

GROUP 54Af

ALARM SYSTEM

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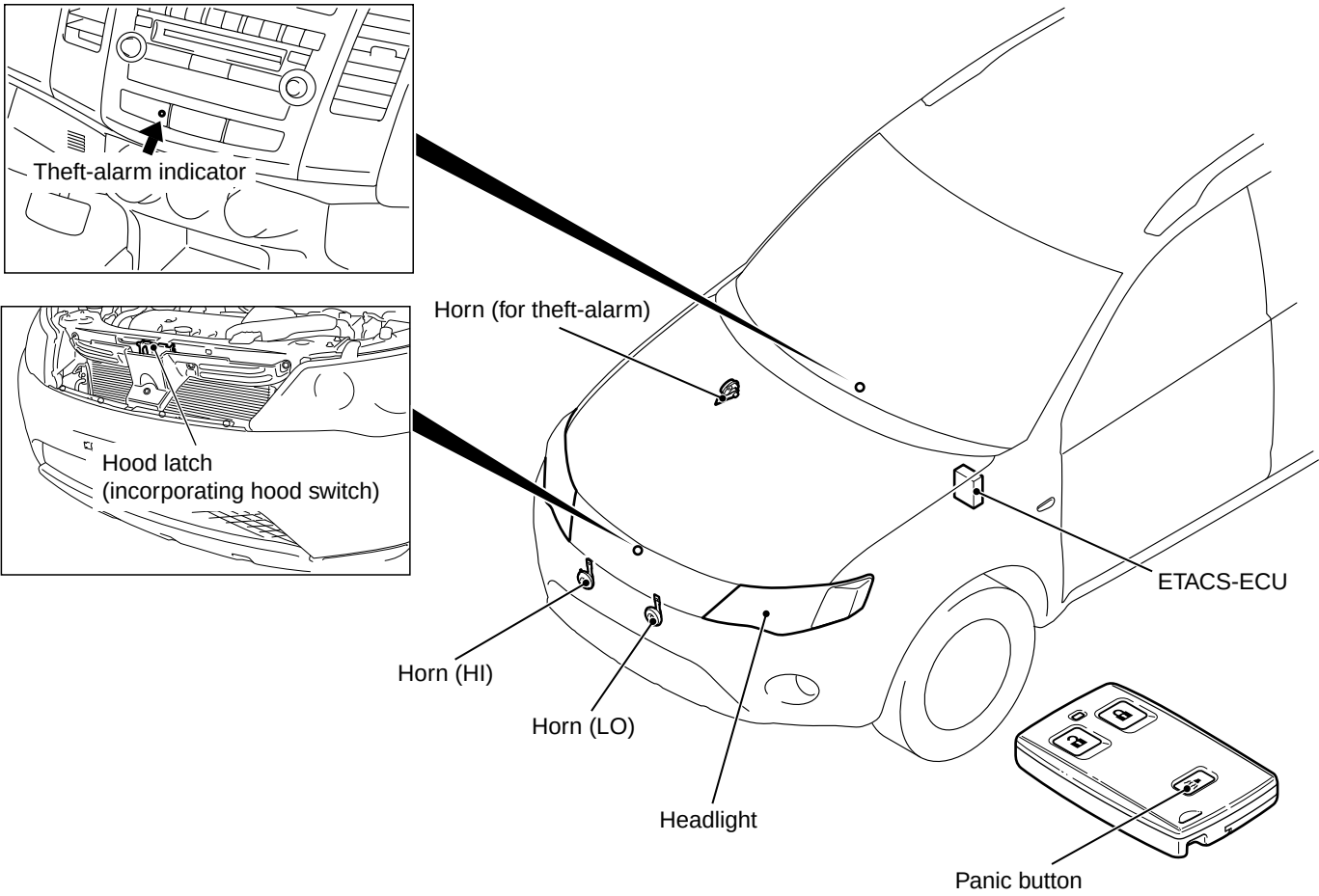
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GENERAL INFORMATION

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- When the doors are locked using the keyless entry or KOS (excluding locking using the key cylinder or others), the improper opening of door or hood causes the ETACS-ECU function and control to give off an alarm with the flashing of head lights and the intermittent sounding of horn. Also, the ETACS-
- ECU warns that the theft-alarm system is being set by flashing the theft-alarm indicator.
- By pressing the panic button of transmitter, the flashing of head lights and the intermittent sounding of horn can be performed by remote control operation.

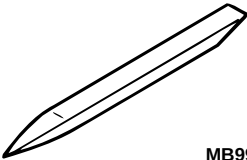
CONSTRUCTION DIAGRAM

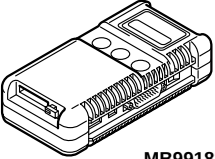
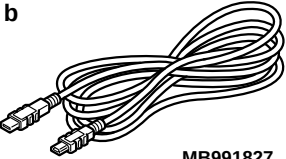
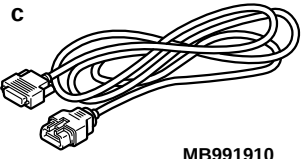
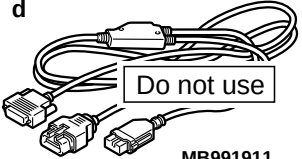
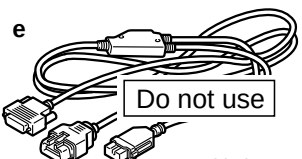
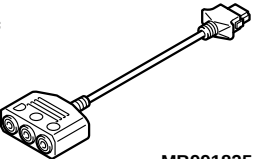
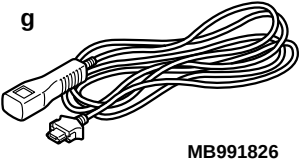


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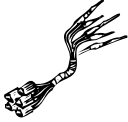
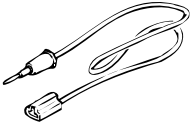
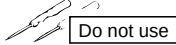
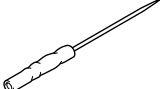
SPECIAL TOOLS

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Tool	Tool number and name	Supersession	Application
 MB990784	MB990784 Ornament remover	General service tool	Removal of center air outlet, center panel.

Tool	Tool number and name	Supersession	Application
a  MB991824 b  MB991827 c  MB991910 d  MB991911 e  MB991914 f  MB991825 g  MB991826 YB9919580000	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 Daimler Chrysler models only) f. M.U.T.-III measurement adapter g. M.U.T.-III trigger harness	MB991824-KIT <i>NOTE: G: MB991826 M. U. T. - III Trigger Harness is not necessary when pushing V. C. I. ENTER key.</i>	⚠ 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

ALARM SYSTEM DIAGNOSIS

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

DIAGNOSIS

STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 - Contents of troubleshooting P. 00-6.

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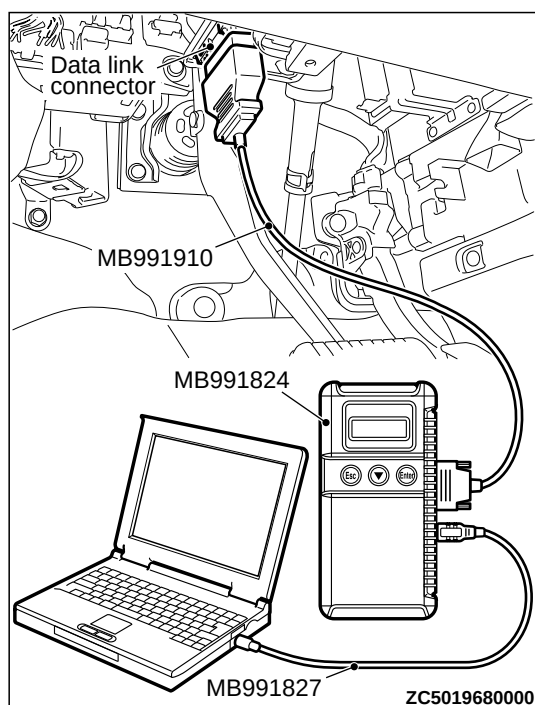
DIAGNOSTIC FUNCTION

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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

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Trouble symptom	Inspection Procedure No.	Reference page
The theft-alarm is not armed (the theft-alarm indicator does not illuminate).	1	P. 54Af-7
The interior alarm does not work normally while the theft-alarm is triggered.	2	P. 54Af-13
Theft-alarm horn does not sound while the theft-alarm system is triggered.	3	P. 54Af-15
Horns do not sound while the theft-alarm system is triggered.	4	P. 54Af-19
Panic alarm function does not work normally.	5	P. 54Af-25

SYMPTOM PROCEDURES

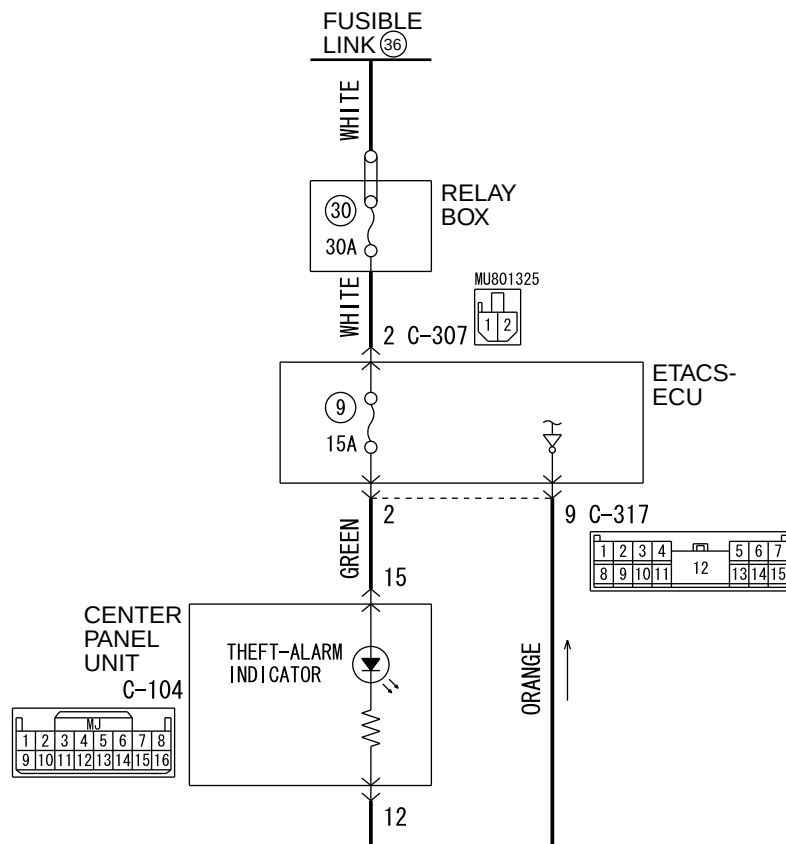
Inspection Procedure 1: The theft-alarm is not armed (the theft-alarm indicator does not illuminate).

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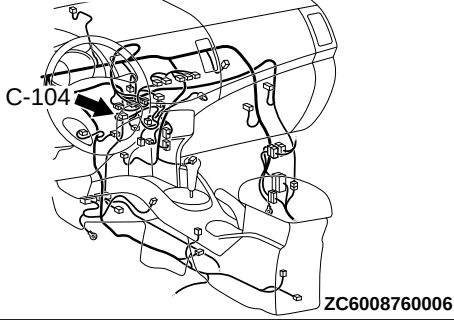
⚠ CAUTION

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

Theft-alarm Indicator Circuit



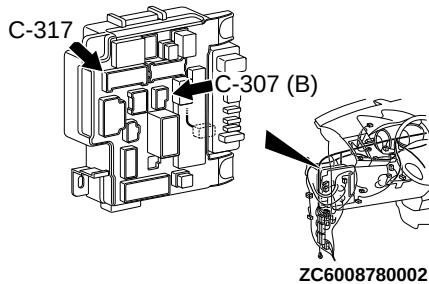
Connector: C-104



indicator, the ETACS-ECU or the CAN bus line may have a problem. Also, the theft-alarm function may have been disabled with a configuration function.

- Keyless entry transmitter
- Key reminder switch
- Ignition switch (ACC)
- Hood switch
- Door switches
- Liftgate latch switch

Connector: C-307, C-317



TECHNICAL DESCRIPTION (COMMENT)

If this function does not work normally, the input signal circuits to the components below, the theft-alarm

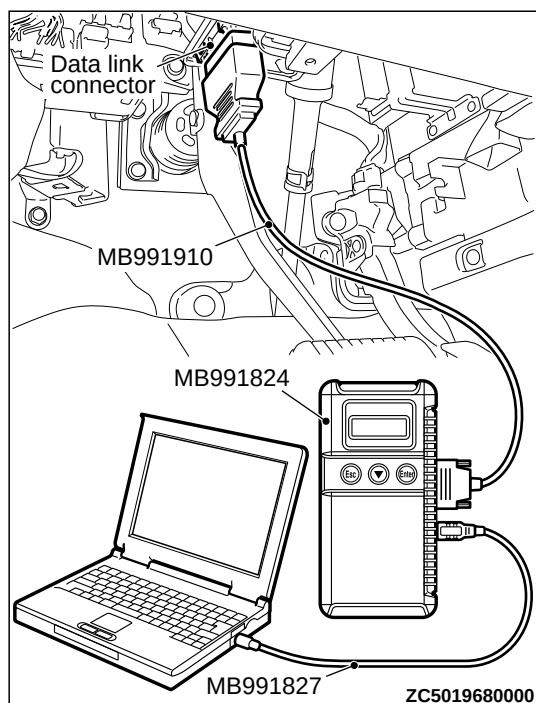
TROUBLESHOOTING HINTS

- 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 latch switch may be defective
- Hood 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.54Af-4."
- (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 54D, Diagnosis P.54D-17).

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-18).

YES<vehicles with WCM>: Troubleshoot the WCM (Refer to GROUP 42C, WCM P. 42C-11).

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-108).

NO<vehicles with WCM>: Troubleshoot the WCM (Refer to GROUP 42C, WCM P. 42C-66).

STEP 4. Using scan tool MB991958, Check the configuration function.

- (1) Turn the ignition switch to the "ON" position.
- (2) Use the ETACS-ECU configuration function to check that the "Alarm" is set to "Enable".
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q: Is the "Alarm" set to "Enable"?

YES: Go to Step 5.

NO: Use the ETACS-ECU configuration function to set the "Alarm" to "Enable" (Refer to P. 54Af-27).

STEP 5. 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.
- Close the hood.
- Turn the ignition switch to the "LOCK" (OFF) position (with ignition key <vehicles with WCM> or emergency key <vehicles with KOS> inserted).
- 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 266	Hood switch	OFF
Item 288	ACC switch	ON

Q: Does scan tool MB991958 display the items "Dr door ajar switch", "As door ajar switch", "RR door ajar switch", "RL door ajar switch", "Trunk/gate trunk ajar switch", "Handle lock switch", "Hood switch" and "ACC switch" as normal condition?

YES<Normal conditions are displayed for all items.>: Go to Step 6.

NO<Normal condition is not displayed for item No.

256.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" P. 54Ad-73.

NO<Normal condition is not displayed for item No.

257.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" P. 54Ad-75.

NO<Normal condition is not displayed for item No.

258.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" P. 54Ad-77.

NO<Normal condition is not displayed for item No.

259.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" P. 54Ad-80.

NO<Normal condition is not displayed for item No.

260.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 9 "ETACS-ECU does not receive any signal from liftgate latch switch" P. 54Ad-82.

NO<Normal condition is not displayed for item No.

264.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 3 "ETACS-ECU does not receive any signal from key reminder switch" P. 54Ad-64.

NO<Normal condition is not displayed for item No.

266.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 10 "ETACS-ECU does not receive any signal from the hood switch" P. 54Ad-85.

NO<Normal condition is not displayed for item No.

288.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 1 "ETACS-ECU does not receive any signal from the ignition switch (ACC) signal" P. 54Ad-61.

STEP 6. Check center panel unit connector C-104 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 7.

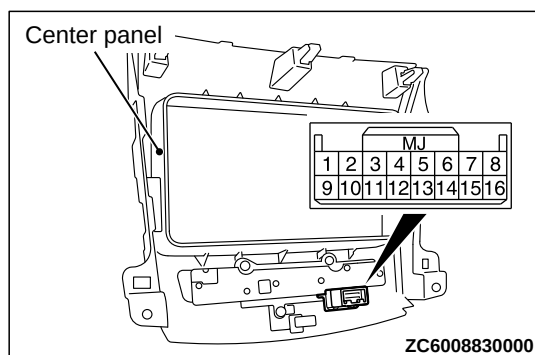
NO: Repair the damaged parts.

STEP 7. Check the theft-alarm indicator.

Q: Is the theft-alarm indicator in good condition?

YES: Go to Step 8.

NO: Replace the center panel unit.



STEP 8. Check ETACS-ECU connector C-307 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

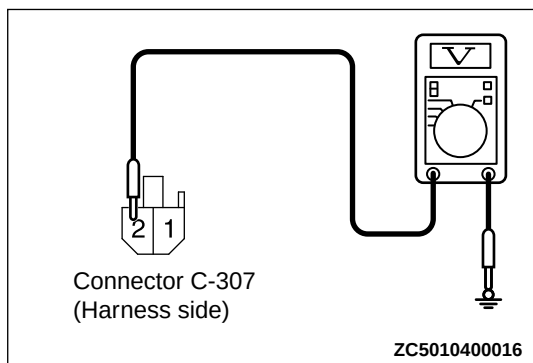
Q: Is the ETACS-ECU connector C-307 in good condition?

YES: Go to Step 9.

NO: Repair the damaged parts.

STEP 9. 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 11.

NO: Go to Step 10.

STEP 10. 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.

Q: Is the check result normal?

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

NO: Repair the wiring harness between ETACS-ECU connector C-307 and fusible link (36).

STEP 11. 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 12.

NO: Repair the damaged parts.

STEP 12. 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.

Q: Is the check result normal?

YES: Go to Step 13.

NO: Repair the wiring harness between ETACS-ECU connector C-317 and center panel unit connector C-104.

STEP 13. Retest the system.

Q: Does the theft-alarm work normally?

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

NO: Replace the ETACS-ECU.

Inspection Procedure 2: The interior alarm does not work normally while the theft-alarm is triggered.

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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. Also, the theft-alarm function may have been disabled with a configuration function.

- Hood switch
- All of the door switches

- Liftgate latch switch

TROUBLESHOOTING HINTS

- Hood switch may be defective
- All the door switch may be defective
- Liftgate latch switch 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, Check the configuration function.

CAUTION

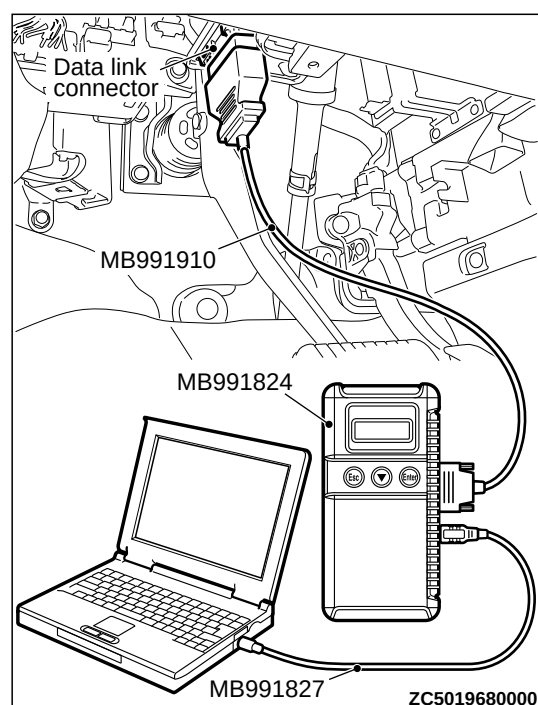
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54Af-4."
- (2) Turn the ignition switch to the "ON" position.
- (3) Use the ETACS-ECU configuration function to check that the "Alarm" is set to "Enable".
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the "Alarm" sent to "Enable"?

YES: Go to Step 2.

NO: Use the ETACS-ECU configuration function to set the "Alarm" to "Enable" (Refer to P.54Af-27).



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

Check if DTC is set to the ETACS-ECU.

- (1) Turn the ignition switch to the "ON" position.
- (2) Check whether the ETACS-ECU DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES: Diagnose the ETACS-ECU (Refer to GROUP 54Ad, Diagnosis P. 54Ad-8).

NO: Go to Step 3.

STEP 3. 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.
- Close the hood.
- Turn the ignition switch to the "LOCK" (OFF) position (with ignition key <vehicles with WCM> or emergency key <vehicles with KOS> inserted).
- Open each door.
- Hood is opened
- 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 266	Hood switch	ON

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" and "Hood switch" as normal condition?

YES<Normal conditions are displayed for all items.>: Go to Step 4.

NO<Normal condition is not displayed for item No.

256.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 5 "ETACS-ECU does not receive any signal from the front door switch (LH)" P. 54Ad-73.

NO<Normal condition is not displayed for item No.

257.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 6 "ETACS-ECU does not receive any signal from the front door switch (RH)" P. 54Ad-75.

NO<Normal condition is not displayed for item No.

258.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad,

Diagnosis - Inspection Procedure 7 "ETACS-ECU does not receive any signal from the rear door switch (LH)" P. 54Ad-77.

NO<Normal condition is not displayed for item No.

259.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 8 "ETACS-ECU does not receive any signal from the rear door switch (RH)" P. 54Ad-80.

NO<Normal condition is not displayed for item No.

260.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 9 "ETACS-ECU does not receive any signal from the liftgate switch" P. 54Ad-82.

NO<Normal condition is not displayed for item No.

266.>: Troubleshoot the ETACS-ECU. Refer to GROUP 54Ad, Diagnosis - Inspection Procedure 10 "ETACS-ECU does not receive any signal from the hood switch" P. 54Ad-85.

STEP 4. Using scan tool MB991958, check actuator test.

- (1) Connect scan tool MB991958 to the data link connector.
- (2) Turn the ignition switch to the "ON" position.
- (3) Set scan tool MB991958 to the actuator test mode.
 - Item 12: Tone alarm
- (4) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the check result normal?

YES: Go to Step 5.

NO: Replace the combination meter.

STEP 5. Retest the system.

Check that the theft-alarm works normally.

Q:Does the theft-alarm work normally?

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

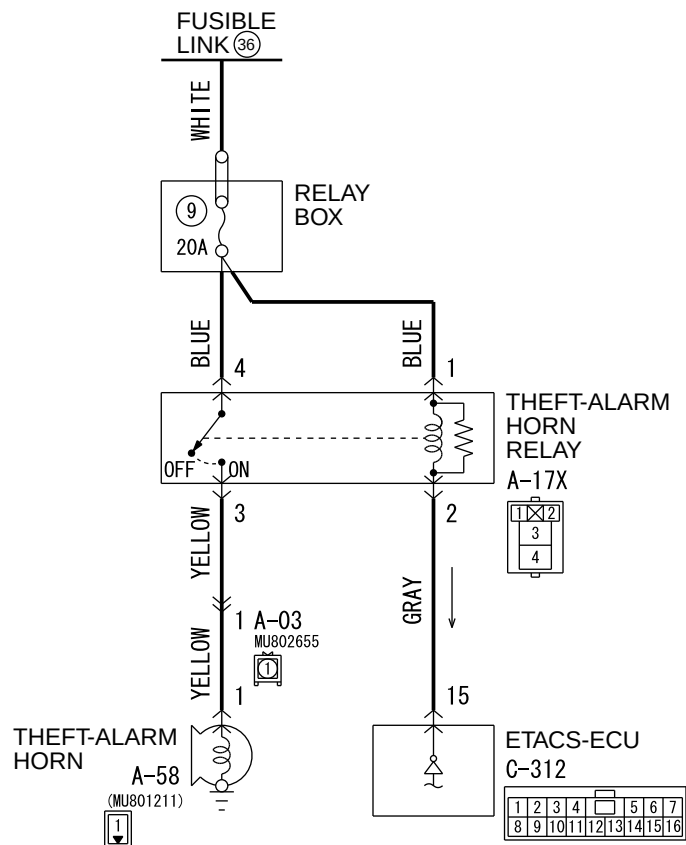
NO: Replace the ETACS-ECU.

Inspection Procedure 3: Theft-alarm horn does not sound while the theft-alarm system is triggered.

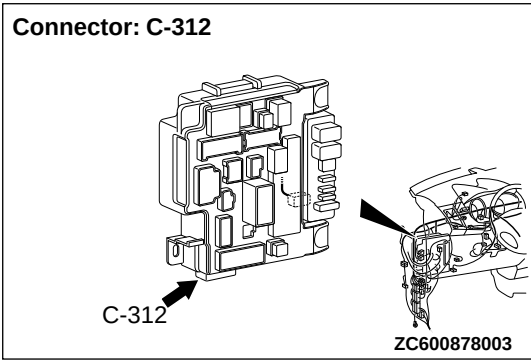
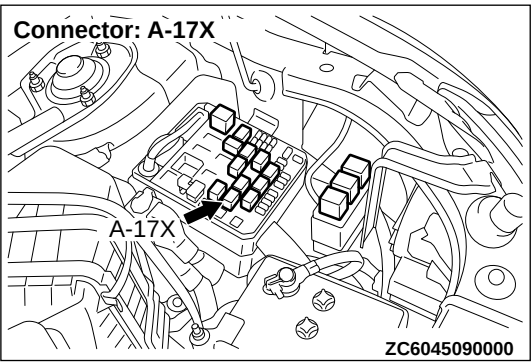
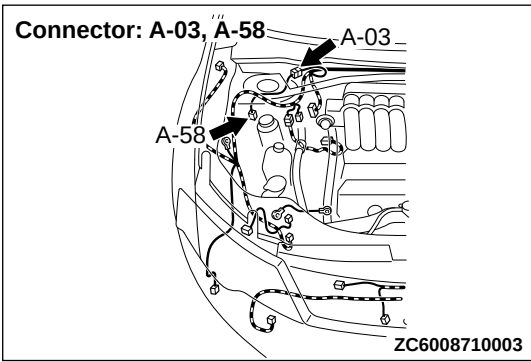
 CAUTION

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

Theft-alarm Horn Circuit



D7G54M014A00



TECHNICAL DESCRIPTION (COMMENT)

If theft-horn does not sound, the theft-horn input signal circuit or the ETACS-ECU may be defective. Also, the theft-alarm function and horn may have been disabled with a configuration function.

TROUBLESHOOTING HINTS

- Theft-alarm horn may be defective
- Theft-alarm horn relay may be defective
- The ETACS-ECU may be defective

- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

DIAGNOSIS

Required Special Tools:

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

STEP 1. Using scan tool MB991958, read the diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

CAUTION

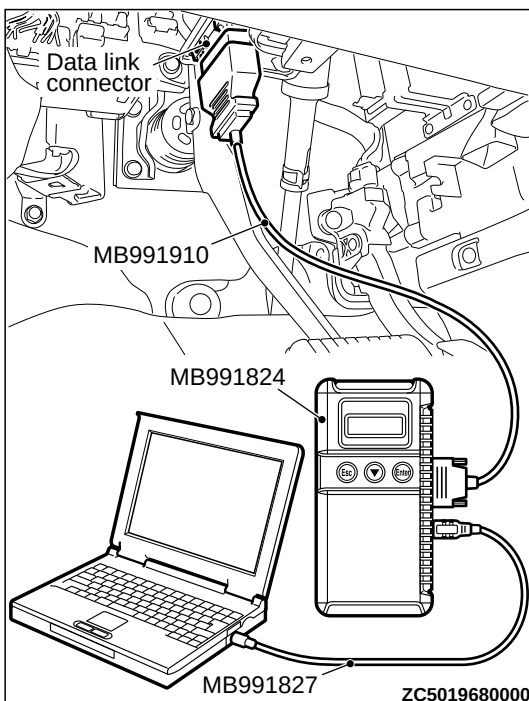
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54Af-4."
- (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 GROUP 54Ad, Diagnosis P.54Ad-8.

NO: Go to Step 2.



STEP 2. Using scan tool MB991958, Check the configuration function.

- (1) Turn the ignition switch to the "ON" position.
- (2) Use the ETACS-ECU configuration function to check that the "Alarm" is set to "Enable".
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the "Alarm" set to "Enable"?

YES: Go to Step 3.

NO: Use the ETACS-ECU configuration function to set the "Alarm" to "Enable" (Refer to P.54Af-27).

STEP 3. Check theft-alarm horn relay connector A-17X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is theft-alarm horn relay connector A-17X in good condition?

YES: Go to Step 4.

NO: Repair the damaged parts.

STEP 4. Check the theft-alarm horn relay.

Refer to P.54Af-29.

Q: Is the theft-alarm horn relay in good condition?

YES: Go to Step 5.

NO: Replace the theft-alarm horn relay.

STEP 5. Measure the voltage at theft-alarm horn relay A-17X.

(1) Remove the relay, and measure at the relay box side.

(2) Measure the voltage between theft-alarm horn relay connector A-17X (terminal No. 1,4) and the body ground.

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

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

YES: Go to Step 7.

NO: Go to Step 6.

STEP 6. Check the Wiring harness between theft-alarm horn relay connector A-17X (terminal No. 1,4) and fusible link (36).

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

Q: Is the check result normal?

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

NO: Repair the wiring harness between theft-alarm horn relay connector A-17X and fusible link (36).

STEP 7. Check theft-alarm horn connector A-58 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is theft-alarm horn connector A-58 in good condition?

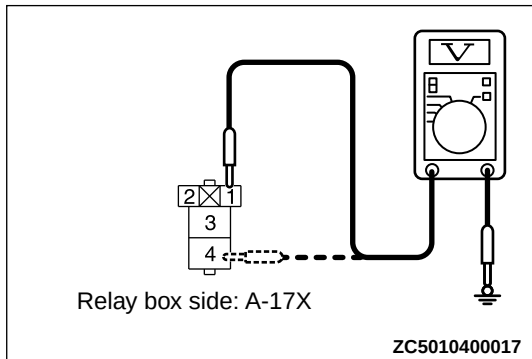
YES: Go to Step 8.

NO: Repair the damaged parts.

STEP 8. Check the Wiring harness between theft-alarm horn connector A-58 (terminal No. 1) and theft-alarm horn relay connector A-17X (terminal No. 3).

Check the output lines for open circuit and short circuit.

NOTE: Before the wiring harness check, check intermediate connector A-03, and then repair them if necessary.



Q: Is the check result normal?

YES: Go to Step 9.

NO: Repair the wiring harness between theft-alarm horn connector A-58 and theft-alarm horn relay connector A-17X.

STEP 9. 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 10.

NO: Repair the damaged parts.

STEP 10. Check the Wiring harness between theft-alarm horn relay connector A-17X (terminal No. 2) and ETACS-ECU connector C-312 (terminal No. 15).

Check the output lines for open circuit and short circuit.

Q: Is the check result normal?

YES: Go to Step 11.

NO: Repair the wiring harness between theft-alarm horn relay connector A-17X and ETACS-ECU connector C-312.

STEP 11. Replace theft-alarm horn.

(1) Replace the theft-alarm horn.

Q: Does the theft-alarm work normally?

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

NO: Replace the ETACS-ECU.

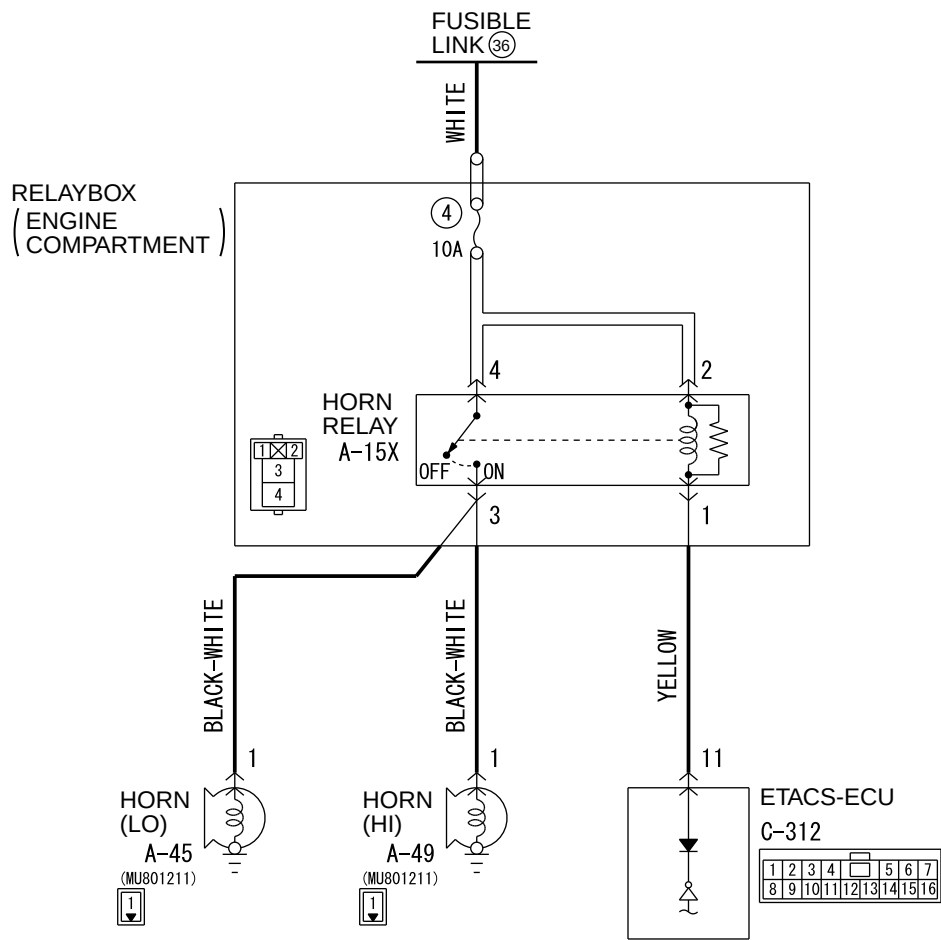
Inspection Procedure 4: Horns do not sound while the theft-alarm system is triggered.

M15410300053USA0000010000

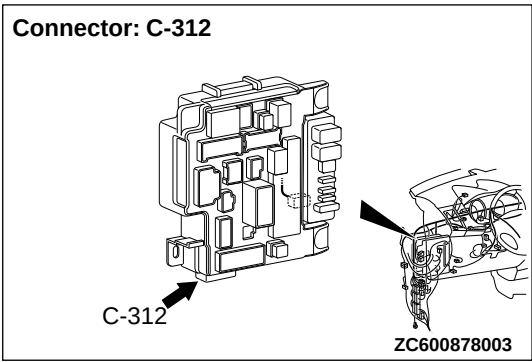
⚠ CAUTION

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

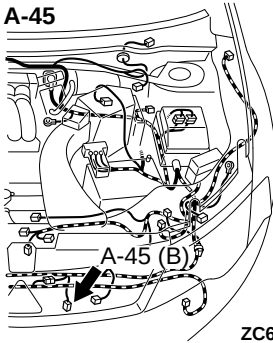
Horn Circuit



D7G54M083A00

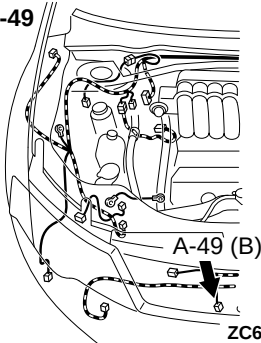


Connector: A-45



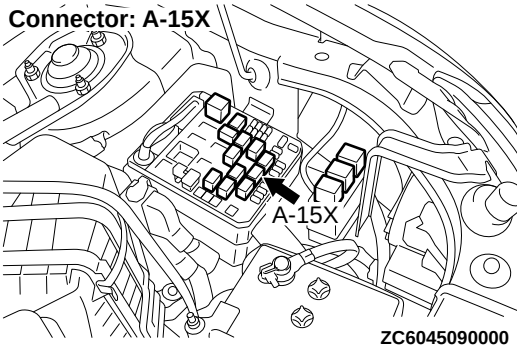
ZC6008720013

Connector: A-49



ZC6008710015

Connector: A-15X



ZC6045090000

TECHNICAL DESCRIPTION (COMMENT)

If horns do not sound, the horn input signal circuit or the ETACS-ECU may be defective. Also, the theft-alarm function and horn may have been disabled with a configuration function.

- 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

TROUBLESHOOTING HINTS

- Horns may be defective

DIAGNOSIS

Required Special Tools:

- MB992006: Extra fine probe
- MB991223: Harness set
- 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, read the diagnostic trouble code.

Check if DTC is set to the ETACS-ECU.

⚠ CAUTION

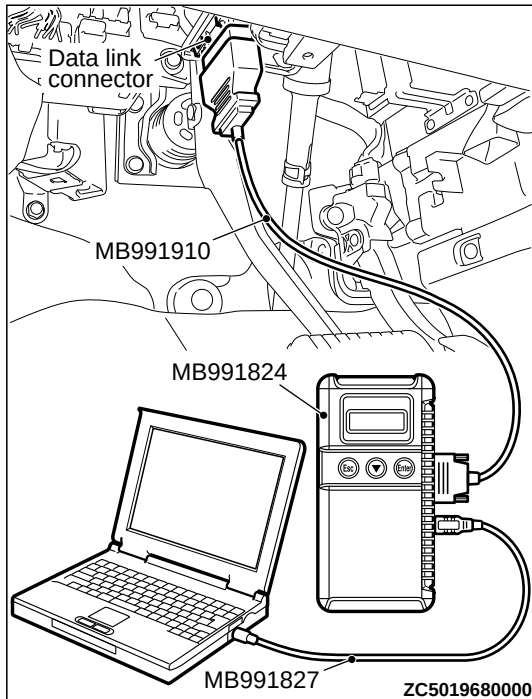
To prevent damage to scan tool MB991958, always turn the ignition switch to the "LOCK" (OFF) position before connecting or disconnecting scan tool MB991958.

- (1) Connect scan tool MB991958. Refer to "How to connect scan tool (M.U.T.-III) P.54Af-4."
- (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 GROUP 54Ad, Diagnosis P.54Ad-8.

NO: Go to Step 2.



STEP 2. Using scan tool MB991958, Check the configuration function.

- (1) Turn the ignition switch to the "ON" position.
- (2) Use the ETACS-ECU configuration function to check that the "Alarm" is set to "Enable".
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the "Alarm" set to "Enable"?

YES: Go to Step 3.

NO: Use the ETACS-ECU configuration function to set the "Alarm" to "Enable" (Refer to P.54Af-27).

STEP 3. Check which horn is defective.

Check which horn does not sound when the theft-alarm system is triggered.

Q:Which horn does not sound?

Horn (HI) and horn (LO): Go to Step 4.

Horn (HI) only: Go to Step 10.

Horn (LO) only: Go to Step 13.

STEP 4. Check horn relay connector A-15X for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is horn relay connector A-15X in good condition?

YES: Go to Step 5.

NO: Repair the damaged parts.

STEP 5. Check the horn relay.

Refer to P.54Af-29.

Q: Is the horn relay in good condition

YES: Go to Step 6.

NO: Replace the horn relay.

STEP 6. Measure the voltage at horn relay A-15X.

(1) Remove the relay, and measure at the relay box side.

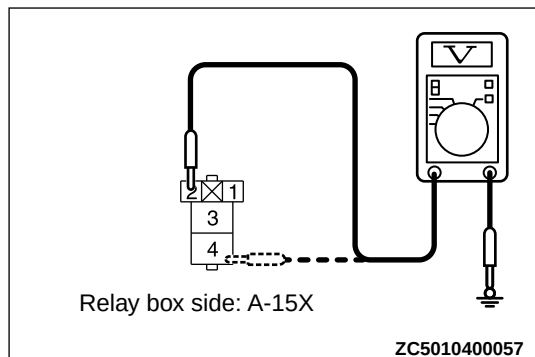
(2) Measure the voltage between horn relay connector A-15X (terminal No. 2, 4) and the body ground.

• 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 8.

NO: Go to Step 7.



STEP 7. Check the Wiring harness between horn relay connector A-15X (terminal No. 2,4) and fusible link (36).

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

Q: Is the check result normal?

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

NO: Repair the wiring harness between theft-alarm horn relay connector A-15X and fusible link (36).

STEP 8. 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 9.

NO: Repair the damaged parts.

STEP 9. Check the Wiring harness between horn relay connector A-15X (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 10.

NO: Repair the wiring harness between horn relay connector A-15X and ETACS-ECU connector C-312.

STEP 10. Check horn (HI) connector A-49 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q: Is horn (HI) connector A-49 in good condition?

YES: Go to Step 11.

NO: Repair the damaged parts.

STEP 11. Check the Wiring harness between horn (HI) connector A-49 (terminal No. 1) and horn relay connector A-15X (terminal No. 3).

Check the output lines for open circuit and short circuit.

Q:Is the check result normal?

YES: Go to Step 12.

NO: Repair the wiring harness between horn (HI) connector A-49 and horn relay connector A-15X.

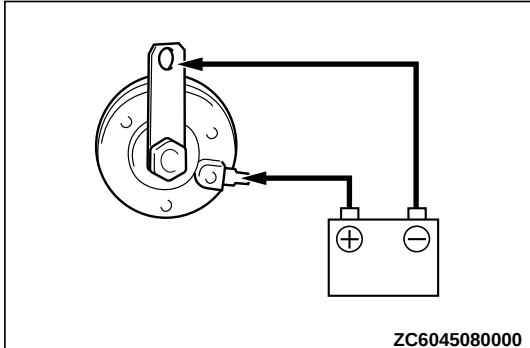
STEP 12. Check the horn (HI) work normally.

Connect the battery as shown, and verify that the horn sounds.

Q:Does horn (HI) work normally?

YES: Go to Step 13.

NO: Replace the horn (HI). go to step 13



STEP 13. Check which horn is defective.

Check which horn does not sound when the theft-alarm system is triggered.

Q:Which horn does not sound?

Horn (HI) and horn (LO): Go to Step 14.

Horn (HI) only: Replace the ETACS-ECU.

Horn (LO) only: Go to Step 14.

STEP 14. Check horn (LO) connector A-45 for loose, corroded or damaged terminals, or terminals pushed back in the connector.

Q:Is horn (LO) connector A-45 in good condition?

YES: Go to Step 15.

NO: Repair the damaged parts.

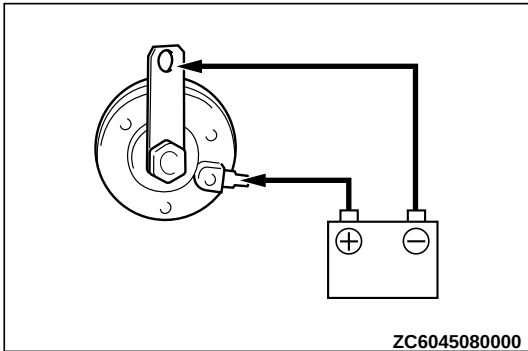
STEP 15. Check the Wiring harness between horn (LO) connector A-45 (terminal No. 1) and horn relay connector A-15X (terminal No. 3).

Check the output lines for open circuit and short circuit.

Q:Is the check result normal?

YES: Go to Step 16.

NO: Repair the wiring harness between horn (LO) connector A-45 and horn relay connector A-15X.



STEP 16. Check the horn (LO) work normally.

Connect the battery as shown, and verify that the horn sounds.

Q:Does the horn (LO) work normally?

YES: Go to Step 17.

NO: Replace the horn (LO).go to step 18.

STEP 17. Retest the theft-alarm system.

Q:Does the theft-alarm system work normally?

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

NO<Horn (HI) and Horn (LO) do not sound.>: Replace the ETACS-ECU.

NO<Horn (LO) does not sound.>: Replace the ETACS-ECU.

NO<Horn (HI) does not sound.>: Carry out the troubleshooting again.

Inspection Procedure 5: Panic alarm does not work normally.

M15410300046USA0000010000

TECHNICAL DESCRIPTION (COMMENT)

If keyless operation system <KOS> or keyless entry system <WCM> is normal, the ETACS-ECU may be defective.

- The ETACS-ECU may be defective
- Function is not set with the customization.
- The wiring harness or connectors may have loose, corroded, or damaged terminals, or terminals pushed back in the connector

TROUBLESHOOTING HINTS

- Keyless operation system <KOS> or keyless entry system <WCM> may be defective

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 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.

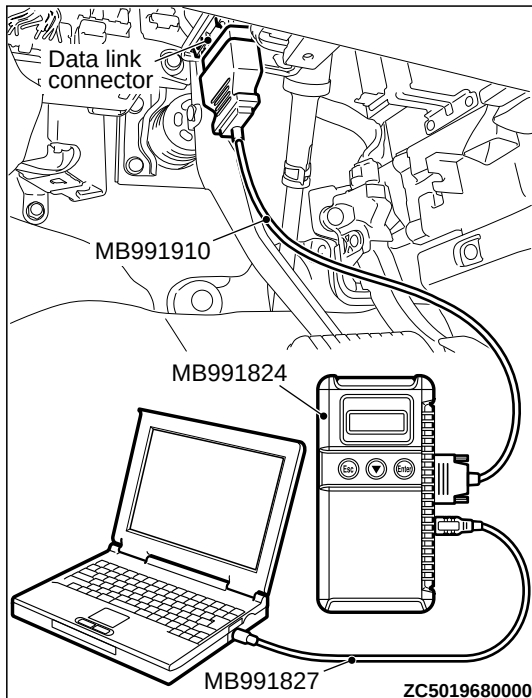
- (1) Turn the ignition switch to the "ON" position.
- (2) Check whether the KOS or WCM related DTC is set.
- (3) Turn the ignition switch to the "LOCK" (OFF) position.

Q:Is the DTC set?

YES<vehicles with KOS>: Troubleshoot the KOS (Refer to GROUP 42B, KOS P. 42B-18).

YES<vehicles with WCM>: Troubleshoot the WCM (Refer to GROUP 42C, WCM P. 42C-11).

NO: Go to Step 2.

**STEP 2. Check keyless operation system <KOS> or keyless entry system <WCM>.****Q:Do keyless operation system <KOS> or keyless entry system <WCM> work normally?**

YES: Go to Step 3.

NO<vehicles with KOS>: Troubleshoot the KOS (Refer to GROUP 42B, KOS P. 42B-108).

NO<vehicles with WCM>: Troubleshoot the WCM (Refer to GROUP 42C, WCM P. 42C-66).

STEP 3. Using scan tool MB991958, check the configuration function.

- (1) Turn the ignition switch to the "ON" position.
- (2) Use the KOS-ECU <vehicles with KOS> or WCM <vehicles with WCM> configuration 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 KOS-ECU configuration function to set the "Panic alarm switch" to "Enable" (Refer to GROUP 42B configuration function P. 42B-170. <vehicles with KOS>)

NO: Use the WCM configuration function to set the "panic alarm switch" to "Enable" (Refer to GROUP 42C configuration function P. 42C-91. <vehicles with WCM>

ON-VEHICLE SERVICE

CONFIGURATION FUNCTION

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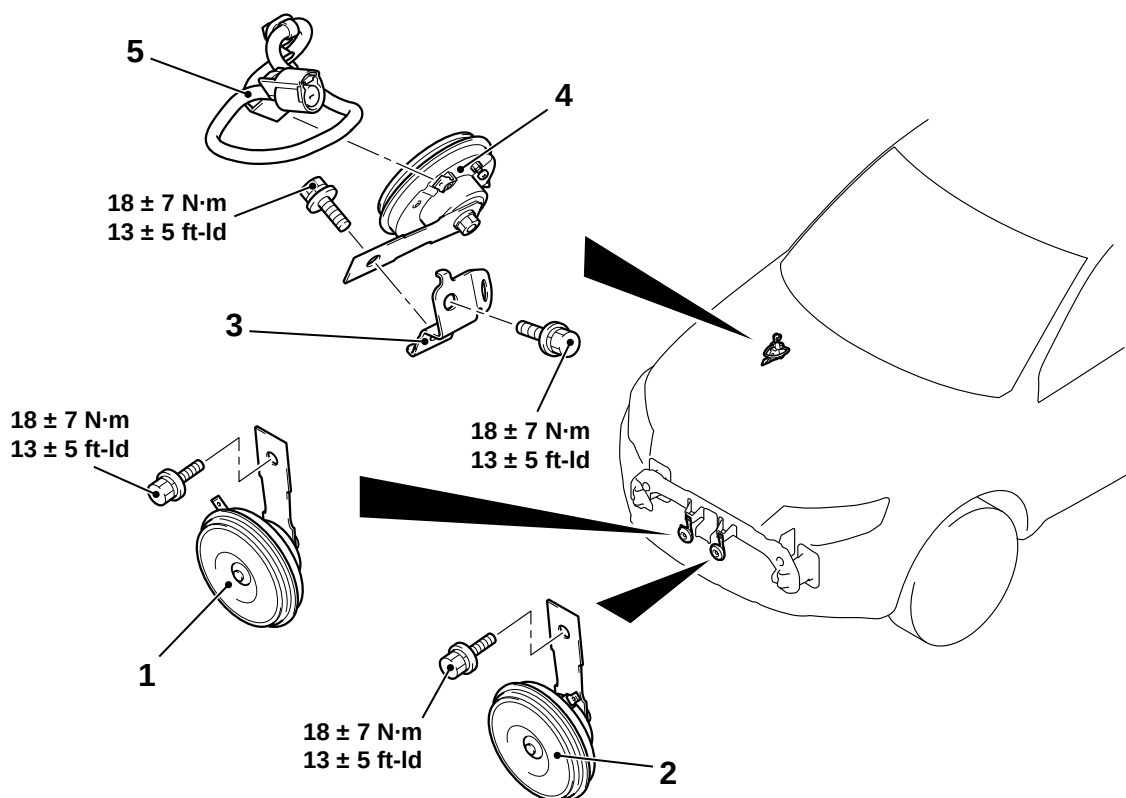
Use scan tool MB991958 to adjust the following functions. The programmed information is held even when the battery is disconnected.

Adjustment item (scan display)	Adjustment item	Adjustment contents (scan tool display)	Adjusting contents
Alarm	With/without theft-alarm function	Disable	Without function
		Enable	With function (default)
Duration of pre-alarm	Adjustment of pre-alarm continue time	10 sec	10 seconds (default)
		6 sec	6 seconds
Panic alarm switch	With/without panic alarm function	Disable	Without function
		Enable	With function (default)

HORN

REMOVAL AND INSTALLATION

M15410300007USA0000010000



ZC5020000000

Removal Steps

- Front bumper assembly (Refer to GROUP 51A - Front Bumper Assembly P.51A-3.)
- 1. Horn (HI)
- 2. Horn (LO)

Removal Steps

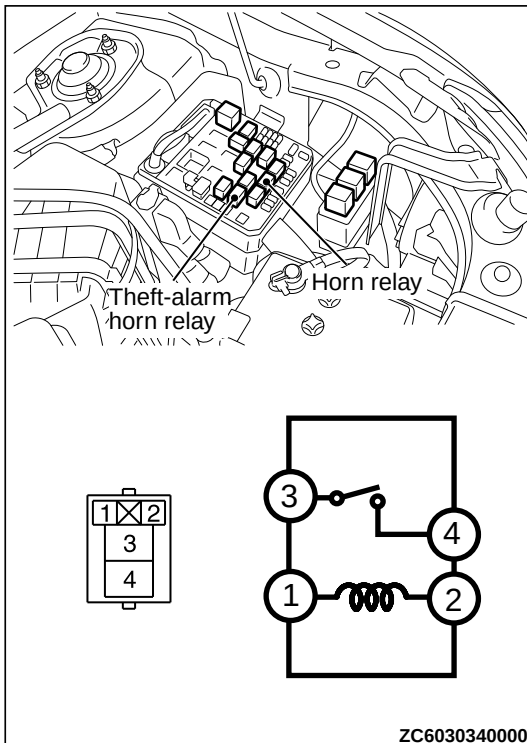
- 3. Horn bracket
- 4. Horn (for theft-alarm)
- 5. Horn harness

INSPECTION

HORN RELAY CHECK

M15410300008USA0000010000

Battery voltage	Tester connection	Specified condition
Not energized	3 - 4	No continuity
With current supply [terminal 1 (+), terminal 2 (-)]		Continuity exists (2 Ω or less)



THEFT ALARM

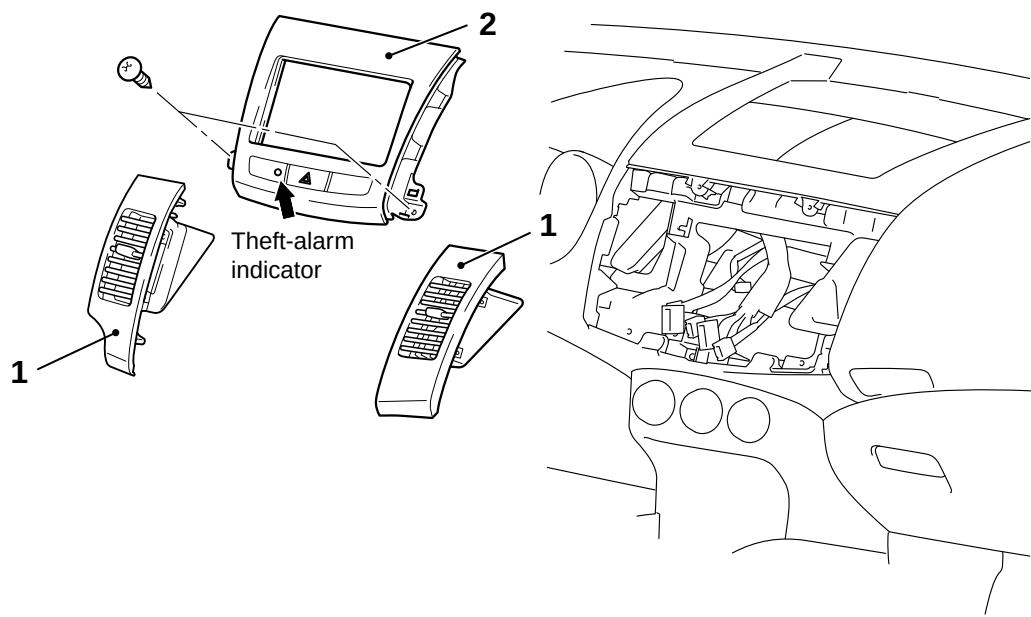
REMOVAL AND INSTALLATION

THEFT-ALARM COMPONENT

- Horns (Refer to P.54Af-28.)
- Door switch (Refer to GROUP 42Ab - Door Assembly P.42Ab-95.)
- Hood switch (Refer to GROUP 42Aa - Hood P. 42Aa-5.)
- Front door lock actuator, rear lock actuator (Refer to GROUP 42Ab - Door Handle and Latch P. 42Ab-102.)

M15410300023USA0000010000

- Liftgate latch assembly (Refer to GROUP 42Ac - Door Handle and Latch P.42Ac-10.)
- Key reminder switch (Refer to GROUP 54Ag - Ignition Switch P.54Ag-13.)



ZC6002750000

Removal Steps

1. Center air outlet (Refer to GROUP 52A - Instrument Panel Assembly P. 52A-2.)

Removal Steps

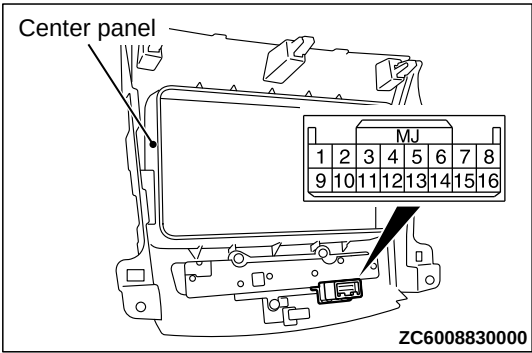
2. Center panel assembly (Refer to GROUP 52A - Instrument Panel Assembly P.52A-2.)

INSPECTION

THEFT-ALARM INDICATOR CHECK

M15410300038USA0000010000

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 SYSTEM

REMOVAL AND INSTALLATION

M15410300040USA0000010000

- Panic alarm system component parts**
- Headlight assembly (refer to P.54Ac-171).
 - Horn (refer to P.54Af-28).