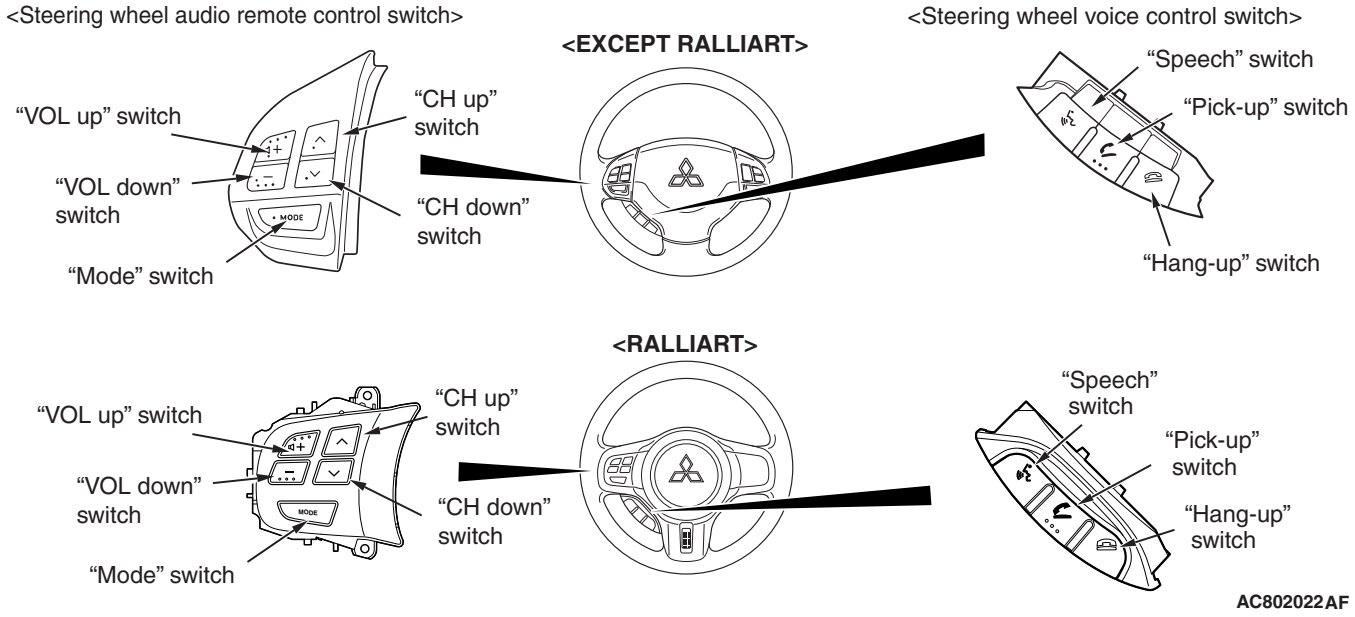
The connecting position of pin jack side circuit tester	Terminal number	Measurement value
1	2	Continuity exists (2 Ω or less)
2	1	
3	5	
4	4	
5	5	
6	6	

STEERING WHEEL AUDIO REMOTE CONTROL SWITCH

GENERAL INFORMATION

M1544000100721

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



STEERING WHEEL AUDIO REMOTE CONTROL SWITCH

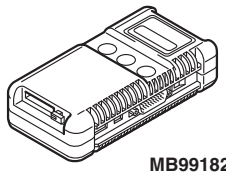
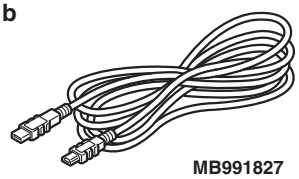
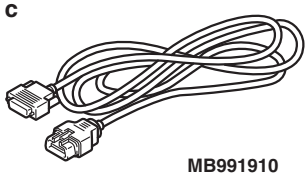
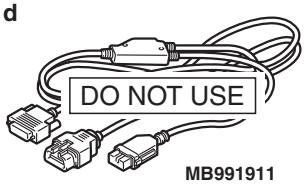
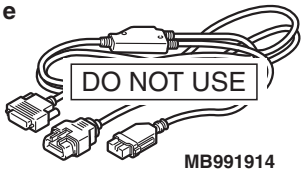
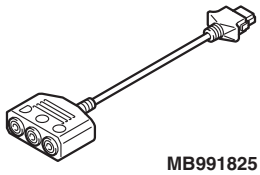
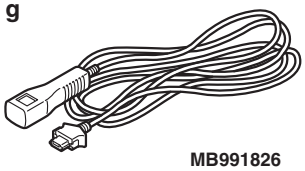
Using the steering wheel audio remote control switch, the volume adjustment of the radio and CD player and the multivision display, mode changeover, CD track up/down, and others can be performed.

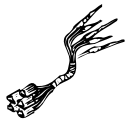
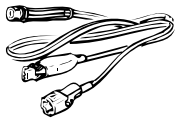
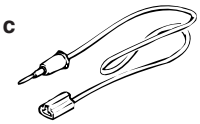
STEERING WHEEL VOICE CONTROL SWITCH <VEHICLE WITH HANDS FREE MODULE>

Using the steering wheel voice control switch, hands free cellular phone system.

SPECIAL TOOLS

M1544000600599

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** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** CAN bus diagnostics or service data check.

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800584

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

TROUBLE SYMPTOM CHART

M1544004901937

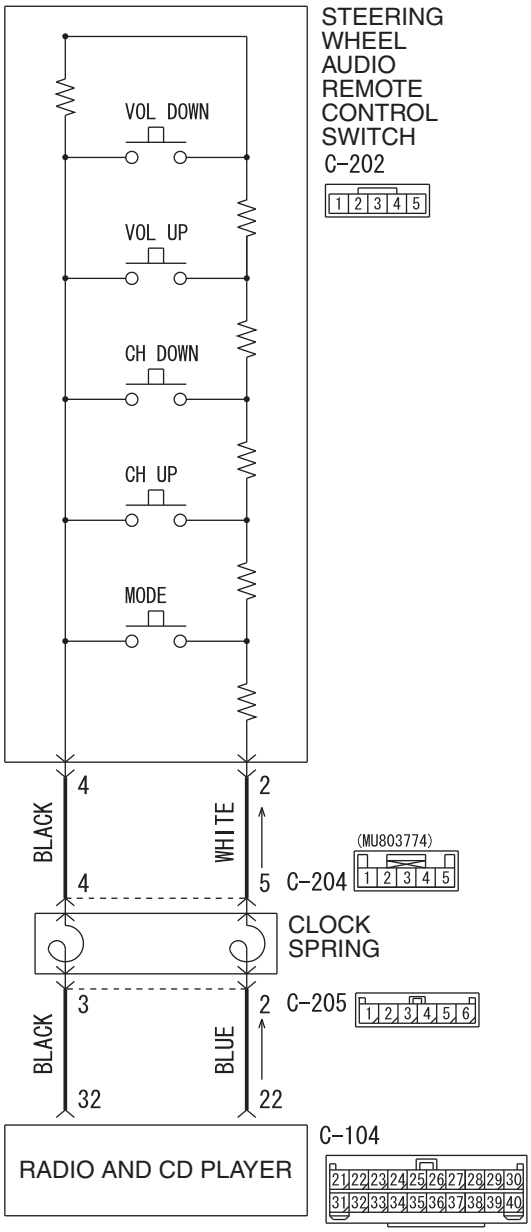
Inspection Procedure No.	Trouble symptom		Reference page
1	Steering wheel audio remote control switch does not function	<vehicles with radio and CD player>	P.54A-533
2		<vehicles with MMCS>	P.54A-538
3	Steering wheel audio remote control switch illumination does not come on.		P.54A-542

SYMPTOM PROCEDURES

Inspection Procedure 1: Steering Wheel Audio Remote Control Switch does not Function. <Vehicles with radio and CD player>

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

Steering Audio Switch Circuit



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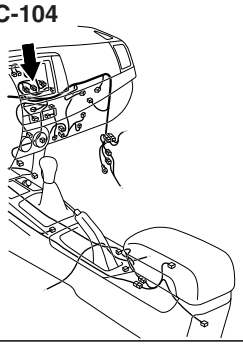
Connector: C-104



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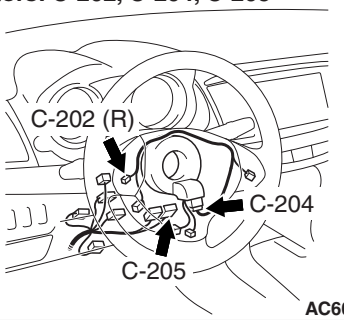
Connectors: C-202, C-204, C-205



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TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Steering wheel audio remote control switch may be defective
- Radio and CD player may be defective
- Clock spring 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
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A

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

Check whether the service data below are normal. (Refer to P.54A-412.)

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

(2) Operate each switch of the steering wheel audio remote control switch. Check whether the normal conditions listed below are displayed.

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

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Replace the radio and CD player.

NO : Go to Step 2.

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

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

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

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

YES : Go to Step 3.

NO : Replace the steering wheel audio remote control switch.

STEP 3. Check clock spring connector C-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-204 and C-205 in good condition?

YES : Go to Step 4.

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

STEP 4. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B, Driver's Air Bag Module and Clock Spring P.52B-420 <EXCEPT RALLIART> or P.52B-428 <RALLIART>).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the clock spring.

STEP 5. Check radio and CD player connector C-104 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player connector C-104 in good condition?

YES : Go to Step 6.

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

STEP 6. Check the wiring harness between radio and CD player connector C-104 (terminal 22, 32) and clock spring connector C-205 (terminal 2, 3).

- Check the communication lines for open and short circuit.

Q: Is the wiring harness between radio and CD player connector C-104 (terminal 22, 32) and clock spring connector C-205 (terminal 2, 3) in good condition?

YES : Go to Step 7.

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

STEP 7. Check steering wheel audio remote control switch connector C-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering wheel audio remote control switch connector C-202 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 steering wheel audio remote control switch connector C-202 (terminal 2, 4) and clock spring connector C-204 (terminal 5, 4).

- Check the communication lines for open and short circuit.

Q: Is the wiring harness between steering wheel audio remote control switch connector C-202 (terminal 2, 4) and clock spring connector C-204 (terminal 5, 4) in good condition?

YES : Go to Step 9.

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

STEP 9. Retest the system

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

Q: Is the check result normal?

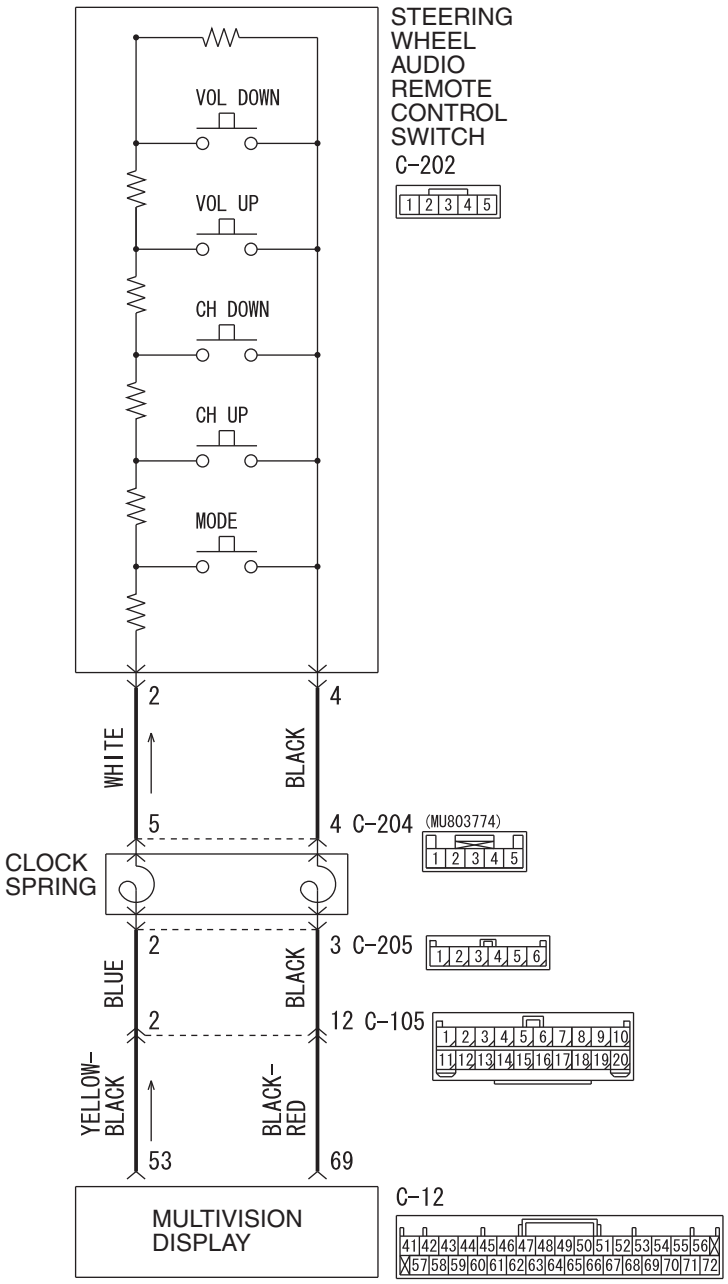
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the radio and CD player.

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

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

Steering Audio Switch Circuit



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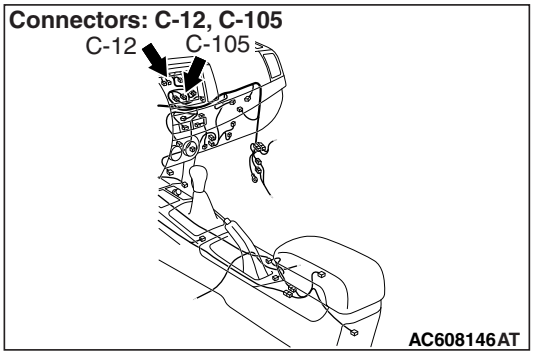
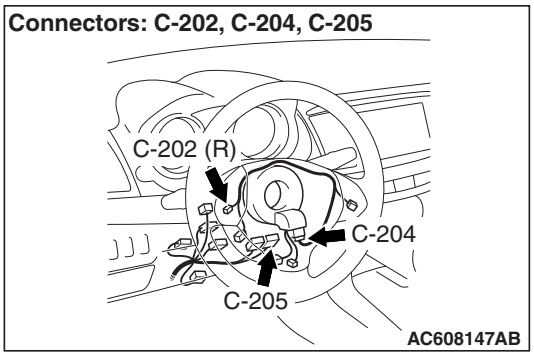
TSB Revision





TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Steering wheel audio remote control switch may be defective
- Multivision display may be defective
- Clock spring 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 the steering wheel audio remote control switch.

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

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

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

YES : Go to Step 2.

NO : Replace the steering wheel audio remote control switch.

STEP 2. Check clock spring connector C-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connector C-204 and C-205 in good condition?

YES : Go to Step 3.

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

STEP 3. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B - Driver's Air Bag Module and Clock Spring P.52B-420 <EXCEPT RALLIART> or P.52B-428 <RALLIART>).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the clock spring.

STEP 4. Check multivision display connector C-12 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is multivision display connector C-12 in good condition?

YES : Go to Step 5.

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

STEP 5. Check the wiring harness between multivision display connector C-12 (terminal 53, 69) and clock spring connector C-205 (terminal 2, 3).

- Check the communication lines for open and short circuit.

NOTE: Also check intermediate connector C-105 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-105 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between multivision display connector C-12 (terminal 53, 69) and clock spring connector C-205 (terminal 2, 3) in good condition?

YES : Go to Step 6.

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

STEP 6. Check steering wheel audio remote control switch connector C-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering wheel audio remote control switch connector C-202 in good condition?

YES : Go to Step 7.

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

STEP 7. Check the wiring harness between steering wheel audio remote control switch connector C-202 (terminal 2, 4) and clock spring connector C-204 (terminal 5, 4).

- Check the communication lines for open and short circuit.

Q: Is the wiring harness between steering wheel audio remote control switch connector C-202 (terminal 2, 4) and clock spring connector C-204 (terminal 5, 4) in good condition?

YES : Go to Step 8.

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

STEP 8. Retest the system

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

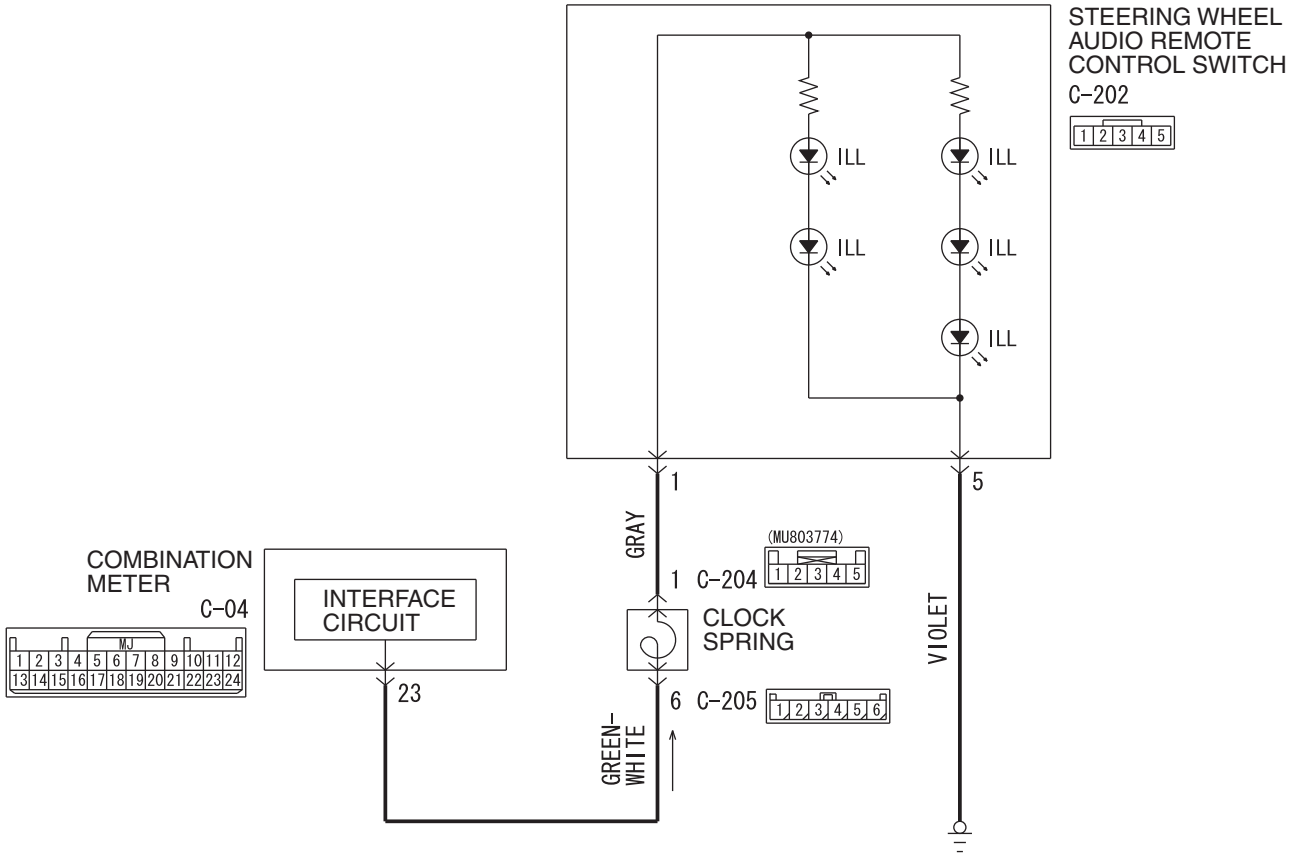
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the multivision display.

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

Steering Wheel Audio Remote Control Switch Illumination Circuit



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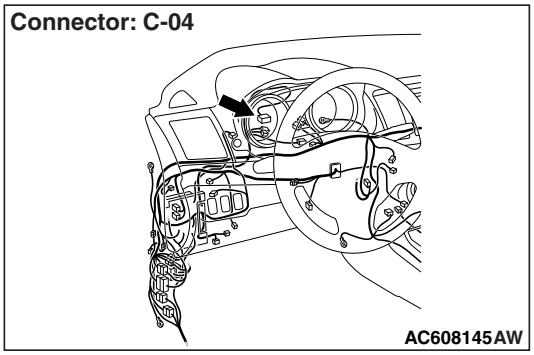

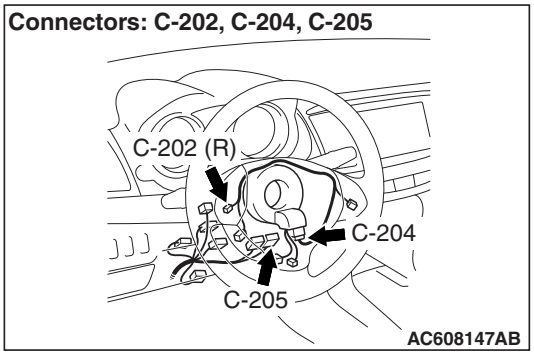

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Steering wheel audio remote control switch may be defective
- Combination meter may be defective
- Clock spring may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

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DIAGNOSIS

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

STEP 1. Check steering wheel audio remote control switch connector C-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

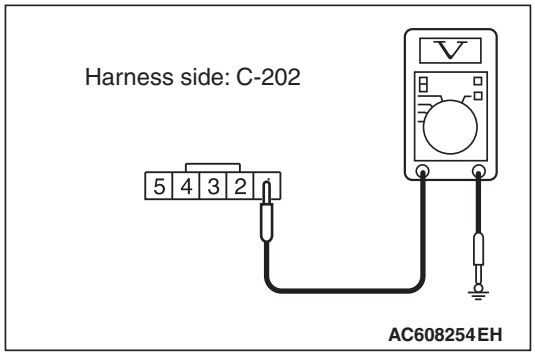
Q: Is steering wheel audio remote control switch connector C-202 in good condition?

YES : Go to Step 2.
NO : Repair the defective connector.

STEP 2. Check the power supply circuit to the wheel audio remote control switch. Measure the voltage at wheel audio remote control switch connector C-202.

(1) Disconnect the connector, and measure at the wiring harness-side connector.
(2) Turn the ignition switch to the "ACC" position, and turn the taillight switch to the "ON" position.
(3) Measure the voltage between terminal 1 and ground.

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

YES : Go to Step 3.
NO : Go to Step 5.

STEP 3. Check the wiring harness between steering wheel audio remote control switch connector C-202 (terminal 5) and ground.

- Check the ground wire for open circuit.

Q: Is the wiring harness between steering wheel audio remote control switch connector C-202 (terminal 5) and ground 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. Check the steering wheel audio remote control switch.

Check the illumination of the steering wheel audio remote control switch.(Refer to P.54A-547.)

Q: Is the check result normal?

YES : Go to Step 10.

NO : Replace the steering wheel audio remote control switch.

STEP 5. Check clock spring connectors C-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connectors C-204 and C-205 in good condition?

YES : Go to Step 6.

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

STEP 6. Check the clock spring.

Check whether the clock spring is in good condition (Refer to GROUP 52B - Driver's Air Bag Module and Clock Spring P.52B-420 <EXCEPT RALLIART> or P.52B-428 <RALLIART>).

Q: Is the check result normal?

YES : Go to Step 7.

NO : Replace the clock spring.

STEP 7. Check the wiring harness between steering wheel audio remote control switch connector C-202 (terminal 1) and clock spring connector C-204 (terminal 1).

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

Q: Is the wiring harness between steering wheel audio remote control switch connector C-202 (terminal 1) and clock spring connector C-204 (terminal 1) in good condition?

YES : Go to Step 8.

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

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

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

YES : Go to Step 9.

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

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

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

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

YES : Go to Step 10.

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

STEP 10. Retest the system

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

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the steering wheel audio remote control switch.

SERVICE DATA

M1544014100111

Refer to Radio and CD player P.54A-412.

REMOVAL AND INSTALLATION

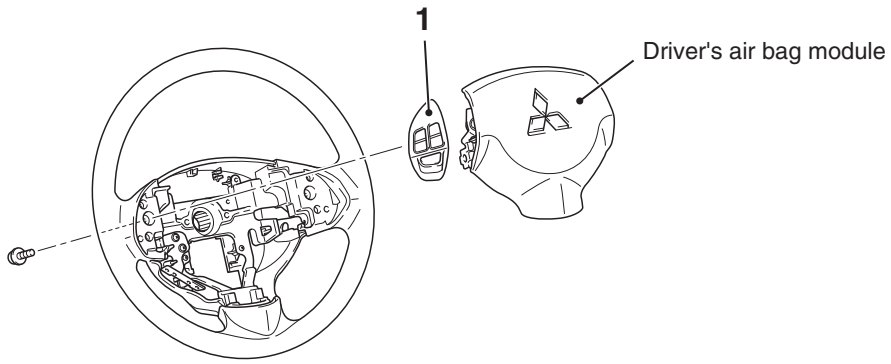
M1544015600216

⚠ WARNING

- ***Before removing the air bag module, refer to GROUP 52B, Service Precautions (P.52B-26) and Driver's Air Bag Module and Clock Spring (P.52B-414 <EXCEPT RALLIART> or P.52B-422 <RALLIART>).***
- ***When removing and installing the steering wheel, do not let it bump against the air bag module.***

<EXCEPT RALLIART>

Pre-removal operation	Post-installation operation
• Removal of driver's air bag module (Refer to GROUP 52B, Driver's, Front Passenger's Air Bag Module and Clock Spring P.52B-414).	• Installation of driver's air bag module (Refer to GROUP 52B, Driver's, Front Passenger's Air Bag Module and Clock Spring P.52B-422).



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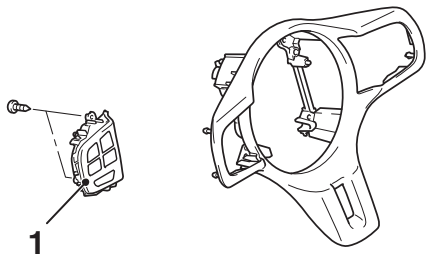
Removal Step

1. Steering wheel audio remote control switch

<RALLIART>

Pre-removal operation	Post-installation operation
• Removal of garnish (Refer to GROUP 37 –Steering Wheel P.37-32.)	• Installation of garnish (Refer to GROUP 37 –Steering Wheel P.37-32.)



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Removal Step

1. Steering wheel audio remote control switch

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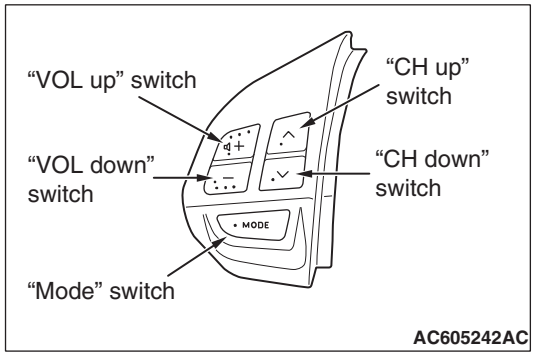
STEERING WHEEL AUDIO REMOTE CONTROL SWITCH INSPECTION

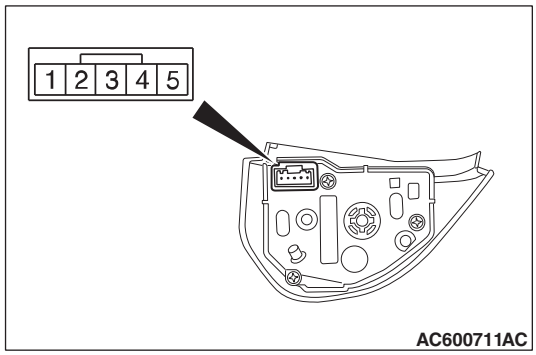
M1544015700280

<EXCEPT RALLIART>

STEERING WHEEL AUDIO REMOTE CONTROL SWITCH CHECK

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



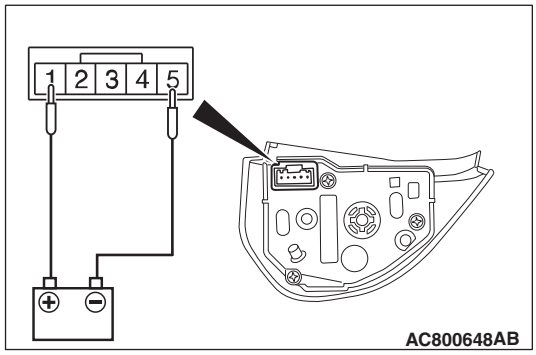


Switch Position	Tester Connection	Measurement Value
No push	2 –3	Approximately 3.1 kΩ
	2 –4	Approximately 71 kΩ
"Mode" switch		Approximately 270 Ω
"CH up" switch		Approximately 740 Ω
"CH down" switch		Approximately 1.3 kΩ
"VOL up" switch		Approximately 2.1 kΩ
"VOL down" switch		Approximately 3.1 kΩ

ILLUMINATION CHECK

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

NOTE: Make sure that the polarity is correct.



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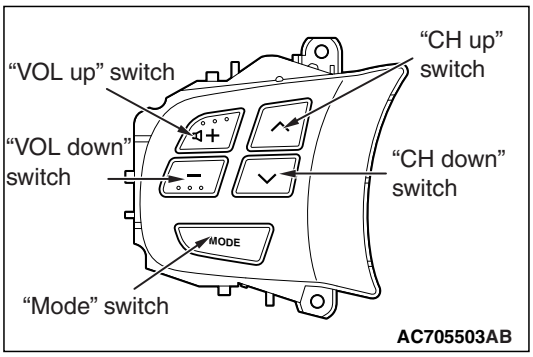
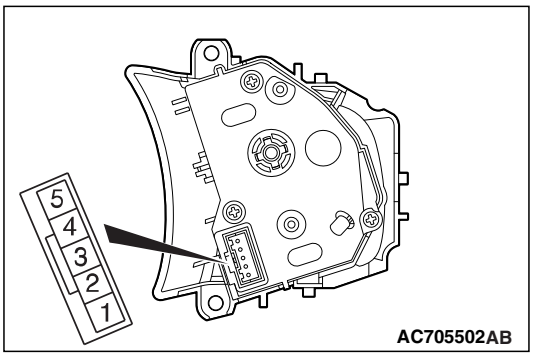
STEERING WHEEL AUDIO REMOTE CONTROL SWITCH CHECK

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



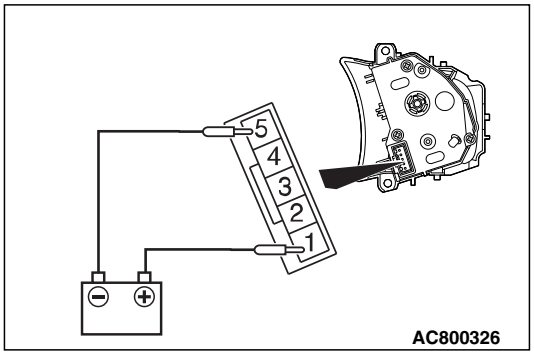


Switch Position	Tester Connection	Measurement Value
No push	2 –3	Approximately 3.1 kΩ
	2 –4	Approximately 71 kΩ
"Mode" switch		Approximately 270 Ω
"CH up" switch		Approximately 740 Ω
"CH down" switch		Approximately 1.3 kΩ
"VOL up" switch		Approximately 2.1 kΩ
"VOL down" switch		Approximately 3.1 kΩ

ILLUMINATION CHECK

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

NOTE: Make sure that the polarity is correct.



HANDS FREE CELLULAR PHONE SYSTEM

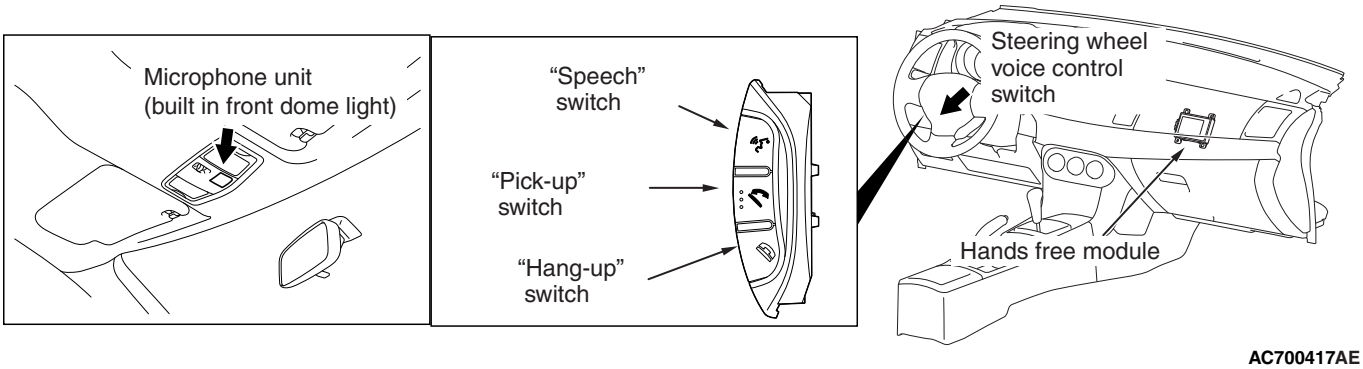
GENERAL INFORMATION

M1544401200127

With the hands free cellular phone system by registering a cellular phone for Bluetooth®* with voice recognition to the hands free module, the telephone function becomes available without operating the cellular phone directly. The hands free cellular phone system can be used without connecting the cellular phone to the vehicle via wiring cable.

*NOTE: *: 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.*

Construction diagram



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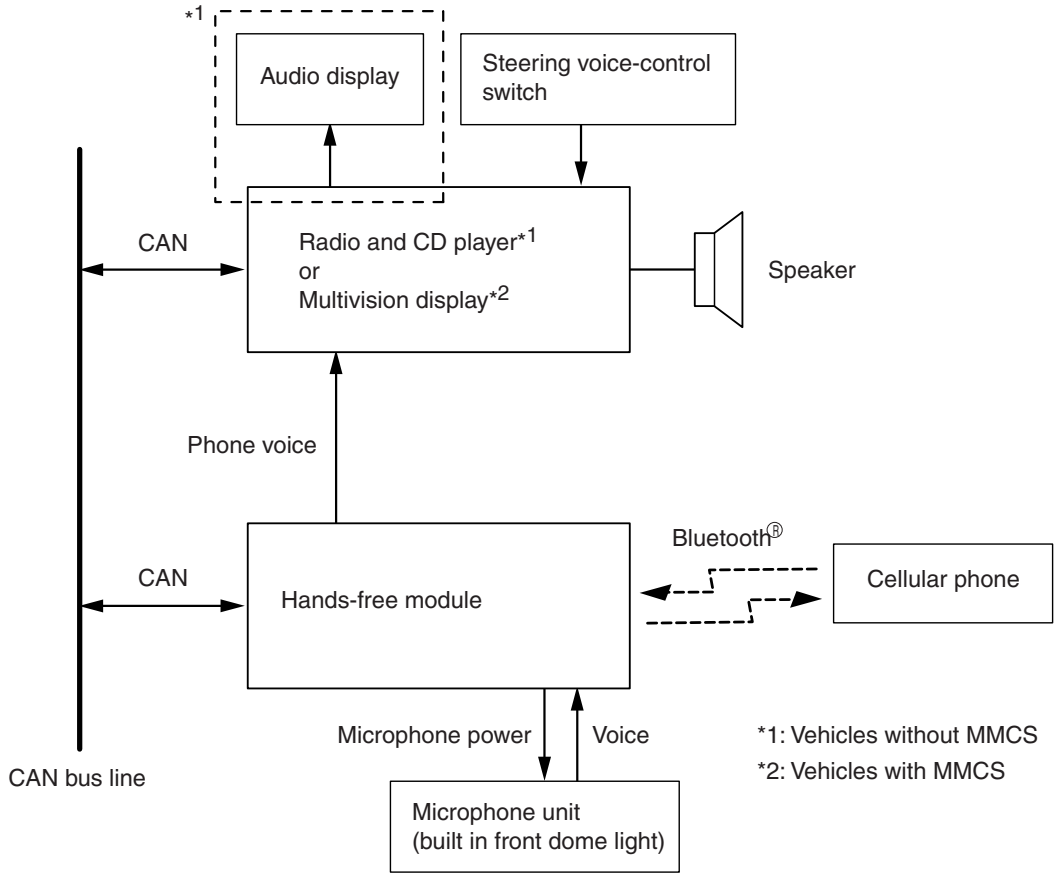
When the registered cellular phone is inside the vehicle, the hands free cellular phone system operates as follows.

NOTE: The owner's manual contains details on pairing a cellular phone with the Bluetooth system, speaker enrollment, and other functions.

- When the cellular phone receives a call, the occupant can start conversation by pressing "Pick-up" in the steering wheel voice control switch on the steering wheel. When the conversation ends, the occupant can finish the call by pressing "Hang-up" in the steering voice-control switches.
- To make a call, press "Speech" in the steering wheel voice control switch on the steering wheel, call up the registered receiver's information in the voice input mode, press "Pick-up". Then, the transmission starts to call the receiver. Also, when the conversation ends, the occupant can finish the call by pressing "Hang-up" in the steering wheel voice control switch.
- The communication directly via a cellular phone can be switched to the communication via a hands free module. Also, the communication via a hands free module can be switched to the communication directly via a cellular phone.
- The voice input mode corresponds to the following languages: English, American Spanish, Canadian French.
- The voice of occupant is picked up by the microphone unit incorporated in the front dome light, and then transmitted to the cellular phone via hands free module. Also, the receiver's voice is transmitted from the cellular phone to radio and CD player <vehicles without MMCS> or Multivision display <vehicles with MMCS> via hands free module, and then output from the vehicle-mounted speaker.
- Using the steering wheel audio remote control switch, the volume can be adjusted.
- The reception state of the cellular phone is indicated on the display section of radio and CD player <vehicles without MMCS> or Multivision display <vehicles with MMCS>.

System block diagram



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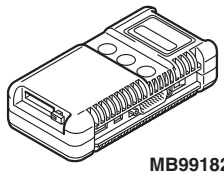
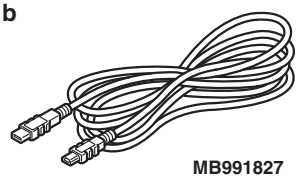
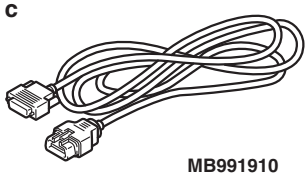
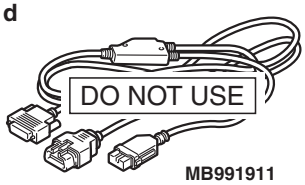
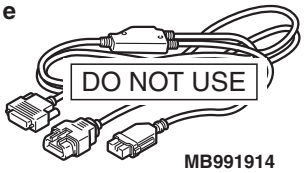
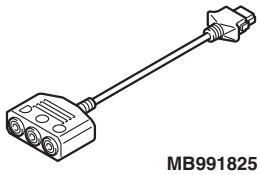
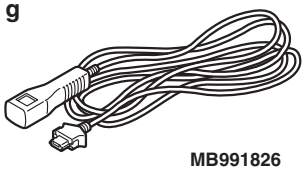
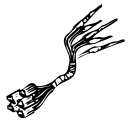
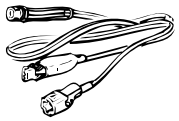
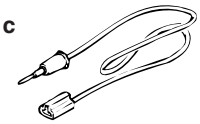
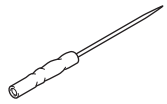
SPECIAL TOOLS

M1544403500094

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** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** CAN bus diagnostics or data list check.

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

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540203800011

Refer to GROUP 00 –Contents of troubleshooting P.00-6.

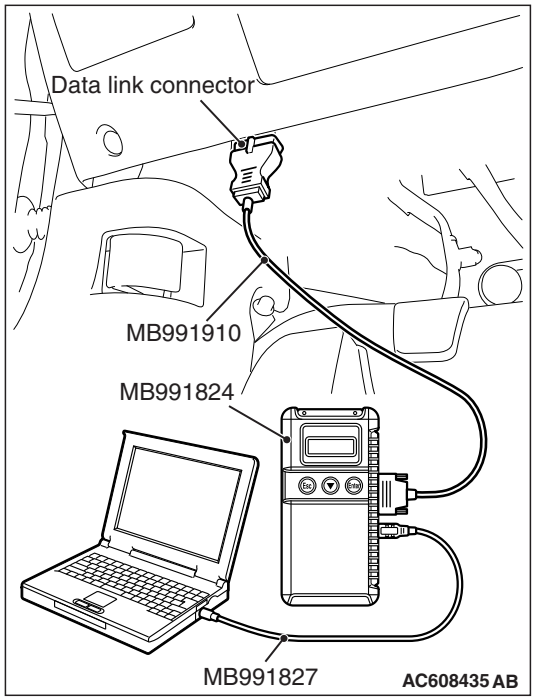
DIAGNOSIS FUNCTION

M1544403100159

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

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

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

CHECK OF FREEZE FRAME DATA

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

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

Display item list

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

DIAGNOSTIC TROUBLE CODE CHART

M1544403200219

⚠ CAUTION

On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnostic trouble code(s) associated with other system may be set. On completion, confirm all systems for diagnostic trouble code(s). If diagnostic trouble code(s) are set, erase them all.

Diagnostic trouble code number	Diagnostic item	Reference page
B2468	Microphone input short to BATT	P.54A-556
B2470	Microphone input short to ground	
B2471	On hook button stuck	P.54A-559
B2472	Off hook button stuck	
B2473	VR button stuck	
B2475	VIN not programmed	P.54A-565
U0019	Bus off (CAN-B)	P.54A-566
U0141	ETACS CAN timeout	P.54A-568
U0151	SRS-ECU CAN timeout	P.54A-570
U0154	OCM (occupant classification-ECU) CAN timeout	P.54A-572
U0155	Meter CAN timeout	P.54A-574
U0164	A/C CAN timeout	P.54A-576
U0168	WCM/KOS CAN timeout	P.54A-578
U0184	AUDIO CAN timeout	P.54A-580
U0195	Satellite radio CAN timeout	P.54A-582
U0245	AND [Audio visual Navigation (HDD) unit] CAN timeout	P.54A-584

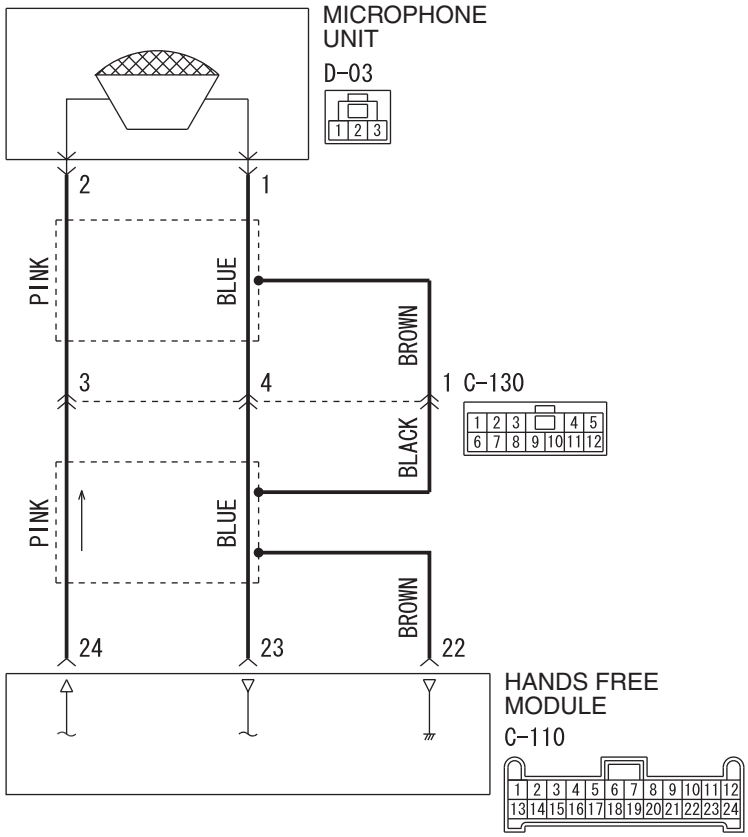
DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2468: Microphone input short to BATT
DTC B2470: Microphone input short to ground

⚠ CAUTION
If DTC B2468 or B2470 is set, be sure to diagnose the CAN bus line.

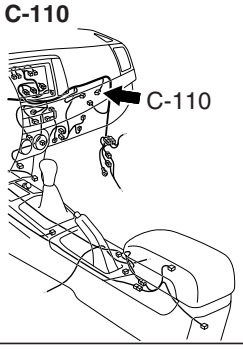
⚠ CAUTION
Before replacing the module, ensure that the communication circuit is normal.

Hands Free Cellular Phone System Circuit



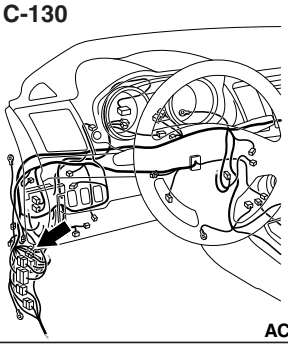
W9H54M049A

Connectors: C-110



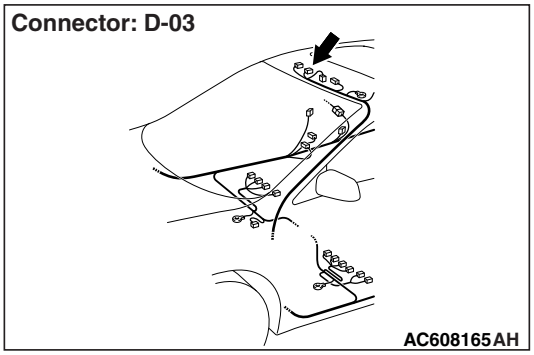
AC608146CD

Connector: C-130



AC608145AX

TSB Revision



TECHNICAL DESCRIPTION (COMMENT)

When the hands free module judges that the connection with microphone unit is abnormal for 5 seconds or more, it stores diagnostic trouble code B2468 or B2470.

TROUBLESHOOTING HINTS

- The hands free module may be defective.
- The microphone unit 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
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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

Use scan tool MB991958 to diagnose the CAN bus lines.

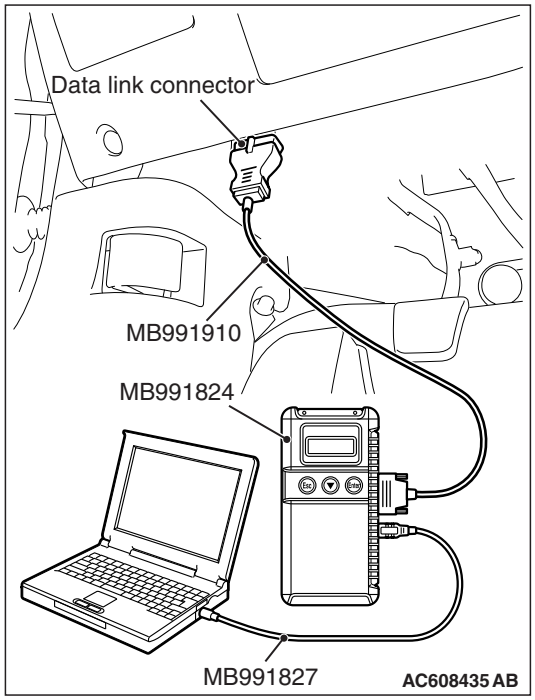
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).



TSB Revision

STEP 2. Check microphone unit connector D-03 and hands free module connector C-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are microphone unit connector D-03 and hands free module connector C-110 in good condition?

YES : Go to Step 3.
NO : Repair the defective connector.

STEP 3. Check the wiring harness between microphone unit connector D-03 (terminal 1, 2) and hands free module connector C-110 (terminal 23, 24).

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

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

Q: Is the wiring harness between microphone unit connector D-03 (terminal 1, 2) and hands free module connector C-110 (terminal 23, 24) 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. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Go to Step 5.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Temporarily replace the microphone unit, and check whether the diagnostic trouble code.

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

Q: Is the DTC set?

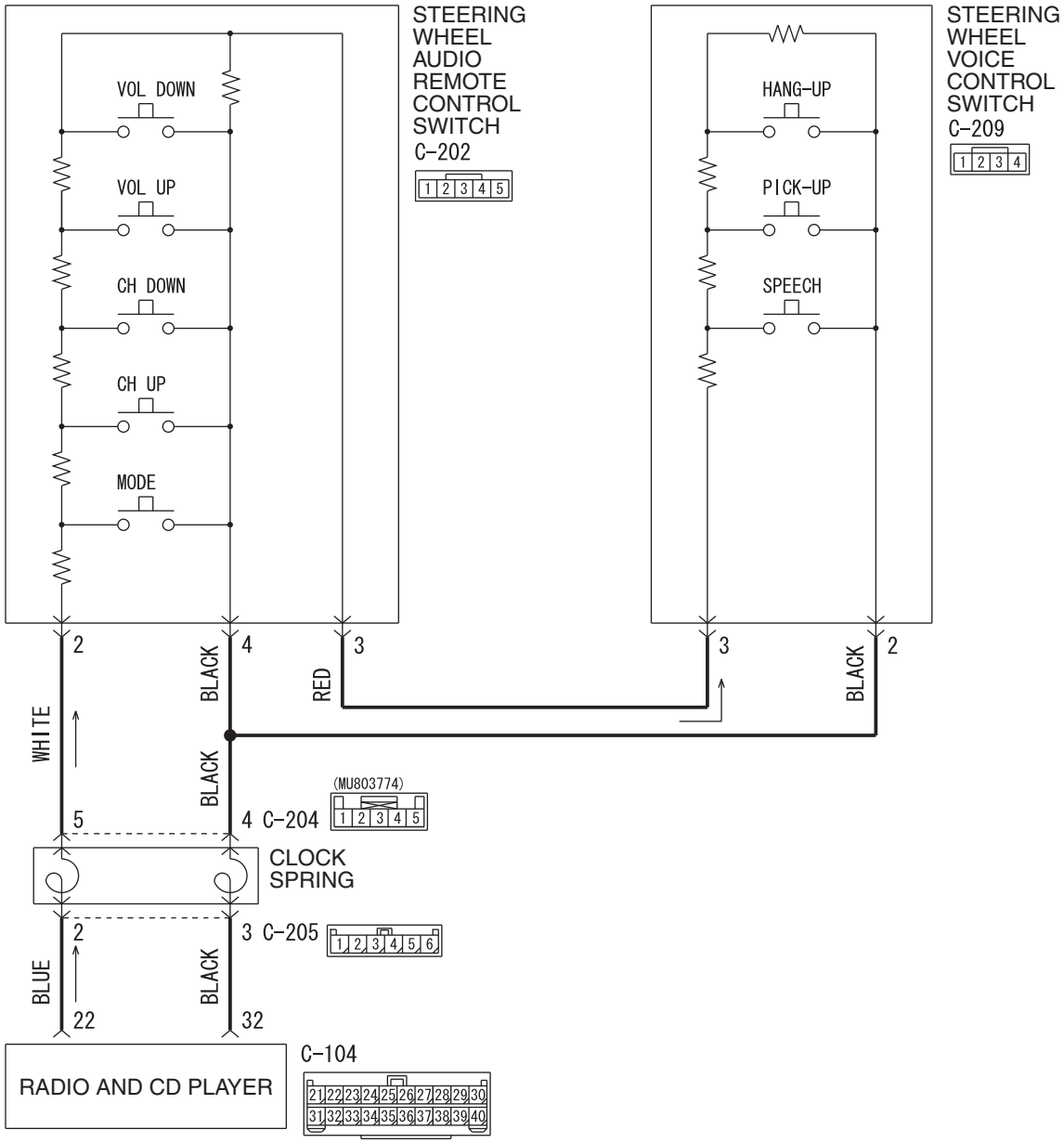
YES : Replace the hands free module.
NO : Replace the microphone unit.

DTC B2471: On hook button stuck
DTC B2472: Off hook button stuck
DTC B2473: VR button stuck

⚠ CAUTION
If DTC B2471, B2472 or B2470 is set, be sure to diagnose the CAN bus line.

⚠ CAUTION
Before replacing the module, ensure that the communication circuit is normal.

Steering Wheel Voice Controln Switch Circuit <Vehicles without MMCS>



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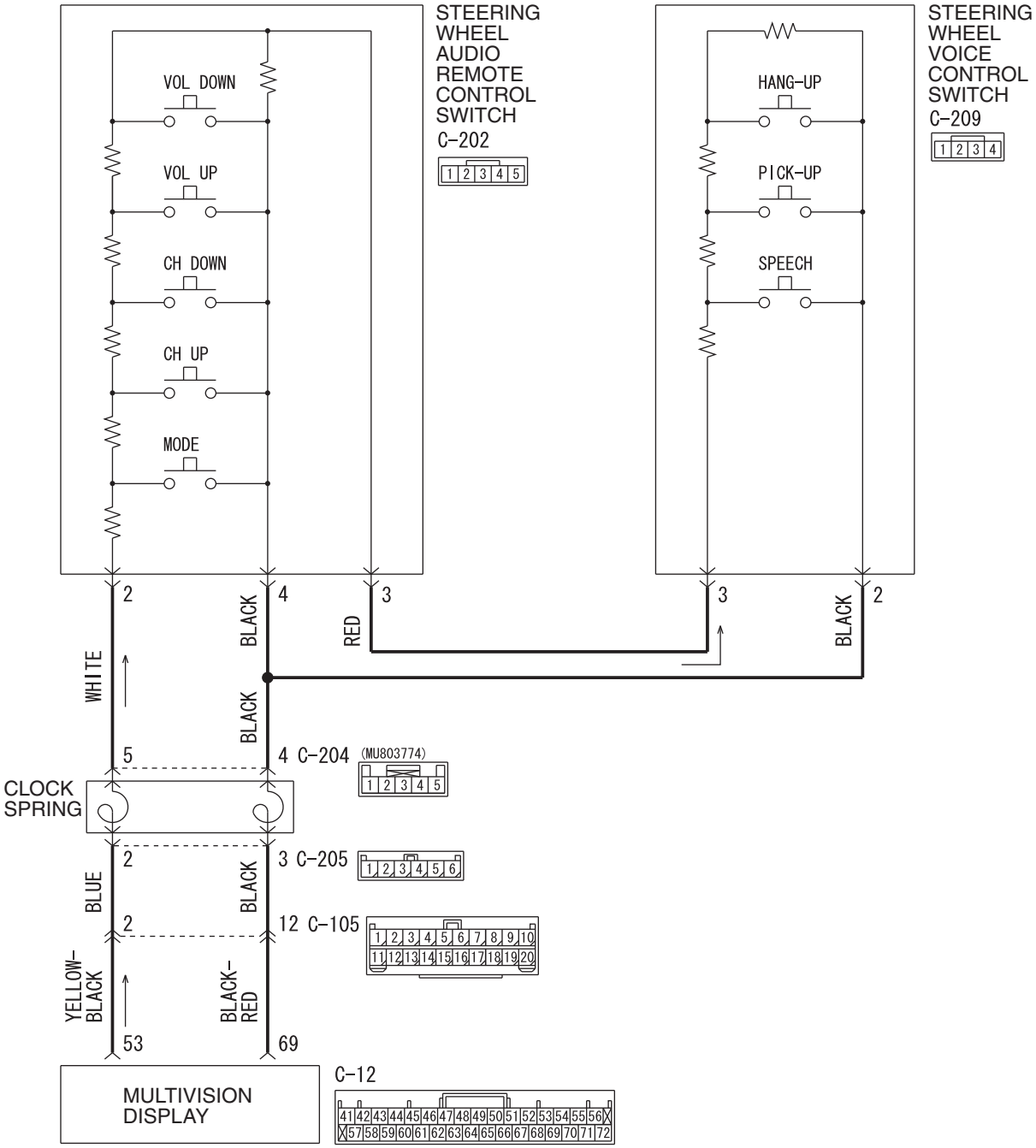
TSB Revision

Steering Wheel Voice Control Switch Circuit <Vehicles with MMCS>



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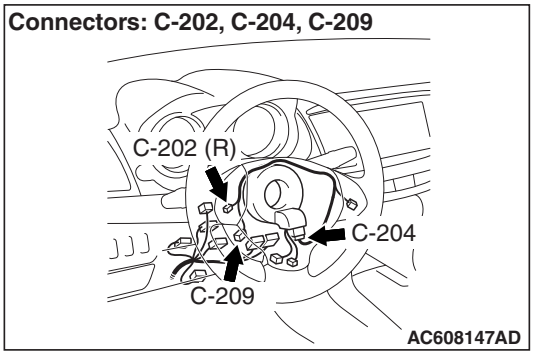
TSB Revision



TECHNICAL DESCRIPTION (COMMENT)

When the hands free module receives any switch signal from the speech switch, pick-up switch, hang-up switch of steering wheel voice control switch for approximately 1 or 2 minutes continuously, it stores diagnostic trouble code B2471 (hang-up switch), B2472 (pick-up switch) or B2473 (speech switch) for each switch.

TROUBLESHOOTING HINTS

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector
- The hands free module may be defective.
- The microphone unit may be defective.
- The CAN bus line may be defective.
- The steering wheel voice control switch may be defective.
- The the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> may be defective.

DIAGNOSIS

Required Special Tools:

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

STEP 1. Check the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>.

Check that the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> works normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Diagnose the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> (Refer to radio and CD player –Diagnosis P.54A-373 <vehicles without MMCS> or MMCS –Diagnosis P.54A-463 <vehicles with MMCS>).

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

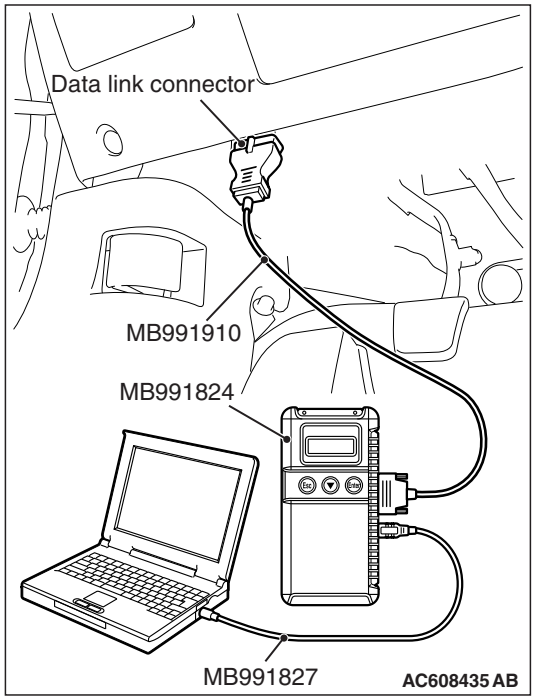
Check that the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> can be operated normally using the steering wheel audio remote control switch.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Diagnose the steering wheel audio remote control switch (Refer to P.54A-533 <vehicles without MMCS> or P.54A-538 <vehicles with MMCS>).

TSB Revision



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

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 4. Using scan tool MB991958 read the radio and CD player <vehicles without MMCS> or CAN box unit <vehicles with MMCS> diagnostic trouble code.

Check the diagnostic trouble code is set to the radio and CD player <vehicles without MMCS> or CAN box unit <vehicles with MMCS>.

Check whether a radio and CD player <vehicles without MMCS> or CAN box unit <vehicles with MMCS> DTCs are set or not.

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

Q: Is the DTC set?

YES : Diagnose the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> (Refer to radio and CD player –Diagnosis P.54A-343 <vehicles without MMCS> or MMCS –Diagnosis P.54A-436 <vehicles with MMCS>).
NO : Go to Step 5.

STEP 5. Check the steering wheel voice control switch.
Check the continuity at the steering wheel voice control switch.(Refer to P.54A-618.)

Q: Is the check result normal?

YES : Go to Step 6.
NO : Replace the steering wheel voice control switch.

STEP 6. Check the steering wheel audio remote control switch.
Check the continuity at the steering wheel audio remote control switch.(Refer to P.54A-547.)

Q: Is the check result normal?

YES : Go to Step 7.
NO : Replace the steering wheel audio remote control switch.

STEP 7. Check steering wheel audio remote control switch connector C-202 and steering wheel voice control switch connector C-209 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are wheel audio remote control switch connector C-202 and steering wheel voice control switch connector C-209 in good condition?

YES : Go to Step 8.
NO : Repair the defective connector.

STEP 8. Check the wiring harness between steering wheel voice control switch connector C-209 (terminal 3) and steering wheel audio remote control switch connector C-202 (terminal 3).

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

Q: Is the wiring harness between steering wheel voice control switch connector C-209 (terminal 3) and steering wheel audio remote control switch connector C-202 (terminal 3) 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 wiring harness between steering wheel voice control switch connector C-209 (terminal 2) and clock spring connector C-202 (terminal 4).

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

Q: Is the wiring harness between steering wheel voice control switch connector C-209 (terminal 2) and clock spring connector C-202 (terminal 4) in good condition?

YES : Go to Step 10.

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

STEP 10. Recheck for diagnostic trouble code.

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

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

Q: Is the DTC set?

YES : Go to Step 11.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

STEP 11. Temporarily replace the hands free module, and check whether the diagnostic trouble code is reset.

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

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

Q: Is the DTC set?

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

NO : Replace the hands free module.

DTC B2475: VIN not programmed

⚠ CAUTION

- **If the diagnostic trouble code B2475 is set, be sure to diagnose the CAN bus line.**
- **When replacing the module, always check that the communication circuit is normal.**

TROUBLE JUDGMENT

With the ignition switch at the "ON" position, if the VIN is not written to the hands free module, diagnostic trouble code B2475 is stored.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The hands free module may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

Required Special Tools:

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

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

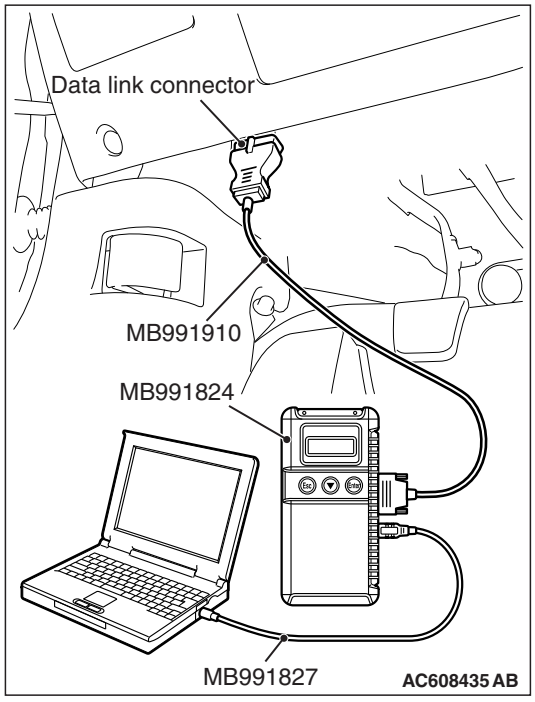
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).



STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check if the diagnostic trouble code relating to the coding error is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-674), and then go to Step 3.
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

DTC U0019: Bus off (CAN-B)

⚠ CAUTION
- **If DTC U0019 is set, be sure to diagnose the CAN bus line.**
- **When replacing the module, always check that the communication circuit is normal.**

TROUBLE JUDGMENT
When the hands free module is returned from the bus off state, or when the bus error is indicated to the hands free module state, the DTC U0019 (CAN-B) is set.

TECHNICAL DESCRIPTION (COMMENT)
The hands free module, power supply for the hands free module, ground circuit, or CAN bus line may have a problem.

TROUBLESHOOTING HINTS
- The hands free module may be defective.
- The CAN bus line may be defective.

DIAGNOSIS

Required Special Tools:

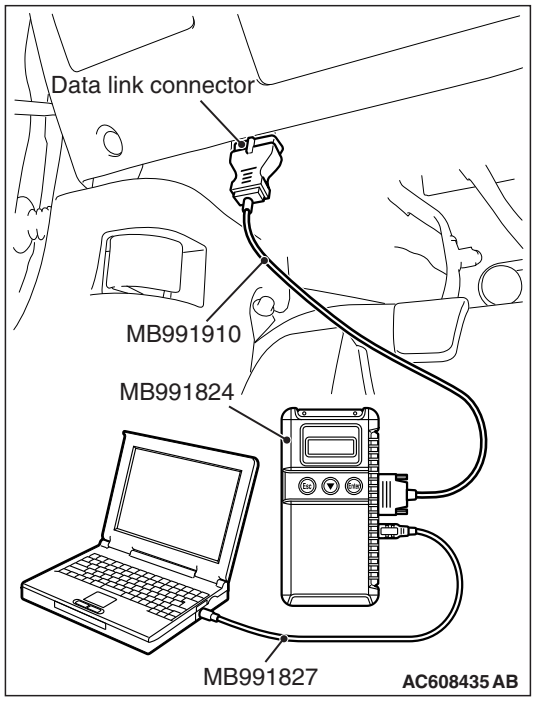
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

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

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) On completion, go to Step 2.

STEP 2. Check whether the scan tool MB991958 can communicate with the hands free module.

Q: Is the check result normal?

YES : Erase the diagnostic trouble code. The procedure is complete.
NO : Check the power supply circuit of the hands free module, and repair if necessary.

DTC U0141: ETACS CAN timeout

⚠ CAUTION
- **If the DTC U0141 is set, be sure to diagnose the CAN bus line.**
- **When replacing the module, always check that the communication circuit is normal.**

TECHNICAL DESCRIPTION (COMMENT)

If the signal from ETACS-ECU cannot be received, the hands free module sets the diagnostic trouble code No. U0141.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The hands free module may be defective
- The ETACS-ECU may be defective

DIAGNOSIS

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

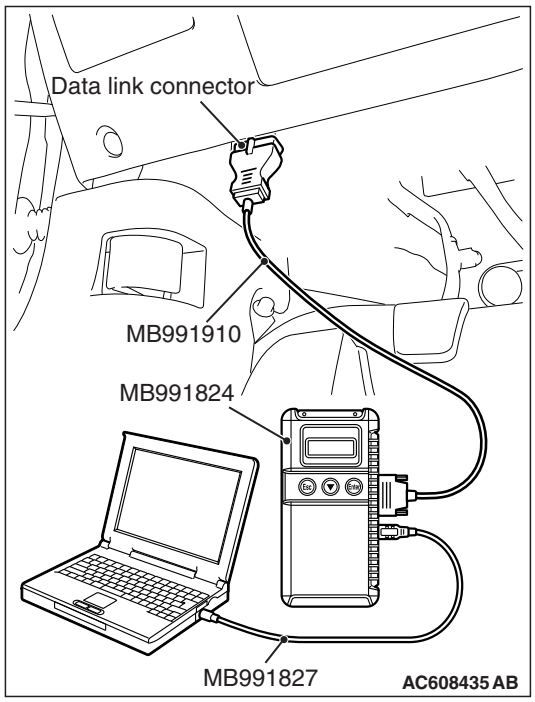
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).



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

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

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-674).
NO : Go to Step 3.

TSB Revision

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.
Check if DTC U0141 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION
- **If DTC U0151 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

TECHNICAL DESCRIPTION (COMMENT)

If the signal from SRS-ECU cannot be received, the hands free module sets the DTC U0151.

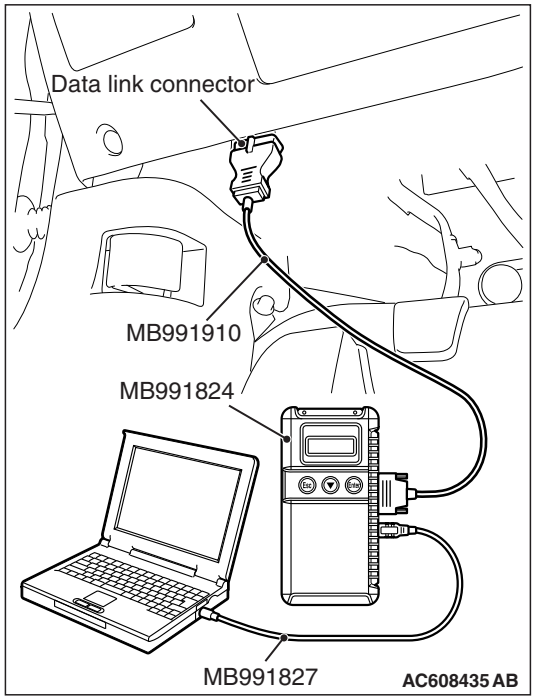
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The hands free module may be defective
- The SRS-ECU may be defective

DIAGNOSIS

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

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



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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-32).
NO : Go to Step 3.

TSB Revision

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.
Check if the DTC U0151 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the SRS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

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

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

⚠ CAUTION
When replacing the module, always check that the communication circuit is normal.

DIAGNOSTIC FUNCTION

When the signals from occupant classification-ECU cannot be received, the hands free module sets DTC U0154.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The hands free module may be defective.
- The occupant classification-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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

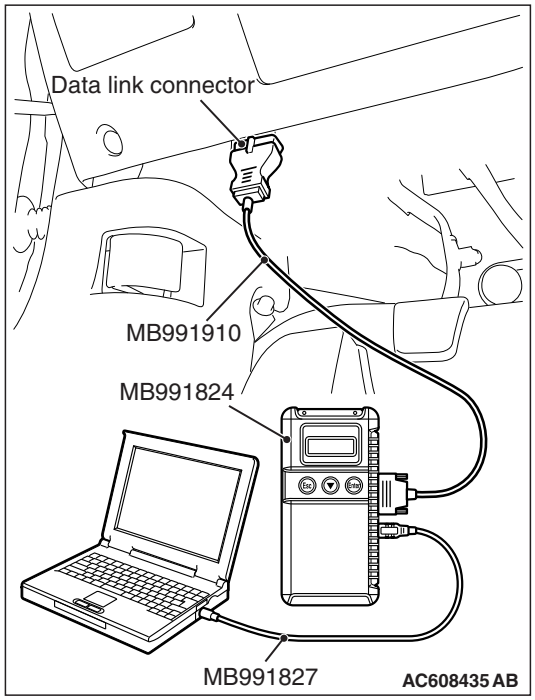
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).



STEP 2. Using scan tool MB991958, read the occupant classification-ECU diagnostic trouble code.
Check if DTC is set to the occupant classification-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-315).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if the DTC U0154 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0155: Meter CAN timeout

⚠ CAUTION
If DTC U0155 is set in the hands free module, diagnose the CAN main bus line.

⚠ CAUTION
Whenever the ECU is replaced, ensure that the communication circuit is normal.

DIAGNOSTIC FUNCTION

If the signal from combination meter cannot be received, the hands free module sets the DTC U0155.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The hands free module may be defective.
- The combination meter may be defective.

DIAGNOSIS

Required Special Tools:

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

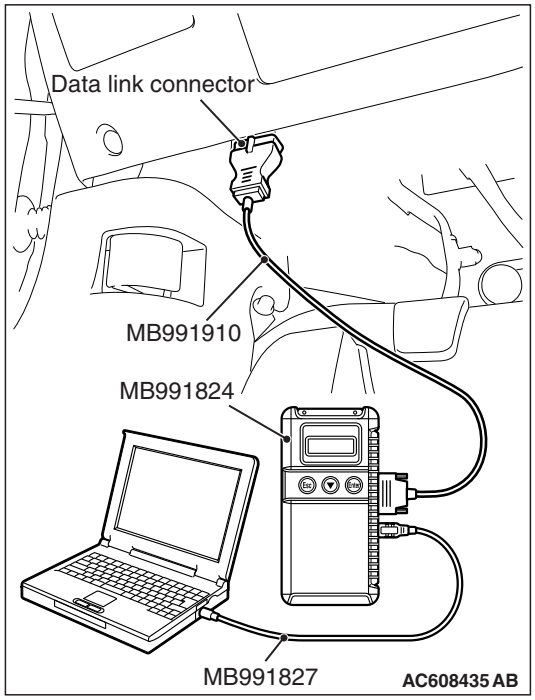
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).



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

Check whether a combination meter DTCs are set or not.

Q: Is the DTC set?

YES : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-33).
NO : Go to Step 3.

TSB Revision

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0164: A/C CAN timeout

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

TECHNICAL DESCRIPTION (COMMENT)

If the signal from A/C-ECU cannot be received, the hands free module sets the DTC U0164.

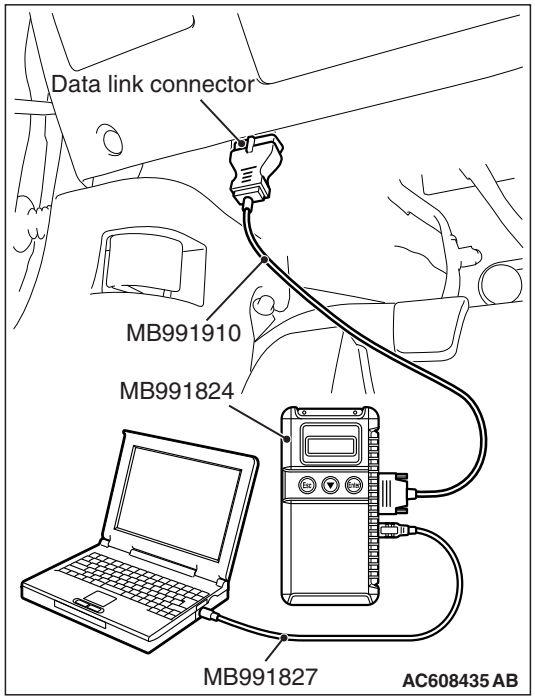
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The A/C-ECU may be defective.
- The hands free module may be defective.

DIAGNOSIS

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

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



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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).

STEP 2. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.
Check if DTC is set to the A/C-ECU.

Q: Is the DTC set?

YES : Troubleshoot the A/C-ECU <vehicle with A/C> or heater control unit <vehicle without A/C> (Refer to GROUP 55, Automatic A/C Diagnosis P.55-9).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS diagnostic trouble code.
Check if the DTC U0164 is set to the ETACS-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: WCM/KOS CAN timeout

⚠ CAUTION
- **If DTC U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

TECHNICAL DESCRIPTION (COMMENT)

If the signal from KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> cannot be received, the hands free module sets DTC U0168.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The KOS-ECU may be defective. <vehicles with KOS>
- The WCM may be defective. <vehicles with WCM>
- The hands free module may be defective.

DIAGNOSIS

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

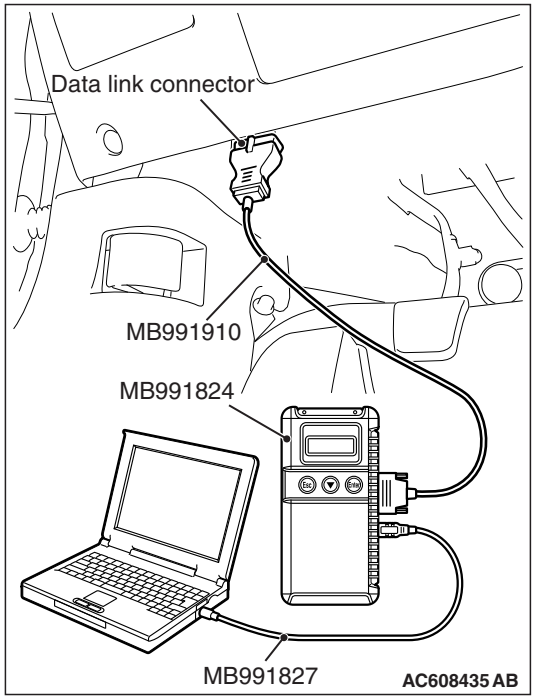
STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).



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

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

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-31 <KOS> or GROUP 42C, Diagnosis P.42C-18 <WCM>).

NO : Go to Step 3.

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

Check if the DTC U0168 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

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

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

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

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

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

Q: Is the DTC set?

YES : Replace the hands free module.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC No.U0184 AUDIO CAN timeout

⚠ CAUTION

- **If DTC U0184 is set, be sure to diagnose the CAN bus line.**
- **When replacing the module, always check that the communication circuit is normal.**

TECHNICAL DESCRIPTION (COMMENT)

If the signal from the radio and CD player cannot be received, the hands free module sets the diagnostic trouble code No. U0184.

TROUBLESHOOTING HINTS

- The radio and CD player may be defective.
- The hands free module may be defective.
- The CAN bus may be defective.

DIAGNOSIS

Required Special Tools:

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

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

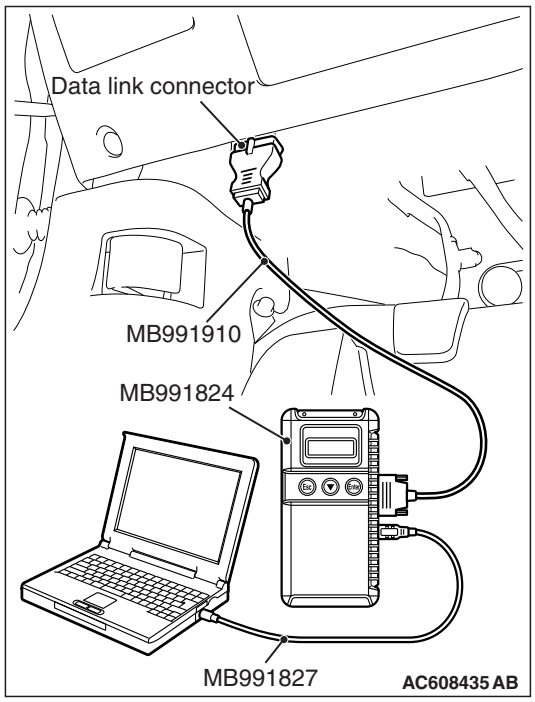
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).



STEP 2. Using scan tool MB991958, read the radio and CD player or CD changer diagnostic trouble code.
Check if DTC is set to the radio and CD player.

Q: Is the DTC set?

YES : Troubleshoot the radio and CD player (Refer to P.54A-343).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the ETACS diagnostic trouble code.
Check if the DTC U0184 is set to the ETACS-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the hands free module.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0195: Satellite radio CAN timeout

⚠ CAUTION
- **If DTC U0195 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

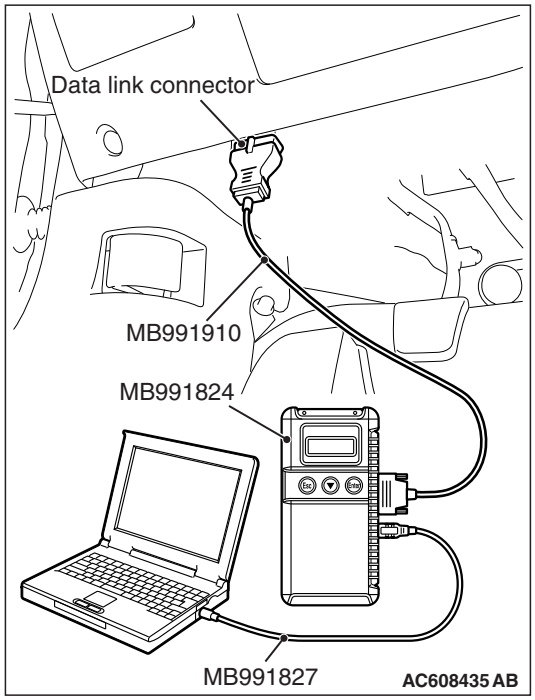
DIAGNOSTIC FUNCTION
When the signals from satellite radio tuner cannot be received, the hands free module sets DTC U0195.

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

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

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

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).

STEP 2. Using scan tool MB991958 read the satellite radio tuner diagnostic trouble code.
Check whether a satellite radio tuner DTCs are set or not.

Q: Is the DTC set?

YES : Diagnose the satellite radio tuner.
NO : Go to Step 3.

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

Check if the DTC U0195 is set to the SRS-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0245 AND [Audio visual Navigation (HDD) unit] CAN timeout

⚠ CAUTION
- **If DTC U0245 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

DIAGNOSTIC FUNCTION

When the signals from CAN box unit (audio visual navigation unit) cannot be received, the hands free module sets the diagnostic trouble code No. U0245.

TROUBLESHOOTING HINTS

- The CAN bus line may be defective.
- The hands free module may be defective.
- The CAN box unit may be defective.

DIAGNOSIS

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

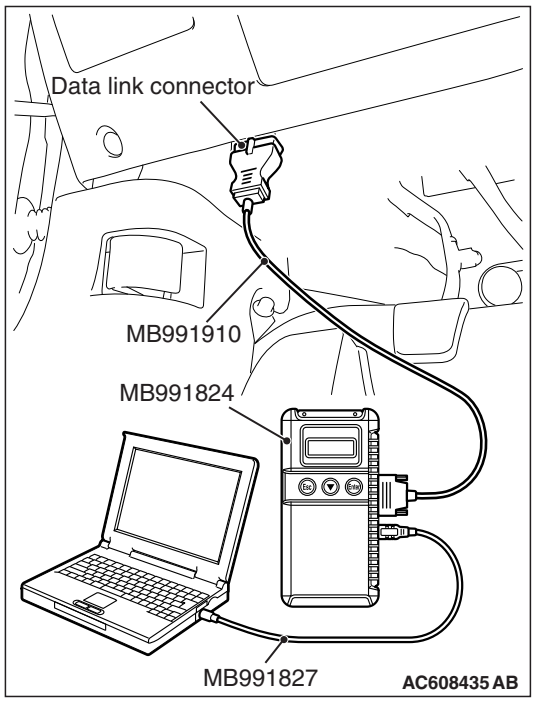
STEP 1. Using scan tool MB991958, diagnose the CAN bus line

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(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-16).



STEP 2. Using scan tool MB991958, read the CAN box unit diagnostic trouble code

Check the DTC is set to the CAN box unit.

Q: Is the DTC set?

YES : Troubleshoot the CAN box unit (Refer to MMCS – Diagnostic Trouble Code Chart P.54A-436).

NO : Go to Step 3.

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

Check if the DTC U0245 is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Go to Step 4.

NO : Go to Step 5.

STEP 4. Recheck for diagnostic trouble code.

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

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

Q: Is the DTC set?

YES : Replace the CAN box unit (multivision display).

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (multivision display) and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.

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

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

Q: Is the DTC set?

YES : Replace the hands free module.

NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (multivision display) and the hands free module (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

TROUBLE SYMPTOM CHART

M1546001800815

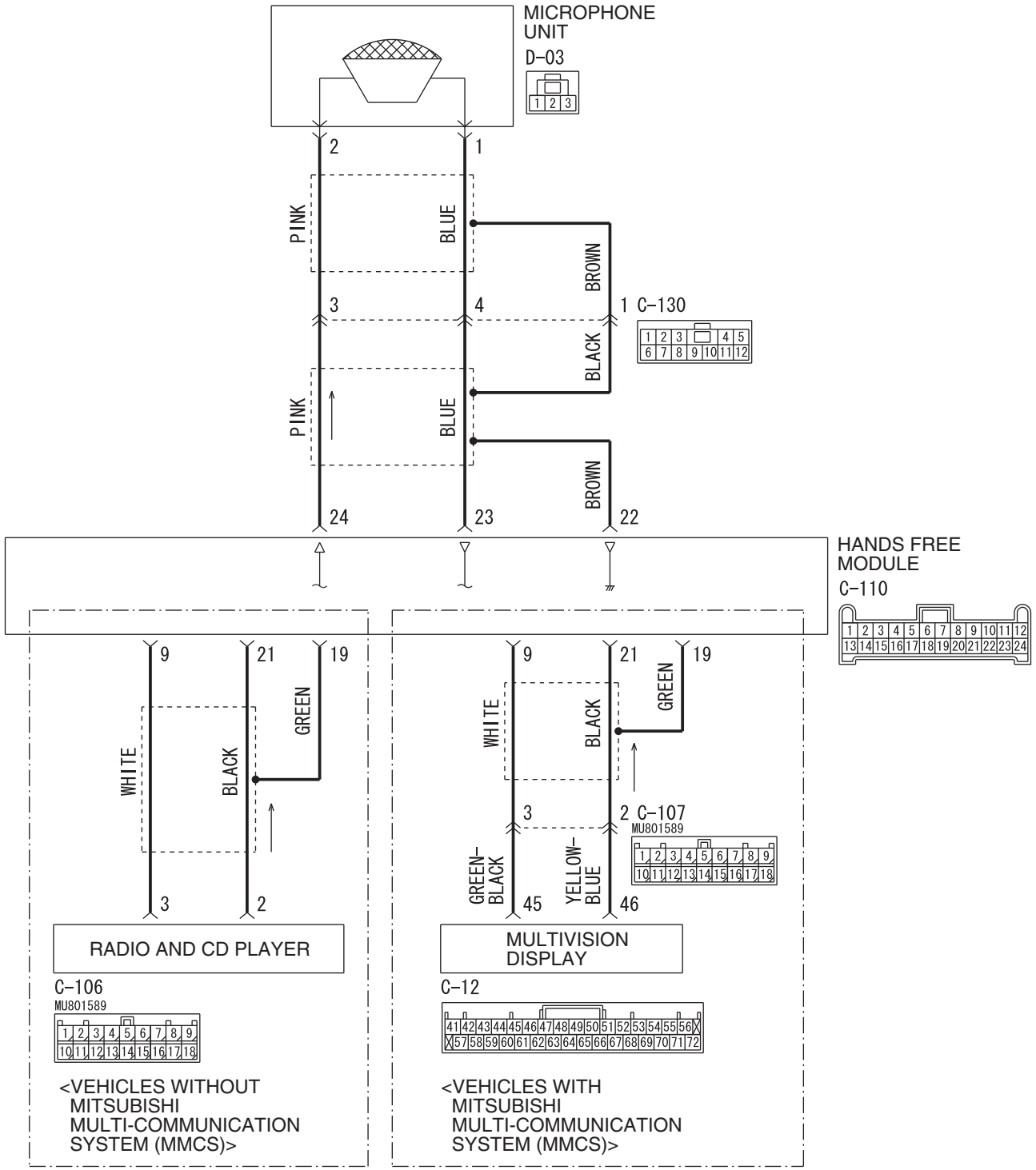
Inspection Procedure No.	Trouble symptom	Reference page
1	Hands free cellular phone system does not work normally.	P.54A-587
2	During the conversation with the hands free cellular phone system, the speaker's voice cannot be heard by the other party.	P.54A-595
3	During the conversation with the hands free cellular phone system, the voice of other party cannot be heard.	P.54A-598
4	Even when the steering wheel voice control switch is operated, the conversation is not possible.	P.54A-599
5	The cellular phone is not recognized or the connection cannot be established.	P.54A-605
6	Steering wheel voice control switch illumination does not come on.	P.54A-606
7	Check the hands free module power supply circuit.	P.54A-609

SYMPTOM PROCEDURES

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

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

Hands Free Cellular Phone System Circuit



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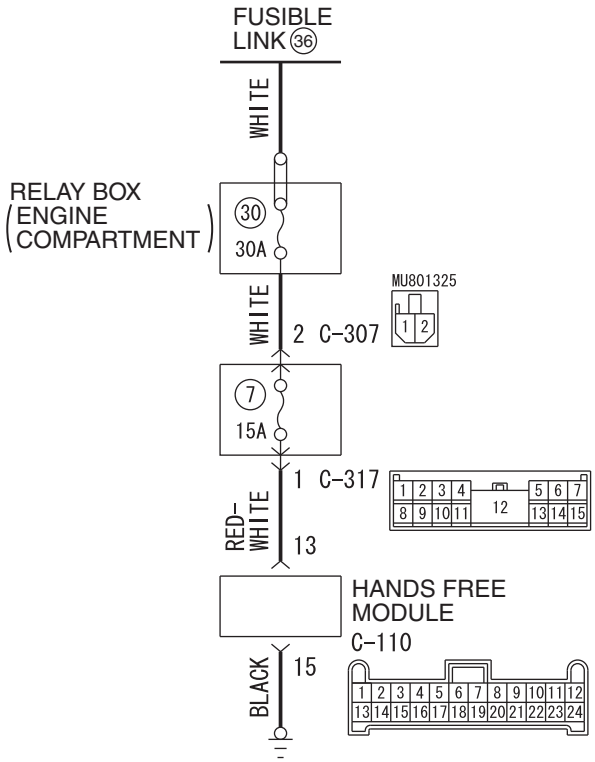
Hands Free Module Power Supply Circuit



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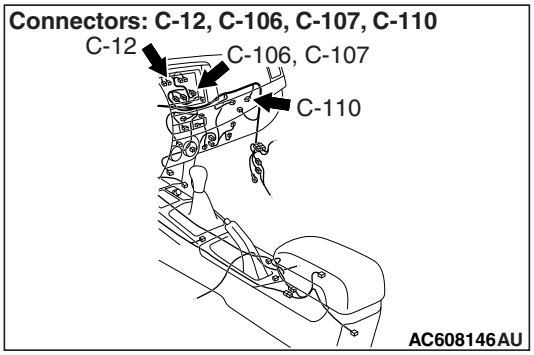
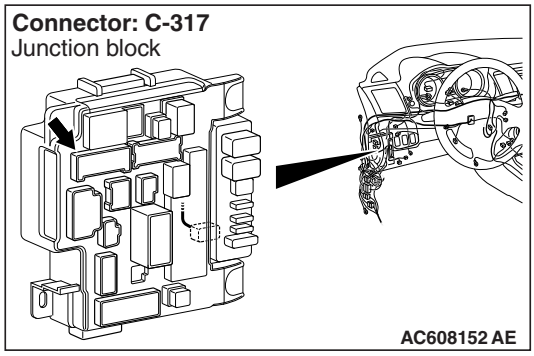
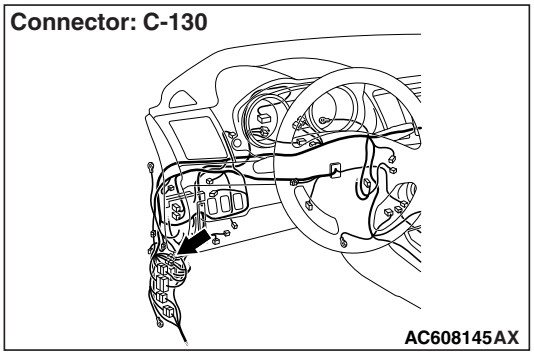
Connectors: C-12, C-106, C-107, C-110



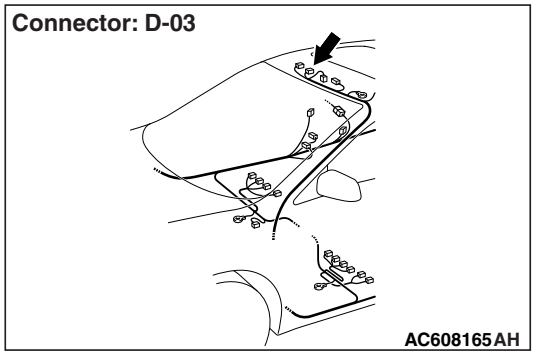
Connector: C-317
Junction block



Connector: C-130



Connector: D-03



TSB Revision

FUNCTION

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

TROUBLE JUDGMENT CONDITIONS

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

TROUBLESHOOTING HINTS

- Hands free module may be defective
- Microphone unit may be defective
- Steering wheel voice control switch may be defective
- Radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> 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
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicles Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check the cellular phone.

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

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

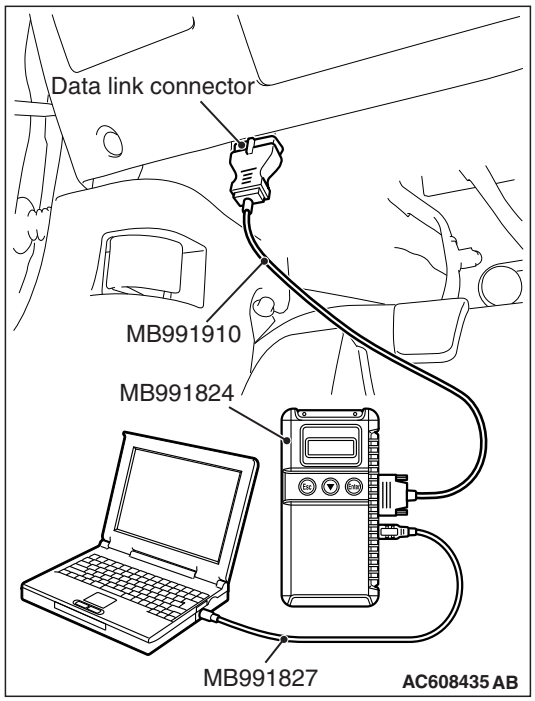
YES : Go to Step 2.
NO : Repair or replace the cellular phone.

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

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

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

YES : Ask the customer to have the cellular phone repaired or replaced. Then, delete the temporarily registered cellular phone. Once the customer prepares the normally working cellular phone, register the cellular phone to the hands free module. (Refer to P.54A-612.)
NO : Go to Step 3.



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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-552."
(2) Turn the ignition switch to the "ON" position.
(3) Diagnose the CAN bus line.
(4) Turn the ignition switch to "LOCK" (OFF) position.

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

YES : Go to Step 4.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 4. Check hands-free module connector C-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are hands free module connector C-110 in good condition?

YES : Go to Step 5.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

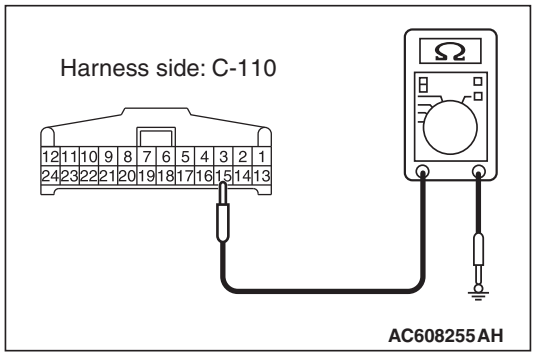
STEP 5. Check the ground circuit to the hands free module. Measure the resistance at hands free module connector C-110.

(1) Disconnect hands free module connector C-110, and measure at the wiring harness side.
(2) Measure resistance between terminal 15 and ground.

OK: The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

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



STEP 6. Check the wiring harness between hands-free module connector C-110 (terminal 15) and ground.

- Check the ground wire for open circuit.

Q: Is the wiring harness between hands-free module connector C-110 (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.00-13).
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

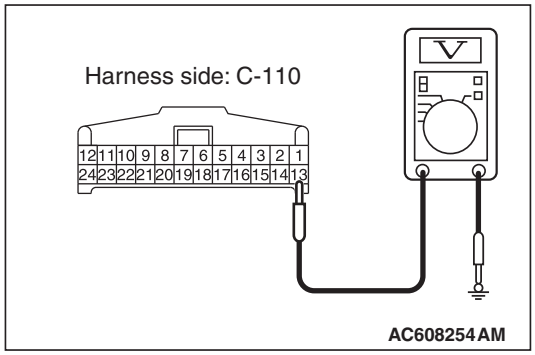
STEP 7. Check the power supply circuit to the hands-free module. Measure the voltage at hands free module connector C-110.

(1) Disconnect hands free module connector C-110, and measure the voltage available at the hands-free module side of the connector.
(2) Measure the voltage between terminal 13 and ground.

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

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

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



STEP 8. Check the wiring harness between hands-free module connector C-110 (terminal 13) and ETACS-ECU connector C-317 (terminal 1).

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

Q: Is the wiring harness between hands-free module connector C-110 (terminal 13) and ETACS-ECU connector C-317 (terminal 1) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

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

STEP 9. Check microphone unit connector D-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is microphone unit connector D-03 in good condition?

YES : Go to Step 10.

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

STEP 10. Check the wiring harness between hands free module connector C-110 and microphone unit connector D-03.

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

(1) Disconnect hands-free module connector C-110 and microphone unit connector D-03, and check the wiring harness.

NOTE: Also check intermediate connector C-130 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-130 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

(2) Check the wiring harness between hands free module connector C-110 (terminal 1) and microphone unit connector D-03 (terminal 23)

(3) Check the wiring harness between hands-free module connector C-110 (terminal 2) and microphone unit connector D-03 (terminal 24)

Q: Is the wiring harness between hands free module connector C-110 and microphone unit connector D-03 in good condition?

YES : Go to Step 11.

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

STEP 11. Check radio and CD player connector C-106 <vehicles without MMCS> or multivision display connector C-12 <vehicles with MMCS> for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is radio and CD player C-106 <vehicles without MMCS> or multivision display connector C-12 <vehicles with MMCS> in good condition?

YES : Go to Step 12.

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

STEP 12. Check the wiring harness between hands free module connector C-110 and radio and CD player connector C-106 <vehicles without MMCS> or multivision display connector C-12 <vehicles with MMCS>.

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

(1) Disconnect hands free module connector C-110 and radio and CD player C-106 <vehicles without MMCS> or multivision display connector C-12 <vehicles with MMCS>, and check the wiring harness.

NOTE: Also check intermediate connector C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2. <vehicles with MMCS>

(2) Check the wiring harness between hands free module connector C-110 (terminal 9) and radio and CD player or CD changer connector C-106 (terminal 3) <vehicles without MMCS>

(3) Check the wiring harness between hands free module connector C-110 (terminal 21) and radio and CD player or CD changer connector C-106 (terminal 2) <vehicles without MMCS>

(4) Check the wiring harness between hands free module connector C-110 (terminal 9) and multivision display connector C-12 (terminal 45) <vehicles with MMCS>

(5) Check the wiring harness between hands free module connector C-110 (terminal 21) and multivision display connector C-12 (terminal 46) <vehicles with MMCS>

Q: Is the wiring harness between hands free module connector C-110 and radio and CD player connector C-106 <vehicles without MMCS> or multivision display connector C-12 <vehicles with MMCS> in good condition?

YES : Go to Step 13.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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

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

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

YES : Replace the microphone unit.
NO : Go to Step 14.

STEP 14. Temporarily replace the hands free module, and check the trouble symptom.
Check that the normal conversation is possible with the hands free cellular phone system.

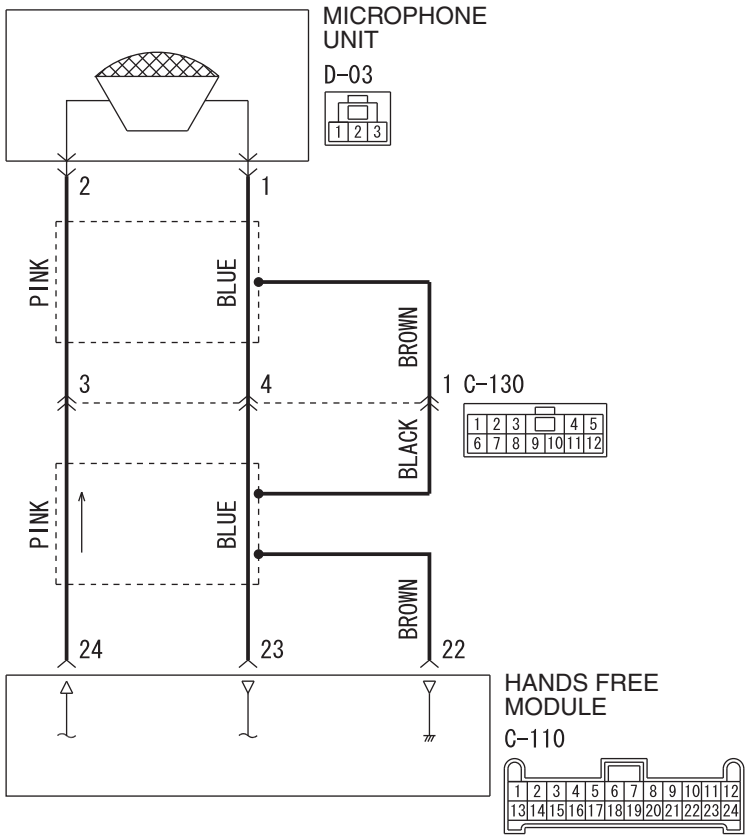
Q: Is the normal conversation possible with the hands free cellular phone system?

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

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

⚠ CAUTION
Before replacing the module, ensure that the communication circuit is normal.

Hands Free Cellular Phone System Circuit



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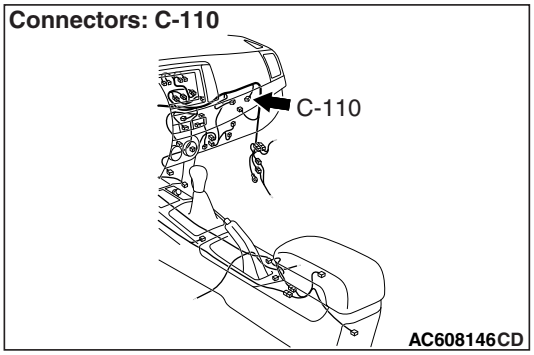
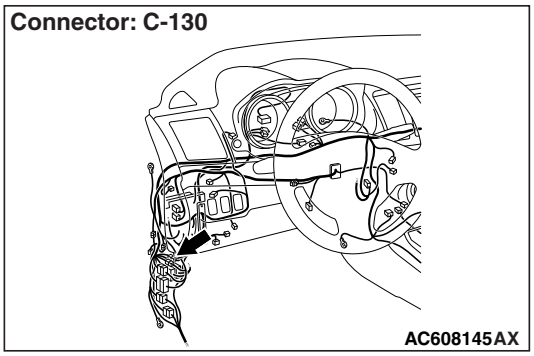
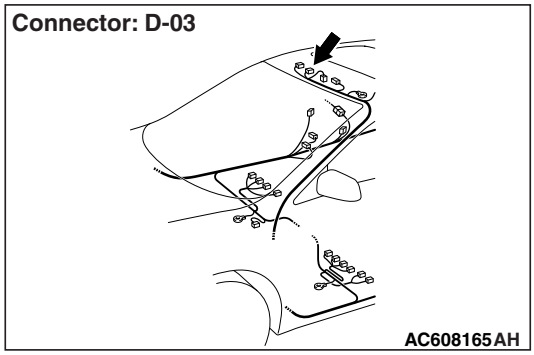
Connectors: C-110



Connector: C-130



Connector: D-03



FUNCTION

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

TROUBLE JUDGMENT CONDITIONS

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

TROUBLESHOOTING HINTS

- Hands free module may be defective
- Microphone unit 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 the cellular phone.

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

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

YES : Go to Step 2.

NO : Repair or replace the cellular phone.

STEP 2. Check hands-free module connector C-110 and microphone unit connector D-03 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are hands-free module connector C-110 and microphone unit connector D-03 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-110 and microphone unit connector D-03.

(1) Disconnect hands-free module connector C-110 and microphone unit connector D-03, and check the wiring harness.
- Check the communication lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-130 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-130 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

(2) Check the wiring harness between hands free module connector C-110 (terminal 1) and microphone unit connector D-03 (terminal 23)

(3) Check the wiring harness between hands free module connector C-110 (terminal 2) and microphone unit connector D-03 (terminal 24)

Q: Is the wiring harness between hands free module connector C-110 and microphone unit connector D-03 in good condition?

YES : Go to Step 4.

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

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

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

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

YES : Replace the microphone unit.

NO : Replace the hands free module.

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

FUNCTION

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

TROUBLE JUDGMENT CONDITIONS

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

TROUBLESHOOTING HINTS

- Hands free module may be defective
- Radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> may be defective

DIAGNOSIS

STEP 1. Check the cellular phone.
Check that the cellular phone can be used normally as a unit.

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

YES : Go to Step 2.
NO : Repair or replace the cellular phone.

STEP 2. Check the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS>.
Check that the sound of radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> is output normally from the speaker.

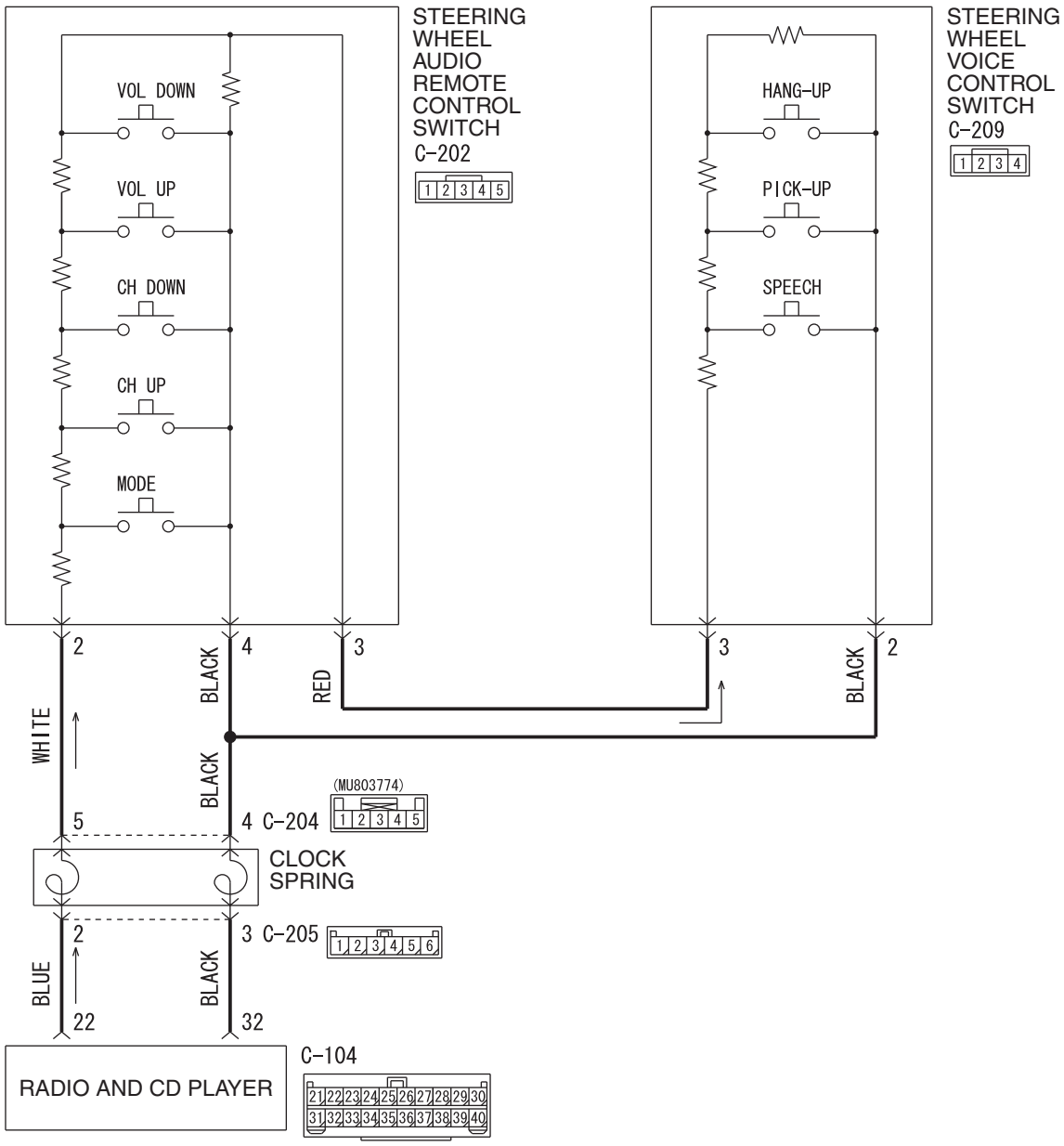
Q: Is the sound of radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> output normally from the speaker?

YES : Replace the hands free module.
NO : Diagnose the radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> (Refer to P.54A-532 <vehicles without MMCS> or P.54A-532 <vehicles with MMCS>).

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

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

Steering Wheel Voice ControIn Switch Circuit <Vehicles without MMCS>



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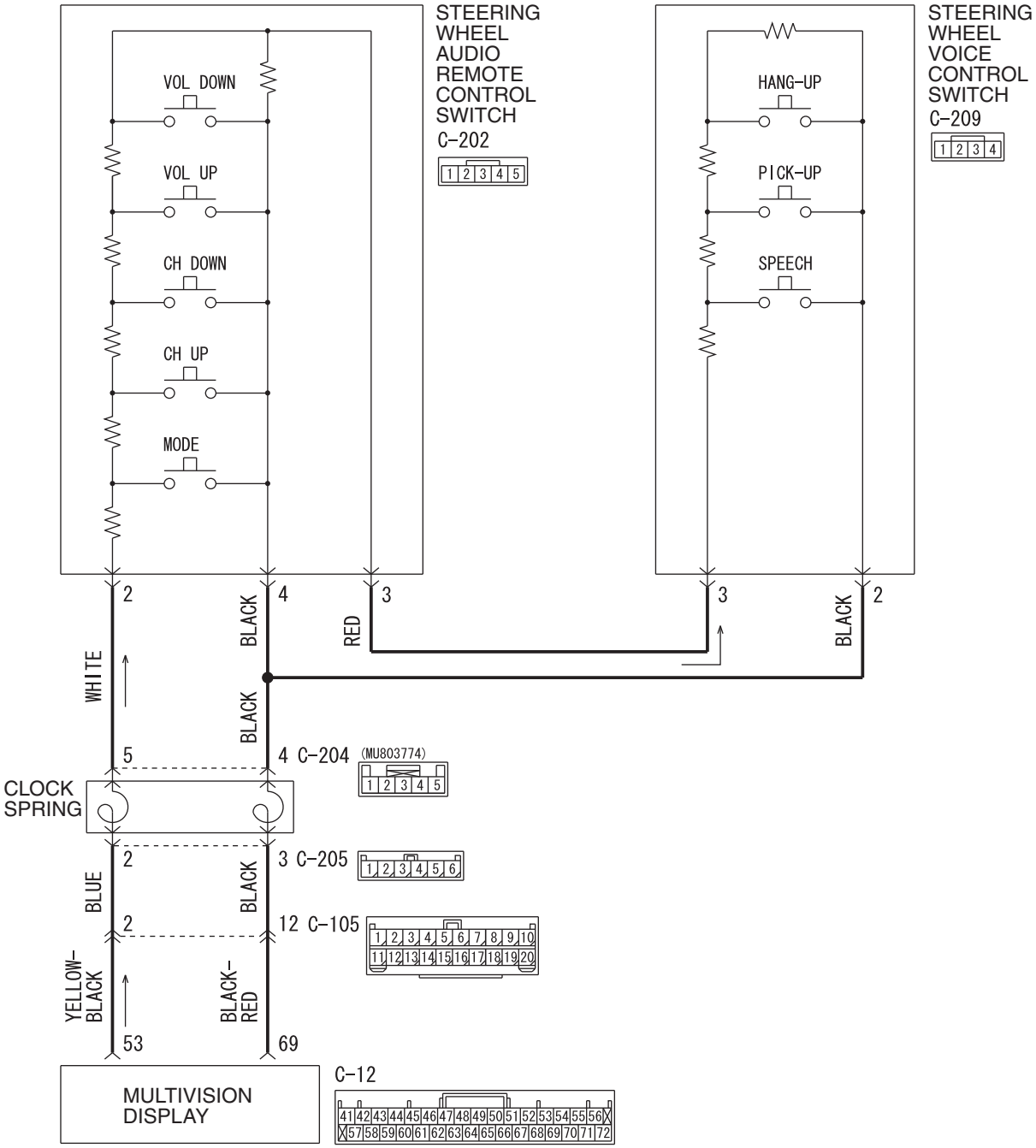
Steering Wheel Voice Control Switch Circuit <Vehicles with MMCS>



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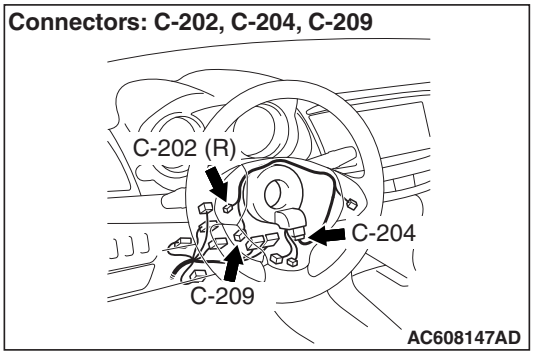


FUNCTION

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

TROUBLE JUDGMENT CONDITIONS

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

TROUBLESHOOTING HINTS

- Steering wheel voice control switch may be defective
- Hands free module may be defective
- Radio and CD player <vehicles without MMCS> or multivision display <vehicles with MMCS> 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

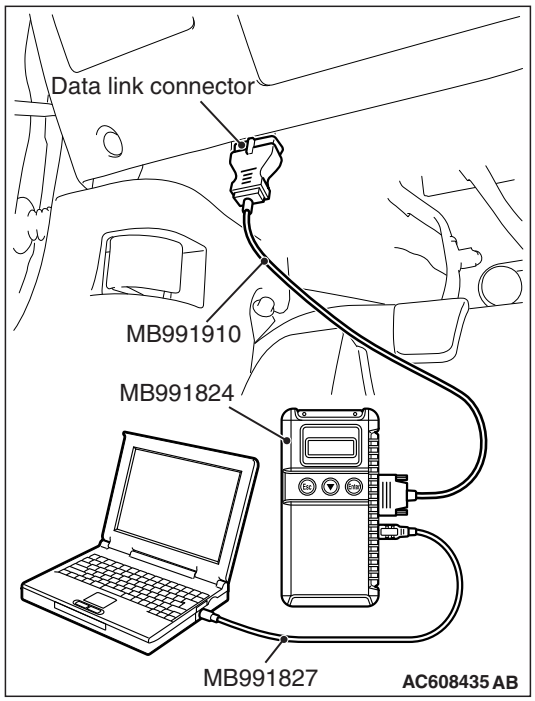
STEP 1. Check the steering wheel audio remote control switch.

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

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

YES : Go to Step 2.

NO : Diagnose the steering wheel audio remote control switch (Refer to P.54A-532 <vehicles without MMCS> or P.54A-532 <vehicles with MMCS>.)



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

⚠ CAUTION

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

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

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

YES : Go to Step 3.
NO : Repair the CAN bus line (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 3. Check the steering wheel voice-control switch.

Remove the steering wheel voice control switch. Then check continuity between the switch terminals. (Refer to P.54A-618.)

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

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

YES : Go to Step 4.
NO : Replace the steering wheel voice control switch.

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

Remove the steering wheel audio remote control switch. Then check continuity between the switch terminals. (Refer to P.54A-618.)

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

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

YES : Go to Step 5.

NO : Replace the steering wheel audio remote control switch.

STEP 5. Check steering wheel voice control switch connector C-209 and steering wheel audio remote control switch connector C-202 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are steering wheel voice control switch connector C-209 and steering wheel audio remote control switch connector C-202 in good condition?

YES : Go to Step 6.

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

STEP 6. Check the wiring harness between steering wheel voice-control switch connector C-209 (terminal 3) and steering wheel audio remote control switch connector C-202 (terminal 3).

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

Q: Is the wiring harness between steering wheel voice-control switch connector C-209 (terminal 3) and steering wheel audio remote control switch connector C-202 (terminal 3) in good condition?

YES : Go to Step 7.

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

STEP 7. Check the wiring harness between steering wheel voice-control switch connector C-209 (terminal 2) and clock spring connector C-204 (terminal 4).

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

Q: Is the wiring harness between steering wheel voice-control switch connector C-209 (terminal 2) and clock spring connector C-204 (terminal 4) in good condition?

YES : Go to Step 8.

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

STEP 8. Retest the system

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

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

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

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

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

FUNCTION

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

TROUBLE JUDGMENT CONDITIONS

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

STEP 1. Check the cellular phone.

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

Q: Is it possible to use the cellular phone normally?
YES : Go to Step 2.
NO : Repair or replace the cellular phone.

STEP 2. Check the position of cellular phone.

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

Q: Does the function become normal when the cellular phone is moved closer to the hands-free module?
YES : No action is necessary and testing is complete.
NO : Go to Step 3.

STEP 3. Check the registration method of cellular phone.

By referring to the operation manuals, check that the cellular phone was registered to the hands free module by following the normal procedure.

Q: Was the cellular phone registered by following the normal procedure?
YES : Check the trouble symptom, and finish when it is normal. When the abnormality is present, go to Step 4.
NO : Register a cellular phone according to a regular procedure.

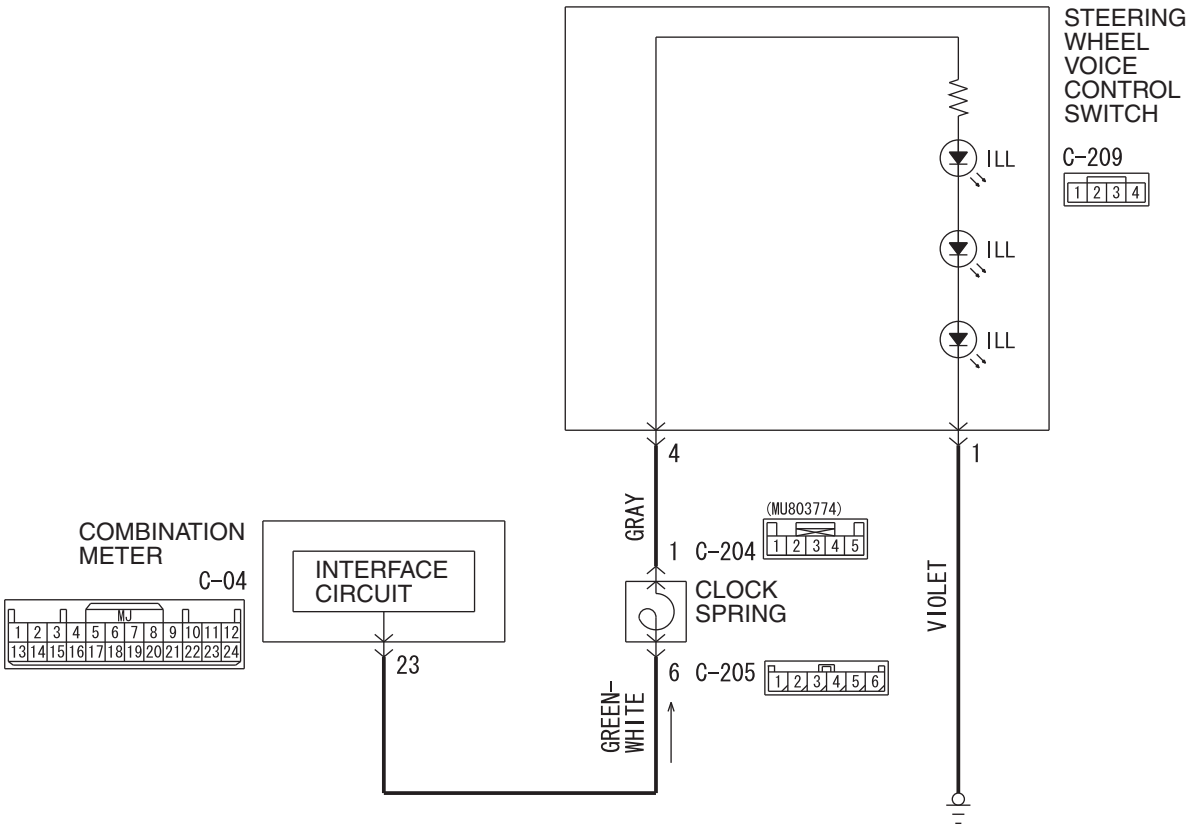
STEP 4. Temporarily replace the cellular phone, and check the trouble symptom.

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

Q: Is the normal conversation possible with the hands-free system?
YES : Ask the customer to have the cellular phone repaired or replaced. Then, delete the temporarily registered cellular phone. Once the customer prepares the normally working cellular phone, register the cellular phone to the hands free module.
NO : Replace the hands free module.

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

Steering Wheel Voice Control Switch Illumination Circuit



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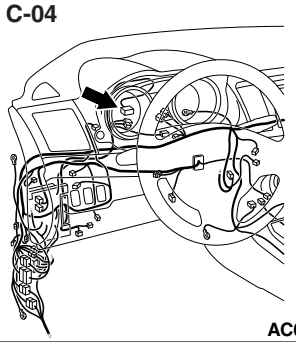
Connector: C-04



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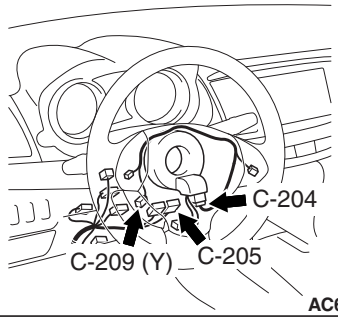
Connectors: C-204, C-205, C-209



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TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Steering wheel voice control switch may be defective
- Combination meter may be defective
- Clock spring may be defective
- 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
- MB992006: Extra Fine Probe

STEP 1. Check the combination meter.
Check whether the combination meter works normally.

Q: Is the check result normal?

YES : Go to Step 2.
NO : Diagnose the combination meter (Refer to P.54A-33).

STEP 2. Check steering wheel voice control switch connector C-209 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is steering wheel voice control switch connector C-209 in good condition?

YES : Go to Step 3.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

STEP 3. Check the wiring harness between steering wheel voice-control switch connector C-209 (terminal 1) and the ground.
- Check the ground wire for open circuit.

Q: Is the wiring harness between steering wheel voice control switch connector C-209 (terminal 1) and the ground 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. Check clock spring connectors C-204 and C-205 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are clock spring connectors C-204 and C-205 in good condition?

YES : Go to Step 5.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

STEP 5. Check the clock spring.
Check whether the clock spring is in good condition (Refer to GROUP 52B –Driver's air bag module and clock spring P.52B-420 <GTS> or P.52B-428 <RALLIART>).

Q: Is the check result normal?
YES : Go to Step 6.
NO : Replace the clock spring.

STEP 6. Check the wiring harness between steering wheel voice control switch connector C-209 (terminal 4) and clock spring connector C-204 (terminal 1).
- Check the power supply line open circuit and short circuit.

Q: Is the wiring harness between steering wheel voice control switch connector C-209 (terminal 4) and clock spring connector C-204 (terminal 1) in good condition?
YES : Go to Step 7.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 7. Check combination meter connector C-04 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is combination meter connector C-04 in good condition?
YES : Go to Step 8.
NO : Repair or replace the damaged component (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). The steering remote control switch should work normally.

STEP 8. Check the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6).
- Check the power supply line open circuit and short circuit.

Q: Is the wiring harness between combination meter connector C-04 (terminal 23) and clock spring connector C-205 (terminal 6) in good condition?
YES : Go to Step 9.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 9. Retest the system

Check whether the illumination of the steering wheel voice control switch come on normally.

Q: Doe the illumination of the steering wheel voice control switch come on normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

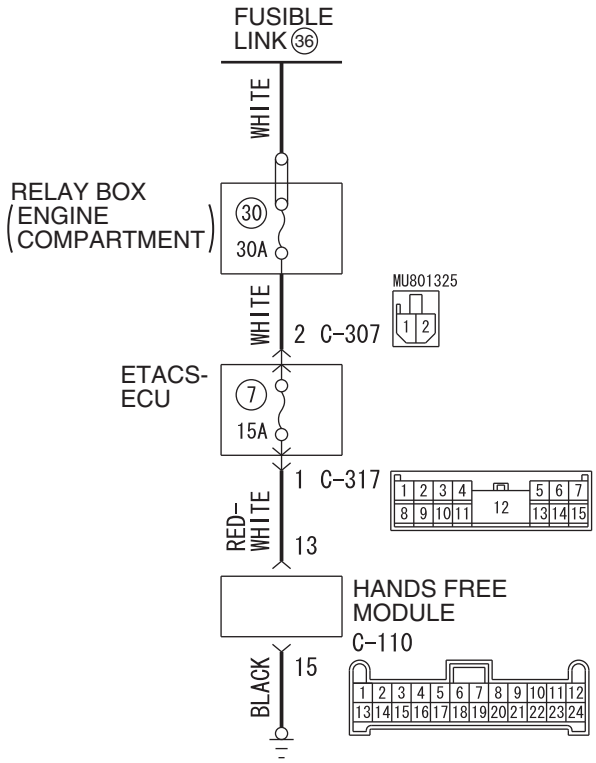
NO : Replace the steering wheel voice control switch.

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

⚠ CAUTION

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

Hands Free Module Power Supply Circuit



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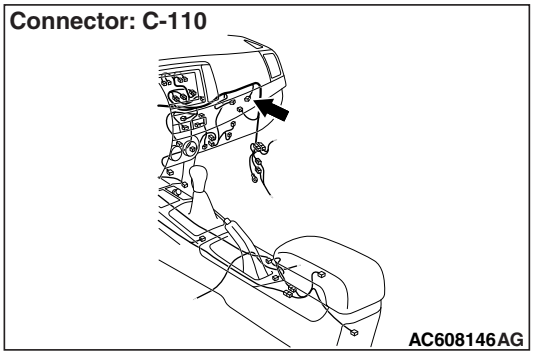
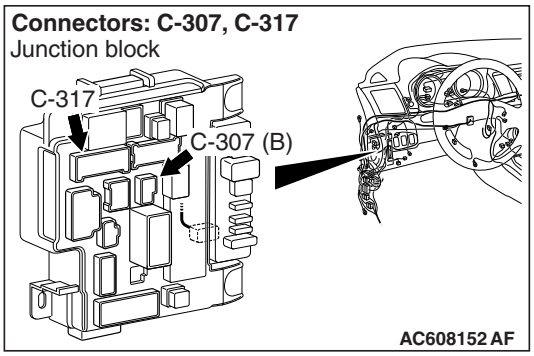




CIRCUIT OPERATION

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

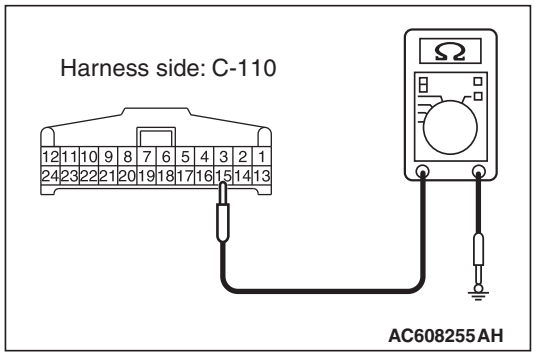
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check hands free module connector C-110 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is hands-free module connector C-110 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the ground circuit to the hands-free module. Measure the resistance at hands free module connector C-110.

(1) Disconnect hands free module connector C-110, and measure at the wiring harness side.
(2) Measure the resistance value between terminal 15 and ground.

OK: The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

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

STEP 3. Check the wiring harness between hands-free module connector C-110 (terminal 15) and ground.

- Check the ground wire for open circuit.

Q: Is the wiring harness between hands free module connector C-110 (terminal 15) and ground in good condition?

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

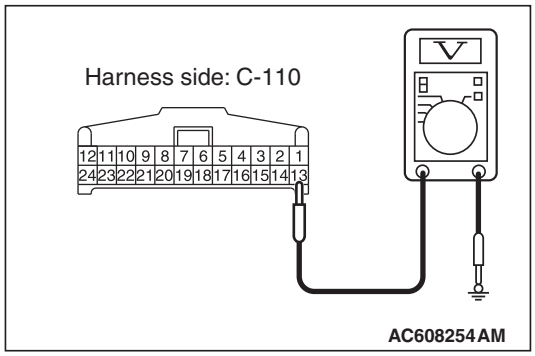
STEP 4. Check the power supply circuit to the hands-free module. Measure the voltage at hands-free module connector C-110.

(1) Disconnect hands free module connector C-110, 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 : Replace the hands free module.
NO : Go to Step 5.



STEP 5. Check the wiring harness between hands-free module connector C-110 (terminal 13) and fusible link (36).

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

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

Q: Is the wiring harness between hands-free module connector C-110 (terminal 13) and fusible link (36) in good condition?

YES : Replace the hands free module.

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

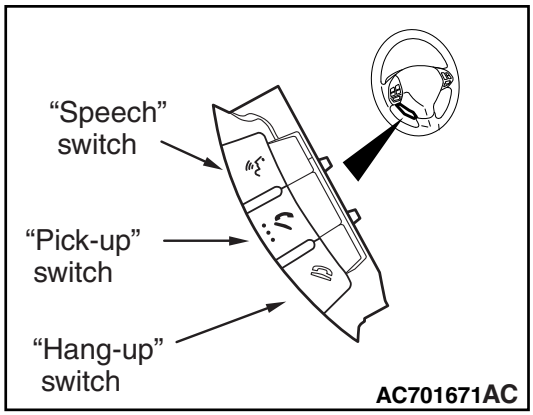
ON-VEHICLE SERVICE

PAIRING A CELLULAR PHONE OR DELETING A PHONE

M1544403700236

NOTE:

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



PAIRING A CELLULAR PHONE

1. Shift the selector lever to "P" (parking) position <CVT> or shift lever "N" (neutral) position <M/T, TC-SST> and pull the parking brake lever.
2. Turn the ignition switch to "ACC" or "ON" position.
3. Press the "Speech" switch.
4. Say "Setup."
5. Say "Pairing options."
6. The voice guide will say "Do you want to Pair a phone, delete a phone or list paired phones?"
7. Say “Pair a phone.”
8. The voice guide will say "Please say a 4-digit pin number."
9. Say a 4 digit number. The 4 digit number will be registered as a pin number for the phone.
   - When the confirmation function is on, the system will confirm whether the number said is acceptable. Answer "Yes" to go Step 10. Say "No" to return to pin number selection.

   NOTE:
   - *The pin number entered here is only used for the Bluetooth connection certification. It is any 4-digit number the user would like to select.*

- *Remember the pin number as it needs to be keyed into the phone later in the pairing process.*
- *Depending on the selected Bluetooth® connection settings, entry of the 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.*

10. The voice guide will say “Start pairing procedure on phone. See phone’s manual for instructions.” Refer to the owner’s manual for your cellular phone and enter into the phone the pin number that was registered in Step 9.
11. When the hands free cellular phone system finds a Bluetooth® cellular phone, the voice guide will say "Please say the name of the phone after the beep."
12. After you hear the beep, name the phone by saying a name of your preference.

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

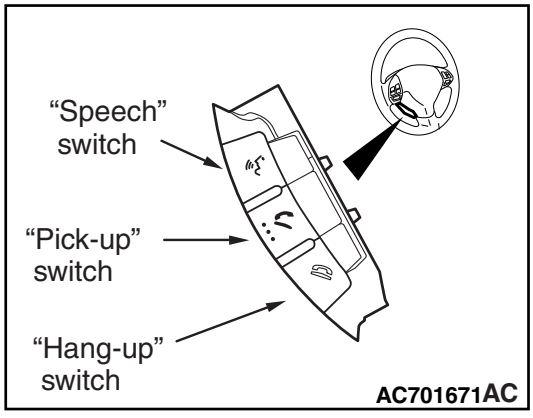
DELETING A PHONE

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

ERASE THE PASSCODE

M1544403800244

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



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

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

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

SERVICE DATA

M1544401300083

Item No.	Scan tool display	Check condition	Normal condition
1	VR switch	When the "Speech" switch is pushed on steering wheel voice control switch	ON
		Other than above	OFF
2	On hook switch	When the "Hang-up" switch is pushed on steering wheel voice control switch	ON
		Other than above	OFF
3	Off hook switch	When the "Pick-up" switch is pushed on steering wheel voice control switch	ON
		Other than above	OFF

ACTUATOR TEST TABLE

M1544404000014

The following actuators can be forcibly operated using scan tool.

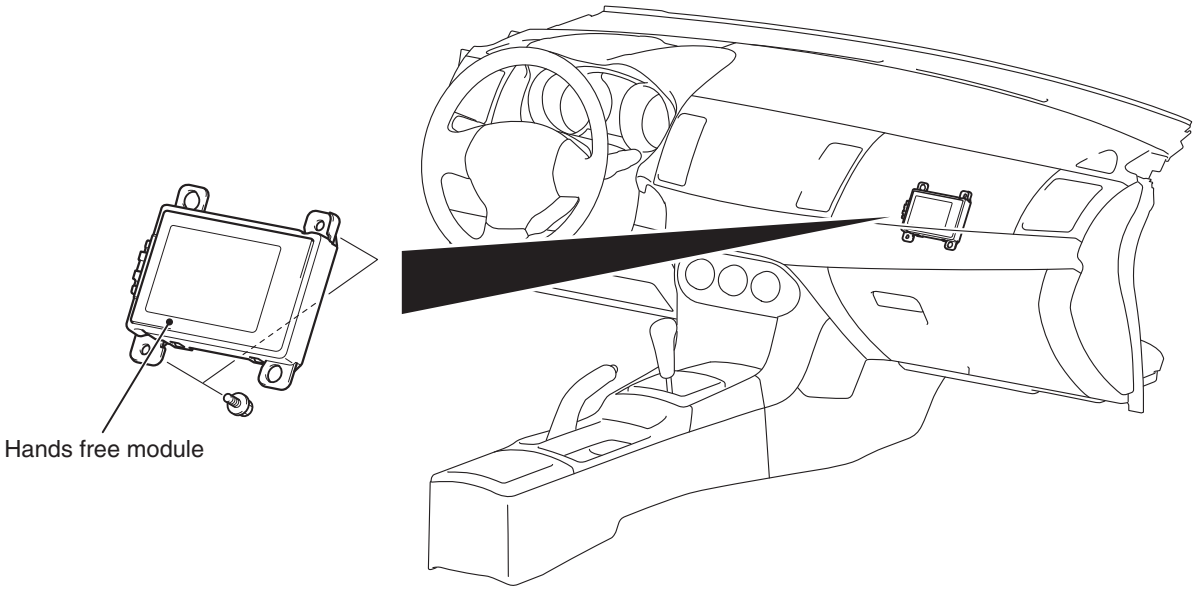
Item No.	Item name	Test item	Driven component
1	VR switch	"Speech" switch short press	Perform the operation when the "Speech" switch is pressed shortly. (Start the voice recognition mode)
2	On hook switch	"Hang-up" switch short press	Perform the operation when the "Hang-up" switch is pressed shortly.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

REMOVAL AND INSTALLATION

M1544401000297

HANDS FREE MODULE

Pre-removal operation	Post-installation operation
• Removal of grove box cover (Refer to GROUP 52A – Grove box Assembly P.52A-6).	• Installation of grove box cover (Refer to GROUP 52A – Grove box Assembly P.52A-6).



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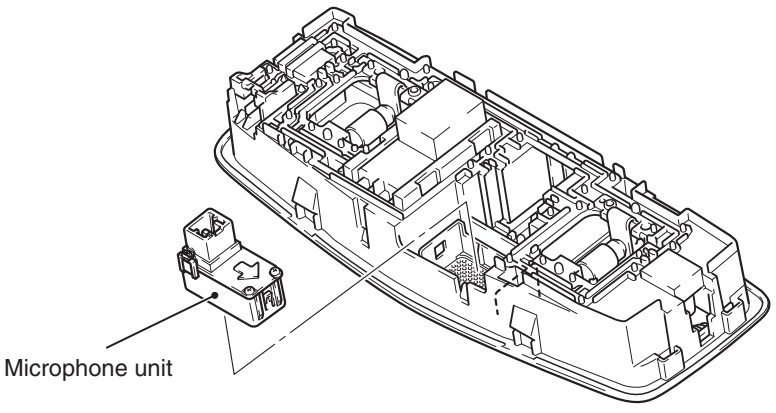
MICROPHONE UNIT

Pre-removal operation	Post-installation operation
• Removal of front dome light assembly (Refer to GROUP 52A –Headlining P.52A-18).	• Installation of front dome light assembly (Refer to GROUP 52A –Headlining P.52A-18).



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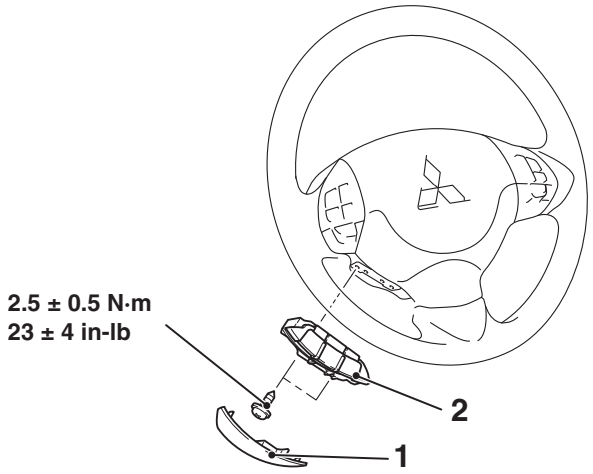
TSB Revision

STEERING WHEEL VOICE CONTROL SWITCH

<EXCEPT RALLIART>



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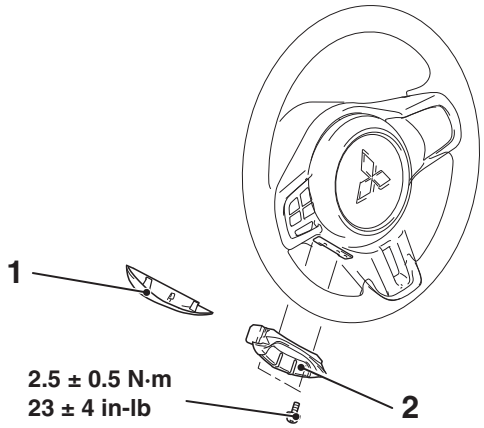
Removal Steps

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

<RALLIART>



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Removal Steps

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

STEERING WHEEL VOICE CONTROL SWITCH CONTINUITY CHECK

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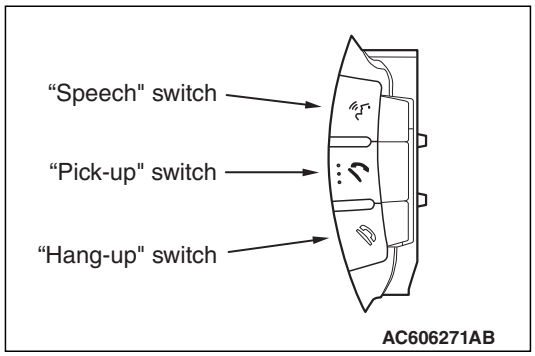
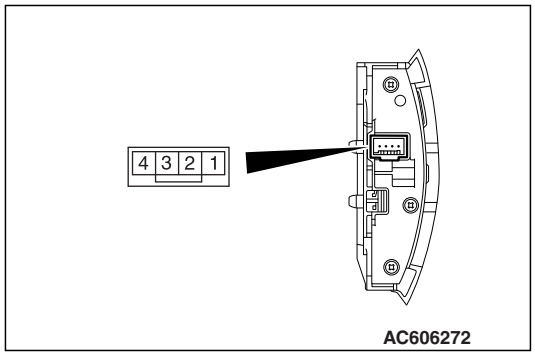
<EXCEPT RALLIART>

STEERING WHEEL VOICE CONTROL SWITCH CHECK

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



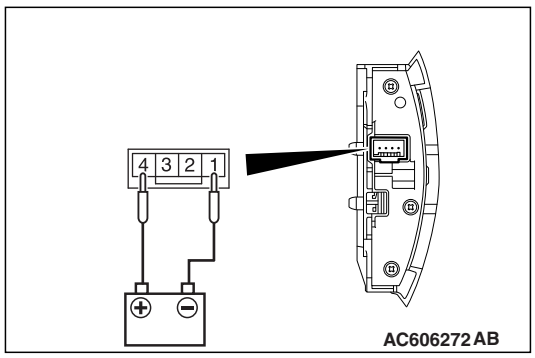
Switch position	Tester connection	Measurement value
No push	2 –3	Approximately 74 kΩ
"Speech" switch		Approximately 1.5 kΩ
"Pick-up" switch		Approximately 3.3 kΩ
"Hang-up" switch		Approximately 6.0 kΩ



ILLUMINATION CHECK

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

NOTE: Make sure that the polarity is correct.



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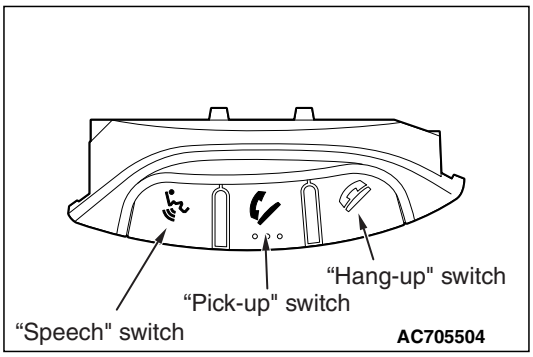
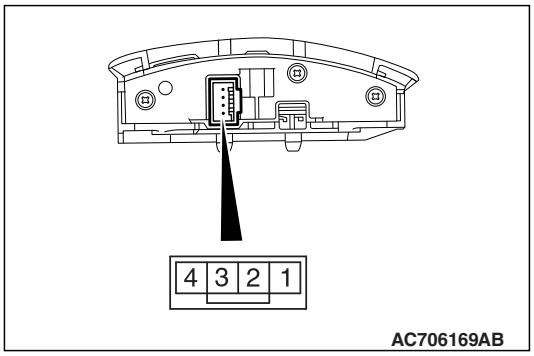
STEERING WHEEL VOICE CONTROL SWITCH CHECK

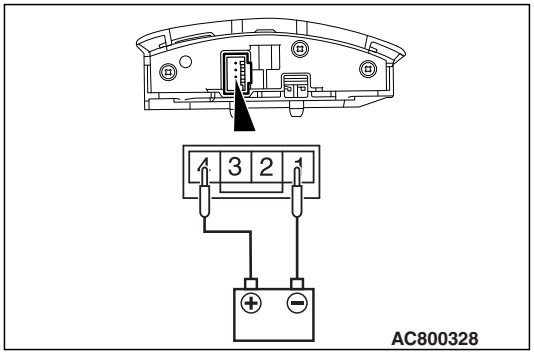


Use an ohmmeter to measure the resistance value between the terminal.

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



ILLUMINATION CHECK



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

NOTE: Make sure that the polarity is correct.

AMPLIFIER

GENERAL INFORMATION

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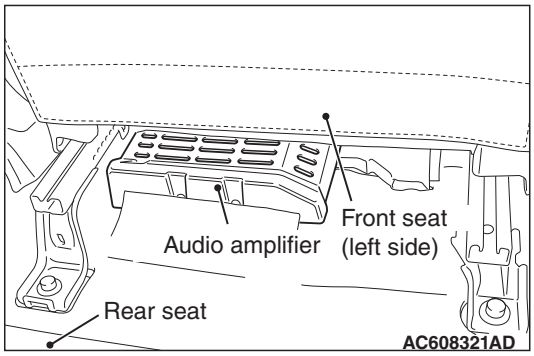


The 8-ch high-power audio amplifier with integrated digital signal processor (total maximum output of 710 W) equipped with the front seat (left side) has been combined with the 9-speaker 7-position system, adopting the Rockford Fosgate ® premium sound system. The audio amplifier offers the clear treble without distortion.

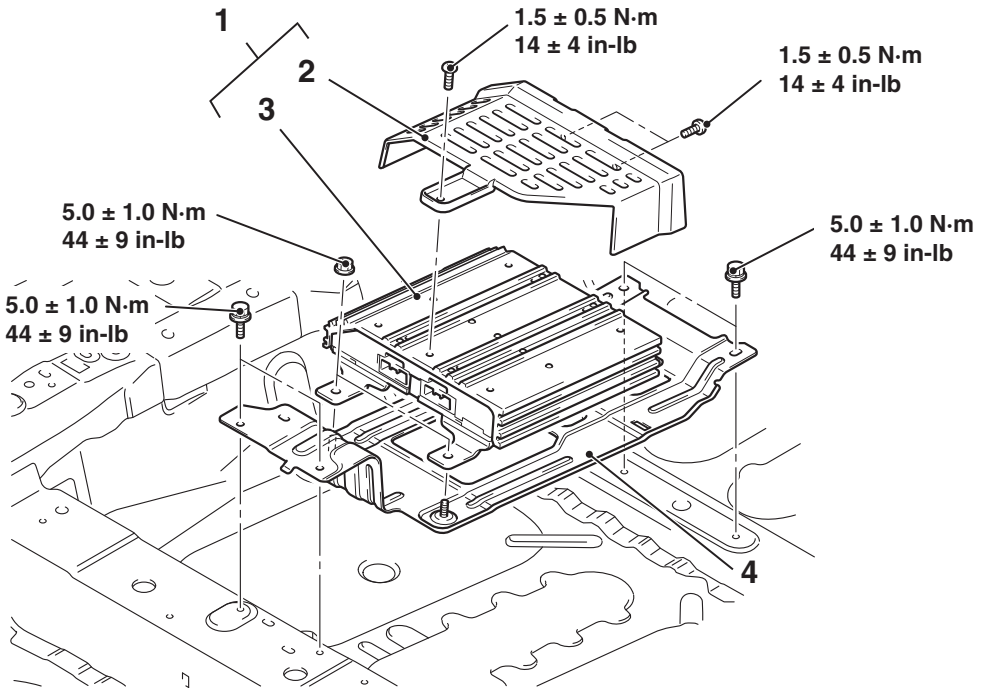
REMOVAL AND INSTALLATION

M1544004100693

⚠ CAUTION

To remove the front seat assembly of vehicle with side air bag, refer to GROUP 52B –Service Precautions P.52B-26 and Air Bag Module(S) And Clock Spring P.52B-414 <GTS> or P.52B-422 <RALLIART>.

Pre-removal operation	Post-installation operation
• Removal of front (driver's) seat assembly (Refer to GROUP 52A –Front Seat Assembly P.52A-20).	• Installation of front (driver's) seat assembly (Refer to GROUP 52A –Front Seat Assembly P.52A-20).



Removal Steps

1. Audio amplifier assembly
2. Audio amplifier cover

<<A>>

Removal Steps (Continued)

3. Audio amplifier
4. Audio amplifier box bracket

TSB Revision

REMOVAL SERVICE POINT

<<A>> REMOVAL OF AUDIO AMPLIFIER BOX BRACKET

Turn up and remove the carpet.

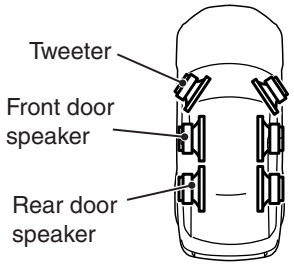
SPEAKER

GENERAL INFORMATION

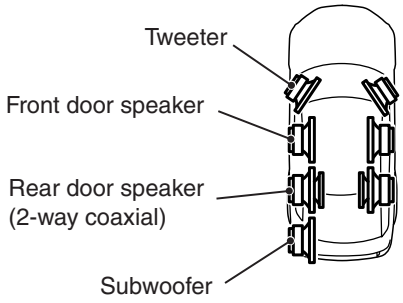
M1544101000081

The following two types of speakers are available.

<6 speakers>



<9 speakers 7 position system>



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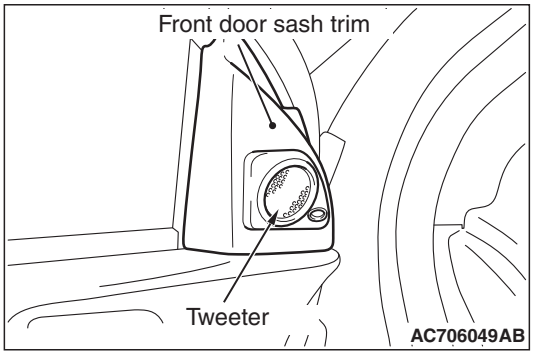
- 6 speakers (tweeter: 3.5 cm, front door: 16 cm, rear door: 16 cm)
- 9 speakers 7 position system (tweeter: 3.5 cm, front door: 16 cm, rear door: 2-way coaxial 16 cm, subwoofer: 25 cm) <Vehicle with audio amplifier: Rockford Fosgate® premium sound system>

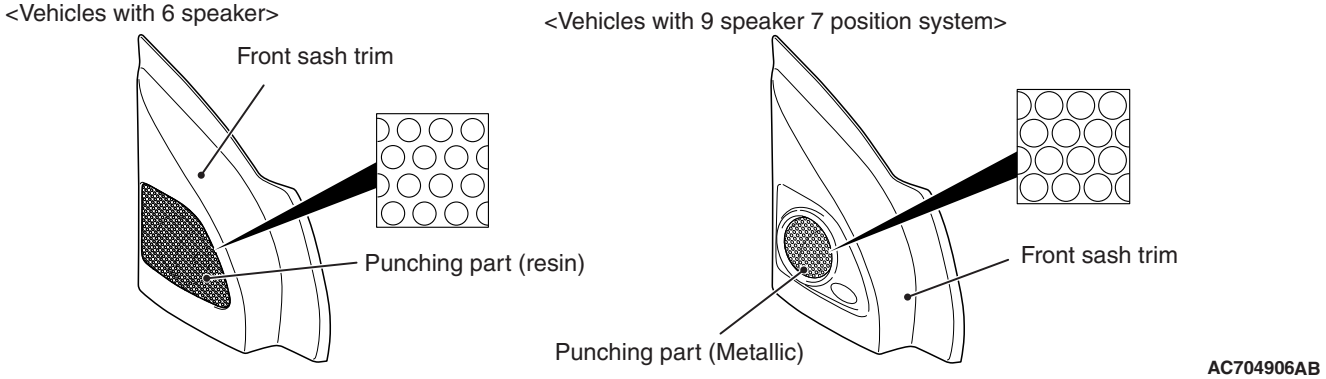
Specification

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

TWEETER



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



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

DOOR SPEAKER

Front door speaker

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

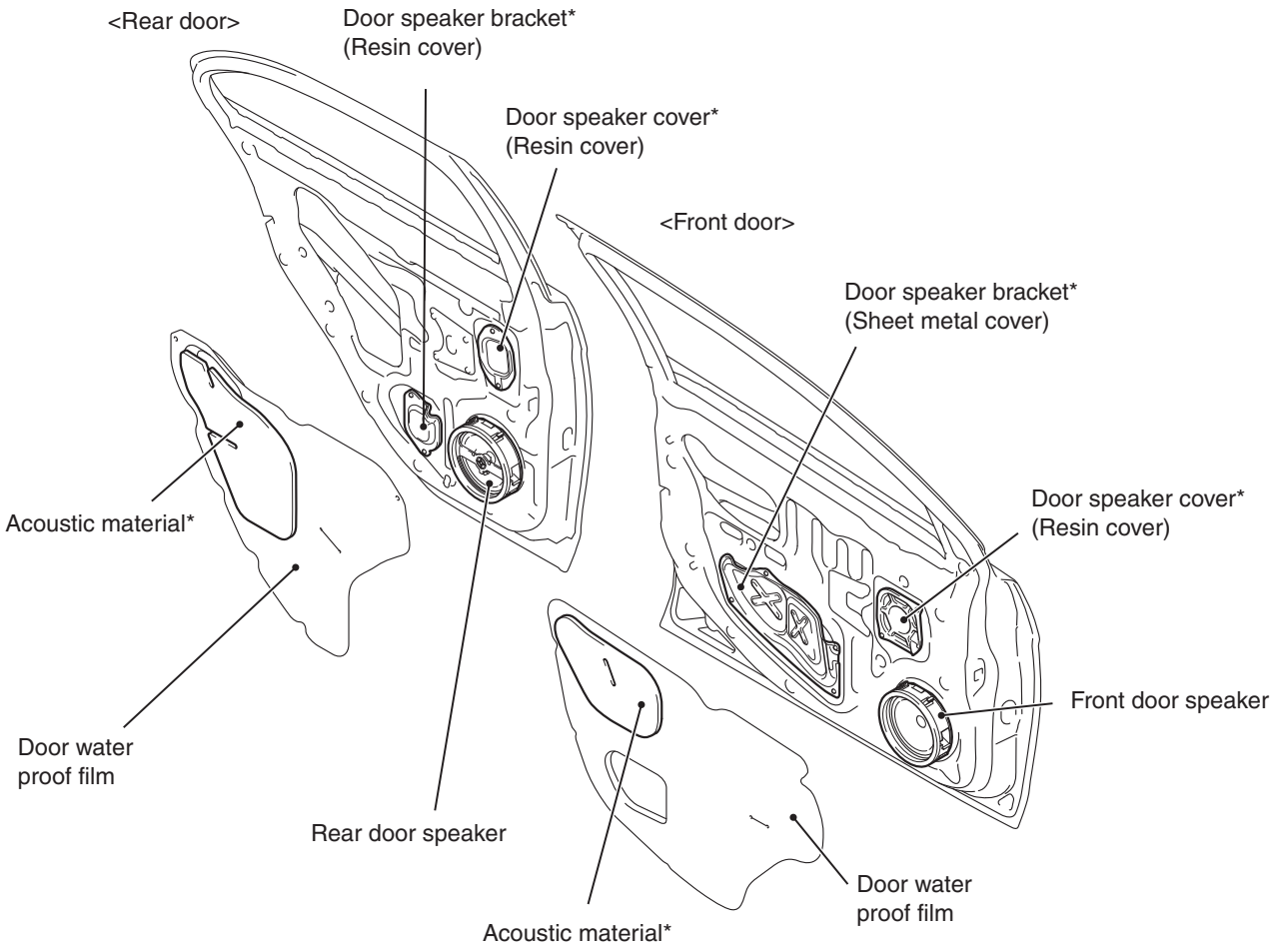
Compared to the paper cone speakers, the PP (polypropylene) cone speakers can playback crisper bass.

Rear door speaker

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

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

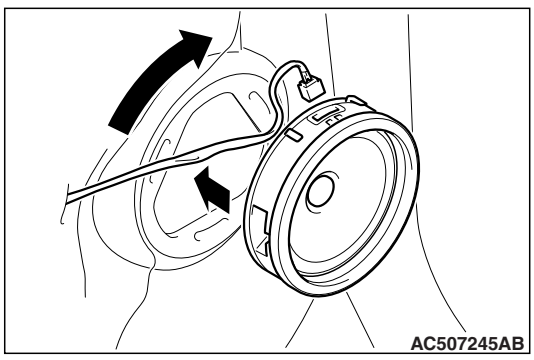
Door speaker box



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

For vehicles with 9-speaker 7-position system, the door opening of the vehicle has been blocked by the door speaker bracket (front: sheet metal cover, rear: resin cover), door speaker cover (resin cover), and acoustic material of door water proof film to make the door into a speaker box, thus improving the sound quality. As an advantage of the door speaker bracket (sheet metal cover), the rigidity of the areas around the speaker has been increased, and the higher sound pressure, suppression of high harmonic, and suppression of dumping are achieved to improve sound quality.

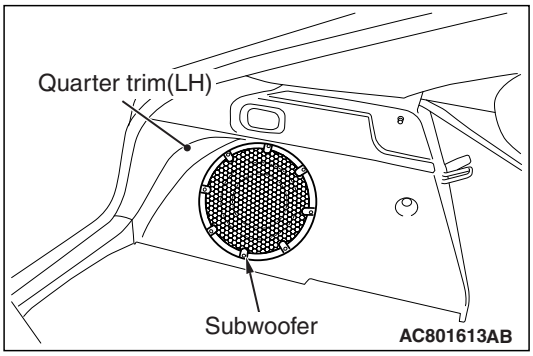
Serviceability



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

TSB Revision

SUBWOOFER <VEHICLES WITH 9-SPEAKER 7-POSITION SYSTEM>



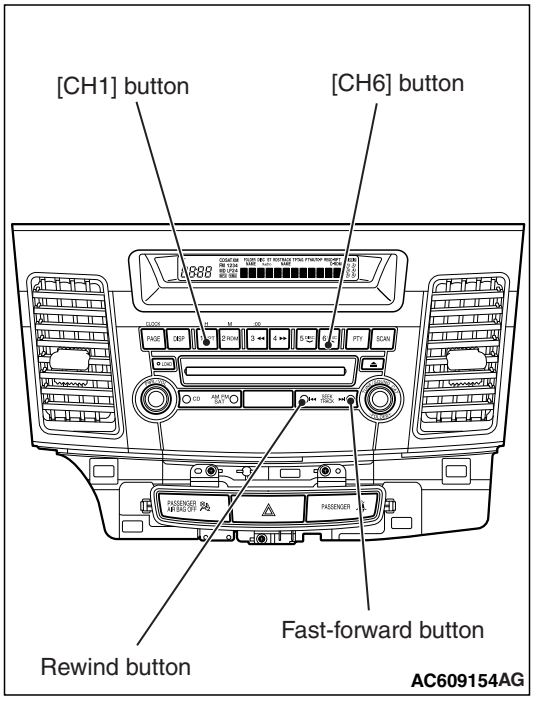
On the quarter trim (LH), a 25-cm dual voice coil subwoofer has been installed. The subwoofer plays the dynamic extra bass and rhythmic punch sound.

ON-VEHICLE SERVICE

SPEAKER TEST <VEHICLES WITH RADIO AND CD PLAYER>

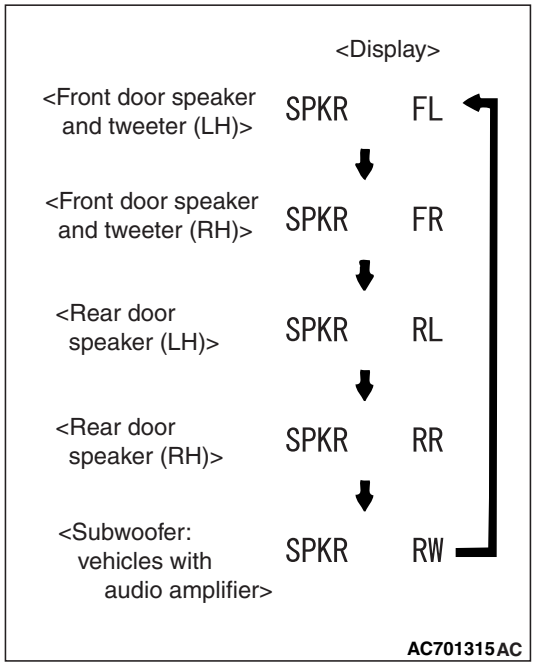
M1544100500522

SPEAKER CONNECTION CHECK MODE



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

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



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

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

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

BUZZ NOISE CHECK MODE

Inserting a CD during the speaker connection check mode shifts the mode to the buzz noise check mode, and the buzz noise sound of each speaker can be checked.
As with the speaker connection check mode, press the [CH6] button to switch the output speaker of the buzz noise check sound.
Check that the buzz noise sound is output from the output speaker of buzz noise check sound.

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

SPEAKER TEST <VEHICLES WITH MMCS>

M1544100500328

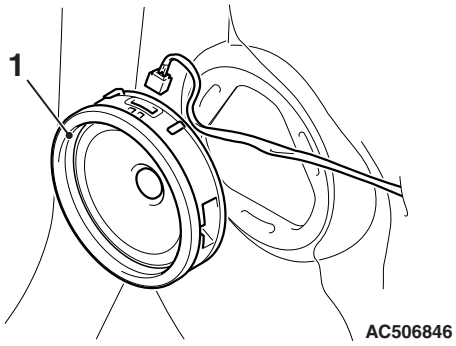
Refor to P.54A-421

REMOVAL AND INSTALLATION

M1544100300357

FRONT DOOR SPEAKER

Pre-removal operation	Post-installation operation
• Removal of front door trim (Refer to GROUP 52A –Door trim P.52A-15)	• Installation of front door trim (Refer to GROUP 52A –Door trim P.52A-15) • Learning of the power window fully closed position (Refer to GROUP 42A –Door, On-vehicle service P.42A-125.)



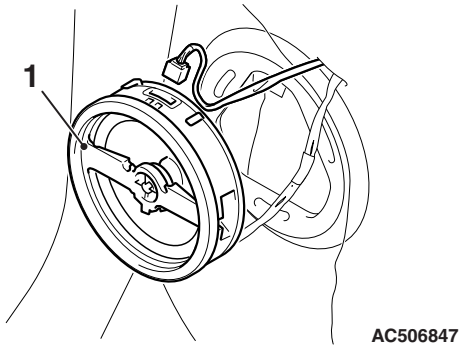
AC802122AD

Removal Step

<<A>> 1. Front door speaker

REAR DOOR SPEAKER

Pre-removal operation	Post-installation operation
• Removal of rear door trim (Refer to GROUP 52A –Door trim P.52A-15)	• Installation of rear door trim (Refer to GROUP 52A –Door trim P.52A-15) • Learning of the power window fully closed position (Refer to GROUP 42A –Door, On-vehicle service P.42A-125.)



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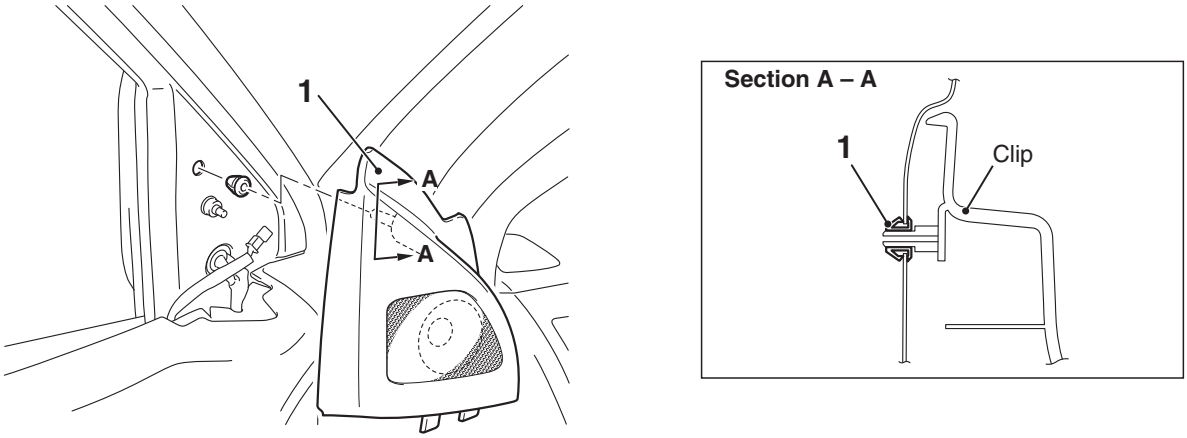
Removal Step

<<A>> 1. Rear door speaker

TSB Revision

TWEETER



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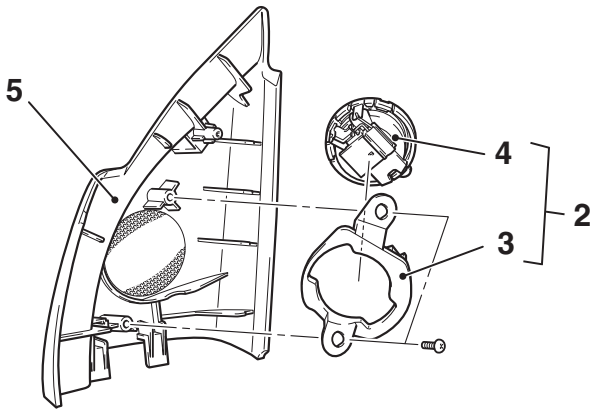

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Removal Steps

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

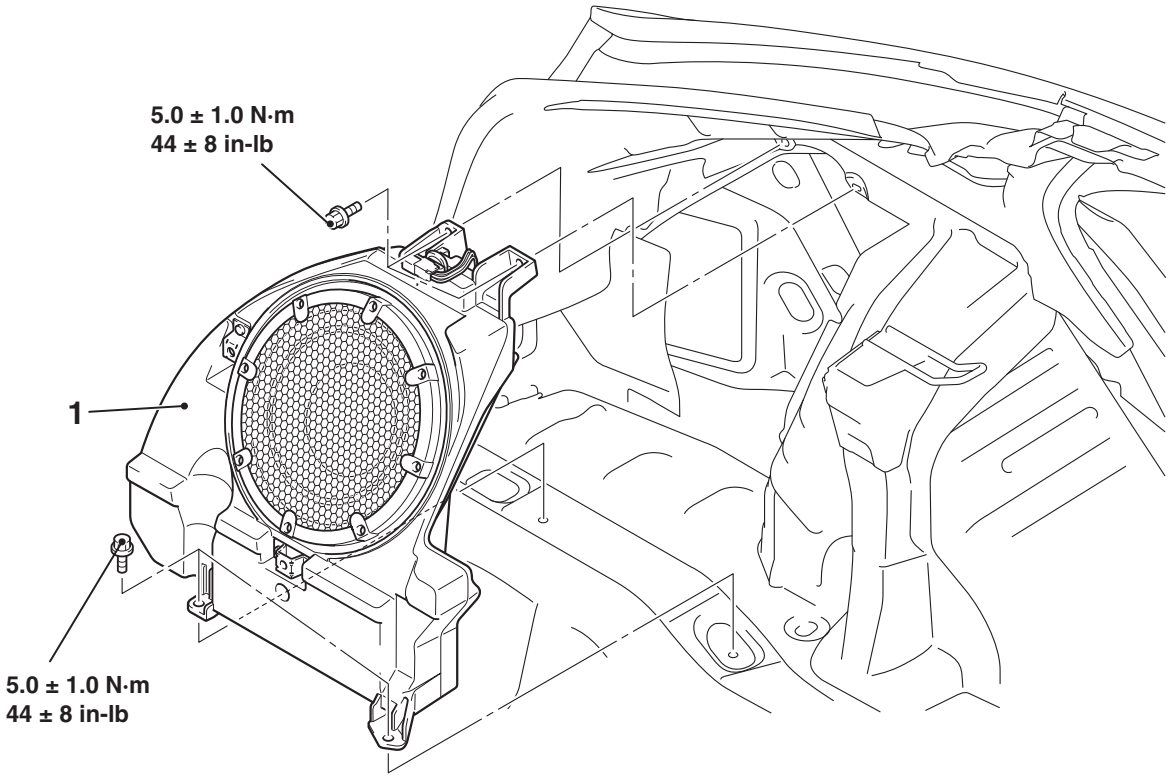
Removal Steps (Continued)

4. Tweeter
5. Front door sash trim

TSB Revision

SUBWOOFER

Pre-removal operation	Post-installation operation
Removal of quarter trim (LH) (Refer to GROUP 52A –Quarter Trim P.52A-11)	Installation of quarter trim (LH) (Refer to GROUP 52A – Quarter Trim P.52A-11)



AC801904AC

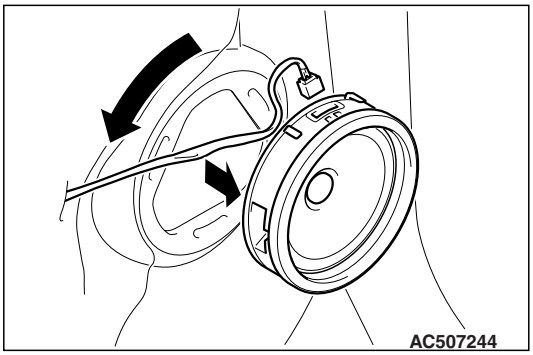
Removal Steps

>>**A**<< 1. Rear speaker box assembly

REMOVAL SERVICE POINT

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

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

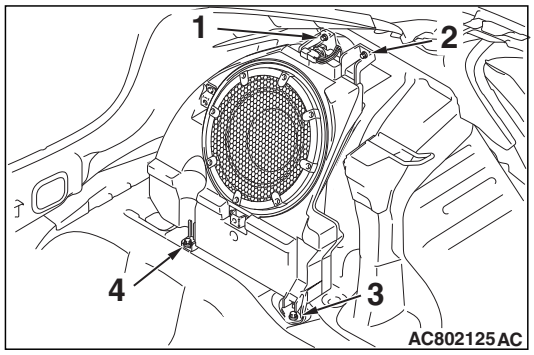


TSB Revision

INSTALLATION SERVICE POINT

>>A<< REAR SPEAKER BOX ASSEMBLY INSTALLATION

Tighten the bolts in the order of 1, 2, 3, 4 shown in the figure.



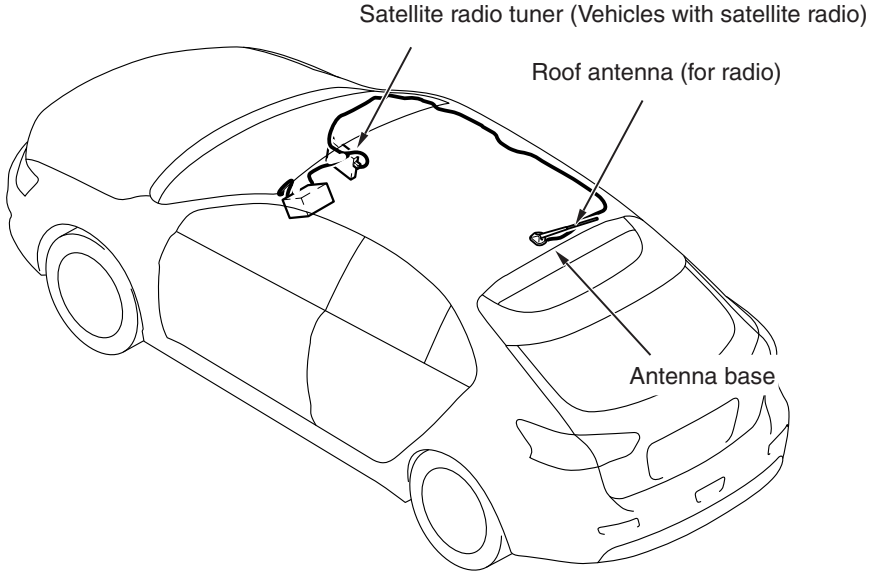
ANTENNA

GENERAL INFORMATION

M1544200500110

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

Construction diagram

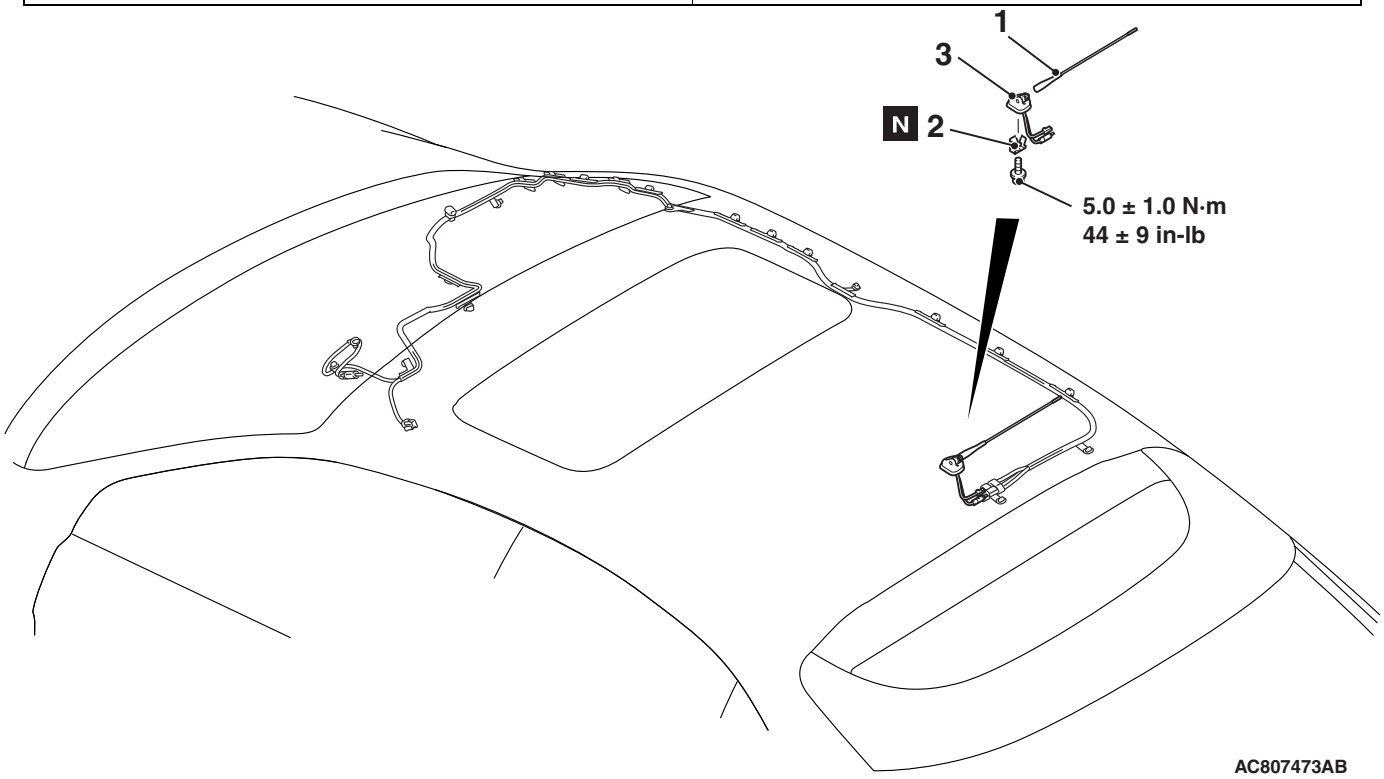


REMOVAL AND INSTALLATION <VEHICLE WITHOUT SATELLITE RADIO TUNER>

M1544200200755

ANTENNA ROD, ANTENNA BASE

Pre-removal operation	Post-installation operation
• Removal of headlining (Refer to GROUP 52A –Headlining P.52A-18). <Only antenna base>	• Installation of headlining (Refer to GROUP 52A –Headlining P.52A-18). <Only antenna base>



Removal Steps

1. Antenna rod

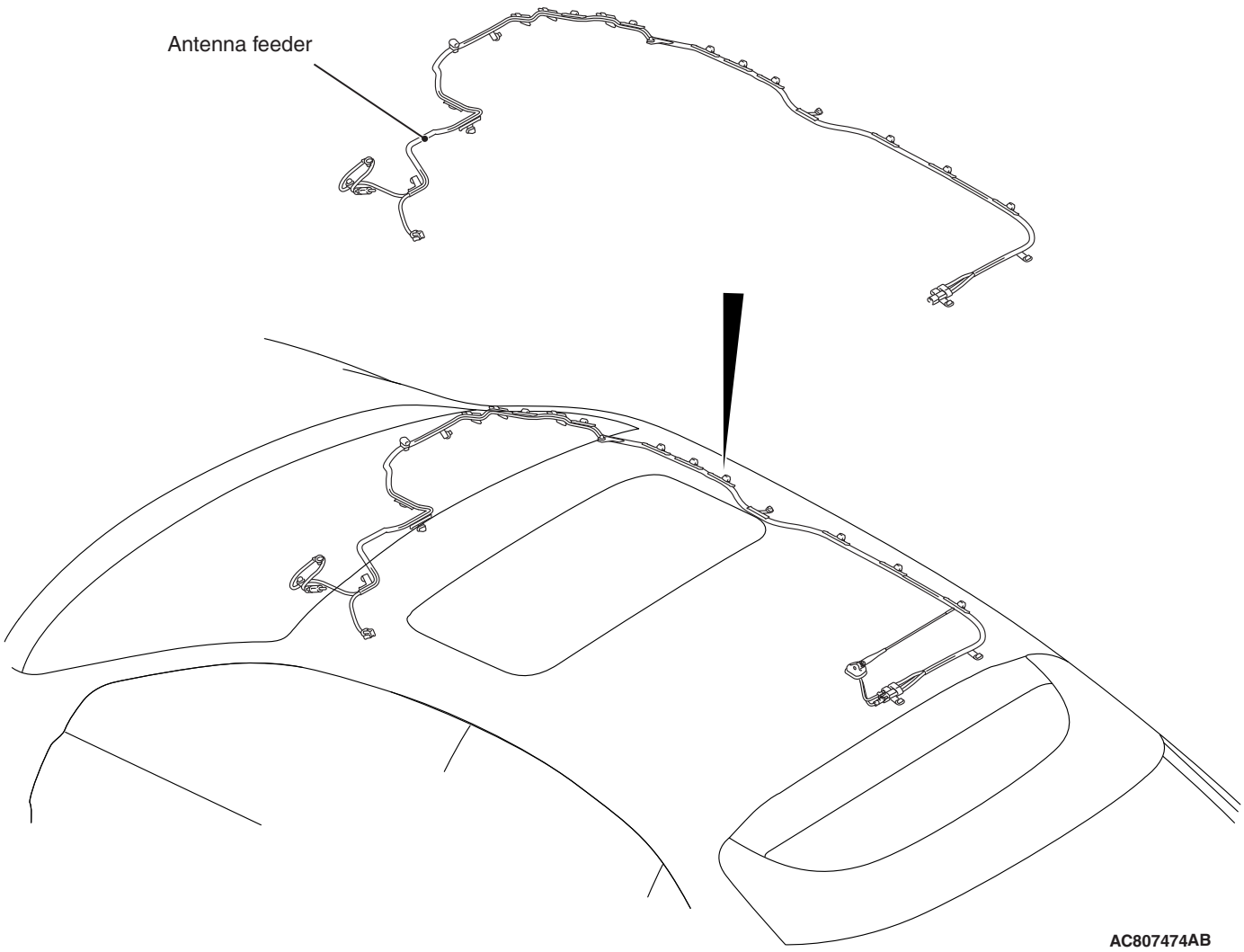
Removal Steps (Continued)

2. Antenna base (Antenna spring)
3. Antenna base

TSB Revision

ANTENNA FEEDER

Pre-removal operation	Post-installation operation
• Removal of grove box cover (Refer to GROUP 52A – Grove box P.52A-6). • Removal of headlining (Refer to GROUP 52A –Headlining P.52A-18).	• Installation of headlining (Refer to GROUP 52A –Headlining P.52A-18). • Installation of grove box cover (Refer to GROUP 52A – Grove box P.52A-6).

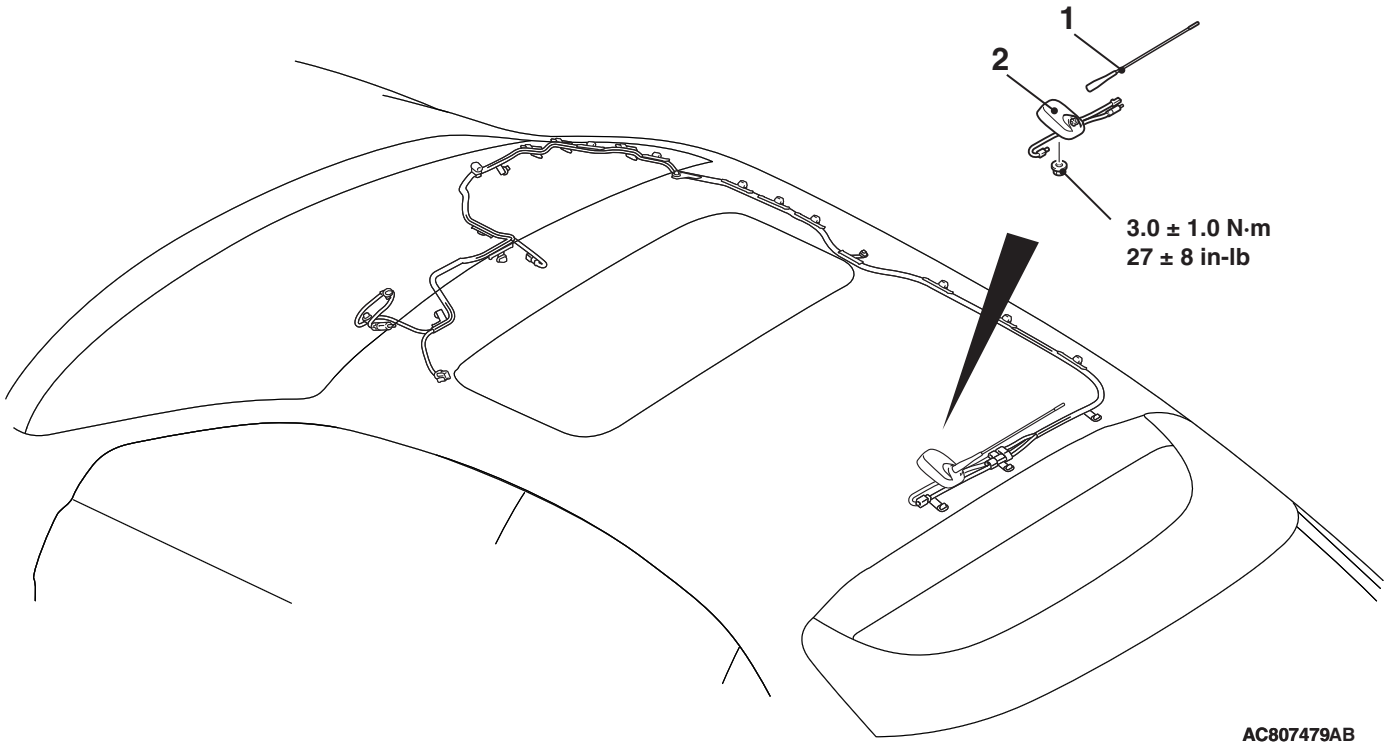


REMOVAL AND INSTALLATION <VEHICLE WITH SATELLITE RADIO TUNER>

M1544200200766

ANTENNA ROD, ANTENNA BASE

Pre-removal operation	Post-installation operation
• Removal of headlining (Refer to GROUP 52A –Headlining P.52A-18). <Only antenna base>	• Installation of headlining (Refer to GROUP 52A –Headlining P.52A-18). <Only antenna base>

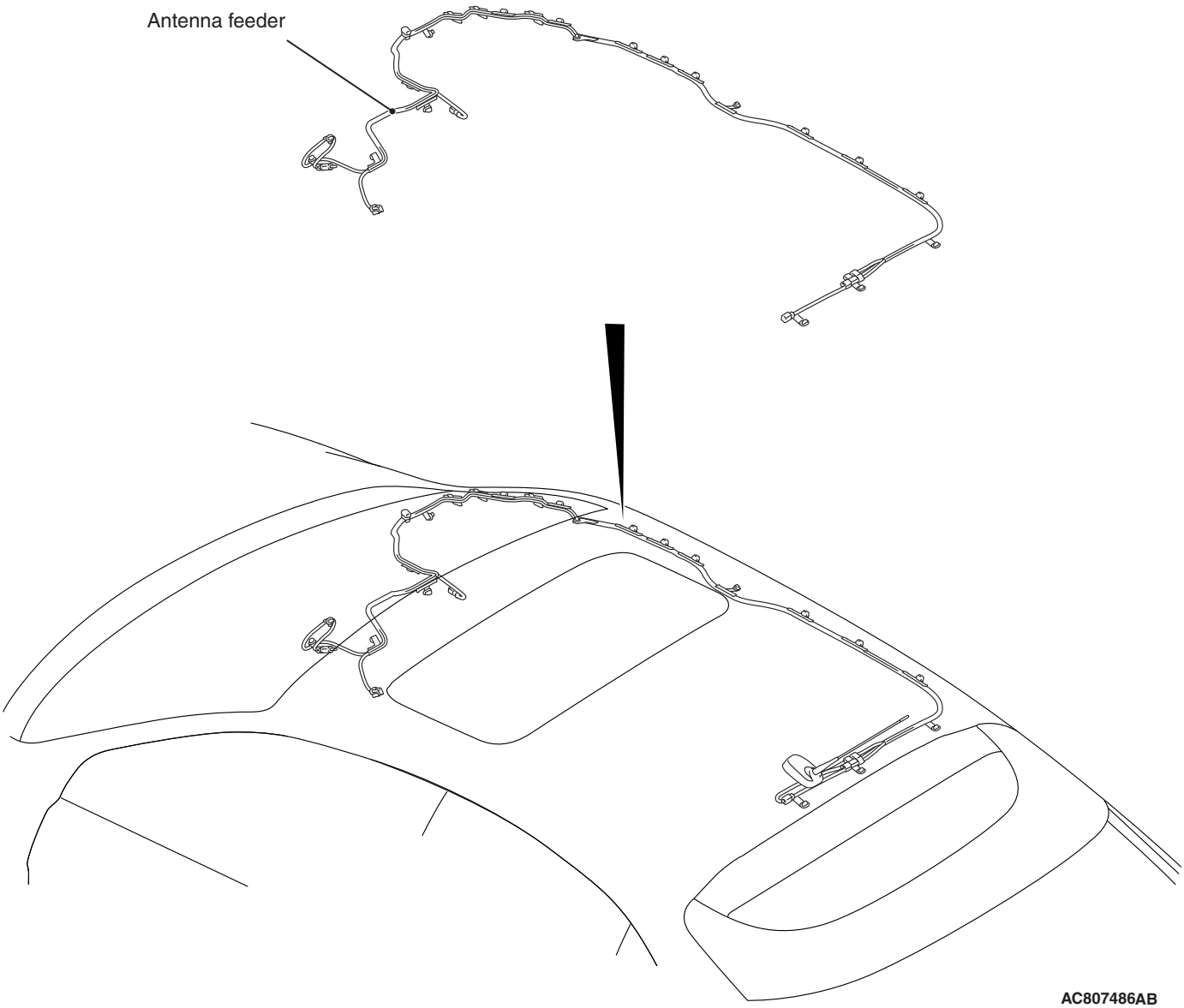


Removal Steps

1. Antenna rod
2. Antenna base

ANTENNA FEEDER

Pre-removal operation	Post-installation operation
• Removal of grove box cover (Refer to GROUP 52A – Grove box P.52A-6). • Removal of headlining (Refer to GROUP 52A –Headlining P.52A-18).	• Installation of headlining (Refer to GROUP 52A –Headlining P.52A-18). • Installation of grove box cover (Refer to GROUP 52A – Grove box P.52A-6).



TSB Revision

SATELLITE RADIO TUNER

GENERAL INFORMATION

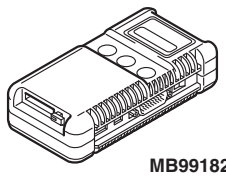
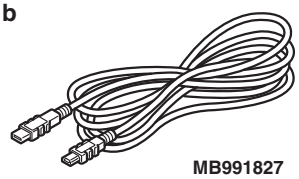
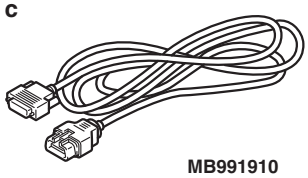
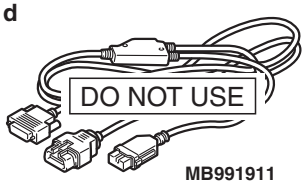
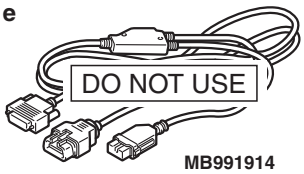
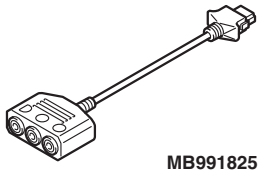
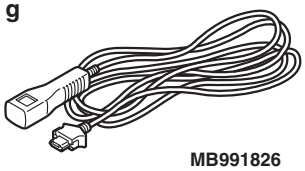
M1544000100743

The satellite radio is a broadcast technology that offers a clear digital sound directly by using satellites.

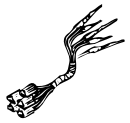
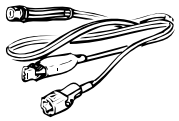
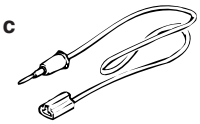
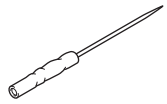
- The registered service provider is SIRIUS™ satellite radio.
- This service offers listeners more than 100 programs such as news, sports, music, and entertainment.

SPECIAL TOOLS

M1544000600629

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** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** CAN bus diagnostics or data list check.

TSB Revision

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

ERROR CODE

M1544019600014

The display displays the error codes if an abnormality related to the satellite radio is detected.

Error code	Cause	Cause of trouble and its solution
ANTENNA ERROR	Antenna 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, and replace if necessary.
ACQUIRING SIGNAL	Cannot pick up signal	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.
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.
INVALID CHANNEL	Channel is invalid	No program is broadcast on this channel now, or this channel cannot be received. Ask SIRIUS™ satellite radio.

Error code	Cause	Cause of trouble and its solution
SAT 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 and CD player <vehicle with radio and CD player> or multivision display <vehicle with MMCS>. Check the radio and CD player <vehicle with radio and CD player> or multivision display <vehicle with MMCS>, the satellite radio tuner, and each harness and connector, and replace if necessary. (Refer to P.54A-658.)
OFF AIR	OFF AIR	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.
NOT ACTIVATED	ID not registered	This code is displayed when the SIRIUS ID is not written to the satellite radio tuner. Replace the satellite radio tuner.
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	Channel data updating in progress	This code is displayed when SIRIUS™ satellite radio is updating the channel data. Wait until update is completed.
SUB UPDATINGPRESS ANY KEY	Contract status updating complete	This code is displayed when the contract status is updated. This code disappears when any of the audio switch is pressed.

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544016500018

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

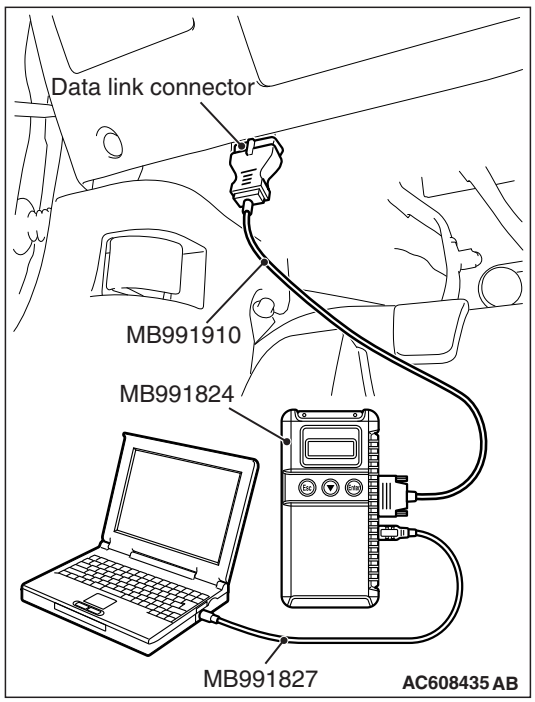
DIAGNOSIS FUNCTION

M1544013200386

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code."
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

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

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

CHECK OF FREEZE FRAME DATA

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

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

Display item list

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

DIAGNOSTIC TROUBLE CODE CHART

M1544012900412

Diagnostic trouble code number	Trouble content	Reference page
B2222	Radio receiver Internal fail	P.54A-639
U0019	Bus off (CAN-B)	P.54A-641
U0141	ETACS CAN timeout	P.54A-642
U0151	SRS-ECU CAN timeout	P.54A-644
U0154	OCM (occupant classification-ECU) CAN timeout	P.54A-646
U0155	Meter CAN timeout	P.54A-648
U0164	A/C CAN timeout	P.54A-650
U0168	WCM/KOS CAN timeout	P.54A-652
U0184	Audio CAN timeout	P.54A-654
U0197	Hands free module CAN timeout	P.54A-656

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC B2222: Radio receiver internal fail

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

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

TROUBLE JUDGMENT

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

TECHNICAL DESCRIPTION (COMMENT)

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

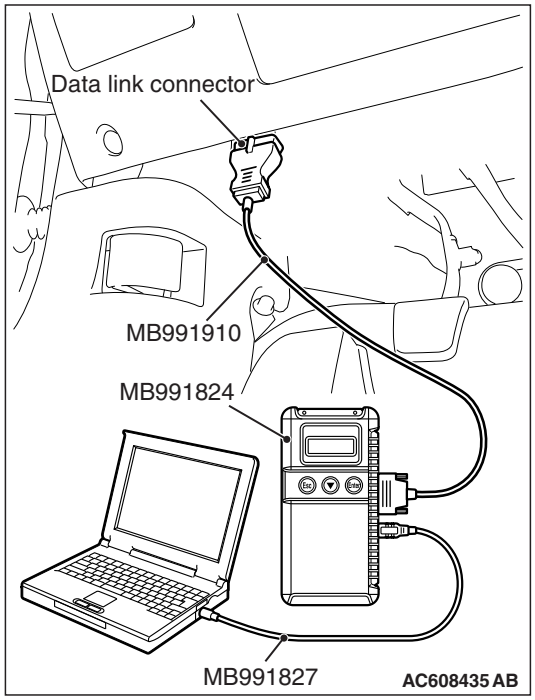
TROUBLESHOOTING HINTS

- Satellite radio tuner may be defective
- CAN bus line wiring harness and connector 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. Using scan tool MB991958, diagnose the CAN bus line.

Use scan tool MB991958 to diagnose the CAN bus lines.

⚠ CAUTION

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

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

Q: Is the check result normal?

YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) On completion, go to Step 2.

STEP 2. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

DTC U0019: Bus off (CAN-B)

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

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

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

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

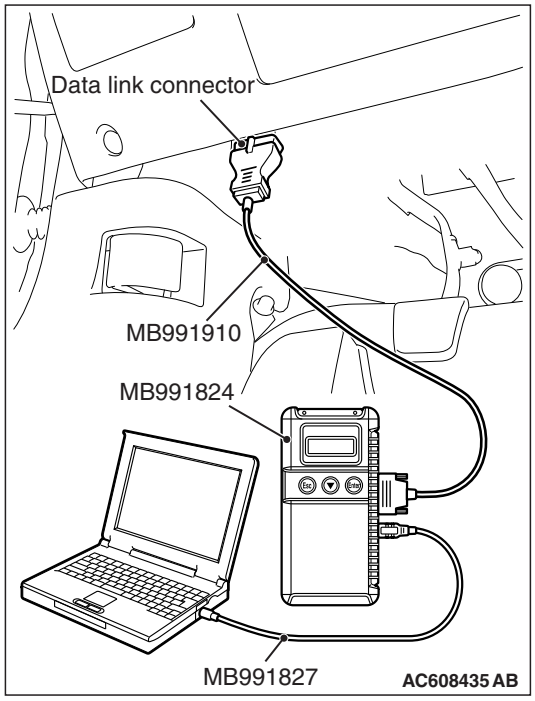
TROUBLESHOOTING HINTS
The satellite radio tuner, power supply for the satellite radio tuner, earth circuit, or CAN bus line may have a problem.

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

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

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.
(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(2) Turn the ignition switch to "ON" position.
(3) Diagnose the CAN bus line.

Q: Is the check result normal?
YES : Go to Step 2.
NO : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16.) On completion, go to Step 2.



STEP 2. Check whether the scan tool MB991958 can communicate with the satellite radio tuner.

Q: Is the check result normal?

YES : Erase the diagnosis code. The procedure is complete.

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

DTC U0141: ETACS CAN timeout

⚠ CAUTION

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

⚠ CAUTION

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

DIAGNOSTIC FUNCTION

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

JUDGMENT CRITERIA

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

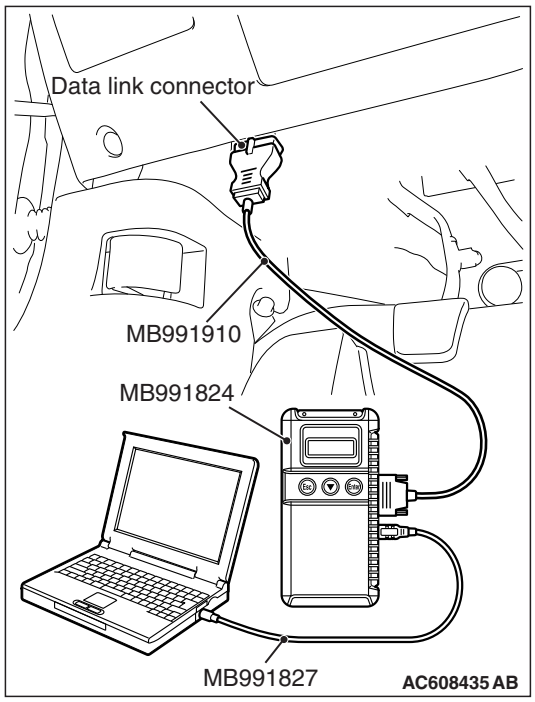
TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-674).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the combination meter diagnostic trouble code.
Check if DTC U0141 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ETACS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

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

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

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

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

DIAGNOSIS

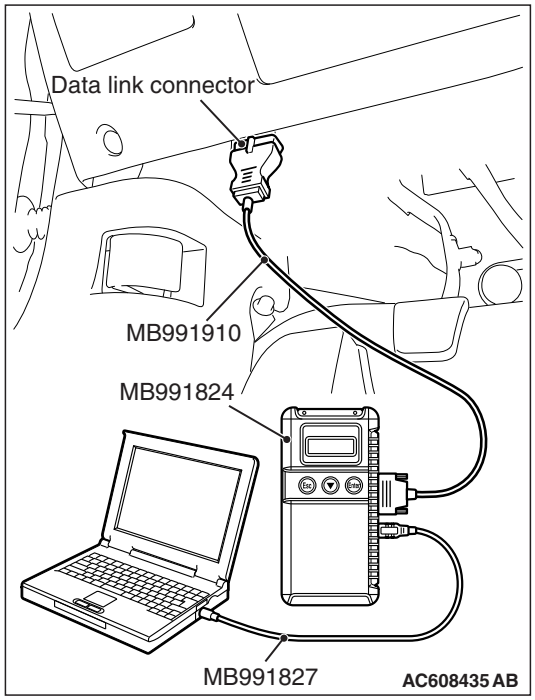
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Troubleshooting P.52B-32).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0151 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the SRS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

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

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

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

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

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

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

DIAGNOSIS

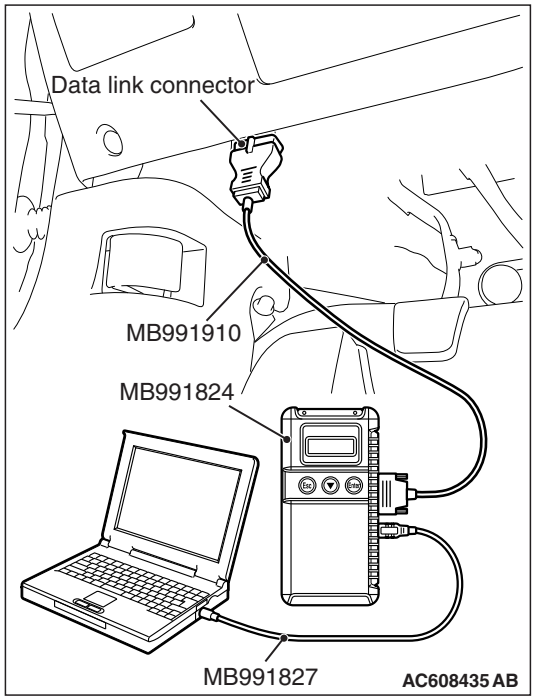
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-315).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0154 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0155: Meter CAN timeout

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

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

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

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

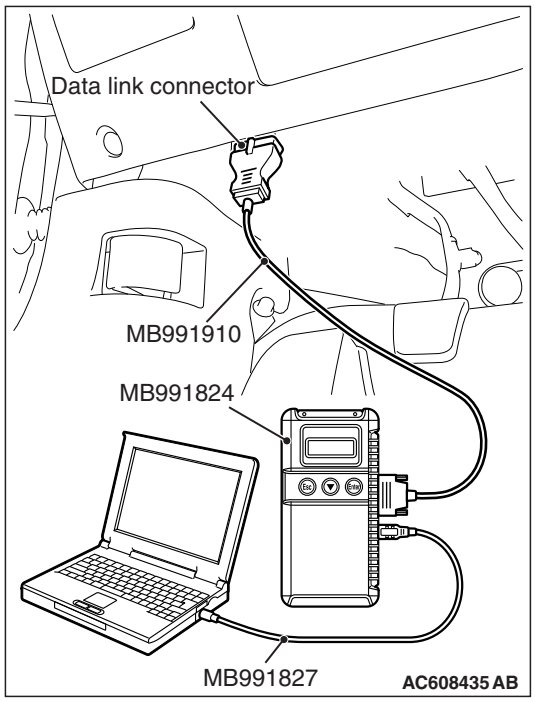
TROUBLESHOOTING HINTS
- The CAN bus line may be defective.
- The satellite radio tuner may be defective.
- The combination meter may be defective.

DIAGNOSIS

Required Special Tools:

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

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



⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

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

Check whether a combination meter DTCs are set or not.
(1) Turn the ignition switch to the "ON" position.
(2) Check for combination meter DTCs.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result satisfactory?

YES : Go to Step 3.
NO : Diagnose the combination meter (Refer to combination meter, Diagnosis P.54A-33).

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0164: A/C CAN timeout

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

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

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

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

DIAGNOSIS

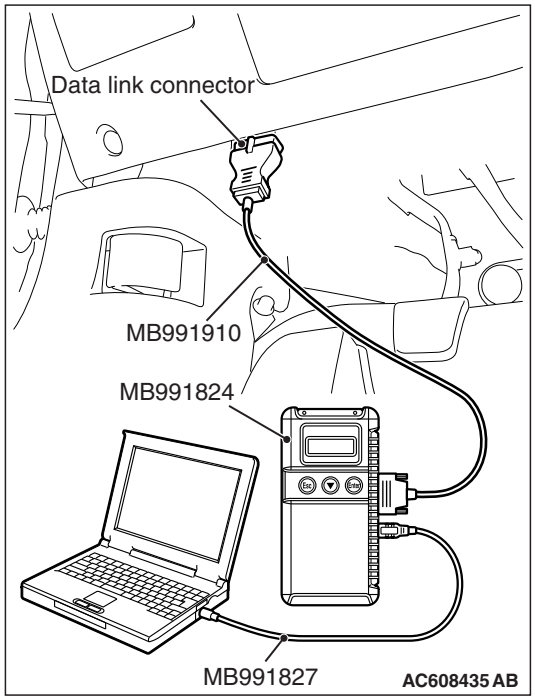
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the A/C-ECU (Refer to GROUP 55, Manual A/C Diagnosis P.55-9).
NO : Go to Step 3.

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

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

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: WCM/KOS CAN timeout

⚠ CAUTION
- **If DTC U0168 is set, be sure to diagnose the CAN bus line.**
- **When replacing the ECU, always check that the communication circuit is normal.**

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

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

TROUBLESHOOTING HINTS
- Malfunction of CAN bus line may be defective.
- Malfunction of the KOS-ECU may be defective. <vehicles with KOS>
- Malfunction of the WCM may be defective. <vehicles with WCM>
- Malfunction of satellite radio tuner may be defective.

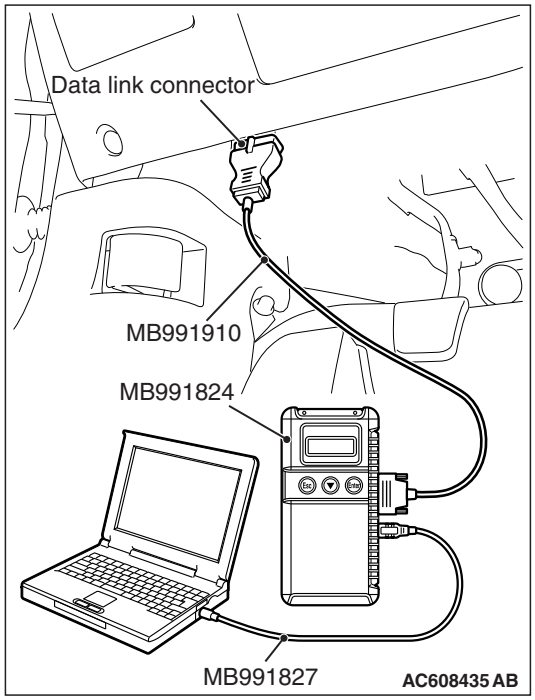
DIAGNOSIS

Required Special Tools:

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

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

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the KOS or WCM (Refer to GROUP 42B, Diagnosis P.42B-31 <KOS> or GROUP 42C, Diagnosis P.42C-18 <WCM>).
NO : Go to Step 3.

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

Check if the DTC U0168 is set to the ETACS-ECU.

Q: Is the DTC set?

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

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STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0184: Audio CAN timeout

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

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

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

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

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

TSB Revision

DIAGNOSIS

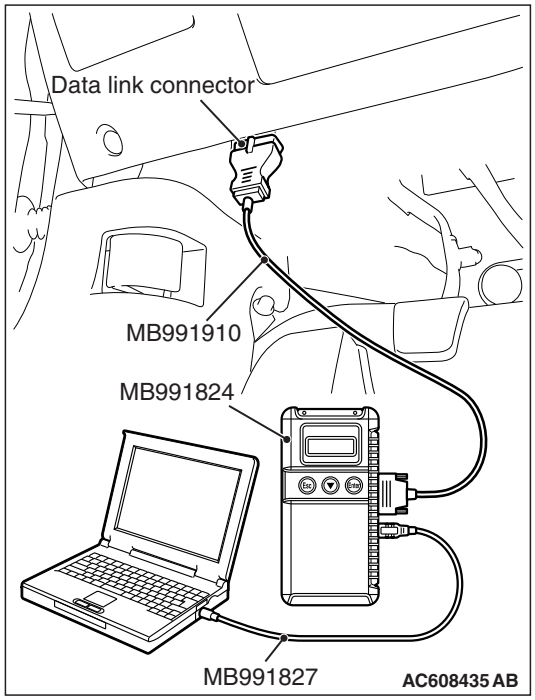
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the radio and CD player (Refer to P.54A-343).
NO : Go to Step 3.

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

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

Q: Is the DTC set?

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

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STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0197: Hands free module CAN timeout

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

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

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

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

DIAGNOSIS

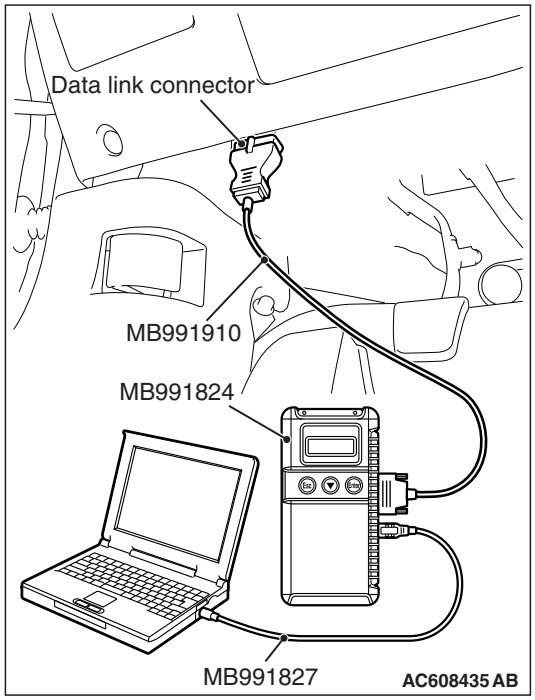
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-636."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the hands free cellular phone system. (Refer to P.54A-555.)
NO : Go to Step 3.

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

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

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the satellite radio tuner.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the satellite radio tuner (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

TROUBLE SYMPTOM CHART

M1544016400055

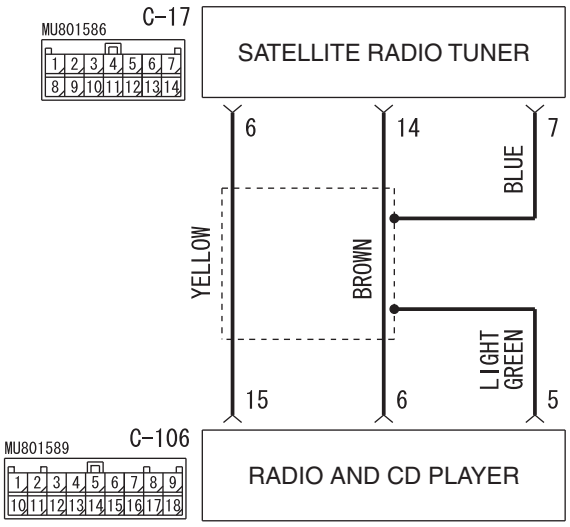
Inspection Procedure No.	Trouble symptom	Reference page
1	A satellite radio cannot be received.	P.54A-659
2	Check the satellite radio tuner power supply circuit.	P.54A-663
3	The error code "ANTENNA ERROR" is displayed on the display.	P.54A-666

SYMPTOM PROCEDURES

Inspection Procedure 1: A satellite radio cannot be received.

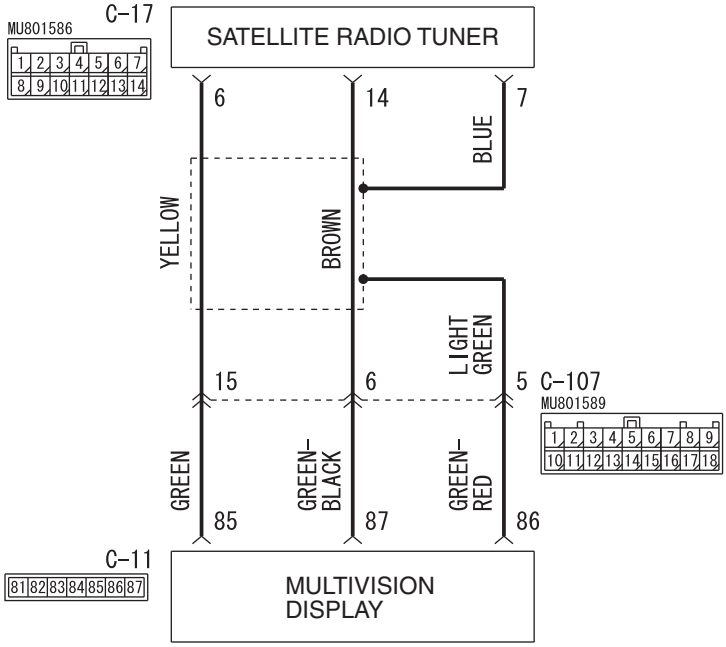
⚠ CAUTION
Before replacing the satellite radio tuner, antenna feeder cable, radio and CD player <vehicles with radio and CD player> or multivision display <vehicles with MMCS>, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

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



WAH54M022A

Satellite Radio Tuner Communication Circuit <Vehicles with MMCS>



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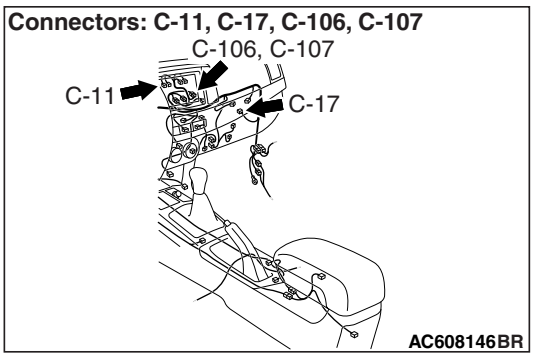


TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Satellite radio tuner may be defective
- Radio and CD player <vehicles with radio and CD player> or multivision display <vehicles with MMCS> 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
- 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

TSB Revision

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

Check whether AM or FM broadcast frequency is received.

Q: Is AM or FM broadcast frequency received?

YES : Go to Step 2.

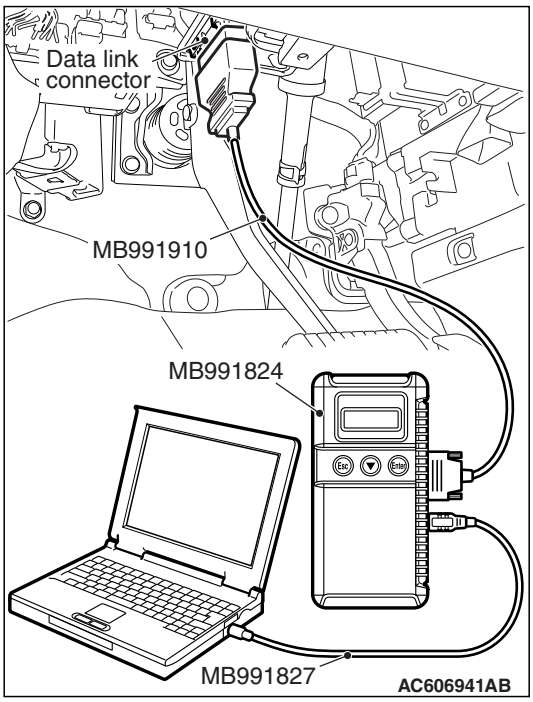
NO : Diagnose the radio and CD player <vehicles with radio and CD player> or the multivision display <vehicles with MMCS> (Refer to P.54A-373 <vehicles with radio and CD player> or P.54A-463 <vehicles with MMCS>).

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

⚠ CAUTION

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

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



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

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

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

NO <vehicles with radio and CD player or MMCS> : Repair the CAN bus line. (Refer to GROUP 54C, Diagnosis P.54C-16).

STEP 3. Check satellite radio tuner connector C-17 and radio and CD player connector C-106 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connector C-17 or radio and CD player connector C-106 in good condition?

YES : Go to Step 4.

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

STEP 4. Check the wiring harness between satellite radio tuner connector C-17 (terminal 6, 14) and radio and CD player connector C-106 (terminal 15,16).

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

Q: Is the wiring harness between satellite radio tuner connector C-17 (terminal 6, 14) and radio and CD player connector C-106 (terminal 15, 16) in good condition?

YES : Go to Step 5.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

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

Check whether satellite radio broadcast can be received.

Q: Can a satellite radio be received?

YES : Replace the radio and CD player.
NO : Replace the satellite radio tuner.

STEP 6. Check satellite radio tuner connector C-17 and multivision display connector C-11 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connector C-17 or multivision display connector C-11 in good condition?

YES : Go to Step 7.
NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.

STEP 7. Check the wiring harness between satellite radio tuner connector C-17 (terminal 6, 14) and multivision display connector C-11 (terminal 85, 87).

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

NOTE: Also check intermediate connector C-107 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-107 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between satellite radio tuner connector C-17 (terminal 6, 14) and multivision display connector C-11 (terminal 85, 87) in good condition?

YES : Go to Step 8.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary.

STEP 8. Substitute a known good multivision display, and check the trouble symptom.
Check whether satellite radio broadcast can be received.

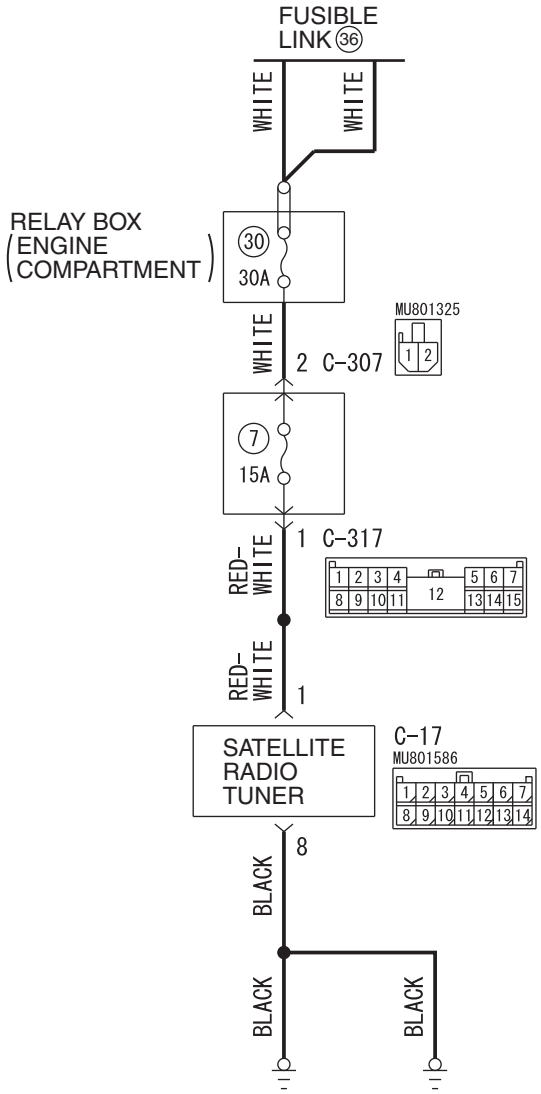
Q: Can a satellite radio be received?

YES : Replace the multivision display.
NO : Replace the satellite radio tuner.

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

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

Satellite Radio Tuner Power Supply Circuit



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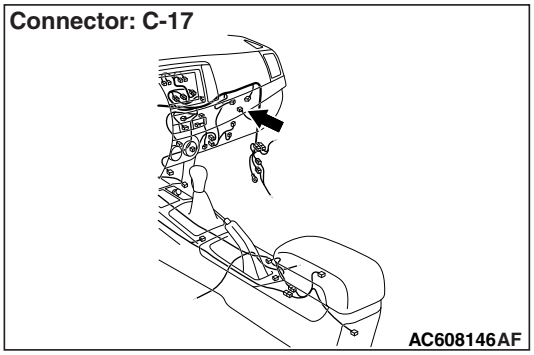
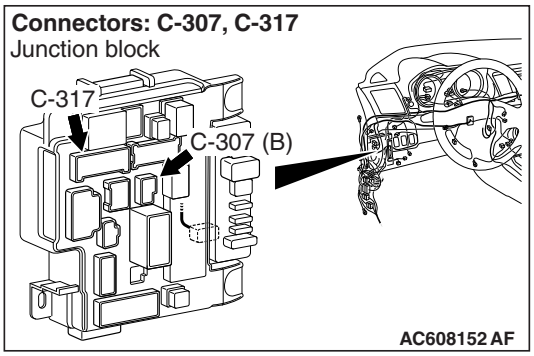
TSB Revision





TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

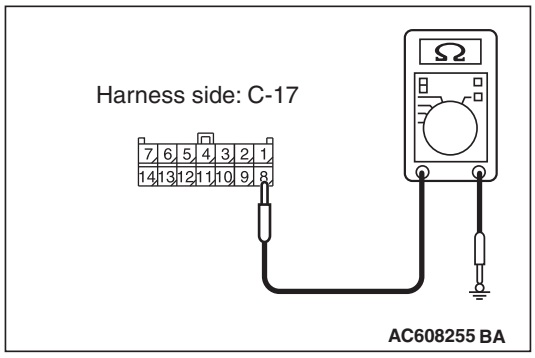
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check satellite radio tuner connectors C-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is satellite radio tuner connectors C-17 in good condition?

YES : Go to Step 2.

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



STEP 2. Check the ground circuit to the satellite radio tuner. Measure the resistance at satellite radio tuner connectors C-17.

(1) Disconnect satellite radio tuner connector C-17 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between satellite radio tuner connector C-17 terminal 8 and ground.
- The resistance should be 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

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

STEP 3. Check the wiring harness between satellite radio tuner connector C-17 (terminal 8) and ground.

- Check the ground wire for open circuit.

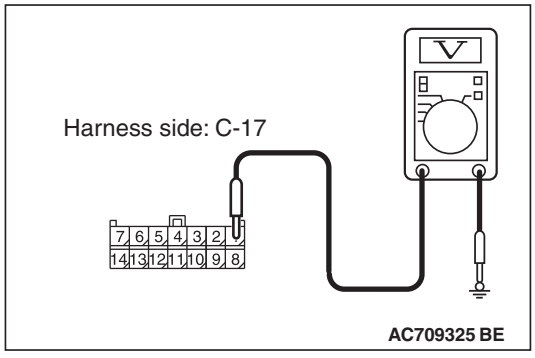
Q: Is the wiring harness between satellite radio tuner connector C-17 (terminal 8) and ground in good condition?

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

STEP 4. Check the power supply circuit to the satellite radio tuner. Measure the voltage at satellite radio tuner connector C-17.

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

OK: Battery positive voltage



Q: Is the measured voltage battery positive voltage?

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

STEP 5. Check the wiring harness between satellite radio tuner connector C-17 (terminal 1) and fusible link (36).

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

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

Q: Is the wiring harness between satellite radio tuner connector C-17 (terminal 1) and fusible link (36) in good condition?

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

STEP 6. Retest the system
Check if the satellite radio tuner works normally.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the satellite radio tuner.

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

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

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- Antenna rod may be defective
- Antenna base may be defective
- Antenna feeder may be defective
- Satellite radio tuner may be defective

DIAGNOSIS

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

Q: Are the antenna base or antenna rod damaged?

YES : Replace the antenna base or antenna rod.
NO : Go to Step 2.

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

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

YES : Go to Step 3.
NO : Repair the connection.

STEP 3. Check if the antenna feeder is damaged.

Q: Is the antenna feeder damaged or bent?

YES : Repair or replace the antenna feeder.
NO : Go to Step 4.

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

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

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

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

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

YES : Replace the satellite radio tuner.
NO : Replace the antenna base.

ON-VEHICLE SERVICE

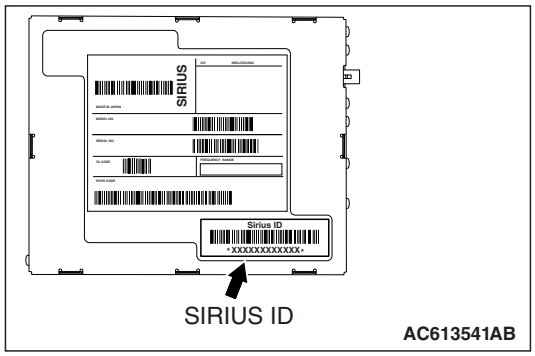
HOW TO READ SIRIUS ID

M1544018300021

READ THE SIRIUS ID DIRECTLY FROM THE SATELLITE RADIO TUNER.

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

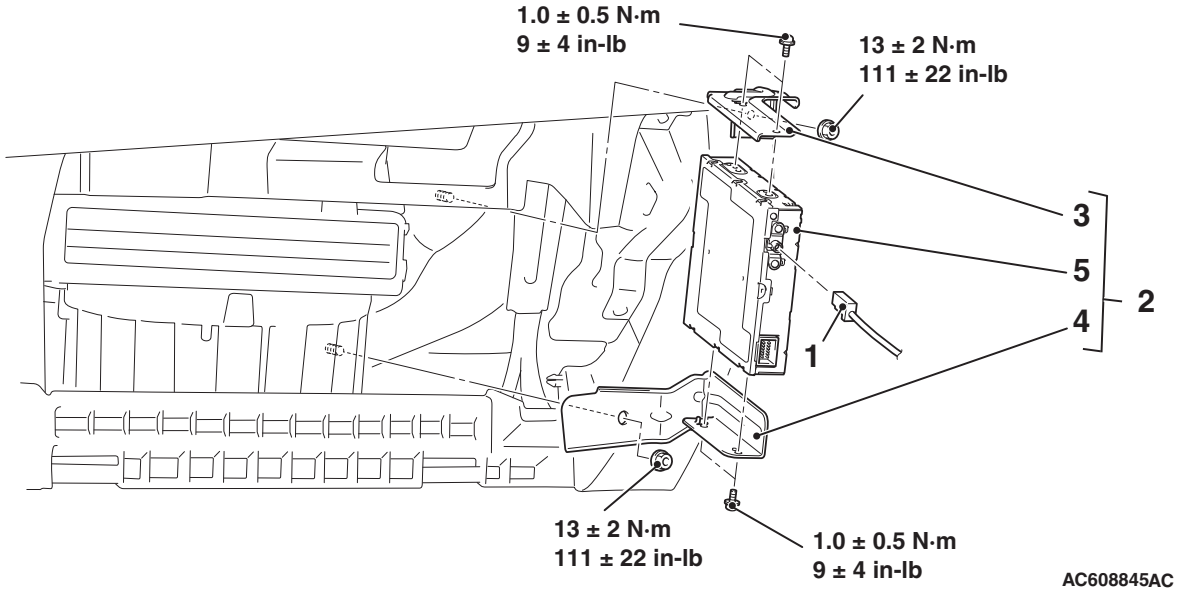
1. Remove the satellite radio tuner. Refer to P.54A-668.
2. Read the SIRIUS ID (12 digits) from the satellite radio tuner.



REMOVAL AND INSTALLATION

M1544016100054

Pre-removal operation	Post-installation operation
Removal of grove box (Refer to GROUP 52A –Grove box P.52A-6).	Installation of grove box (Refer to GROUP 52A –Grove box P.52A-6).



Removal Steps

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

Removal Steps (Continued)

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

TSB Revision

ETACS

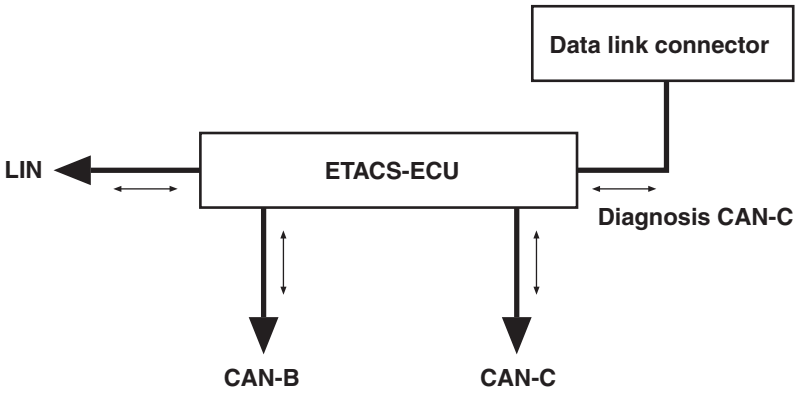
GENERAL INFORMATION

M1545000100263

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

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

GATEWAY FUNCTION



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

- Data transfer among four networks*
  Transfers the data flowing in a network to another network in real time.
  *NOTE: *: CAN-C (power train network), CAN-B (middle-speed body network), LIN (low-speed body network), diagnosis CAN-C (diagnosis exclusive network)*
- Diagnosis of each network communication line
  Detects and stores an open circuit and short circuit of communication line.
- Communication error diagnosis of network ECUs
  Detects and stores the ECU that is not properly transmitting data.

CODING FUNCTION

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

BODY ELECTRICAL EQUIPMENT CONTROL FUNCTION

This function controls the following electrical equipment.

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

FUNCTION AND CONTROL

ACC POWER CUT-OFF FUNCTION <INITIAL CONDITION: WITH FUNCTION (30 MINUTES)>

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

ENGINE CONTROL <RALLIART>

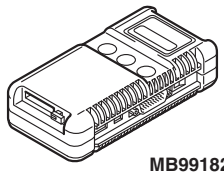
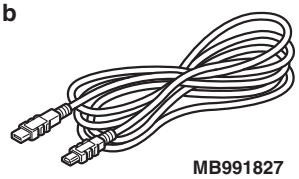
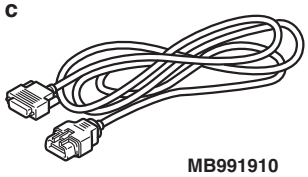
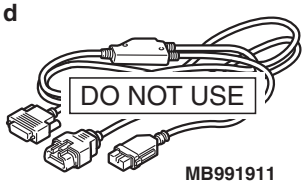
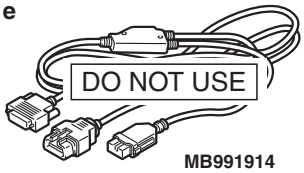
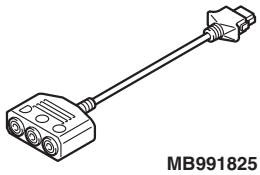
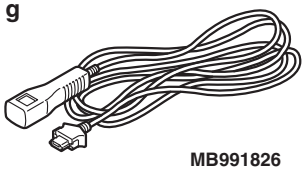
After the ignition switch is turned to the LOCK (OFF) position and the engine stops running, it takes approximately 1 second until the power of the vehicle is turned off. During the period until engine is stopped, the gear engagement in TC-SST is released in order to start the engine smoothly at the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

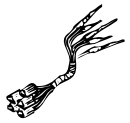
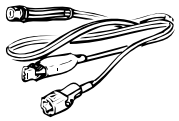
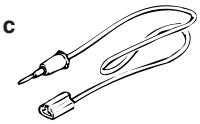
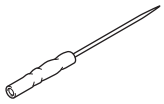
FAN CONTROL <RALLIART>

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

SPECIAL TOOL

M1545000600235

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** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** ETACS-ECU check (Diagnostic trouble code, service data)

Tool	Tool number and name	Supersession	Application
a  b  c  d  MB991223	MB991223 a. MB991219 b. MB991220 c. MB991221 d. MB991222 Harness set a. Test harness b. LED harness c. LED harness adaptor d. Probe	General service tools	Continuity check and voltage measurement at harness wire or connector for loose, corroded or damaged terminals, or terminals pushed back in the connector. a. Connector 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

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1545000900076

Refer to GROUP 00, Contents of troubleshooting P.00-6.

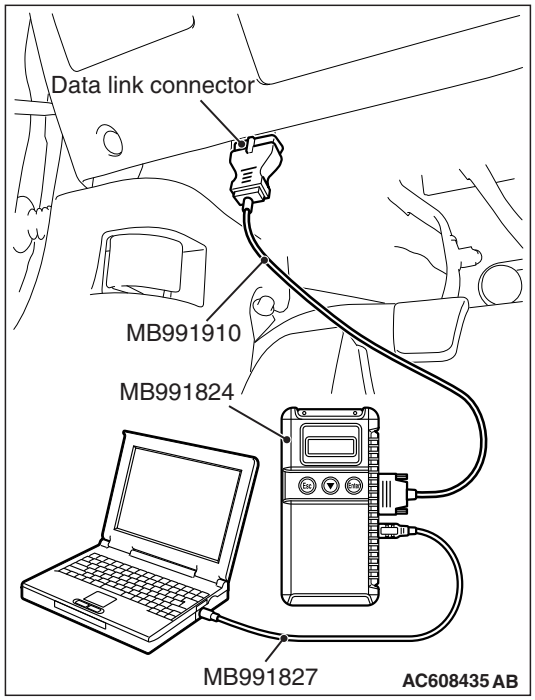
DIAGNOSTIC FUNCTION

M1545001000087

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

Required Special Tools:

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



⚠ CAUTION

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

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

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

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

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

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

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

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

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code" to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

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

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

CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the scan tool (GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

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

DISPLAY ITEM LIST

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

NOTE:

- **1: If a failure occurs to both the ABS-ECU and ETACS-ECU, 0000 mile or FFFF mile is displayed to the scan tool MB991958.*
- **2: Total elapsed time can be stored up to 65,534 minutes (45.5 days). The display of scan tool is fixed to 65,534 minutes after 65,534 minutes have elapsed. Or, if the battery is disconnected, the total elapsed time cannot be measured properly. Thus, 65,535 minutes (null value) is displayed. Because it is calculated based on the ETACS-ECU information, the correct display may not be shown if the ETACS-ECU has had a time-out.*

DIAGNOSTIC TROUBLE CODE CHART

M1545001100802

Diagnostic trouble code number	Trouble content	Reference page
U0001	Bus off (CAN-C)	P.54A-676
U0019	Bus off (CAN-B)	
U0100	Engine control module CAN timeout	P.54A-677
U0101	CVT-ECU/TC-SST-ECU CAN timeout	P.54A-679
U0103	Shift lever CAN timeout	P.54A-681
U0121	ASC-ECU CAN timeout	P.54A-683
U0126	Steering wheel sensor CAN timeout	P.54A-685
U0136	AWC-ECU CAN timeout	P.54A-687
U0151	SRS-ECU CAN timeout	P.54A-689
U0154	Occupant classification-ECU CAN timeout	P.54A-691
U0155	Combination meter CAN timeout	P.54A-693
U0164	A/C-ECU CAN timeout	P.54A-695
U0168	WCM or KOS-ECU CAN timeout	P.54A-697
U0184	Audio CAN timeout	P.54A-699
U0195	Satellite radio tuner CAN timeout	P.54A-701
U0197	Hands free module CAN timeout	P.54A-703
U0245	Audio visual navigation unit CAN timeout	P.54A-705
U1108	Excess CAN-B ECU detection	P.54A-707
U1120	Bus line (CAN-C) low input	P.54A-709
U1121	Bus line (CAN-C) high input	
U0169	Sunroof LIN timeout <Vehicles with sunroof>	Refer to GROUP 54B, Diagnosis P.54B-6.
U0215	P/W SW (DR) LIN timeout <Vehicles with central door locking system>	
U0231	Rain light sensor LIN timeout <Vehicles with auto light function>	
U1109	Column SW LIN timeout	
U150B	Column SW checksum error	
U150C	P/W SW (DR) checksum error <Vehicles with central door locking system>	
U1511	Sunroof checksum error <Vehicles with sunroof>	
U1512	Rain light sensor checksum error <Vehicles with auto light function>	
U1514	Bit error (LIN)	
U1515	No-Bus activity error (LIN)	
U0331*	ECU internal error	P.54A-710
B1034	Ambient air temperature sensor system (short circuit)	Refer to GROUP 55, Manual A/C Diagnosis P.55-9.
B1035	Ambient air temperature sensor system (open circuit)	

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Diagnostic trouble code number	Trouble content	Reference page
B16A0	Taillight (RH) circuit open <Open circuit in the position light (RH) circuit, the taillight (RH) circuit and the rear side marker light (RH) circuit>	P.54A-229
B16A1	Taillight (LH) circuit open <Open circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit and the license plate light circuit>	
B16A2	Blown turn-signal light (LH) bulb	P.54A-132
B16A3	Turn-signal light (LH) short circuit	
B16A4	Blown turn-signal light (RH) bulb	
B16A5	Turn-signal light (RH) short circuit	
B16A6	Turn-signal fuse blown	P.54A-306
B16A7	Taillight (RH) circuit short <Short circuit in the position light (RH) circuit, the taillight (RH) circuit or the rear side marker light (RH) circuit>	P.54A-229
B16A8	Taillight (LH) circuit short <Short circuit in the position light (LH) circuit, the taillight (LH) circuit, the rear side marker light (LH) circuit or the license plate light circuit>	
B1761*	VIN not recorded	P.54A-711
B210A	+B power supply (low input)	P.54A-712
B210B	+B power supply (high input)	
B222C*	Coding incomplete	P.54A-716
B2206*	Chassis number does not match	P.54A-717
B2215*	ECU internal error	P.54A-719
B2350	Malfunction of lighting switch	P.54A-331
B2351	Malfunction of the wiper/washer switch	
B2353	Ignition power supply (low input)	P.54A-719
B2354	Ignition power supply (high input)	

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

DIAGNOSTIC TROUBLE CODE PROCEDURES

DTC U0001: Bus off (CAN-C)
DTC U0019: Bus off (CAN-B)

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

TROUBLE JUDGEMENT

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

TECHNICAL DESCRIPTION (COMMENT)

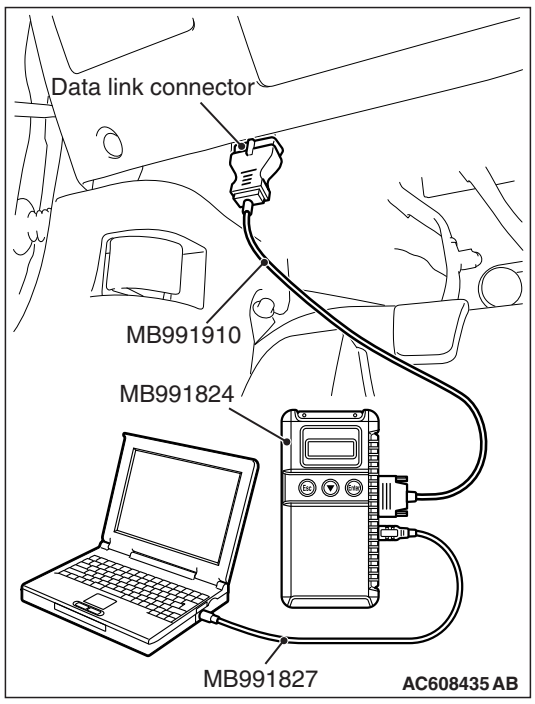
The ETACS-ECU may have a malfunction, or the ETACS-ECU power supply or earth circuit may have a problem.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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STEP 2. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0100: Engine control module CAN timeout

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

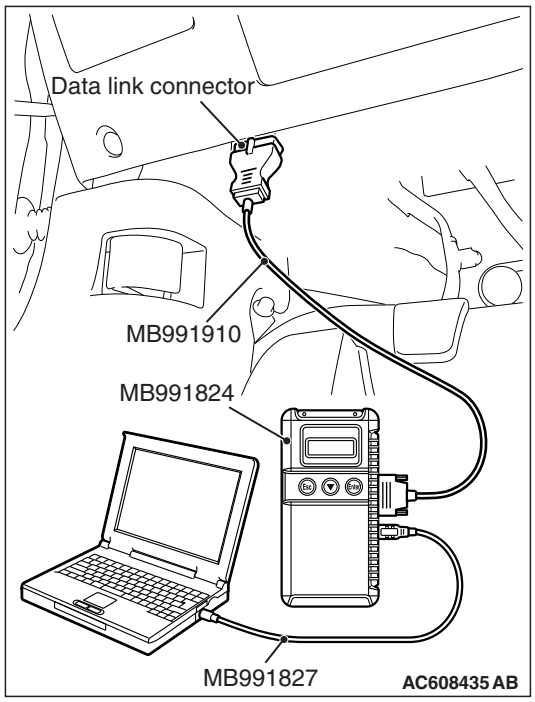
TROUBLE JUDGMENT
If the signal from engine control module cannot be received, the ETACS-ECU sets DTC U0100.

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

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

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

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Using scan tool MB991958, read the engine control module diagnostic trouble code.
Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the engine (Refer to GROUP 13A, Diagnostic Trouble Code Chart P.13A-50 <2.0 L engine> or GROUP 13B, Diagnostic Trouble Code Chart P.13B-51 <2.4 L engine>).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the CVT diagnostic trouble code.
Check if DTC U0100 is set to the CVT-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the engine control module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the engine control module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the engine control module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0101: CVT-ECU/TC-SST-ECU CAN timeout

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

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

JUDGMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the CVT-ECU or TC-SST-ECU cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

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

DIAGNOSIS

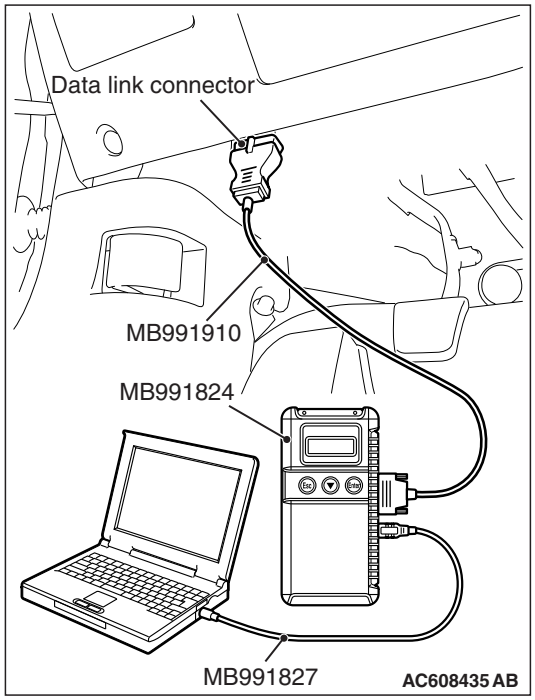
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the CVT or TC-SST.

Q: Is the DTC set?

YES : Troubleshoot the CVT or TC-SST (Refer to GROUP 23A, Diagnosis P.23A-26 <CVT> or GROUP 22C, Diagnosis P.22C-16 <TC-SST>).
NO : Go to Step 3.

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

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

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CVT-ECU or TC-SST-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CVT-ECU or TC-SST-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CVT-ECU or TC-SST-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0103: Shift lever CAN timeout

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

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

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

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

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

DIAGNOSIS

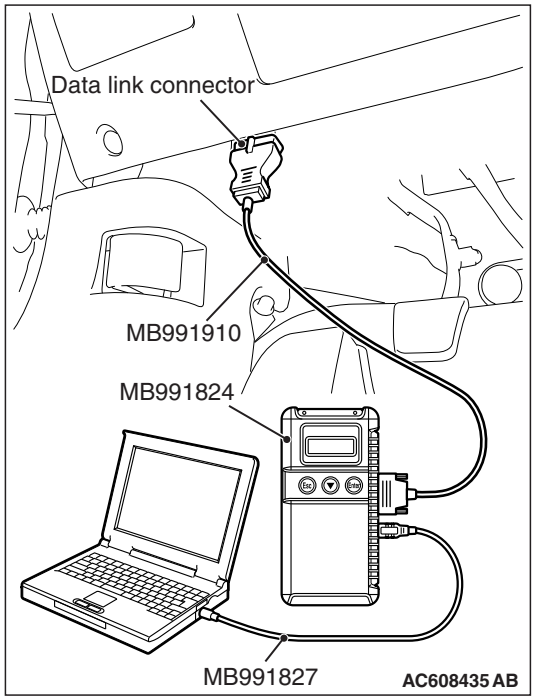
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the shift lever.

Q: Is the DTC set?

YES : Troubleshoot the shift lever (Refer to GROUP 22C, Diagnosis P.22C-366).
NO : Go to Step 3.

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

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

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the shift lever.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the shift lever and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the shift lever and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0121: ASC-ECU CAN timeout

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

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

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

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

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

DIAGNOSIS

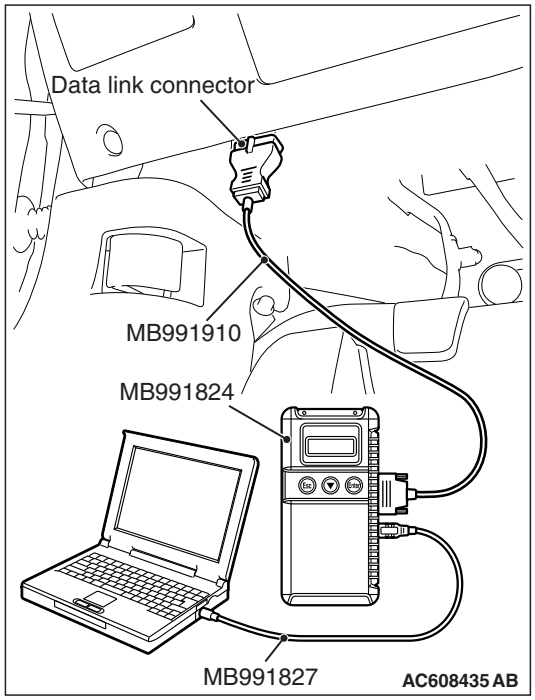
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the ASC-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ASC (Refer to GROUP 35C, Diagnosis P.35C-27).
NO : Go to Step 3.

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

Check if the DTC U0121 is set to the CVT-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ASC-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ASC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ASC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0126: Steering wheel sensor CAN timeout

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

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

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

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

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

DIAGNOSIS

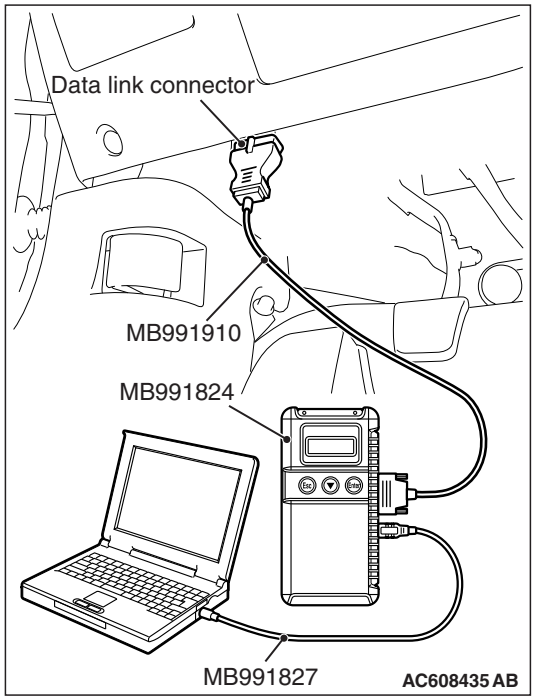
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the steering wheel sensor.

Q: Is the DTC set?

YES : Troubleshoot the steering wheel sensor (Refer to GROUP 35C, Diagnosis P.35C-27).
NO : Go to Step 3.

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

Check if the DTC U0126 is set to the ASC-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the steering wheel sensor.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the steering wheel sensor and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the steering wheel sensor and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0136: AWC-ECU CAN time-out

⚠ CAUTION
- **If DTC U0136 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from AWC-ECU cannot be received, the ETACS-ECU sets DTC U0136.

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

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

TROUBLESHOOTING HINTS
- The AWC-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

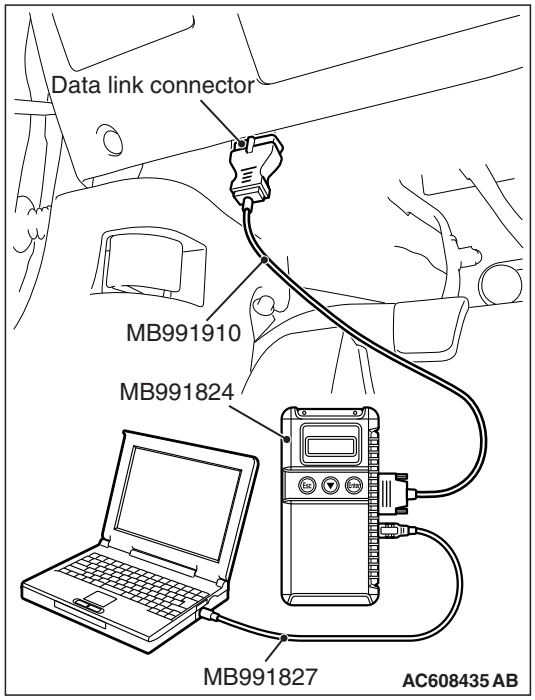
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the AWC-ECU.

Q: Is the DTC set?

YES : Troubleshoot the ACD (Refer to GROUP 22C, Diagnosis P.22C-397).
NO : Go to Step 3.

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

Check if the DTC U0136 is set to the ASC-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the AWC-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the AWC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the AWC-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0151: SRS-ECU CAN timeout

⚠ CAUTION
- **If DTC U0151 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from SRS-ECU cannot be received, the ETACS-ECU sets DTC U0151.

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

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

TROUBLESHOOTING HINTS
- The SRS-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

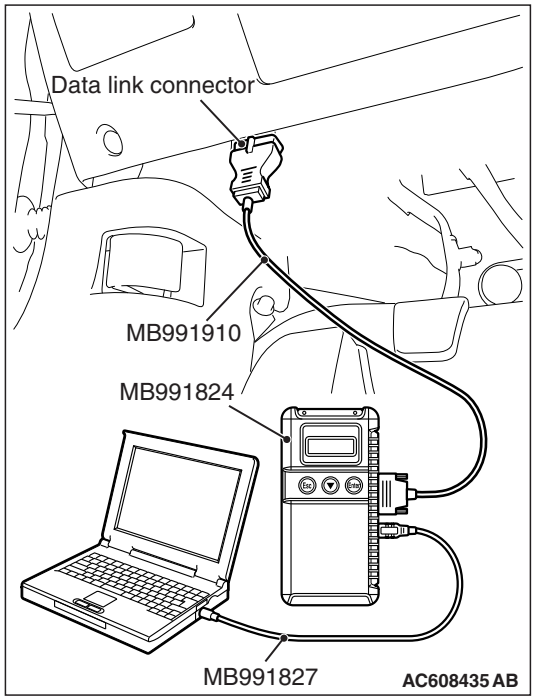
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the SRS-ECU.

Q: Is the DTC set?

YES : Troubleshoot the SRS (Refer to GROUP 52B, Diagnosis P.52B-32).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0151 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the SRS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the SRS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0154: Occupant classification-ECU CAN timeout

⚠ CAUTION
- **If DTC U0154 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from occupant classification-ECU cannot be received, the ETACS-ECU sets DTC U0154.

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

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

TROUBLESHOOTING HINTS
- The occupant classification-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

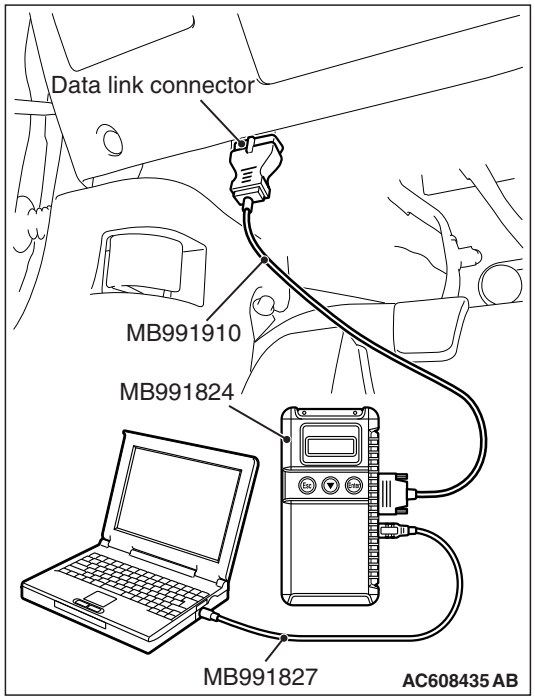
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the occupant classification-ECU (Refer to GROUP 52B, Diagnosis P.52B-315).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0154 is set to the A/C-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the occupant classification-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the occupant classification-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0155: Combination meter CAN timeout

⚠ CAUTION
- **If DTC U0155 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from combination meter cannot be received, the ETACS-ECU sets DTC U0155.

JUDGMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the combination meter cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The combination meter may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

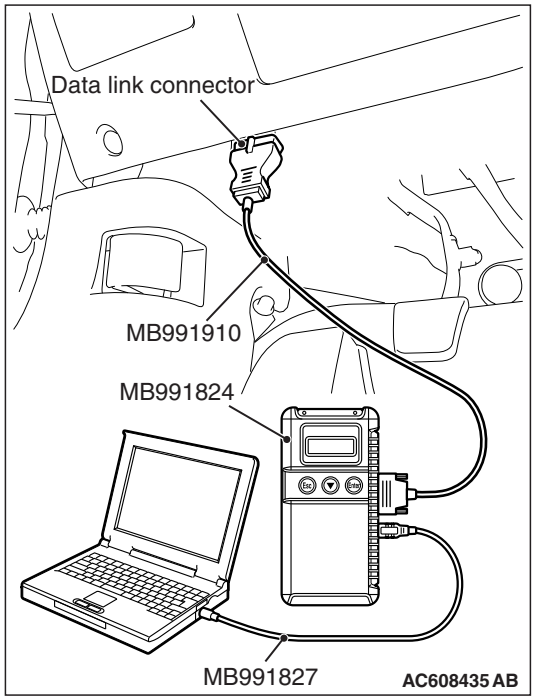
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the combination meter.

Q: Is the DTC set?

YES : Troubleshoot the combination meter (Refer to P.54A-33).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check if the DTC U0155 is set to the A/C-ECU.

Q: Is the DTC set?

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

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STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the combination meter.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the combination meter and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0164: A/C-ECU CAN timeout

⚠ CAUTION
- **If DTC U0164 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from A/C-ECU cannot be received, the ETACS-ECU sets DTC U0164.

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

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

TROUBLESHOOTING HINTS
- The A/C-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

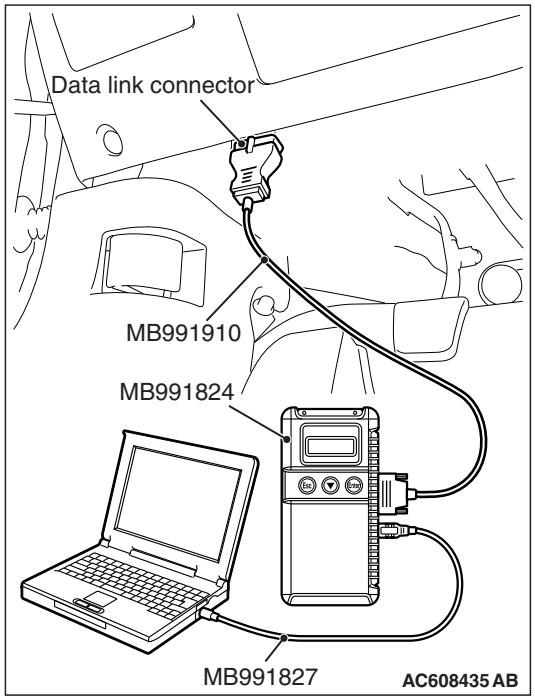
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

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

Q: Is the DTC set?

YES : Troubleshoot the A/C-ECU (Refer to GROUP 55 P.55-9).
NO : Go to Step 3.

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

Check if the DTC U0164 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the A/C-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the A/C-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0168: WCM or KOS-ECU CAN timeout

⚠ CAUTION
- **If DTC U0168 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from WCM or KOS-ECU cannot be received, the ETACS-ECU sets DTC U0168.

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

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

TROUBLESHOOTING HINTS
- The WCM may be defective.
- The KOS-ECU may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

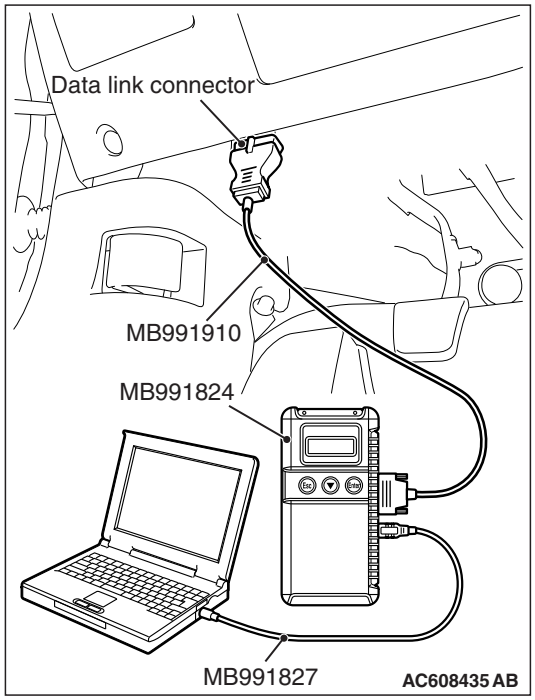
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Using scan tool MB991958, read the WCM or KOS-ECU diagnostic trouble code.

Check if DTC is set to the WCM or KOS-ECU.

Q: Is the DTC set to the any of the above?

YES <Set to the WCM.> : Troubleshoot the WCM (Refer to GROUP 42C, diagnosis P.42C-18).
YES <Set to the KOS.> : Troubleshoot the KOS (Refer to GROUP 42B, Diagnosis P.42B-31).
NO <The diagnosis code is not set.> : Go to Step 3.

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

Check if the DTC U0168 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the WCM or KOS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the WCM or KOS-ECU and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0184: Audio CAN timeout

⚠ CAUTION
- **If DTC U0184 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from radio and CD player or CD changer cannot be received, the ETACS-ECU sets DTC U0184.

JUDGMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the radio and CD player or CD changer cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The radio and CD player or CD changer may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

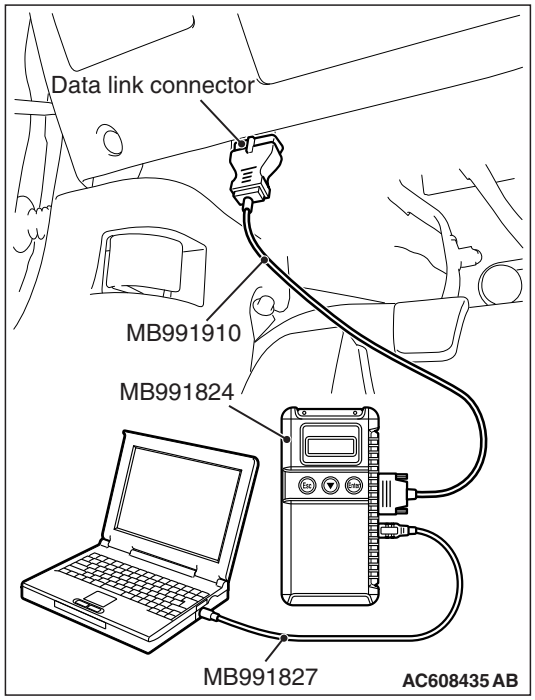
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the audio.

Q: Is the DTC set?

YES : Troubleshoot the audio (Refer to P.54A-343).
NO : Go to Step 3.

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

Check if the DTC U0184 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the radio and CD player or CD changer.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player or CD changer and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the radio and CD player or CD changer and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0195: Satellite radio tuner CAN timeout

⚠ CAUTION
- **If DTC U0195 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from satellite radio tuner cannot be received, the ETACS-ECU sets DTC U0195.

JUDGMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the satellite radio tuner cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The satellite radio tuner may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

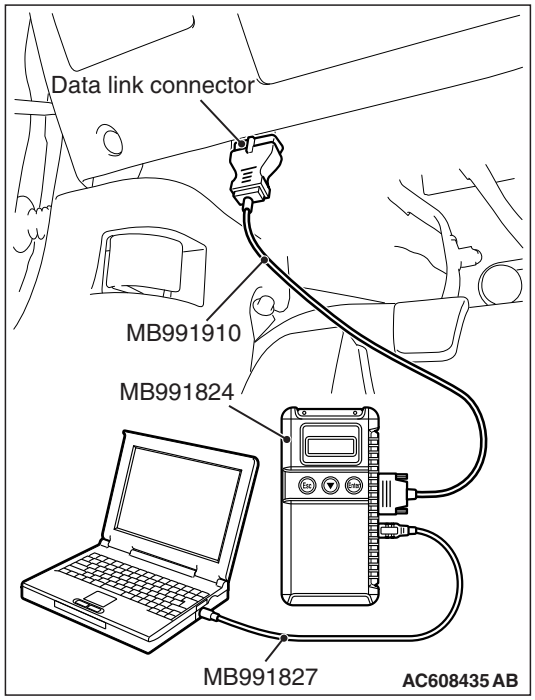
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Using scan tool MB991958, read the satellite radio tuner diagnostic trouble code.

Check if DTC is set to the satellite radio tuner.

Q: Is the DTC set?

YES : Troubleshoot the satellite radio (Refer to P.54A-658).
NO : Go to Step 3.

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

Check if the DTC U0195 is set to the SRS-ECU.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the satellite radio tuner.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the satellite radio tuner and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0197: Hands free module CAN timeout

⚠ CAUTION
- **If DTC U0197 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from hands free module cannot be received, the ETACS-ECU sets DTC U0197.

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

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

TROUBLESHOOTING HINTS
- The hands free module may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

DIAGNOSIS

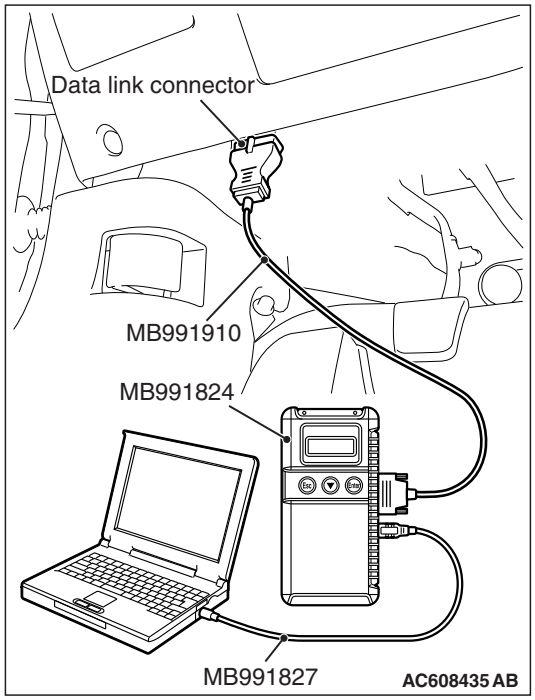
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

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

Check if DTC is set to the hands free module.

Q: Is the DTC set?

YES : Troubleshoot the hands free telephone system (Refer to P.54A-555).
NO : Go to Step 3.

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

Check if the DTC U0197 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the hands free module.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the hands free module and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U0245: Audio visual navigation unit CAN timeout

⚠ CAUTION
- **If DTC U0245 is set to the ETACS-ECU, always diagnose the CAN bus line.**
- **Before replacing the ECU, ensure that the communication circuit is normal.**

TROUBLE JUDGMENT
If the signal from CAN box unit (audio visual navigation unit) cannot be received, the ETACS-ECU sets DTC U0245.

JUDGMENT CRITERIA
After the following statuses continue to be true for 5 seconds, if the communication with the CAN box unit (audio visual navigation unit) cannot be established for 0.6 second or more, the ETACS-ECU determines that a problem has occurred.
- No abnormality is present to the network.
- Ignition switch is in the ON position.
- No abnormality is present to the power supply fuse (IOD fuse), or the odometer value is at 80.5 km (50.0 miles) or more.
- ETACS-ECU system voltage is at 10–16 volts.

TROUBLESHOOTING HINTS
- The CAN box unit may be defective.
- The ETACS-ECU may be defective.
- The CAN bus may be defective.

TSB Revision

DIAGNOSIS

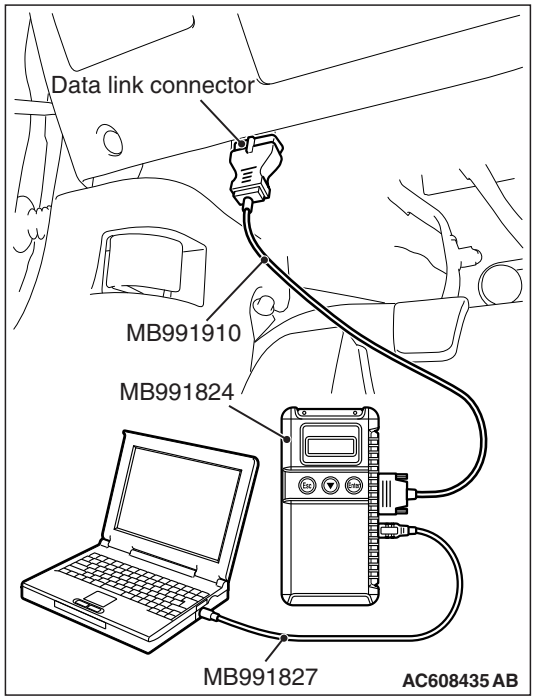
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Using scan tool MB991958, read the audio visual navigation unit diagnostic trouble code.

Check if DTC is set to the audio visual navigation unit.

Q: Is the DTC set?

YES : Troubleshoot the MMCS (Refer to P.54A-436).
NO : Go to Step 3.

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

Check if the DTC U0245 is set to the combination meter.

Q: Is the DTC set?

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

STEP 4. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the CAN box unit (audio visual navigation unit).
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (audio visual navigation unit) and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

STEP 5. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the CAN box unit (audio visual navigation unit) and the ETACS-ECU (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC U1108: Excess CAN-B ECU Detection

⚠ CAUTION
If the DTC U1108 is set to the ETACS-ECU, always diagnose the CAN bus line.

TROUBLE JUDGEMENT

If the ETACS-ECU receives the signal from the CAN-B line ECU which does not exist in the written variant code information, the ETACS-ECU sets DTC U1108.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

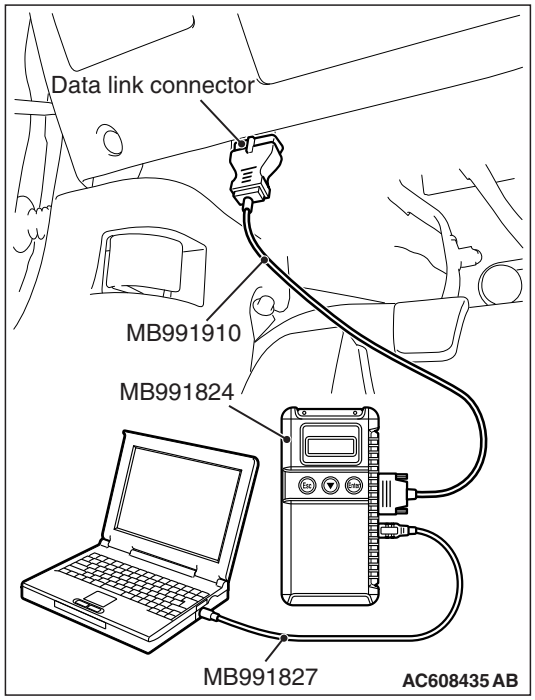
Required Special Tools:

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

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

⚠ CAUTION

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



(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Variant code check.

Check the variant code written to the ETACS-ECU, and check whether it matches the ECU connected to the CAN-B line.

Q: Is the check result normal?

YES : Go to Step 3.
NO : Make a correction so that the ECU connected to the CAN-B line matches with the variant code information, and then go to Step 3.

STEP 3. Recheck for diagnostic trouble code.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.
NO : This diagnosis is complete.

TSB Revision

DTC U1120: Bus line (CAN-C) low input
DTC U1121: Bus line (CAN-C) high input

TROUBLE JUDGEMENT

When the CAN bus line voltage is in the following states, the ETACS-ECU set the DTC.

- If the CAN bus line voltage is 0.3 volt or less, DTC U1120 is set.
- If the CAN bus line voltage is 4.7 volts or more, DTC U1121 is set.

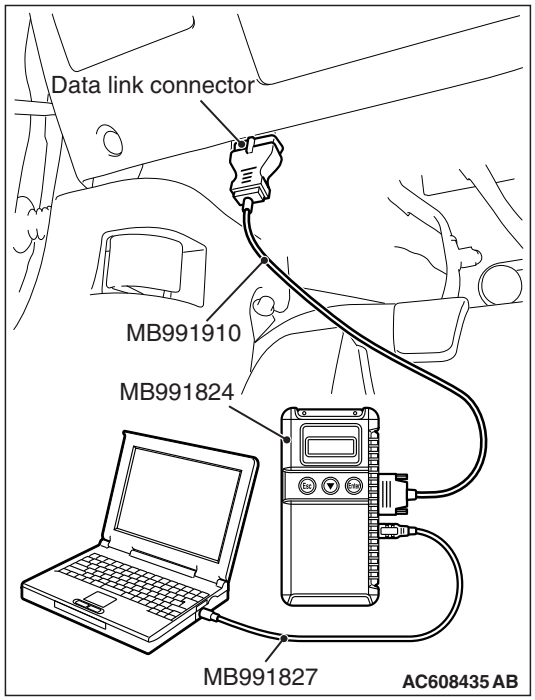
TROUBLESHOOTING HINTS

- The CAN bus line may be defective.

DIAGNOSIS

Required Special Tools:

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?
YES : Replace the ETACS-ECU.
NO : The diagnosis is complete.

DTC U0331: ECU internal error

TROUBLE JUDGEMENT

If the ETACS-ECU error counter value is detected to be "255," DTC U0331 is set, and the ETACS-ECU is reset. The DTC U0331 exists only as past trouble.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective.

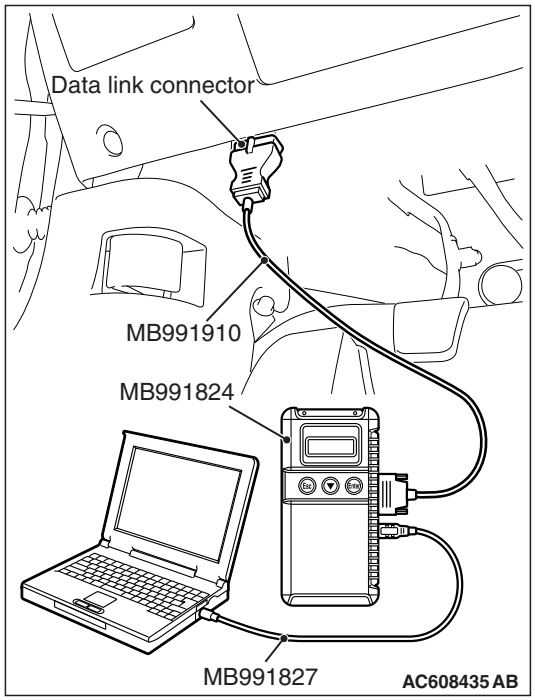
DIAGNOSIS

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

Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.
(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?
YES : Replace the ETACS-ECU.
NO : The diagnosis is complete.



DTC B1761: VIN not recorded

TROUBLE JUDGEMENT

If the VIN is not written to the ETACS-ECU, the ETACS-ECU sets DTC B1761.

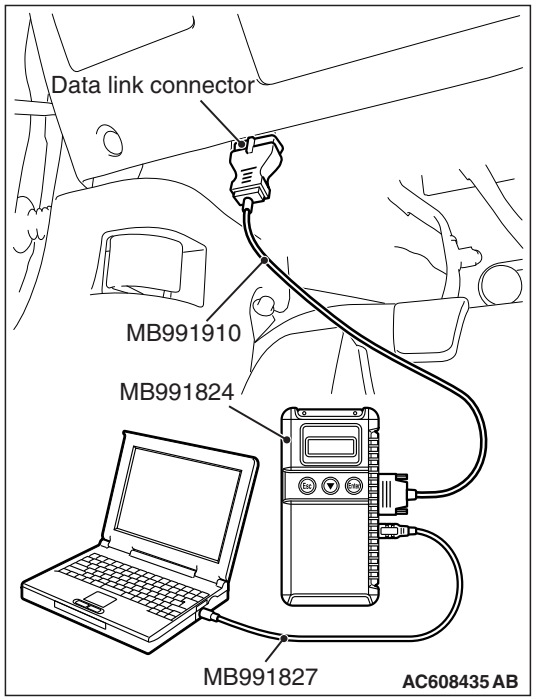
TROUBLESHOOTING HINTS

- Chassis number not recorded
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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



Recheck for diagnostic trouble code.

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

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(2) Turn the ignition switch to the "ON" position.
(3) Erase the DTC.
(4) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(5) Check if DTC is set.
(6) Turn the ignition switch to the "LOCK" (OFF) position.

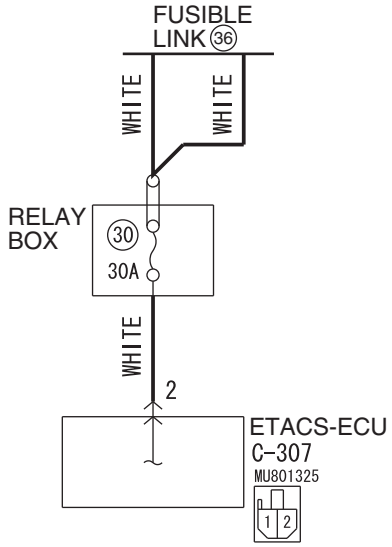
Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.
NO : The diagnosis is complete.

DTC B210A: +B power supply (low input)
DTC B210B: +B power supply (high input)

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

ETACS-ECU Power Supply Circuit



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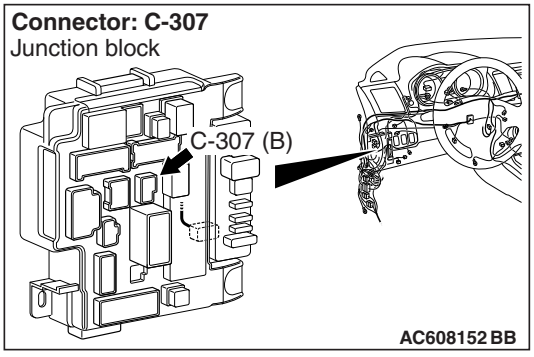


TROUBLE JUDGMENT

The ETACS-ECU sets DTC B210A if the power supply fuse (IOD fuse) voltage decreases to the specified value or less, and sets DTC B210B if the power supply fuse voltage increases to the specified value or more. However, when the status returns to normal, the ETACS-ECU automatically erases DTCs B210A and B210B.

TECHNICAL DESCRIPTION (COMMENT)

The power supply fuse (IOD fuse) or the ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

- The power supply fuse (IOD fuse) may be defective.
- The ETACS-ECU may be defective.
- The battery may be defective.
- The alternator 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
- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Power supply fuse check

Q: Is the fuse in good condition?

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

STEP 2. Check the wiring harness between C-307 ETACS-ECU connector and fuse No. 30.

Check the power supply line for short circuit.

Q: Is the check result normal?

YES : Replace the fuse No.30.
NO : The short circuit may be present in the power supply circuit. Check the wiring harness between the C-307 ETACS-ECU connector terminal No. 2 and fuse No.30. Repair the wiring harness if necessary, and replace fuse No.30.

STEP 3. Battery check

Refer to P.54A-8.

Q: Is the battery in good condition?

YES : Go to Step 4.
NO : Charge or replace the battery.

STEP 4. Charging system check

Refer to GROUP 16 –Output Current Test P.16-9.

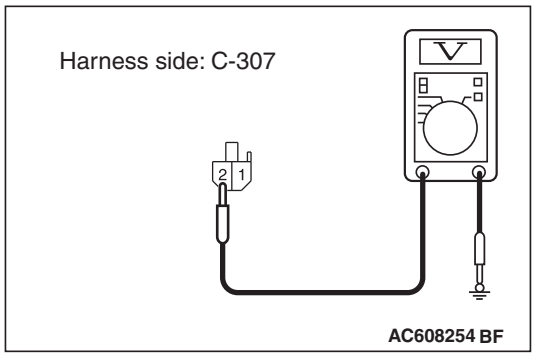
Q: Is the charging system in good condition?

YES : Go to Step 5.
NO : Repair or replace the charging system component(s).

STEP 5. Check ETACS-ECU connector C-307 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-307 in good condition?

YES : Go to Step 6.
NO : Repair or replace the component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2.



STEP 6. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-307.

(1) Disconnect ETACS-ECU connector C-307 and measure the voltage available at the wiring harness side of the connector.

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

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

YES : Go to Step 8.

NO : Go to Step 7.

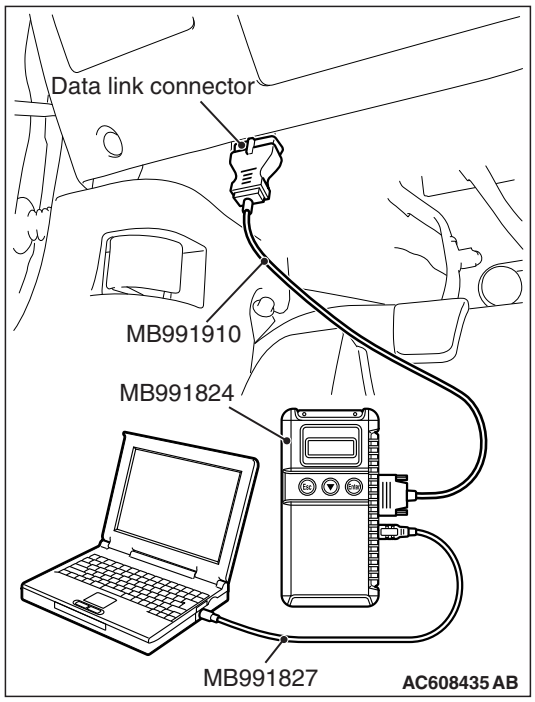
STEP 7. Check the wiring harness between ETACS-ECU connector C-307 (terminal 2) and the fusible link (36).

Check the power supply line for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-307 (terminal 2) and the fusible link (36) in good condition?

YES : No action is necessary and testing is complete.

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



STEP 8. Using scan tool MB991958, check data list.

Check the power supply fuse voltage.

⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."

(2) Check the ETACS data list.

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

Item No.	Item name	Normal condition
Item 253	Voltage sensing of IOD Line	Approximately 12 volts (battery positive voltage)

Q: Do the scan tool MB991958 display the item "voltage sensing of IOD Line" is normal condition?

YES : Go to Step 9.

NO : Replace the ETACS-ECU.

STEP 9. Recheck for diagnostic trouble code.

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

(1) Erase the DTC.

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

(3) Check if DTC is set.

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

Q: Is the DTC set?

YES : Replace the ETACS-ECU.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

DTC B222C: Coding incomplete

TROUBLE JUDGEMENT

If the ETACS-ECU is in the initial state or the variant coding is incomplete, the ETACS-ECU sets DTC B222C.

TROUBLESHOOTING HINTS

- Variant code not written
- The ETACS-ECU may be defective.

DIAGNOSIS

Required Special Tools:

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

Recheck for diagnostic trouble code.

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

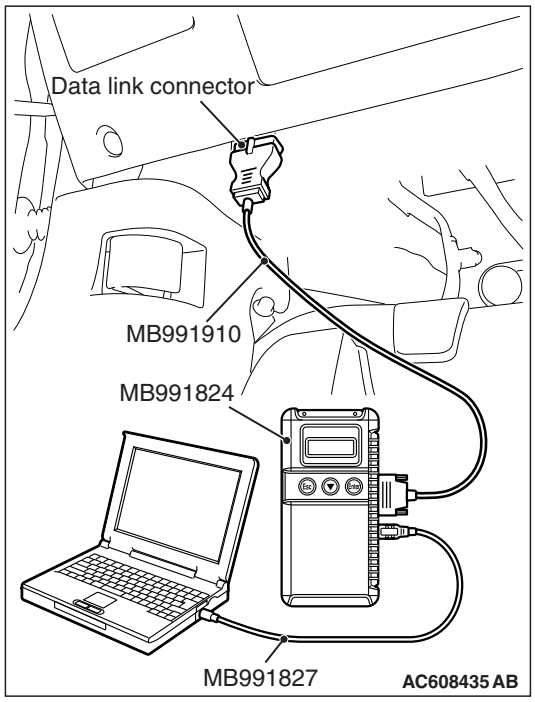
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(2) Turn the ignition switch to the "ON" position.
(3) Perform the variant coding to the ETACS-ECU.
(4) Erase the DTC.
(5) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(6) Check if DTC is set.
(7) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.
NO : The diagnosis is complete.



DTC B2206: Chassis number does not match

⚠ CAUTION
If DTC B2206 is set, always diagnose the CAN bus line.

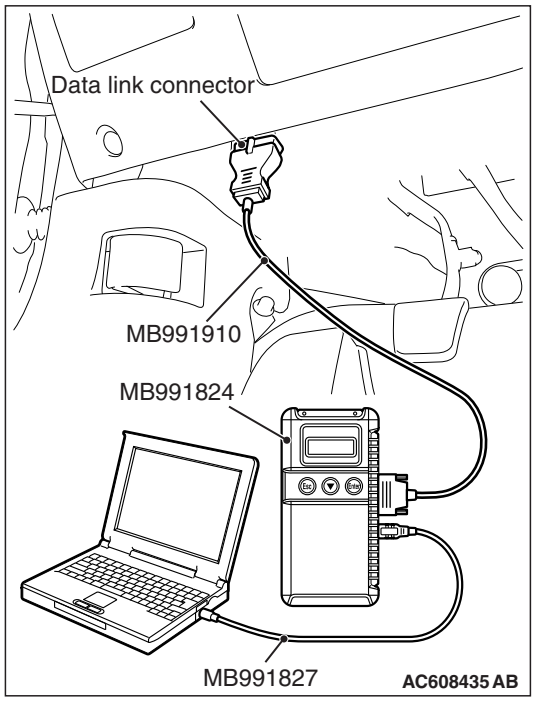
TROUBLE JUDGMENT
If the registered chassis number is different from the chassis number transmitted on the CAN bus lines, the ETACS-ECU sets DTC B2206.

JUDGMENT CRITERIA
If the chassis number registered to ETACS-ECU and the chassis number on CAN bus lines do not match, the ETACS-ECU determines that a problem has occurred.

TROUBLESHOOTING HINTS
- Chassis number not written
- The ETACS-ECU may be defective.
- The engine control module may be defective.
- The CAN bus line may be defective.

DIAGNOSIS

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



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

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Using scan tool MB991958, read the engine control module diagnostic trouble code.
Check if DTC is set to the engine control module.

Q: Is the DTC set?

YES : Troubleshoot the engine (Refer to GROUP 13A, Diagnostic Trouble Code Chart P.13A-50 <2.0 L engine> or GROUP 13B, Diagnostic Trouble Code Chart P.13B-51 <2.4 L engine>).
NO : Go to Step 3.

STEP 3. Recheck for diagnostic trouble code.
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Replace with the coded ETACS-ECU.
NO : The procedure is complete.

DTC B2215: ECU internal error

TROUBLE JUDGEMENT

When the ETACS-ECU internal error count reaches "255," DTC B2215 is set.

TROUBLESHOOTING HINTS

- The ETACS-ECU may be defective.

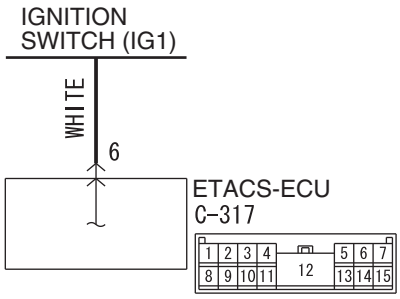
DIAGNOSIS

Replace the ETACS-ECU.

DTC B2353: Ignition power supply (low input)
DTC B2354: Ignition power supply (high input)

⚠ CAUTION
Before replacing the ECU, ensure that the input and output signal circuits are normal.

Ignition Switch (IG1) Input Circuit



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TROUBLE JUDGMENT

These DTCs are set when the ignition power supply voltage decreases to the specified value or less (DTC B2353) or increases to the specified value or more (DTC B2354). However, when the status returns to normal, the DTCs B2353 and B2354 are automatically erased.

TECHNICAL DESCRIPTION (COMMENT)

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

TROUBLESHOOTING HINTS

- The power supply circuit may be defective.
- The battery may be defective.
- The generator may be defective.
- The ETACS-ECU may be defective.
- The ignition switch may be defective.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector.

DIAGNOSIS

Required Special Tools:

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

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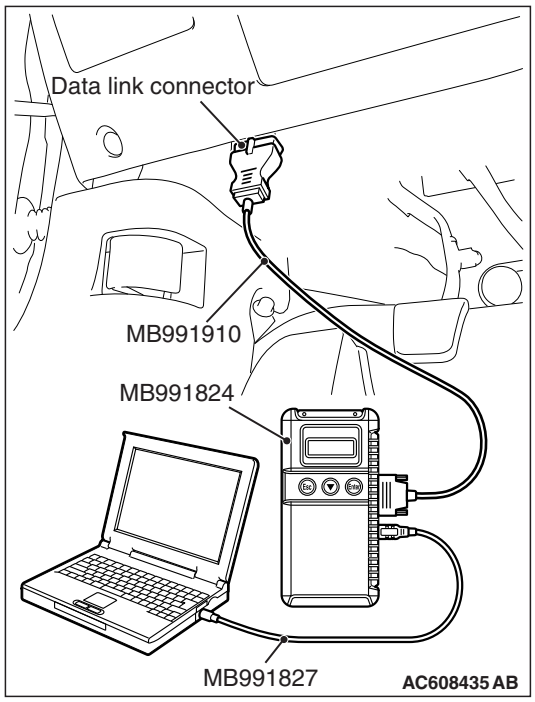


STEP 1. Using scan tool MB991958, check data list.
Check the ignition power supply voltage.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(2) Check the ETACS data list.
- Turn the ignition switch to the "ON" position.

Item No.	Item name	Normal condition
Item 254	IG voltage	Approximately 12 volts (battery positive voltage)

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

Q: Do the scan tool MB991958 display the item "IG voltage" is normal condition?
YES : Go to Step 4.
NO : Go to Step 2.

STEP 2. Battery check
Refer to P.54A-8.

Q: Is the battery in good condition?
YES : Go to Step 3.
NO : Charge or replace the battery.

STEP 3. Charging system check
Refer to GROUP 16 –Output Current Test P.16-9.

Q: Is the charging system in good condition?
YES : Refer to GROUP 54A, Diagnosis - Inspection Procedure 2 "ETACS-ECU does not receive any signal from the ignition switch (IG1)" P.54A-734.
NO : Repair or replace the charging system component(s).

STEP 4. Recheck for diagnostic trouble .
Check again if the DTC is set to the ETACS-ECU.
(1) Erase the DTC.
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?
YES : Replace the ETACS-ECU.
NO : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

TSB Revision

DATA LIST REFERENCE TABLE

M1545001300464

NOTE: Some items are not displayed on scan tool MB991958 according to the information in the ECU.

Item No.	Display on scan tool	Check condition	Normal condition
1	CAN-H voltage (CAN-C)	–	2.0-4.5 V
2	CAN-L voltage (CAN-C)	–	0.5-3.0 V
200	Original VIN writing status	When writing status is normal	Comp/Unperformed or Comp and locked
		When writing status is abnormal	ECU internal Err
201	Current VIN writing status	When writing status is normal	Comp/Unperformed
		When writing status is abnormal	ECU internal Err
202	Internal error	When no error is present	No error
		When an error is present	EEPROM error or Boot loader Err or EEPROM/Boot or ADC Error or ADC/EEPROM error or ADC/Boot error or ADC/Boot/EEPROM or PLL Error or PLL/EEPROM error or PLL/EEPROM error or PLL/Boot/EEPROM or PLL/ADC error or PLL/ADC/EEPROM or PLL/ADC/Boot or PLL/ADC/Boot/ROM
203	Process error	When no error is present	No error
		When an error is present	Interrupt error or Switch error or Sequence error or Stck pointer Err or Dispatch call Er or Other error
204	Coding counter	–	0-255 times
205	Coding counter Option	–	0-255 times
206	Headlight LO ON duty	When low-beam headlights are on	100 %
		When low-beam headlights are off	0 %
207	Fan control relay ON duty	When the fan is in operation	100 %
		When the fan is stopped	0 %
208	Dome light ON duty	When the room light is turned from ON to OFF	When the light is dimmed from 100% (when ON) to 0%

Item No.	Display on scan tool	Check condition	Normal condition
209	Gate light ON duty	When the liftgate is opened	100 %
		When the liftgate is closed	0 %
210	IG key illumination	When the door is opened	100 %
		When the door is closed	0 %
211	Headlight Hi	When high-beam headlights are on	ON
		When high-beam headlights are off	OFF
212	Front fog light	When fog lights are on	ON
		When fog lights are off	OFF
213	Horn theft horn	When the security alarm is active	ON
		When the security alarm is not active	OFF
215	Security indicator	When the security alarm is active	ON
		When the security alarm is not active	OFF
216	IG1-2 fuel pump	Ignition switch: ON position	ON
		Ignition switch: Other than ON	OFF
218	Taillight	When taillights and position lights are on	ON
		When taillights and position lights are off	OFF
219	Turn RH/LH light	When turn-signal lights are on	ON
		When turn-signal lights are off	OFF
220	Blower fan	Ignition switch: ON position	ON
		Ignition switch: Other than ON	OFF
221	Defogger	1. Engine: ON (2000 r/min) 2. Defogger switch: ON	ON →OFF (20 minutes after)
		Other than above	OFF
222	Interior light cut	When the interior light is ON	ON
		When the light is turned off by the activation of interior light automatic cut function	OFF
224	Door lock	When locking is performed by the central door lock	ON
		Other than above	OFF
227	Door unlock	When unlocking is performed by the central door lock	ON
		Other than above	OFF

Item No.	Display on scan tool	Check condition	Normal condition
228	Dr door unlock	When unlocking is performed by the central door lock	ON
		Other than above	OFF
230	Trunk/gate opener	Liftgate open switch: ON	ON
		Other than above	OFF
232	ACC Relay	Ignition switch: ACC or ON	ON
		Ignition switch: Other than ACC or ON	OFF
233	Fan Lo	When the fan is in Lo operation	ON
		When the fan is stopped	OFF
234	Fan Hi	When the fan is in Hi operation	ON
		When the fan is stopped	OFF
235	Front wiper ACT	When the windshield wiper is in operation	ON
		Other than above	OFF
236	Front wiper Lo/Hi	When the windshield wiper is in high-speed operation	ON
		Other than above	OFF
237	Front washer	The windshield washer is in operation	ON
		Other than above	OFF
240	Power window	Ignition switch: ON position	ON
		Ignition switch: OFF position	ON →OFF (30 seconds after)
252	Ambient temperature sensor	Ignition switch: ON position	0-5 V
253	Voltage sensing of IOD Line	Always	Battery positive voltage
254	IG voltage	Ignition switch: ON position	Battery positive voltage
256	Dr door ajar switch	Driver's door: Open	Open
		Driver's door: Closed	Close
257	As door ajar switch	Front passenger's door: Open	Open
		Front passenger's door: Closed	Close
258	RR door ajar switch	Rear right door: Open	Open
		Rear right door: Closed	Close
259	RR door ajar switch	Rear left door: Open	Open
		Rear left door: Closed	Close
260	Trunk/gate trunk ajar switch	Liftgate: Open	Open
		Liftgate: Closed	Close

Item No.	Display on scan tool	Check condition	Normal condition
264	Handle lock switch	When the ignition key is inserted into the ignition key cylinder	Key in
		When the ignition key is removed from the ignition key cylinder	Key out
265	Hazard switch	While the hazard switch is pressed	ON
		Other than above	OFF
266	Hood switch	Not used	OFF
268	Trunk/gate opener switch	Not used	OFF
270	Dr door lock switch	When the driver's door is locked	Lock
		Other than above	Not lock
271	Dr door unlock switch	When the driver's door is unlocked	Unlock
		Other than above	Not Unlock
272	As door unlock switch	When the front passenger's door is unlocked	Unlock
		Other than above	Not Unlock
273	Except Dr/As door unlock switch	Not used	OFF
274	Door key lock switch	Not used	OFF
275	Dr door key unlock switch	Not used	OFF
276	Door key unlock switch	Not used	OFF
277	Power lock switch	Not used	OFF
278	Power unlock switch	Not used	OFF
279	Brake fluid switch	When the brake fluid level is normal	ON
		When the brake fluid level is low	OFF
281	ASC/TCL OFF switch	Not used	OFF
287	Starter switch	Ignition switch: START position	ON
		Ignition switch: Other than the START position	OFF
288	ACC switch	Ignition switch: ACC or ON	ON
		Ignition switch: Other than ACC and ON	OFF
289	Backup light or shift reveres SW	The shift lever is in the reverse position.	ON
		Other than above	OFF
290	Stoplight switch	Brake pedal depressed	ON
		Other than above	OFF
291	Front wiper auto stop switch	When the windshield wiper is in operation	ON
		Other than above	OFF

Item No.	Display on scan tool	Check condition	Normal condition
292	Rear wiper auto stop switch	When the rear wiper is in operation	ON
		Other than above	OFF
293	Process error information	–	–
294	Process error counter	–	0–255 times
340	Headlight switch(tail)	Lighting switch: Position light position	ON
		Other than above	OFF
341	Headlight switch	Lighting switch: Headlight position	ON
		Other than above	OFF
342	Headlight switch(Dimmer)	Lighting switch: During dimmer switch operation	ON
		Other than above	OFF
343	Turn switch left	Turn-signal light switch: LH position	ON
		Other than above	OFF
344	Turn switch right	Turn-signal light switch: RH position	ON
		Other than above	OFF
345	Fog light ON	Fog light switch: During ON operation	ON
		Other than above	OFF
346	Fog light OFF	Fog light switch: During OFF operation	ON
		Other than above	OFF
347	Switch type	–	LHD
348	Headlight switch(auto)	Lighting switch: AUTO position	ON
		Other than above	OFF
349	Headlight cleaner	Not used	OFF
350	Headlight switch(flasher)	Lighting switch: During dimmer switch operation	ON
		Other than above	OFF
351	Column ECU sleep	Ignition switch: Other than ON or START position	OK
		Ignition switch: ON or START position	NG
352	Front wiper(INT)	Wiper switch: INT position	ON
		Other than above	OFF
353	Front wiper(LO)	Wiper switch: LO position	ON
		Other than above	OFF
354	Front wiper(HI)	Wiper switch: HI position	ON
		Other than above	OFF

Item No.	Display on scan tool	Check condition	Normal condition
355	Front wiper(washer)	Wiper switch: During washer operation	ON
		Other than above	OFF
356	Rear wiper	Wiper switch: Rear wiper	ON
		Other than above	OFF
357	Rear wiper(washer)	Wiper switch: During rear washer operation	ON
		Other than above	OFF
358	Front wiper(MIST)	Wiper switch: During MIST operation	ON
		Other than above	OFF
359	Front wiper(interval volume)	Variable intermittent wiper control switch is switched from (+) to (−).	The value changes from 0 (+) to 254 (−).
360	Wiper switch lever fail	When normal	No fail
		When abnormality is present	Fail
361	Turn/Light switch lever fail	When normal	No fail
		When abnormality is present	Fail

TROUBLE SYMPTOM CHART

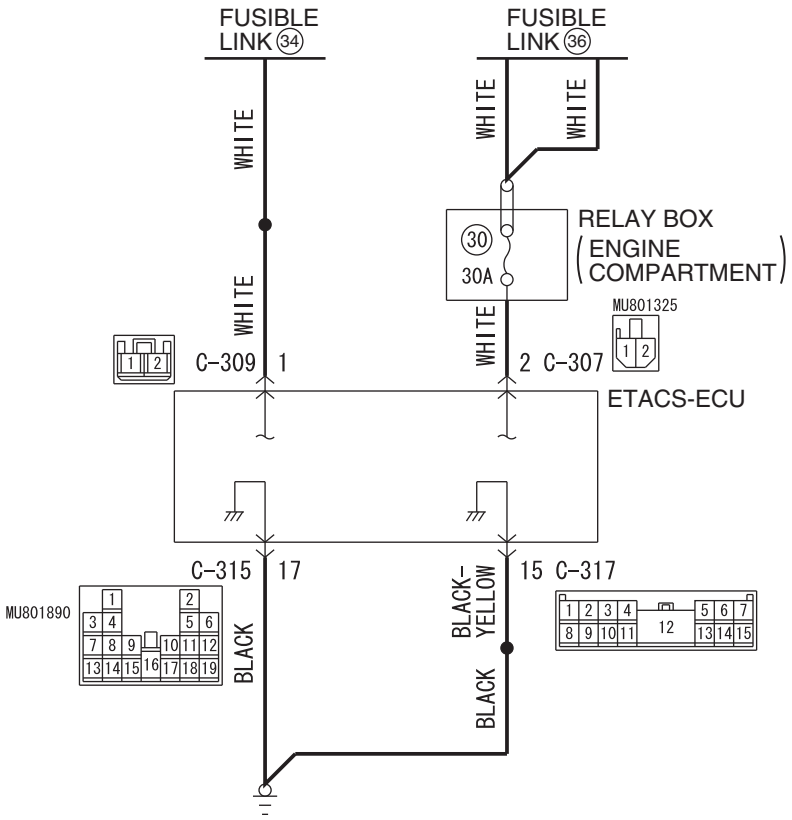
M1545001200111

Trouble symptom	Reference page
Malfunction of ETACS-ECU power supply circuit	P.54A-727

SYMPTOM PROCEDURES

Malfunction of ETACS-ECU power supply circuit

ETACS-ECU Power Supply Circuit



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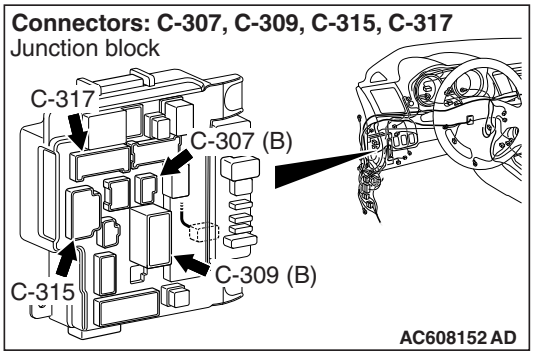


TECHNICAL DESCRIPTION (COMMENT)

If the ETACS-ECU functions do not work at all, the ETACS-ECU power supply system, ground system, or ETACS-ECU may have a problem.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

TSB Revision

STEP 1. Check ETACS-ECU connectors C-315 and C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-315 and C-317 in good condition?

YES : Go to Step 2.

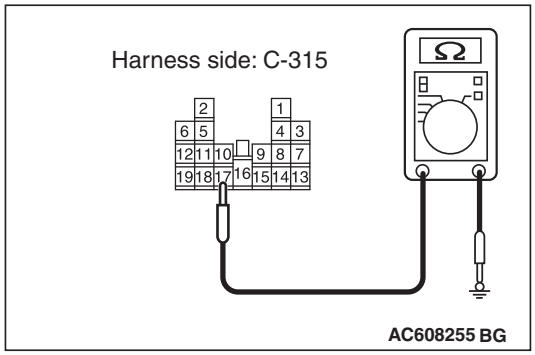
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 2. Check the ground circuit to the ETACS-ECU. Measure the resistance at ETACS-ECU connectors C-315 and C-317.

(1) Disconnect ETACS-ECU connector C-315 and C-317 and measure the resistance available at the wiring harness side of the connector.

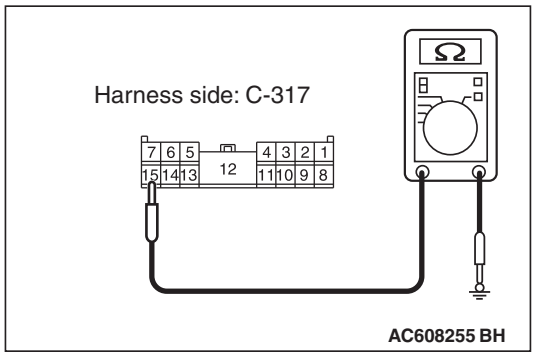
(2) Measure the resistance value between ETACS-ECU connector C-315 terminal 17 and ground.

- The resistance should be 2 ohms or less.



(3) Measure the resistance value between ETACS-ECU connector C-317 terminal 15 and ground.

- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Go to Step 3.

STEP 3. Check the wiring harness between ETACS-ECU connector C-315 (terminal 17) or C-317 (terminal 15) and the ground.

- Check the ground wires for open circuit.

Q: Is the wiring harness between ETACS-ECU connector C-315 (terminal 17) or C-317 (terminal 15) and the ground in good condition?

YES : No action is necessary and testing is complete.

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

STEP 4. Check ETACS-ECU connectors C-307 and C-309 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connectors C-307 and C-309 in good condition?

YES : Go to Step 5.

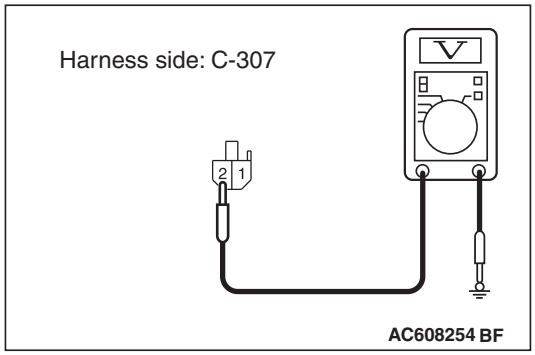
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2).

STEP 5. Check the battery power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connectors C-307 and C-309.

(1) Disconnect ETACS-ECU connectors C-307 and C-309 measure the voltage available at the wiring harness side of the connector.

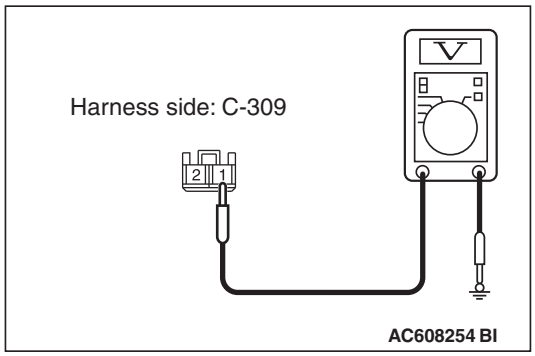
(2) Measure the voltage between ETACS-ECU connector C-307 terminal 2 and ground.

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



(3) Measure the voltage between ETACS-ECU connector C-309 terminal 1 and ground.

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



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

YES : Go to Step 7.

NO : Go to Step 6.

STEP 6. Check the wiring harness between ETACS-ECU connectors C-307 (terminal 2) or C-309 (terminal 1) and the fusible link (36) or (34).

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

Q: Is the wiring harness between ETACS-ECU connectors C-307 (terminal 2) or C-309 (terminal 1) and the fusible link (36) or (34) in good condition?

YES : No action is necessary and testing is complete.

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

TSB Revision

STEP 7. Retest the system
Check that the ETACS-ECU functions work normally.

Q: Is the check result satisfactory?

YES : The procedure is complete (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

TROUBLE SYMPTOM CHART FOR INPUT SIGNAL

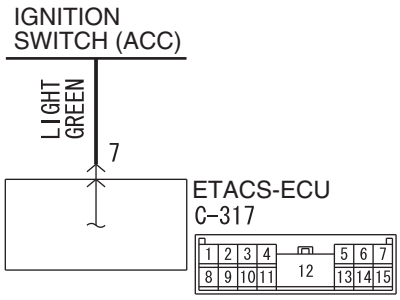
M1545004900421

Trouble symptom	Inspection Procedure No.	Reference page
Malfunction of the ignition switch (ACC) input/output signal	1	P.54A-731
Malfunction of the ignition switch (IG1) input/output signal	2	P.54A-734
ETACS-ECU does not receive any signal from the key reminder switch.	3	P.54A-737
ETACS-ECU cannot receive the signal of front door lock actuator (LH) or front door lock actuator (RH).	4	P.54A-740
ETACS-ECU does not receive any signal from the front door switch (LH).	5	P.54A-747
ETACS-ECU does not receive any signal from the front door switch (RH).	6	P.54A-749
ETACS-ECU does not receive any signal from the rear door switch (LH).	7	P.54A-752
ETACS-ECU does not receive any signal from the rear door switch (RH).	8	P.54A-754
ETACS-ECU does not receive any signal from the liftgate switch.	9	P.54A-757
ETACS-ECU does not receive any signal from the hazard warning light switch.	10	P.54A-761
ETACS-ECU does not receive any signal from the column switch signal.	11	P.54A-763

INPUT SIGNAL PROCEDURES

Inspection Procedure 1: Malfunction of the ignition switch (ACC) input/output signal

Ignition Switch (ACC) Input Circuit



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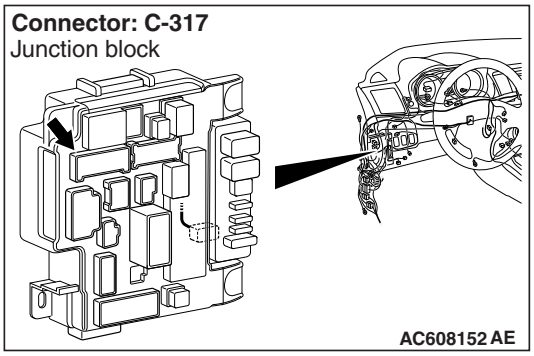


TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the ignition switch (ACC) input signal, or the ACC relay inside the ETACS-ECU does not operate, the ignition switch (ACC) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

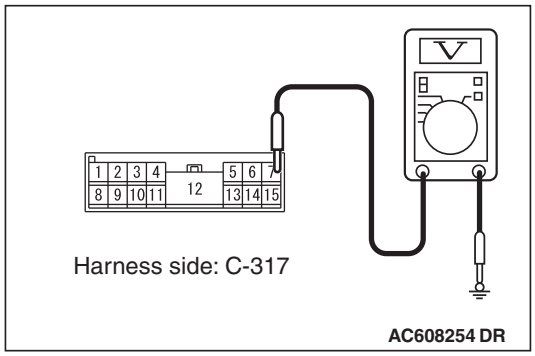
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of ignition switch (ACC) is normal.



STEP 2. Check the ignition switch (ACC) line of the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-317.

(1) Measure by backprobing without disconnecting the connector.
(2) Turn the ignition switch to the "ACC" position.
(3) Measure the voltage between the terminal No.7 and the ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 5.
NO : Go to Step 3.

STEP 3. Check the ignition switch.

Remove the ignition switch. Then check continuity between the switch terminal.

Ignition key position	Terminal number	Normal condition
LOCK	1 –2, 1 –4, 1 –5, 1 –6	No continuity
ACC	1 –6	Continuity exists (2 ohms or less)
ON	1 –2 –4 –6	Continuity exists (2 ohms or less)
START	1 –2 –5	Continuity exists (2 ohms or less)

Q: Is the ignition switch in good condition?

YES : Go to Step 4.
NO : Replace the ignition switch. Check that the input signal of ignition switch (ACC) is normal.

STEP 4. Check the wiring harness between ETACS-ECU connector C-317 (terminal 7) and the ignition switch (ACC).
Check the power supply line (ACC) for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 7) and ignition switch (ACC) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of ignition switch (ACC) is normal.

STEP 5. Using scan tool MB991958, check data list.

- Ignition switch: ACC

Item No.	Item name	Normal condition
Item 288	ACC switch	ON

OK: Normal condition is displayed.

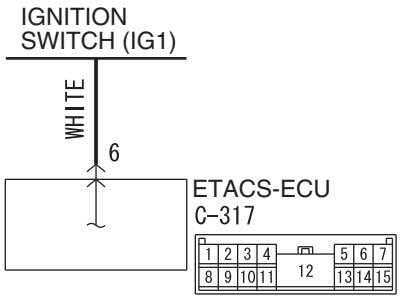
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Refer to Inspection Procedure 2 "Defective power supply system of the ignition switch" P.54A-20

Inspection Procedure 2: Malfunction of the ignition switch (IG1) input/output signal

Ignition Switch (IG1) Input Circuit



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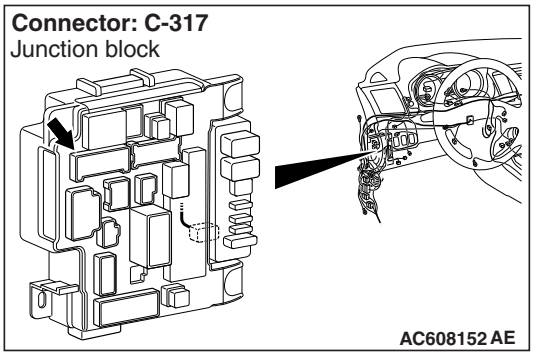


TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the ignition switch (IG1) input signal, or the IG1 relay inside the ETACS-ECU does not operate, the ignition switch (IG1) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

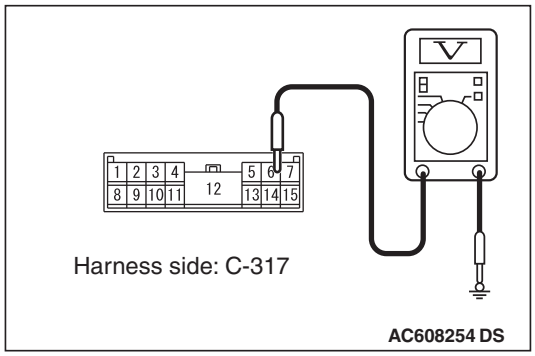
- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of ignition switch (IG1) is normal.



STEP 2. Check the ignition switch (IG1) line of the power supply circuit to the ETACS-ECU. Measure the voltage at ETACS-ECU connector C-317.

(1) Measure by backprobing without disconnecting the connector.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between the terminal No.6 and the ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

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

YES : Go to Step 5.
NO : Go to Step 3.

STEP 3. Check the ignition switch.

Remove the ignition switch. Then check continuity between the switch terminal.

Ignition key position	Terminal number	Normal condition
LOCK	1 –2, 1 –4, 1 –5, 1 –6	No continuity
ACC	1 –6	Continuity exists (2 ohms or less)
ON	1 –2 –4 –6	Continuity exists (2 ohms or less)
START	1 –2 –5	Continuity exists (2 ohms or less)

Q: Is the ignition switch in good condition?

YES : Go to Step 4.
NO : Replace the ignition switch. Check that the input signal of ignition switch (IG1) is normal.

STEP 4. Check the wiring harness between ETACS-ECU connector C-317 (terminal 6) and the ignition switch (IG1).
Check the power supply line (IG1) for open circuit and short circuit.

Q: Is the wiring harness between ETACS-ECU connector C-317 (terminal 6) and ignition switch (IG1) in good condition?

YES : Go to Step 5.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of ignition switch (IG1) is normal.

STEP 5. Using scan tool MB991958, check data list.

- Ignition switch: ON

Item No.	Item name	Normal condition
Item 254	IG voltage	Battery positive voltage

OK: Normal condition is displayed.

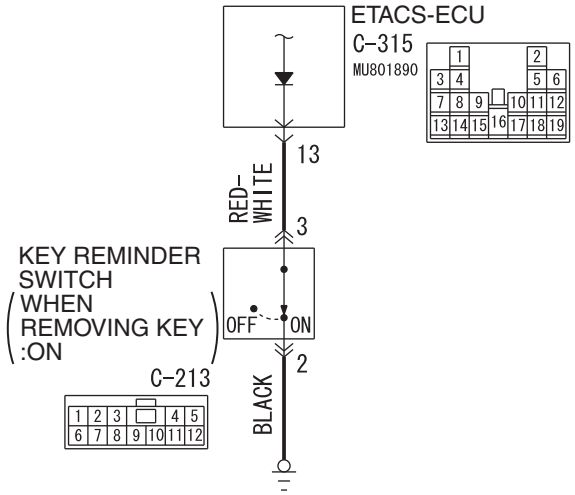
Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 –How to use Troubleshooting/inspection Service Points, How to Cope with Intermittent Malfunction P.00-13).

NO : Refer to Inspection Procedure 2 "Defective power supply system of the ignition switch" P.54A-20

Inspection Procedure 3: ETACS-ECU does not receive any signal from the key reminder switch.

Key Reminder Switch Input Circuit



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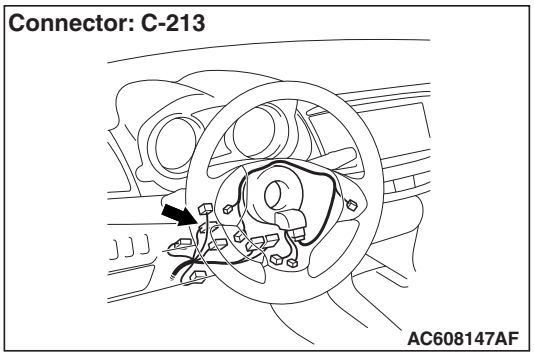
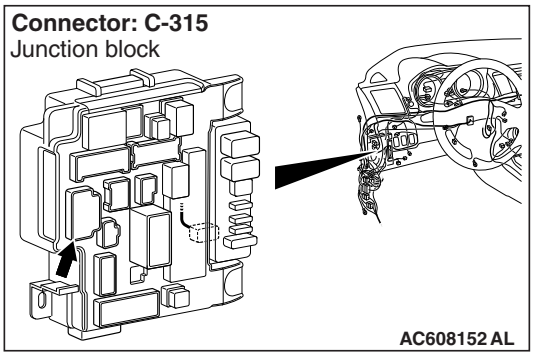




COMMENTS ON TROUBLE SYMPTOM

The key reminder switch input signal is used for the operation judgment of the functions below. If the signal is abnormal, these functions will not work.

- Ignition key reminder function
- Central door locking
- Keyless entry system
- KOS
- Ignition key cylinder illumination light
- Interior light

TROUBLESHOOTING HINTS

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

TSB Revision

DIAGNOSIS

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

STEP 1. Check key reminder switch connector C-213 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is key reminder switch connector C-213 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of key reminder switch is normal.

STEP 2. Check the key reminder switch.

Disconnect key reminder switch connector C-213. Then check continuity between terminals.

Ignition key	Tester connection	Specified condition
Removed	2 –3	Continuity exists (2 ohms or less)
Inserted	2 –3	Open circuit

Q: Is the key reminder switch in good condition?

YES : Go to Step 3.

NO : Replace the key reminder switch. Check that the input signal of key reminder switch is normal.

STEP 3. Check the ground circuit to the key reminder switch. Measure the resistance at key reminder switch connector C-213.

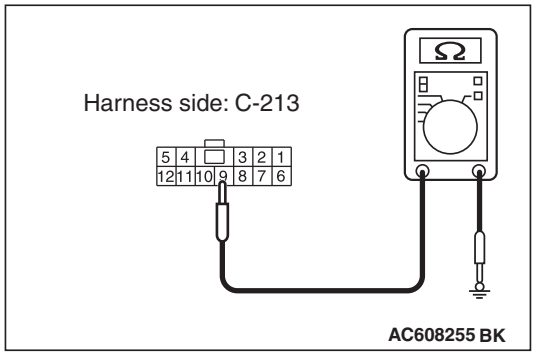
(1) Disconnect key reminder switch connector C-213 and measure the resistance available at the wiring harness side of the connector.

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

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 5.

NO : Go to Step 4.



STEP 4. Check the wiring harness between key reminder switch connector C-213 (terminal 2) and ground.
Check the ground wires for open circuit.

Q: Is the wiring harness between key reminder switch connector C-213 (terminal 2) and ground in good condition?

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

STEP 5. Check ETACS-ECU connector C-315 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-315 in good condition?

YES : Go to Step 6.
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of key reminder switch is normal.

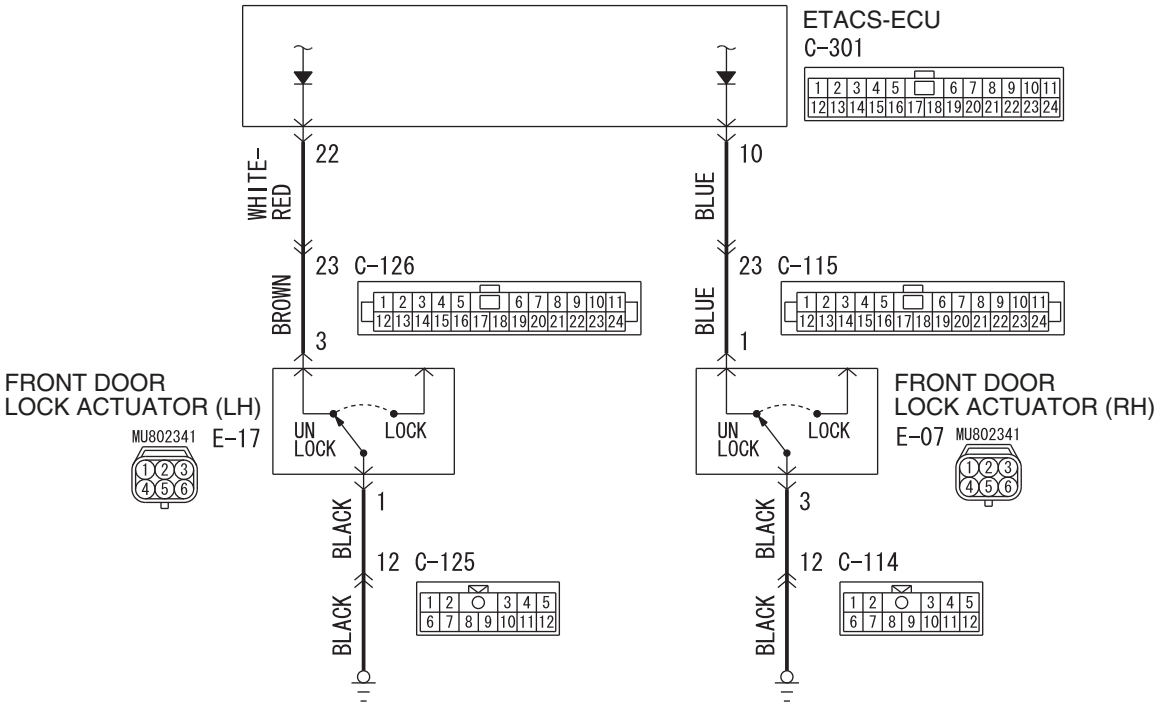
STEP 6. Check the wiring harness between key reminder switch connector C-213 (terminal 3) and ETACS-ECU connector C-315 (terminal 13).
Check the output lines for open circuit and short circuit.

Q: Is the wiring harness between key reminder switch connector C-213 (terminal 3) and ETACS-ECU connector C-315 (terminal 13) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of key reminder switch is normal.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of key reminder switch is normal.

Inspection Procedure 4: ETACS-ECU cannot receive the signal of front door lock actuator (LH) or front door lock actuator (RH).

Door Look Actuator Input Circuit



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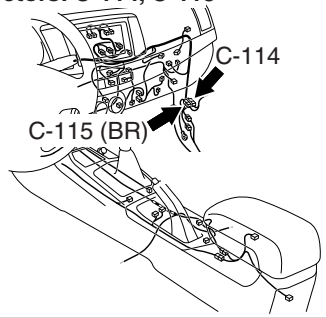
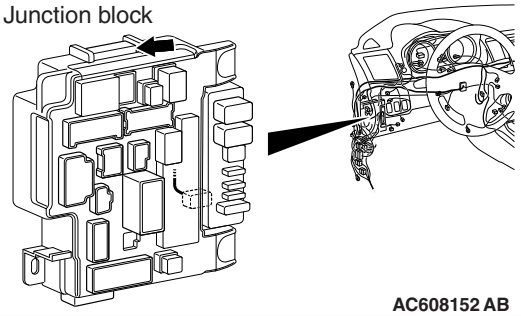
Connectors: C-114, C-115



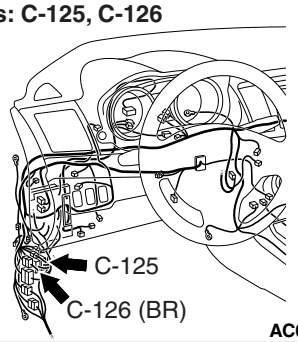
AC807553AG

Connector: C-301
Junction block



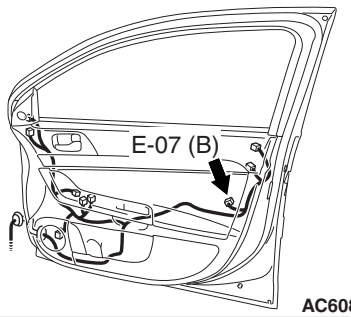
AC608152 AB

Connectors: C-125, C-126



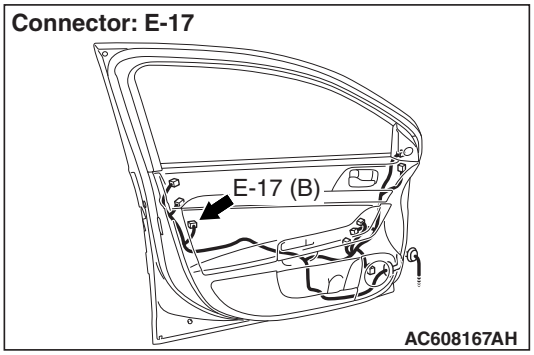
AC608145AR

Connector: E-07



AC608168 AF

TSB Revision



COMMENTS ON TROUBLE SYMPTOM

The front door lock actuator (LH) or front door lock actuator (RH) <vehicles with KOS> input signal is used for the operation judgment of the functions below. If the signal is abnormal, these functions will not work normally.

- Key reminder function
- Central door locking
- KOS
- Keyless entry system
- Interior light

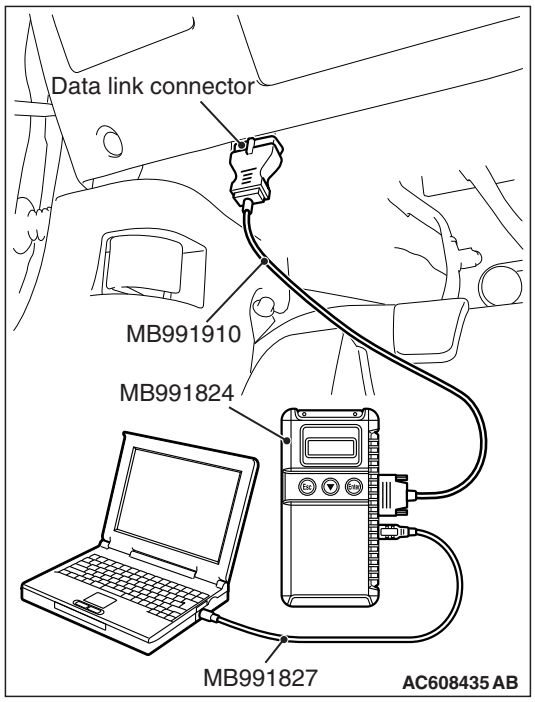
PROBABLE CAUSES

- The front door lock actuator (LH) may be defective
- The front door lock actuator (RH) may be defective <vehicles with KOS>
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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



STEP 1. Using scan tool MB991958, check data list.
Check the input signals from the front door lock actuators.

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(2) Turn the ignition switch to the "ON" position.
(3) Check the ETACS data list.
- Set the driver's door to "UNLOCK."

Item No.	Item name	Normal condition
Item 271	Dr door unlock switch	Unlock

- Set the front passenger's door to "UNLOCK." <vehicles with KOS>

Item No.	Item name	Normal condition
Item 272	As door unlock switch	Unlock

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

Q: Are normal conditions displayed on the "Dr door unlock switch" and "As door unlock switch"?
YES <Normal conditions are displayed for all the items> : No action is necessary and testing is complete.
NO <Normal condition is not displayed for item No.271> : Go to Step 2.
NO <Normal condition is not displayed for item No.272> : Go to Step 8.

STEP 2. Check front door lock actuator (LH) connector E-17 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

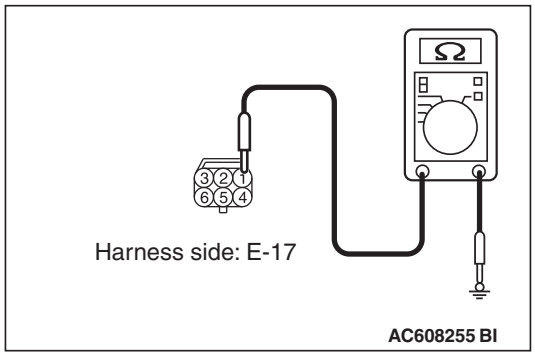
Q: Is front door lock actuator (LH) connector E-17 in good condition?
YES : Go to Step 3.
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (LH) is normal.

STEP 3. Check the front door lock actuator (LH).
Disconnect front door lock actuator (LH) connector E-17. Then check continuity between the terminals.

Lever position	Tester connection	Specified condition
UNLOCK	1 –3	Continuity exists (2 ohms or less)
LOCK	1 –3	Open circuit

Q: Is the front door lock actuator (LH) in good condition?
YES : Go to Step 4.
NO : Replace the front door lock actuator (LH). Check that the input signal of front door lock actuator (LH) is normal.

STEP 4. Check the ground circuit to the front door lock actuator (LH). Measure the resistance at front door lock actuator (LH) connector E-17.
(1) Disconnect front door lock actuator (LH) connector E-17 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between terminal 1 and ground.
- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?
YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the wiring harness between front door lock actuator (LH) connector E-17 (terminal 1) and ground.
Check the ground wires for open circuit.

NOTE: Also check intermediate connector C-125 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-125 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front door lock actuator (LH) connector E-17 (terminal 1) and ground in good condition?
YES : No action is necessary and testing is complete.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (LH) is normal.

STEP 6. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (LH) is normal.

STEP 7. Check the wiring harness between front door lock actuator (LH) connector E-17 (terminal 3) and ETACS-ECU connector C-301 (terminal 22).

Check the input lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-126 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-126 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front door lock actuator (LH) connector E-17 (terminal 3) and ETACS-ECU connector C-301 (terminal 22) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door lock actuator (LH) is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (LH) is normal.

STEP 8. Check front door lock actuator (RH) connector E-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door lock actuator (RH) connector E-07 in good condition?

YES : Go to Step 9.

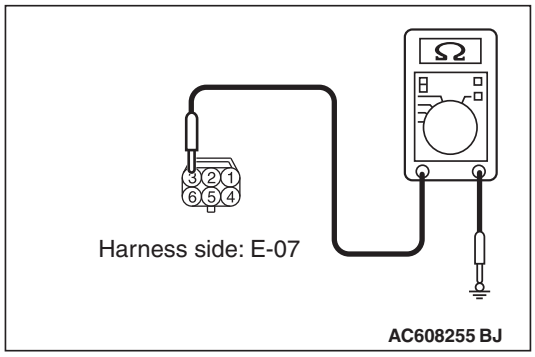
NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (RH) is normal.

STEP 9. Check the front door lock actuator (RH).
Disconnect front door lock actuator (RH) connector E-07. Then check continuity between the terminals.

Lever position	Tester connection	Specified condition
UNLOCK	1 –3	Continuity exists (2 ohms or less)
LOCK	1 –3	Open circuit

Q: Is the front door lock actuator (RH) in good condition?
YES : Go to Step 10.
NO : Replace the front door lock actuator (RH). Check that the input signal of front door lock actuator (RH) is normal.

STEP 10. Check the ground circuit to the front door lock actuator (RH). Measure the resistance at front door lock actuator (RH) connector E-07.
(1) Disconnect front door lock actuator (RH) connector E-07 and measure the resistance available at the wiring harness side of the connector.
(2) Measure the resistance value between terminal 3 and ground.
- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?
YES : Go to Step 12.
NO : Go to Step 11.

STEP 11. Check the wiring harness between front door lock actuator (RH) connector E-07 (terminal 3) and ground.
Check the ground wires for open circuit.

NOTE: Also check intermediate connector C-114 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-114 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between front door lock actuator (RH) connector E-07 (terminal 3) and ground in good condition?
YES : No action is necessary and testing is complete.
NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (RH) is normal.

STEP 12. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 13.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door lock actuator (RH) is normal.

STEP 13. Check the wiring harness between front door lock actuator (RH) connector E-07 (terminal 1) and ETACS-ECU connector C-301 (terminal 10).

Check the input lines for open circuit and short circuit.

NOTE: Also check intermediate connector C-115 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-115 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

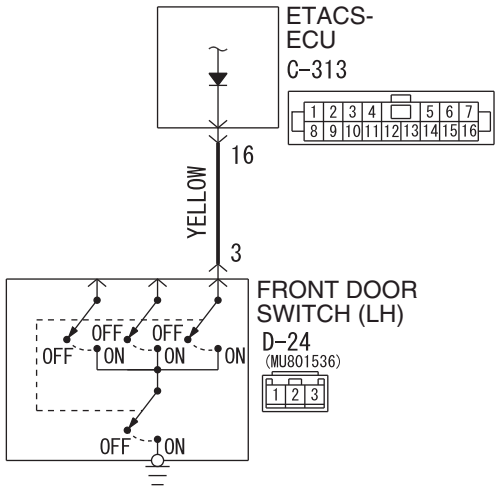
Q: Is the wiring harness between front door lock actuator (RH) connector E-07 (terminal 1) and ETACS-ECU connector C-301 (terminal 10) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door lock actuator (RH) is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door lock actuator (RH) is normal.

Inspection Procedure 5: ETACS-ECU does not receive any signal from the front door switch (LH).

Front Door Switch (LH) Input Circuit



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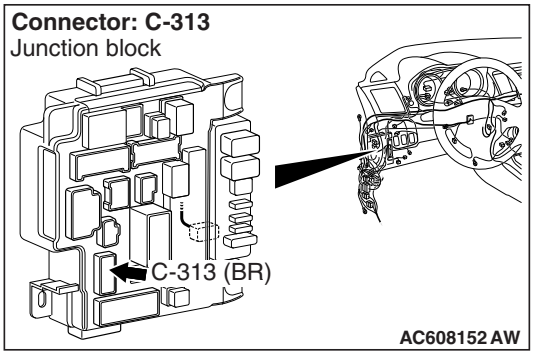
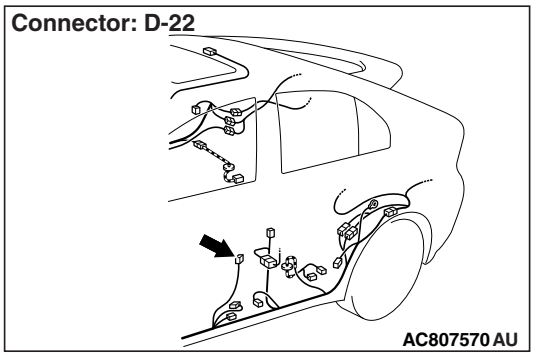




TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the front door switch (LH) input signal, the front door switch (LH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The front door switch (LH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

TSB Revision

STEP 1. Check front door switch (LH) connector D-24 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (LH) connector D-24 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door switch (LH) is normal.

STEP 2. Check the front door switch (LH).

Remove the front door switch (LH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the driver's door switch in good condition?

YES : Go to Step 3.

NO : Replace the front door switch (LH). Check that the input signal of front door switch (LH) is normal.

STEP 3. Measure at the lower metal part of the front door switch (LH) in order to check the ground circuit to the front door switch (LH).

NOTE: Check that the front door switch (LH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of front door switch (LH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of front door switch (LH) is normal.

STEP 5. Check the wiring harness between driver's door switch connector D-24 (terminal 3) and ETACS-ECU connector C-313 (terminal 16).

Check the input lines for open circuit and short circuit.

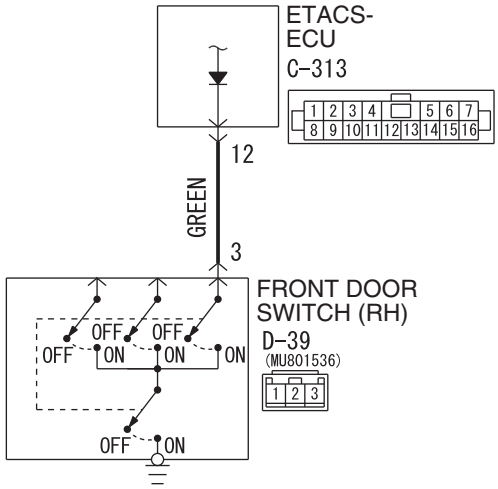
Q: Is the wiring harness between driver's door switch connector D-24 (terminal 3) and ETACS-ECU connector C-313 (terminal 16) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door switch (LH) is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door switch (LH) is normal.

Inspection Procedure 6: ETACS-ECU does not receive any signal from the front door switch (RH).

Front Door Switch (RH) Input Circuit



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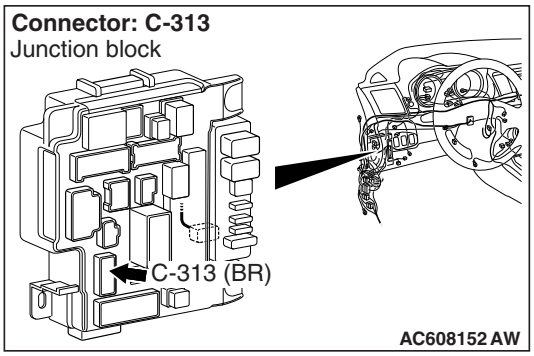
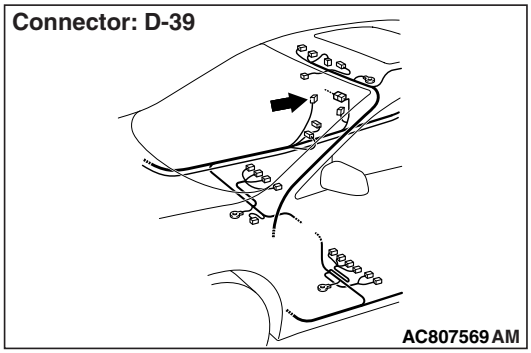




TSB Revision

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the front door switch (RH) input signal, the front door switch (RH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The front door switch (RH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check front door switch (RH) connector D-39 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is front door switch (RH) connector D-39 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the input signal of front door switch (RH) is normal.

STEP 2. Check the front door switch (RH).

Remove the front door switch (RH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the front door switch (RH) in good condition?

YES : Go to Step 3.

NO : Replace the front door switch (RH). Check that the input signal of front door switch (RH) is normal.

STEP 3. Measure at the lower metal part of the front door switch (RH) in order to check the ground circuit to the front door switch (RH).

NOTE: Check that the front door switch (RH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of front door switch (RH) is normal.

TSB Revision

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the input signal of front door switch (RH) is normal.

STEP 5. Check the wiring harness between front door switch (RH) connector D-39 (terminal 3) and ETACS-ECU connector C-313 (terminal 12).

Check the input lines for open circuit and short circuit.

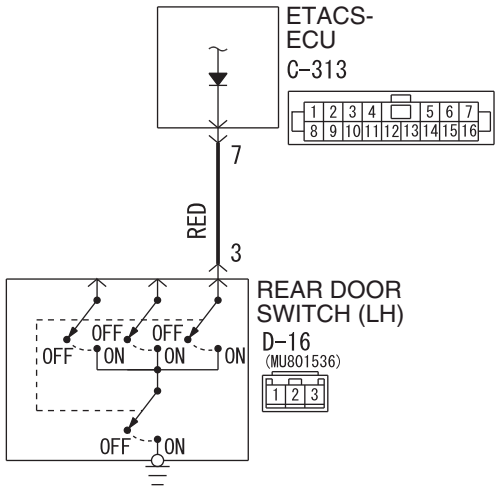
Q: Is the wiring harness between front door switch (RH) connector D-39 (terminal 3) and ETACS-ECU connector C-313 (terminal 12) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of front door switch (RH) is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of front door switch (RH) is normal.

Inspection Procedure 7: ETACS-ECU does not receive any signal from the rear door switch (LH).

Rear Door Switch (LH) Input Circuit



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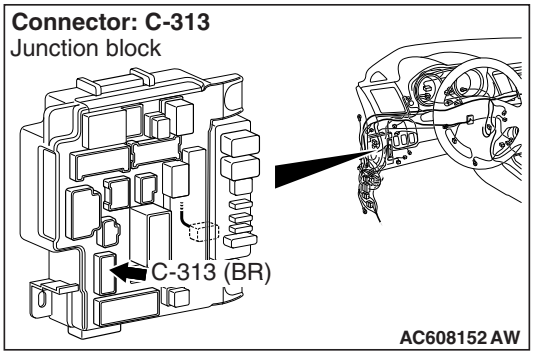
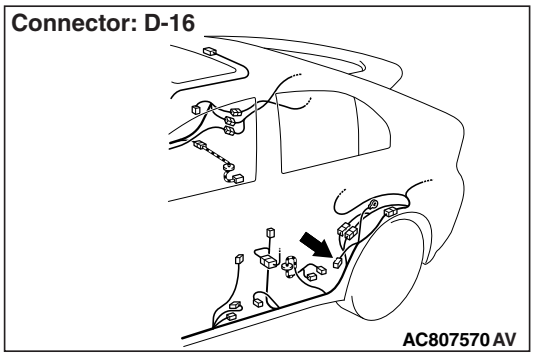




TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the rear door switch (LH) input signal, the rear door switch (LH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The rear door switch (LH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

TSB Revision

STEP 1. Check rear door switch (LH) connector D-16 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (LH) connector D-16 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of rear door switch (LH) is normal.

STEP 2. Check the rear door switch (LH).

Remove the rear door switch (LH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the rear door switch in good condition?

YES : Go to Step 3.

NO : Replace the rear door switch (LH). Check that the input signal of rear door switch (LH) is normal.

STEP 3. Measure at the lower metal part of the rear door switch (LH) in order to check the ground circuit to the rear door switch (LH).

NOTE: Check that the rear door switch (LH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of rear door switch (LH) is normal.

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of rear door switch (LH) is normal.

STEP 5. Check the wiring harness between rear door switch (LH) connector D-16 (terminal 3) and ETACS-ECU connector C-313 (terminal 7).

Check the input lines for open circuit and short circuit.

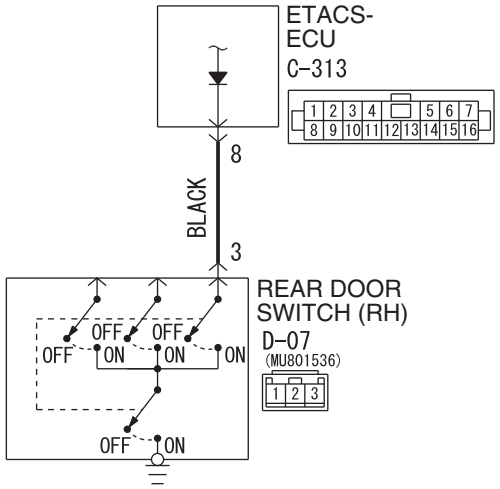
Q: Is the wiring harness between rear door switch (LH) connector D-16 (terminal 3) and ETACS-ECU connector C-313 (terminal 7) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of rear door switch (LH) is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of rear door switch (LH) is normal.

Inspection Procedure 8: ETACS-ECU does not receive any signal from the rear door switch (RH).

Rear Door Switch (RH) Input Circuit



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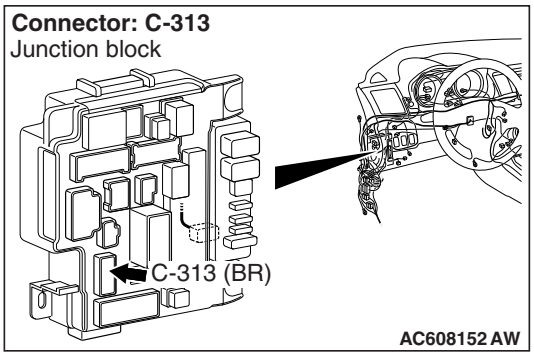
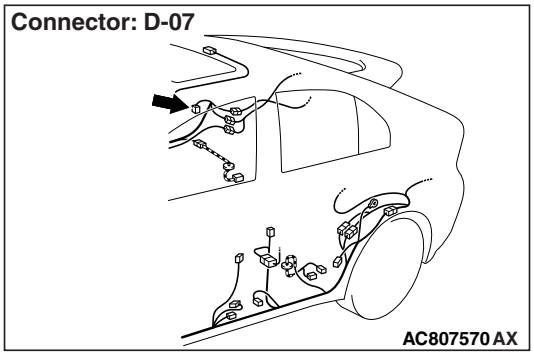




TSB Revision

TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the rear door switch (RH) input signal, the rear door switch (RH) signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

- The rear door switch (RH) may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check rear door switch (RH) connector D-07 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear door switch (RH) connector D-07 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of rear door switch (RH) is normal.

STEP 2. Check the rear door switch (RH).

Remove the rear door switch (RH). Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	3 –switch body	Continuity exists (2 ohms or less)
Pressed	3 –switch body	Open circuit

Q: Is the rear door switch in good condition?

YES : Go to Step 3.

NO : Replace the rear door switch (RH). Check that the input signal of rear door switch (RH) is normal.

STEP 3. Measure at the lower metal part of the rear door switch (RH) in order to check the ground circuit to the rear door switch (RH).

NOTE: Check that the rear door switch (RH) is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and the ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

NO : Check the fit of the switch, and repair if necessary. Check that the input signal of rear door switch (RH) is normal.

TSB Revision

STEP 4. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 5.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of rear door switch (RH) is normal.

STEP 5. Check the wiring harness between rear door switch (RH) connector D-07 (terminal 3) and ETACS-ECU connector C-313 (terminal 8).

Check the input lines for open circuit and short circuit.

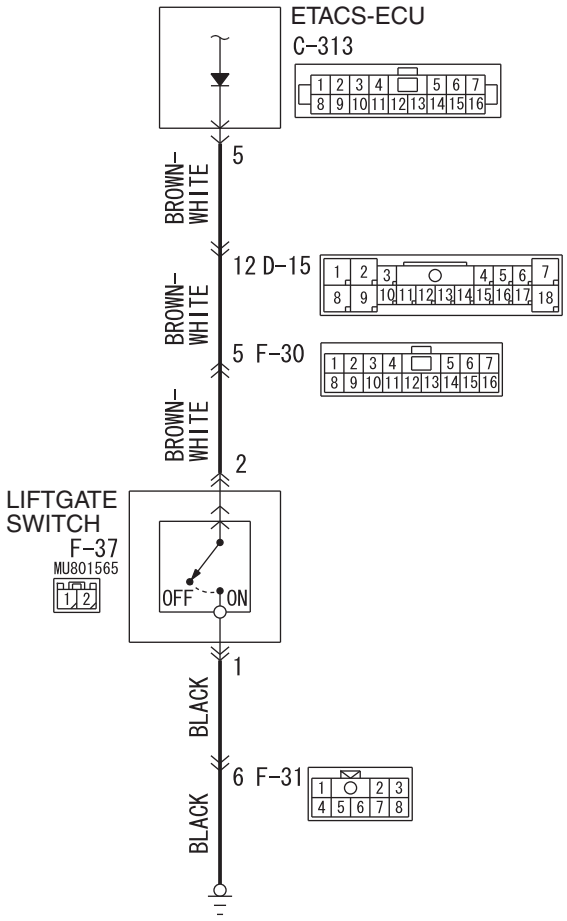
Q: Is the wiring harness between rear door switch connector D-07 (terminal 3) and ETACS-ECU connector C-313 (terminal 8) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of rear door switch (RH) is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of rear door switch (RH) is normal.

Inspection Procedure 9: ETACS-ECU does not receive any signal from the liftgate switch.

Liftgate Switch Input Circuit



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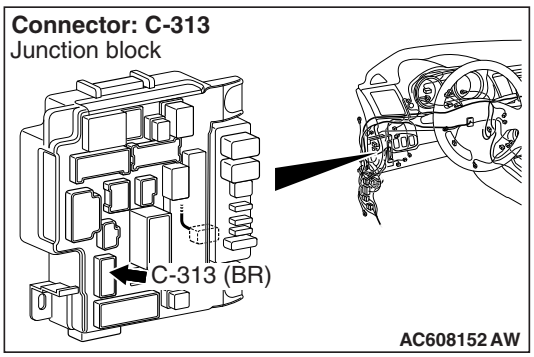
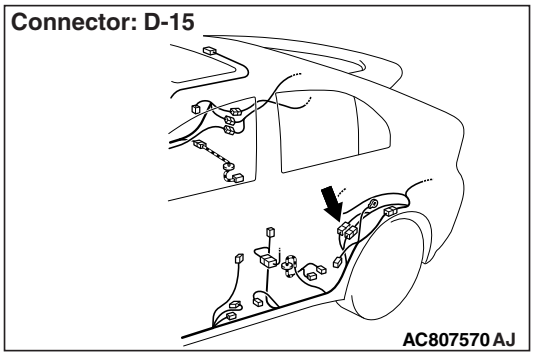
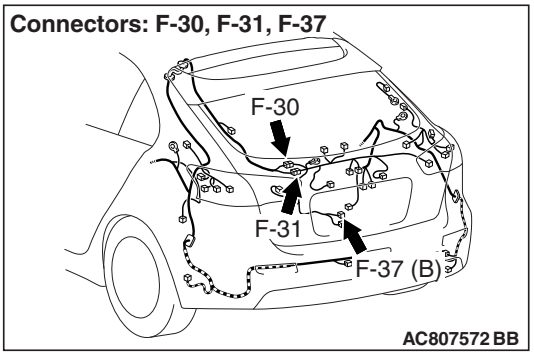




TSB Revision



TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the liftgate switch input signal, the liftgate switch signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

STEP 1. Check liftgate switch connector F-37 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is liftgate switch connector F-37 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the input signal of liftgate switch is normal.

STEP 2. Check the liftgate switch.

Remove the liftgate switch. Then check the continuity between the switch terminals and the switch body.

Switch position	Tester connection	Specified condition
Released	1 –switch body	Continuity exists (2 ohms or less)
Pressed	1 –switch body	Open circuit

Q: Is the liftgate switch in good condition?

YES : Go to Step 3.

NO : Replace the liftgate switch. Check that the input signal of liftgate switch is normal.

STEP 3. Measure at the lower metal part of the liftgate switch in order to check the ground circuit to the liftgate switch.

NOTE: Check that the liftgate switch is grounded to the vehicle body by means of its mounting screw.

Remove the cap, and measure the resistance value between the lower metal part and ground.

- The resistance should equal 2 ohms or less.

Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 4.

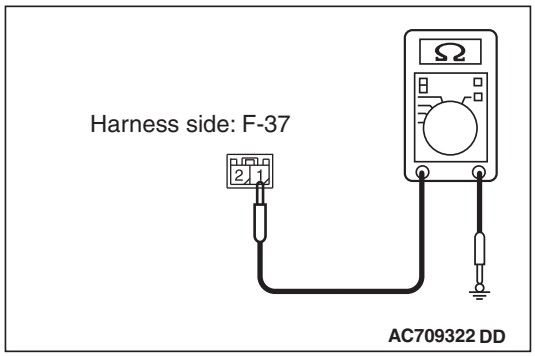
NO : Check the fit of the switch, and repair if necessary. Check that the input signal of liftgate switch is normal.

STEP 4. Check the ground circuit to the liftgate switch connector. Measure the resistance at liftgate switch connector F-37.

(1) Disconnect liftgate switch connector F-37 and measure the resistance available at the wiring harness side of the connector.

(2) Measure the resistance value between terminal 1 and ground.

- The resistance should be 2 ohms or less.



Q: Is the measured resistance 2 ohms or less?

YES : Go to Step 6.

NO : Go to Step 5.

STEP 5. Check the wiring harness between liftgate switch connector F-37 (terminal 1) and ground.

Check the ground wires for open circuit.

NOTE: Also check intermediate connector F-31 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector F-31 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between liftgate switch connector F-37 (terminal 1) and ground in good condition?

YES : No action is necessary and testing is complete.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of key reminder switch is normal.

STEP 6. Check ETACS-ECU connector C-313 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-313 in good condition?

YES : Go to Step 7.

NO : Repair or replace the damaged component(s). Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the input signal of liftgate switch is normal.

STEP 7. Check the wiring harness between liftgate switch connector F-37 (terminal 2) and ETACS-ECU connector C-313 (terminal 5).

Check the input lines for open circuit and short circuit.

NOTE: Also check intermediate connectors D-15 and F-30 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector D-15 or F-30 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

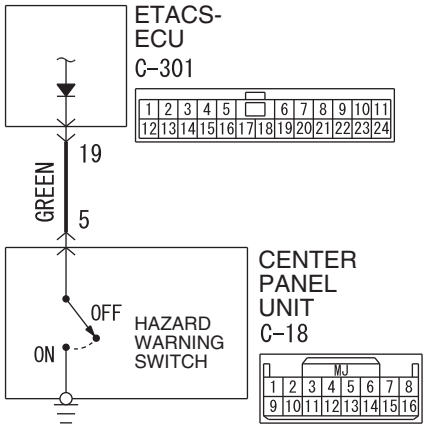
Q: Is the wiring harness between liftgate switch connector F-37 (terminal 2) and ETACS-ECU connector C-313 (terminal 5) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of liftgate switch is normal.

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

Inspection Procedure 10: ETACS-ECU does not receive any signal from the hazard warning light switch.

Hazard Warning Switch Input Circuit



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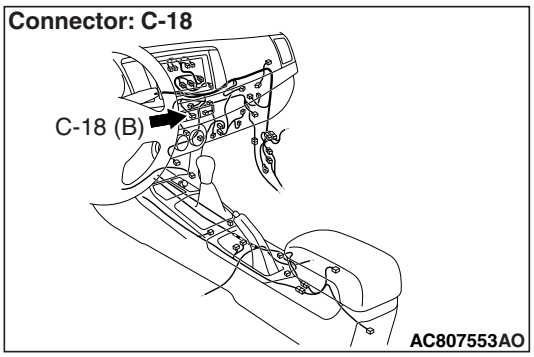
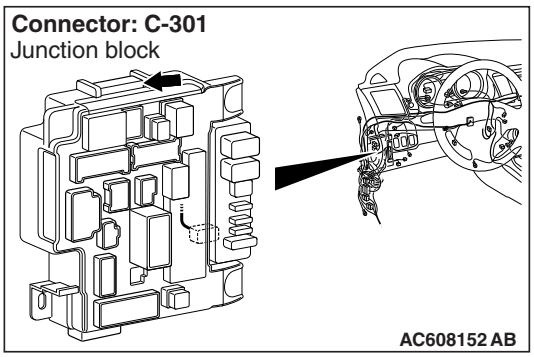




TECHNICAL DESCRIPTION (COMMENT)

If there is an error to the hazard warning light switch input signal, the hazard warning light switch signal is no longer output to the communication line.

TROUBLESHOOTING HINTS

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

DIAGNOSIS

Required Special Tools:

- MB991223: Harness Set
- MB992006: Extra Fine Probe

TSB Revision

STEP 1. Check center panel unit connector C-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is center panel unit connector C-18 in good condition?

YES : Go to Step 2.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of hazard warning light switch is normal.

STEP 2. Check the hazard warning light switch.

Remove the center panel unit. Then check continuity between the switch terminal and switch body.

Switch position	Tester connection	Specified condition
Released	5 –switch body	Open circuit
Pressed	5 –switch body	Continuity exists (2 ohms or less)

Q: Is the hazard warning light switch in good condition?

YES : Go to Step 3.

NO : Replace the center panel unit. Check that the input signal of hazard warning light switch is normal.

STEP 3. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 4.

NO : Repair or replace the damaged component(s) (Refer to GROUP 00E, Harness Connector Inspection P.00E-2). Check that the input signal of hazard warning light switch is normal.

STEP 4. Check the wiring harness between center panel unit connector C-18 (terminal 5) and ETACS-ECU connector C-301 (terminal 19).

Check the input lines for open circuit and short circuit.

Q: Is the wiring harness between center panel unit connector C-18 (terminal 5) and ETACS-ECU connector C-301 (terminal 19) in good condition?

YES : Replace the ETACS-ECU. Check that the input signal of hazard warning light switch is normal.

NO : The wiring harness may be damaged or the connector(s) may have loose, corroded or damaged terminals, or terminals pushed back in the connector. Repair the wiring harness as necessary. Check that the input signal of hazard warning light switch is normal.

TSB Revision

Inspection Procedure 11: ETACS-ECU does not receive any signal from the column switch signal.

TECHNICAL DESCRIPTION (COMMENT)

The ETACS-ECU receives the column switch signal via the LIN communication. If there is an abnormality to column switch or LIN bus line, the lights and wiper/washer do not work normally.

TROUBLESHOOTING HINTS

- The column switch may be defective
- The LIN bus line may be defective

DIAGNOSIS

Required Special Tools:

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

STEP 1. Using scan tool MB991958, read the ETACS diagnostic trouble code.

Check the DTC is set to the ETACS-ECU.

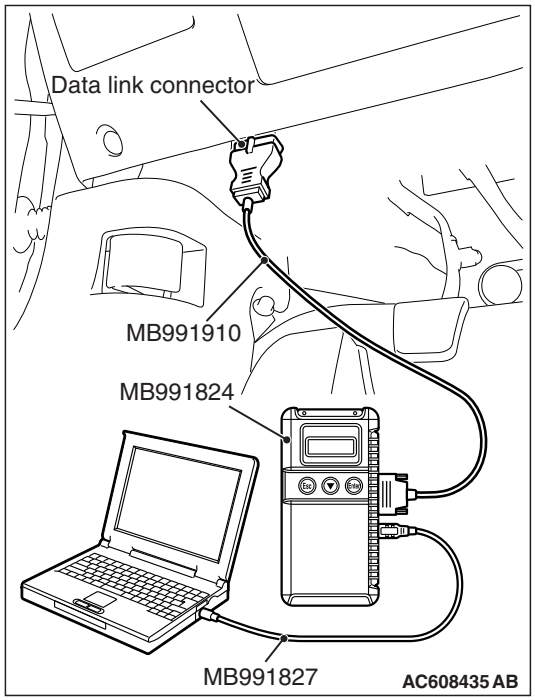
⚠ CAUTION

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

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
(3) Check if DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Troubleshoot the ETACS-ECU (Refer to P.54A-674).
NO : Go to Step 2.



STEP 2. Column switch check

- Check the continuity for windshield wiper and windshield washer switch (Refer to P.54A-334).
- Check the continuity for column switch (switch body part) (Refer to P.54A-335).

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the column switch.

ON-VEHICLE SERVICE

CUSTOMIZATION FUNCTION

M1545002500847

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
ACC power auto cut	Time to ACC power cut-off when the ignition switch is in the ACC position	Disable	No function
		30 min	30 minutes (initial condition)
		60 min	60 minutes
Turn power source	Adjustment of turn-signal light operation condition	ACC or IG1	Operable with ACC or ON position
		IG1	Operable with ON position (initial condition)
Comfort flasher	With/without comfort flasher	Disable	No function
		Enable	With function (initial condition)
Comfort flasher switch time	Switch operation time to activate the comfort flasher	Normal	0.4 second (initial condition)
		Long	0.8 second
Hazard answer back	Adjustment of the number of keyless hazard warning light answer back flashes	Lock:1, Unlock:2	LOCK: Flashes once, UNLOCK: Flashes twice (initial condition)
		Lock:1, Unlock:0	LOCK: Flashes once, UNLOCK: No flash
		Lock:0, Unlock:2	LOCK: No flash, UNLOCK: Flash twice
		Lock:2, Unlock:1	LOCK: Flash twice, UNLOCK: Flash once
		Lock:2, Unlock:0	LOCK: Flash twice, UNLOCK: No flash
		Lock:0, Unlock:1	LOCK: No flash, UNLOCK: Flash once
		Lock:0, Unlock:0	No function

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
Front wiper operation	Adjustment of the intermittent windshield wiper operation <vehicles without auto light>	Normal INT	Intermittent wiper interval is fixed to 4 seconds.
		Variable INT	Intermittent wiper interval is calculated only by the wiper volume control.
		Speed Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and vehicle speed (initial condition).
	Adjustment of the intermittent windshield wiper operation <vehicles with auto light>	Normal INT	Intermittent wiper interval is fixed to 4 seconds.
		Variable INT	Intermittent wiper interval is calculated only by the wiper volume control.
		Speed Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and vehicle speed.
		Rain Sensitive	Intermittent wiper interval is calculated according to the intermittent wiper volume control and lighting control sensor (initial condition).
Front wiper washer	Disabling or enabling washer-linked wiper function	Only Washer	No function
		Washer & Wiper	With function: Without delayed finishing wipe function (Initial condition)
		With after wipe	With function: With delayed finishing wipe function
Intelligent washer	With/without intelligent washer function	Disable	No function
		Enable	With function (initial condition)
Intermittent time of rear wiper	Adjustment of rear wiper interval	0 sec	No wiper interval
		4 sec	4 seconds
		8 sec	8 seconds (initial condition)
		16 sec	16 seconds
Rear wiper low speed mode	Disabling or enabling rear wiper continuous operation	Disabled	No function (initial condition)
		Enabled	With function
Rear wiper (linked activated when in reverse)	Adjustment of automatic rear window wiper operation with reverse gear engaged	Enable(R wip.ON)	Operates only when the rear wiper switch is ON.
		Enable(R/F wip.)	Operates only when the front or rear wiper switch is ON (initial condition).

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
Sensitivity for auto light	Lighting control sensor sensitivity (illumination intensity) <vehicles with auto light>	Level 1 bright	High-high ambient brightness
		Level 2 bright	High ambient brightness
		Level 3	Standard ambient brightness (initial condition)
		Level 4 dark	Low ambient brightness
		Level 5 dark	Low-low ambient brightness
Dome light delay timer with door	Adjustment of interior light delay shutdown time	0sec	0 second
		7.5sec	7.5 seconds
		15sec	15 seconds
		30sec	30 seconds (initial condition)
		60sec	60 seconds
		120sec	120 seconds
		180sec	180 seconds
Headlight auto cut customize	Adjustment of headlight automatic shutdown function	Disable	No function
		Enable (C-spec.)	With function (initial condition)
Welcome light	Disabling or enabling welcome light function <Vehicles with color liquid crystal meter>	Disabled	No function
		Small light	Tail light illuminates. (initial condition)
		Head light	Headlight illuminates.
Coming home light	Disabling or enabling coming home light function <Vehicles with color liquid crystal meter>	Disabled	No function
		15 sec	Headlight illuminates for 15 seconds.
		30sec	Headlight illuminates for 30 seconds. (initial condition)
		60 sec	Headlight illuminates for 60 seconds.
		180 sec	Headlight illuminates for 180 seconds.
Interior light auto cut timer	Adjustment of interior light automatic shutdown function operation time	Disable	No function
		3min	3 minutes
		30min	30 minutes (initial condition)
		60min	60 minutes
Door unlock mode	Adjustment of power door locks with selective unlocking	All doors unlock	Without function: The first operation of keyless entry system or unlock operation by KOS unlocks all doors.
		Dr door unlock	With function: The first operation of keyless entry system or unlock operation by KOS unlocks the driver's door only, and the second unlock operation within 2 seconds after that unlocks all doors. (initial condition)

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
Auto door unlock	Adjustment of the auto door unlock function	Disabled	Without function (initial condition) <M/T, CVT, TC-SST>
		Always (P pos)	With function: Operates when the shift lever or the selector lever is moved to the P position. <CVT, TC-SST>
		P/W unlock (P)	With function: Operates when the shift lever or the selector lever is moved to the P position with the power window lock switch in the OFF position. <CVT, TC-SST>
		Always(Lock pos)	With function: Operates when the ignition switch is moved to the LOCK (OFF) position. <M/T, CVT, TC-SST>
		P/W unlock(Lock)	With function: Operates when the ignition switch is turned to the LOCK (OFF) position with the power window lock switch in the OFF position. <M/T, CVT, TC-SST>
Duration of horn chirp	Horn sounding time during horn answer back	Short	0.01 second (initial condition)
		Long	0.02 second
Horn chirp by keyless	Horn chirp by keyless entry system <vehicles without auto light>	Not sound horn	No horn answerback function
		Lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed once.
		W lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed twice. (initial condition)
	Horn chirp by keyless entry system <vehicles with auto light>	Not sound horn	No horn answerback function
		Lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed once.
		Lock/auto ON	During daytime, while the lighting switch is in the AUTO position, the horn sounds once when the lock is pressed once.
		W lock any time	The horn sounds when the lock button of keyless entry transmitter is pressed twice. (initial condition)
Buzzer answer back <Vehicles with KOS>	Adjusts the tone alarm answer back function	Not sound buzzer	No function
		At keyless	Sounds when the keyless entry system is activated.
		At F.A.S.T.	Sounds when KOS is activated (initial condition).
		At Both	Sounds when the keyless entry system or KOS is activated.

Adjustment item (scan tool MB991958 display)	Adjustment item	Adjusting contents (scan tool MB991958 display)	Adjusting contents
Timer lock timer	Timer lock period adjustment	30sec	30 seconds (initial condition)
		60sec	60 seconds
		120sec	120 seconds
		180sec	180 seconds
Panic alarm switch	With/without panic alarm function	Disable	No function
		Enable	With function (initial condition)
F.A.S.T.* key detect out fm window	With/without KOS key exterior detection function	Disable	No function (initial condition)
		Enable	With function
F.A.S.T.* feature	KOS function adjustment	Both enable	All KOS functions are enabled (initial condition)
		DoorEntry enable	Only door entry function is enabled.
		ENG strt enable	Only engine starting function is enabled.
		Both disabled	All KOS functions are disabled.
F.A.S.T.* unlock disable time	Adjusts the door unlock inhibition period after door lock is activated	0sec	0 seconds
		3sec	3 seconds (initial condition)
		5sec	5 seconds

*NOTE: *: F.A.S.T. (Free-hand Advanced Security Transmitter)*

ETACS-ECU

REMOVAL AND INSTALLATION

M1545004700364

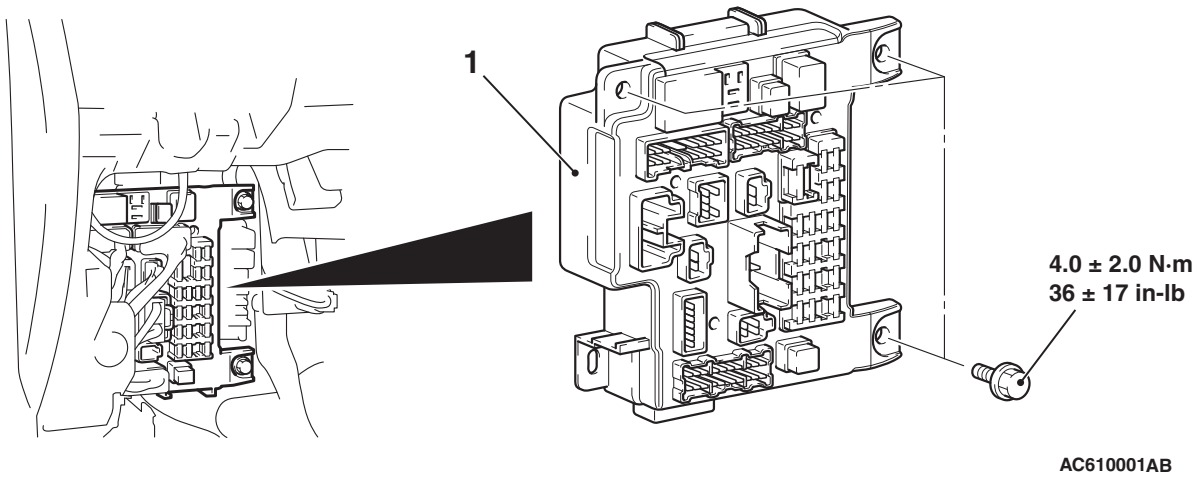
⚠ WARNING

- ***Before removing the ETACS-ECU and knee air bag module, refer to GROUP 52B, Service Precautions P.52B-26 and Knee Air Bag Module P.52B-434.***
- ***When removing and installing the ETACS-ECU, do not let it bump against the knee air bag module.***

⚠ CAUTION

When the ETACS-ECU is replaced, chassis number writing and coding must be performed. When diagnostic trouble code No.B1761 "Chassis No. not programmed" or No.B222C "Coding not completed" is set to the ETACS-ECU, perform chassis number writing and coding. Refer to the "M.U.T.-III Owner's Manual" and perform coding.

Pre-removal and Post-installation Operation
- Side lower panel assembly (Refer to GROUP 52A, Instrument Lower Panel P.52A-8).
- Knee air bag module (Refer to GROUP 52B, Knee Air Bag Module P.52B-434).



Removal Step
1. ETACS-ECU

CHECK WITH TERMINAL VOLTAGE

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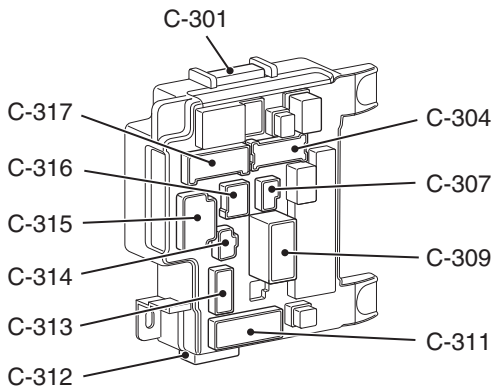

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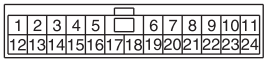
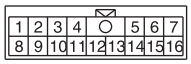
CONNECTOR: C-301



AC507030AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Input from power window main switch or front power window sub switch (central door lock switch)	central door lock switch: Locked	1 volt or less
3–9	–	–	–
10	Input from front passenger's door lock actuator (unlock)	Front passenger's door lock: Unlocked	1 volt or less
11	–	–	–
12	Output to defogger switch	Defogger switch: ON	1 volt or less (only for 20 minutes)
13–18	–	–	–
19	Input from hazard warning light switch	Hazard warning light switch: ON	1 volt or less
20	–	–	–
21	Input from windshield wiper backup switch	Windshield low-speed wiper switch or windshield high-speed wiper switch: ON	1 volt or less
22	Input from driver's door lock actuator (unlock)	Driver's door lock: Unlocked	1 volt or less
23, 24	–	–	–

CONNECTOR: C-304



AC507031AB

Terminal No.	Check item	Check condition	Normal condition
1	Stop light switch power supply	Stop light switch: ON	Battery positive voltage
2	–	–	–
3	Output to position light (LH)	When position light is illuminated	Battery positive voltage
4	–	–	–
5	Output to windshield wiper (HI)	When windshield wipers are operating at high speed	Battery positive voltage
6	Output to windshield wiper (LO)	When windshield wipers are operating at low speed	Battery positive voltage

Terminal No.	Check item	Check condition	Normal condition
7	Output position light (RH)	When position light illuminated	Battery positive voltage
8	Input from windshield wiper auto stop switch	When windshield wipers are operating	Battery positive voltage
9	Output to front and side turn-signal light (LH)	When front and side turn-signal light (LH) is illuminated	Battery positive voltage
10	Output to engine control module (IG1)	Ignition switch: ON	Battery positive voltage
11	Input from engine control module (fuel control)	Engine: Started	1 volt or less
12	Output to windshield wiper (ACC)	Ignition switch: ACC	Battery positive voltage
13	Output to windshield washer	When windshield washer is operating	Battery positive voltage
14	–	–	–
15	Output to engine control module (START)	Ignition switch: START	Battery positive voltage
16	Output to front and side turn-signal light (RH)	When front and side turn-signal light (RH) is illuminated	Battery positive voltage

CONNECTOR: C-307

AC507032AB

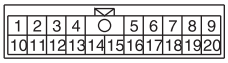
Terminal No.	Check item	Check condition	Normal condition
1	Fuel pump power supply	Ignition switch: ON	Battery positive voltage
2	Battery power supply	Always	Battery positive voltage

CONNECTOR: C-309

AC507033AB

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	Always	Battery positive voltage
2	Battery power supply	Always	Battery positive voltage

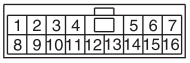
CONNECTOR: C-311



AC507035AB

Terminal No.	Check item	Check condition	Normal condition
1	Output to trunk lid lock actuator	When trunk is locked	Battery positive voltage
2	Backup light power supply	When backup light is illuminated	Battery positive voltage
3	Input from luggage compartment light	When luggage compartment light is illuminated	1 volt or less
4, 5	–	–	–
6	Output to rear door lock actuator (unlock)	When rear door is unlocked	Battery positive voltage
7, 8	–	–	–
9	Output to rear door lock actuator (lock)	When rear door is locked	Battery positive voltage
10	Output to taillight (LH) and side maker light (LH) and license plate light	When taillight (LH) and side maker light (LH) and license plate light are illuminated	Battery positive voltage
11	–	–	–
12	Rear power window motor power supply	Ignition switch: ON	Battery positive voltage
13	Output to taillight (RH) and side maker light (RH) and glove box light	When taillight (RH) and side maker light (RH) and glove box light are illuminated	Battery positive voltage
14, 15	–	–	–
16	Output to accessory socket 1	Ignition switch: ACC	Battery positive voltage
17	Output to luggage compartment light	When luggage compartment light is illuminated	Battery positive voltage
18	Output to rear turn-signal light (LH)	When rear turn-signal light (LH) is illuminated	Battery positive voltage
19	Output to rear turn-signal light (RH)	When rear turn-signal light (RH) is illuminated	Battery positive voltage
20	–	–	–

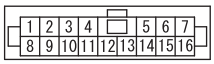
CONNECTOR: C-312



AC507034AB

Terminal No.	Check item	Check condition	Normal condition
1	Input from brake fluid level switch	Brake fluid level switch: ON	1 volt or less
2	Output to radiator fan relay	When radiator fan is operating	1 volt or less
3	–	–	–
4	Output to fog lights	Fog light switch: ON	1 volt or less
5	–	–	–
6	Output to headlight (LO)	Headlight switch: ON	1 volt or less
7	Input from ambient temperature sensor	Always	0.2 –2.72 volts
8	Output to condenser fan relay	When condenser fan is operating	1 volt or less
9	Output to fan control relay	When fan control is operating	1 volt or less
10	Output to daytime running light	Ignition switch: ON	1 volt or less
11	Output to horn	When horn sounds	1 volt or less
12	–	–	–
13	Output to Headlight (HI)	Dimmer switch: ON	1 volt or less
14	Ground (ambient temperature sensor)	Always	1 volt or less
15	–	–	–
16	Input from stoplight switch	Stoplight switch: ON	Battery positive voltage

CONNECTOR: C-313



AC610017

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Ignition switch (IG1) power supply	Ignition switch: ON	Battery positive voltage
3	–	–	–
4	Ignition switch (IG1) power supply	Ignition switch: ON	Battery positive voltage
5	Input from trunk lid actuator and switch	Trunk lid actuator and switch: ON (trunk lid open)	1 volt or less
6	–	–	–
7	Input from rear door switch (LH)	Rear door switch (LH): ON (door open)	1 volt or less

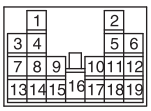
Terminal No.	Check item	Check condition	Normal condition
8	Input from rear door switch (RH)	Rear door switch (RH): ON (door open)	1 volt or less
9–11	–	–	–
12	Input from front door switch (RH)	Front door switch (RH): ON (door open)	1 volt or less
13–15	–	–	–
16	Input from front door switch (LH)	Front door switch (LH): ON (door open)	1 volt or less

CONNECTOR: C-314

AC507037AB

Terminal No.	Check item	Check condition	Normal condition
1	Output to fuel pump	Engine: Started	Battery positive voltage
2	–	–	–

CONNECTOR: C-315



AC507029AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Output to front door lock actuator (LH) (unlock)	When front door (LH) is unlocked	Battery positive voltage
3	–	–	–
4	Battery power supply	Always	Battery positive voltage
5	Output to front door lock actuator (RH) (unlock)	When front door (RH) is unlocked	Battery positive voltage
6	Output to central door locking (for locking the doors)	When the door lock actuators lock the doors	Battery positive voltage
7	Ignition switch (START) power supply	Ignition switch: START	Battery positive voltage
8	Power window motor power supply	Ignition switch: ON	Battery positive voltage
9	Ignition switch (ACC) power supply	Ignition switch: ACC	Battery positive voltage
10	Power window main switch power supply	Ignition switch: ON	Battery positive voltage

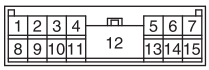
Terminal No.	Check item	Check condition	Normal condition
11	Output to accessory socket 2	Ignition switch: ACC	Battery positive voltage
12	Output to accessory socket 3	Ignition switch: ACC	Battery positive voltage
13	Input from key reminder switch	Key reminder switch: ON (ignition key removed)	1 volt or less
14	–	–	–
2	Input from power window main switch or front power window sub switch (central door lock switch)	Central door lock switch: Unlocked	1 volt or less
16	Output to blower motor	Blower motor in operation	Battery positive voltage
17	Ground (signal)	Always	1 volt or less
18	Output to ignition key cylinder illumination light	When ignition key cylinder illumination is ON	Battery positive voltage
19	Input from horn switch	Horn switch: ON	1 volt or less

CONNECTOR: C-316

AC507038AB

Terminal No.	Check item	Check condition	Normal condition
1	–	–	–
2	Sunroof motor assembly power supply	Always	Battery positive voltage
3, 4	–	–	–
5	Input from dome light	When dome light is illuminated	1 volt or less
6	Output to dome light output	When dome light is illuminated	Battery positive voltage

CONNECTOR: C-317



AC507028AB

Terminal No.	Check item	Check condition	Normal condition
1	Battery power supply	Always	Battery positive voltage
2	Battery power supply	Always	Battery positive voltage
3, 4	–	–	–
5	Ignition switch (IG1) power supply	Ignition switch: ON	Battery positive voltage
6	Input from ignition switch (IG1)	Ignition switch: ON	Battery positive voltage
7	Input from ignition switch (ACC)	Ignition switch: ACC	Battery positive voltage
8	–	–	–
9	Output to theft-alarm indicator light	When theft-alarm indicator light is illuminated	1 volt or less
10	Battery power supply	Always	Battery positive voltage
11–14	–	–	–
15	Ground	Always	1 volt or less

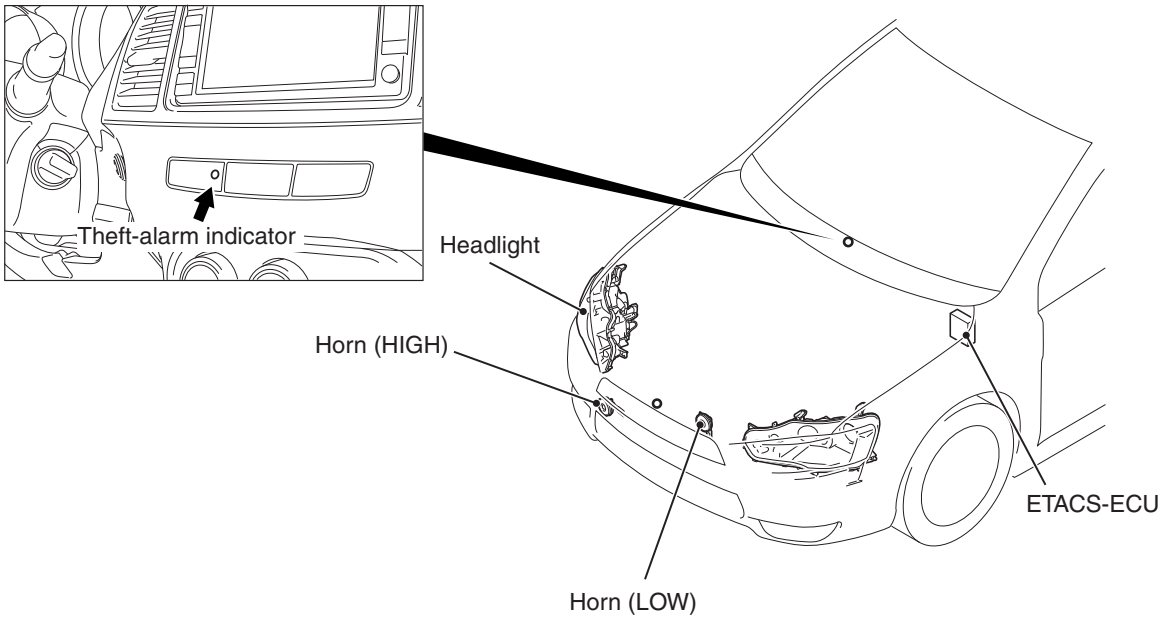
THEFT ALARM

GENERAL INFORMATION

M1547000100281

When the doors are locked using the keyless entry function or KOS (except when locked by using the key cylinder or door lock switch), the improper opening of door or liftgate causes the ETACS-ECU function and control to give off an alarm with the flashing of headlights and the intermittent sounding of horns [horn (HIGH, LOW) and theft-horn]. Also, the ETACS-ECU warns that the theft-alarm system is being set by flashing the theft-alarm indicator.

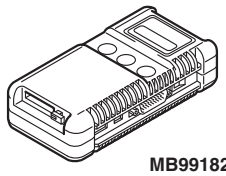
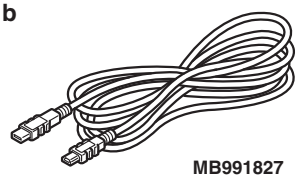
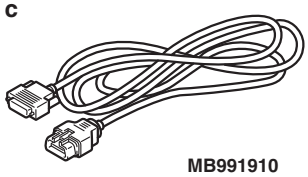
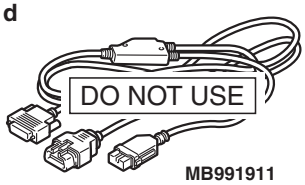
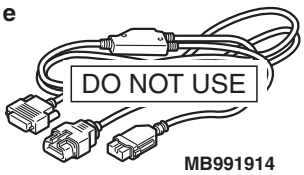
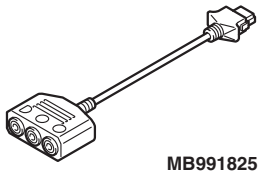
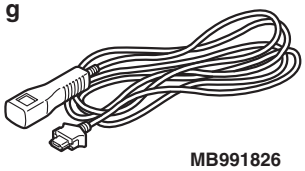
Construction diagram

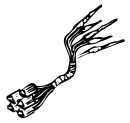
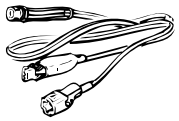
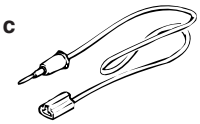
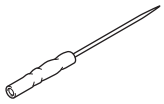


AC807523AE

SPECIAL TOOLS

M1547000600372

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** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** Reading diagnostic trouble code and data list.

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

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1547001200106

Refer to GROUP 00 –Contents of troubleshooting P.00-6.

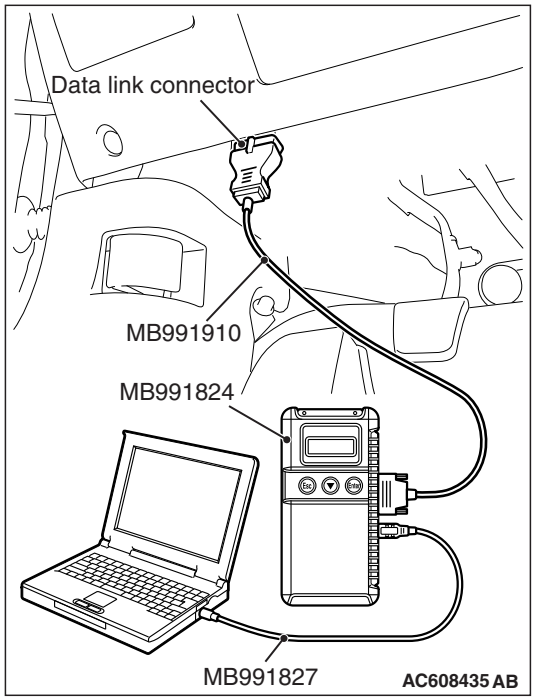
DIAGNOSTIC FUNCTION

M1547004200019

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

Required Special Tools:

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



⚠ CAUTION

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

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

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code." to read the DTC.
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

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HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

TROUBLE SYMPTOM CHART

M1547001500549

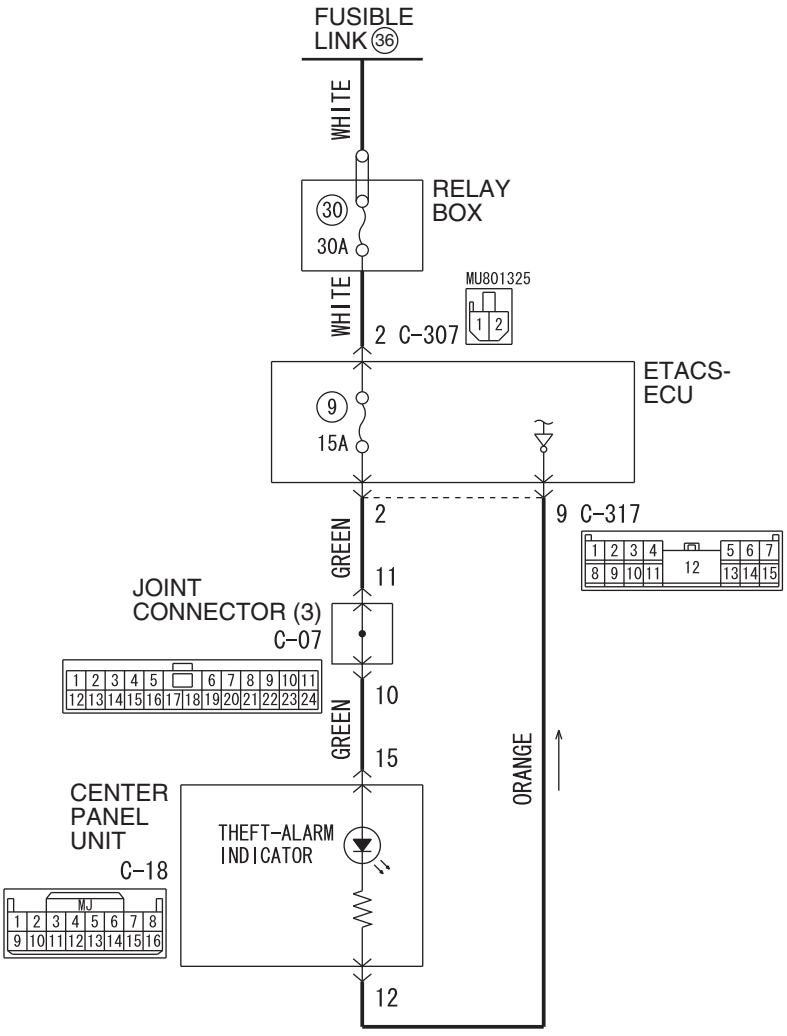
Trouble symptom	Inspection Procedure No.	Reference page
The theft-alarm is not armed (the theft-alarm indicator does not illuminate).	1	P.54A-782
The interior alarm does not work normally while the theft-alarm is triggered.	2	P.54A-788
Horns do not normally sound while the theft-alarm system is triggered.	3	P.54A-790

SYMPTOM PROCEDURES

Inspection Procedure 1: The theft-alarm is not armed (the theft-alarm indicator does not illuminate).

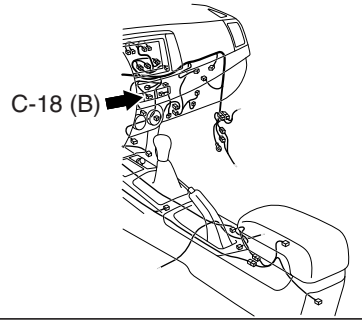
⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Theft-alarm Indicator Circuit

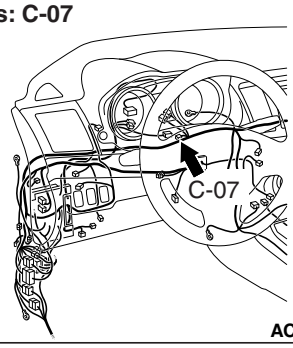


WAS54M018A

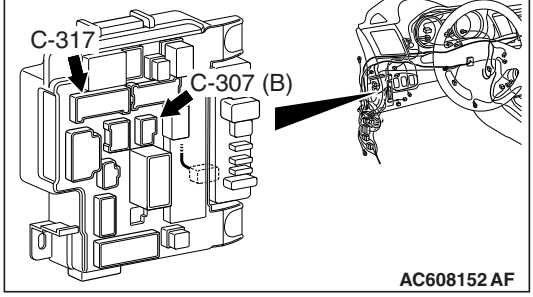
Connectors: C-18



Connectors: C-07



Connectors: C-307, C-317
Junction block



TECHNICAL DESCRIPTION (COMMENT)

If this function does not work normally, the input signal circuits to the components below, the theft-alarm indicator, the ETACS-ECU or the CAN bus line may have a problem.

- Keyless entry transmitter
- Key reminder switch
- Door switches
- Liftgate switch

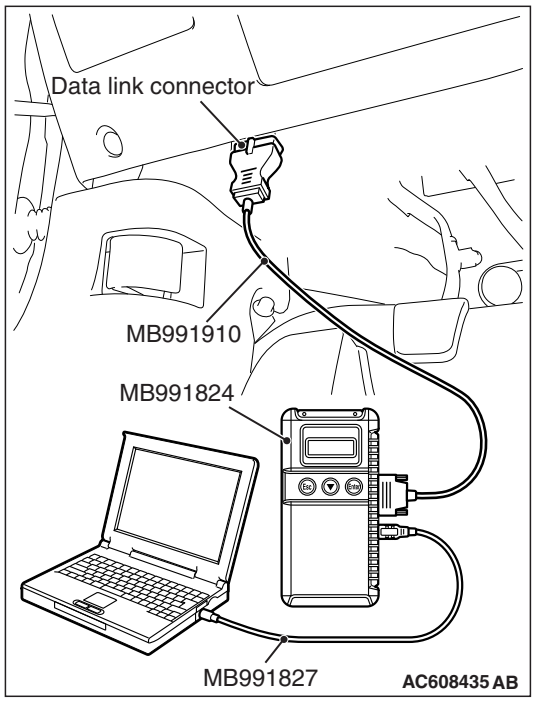
TROUBLESHOOTING HINTS

- CAN bus line may be defective
- Theft-alarm indicator may be defective
- Keyless entry transmitter may be defective
- The key reminder switch may be defective
- Door switch may be defective
- Liftgate switch may be defective
- The KOS-ECU may be defective
- The WCM may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-779."
(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-16).

STEP 2. Using scan tool MB991958, check for any diagnostic trouble code.

Check if DTC is set to the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM>.
(1) Turn the ignition switch to the "ON" position.
(2) Check whether the KOS or WCM related DTC is set.
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-31).
YES <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-18).
NO : Go to Step 3.

STEP 3. Check the keyless operation key <KOS> or keyless entry transmitter <WCM>.

Q: is the keyless operation key <KOS> or keyless entry transmitter <WCM> normally?

YES : Go to Step 4.
NO <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-31).
NO <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-18).

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STEP 4. Using scan tool MB991958, check data list.

Use the ETACS-ECU data list to check the signals related to the theft-alarm function.

- Turn the ignition switch to the "ACC" position.
- Open each door.
- Open the liftgate.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Open
Item 257	As door ajar switch	Open
Item 258	RR door ajar switch	Open
Item 259	RL door ajar switch	Open
Item 260	Trunk/gate trunk ajar switch	Open
Item 264	Handle lock switch	Key in
Item 288	ACC switch	ON

- Close each door.
- Close the liftgate.

Item No.	Item name	Normal condition
Item 256	Dr door ajar switch	Close
Item 257	As door ajar switch	Close
Item 258	RR door ajar switch	Close
Item 259	RL door ajar switch	Close
Item 260	Trunk/gate trunk ajar switch	Close

- Turn the ignition switch to the "LOCK" (OFF) position (keep the ignition key <vehicles with WCM> or emergency key <vehicles with KOS> removed).

Item No.	Item name	Normal condition
Item 264	Handle lock switch	Key out
Item 288	ACC switch	OFF

Q: Does scan tool MB991958 display the items "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch" , "Handle lock switch" and "ACC switch" as normal condition?

YES <Normal conditions are displayed for all items.> : Go to Step 5.

NO <Normal condition is not displayed for item No. 256.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" P.54A-747.

NO <Normal condition is not displayed for item No. 257.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" P.54A-749.

NO <Normal condition is not displayed for item No. 258.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" P.54A-752.

NO <Normal condition is not displayed for item No. 259.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" P.54A-754.

NO <Normal condition is not displayed for item No. 260.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 9 "ETACS-ECU does not receive any signal from the liftgate switch P.54A-757.

NO <Normal condition is not displayed for item No. 264.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 3 "ETACS-ECU does not receive any signal from key reminder switch" P.54A-737.

NO <Normal condition is not displayed for item No. 288.> : Troubleshoot the ETACS-ECU. Refer to diagnosis - Inspection Procedure 1 "ETACS-ECU does not receive any signal from the ignition switch (ACC) signal" P.54A-731.

STEP 5. Check center panel unit connector C-18 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is center panel unit connector C-104 in good condition?

YES : Go to Step 6.

NO : Repair the damaged parts.

STEP 6. Check the theft-alarm indicator.

Q: Is the theft-alarm indicator in good condition?

YES : Go to Step 7.
NO : Replace the center panel unit.

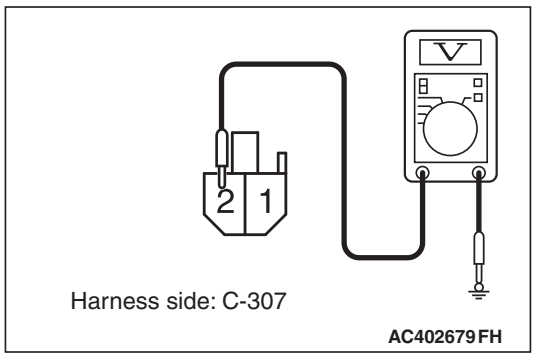
STEP 7. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is the ETACS-ECU connector C-307 in good condition?

YES : Go to Step 8.
NO : Repair the damaged parts.

STEP 8. Measure the voltage at ETACS-ECU connector C-307.

(1) Disconnect ETACS-ECU connector C-307, and measure the voltage wiring harness side.
(2) Measure the voltage between ETACS-ECU connector-307 (terminal No. 2) and the body ground.
- The voltage should measure approximately 12 volts (battery positive voltage).



Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 10.
NO : Go to Step 9.

STEP 9. Check the Wiring harness between ETACS-ECU connector C-307 (terminal No. 2) and fusible link (36).

- Check the power supply line for open circuit and short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness between ETACS-ECU connector C-307 and fusible link (36).

STEP 10. Check ETACS-ECU connector C-317 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-317 in good condition?

YES : Go to Step 11.
NO : Repair the damaged parts.

STEP 11. Check the Wiring harness between ETACS-ECU connector C-317 (terminal No. 2,9) and center panel unit connector C-104 (terminal No. 15,12).

- Check the input/output lines for open circuit and short circuit.

NOTE: Also check the joint connector C-07 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If the joint connector C-07 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the check result normal?

YES : Go to Step 12.
NO : Repair the wiring harness between ETACS-ECU connector C-317 and center panel unit connector C-104.

STEP 12. Retest the system.

Q: Does the theft-alarm work normally?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

Inspection Procedure 2: The interior alarm does not work normally while the theft-alarm is triggered.

⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

TECHNICAL DESCRIPTION (COMMENT)

If the interior alarm does not work normally, the input signal circuits to the components below, ETACS-ECU, or combination meter built-in tone alarm may have a problem.

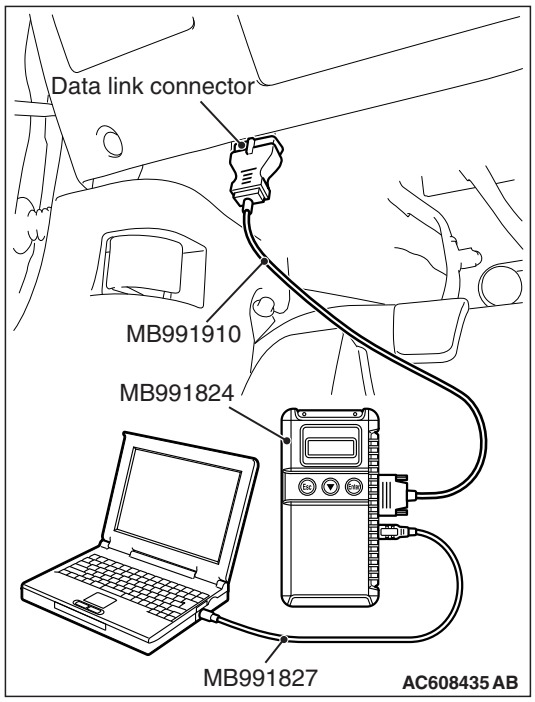
TROUBLESHOOTING HINTS

- The CAN bus line may be defective
- The ETACS-ECU may be defective
- Combination meter may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-779."
(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-16).

STEP 2. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU (Refer to P.54A-674).
NO : Go to Step 3.

STEP 3. Using scan tool MB991958, check actuator test.

(1) Connect scan tool MB991958 to the data link connector.
(2) Turn the ignition switch to the "ON" position.
(3) Set scan tool MB991958 to the actuator test mode.
- Item 12: Buzzer

(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the check result normal?

YES : Go to Step 4.
NO : Replace the combination meter.

STEP 4. Retest the system.

Check that the theft-alarm works normally.

Q: Does the theft-alarm work normally?

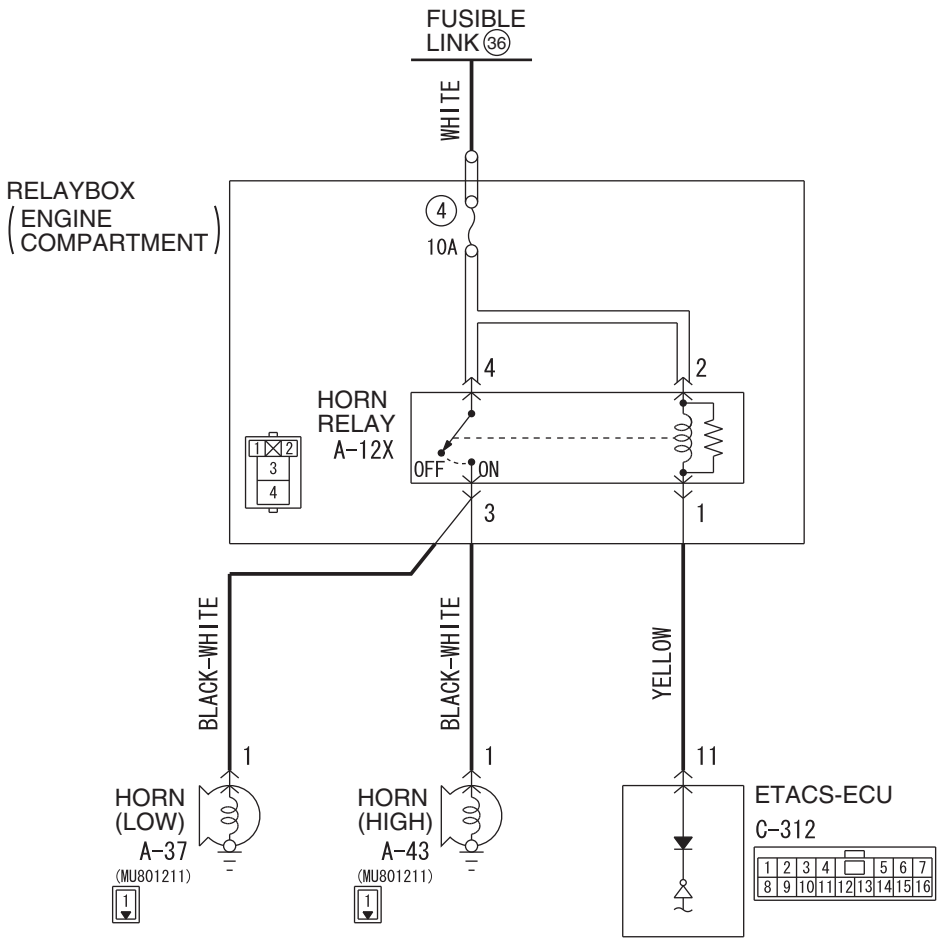
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).
NO : Replace the ETACS-ECU.

TSB Revision

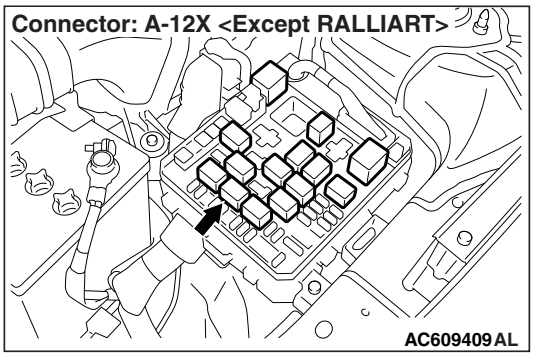
Inspection Procedure 3: Horns do not normally sound while the theft-alarm system is triggered.

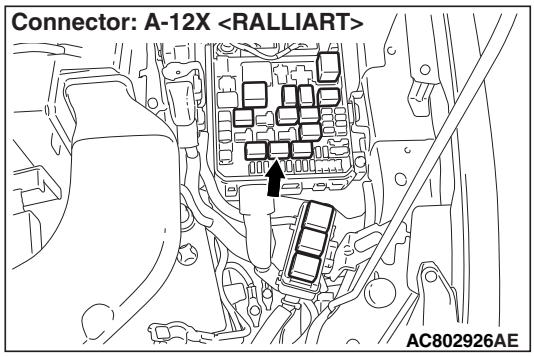
⚠ CAUTION
Before replacing the ECU, ensure that the power supply circuit, the ground circuit and the communication circuit are normal.

Horn Circuit



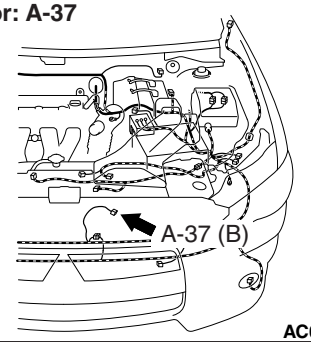
W8G54M026A



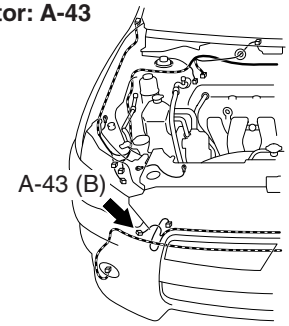


TSB Revision

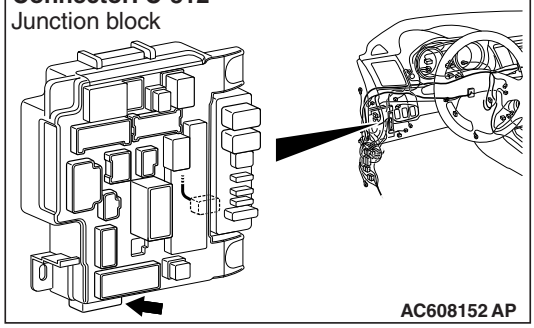
Connector: A-37



Connector: A-43



Connector: C-312
Junction block



TECHNICAL DESCRIPTION (COMMENT)

If horns do not sound, the horn input signal circuit or the ETACS-ECU may be defective.

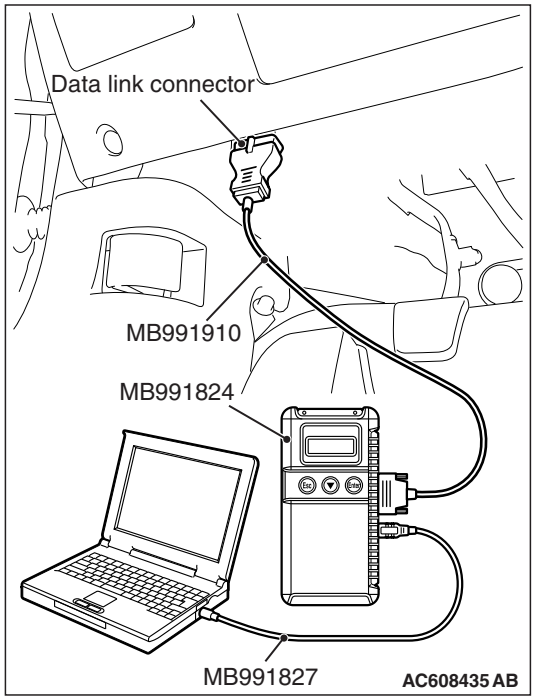
TROUBLESHOOTING HINTS

- Horns may be defective
- Horn relay may be defective
- The ETACS-ECU may be defective
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)



STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect scan too (M.U.T.-III) P.54A-779."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the ETACS-ECU related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES : Diagnose the ETACS-ECU. Refer to P.54A-674.
NO : Go to Step 2.

STEP 2. Check horn relay connector A-12X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn relay connector A-12X in good condition?

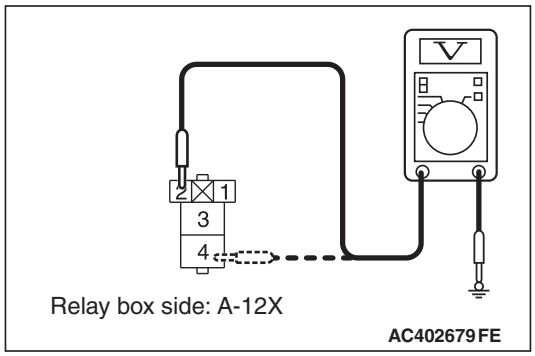
YES : Go to Step 3.
NO : Repair the damaged parts.

STEP 3. Check the horn relay.

Refer to P.54A-795.

Q: Is the horn relay in good condition

YES : Go to Step 4.
NO : Replace the theft-alarm horn relay.



STEP 4. Measure the voltage at horn relay A-12X.

(1) Remove the relay, and measure at the relay box side.
(2) Measure the voltage between horn relay connector A-12X (terminal No. 2,4) and the body ground.
- The voltage should measure approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts (battery positive voltage)?

YES : Go to Step 6.
NO : Go to Step 5.

STEP 5. Check the Wiring harness between theft-alarm horn relay connector A-12X (terminal No. 2,4) and fusible link (36).

Check the power supply lines for open circuit and short circuit.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).
NO : Repair the wiring harness between horn relay connector A-12X and fusible link (36).

STEP 6. Check ETACS-ECU connector C-312 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-312 in good condition?

YES : Go to Step 7.
NO : Repair the damaged parts.

STEP 7. Check the Wiring harness between theft-alarm horn relay connector A-12X (terminal No. 1) and ETACS-ECU connector C-312 (terminal No. 11).

Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 8.
NO : Repair the wiring harness between horn relay connector A-12X and ETACS-ECU connector C-312.

STEP 8. Check horn (HIGH) connector A-43 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is Horn (HIGH) connector A-43 in good condition?

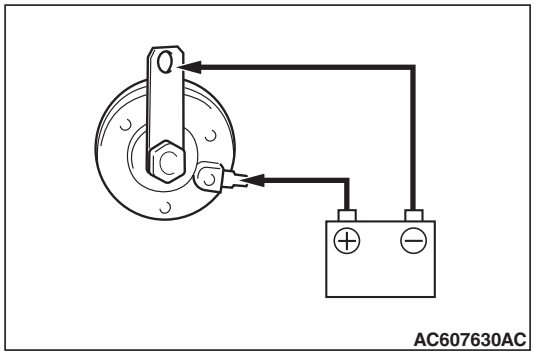
YES : Go to Step 9.
NO : Repair the damaged parts.

STEP 9. Check the Wiring harness between horn (HIGH) connector A-43 (terminal No. 1) and horn relay connector A-12X (terminal No. 3).
Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 10.
NO : Repair the wiring harness between horn (HIGH) connector A-43 and horn relay connector A-12X.

STEP 10. Check the horn (HIGH) work normally.
Connect the battery as shown, and verify that the horn sounds.



Q: Is the check result normal?

YES : Go to Step 11.
NO : Replace the horn (HIGH), and go to Step 11.

STEP 11. Check horn (LOW) connector A-37 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is Horn (LOW) connector A-37 in good condition?

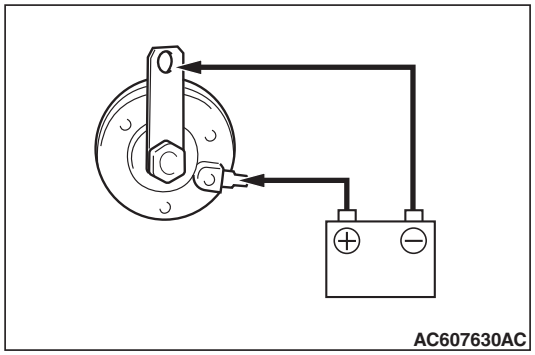
YES : Go to Step 12.
NO : Repair the damaged parts.

STEP 12. Check the Wiring harness between horn (LOW) connector A-37 (terminal No. 1) and horn relay connector A-12X (terminal No. 3).
Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES : Go to Step 13.
NO : Repair the wiring harness between horn (LOW) connector A-37 and horn relay connector A-12X.

STEP 13. Check the horn (LOW) work normally.
Connect the battery as shown, and verify that the horn sounds.



Q: Is the check result normal?

YES : Go to Step 14.
NO : Replace the horn (LOW), and go to Step 14.

STEP 14.Retest the theft-alarm system.

Q: Does the theft-alarm system work normally?

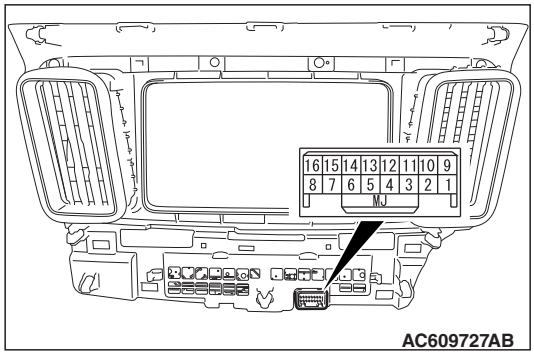
YES : he trouble can be an intermittent malfunction (Refer to GROUP 00, How to use Troubleshooting/inspection Service Points –How to Cope with Intermittent Malfunction P.00-13).

NO : Replace the ETACS-ECU.

INSPECTION

THEFT-ALARM INDICATOR CHECK

M1547001100187



1. Remove the center panel.
2. Connect the battery (+) terminal with the center panel connector (terminal No. 15). Then, check if the theft-alarm indicator is illuminated when the battery (–) terminal and the center panel connector (terminal No. 12) are connected.
3. If the theft-alarm indicator is illuminated, it is judged good.

PANIC ALARM

GENERAL INFORMATION

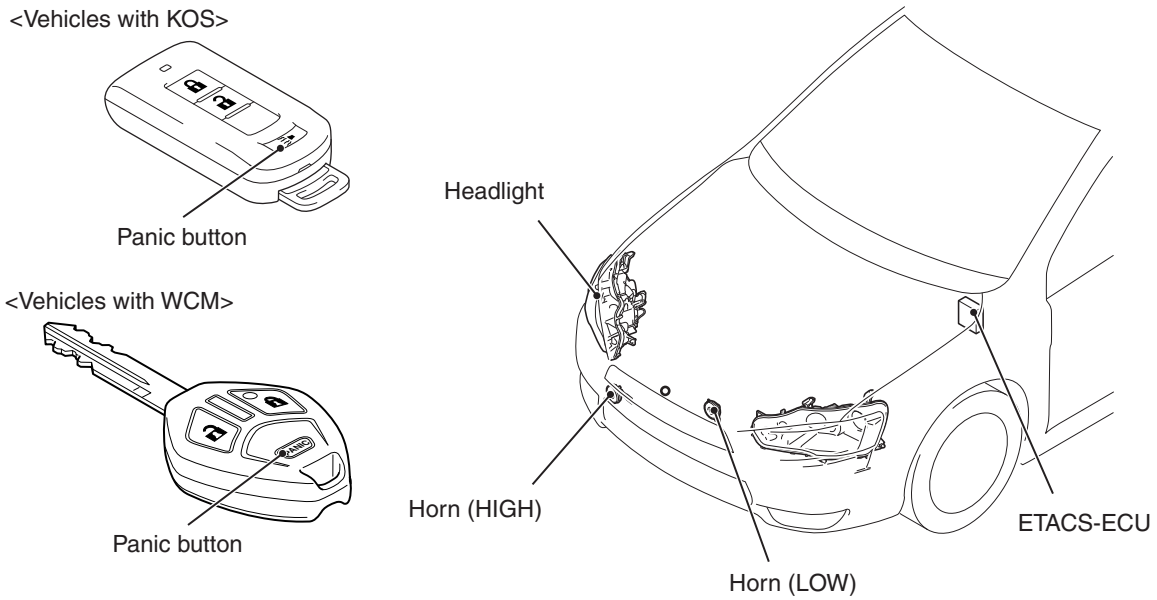
M1547000100292

If danger is perceived near the vehicle and if the ignition switch is in the OFF position or the key has been removed, press the panic button on the ignition key or the keyless operation key for one second, then the headlights flash and the horn sounds for approximately 3 minutes.

Panic alarm system operation table

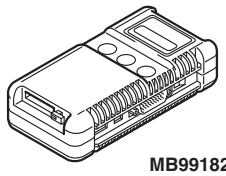
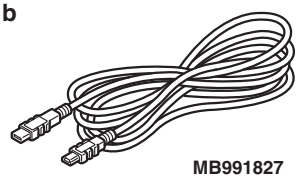
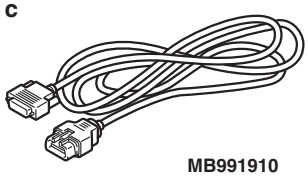
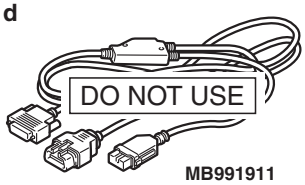
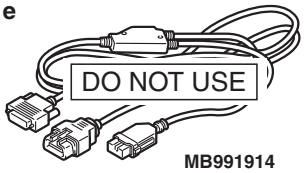
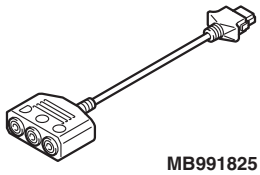
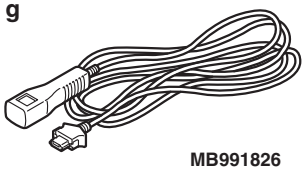
Operation of keyless operation key or ignition key		System operation
Panic button	Press once (press and hold for 1 second)	Starts the panic alarm (headlights flash and horn honks for abut three minutes)
Lock button, Unlock button, Trunk button, Panic button	Press again	Stops the panic alarm in progress

Construction diagram



SPECIAL TOOLS

M1547000600383

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** **M.U.T.-III main harness A (MB991910) should be used. M.U.T.-III main harness B and C should not be used for this vehicle.** Reading diagnostic trouble code and data list.

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

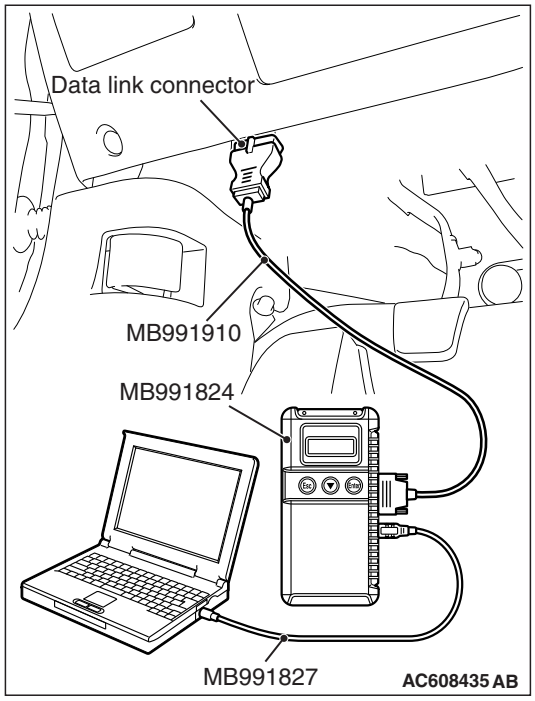
M1547001200184

Refer to GROUP 00 –Contents of troubleshooting
P.00-6.

DIAGNOSIS FUNCTION

M1547004200020

HOW TO CONNECT THE SCAN TOOL (M.U.T.-III)



Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

1. Ensure that the ignition switch is at the "LOCK" (OFF) position.
2. Start up the personal computer.
3. Connect special tool MB991827 to special tool MB991824 and the personal computer.
4. Connect special tool MB991910 to special tool MB991824.
5. Connect special tool MB991910 to the data link connector.
6. Turn the power switch of special tool MB991824 to the "ON" position.

   NOTE: When special tool MB991824 is energized, special tool MB991824 indicator light will be illuminated in a green color.
7. Start the M.U.T.-III system on the personal computer.

NOTE: Disconnecting scan tool MB991958 is the reverse of the connecting sequence, making sure that the ignition switch is at the "LOCK" (OFF) position.

HOW TO READ AND ERASE DIAGNOSTIC TROUBLE CODES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

NOTE: If the battery voltage is low, diagnostic trouble codes will not be set. Check the battery if scan tool MB991958 does not display.

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "System select" from the start-up screen.
4. Select "From 2006 MY" of "Model Year." When the "Vehicle Information" is displayed, check the contents.
5. Select "ETACS" from "System List", and press the "OK" button.

   NOTE: When the "Loading Option Setup" list is displayed, check the applicable item.
6. Select "Diagnostic Trouble Code."
7. If a DTC is set, it is shown.
8. Choose "Erase DTCs" to erase the DTC.

HOW TO DIAGNOSE THE CAN BUS LINES

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)

1. Connect scan tool MB991958 to the data link connector.
2. Turn the ignition switch to the "ON" position.
3. Select "CAN bus diagnosis" from the start-up screen.
4. When the vehicle information is displayed, confirm that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
5. Select the "view vehicle information" button.
6. Enter the vehicle information and select the "OK" button.
7. When the vehicle information is displayed, confirm again that it matches the vehicle being diagnosed.
   - If they match, go to Step 8.
   - If not, go to Step 5.
8. Select the "OK" button.
9. When the optional equipment screen is displayed, choose the one which the vehicle is fitted with, and then select the "OK" button.

TROUBLE SYMPTOM CHART

M1547001500282

Trouble symptom	Reference page
Panic alarm does not work normally.	P.54A-782

SYMPTOM PROCEDURES

Panic alarm does not work normally.

TECHNICAL DESCRIPTION (COMMENT)

If keyless operation system <KOS> or keyless entry system <WCM> is normal, the ETACS-ECU may be defective.

TROUBLESHOOTING HINTS

- Keyless operation system <KOS> or keyless entry system <WCM> may be defective
- The ETACS-ECU may be defective
- Function is not set with the customization.

DIAGNOSIS

Required Special Tools:

- MB991958 Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827 M.U.T.-III USB Cable
  - MB991910 M.U.T.-III Main Harness A (Vehicles with CAN communication system)

STEP 1. Check if the theft-alarm is normally set and the exterior protection can be executed.

Check that the theft-alarm works normally.

Q: Does the theft-alarm work normally?

YES : Go to Step 2.
NO : Troubleshoot the theft-alarm (Refer to P.54A-781).

STEP 2. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the KOS-ECU <Vehicles with KOS> or WCM <Vehicles with WCM>.

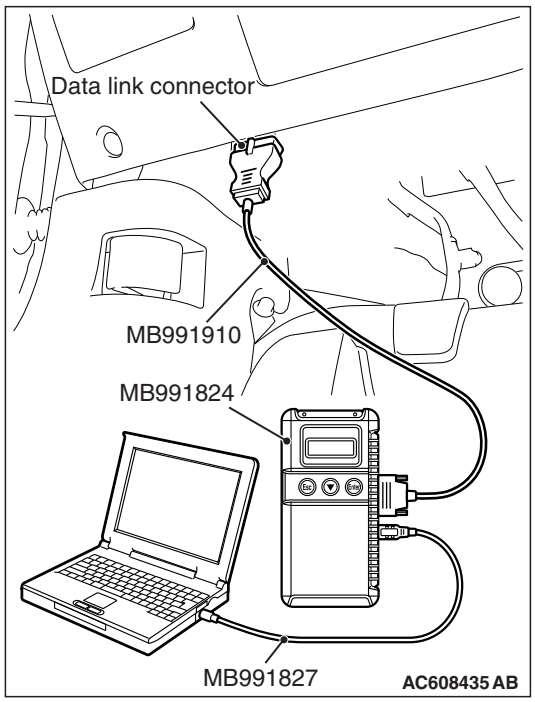
⚠ CAUTION

To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the scan tool (M.U.T.-III) P.54A-798."
(2) Turn the ignition switch to the "ON" position.
(3) Check whether the KOS or WCM related DTC is set.
(4) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the DTC set?

YES <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-31).
YES <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-18).
NO : Go to Step 3.



STEP 3. Check keyless operation system <KOS> or keyless entry system <WCM>.

Check that the doors can be open by keyless operation key <KOS> or keyless entry transmitter <WCM>.

Q: Do keyless operation system <KOS> or keyless entry system <WCM> work normally?

YES : Go to Step 4.
NO <vehicles with KOS> : Troubleshoot the KOS (Refer to GROUP 42B, KOS P.42B-136).
NO <vehicles with WCM> : Troubleshoot the WCM (Refer to GROUP 42C, WCM P.42C-84).

STEP 4. Using scan tool MB991958, check the customization function.

(1) Turn the ignition switch to the "ON" position.
(2) Use the ETACS-ECU customization function to check that the "Panic alarm switch" is set to "Enable".
(3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the "Panic alarm switch" set to "Enable"?

YES : Replace the ETACS-ECU.
NO : Use the ETACS-ECU customization function to set the "Panic alarm switch" to "Enable"(Refer to P.54A-802).

ON-VEHICLE SERVICE

CUSTOMIZE FUNCTION

M1547003400214

By operating the ETACS system or MMCS of scan tool MB991958, the following functions can be programmed. The programmed information is held even when the battery is disconnected.

Adjustment item (scan tool display)	Adjustment item	Adjustment contents (scan tool display)	Adjusting contents
Panic alarm switch	With/without panic alarm function	Disable	Without function
		Enable	With function (default)

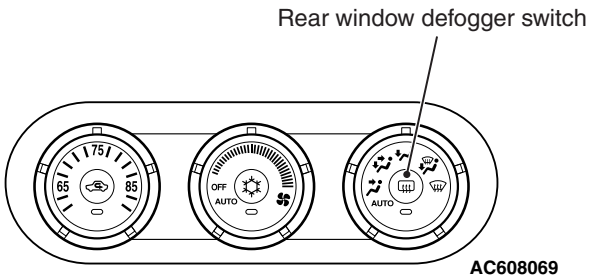
DEFOGGER

GENERAL INFORMATION

M1540500000051

The rear window defogger has been established to the rear window glass. To prevent battery discharge, A/C-ECU controls the rear window defogger to be automatically turned off 20 minutes after the rear window defogger switch is turned ON. (Only when engine is running)

<Vehicles for USA, PUERTO RICO, GUAM and SAIPAN>



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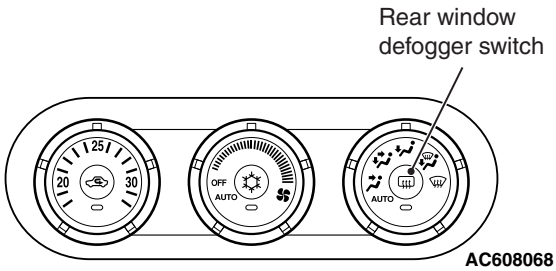
<Vehicles for CANADA>



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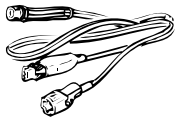
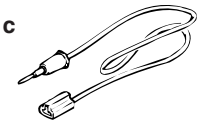
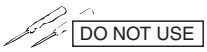
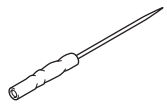
SPECIAL TOOLS

M1547000600264

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

TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540500700016

Refer to GROUP 00 –Contents of troubleshooting P.00-6.

SYMPTOM CHART

M1540500800013

⚠ CAUTION

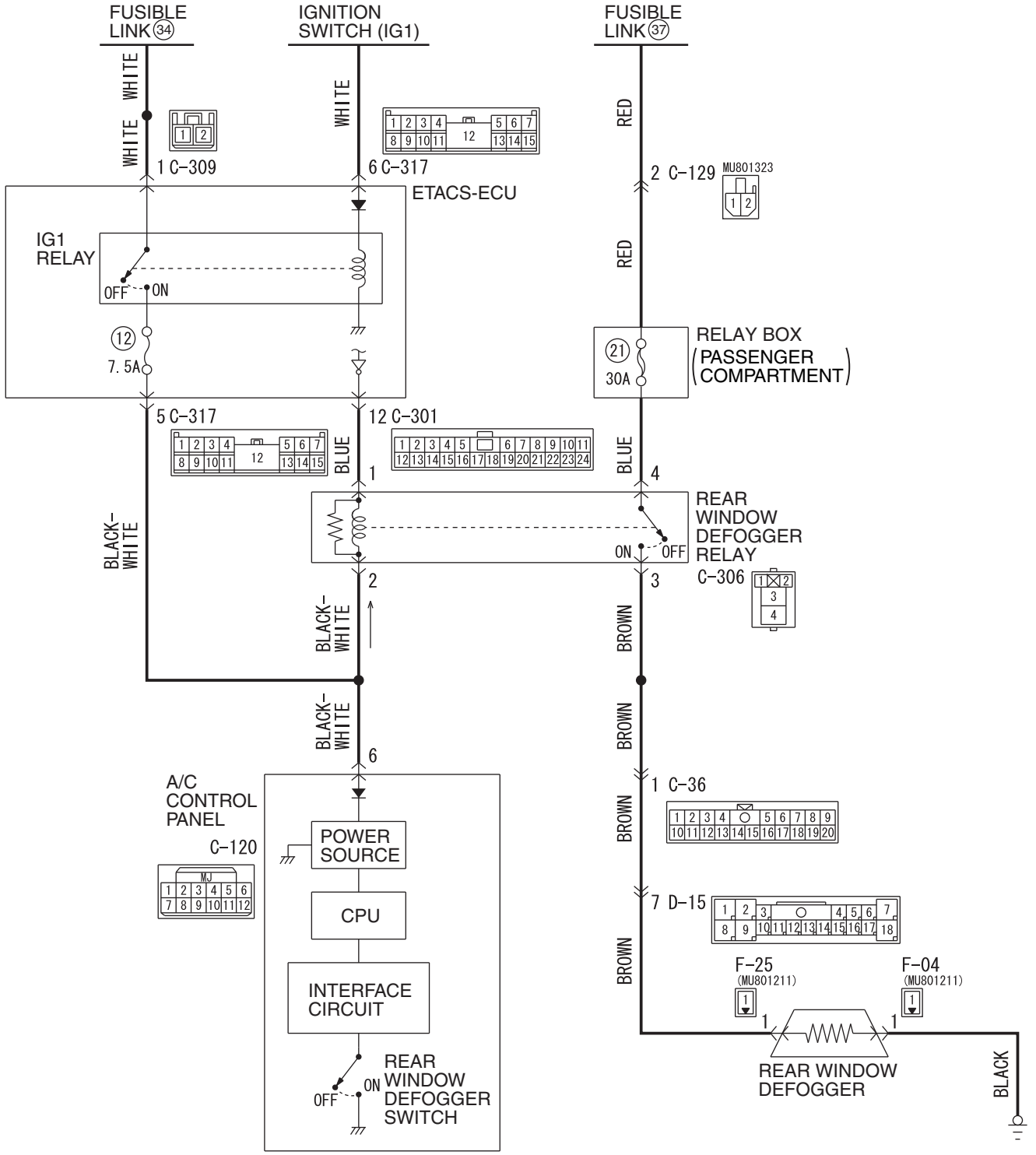
During diagnosis, a DTC code associated with other system may be set when the ignition switch is turned on with connector(s) disconnected. On completion, confirm all systems for DTC code(s). If DTC code(s) are set, erase them all.

Symptom	Reference page
Rear window defogger does not operate.	P.54A-805

SYMPTOM PROCEDURES

Rear window defogger does not operate.

Rear Window Defogger Circuit



WAS54M021A

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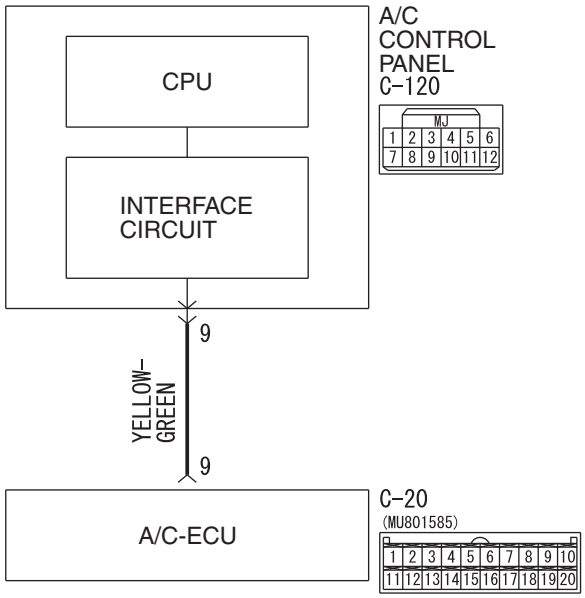
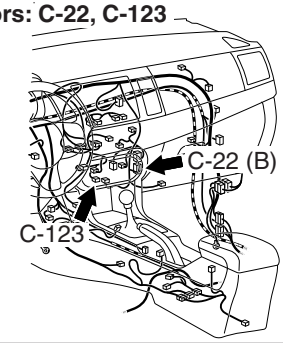
A/C Control Panel Circuit



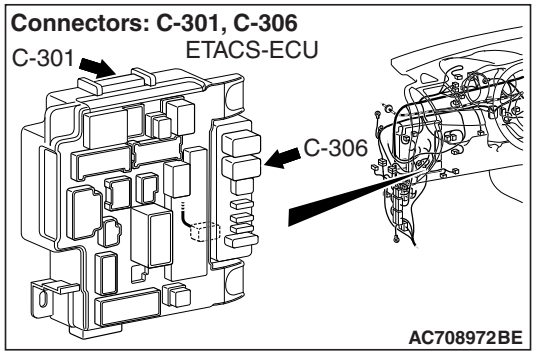
WAS54M020A

Connectors: C-22, C-123



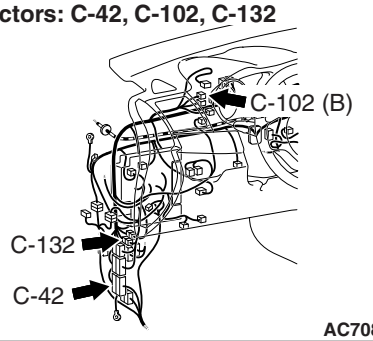
AC708951AJ

Connectors: C-301, C-306



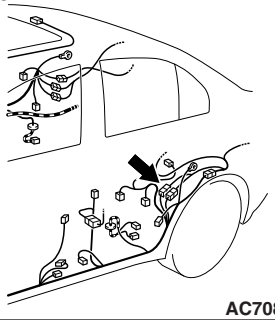
AC708972BE

Connectors: C-42, C-102, C-132



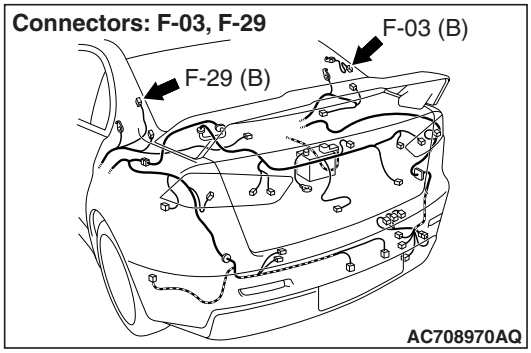
AC708950BN

Connector: D-16



AC708955AD

TSB Revision



TECHNICAL DESCRIPTION (COMMENT)

The rear window defogger is able to turn on while engine is running. If the defogger does not operate when the rear window defogger switch is turned on, the rear window defogger relay system may be defective.

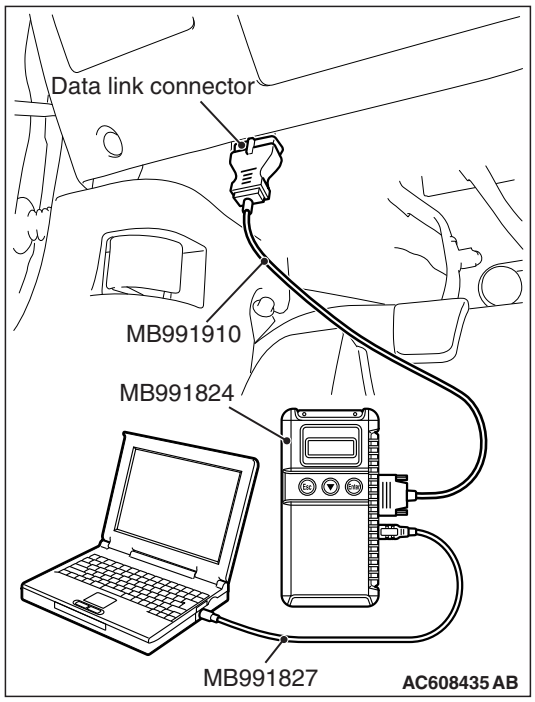
TROUBLESHOOTING HINTS

- The A/C-ECU may be defective.
- The rear window defogger relay may be defective.
- The A/C control panel may be defective.
- The ETACS-ECU may be defective.
- Damaged harness wires or connectors

DIAGNOSIS

Required Special Tools:

- MB991958: Scan Tool (M.U.T.-III Sub Assembly)
  - MB991824: Vehicle Communication Interface (V.C.I.)
  - MB991827: M.U.T.-III USB Cable
  - MB991910: M.U.T.-III Main Harness A (Vehicles with CAN communication system)
- MB991223: Harness Set
- MB992006: Extra Fine Probe



STEP 1. Using scan tool MB991958, diagnose the CAN bus line.

⚠ CAUTION
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

(1) Connect scan tool MB991958. Refer to "How to connect the Scan Tool (M.U.T.-III) P.54A-671."
(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-16).

STEP 2. Check the A/C and outside/inside air selection damper control motor operation.

(1) Turn the ignition switch to the "ON" position.
(2) Check the engine running.
(3) Check the operations of outside/inside air selection damper control motor and A/C.

Q: Do the A/C and outside/inside air selection damper control motor work normally?

YES : Go to Step 3.
NO : Refer to GROUP 55 - Inspection procedure 2, "Malfunction of the A/C-ECU power supply system P.55-71."

STEP 3. Using scan tool MB991958, read the A/C-ECU diagnostic trouble code.

Check that the A/C-ECU has not set a DTC.

Q: Is the DTC set?

YES : Carry out the DTC procedures. Refer to GROUP 55 - Diagnosis P.55-9.
NO : Go to Step 4.

STEP 4. Using scan tool MB991958, read the ETACS-ECU diagnostic trouble code.
Check that the ETACS-ECU has not set a DTC.

Q: Is the DTC set?

YES : Carry out the DTC procedures. Refer to P.54A-674.
NO : Go to Step 5.

STEP 5. Using scan tool MB991958, check data list.
Use the A/C-ECU data list to check the signals related to the rear window defogger switch.

- Start the engine.
- Turn the rear window defogger switch from off to on.

Item No.	Item name	Normal conditions
Item 60	Rear defogger switch	OFF →ON

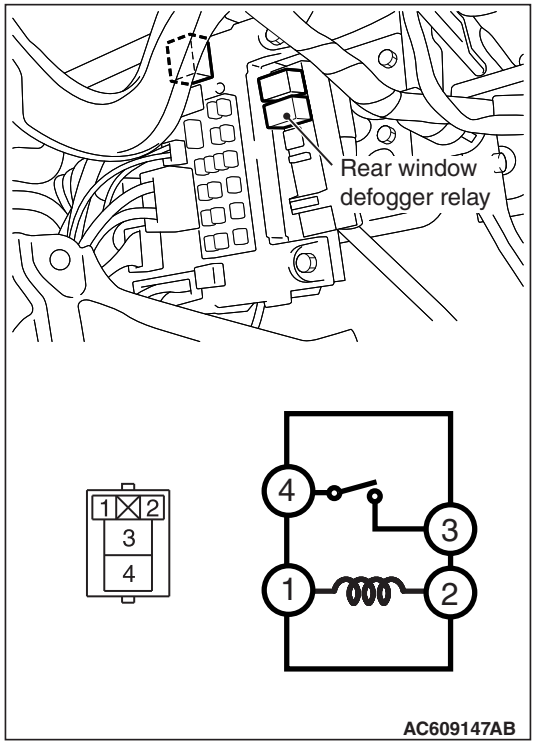
Q: Does scan tool MB991958 display the items "ON", and "OFF" as normal condition?

YES : Go to Step 6
NO : Replace the A/C control panel.

STEP 6. Check rear window defogger relay connector C-306 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is rear window defogger relay connector C-306 in good condition?

YES : Go to Step 7.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear window defogger system should work normally.



STEP 7. Check the rear window defogger relay continuity.
Follow the table below to check the rear window defogger relay for continuity.

Battery voltage	Terminal number	Normal condition
With no current applied	3 –4	No continuity
With current applied [terminal 1 (–), terminal 2 (+)]		Continuity exists (2 Ω or less)

Q: Is the rear window defogger relay in good condition?
YES : Go to Step 8.
NO : Replace the rear window defogger relay. The rear window defogger system should work normally.

STEP 8. Check rear window defogger connector F-25 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

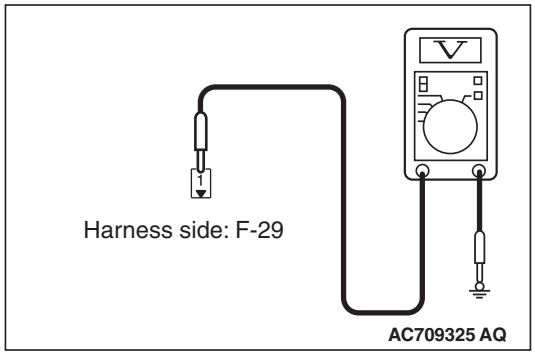
Q: Are rear window defogger connector F-25 in good condition?
YES : Go to Step 9.
NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear window defogger system should work normally.

STEP 9. Measure the voltage at rear window defogger connector F-25.

(1) Disconnect rear window defogger connector F-25, and measure the voltage at the harness side.
(2) Start the engine.
(3) Rear window defogger switch: ON (measure within 20 seconds after the switch is turned on)
(4) Measure the voltage between rear window defogger connector F-25 terminal No.1 and ground.
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 10.
NO : Go to Step 11.

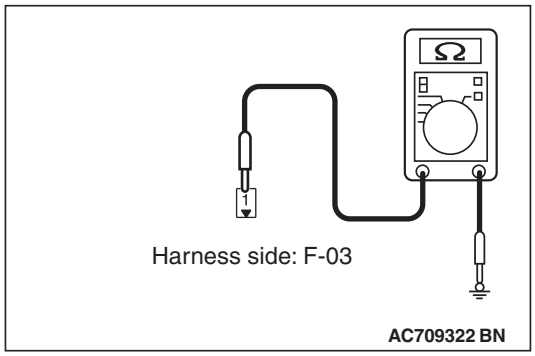


STEP 10. Measure the resistance at rear window defogger connector F-04.

(1) Disconnect rear window defogger connector F-04, and measure at the wiring harness side.
(2) Measure the resistance between terminal 1 and ground.
- The measured value should be 2 ohms or less.

Q: Does the measured resistance value correspond with this range?

YES : Go to Step 19.
NO : Repair the wiring harness. Check that the rear window defogger system works normally.

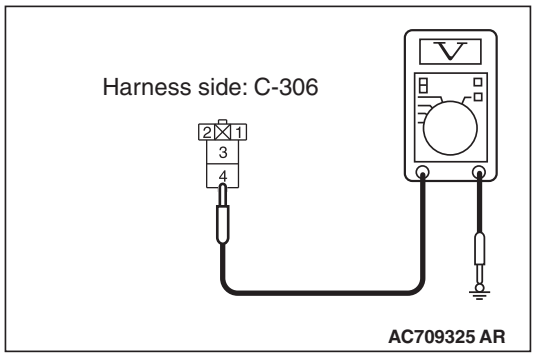


STEP 11. Measure the voltage at rear window defogger relay connector C-306.

(1) Disconnect rear window defogger relay connector C-306, and measure the voltage at the junction block side.
(2) Measure the voltage between terminal 4 and ground.
- The measured value should be approximately 12 volts (battery positive voltage).

Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 13.
NO : Go to Step 12.



STEP 12. Check the wiring harness between rear window defogger relay connector C-306 (terminal 4) and the fusible link (37).

NOTE: Also check intermediate connector C-132 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connector C-132 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

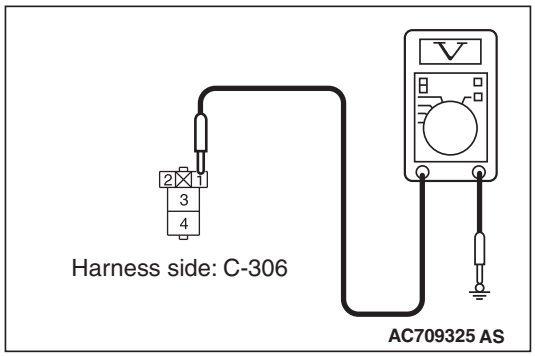
Q: Is the wiring harness between rear window defogger relay connector C-306(terminal 4) and the fusible link (37) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

NO : Repair the wiring harness. Check that the rear window defogger system works normally.

STEP 13. Measure the voltage at rear window defogger relay connector C-306.

(1) Disconnect rear window defogger relay connector C-306, and measure the voltage at the junction block side.
(2) Turn the ignition switch to the "ON" position.
(3) Measure the voltage between terminal 2 and ground.
- The measured value should be approximately 12 volts (battery positive voltage).



Q: Is the measured voltage approximately 12 volts?

YES : Go to Step 14.

NO : Go to Step 16.

STEP 14. Check ETACS-ECU connector C-301 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is ETACS-ECU connector C-301 in good condition?

YES : Go to Step 15.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 15. Check the wiring harness between rear window defogger relay connector C-306 (terminal 1) and ETACS-ECU C-301 (terminal 12).

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 1) and ETACS-ECU connector C-301 (terminal 12) in good condition?

YES : Go to Step 18.

NO : Repair the wiring harness. Check that the rear window defogger system works normally.

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STEP 16. Check A/C control panel connector C-120 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Are A/C control panel connector C-120 in good condition?

YES : Go to Step 17.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. The rear window defogger system should work normally.

STEP 17. Check the wiring harness between rear window defogger relay connector C-306 (terminal 2) and ETACS-ECU connector C-317 (terminal 5).

- Check the wiring harness for open circuit and short circuit.

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 2) and ETACS-ECU connector C-317 (terminal 5) in good condition?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00, How to Cope with Intermittent Malfunction P.00-13).

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 18. Check the wiring harness between rear window defogger relay connector C-306 (terminal 3) and rear window defogger connector F-25 (terminal 1).

NOTE: Also check intermediate connectors C-42 and D-16, and joint connector C-102 for loose, corroded, or damaged terminals, or terminals pushed back in the connector. If intermediate connectors C-42 and D-16, and joint connector C-102 is damaged, repair or replace the connector as described in GROUP 00E, Harness Connector Inspection P.00E-2.

Q: Is the wiring harness between rear window defogger relay connector C-306 (terminal 3) and rear window defogger connector F-25 (terminal 1) in good condition?

YES : Replace the ETACS-ECU.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 19. Check A/C-ECU connector C-20 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is A/C-ECU connector C-20 in good condition?

YES : Go to Step 20.

NO : Repair or replace the connector. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

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STEP 20. Check the wiring harness between A/C-ECU connector C-20 (terminals 9 and 10) and A/C control panel connector C-120 (terminals 1 and 9).

- Check the wiring harness for open circuit and short circuit.

Q: Are the wiring harness between A/C-ECU connector C-20 (terminals 9 and 10) and A/C control panel connector C-120 (terminals 1 and 9) in good condition?

YES : Go to Step 21.

NO : Repair or replace the wiring harness. Refer to GROUP 00E, Harness Connector Inspection P.00E-2. Check that the rear window defogger system works normally.

STEP 21. Check the rear window defogger.

(1) Let the engine run at 2,000 r/min, and check the printed heater with the battery fully charged.

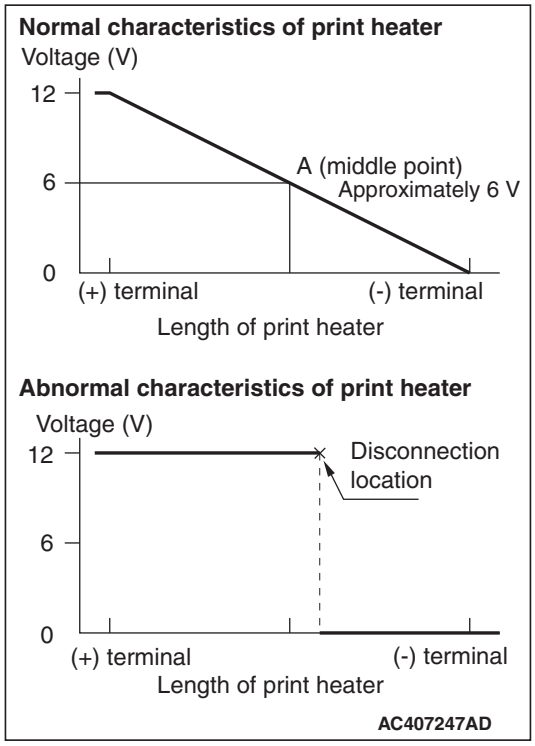
(2) Turn on the rear window defogger switch, and use a voltmeter to measure the voltage in each printed heater at middle point A on the rear window glass.

- The value should be approximately 6 volts.

Q: Does the rear window defogger work normally?

YES : Return to Step 1.

NO : Replace the rear window defogger.



REMOVAL AND INSTALLATION

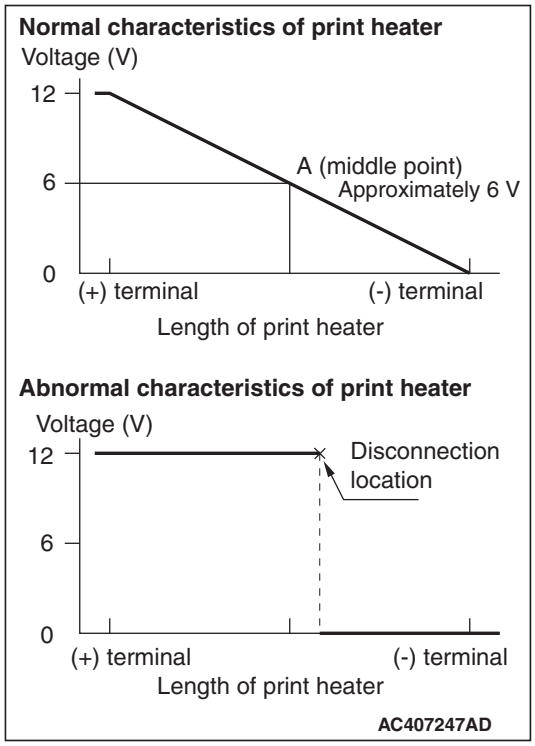
M1540600200171

Refer to GROUP 55 –Heater control unit P.55-125.

ON-VEHICLE SERVICE

PRINTED HEATER CHECK

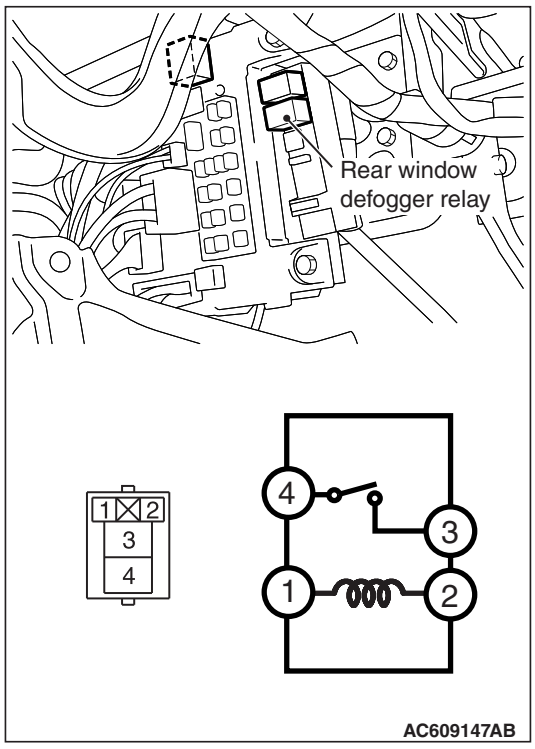
M1540500500175



1. Let the engine run (2,000 r/min), and check the printed heater with the battery fully charged.
2. With the rear window defogger switch "ON," use the circuit tester to measure the voltage of each printed heater at the rear window glass center A point. If approximately 6 V is indicated, it is judged good.
3. If the voltage of 12 V is indicated at the A point, there is an open circuit between the A point and negative terminal. Therefore, by moving the test bar slowly to the negative side, search and determine the location where the voltage changes suddenly (0 V). The location of voltage change indicates the open circuit position.
4. Also, if the voltage indicates 0 V at the A point, there is an open circuit between the A point and positive terminal. Therefore, search and determine the location of voltage change (12 V) using the above mentioned method.
5. If a malfunction such as open circuit occurs, replace the liftgate window glass.(Refer to GROUP 42A, Liftgate Window Glass P.42A-24.)

REAR WINDOW DEFOGGER RELAY CHECK

M1540500600149



Battery voltage	Terminal number	Normal condition
At no energization	3 –4	No continuity
With current supply [terminal 1 (+), terminal 2 (-)]		Continuity exists (2 ohms or less)

NOTES