

# GROUP 54A

# CHASSIS ELECTRICAL

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|   |                |   |                |
|---|----------------|---|----------------|
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|   |         |   |         |
|---|---------|---|---------|
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|  |         |  |         |
|--|---------|--|---------|
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## BATTERY

## SERVICE SPECIFICATION

M1541000301031

| Item                                 | Standard value                               |
|--------------------------------------|--|
| Battery electrolyte specific gravity | 1.220 – 1.290 (electrolyte temperature 20°C) |

## ON-VEHICLE SERVICE

FLUID LEVEL AND SPECIFIC GRAVITY  
CHECK

M1541000900364

## ⚠ CAUTION

- If the battery is used with the electrolyte level below the LOWER LEVEL indicator, there is the danger that explosions may occur, so add water to the battery until the electrolyte level is between the LOWER LEVEL and UPPER LEVEL indications.
- If too much water is added to make the level rise above the UPPER LEVEL indication, the electrolyte may leak out, so adjust so that the electrolyte level is between the LOWER LEVEL and UPPER LEVEL indications.

**Standard value: 1.220 – 1.290 (electrolyte temperature 20°C)**

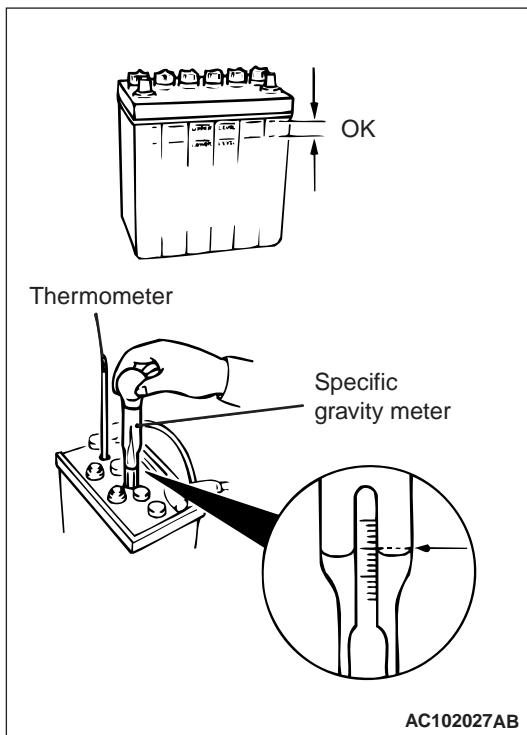
The specific gravity of the battery electrolyte changes according to the temperature, so the specific gravity when the electrolyte is at a temperature of 20°C can be calculated using the following formula. Use the converted value to judge whether the electrolyte is okay or not.

$$D_{20} = (t - 20) \times 0.0007 + Dt$$

**D<sub>20</sub>:** Specific gravity converted to a value for electrolyte temperature of 20°C

**t:** Electrolyte temperature at the time of measurement

**D<sub>t</sub>:** Actual specific gravity



1. Check that the battery electrolyte level is between the UPPER LEVEL and LOWER LEVEL indications.
2. Use a specific gravity meter and a thermometer to measure the specific gravity.

## CHARGING

M1541001102185

## ⚠ CAUTION

- The battery plugs should be removed during charging.
- The battery electrolyte level may rise and overflow from the battery during charging.
- Explosions may occur if the battery is brought close to naked flames during charging.
- Be careful to avoid tasks that might produce sparks or other danger while the battery is charging.
- After charging is complete, reinstall the battery plugs, pour water over the battery to rinse away any sulphuric acid, and let the battery stand to dry.
- Charge the battery in a well-ventilated location.
- Do not let the battery electrolyte temperature rise above approximately 45°C (approximately 55°C during rapid charging).

1. Remove the battery from the vehicle.
2. The normal charging current is a value in amperes which is 1/10th of the battery capacity. If the battery needs to be charged rapidly because of reasons such as time limitations, the maximum charging current for rapid charging is the battery capacity expressed as an ampere value.

| Battery type | Capacity (5-hour rate) | Normal charging current | Rapid charging current |
|--------------|------------------------|-------------------------|------------------------|
| 75D23L       | 52 Ah                  | 5.2 A                   | 52 A                   |

**YES** : Go to Step 3.  
**NO** : Go to Step 2.

### STEP 2. Battery charging

Recharge the battery at 5A (constant-current charging). (Refer to Table 1.)

**Q: Is the battery no-load voltage normal value (12.4 V or more)?**

**YES** : Go to Step 3.  
**NO** : Replace the battery.

## Determine when charging is finished.

When the specific gravity of the battery electrolyte is constantly within 1.220 – 1.290 for a continuous period of one hour or more.

## BATTERY TEST

M1541001202290

### TEST STEPS

#### STEP 1. Battery no-load voltage check

- (1) Illuminate the headlamp for 15 seconds.
- (2) Turn off the headlamp and then leave it for about 2 minutes to stabilise the battery voltage.
- (3) Remove the battery cable.
- (4) Measure the battery no-load voltage.

**OK: 12.4 V or more (Specific gravity 1.240)**

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

**(TABLE 1)**

| Battery type | Charging time when fully discharged<br>[5A constant current charging] (H) |  |  |  |  |  | Load current (A) |  |
|--------------|---|--|--|--|--|--|------------------|--|
| 75D23L       | 11  |  |  |  |  |  | 260              |  |

**(TABLE 2)**

|                              |            |          |          |        |         |          |           |            |
|------------------------------|------------|----------|----------|--------|---------|----------|-----------|------------|
| Outside air temperature (°C) | 21 or more | 16 to 20 | 10 to 15 | 4 to 9 | -1 to 3 | -7 to -2 | -12 to -8 | -18 to -13 |
| Minimum voltage (V)          | 9.6        | 9.5      | 9.4      | 9.3    | 9.1     | 8.9      | 8.7       | 8.5        |

## BATTERY

## REMOVAL AND INSTALLATION

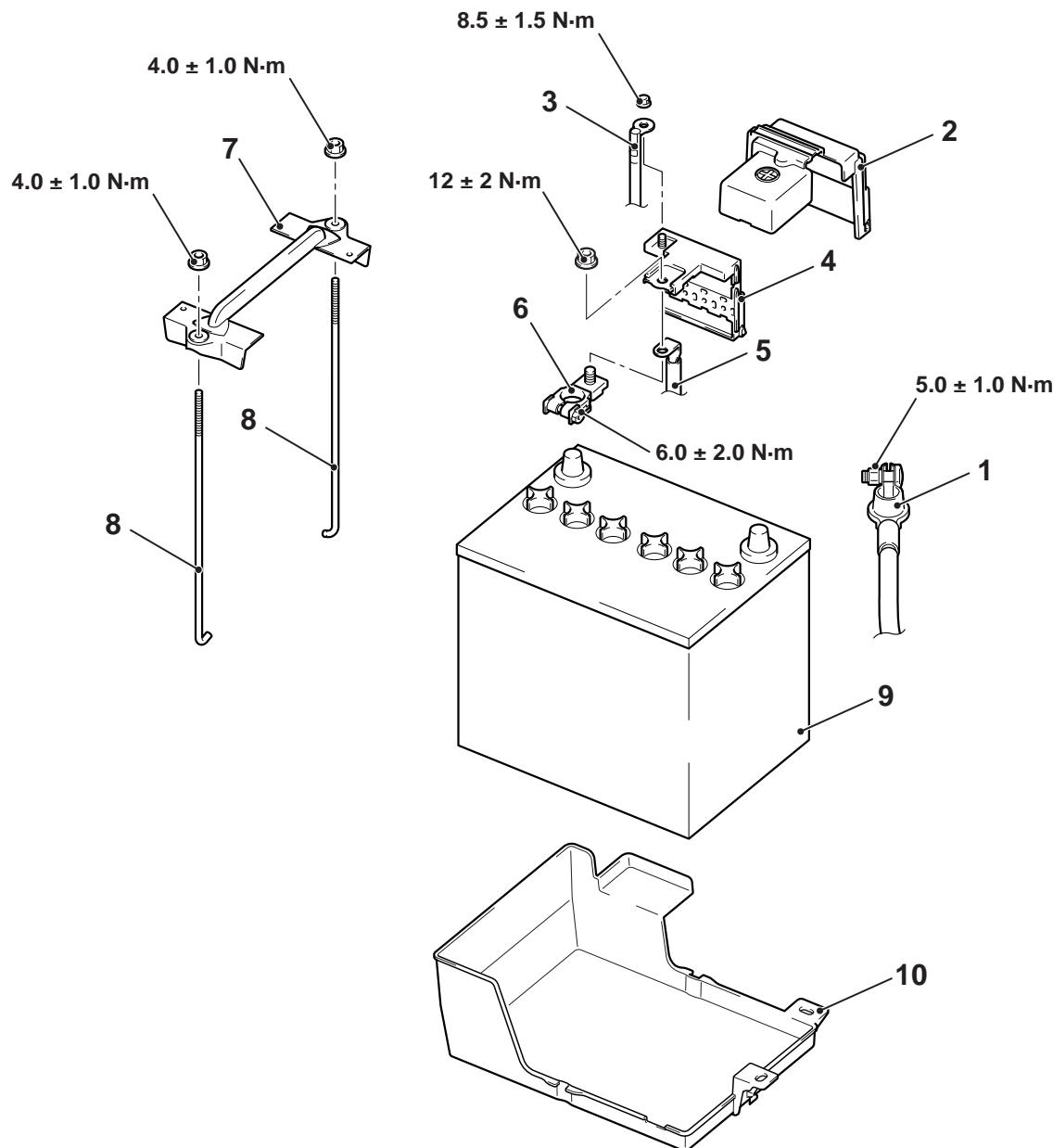
M1541001301528

## Pre-removal operation

- Air Cleaner Intake Duct Removal (Refer to GROUP 15 – Air Cleaner ).

## Post-installation operation

- Air Cleaner Intake Duct Installation (Refer to GROUP 15 – Air Cleaner ).



ACB05505 AB

## Removal steps

1. Connection of the battery harness (negative battery terminal)
2. Fusible link box cover
3. Connection of the battery harness (positive battery terminal)
4. Connection of fusible link box

## Removal steps (Continued)

5. Connection of the battery harness (positive battery terminal)
6. Battery terminal assembly (positive battery terminal)
7. Battery holder
8. Battery bolt

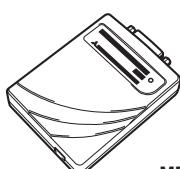
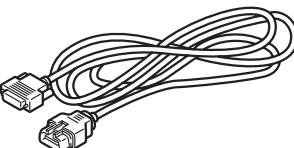
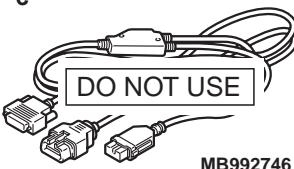
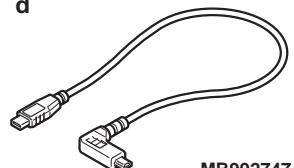
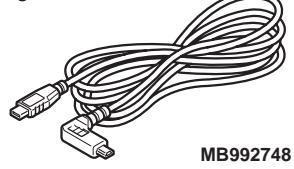
## Removal steps (Continued)

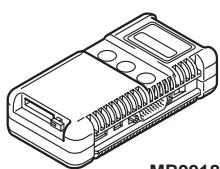
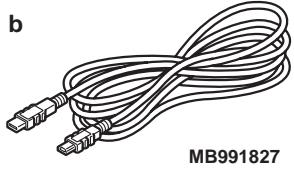
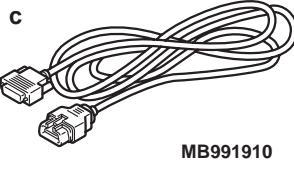
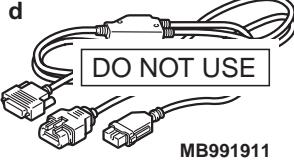
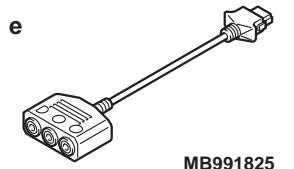
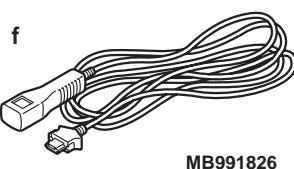
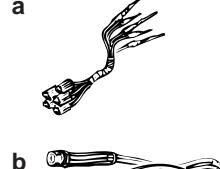
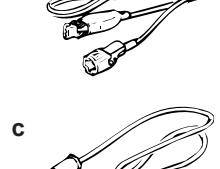
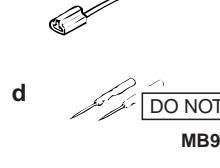
9. Battery
10. Battery tray

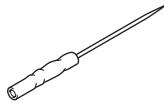
## IGNITION SWITCH <Vehicles without keyless operation system>

### SPECIAL TOOLS

M1541200600312

| Tool   | Number  | Name  | Use   |
|--|---|---|---|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code, Data list and Actuator test check |
| b<br><br>MB992745                |   |   |   |
| c<br><br>MB992746               |   |   |   |
| d<br><br>MB992747               |   |   |   |
| e<br><br>MB992748<br>ACB05421AB |   |   |   |

| Tool   | Number   | Name   | Use  |
|--|--|--|--|
| <br>MB991824<br><br><br>MB991827<br><br><br>MB991910<br><br><br>MB991911<br><br><br>MB991825<br><br><br>MB991826<br><br><br>MB991955 | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III sub-assembly<br>a. Vehicle Communication Interface (V.C.I.)<br>b. M.U.T.-III USB cable<br>c. M.U.T.-III Main harness A (Vehicles with CAN communication system)<br>d. M.U.T.-III Main harness B (Vehicles without CAN communication system)<br>e. M.U.T.-III Measurement adapter<br>f. M.U.T.-III Trigger harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Diagnosis code, Data list and Actuator test check |
| <br>MB991223<br><br><br>MB991220<br><br><br>MB991221<br><br><br>MB991222   | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Test harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe   | Making voltage and resistance measurements during troubleshooting<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester  |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

**TROUBLESHOOTING****STANDARD FLOW OF DIAGNOSTIC  
TROUBLE SHOOTING**

M1541201400214

Refer to Group 00 – Contents of troubleshooting .

**⚠ CAUTION**

During diagnosis, a diagnosis 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 diagnosis code(s). If diagnosis code(s) are set, erase them all.

| Trouble symptom  | Inspection procedure No. | Reference page           |
|--|--------------------------|--------------------------|
| The ignition key cylinder illumination lamp does not illuminate/extinguish normally.   | 1                        | <a href="#">P.54A-14</a> |
| Malfunction of the ignition switch power supply system.  | 2                        | <a href="#">P.54A-16</a> |
| Even when the selector lever is in the P position, the ignition switch cannot be turned to the LOCK (OFF) position. / When the selector lever is in other than the P position, the ignition switch can be turned to the LOCK (OFF) position. | 3                        | <a href="#">P.54A-17</a> |

**SYMPTOM PROCEDURES****Inspection Procedure 1: The ignition key cylinder illumination lamp does not illuminate/extinguish normally.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**OPERATION**

The ETACS-ECU operates this function in accordance with the input signals below.

- Ignition switch (IG1)

**TROUBLE SYMPTOM CHART**

M1541201100536

- Key reminder switch
- Driver's door switch
- Driver's door lock actuator

**COMMENTS ON TROUBLE SYMPTOM**

If this function does not work normally, these input signal circuit(s), the ignition key cylinder illumination lamp or the ETACS-ECU may be defective.

**PROBABLE CAUSES**

- Malfunction of the key reminder switch
- Malfunction of the driver's door switch
- Malfunction of the driver's door lock actuator
- Malfunction of the ignition key cylinder illumination lamp bulb
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III diagnosis code

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

Q: Is the diagnosis code set?

YES : Troubleshoot the ETACS-ECU. Refer to

[P.54A-281](#).

NO : Go to Step 2.

### STEP 2. M.U.T.-III data list

Check the signal related to the operation of ignition key cylinder illumination lamp.

- Turn the ignition switch to the LOCK "(OFF)" position.
- Remove the ignition key from the ignition key cylinder.
- Open the driver's door.

| Item No. | Item name             | Normal condition |
|----------|-----------------------|------------------|
| Item 228 | Dr door unlock        | ON               |
| Item 254 | IG voltage            | 1 V or less      |
| Item 256 | Dr door ajar switch   | Open             |
| Item 264 | Handle lock switch    | Key in → Key out |
| Item 270 | Dr door lock switch   | Not lock         |
| Item 271 | Dr door unlock switch | Unlock           |

**OK: Normal conditions are displayed for all the items.**

Q: Is the check result normal?

Normal conditions are displayed for all the items. :  
Go to Step 3.

**Normal condition is not displayed for item No. 228.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 4 "The front door lock actuator (driver's side) signal is not received." [P.54A-315](#).

**Normal condition is not displayed for item No. 254.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received." [P.54A-313](#).

**Normal condition is not displayed for item No. 256.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "The front door switch (driver's side) signal is not received." [P.54A-316](#).

**Normal condition is not displayed for item No. 264.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 3 "The key reminder switch signal is not received." [P.54A-314](#).

**Normal condition is not displayed for item No. 270,**

**271.** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 4 "The front door lock actuator (driver's side) signal is not received." [P.54A-315](#).

### STEP 3. Check of open circuit in LP+3 line key reminder switch connector and ETACS-ECU connector.

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

### STEP 4. Check of ignition key cylinder illumination lamp bulb

Check that the ignition key cylinder illumination lamp bulb is normal.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the bulb of the ignition key cylinder illumination lamp.

### STEP 5. Check of open circuit in earth line between key reminder switch connector and body earth.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

### STEP 6. Check of open circuit in (RLP-1, RLP-2&RLP-3) line between key reminder switch connector and body earth.

**STEP 7. Retest the system**

Check that the ignition key cylinder illumination lamp illuminates/extinguishes 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 ).  
**NO** : Replace the ETACS-ECU.

**Inspection Procedure 2: Malfunction of the ignition switch power supply system****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

**COMMENTS ON TROUBLE SYMPTOM**

When the power supply system of ignition switch has a problem, none of the equipment and system connected to the ignition switch works even if the ignition switch is operated.

**POSSIBLE CAUSES**

- Malfunction of the ignition switch
- Malfunction of the fuse
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Voltage measurement at ignition switch connector**

- (1) Disconnect the ignition switch connector and measure the voltage at ignition switch connector harness side.
- (2) Check the voltage between the ignition switch connector (power supply terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

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

**STEP 2. Check the fuse.**

**Q: Is the check result normal?**

**YES** : Go to Step 3.  
**NO** : Replace the fuse. (Check that there is not a short to earth in the circuit of lower reaches before replacing. If there are any problems, replace the fuse after the circuit of lower reaches is repaired.)

**STEP 3. Check of open circuit in IG+ line between ignition switch connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

**YES** : Go to Step 4.  
**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Check the ignition switch.**

Refer to [P.54A-19.](#)

**Q: Is the ignition switch in good condition?**

**YES** : Go to Step 5.  
**NO** : Replace the ignition switch.

**STEP 5. Retest the system.**

**Q: Do the device and the system work normally when the ignition switch is operated?**

**YES** : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).  
**NO** : Replace the ETACS-ECU.

**Inspection Procedure 3: Even when the selector lever is in the P position, the ignition switch cannot be turned to the LOCK (OFF) position. /When the selector lever is in other than the P position, the ignition switch can be turned to the LOCK (OFF) position.**

## COMMENTS ON TROUBLE SYMPTOM

The mechanical steering lock controls the steering lock solenoid, so that the steering lock cylinder turns from ACC to LOCK only when the selector lever is in the P position. If the steering lock cylinder does not turn from ACC to LOCK even when the selector lever is in the P position, or if the steering lock cylinder turns from ACC to LOCK when the selector lever is in other than the P position, the steering lock solenoid, selector lever assembly, wiring harness, or connector may have a problem.

## PROBABLE CAUSES

- Steering lock solenoid malfunction
- Selector lever assembly malfunction
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III other system service data

- Turn the ignition switch to the ACC position, and check the ETACS-ECU service data.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 288 | ACC switch | ON               |

**OK: Normal conditions are displayed for item.**

**Q: Is the check result normal?**

**YES : Go to Step 2.**

**NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 1 "The ignition switch (ACC) signal is not received" [P.54A-312](#).**

### STEP 2. Voltage measurement at selector lever assembly connector

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch from "ACC" position.
- (3) Check the voltage between the selector lever assembly connector (power supply terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

**YES : Go to Step 4.**

**NO : Go to Step 3.**

### STEP 3. Check of short to power supply, short to earth, and open circuit in ACC1 line between selector lever assembly connector and ETACS-ECU connector

**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 ).**

**NO : Repair the connector(s) or wiring harness.**

### STEP 4. Resistance measurement at selector lever assembly connector.

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the selector lever assembly connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES : Go to Step 6.**

**NO : Go to Step 5.**

### STEP 5. Check of open circuit in earth line between selector lever assembly connector and body earth.

**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 ).**

**NO : Repair the connector(s) or wiring harness.**

### STEP 6. Steering lock solenoid check

Refer to GROUP 37 – Steering column shaft assembly .

**Q: Is the check result normal?**

**YES : Go to Step 7.**

**NO : Replace the steering lock solenoid.**

### STEP 7. Resistance measurement at steering lock solenoid connector.

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

- (2) Measure the resistance between the steering lock solenoid connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 9.

**NO** : Go to Step 8.

**STEP 8. Check of open circuit in earth line between steering lock solenoid connector and body earth.**

**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 ).

**NO** : Repair the connector(s) or wiring harness.

**YES** : Go to Step 10.

**NO** : Repair the connector(s) or wiring harness.

**STEP 10. Retest the system**

Check that the ignition switch can be turned to the LOCK (OFF) position when the selector lever is in the P position. Or, check that the ignition switch cannot be turned to the LOCK (OFF) position when the selector lever is in other than the P position.

**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 ).

**NO** : Replace the selector lever assembly.

**IGNITION SWITCH**

**REMOVAL AND INSTALLATION**

M1541200300872

**STEP 9. Check of short to power supply, short to earth, and open circuit in signal line between selector lever assembly connector and steering lock solenoid connector.**

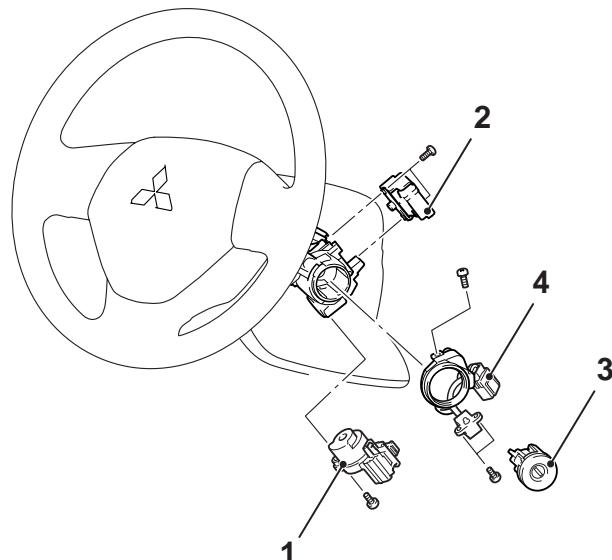
**Q: Is the check result normal?**

**Pre-removal Operation**

- Wiper/Washer Switch Removal (Refer to [P.54A-204](#)).

**Post-installation Operation**

- Wiper/Washer Switch Installation (Refer to [P.54A-204](#)).



ACB05510AB

**Removal Steps**

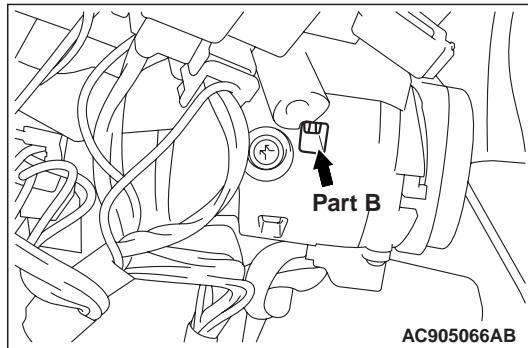
1. Ignition switch
2. Steering lock solenoid

**<<A>>**

**Removal Steps (Continued)**

3. Steering lock cylinder
4. Key reminder switch and key ring antenna assembly

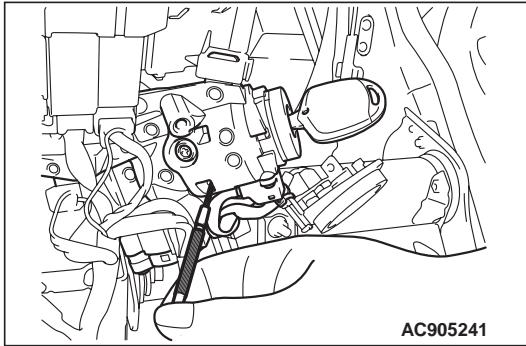
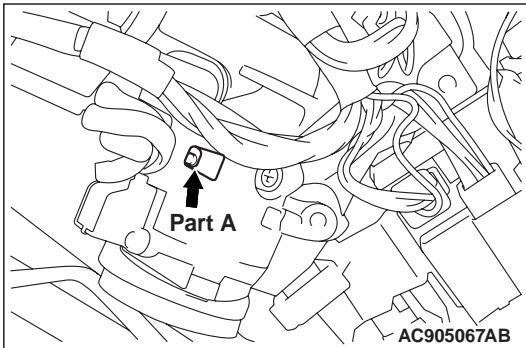
**NOTE:** Other than the single unit supplying of key reminder switch and key ring antenna assembly as well as of ignition switch, they are also supplied as the mechanical steering lock assembly (mechanical steering lock, steering lock bracket, steering lock bolt, key reminder switch and key ring antenna assembly, and ignition switch are supplied as a set). For how to remove the mechanical steering lock, steering lock bracket, and steering lock bolt, refer to GROUP 37 – Steering Shaft Disassembly and Reassembly.



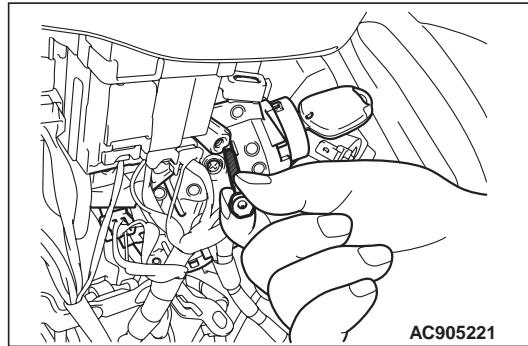
## REMOVAL SERVICE POINT

### <<A>> STEERING LOCK CYLINDER REMOVAL

1. Insert the key into the steering lock cylinder, and turn the ignition key to the "ACC" position.



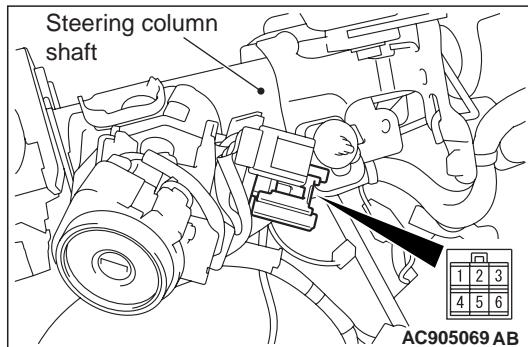
2. Using a flat-tipped precision screwdriver or similar tool, press the lock button located at the part "A" shown in the figure.



3. Subsequently, using a flat-tipped precision screwdriver or similar tool, press the step generated at the part "B" toward the direction of front passenger's seat. Then, pull out the ignition key, and then remove the steering lock cylinder.

## IGNITION SWITCH CHECK

M1541200400307



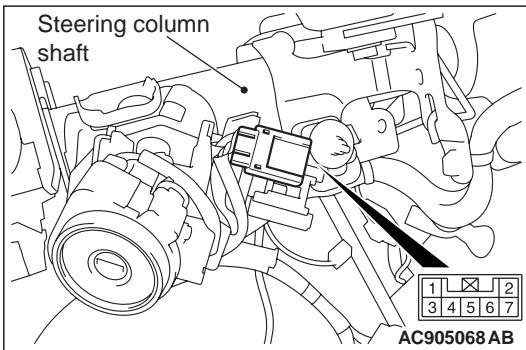
With the ignition switch mounted to the vehicle, disconnect the ignition switch connection connector, and then perform the continuity check in each ignition key position.

| Ignition key position | Terminal number               | Normal condition                   |
|-----------------------|-------------------------------|------------------------------------|
| LOCK                  | 1 – 2, 1 – 4, 1 – 5,<br>1 – 6 | No continuity                      |
| ACC                   | 1 – 6                         | Continuity exists<br>(2 Ω or less) |
| ON                    | 1 – 2 – 4 – 6                 | Continuity exists<br>(2 Ω or less) |

| Ignition key position | Terminal number | Normal condition                |
|-----------------------|-----------------|---------------------------------|
| START                 | 1 – 2 – 5       | Continuity exists (2 Ω or less) |

## KEY REMINDER SWITCH CHECK

M1541200500315



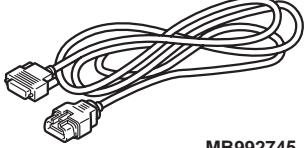
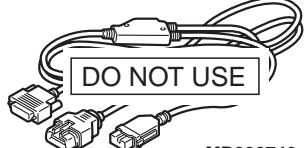
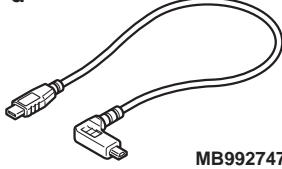
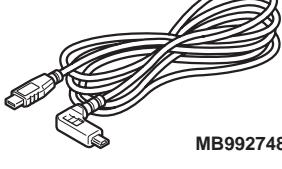
With the key reminder switch mounted to the vehicle, disconnect the key reminder switch connection connector, and then perform the continuity check.

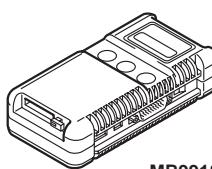
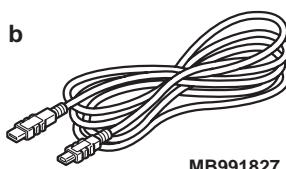
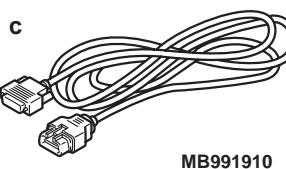
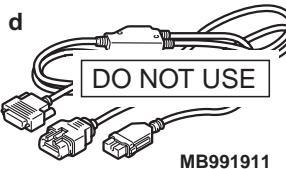
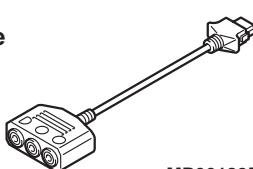
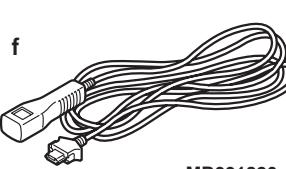
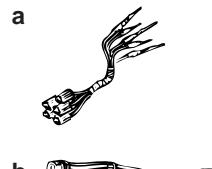
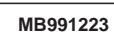
| Key status   | Terminal number | Normal condition                |
|--------------|-----------------|---------------------------------|
| Key removed  | 4 – 6           | Continuity exists (2 Ω or less) |
| Key inserted | 4 – 6           | No continuity                   |

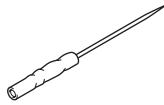
# IMMOBILIZER SYSTEM <Vehicles without keyless operation system>

## SPECIAL TOOLS

M1541106600120

| Tool   | Number  | Name  | Use                  |
|--|---|---|----------------------|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code check |
| b<br><br>MB992745                 |   |   |                      |
| c<br><br>MB992746                |   |   |                      |
| d<br><br>MB992747               |   |   |                      |
| e<br><br>MB992748<br>ACB05421AB |   |   |                      |

| Tool  | Number   | Name   | Use  |
|---|--|--|--|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>communication interface (V.C.I.)<br>b. M.U.T.-III<br>USB cable<br>c. M.U.T.-III<br>main harness A (for vehicles with CAN communication)<br>d. M.U.T.-III<br>main harness B (for vehicles without CAN communication)<br>e. Measuring<br>adapter<br>harness<br>f. M.U.T.-III<br>trigger<br>harness | <b>CAUTION</b><br>For vehicles with CAN communication, use the M.U.T.-III main harness A to send simulated vehicle speed. If you connect the M.U.T.-III main harness B instead, the CAN communication does not function correctly.<br>Diagnosis code check |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>MB991223</b>  | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Wiring harness set<br>a. Check<br>harness<br>b. LED harness<br>c. LED harness<br>adapter<br>d. Probe   | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester      |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

## TROUBLESHOOTING

### DIAGNOSIS TROUBLESHOOTING FLOW

M1541106700127

Refer to GROUP 00 – Contents of Troubleshooting .

### DIAGNOSTIC FUNCTION

M1541100500222

### HOW TO READ DIAGNOSIS CODE

Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points .

### HOW TO ERASE DIAGNOSIS CODE

Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points .

#### Display item list

| Item No. | Item name          | Data item   | Unit                           |
|----------|--------------------|---|--------------------------------|
| 1        | Odometer           | Total driving distance after the diagnosis code is generated  | km                             |
| 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. |
| 3        | Elapsed time       | Total elapsed time after a diagnosis code is generated  | min                            |
| 4        | Accumulated minute | Cumulative time for current malfunction of diagnosis code   | min                            |

## CHART CLASSIFIED BY DIAGNOSIS CODES

M1541100400247

#### CAUTION

During diagnosis, a diagnosis 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 diagnosis code(s). If diagnosis code(s) are set, erase them all.

| Code No. | Diagnosis contents                | Reference page           |
|----------|-----------------------------------|--------------------------|
| B1731    | Engine ECU authentication timeout | <a href="#">P.54A-24</a> |
| B1A24    | Key ID not registered             | <a href="#">P.54A-25</a> |
| B1A25    | Key ID unmatched                  | <a href="#">P.54A-25</a> |
| B1A28    | Engine-ECU authentication error   | <a href="#">P.54A-26</a> |
| B1A35    | Transponder read error            | <a href="#">P.54A-27</a> |

| Code No. | Diagnosis contents | Reference page           |
|----------|--------------------|--------------------------|
| B2352    | Antenna fail       | <a href="#">P.54A-28</a> |

## DIAGNOSIS CODE PROCEDURES

### Code No.B1731 Engine ECU authentication timeout

#### ⚠ CAUTION

- When the diagnosis code No. B1731 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

#### DIAGNOSIS FUNCTION

ETACS-ECU checks if the data from the engine-ECU is received via the CAN bus line. When ETACS-ECU cannot receive the engine-ECU data, it sets the diagnosis code No. B1731.

#### JUDGEMENT CRITERIA

ETACS-ECU determines that the abnormality is present, if it cannot receive the data from the engine-ECU via the CAN bus line when the ignition switch is turned ON.

#### PROBABLE CAUSES

- Malfunction of CAN bus line
- Damaged wiring harness and connectors
- Malfunction of Engine-ECU
- Malfunction of ETACS-ECU

#### DIAGNOSIS PROCEDURE

##### STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). On completion, go to Step 2.

##### STEP 2. M.U.T.-III other system diagnosis code

Check whether an engine-related diagnosis code is set.

Q: Is the diagnosis code set?

YES : Perform troubleshooting for the engine (Refer to GROUP 13A – Troubleshooting ).  
NO : Go to Step 3.

##### STEP 3. M.U.T.-III other system diagnosis code

Check if diagnosis code No.U0100 is set to ETACS-ECU.

Q: Is the diagnosis code set?

YES : Go to Step 5.

NO : Go to Step 4.

##### STEP 4. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set to ETACS-ECU.

- Turn the ignition switch from the LOCK (OFF) position to the ON position.
- Check if the diagnosis code is set.

Q: Is the diagnosis code set?

YES : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)).

NO : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

##### STEP 5. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set to ETACS-ECU.

- Turn the ignition switch from the LOCK (OFF) position to the ON position.
- Check if the diagnosis code is set.

Q: Is the diagnosis code set?

YES : Replace the engine-ECU and register the chassis number and key codes [Refer to GROUP 00 – How to Perform Chassis Number (Chassis No.) Writing ].

NO : The diagnosis is complete.

## Code No.B1A24 Key ID not registered

### ⚠ CAUTION

- When the diagnosis code No. B1A24 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

### DIAGNOSIS FUNCTION

ETACS-ECU sets the diagnosis code No. B1A24 when the key ID was not registered in it.

### JUDGMENT CRITERIA

ETACS-ECU determines that the abnormality is present, if the ignition key's key ID is not registered in ETACS-ECU when the ignition switch is turned ON.

### PROBABLE CAUSES

- Malfunction of CAN bus line
- Key ID not registered
- Malfunction of ETACS-ECU

### DIAGNOSIS PROCEDURE

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

#### STEP 2. Register the key ID and recheck the diagnosis code.

Register the key ID of the ignition key by which the diagnosis code is set (Refer to [P.54A-33](#)), and recheck if the diagnosis code is set.

(1) Insert the ignition key into ignition switch.

Remove the ignition key from the ignition switch, and then insert the key again. Turn the ignition switch to the ON position within 2 to 3 seconds.

(2) Check if the diagnosis code is set.

Q: Is the diagnosis code set?

YES : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)).

NO : The diagnosis is complete.

## Code No.B1A25 Key ID unmatched

### ⚠ CAUTION

- When the diagnosis code No. B1A25 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

### DIAGNOSIS FUNCTION

ETACS-ECU sets the diagnosis code No. B1A25 when the received key ID is different from the one registered in it.

### JUDGEMENT CRITERIA

ETACS-ECU determines that the abnormality is present, if the key ID for the ignition key does not match the one registered in ETACS-ECU when the ignition switch is turned ON.

### PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of the ignition key
- Malfunction of ETACS-ECU
- Accessory key not registered

### • Key is registered to another vehicle

### DIAGNOSIS PROCEDURE

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

#### STEP 2. Register the key ID and recheck the diagnosis code.

Register the key ID of the ignition key by which the diagnosis code is set (Refer to [P.54A-33](#)), and recheck if the diagnosis code is set.

(1) Insert the ignition key into ignition switch.

Remove the ignition key from the ignition switch, and then insert the key again. Turn the ignition switch to the ON position within 2 to 3 seconds.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 3

**NO** : The diagnosis is complete.

### STEP 3. Replace the ignition key with another registered key for the vehicle, and recheck the diagnosis code.

Replace the ignition key by which the diagnosis code is set with another ignition key nearby, and recheck if the diagnosis code is set.

(1) Insert the ignition key into ignition switch.

Remove the ignition key from the ignition switch, and then insert the key again. Turn the ignition switch to the ON position within 2 to 3 seconds.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4

**NO** : Go to Step 5

### STEP 4. Register the key ID and recheck the diagnosis code.

Register the key ID of the ignition key by which the diagnosis code is set in Step 3 (refer to [P.54A-33](#)), and recheck if the diagnosis code is set.

(1) Insert the ignition key into ignition switch.

Remove the ignition key from the ignition switch, and then insert the key again. Turn the ignition switch to the ON position within 2 to 3 seconds.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 5

**NO** : The diagnosis is complete.

### STEP 5. Replace the ignition key with a new one, and recheck the diagnosis code.

Replace the ignition key by which the diagnosis code is set with a new one, register the key ID of the new key, (refer to [P.54A-33](#)), and recheck if the diagnosis code is set.

(1) Insert the ignition key into ignition switch.

Remove the ignition key from the ignition switch, and then insert the key again. Turn the ignition switch to the ON position within 2 to 3 seconds.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)).

**NO** : The diagnosis is complete.

## Code No.B1A28 Engine-ECU authentication error

### CAUTION

- When the diagnosis code No. B1A28 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

### DIAGNOSIS FUNCTION

ETACS-ECU sets diagnosis code No. B1A28 when the ETACS-ECU's key certification result and the engine-ECU's starting condition do not match.

### JUDGEMENT CRITERIA

ETACS-ECU determines that the abnormality is present, if the key certification result OK but engine-ECU prohibits engine start by immobilizer function or key certification result NG but engine permits engine starts.

### PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of ETACS-ECU
- Engine-ECU malfunction
- Chassis number registered in engine-ECU unmatched

### DIAGNOSIS PROCEDURE

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

#### STEP 2. M.U.T.-III other system diagnosis code

Check whether an engine-related diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Perform troubleshooting for the engine (Refer to GROUP 13A – Troubleshooting ).

**NO** : Go to Step 3.

#### STEP 3. Diagnosis code check

**Q: Is diagnosis code No. B1761 or B2206 set?**

**YES** : Proceed to diagnosis code No. B1761 (Chassis No. not programmed) or diagnosis code No. B2206 (Chassis No. mismatch) (Refer to [P.54A-283 <B1761>](#), [P.54A-286 <B2206>](#)).

**NO** : Go to Step 4.

---

**STEP 4. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Once key is removed from the ignition cylinder and then turn the ignition switch from the LOCK (OFF) position to the ON position.
- (2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)). Then go to Step 5.

**NO** : The diagnosis is complete.

---

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the engine-ECU and register the chassis number and key codes [Refer to GROUP 00 – How to Perform Chassis Number (Chassis No.) Writing ].

**NO** : The diagnosis is complete.

---

**Code No.B1A35 Transponder read error**

**⚠ CAUTION**

- When the diagnosis code No. B1A35 is set, be sure to diagnose the CAN bus line.
- When replacing the ECU, always check that the communication circuit is normal.

**DIAGNOSIS FUNCTION**

ETACS-ECU sets the diagnosis code No. B1A35 when it cannot receive data from the transponder.

**JUDGEMENT CRITERIA**

ETACS-ECU determines that the abnormality is present, if it cannot receive the key ID for the ignition key when the ignition switch is turned ON.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of the ignition key
- Malfunction of receiver antenna
- Malfunction of ETACS-ECU
- Interference of the key ID

**DIAGNOSIS PROCEDURE**

---

**STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

**STEP 2. Check the ignition key inserted in the key cylinder for interference.**

**Q: Are there other ignition keys or anything that interferes with the communication (things that generate radio waves such as magnets or air-cleaning device that has a power plug) near the ignition key inserted in the key cylinder?**

**YES** : Move away or remove other ignition keys or anything that interferes with the communication, and go to Step 3.

**NO** : Go to Step 3.

---

**STEP 3. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : The diagnosis is complete.

---

**STEP 4. Replace the ignition key with another registered key for the vehicle, and recheck the diagnosis code.**

Replace the ignition key by which the diagnosis code is set with another ignition key nearby, and recheck if the diagnosis code is set.

- (1) Turn the ignition switch from the LOCK (OFF) position to the ON position.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 5.

**NO** : Go to Step 6.

#### STEP 5. Register the key ID and recheck the diagnosis code.

Register the key ID of the ignition key by which the diagnosis code is set in Step 4 (refer to [P.54A-33](#)), and recheck if the diagnosis code is set.

(1) Turn the ignition switch from the LOCK (OFF) position to the ON position.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 6.

**NO** : The diagnosis is complete.

position to the ON position.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 7.

**NO** : The diagnosis is complete.

#### STEP 6. Replace the ignition key with a new one, and recheck the diagnosis code.

Replace the ignition key by which the diagnosis code is set with a new one, register the key ID of the new key, (refer to [P.54A-33](#)), and recheck if the diagnosis code is set.

(1) Turn the ignition switch from the LOCK (OFF)

#### STEP 7. Replace the receiver antenna, and recheck the diagnosis code.

Replace the receiver antenna, register the key ID of the new key (refer to [P.54A-33](#)), and recheck if the diagnosis code is set.

(1) Turn the ignition switch from the LOCK (OFF) position to the ON position.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)).

**NO** : The diagnosis is complete.

#### Code No.B2352 Antenna fail

##### ⚠ CAUTION

When replacing the ECU, always check that the communication circuit is normal.

#### DIAGNOSIS FUNCTION

ETACS-ECU sets the diagnosis code No. B2352 when open or short circuit to the earth in the antenna at the key reminder switch is detected.

#### JUDGMENT CRITERIA

When during the transponder communication, the antenna at the key reminder switch (immobilizer antenna) malfunction is found, ETACS-ECU determines that the abnormality is present.

#### PROBABLE CAUSES

- Malfunction of key reminder switch (open circuit of immobilizer antenna)
- Damaged wiring harness and connectors
- Malfunction of receiver antenna
- Malfunction of ETACS-ECU

#### DIAGNOSIS PROCEDURE

##### STEP 1. M.U.T.-III data list

Check the ETACS-ECU service data.

- Turn the ignition switch to the OFF (key inserted) position.

| Item No. | Item name          | Normal condition |
|----------|--------------------|------------------|
| Item 264 | Handle lock switch | Key in           |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Refer to GROUP 54A – Inspection Procedure 3: "Key reminder switch signal is not received [P.54A-314](#)."

##### STEP 2. Resistance measurement at the receiver antenna connector (ANTP, ANTG line).

- Disconnect the connector and measure the resistance at the wiring harness side.
- Insert the ignition key into ignition switch.
- Measure the resistance between the receiver

antenna connector (ANTP, ANTG line) and the body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

YES : Go to Step 4

NO : Go to Step 3

**STEP 3. Check of short to power supply, short to earth, and open circuit in ANTP, ANTG line between receiver antenna connector and key reminder switch connector .**

**Q: Is the check result normal?**

YES : Go to Step 4

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check whether the diagnosis code is reset.**

(1) Erase the diagnosis code.

(2) Turn the ignition switch from the LOCK (OFF) position to the ON position.

(3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace receiver antenna and turn the ignition switch to the ON and OFF. Then go to Step 5.

**NO** : The diagnosis is complete.

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

(1) Turn the ignition switch from the LOCK (OFF) position to the ON position.

(2) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)).

**NO** : The diagnosis is complete.

#### DATA LIST REFERENCE TABLE

M1541104000122

| Item No. | Check item                     | Check condition | Normal condition   |
|----------|--------------------------------|-----------------|--|
| 1        | Number of registered IMMOB.key | —               | Number of stored ignition keys (Number of registered ignition keys that can start the engine)              |
| 2        | Memorized keyless keys         | —               | Number of stored transmitters (Number of registered ignition keys that can perform keyless entry function) |
| 3        | Received key data(ID)          | —               | Key ID for stored ignition key   |
| 4        | Received key data(button)      | —               | Switch display of transmitter  |

#### TROUBLE SYMPTOM CHART

M1541100300239

##### **CAUTION**

During diagnosis, a diagnosis 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 diagnosis code(s). If diagnosis code(s) are set, erase them all.

| Trouble symptom   | Inspection procedure No. | Reference page           |
|---|--------------------------|--------------------------|
| M.U.T.-III cannot communicate with ETACS-ECU.                     | 1                        | <a href="#">P.54A-30</a> |
| The ignition key cannot be registered using M.U.T.-III.           | 2                        | <a href="#">P.54A-30</a> |
| Engine does not start.  | 3                        | <a href="#">P.54A-31</a> |
| Check the power supply and earth circuit to the receiver antenna. | 4                        | <a href="#">P.54A-32</a> |

## SYMPTOM PROCEDURES

## Inspection Procedure 1: M.U.T.-III cannot communicate with ETACS-ECU.

**CAUTION**

Before replacing the ECU, ensure that the communication circuit is normal.

**COMMENTS ON TROUBLE SYMPTOM**

ETACS-ECU is communicating with M.U.T.-III via CAN. Therefore, communication error of ETACS-ECU is suspected.

**PROBABLE CAUSES**

- Malfunction of the power supply and the earth of ETACS-ECU
- Malfunction of CAN bus line

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). On completion, go to Step 3.

**STEP 2. Check the power supply circuit and the earth circuit to ETACS-ECU.**

Refer to Inspection Procedure "ETACS-ECU power supply circuit" [P.54A-311](#).

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Repair the power supply circuit and the earth circuit to ETACS-ECU.

**STEP 3. Retest the system**

Check if M.U.T.-III can communicate with ETACS-ECU.

**Q: Is the check result normal?**

**YES** : Intermittent malfunction (Refer to GROUP 00 – How to Use

Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

**NO** : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)).

## Inspection Procedure 2: The ignition key cannot be registered using M.U.T.-III.

**COMMENTS ON TROUBLE SYMPTOM**

If only some ignition keys cannot be registered, the ignition key itself may be faulty. If no ignition key can be registered, the key assembly may have already been registered for another vehicle, or the receiver antenna or ETACS-ECU may be faulty.

**PROBABLE CAUSES**

- Malfunction of the ignition key
- Damaged wiring harness and connectors
- Malfunction of receiver antenna
- Malfunction of ETACS-ECU
- Ignition key registered for other vehicle

**DIAGNOSIS PROCEDURE****STEP 1. Check the ignition key inserted in the key cylinder for interference.**

**Q: Are there other ignition keys or anything that interferes with the communication (things that generate radio waves such as magnets and an air-cleaning device that has a power plug) near the ignition key inserted in the key cylinder?**

**YES** : Move away or remove other ignition keys or things that interfere with the communication (things that generate radio waves such as magnets and an air-cleaning device that has a power plug) near the ignition key. Then, go to step 2.

**NO** : Go to Step 3.

**Q: Is the check result normal?**

**YES** : The diagnosis is complete.

**NO** : Go to Step 3.

**STEP 2. Retest the system**

Check that the ignition key can be registered.

**STEP 3. Check which ignition key cannot be registered.**

**Q: Can any one of the ignition keys be registered?**

**Only some keys** : Replace the key that cannot be registered and register the ID codes (Refer to [P.54A-33](#)). After registering the ID codes, go to Step 5.

**All keys** : Go to Step 4.

**STEP 4. Retest the system**

Check the M.U.T.-III screen when the key was not able to be registered.

**Q: Which error message did the M.U.T.-III display?**

**Abnormality in key** : Carry out diagnosis code No. B1A25: Key ID unmatched and diagnosis code No. B1A35: Transponder read error (Refer to [P.54A-25](#) <B1A25>, [P.54A-27](#) <B1A35>). Then, go to Step 5.

**ECU internal error** : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)). After registering the ID codes, go to Step 5.

**Inspection Procedure 3: Engine does not start.**

**COMMENTS ON TROUBLE SYMPTOM**

If the fuel injection does not work, ETACS-ECU, receiver antenna and the MPI system may have a problem. This symptom is not considered abnormal when the engine is started by an ignition key that has not been registered.

**PROBABLE CAUSES**

- Malfunction of the MPI system
- Malfunction of receiver antenna
- Malfunction of ETACS-ECU
- Malfunction of CAN bus line
- Malfunction of the transponder
- Chassis No. not programmed

**DIAGNOSIS PROCEDURE**

**STEP 1. Battery voltage check**

Measure the battery voltage when cranking.

**OK: 8 V or more**

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Check the battery (Refer to [P.54A-10](#)).

**STEP 2. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 3. M.U.T.-III other system diagnosis code**

Check whether the MPI system-related diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Refer to GROUP 13A – Troubleshooting .

**NO** : Go to Step 4.

**STEP 4. M.U.T.-III diagnosis code**

Check whether the Immobilizer system-related diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Refer to Diagnosis code chart [P.54A-23](#).

**NO** : Go to Step 5.

**STEP 5. Check that the engine starts**

**Q: Does the engine start?**

**YES** : The diagnosis is complete.

**NO** : Refer to GROUP 13A – Troubleshooting . Then go to Step 6.

**STEP 6. Check that the engine starts**

Replace the receiver antenna.

**Q: Does the engine start?**

**YES** : The diagnosis is complete.

**NO** : Replace ETACS-ECU and register the ID codes (Refer to [P.54A-33](#)).

**Inspection Procedure 4: Check the power supply and earth circuit to the receiver antenna.****COMMENTS ON TROUBLE SYMPTOM**

If receiver antenna does not work at all (keyless entry or immobilizer cannot operate), the power supply or earth circuit system of receiver antenna may be faulty.

**PROBABLE CAUSES**

- Damaged wiring harness and connectors
- Malfunction of receiver antenna

**DIAGNOSIS PROCEDURE****STEP 1. Voltage measurement at the receiver antenna connector (5V line).**

- (1) Disconnect the connector and measure the resistance at the wiring harness side.
- (2) Measure the voltage between the receiver antenna connector (5V line) and the body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 3.

NO : Go to Step 2.

**STEP 2. Check of open circuit in 5V line between receiver antenna connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Repair the connector(s) wiring harness.

**STEP 3. Resistance measurement at the receiver antenna connector (GND line).**

- (1) Disconnect the connector and measure the resistance at the wiring harness side.
- (2) Measure the resistance between the receiver antenna connector (GND line) and the body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : The diagnosis is complete.

**NO** : Go to Step 4.

**STEP 4. Check of short to earth, and open circuit in GND line between receiver antenna connector and ETACS-ECU connector.**

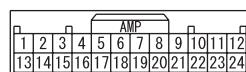
**Q: Is the check result normal?**

**YES** : The diagnosis is complete.

**NO** : Repair the connector(s) and wiring harness.

**CHECK AT ECU TERMINAL**

M1541104100215

**RECEIVER ANTENNA TERMINAL CHECK**

ACC00129

| Terminal number | Terminal code | Check item                                  | Check condition                  | Normal condition        |
|-----------------|---------------|---|----------------------------------|-------------------------|
| 1               | —             | —   | —                                | —                       |
| 2               | ANTG          | Immobilizer antenna output (-)              | When immobilizer authentication* | 5 Vp-p                  |
| 3               | —             | —   | —                                | —                       |
| 4               | 5V            | Power supply (5V)                           | Always                           | 5 V                     |
| 5               | SIGR          | Keyless entry system signal output          | Always                           | 0 to 5 V (pulse signal) |
| 6               | PWRC          | Receiver antenna (door entry) power control | Ignition switch is OFF           | 0 to 5 V (pulse signal) |
| 7               | GND           | Earth                                       | Always                           | 1 V or less             |
| 8 to 13         | —             | —   | —                                | —                       |

| Terminal number | Terminal code | Check item                      | Check condition                  | Normal condition        |
|-----------------|---------------|---------------------------------|----------------------------------|-------------------------|
| 14              | ANTP          | Immobilizer antenna output (+)  | When immobilizer authentication* | 70 Vp-p                 |
| 15              | —             | —                               | —                                | —                       |
| 16              | SIGI          | Immobilizer signal input/output | When immobilizer authentication* | 0 to 5 V (pulse signal) |
| 17              | —             | —                               | —                                | —                       |
| 18              | WCLK          | Immobilizer CLOCK input         | When immobilizer authentication* | 0 to 5 V (pulse signal) |
| 19 to 24        | —             | —                               | —                                | —                       |

NOTE: \* : When insert ignition key to ignition switch or turn ignition switch from ACC to ON.

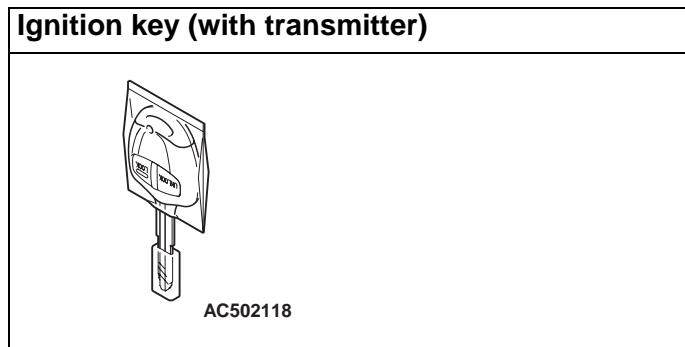
## ON-VEHICLE SERVICE

### HOW TO REGISTER KEY ID

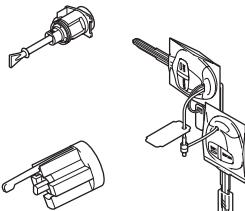
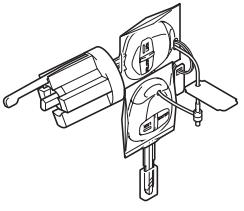
M1541104300521

For the details of key registration procedure, refer to the ID registration procedure manual.

#### KEY SUPPLY UNIT

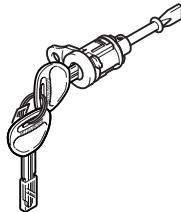


#### KEY SUPPLY UNIT LIST FOR OTHER THAN INDIVIDUAL KEY

|   |  |
|---|--|
| Full service key set <vehicles with keyless entry system>                                       | Steering lock service key set <vehicles with keyless entry system>                               |
| <br>ACA00906 | <br>AC808657 |

## Door service key set

**NOTE: It is the key that comes with the door service key set and the tailgate service key set. It can only be used for locking and unlocking, and it cannot start the engine.**



AC608188

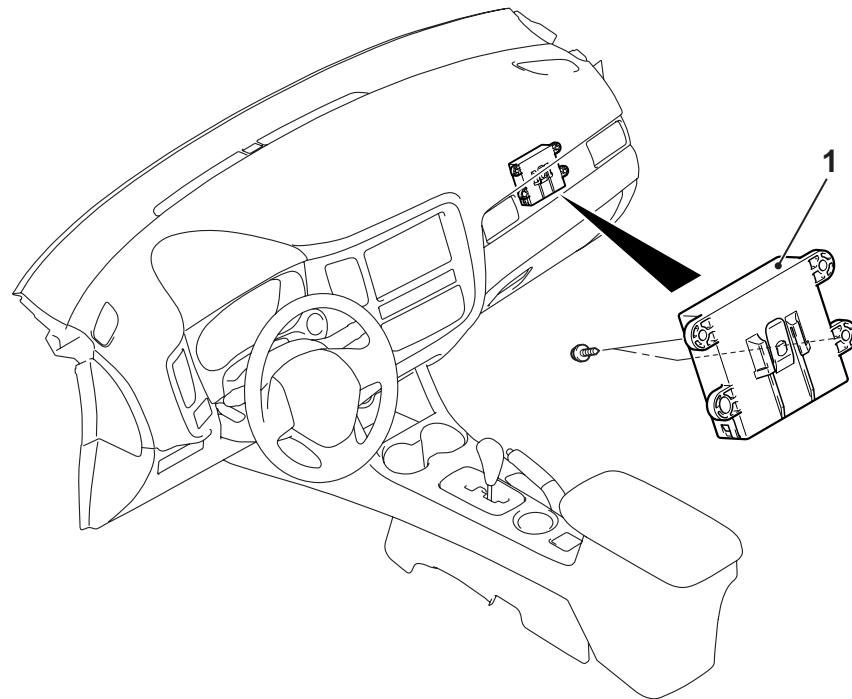
## RECEIVER ANTENNA

## REMOVAL AND INSTALLATION

M1541107500018

**CAUTION**

When receiver antenna has been replaced, turn the ignition switch to ON and OFF once.



ACB05639AB

**Removal steps**

- Upper glove box assembly (Refer to GROUP 52A – Instrument panel assembly.)
- 1. Receiver antenna

## COMBINATION METER

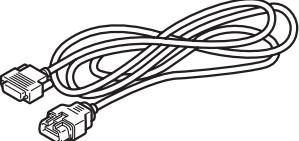
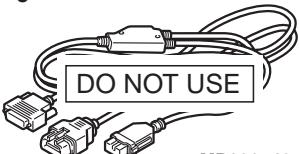
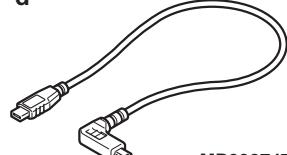
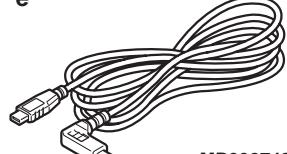
## SERVICE SPECIFICATIONS

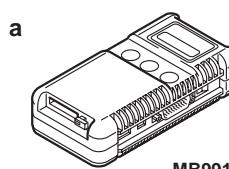
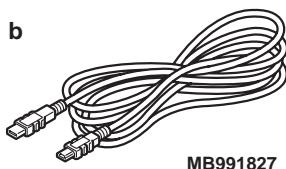
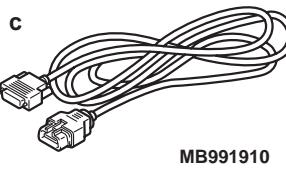
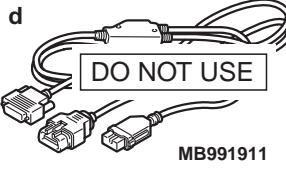
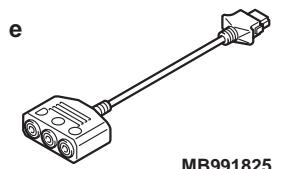
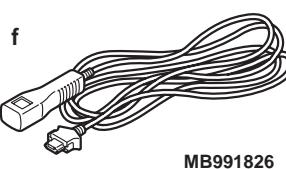
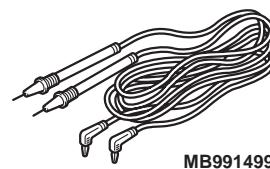
M1540200200805

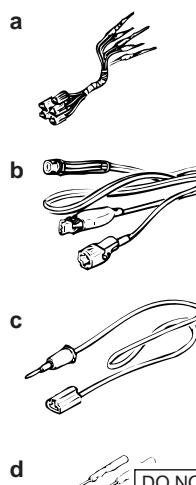
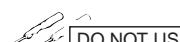
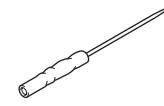
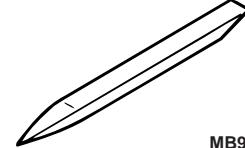
| Item                                  | Standard value                                     |      |                      |
|---------------------------------------|--|------|----------------------|
| Speedometer indication range km/h     | at 20 km/h   |      |                      |
|                                       | at 40 km/h   |      |                      |
|                                       | at 80 km/h   |      |                      |
|                                       | at 120 km/h  |      |                      |
|                                       | at 160 km/h  |      |                      |
|                                       | at 200 km/h  |      |                      |
|                                       | at 240 km/h  |      |                      |
| Tachometer indicating tolerance r/min | Engine speed at 600 r/min                          |      |                      |
|                                       | Engine speed at 3,000 r/min                        |      |                      |
|                                       | Engine speed at 5,000 r/min                        |      |                      |
|                                       | Engine speed at 6,000 r/min                        |      |                      |
| 2WD                                   | Nominal resistance of the fuel gauge unit $\Omega$ |      |                      |
|                                       | Stopper position "F"                               |      |                      |
|                                       | Stopper position "E"                               |      |                      |
|                                       | Fuel gauge unit float height mm                    |      |                      |
| 4WD                                   | Nominal resistance of the fuel gauge unit $\Omega$ | Main | Stopper position "F" |
|                                       |  | Main | Stopper position "E" |
|                                       |  | Sub  | Stopper position "F" |
|                                       |  | Sub  | Stopper position "E" |
|                                       | Fuel gauge unit float height mm                    | Main | Stopper position "F" |
|                                       |  | Main | Stopper position "E" |
|                                       |  | Sub  | Stopper position "F" |
|                                       |  | Sub  | Stopper position "E" |

## SPECIAL TOOLS

M1540200300437

| Tool   | Number  | Name  | Use   |
|--|---|---|---|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Combination meter (incorporating the meter-ECU) check (Diagnosis code, service data, actuator test) |
| b<br><br>MB992745                 |   |   |   |
| c<br><br>DO NOT USE<br>MB992746   |   |   |   |
| d<br><br>MB992747               |   |   |   |
| e<br><br>MB992748<br>ACB05421AB |   |   |   |

| Tool  | Number  | Name  | Use  |
|---|---|---|--|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | <b>MB991955</b><br><b>a. MB991824</b><br><b>b. MB991827</b><br><b>c. MB991910</b><br><b>d. MB991911</b><br><b>e. MB991825</b><br><b>f. MB991826</b> | <b>M.U.T.-III</b><br><b>sub-assembly</b><br><b>a. Vehicle</b><br><b>Communication</b><br><b>Interface (V.C.I.)</b><br><b>b. M.U.T.-III USB</b><br><b>cable</b><br><b>c. M.U.T.-III main</b><br><b>harness A</b><br><b>(Vehicles with CAN</b><br><b>communication</b><br><b>system)</b><br><b>d. M.U.T.-III main</b><br><b>harness B</b><br><b>(Vehicles without</b><br><b>CAN</b><br><b>communication</b><br><b>system)</b><br><b>e. M.U.T.-III measure</b><br><b>adapter</b><br><b>f. M.U.T.-III trigger</b><br><b>harness</b> | <b>⚠ CAUTION</b><br><b>For vehicles with CAN</b><br><b>communication, use M.U.T.-III</b><br><b>main harness A to send</b><br><b>simulated vehicle speed. If you</b><br><b>connect M.U.T.-III main harness</b><br><b>B instead, the CAN</b><br><b>communication does not</b><br><b>function correctly.</b><br>Combination meter (incorporating the meter-ECU) check (Diagnosis code, service data, actuator test) |
| <br><b>MB991499</b>  | <b>MB991499</b>   | Measurement probe   | Measurements of voltage and<br>resistance value<br><i>NOTE: M.U.T.-II attached probe</i><br><i>(Commercial probes can also be</i><br><i>used.)</i>   |

| Tool   | Number   | Name  | Use   |
|--|--|---|---|
| <br>a<br>b<br>c<br>d<br><br>MB991223 | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222 | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester |
| <br>MB992006  | MB992006   | Extra fine probe  | Continuity check and voltage measurement at harness wire or connector   |
| <br>MB990784  | MB990784   | Ornament remover  | Removal of combination meter bezel  |

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 – Contents of troubleshooting .

### DIAGNOSIS FUNCTION

M1540200500271

### HOW TO READ DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

### HOW TO ERASE DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

### Display item list

| Item No. | Item name      | Data item   | Unit              |
|----------|----------------|---|-------------------|
| 1        | Odometer       | Total driving distance after the diagnosis code is generated  | km                |
| 2        | Ignition cycle | Number of times the ignition switch is turned "OFF (LOCK or ACC)" after the past failure transition | Number of counts. |

## CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the M.U.T.-III.

When detecting fault and storing the diagnosis code, the ECU connected to CAN bus line obtains the data before the determination of the diagnosis code and the data when the diagnosis code is determined, and then stores the ECU status of that time. By analysing each data from M.U.T.-III, the troubleshooting can be performed more efficiently. The displayed items are as the table below.

| Item No. | Item name           | Data item   | Unit |
|----------|---------------------|---|------|
| 4        | Accumulative minute | Accumulative time for current malfunction of diagnosis code | min  |

## DIAGNOSIS CODE CHART

M1540200600687

**⚠ CAUTION**

- During diagnosis, a diagnosis 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 diagnosis code(s). If diagnosis code(s) are set, erase them all.
- If the combination meter needs to be replaced as a result of troubleshooting, the current driving distance and elapsed days must be entered into the meter after the replacement in order to be used for service reminder function. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current schedule" from the meter before the replacement using the special function of M.U.T.-III, and note them. For the operation method of M.U.T.-III, refer to [P.54A-76](#). If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read from the meter using M.U.T.-III, use the following method.
  - As for the driving distance for check warning, use the driving distance displayed on the multi information display.
  - As for the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service reminder function start date) and current date.

| Diagnosis code No. | Diagnostic item                                     | Reference page           |
|--------------------|---|--------------------------|
| B1200              | Odometer failure                                    | <a href="#">P.54A-40</a> |
| B1201              | Fuel information problem                            | <a href="#">P.54A-40</a> |
| B1209              | Test mode   | <a href="#">P.54A-41</a> |
| B2463              | Rheostat switch sticking                            | <a href="#">P.54A-41</a> |
| B2464              | Meter information SW sticking <High contrast meter> | <a href="#">P.54A-42</a> |
| U0100              | Engine CAN timeout                                  | <a href="#">P.54A-42</a> |
| U0141              | ETACS CAN timeout                                   | <a href="#">P.54A-43</a> |
| U0164              | A/C CAN timeout/Not equipped                        | <a href="#">P.54A-44</a> |
| U0168              | WCM/KOS CAN timeout                                 | <a href="#">P.54A-45</a> |
| U0184              | AUDIO CAN timeout                                   | <a href="#">P.54A-46</a> |
| U0230              | Power Gate CAN timeout                              | <a href="#">P.54A-47</a> |
| U0245              | AND CAN timeout                                     | <a href="#">P.54A-48</a> |
| U1000              | OSS CAN timeout                                     | <a href="#">P.54A-49</a> |
| U1005              | Corner/Back SNS. ECU CAN timeout                    | <a href="#">P.54A-51</a> |
| U1190              | No receive fault detect signal                      | <a href="#">P.54A-52</a> |
| U1195              | Coding not completed                                | <a href="#">P.54A-52</a> |

## DIAGNOSIS CODE PROCEDURES

## Code No.B1200 Odometer failure

## TROUBLE JUDGMENT

If the odometer information, which is stored in the combination meter, is abnormal with the ignition switch at the ON position and the diagnosis code No. U1190 is not stored, the diagnosis code No. B1200 is stored.

## PROBABLE CAUSES

Malfunction of combination meter

## Code No.B1201: Fuel information problem

## △ CAUTION

Before replacing the combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

## TROUBLE JUDGEMENT

With the ignition switch at the ON position and the diagnosis code No. U1190 is not stored, if the combination meter detects the abnormal resistance of fuel level sensor circuit for 64 seconds continuously, the diagnosis code No. B1201 is stored.

## PROBABLE CAUSES

- Damaged harness wires and connectors
- Malfunction of fuel pump and gauge unit (main)
- Malfunction of fuel gauge unit (sub) <4WD>
- Malfunction of combination meter

## DIAGNOSIS PROCEDURE

## STEP 1. Check of fuel pump and gauge unit (main) circuit

- (1) Disconnect the fuel pump and gauge unit (main) connector.
- (2) Use the special tool Check harness (MB991219) to connect a test lamp (12 V - 3.4 W) between the wiring harness connector terminals.
- (3) Turn the ignition switch to the ON position.
- (4) Check if the test lamp illuminates.

OK: Illuminates

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 2.

## STEP 2. Fuel pump and gauge unit (main) and fuel gauge unit (sub) check

Check the fuel pump and gauge unit (main) and fuel gauge unit (sub). Refer to [P.54A-74](#).

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the fuel pump and gauge unit (main) and fuel gauge unit (sub).

## STEP 3. Resistance measurement at the fuel pump and gauge unit (main) connector

- (1) Disconnect the fuel pump and gauge unit (main) connector, the measure at the harness side.
- (2) Measure the resistance between the fuel pump and gauge unit (main) connector (earth terminal) and the body earth.

OK: Continuity exists (2 Ω or less)

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

## STEP 4. Check of open circuit in body earth line between fuel pump and gauge unit (main) connector and body earth.

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness, and then go to Step 7.

## STEP 5. Check of open circuit in F/G line between combination meter connector and fuel pump and gauge unit (main) connector.

Q: Is the check result normal?

**YES** : Go to Step 6.

**NO** : Repair the connector(s) or wiring harness, and then go to Step 7.

---

**STEP 6. M.U.T.-III actuator test**

- Item 03: Fuel gauge (target value): 0 → 100%

**OK: The fuel gauge operates.**

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Replace the combination meter.

---

**STEP 7. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the combination meter.

(1) Erase the diagnosis code.

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

(3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the combination meter.

**NO** : The diagnosis is complete.

---

**Code No.B1209 Test mode****TROUBLE JUDGMENT**

When the mode is changed to the meter test mode (supplier mode) with the ignition switch at the ON position and the diagnosis code No. U1190 is not stored, the combination meter stores the diagnosis code No. B1209.

---

**PROBABLE CAUSES**

Malfunction of combination meter

---

**Code No.B2463 Rheostat switch sticking****TROUBLE JUDGMENT**

If the combination meter detects the meter information switch <Standard meter> or rheostat illumination switch <High contrast meter> pressed state for 60 seconds or more continuously with the ignition switch at the ON position and the diagnosis code No. U1190 is not stored, the diagnosis code No. B2463 is stored.

---

**STEP 2. M.U.T.-III diagnosis code**

Check again if the diagnosis code is set to the combination meter.

(1) Erase the diagnosis code.

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

(3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the combination meter, and then go to Step 3.

**NO** : The diagnosis is complete.

**PROBABLE CAUSES**

- Malfunction of combination meter
- Malfunction of meter information switch <Standard meter> or rheostat illumination switch <High contrast meter>

**DIAGNOSIS PROCEDURE**

---

**STEP 1. Switch check**

Check whether the meter information switch <Standard meter> or the rheostat illumination switch <High contrast meter> on the combination meter is stuck too hard to turn on.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the combination meter, and then go to Step 2.

---

**STEP 3. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the combination meter.

(1) Erase the diagnosis code.

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

(3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The diagnosis is complete.

## Code No.B2464 Meter information SW sticking &lt;High contrast meter&gt;

**⚠ CAUTION**

Before replacing the combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**TROUBLE JUDGMENT**

If the combination meter detects the meter information switch pressed state for 60 seconds or more continuously with the ignition switch at the ON position and the diagnosis code No. U1190 is not stored, the diagnosis code No. B2464 is stored.

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of meter information switch
- Malfunction of combination meter

**DIAGNOSIS PROCEDURE****STEP 1. Meter information switch check**

Check the meter information switch. Refer to P.54A-83.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Replace the meter information switch.

**STEP 2. Resistance measurement at the meter information switch connector**

- (1) Disconnect the meter information switch connector, the measure at the harness side.
- (2) Measure the resistance between the meter information switch connector (earth terminal) and

the body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Go to Step 3.

**STEP 3. Check of open circuit in body earth line between meter information switch connector and body earth.**

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check of open circuit in MODE line between combination meter connector and meter information switch connector.**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the combination meter.

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

**Q: Is the diagnosis code set?**

YES : Replace the combination meter.

NO : The diagnosis is complete.

## Code No.U0100 Engine CAN timeout

**⚠ CAUTION**

- If the diagnosis code No. U0100 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**DIAGNOSTIC FUNCTION**

The combination meter sets diagnosis code No.U0100 when it cannot receive signals from the engine-ECU.

**JUDGEMENT CRITERIA**

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored, if the communication with engine-ECU cannot be established for 5000 ms or more, the combination meter determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of engine-ECU
- Malfunction of combination meter

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the engine-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the engine (Refer to GROUP 13A – Diagnosis Code Chart .)

**NO** : Go to Step 3.

### STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check if the diagnosis code No. U0100 is set to ETACS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

### STEP 4. Diagnosis code recheck

Check again if the diagnosis code is set to the combination meter.

(1) Erase the diagnosis code.

- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the engine-ECU.

**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the combination meter and the engine-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

### STEP 5. Diagnosis code recheck

Check again if the diagnosis code is set to the combination meter.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the combination meter.

**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the combination meter and the engine-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

## Code No.U0141 ETACS CAN timeout

### **CAUTION**

- If the diagnosis code No. U0141 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

## DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the combination meter sets the diagnosis code No.

U0141.

## JUDGEMENT CRITERIA

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored and the diagnosis code No. U1195 is not stored, if the communication with ETACS-ECU cannot be established for 2500 ms or more, the combination meter determines that a problem has occurred.

## PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of the combination meter
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Repair the CAN bus line and go to Step 5.

**STEP 2. M.U.T.-III other system diagnosis code**

Check if a diagnosis code, which relates to CAN communication-linked systems below, is set.  
engine-ECU

- Code No.U0141: ETACS CAN timeout

**Q: Is the diagnosis code set?**

**YES** : Go to Step 3.

**NO** : Go to Step 4.

**STEP 3. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.

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

(3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace ETACS-ECU and then go to Step 5.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the ETACS-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**Code No.U0164 A/C CAN timeout/Not equipped****CAUTION**

- If the diagnosis code No. U0164 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**DIAGNOSTIC FUNCTION**

If the signal from A/C-ECU cannot be received, the combination meter sets the diagnosis code No. U0164.

**STEP 4. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.

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

(3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace combination meter and then go to Step 5.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the ETACS-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.

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

(3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.

**JUDGEMENT CRITERIA**

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored and the diagnosis code No. U1195 is not stored, if the communication with A/C-ECU cannot be established for 2500 ms or more, the combination meter determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of the A/C-ECU
- Malfunction of combination meter

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Repair the CAN bus line and go to Step 6.

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the A/C-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the A/C-ECU (Refer to GROUP 55B – Troubleshooting ).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

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

ETACS-ECU

- Code No. U0164: A/C CAN timeout/Not equipped

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Code No.U0168 WCM/KOS CAN timeout****CAUTION**

- If diagnosis code No. U0168 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**DIAGNOSTIC FUNCTION**

If the signal from KOS-ECU cannot be received, the combination meter sets the diagnosis code No. U0168.

**Q: Is the diagnosis code set?**

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

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the A/C-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace combination meter and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the A/C-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 6. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.

**JUDGEMENT CRITERIA**

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored and the diagnosis code No. U1195 is not stored, if the communication with KOS-ECU cannot be established for 2500 ms or more, the combination meter determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of the KOS-ECU
- Malfunction of combination meter

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Repair the CAN bus line and go to Step 6.

**STEP 2. M.U.T.-III other system diagnosis code**

Check again if the diagnosis code is set to the KOS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the KOS. Refer to GROUP 42B – Diagnosis Code Chart .

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

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

ETACS-ECU

- Code No.U0168: WCM/KOS CAN timeout

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Code No.U0184 AUDIO CAN timeout****CAUTION**

- If the diagnosis code No. U0184 is set, be sure to diagnose the CAN bus line.
- Before replacing the combination meter or radio and CD player, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**DIAGNOSTIC FUNCTION**

If the signal from radio and CD player cannot be received, the combination meter sets the diagnosis code No. U0184.

**Q: Is the diagnosis code set?**

**YES** : Replace KOS-ECU and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the KOS-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace combination meter and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the KOS-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 6. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.

**JUDGEMENT CRITERIA**

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored and the diagnosis code No. U1195 is not stored, if the communication with radio and CD player cannot be established for 2500 ms or more, the combination meter determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of the radio and CD player
- Malfunction of the combination meter

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Repair the CAN bus line and go to Step 6.

**YES** : Replace radio and CD player and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the radio and CD player and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the radio and CD player

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the radio and CD player. Refer to [P.54A-220](#).

**NO** : Go to Step 3.

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.

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

(3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace combination meter and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the radio and CD player and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 3. M.U.T.-III other system diagnosis code**

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

ETACS-ECU

- Code No.U0184: AUDIO CAN timeout

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 6. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.

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

(3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.

**STEP 4. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

(1) Erase the diagnosis code.

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

(3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**Code No.U0230 POWER GATE CAN timeout****CAUTION**

- If the diagnosis code No. U230 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**DIAGNOSTIC FUNCTION**

If the signal from electric tailgate control unit cannot be received, the combination meter sets the diagnosis code No. U0230.

**JUDGEMENT CRITERIA**

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored and the diagnosis code No. U1195 is not stored, if the communication with electric tailgate control unit cannot be established for 2500 ms or more, the combination meter determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of the can electric tailgate control unit

- Malfunction of the combination meter

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Repair the CAN bus line and go to Step 6.

### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the electric tailgate control unit.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the electric tailgate control unit. Refer to .

**NO** : Go to Step 3.

### STEP 3. M.U.T.-III other system diagnosis code

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

ETACS-ECU

- Code No.U0230: Power Gate CAN timeout

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

### STEP 4. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace electric tailgate control unit and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the electric tailgate control unit and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

### STEP 5. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.

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

- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace combination meter and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the electric tailgate control unit and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

### STEP 6. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.

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

- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.

## Code No.U0245 AND CAN timeout

### ⚠ CAUTION

- If the diagnosis code No. U0245 is set, be sure to diagnose the CAN bus line.
- Before replacing the combination meter or CAN box unit (MMCS), ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

## DIAGNOSTIC FUNCTION

If the signal from CAN box unit (MMCS) cannot be received, the combination meter sets the diagnosis

code No. U0245.

## JUDGEMENT CRITERIA

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored and the diagnosis code No. U1195 is not stored, if the communication with CAN box unit (MMCS) cannot be established for 2500 ms or more, the combination meter determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of the CAN box unit (MMCS)
- Malfunction of the combination meter

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting). Repair the CAN bus line and go to Step 6.

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the CAN box unit (MMCS).

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the CAN box unit (MMCS).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

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

ETACS-ECU

- Code No.U0245: AND CAN timeout

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is

not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace CAN box unit (MMCS) and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the CAN box unit (MMCS) and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.

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

- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace combination meter and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the CAN box unit (MMCS) and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 6. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.

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

- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.

**Code No.U1000 OSS CAN timeout****CAUTION**

- If the diagnosis code No. U1000 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**DIAGNOSTIC FUNCTION**

If the signal from OSS-ECU cannot be received, the

combination meter sets the diagnosis code No. U1000.

**JUDGEMENT CRITERIA**

With the ignition switch is at ON position, the diagnosis code No. U1190 is not stored and the diagnosis code No. U1195 is not stored, if the communication with OSS-ECU cannot be established for 2500 ms or more, the combination meter determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of the OSS-ECU
- Malfunction of the combination meter

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Repair the CAN bus line and go to Step 6.

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the OSS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the OSS-ECU (Refer to GROUP 42B – Troubleshooting ).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

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

ETACS-ECU

- Code No.U1000: OSS CAN timeout

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch to "ON" position.
- (3) On completion, check that the diagnosis code is

not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace OSS-ECU and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the OSS-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.

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

- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Replace combination meter and then go to Step 6.

**NO** : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the OSS-ECU and the combination meter (Refer to GROUP 00 – How to use troubleshooting/Inspection Service Points ).

**STEP 6. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set.

- (1) Erase the diagnosis code.

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

- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 1.

**NO** : The procedure is complete.

## Code No.U1005 Corner/Back SNS. ECU CAN timeout

**⚠ CAUTION**

- If the diagnosis code No. U1005 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**TROUBLE JUDGEMENT**

If signal from the corner sensor/back sensor-ECU cannot be received for 500 milliseconds or more, the ETACS-ECU sets diagnosis code No. U1005.

**PROBABLE CAUSES**

- Malfunction of the corner sensor/back sensor-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting). On completion, go to Step 5.

**STEP 2. Check the M.U.T.-III Diagnosis code for other systems**

Check that the corner sensor/back sensor-ECU set a diagnosis code.

**Q: Is the diagnosis code set?**

YES : Diagnose the corner sensor/back sensor-ECU. (Refer to [P.54A-179](#).)

NO : Go to Step 3.

**STEP 3. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) On completion, check that the diagnosis code is reset.

**Q: Is the diagnosis code set?**

YES : Replace the corner sensor/back sensor-ECU. After replacing the ECU, carry out the CAN bus diagnostics. Then go to Step 4.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the corner sensor/back sensor-ECU and the ETACS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions ).

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) On completion, check that the diagnosis code is not reset.

**Q: Is the diagnosis code set?**

YES : Replace the ETACS-ECU. After replacing the ECU, carry out the CAN bus diagnostics. Then go to Step 5.

NO : A poor connection, open circuit or other intermittent malfunction is present in the CAN bus lines between the corner sensor/back sensor-ECU and the ETACS-ECU (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions ).

**STEP 5. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.

- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) On completion, check that the diagnosis code is reset.

**Q: Is the diagnosis code set?**

**YES** : Return to Step 1.

**NO** : The procedure is complete.

## Code No.U1190 No receive fault detect signal

### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

### JUDGEMENT CRITERIA

ETACS-ECU sends the diagnosis code (U code) detection permission or prohibition signal to each ECU connected to the CAN bus line. If the combination meter cannot receive the diagnosis code (U code) detection permission or prohibition signal for 5 seconds after turning the electric motor switch to ON position, diagnosis code U1190 will be set.

### PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of CAN bus line

### DIAGNOSIS PROCEDURE

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting). On completion, go to Step 3.

#### STEP 2. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the combination meter.

- (1) Erase the diagnosis code.
- (2) Turn the ignition motor switch from "LOCK" (OFF) position to "ON" position.
- (3) On completion, check that the diagnosis code is reset.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU. Then go to Step 3.

**NO** : The procedure is complete.

#### STEP 3. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set to the combination meter.

- (1) Erase the diagnosis code.
- (2) Turn the ignition motor switch from "LOCK" (OFF) position to "ON" position.
- (3) On completion, check that the diagnosis code is reset.

**Q: Is the diagnosis code set?**

**YES** : Return to Step 1.

**NO** : The procedure is complete.

## Code No.U1195 Coding not completed

### ⚠ CAUTION

- If the diagnosis code No. U1195 is set, diagnose the CAN bus lines.
- Before replacing the combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

### DIAGNOSTIC FUNCTION

If the vehicle information data is not registered to the combination meter, the combination meter sets the diagnosis code No. U1195.

### JUDGMENT CRITERIA

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

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of combination meter
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to

[P.54A-281](#).

**NO** : Go to Step 3.

**⚠ CAUTION**

- During diagnosis, a diagnosis 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 diagnosis code(s). If diagnosis code(s) are set, erase them all.
- If the combination meter needs to be replaced as a result of troubleshooting, the current driving distance and elapsed days must be entered into the meter after the replacement in order to be used for service reminder function. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current schedule" from the meter before the replacement using the special function of M.U.T.-III, and note them. For the operation method of M.U.T.-III, refer to [P.54A-76](#). If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read from the meter using M.U.T.-III, use the following method.
  - a. As for the driving distance for check warning, use the driving distance displayed on the multi information display.
  - b. As for the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service reminder function start date) and current date.

**STEP 3. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the combination meter.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the combination meter.

**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 ).

**TROUBLE SYMPTOM CHART**

M1540200800830

| Trouble symptom  | Inspection Procedure No. | Reference page           |
|--|--------------------------|--------------------------|
| Power supply circuit check   | 1                        | <a href="#">P.54A-54</a> |
| The odometer and the trip meter are not displayed.   | 2                        |                          |
| No needle meters work.   | 3                        |                          |
| If the ignition switch is turned to the ON position, the indicator and warning lamps do not illuminate normally. | 4                        |                          |
| The speedometer does not work (the other meters work).   | 5                        | <a href="#">P.54A-55</a> |
| The tachometer does not work (the other meters work).  | 6                        | <a href="#">P.54A-56</a> |
| Buzzers do not sound normally.   | 7                        | <a href="#">P.54A-57</a> |

| Trouble symptom   | Inspection Procedure No. | Reference page |
|---|--------------------------|----------------|
| Fuel gauge does not work (the other meters work)  | 8                        | P.54A-58       |
| The combination meter lamp does not illuminate normally or the multi-information display is not displayed normally. | 9                        | P.54A-59       |
| The multi-information display screen cannot be changed with the operation of the meter information switch.          | 10                       | P.54A-60       |
| Parking brake reminder buzzer does not sound.   | 11                       | P.54A-61       |
| Brake warning lamp does not illuminate.   | 12                       |                |
| Seat belt reminder function does not work normally.   | 13                       | P.54A-61       |
| The combination meter and instrument panel illumination does not illuminate normally.                               | 14                       | P.54A-63       |

## SYMPTOM PROCEDURES

### Inspection Procedure 1: Power supply circuit check

Inspection Procedure 2: The odometer and the trip meter are not displayed.

Inspection Procedure 3: No needle meters work.

Inspection Procedure 4: If the ignition switch is turned to the ON position, the indicator and warning lamps do not illuminate normally.

## COMMENTS ON TROUBLE SYMPTOM

If the odometer and trip meter is not displayed or no needle meters work, power supply to the combination meter, or the combination meter itself may have a problem.

earth.

### OK: System voltage

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 3.

## PROBABLE CAUSES

- Damaged harness wires and connectors
- Malfunction of combination meter

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III diagnosis code

Check if diagnosis code is set to the combination meter.

Q: Is the diagnosis code set?

YES : Troubleshoot the combination meter. Refer to .

NO : Go to Step 2.

### STEP 2. Voltage measurement at the combination meter connector

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the voltage between the combination meter connector (B+B terminal) and the body

### STEP 3. Check of open circuit in B+B line between the fusible link and combination meter connector.

Q: Is the check result normal?

YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Cope with Intermittent Malfunction ).

NO : Repair the connector(s) or wiring harness.

### STEP 4. Voltage measurement at the combination meter connector

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the voltage between the combination meter connector (IG1 terminal) and the body

### OK: System voltage

Q: Is the check result normal?

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

#### STEP 5. M.U.T.-III other system service data

Check the input signal from the ignition switch (IG1) in the ETACS-ECU.

- Turn the ignition switch to the ON position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 254 | IG voltage | System voltage   |

**OK: Normal condition is displayed.**

Q: Is the check result normal?

- YES : Go to Step 6.  
NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received." .

#### STEP 6. Check of open circuit in IG1 line between the ignition switch (IG1) and combination meter connector.

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 ).  
NO : Repair the connector(s) or wiring harness.

#### STEP 7. Resistance measurement at the combination meter connector

- 1) Disconnect the connector, and measure at the wiring harness side.
- 2) Measure the resistance between the combination meter connector (GND terminal) and the body earth.

**OK: Continuity exists (2 Ω or less)**

Q: Is the check result normal?

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

#### STEP 8. Check of open circuit in GND line between combination meter connector and body earth.

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 ).  
NO : Repair the connector(s) or wiring harness.

#### STEP 9. Retest the system

Q: Is the check result normal?

- YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).  
NO : Replace the combination meter.

#### Inspection Procedure 5: The speedometer does not work (the other meters work).

##### **CAUTION**

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

#### COMMENTS ON TROUBLE SYMPTOM

If only the speedometer does not operate, the ABS <vehicles with ABS> or ASC <vehicles with ASC> system and combination meter may have a problem.

#### PROBABLE CAUSES

- Malfunction of ABS-ECU <vehicles with ABS>
- Malfunction of ASC-ECU <vehicles with ASC>
- Damaged harness wires and connectors
- Malfunction of combination meter

#### DIAGNOSIS PROCEDURE

##### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

- YES : Go to Step 2.  
NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Complete the CAN troubleshooting, and then go to Step 7.

##### STEP 2. M.U.T.-III diagnosis code

Check if diagnosis code is set to the combination meter.

Q: Is the diagnosis code set?

**YES** : Troubleshoot the combination meter. Refer to [P.54A-39](#). Complete the combination meter troubleshooting, then go to Step 7.  
**NO** : Go to Step 3.

### STEP 3. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the ABS <vehicles with ABS> or ASC <vehicles with ASC>.

**Q: Is the diagnosis code set to the any of the above?**  
**Set to the ABS-ECU.** : Troubleshoot the ABS.  
 Refer to GROUP 35B – Troubleshooting .  
**Set to the ASC-ECU.** : Troubleshoot the ASC.  
 Refer to GROUP 35C – Troubleshooting .  
**The diagnosis code is not set.** : Go to Step 4.

### STEP 4. M.U.T.-III other system data list

Check the vehicle speed signal data list of ABS <vehicles with ABS> or ASC <vehicles with ASC> system.

Item No.88: Vehicle speed (Refer to GROUP 35B, Data list reference table or refer to GROUP 35C, Data list reference table .)

**Q: Is the check result normal?**

**YES** : Go to Step 5.  
**NO** : Diagnose ABS <vehicles with ABS> or ASC <vehicles with ASC> system. (Refer to GROUP 35B, Troubleshooting or refer to GROUP 35C, Troubleshooting .) After diagnosing the ABS <vehicles with ABS> or ASC <vehicles with ASC> system.

## Inspection Procedure 6: The tachometer does not work (the other meters work).

### CAUTION

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

### COMMENTS ON TROUBLE SYMPTOM

If only the tachometer does not operate, the ignition signal from the engine-ECU may not be received or the combination meter may have a problem.

### PROBABLE CAUSES

- Malfunction of combination meter
- Malfunction of engine-ECU

**YES** : Troubleshoot the combination meter. Refer to [P.54A-39](#). Complete the combination meter troubleshooting, then go to Step 6.

### STEP 5. Check the speedometer.

(1) Connect the M.U.T.-III to the diagnosis connector.  
 (2) Use the M.U.T.-III to enter simulated vehicle speed.

- Item No.1: Speedometer (Refer to [P.54A-64](#).)

**OK: The speedometer shows that simulated vehicle speed.**

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Replace combination meter, then go to Step 7.

### STEP 6. M.U.T.-III Special Function

- Item 4: Pointer (Refer to [P.54A-64](#).)

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Replace the combination meter, and then go to Step 7.

### STEP 7. Retest the system.

Check that the speedometer works normally.

**Q: Is the check result normal?**

**YES** : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00 / How to Cope with Intermittent Malfunction ).

**NO** : Go to Step 1.

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). Complete the CAN troubleshooting, and then go to Step 6.

### STEP 2. M.U.T.-III diagnosis code

Check if diagnosis code is set to the combination meter.

**Q: Is the diagnosis code set?**

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the engine-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the engine (Refer to GROUP 13A – Troubleshooting). Complete the engine troubleshooting, and then go to Step 6.

**NO** : Go to Step 4.

**STEP 4. M.U.T.-III actuator test**

- Item 2: Tachometer (Refer to [P.54A-64](#)).

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Replace the combination meter, and then go to Step 6.

**STEP 5. M.U.T.-III special function**

- Item 4: Pointer (Refer to [P.54A-64](#)).

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Replace the combination meter, and then go to Step 6.

**STEP 6. Retest the system**

Check that the tachometer works normally.

**Q: Is the check result normal?**

**YES** : The procedure is complete. (If no malfunctions are found in all steps, an intermittent malfunction is suspected. Refer to GROUP 00 / How to Cope with Intermittent Malfunction ).

**NO** : Go to Step 1.

---

**Inspection Procedure 7: Buzzers do not sound normally.**

---

**⚠ CAUTION**

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

When the following signals are received via the CAN communication or signal line, the combination meter sounds the incorporated buzzer according to the each pattern.

**Seat belt reminder function**

- Ignition switch ON signal
- Driver's seat belt switch signal
- Passenger's seat belt switch signal
- Vehicles speed signal

**Electric steering wheel lock malfunction warning buzzer (vehicles with OSS)**

- Ignition switch signal
- LIN bus line (local) for electrical steering lock
- Actuator driving permission monitoring signal

**OSS-related malfunction warning buzzer (vehicles with OSS)**

- Ignition switch signal
- When the following conditions are met, and 1 second or more has elapsed.
  - +B1 is detected to be ON and +B2 is detected to be OFF.
  - When +B1 is OFF and +B2 is ON, OSS-ECU detects that the IOD fuse is mounted.

**Engine switch reminder buzzer (vehicles with OSS)**

- Engine switch ON signal
- Driver's door switch ON signal

**Keyless operation key reminder buzzer (vehicles with KOS)**

- Ignition switch OFF signal
- IG knob push switch ON signal
- Driver's door switch ON signal

**Lamp reminder buzzer**

- Ignition switch OFF signal
- Lighting switch ON signal
- Driver's door switch ON signal

**Door-ajar warning buzzer**

- Ignition switch ON signal
- Any door switch or tailgate switch ON signal
- Vehicles speed signal

**Freeze warning buzzer**

- Ignition switch ON signal
- Ambient temperature signal

**Parking brake reminder buzzer**

- Ignition switch ON signal
- Parking brake switch
- Vehicles speed signal

**Multi information display interrupt display buzzer**

- Display condition signal of information display from each warning (When there is a fixed buzzer sounding pattern for each warning, that pattern has the priority.)

**Meter information switch or rheostat illumination switch <High contrast meter> operation****buzzer**

- ON signal for multi-information display switch

**Turn-signal lamp buzzer**

- Turn-signal lamp switch ON signal

**A/T shift cancel buzzer/Paddle shift cancel prohibition buzzer, ETACS-ECU function customise buzzer, A/C operation buzzer, audio operation buzzer**

- Sounding request signal from the CVT-ECU, A/C-ECU, radio and CD player, Multivision display

If the buzzer does not sound normally, the connector(s) and wiring harness in the CAN bus lines, or the CVT-ECU, A/C-ECU, radio and CD player, Multivision display or the combination meter may have a problem.

**PROBABLE CAUSES**

- Malfunction of combination meter
- Damaged harness wires and connectors
- Malfunction of ECUs

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III diagnosis code**

Check if diagnosis code is set to the combination meter.

**Q: Is the diagnosis code set?**

YES : Refer to [P.54A-39](#).

NO : Go to Step 3.

**Inspection Procedure 8: Fuel gauge does not work (the other meters work).****⚠ CAUTION**

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

If only the fuel gauge does not operate, the fuel pump and gauge unit (main), the fuel gauge unit

**STEP 3. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the engine-ECU, CVT-ECU, ABS-ECU, OSS-ECU, ETACS-ECU or A/C-ECU or heater control unit.

**Q: Is the diagnosis code set to the any of the above?**

Set to the engine-ECU. : Troubleshoot the engine (Refer to GROUP 13A – Troubleshooting ).

Set to the CVT-ECU. : Troubleshoot the CVT. Refer to GROUP 23A – Diagnosis code chart .

Set to the ABS-ECU. : Troubleshoot the ABS.

Refer to GROUP 35B – Troubleshooting .

Set to the OSS-ECU. : Troubleshoot the OSS.

Refer to GROUP 42B – Troubleshooting .

Set to the ETACS-ECU. : Troubleshoot the ETACS.

Refer to [P.54A-281](#).

Set to the A/C-ECU/Heater control unit. :

Troubleshoot the A/C-ECU/Heater control unit. Refer to GROUP 55B – Troubleshooting .

The diagnosis code is not set. : Go to Step 4.

**STEP 4. Check by M.U.T.-III "Special Function"**

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the buzzer.

- Item 3: Buzzer(AUTO)

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Replace the combination meter.

**STEP 5. Retest the system**

Check that the buzzers sound 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 ).

NO : Replace the combination meter.

(sub) <4WD> or the combination meter may be defective.

**PROBABLE CAUSES**

- Malfunction of fuel pump and gauge unit (main)
- Malfunction of the fuel gauge unit (sub) <4WD>
- Malfunction of combination meter

## DIAGNOSIS PROCEDURE

### STEP 1. Check the diagnosis code.

Check if diagnosis code No. B1201 is set.

#### Q: Is the diagnosis code No. B1201 set?

YES : Perform the troubleshooting of when the diagnosis code is set (Refer to [P.54A-39](#)).

NO : Go to Step 2.

### STEP 2. Fuel pump and gauge unit (main) and fuel gauge unit (sub) <4WD> check

Check the fuel pump and gauge unit (main) and fuel gauge unit (sub) <4WD>. Refer to [P.54A-74](#).

#### Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the fuel pump and gauge unit (main) and fuel gauge unit (sub) <4WD>.

**Inspection Procedure 9: The combination meter lamp does not illuminate normally or the multi-information display is not displayed normally.**

#### CAUTION

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

#### COMMENTS ON TROUBLE SYMPTOM

When the signal from each ECU is received via the CAN communication, the combination meter illuminates the corresponding display lamp or warning lamp, or has the multi-information display to display corresponding information.

If the lamps do not illuminate or the multi-information display does not display normally, the wiring harness and connector(s) in the CAN bus lines, each ECU (that sends a signal) or the combination meter may have a problem.

#### PROBABLE CAUSES

- Malfunction of combination meter
- Damaged harness wires and connectors

### STEP 3. M.U.T.-III data list

- Item 89: Fuel gauge (Refer to [P.54A-64](#)).
- Item 8A: Fuel gauge(Target) (Refer to [P.54A-64](#)).

#### Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the combination meter, and then go to Step 5.

### STEP 4. M.U.T.-III actuator test

- Item 3: Fuel gauge (Refer to [P.54A-64](#)).

#### Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the combination meter, and then go to Step 5

### STEP 5. Retest the system.

Check that the fuel gauge works normally.

#### Q: Is the check result normal?

YES : The procedure is complete.

NO : Replace the combination meter.

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

#### Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III diagnosis code

Check again if the diagnosis code is set to the combination meter.

#### Q: Is the diagnosis code set?

YES : Refer to [P.54A-39](#).

NO : Go to Step 3.

### STEP 3. M.U.T.-III other system diagnosis code

Check again if the diagnosis code is set to the engine-ECU, CVT-ECU, 4WD-ECU, ABS-ECU, ASC-ECU, EPS-ECU, WCM, KOS-ECU, OSS-ECU, SRS-ECU, ETACS-ECU and A/C-ECU.

#### Q: Is the diagnosis code set to the any of the above?

- Set to the engine.** : Troubleshoot the engine control system. GROUP 13A – Diagnosis Code Chart .
- Set to the CVT-ECU.** : Troubleshoot the CVT. Refer to GROUP 23A – Diagnosis code chart .
- Set to the 4WD-ECU.** : Troubleshoot the 4WD. Refer to GROUP 27C – Troubleshooting .
- Set to the ABS-ECU.** : Troubleshoot the ABS. Refer to GROUP 35B – Troubleshooting .
- Set to the ASC-ECU.** : Troubleshoot the ASC. Refer to GROUP 35C – Troubleshooting .
- Set to the EPS-ECU.** : Troubleshoot the EPS. Refer to GROUP 37 – Troubleshooting .
- Set to the WCM.** : Troubleshoot the WCM. Refer to GROUP 42A – Troubleshooting .
- Set to the KOS-ECU.** : Troubleshoot the KOS. Refer to GROUP 42B – Troubleshooting .
- Set to the OSS-ECU.** : Troubleshoot the OSS. Refer to GROUP 42B – Troubleshooting .
- Set to the SRS-ECU.** : Troubleshoot the SRS. Refer to GROUP 52B – Troubleshooting .
- Set to the ETACS-ECU.** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).
- Set to the A/C-ECU.** : Troubleshoot the A/C. Refer to GROUP 55 – Troubleshooting .
- The diagnosis code is not set.** : Go to Step 4.

---

#### STEP 4. M.U.T.-III Special Function

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the liquid crystal display.

- Item 2: LCD(AUTO)
- Item 5: Illumination (AUTO)
- Item 6: Indicator (AUTO)

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Replace the combination meter.

---

#### STEP 5. Retest the system

Check that display lamps or warning lamps are illuminated normally, or multi-information display is displayed 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 ).

**NO** : Replace the combination meter.

---

### Inspection Procedure 10: The multi-information display screen cannot be changed with the operation of the meter information switch.

#### CAUTION

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

### COMMENTS ON TROUBLE SYMPTOM

When the signal from the meter information switch is received, the combination meter switches the multi-information display screen. If the multi-information display screen does not switch normally, the meter information switch, wiring harness, connector(s), or combination meter may have a problem.

### PROBABLE CAUSES

- Malfunction of meter information switch
- Malfunction of combination meter
- Damaged harness wires and connectors

---

#### STEP 3. Retest the system.

Check that the multi-information display screen works normally.

---

### DIAGNOSIS PROCEDURE

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#### STEP 1. Check the diagnosis code.

Check if diagnosis code No. B2463 <Standard meter> or No. B2464 <High contrast meter> is set.

**Q: Is diagnosis code No. B2463 <Standard meter> or No. B2464 <High contrast meter> set?**

**YES** : Perform the troubleshooting of when the diagnosis code is set (Refer to [P.54A-39](#)).

**NO** : Go to Step 2.

---

#### STEP 2. M.U.T.-III special function

- Item 2: LCD (AUTO) (Refer to [P.54A-64](#)).

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Replace the combination meter, and then go to Step 3.

**Q: Is the check result normal?**

**YES** : The procedure is complete.

**NO** : Replace the combination meter.

---

Inspection Procedure 11: Parking brake reminder buzzer does not sound.

Inspection Procedure 12: Brake warning lamp does not illuminate.

---

**CAUTION**

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

If the parking reminder buzzer does not sound or the brake warning lamp does not come on at a speed above 8 km/h with the parking brake switch ON, the parking brake switch input circuit, the vehicle speed signal circuit, the combination meter, the wiring harness or its connector may be defective.

**PROBABLE CAUSES**

- Malfunction of vehicle speed signal circuit
- Malfunction of parking brake switch
- Malfunction of combination meter
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the speedometer.**

Check that the speedometer in the combination meter operates normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Troubleshoot the combination meter. Refer to [P.54A-55](#).

**STEP 2. Check the parking brake switch.**

Refer to GROUP 36 – On-vehicle Service, Parking Brake Switch Check .

Q: Is the check result normal?

---

Inspection Procedure 13: Seat belt reminder function does not work normally.

---

**CAUTION**

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

If the seat belt reminder function does not work normally, the seat belt switch input circuit, the combination meter or hazard indicator assembly may be defective.

YES : Go to Step 3.

NO : Replace the parking brake switch.

---

**STEP 3. Check of short to power supply, short to earth, and open circuit in BRK line between combination meter connector and parking brake switch connector.**

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

---

**STEP 4. M.U.T.-III Special Function**

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the liquid crystal display.

- Item 3: Buzzer (AUTO)
- Item 6: Indicator (AUTO)

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the combination meter.

---

**STEP 5. Retest the system.**

The parking brake reminder buzzer function should work 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 ).

NO : Replace the combination meter.

---

**PROBABLE CAUSES**

- Malfunction of the seat belt switch (driver's side)
- Malfunction of the seat belt switch (passenger's side)
- Malfunction of the combination meter
- Malfunction of the hazard indicator assembly
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

**STEP 1. Check the seat belt switch.**

Refer to GROUP 52A – Front Seat Belt .

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the seat belt switch.

**STEP 2. Resistance measurement at the seat belt switch (driver's side) connector, seat belt switch (passenger's side) connector**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the seat belt switch (driver's side) connector, seat belt switch (passenger's side) connector (earth terminals) and the body earth.

**OK: Continuity exists (2 Ω or less)**

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 3.

**STEP 3. Check of open circuit in body earth line between seat belt switch (driver's side) connector or seat belt switch (passenger's side) and the body earth.**

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 ).

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check of short to power supply, short to earth, and open circuit in SBDS or SBAS line between combination meter connector and seat belt switch (driver's side) connector or seat belt switch (passenger's side) connector.**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Check of short to power supply, short to earth, and open circuit in BWLP line between combination meter connector and hazard indicator assembly connector.**

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

**STEP 6. Retest the system.**

The seat belt reminder function should work normally.

Q: Is the check result normal?

YES &lt;The seat belt reminder function works normally.&gt; : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

NO &lt;Buzzers do not sound.&gt; : Replace the combination meter.

NO &lt;The indicator (driver's side) does not illuminate.&gt; : Replace the combination meter.

NO &lt;The indicator (passenger's side) does not illuminate.&gt; : Replace the hazard indicator assembly, and then go to Step 7.

**STEP 7. Retest the system.**

The seat belt reminder function should work 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 ).

NO : Replace the combination meter.

---

**Inspection Procedure 14: The combination meter and instrument panel illumination does not illuminate normally.**

---

**CAUTION**

Before replacing the combination meter, be sure to check that the power supply circuit, earth circuit, and communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

The combination meter illumination will go on when the ignition switch is turned ON, and dim by operating the meter information switch <Standard meter> or rheostat illumination switch <High contrast meter>. When the combination meter illumination does not go on or dim normally, the following conditions may be present.

**The combination meter is dimmed by operating the switch.**

- Defective illumination control circuit
- Malfunction of combination meter

**After the A/C-ECU received signal from the combination meter, it has dimmed all the switch indicators.**

- Malfunction of CAN bus line
- Malfunction of heater controller assembly (A/C-ECU)

**COMMENTS ON TROUBLE SYMPTOM**

When the combination meter illumination does not go on or dim normally, the illumination control circuit, the combination meter or A/C-ECU is defective.

**PROBABLE CAUSES**

- Defective illumination control circuit
- Malfunction of combination meter
- Malfunction of CAN bus line
- Malfunction of heater controller assembly (A/C-ECU)
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE**

---

**STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

YES : Go to Step 2

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

**STEP 2. M.U.T.-III diagnosis code**

Check again if the diagnosis code is set to the combination meter.

**Q: Is the diagnosis code set?**

YES : Refer to [P.54A-39](#).

NO : Go to Step 3

---

**STEP 3. M.U.T.-III other system diagnosis code**

Check if the A/C-ECU related diagnosis code is set.

**Q: Is the diagnosis code set?**

YES : Troubleshoot the A/C or heater (GROUP 55, Auto A/C Diagnosis ).

NO : Go to Step 4

---

**STEP 4. Resistance measurement at the combination meter connector**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the combination meter connector (GND1 terminal) and the body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

YES : Go to Step 6

NO : Go to Step 5

---

**STEP 5. Check of open circuit in GND1 line between combination meter connector and body earth.****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 ).

NO : Repair the connector(s) or wiring harness.

---

**STEP 6. Voltage measurement at the combination meter connector**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the voltage between the combination meter connector (IL+P terminal) and the body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 9  
NO : Go to Step 7

YES : Go to Step 10  
NO : Replace the combination meter.

**STEP 7. Check of open circuit in IL+P line between the fusible link and combination meter connector.**

Q: Is the check result normal?

YES : Go to Step 8  
NO : Repair the connector(s) or wiring harness.

**STEP 8. Check of open circuit in ILL+ or PWM line between the combination meter connector and meter information switch connector.**

Q: Is the check result normal?

YES : Go to Step 9  
NO : Repair the connector(s) or wiring harness.

**STEP 9. M.U.T.-III Special Function**

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the liquid crystal display.

- Item 5: Illumination (AUTO)

Q: Is the check result normal?

| Item No. | Check item           | M.U.T.-III display   | Check condition   | Normal condition |
|----------|----------------------|----------------------|---|------------------|
| 89       | Fuel gauge           | Fuel gauge           | Fuel gauge unit resistance value and M.U.T.-III displayed value agree with each other. (Tolerance is $\pm 2 \Omega$ ) |                  |
| 8A       | Fuel gauge(Target)   | Fuel gauge(Target)   | Fuel gauge and M.U.T.-III displayed values agree with each other.   |                  |
| 90       | Odometer             | Odometer             | Odometer displayed value and M.U.T.-III displayed value agree with each other.  |                  |
| 94       | Power source voltage | Power source voltage | Always  | 0 to 20 V        |

**ACTUATOR TEST TABLE**

M1540201101019

| Item No. | Item name          | Test item               | Driven content   |
|----------|--------------------|-------------------------|--|
| 1*       | Speedometer        | Pointer setting (-)     |  |
| 2        | Tachometer         | Pointer setting (r/min) |  |
| 3        | Fuel gauge         | Status setting (ohm)    |  |
| 5        | Meter illumination | Status setting (%)      | Value that is set with M.U.T.-III is shown on the combination meter. |

NOTE: \* : Depending on the main scale of the speedometer, the unit that can be tested changes. Unit is displayed as "—" on the M.U.T.-III screen.

**SPECIAL FUNCTION TABLE**

M1540213300028

**SEATBELT REMINDER**

| Item No. | Item name                 | Test content                          |
|----------|---------------------------|---------------------------------------|
| 5        | Seatbelt reminder setting | Customising seatbelt reminder warning |

**TEST**

| Item No. | Item name           | Test content   |
|----------|---------------------|--|
| 2        | LCD (AUTO)          | <p>The multi information display screen changes by looping in the following order.</p> <p>&lt;Standard meter&gt;</p> <ol style="list-style-type: none"> <li>1. All the segments are displayed.</li> <li>2. Number 2 of the segments are displayed.</li> <li>3. All the segments except some segments are displayed.</li> </ol> <p>&lt;High contrast meter&gt;</p> <ol style="list-style-type: none"> <li>1. The version information is displayed.</li> <li>2. A white full screen is displayed.</li> <li>3. A screen with Red, Green, Black and white gradation is displayed.</li> <li>4. A black full screen is displayed.</li> </ol> |
| 3        | Buzzer (AUTO)       | The buzzer sounds.   |
| 4        | Pointer (AUTO)      | Makes the speedometer and tachometer sweep from zero to full scale.  |
| 5        | Illumination (AUTO) | Makes the meter needles, the instrument face plate, the variable-dimming LED indicator and the LCD screen back light sweep 0% to 100% and vice versa.  |
| 6        | Indicator (AUTO)    | Toggles all of the LED indicators ON and OFF.  |

**TURN-SIGNAL SOUND CUSTOMIZATION**

| Item No. | Item name            | Test content                  |
|----------|----------------------|-------------------------------|
| 1        | Signal sound setting | Customising turn-signal sound |

**CHECK PROCEDURE FOR EACH MULTI INFORMATION DISPLAY SCREEN <HIGH CONTRAST METER>**

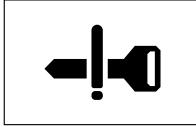
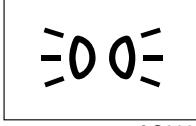
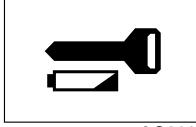
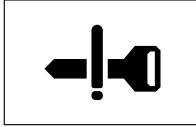
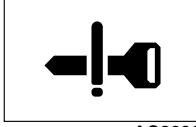
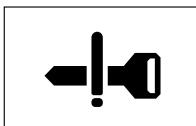
M1540201901220

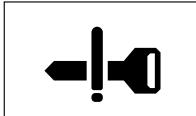
**⚠ CAUTION**

When there are TV towers, substations, or broadcasting stations which emit strong radio waves in proximity, on rare occasions, a warning is displayed on the multi information screen for a few seconds. This is caused by the reception of strong radio waves, and there is no functional problem.

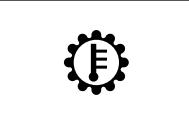
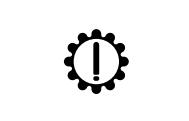
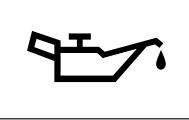
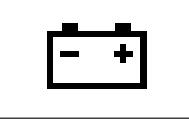
**WARNING SCREEN**

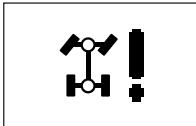
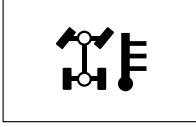
When malfunctions occur to the vehicle, the following warning screens are displayed. If these screens are not displayed normally or if they continue to be displayed even after the factor is eliminated, take measures according to the action procedure.

| Display content   | Message              | Factor  | Action procedure   |
|---|----------------------|---|--|
| <br>AC809615   | REMOVE KEY           | Displayed with the sounding of buzzer when the driver's door is opened with the ignition switch in the LOCK (OFF) position and the key inserted in the ignition switch key cylinder.    | If the ignition key reminder buzzer does not sound, diagnose the ignition key reminder buzzer. Refer to <a href="#">P.54A-57</a> .   |
| <br>AC809612   | TURN OFF LIGHTS      | Displayed with the sounding of buzzer when the driver's door is opened with the ignition switch at the LOCK (OFF) or ACC position and the lighting switch at the tail or head position. | If the lighting monitor warning buzzer is not being sounded, perform the troubleshooting for the lighting monitor warning buzzer. Refer to <a href="#">P.54A-57</a> .            |
| <br>AC809614   | KEY BATTERY LOW      | Displayed when the keyless operation key battery is running low.  | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the KOS. Refer to GROUP 42B – Diagnosis code chart . |
| <br>AC809615 | KEY NOT DETECTED     | Displayed if carrying a keyless operation key with different ID code or the keyless operation key is outside the operative range.   |  |
| <br>AC809615 | KEY STILL IN VEHICLE | Displayed when the keyless operation key take-out monitoring function or keyless operation key confinement prevention function is in operation.   |  |
| <br>AC809615 | CHECK DOORS          | Displayed when the door ajar prevention function is in operation.   |  |

| Display content   | Message   | Factor  | Action procedure   |
|---|---|---|--|
| <br>AC809615   | KEYLESS<br>OPERATION<br>SYSTEM<br>SERVICE<br>REQUIRED       | Displayed when there is a malfunction to KOS.   | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the KOS. Refer to GROUP 42B – Diagnosis code chart . |
| <br>AC904250   | KEY NOT<br>DETECTED<br>INSERT KEY<br>INTO KEY SLOT          | Displayed when the keyless operation key cannot be detected.  |  |
| <br>AC904251   | REMOVE KEY<br>FROM KEY SLOT                                 | Displayed when the key is not removed from the key slot located in the glove box.                                     |  |
| <br>AC904252   | –   | Displayed when the lock/unlock switch of front door outside handle is pressed while in the power mode other than OFF. |  |
| <br>AC904252 | –   | Displayed when the driver's door is open while in the power mode other than OFF.                                      | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the OSS. Refer to GROUP 42B – Diagnosis code chart . |
| <br>AC904253 | IMMOBILIZER<br>SYSTEM<br>SERVICE<br>REQUIRED                | Displayed when a malfunction occurs to the immobilizer system.  |  |
| <br>AC904254 | PUSH ENGINE<br>SWITCH WHILE<br>TURNING<br>STEERING<br>WHEEL | Displayed when the steering lock is in operation.   |  |
| <br>AC904255 | STEERING<br>LOCK SERVICE<br>REQUIRED                        | Displayed when a malfunction occurs to the steering lock.   |  |

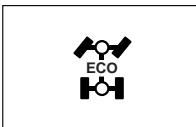
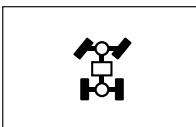
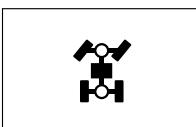
| Display content   | Message                            | Factor  | Action procedure   |
|---|------------------------------------|---|--|
| <br>AC904256   | SHIFT TO P POSITION                | Displayed when the engine is stopped while the selector lever is in other than P position.            | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the OSS. Refer to GROUP 42B – Diagnosis code chart .   |
| <br>AC904257   | STEERING WHEEL UNLOCKED            | Displayed when the steering lock is not in operation.   |  |
| <br>AC904260   | ELECTRICAL SYSTEM SERVICE REQUIRED | Displayed when a malfunction occurs to the power supply system.                                       |  |
| <br>AC904258   | PRESS BRAKE PEDAL TO START ENGINE  | Displayed when the engine switch is pressed without the brake pedal depressed at starting the engine. |  |
| <br>AC809617 | BRAKE SYSTEM SERVICE REQUIRED      | Displayed when the brake fluid amount is insufficient or a malfunction occurs to the brake device.    | If the warning screen is not displayed normally or if the screen continues to be displayed, check the brake fluid or brake device. Refer to GROUP 35A – On-vehicle Service .   |
| <br>AC809617 | RELEASE PARKING BRAKE              | Displayed if vehicle is driven with the parking brake engaged.  | If the warning screen is not displayed normally or if the screen continues to be displayed, check the parking brake. Refer to GROUP 36 – On-vehicle Service .  |
| <br>AC809618 | ABS SERVICE REQUIRED               | Displayed when a malfunction occurs to the anti-skid braking system (ABS).                            | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ABS or ASC. Refer to GROUP 35B – Trouble Symptom Chart <ABS> or GROUP 35C – Trouble Symptom Chart <ASC>. |
| <br>AC809619 | ENGINE OVERHEATING STOP SAFELY     | Displayed when overheated.  | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the engine. Refer to GROUP 13A – Trouble Symptom Chart .   |

| Display content   | Message   | Factor   | Action procedure  |
|---|---|--|---|
|    | TRANSMISSION<br>OVERHEATING<br>SLOW DOWN<br>AC809620  | Displayed when the transmission oil temperature becomes high.                            | If the warning screen is not displayed normally or if the screen continues to be displayed, check the CVT diagnosis code. Refer to GROUP 23A – Diagnosis Code Chart .   |
|    | TRANSMISSION<br>SERVICE<br>REQUIRED<br>AC809621       | Displayed when there is a malfunction to the CVT.  |   |
|    | FASTEN SEAT<br>BELT<br>AC809622                       | Displayed when the ignition switch is turned ON without the driver's seat belt fastened. | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the seat belt reminder warning lamp. Refer to P.54A-59.   |
|   | FUEL SYSTEM<br>SERVICE<br>REQUIRED<br>ACC00473        | Displayed when there is a malfunction to the fuel system.                                | If the warning screen is not displayed normally or if the screen continues to be displayed, check the combination meter diagnosis code. Refer to P.54A-59.  |
|  | REFUEL<br>AC809623                                    | Displayed when the remaining fuel amount is small.                                       | If the warning screen is not displayed normally or if the screen continues to be displayed, refuel immediately.   |
|  | LOW OIL<br>PRESSURE<br>AC809624                       | Displayed when there is a malfunction to the engine oil circulation system.              | If the warning screen is not displayed normally or if the screen continues to be displayed, check the oil pressure. (Refer to GROUP 12 – On-vehicle Service .) Then if the oil pressure is normal, perform the troubleshooting for the engine. (Refer to GROUP 13A – Trouble symptom chart .) |
|  | CHARGING<br>SYSTEM<br>SERVICE<br>REQUIRED<br>AC809625 | Displayed when there is a malfunction to the charging system.                            | If the warning screen is not displayed normally or if the screen continues to be displayed, check the charging system. Refer to GROUP 16 – On-vehicle service – Output current test and Regulated voltage test .  |

| Display content   | Message                                  | Factor   | Action procedure   |
|---|--|--|--|
| <br>AC809626   | AIRBAG<br>SYSTEM<br>SERVICE<br>REQUIRED  | Displayed when there is a malfunction to the SRS air bag or to the pre-tensioner mechanism.                  | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the SRS air bag/pre-tensioner mechanism warning lamp. Refer to GROUP 52B – Trouble symptom chart . |
| <br>AC809630   | ASC SYSTEM<br>SERVICE<br>REQUIRED        | Displayed when there is a malfunction to the ASC.  | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the ASC. Refer to GROUP 35C – Trouble symptom chart .  |
| <br>AC809631   | 4WD SYSTEM<br>SERVICE<br>REQUIRED        | Displayed when there is a malfunction to the electronically-controlled 4WD system.                           | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the electronically-controlled 4WD system. Refer to GROUP 27C – Trouble symptom chart .             |
| <br>AC809642  | 4WD SYSTEM<br>OVERHEATING<br>SLOW DOWN   | Displayed when there is a malfunction to the electronically-controlled 4WD differential temperature is high. |  |
| <br>AC809632 | POSSIBLE ICY<br>ROADS                    | Displayed with the sounding of buzzer when the ambient temperature is 3 °C or less.                          | If the warning buzzer does not sound when the combination meter displays 3 °C, perform the troubleshooting for the freeze warning buzzer. Refer to <a href="#">P.54A-57</a> .  |
| <br>ACB05896 | POWER<br>STEERING<br>SERVICE<br>REQUIRED | Displayed when there is a malfunction to the EPS.  | If the warning screen is not displayed normally or if the screen continues to be displayed, perform the troubleshooting for the EPS. Refer to GROUP 37 – Trouble symptom chart .   |

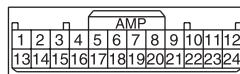
## OTHER SCREENS

The screen displays the operation state of each system, periodic checkup timing, or timing for taking a rest during driving. If the screen display differs from the actual system operation state or if the screen is not displayed at the set timing, take measures according to the action procedure.

| Display content  | Message                      | Factor  | Action procedure  |
|--|------------------------------|---|---|
| a<br><br>ACC00060 | 4WD ECO                      | Displayed in accordance with operation state of the 4WD switch.<br>a. "4WD ECO" mode is selected.<br>b. "4WD AUTO" mode is selected.<br>c. "4WD LOCK" mode is selected. | If the 4WD switch position and screen do not agree with each other, perform the troubleshooting for the 4WD. Refer to GROUP 27C – Trouble symptom chart . |
| b<br><br>ACC00058 | 4WD AUTO                     |   |   |
| c<br><br>ACC00059 | 4WD LOCK                     |   |   |
| <br>AC809637     | ROUTINE MAINTENANCE REQUIRED | Displayed when the set period elapses.  | –   |
| <br>AC809638    | REST REMINDER                | Displayed when the set time elapses.  | –   |

## CHECK AT COMBINATION METER TERMINALS

M1540201200671



ACB04735AC

| Terminal No. | Terminal code | Check item                              | Check condition                             | Normal condition              |
|--------------|---------------|---|---|-------------------------------|
| 1            | B+B           | ECU power supply (battery)              | Always                                      | System voltage                |
| 2            | IG1           | ECU power supply (Ignition switch: IG1) | Ignition switch: ON<br>Ignition switch: OFF | System voltage<br>1 V or less |

| Terminal No. | Terminal code | Check item  | Check condition                                   | Normal condition  |
|--------------|---------------|---|---|---|
| 3            | MODE          | Multi information display switch input                      | Multi information display switch: ON              | 1 V or less   |
|              |               |   | Multi information display switch: OFF             | System voltage  |
| 4            | BRK           | Parking brake switch input                                  | Parking brake switch: ON                          | 1 V or less   |
|              |               |   | Parking brake switch: OFF                         | System voltage  |
| 5            | SBDS          | Seat belt switch (driver's side) input                      | Seat belt switch (driver's side): ON              | 1 V or less   |
|              |               |   | Seat belt switch (driver's side): OFF             | System voltage  |
| 6 to 12      | —             | —   | —   | —   |
| 13           | GND           | Earth (sensor)  | Always  | 1 V or less   |
| 14           | CANH          | CAN-C-Mid_H   | —   | —   |
| 15           | CANL          | CAN-C-Mid_L   | —   | —   |
| 16           | SBAS          | Seat belt switch (passenger's side) input                   | Seat belt switch (passenger's side): ON           | 1 V or less   |
|              |               |   | Seat belt switch (passenger's side): OFF          | System voltage  |
| 17           | —             | —   | —   | —   |
| 18           | F/G           | Input of fuel gauge   | Fuel: FULL (Approximately 1 V at system voltage)  | 13.5 V  |
|              |               |   | Fuel: EMPTY (Approximately 8 V at system voltage) | 13.5 V  |
| 19           | BWLP          | Seat belt reminder (passenger's side) indicator lamp output | Seat belt switch (passenger's side): ON           | 1V or less  |
|              |               |   | Seat belt switch (passenger's side): OFF          | System voltage  |
| 20           | SPEED         | Vehicle speed signal output                                 | Vehicle speed: Approximately 40 km/h              | Approximately 28Hz  |
|              |               |   | Vehicle speed change                              | In accordance with the vehicle speed, a pulse is generated. |
| 21           | GND1          | Earth (ECU)   | Always  | 1 V or less   |
| 22           | PWM           | Illumination (−) output                                     | Always  | 1 V or less (day time: at 100% of duty value)               |
| 23           | ILL+          | Illumination (+) output                                     | With lighting control                             | System voltage  |
| 24           | IL+P          | Illumination (power supply)                                 | Always  | System voltage  |

## ON-VEHICLE SERVICE

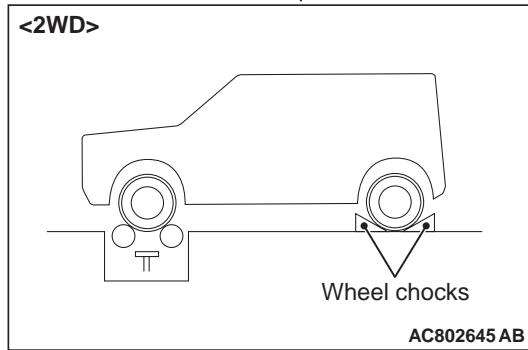
## SPEEDOMETER CHECK

M1540201400891

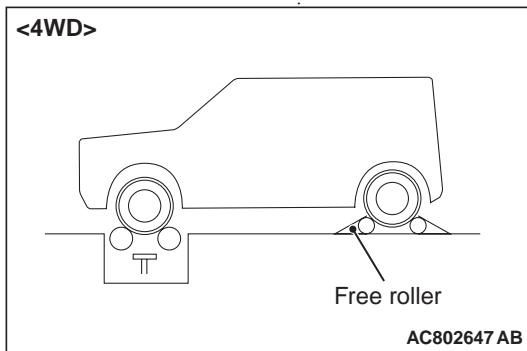
**CAUTION**

- Be sure to set the rear wheels on the free roller. (The vehicle may dash forward or the drive train may be damaged). <4WD>
- If the speedometer is checked using the speedometer tester, the diagnosis code may be stored in the ABS-ECU or ASC-ECU. Therefore, after the check is finished, erase the diagnosis code stored in the ABS-ECU or ASC-ECU.
- Do not accelerate or decelerate suddenly during servicing work.

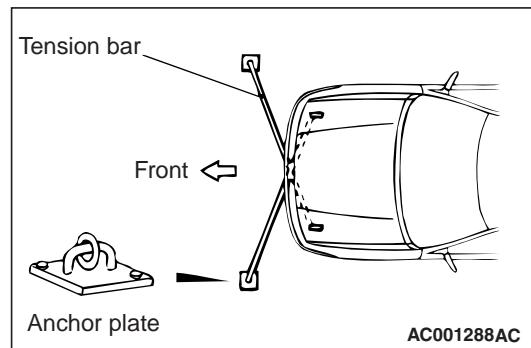
1. Check that the current tyre inflation pressures meet the inflation pressure label.
2. Press the ASC OFF switch for 3 seconds or more to stop the ASC operation <Vehicles with ASC>.
3. Set the vehicle on the speedometer tester.



Chock the rear wheels and apply the parking brake <2WD>.



Place the rear wheels on the free roller. <4WD>



4. To prevent front wheel lateral runout or vehicle sudden start, attach a chain or wire to the front and rear towing hooks and fix the other end of the chain or wire to the anchor plate.
5. Check that the speedometer allowance range is within the standard value.

**Standard value:**

| Standard indicator km/h | Allowance range km/h |
|-------------------------|----------------------|
| 20                      | 20.25 – 22.25        |
| 40                      | 40.5 – 44.5          |
| 80                      | 81.5 – 86.5          |
| 120                     | 122.5 – 128.5        |
| 160                     | 162.5 – 169.5        |
| 200                     | 202.5 – 210.5        |
| 240                     | 242.5 – 251.5        |

## TACHOMETER CHECK

M1540201500542

When the actuator tests (item No. 2) are performed using M.U.T.-III, check that the tachometer indication tolerance is within the standard value.

**Standard value:**

| Engine speed r/min | Tachometer indicating tolerance r/min |
|--------------------|---------------------------------------|
| 600                | ± 100                                 |
| 3,000              | ± 100                                 |
| 5,000              | ± 100                                 |
| 6,000              | ± 100                                 |

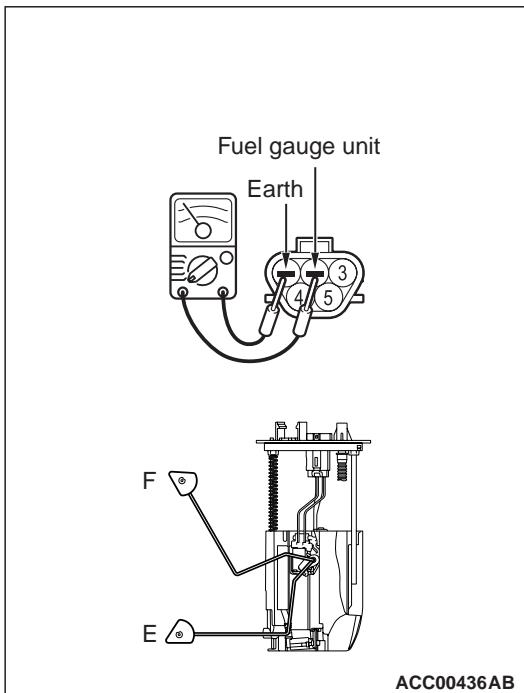
## FUEL GAUGE UNIT CHECK

M1540201600903

&lt;2WD&gt;

NOMINAL RESISTANCE OF THE FUEL  
GAUGE UNIT

1. Remove the fuel pump and gauge assembly (Refer to GROUP 13B – On-vehicle Service, Fuel Pump and Gauge Assembly Replacement ).



2. When float of the fuel gauge unit is in stopper positions "F" and "E", ensure that resistance between the fuel gauge unit terminal and earth terminal is within the standard value.

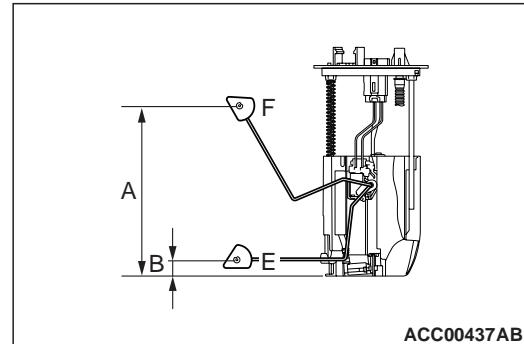
**Standard value:**

| Float position       | Gauge resistance value $\Omega$ |
|----------------------|---------------------------------|
| Stopper position "F" | $13.0 \pm 1.0$                  |
| Stopper position "E" | $120.0 \pm 1.0$                 |

3. When the float is moved slowly between stopper positions "F" and "E", ensure that the resistance is smoothly changing.

## FUEL GAUGE UNIT FLOAT HEIGHT

1. Remove the fuel pump and gauge assembly (Refer to GROUP 13B – On-vehicle Service, Fuel Pump and Gauge Assembly Replacement ).



2. When float is moved to contact the float arm on the stopper, ensure that stopper positions "F" and "E" are within the standard value.

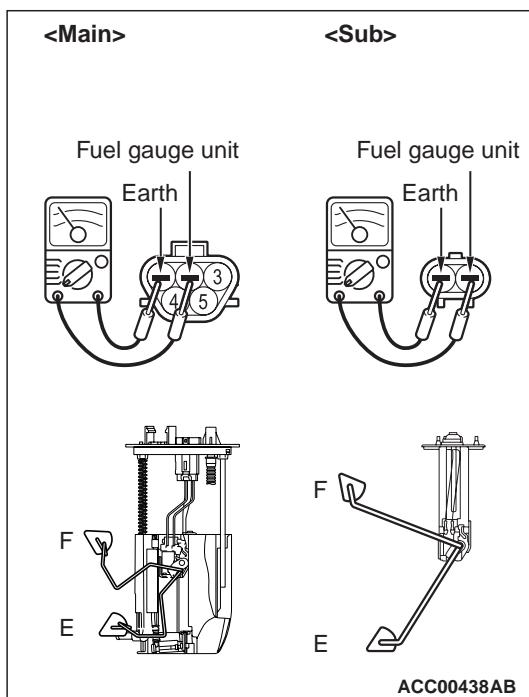
**Standard value:**

| Float position                     | Float height mm |
|------------------------------------|-----------------|
| Stopper position "F"<br>(height A) | 201.6           |
| Stopper position "E"<br>(height B) | 18.0            |

&lt;4WD&gt;

NOMINAL RESISTANCE OF THE FUEL  
GAUGE UNIT

1. Remove the fuel pump and gauge assembly (Refer to GROUP 13B – On-vehicle Service, Fuel Pump and Gauge Assembly Replacement )  
<Main>.
2. Remove the fuel gauge unit (Refer to GROUP 13B – On-vehicle Service, Fuel Gauge Unit Replacement ) <Sub>.



3. When float of the fuel gauge unit is in stopper positions "F" and "E", ensure that resistance between the fuel gauge unit terminal and earth terminal is within the standard value.

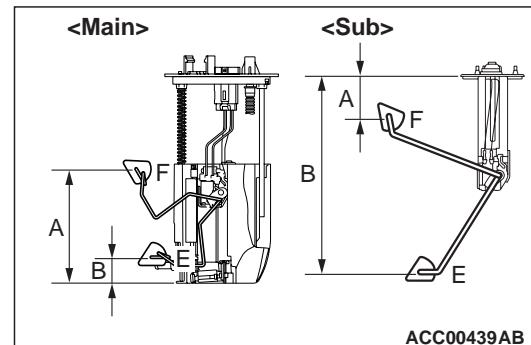
**Standard value:**

| Float position       | Gauge resistance value $\Omega$ |                |
|----------------------|---------------------------------|----------------|
|                      | Main                            | Sub            |
| Stopper position "F" | $6.5 \pm 1.0$                   | $6.5 \pm 1.0$  |
| Stopper position "E" | $44.7 \pm 1.0$                  | $75.3 \pm 1.0$ |

4. When the float is moved slowly between stopper positions "F" and "E", ensure that the resistance is smoothly changing.

### FUEL GAUGE UNIT FLOAT HEIGHT

1. Remove the fuel pump and gauge assembly (Refer to GROUP 13B – On-vehicle Service, Fuel Pump and Gauge Assembly Replacement ) **<Main>**.
2. Remove the fuel gauge unit (Refer to GROUP 13B – On-vehicle Service, Fuel Gauge Unit Replacement ) **<Sub>**.



3. When float is moved to contact the float arm on the stopper, ensure that stopper positions "F" and "E" are within the standard value.

**Standard value:**

| Float position                  | Float height mm |                 |
|---------------------------------|-----------------|-----------------|
|                                 | Main            | Sub             |
| Stopper position "F" (height A) | 166.2           | $48.8 \pm 3.0$  |
| Stopper position "E" (height B) | 38.8            | $238.0 \pm 3.0$ |

## SERVICE REMINDER FUNCTION SET

M1540208200724

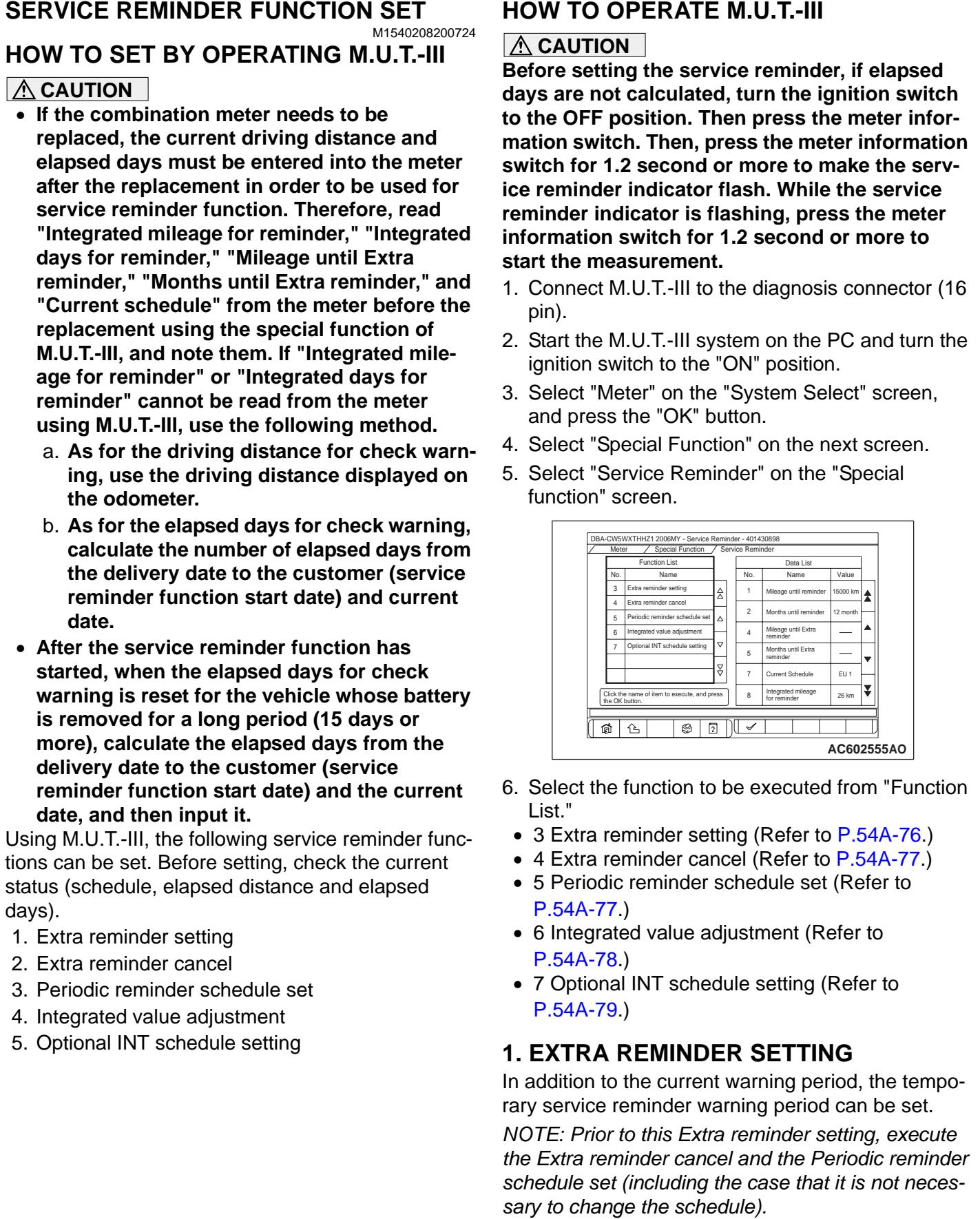
## HOW TO SET BY OPERATING M.U.T.-III

**CAUTION**

- If the combination meter needs to be replaced, the current driving distance and elapsed days must be entered into the meter after the replacement in order to be used for service reminder function. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current schedule" from the meter before the replacement using the special function of M.U.T.-III, and note them. If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read from the meter using M.U.T.-III, use the following method.
  - As for the driving distance for check warning, use the driving distance displayed on the odometer.
  - As for the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service reminder function start date) and current date.
- After the service reminder function has started, when the elapsed days for check warning is reset for the vehicle whose battery is removed for a long period (15 days or more), calculate the elapsed days from the delivery date to the customer (service reminder function start date) and the current date, and then input it.

Using M.U.T.-III, the following service reminder functions can be set. Before setting, check the current status (schedule, elapsed distance and elapsed days).

1. Extra reminder setting
2. Extra reminder cancel
3. Periodic reminder schedule set
4. Integrated value adjustment
5. Optional INT schedule setting

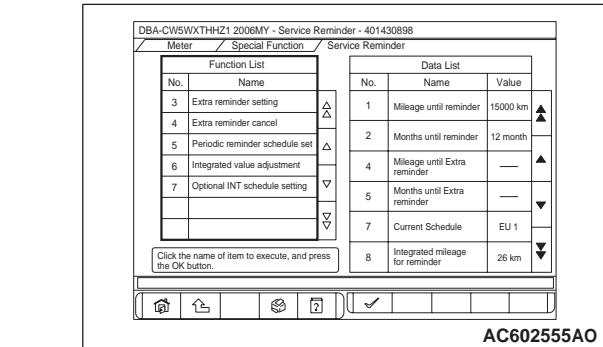


## HOW TO OPERATE M.U.T.-III

**CAUTION**

Before setting the service reminder, if elapsed days are not calculated, turn the ignition switch to the OFF position. Then press the meter information switch. Then, press the meter information switch for 1.2 second or more to make the service reminder indicator flash. While the service reminder indicator is flashing, press the meter information switch for 1.2 second or more to start the measurement.

1. Connect M.U.T.-III to the diagnosis connector (16 pin).
2. Start the M.U.T.-III system on the PC and turn the ignition switch to the "ON" position.
3. Select "Meter" on the "System Select" screen, and press the "OK" button.
4. Select "Special Function" on the next screen.
5. Select "Service Reminder" on the "Special function" screen.



6. Select the function to be executed from "Function List."
  - 3 Extra reminder setting (Refer to [P.54A-76](#).)
  - 4 Extra reminder cancel (Refer to [P.54A-77](#).)
  - 5 Periodic reminder schedule set (Refer to [P.54A-77](#).)
  - 6 Integrated value adjustment (Refer to [P.54A-78](#).)
  - 7 Optional INT schedule setting (Refer to [P.54A-79](#).)

**1. EXTRA REMINDER SETTING**

In addition to the current warning period, the temporary service reminder warning period can be set.

*NOTE: Prior to this Extra reminder setting, execute the Extra reminder cancel and the Periodic reminder schedule set (including the case that it is not necessary to change the schedule).*

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A4

|               |                          |                  |
|---------------|--------------------------|------------------|
| Meter         | Special Function         | Service Reminder |
| Selected Item | 3 Extra reminder setting |                  |

**Data List**

| No. | Name                         | Value    |
|-----|------------------------------|----------|
| 1   | Mileage until reminder       | 15000 km |
| 2   | Months until reminder        | 12 month |
| 4   | Mileage until Extra reminder | —        |
| 5   | Months until Extra reminder  | —        |

Set value

|                           |                   |
|---------------------------|-------------------|
| Name                      | Value             |
| Distance to setting point | -Input the value- |
| Months to setting point   | -Input the value- |

Input the value for the item that you want to set up, and press the OK button.

AC602556CG

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A6

|               |                         |                  |
|---------------|-------------------------|------------------|
| Meter         | Special Function        | Service Reminder |
| Selected Item | 4 Extra reminder cancel |                  |

**Data List**

| No. | Name                         | Value    |
|-----|------------------------------|----------|
| 1   | Mileage until reminder       | 15000 km |
| 2   | Months until reminder        | 12 month |
| 4   | Mileage until Extra reminder | 3000 km  |
| 5   | Months until Extra reminder  | 2 month  |

Press the OK button to execute.

AC602558CZ

1. On the "Service Reminder" screen, select "3 Extra reminder setting."

*NOTE: The screen indicates that the temporary warning period (Nos. 4 and 5 in the data list) has not been set.*

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A5

|               |                          |                  |
|---------------|--------------------------|------------------|
| Meter         | Special Function         | Service Reminder |
| Selected Item | 3 Extra reminder setting |                  |

**Data List**

| No. | Name | Value      |
|-----|------|------------|
| 7   | 8    | 9          |
| 4   | 5    | 6          |
| 1   | 2    | 3          |
| 0   | —    | Back Space |

Set value

|                           |                   |
|---------------------------|-------------------|
| Name                      | Value             |
| Distance to setting point | -Input the value- |
| Months to setting point   | 2                 |

Input the value for the item that you want to set up, and press the OK button.

Range: 0-254, Unit: month.

AC602557AU

2. Set the temporary warning period (distance or month) of the "Set value."

*NOTE: Either input of distance or month can execute the setting.*

3. Press the "OK" button.

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A6

|               |                          |                  |
|---------------|--------------------------|------------------|
| Meter         | Special Function         | Service Reminder |
| Selected Item | 3 Extra reminder setting |                  |

**Data List**

| No. | Name                         | Value    |
|-----|------------------------------|----------|
| 1   | Mileage until reminder       | 15000 km |
| 2   | Months until reminder        | 12 month |
| 4   | Mileage until Extra reminder | —        |
| 5   | Months until Extra reminder  | 2 month  |

Check the result.

AC602558CY

4. The temporary warning period is set.

*NOTE: The screen indicates that "2 month" has been added to the temporary warning period (No. 5 in the data list). (The distance of No. 4 in the data list has not been set.)*

## 2. EXTRA REMINDER CANCEL

The temporary service reminder warning period which has been set can be cancelled.

1. On the "Service Reminder" screen, select "4 Extra reminder cancel."

*NOTE: The screen indicates that "3000 km" and "2 month" have been set to the temporary warning period (Nos. 4 and 5 in the data list).*

2. Press the "OK" button.

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A6

|               |                         |                  |
|---------------|-------------------------|------------------|
| Meter         | Special Function        | Service Reminder |
| Selected Item | 4 Extra reminder cancel |                  |

**Data List**

| No. | Name                         | Value    |
|-----|------------------------------|----------|
| 1   | Mileage until reminder       | 15000 km |
| 2   | Months until reminder        | 12 month |
| 4   | Mileage until Extra reminder | —        |
| 5   | Months until Extra reminder  | —        |

Check the result.

AC602558DA

3. The temporary warning period is cancelled.

*NOTE: The screen indicates that the temporary warning period (Nos. 4 and 5 in the data list) has been cancelled.*

## 3. PERIODIC REMINDER SCHEDULE SET

The service reminder schedule can be changed.

*NOTE: In addition to the operation of M.U.T.-III, the schedule can be changed by operating the meter information switch on the combination meter. Refer to P.54A-80.*

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A4

|               |                                  |                  |
|---------------|----------------------------------|------------------|
| Meter         | Special Function                 | Service Reminder |
| Selected Item | 5 Periodic reminder schedule set |                  |

**Data List**

| No. | Name                         | Value    |
|-----|------------------------------|----------|
| 1   | Mileage until reminder       | 15000 km |
| 2   | Months until reminder        | 12 month |
| 4   | Mileage until Extra reminder | —        |
| 5   | Months until Extra reminder  | —        |
| 7   | Current Schedule             | EU 1     |

Set value

|                |                   |
|----------------|-------------------|
| Name           | Value             |
| Schedule Spec. | -Input the value- |

Select the value and press the OK button.

AC602556CC

1. On the "Service Reminder" screen, select "5 Periodic reminder schedule set."

**NOTE:** The screen indicates that the current schedule (No. 7 in the data list) has been set to "EU 1."

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A4

Meter Special Function Service Reminder

Selected Item 5 Periodic reminder schedule set

Data List

| No. | Name                         | Value    |
|-----|------------------------------|----------|
| 1   | Mileage until reminder       | 15000 km |
| 2   | Months until reminder        | 12 month |
| 4   | Mileage until Extra reminder | —        |
| 5   | Months until Extra reminder  | —        |
| 7   | Current Schedule             | EU 1     |

Set value

| Name           | Value |
|----------------|-------|
| Schedule Spec. | EU 2  |

Select the value and press the OK button.

AC602556CD

2. Set the schedule to be changed from "Set value."
3. Press the "OK" button.

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A6

Meter Special Function Service Reminder

Selected Item 5 Periodic reminder schedule set

Data List

| No. | Name                         | Value    |
|-----|------------------------------|----------|
| 1   | Mileage until reminder       | 20000 km |
| 2   | Months until reminder        | 12 month |
| 4   | Mileage until Extra reminder | —        |
| 5   | Months until Extra reminder  | —        |
| 7   | Current Schedule             | EU 2     |

Check the result.

AC602558DB

4. The schedule is changed.

**NOTE:** The screen indicates that the current schedule (No. 7 in the data list) has been changed to "EU 2."

#### 4. INTEGRATED VALUE ADJUSTMENT

At the combination meter replacement or for the vehicle with its battery being removed for a long period (15 days or more), this adjustment is used to reset the mileage and elapsed days for check warning.

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A4

Meter Special Function Service Reminder

Selected Item 6 Integrated value adjustment

Data List

| No. | Name                            | Value    |
|-----|---------------------------------|----------|
| 1   | Mileage until reminder          | 15000 km |
| 2   | Months until reminder           | 12 month |
| 4   | Mileage until Extra reminder    | —        |
| 5   | Months until Extra reminder     | —        |
| 8   | Integrated mileage for reminder | 26 km    |
| 9   | Integrated days for reminder    | 0 day    |

Set value

| Name             | Value             |
|------------------|-------------------|
| Running Distance | —Input the value— |
| Elapsed Days     | —Input the value— |

Input the value to both items, and press the OK button.

AC602556CE

1. On the "Service Reminder" screen, select "6 Integrated value adjustment."

**NOTE:** The screen indicates that the current mileage and elapsed days (Nos. 8 and 9 in the data list) are "26 km" and "0 day."

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A5

Meter Special Function Service Reminder

Selected Item 6 Integrated value adjustment

Data List

| No. | Name                   | Value |
|-----|------------------------|-------|
| 1   | Mileage until reminder | 100   |
| 2   | Months until reminder  | 30    |

Set value

| Name             | Value |
|------------------|-------|
| Running Distance | 100   |
| Elapsed Days     | 30    |

Input the value to both items, and press the OK button.

AC602557AS

2. To "Set value," input the mileage and elapsed days to be reset.

**NOTE:** Always input both the mileage and elapsed days.

3. Press the "OK" button.

DBA-CW5WXTHZ1 2006MY - Service Reminder - 4014308A4

Meter Special Function Service Reminder

Selected Item 6 Integrated value adjustment

Data List

| No. | Name                            | Value    |
|-----|---------------------------------|----------|
| 1   | Mileage until reminder          | 14900 km |
| 2   | Months until reminder           | 11 month |
| 4   | Mileage until Extra reminder    | —        |
| 5   | Months until Extra reminder     | —        |
| 8   | Integrated mileage for reminder | 100 km   |
| 9   | Integrated days for reminder    | 30 day   |

Check the result.

AC602558DC

4. The mileage and elapsed days are changed. The combination meter automatically recalculates the distance and days to the nearest next check from the settings of mileage and elapsed days for check warning, and then displays them in "Data List."

**NOTE:**

- The screen indicates that the current mileage and elapsed days (Nos. 8 and 9 in the data list) have been changed to "100 km" and "30 day."
- Set the elapsed days for check warning to "0 day" by the above resetting method, thereby the timer is reset indirectly.

**NOTE:** After the Integrated value adjustment, execute the Extra reminder cancel and the Periodic reminder schedule set (including the case that it is not necessary to change the schedule).

## 5. OPTIONAL INT SCHEDULE SETTING

**CAUTION**

If the current schedule is set to the "Optional INT" by executing "3. Periodic reminder schedule set," the "set value" cannot be input. Therefore, set it to the schedule other than the "Optional INT" once, and then execute "5. Optional INT schedule setting."

In addition to the existing schedule, the optional service reminder schedule can be set.

1. On the "Service Reminder" screen, select "7 Optional INT schedule setting."

*NOTE: The screen indicates that the optional schedule (Nos. 12 and 13 in the data list) has not been set.*

2. Set the optional schedule (distance or month) of the "Set value."

*NOTE: Either input of distance or month can execute the setting.*

3. Press the "OK" button.

4. The optional schedule is set. The set schedule becomes effective by executing "3. Periodic reminder schedule set" and setting the schedule to "Optional INT."

*NOTE: The screen indicates that "2 month" has been added to the optional schedule (No. 13 in the data list). (The distance of No. 12 in the data list has not been set.)*

### Relationship between the elapsed months and the elapsed days which are used by the service reminder function

| Number of months | Number of days |
|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|
| 1                | 30 – 60        | 13               | 396 – 425      | 25               | 761 – 790      | 37               | 1 126 – 1 156  |
| 2                | 61 – 90        | 14               | 426 – 456      | 26               | 791 – 821      | 38               | 1 157 – 1 186  |
| 3                | 91 – 121       | 15               | 457 – 486      | 27               | 822 – 851      | 39               | 1 187 – 1 217  |
| 4                | 122 – 151      | 16               | 487 – 516      | 28               | 852 – 882      | 40               | 1 218 – 1 247  |
| 5                | 152 – 182      | 17               | 517 – 547      | 29               | 883 – 912      | 41               | 1 248 – 1 277  |
| 6                | 183 – 212      | 18               | 548 – 577      | 30               | 913 – 943      | 42               | 1 278 – 1 308  |
| 7                | 213 – 243      | 19               | 578 – 608      | 31               | 944 – 973      | 43               | 1 309 – 1 338  |
| 8                | 244 – 273      | 20               | 609 – 638      | 32               | 974 – 1 003    | 44               | 1 339 – 1 369  |

| Number of months | Number of days |
|------------------|----------------|------------------|----------------|------------------|----------------|------------------|----------------|
| 9                | 274 – 303      | 21               | 639 – 669      | 33               | 1 004 – 1 034  | 45               | 1 370 – 1 399  |
| 10               | 304 – 334      | 22               | 670 – 699      | 34               | 1 035 – 1 064  | 46               | 1 400 – 1 430  |
| 11               | 335 – 364      | 23               | 700 – 730      | 35               | 1 065 – 1 095  | 47               | 1 431 – 1 460  |
| 12               | 365 – 395      | 24               | 731 – 760      | 36               | 1 096 – 1 125  | 48               | 1 461 – 1 491  |

**NOTE:**

- When the number of elapsed days is 0 to 29, the number of elapsed months is 0.
- The combination meter performs calculation using 365.25 days for one year and 30.4375 days for one month.

**HOW TO SET BY SPECIAL OPERATION OF SWITCH**

By operating the meter information switch of the combination meter, the service reminder warning cancellation and the schedule setting can be performed.

**HOW TO CANCEL THE SERVICE REMINDER WARNING****CAUTION**

- Be careful not to execute the service reminder warning cancellation by operating the switch again after erasing the service reminder warning indicator which is currently output, because the next warning period will be cancelled.
- If the next warning period is cancelled by mistake, the cancelled warning period can be restored by setting a schedule different from the current one once, and then returning it to the previous schedule.

1. Turn the ignition switch to the "OFF" position.
2. By operating the meter information switch, the warning period is displayed on the multi-information display.
3. Press the meter information switch once for 1.2 seconds or longer.
4. The service reminder indicator flashes.
5. While the service reminder indicator flashes, press the meter information switch once for less than 1.2 seconds.

6. The service reminder indicator is turned ON, and "CLEAR" is displayed on the odometer display for 3 seconds.
7. After "CLEAR" is displayed for 3 seconds, the warning period to the next time is displayed.

**HOW TO SET THE SCHEDULE**

1. Turn the ignition switch to the "OFF" position.
2. By operating the meter information switch, the warning period is displayed on the odometer.
3. Press the meter information switch once for 1.2 seconds or longer.
4. The service reminder indicator flashes.
5. While the service reminder indicator flashes, press the meter information switch for 1.2 seconds or longer and 3 times consecutively.
6. The service reminder indicator is turned ON, and the current schedule is displayed on the odometer display.
7. While the current schedule is displayed, press the meter information switch for less than 1.2 seconds and 3 times consecutively.
8. The odometer display is shifted to the schedule selection mode.
9. When the meter information switch is pressed for less than 1.2 seconds, the schedule is shifted, and when the switch is pressed for 1.2 seconds or longer, the displayed schedule is set.

*NOTE: For schedule, "JPN", "EU", "NAS", "GCC/EXP", "MMAL" and "SEVERE" can also be selected. However, the using shall be for "Normal" only.*

10. The schedule set in Step 9 is displayed for 3 seconds, and the warning period to the next time is displayed.

**Schedule table**

| Schedule | Contents of schedule     |  |
|----------|--------------------------|--|
| Normal   | Elapsed time (month)     | Every 12 elapsed months                |
|          | Driving distance (miles) | Every 12,500 miles of driving distance |
|          | Driving distance (km)    | Every 20,000 km of driving distance    |

**HOW TO INACTIVATE THE SERVICE  
REMINDER FUNCTION**

By setting to "OFF Display" or "Function OFF" when the schedule is set, the service reminder function can be inactivated.

**When "OFF Display" is selected**

- Even if the service reminder screen is displayed by operating the meter information switch, "OFF" is displayed.

**When "Function OFF" is selected**

- Even when the check warning period is reached, the service reminder display is not displayed.
- Even with the meter information switch operation, the service reminder screen is not displayed.

## COMBINATION METER

## REMOVAL AND INSTALLATION

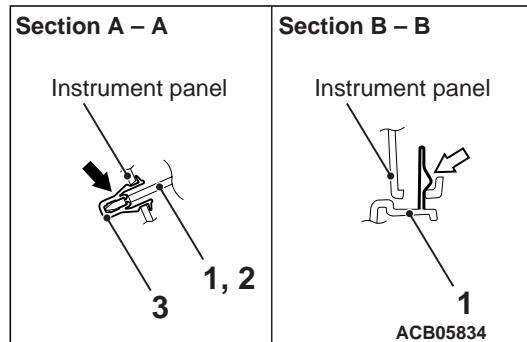
M1540201700513

**CAUTION**

If the combination meter needs to be replaced, the current driving distance and elapsed days must be entered into the meter after the replacement in order to be used for service reminder function. Therefore, read "Integrated mileage for reminder," "Integrated days for reminder," "Mileage until Extra reminder," "Months until Extra reminder," and "Current schedule" from the meter before the replacement using the special function of M.U.T.-III, and note them. For the operation method of M.U.T.-III, refer to On-vehicle service [P.54A-76](#). If "Integrated mileage for reminder" or "Integrated days for reminder" cannot be read from the meter using M.U.T.-III, use the following method.

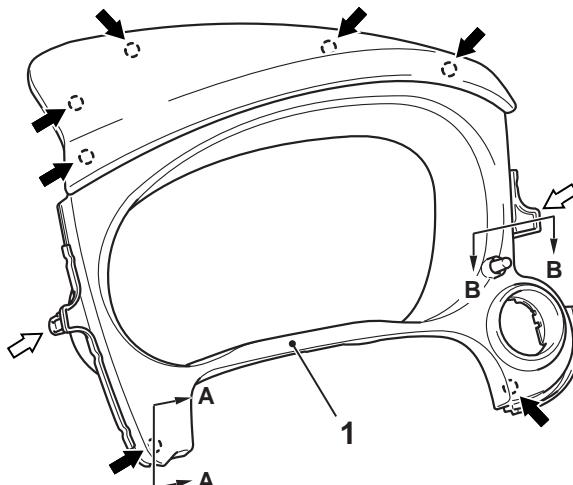
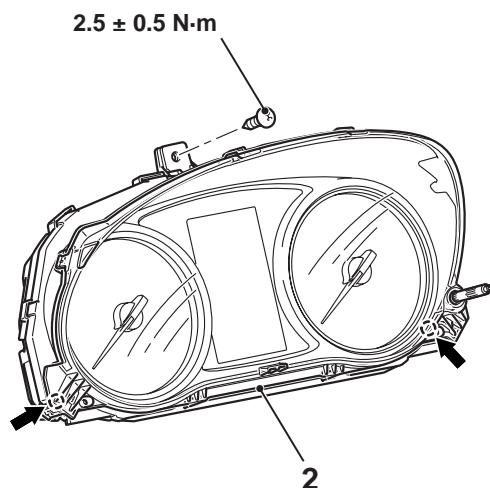
- As for the driving distance for check warning, use the driving distance displayed on the multi information display.
- As for the elapsed days for check warning, calculate the number of elapsed days from the delivery date to the customer (service reminder function start date) and current date.

| Pre-removal Operation   | Post-installation Operation  |
|---|--|
| <ul style="list-style-type: none"> <li>Centre Panel Assembly and Side Air Outlet Panel Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).</li> </ul> | <ul style="list-style-type: none"> <li>Centre Panel Assembly and Side Air Outlet Panel Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).</li> </ul> |



## NOTE

←: Clip positions  
↖: Claw positions



ACB05515AB

**Removal steps**

1. Combination meter bezel
2. Combination meter assembly
3. Clip

**METER INFORMATION SWITCH****REMOVAL AND INSTALLATION**

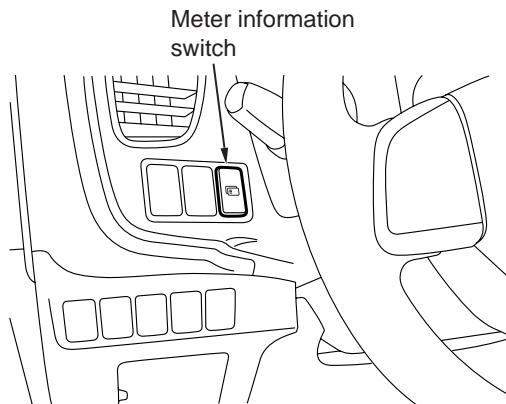
M1540213800012

**Pre-removal Operation**

- Side Air Outlet Panel Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).

**Post-installation Operation**

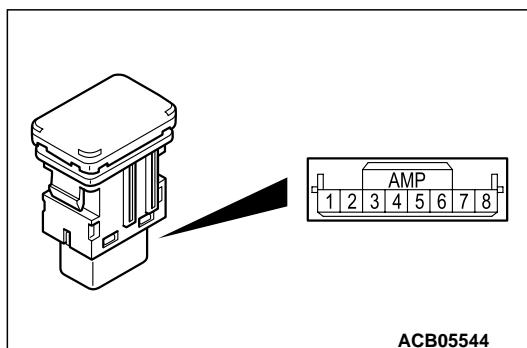
- Side Air Outlet Panel Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).



ACB05543AB

**METER INFORMATION SWITCH CHECK**

M1540202000238



ACB05544

| Switch position       | Terminal number | Normal condition                       |
|-----------------------|-----------------|--|
| ON (switch pushed)    | 3 – 6           | Continuity exists ( $2\Omega$ or less) |
| OFF (switch released) |                 | No continuity                          |

**HEADLAMP****SERVICE SPECIFICATIONS**

M1540100200369

| Item   | Standard value   | Limit  |
|--|--|--|
| Headlamp aiming  | Vertical direction<br>36 mm (0.69°) below horizontal (H)             | $\pm 15$ mm ( $\pm 0.29$ °) from the horizontal cut-off line |
|  | Horizontal direction<br>Elbow point intersects the vertical line (V) | $\pm 26$ mm ( $\pm 0.5$ °) from the vertical line (V)        |
| Headlamp luminous intensity measurement cd<br>(When a screen is set 25 m ahead of the vehicle) | –  | 30,000 cd or more  |

## PRECAUTIONS ON HOW TO USE THE HEADLAMP ASSEMBLY

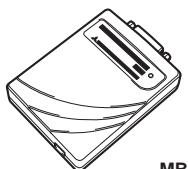
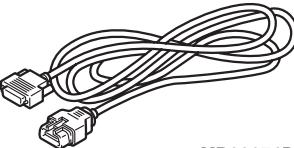
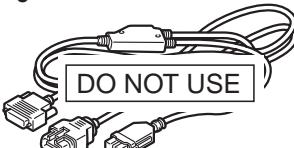
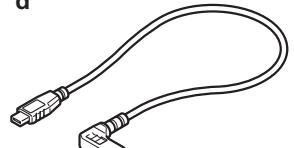
Be careful with the following items as resin lenses are used in the headlamp assembly.

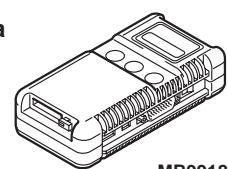
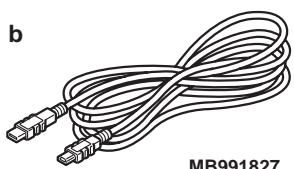
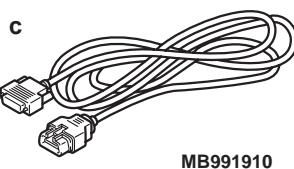
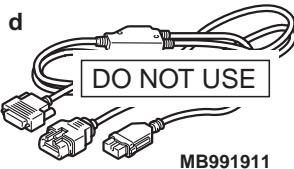
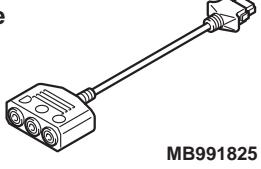
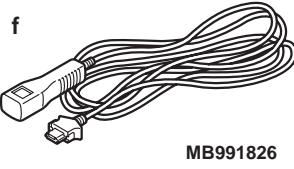
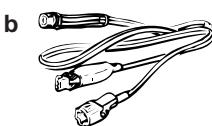
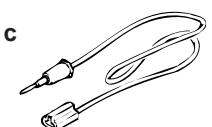
- Don't illuminate the headlamp for three minutes or more when the headlamp is covered with scratch protector.
- Don't tape the outer lens.

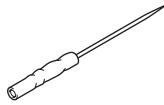
- Don't scratch the outer lens surface with a sharp edged special tool.
- Use the specified genuine bulb.

## SPECIAL TOOLS

M1540104400365

| Tool   | Number  | Name  | Use   |
|--|---|---|---|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code, service data and actuator test check. |
| b<br><br>MB992745                 |   |   |   |
| c<br><br>MB992746                |   |   |   |
| d<br><br>MB992747               |   |   |   |
| e<br><br>MB992748<br>ACB05421AB |   |   |   |

| Tool   | Number   | Name   | Use  |
|--|--|--|--|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface<br>(V.C.I.)<br>b. M.U.T.-III<br>USB cable<br>c. M.U.T.-III<br>main harness<br>A (Vehicles<br>with CAN<br>communication<br>system)<br>d. M.U.T.-III<br>main harness<br>B (Vehicles<br>without CAN<br>communication<br>system)<br>e. M.U.T.-III<br>measure<br>adapter<br>f. M.U.T.-III<br>trigger<br>harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Diagnosis code, service data and actuator test check. |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>MB991223</b>   | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check<br>harness<br>b. LED harness<br>c. LED harness<br>adapter<br>d. Probe  | Continuity check and voltage<br>measurement at harness wire or<br>connector<br>a. For checking connector pin<br>contact pressure<br>b. For checking power supply<br>circuit<br>c. For checking power supply<br>circuit<br>d. For connecting a locally sourced<br>tester                      |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

## SERVICE PRECAUTIONS <VEHICLES WITH DISCHARGE HEADLAMP>

M1540100300292

Before checking the discharge headlamp related parts, be sure to read the following warnings and precautions carefully, and then perform necessary operations.

**⚠ DANGER**

- **Do not touch the socket and the connector while the headlamps are on. High voltage is applied to the bulb socket and connector during headlamp operation. The operator may be burnt or dead due to an electric shock by high voltage.**
- **Do not attempt to use a tester to check them. If the bulb socket and connectors should be inspected using a tester, the operator may be burnt or dead due to an electric shock by high voltage.**
- **Do not turn ON the headlamps while the headlamp control unit or the bulb is removed. If the headlamps are turned ON with the headlamp control unit or bulb removed, the operator may get burned by the bulb of a high temperature. The operator may be burnt or dead due to an electric shock by high voltage.**
- **Before service work, turn the lighting switch OFF and disconnect the battery terminal and the controller connector in a dry place. Do not touch the components with wet hands. If you work on the components with wet hands or in wet conditions, the operator may be burnt or dead due to an electric shock by high voltage.**

**⚠ WARNING**

**Do not illuminate the bare headlamp bulb. (Do not illuminate the headlamp using other than the vehicle power supply.) If the headlamp bulb illuminates without fitting it in the headlamp unit, it may burst due to rise in its internal pressure.**

**⚠ CAUTION**

When reusing the headlamp control unit with the discharge headlamp damaged, observe the inspection procedures for the related parts of the discharge headlamp before determining the reusability of the controller. If you fail to observe "How to check discharge headlamp components," the vehicle may be damaged.

**TROL UNIT (CASE)**

If any of the check items below are found, replace the headlamp control unit.

**CHECKING PROCEDURE FOR DIS-  
CHARGE HEADLAMP RELATED PARTS  
(INSPECTION PROCEDURE WHEN REUS-  
ING THE HEADLAMP CONTROL UNIT)  
VISUAL CHECK OF HEADLAMP CON-**

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

## CHECK OF WIRING HARNESS BETWEEN HEADLAMP CONTROL UNIT AND BULB

If any of the check items below are found, replace the headlamp control unit.

 **DANGER**

*If the wiring harness between the headlamp control unit and the bulb is damaged, always replace it. Attempting to repair the wiring harness may cause a melted harness wire, or may result in a burn or death due to an electric shock by high voltage.*

| Items to be checked   | Why the headlamp control unit should be replaced                |
|---|---|
| Wiring harness shield damaged   | Abnormal noise may cause.                                       |
| Damaged connector (chipped or cracked plastics, or deformed terminal) | The damaged part(s) may cause poor connection or short circuit. |

## CHECK OF HEADLAMP CONTROL UNIT OPERATION

If any of the abnormalities below are found, replace the headlamp control unit.

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

| Check item (Check of illumination operation)   |
|--|
| With the headlamp bulb in the cold state (with the lamp turned off for 10 minutes or more) and in warm state (after the lamp is illuminated for 15 minutes or more, it is turned off for 1 minute), turn ON and OFF the headlamp several times, and then check that the headlamp illuminates without fail. |
| Observe the headlamps until they illuminate steadily (approximately 5 minutes after switching on them). Check that the headlamps do not flash or flicker.  |
| Turn on the headlamps for 30 minutes. Check that the brightness is the same between right and left lamps.  |
| Turn on the headlamps for 30 minutes. Check that the headlamps do not flash or flicker for 30 minutes.   |

## TROUBLESHOOTING PROCEDURE FOR DISCHARGE HEADLAMP (DIAGNOSTIC PROCEDURE FOR MALFUNCTIONS)

1. Check that the connectors are connected securely and the fuse has not been blown.

2. Before troubleshooting, read through the "Symptom chart" to understand what and how you should do. Follow all the procedures carefully.
3. The components should be checked with their connectors disconnected.

## SYMPTOM CHART

| Item to be checked | Trouble symptom                  |                        |                        |
|--------------------|----------------------------------|------------------------|------------------------|
|                    | The headlamps do not illuminate. | The headlamps flicker. | The headlamps are dim. |
| Fuse               | 1                                | —                      | —                      |

| Item to be checked           | Trouble symptom                  |                        |                        |
|------------------------------|----------------------------------|------------------------|------------------------|
|                              | The headlamps do not illuminate. | The headlamps flicker. | The headlamps are dim. |
| Wiring harness and connector | 2                                | 1                      | —                      |
| Column switch                | 3                                | —                      | —                      |
| Bulb                         | 4                                | 2                      | 1                      |
| Headlamp control unit        | 5                                | 3                      | 2                      |
| ETACS-ECU                    | 6                                | 4                      | —                      |

## NOTE:

- The numbers indicate the sequence in which the component is checked.
- For the troubleshooting of other than the above, refer to Trouble Symptom Chart P.54A-96.
- If ETACS-ECU fails, only the low-beam headlamps will illuminate as a fail-safe measure.

## TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING

M1540104200167

Refer to GROUP 00 – Contents of troubleshooting .

**CAUTION**

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

## ETACS-ECU

| Diagnosis code No. | Diagnostic item                | Reference page |
|--------------------|--------------------------------|----------------|
| B16A2              | Turn-signal (LH) bulb outage   |                |
| B16A3              | Turn-signal (LH) circuit short |                |
| B16A4              | Turn-signal (RH) bulb outage   |                |
| B16A5              | Turn-signal (RH) circuit short |                |
| B16A6              | Turn-signal fuse blown         |                |

## LIN &lt;VEHICLES WITH LIGHTING CONTROL SENSOR&gt;

| Diagnosis code No. | Diagnostic item          | Reference page |
|--------------------|--------------------------|----------------|
| L0432              | RLS* RS adaptation error |                |
| L0434              | RLS* Light sensor error  |                |
| L0436              | RLS* Rain sensor error   |                |

NOTE: \*: Rain light sensor (Lighting control sensor)

## DIAGNOSIS FUNCTION

M1540104300335

## HOW TO READ DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

## HOW TO ERASE DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

## DIAGNOSIS CODE CHART

M1540101400764

STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING

## DIAGNOSIS CODE PROCEDURES

## Code No.B16A2 Turn-signal (LH) bulb outage

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

When the left bulb of turn-signal lamp is blown, the ETACS-ECU sets diagnosis code No. B16A2.

**JUDGEMENT CRITERIA**

The ETACS-ECU sets diagnosis code No. B16A2 under the following conditions.

- i. With the diagnosis code not set, if there is a malfunction to the left turn-signal lamp bulb, the blown left bulb counter counts once when the illumination of hazard or turn-signal lamp (left side) is attempted.
- ii. If the blown left bulb counter reaches "3," diagnosis code No. B16A2 is set.

**PROBABLE CAUSES**

- Malfunction of turn-signal lamp bulb (left side)
- Malfunction of turn-signal lamp assembly (left side) <Integrated in door mirror type>
- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. Bulb check**

Check whether the bulb of turn-signal lamp which does not illuminate is normal.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Replace the bulb of turn-signal lamp which does not illuminate.

YES : Go to Step 6.

**STEP 2. Resistance measurement at the headlamp assembly (TURN: LH) connector, side turn-signal lamp (LH) connector and rear combination lamp (TURN: LH) connector**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the connector terminal of lamp which does not illuminate and the body earth.
  - Measure the resistance between the headlamp assembly (TURN: LH) connector (earth terminal) and the body earth.
  - Measure the resistance between the side turn-signal lamp (LH) connector (earth terminal) and the body earth.
  - Measure the resistance between the rear combination lamp (TURN: LH) connector (earth terminal) and the body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Go to Step 3.

**STEP 3. Check of open circuit in earth line between headlamp assembly (TURN: LH) connector, side turn-signal lamp (LH) connector or rear combination lamp (TURN: LH) connector and the body earth**

**Q: Is the check result normal?**

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check of open circuit in TL1&TL2-1 line between ETACS-ECU connector and headlamp assembly (TURN: LH) connector**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Check of open circuit in TL1&TL2-1 line between ETACS-ECU connector and side turn-signal lamp (LH) connector <Fender panel attachment type>**

**Q: Is the check result normal?**

NO : Repair the connector(s) or wiring harness.

**STEP 6. Check of open circuit in TL3-1&TL3-2 line between ETACS-ECU connector and rear combination lamp (TURN: LH) connector****Q: Is the check result normal?**

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

**STEP 7. Check of open circuit in TL2-2 line between ETACS-ECU connector and side turn-signal lamp (LH) connector <Integrated in door mirror type>****Q: Is the check result normal?**

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

**Code No.B16A3 Turn-signal (LH) circuit short****△ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

When the left wiring harness of turn-signal lamp is short circuited, the ETACS-ECU sets diagnosis code No. B16A3.

**JUDGEMENT CRITERIA**

With the diagnosis code not set, when the short circuit is detected three times consecutively, the ETACS-ECU sets the diagnosis code No. B16A3.

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. Check of short circuit in TL1&TL2-1 line between ETACS-ECU connector and headlamp assembly (TURN: LH) connector****Q: Is the check result normal?****STEP 8. Check whether the diagnosis code is reset.**

(1) Erase the diagnosis code.

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

(3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

YES : Replace the ETACS-ECU.

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 ).

**YES : Go to Step 2.****NO : Repair the connector(s) or wiring harness.****STEP 2. Check of short circuit in TL1&TL2-1 line between ETACS-ECU connector and side turn-signal lamp (LH) connector <Fender panel attachment type>****Q: Is the check result normal?**

YES : Go to Step 3.

NO : Repair the connector(s) or wiring harness.

**STEP 3. Check of short circuit in TL3-1&TL3-2 line between ETACS-ECU connector and rear combination lamp (TURN: LH) connector****Q: Is the check result normal?**

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check of short circuit in TL2-2 line between ETACS-ECU connector and side turn-signal lamp (LH) connector <Integrated in door mirror type>****Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Check whether the diagnosis code is reset.**

(1) Erase the diagnosis code.

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

(3) Check if diagnosis code is set.

Q: Is the diagnosis code set?

YES : Replace the ETACS-ECU.

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 ).

## Code No.B16A4 Turn-signal (RH) bulb outage

### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in **Immobilizer System – How to Register Key ID P.54A-33.**)

### DIAGNOSTIC FUNCTION

When the right bulb of turn-signal lamp is blown, the ETACS-ECU sets diagnosis code No. B16A4.

### JUDGEMENT CRITERIA

The ETACS-ECU sets diagnosis code No. B16A4 under the following conditions.

- i. With the diagnosis code not set, if there is a malfunction to the right turn-signal lamp bulb, the blown right bulb counter counts once when the illumination of hazard or turn-signal lamp (right side) is attempted.
- ii. If the blown right bulb counter reaches "3," the diagnosis code No. B16A4 is set.

### PROBABLE CAUSES

- Malfunction of turn-signal lamp bulb (right side)
- Malfunction of turn-signal lamp assembly (right side) <Integrated in door mirror type>
- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

### DIAGNOSIS PROCEDURE

#### STEP 1. Bulb check

Check whether the bulb of turn-signal lamp which does not illuminate is normal.

Q: Is the check result normal?

YES : Go to Step 5.

YES : Go to Step 2.

NO : Replace the bulb of turn-signal lamp which does not illuminate.

#### STEP 2. Resistance measurement at the headlamp assembly (TURN: RH) connector, side turn-signal lamp (RH) connector and rear combination lamp (TURN: RH) connector

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the connector terminal of lamp which does not illuminate and the body earth.
  - Measure the resistance between the headlamp assembly (TURN: RH) connector (earth terminal) and the body earth.
  - Measure the resistance between the side turn-signal lamp (RH) connector (earth terminal) and the body earth.
  - Measure the resistance between the rear combination lamp (TURN: RH) connector (earth terminal) and the body earth.

**OK: Continuity exists (2 Ω or less)**

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 3.

#### STEP 3. Check of open circuit in earth line between headlamp assembly (TURN: RH) connector, side turn-signal lamp (RH) connector or rear combination lamp (TURN: RH) connector and the body earth

Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

#### STEP 4. Check of open circuit in TR1&TR2-1 line between ETACS-ECU connector and headlamp assembly (TURN: RH) connector

Q: Is the check result normal?

NO : Repair the connector(s) or wiring harness.

**STEP 5. Check of open circuit in TR1&TR2-1 line between ETACS-ECU connector and side turn-signal lamp (RH) connector <Fender panel attachment type>****Q: Is the check result normal?**

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

**STEP 6. Check of open circuit in TR3 line between ETACS-ECU connector and rear combination lamp (TURN: RH) connector****Q: Is the check result normal?**

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

**STEP 7. Check of open circuit in TR2-2 line between ETACS-ECU connector and side turn-signal lamp (RH) connector <Integrated in door mirror type>****Q: Is the check result normal?**

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

**STEP 8. Check whether the diagnosis code is reset.**

(1) Erase the diagnosis code.

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

(3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

YES : Replace the ETACS-ECU.

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 ).

**Code No.B16A5 Turn-signal (RH) circuit short****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

When the right wiring harness of turn-signal lamp is short circuited, the ETACS-ECU sets the diagnosis code No. B16A5.

**JUDGEMENT CRITERIA**

With the diagnosis code not set, when the short circuit is detected three times consecutively, the ETACS-ECU sets the diagnosis code No. B16A5.

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. Check of short circuit in TR1&TR2-1 line between ETACS-ECU connector and headlamp assembly (TURN: RH) connector****Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

**STEP 2. Check of short circuit in TR1&TR2-1 line between ETACS-ECU connector and side turn-signal lamp (RH) connector <Fender panel attachment type>****Q: Is the check result normal?**

YES : Go to Step 3.

NO : Repair the connector(s) or wiring harness.

**STEP 3. Check of short circuit in TR3 line between ETACS-ECU connector and rear combination lamp (TURN: RH) connector****Q: Is the check result normal?**

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check of short circuit in TR2-2 line between ETACS-ECU connector and side turn-signal lamp (RH) connector <Integrated in door mirror type>****Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Check whether the diagnosis code is reset.**

(1) Erase the diagnosis code.

- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

- (3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

YES : Replace the ETACS-ECU.

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 ).

**Code No.B16A6 Turn-signal fuse blown****CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

When the hazard warning lamp fuse is blown, the ETACS-ECU sets the diagnosis code No. B16A6.

**JUDGEMENT CRITERIA**

With the diagnosis code not set, when the blown fuse of hazard warning lamp is detected three times consecutively, the ETACS-ECU sets the diagnosis code No. B16A3.

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. Fuse check**

Check if the turn-signal lamp fuse is normal.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Replace the turn-signal lamp fuse.

**STEP 2. Check whether the diagnosis code is reset.**

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

**Q: Is the diagnosis code set?**

YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

**Code No.L0432 RLS RS adaptation error****DIAGNOSTIC FUNCTION**

When the lighting control sensor is installed with the wrong procedure, code No. L0432 is stored by LIN.

**COMMENTS ON TROUBLE SYMPTOM**

The lighting control sensor may have been installed with the wrong procedure.

- Incorrect installation procedure: Connect the connector before mounting the lighting control sensor onto the optical coupler of the windshield.

- Correct installation procedure: Mount the lighting control sensor onto the optical coupler of the windshield. Wipe the windshield surface thoroughly, and check that the surface is dry. Then, connect the connector.

**PROBABLE CAUSES**

- Lighting control sensor improperly installed
- Lighting control sensor (rain sensor) abnormal operation

## DIAGNOSIS PROCEDURE

### STEP 1. Check whether the diagnosis code is reset.

Disconnect the connector from the lighting control sensor, and connect the connector to the lighting control sensor again. Then, check again if the diagnosis code is set to LIN.

- (1) Disconnect the connector of lighting control sensor, and connect it again.

*NOTE: When connecting the connector, follow the correct installation procedure.*

- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if diagnosis code is set.

#### Q: Is the diagnosis code set?

**YES** : Go to Step 2.

**NO** : The lighting control sensor is installed with the wrong procedure.

### STEP 2. Lighting control sensor installation surface check

Visually check the presence of scratches or air bubbles (diameter of 5 mm or more) on the windshield to which the lighting control sensor is installed. In addition, visually check that the optical coupler is not broken and that the lighting control sensor can be installed.

#### Q: Is the check result normal?

**Code No.L0434 RLS light sensor error**

**Code No.L0436 RLS rain sensor error**

**YES** : Go to Step 3.

**NO** : Replace the windshield (Refer to GROUP 42A – Windshield )

### STEP 3. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to LIN.

- (1) Wipe the windshield surface of the lighting control sensor section thoroughly, and check that the surface is dry. Then, perform the lighting control sensor (rain sensor) adaptation. <Refer to GROUP 51 – Lighting Control Sensor (Rain Sensor) Adaptation >.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if diagnosis code is set.

#### Q: Is the diagnosis code set?

**YES** : Replace the lighting control sensor.

**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 ).

## DIAGNOSTIC FUNCTION

If a trouble occurs in the lighting control sensor, code Nos. L0434 and L0436 are stored to LIN.

## PROBABLE CAUSE

Malfunction of the lighting control sensor

## TROUBLE SYMPTOM CHART

M1540102101178

| Trouble symptom  |  | Inspection Procedure No. | Reference page            |
|--|--|--------------------------|---------------------------|
| Headlamp and tail lamp                                 | None of the low-beam headlamps illuminate.   | 1                        | <a href="#">P.54A-96</a>  |
|  | None of the high-beam headlamps illuminate.  | 2                        | <a href="#">P.54A-97</a>  |
|  | The headlamps (low-beam) illuminate regardless of the lighting switch positions. (High-beam does not illuminate) | 3                        | <a href="#">P.54A-98</a>  |
|  | The headlamps do not illuminate when the passing switch is turned ON.  | 4                        | <a href="#">P.54A-99</a>  |
|  | One of the headlamp(s) does not illuminate.  | 5                        | <a href="#">P.54A-100</a> |
|  | The high-beam indicator lamp does not illuminate.  | 6                        | <a href="#">P.54A-101</a> |
|  | The headlamp automatic shutdown function does not work normally.   | 7                        | <a href="#">P.54A-102</a> |
|  | The auto lamp function does not work normally.   | 8                        | <a href="#">P.54A-103</a> |
|  | One of the position lamps, the licence plate lamps or the tail lamps does not illuminate.                        | 9                        | <a href="#">P.54A-104</a> |
| Turn-signal lamp                                       | None of the turn-signal lamps illuminate.  | 10                       | <a href="#">P.54A-105</a> |
|  | The comfort flashing function does not work normally.  | 11                       | <a href="#">P.54A-106</a> |
|  | The turn-signal indicator lamps do not illuminate.   | 12                       | <a href="#">P.54A-107</a> |
| The welcome light function does not work normally.     |  | 13                       | <a href="#">P.54A-108</a> |
| The coming home light function does not work normally. |  | 14                       | <a href="#">P.54A-109</a> |

## SYMPTOM PROCEDURES

## Inspection Procedure 1: None of the low-beam headlamps illuminate.

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

**COMMENTS ON TROUBLE SYMPTOM**

If both headlamps (low-beam) do not illuminate normally, the headlamp switch input circuit, headlamp relay (LO), or ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of column switch
- Malfunction of headlamp relay (LO)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to

[P.54A-281](#).

**NO** : Go to Step 2.

**STEP 2. M.U.T.-III data list**

Use the ETACS-ECU service data to check the signal related to the operation of headlamp function.

- Headlamp switch to ON.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 341 | Head lamp switch | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).

**STEP 3. Headlamp relay (LO) check**

Refer to [P.54A-115](#).

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Replace the headlamp relay (LO).

**STEP 4. Voltage measurement at the headlamp relay (LO) connector**

(1) Remove the headlamp relay (LO), and measure

at the relay box side.

(2) Measure the voltage between headlamp relay (LO) connector (power supply terminal) and the body earth.

**OK: System voltage**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Go to Step 6.

**STEP 5. Check of open circuit in HLO line between ETACS-ECU connector and headlamp relay (LO) connector**

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Repair the connector(s) or wiring harness.

**STEP 6. Check of open circuit in power supply line between fusible link and headlamp relay (LO) connector**

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Repair the connector(s) or wiring harness.

**STEP 7. Retest the system**

Check that the headlamps (low-beam) illuminate 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 ).

**NO** : Replace the ETACS-ECU.

**Inspection Procedure 2: None of the high-beam headlamps illuminate.****△ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

If both headlamps (high-beam) do not illuminate normally, the headlamp switch input circuit, headlamp relay (HI), or ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of column switch
- Malfunction of headlamp relay (HI)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**COMMENTS ON TROUBLE SYMPTOM**

## DIAGNOSIS PROCEDURE

## STEP 1. M.U.T.-III diagnosis code

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

Q: Is the diagnosis code set?

YES : Troubleshoot the ETACS-ECU. Refer to

[P.54A-281](#).

NO : Go to Step 2.

## STEP 2. M.U.T.-III data list

Use the ETACS-ECU service data to check the signal related to the operation of headlamp function.

- Headlamp switch to ON.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 341 | Head lamp switch | ON               |

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).

## STEP 3. Headlamp relay (HI) check

Refer to [P.54A-115](#).

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the headlamp relay (HI).

## STEP 4. Voltage measurement at the headlamp relay (HI) connector

(1) Remove the headlamp relay (HI), and measure at

**Inspection Procedure 3: The headlamps (low-beam) illuminate regardless of the lighting switch positions. (High-beam does not illuminate)**

 **CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

the relay box side.

(2) Measure the voltage between headlamp relay (HI) connector (power supply terminal) and the body earth.

**OK: System voltage**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 6.

## STEP 5. Check of open circuit in HHI line between ETACS-ECU connector and headlamp relay (HI) connector

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

## STEP 6. Check of open circuit in power supply line between fusible link and headlamp relay (HI) connector

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

## STEP 7. Retest the system

Check that the headlamps (high-beam) illuminate 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 ).

NO : Replace the ETACS-ECU.

## COMMENTS ON TROUBLE SYMPTOM

If the headlamps illuminate only at low-beam regardless of the lighting switch position, the headlamp fail-safe function may be active.

## PROBABLE CAUSES

- Malfunction of column switch
- Malfunction of the lighting control sensor
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III diagnosis code**

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

Q: Is the diagnosis code set?

YES : Troubleshoot the ETACS-ECU. Refer to

[P.54A-281](#).

NO : Go to Step 2.

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the LIN.

Q: Is the diagnosis code set?

YES : Refer to diagnosis code chart [P.54A-89](#).

NO : Go to Step 3.

**STEP 3. M.U.T.-III data list**

Use the ETACS-ECU service data to check the signals related to the operation of auto lamp function.

- Headlamp switch to ON.

| Item No.   | Item name               | Normal condition |
|--|-------------------------|------------------|
| Item 341   | Head lamp switch        | ON               |
| • Turn the lighting switch to the "AUTO" position. |                         |                  |
| Item No.   | Item name               | Normal condition |
| Item 348   | Head lamp switch (auto) | ON               |

OK: Normal condition is displayed.

Q: Is the check result normal?

**Inspection Procedure 4: The headlamps do not illuminate when the passing switch is turned ON.****CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

If both headlamps (low-beam and high-beam) do not illuminate, the passing switch input circuit or

YES <Vehicles without lighting control sensor> :  
Go to Step 5.

YES &lt;Vehicles with lighting control sensor&gt; : Go to Step 4.

NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).**STEP 4. Check that the auto lamp function.**Check that the auto lamp function normally (Refer to [P.54A-114](#)).

Q: Is the check result normal?

YES : Go to Step 5.

NO : Refer to Inspection Procedure 8 "The auto lamp function does not work normally."

[P.54A-103](#).**STEP 5. Retest the system**

Check that the headlamps illuminate 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 ).

NO : Replace the ETACS-ECU.

ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the operation of the headlamps.**

Check that the low-beam and high-beam headlamps illuminate normally.

Q: Is the check result normal?

**YES** : Go to Step 2.

**NO** : Refer to Inspection Procedure 1 "None of the low-beam headlamps illuminate."

[P.54A-96](#) and Inspection Procedure 2 "None of the high-beam headlamps illuminate." [P.54A-97](#).

## STEP 2. M.U.T.-III diagnosis code

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

**NO** : Go to Step 3.

## Inspection Procedure 5: One of the headlamp(s) does not illuminate.

### ⚠ CAUTION

If the discharge type headlamps do not illuminate, fully understand the precautions in "Service precautions for discharge headlamp" before proceeding with the troubleshooting. Refer to [P.54A-86](#).

### COMMENTS ON TROUBLE SYMPTOM

When one of the headlamps does not illuminate, the wiring harness, connector(s), or the bulb may have a problem, or the fuse may be burned out.

### PROBABLE CAUSES

- Malfunction of the headlamp bulbs
- Malfunction of the headlamp assembly
- Damaged harness wires and connectors

### DIAGNOSIS PROCEDURE

#### STEP 1. Bulb check

Check the bulb(s) of headlamp that does not illuminate.

*NOTE: If discharge-type low-beam headlamps do not illuminate, their bulbs cannot be inspected. In this case, assume the bulbs to be normal and proceed with steps.*

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the bulb(s) of the lamp that does not illuminate.

#### STEP 3. Retest the system

Check that the headlamps (low-beam and high-beam) illuminates normally when turning ON the passing 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 ).

**NO** : Replace the ETACS-ECU.

#### STEP 2. Resistance measurement at the headlamp assembly (LH) or (RH) connector (earth terminals).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the connector of lamp which does not illuminate and the body earth.
- Measure the resistance between the headlamp assembly (LH) or (RH) connector (earth terminals) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Go to Step 3.

#### STEP 3. Check of open circuit in earth lines between the headlamp assembly (LH) or (RH) connector and body earth.

**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 ).

**NO** : Repair the connector(s) or wiring harness.

#### STEP 4. Check of open circuit in power supply lines between the headlamp assembly (LH) or (RH) connector and headlamp relay (LO) or (HI) connector.

**Q: Is the check result normal?**

- YES** : Replace the headlamp assembly that does not illuminate.
- NO** : Repair the connector(s) or wiring harness.

---

### Inspection Procedure 6: The high-beam indicator lamp does not illuminate.

---

#### **⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

### COMMENTS ON TROUBLE SYMPTOM

If the high-beam indicator does not illuminate normally, the harness in the CAN bus lines, connector(s), ETACS-ECU, or combination meter may have a problem.

### PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of combination meter
- Damaged harness wires and connectors

### DIAGNOSIS PROCEDURE

---

#### STEP 1. Headlamp (high-beam) check

Check that the headlamps (high-beam) illuminate/extinguish normally when the lighting switch is operated.

**Q: Is the check result normal?**

- YES** : Go to Step 2.
- NO** : Refer to Inspection Procedure 2 "None of the high-beam headlamps illuminate." [P.54A-97](#).

---

#### STEP 2. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

- YES** : Go to Step 3.
- NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

#### STEP 3. M.U.T.-III diagnosis code

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

**Q: Is the diagnosis code set?**

- YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).
- NO** : Go to Step 4.

---

#### STEP 4. M.U.T.-III other system special function

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the high beam indicator. (Refer to Combination Meter [P.54A-64](#))

- Item 5: Illumination (AUTO)
- Item 6: Indicator (AUTO)

**Q: Is the check result normal?**

- YES** : Go to Step 5.
- NO** : Troubleshoot the combination meter. Refer to [P.54A-53](#).

---

#### STEP 5. Retest the system

Check that the high beam indicator illuminate 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 ).
- NO** : Replace the ETACS-ECU.

## Inspection Procedure 7: The headlamp automatic shutdown function does not work normally.

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**OPERATION**

The ETACS-ECU operates this function in accordance with the input signals from column switch (lighting switch), ignition switch (IG1), and driver's door switch.

**COMMENTS ON TROUBLE SYMPTOM**

If the headlamp automatic shutdown function does not work normally, the above described input circuits or ETACS-ECU may have a problem. Also, it may be possible that the headlamp automatic shutdown function is set to "Disable" through customisation.

**PROBABLE CAUSES**

- Malfunction of driver's door switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Customise function check**

Use the ETACS-ECU customise function to check that the "Head lamp auto cut customize" is set to "Enable (B-spec.)"

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Use the ETACS-ECU customise function to set the "Head lamp auto cut customize" to "Enable (B-spec.)" (Refer to [P.54A-114](#)).

**STEP 2. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

YES : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

NO : Go to Step 3.

**STEP 3. M.U.T.-III data list**

Use the ETACS-ECU service data to check the signals related to the operation of headlamp automatic shutdown function.

- Turn the ignition switch to the LOCK (OFF) position.
- Turn the lighting switch to the "TAIL" position.

| Item No. | Item name               | Normal condition |
|----------|-------------------------|------------------|
| Item 254 | IG voltage              | 1 V or less      |
| Item 340 | Head lamp switch (tail) | ON               |

- Turn the lighting switch to the "HEAD" position.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 341 | Head lamp switch | ON               |

- Open the driver's door.

| Item No. | Item name           | Normal condition |
|----------|---------------------|------------------|
| Item 256 | Dr door ajar switch | Open             |

**OK: Normal conditions are displayed for all the items.**

**Q: Is the check result normal?**

**Normal conditions are displayed for all the items. :**  
Go to Step 4.

**Normal condition is not displayed for item No. 254.**  
: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).

**Normal condition is not displayed for item No. 340 or 341.** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).

**Normal condition is not displayed for item No. 256.**  
: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "The front door switch (driver's side) signal is not received" [P.54A-317](#).

**STEP 4. Retest the system**

Check that the headlamp automatic shutdown function 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 ).
- NO** : Replace the ETACS-ECU.

---

### Inspection Procedure 8: The auto lamp function does not work normally.

---

#### **CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

### OPERATION

The ETACS-ECU operates this function in accordance with the input signals from driving distance, lighting control sensor, and column switch (auto lamp switch). Also, when the column switch (lighting switch) is in the "AUTO" position, and when an abnormality is present to the auto lamp circuit, the fail-safe function is activated and the low beam is turned ON at all times regardless of the brightness around the vehicle.

### COMMENTS ON TROUBLE SYMPTOM

If the auto lamp function does not work normally, the above input signal circuit(s) or the ETACS-ECU may have a problem.

### PROBABLE CAUSES

- Malfunction of the lighting control sensor
- Malfunction of the column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

### DIAGNOSIS PROCEDURE

---

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

#### STEP 2. M.U.T.-III diagnosis code

Check if diagnosis code is set to the LIN.

**Q: Is the diagnosis code set?**

- YES** : Refer to diagnosis code chart [P.54A-89.](#)  
**NO** : Go to Step 3.

#### STEP 3. M.U.T.-III other system diagnosis code

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

**Q: Is the diagnosis code set?**

- YES** : Troubleshoot the ETACS-ECU (Refer to [P.54A-281](#)).  
**NO** : Go to Step 4.

#### STEP 4. Check that the headlamps operate.

Check that the headlamps (low-beam) illuminate normally.

**Q: Is the check result normal?**

- YES** : Go to Step 5.  
**NO** : Refer to Inspection Procedure 1 "None of the low-beam headlamps illuminate." [P.54A-96.](#)

#### STEP 5. M.U.T.-III data list

Use the ETACS-ECU service data to check the signals related to the operation of auto lamp function.

- Turn the lighting switch to the "AUTO" position.

| Item No. | Item name              | Normal condition |
|----------|------------------------|------------------|
| Item 348 | Headlamp switch (auto) | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321.](#)

**STEP 6. Lighting control sensor check**

Check the lighting control sensor. Refer to P.54A-115.

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Replace the lighting control sensor.

**STEP 7. Retest the system**

Check that the auto lamp function 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 ).

**NO** : Replace the ETACS-ECU.

**Inspection Procedure 9: One of the position lamps, the licence plate lamps or the tail lamps does not illuminate.**

**COMMENTS ON TROUBLE SYMPTOM**

If one of the position lamps, the licence plate lamps or tail lamps does not illuminate normally, the harness, connector(s), or bulb(s) may have a problem, or the fuse may be burned out.

**PROBABLE CAUSES**

- Malfunction of bulbs
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Bulb check**

Check the bulb(s) of the lamp that does not illuminate.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the bulb(s) of the lamp that does not illuminate.

**STEP 2. Resistance measurement at the headlamp assembly (position: LH) or (position: RH) connector, rear combination lamp (tail: LH) or (tail: RH) connector, licence plate lamp (LH) or (RH) connector (earth terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the connector terminal of lamp which does not illuminate and

the body earth.

- Measure the resistance between the headlamp assembly (position: LH) or (position: RH) connector (earth terminals) and body earth.
- Measure the resistance between the rear combination lamp (tail: LH) or (tail: RH) connector (earth terminals) and body earth.
- Measure the resistance between the licence plate lamp (LH) or (RH) connector (earth terminals) and body earth.

**OK: Continuity exists ( $2 \Omega$  or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Go to Step 3.

**STEP 3. Check of open circuit in earth lines between the headlamp assembly (position: LH) or (position: RH) connector, rear combination lamp (tail: LH) or (tail: RH) connector, licence plate lamp (LH) or (RH) connector and body earth.**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Check of open circuit in (TAL1, TAR1, TAL2, TAR2) lines between the headlamp assembly (position: LH) or (position: RH) connector, rear combination lamp (tail: LH) or (tail: RH) connector, licence plate lamp (LH) or (RH) connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Repair the connector(s) or wiring harness.

**STEP 5. Retest the system**

Check that the position lamp, tail lamp and licence plate lamp illuminate normally.

**Q: Is the check result normal?**

**The lamps illuminate normally at both high and low beams.** : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**When the position lamps do not illuminate :**  
Replace the position lamp socket.

**When the tail lamps do not illuminate :** Replace the rear combination lamp socket.

**When the licence plate lamps do not illuminate :**  
Replace the licence plate lamp socket.

**Inspection Procedure 10: None of the turn-signal lamps illuminate.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

If all the turn-signal lamps do not illuminate, the ignition switch (IG1), the turn-signal lamp switch input circuit or the ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

**NO** : Go to Step 2.

**STEP 2. M.U.T.-III data list**

Using the ETACS-ECU service data, check the signals related to the illumination of turn-signal lamp.

- Turn the ignition switch to the ON position.
- Turn the turn-signal lamp switch to the left position.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 254 | IG voltage       | System voltage   |
| Item 343 | Turn switch left | ON               |

- Turn the turn-signal lamp switch to the right position.

| Item No. | Item name         | Normal condition |
|----------|-------------------|------------------|
| Item 344 | Turn switch right | ON               |

**OK: Normal conditions are displayed for all the items.**

**Q: Is the check result normal?**

**Normal conditions are displayed for all the items.** : Go to Step 3.

**Normal condition is not displayed for item No. 254.** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).

**Normal condition is not displayed for item No. 343 or 344.** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).

**STEP 3. Retest the system**

Check that the turn-signal lamps illuminate.

**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 ).
- NO** : Replace the ETACS-ECU.

---

### Inspection Procedure 11: The comfort flashing function does not work normally.

---

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

### COMMENTS ON TROUBLE SYMPTOM

If the comfort flashing function does not work normally, the turn-signal lamp switch input circuit(s) and ETACS-ECU may have a problem.

### PROBABLE CAUSES

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

### DIAGNOSIS PROCEDURE

---

#### STEP 1. ETACS-ECU customise function check

Use the ETACS-ECU customise function to check that the "Comfort flasher" is set to "Enable."

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Use the ETACS-ECU customise function to set the "Comfort flasher" to "Enable" (Refer to [P.54A-114](#)).

---

#### STEP 2. M.U.T.-III diagnosis code

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

**NO** : Go to Step 3.

---

#### STEP 3. Check that the turn-signal lamps operate.

Check that the turn-signal lamps work normally when the ignition switch is in the ON position.

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Refer to Inspection Procedure 10 "None of the turn-signal lamps illuminate" [P.54A-105](#).

---

#### STEP 4. Retest the system

Check that the comfort flashing function 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 ).

**NO** : Replace the ETACS-ECU.

**Inspection Procedure 12: The turn-signal indicator lamps do not illuminate.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

If the turn-signal lamp indicator does not illuminate normally, the harness in the CAN bus lines, connector(s), ETACS-ECU, or combination meter may have a problem.

**PROBABLE CAUSES**

- Malfunction of the ETACS-ECU
- Malfunction of combination meter
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Turn-signal lamp check**

Check that the turn-signal lamp flashes normally when the turn-signal switch is operated.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Refer to Inspection Procedure 10 "None of the turn-signal lamps illuminate" [P.54A-105](#).

**STEP 2. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 3. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

**NO** : Go to Step 4.

**STEP 4. M.U.T.-III other system special function**

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the turn-signal lamp indicator. (Refer to Combination Meter [P.54A-64](#))

- Item 5: Illumination (AUTO)
- Item 6: Indicator (AUTO)

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Troubleshoot the combination meter. Refer to [P.54A-53](#).

**STEP 5. Retest the system**

Check that the turn-signal lamp indicator illuminate 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 ).

**NO** : Replace the ETACS-ECU.

**Inspection Procedure 13: The welcome light function does not work normally.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

When the welcome light function does not operate normally, the keyless entry system or the ETACS-ECU may have a problem. Or, the welcome light function may have been set to disabled using the customisation function.

**PROBABLE CAUSES**

- Malfunction of the keyless entry system
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. ETACS-ECU customise function check.**

Check that any one of the followings other than "Disabled" is set for "Welcome light" with a customisation function.

- Small lamp
- Head lamp

**Q: Is it set to other than "Disabled"?**

YES : Go to Step 2.

NO : Set "Welcome light" to any one other than "Disabled" with a customise function (Refer to [P.54A-114](#)).

**STEP 2. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

YES : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

NO : Go to Step 3.

**STEP 3. Check the keyless entry system****operation**

Check that the keyless entry system operation normally.

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Troubleshoot the keyless entry system. Refer to GROUP 42A – Troubleshooting <Vehicles without KOS> or GROUP 42B – Troubleshooting <Vehicles with KOS>.

**STEP 4. Check the tail lamps and headlamps.**

When the lighting switch is operated, check that the tail lamps and headlamps illuminate/go off normally.

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Troubleshoot the tail lamps and headlamps. Refer to trouble symptom chart [P.54A-96](#).

**STEP 5. Retest the system.**

The welcome light should work 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 ).

NO : Replace the ETACS-ECU.

**Inspection Procedure 14: The coming home light function does not work normally.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

When the coming home light function does not operate normally, the keyless entry system or the ETACS-ECU may have a problem. Or, the coming home light function may have been set to disabled using the customisation function.

**PROBABLE CAUSES**

- Malfunction of the keyless entry system
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. ETACS-ECU customise function check.**

Check that any one of the followings other than "Disabled" is set for "Coming home light" with a customisation function.

- 15 sec
- 30 sec
- 60 sec
- 180 sec

**Q: Is it set to other than "Disabled"?**

YES : Go to Step 2.

NO : Set "Coming home light" to any one other than "Disabled" with a customise function (Refer to [P.54A-114](#)).

**STEP 2. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

| Item No. | M.U.T.-III display | Condition   | Normal condition |
|----------|--------------------|---|------------------|
| 7001     | RLS IG1            | When the ignition switch is turned to the LOCK or ACC position. | OFF              |
|          |                    | When the ignition switch is turned to the ON or START position. | ON               |

YES : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

NO : Go to Step 3.

**STEP 3. M.U.T.-III data list**

Using the ETACS-ECU service data, check the ignition switch signal.

- Turn the ignition switch to the LOCK (OFF) position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 254 | IG voltage | 1 V or less      |

OK: Normal condition is displayed.

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).

**STEP 4. Check the headlamps.**

When the lighting switch is operated, check that the headlamps illuminate/go off normally.

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Troubleshoot the headlamps. Refer to trouble symptom chart [P.54A-96](#).

**STEP 5. Retest the system.**

The coming home light function should work 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 ).

NO : Replace the ETACS-ECU.

**DATA LIST REFERENCE TABLE**

M1540103800508

| Item No. | M.U.T.-III display               | Condition   | Normal condition  |
|----------|----------------------------------|---|---|
| 7002     | RLS Light sensor sensitivity     | When the customise value of the lighting control sensor sensitivity is set to level 1 (quick).          | Level 1 bright  |
|          |                                  | When the customise value of the lighting control sensor sensitivity is set to level 2 (slightly quick). | Level 2 bright  |
|          |                                  | When the customise value of the lighting control sensor sensitivity is set to level 3 (normal).         | Level 3   |
|          |                                  | When the customise value of the lighting control sensor sensitivity is set to level 4 (slightly slow).  | Level 4 dark  |
|          |                                  | When the customise value of the lighting control sensor sensitivity is set to level 5 (slow).           | Level 5 dark  |
| 7004     | RLS Radio ACC                    | When the ignition switch is turned to the LOCK or START position.                                       | OFF   |
|          |                                  | When the ignition switch is turned to the ACC or ON position.   | ON  |
| 7007     | RLS Vehicle speed                | Perform a test run of the vehicle.  | The values displayed on the speedometer and M.U.T.-III are almost the same. |
| 7009     | RLS Low beam "ON" request        | When the area around the lighting control sensor is bright.   | OFF   |
|          |                                  | When the area around the lighting control sensor is dark.   | ON  |
| 7010     | RLS judgement illuminance output | When the area around the lighting control sensor has become bright from dark                            | The value displayed on the M.U.T.-III becomes large.                        |
|          |                                  | When the area around the lighting control sensor has become dark from bright.                           | The value displayed on the M.U.T.-III becomes small.                        |
| 7011     | RLS Tail light "ON" request      | When the area around the lighting control sensor is bright.   | OFF   |
|          |                                  | When the area around the lighting control sensor is dark.   | ON  |
| 7012     | RLS Tunnel detect output         | When the area around the lighting control sensor is bright.   | OFF   |
|          |                                  | When the area around the lighting control sensor is dark.   | ON  |
| 7014     | RLS Specification                | —   | EU  |
| 7015     | RLS ECU Diagnostic version       | —   | —   |
| 7016     | RLS ECU Hardware version         | —   | —   |

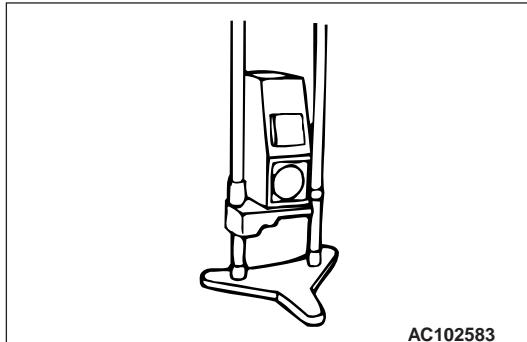
| Item No. | M.U.T.-III display       | Condition | Normal condition |
|----------|--------------------------|-----------|------------------|
| 7017     | RLS ECU Software version | –         | –                |
| 7018     | RLS ECU Part number      | –         | 8634A001         |
| 7019     | RLS ECU Serial number    | –         | –                |

## ON-VEHICLE SERVICE

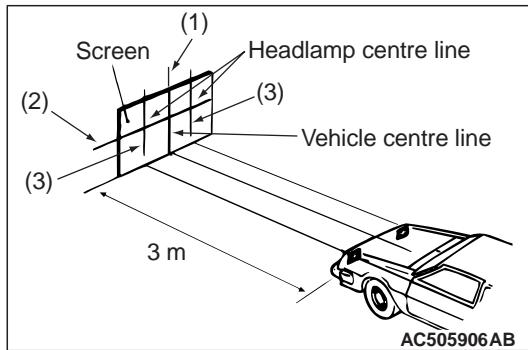
### HEADLAMP AIMING

M1540100500650

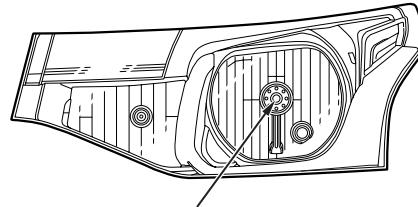
#### <USING A BEAM SETTING EQUIPMENT>



1. The headlamps should be aimed with the proper beam setting equipment, and in accordance with the equipment manufacturer's instructions.
2. Alternately turn the adjusting screw to adjust the headlamp aiming.



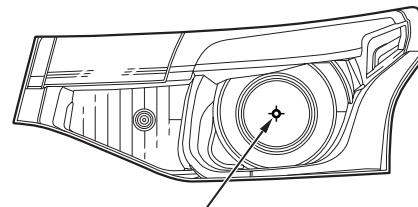
#### <Vehicles with halogen headlamp>



Bulb centre position

ACB05887AB

#### <Vehicles with discharge headlamp>



Bulb centre position

ACB05888AB

#### <USING A SCREEN> (LOW-BEAM)

#### PRE-AIMING INSTRUCTION

1. Inspect for badly rusted or faulty headlamp assemblies.
2. These conditions must be corrected before a satisfactory adjustment can be made.
3. Inspect tyre inflation, and adjust if it is necessary.
4. If the fuel tank is not filled up, put weight in the luggage compartment to make up for the fuel shortage so that the weight will become 90% of full-state weight or heavier. (0.8 kg per liter)
5. There should be no other load in the vehicle other than driver or substituted weight of approximately 75 kg placed in driver's position.
6. Turn the headlamp levelling switch to the switch position "0." <Vehicles with headlamp manual levelling system>
7. Change the vehicle posture, and then operate the actuator of headlamp levelling unit once. <Vehicles with headlamp automatic levelling system>
8. Thoroughly clean the headlamp lenses.

9. Place the vehicle on a level floor, perpendicular to a flat screen 3 m away from the bulb centre position of the low-beam.
10. Rock vehicle sideways to allow vehicle to assume its normal position.
11. To correct for distortion of the suspension, rock the bumpers on the front/rear side of the vehicle up and down three times alternately.
12. Run the engine at a speed of 2,000 r/min to charge the battery.
13. Four lines of adhesive tape (or equivalent markings) are required on screen or wall:
  - (1) Position a vertical tape or mark so that it is aligned with the vehicle centre line.

- (2) Measure the distance from the bulb centre position to the floor. Transfer the measurement to the screen. Horizontal tape or mark on the screen is for reference of vertical adjustment.
- (3) Measure the distance from the centre line of the vehicle to the centre of each headlamp. Transfer the measurement to the screen. Vertical tape or mark on the screen with reference to the centre line of each headlamp bulb.

## HEADLAMP ADJUSTMENT

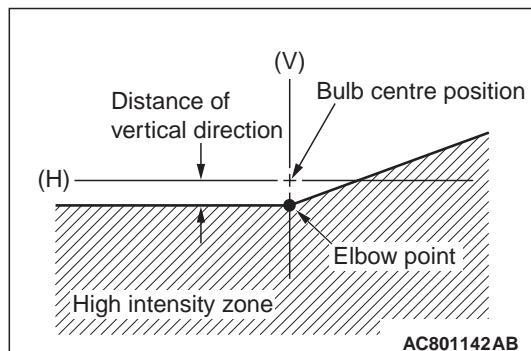
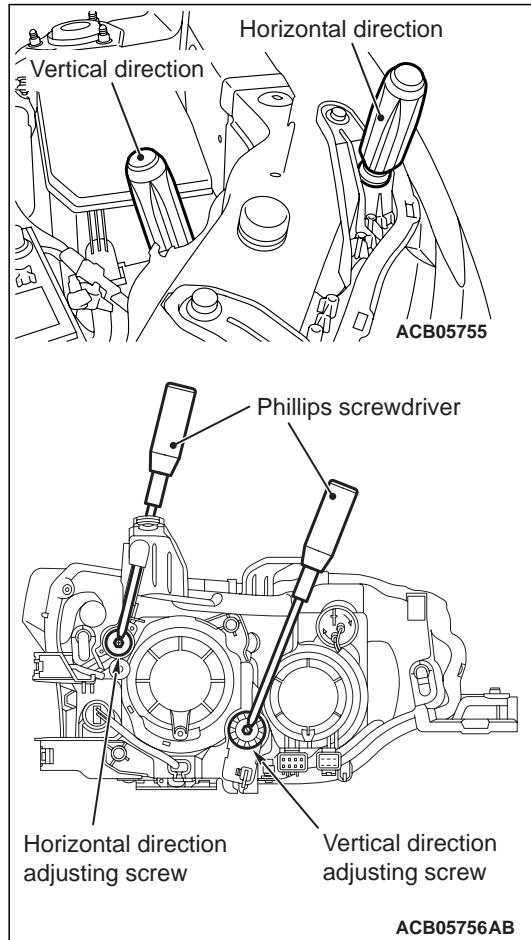
### ⚠ CAUTION

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

1. The low-beam headlamp should project on the screen upper edge of the beam (cut-off).

### ⚠ CAUTION

**Be sure to adjust the aiming adjustment screw in the tightening direction.**



2. If not the case, turn the adjusting screws to achieve the specified low-beam cut-off location on the aiming screen.

**Standard value:**

**Vertical direction; 36 mm (0.69°) below horizontal (H)**

**Horizontal direction; Elbow point intersects the vertical line (V)**

**Limit:**

**Vertical direction;  $\pm 15$  mm ( $\pm 0.29^\circ$ ) from the horizontal cut-off line**

Horizontal direction;  $\pm 26$  mm ( $\pm 0.5^\circ$ ) from the vertical line (V)

## LUMINOUS INTENSITY MEASUREMENT

M1540100600334

Using a photometer, and following its manufacturer's instruction manual, measure the headlamp intensity and check to be sure that the limit value is satisfied.

**Limit: 30,000 cd or more (When a screen is set 25 m ahead of the vehicle)**

### NOTE:

1. When measuring the intensity, maintain an engine speed of 2,000 r/min, with the battery in the charging condition.
2. There may be special local regulations pertaining to headlamp intensity, be sure to make any adjustments necessary to satisfy such regulations.
3. Check that the headlamp intensity of the high-beam satisfies the limit value.
4. If an illuminometer is used to make the measurements, convert its values to photometer values by using the following formula.

$$I = E^2 / r^2$$

I=Intensity (cd)

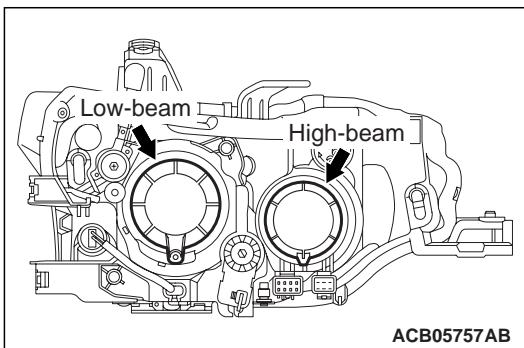
E=Illumination (lux)

r=distance (m) from headlamps to illuminometer

## REPLACE THE BULB

M1540100700557

### HALOGEN HEADLAMP BULB (LOW-BEAM / HIGH-BEAM) REPLACEMENT



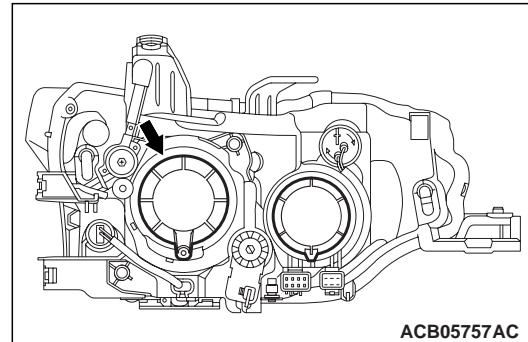
1. Twist the socket cover anticlockwise to remove.

### CAUTION

Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

2. Twist the bulb anticlockwise to remove.

## DISCHARGE HEADLAMP BULB (LOW-BEAM) REPLACEMENT



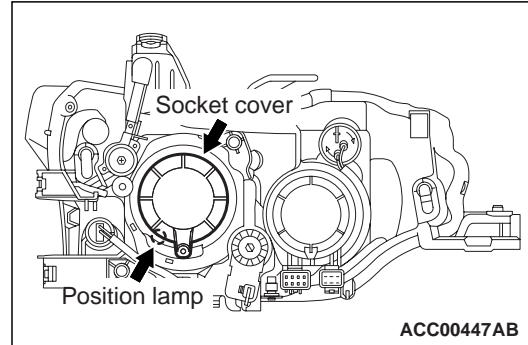
1. Twist the socket cover anticlockwise to remove.
2. Twist the socket anticlockwise to disconnect it from the bulb.

### CAUTION

Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

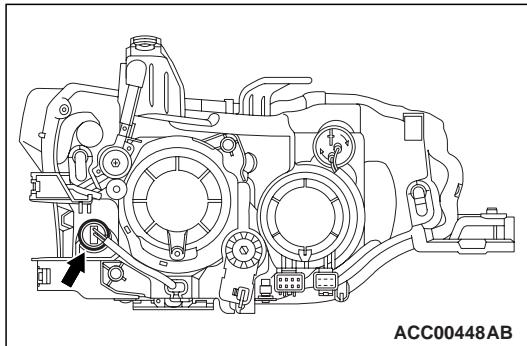
3. Raise the fastener securing the bulb, and then remove the bulb.

## POSITION LAMP BULB REPLACEMENT <Vehicles without discharge headlamp>

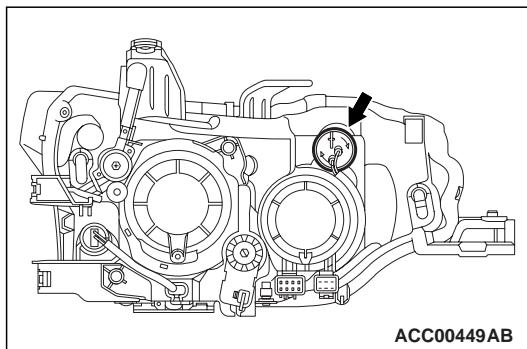


1. Twist the socket cover anticlockwise to remove.
2. Pull out the socket.
3. Disconnect the bulb from the socket.

## &lt;Vehicles with discharge headlamp&gt;



1. Twist the socket anticlockwise to remove.
2. Disconnect the bulb from the socket.

FRONT TURN-SIGNAL LAMP BULB  
REPLACEMENT

1. Twist the socket anticlockwise to remove.
2. Disconnect the bulb from the socket.

HEADLAMP AUTOMATIC SHUTDOWN  
FUNCTION CHECK

Confirm that the headlamps turn OFF in one second if the ignition key is pulled out and the driver's door is opened when the ignition switch is ON and the lighting switch is ON (HEAD position). If there is a malfunction, perform the troubleshooting (Refer to P.54A-96).

M1540100800071

| Adjustment item (M.U.T.-III display) | Adjustment item                                    | Adjusting content (M.U.T.-III display) | Adjusting content                             |
|--------------------------------------|--|--|---|
| Turn power source                    | Adjustment of turn-signal lamp operation condition | ACC or IG1                             | Operable with ACC or ON position              |
|                                      |  | IG1                                    | Operable with ON position (initial condition) |
| Comfort flasher                      | With/without comfort flasher function              | Disable                                | No function                                   |
|                                      |  | Enable                                 | With function (initial condition)             |

HEADLAMP AUTO LAMP FUNCTION  
CHECK

M1540100900283

Verify that the headlamps will illuminate when placing a hand over the receiver of the lighting control sensor under direct sunlight with the ignition switch in the "ON" position and the lighting switch in the "AUTO" position. If there is a malfunction, perform the troubleshooting (Refer to P.54A-96).

*NOTE: When covering the lighting control sensor receiver, be careful not to touch the windshield surface (where the lighting control sensor receiver is mounted). (The lighting control sensor receiver has limited resistance to oil.)*

## WELCOME LIGHT FUNCTION CHECK

M1540112700015

When the lighting switch is in the OFF or AUTO position, unlock the door by the keyless entry system and check that the tail lamps or headlamps turn on. If there is a malfunction, perform the troubleshooting (Refer to P.54A-96).

*NOTE: As for the vehicles with lighting control sensor, carry out the inspection in the dark place.*

COMING HOME LIGHT FUNCTION  
CHECK

M1540112800012

After turning the ignition switch to the LOCK (OFF) position, check that passing operation lights up the headlamps. If there is a malfunction, perform the troubleshooting (Refer to P.54A-96).

## CUSTOMISATION FUNCTION

M1540103701258

By operating the M.U.T.-III ETACS system, the following functions can be customised. The programmed information is held even when the battery is disconnected.

| Adjustment item (M.U.T.-III display) | Adjustment item  | Adjusting content (M.U.T.-III display) | Adjusting content   |
|--------------------------------------|--|--|---|
| Comfort flasher switch time          | Switch operation time to activate the comfort flasher function                                       | Normal                                 | 0.4 second (initial condition)                                |
|                                      |  | Long                                   | 0.8 second  |
| Hazard answer back                   | Adjustment of the number of keyless hazard warning lamp 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   |
| Sensitivity for auto lamp            | Lighting control sensor sensitivity (illumination intensity) <vehicles with lighting control sensor> | Level 1 bright                         | High ambient brightness                                       |
|                                      |  | Level 2 bright                         | Standard ambient brightness (initial condition)               |
|                                      |  | Level 3                                | Low ambient brightness  |
|                                      |  | Level 4 dark                           | Low-low ambient brightness                                    |
| Head lamp auto cut customise         | Adjustment of headlamp automatic shutdown function   | Disable                                | No function   |
|                                      |  | Enable (B-spec.)                       | With function (initial condition)                             |
| Coming home light                    | Disabling or enabling coming home light function   | Disabled                               | No function   |
|                                      |  | 15 sec                                 | The headlamps illuminate for 15 seconds.                      |
|                                      |  | 30sec                                  | The headlamps illuminate for 30 seconds. (initial condition)  |
|                                      |  | 60 sec                                 | The headlamps illuminate for 60 seconds.                      |
|                                      |  | 180 sec                                | The headlamps illuminate for 180 seconds.                     |
| Welcome light                        | Disabling or enabling welcome light function   | Disabled                               | No function   |
|                                      |  | Small lamp                             | The tail lamps illuminate. <initial condition>                |
|                                      |  | Head lamp                              | The headlamps illuminate.                                     |

## LIGHTING CONTROL SENSOR (LIGHT SENSOR) CHECK

M1540109000050

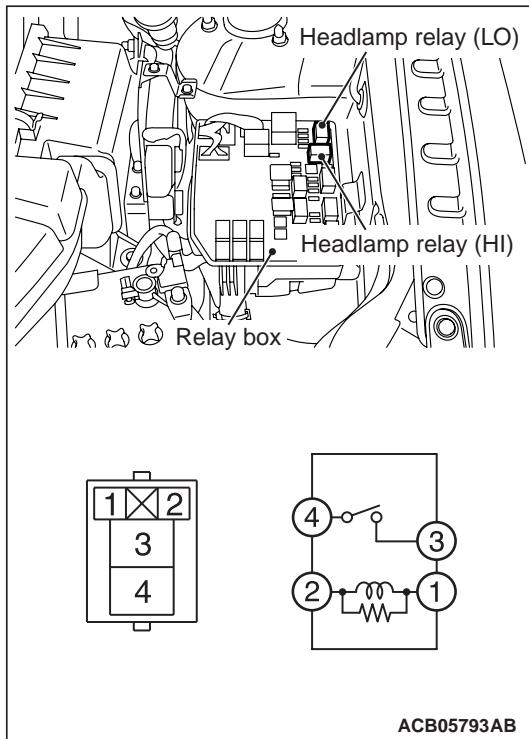
Using the M.U.T.-III, check the data list of LIN. It is judged normal if the display turns ON from OFF when the light receiver of lighting control sensor is covered by hand, with item No.7009: RLS Low beam "ON" request, 7011: RLS Tail light "ON" request, and 7012: RLS Tunnel detect output.

### NOTE:

- When covering the lighting control sensor receiver, be careful not to touch the windshield surface (where the lighting control sensor receiver is mounted). (The lighting control sensor receiver has limited resistance to oil.)
- Before checking the data list by using M.U.T.-III, wipe the windshield thoroughly and visually check if there are foreign materials on the windshield to which the lighting control sensor is installed.

## HEADLAMP RELAY CHECK

M1540104000378



| Battery voltage                                      | Terminal number | Normal condition                |
|--|-----------------|---------------------------------|
| At no energisation                                   | 3 – 4           | No continuity                   |
| With current supply [terminal 2 (+), terminal 1 (-)] |                 | Continuity exists (2 Ω or less) |

## HEADLAMP

## REMOVAL AND INSTALLATION

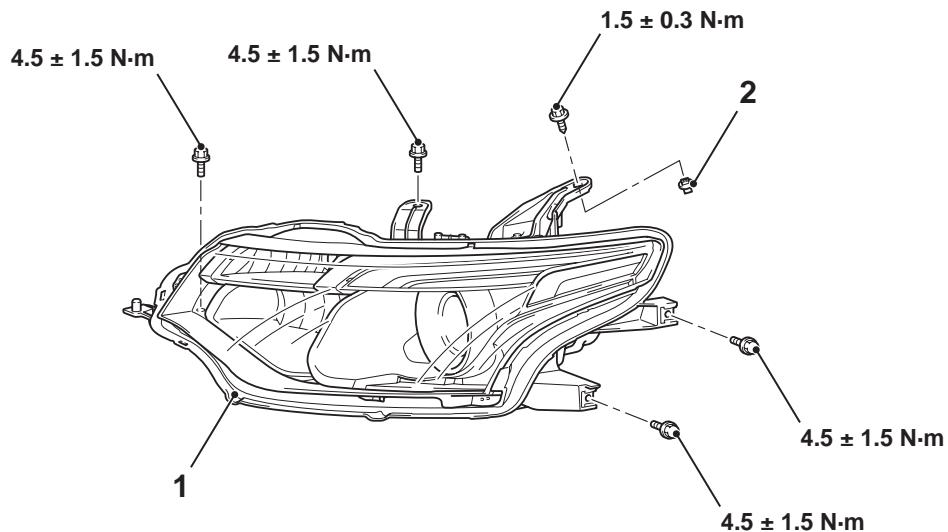
M1540101000896

### Pre-removal Operation

- Front Bumper Assembly Removal (Refer to GROUP 51 - Front Bumper Assembly ).

### Post-installation Operation

- Front Bumper Assembly Installation (Refer to GROUP 51 - Front Bumper Assembly ).
- Headlamp Aiming Adjustment (Refer to P.54A-111).

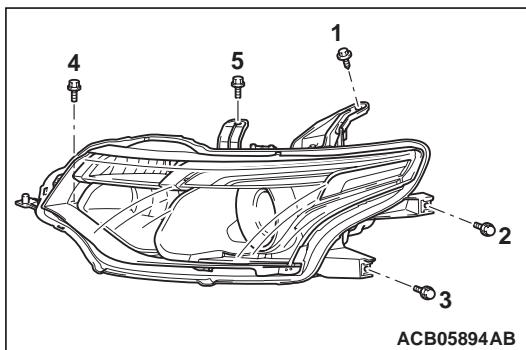


ACB05557AB

### Removal Steps

- >>A<< 1. Headlamp assembly  
2. Grommet

## INSTALLATION SERVICE POINT

>>A<< HEADLAMP ASSEMBLY INSTAL-  
LATION

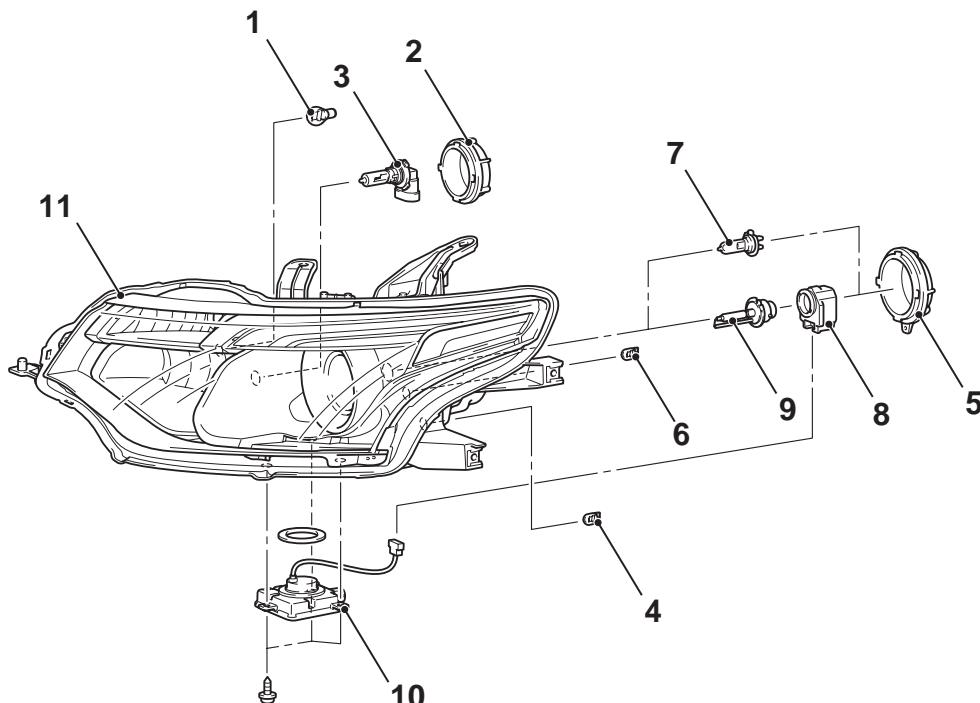
Tighten the mounting screw and bolts to the specified torque in the order shown.

## Tightening torque:

Screw:  $1.5 \pm 0.3 \text{ N}\cdot\text{m}$ Bolt:  $4.5 \pm 1.5 \text{ N}\cdot\text{m}$ 

## DISASSEMBLY AND REASSEMBLY

M1540104800073



ACB05558AB

Disassembly steps <Halogen  
type>

- |                                |       |                                   |
|--------------------------------|-------|-----------------------------------|
| 1. Front turn-signal lamp bulb | <<A>> | 1. Front turn-signal lamp bulb    |
| 2. Socket cover                |       | 2. Socket cover                   |
| 3. Headlamp bulb (high-beam)   | <<B>> | 3. Headlamp bulb (high-beam)      |
| 5. Socket cover                |       | 4. Position lamp bulb             |
| 6. Position lamp bulb          | <<B>> | 5. Socket cover                   |
| 7. Headlamp bulb (low-beam)    |       | 8. Headlamp control unit (socket) |
| 11. Headlamp body              |       | 9. Headlamp bulb (low-beam)       |

Disassembly steps <Discharge  
type>

- |                                   |                                   |
|-----------------------------------|-----------------------------------|
| 1. Front turn-signal lamp bulb    | 1. Front turn-signal lamp bulb    |
| 2. Socket cover                   | 2. Socket cover                   |
| 3. Headlamp bulb (high-beam)      | 3. Headlamp bulb (high-beam)      |
| 4. Position lamp bulb             | 4. Position lamp bulb             |
| 5. Socket cover                   | 5. Socket cover                   |
| 8. Headlamp control unit (socket) | 8. Headlamp control unit (socket) |
| 9. Headlamp bulb (low-beam)       | 9. Headlamp bulb (low-beam)       |
| 10. Headlamp control unit         | 10. Headlamp control unit         |
| 11. Headlamp body                 | 11. Headlamp body                 |

## DISASSEMBLY SERVICE POINTS

## &lt;&lt;A&gt;&gt; HEADLAMP BULB REMOVAL

**⚠ CAUTION**

Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

<<B>> HEADLAMP CONTROL UNIT  
(SOCKET) / HEADLAMP BULB REMOVAL

1. Twist the socket anticlockwise to disconnect it from the bulb.

## REMOVAL AND INSTALLATION

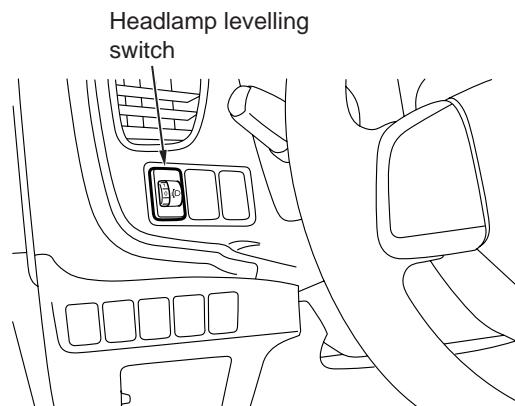
M1540105200267

## Pre-removal Operation

- Side Air Outlet Panel Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).

## Post-installation Operation

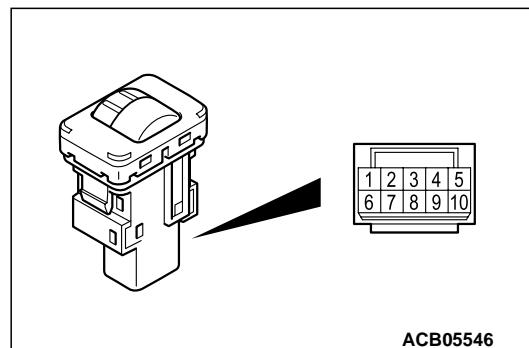
- Side Air Outlet Panel Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).



ACB05545AB

## HEADLAMP LEVELLING SWITCH CHECK

M1540101300392

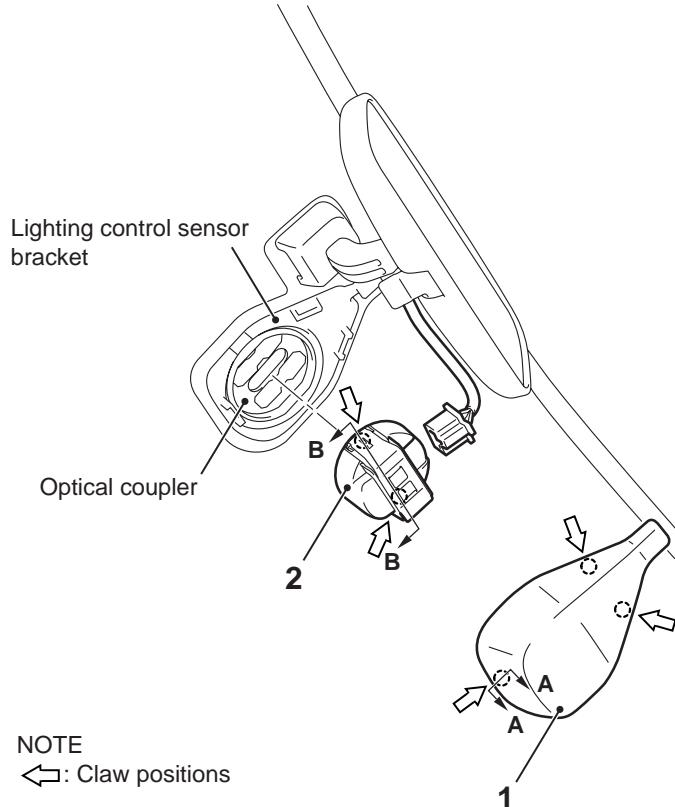
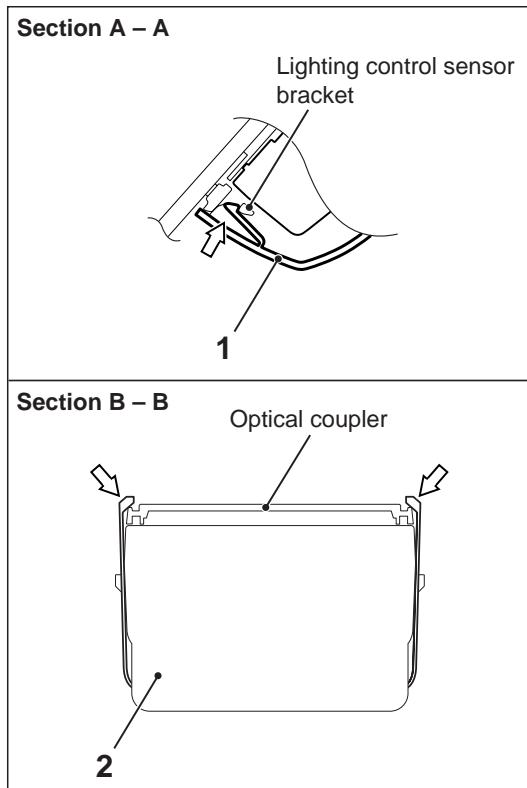


| Measured terminals | Switch position | Resistance $\Omega$ |
|--------------------|-----------------|---------------------|
| 8 – 9              | 0               | 750                 |
|                    | 1               | 1, 110              |
|                    | 2               | 1, 470              |
|                    | 3               | 1, 830              |
|                    | 4               | 2, 190              |
| 8 – 10             | 0, 1, 2, 3, 4   | 2, 810              |

## LIGHTING CONTROL SENSOR

## REMOVAL AND INSTALLATION

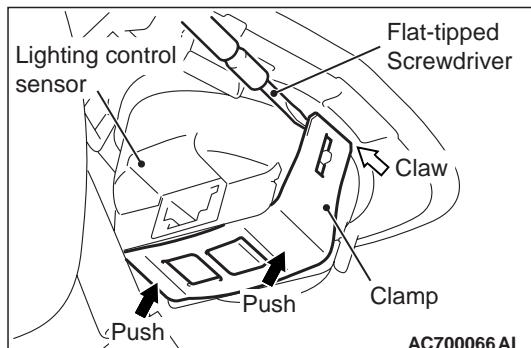
M1540108500290



ACB05899AB

- Removal steps**
1. Lighting control sensor cover
  2. Lighting control sensor
- <<A>> >>A<<

**REMOVAL SERVICE POINT**  
**<<A>> LIGHTING CONTROL SENSOR**  
**REMOVAL**



While pushing the clamp to the windshield side, pry up the clamp to disengage the right and left claws using the flat-tipped screwdriver, and then remove the lighting control sensor.

**INSTALLATION SERVICE POINT****>>A<< LIGHTING CONTROL SENSOR**  
**INSTALLATION**

1. Mount the lighting control sensor onto the optical coupler, and then connect the connector.

**CAUTION**

After executing the lighting control sensor (rain sensor) adaptation, do not touch the lighting control sensor (or do not move it from the fixed position).

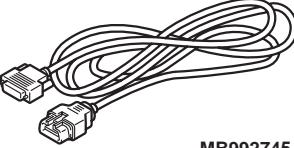
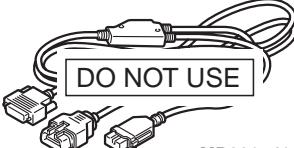
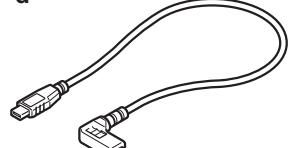
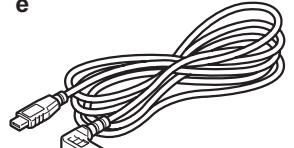
2. When reusing the lighting control sensor or when the lighting control sensor is pushed to check the installation condition, install the connector and the lighting control sensor cover and wipe the windshield thoroughly. When the windshield is dry, execute the lighting control sensor (rain sensor) adaptation [Refer to GROUP 51 – Lighting Control Sensor (Rain Sensor) Adaptation ].

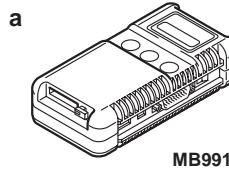
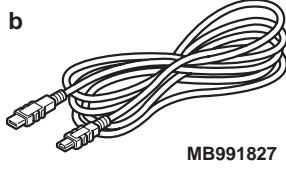
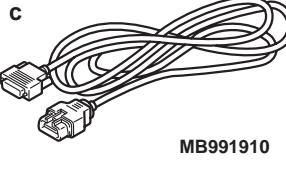
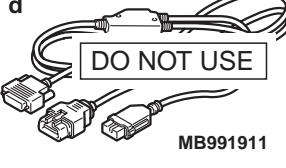
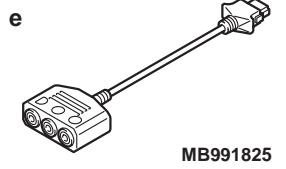
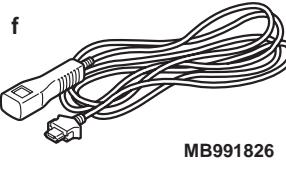
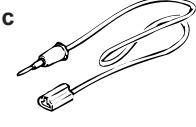
*NOTE: Be careful not to touch the lighting control sensor receiver. (The lighting control sensor receiver has limited resistance to oil).*

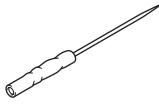
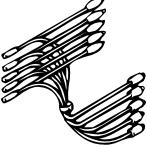
## HEADLAMP AUTOMATIC LEVELLING SYSTEM

### SPECIAL TOOLS

M1540300200318

| Tool   | Number  | Name  | Use                   |
|--|---|---|-----------------------|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code check. |
| b<br><br>MB992745                 |   |   |                       |
| c<br><br>MB992746               |   |   |                       |
| d<br><br>MB992747               |   |   |                       |
| e<br><br>MB992748<br>ACB05421AB |   |   |                       |

| Tool  | Number  | Name  | Use  |
|---|---|---|--|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | <b>MB991955</b><br><b>a. MB991824</b><br><b>b. MB991827</b><br><b>c. MB991910</b><br><b>d. MB991911</b><br><b>e. MB991825</b><br><b>f. MB991826</b> | <b>M.U.T.-III</b><br><b>sub-assembly</b><br><b>a. Vehicle</b><br><b>Communication</b><br><b>Interface (V.C.I.)</b><br><b>b. M.U.T.-III USB</b><br><b>cable</b><br><b>c. M.U.T.-III main</b><br><b>harness A</b><br><b>(Vehicles with CAN</b><br><b>communication</b><br><b>system)</b><br><b>d. M.U.T.-III main</b><br><b>harness B</b><br><b>(Vehicles without</b><br><b>CAN</b><br><b>communication</b><br><b>system)</b><br><b>e. M.U.T.-III measure</b><br><b>adapter</b><br><b>f. M.U.T.-III trigger</b><br><b>harness</b> | <b>⚠ CAUTION</b><br><b>For vehicles with CAN</b><br><b>communication, use M.U.T.-III</b><br><b>main harness A to send</b><br><b>simulated vehicle speed. If you</b><br><b>connect M.U.T.-III main harness</b><br><b>B instead, the CAN</b><br><b>communication does not</b><br><b>function correctly.</b><br>Diagnosis code check. |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>MB991223</b>  | <b>MB991223</b><br><b>a. MB991219</b><br><b>b. MB991220</b><br><b>c. MB991221</b><br><b>d. MB991222</b>   | <b>Harness set</b><br><b>a. Check harness</b><br><b>b. LED harness</b><br><b>c. LED harness</b><br><b>adapter</b><br><b>d. Probe</b>  | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester  |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |
| <br>MB991658 | MB991658 | Test harness     | Height sensor check   |

## DIAGNOSIS CODE CHART

M1540300500449

**CAUTION**

- On troubleshooting, if the ignition switch is turned ON while disconnecting connector(s), diagnosis code(s) associated with other system may be set. On completion, confirm all systems for diagnosis code(s). If diagnosis code(s) are set, erase them all.
- Before or after the troubleshooting, check the operation of the headlamp automatic levelling system. Refer to [P.54A-132](#).

| Diagnosis code No. | Diagnostic item                   | Reference page  |
|--------------------|-----------------------------------|---|
| B2215              | ECU internal error (EEPROM)       | Refer to Diagnosis code chart <a href="#">P.54A-281</a> . |
| B222C              | Coding not completed              |   |
| B2510              | Height Sensor Not Initialized     | <a href="#">P.54A-123</a>                                 |
| B2513              | Levelling actuator output voltage | <a href="#">P.54A-124</a>                                 |
| B2514              | Height sensor supply voltage      | <a href="#">P.54A-125</a>                                 |
| B2515              | Front height sensor signal        | <a href="#">P.54A-126</a>                                 |
| B2516              | Rear height sensor signal         | <a href="#">P.54A-127</a>                                 |
| U0100              | Engine CAN timeout                | Refer to Diagnosis code chart <a href="#">P.54A-281</a> . |
| U0121              | ABS/ASC CAN timeout               |   |
| U0155              | Meter CAN timeout                 |   |
| U0331              | ECU internal error (ROM)          |   |

## DIAGNOSIS CODE PROCEDURES

### Code No. B2510 Height Sensor Not Initialized

#### ⚠ CAUTION

- If there is any problem in the CAN bus lines, an incorrect diagnosis code may be set. Prior to this diagnosis, always diagnose the CAN bus lines.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

### DIAGNOSTIC FUNCTION

When the headlamp automatic levelling system initialization \* is not implemented, the code No. B2510 is stored. When the headlamp automatic levelling system initialization is completed, the code No. B2510 is cleared automatically.

*NOTE: \*: When the height sensor related diagnosis code (B2514, B2515 or B2516) or ETACS-ECU related diagnosis code (B2215 or U0331) is set, initialization of the headlamp automatic levelling system is impossible, therefore perform the troubleshooting for the diagnosis code that has been set previously.*

### JUDGEMENT CRITERIA

Initialization of the headlamp automatic levelling system is not completed.

### PROBABLE CAUSES

- Headlamp automatic levelling system initialization not completed

- Malfunction of the ETACS-ECU

### DIAGNOSIS PROCEDURE

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

#### STEP 2. M.U.T.-III diagnosis code

Check if the height sensor related diagnosis code (B2514, B2515 or B2516) or the ETACS-ECU related diagnosis code (B2215 or U0331) is set.

Q: Is the diagnosis code set?

YES : Perform the troubleshooting of the diagnosis code that has been set previously.

NO : Go to Step 3.

#### STEP 3. Check whether the diagnosis code is reset.

Initialise the headlamp automatic levelling system and check the diagnosis code of the ETACS-ECU.

- (1) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (2) Initialise the headlamp automatic levelling system. Refer to [P.54A-131](#).
- (3) Check if diagnosis code is set.

Q: Is the diagnosis code set?

YES : Replace the ETACS-ECU.

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 ).

## Code No. B2513 Levelling actuator output voltage

**CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**DIAGNOSTIC FUNCTION**

If a trouble occurs in headlamp assembly (headlamp levelling unit), code No. B2513 is stored.

**JUDGEMENT CRITERIA**

The ETACS-ECU detects the short-circuit of the signal line to the headlamp assembly (headlamp levelling unit) for 1 second or longer continuously.

**PROBABLE CAUSES**

- Malfunction of headlamp assembly (headlamp levelling unit)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check of short to power supply, short to earth circuit in MSL line between headlamp assembly (LH) connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the connector(s) or wiring harness.

**STEP 2. Check whether the diagnosis code is reset.**

Q: Is diagnosis code No. B2513 set?

YES : Go to Step 3.

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 ).

**STEP 3. Check of short to power supply, short to earth circuit in MSR line between headlamp assembly (RH) connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check whether the diagnosis code is reset.**

Q: Is diagnosis code No. B2513 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 ).

**STEP 5. M.U.T.-III data list**

- Disconnect the headlamp assembly (LH) and headlamp assembly (RH) connector.
- Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

| Item No. | Item name                   | Normal condition   |
|----------|-----------------------------|--|
| Item 418 | A/L actuator output voltage | Indicates the voltage value of system voltage within the range of 20 to 80%. |

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 8.

**STEP 6. Check the headlamp assembly (LH).**

Check the headlamp assembly (LH) for internal failure.

- Disconnect the headlamp assembly (RH) connector.
- Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- Perform the drive test using the M.U.T.-III. Refer to [P.54A-132](#).

Q: Is the check result normal?

YES : Go to Step 7.

NO : Replace the headlamp assembly (LH).

**STEP 7. Check the headlamp assembly (RH).**

Check the headlamp assembly (RH) for internal failure.

- (1) Disconnect the headlamp assembly (LH) connector.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Perform the drive test using the M.U.T.-III. Refer to [P.54A-132](#).

Q: Is the check result normal?

YES : Go to Step 8.

NO : Replace the headlamp assembly (RH).

**STEP 8. Check whether the diagnosis code is reset.**

Q: Is diagnosis code No. B2514 set?

YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

**Code No. B2514 Height sensor supply voltage**

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

YES : Go to Step 3.

NO : Go to Step 2.

**STEP 2. Check of short to power supply, short to earth circuit in SBF line between front height sensor connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector(s) or wiring harness.

**STEP 3. Check whether the diagnosis code is reset.**

Q: Is diagnosis code No. B2514 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 Malfunctions ).

**STEP 4. Voltage measurement at rear height sensor connector (SBR terminal).**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the resistance between the rear height sensor connector (SBR terminal) and body earth.

**OK: 5 V**

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

**STEP 5. Check of short to power supply, short to earth circuit in SBR line between rear height sensor connector and ETACS-ECU connector.**

Q: Is the check result normal?

**DIAGNOSIS PROCEDURE**

**STEP 1. Voltage measurement at front height sensor connector (SBF terminal).**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the resistance between the front height sensor connector (SBF terminal) and body earth.

**OK: 5 V**

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

#### STEP 6. Check whether the diagnosis code is reset.

Q: Is diagnosis code No. B2514 set?

YES : Go to Step 7.

NO : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to cope with Intermittent Malfunctions ).

#### STEP 7. M.U.T.-III data list

Disconnect the front and rear height sensor connector, and check the power supply voltage to the height sensor.

| Item No. | Item name               | Normal condition |
|----------|-------------------------|------------------|
| Item 410 | HS power supply voltage | 5 V              |

OK: Normal condition is displayed.

Q: Is the check result normal?

YES : Go to Step 8.

NO : Go to Step 11.

#### STEP 8. Front height sensor check

Check the front height sensor for the internal failure. Refer to [P.54A-133](#).

Q: Is the check result normal?

YES : Go to Step 9.

NO : Replace the front height sensor.

#### STEP 9. Check whether the diagnosis code is reset.

Q: Is diagnosis code No. B2514 set?

YES : Go to Step 10.

NO : The diagnosis is complete.

#### STEP 10. Rear height sensor check

Check the rear height sensor for the internal failure. Refer to [P.54A-133](#).

Q: Is the check result normal?

YES : Go to Step 11.

NO : Replace the rear height sensor.

#### STEP 11. Check whether the diagnosis code is reset.

Q: Is diagnosis code No. B2514 set?

YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

#### Code No. B2515 Front height sensor signal

##### CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

#### DIAGNOSTIC FUNCTION

If a trouble occurs in front height sensor, code No. B2515 is stored.

#### JUDGEMENT CRITERIA

The ETACS-ECU detects the error of the signal voltage from the front height sensor (less than 0.7 V, or 4.2 V or more) or 1 second or longer continuously.

#### PROBABLE CAUSES

- Malfunction of the front height sensor
- Malfunction of the front height sensor installation
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

#### DIAGNOSIS PROCEDURE

##### STEP 1. M.U.T.-III diagnosis code

Check if diagnosis code No. B2514 is set.

Q: Is diagnosis code No. B2514 set?

YES : Perform the troubleshooting of the diagnosis code No. B2514.

NO : Go to Step 2.

##### STEP 2. Front height sensor installation status check

Check that the front height sensor is installed properly.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Install the front height sensor properly.

**STEP 3. Voltage measurement at front height sensor connector (SBF terminal).**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the resistance between the front height sensor connector (SBF terminal) and body earth.

**OK: 5 V**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Go to Step 4.

**STEP 4. Check of open circuit in SBF line between front height sensor connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Resistance measurement at front height sensor connector (SGF terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the front height sensor connector (SGF terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

Q: Is the check result normal?

YES : Go to Step 7.

NO : Go to Step 6.

**STEP 6. Check of open circuit in SGF line between front height sensor connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

**STEP 7. Check of short to power supply, short to earth, and open circuit in SHF line between front height sensor connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

**STEP 8. Front height sensor check**

Check that the front height sensor is normal (Refer to [P.54A-133](#)).

Q: Is the check result normal?

YES : Go to Step 9.

NO : Replace the front height sensor.

**STEP 9. M.U.T.-III data list**

Check the signal voltage of the front height sensor.

| Item No. | Item name               | Normal condition |
|----------|-------------------------|------------------|
| Item 411 | Front HS signal voltage | 0.7 V – 4.1 V    |

**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 Malfunctions ).

NO : Replace the ETACS-ECU.

**Code No. B2516 Rear height sensor signal**

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Regis-

ter the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**DIAGNOSTIC FUNCTION**

If a trouble occurs in rear height sensor, code No. B2516 is stored.

**JUDGEMENT CRITERIA**

The ETACS-ECU detects the error of the signal voltage from the rear height sensor (less than 0.7 V, or 4.2 V or more) or 1 second or longer continuously.

**PROBABLE CAUSES**

- Malfunction of the rear height sensor
- Malfunction of the rear height sensor installation
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III diagnosis code**

Check if diagnosis code No. B2514 is set.

**Q: Is diagnosis code No. B2514 set?**

YES : Perform the troubleshooting of the diagnosis code No. B2514.

NO : Go to Step 2.

**STEP 2. Rear height sensor installation status check**

Check that the rear height sensor is installed properly.

**Q: Is the check result normal?**

YES : Go to Step 3.

NO : Install the rear height sensor properly.

**STEP 3. Voltage measurement at rear height sensor connector (SBR terminal).**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Turn the ignition switch to the ON position.
- (3) Measure the resistance between the rear height sensor connector (SBR terminal) and body earth.

**OK: 5 V**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Go to Step 4.

**STEP 4. Check of open circuit in SBR line between rear height sensor connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Resistance measurement at rear height sensor connector (SGR terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the rear height sensor connector (SGR terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

YES : Go to Step 7.

NO : Go to Step 6.

**STEP 6. Check of open circuit in SGR line between rear height sensor connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

**STEP 7. Check of short to power supply, short to earth, and open circuit in SHR line between rear height sensor connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

**STEP 8. rear height sensor check**

Check that the rear height sensor is normal (Refer to P.54A-133).

**Q: Is the check result normal?**

YES : Go to Step 9.

NO : Replace the rear height sensor.

**STEP 9 M.U.T.-III data list**

Check the rear height sensor for the signal voltage.

| Item No. | Item name              | Normal condition |
|----------|------------------------|------------------|
| Item 412 | Rear HS signal voltage | 0.7 V – 4.1 V    |

**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 Malfunctions ).

NO : Replace the ETACS-ECU.

## TROUBLE SYMPTOM CHART

M1540301200429

### ⚠ CAUTION

Before or after the troubleshooting, check the operation of the headlamp automatic levelling system. Refer to [P.54A-132](#).

| Trouble symptom  | Inspection Procedure No. | Reference page                       |
|--|--------------------------|--------------------------------------|
| Malfunction of ETACS-ECU power supply circuit.                                       | —                        | Refer to <a href="#">P.54A-311</a> . |
| The both headlamp automatic levelling systems (right and left) do not work normally. | 1                        | <a href="#">P.54A-129</a>            |
| One of the automatic levellings does not work.                                       | 2                        | <a href="#">P.54A-130</a>            |

## SYMPTOM PROCEDURES

**Inspection Procedure 1: The both headlamp automatic levelling systems (right and left) do not work normally.**

### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

## COMMENTS ON TROUBLE SYMPTOM

If the both headlamp automatic levelling systems (right and left) do not work normally, ETACS-ECU initialization, each height sensor or ETACS-ECU may be defective.

## PROBABLE CAUSES

- Malfunction of ETACS-ECU initialization
- Malfunction of headlamp assembly (headlamp levelling unit)
- Malfunction of front height sensor
- Malfunction of rear height sensor
- Malfunction of ETACS-ECU
- Malfunction of CAN bus line

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the engine-ECU.

Q: Is the diagnosis code set?

YES : Troubleshoot the engine (Refer to GROUP 13A – Diagnosis Code Chart .)

NO : Go to Step 3.

### STEP 3. M.U.T.-III diagnosis code

Check if diagnosis code No. B2513 is set.

Q: Is the diagnosis code set?

YES : Perform the troubleshooting of the diagnosis code No. B2513.

NO : Go to Step 4.

### STEP 4. Height sensor installation status check

Check that the front and rear height sensor is installed properly.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Install the height sensor properly.

**STEP 5. Retest the system**

After the ETCAS-ECU initialization (refer to [P.54A-131](#)), check that the headlamp automatic levelling system operates normally.

**Q: Is the check result normal?**

**YES** : This diagnosis is complete.

**NO** : Go to Step 6.

**STEP 6. Front height sensor check**

Check the front height sensor with the rear height sensor removed.

- (1) Disconnect the rear height sensor connector.
- (2) Check that the front height sensor is normal (Refer to [P.54A-133](#)).

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Replace the front height sensor.

**STEP 7. Rear height sensor check**

Check that the rear height sensor is normal (Refer to [P.54A-133](#)).

**Q: Is the check result normal?**

**YES** : Go to Step 8.

**NO** : Replace the rear height sensor.

**STEP 8. Retest the system**

Check that the automatic levelling operates 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 ).

**NO** : Replace the ETACS-ECU.

**Inspection Procedure 2: One of the automatic levellings does not work.****CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

When one of the automatic levellings does not work, the wiring harness and connector(s) between the ETACS-ECU and the headlamp assembly (headlamp levelling unit) may have a problem.

**PROBABLE CAUSES**

- Malfunction of headlamp assembly (headlamp levelling unit)
- Malfunction of ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Headlamp levelling unit check**

Perform a levelling motor drive test of the headlamp levelling unit to check that the motor is driven. Refer to .

**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 Malfunctions ).

**NO (The left levelling motor is not driven.)** : Go to Step 2.

**NO (The right levelling motor is not driven.)** : Go to Step 5.

**STEP 2. Check of open circuit in (MBL, MGL, MSL) line between ETACS-ECU connector and headlamp assembly (LH) connector.****Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Repair the connector(s) or wiring harness.

**STEP 3. M.U.T.-III data list**

- (1) Disconnect the headlamp assembly (LH) and (RH) connector.
- (2) Turn the ignition switch from "LOCK" (OFF)

position to "ON" position.

| Item No. | Item name                   | Normal condition   |
|----------|-----------------------------|--|
| Item 418 | A/L actuator output voltage | Indicates the voltage value of system voltage within the range of 20 to 80%. |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Go to Step 8.

position to "ON" position.

| Item No. | Item name                   | Normal condition   |
|----------|-----------------------------|--|
| Item 418 | A/L actuator output voltage | Indicates the voltage value of system voltage within the range of 20 to 80%. |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Go to Step 8.

#### STEP 4. Check the headlamp assembly (LH).

Check the headlamp assembly (LH) for internal failure.

- (1) Disconnect the headlamp assembly (RH) connector.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Perform the drive test using the M.U.T.-III. Refer to [P.54A-132](#).

**Q: Is the check result normal?**

**YES** : Go to Step 8.

**NO** : Replace the headlamp assembly (LH).

#### STEP 5. Check of short to power supply, short to earth, and open circuit in (MBR, MGR, MSR) line between ETACS-ECU connector and headlamp assembly (RH) connector.

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Repair the connector(s) or wiring harness.

#### STEP 6. M.U.T.-III data list

- (1) Disconnect the headlamp assembly (LH) and (RH) connector.
- (2) Turn the ignition switch from "LOCK" (OFF)

### INITIALISATION OF ETACS-ECU

After the operation below is completed, initialise the ETACS-ECU.

- The ETACS-ECU is replaced.
- The front height sensor is replaced or removed/installed.
- The rear height sensor is replaced or removed/installed.
- The suspension related components are replaced or removed/installed.

#### STEP 7. Check the headlamp assembly (RH).

Check the headlamp assembly (RH) for internal failure.

- (1) Disconnect the headlamp assembly (LH) connector.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Perform the drive test using the M.U.T.-III. Refer to [P.54A-132](#).

**Q: Is the check result normal?**

**YES** : Go to Step 8.

**NO** : Replace the headlamp assembly (RH).

#### STEP 8. Retest the system

Check that the automatic levelling of the right headlamp operates 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 ).

**NO** : Replace the ETACS-ECU.

### ON-VEHICLE SERVICE

M1540303300206

### INITIALISATION PROCEDURE

Before the initialisation operation, check that the diagnosis code No. B2215, B2514, B2515, B2516, U0331 is not set to the ETACS-ECU. If it is set, perform the troubleshooting before the initialisation. (Refer to [P.54A-122](#).)

1. Park the vehicle on a level surface.

2. If the fuel tank is not filled up, put weight in the luggage compartment to make up for the fuel shortage so that the weight will become 90% of full-state weight or heavier. (0.8 kg per litter)
3. There should be no other load in the vehicle other than driver or substituted weight of approximately 75 kg placed in driver's position.
4. Connect the M.U.T.-III to the diagnosis connector (For how to connect the M.U.T.-III, refer to GROUP 00 – Diagnosis function ).
5. Turn the ignition switch to "ON" position. (Do not start up the engine.)
6. Select the M.U.T.-III screen menu as follows.
  - (1) Select "ETACS" displayed on the "System selection" screen.
  - (2) Select "Special function."
  - (3) Select "HS initial position learning."
7. The ETACS-ECU initialisation is completed.
8. Repeat the procedure if a diagnosis code is set by turning the ignition switch from "LOCK (OFF)" to "ON" again.
9. Perform the headlamp aiming (Refer to Headlamp Aiming [P.54A-111](#).)

## OPERATION CHECK OF HEADLAMP AUTOMATIC LEVELLING

M1540303400117

With this inspection, it is simply checked that the headlamp automatic levelling motor incorporated in the headlamp assembly moves in accordance with the vehicle posture.

### INSPECTION PROCEDURE

1. Park the vehicle on a level surface.
2. Turn the ignition switch to "ON" position. (Do not start up the engine.)
3. At the front or rear jack up point, raise the front wheels or rear wheels off the earth.

## HEADLAMP AUTOMATIC LEVELLING MOTOR DRIVE TEST

M1540302100425

With this inspection, the headlamp automatic levelling motor incorporated in the headlamp assembly is forcibly activated and checking the motor for normal operation is possible.

### DRIVE TEST PROCEDURE (WHEN THE M.U.T.-III IS USED)

1. Connect the M.U.T.-III to the diagnosis connector (For how to connect the M.U.T.-III, refer to GROUP 00 – Diagnosis function ).
2. Turn the ignition switch to "ON" position. (Do not start up the engine.)
3. Turn ON the headlamp switch.
4. Select the M.U.T.-III screen menu as follows.
  - (1) Select "ETACS" displayed on the "System selection" screen.
  - (2) Select "Actuator test."
  - (3) Select "A/L actuator."
  - (4) The headlamp beam moves downward if "20%" is set for the "Value select" and upward if "80%" is set for the "Value select".

6. Select the M.U.T.-III screen menu as follows.
  - (1) Select "ETACS" displayed on the "System selection" screen.
  - (2) Select "Special function."
  - (3) Select "HS initial position learning."
7. The ETACS-ECU initialisation is completed.
8. Repeat the procedure if a diagnosis code is set by turning the ignition switch from "LOCK (OFF)" to "ON" again.
9. Perform the headlamp aiming (Refer to Headlamp Aiming [P.54A-111](#).)

### DRIVE TEST PROCEDURE (WHEN THE M.U.T.-III IS NOT USED)

1. Turn the hazard warning lamp switch to the ON position.
2. Within 10 seconds after turning the ignition switch from OFF to the ON position (do not start up the engine), turn the headlamp switch from OFF to ON 5 times repeatedly. If you fail to do this, turn the ignition switch to OFF once and repeat from the beginning.
3. Within 30 seconds after you complete the step above successfully, turn off the hazard warning lamp switch.
4. The headlamp beam moves downward for approximately 3 seconds and upward for 3 seconds. Then the beam returns to the position applicable to the present vehicle posture.
5. The drive test is completed.

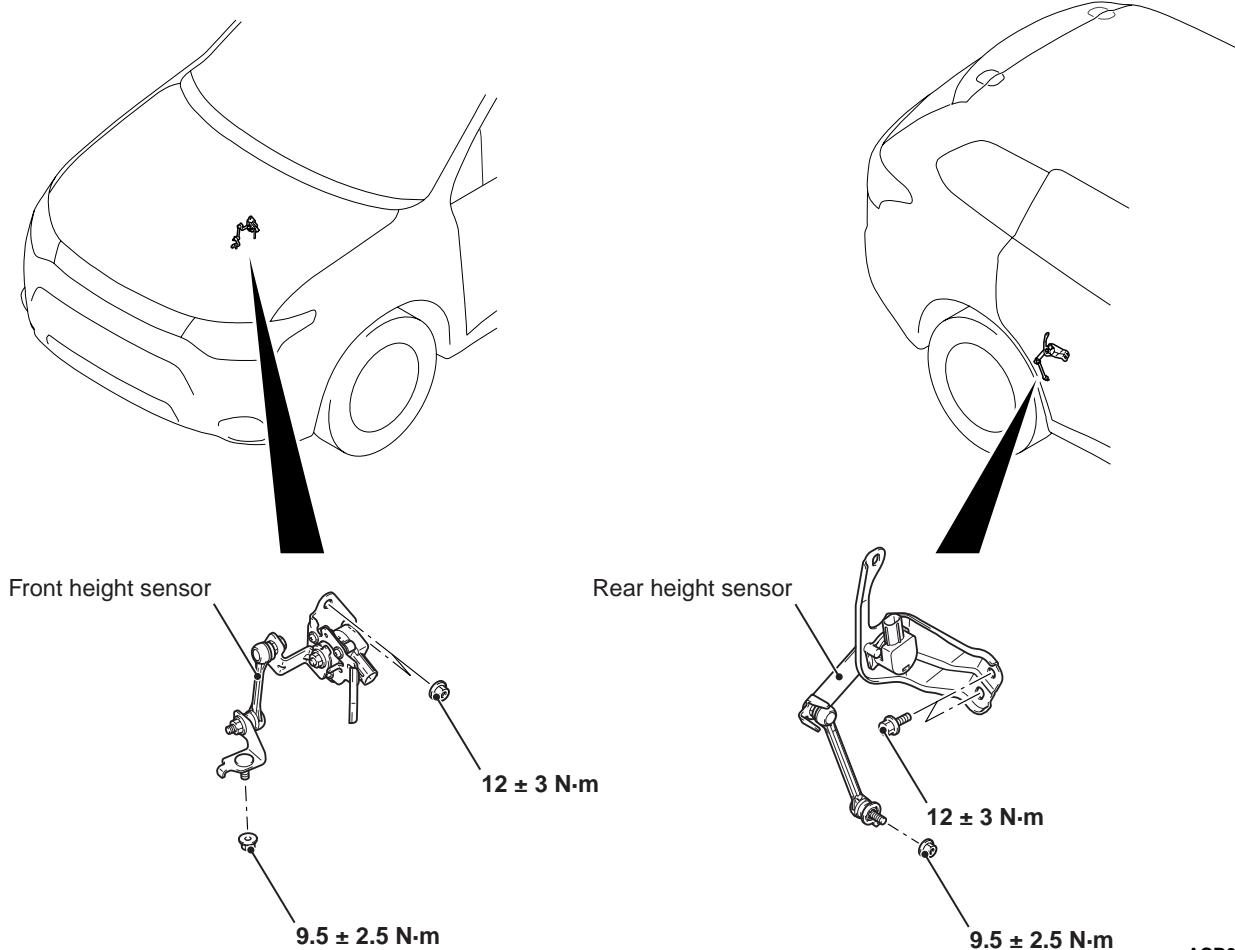
## HEIGHT SENSOR

## REMOVAL AND INSTALLATION

M1540302700427

## Post-installation operation

- Initialisation of ETACS-ECU (Refer to [P.54A-131](#)).
  - Headlamp Aiming Adjustment (Refer to [P.54A-111](#)).



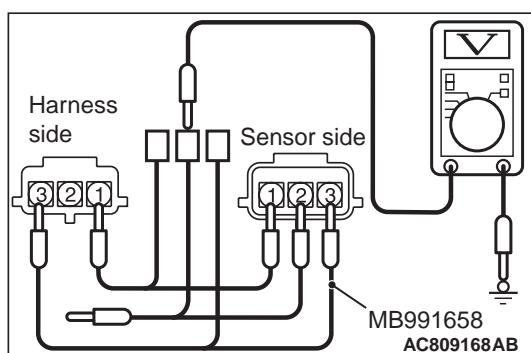
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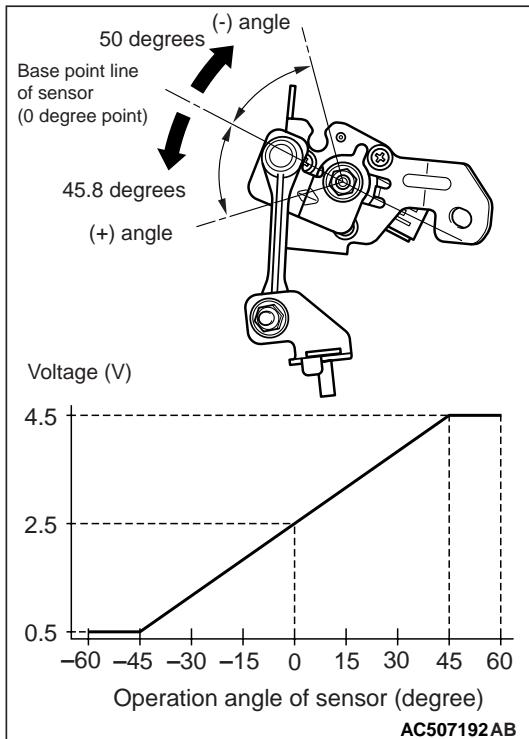
## HEIGHT SENSOR CHECK

## FRONT HEIGHT SENSOR CHECK

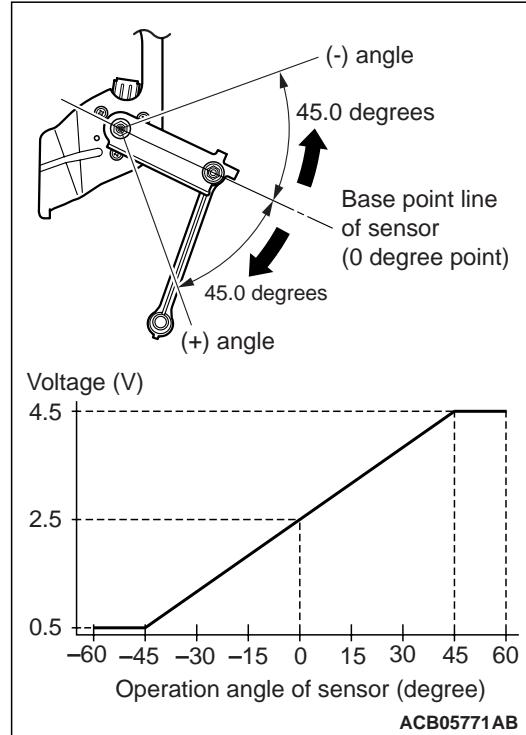
M1540302600323

1. Disconnect the sensor connector and connect special tool test harness (MB991658) as shown.
  2. Turn the ignition switch to the "ON" position.
  3. Measure the voltage of sensor connector terminal No. 2.



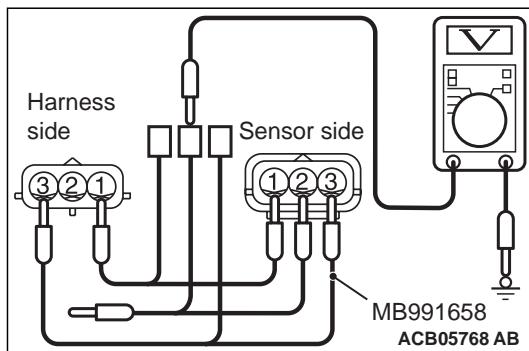


1. Disconnect the sensor connector and connect special tool test harness (MB991658) as shown.
2. Turn the ignition switch to the "ON" position.
3. Measure the voltage of sensor connector terminal No. 2.



4. Check that voltages show the values described in the graph according to the sensor operation angle.

## REAR HEIGHT SENSOR CHECK

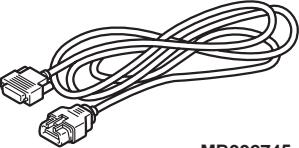
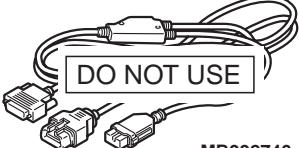
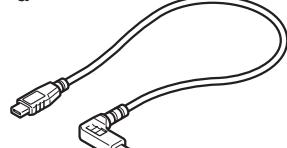
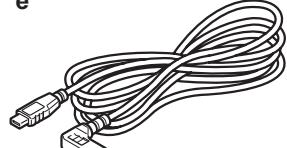


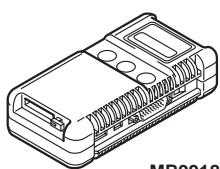
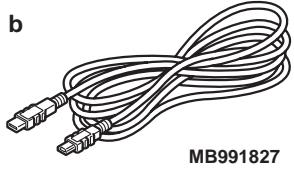
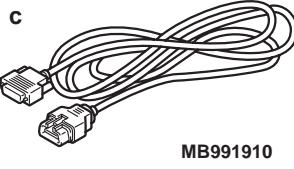
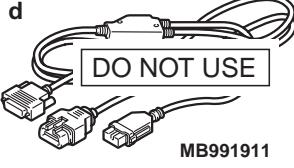
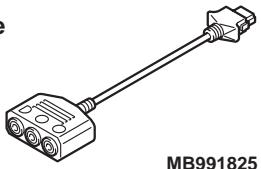
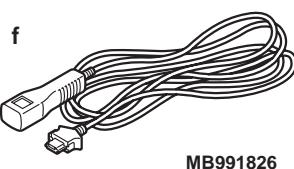
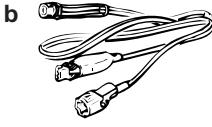
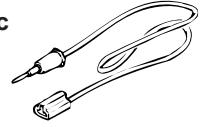
4. Check that voltages show the values described in the graph according to the sensor operation angle.

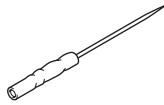
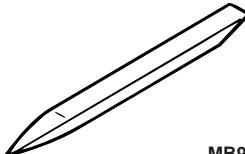
## REAR COMBINATION LAMP

## SPECIAL TOOLS

M1541400100344

| Tool  | Number  | Name  | Use   |
|---|---|---|---|
| a<br> MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication )<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication )<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code, service data and actuator test check. |
| b<br> MB992745                 |   |   |   |
| c<br> MB992746                 |   |   |   |
| d<br> MB992747               |   |   |   |
| e<br> MB992748<br>ACB05421AB |   |   |   |

| Tool  | Number  | Name   | Use  |
|---|---|--|--|
| <br><b>MB991824</b><br><br><b>MB991827</b><br><br><b>MB991910</b><br><br><b>MB991911</b><br><br><b>MB991825</b><br><br><b>MB991826</b><br><br><b>MB991955</b> | <b>MB991955</b><br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface (V.C.I.)<br>b. M.U.T.-III USB cable<br>c. M.U.T.-III main harness A (Vehicles with CAN communication system)<br>d. M.U.T.-III main harness B (Vehicles without CAN communication system)<br>e. M.U.T.-III measure adapter<br>f. M.U.T.-III trigger harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Diagnosis code, service data and actuator test check. |
| <br><b>MB991223</b><br><br><b>MB991220</b><br><br><b>MB991221</b><br><br><b>MB991222</b>  | <b>MB991223</b><br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe  | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester  |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |
| <br>MB990784 | MB990784 | Ornament remover | Removal of rear combination lamp assembly                             |

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 – Contents of troubleshooting .

M1541402500133

Refer to GROUP 00 – Diagnosis function .

## DIAGNOSIS FUNCTION

M1541400900083

### HOW TO READ DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

### HOW TO ERASE DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

## DIAGNOSIS CODE CHART

M1541400200299

### CAUTION

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

| Diagnosis code No. | Diagnostic item  | Reference page            |
|--------------------|--|---------------------------|
| B16A7              | Tail lamp (RH) circuit short <Short circuit in the position lamp (RH) circuit or the tail lamp (RH) circuit>                             | <a href="#">P.54A-137</a> |
| B16A8              | Tail lamp (LH) circuit short <Short circuit in the position lamp (LH) circuit, tail lamp (LH) circuit or the licence plate lamp circuit> | <a href="#">P.54A-139</a> |

## DIAGNOSIS CODE PROCEDURES

Code No.B16A7 Tail lamp (RH) circuit short <Short circuit in the position lamp (RH) circuit or the tail lamp (RH) circuit>

### CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Regis-

ter the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

## DIAGNOSTIC FUNCTION

When a short circuit is detected in the position lamp circuit or the tail lamp circuit, the ETACS-ECU sets the diagnosis code No. B16A7.

**JUDGEMENT CRITERIA**

The problem detection of tail lamp is made based on the digital feed back signal (input signal to ETACS-ECU) which operates the tail lamp. When the ignition switch is ON, the ETACS-ECU determines the tail lamp circuit state from the load placed on the line. After 100 ms has elapsed since the start of the check, the ETACS-ECU performs a sampling with each 10 ms. If an abnormality is detected, it increases the counter by 2, and when no abnormality is detected, it decreases the counter by 1. Once the counter reaches "10," the ETACS-ECU sets the diagnosis code No. B16A7 if no load is detected.

**PROBABLE CAUSES**

- Malfunction of bulbs
- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. Bulb check**

Check the bulb(s) of the lamp that does not illuminate.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Replace the bulb(s) of the lamp that does not illuminate.

**STEP 2. Resistance measurement at the headlamp assembly (position: RH) connector, rear combination lamp (tail: RH) connector (earth terminals).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the connector terminal of lamp which does not illuminate and

the body earth.

- Measure the resistance between the headlamp assembly (position: RH) connector (earth terminal) and body earth.
- Measure the resistance between the rear combination lamp (tail: RH) connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Go to Step 3.

**STEP 3. Check of open circuit in earth lines between the headlamp assembly (position: RH) connector, rear combination lamp (tail: RH) connector and body earth.**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check of short to power supply, short to earth, and open circuit in (TAR1, TAR2) lines between the headlamp assembly (position: RH) connector, rear combination lamp (tail: RH) connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. Check whether the diagnosis code is reset.**

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

**Q: Is the diagnosis code set?**

YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

---

Code No.B16A8 Tail lamp (LH) circuit short <Short circuit in the position lamp (LH) circuit, tail lamp (LH) circuit or the licence plate lamp circuit>

---

**CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

When a short circuit is detected in the position lamp circuit, the tail lamp circuit or the licence plate lamp circuit, the ETACS-ECU sets the diagnosis code No. B16A8.

**JUDGEMENT CRITERIA**

The problem detection of tail lamp is made based on the digital feed back signal (input signal to ETACS-ECU) which operates the tail lamp. When the ignition switch is ON, the ETACS-ECU determines the tail lamp circuit state from the load placed on the line. After 100 ms has elapsed since the start of the check, the ETACS-ECU performs a sampling with each 10 ms. If an abnormality is detected, it increases the counter by 2, and when no abnormality is detected, it decreases the counter by 1. Once the counter reaches "10," the ETACS-ECU sets the diagnosis code No. B16A8 if no load is detected.

**PROBABLE CAUSES**

- Malfunction of bulbs
- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE**

---

**STEP 1. Bulb check**

Check the bulb(s) of the lamp that does not illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the bulb(s) of the lamp that does not illuminate.

**STEP 2. Resistance measurement at the headlamp assembly (position: LH) connector, rear combination lamp (tail: LH) connector, licence plate lamp (LH) connector and licence plate lamp (RH) connector (earth terminals).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the connector terminal of lamp which does not illuminate and the body earth.
  - Measure the resistance between the headlamp assembly (position: LH) connector (earth terminal) and body earth.
  - Measure the resistance between the rear combination lamp (tail: LH) connector (earth terminal) and body earth.
  - Measure the resistance between the licence plate lamp (LH) connector (earth terminal) and body earth.
  - Measure the resistance between the licence plate lamp (RH) connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 3.

---

**STEP 3. Check of open circuit in earth lines between the headlamp assembly (position: LH) connector , rear combination lamp (tail: LH) connector, licence plate lamp (LH) connector or licence plate lamp (RH) connector and body earth.**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

---

**STEP 4. Check of short to power supply, short to earth, and open circuit in (TAL1, TAL2) lines between the headlamp assembly (position: LH) connector , rear combination lamp (tail: LH) connector, licence plate lamp (LH) connector or licence plate lamp (RH) connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

- STEP 5. Check whether the diagnosis code is reset.**
- (1) Erase the diagnosis code.
  - (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
  - (3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**  
YES : Replace the ETACS-ECU.  
NO : The diagnosis is complete.

## TROUBLE SYMPTOM CHART

M1541401000500

| Trouble symptom                                      | Inspection Procedure No. | Reference page            |
|--|--------------------------|---------------------------|
| None of the tail lamps illuminate.                   | 1                        | <a href="#">P.54A-140</a> |
| The stop lamps do not illuminate or go out normally. | 2                        | <a href="#">P.54A-141</a> |

## SYMPTOM PROCEDURES

### Inspection Procedure 1: None of the tail lamps illuminate.

#### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

### COMMENTS ON TROUBLE SYMPTOM

If all the tail lamps do not illuminate normally, the tail lamp switch input circuit or ETACS-ECU may have a problem.

### PROBABLE CAUSES

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

### DIAGNOSIS PROCEDURE

#### STEP 1. Licence plate lamp operation check

Check that the licence plate lamp illuminates normally.

##### Q: Is the check result normal?

- YES : Go to Step 2.  
NO : Replace the ETACS-ECU.

#### STEP 2. M.U.T.-III diagnosis code

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

##### Q: Is the diagnosis code set?

- YES : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).  
NO : Go to Step 3.

#### STEP 3. M.U.T.-III data list

Use the ETACS-ECU service data to check the signals related to the tail lamp illumination.

- Turn the lighting switch to the "TAIL" position.

| Item No. | Item name               | Normal condition |
|----------|-------------------------|------------------|
| Item 340 | Head lamp switch (tail) | ON               |

OK: Normal condition is displayed.

##### Q: Is the check result normal?

- YES : Go to Step 4.  
NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).

#### STEP 4. Retest the system

Check that the tail lamp illuminates 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 ).  
NO : Replace the ETACS-ECU.

**Inspection Procedure 2: The stop lamps do not illuminate or go out normally.****COMMENTS ON TROUBLE SYMPTOM**

If the stop lamps do not illuminate or go out normally, the stop lamp switch input signal circuit, or the stop lamps may be defective.

**PROBABLE CAUSES**

- Malfunction of stop lamp switch input signal circuit
- Malfunction of stop lamps
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III data list**

Temporarily replace the stop lamp relay, and then depress the brake pedal.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 290 | Stop lamp switch | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 12 "The stop lamp switch signal is not received." [P.54A-321](#)

**STEP 2. Check the bulb of the stop lamps**

Check the bulb of the defective lamps.

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Replace the bulb of the defective lamps.

**STEP 3. Resistance measurement at the stop lamp connectors (earth terminals).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the rear combination lamp (LH) connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

- (3) Measure the resistance between the rear combination lamp (RH) connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

- (4) Measure the resistance between the high-mounted stop lamp connector (earth

terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**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 ).

**NO** : Go to Step 4.

**STEP 4. Check of open circuit in earth line between the rear combination lamp (LH) connector, rear combination lamp (RH) connector, high-mounted stop lamp connector and body earth.**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Repair the connector(s) or wiring harness.

**STEP 5. Voltage measurement at stop lamp connectors (power supply terminals).**

- (1) Remove the front fog lamp relay, and measure at the relay box side.
- (2) Check the voltage between the rear combination lamp (LH) connector (power supply terminal) and body earth.

**OK: System voltage**

- (3) Check the voltage between the rear combination lamp (RH) connector (power supply terminal) and body earth.

**OK: System voltage**

- (4) Check the voltage between the high-mounted stop lamp connector (power supply terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Go to Step 6.

**STEP 6. Check of short to power supply, short to earth, and open circuit in STLO line between ETACS-ECU connector and rear combination lamp (LH) connector, rear combination lamp (RH) connector, high-mounted stop lamp connector.**

**Q: Is the check result normal?**

**YES** : Go to Step 7.

**NO** : Repair the connector(s) or wiring harness.

**STEP 7. Retest the system**

Check that the stop lamps illuminate 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 ).

**NO** : Replace the stop lamps.

**ON-VEHICLE SERVICE****REPLACE THE BULB**

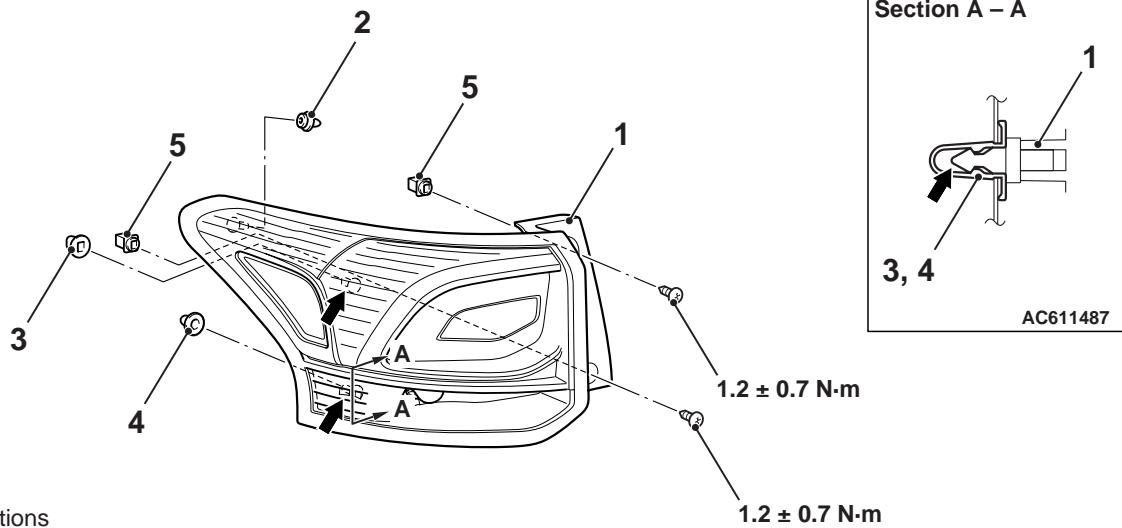
M1541402100102

**STOP/TAIL LAMP BULB REPLACEMENT**

1. Remove the rear combination lamp assembly (Refer to [P.54A-142](#)).

**REMOVAL AND INSTALLATION**

M1541402200530

**NOTE**

← : Stud pin positions

**Removal steps**

1. Rear combination lamp assembly
2. Clip

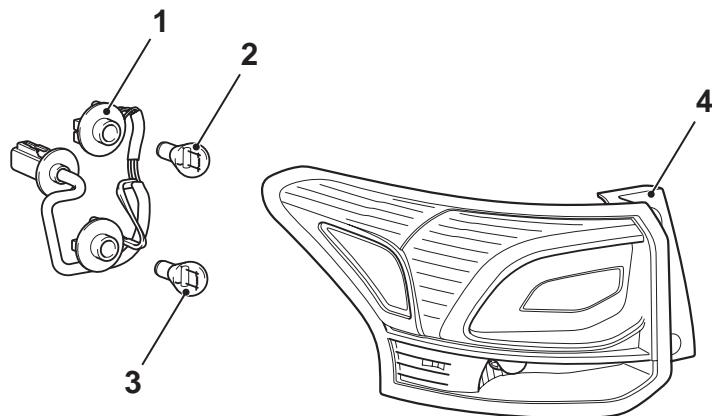
**Removal steps**

3. Grommet
4. Grommet
5. Grommet

ACB05599AB

## DISASSEMBLY AND REASSEMBLY

M1541403400010



ACB05600AB

### Disassembly steps

1. Socket
2. Stop/tail lamp bulb

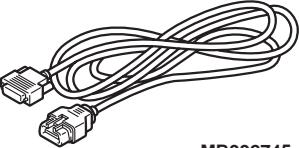
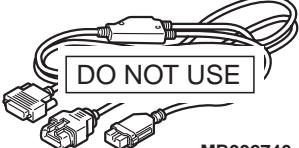
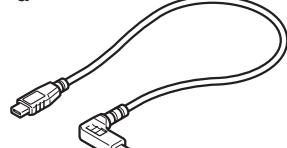
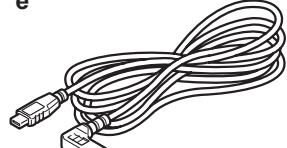
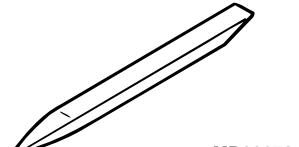
### Disassembly steps

3. Rear turn-signal lamp bulb
4. Rear combination lamp unit

## BACK-UP LAMP

## SPECIAL TOOL

M1542400300017

| Tool   | Number  | Name  | Use   |
|--|---|---|---|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication )<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication )<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code, service data and actuator test check. |
| b<br><br>MB992745                 |   |   |   |
| c<br><br>MB992746                 |   |   |   |
| d<br><br>MB992747               |   |   |   |
| e<br><br>MB992748<br>ACB05421AB |   |   |   |
| <br>MB990784                    | MB990784  | Ornament remover  | Removal of rear back-up lamp assembly                 |

## TROUBLESHOOTING

STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING

M1542400800012

Refer to GROUP 00 – Contents of troubleshooting .

## TROUBLE SYMPTOM CHART

M1542400500011

| Trouble symptom                               | Reference page |
|---|----------------|
| The back-up lamps do not illuminate normally. | P.54A-145      |

## SYMPTOM PROCEDURES

**The back-up lamps do not illuminate normally.**

## COMMENTS ON TROUBLE SYMPTOM

When the back-up lamp does not illuminate or extinguish normally, the power supply or the earth circuit to the back-up lamp or the inhibitor switch may be defective.

## PROBABLE CAUSES

- Malfunction of the inhibitor switch
- Malfunction of bulbs
- Malfunction of the back-up lamp assembly
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

**STEP 1. Bulb check**

Check the bulb(s) of the lamp that does not illuminate.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Replace the bulb(s) of the lamp that does not illuminate.

**STEP 2. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

YES : Troubleshoot the ETACS-ECU. Refer to

[P.54A-281](#).

NO : Go to Step 3.

**STEP 3. Check the inhibitor switch.**

Check the continuity of the inhibitor switch. (GROUP 23A – On-vehicle Service, Inhibitor Switch Continuity Check.)

**Q: Is the check result normal?**

YES : Go to Step 4

NO : Replace the inhibitor switch.

**STEP 4. Voltage measurement at the inhibitor switch connector (power supply terminal).**

- (1) Remove the inhibitor switch connector, and measure at the junction block side.
- (2) Move the ignition switch to the ON position.
- (3) Measure the voltage between the inhibitor switch connector (power supply terminal) and body earth.

**OK: System voltage****Q: Is the check result normal?**

YES : Go to Step 6

NO : Go to Step 5

**STEP 5. Check of open circuit in power supply line between the inhibitor switch connector and the fusible link.****Q: Is the check result normal?**

YES : Go to Step 6

NO : Repair the connector(s) or wiring harness.

**STEP 6. Resistance measurement at the back-up lamp connector (earth terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the back-up lamp connector (earth terminal) and the body earth.

**OK: Continuity exists (2 Ω or less)****Q: Is the check result normal?**

YES : Go to Step 8

NO : Go to Step 7

**STEP 7. Check of open circuit in earth line between the back-up lamp connector and body earth.****Q: Is the check result normal?**

YES : Go to Step 8

NO : Repair the connector(s) or wiring harness.

**STEP 8. Check of open circuit in output line between the back-up lamp connector and inhibitor switch connector.****Q: Is the check result normal?**

YES : Go to Step 9

NO : Repair the connector(s) or wiring harness.

**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 ).

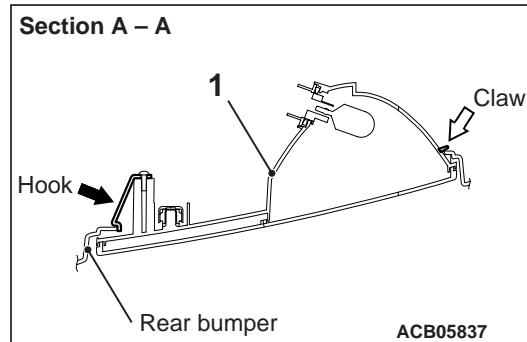
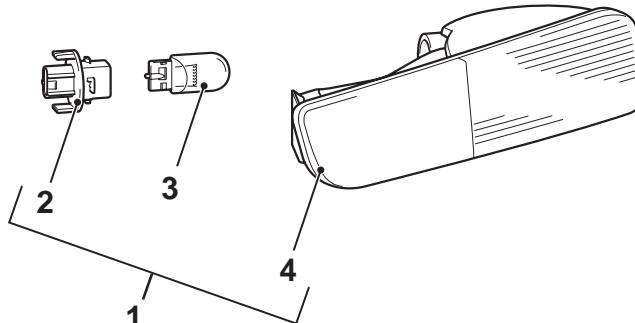
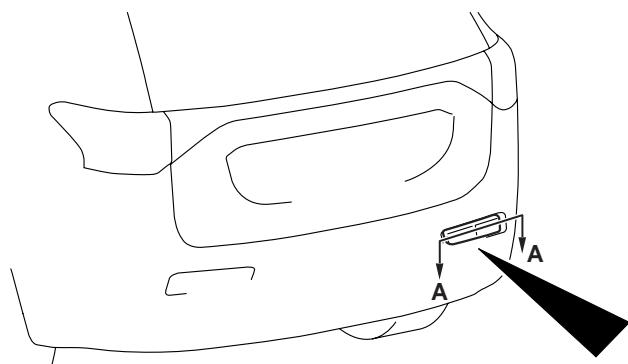
**NO :** Replace the back-up lamp assembly.

**STEP 9. Retest the system**

Check that the back-up lamp illuminate normally.

**Q: Is the check result normal?****BACK-UP LAMP****REMOVAL AND INSTALLATION**

M1542400200043



ACB05601AB

&lt;&lt;A&gt;&gt;

**Removal Steps**

1. Back-up lamp assembly
2. Back-up lamp socket
3. Back-up lamp bulb
4. Back-up lamp unit

**REMOVAL SERVICE POINT****<<A>> BACK-UP LAMP ASSEMBLY  
REMOVAL**

Push the back-up lamp assembly to the left to bend the hook, and then remove by disengaging the claw from the rear bumper.

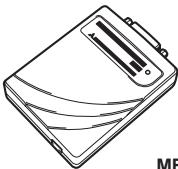
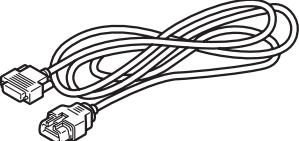
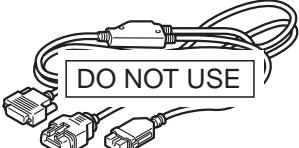
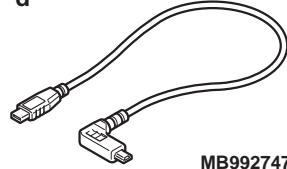
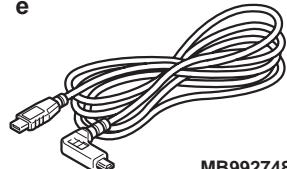
**FOG LAMP****SERVICE SPECIFICATION**

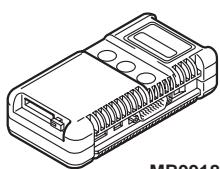
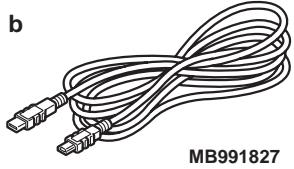
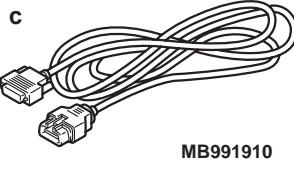
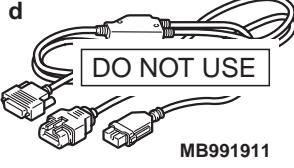
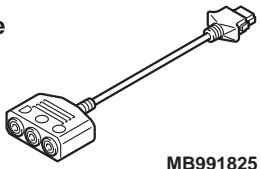
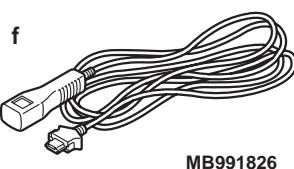
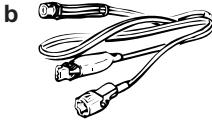
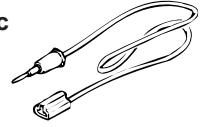
M1540400900091

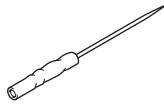
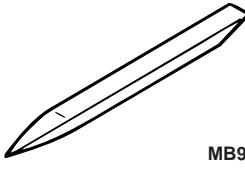
| Item  | Standard value                     | Limit   |
|---|------------------------------------|---|
| Front fog lamp aiming<br>Vertical direction | 60 mm (1.15°) below horizontal (H) | 39 mm (0.75°) to 89 mm (1.7°)<br>below the horizontal (H) |

## SPECIAL TOOLS

M1540401800365

| Tool   | Number  | Name  | Use   |
|--|---|---|---|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication )<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication )<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code, service data and actuator test check. |
| b<br><br>MB992745                 |   |   |   |
| c<br><br>MB992746                 |   |   |   |
| d<br><br>MB992747               |   |   |   |
| e<br><br>MB992748<br>ACB05421AB |   |   |   |

| Tool  | Number  | Name   | Use  |
|---|---|--|--|
| <br><b>MB991824</b><br><br><b>MB991827</b><br><br><b>MB991910</b><br><br><b>MB991911</b><br><br><b>MB991825</b><br><br><b>MB991826</b><br><br><b>MB991955</b> | <b>MB991955</b><br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface (V.C.I.)<br>b. M.U.T.-III USB cable<br>c. M.U.T.-III main harness A (Vehicles with CAN communication system)<br>d. M.U.T.-III main harness B (Vehicles without CAN communication system)<br>e. M.U.T.-III measure adapter<br>f. M.U.T.-III trigger harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Diagnosis code, service data and actuator test check. |
| <br><b>MB991223</b><br><br><b>MB991220</b><br><br><b>MB991221</b><br><br><b>MB991222</b>  | <b>MB991223</b><br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe  | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester  |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |
| <br>MB990784 | MB990784 | Ornament remover | Removal of rear fog lamp assembly                                     |

**TROUBLESHOOTING****STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING**

M1540401700142  
Refer to GROUP 00 – Contents of troubleshooting .

| Trouble symptom  | Inspection Procedure No. | Reference page            |
|--|--------------------------|---------------------------|
| The front fog lamps do not illuminate normally.            | 1                        | <a href="#">P.54A-149</a> |
| One of the front fog lamps does not illuminate.            | 2                        | <a href="#">P.54A-151</a> |
| The front fog lamp indicator does not illuminate normally. | 3                        | <a href="#">P.54A-152</a> |
| The rear fog lamp do not illuminate normally.              | 4                        | <a href="#">P.54A-152</a> |
| The rear fog lamp indicator does not illuminate normally.  | 5                        | <a href="#">P.54A-154</a> |

**SYMPTOM PROCEDURES****Inspection Procedure 1: The front fog lamps do not illuminate normally.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

- Tail lamp switch
- Headlamp switch
- Fog lamp switch
- Option coding information

**COMMENTS ON TROUBLE SYMPTOM**

When the front fog lamps do not illuminate normally, the mentioned input signal circuit(s) or ETACS-ECU may be defective.

**PROBABLE CAUSES**

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**CIRCUIT OPERATION**

If the front fog lamps do not illuminate normally, the input signal circuit(s) below or the ETACS-ECU may be defective.

## DIAGNOSIS PROCEDURE

**STEP 1. ETACS-ECU coding data check**

- (1) Operate the M.U.T.-III to read the ETACS-ECU option coding information (Refer to GROUP 00 – Coding Table ).
- (2) Check that the "Front fog lamp" is set to "Present."

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Operate the M.U.T.-III to set the option coding "Front fog lamp" to "Present," and check the trouble symptom.

**STEP 2. Check the operation of the position lamps and the headlamps.**

Check that the position lamps and the headlamps illuminate normally.

**Q: Is the check result normal?**

YES : Go to Step 3.

NO : Check the position lamps and the headlamps (Refer to trouble symptom chart [P.54A-96](#)).

**STEP 3. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

YES : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

NO : Go to Step 4.

**STEP 4. M.U.T.-III data list**

Use the ETACS-ECU service data to check the signal related to the operation of front fog lamp function.

- Turn the fog lamp switch to ON.

| Item No. | Item name   | Normal condition |
|----------|-------------|------------------|
| Item 345 | Fog lamp ON | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).

**STEP 5. Check the front fog lamp relay**

Refer to [P.54A-155](#).

**Q: Is the check result normal?**

YES : Go to Step 6.

NO : Replace the front fog lamp relay.

**STEP 6. Voltage measurement at front fog lamp relay connector (power supply terminals).**

- (1) Remove the front fog lamp relay, and measure at the relay box side.
- (2) Check the voltage between the front fog lamp relay connector (power supply terminals) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 8.

NO : Go to Step 7.

**STEP 7. Check of open circuit in power supply lines between the front fog lamp relay connector and fusible link.**

**Q: Is the check result normal?**

YES : Go to Step 11.

NO : Repair the connector(s) or wiring harness.

**STEP 8. Check of open circuit in FOGY line between the front fog lamp relay connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

YES : Go to Step 9.

NO : Repair the connector(s) or wiring harness.

**STEP 9. Check of open circuit in output line between the front fog lamp relay connector and front fog lamp (LH), front fog lamp (RH) connector.**

**Q: Is the check result normal?**

YES : Go to Step 10.

NO : Repair the connector(s) or wiring harness.

**STEP 10. Check of open circuit in earth line between the front fog lamp (LH), front fog lamp (RH) connector and body earth.**

**Q: Is the check result normal?**

YES : Go to Step 11.

NO : Repair the connector(s) or wiring harness.

**STEP 11. Retest the system**

Check that the front fog lamps illuminate 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 ).

**NO** : Replace the ETACS-ECU.

---

### Inspection Procedure 2: One of the front fog lamps does not illuminate.

---

#### COMMENTS ON TROUBLE SYMPTOM

When one of the front fog lamps does not illuminate, the wiring harness, connector(s), or bulb(s) may have a problem, or the fuse may be burned out.

#### PROBABLE CAUSES

- Malfunction of bulbs
- Damaged harness wires and connectors

#### DIAGNOSIS PROCEDURE

---

##### STEP 1. Bulb check

Check the bulb(s) of the lamp that does not illuminate.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the bulb(s) of the lamp that does not illuminate.

---

##### STEP 2. Resistance measurement at the front fog lamp (LH) connector, front fog lamp (RH) connector (earth terminal).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the connector of lamp which does not illuminate and the body earth.
  - Measure the resistance between the front fog lamp (LH) connector (earth terminal) and body earth.
  - Measure the resistance between the front fog lamp (RH) connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Go to Step 3.

---

##### STEP 3. Check of open circuit in earth line between the front fog lamp (LH) connector, front fog lamp (RH) connector and body earth.

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Repair the connector(s) or wiring harness.

---

##### STEP 4. Check of open circuit in output line between the front fog lamp relay connector and front fog lamp (LH), front fog lamp (RH) connector.

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Repair the connector(s) or wiring harness.

---

##### STEP 5. Retest the system

Check that the front fog lamps illuminate 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 ).

**NO** : Go to Step 1.

**Inspection Procedure 3: The front fog lamp indicator does not illuminate normally.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

If the front fog lamp indicator does not illuminate normally, connector(s), wiring harness in the CAN bus lines, the ETACS-ECU or the combination meter may be defective.

**PROBABLE CAUSES**

- Malfunction of the ETACS-ECU
- Malfunction of the combination meter
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the front fog lamps**

When the front fog lamp switch is operated, check that the front fog lamps illuminate/go off normally.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : First, repair the front fog lamps (Refer to trouble symptom chart [P.54A-149](#)).

**STEP 2. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**Inspection Procedure 4: The rear fog lamp do not illuminate normally.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not reg-

**YES** : Go to Step 3.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 3. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

**NO** : Go to Step 4.

**STEP 4. M.U.T.-III other system special function**

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the front fog lamp indicator. (Refer to Combination Meter [P.54A-64](#))

- Item 5: Illumination (AUTO)
- Item 6: Indicator (AUTO)

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Troubleshoot the combination meter. Refer to [P.54A-53](#).

**STEP 5. Retest the system**

Check that the front fog lamp indicator illuminate 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 ).

**NO** : Replace the ETACS-ECU.

istered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**CIRCUIT OPERATION**

If the rear fog lamps do not illuminate normally, the input signal circuit(s) below or the ETACS-ECU may be defective.

- Tail lamp switch
- Headlamp switch
- Fog lamp switch
- Option coding information

## COMMENTS ON TROUBLE SYMPTOM

When the rear fog lamps do not illuminate normally, the mentioned input signal circuit(s) or ETACS-ECU may be defective.

## PROBABLE CAUSES

- Malfunction of column switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

### STEP 1. ETACS-ECU coding data check

- (1) Operate the M.U.T.-III to read the ETACS-ECU option coding information (Refer to GROUP 00 – Coding List ).
- (2) Check that the "Rear fog lamp" is set to "Present."

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Operate the M.U.T.-III to set the option coding "Rear fog lamp" to "Present," and check the trouble symptom.

### STEP 2. Check the operation of the position lamps and the headlamps.

Check that the position lamps and the headlamps illuminate normally.

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Check the position lamps and the headlamps (Refer to trouble symptom chart [P.54A-96](#)).

### STEP 3. M.U.T.-III diagnosis code

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

**NO** : Go to Step 4.

### STEP 4. M.U.T.-III data list

Use the ETACS-ECU service data to check the signal related to the operation of rear fog lamp function.

- Turn the fog lamp switch to ON.

| Item No. | Item name   | Normal condition |
|----------|-------------|------------------|
| Item 345 | Fog lamp ON | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 11 "The column switch signal is not received" [P.54A-321](#).

### STEP 5. Check the bulb of the rear fog lamp

Check the bulb of the defective lamp.

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Replace the bulb of the defective lamp.

### STEP 6. Resistance measurement at the rear fog lamp connector (earth terminal).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the rear fog lamp connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 8.

**NO** : Go to Step 7.

### STEP 7. Check of open circuit in earth line between the rear fog lamp connector and body earth.

**Q: Is the check result normal?**

**YES** : Go to Step 8.

**NO** : Repair the connector(s) or wiring harness.

### STEP 8. Check of open circuit in RFOG line between the rear fog lamp connector and ETACS-ECU connector.

**Q: Is the check result normal?**

**YES** : Go to Step 9.

**NO** : Repair the connector(s) or wiring harness.

### STEP 9. Retest the system

Check that the rear fog lamp illuminate 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 ).
- NO** : Replace the ETACS-ECU.

---

#### Inspection Procedure 5: The rear fog lamp indicator does not illuminate normally.

---

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

#### COMMENTS ON TROUBLE SYMPTOM

If the rear fog lamp indicator does not illuminate normally, connector(s), wiring harness in the CAN bus lines, the ETACS-ECU or the combination meter may be defective.

#### PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of the combination meter
- Damaged harness wires and connectors

#### DIAGNOSIS PROCEDURE

---

##### STEP 1. Check the rear fog lamp

When the rear fog lamp switch is operated, check that the rear fog lamps illuminate/go off normally.

**Q: Is the check result normal?**

- YES** : Go to Step 2.
- NO** : First, repair the rear fog lamp (Refer to trouble symptom chart [P.54A-149](#)).

---

##### STEP 2. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

#### STEP 3. M.U.T.-III diagnosis code

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

**Q: Is the diagnosis code set?**

- YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).
- NO** : Go to Step 4.

---

#### STEP 4. M.U.T.-III other system special function

Using M.U.T.-III, select "Test" from the special function of the combination meter. Execute the following item to check the rear fog lamp indicator. (Refer to Combination Meter [P.54A-64](#))

- Item 5: Illumination (AUTO)
- Item 6: Indicator (AUTO)

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Troubleshoot the combination meter. Refer to [P.54A-53](#).

---

#### STEP 5. Retest the system

Check that the rear fog lamp indicator illuminate 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 ).

**NO** : Replace the ETACS-ECU.

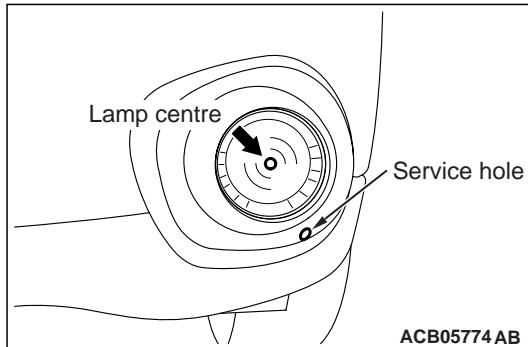
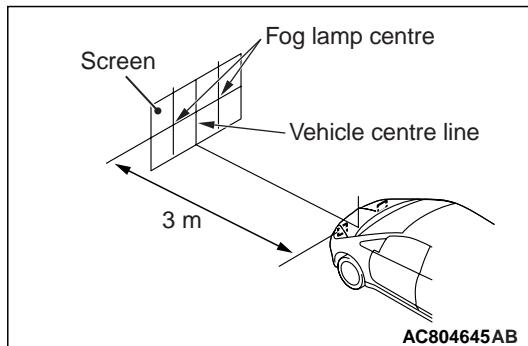
## ON-VEHICLE SERVICE

## FRONT FOG LAMP AIMING

M1540400300806

**CAUTION**

When marking the aiming adjustment, be sure to mask those lamps which are not being adjusted.



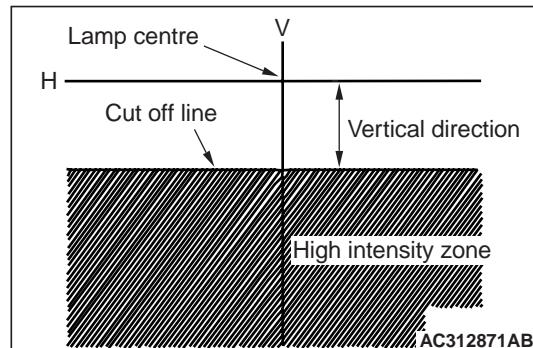
1. Measure the centre of the front fog lamps, as shown in the illustration.
2. Set the distance between the screen and the centre of the front fog lamps as shown in the illustration.
3. Inflate the tyres to the specified pressures and there should be no other load in the vehicles other than driver or substituted weight of approximately 75 kg placed in the driver's position.
4. With the engine running at 2,000 r/min, aim the front fog lamp.
5. Insert a Phillips screwdriver into the service hole and place it on the adjusting screw.

## FRONT FOG LAMP RELAY CHECK

M1540402800227

**CAUTION**

Be sure to adjust the aiming adjustment screw in the tightening direction.



6. Adjust the cut off line (boundary between light and dark) position to the standard value with the adjusting screw.

**Standard value:**

Vertical direction; 60 mm (1.15°) below horizontal (H)

**Limit:**

Vertical direction; 39 mm (0.75°) to 89 mm (1.7°) below the horizontal (H)

*NOTE: The horizontal direction is non-adjustable.*

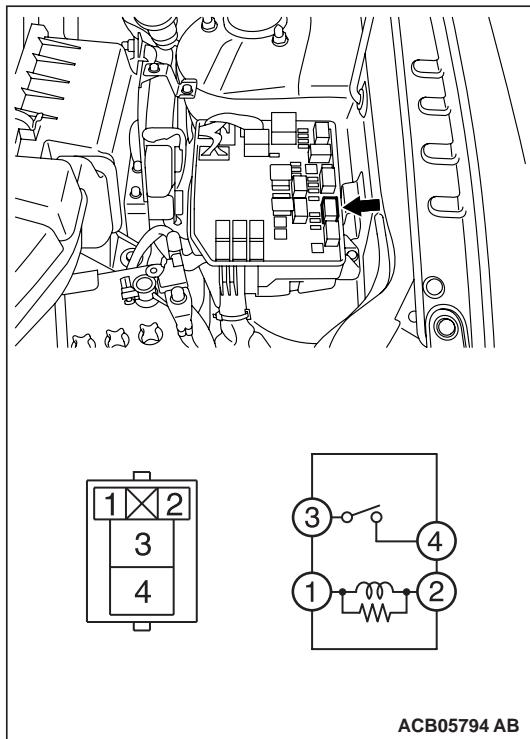
## REPLACE THE FRONT FOG LAMP BULB

M1540400400803

**CAUTION**

Don't touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, clean it with alcohol or thinner immediately and dry well, and then install it.

For the replacement procedures, refer to [P.54A-156](#).



| Battery voltage                                      | Terminal number | Normal condition                       |
|--|-----------------|--|
| At no energisation                                   | 3 – 4           | No continuity                          |
| With current supply [terminal 1 (+), terminal 2 (-)] |                 | Continuity exists ( $2\Omega$ or less) |

## FOG LAMP

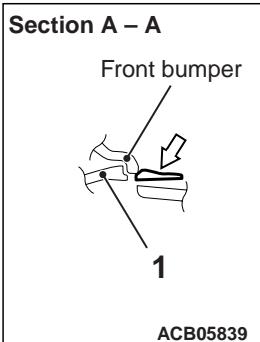
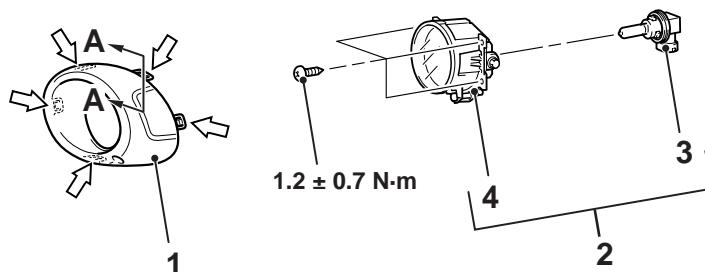
## REMOVAL AND INSTALLATION

### FRONT FOG LAMP

M1540402600557

#### Post-installation Operation

- Front Fog Lamp Aiming Adjustment (Refer to P.54A-155).



NOTE  
←: Claw positions

ACB05648AB

- Removal steps**
- >>A<<
1. Front fog lamp bezel
  2. Front fog lamp assembly
  3. Front fog lamp bulb
  4. Front fog lamp unit

## REMOVAL SERVICE POINT

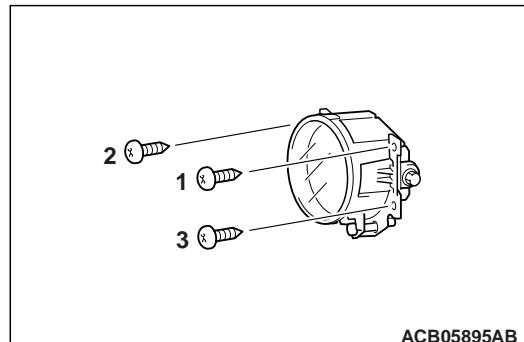
### <<A>> FRONT FOG LAMP BULB REMOVAL

#### CAUTION

Do not touch the bulb surface with bare hands or dirty gloves. If the bulb surface (glass part) gets dirty, immediately clean it with alcohol or thinner. After drying completely, install the bulb.

## INSTALLATION SERVICE POINT

### >>A<< FRONT FOG LAMP ASSEMBLY INSTALLATION



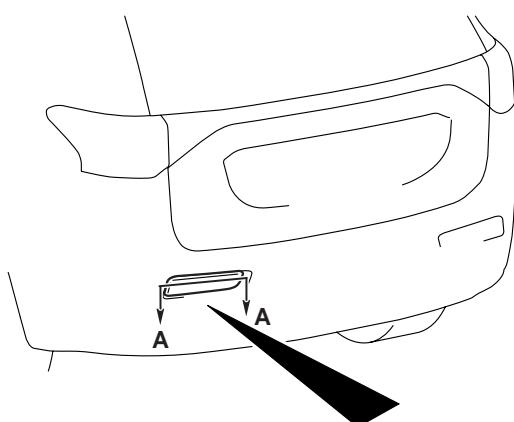
Tighten the mounting screws to the specified torque in the order shown.

**Tightening torque:  $1.2 \pm 0.7 \text{ N}\cdot\text{m}$**

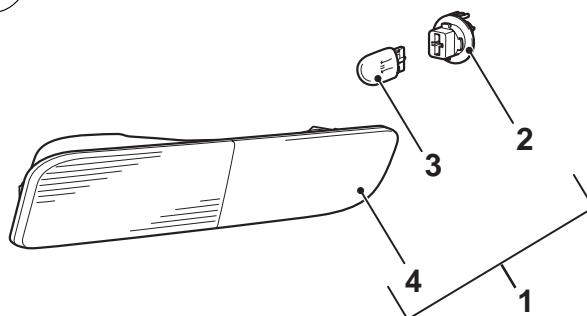
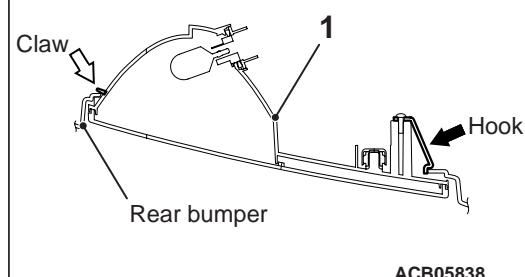
## REMOVAL AND INSTALLATION

### REAR FOG LAMP

M1542600300282



Section A – A



ACB05602AB

< <A> >

#### Removal steps

1. Rear fog lamp assembly
2. Rear fog lamp socket

#### Removal steps (Continued)

3. Rear fog lamp bulb
4. Rear fog lamp unit

**REMOVAL SERVICE POINT****<<A>> REAR FOG LAMP ASSEMBLY****REMOVAL**

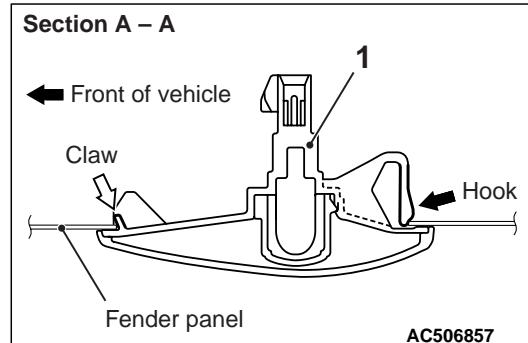
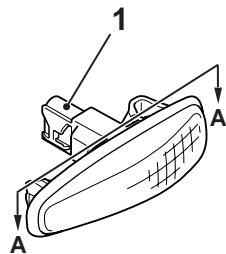
Push the rear fog lamp assembly to the right to bend the hook, and then remove by disengaging the claw from the rear bumper.

**SIDE TURN-SIGNAL LAMP****REMOVAL AND INSTALLATION**

M1541800200509

**<DOOR MIRROR TYPE>**

For the side turn-signal lamp removal and installation procedures, refer to GROUP 51 – Door Mirror .

**<FENDER PANEL TYPE>**

,<<A>>      **Removal**

1. Side turn-signal lamp assembly

**REMOVAL SERVICE POINT****<<A>> SIDE TURN-SIGNAL LAMP****ASSEMBLY REMOVAL**

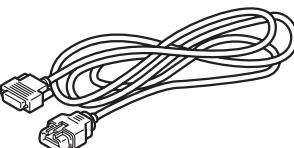
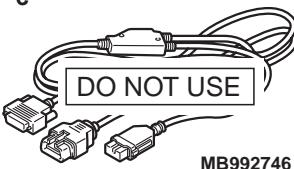
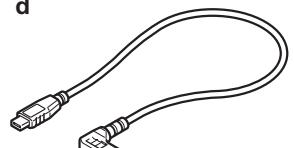
Push the side turn-signal lamp assembly toward the vehicle rear to bend the hook, and then remove by disengaging the claw from the fender panel.

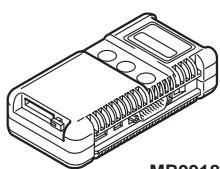
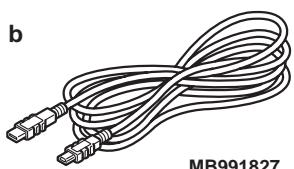
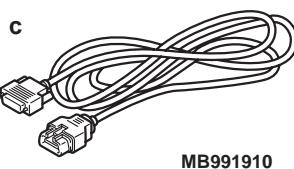
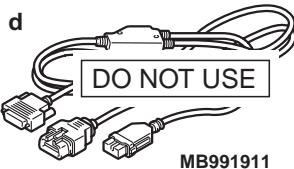
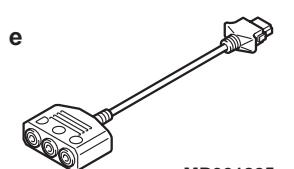
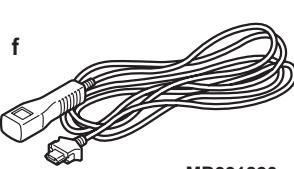
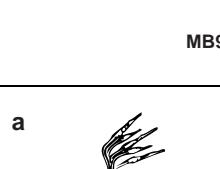
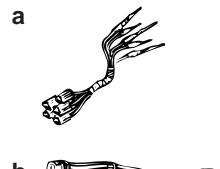
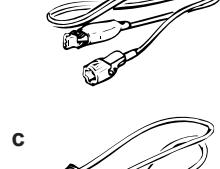
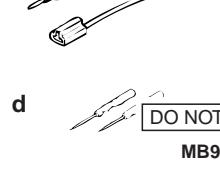
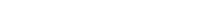
ACB05650AB

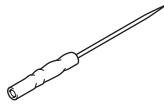
## INTERIOR LAMP

## SPECIAL TOOLS

M1541301600345

| Tool   | Number     | Name  | Use   |
|--|------------|---|---|
| a<br>   | MB992744   | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long |
| b<br>   | MB992745   |   |   |
| c<br>  | MB992746   |   |   |
| d<br> | MB992747   |   |   |
| e<br> | MB992748   |   |   |
|  | ACB05421AB |   |   |

| Tool  | Number   | Name  | Use  |
|---|--|---|--|
| <br><b>MB991824</b><br><br><b>MB991827</b><br><br><b>MB991910</b><br><br><b>MB991911</b><br><br><b>MB991825</b><br><br><b>MB991826</b><br><br><b>MB991955</b> | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface (V.C.I.)<br>b. M.U.T.-III<br>USB cable<br>c. M.U.T.-III<br>main harness<br>A (Vehicles<br>with CAN<br>communication<br>system)<br>d. M.U.T.-III<br>main harness<br>B (Vehicles<br>without CAN<br>communication<br>system)<br>e. M.U.T.-III<br>measure<br>adapter<br>f. M.U.T.-III<br>trigger<br>harness | <b>CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Diagnosis code, service data and actuator test check. |
| <br><b>MB991223</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>DO NOT USE</b><br><b>MB991223</b>  | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check<br>harness<br>b. LED harness<br>c. LED harness<br>adapter<br>d. Probe   | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester                                      |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

**TROUBLESHOOTING****STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING**

M1541301500166

Refer to GROUP 00 – Contents of troubleshooting .

**TROUBLE SYMPTOM CHART**

M1541300200515

| Trouble symptom  | Inspection Procedure No. | Reference page            |
|--|--------------------------|---------------------------|
| The front room lamp does not illuminate normally.                    | 1                        | <a href="#">P.54A-161</a> |
| The rear room lamp does not illuminate normally.                     | 2                        | <a href="#">P.54A-163</a> |
| The luggage compartment lamp does not illuminate normally.           | 3                        | <a href="#">P.54A-164</a> |
| The interior lamp automatic shutoff function does not work normally. | 4                        | <a href="#">P.54A-165</a> |

**SYMPTOM PROCEDURES****Inspection Procedure 1: The front room lamp does not illuminate normally.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

**OPERATION**

The ETACS-ECU illuminates and extinguishes the front room lamp in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- Door switches
- Front door lock actuator (driver's side)

**COMMENTS ON TROUBLE SYMPTOM**

If this does not work normally, the above switch input circuit(s), front room lamp, or ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of the key reminder switch
- Malfunction of door switch
- Malfunction of the front door lock actuator (driver's side)
- Malfunction of front room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Rear room lamp operation check**

Check that the rear room lamp illuminates and extinguishes normally.

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Go to Step 2.

**STEP 2. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III data list**

Use the ETACS-ECU service data to check the signals related to the operation of front room lamp.

- Turn the ignition switch to the LOCK (OFF) position.
- Remove the ignition key from the ignition key cylinder.
- Open each door.

| Item No. | Item name           | Normal condition |
|----------|---------------------|------------------|
| Item 228 | Dr door unlock      | ON               |
| Item 254 | IG voltage          | 1 V or less      |
| 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 264 | Handle lock switch  | Key in → Key out |

**OK: Normal conditions are displayed for all the items.**

**Q: Is the check result normal?**

**Normal conditions are displayed for all the items. :**  
Replace the ETACS-ECU.

**Normal condition is not displayed for item No. 228.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 4 "The front door lock actuator (driver's side) signal is not received" [P.54A-315](#).

**Normal condition is not displayed for item No. 254.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).

**Normal condition is not displayed for item No. 256.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "The front door switch (driver's side) signal is not received" [P.54A-316](#).

**Normal condition is not displayed for item No. 257.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 6 "The front door switch (passenger's side) signal is not received" [P.54A-317](#).

**Normal condition is not displayed for item No. 258.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 7 "The rear door switch (RH) signal is not received" [P.54A-318](#).

**Normal condition is not displayed for item No. 259.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 8 "The rear door switch (LH) signal is not received" [P.54A-318](#).

**Normal condition is not displayed for item No. 264.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 3 "Key reminder switch signal is not received" [P.54A-314](#).

**STEP 4. Front room lamp bulb check**

Check that the front room lamp bulb is normal.

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Replace the front room lamp bulb.

**STEP 5. Check of open circuit in (LP+1, LP+2, LP+3&LP+4) line between the front room lamp connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Repair the connector(s) or wiring harness.

**STEP 6. Check of open circuit in (RLP-1, RLP-2&RLP-3) line between the front room lamp connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

---

**STEP 7. Check of open circuit in earth line between the front room lamp connector and body earth.**

Q: Is the check result normal?

YES : Replace the front room lamp, and then go to Step 8.

NO : Repair the connector(s) or wiring harness.

---

**STEP 8. Retest the system**

Check that the front room lamp illuminates/extinguishes 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 ).

NO : Replace the ETACS-ECU.

---

**Inspection Procedure 2: The rear room lamp does not illuminate normally.**

---

**CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

---

**OPERATION**

The ETACS-ECU illuminates and extinguishes the rear room lamp in accordance with the input signals below.

- Ignition switch (IG1)
- Key reminder switch
- Door switches
- Front door lock actuator (driver's side)

---

**COMMENTS ON TROUBLE SYMPTOM**

If this does not work normally, the above switch input circuit(s), rear room lamp, or ETACS-ECU may have a problem.

---

**PROBABLE CAUSES**

- Malfunction of the key reminder switch
- Malfunction of door switch
- Malfunction of the front door lock actuator (driver's side)
- Malfunction of rear room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

---

**DIAGNOSIS PROCEDURE**

---

**STEP 1. Front room lamp operation check**

Check that the front room lamp illuminates and extinguishes normally.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Refer to Inspection Procedure 1 "The front room lamp does not illuminate normally."

[P.54A-161](#).

---

**STEP 2. Rear room lamp bulb check**

Check that the rear room lamp bulb is normal.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the rear room lamp bulb.

---

**STEP 3. Check of open circuit in (LP+1, LP+2, LP+3&LP+4) line between the rear room lamp connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

---

**STEP 4. Check of open circuit in (RLP-1, RLP-2&RLP-3) line between the rear room lamp connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

---

**STEP 5. Check of open circuit in earth line between the rear room lamp connector and body earth.**

Q: Is the check result normal?

- YES** : Replace the rear room lamp, and then go to Step 6.  
**NO** : Repair the connector(s) or wiring harness.

**STEP 6. Retest the system**

Check that the rear room lamp illuminates/extinguishes 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 ).  
**NO** : Replace the ETACS-ECU.

**Inspection Procedure 3: The luggage compartment lamp does not illuminate normally.****△ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**OPERATION**

The ETACS-ECU illuminates and extinguishes the luggage compartment lamp in accordance with the input signals from tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate>.

**COMMENTS ON TROUBLE SYMPTOM**

If this does not work normally, the tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> input circuit, luggage compartment lamp, or ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate>
- Malfunction of luggage compartment lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III diagnosis code**

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

**Q: Is the diagnosis code set?**

- YES** : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).  
**NO** : Go to Step 2.

**STEP 2. M.U.T.-III data list**

Use the ETACS-ECU service data to check the signals related to the operation of luggage compartment lamp.

- Open the tailgate.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 260 | Gate ajar switch | Open             |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

- YES** : Go to Step 3.  
**NO** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 9 "The tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> signal is not received" [P.54A-319](#).

**STEP 3. Luggage compartment lamp bulb check**

Check that the luggage compartment lamp bulb is normal.

**Q: Is the check result normal?**

- YES** : Go to Step 4.  
**NO** : Replace the luggage compartment lamp bulb.

**STEP 4. Check of open circuit in (LP+1, LP+2, LP+3&LP+4) line between the luggage compartment lamp connector and ETACS-ECU connector.**

**Q: Is the check result normal?**

- YES** : Go to Step 5.  
**NO** : Repair the connector(s) or wiring harness.

---

**STEP 5. Check of open circuit in GLP- line between the luggage compartment lamp connector and ETACS-ECU connector.**

Q: Is the check result normal?

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

YES : Replace the luggage compartment lamp, and then go to Step 7.

NO : Repair the connector(s) or wiring harness.

---

**STEP 6. Check of open circuit in earth line between the luggage compartment lamp connector and body earth.**

Q: Is the check result normal?

---

**STEP 7. Retest the system**

Check that the luggage compartment lamp illuminates and extinguishes 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 ).

NO : Replace the ETACS-ECU.

---

**Inspection Procedure 4: The interior lamp automatic shutoff function does not work normally.****CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

- Malfunction of the room lamp
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**COMMENTS ON TROUBLE SYMPTOM**

The ETACS-ECU operates the interior lamp automatic shutoff function in accordance with the input signals below.

- Ignition switch (ACC)
- Ignition switch (IG1)
- Door switches

If this function does not work normally, these input signal circuit(s) or the ETACS-ECU may have a problem. Also, "Interior lamp auto cut timer" may be set to "Disable" through customisation.

**PROBABLE CAUSES**

- Malfunction of door switch

**DIAGNOSIS PROCEDURE**

---

**STEP 1. Customise function check**

Use the ETACS-ECU customise function to check to see which of the followings other than "Disable" the "Interior lamp auto cut timer" is set.

- 3 minutes
- 30 minutes
- 60 minutes

Q: Is the check result normal?

YES : Go to Step 2.

NO : Use the ETACS-ECU customise function to set the "Interior lamp auto cut timer" to other than "Disable" (Refer to [P.54A-166](#)).

---

**STEP 2. M.U.T.-III diagnosis code**

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

Q: Is the diagnosis code set?

YES : Troubleshoot the ETACS-ECU. Refer to [P.54A-281](#).

NO : Go to Step 3.

**STEP 3. M.U.T.-III data list**

Use the ETACS-ECU service data to check the signals related to the interior lamp automatic shutoff function.

- Turn the ignition switch to the LOCK (OFF) position.
- Open each door.

| Item No. | Item name           | Normal condition |
|----------|---------------------|------------------|
| Item 254 | IG voltage          | 1 V or less      |
| Item 288 | ACC switch          | OFF              |
| 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             |

**OK: Normal conditions are displayed for all the items.**

**Q: Is the check result normal?**

**Normal conditions are displayed for all the items. :**

Go to Step 4.

**Normal condition is not displayed for item No. 254.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).

**Normal condition is not displayed for item No. 288.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 1 "The ignition switch (ACC) signal is not received" [P.54A-312](#).

**Normal condition is not displayed for item No. 256.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 5 "The front door switch (driver's side) signal is not received" [P.54A-316](#).

**Normal condition is not displayed for item No. 257.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 6 "The front door switch (passenger's side) signal is not received" [P.54A-317](#).

**Normal condition is not displayed for item No. 258.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 7 "The rear door switch (RH) signal is not received" [P.54A-318](#).

**Normal condition is not displayed for item No. 259.**

: Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 8 "The rear door switch (LH) signal is not received" [P.54A-318](#).

**STEP 4. Retest the system**

Check that the interior lamp automatic shutoff function 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 ).

**NO :** Replace the ETACS-ECU.

**ON-VEHICLE SERVICE****CUSTOMISE FUNCTION**

M1541301200585

By operating the M.U.T.-III ETACS system, the following functions can be customised. The programmed information is held even when the battery is disconnected.

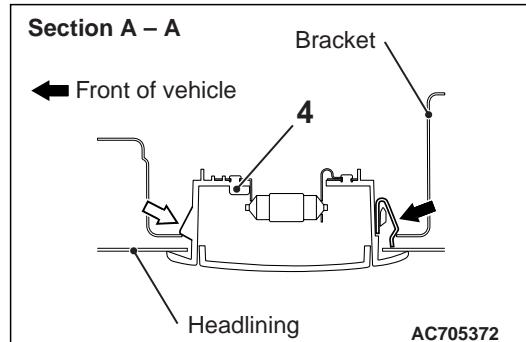
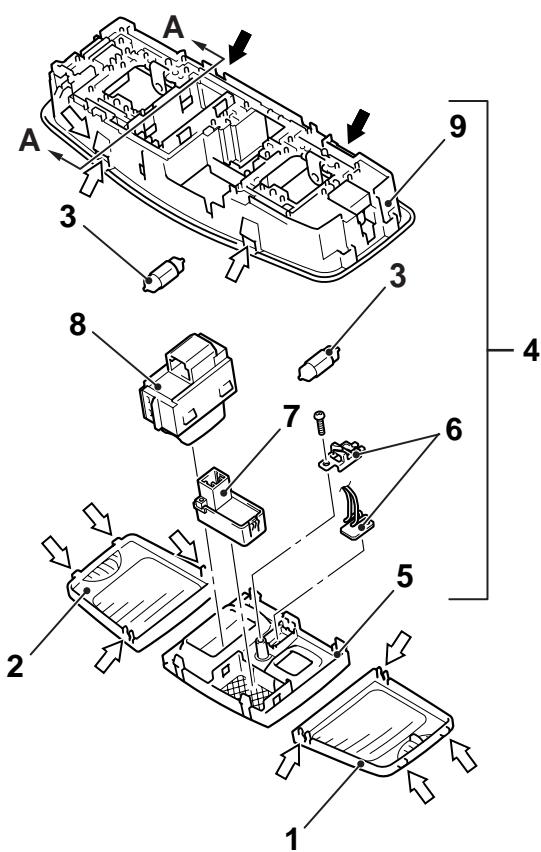
| Adjustment item (M.U.T.-III display) | Adjustment item  | Adjusting content (M.U.T.-III display) | Adjusting content                 |
|--------------------------------------|--|--|-----------------------------------|
| Room lamp delay timer with door      | Adjustment of interior lamp delay shutdown time                        | 0 sec                                  | 0 second (no delay shutdown time) |
|                                      |  | 7.5 sec                                | 7.5 seconds                       |
|                                      |  | 15 sec                                 | 15 seconds (initial condition)    |
|                                      |  | 30 sec                                 | 30 seconds                        |
|                                      |  | 60 sec                                 | 60 seconds                        |
|                                      |  | 120 sec                                | 120 seconds                       |
|                                      |  | 180 sec                                | 180 seconds                       |
| Interior lamp auto cut timer         | Adjustment of interior lamp automatic shutdown function operation time | Disable                                | No function                       |
|                                      |  | 3 min                                  | 3 minutes                         |
|                                      |  | 30 min                                 | 30 minutes (initial condition)    |
|                                      |  | 60 min                                 | 60 minutes                        |

## INTERIOR LAMP

### REMOVAL AND INSTALLATION

M1541301000332

#### FRONT ROOM LAMP



NOTE  
 ↗: Claw positions  
 ↙: Hook positions

ACB05447AB

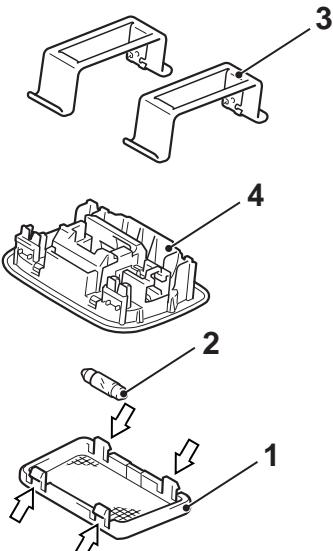
&lt;&lt;A&gt;&gt;

**Removal steps**

1. Front room lamp lens LH
2. Front room lamp lens RH
3. Front room lamp bulb
4. Front room lamp
5. Front room lamp cover
6. Downlight unit

**Removal steps (Continued)**

- >>A<< 7. Microphone unit  
8. Sunroof switch  
9. Front room lamp body

**REAR ROOM LAMP, LUGGAGE COMPARTMENT LAMP****NOTE**

◀: Claw positions

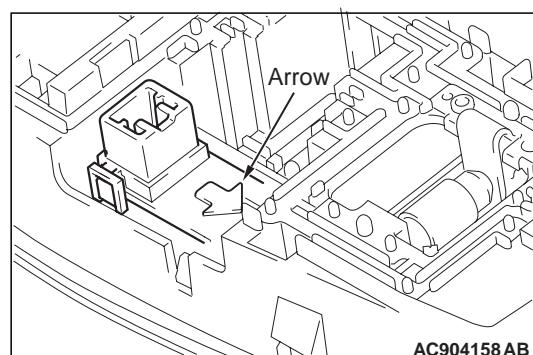
ACB05448AB

**Rear room lamp removal steps**

1. Rear room lamp lens
2. Rear room lamp bulb
- Headlining (Refer to GROUP 52A – Headlining ).
3. Room lamp clip
4. Rear room lamp body

**Luggage compartment lamp removal steps**

1. Luggage compartment lamp lens
2. Luggage compartment lamp bulb
- Headlining (Refer to GROUP 52A – Headlining ).
3. Room lamp clip
4. Luggage compartment lamp body

**INSTALLATION SERVICE POINT****>>A<< MICROPHONE UNIT INSTALLATION**

Install the microphone unit so that the arrow face toward the driver's seat.

**REMOVAL SERVICE POINT****<<A>> FRONT ROOM LAMP REMOVAL**

Push the front room lamp toward the vehicle rear to bend the hook, and then remove by disengaging the claw from the headlining.

## HIGH-MOUNTED STOP LAMP

## REMOVAL AND INSTALLATION

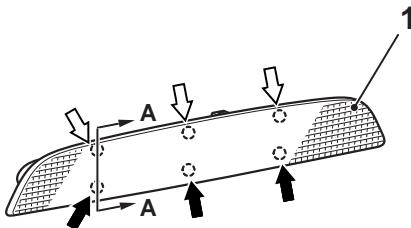
M1541700200568

## Pre-removal Operation

- Tailgate Upper Trim Removal (Refer to GROUP 52A – Tailgate Trim ).

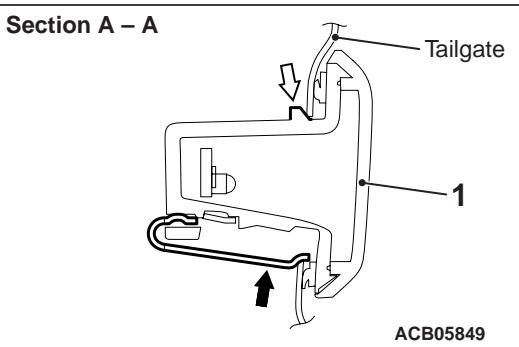
## Post-installation Operation

- Tailgate Upper Trim Installation (Refer to GROUP 52A – Tailgate Trim ).



## NOTE

⇨ : Claw positions  
⇨ : Hook positions



ACB05849

&lt;&lt;A&gt;&gt;

## Removal

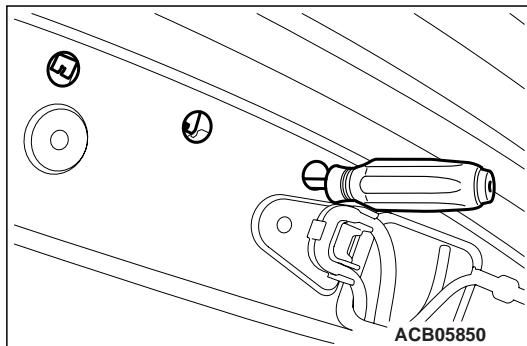
1. High-mounted stop lamp assembly

## REMOVAL SERVICE POINT

<<A>> HIGH-MOUNTED STOP LAMP  
ASSEMBLY REMOVAL

1. Insert a flat-tipped screwdriver into the service hole on the tailgate, and then push up the hook.
2. Push the high-mounted stop lamp assembly down to release the hook, and then remove by disengaging the claw from the tailgate.

ACB05603AB

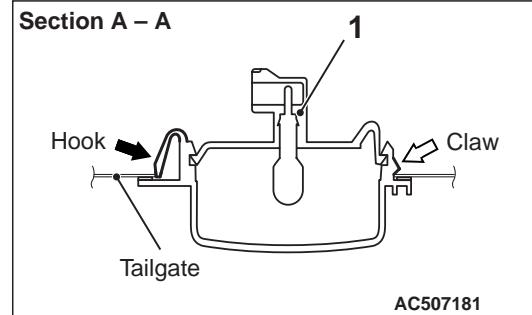
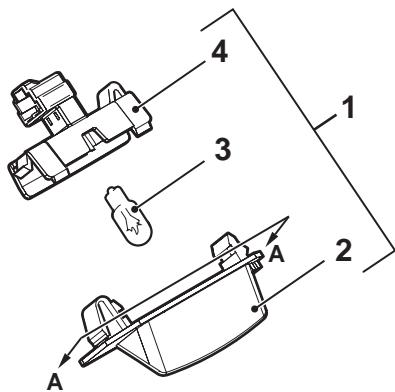


ACB05850

## LICENCE PLATE LAMP

## REMOVAL AND INSTALLATION

M1541900200506



&lt;&lt;A&gt;&gt;

## Removal steps

1. Licence plate lamp assembly
2. Licence plate lamp lens
3. Licence plate lamp bulb
4. Licence plate lamp socket

ACB05604AB

## REMOVAL SERVICE POINT

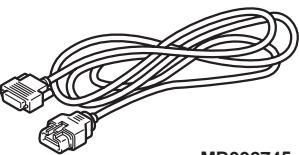
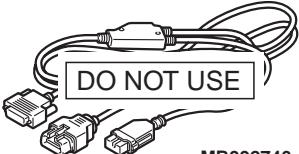
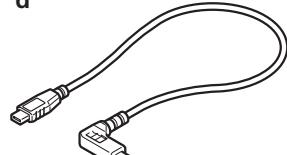
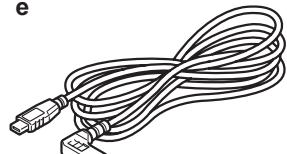
## &lt;&lt;A&gt;&gt; LICENCE PLATE LAMP ASSEMBLY REMOVAL

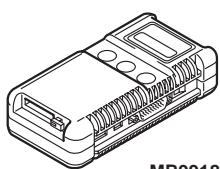
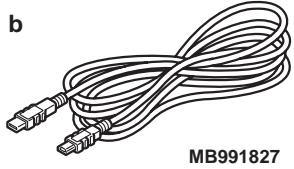
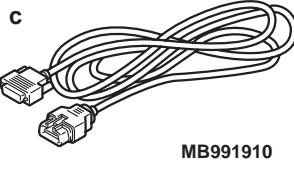
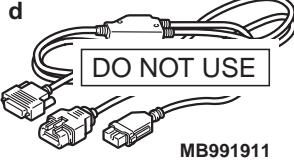
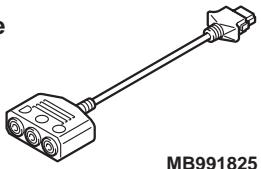
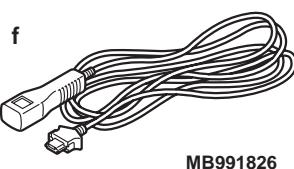
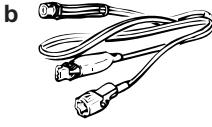
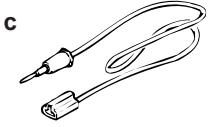
Push the licence plate lamp assembly to the left to bend the hook, and then remove by disengaging the claw from the tailgate.

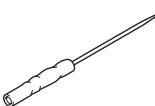
## HAZARD WARNING LAMP SWITCH

## SPECIAL TOOLS

M1541500100330

| Tool  | Number  | Name  | Use                      |
|---|---|---|--------------------------|
| a<br> MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication )<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication )<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Service data test check. |
| b<br> MB992745                 |   |   |                          |
| c<br> MB992746                 |   |   |                          |
| d<br> MB992747               |   |   |                          |
| e<br> MB992748<br>ACB05421AB |   |   |                          |

| Tool  | Number  | Name   | Use   |
|---|---|--|---|
| <br><b>MB991824</b><br><br><b>MB991827</b><br><br><b>MB991910</b><br><br><b>MB991911</b><br><br><b>MB991825</b><br><br><b>MB991826</b><br><br><b>MB991955</b> | <b>MB991955</b><br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface (V.C.I.)<br>b. M.U.T.-III USB cable<br>c. M.U.T.-III main harness A (Vehicles with CAN communication system)<br>d. M.U.T.-III main harness B (Vehicles without CAN communication system)<br>e. M.U.T.-III measure adapter<br>f. M.U.T.-III trigger harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Service data test check. |
| <br><b>MB991223</b><br><br><b>MB991220</b><br><br><b>MB991221</b><br><br><b>MB991222</b>  | <b>MB991223</b><br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe  | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester           |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

**TROUBLESHOOTING****STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING**

M1541501400141

Refer to GROUP 00 – Contents of troubleshooting .

| Trouble symptom                             | Reference page            |
|---|---------------------------|
| The hazard warning lamps do not illuminate. | <a href="#">P.54A-173</a> |

**SYMPTOM PROCEDURES****The hazard warning lamps do not illuminate.****CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

If the hazard warning lamps do not illuminate, the hazard warning lamp switch input circuit in centre panel unit or the ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of centre panel unit
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check that the turn-signal lamps operate.**

Check that the turn-signal lamps illuminate normally.

**Q: Is the check result normal?**

**TROUBLE SYMPTOM CHART**

M1541500700332

**YES** : Go to Step 2.

**NO** : Diagnose the headlamps. Refer to Inspection Procedure 10 "The turn-signal lamps do not illuminate" [P.54A-105](#).

**STEP 2. M.U.T.-III data list**

Using the ETACS-ECU service data, check the hazard warning lamp signal.

- Turn ON the hazard lamp switch.

| Item No. | Item name     | Normal condition |
|----------|---------------|------------------|
| Item 265 | Hazard switch | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Troubleshoot the ETACS-ECU. Refer to Inspection Procedure 10 "The hazard warning lamp switch signal is not received" [P.54A-320](#).

**STEP 3. Retest the system**

Check that the hazard warning lamps illuminate 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 ).

**NO** : Replace the ETACS-ECU.

## ON-VEHICLE SERVICE

### HAZARD WARNING LAMP SWITCH CHECK

M1541501100311

Using the M.U.T.-III, check the data list of ETACS. It is judged normal if the display turns ON when the hazard warning lamp switch is pressed, or OFF when not pressed for the item No. 265: Hazard switch.

### HAZARD WARNING LAMP SWITCH

#### REMOVAL AND INSTALLATION

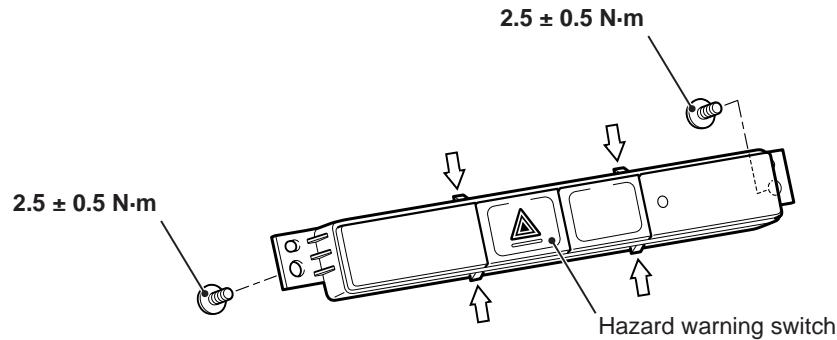
M1541501000358

##### Pre-removal Operation

- Centre Panel Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).

##### Post-installation Operation

- Centre Panel Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).



##### NOTE

◀⇨: Claw positions

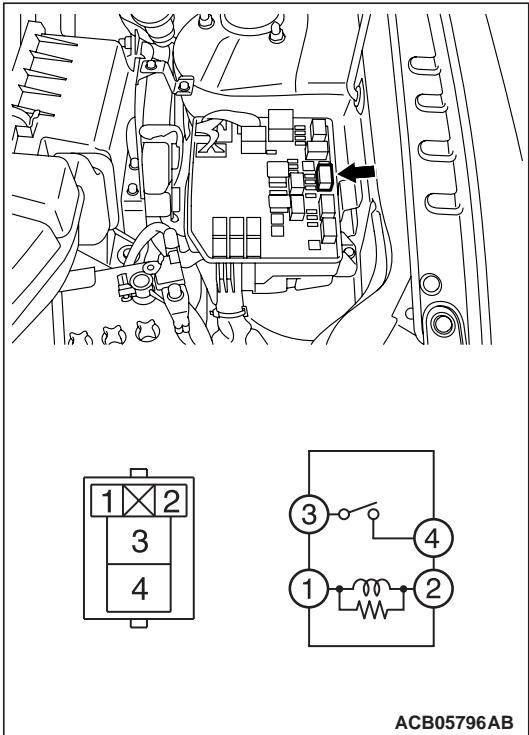
ACB05534AB

# HORN

## ON-VEHICLE SERVICE

### HORN RELAY CHECK

M1542100400712



| Battery voltage                                      | Terminal number | Normal condition                |
|--|-----------------|---------------------------------|
| At no energisation                                   | 3 – 4           | No continuity                   |
| With current supply [terminal 1 (+), terminal 2 (-)] |                 | Continuity exists (2 Ω or less) |

## HORN

## REMOVAL AND INSTALLATION

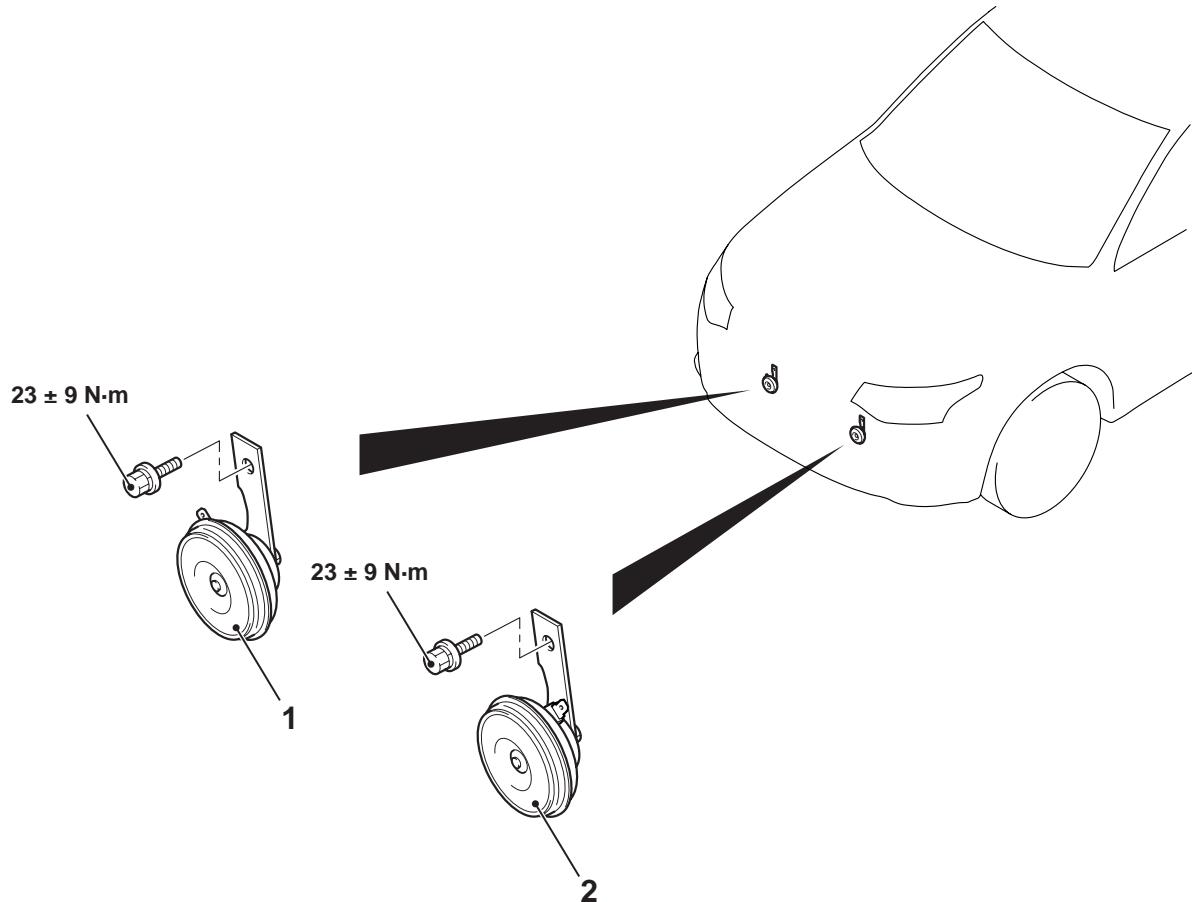
M1542100201142

## Pre-removal Operation

- Front Bumper Assembly Removal (Refer to GROUP 51 – Front Bumper Assembly ).

## Post-installation Operation

- Front Bumper Assembly Installation (Refer to GROUP 51 – Front Bumper Assembly ).

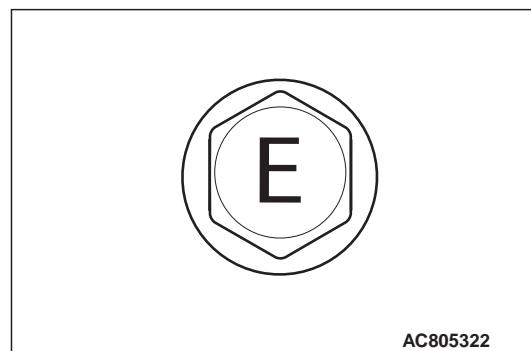


ACB05663AB

- Removal steps**
- >>A<< 1. Horn (HI)  
 >>A<< 2. Horn (LO)

## INSTALLATION SERVICE POINT

## &gt;&gt;A&lt;&lt; HORN INSTALLATION



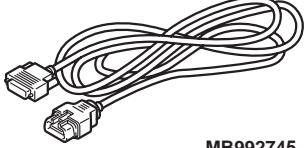
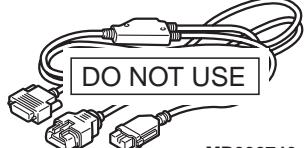
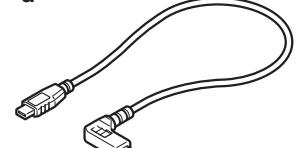
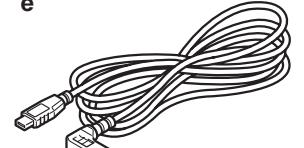
AC805322

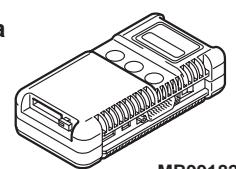
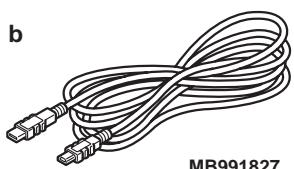
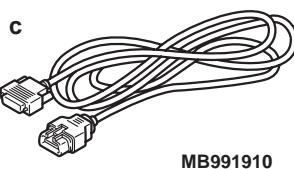
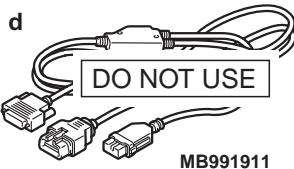
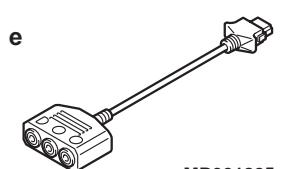
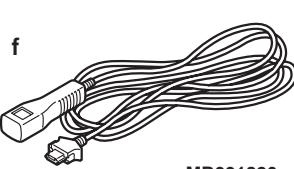
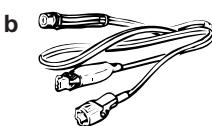
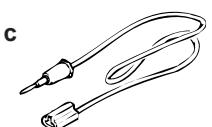
Use the earth bolt as the mounting bolt for horn. The earth bolt has "E" mark on the bolt head.

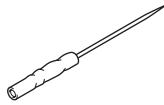
# REVERSING SENSOR (CORNER SENSOR AND BACK SENSOR)

## SPECIAL TOOLS

M1540701900169

| Tool   | Number  | Name  | Use   |
|--|---|---|---|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication )<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication )<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | M.U.T.-III diagnosis code display, service data display |
| b<br><br>MB992745                 |   |   |   |
| c<br><br>MB992746                |   |   |   |
| d<br><br>MB992747               |   |   |   |
| e<br><br>MB992748<br>ACB05421AB |   |   |   |

| Tool  | Number   | Name  | Use   |
|---|--|---|---|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991925<br>f. MB991926 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>communication<br>interface<br>(V.C.I.)<br>b. M.U.T.-III USB<br>cable<br>c. M.U.T.-III main<br>harness A (for<br>vehicles with<br>CAN<br>communication<br>)<br>d. M.U.T.-III main<br>harness B (for<br>vehicles<br>without CAN<br>communication<br>)<br>e. Measuring<br>adapter<br>harness<br>f. M.U.T.-III<br>trigger harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send the simulated vehicle speed. If you connect M.U.T.-III main harness B instead, CAN communication does not function correctly.</b><br>M.U.T.-III diagnosis code display,<br>service data display |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>MB991223</b>  | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness<br>adapter<br>d. Probe  | Continuity check and voltage<br>measurement at harness wire or<br>connector<br>a. For checking connector pin<br>contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced<br>tester                                 |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540700600154

Refer to GROUP 00 – How to use Troubleshooting/Inspection Service Points – Contents of Troubleshooting.

### DIAGNOSIS FUNCTION

M1540700500038

### FAIL-SAFE FUNCTION

1. When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.

2. When the abnormality such as the open circuit of a sensor occurs, the sensor turns OFF and the high toned buzzer sounds for 5 seconds. When the normal signal is received, the normal state will be resumed.
3. When an abnormality occurs in the sensor, the reversing sensor indicator keeps flashing with 0.8-second interval until the system returns to the normal condition. However, if the system is turned OFF by using the switch, the indicator stops its flashing.

### DIAGNOSIS CODE CHART

M1544300700070

#### CAUTION

During diagnosis, a diagnosis 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 diagnosis code(s). If diagnosis code(s) are set, erase them all.

| Diagnosis code No. | Diagnosis item                  | Reference page |
|--------------------|---------------------------------|----------------|
| B253A              | RR Corner sensor open and short | P.54A-180      |
| B253B              | RL Corner sensor open and short |                |
| B253C              | RH Back sensor open and short   |                |
| B253D              | LH Back sensor open and short   |                |
| U0141*             | ETACS CAN timeout               | P.54A-181      |
| U0155*             | Meter CAN timeout               | P.54A-182      |
| U1190              | No receive fault detect signal  | P.54A-183      |

NOTE: With the troubleshooting indicated with "\*", the ON/OFF switch indicator or buzzer sound will not be activated.

## DIAGNOSIS CODE PROCEDURES

---

Code No. B253A RR Corner sensor open and short

Code No. B253B RL Corner sensor open and short

Code No. B253C RR Back sensor open and short

Code No. B253D RL Back sensor open and short

---

**⚠ CAUTION**

- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

**DIAGNOSTIC FUNCTION**

- During the transmission/reception operation of each sensor, when the corner sensor/back sensor-ECU detects an open circuit abnormality or short circuit between the sensor and corner sensor/back sensor-ECU, or when there is an error with the corner sensor/back sensor-ECU internal monitor, the ECU sets one of the diagnosis codes No. B253A, No. B253B, No. B253C, and No. B253D.

**TROUBLESHOOTING HINT**

- Damaged harness wires and connectors
- Sensor malfunction
- Malfunction of corner sensor/back sensor-ECU
- Internal monitor error of corner sensor/back sensor-ECU

**DIAGNOSIS PROCEDURE**

**STEP 1. Check the following wiring harness.**

- Check of open circuit, short to power supply, short to earth circuit in SRR, SGN4 line between rear corner sensor (RH) connector and corner sensor/back sensor-ECU.
- Check of open circuit, short to power supply, short to earth circuit in SRL, SGN3 line between rear corner sensor (LH) connector and corner sensor/back sensor-ECU.
- Check of open circuit, short to power supply, short to earth circuit in SBRH, SGN1 line between back sensor (RH) connector and corner sensor/back sensor-ECU.
- Check of open circuit, short to power supply, short to earth circuit in SBLH, SGN2 line between back sensor (LH) connector and corner sensor/back sensor-ECU.

**Q: Are all the wiring harness wires in good condition?**

**YES** : Go to Step 2.

**NO** : Repair the connector(s) or wiring harness.

**STEP 2. Confirm which reversing sensor (corner sensor/back sensor) does not detect the obstacle.**

**Q: Which reversing sensor (corner sensor/back sensor) does not detect the obstacle?**

**Rear corner sensor (RH)** : Go to Step 3.

**Rear corner sensor (LH)** : Go to Step 4.

**Back sensor (RH)** : Go to Step 5.

**Back sensor (LH)** : Go to Step 6.

**STEP 3. Diagnosis code recheck**

Temporarily replace the rear corner sensor (RH), and then check if the diagnosis code No. B253A is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the corner sensor/back sensor-ECU.

**NO** : Replace the rear corner sensor (RH).

**STEP 4. Diagnosis code recheck**

Temporarily replace the rear corner sensor (LH), and then check if the diagnosis code No. B253B is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the corner sensor/back sensor-ECU.

**NO** : Replace the rear corner sensor (LH).

**YES** : Replace the corner sensor/back sensor-ECU.

**NO** : Replace the back sensor (RH).

**STEP 5. Diagnosis code recheck**

Temporarily replace the back sensor (RH), and then check if the diagnosis code No. B253C is set.

**Q: Is the diagnosis code set?**

**STEP 6. Diagnosis code recheck**

Temporarily replace the back sensor (LH), and then check if the diagnosis code No. B253D is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the corner sensor/back sensor-ECU.

**NO** : Replace the back sensor (LH).

**Code No. U0141 ETACS CAN timeout****CAUTION**

- If the diagnosis code No. U0141 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in **Immobilizer System – How to Register Key ID P.54A-33.**)
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

**DIAGNOSTIC FUNCTION**

The corner sensor/back sensor-ECU sets diagnosis code No.U0141 when it cannot receive signals from the ETACS-ECU.

**JUDGEMENT CRITERIA**

The corner sensor/back sensor-ECU cannot receive the signal from the ETACS-ECU via the CAN bus line.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of ETACS-ECU
- Malfunction of corner sensor/back sensor-ECU

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting – CAN Bus Diagnosis Chart ).

**STEP 2. Check the M.U.T.-III Diagnosis code for other systems**

Check if the diagnosis code No. U0141 is set to engine-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 3.

**NO** : Go to Step 4.

**STEP 3. Diagnosis code recheck**

Check again if the diagnosis code is set to the corner sensor/back sensor-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU.

**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the corner sensor/back sensor-ECU and the ETACS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction ).

**STEP 4. Diagnosis code recheck**

Check again if the diagnosis code is set to the corner sensor/back sensor-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the corner sensor/back sensor-ECU.

**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the corner sensor/back sensor-ECU and the ETACS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction ).

**Code No. U0155 Meter CAN timeout****△ CAUTION**

- If the diagnosis code No. U0155 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU, combination meter or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

**DIAGNOSTIC FUNCTION**

The corner sensor/back sensor-ECU sets diagnosis code No.U0155 when it cannot receive signals from the combination meter.

**JUDGEMENT CRITERIA**

The corner sensor/back sensor-ECU cannot receive the signal from the combination meter via the CAN bus line.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of combination meter
- Malfunction of corner sensor/back sensor-ECU

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting – CAN Bus Diagnosis Chart ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the combination meter.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the combination meter. Refer to [P.54A-39](#).

**NO** : Go to Step 3.

**STEP 3. Check the M.U.T.-III Diagnosis code for other systems**

Check if the diagnosis code No. U0155 is set to ETACS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Diagnosis code recheck**

Check again if the diagnosis code is set to the corner sensor/back sensor-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the combination meter.

**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the corner sensor/back sensor-ECU and the combination meter (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction ).

**STEP 5. Diagnosis code recheck**

Check again if the diagnosis code is set to the corner sensor/back sensor-ECU.

- (1) Erase the diagnosis code.

- (2) Turn the ignition switch from the LOCK (OFF)

- position to the ON position.  
(3) Check if the diagnosis code is set.  
**Q: Is the diagnosis code set?**

**YES** : Replace the corner sensor/back sensor-ECU.  
**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the corner sensor/back sensor-ECU and the combination meter (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

---

### Code No.U1190 No receive fault detect signal

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#### ⚠ CAUTION

- If the diagnosis code No. U1190 is set, be sure to diagnose the CAN bus line.
- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

### DIAGNOSTIC FUNCTION

When the signals from the ETACS-ECU cannot be received, the corner sensor/back sensor-ECU sets the diagnosis code No.U1190.

### JUDGEMENT CRITERIA

#### Check Conditions

- When all the following conditions are met.
  - a. Power supply mode: ON
  - b. ETACS-ECU system voltage is at 10 to 16 V.

#### Judgment Criterion

- After the following condition is met, 5,000 ms or more have elapsed.
  - a. CAN signal from the ETACS-ECU cannot be received.

### PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of ETACS-ECU
- Malfunction of corner sensor/back sensor-ECU

### DIAGNOSIS PROCEDURE

---

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

#### Q: Is the check result normal?

**YES** : Go to Step 2.  
**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

#### STEP 2. M.U.T.-III other system diagnosis code

Check again if the diagnosis code is set to the ETACS-ECU.

#### Q: Is the diagnosis code set?

**YES** : Diagnose the ETACS-ECU (Refer to GROUP 54A, Troubleshooting [P.54A-281](#)).  
**NO** : Go to Step 3.

---

#### STEP 3. M.U.T.-III other system diagnosis code

Check again if the diagnosis code is set to the SRS-ECU.

#### Q: Is the diagnosis code set?

**YES** : Replace the ETACS-ECU.  
**NO** : Go to Step 4.

---

#### STEP 4. Diagnosis code recheck

Check again if the diagnosis code is set to the corner sensor/back sensor-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the engine switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

#### Q: Is the diagnosis code set?

**YES** : Replace the corner sensor/back sensor-ECU.  
**NO** : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to cope with Intermittent Malfunction ).

## TROUBLE SYMPTOM CHART

M1547001501207

| Trouble symptom   | Inspection procedure number | Reference page            |
|---|-----------------------------|---------------------------|
| The reversing sensor system does not operate.   | 1                           | <a href="#">P.54A-184</a> |
| The reversing sensor indicator does not illuminate.   | 2                           | <a href="#">P.54A-185</a> |
| The system cannot be activated or deactivated even when the sonar switch is pressed.          | 3                           | <a href="#">P.54A-186</a> |
| One or more of the reversing sensor (corner sensor/back sensor) does not detect the obstacle. | 4                           | <a href="#">P.54A-187</a> |
| The reversing sensor indicator keeps flashing.  | 5                           |                           |
| Obstacle is not detected even when the selector lever is shifted to "R" (reverse) position.   | 6                           | <a href="#">P.54A-188</a> |

## SYMPTOM PROCEDURES

## Inspection Procedure 1: The reversing sensor system does not operate.

**CAUTION**

- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

## COMMENTS ON TROUBLE SYMPTOM

If the Reversing sensor system does not work at all even when the ignition switch is turned "ON", the power supply system, corner sensor/back sensor-ECU or ETACS-ECU may have a problem.

## PROBABLE CAUSES

- Malfunction of corner sensor/back sensor-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

## STEP 1. Voltage measurement at corner sensor/back sensor-ECU connector (IG terminal).

- Disconnect the connector, and measure at the wiring harness side.
- Turn the ignition switch to the "ON" position.
- Check the voltage between the corner sensor/back sensor-ECU connector (IG terminal) and body earth.

**OK: System voltage**

Q: Is the check result normal?

YES : Go to Step 3.

NO : Go to Step 2.

## STEP 2. Check of short to power supply, short to earth, and open circuit in IG line between ETACS-ECU connector and corner sensor/back sensor-ECU connector.

Q: Is the check result normal?

YES : Troubleshoot the ETACS-ECU. Refer to GROUP 54A – ETACS – Input Signal Procedures – Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).

NO : Repair the connector(s) or wiring harness.

**STEP 3. Resistance measurement at corner sensor/back sensor-ECU connector (PGND terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the corner sensor/back sensor-ECU connector (PGND terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Go to Step 4.

**STEP 4. Check of open circuit in PGND line between corner sensor/back sensor-ECU connector and body earth.**

**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 ).

**NO** : Repair the connector(s) or wiring harness.

**STEP 5. Replace the corner sensor/back sensor-ECU temporarily, and then check the trouble symptom.**

Replace the corner sensor/back sensor-ECU temporarily, then check if the corner sensors operate.

**Q: Is the check result normal?**

**YES** : Replace the corner sensor/back sensor-ECU.

**NO** : Replace the ETACS-ECU.

**Inspection Procedure 2: The reversing sensor indicator does not illuminate.**

**△ CAUTION**

- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

**COMMENTS ON TROUBLE SYMPTOM**

If the reversing indicator does not illuminate, the wiring harness, connectors, corner sensor/back sensor-ECU, or ETACS-ECU may be defective.

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of corner sensor/back sensor-ECU
- Malfunction of the ETACS-ECU

**DIAGNOSIS PROCEDURE**

**STEP 1. Sonar switch check**

Check the indicator. (Refer to [P.54A-193](#))

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the sonar switch.

**STEP 2. M.U.T.-III other system diagnosis code**

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

**Q: Is the check result normal?**

**YES** : Troubleshoot the ETACS-ECU (Refer to GROUP 54A – ETACS – Diagnosis Code Chart [P.54A-281](#)).

**NO** : Go to Step 3.

**STEP 3. Voltage measurement at sonar switch connector (power supply terminal)**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check the voltage between the sonar switch connector (power supply terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

**YES** : Go to Step 5.

**NO** : Go to Step 4.

**STEP 4. Check of short to power supply, short to earth, and open circuit in IG1 line between ETACS-ECU connector and sonar switch connector.**

**Q: Is the check result normal?**

- YES** : Troubleshoot the ETACS-ECU. Refer to GROUP 54A – ETACS – Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).  
**NO** : Repair the connector(s) or wiring harness.

---

**STEP 5. Check of short to power supply, short to earth, and open circuit in ING line between corner sensor/back sensor-ECU connector and sonar switch connector.**

Q: Is the check result normal?

---

**Inspection Procedure 3: The system cannot be activated or deactivated even when the sonar switch is pressed.**

**⚠ CAUTION**

- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

**COMMENTS ON TROUBLE SYMPTOM**

If the reversing sensor system ON/OFF cannot be switched even when the sonar switch is pressed, the harness, connector(s), sonar switch, or corner sensor/back sensor-ECU may have a problem.

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of sonar switch
- Malfunction of corner sensor/back sensor-ECU

**DIAGNOSIS PROCEDURE**

---

**STEP 1. sonar switch check**

Inspect the corner sensor switch for normal operation. (Refer to [P.54A-193](#))

Q: Is the check result normal?

- YES** : Go to Step 2.  
**NO** : Replace the sonar switch.

- YES** : Go to Step 6.  
**NO** : Repair the connector(s) or wiring harness.

---

**STEP 6. Retest the system**

Q: Is the check result normal?

- YES** : The diagnosis is complete.  
**NO** : Replace the corner sensor/back sensor-ECU.

---

**STEP 2. Resistance measurement at sonar switch connector (earth terminal)**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the sonar switch connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

Q: Is the check result normal?

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

---

**STEP 3. Check of open circuit in earth line sonar switch connector and the body earth**

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 ).  
**NO** : Repair the connector(s) or wiring harness.

---

**STEP 4. Check of short to power supply, short to earth, and open circuit in SW line between sonar switch connector and corner sensor/back sensor-ECU connector**

Q: Is the check result normal?

- YES** : Replace the corner sensor/back sensor-ECU.  
**NO** : Repair the connector(s) or wiring harness.

---

**Inspection Procedure 4:** One or more of the reversing sensor (corner sensor/back sensor) does not detect the obstacle.

**Inspection Procedure 5:** The reversing sensor indicator keeps flashing.

---

**△ CAUTION**

- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

**COMMENTS ON TROUBLE SYMPTOM**

If one or more of the reversing sensors (corner sensor/back sensor) cannot detect obstacles, the wires and connectors, reversing sensors (corner sensor/back sensor), or the corner sensor/back sensor-ECU may have abnormalities. Also, if one or more of the sensors has an abnormality (open circuit, malfunction, etc.), the corner sensor/back sensor-ECU informs the abnormality by making the reversing sensor indicator flash.

**NOTE:**

- If the corner sensor/back sensor-ECU detects an abnormality (open circuit, malfunction, etc.) with one or more of the sensors, it turns off the relevant sensor and sounds the high toned buzzer for 5 seconds. The reversing sensor indicator illuminates while the system is being operated until the relevant sensor returns to normal.
- If ultrasonic noise is received with one or more of the sensor, the corner sensor/back sensor-ECU sounds the low toned buzzer continuously. When the ultrasonic noise is stopped, the sensor returns to normal. (The reversing sensor indicator does not flash.)

**PROBABLE CAUSES**

- Damaged harness wires and connectors

- Malfunction of reversing sensor (corner sensor/back sensor)
- Malfunction of corner sensor/back sensor-ECU

**DIAGNOSIS PROCEDURE**

---

**STEP 1. Check the reversing sensor (corner sensor/back sensor) for interference.**

**Q:** Are there anything that interferes with the communication (things that generate radio waves such as magnets and an air-cleaning device that has a power plug) near the reversing sensor (corner sensor/back sensor)?

**YES :** Move away or remove things that interfere with the communication (things that generate radio waves such as magnets and an air-cleaning device that has a power plug) near the reversing sensor (corner sensor/back sensor).

**NO :** Go to Step 2

**STEP 2. M.U.T.-III diagnosis code**

Check if diagnosis code is set to the reversing sensor (corner sensor/back sensor).

**Q: Is the diagnosis code set?**

**YES :** Refer to [P.54A-179](#).

**NO :** Go to Step 3.

**STEP 3. Trouble symptom recheck**

**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 ).

**NO :** Replace the corner sensor/back sensor-ECU.

**Inspection Procedure 6: Obstacle is not detected even when the selector lever is shifted to "R" (Reverse) position.****CAUTION**

- Before replacing the ECU or sensor, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the illuminated licence plate is installed, the sensors may not operate because of noise from the plate. (When the ultrasonic noise is received, the bass toned buzzer sound continuously. When the ultrasonic noise stops, the normal operation will be resumed immediately.)

**COMMENTS ON TROUBLE SYMPTOM**

If obstacle is not detected even when the selector lever is shifted to "R" (reverse) position, the wiring harness, connectors, inhibitor switch, or corner sensor/back sensor-ECU may be defective. In addition, obstacle is not detected when the ultrasonic noise is received.

*NOTE: If ultrasonic noise is received with the sensor, the corner sensor/bock sensor sounds the low toned buzzer continuously and turns off the system. When the ultrasonic noise is stopped, the sensor returns to normal.*

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of the inhibitor switch
- Malfunction of corner sensor/back sensor-ECU

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting – CAN Bus Diagnosis Chart ).

**STEP 2. M.U.T.-III other system diagnosis code**

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

**Q: Is the check result normal?**

YES : Troubleshoot the ETACS-ECU (Refer to GROUP 54A – ETACS – Diagnosis Code Chart [P.54A-281](#)).

NO : Go to Step 3

**STEP 3. Check the reversing sensor (corner sensor/back sensor) for interference.**

**Q: Is there anything that interferes with the communication (things that generate radio waves such as magnets and an air-cleaning device that has a power plug) near the reversing sensor (corner sensor/back sensor)?**

YES : Move away or remove things that interfere with the communication (things that generate radio waves such as magnets and a air-cleaning device that has a power plug) near the reversing sensor (corner sensor/back sensor).

NO : Go to Step 4

**STEP 4. Voltage measurement at ETACS-ECU connector (BLP1 terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position, and move the selector lever to the "R" position.
- (3) Check the voltage between the ETACS-ECU connector (BLP1 terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 10

NO : Go to Step 5

**STEP 5. Check of short to power supply, short to earth, and open circuit in BLP1 line between ETACS-ECU connector and inhibitor switch connector.**

**Q: Is the check result normal?**

YES : Go to Step 6

NO : Repair the connector(s) or wiring harness.

**STEP 6. Voltage measurement at inhibitor switch connector (power supply terminal).**

- (1) Disconnect B-109 inhibitor switch connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to "ON" position.
- (3) Check the voltage between the inhibitor switch connector (power supply terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 9

NO : Go to Step 7

**STEP 7. M.U.T.-III other system service data**

Check the input signal from the ignition switch (IG1) in the ETACS-ECU.

- Turn the ignition switch to the ON position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 254 | IG voltage | System voltage   |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

**YES** : Go to Step 8.

**NO** : Troubleshoot the ETACS-ECU. Refer to GROUP 54A – ETACS – Inspection Procedure 2 "The ignition switch (IG1) signal is not received" [P.54A-313](#).

**STEP 8. Check of short to power supply, short to earth, and open circuit in power supply line between fusible link and inhibitor switch connector.**

**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 ).

**NO** : Repair the connector(s) or wiring harness.

**STEP 9. Check the inhibitor switch.**

Check the continuity of the inhibitor switch (Refer to GROUP 23A – On-vehicle Service – Inhibitor Switch Continuity Check ).

**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 ).

**NO** : Replace the inhibitor switch.

**STEP 10. Retest the system**

Check if an obstacle is detected when the selector lever is shifted to the "R" (Reverse) position.

**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 ).

**NO** : Replace the corner sensor/back sensor-ECU.

**DATA LIST REFERENCE TABLE**

M1544302200060

The following items of the ECU input data can be read using M.U.T.-III.

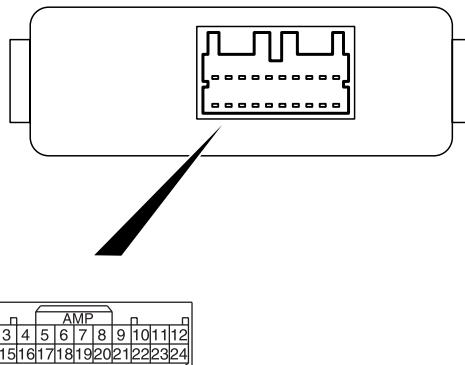
*NOTE: Some items are not displayed on M.U.T.-III according to the information in the ECU.*

| Item No. | Check item                    | Check condition | Display      |
|----------|-------------------------------|-----------------|--------------|
| 5        | RR Corner sensor              | –               | 0 – 25 cm    |
|          |                               |                 | 25 – 40 cm   |
|          |                               |                 | 40 – 60 cm   |
|          |                               |                 | No detect    |
| 6        | RL Corner sensor              | –               | 0 – 25 cm    |
|          |                               |                 | 25 – 40 cm   |
|          |                               |                 | 40 – 60 cm   |
|          |                               |                 | No detect    |
| 9        | RH Back sensor (Back warning) | –               | 0 – 40 cm    |
|          |                               |                 | 40 – 60 cm   |
|          |                               |                 | 60 – 80 cm   |
|          |                               |                 | 80 – 100 cm  |
|          |                               |                 | 100 – 120 cm |
|          |                               |                 | 120 – 150 cm |
|          |                               |                 | No detect    |

| Item No. | Check item                    | Check condition | Display      |
|----------|-------------------------------|-----------------|--------------|
| 10       | LH Back sensor (Back warning) | –               | 0 – 40 cm    |
|          |                               |                 | 40 – 60 cm   |
|          |                               |                 | 60 – 80 cm   |
|          |                               |                 | 80 – 100 cm  |
|          |                               |                 | 100 – 120 cm |
|          |                               |                 | 120 – 150 cm |
|          |                               |                 | No detect    |

## CHECK AT ECU TERMINALS

M1540701400465



AC900564AJ

| Terminal No. | Terminal code | Check item                          | Check condition   | Normal condition  |
|--------------|---------------|-------------------------------------|---|---|
| 1            | –             | –                                   | –   | –   |
| 2            | SW            | Sonar switch (System ON/OFF switch) | • Ignition switch: "ON" position<br>• Sonar switch input: "OFF" | System voltage  |
|              |               |                                     | • Ignition switch: "ON" position<br>• Sonar switch input: "ON"  | 1 V or less   |
| 3 – 4        | –             | –                                   | –   | –   |
| 5            | SRL           | Rear corner sensor (LH)             | • Ignition switch to "ON" position<br>• Sonar switch: ON        | 0V – Approximately 8V (40 kHz pulse signal, emitted approx. every 240 ms) |
| 6            | SRR           | Rear corner sensor (RH)             | • Ignition switch to "ON" position<br>• Sonar switch: ON        | 0V – Approximately 8V (40 kHz pulse signal, emitted approx. every 240ms)  |
| 7            | SBLH          | Back sensor (LH)                    | • Ignition switch to "ON" position<br>• Sonar switch: ON        | 0V – Approximately 8V (40kHz pulse signal, emitted approx. every 240 ms)  |
| 8            | SBRH          | Back sensor (RH)                    | • Ignition switch to "ON" position<br>• Sonar switch: ON        | 0V – Approximately 8V (40 kHz pulse signal, emitted approx. every 240 ms) |

| Terminal No. | Terminal code | Check item  | Check condition   | Normal condition |
|--------------|---------------|---|---|------------------|
| 9 – 10       | –             | –   | –   | –                |
| 11           | IND           | Corner sensor OFF indicator lamp output (System ON/OFF indicator) | • Ignition switch: "ON" position<br>• Sonar switch input: "OFF" | System voltage   |
|              |               |   | • Ignition switch: "ON" position<br>• Sonar switch input: "ON"  | 1 V or less      |
| 12           | SGN1          | Sensor earth 1  | Always  | 1 V or less      |
| 13           | IG            | Power supply to the ignition switch (IG1)                         | Ignition switch: "ON" position                                  | System voltage   |
| 14 – 18      | –             | –   | –   | –                |
| 19           | CNMH          | CAN-C-Mid_H   | –   | –                |
| 20           | CNML          | CAN-C-Mid_L   | –   | –                |
| 21           | SGN2          | Sensor earth 2  | Always  | 1 V or less      |
| 22           | SGN3          | Sensor earth 3  | Always  | 1 V or less      |
| 23           | SGN4          | Sensor earth 4  | Always  | 1 V or less      |
| 24           | PGND          | Earth   | Always  | 1 V or less      |

## REVERSING SENSOR (CORNER SENSOR AND BACK SENSOR)

### REMOVAL AND INSTALLATION

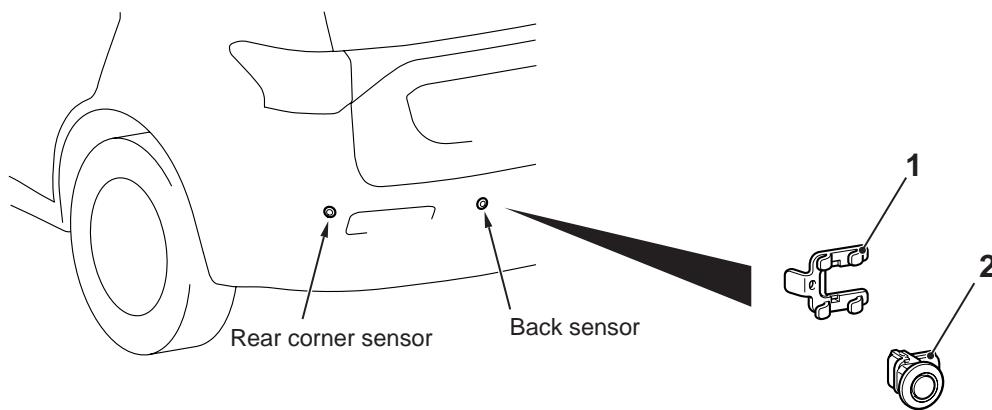
M1544300100090

#### Pre-removal Operation

- Rear Bumper Assembly Removal (Refer to GROUP 51 – Rear Bumper Assembly ).

#### Post-installation Operation

- Rear Bumper Assembly Installation (Refer to GROUP 51 – Rear Bumper Assembly ).



- Rear corner sensor removal steps**
1. Clip
  2. Rear corner sensor

- Back sensor removal steps**
1. Clip
  2. Back sensor

ACB05666AB

CORNER SENSOR/BACK  
SENSOR-ECU

## REMOVAL AND INSTALLATION

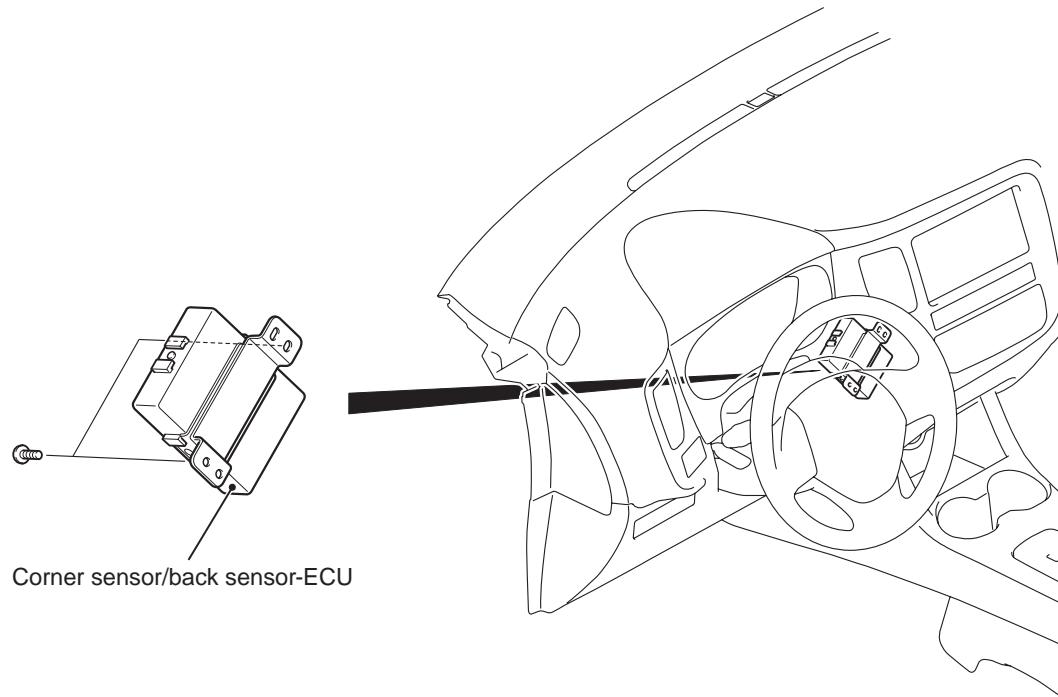
M1544302400031

## Pre-removal Operation

- Radio and CD Player Removal (Refer to [P.54A-233](#))  
<Vehicles without MMCS>.
- Multivision Display Removal (Refer to [P.54A-238](#)) <Vehicles with MMCS>.

## Post-installation Operation

- Radio and CD Player Installation (Refer to [P.54A-233](#))  
<Vehicles without MMCS>.
- Multivision Display Installation (Refer to [P.54A-238](#))  
<Vehicles with MMCS>.



ACB05667AB

## SONAR SWITCH (CORNER SENSOR SWITCH)

### REMOVAL AND INSTALLATION

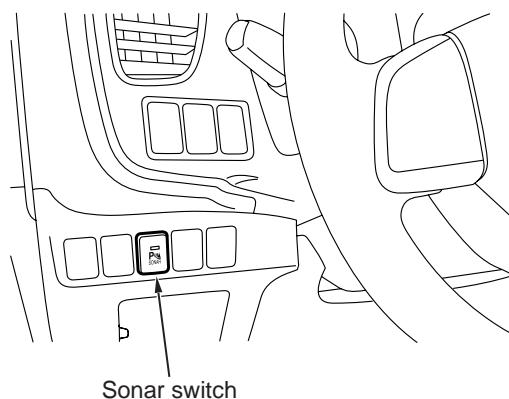
M1544302300034

#### Pre-removal Operation

- Instrument Panel Lower Removal (Refer to GROUP 52A – Instrument Panel Assembly ) <Vehicles without Knee Air Bag>.
- Instrument Panel Lower LH Removal (Refer to GROUP 52A – Instrument Panel Assembly ) <Vehicles with Knee Air Bag>.

#### Post-installation Operation

- Instrument Panel Lower Installation (Refer to GROUP 52A – Instrument Panel Assembly ) <Vehicles without Knee Air Bag>.
- Instrument Panel Lower LH Installation (Refer to GROUP 52A – Instrument Panel Assembly ) <Vehicles with Knee Air Bag>.

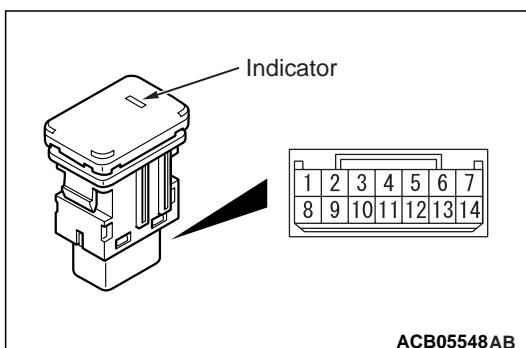


ACB05547AB

### SONAR SWITCH CHECK

#### ON/OFF CHECK

M1540701800270



ACB05548AB

| Switch position       | Terminal number | Normal condition                       |
|-----------------------|-----------------|--|
| ON (switch pushed)    | 10 – 13         | Continuity exists (2 $\Omega$ or less) |
| OFF (switch released) |                 | No continuity                          |

### INDICATOR CHECK

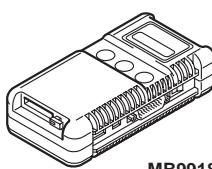
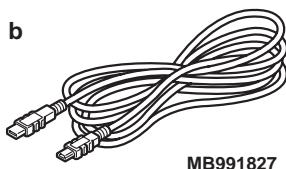
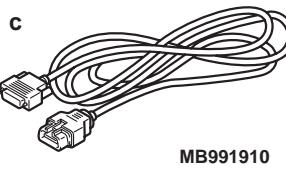
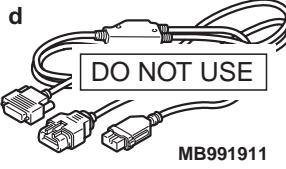
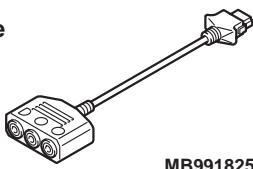
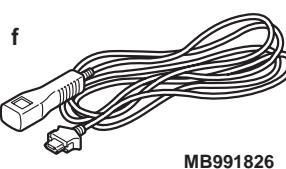
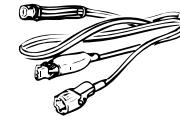
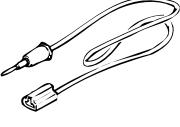
Apply the battery voltage to the connector terminal No. 9, earth the terminal No. 14, and then check that the indicator illuminates.

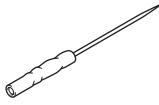
# ACCESSORY SOCKET AND CIGARETTE LIGHTER

## SPECIAL TOOLS

M1542300700104

| Tool | Number                 | Name  | Use   |
|------|------------------------|---|---|
| a    | MB992744               | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long |
| b    | MB992745               |   |   |
| c    | MB992746               |   |   |
| d    | MB992747               |   |   |
| e    | MB992748<br>ACB05421AB |   |   |

| Tool  | Number  | Name  | Use  |
|---|---|---|--|
| <br><b>MB991824</b><br><br><b>MB991827</b><br><br><b>MB991910</b><br><br><b>MB991911</b><br><br><b>MB991825</b><br><br><b>MB991826</b><br><br><b>MB991955</b> | <b>MB991955</b><br><b>a. MB991824</b><br><b>b. MB991827</b><br><b>c. MB991910</b><br><b>d. MB991911</b><br><b>e. MB991825</b><br><b>f. MB991826</b> | M.U.T.-III sub-assembly<br>a. Vehicle communication interface (V.C.I.)<br>b. M.U.T.-III USB cable<br>c. M.U.T.-III main harness A (for vehicles with CAN communication)<br>d. M.U.T.-III main harness B (for vehicles without CAN communication)<br>e. Measuring adapter harness<br>f. M.U.T.-III trigger harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send the simulated vehicle speed. If you connect M.U.T.-III main harness B instead, CAN communication does not function correctly.</b><br>M.U.T.-III diagnosis code display, service data display |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>DO NOT USE</b><br><b>MB991223</b>   | <b>MB991223</b><br><b>a. MB991219</b><br><b>b. MB991220</b><br><b>c. MB991221</b><br><b>d. MB991222</b>   | Wiring harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe  | Continuity check and voltage measurement at wiring harness or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester  |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
|  | MB992006 | Extra fine probe | Continuity check and voltage measurement at wiring harness or connector |

**TROUBLESHOOTING****STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING**

M1542301100020

Refer to GROUP 00 – Contents of troubleshooting .

| Inspection Procedure No. | Trouble symptom                      | Reference page            |
|--------------------------|--------------------------------------|---------------------------|
| 1                        | The accessory socket does not work.  | <a href="#">P.54A-196</a> |
| 2                        | The cigarette lighter does not work. | <a href="#">P.54A-197</a> |

**SYMPTOM PROCEDURES****Inspection Procedure 1: The accessory socket does not work.****CAUTION**

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

**OPERATION**

When the ignition switch is in the ON or ACC position, the accessory socket can be used.

*NOTE: The maximum load of accessory socket is 120 W.*

**COMMENTS ON TROUBLE SYMPTOM**

If the accessory socket cannot be used even when the ignition switch is in the ON or ACC position, ETACS-ECU, accessory socket itself, or accessory socket power supply circuit may have a problem.

**PROBABLE CAUSES**

- Malfunctions of accessory socket
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**STEP 3. Voltage measurement at accessory****TROUBLE SYMPTOM CHART**

M1542300800242

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III other system diagnosis code**

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

**Q: Is the check result normal?**

- YES** : Troubleshoot the ETACS-ECU. Refer to ETACS-ECU – Troubleshooting [P.54A-312](#).  
**NO** : Go to Step 2.

**STEP 2. M.U.T.-III other system data list**

Check the input signal of ACC relay. (ETACS-ECU)

- Turn the ignition switch to the ACC position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 288 | ACC switch | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

- YES** : Go to Step 3.  
**NO** : Refer to ETACS – Input Signal Procedure 1 "The ignition switch (ACC) signal is not received" [P.54A-312](#).

**socket connector (ASK2 terminal).**

- (1) Disconnect the connector, and measure at the

- wiring harness-side connector.
- (2) Turn the ignition switch to the "ACC" or "ON" position.
  - (3) Check the voltage between the accessory socket connector (ASK2 terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

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

**STEP 4. Check of short to power supply, short to earth, and open circuit in ASK2 line between accessory socket and ETACS-ECU connector.**

**Q: Is the check result normal?**

- YES : Go to Step 5.  
NO : Repair the connector(s) or wiring harness.

**STEP 5. Resistance measurement at accessory socket connector (earth terminal).**

- (1) Disconnect the connector, and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance between the accessory

socket connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

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

**STEP 6. Check of open circuit in earth line between accessory socket connector and body earth.**

**Q: Is the check result normal?**

- YES : Go to Step 7.  
NO : Repair the connector(s) or wiring harness.

**STEP 7. Retest the system**

Check if the accessory socket 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 ).  
NO : Replace the accessory socket.

**Inspection Procedure 2: The cigarette lighter does not work.**

**CAUTION**

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

**OPERATION**

When the ignition switch is in the ON or ACC position, the cigarette lighter can be used.

**COMMENTS ON TROUBLE SYMPTOM**

If the cigarette lighter cannot be used even when the ignition switch is in the ON or ACC position, ETACS-ECU, cigarette lighter itself, or cigarette lighter power supply circuit may have a problem.

**PROBABLE CAUSES**

- Malfunctions of cigarette lighter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE**

**STEP 1. M.U.T.-III other system diagnosis code**

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

**Q: Is the check result normal?**

- YES : Troubleshoot the ETACS-ECU. Refer to ETACS-ECU – Troubleshooting .  
NO : Go to Step 2.

**STEP 2. M.U.T.-III other system data list**

Check the input signal of ACC relay. (ETACS-ECU)

- Turn the ignition switch to the ACC position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 288 | ACC switch | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

- YES : Go to Step 3.  
NO : Refer to ETACS – Input Signal Procedure 1  
"The ignition switch (ACC) signal is not received" [P.54A-312](#).

**STEP 3. Cigarette lighter check**

Refer to P.54A-198.

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Replace the cigarette lighter. Go to Step 4.

**STEP 4. Voltage measurement at cigarette lighter connector (CIG1 terminal).**

- (1) Disconnect the connector, and measure at the wiring harness-side connector.
- (2) Turn the ignition switch to the ACC position.
- (3) Check the voltage between the cigarette lighter connector (CIG1 terminal) and body earth.

**OK: System voltage****Q: Is the check result normal?**

YES : Go to Step 6.

NO : Go to Step 5.

**STEP 5. Check of short to power supply, short to earth, and open circuit in CIG1 line between cigarette lighter and ETACS-ECU connector.****Q: Is the check result normal?**

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

**STEP 6. Resistance measurement at cigarette lighter connector (earth terminal).**

- (1) Disconnect the connector, and measure the resistance available at the wiring harness side of the connector.
- (2) Measure the resistance between the cigarette lighter connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)****Q: Is the check result normal?**

YES : Go to Step 8.

NO : Go to Step 7.

**STEP 7. Check of open circuit in earth line between cigarette lighter connector and body earth.****Q: Is the check result normal?**

YES : Go to Step 8.

NO : Repair the connector(s) or wiring harness.

**STEP 8. Retest the system**

Check that the cigarette lighter operates normally.

**Q: Is the check result normal?**

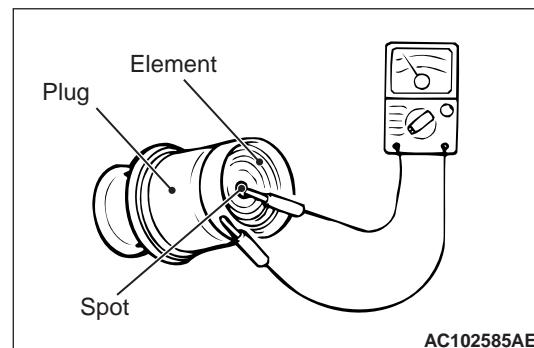
YES : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

NO : Replace the cigarette lighter.

**ON-VEHICLE SERVICE****CIGARETTE LIGHTER CHECK**

M1542200300079

1. Remove the plug and check the spot wear.
2. Check if cigarette butts or foreign materials are deposited to the element.



3. Using an ohmmeter, check that the element resistance is 1.7 Ω.

## ACCESSORY SOCKET AND CIGARETTE LIGHTER

### REMOVAL AND INSTALLATION

M1542301400203

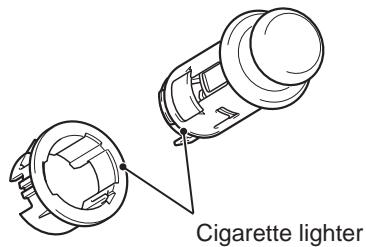
### CIGARETTE LIGHTER

#### Pre-removal Operation

- Centre Lower Box Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).

#### Post-installation Operation

- Centre Lower Box Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).



ACB05455AB

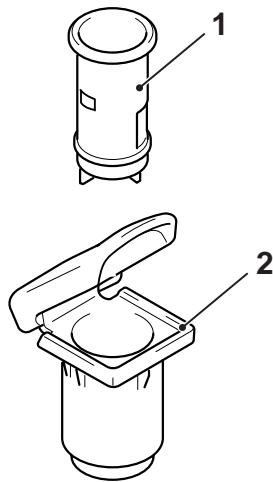
### ACCESSORY SOCKET

#### Pre-removal Operation

- Rear Floor Console Assembly Removal (Refer to GROUP 52A – Rear Floor Console ).

#### Post-installation Operation

- Rear Floor Console Assembly Installation (Refer to GROUP 52A – Rear Floor Console ).



ACB05456AB

< <A> >

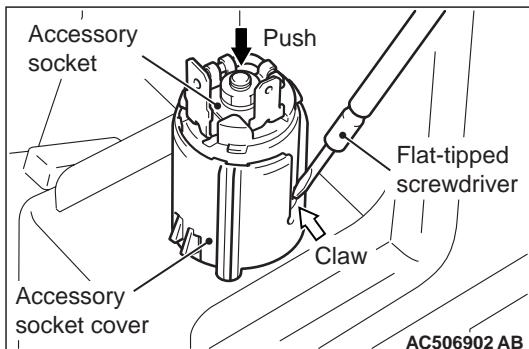
#### Removal steps

- Accessory socket
- Accessory socket cover

## REMOVAL SERVICE POINT

## &lt;&lt;A&gt;&gt; ACCESSORY SOCKET REMOVAL

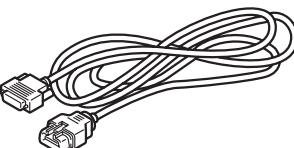
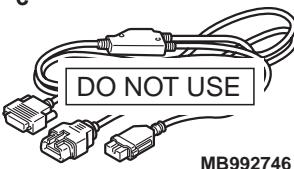
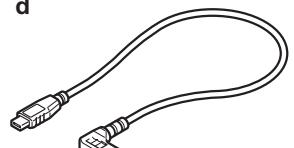
Lift the accessory socket cover claws, then remove by pressing down the accessory socket.

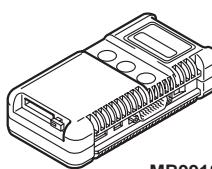
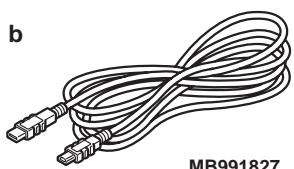
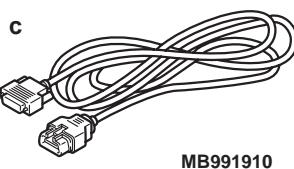
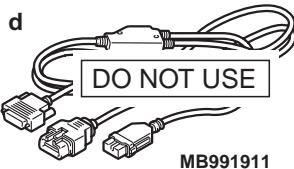
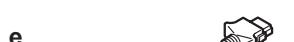
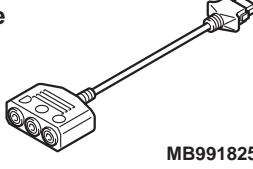
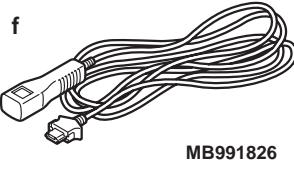
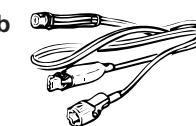
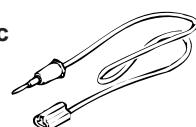
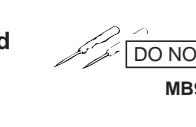


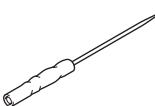
## COLUMN SWITCH

## SPECIAL TOOLS

M1543100200346

| Tool   | Number     | Name  | Use   |
|--|------------|---|---|
| a<br>   | MB992744   | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long |
| b<br>   | MB992745   |   |   |
| c<br>  | MB992746   |   |   |
| d<br> | MB992747   |   |   |
| e<br> | MB992748   |   |   |
|  | ACB05421AB |   |   |

| Tool   | Number   | Name  | Use  |
|--|--|---|--|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface (V.C.I.)<br>b. M.U.T.-III<br>USB cable<br>c. M.U.T.-III<br>main harness<br>A (Vehicles<br>with CAN<br>communication<br>system)<br>d. M.U.T.-III<br>main harness<br>B (Vehicles<br>without CAN<br>communication<br>system)<br>e. M.U.T.-III<br>measure<br>adapter<br>f. M.U.T.-III<br>trigger<br>harness | <b>CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Diagnosis code, service data and actuator test check. |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>MB991223</b>   | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check<br>harness<br>b. LED harness<br>c. LED harness<br>adapter<br>d. Probe   | Continuity check and voltage<br>measurement at harness wire or<br>connector<br>a. For checking connector pin<br>contact pressure<br>b. For checking power supply<br>circuit<br>c. For checking power supply<br>circuit<br>d. For connecting a locally sourced<br>tester                    |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1543101200134  
Refer to GROUP 00 – Contents of troubleshooting .

### DIAGNOSIS FUNCTION

M1543101300119  
HOW TO READ DIAGNOSIS CODE  
GROUP 00 – Diagnosis function .

| Diagnosis code No. | Diagnostic item                 | Reference page            |
|--------------------|---------------------------------|---------------------------|
| B2350              | Lighting switch malfunction     | <a href="#">P.54A-203</a> |
| B2351              | Wiper/washer switch malfunction |                           |

## DIAGNOSIS CODE PROCEDURES

Code No.B2350 Lighting switch malfunction

Code No.B2351 Wiper/washer switch malfunction

#### **CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

### TROUBLE JUDGEMENT

The ETACS-ECU receives the signals related to lighting and wiper/washer from the column switch. If the fail information data is included in the signal from column switch, the diagnosis code No. B2350 (lighting switch) or B2351 (wiper/washer switch) is stored.

### COMMENTS ON TROUBLE SYMPTOM

The lighting switch, wiper/washer switch or the ETACS-ECU may have a problem.

### HOW TO ERASE DIAGNOSIS CODE

GROUP 00 – Diagnosis function .

### DIAGNOSIS CODE TABLE

M1543100300387

NOTE: The ETACS-ECU sets a diagnosis code.

### PROBABLE CAUSES

- Malfunction of lighting switch (with built-in column-ECU)
- Malfunction of wiper/washer switch
- Malfunction of the ETACS-ECU

### DIAGNOSIS PROCEDURE

#### STEP 1. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if the diagnosis code No. B2350 or B2351 is set.

Q: Is the diagnosis code set?

Code No. B2351 is set. : Go to Step 2.

Code No. B2350 is set. : Go to Step 3.

No diagnosis code is set. : The trouble can be an intermittent malfunction (GROUP 00 – How to Cope with Intermittent Malfunction ).

### STEP 2. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Replace the wiper/washer switch.
- (2) Erase the diagnosis code.
- (3) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (4) Check if diagnosis code is set.

Q: Is the diagnosis code set?

YES : Go to Step 3.

NO : The diagnosis is complete.

## LIGHTING SWITCH, WIPER/WASHER SWITCH

### Pre-removal Operation

- Steering Column Lower Cover and Steering Column Upper Cover Removal (Refer to GROUP 37 – Steering Shaft ).

### STEP 3. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Replace the lighting switch (with built-in column-ECU).
- (2) Erase the diagnosis code.
- (3) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (4) Check if diagnosis code is set.

Q: Is the diagnosis code set?

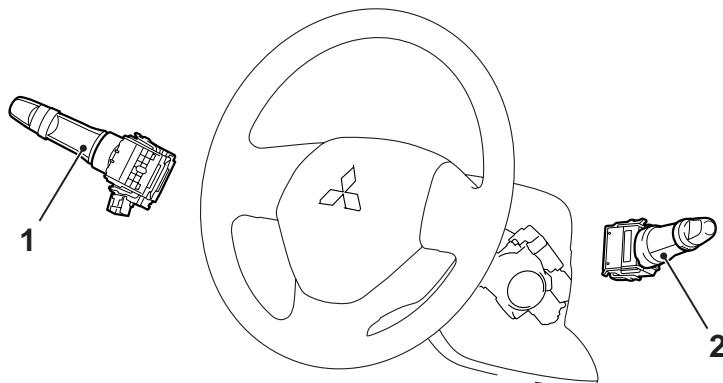
YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

## COLUMN SWITCH

## REMOVAL AND INSTALLATION

M1543100700761



ACB05748AB

### Removal steps

1. Lighting switch (with built-in column-ECU)
2. Wiper/washer switch

## COLUMN SWITCH BODY

**CAUTION**

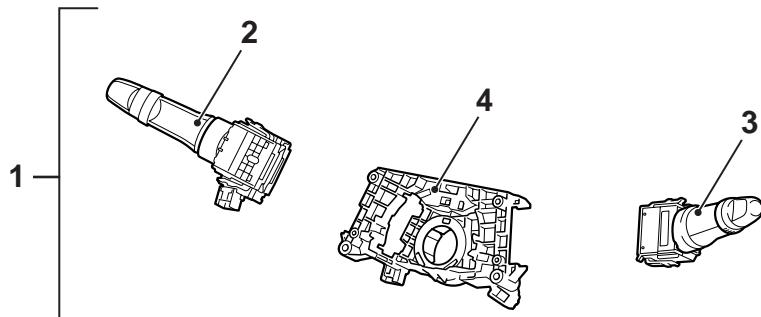
- Before removing the steering wheel and driver's air bag module assembly, refer to GROUP 52B – Service Precautions and Driver's Air Bag Module and Clock Spring .
- After the installation, perform a calibration for the ASC-ECU to learn the steering wheel sensor neutral point. (Refer to GROUP 35C – On-vehicle Service, Steering Wheel Sensor Calibration ) <Vehicles with ASC>.

**Pre-removal Operation**

- Steering Wheel Assembly Removal (Refer to GROUP 37 – Steering ).
- Steering Column Lower Cover and Steering Column Upper Cover Removal (Refer to GROUP 37 – Steering Shaft ).

**Post-installation Operation**

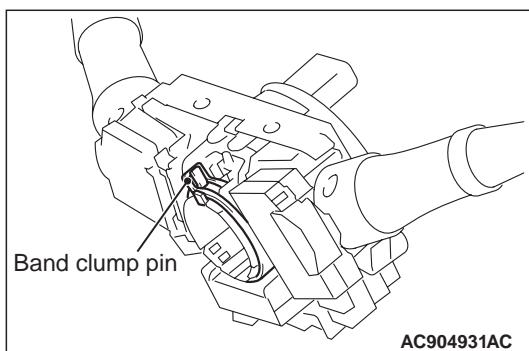
- Steering Column Lower Cover and Steering Column Upper Cover Installation (Refer to GROUP 37 – Steering Shaft ).
- Steering Wheel Assembly Installation (Refer to GROUP 37 – Steering ).



ACB05749AB

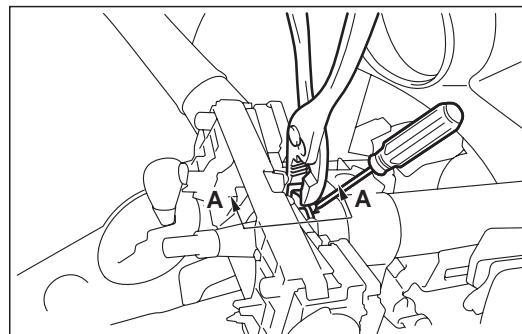
**Removal steps**

- <<A>> >>A<< 1. Column switch assembly  
2. Lighting switch (with built-in column-ECU)  
3. Wiper/washer switch  
4. Column switch body

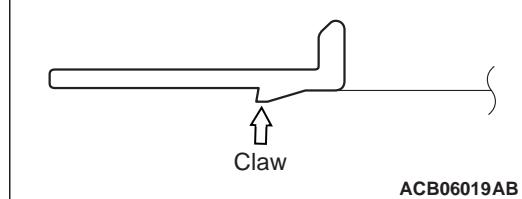
**REMOVAL SERVICE POINT****<<A>> COLUMN SWITCH ASSEMBLY REMOVAL**

AC904931AC

- Using a pliers or similar tool, pinch and lift the band clump pin shown in the figure.

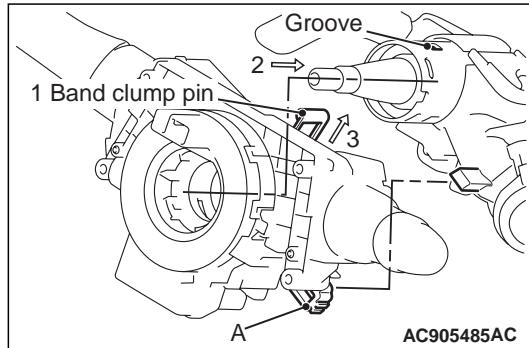


Section A – A

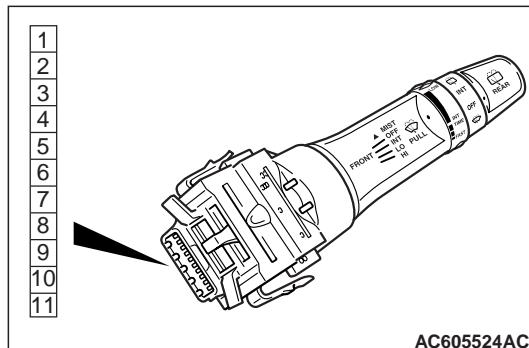


ACB06019AB

- With the flat-tipped screwdriver inserted into the column shaft groove shown in the figure, lift the claw shown in Section A – A, and then remove the column switch assembly by pulling out the column switch assembly.

**INSTALLATION SERVICE POINT**  
**>>A<< COLUMN SWITCH ASSEMBLY**  
**INSTALLATION**


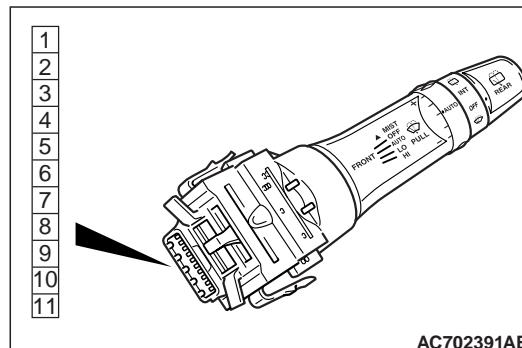
1. Using a pliers or similar tool, pinch and lift the band clump pin shown in the figure.
2. Align the part "A" position in the figure with the steering lock side rib, and then insert the column switch assembly into the column shaft.
3. After mounting the column switch assembly by securely fitting the column switch assembly claw with the column shaft groove, release the band clump pin.

**WIPER/WASHER SWITCH CONTINUITY CHECK**
**<VEHICLES WITHOUT RAIN SENSITIVE AUTO WIPER>**


| Switch position                                       |      | Tester connection | Specified condition                                  |
|---|------|-------------------|--|
| OFF   |      | —                 | Open circuit   |
| Windshield intermittent wiper interval adjusting knob |      | 8 – 3             | Operating the adjusting knob changes the resistance. |
| Windshield wiper switch                               | HI   | 8 – 4             | Continuity exists (2 Ω or less)                      |
|   | INT  | 8 – 5             | Continuity exists (2 Ω or less)                      |
|   | LO   | 8 – 6             | Continuity exists (2 Ω or less)                      |
|   | MIST | 8 – 10            | Continuity exists (2 Ω or less)                      |
| Windshield washer switch                              |      | 8 – 7             | Continuity exists (2 Ω or less)                      |
| Rear washer switch                                    |      | 8 – 9             | Continuity exists (2 Ω or less)                      |

M1543101700292

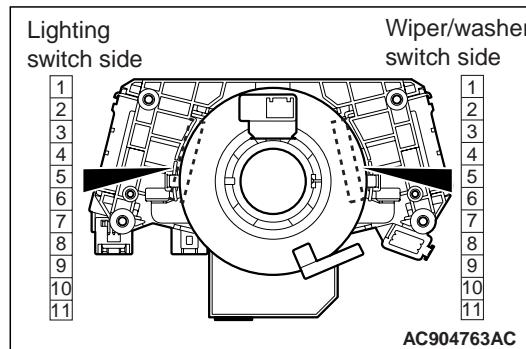
| Switch position   | Tester connection | Specified condition             |
|-------------------|-------------------|---------------------------------|
| Rear wiper switch | 8 – 11            | Continuity exists (2 Ω or less) |

**<VEHICLES WITH RAIN SENSITIVE AUTO WIPER>**


| Switch position   | Tester connection | Specified condition                                  |
|---|-------------------|--|
| OFF   | —                 | Open circuit   |
| Windshield rain sensitive wiper function adjusting knob | 8 – 3             | Operating the adjusting knob changes the resistance. |

| Switch position          |      | Tester connection | Specified condition             |
|--------------------------|------|-------------------|---------------------------------|
| Windshield wiper switch  | HI   | 8 – 4             | Continuity exists (2 Ω or less) |
|                          | AUTO | 8 – 5             | Continuity exists (2 Ω or less) |
|                          | LO   | 8 – 6             | Continuity exists (2 Ω or less) |
|                          | MIST | 8 – 10            | Continuity exists (2 Ω or less) |
| Windshield washer switch |      | 8 – 7             | Continuity exists (2 Ω or less) |
| Rear washer switch       |      | 8 – 9             | Continuity exists (2 Ω or less) |
| Rear wiper switch        |      | 8 – 11            | Continuity exists (2 Ω or less) |

2. Check that the continuity is present for the same terminal numbers (No. 2–11) of the column switch body connectors that remain on the steering column.



| Column switch body                 | Terminal number | Normal condition                |
|------------------------------------|-----------------|---------------------------------|
| Lighting switch side connector     | 2 – 2           | Continuity exists (2 Ω or less) |
|                                    | 3 – 3           |                                 |
| Wiper/washer switch side connector | 4 – 4           |                                 |
|                                    | 5 – 5           |                                 |
|                                    | 6 – 6           |                                 |
|                                    | 7 – 7           |                                 |
|                                    | 8 – 8           |                                 |
|                                    | 9 – 9           |                                 |
|                                    | 10 – 10         |                                 |
|                                    | 11 – 11         |                                 |

## COLUMN SWITCH BODY CONTINUITY CHECK

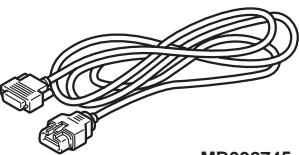
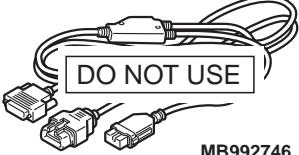
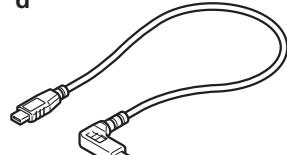
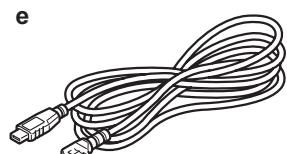
M1543101000475

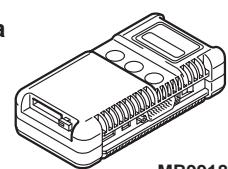
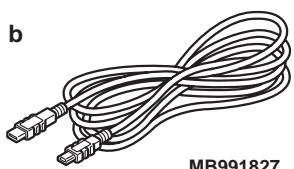
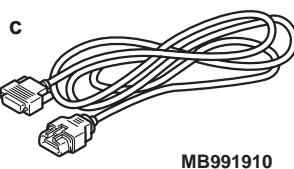
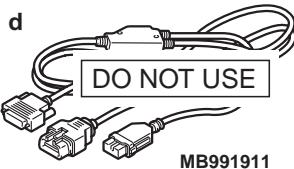
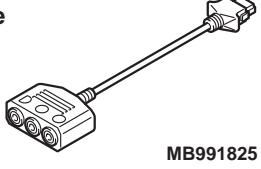
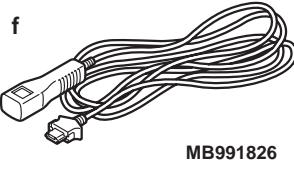
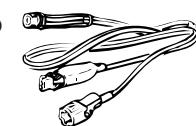
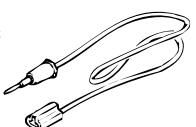
1. Remove the lighting switch and wiper/washer switch (Refer to [P.54A-204](#)).

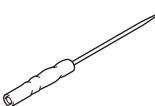
## RADIO AND CD PLAYER

## SPECIAL TOOLS

M1542000602845

| Tool  | Number  | Name  | Use                   |
|---|---|---|-----------------------|
| a<br> MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication )<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication )<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | Diagnosis code check. |
| b<br> MB992745                 |   |   |                       |
| c<br> MB992746                |   |   |                       |
| d<br> MB992747               |   |   |                       |
| e<br> MB992748<br>ACB05421AB |   |   |                       |

| Tool   | Number   | Name  | Use  |
|--|--|---|--|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface<br>(V.C.I.)<br>b. M.U.T.-III USB<br>cable<br>c. M.U.T.-III main<br>harness A<br>(Vehicles with<br>CAN<br>communication<br>system)<br>d. M.U.T.-III main<br>harness B<br>(Vehicles<br>without CAN<br>communication<br>system)<br>e. M.U.T.-III<br>measure<br>adapter<br>f. M.U.T.-III<br>trigger harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>Diagnosis code check. |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><b>MB991223</b>  | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222                               | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness<br>adapter<br>d. Probe  | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester        |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

## TROUBLESHOOTING

### AUDIO ERROR CODES <VEHICLES WITHOUT DISPLAY AUDIO>

M1544018900379

If the radio and CD player detects any malfunction in itself or the inserted CD, the error codes below will be shown on the display.

| Error code         | Cause                               | Cause of trouble and its solution   |
|--------------------|-------------------------------------|---|
| CD<br>CHECK DISC   | Focus error                         | These error codes will be shown if there is any problem with the CD or there is excessive vibration on the vehicle. If the error codes are not displayed when the vehicle is stopped and another CD is inserted, there is a problem with the CD. Check if there is any of the following problems with the CD. <ul style="list-style-type: none"> <li>• Contamination, scratch, or deformation</li> <li>• Formation of moisture or grease</li> </ul> Repair the CD and insert it again. Then, check that no error appears. |
| CD<br>DISC ERROR   | Abnormal disc                       |   |
| CD<br>INTERNAL E   | Mechanical error                    | This error codes will be shown if there is any internal mechanical or electrical problem in the radio and CD player. Replace the radio and CD player check that no error codes are shown.   |
| CD<br>HEAT ERROR   | Protection against high temperature | If the internal temperature is extremely high, this error code will be shown. Turn off the radio and CD player and wait audio until they cool down. Wait for a while, and then turn on the radio and CD player again. Check that the same error does not appear.  |
| USB<br>FILE ERROR  | File error                          | Displayed when an unsupported file is attempted to play. Change it with a supported file.   |
| USB<br>USB BUS PWR | Overcurrent abnormality             | Displayed if there is any problem in the VBUS terminal of the radio and CD player. Turn off the radio and CD player. Wait for a while, and then turn on the radio and CD player again. If the error code does not disappear, proceed to "The USB data cannot be replayed" (Refer to <a href="#">P.54A-246</a> ).  |
| USB<br>LSI ERROR   | USB internal error                  | Displayed if there is any problem in the USB-LSI in the radio and CD player. Turn off the radio and CD player. Wait for a while, and then turn on the radio and CD player again. If the error code is displayed, replace the radio and CD player.   |

| Error code                | Cause                                    | Cause of trouble and its solution   |
|---------------------------|--|---|
| USB<br>UNSUPPORTED FORMAT | Unsupported format                       | Displayed when the file format stored in the USB device is not supported. Use a supported file format.  |
| USB<br>UNSUPPORTED DEVICE | Unsupported device                       | Displayed when an unsupported USB device is connected. Change it with an supported USB device.  |
| iPod<br>NO SONG           | No playable music file is found.         | No playable music file is stored in the iPod. Store music files to the iPod®.   |
| iPod<br>VER ERROR         | iPod® cannot be recognised               | iPod® itself or software is not supported. Use the supported iPod®.   |
| ERROR DC                  | Detection abnormal output to the speaker | This error code will be shown if the radio and CD player has an internal error or is contaminated with the foreign material, and there is a problem with output to the speaker. If it is contaminated with the foreign material, turn OFF the power. Dry the foreign material if it is liquid, and remove it if it is solid. Then, check if the error code is displayed. If the error code is displayed, replace the radio and CD player. |

## STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800528  
Refer to GROUP 00 – Contents of troubleshooting .

## DIAGNOSIS FUNCTION

M1544013200449

### HOW TO READ DIAGNOSIS CODE

GROUP 00 – Diagnosis function .

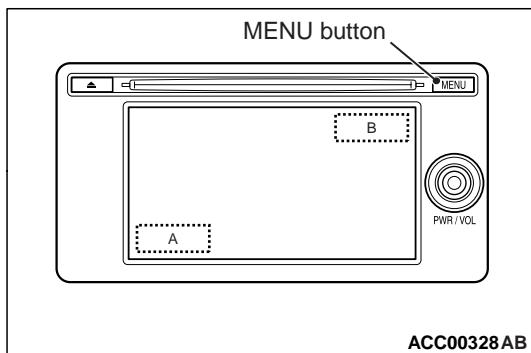
### HOW TO ERASE DIAGNOSIS CODE

GROUP 00 – Diagnosis function .

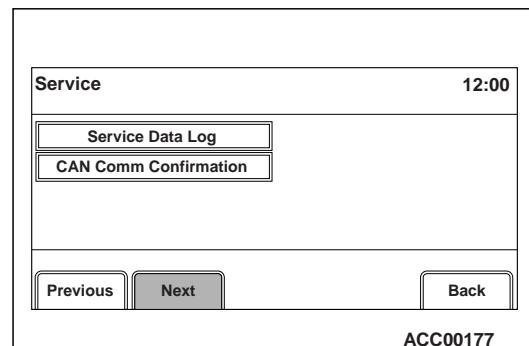
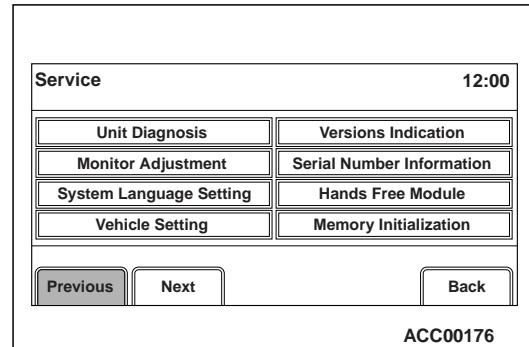
### SERVICE MODE <VEHICLES WITH DISPLAY AUDIO>

M1544020800012

### HOW TO INITIATE THE SERVICE MODE



1. While pressing the "MENU" button, press "A" portion (shown in the illustration) on the display briefly. Then press "B" portion for at least two 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.

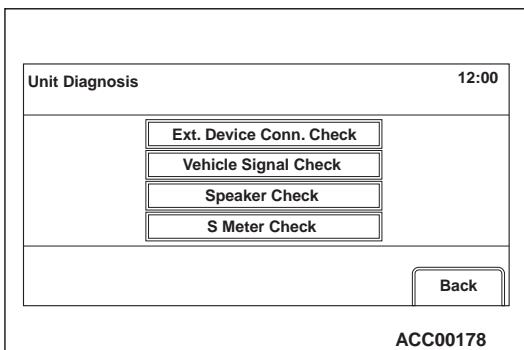
## SERVICE MODE ITEM

The following items can be checked or set in the service mode.

- Unit Diagnosis
- Monitor Adjustment
- System Language Setting
- Vehicle Setting
- Versions Indication
- Serial Number Information
- Hands Free Module
- Memory Initialization
- Service Data Log
- CAN Comm Confirmation

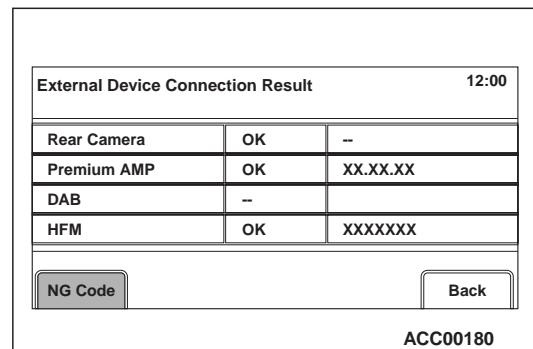
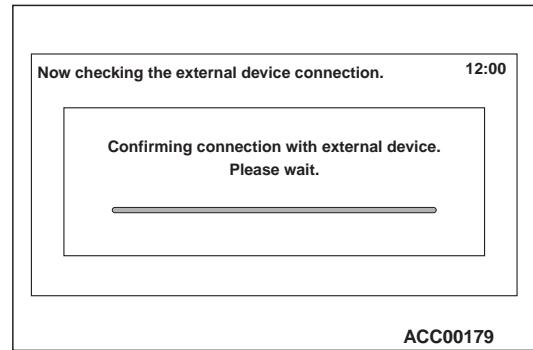
## Unit Diagnosis

### External Device Connection Check



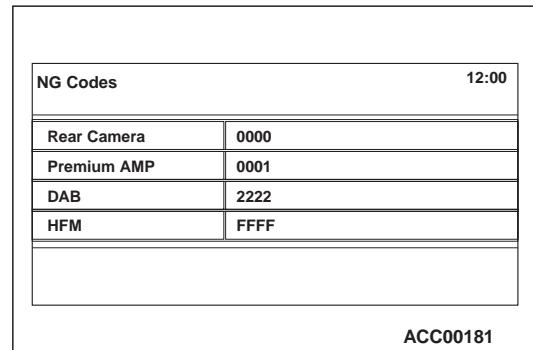
ACC00178

1. Select "Ext. Device Conn. Check" button on "Unit Diagnosis" screen.



ACC00180

2. "Now checking the external device connection." will appear, and then it will switch to "External Device Connection Result" screen.
  - If the connection with an equipment is detected, "OK" will be displayed.
  - If the connection with an equipment is not detected, "--" will be displayed.
  - In case other than above, "NG" is displayed.



3. If "NG" is displayed on the check result screen, "NG code" will be displayed by pressing the respective button on "External Device Connection Result" screen.
- NOTE: If "NG" is not displayed at all, "NG code" button is not active.*

## Vehicle Signal Check

|   |       |
|---|-------|
| Unit Diagnosis  | 12:00 |
| <input type="button" value="Ext. Device Conn. Check"/><br><input type="button" value="Vehicle Signal Check"/><br><input type="button" value="Speaker Check"/><br><input type="button" value="S Meter Check"/> |       |
| Back  |       |
| ACC00178  |       |

|   |   |
|---|---|
| Speaker Check   | 12:00   |
| <input type="button" value="FTWL"/><br><input type="button" value="FL"/><br><input type="button" value="RL"/> | <input type="button" value="FTWR"/><br><input type="button" value="FR"/><br><input type="button" value="RR"/> |
| Back  |   |
| ACC00183AB  |   |

1. Select "Vehicle Signal Check" on "Unit Diagnosis" screen.

|                      |       |
|----------------------|-------|
| Vehicle Signal Check | 12:00 |
| Speed                | Off   |
| ILL                  | Off   |
| Shift Position R     | Off   |
| Back                 |       |
| ACC00182             |       |

2. The current status of vehicle signal will be displayed.
  - "Speed": "ON" when the vehicle speed is 6 km/h or more, and "OFF" when the vehicle speed is 4 km/h or less.
  - "ILL": "ON" when the lighting switch is on (the tail lamps or the headlamps are ON), and "OFF" when the tail lamps or the headlamps are OFF.
  - "Shift Position R": "ON" when the selector lever is at R position, and "OFF" when it is at the other position.

## Speaker Check

|   |       |
|---|-------|
| Unit Diagnosis  | 12:00 |
| <input type="button" value="Ext. Device Conn. Check"/><br><input type="button" value="Vehicle Signal Check"/><br><input type="button" value="Speaker Check"/><br><input type="button" value="S Meter Check"/> |       |
| Back  |       |
| ACC00178  |       |

1. Select "Speaker Check" button on "Unit Diagnosis" screen.

## Monitor Adjustment

### Monitor Check

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

**NOTE:**

- *By operating the volume key, the volume can be changed.*
- *During the test, only the selected speaker sounds. If "Back" is selected during the test, the test tone will disappear.*

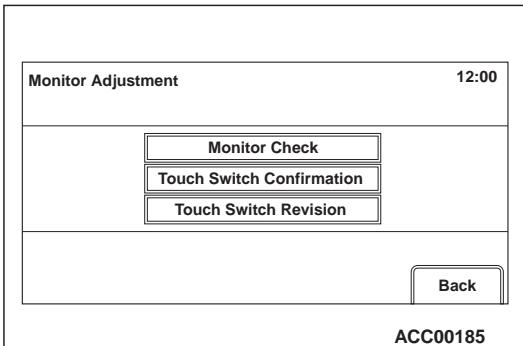
## S Meter Check

|   |       |
|---|-------|
| Unit Diagnosis  | 12:00 |
| <input type="button" value="Ext. Device Conn. Check"/><br><input type="button" value="Vehicle Signal Check"/><br><input type="button" value="Speaker Check"/><br><input type="button" value="S Meter Check"/> |       |
| Back  |       |
| ACC00178  |       |

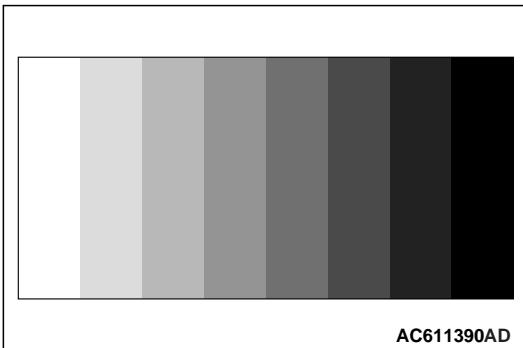
1. Select "S Meter Check" button on "Unit Diagnosis" screen.

|               |                 |
|---------------|-----------------|
| S Meter Check | 12:00           |
| S Meter       | 6.30 dB $\mu$ V |
| Frequency     | 87.5 MHz        |
| Back          |                 |
| ACC00184      |                 |

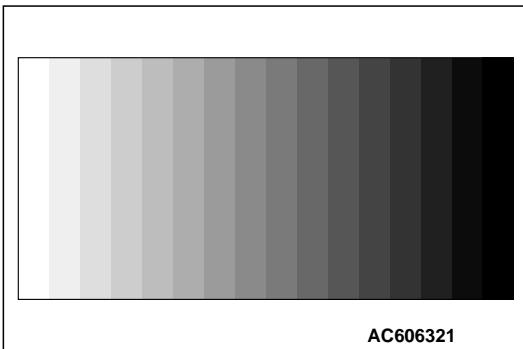
2. Field intensity and frequency of the station currently tuned is displayed.



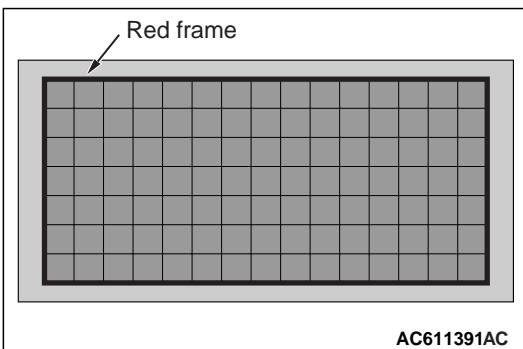
1. Select "Monitor Check" button on "Monitor Adjustment" screen.



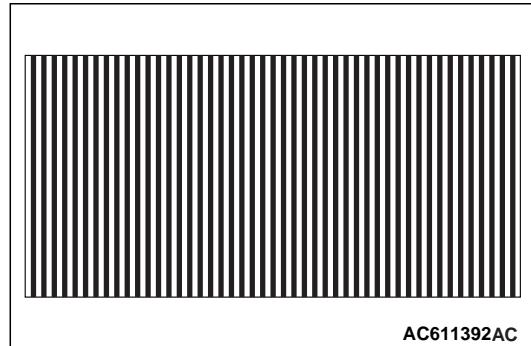
2. Eight colour bars are displayed.



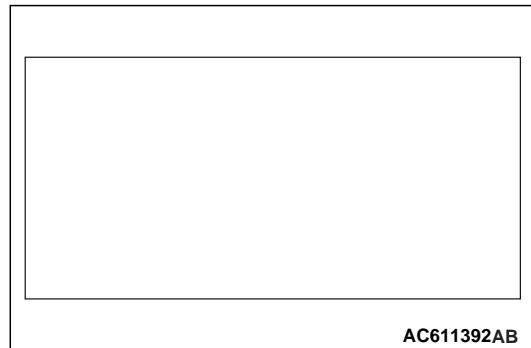
3. By touching the colour bar screen, it will be switched to 16-gradient greyscale pattern.



4. By touching the greyscale screen, it will be switched to a cross-hatch pattern. (Check whether the full-scale red frame is not misaligned)



5. By touching the cross-hatch screen, it will be switched to a monocolour vertical stripe screen.



6. By touching the vertical stripe screen, it will be switched to a full-scale white screen.



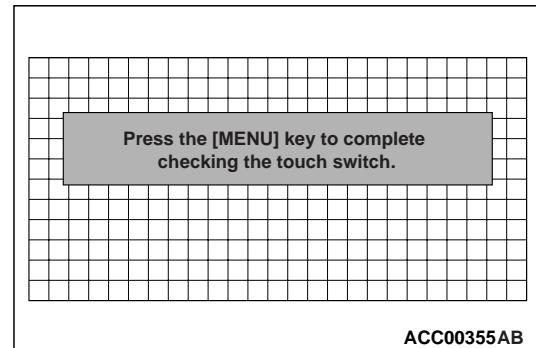
7. By touching the full-scale white screen, it will be switched to a full-scale black screen.



8. By touching the full-scale black screen, it will be switched to a full-scale red screen.



AC606323

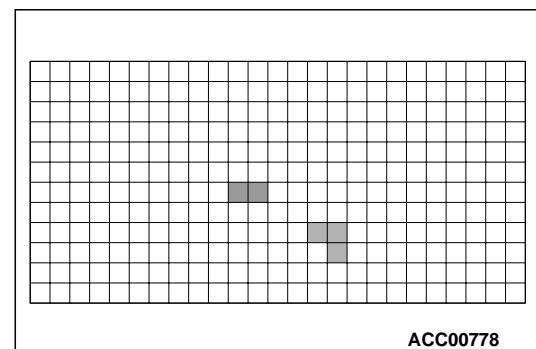


ACC00355AB

9. By touching the full-scale red screen, it will be switched to a full-scale green screen.



AC606324

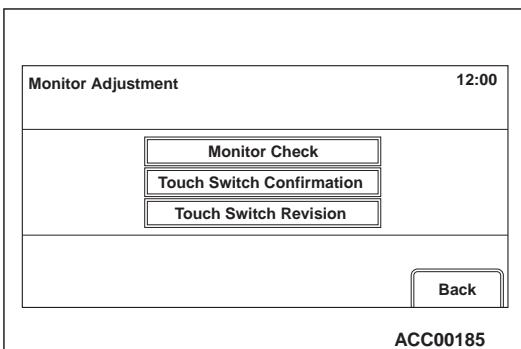


ACC00778

10. By touching the full-scale green screen, it will be switched to a full-scale blue screen.

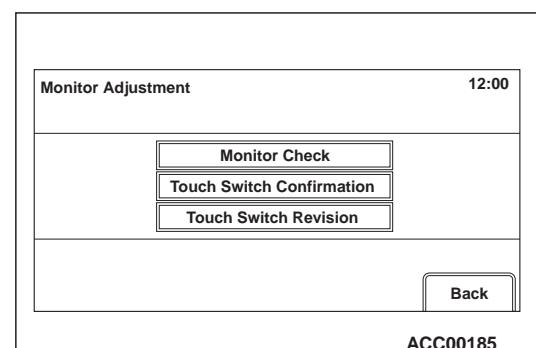
11. By touching the full-scale blue screen, it will be switched back to "Monitor Adjustment" screen.

## Touch Switch Confirmation



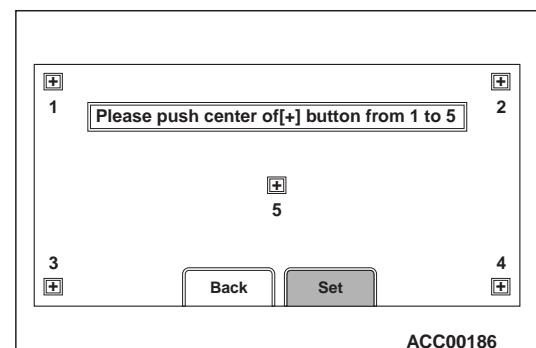
ACC00185

1. Select "Touch Switch Confirmation" button on "Monitor Adjustment" screen.



ACC00185

1. Select "Touch Switch Revision" button on "Monitor Adjustment" screen.

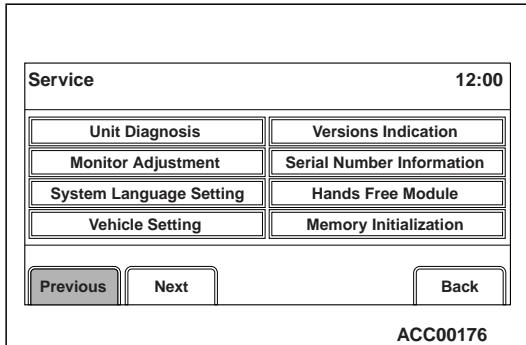


ACC00186

2. Select "Set" button according to the instructions on the screen.

- When the confirmation button is selected after the adjustment, it will be switched back to "Monitor Adjustment" screen.

## System Language Setting



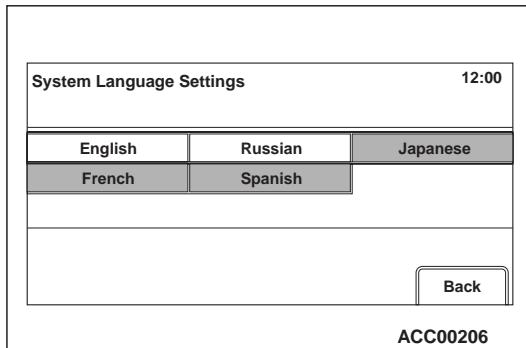
Service 12:00

|                                |                           |
|--------------------------------|---------------------------|
| Unit Diagnosis                 | Versions Indication       |
| Monitor Adjustment             | Serial Number Information |
| <b>System Language Setting</b> | Hands Free Module         |
| Vehicle Setting                | Memory Initialization     |

Previous Next Back

ACC00176

- Select "System Language Setting" button on "Service" screen.



System Language Settings 12:00

|         |         |          |
|---------|---------|----------|
| English | Russian | Japanese |
| French  | Spanish |          |

Back

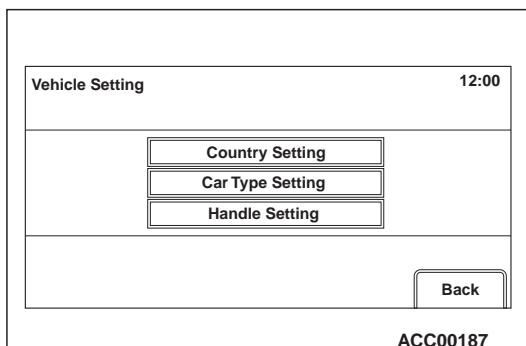
ACC00206

- Select your desired language. After a language is selected, it will be switched back to "Service" screen.

*NOTE: After a "Back" button is selected, it will be also switched back to "Service" screen.*

## Vehicle Setting

### Country Setting



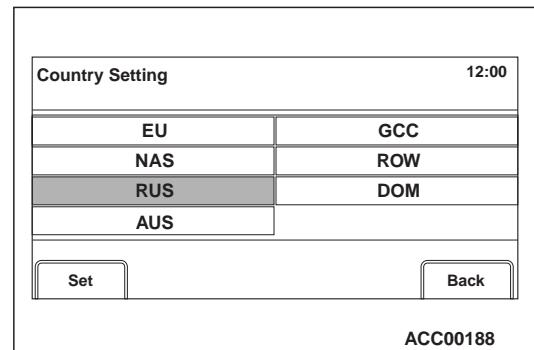
Vehicle Setting 12:00

|                  |
|------------------|
| Country Setting  |
| Car Type Setting |
| Handle Setting   |

Back

ACC00187

- Select "Country Setting" button on "Vehicle Setting" screen.



Country Setting 12:00

|            |     |
|------------|-----|
| EU         | GCC |
| NAS        | ROW |
| <b>RUS</b> | DOM |
| AUS        |     |

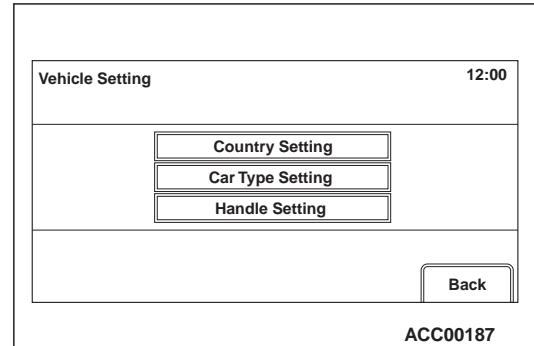
Set Back

ACC00188

- If you select your destination and then select "Set" button, it will be switched back to "Vehicle Setting" screen.

*NOTE: If you select "Back" button, it will be switched back to "Vehicle Setting" screen without saving edits.*

## Car Type Setting



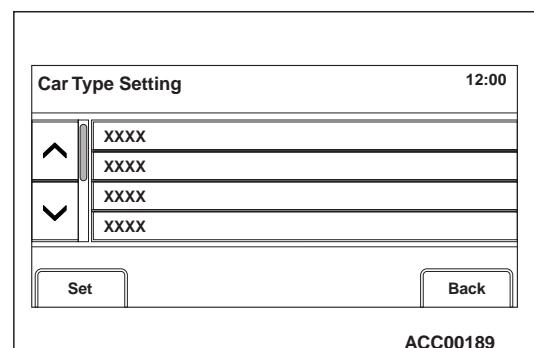
Vehicle Setting 12:00

|                  |
|------------------|
| Country Setting  |
| Car Type Setting |
| Handle Setting   |

Back

ACC00187

- Select "Car Type Setting" button on "Vehicle Setting" screen.



Car Type Setting 12:00

|      |
|------|
| XXXX |
| XXXX |
| XXXX |
| XXXX |

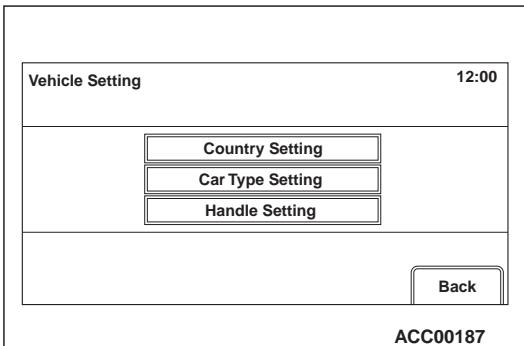
Set Back

ACC00189

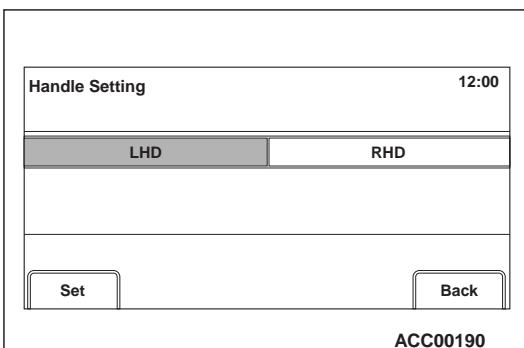
- If you select your car type and then select "Set" button, it will be switched back to "Vehicle Setting" screen.

*NOTE: If you select "Back" button, it will be switched back to "Vehicle Setting" screen without saving edits.*

## Handle Setting



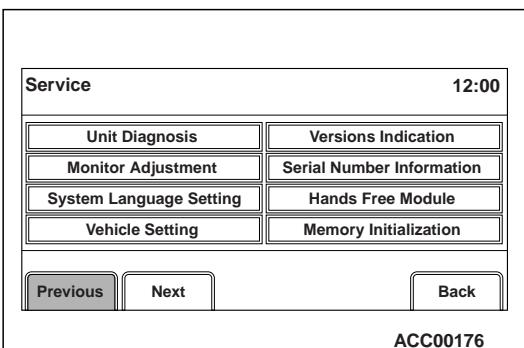
1. Select "Handle setting" button on "Vehicle Setting" screen.



2. If you select your steering location (RHD or LHD) then select "Set" button, it will be switched back to "Vehicle Setting" screen.

*NOTE: If you select "Back" button, it will be switched back to "Vehicle Setting" screen without saving edits.*

## Versions Indication



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

| Versions Indication 12:00  |                       |
|----------------------------|-----------------------|
| Main Microcomputer         | X XXXXX XX.XX.XX      |
| Media Microcomputer(Boot)  | XX.XX.XX.XX           |
| Media Microcomputer(Appli) | XXXXXX XXXXXXXX XX.XX |
| Certification IC           | XX.XX.XX.XX           |
| CAN Module                 | XXXXXX                |
| Previous                   | Next                  |
| Back                       |                       |
| ACC00191                   |                       |

| Versions Indication 12:00 |             |
|---------------------------|-------------|
| CD Mechanism(Main/sub)    | XX.XX XX.XX |
| Car Type                  | XX.XX.XX    |
|                           |             |
|                           |             |
|                           |             |
| Previous                  | Next        |
| Back                      |             |
| ACC00192                  |             |

2. A version information will be displayed.

## Serial Number Information

| Service 12:00           |                           |
|-------------------------|---------------------------|
| Unit Diagnosis          | Versions Indication       |
| Monitor Adjustment      | Serial Number Information |
| System Language Setting | Hands Free Module         |
| Vehicle Setting         | Memory Initialization     |
| Previous                | Next                      |
| Back                    |                           |
| ACC00176                |                           |

1. Select "Serial Number Information" button on "Service" screen.

| Serial Number Information 12:00 |                 |
|---------------------------------|-----------------|
| Serial Number                   | XXXXXXX         |
| Part Number                     | XXXXXXX         |
| H/W Version                     | XX              |
| Software Version                | XXXXXX XX.XX.XX |
| Back                            |                 |
| ACC00194                        |                 |

2. A hardware identification number will be displayed.

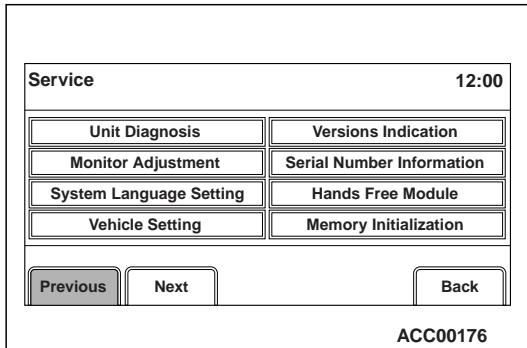
## Hands Free Module

## Refer or Hands Free-ECU – Service Mode **P.54A-256.**

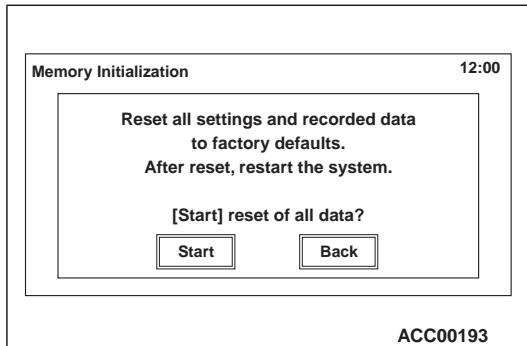
## Memory Initialization

**! CAUTION**

**Executing "Memory Initialization" will erase the data stored by the customer. If you do so, it has only to be in agreement with the customer.**



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

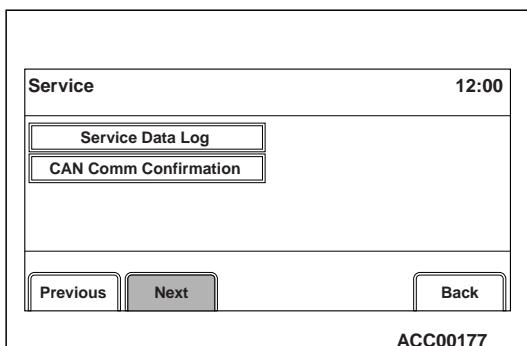


2. "Memory Initialization" screen will be displayed. When you select "Start" button, the initialisation process will be executed.

**NOTE:** After a "Back" button is selected, it will be switched back to "Service" screen.

3. After the memory initialisation is successfully completed, the system will restart automatically.

## Service Data Log



1. Select "Service Data Log" button on "Service" screen.

| Service Data Log |                    |       |        | 12:00 |
|------------------|--------------------|-------|--------|-------|
|                  | Time               | Item  | Factor |       |
| ▼                | [1] 12/01/01 13:48 | Drive | 28     |       |
|                  | [2] 12/01/01 13:45 | AMP   | 0      |       |
|                  | [3] 12/01/01 13:43 | Drive | 20     |       |
| Delete           |                    | Back  |        |       |

2. The error log, which is stored during a system failure (drive failure), will be displayed.

**NOTE:**

- Up to ten error logs can be stored.
  - The error logs in the list are sorted in descending order from new to old.
  - When you select "Delete" button, all of the stored error logs will be erased.

## **EACH LOG INFORMATION: FACTOR CODE TABLE**

| Item    | Factor number | Produced log                             |
|---------|---------------|--|
| Drive   | 20            | Log concerning focus                     |
|         | 21            | Log concerning disc type                 |
|         | 22            | Log concerning disc                      |
|         | 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               |
| HDD     | 1             | Log concerning high temperature          |
|         | 2             | Log concerning low temperature           |
| Monitor | 1             | Log concerning high temperature          |

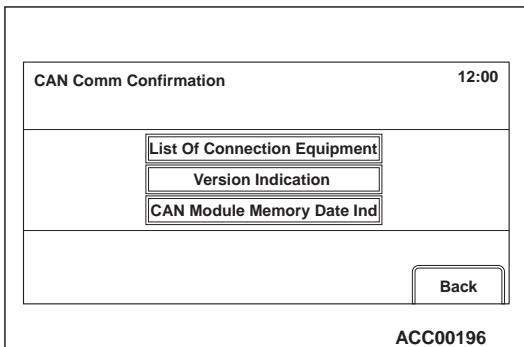
| Item              | Factor number                  | Produced log                                 |
|-------------------|--------------------------------|--|
| AMP               | 0                              | Log concerning connection                    |
|                   | 15                             | Log concerning communication                 |
| SP <sup>*1</sup>  | 1,2,8,15                       | Log concerning number of speakers unexpected |
| CAR <sup>*2</sup> | 0 -12, 130, 131, 160, 192, 255 | Log concerning vehicle model unexpected      |

NOTE: <sup>\*1</sup>: The log is displayed when the number of speakers is unexpected.

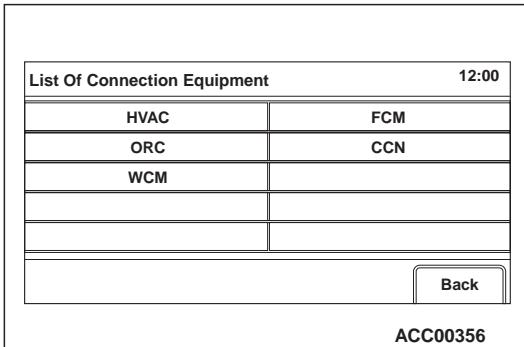
<sup>\*2</sup>: The log is displayed when the vehicle model is unexpected.

## CAN Comm Confirmation

### List Of Connection Equipment



1. Select "List Of Connection Equipment" button on "CAN Comm Confirmation" screen.

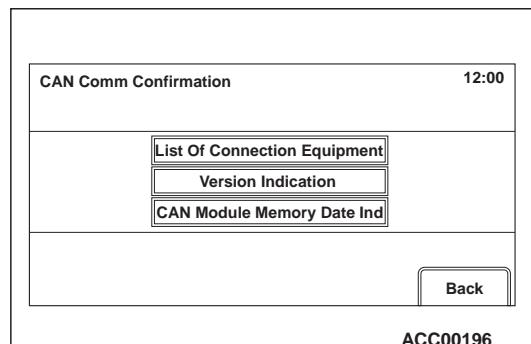


2. The system will search device(s), which are connected via CAN, and display the list of the devices.

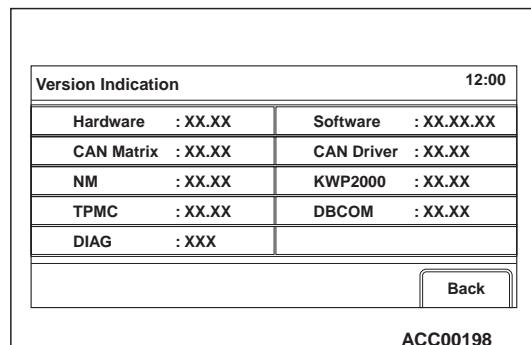
### List of connected devices

| Screen indication | Equipment               |
|-------------------|-------------------------|
| HVAC              | A/C-ECU                 |
| FCM               | ETACS-ECU               |
| ORC               | SRS-ECU                 |
| CCN               | Combination meter       |
| WCM               | Wireless control module |

### Version Indication

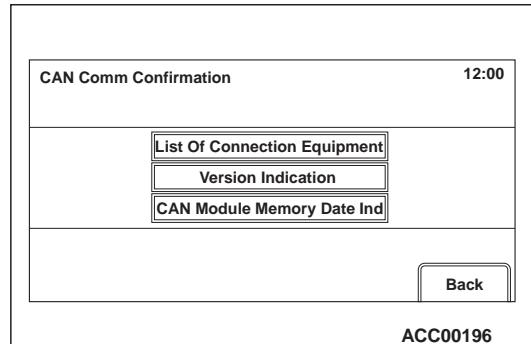


1. Select "Versions Indication" button on "CAN Comm Confirmation" screen.



2. A CAN version information will be displayed.

### CAN Module Memory Data Indication



1. Select "CAN Module Memory Data Ind" button on "CAN Comm Confirmation" screen.

|                         |       |
|-------------------------|-------|
| CAN Module Mem Data Ind | 12:00 |
| Various Data            |       |
| Coding Data             |       |
| Chrono Stack            |       |
| Back                    |       |

ACC00199

|                |               |      |
|----------------|---------------|------|
| Coding Data    | 12:00         |      |
| LHD_RHD_B      | : LHD_RHD_SNA |      |
| NUM_SP         | : SNA         |      |
| WCM_S_PRSNT    | : Not Present |      |
| ENT_Model_Year | : 2000        |      |
| ENT_VEN_Line   | : VEH_SNA     |      |
| Previous       | Next          | Back |

ACC00201

2. "CAN Module Memory Data Ind" will be displayed.  
A respective data will be displayed by selecting each button ("Various Data", "Coding data", "Chrono Stack").

|              |         |
|--------------|---------|
| Various Data | 12:00   |
| Origin       | : 04h   |
| Supplier     | : 85h   |
| System ID    | : FFh   |
| Variation ID | : 08h   |
| Serial ID    | : 0002h |
| Back         |         |

ACC00200

Select "Various Data."

|                |                  |      |
|----------------|------------------|------|
| Coding Data    | 12:00            |      |
| AUX_Info       | : Not_Present    |      |
| REAR_CMU_PRSNT | : Not Connection |      |
| RADIO_FREQ     | : COUNTRY_SNA    |      |
| Previous       | Next             | Back |

ACC00202

Select "Coding Data."

|                    |         |      |
|--------------------|---------|------|
| Chrono Stack (1/8) | 12:00   |      |
| DTC Value          | : FF00h |      |
| DTC Status         | : FFh   |      |
| Odometer Mileage   | : 0000h |      |
| Accumulation Timer | : 0000h |      |
| IG Counter         | : 00h   |      |
| Previous           | Next    | Back |

ACC00203

Select "Chrono Stack."

## DIAGNOSIS CODE CHART

M1544012900605

### ⚠ CAUTION

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

| Diagnosis code No. | Diagnostic item        | Reference page            |
|--------------------|------------------------|---------------------------|
| U0141              | ETACS CAN timeout      | <a href="#">P.54A-221</a> |
| U0155              | Meter CAN timeout      | <a href="#">P.54A-222</a> |
| U0164              | A/C CAN timeout        | <a href="#">P.54A-223</a> |
| U0168              | WCM/KOS CAN timeout    | <a href="#">P.54A-224</a> |
| U0230              | Power Gate CAN timeout | <a href="#">P.54A-225</a> |

| Diagnosis code No. | Diagnostic item                | Reference page |
|--------------------|--------------------------------|----------------|
| U1000              | OSS CAN timeout                | P.54A-226      |
| U1190              | No receive fault detect signal | P.54A-227      |
| U1195              | Coding not completed           | P.54A-228      |

## DIAGNOSIS CODE PROCEDURES

### Code No.U0141 ETACS CAN timeout

#### ⚠ CAUTION

- If the diagnosis code No. U0141 is set, be sure to diagnose the CAN bus line.
- When replacing the radio and CD player, always check that the communication circuit is normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in GROUP 54A, Immobilizer System – How to Register Key ID [P.54A-33](#).)

### DIAGNOSTIC FUNCTION

If the signal from ETACS-ECU cannot be received, the radio and CD player sets the diagnosis code No. U0141.

### JUDGEMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 – 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse (IOD fuse), or odometer value is 80.5 km or more, if the communication with ETACS-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

### PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of radio and CD player
- Malfunction of ETACS-ECU

### DIAGNOSIS PROCEDURE

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

#### STEP 2. M.U.T.-III other system diagnosis code

Check again if the diagnosis code is set to the ETACS-ECU.

Q: Is the diagnosis code set?

YES : Diagnose the ETACS-ECU (Refer to GROUP 54A – ETACS-ECU – Troubleshooting [P.54A-281](#)), and then go to Step 3.

NO : Go to Step 3.

#### STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check if the diagnosis code No. U0141 is set to A/C-ECU.

Q: Is the diagnosis code set?

YES : Go to Step 4.

NO : Go to Step 5.

#### STEP 4. Diagnosis code recheck

Check again if the diagnosis code is set to the radio and CD player.

(1) Erase the diagnosis code.

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

(3) Check if the diagnosis code is set.

Q: Is the diagnosis code set?

YES : Replace the ETACS-ECU.

NO : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the ETACS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the radio and CD player.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the ETACS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

**Code No.U0155 Meter CAN timeout****⚠ CAUTION**

- If the diagnosis code No. U0155 is set, be sure to diagnose the CAN bus line.
- When replacing the radio and CD player, always check that the communication circuit is normal.

**DIAGNOSTIC FUNCTION**

If the signal from combination meter cannot be received, the radio and CD player sets the diagnosis code No. U0155.

**JUDGEMENT CRITERIA**

With the statuses that the ignition switch is at ON position, system voltage is 10–16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse (IOD fuse), or odometer value is 80.5 km or more, if the communication with combination meter cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

**PROBABLE CAUSES**

- Malfunction of CAN bus line
- Malfunction of combination meter
- Malfunction of radio and CD player

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check again if the diagnosis code is set to the combination meter.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the combination meter (Refer to [P.54A-39](#)), and then go to Step 3.

**NO** : Go to Step 3.

**STEP 3. Check the M.U.T.-III Diagnosis code for other systems**

Check if the diagnosis code No. U0155 is set to A/C-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Diagnosis code recheck**

Check again if the diagnosis code is set to the radio and CD player.

- (1) Erase the diagnosis code.

- (2) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.

- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the combination meter.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the combination meter. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the radio and CD player.

- (1) Erase the diagnosis code.

- (2) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

- YES** : Replace the radio and CD player.  
**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the combination meter. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

---

## Code No.U0164 A/C CAN timeout

---

### **⚠ CAUTION**

- If the diagnosis code No. U0164 is set, be sure to diagnose the CAN bus line.
- When replacing the radio and CD player, always check that the communication circuit is normal.

## DIAGNOSTIC FUNCTION

If the signal from heater controller assembly (A/C-ECU) cannot be received, the radio and CD player sets the diagnosis code No. U0164.

## JUDGEMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10–16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse (IOD fuse), or odometer value is 80.5 km or more, if the communication with A/C-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

## PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of heater controller assembly
- Malfunction of radio and CD player

## DIAGNOSIS PROCEDURE

---

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the A/C-ECU.

**Q: Is the diagnosis code set?**

- YES** : Troubleshoot the A/C-ECU (Refer to GROUP 55 – Troubleshooting ), and then go to Step 3.  
**NO** : Go to Step 3.

---

### STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check if the diagnosis code No. U0164 is set to ETACS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

### STEP 4. Diagnosis code recheck

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the heater controller assembly.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the heater controller assembly (A/C-ECU). (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

---

### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the radio and CD player.  
**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the heater controller assembly (A/C-ECU).  
 (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

## Code No.U0168 WCM/KOS CAN timeout

### ⚠ CAUTION

- If diagnosis code No. U0168 is set, be sure to diagnose the CAN bus line.
- When replacing the radio and CD player, always check that the communication circuit is normal.

## DIAGNOSTIC FUNCTION

If the signal from KOS-ECU cannot be received, the radio and CD player sets the diagnosis code No. U0168.

## JUDGEMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 – 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse (IOD fuse), or odometer value is 80.5 km or more, if the communication with KOS-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

## PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of KOS-ECU
- Malfunction of radio and CD player

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III other system diagnosis code

Check again if the diagnosis code is set to the KOS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the KOS-ECU (Refer to GROUP 42B – Diagnosis Code Chart ), and then go to Step 3.  
**NO** : Go to Step 3.

### STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check if the diagnosis code No. U0168 is set to ETACS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

### STEP 4. Diagnosis code recheck

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the KOS-ECU.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the KOS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code set?**

- YES** : Replace the radio and CD player.
- NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the KOS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

---

## Code No.U0230 Power Gate CAN Timeout

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### **CAUTION**

- If diagnosis code No. U0230 is set, be sure to diagnose the CAN bus line.
- When replacing the radio and CD player, always check that the communication circuit is normal.

## DIAGNOSTIC FUNCTION

If the signal from electric tailgate control unit cannot be received, the radio and CD player sets the diagnosis code No. U0230.

## JUDGEMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 – 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse (IOD fuse), or odometer value is 80.5 km or more, if the communication with electric tailgate control unit cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

## PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of electric tailgate control unit
- Malfunction of radio and CD player

## DIAGNOSIS PROCEDURE

---

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

#### Q: Is the check result normal?

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

### STEP 2. M.U.T.-III other system diagnosis code

Check again if the diagnosis code is set to the electric tailgate control unit.

#### Q: Is the diagnosis code set?

**YES** : Troubleshoot the electric tailgate control unit (Refer to GROUP 42A – Tailgate <vehicles with electric tailgate> – Diagnosis Code Chart ), and then go to Step 3.

**NO** : Go to Step 3.

---

### STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check if the diagnosis code No. U0230 is set to ETACS-ECU.

#### Q: Is the diagnosis code set?

**YES** : Go to Step 4.

**NO** : Go to Step 5.

---

### STEP 4. Diagnosis code recheck

Check again if the diagnosis code is set to the radio and CD player.

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

#### Q: Is the diagnosis code set?

**YES** : Replace the electric tailgate control unit.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the electric tailgate control unit. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

---

### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the radio and CD player.

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

#### Q: Is the diagnosis code set?

- YES** : Replace the radio and CD player.
- NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the electric tailgate control unit. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

## Code No.U1000 OSS CAN timeout

### ⚠ CAUTION

- If diagnosis code No. U1000 is set, be sure to diagnose the CAN bus line.
- When replacing the radio and CD player, always check that the communication circuit is normal.

## DIAGNOSTIC FUNCTION

If the signal from OSS-ECU cannot be received, the radio and CD player sets the diagnosis code No. U0230.

## JUDGEMENT CRITERIA

With the statuses that the ignition switch is at ON position, system voltage is 10 – 16 V (data from ETACS-ECU), and there is no malfunction to the power supply fuse (IOD fuse), or odometer value is 80.5 km or more, if the communication with OSS-ECU cannot be established for 2,500 ms or more, the radio and CD player determines that a problem has occurred.

## PROBABLE CAUSES

- Malfunction of CAN bus line
- Malfunction of OSS-ECU
- Malfunction of radio and CD player

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III other system diagnosis code

Check again if the diagnosis code is set to the OSS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the OSS-ECU (Refer to GROUP 42B – Diagnosis Code Chart ), and then go to Step 3.

**NO** : Go to Step 3.

### STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check if the diagnosis code No. U1000 is set to ETACS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

### STEP 4. Diagnosis code recheck

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the OSS-ECU.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the OSS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code set?**

- YES** : Replace the radio and CD player.
- NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the radio and CD player and the OSS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

---

### Code No.U1190 No receive fault detect signal

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#### **⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

### JUDGEMENT CRITERIA

ETACS-ECU sends the diagnosis code (U code) detection permission or prohibition signal to each ECU connected to the CAN bus line. If the radio and CD player cannot receive the diagnosis code (U code) detection permission or prohibition signal for 5 seconds after turning the electric motor switch to ON position, diagnosis code U1190 will be set.

### PROBABLE CAUSES

- Malfunction of the ETACS-ECU
- Malfunction of CAN bus line

### DIAGNOSIS PROCEDURE

---

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). On completion, go to Step 3.

---

#### STEP 2. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the radio and CD player.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (3) On completion, check that the diagnosis code is reset.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU. Then go to Step 3.

**NO** : The procedure is complete.

---

#### STEP 3. Check whether the diagnosis code is reset.

Recheck if the diagnosis code is set to the radio and CD player.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the "LOCK" (OFF) position to the "ON" position.
- (3) On completion, check that the diagnosis code is reset.

**Q: Is the diagnosis code set?**

**YES** : Return to Step 1.

**NO** : The procedure is complete.

## Code No. U1195 Coding not completed

**CAUTION**

- If the diagnosis code No. U0164 is set, be sure to diagnose the CAN bus line.
- When replacing the radio and CD player, always check that the communication circuit is normal.
- When the diagnosis code No. U1195 is set in radio and CD player, the diagnosis code may also be set in ETACS-ECU. When the diagnosis code is set in ETACS-ECU, carry out the diagnosis of the diagnosis code for ETACS-ECU first.

**JUDGEMENT CRITERIA**

This diagnosis code is set when the variant coding for ETACS-ECU has not been implemented.

**PROBABLE CAUSES**

- Variant coding for ETACS-ECU has not been implemented.
- Malfunction of radio and CD player

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnosis**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus lines (Refer to GROUP 54C – CAN Bus Diagnostics Table). On completion, go to Step 4.

**STEP 2. M.U.T.-III other system diagnosis code**

Use M.U.T.-III to check that the diagnosis code No. B222C is set in the ETACS-ECU.

**Q: Is the diagnosis code set?**

| Trouble symptom   | Inspection Procedure No. | Reference page            |
|---|--------------------------|---------------------------|
| Power of the radio and tape player does not turn ON when the ignition switch is in the "ACC" position or "ON" position. | 1                        | <a href="#">P.54A-229</a> |
| No sound is heard.  | 2                        | <a href="#">P.54A-230</a> |
| The radio broadcasting can not be received.   | 3                        | <a href="#">P.54A-231</a> |
| Audio illumination does not work normally.  | 4                        | <a href="#">P.54A-232</a> |

**NOTE:**

- For the troubleshooting of the hands free-ECU, refer to [P.54A-257](#).<Vehicles with display audio>
- For the troubleshooting of the steering wheel audio remote control switch, refer to

**YES** : Troubleshoot the relevant diagnosis code, and then go to Step 4.

**NO** : Go to Step 3.

**STEP 3. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code No. U1195 set?**

**YES** : Replace the radio and CD player, and then go to Step 4.

**NO** : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/How to Cope with Intermittent Malfunctions).

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the radio and CD player.

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

**Q: Is the diagnosis code No. U1195 set?**

**YES** : Return to Step 1.

**NO** : This diagnosis is complete.

**TROUBLE SYMPTOM CHART**

M1544004902769

[P.54A-243](#).<Vehicles with display audio>

## SYMPTOM PROCEDURES

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**Inspection Procedure 1: Power of the radio and tape player does not turn ON when the ignition switch is in the "ACC" position or "ON" position.**

---

### **CAUTION**

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

### **OPERATION**

When the ignition switch is in the ON or ACC position, the radio and CD player power can be turned ON. With the radio and CD player power ON, when the ignition switch is turned to the OFF position, the power for radio and CD player is also turned OFF.

### **COMMENTS ON TROUBLE SYMPTOM**

Provided that the audio diagnosis code is not set, if the power for radio and CD player cannot be turned ON, the radio and CD player, or power supply circuit for radio and CD player may have a problem, or the option coding information may be inconsistent.

### **PROBABLE CAUSES**

- Malfunction of radio and CD player
- Malfunction of the ETACS-ECU
- Option coding information inconsistency
- Damaged harness wires and connectors

### **DIAGNOSIS PROCEDURE**

---

#### **STEP 1. ETACS-ECU coding data check**

- (1) Operate the M.U.T.-III to read the ETACS-ECU option coding information (Refer to GROUP 00 – Coding Table ).
- (2) Check that the "AUDIO" is set to "Present."

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Operate the M.U.T.-III to set the option coding "AUDIO" to "Present," and check the trouble symptom.

---

#### **STEP 2. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

YES : Go to Step 3.

NO : Repair the CAN bus line.

---

#### **STEP 3. M.U.T.-III other system diagnosis code**

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

**Q: Is the check result normal?**

YES : Troubleshoot the ETACS-ECU. Refer to ETACS-ECU – Troubleshooting [P.54A-281](#).  
NO : Go to Step 4.

---

#### **STEP 4. M.U.T.-III other system data list**

Check the input signal of ACC relay.

- Turn the ignition switch to the ACC position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 288 | ACC switch | ON               |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Refer to ETACS – Inspection Procedure 1 "The ignition switch (ACC) signal is not received" [P.54A-312](#).

---

#### **STEP 5. Check of short to power supply, short to earth, and open circuit in ACC line between radio and CD player connector and ETACS-ECU connector**

**Q: Is the check result normal?**

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

---

#### **STEP 6. Voltage measurement at radio and CD player connector (+B2 terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the voltage between the radio and CD player connector (+B2 terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES <Vehicles without display audio> : Go to Step 8.

YES <Vehicles with display audio> : Go to Step 9.

NO : Go to Step 7.

**STEP 7. Check of short to power supply, short to earth, and open circuit in +B2 line between fusible link and radio and CD player connector****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 ).

**NO** : Repair the connector(s) or wiring harness.

**STEP 8. Check of open circuit in GND2 line between radio and CD player connector and body earth****Q: Is the check result normal?**

**YES** : Go to Step 9.

**NO** : Repair the connector(s) or wiring harness.

**STEP 9. Check that the radio and CD player is correctly earthed**

The radio and CD player should be connected to the earth with an assembling screw.

**Q: Is the radio and CD player correctly earthed?**

**YES** : Go to Step 10.

**NO** : Securely install and earth the radio and CD player.

**STEP 10. Retest the system**

Check if the radio and CD player 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 ).

**NO** : Replace the radio and CD player.

**Inspection Procedure 2: No sound is heard.****CAUTION**

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

**COMMENTS ON TROUBLE SYMPTOM**

If the audio sound is not output, the radio and CD player may have a problem. In addition, if any of the speakers or tweeters is short-circuited, the protection circuit inside the radio and CD player disables all the speakers or tweeters to sound. Therefore, if all the speakers do not output sound, the speaker or tweeter circuit may be shorted or the speaker or tweeter may be defective.

**PROBABLE CAUSES**

- Malfunction of radio and CD player
- Malfunctions of speaker or tweeter
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Checking with audio speaker test**

Perform the audio speaker test, and check which speaker or tweeter does not output the sound. Refer to [P.54A-269](#).

**Q: Is the check result normal?**

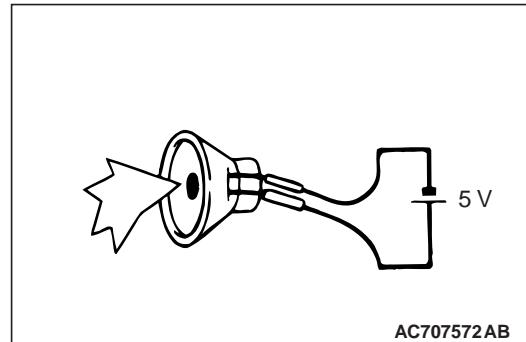
**YES** : The trouble can be an intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

**NO (No speakers or tweeters sound.)** : Go to Step 2

**NO (No sound is heard from one of the speakers or tweeters.)** : Go to Step 4

**STEP 2. Check the speaker or tweeter.**

(1) Remove the speaker or tweeter. Refer to [P.54A-270](#).



(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: Do the speaker output the noise?**

**YES** : Go to Step 3

**NO** : Replace the speaker or tweeter.

**STEP 3. Check the wiring harness between the speaker or tweeter connector terminal and the radio and CD player connector terminal.**

- Check of short circuit in FR+, FR- line front door speaker (RH) connector and radio and CD player connector. <Front door speaker (RH)>
- Check of short circuit in FL+, FL- line front door speaker (LH) connector and radio and CD player connector. <Front door speaker (LH)>
- Check of short circuit in FR+, FR- line tweeter (RH) connector and radio and CD player connector. <Tweeter (RH)>
- Check of short circuit in FL+, FL- line tweeter (LH) connector and radio and CD player connector. <Tweeter (LH)>
- Check of short circuit in RR+, RR- line rear door speaker (RH) connector and radio and CD player connector. <Rear door speaker (RH)>
- Check of short circuit in RL+, RL- line rear door speaker (LH) connector and radio and CD player connector. <Rear door speaker (LH)>

**Q: Is the check result normal?**

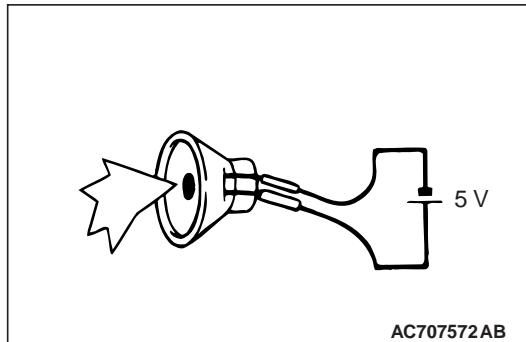
YES : Go to Step 6

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check the speaker or tweeter.**

Follow the speaker test to check which speaker or tweeter does not sound.

- Remove the speaker or tweeter. Refer to [P.54A-270](#).



- Check that the speaker or tweeter outputs the noise when the voltage of 5 V is applied to the

speaker connector terminal.

**Q: Do the speaker output the noise?**

YES : Go to Step 5

NO : Replace the speaker or tweeter.

**STEP 5. Check the wiring harness between the speaker or tweeter connector terminal and the radio and CD player connector terminal.**

Follow the speaker test to check which speaker or tweeter circuit is defective.

- Check of open circuit in FR+, FR- line front door speaker (RH) connector and radio and CD player connector. <Front door speaker (RH)>
- Check of open circuit in FL+, FL- line front door speaker (LH) connector and radio and CD player connector. <Front door speaker (LH)>
- Check of open circuit in FR+, FR- line tweeter (RH) connector and radio and CD player connector. <Tweeter (RH)>
- Check of open circuit in FL+, FL- line tweeter (LH) connector and radio and CD player connector. <Tweeter (LH)>
- Check of open circuit in RR+, RR- line rear door speaker (RH) connector and radio and CD player connector. <Rear door speaker (RH)>
- Check of open circuit in RL+, RL- line rear door speaker (LH) connector and radio and CD player connector. <Rear door speaker (LH)>

**Q: Is the check result normal?**

YES : Go to Step 6

NO : Repair the connector(s) or wiring harness.

**STEP 6. Retest the system**

Check if the sound is output from all the speakers or tweeters.

**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 ).

NO : Replace the radio and CD player.

**Inspection Procedure 3: The radio broadcasting can not be received.****CAUTION**

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

**COMMENTS ON TROUBLE SYMPTOM**

In case of FM/AM radio broadcasting cannot be received., antenna rod, antenna base, antenna feeder or radio and CD player 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.

## PROBABLE CAUSES

- Malfunction of antenna rod
- Malfunction of antenna base
- Malfunction of antenna feeder
- Malfunction of radio and CD player

## DIAGNOSIS PROCEDURE

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

Q: Is the antenna assembled?

YES : Go to Step 2.

NO : Assemble antenna rod and antenna base.

### STEP 2. Check to see if inspections are taking place in 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 if there is any damage to the antenna rod, antenna base and antenna feeder.

Q: Is the check result normal?

YES : Go to Step 5.

NO : Replace the antenna rod, antenna base and antenna feeder.

### STEP 5. Check the connection of the antenna feeder's plug and radio and CD player.

Q: Is the antenna feeder's plug thoroughly connected to the radio and CD player?

YES : Go to Step 6.

NO : Thoroughly connect the antenna feeder's plug and the radio and CD player.

### STEP 6. Check of short or open circuit in ANT+ line between radio and CD player connector and antenna amplifier connector

Q: Is the check result normal?

YES : Go to Step 7.

NO : Repair the connector(s) or wiring harness.

### STEP 7. Substitute a known good radio and CD player, and check the trouble symptom.

Q: Is the check result normal?

YES : Replace the radio and CD player.

NO : Either repair or replace the antenna rod and antenna base.

## Inspection Procedure 4: Audio illumination does not work normally.

### CAUTION

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

## COMMENTS ON TROUBLE SYMPTOM

If the tail lamps illuminate, illumination signal is sent from the heater controller assembly (A/C-ECU) to the radio and CD player. This switches the illumination of the radio and CD player from day mode to night mode. If the mode is switched, the illumination signal line, the heater controller assembly (A/C-ECU) or the radio and CD player may be defective.

## PROBABLE CAUSES

- Malfunction of combination meter
- Malfunction of heater controller assembly (A/C-ECU)
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

### STEP 1. Check that the tail lamps illuminate.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Diagnose the tail lamps. (Refer to P.54A-140.)

**STEP 2. Check the illumination.**

When the tail lamps are turned on, check whether the illumination other than the radio and CD player is turned on.

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Replace the heater controller assembly (A/C-ECU).

**STEP 3. Check of short to power supply, short to earth, and open circuit in ILL+ line between radio and CD player connector and heater controller assembly (A/C-ECU) connector****Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Repair the connector(s) or wiring harness.

*NOTE: When the radio and CD player is replaced, always turn the ignition switch to the "ON" position once and then carry out the operation check.*

**STEP 4. Retest the system**

When the tail lamps illuminate, check that the illumination of the radio and CD player is switched from day mode to night mode.

**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 ).

**NO** : Replace the radio and CD player.

**RADIO AND CD PLAYER****REMOVAL AND INSTALLATION**

M1544011300428

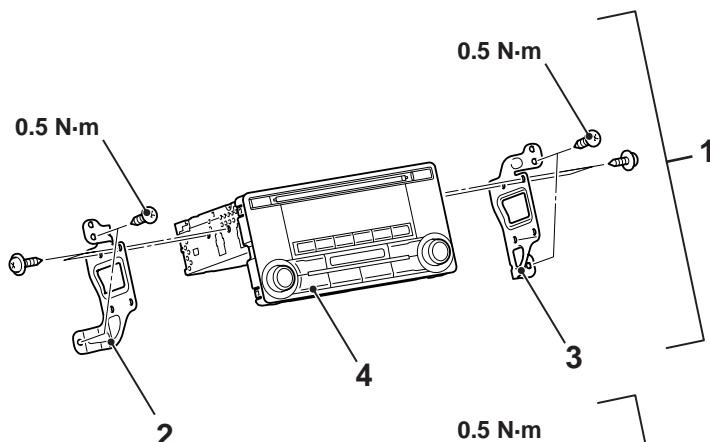
**Pre-removal Operation**

- Centre Panel Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).

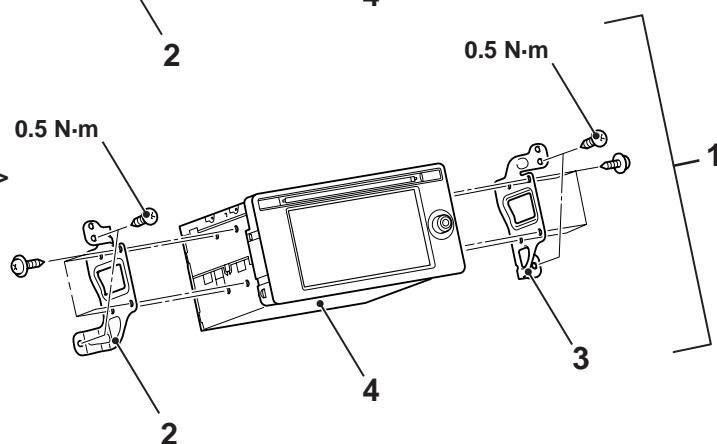
**Post-installation Operation**

- Centre Panel Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).

&lt;Vehicles with 1CD audio&gt;



&lt;Vehicles with display audio&gt;



- Removal steps**
1. Radio and CD player assembly
  2. Radio and CD player bracket LH
  3. Radio and CD player bracket RH
  4. Radio and CD player

ACB05389 AB

**REMOVAL AND INSTALLATION**

M1549101300366

For the USB cable removal and installation procedures, refer to [P.54A-248](#).

## REMOVAL AND INSTALLATION

M1549100800487

For the USB adapter removal and installation procedures, refer to [P.54A-249](#).

## USB ADAPTER CHECK

M1549101100339

For the inspection procedures, refer to [P.54A-249](#).

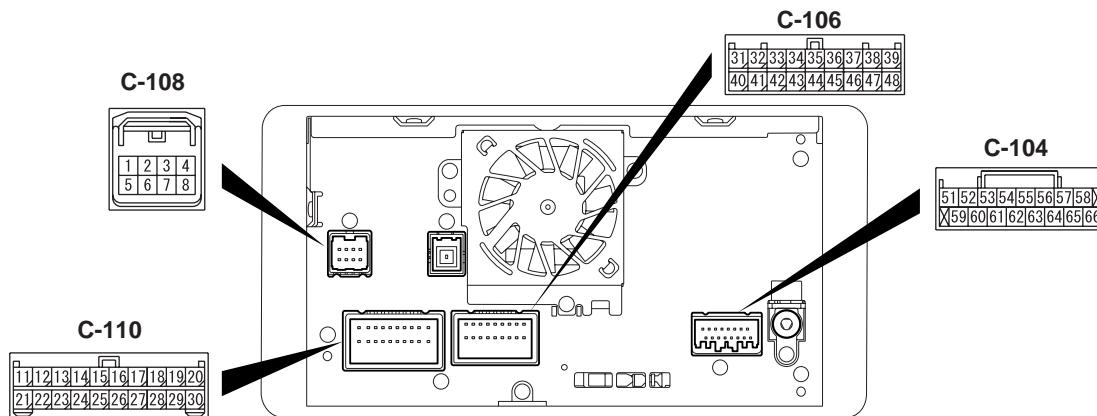
## MITSUBISHI MULTI COMMUNICATION SYSTEM (MMCS)

## TROUBLESHOOTING

## MAIN UNIT TERMINAL VOLTAGE

M1546003300968

## MULTIVISION DISPLAY



ACC00108AB

## C-108

| Terminal No. | Signal symbol | Check item      | Check condition  | Terminal voltage    |
|--------------|---------------|-----------------|--|---------------------|
| 1            | CACC          | VCC             | Ignition switch: ON position<br>Selector lever: R position | 5.8 – 7.0V (DC)     |
| 2            | CDET          | CAMERA DETECT   | Ignition switch: ON position<br>Selector lever: R position | 0 - 5V (DC)         |
| 3            | –             | –               | –  | –                   |
| 4            | +B            | BATTERY (+)     | Always   | System voltage (DC) |
| 5            | CGND          | GND             | Always   | 1 V or less         |
| 6            | CMP+          | CAMERA SIGNAL   | Ignition switch: ON position<br>Selector lever: R position | 1Vp-p (AC)          |
| 7            | CMP-          | SHIELD (CAMERA) | Always   | 1 V or less         |
| 8            | GND           | GND             | Always   | 1 V or less         |

C-110

| Terminal No. | Signal symbol | Check item          | Check condition               | Terminal voltage           |
|--------------|---------------|---------------------|-------------------------------|----------------------------|
| 11           | ACC           | ACCESSORY (+)       | Ignition switch: ACC position | System voltage (DC)        |
| 12           | REM+          | REMOCON             | Ignition switch: ACC position | 3.3V (DC)                  |
| 13, 14       | –             | –                   | –                             | –                          |
| 15           | RR+           | SPEAKER RR (+)      | When the sound is output      | 0 - System voltage (AC)    |
| 16           | FR+           | SPEAKER FR (+)      | When the sound is output      | 0 - System voltage (AC)    |
| 17           | RL+           | SPEAKER RL (+)      | When the sound is output      | 0 - System voltage (AC)    |
| 18           | FL+           | SPEAKER FL (+)      | When the sound is output      | 0 - System voltage (AC)    |
| 19           | ILL+          | ILLUMINATION (+)    | Tail lamp switch: ON          | System voltage (DC)        |
| 20           | +B2           | BATTERY (+)         | Always                        | System voltage (DC)        |
| 21           | SPD           | VEHICLE SPEED PULSE | Ignition switch: ON           | 0 - System voltage (pulse) |
| 22           | REM-          | REMOCON GND         | Always                        | 1 V or less                |
| 23           | –             | –                   | –                             | –                          |
| 24           | ANT+          | ANTENNA +B          | Ignition switch: ACC position | System voltage (DC)        |
| 25           | RR-           | SPEAKER RR (-)      | When the sound is output      | 0 - System voltage (AC)    |
| 26           | FR-           | SPEAKER FR (-)      | When the sound is output      | 0 - System voltage (AC)    |
| 27           | RL-           | SPEAKER RL (-)      | When the sound is output      | 0 - System voltage (AC)    |
| 28           | FL-           | SPEAKER FL (-)      | When the sound is output      | 0 - System voltage (AC)    |
| 29           | –             | –                   | –                             | –                          |
| 30           | GND2          | GND                 | Always                        | 1 V or less                |

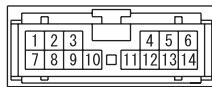
C-106

| Terminal No. | Signal symbol | Check item            | Check condition                   | Terminal voltage |
|--------------|---------------|-----------------------|-----------------------------------|------------------|
| 31, 32       | –             | –                     | –                                 | –                |
| 33           | AAR+          | HFM/USB S-INPUT RIGHT | When the hands free-ECU operation | 1.2 Vrms (AC)    |
| 34           | AAL+          | HFM/USB S-INPUT LEFT  | When the hands free-ECU operation | 1.2 Vrms (AC)    |
| 35           | –             | –                     | –                                 | –                |
| 36           | TIR+          | –                     | –                                 | –                |

| Terminal No. | Signal symbol | Check item        | Check condition                   | Terminal voltage |
|--------------|---------------|-------------------|-----------------------------------|------------------|
| 37           | TIL+          | —                 | —                                 | —                |
| 38           | AMPO          | IE-BUS POWER ON   | Ignition switch: ACC position     | 1 V or less      |
| 39           | D-S+          | IE-BUS (+)        | Ignition switch: ACC position     | More than 120mV  |
| 40           | VA-           | —                 | —                                 | —                |
| 41           | —             | —                 | —                                 | —                |
| 42           | AA-           | HFM/USB INPUT GND | When the hands free-ECU operation | 1.2 Vrms (AC)    |
| 43, 44       | —             | —                 | —                                 | —                |
| 45           | TIR-          | —                 | —                                 | —                |
| 46           | TIL-          | —                 | —                                 | —                |
| 47           | —             | —                 | —                                 | —                |
| 48           | D-S-          | IE-BUS (+)        | Ignition switch: ACC position     | More than 120mV  |

**C-104**

| Terminal No. | Signal symbol | Check item            | Check condition               | Terminal voltage       |
|--------------|---------------|-----------------------|-------------------------------|------------------------|
| 51           | TX-C          | CAN BOX DATA TX       | Ignition switch: ACC position | 5V (DC)                |
| 52           | SH-C          | SHIELD (CAN BOX DATA) | Always                        | 1 V or less            |
| 53 – 58      | —             | —                     | —                             | —                      |
| 59           | RX-C          | CAN BOX DATA RX       | Ignition switch: ACC position | 2 - System voltage(DC) |
| 60           | CK-C          | CAN BOX DATA CLX      | Ignition switch: ACC position | 1 - 5V (DC)            |
| 61 – 66      | —             | —                     | —                             | —                      |

**CAN BOX UNIT**

ACC00149

**C-116**

| Terminal No. | Signal symbol | Check item  | Check condition               | Terminal voltage       |
|--------------|---------------|-------------|-------------------------------|------------------------|
| 1            | +B            | BATTERY (+) | Always                        | System voltage (DC)    |
| 2            | TX-C          | TX (AND)    | Ignition switch: ACC position | 0 - 5V (DC)            |
| 3            | RX-C          | RX (AND)    | Ignition switch: ACC position | 2 - System voltage(DC) |
| 4, 5         | —             | —           | —                             | —                      |
| 6            | ACC           | ACCESSORY   | Ignition switch: ACC position | System voltage (DC)    |

| Terminal No. | Signal symbol | Check item            | Check condition               | Terminal voltage |
|--------------|---------------|-----------------------|-------------------------------|------------------|
| 7            | GND           | GND                   | Always                        | 1 V or less      |
| 8            | SH-C          | SHIELD (CAN BOX DATA) | Always                        | 1 V or less      |
| 9            | CK-C          | CAN BOX DATA CLK      | Ignition switch: ACC position | 1 - 5V (DC)      |
| 10 – 12      | –             | –                     | –                             | –                |
| 13           | CAN-          | CAN-L                 | –                             | –                |
| 14           | CAN+          | CAN-H                 | –                             | –                |

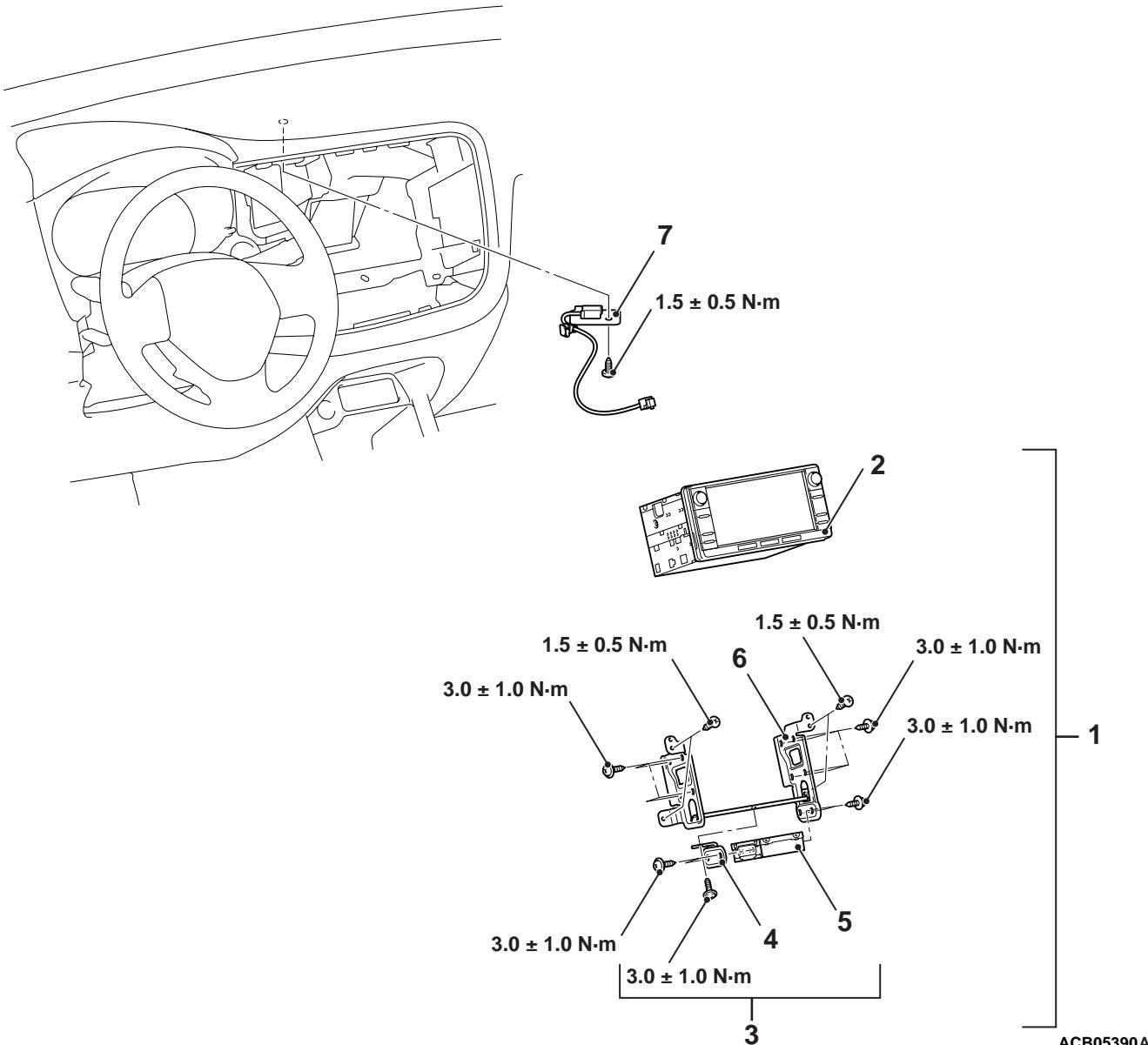
MITSUBISHI MULTI COMMUNICATION  
SYSTEM (MMCS)

## REMOVAL AND INSTALLATION

M1546001000927

*NOTE: When the multivision display is replaced, always turn the ignition switch to the "ON" position once and then carry out the operation check.*

| Pre-removal Operation  | Post-installation Operation   |
|--|---|
| <ul style="list-style-type: none"> <li>Centre Panel Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).</li> </ul> | <ul style="list-style-type: none"> <li>Centre Panel Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).</li> </ul> |



## Removal steps

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

## Removal steps (Continued)

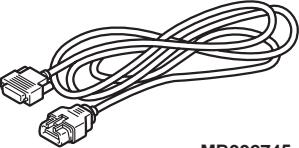
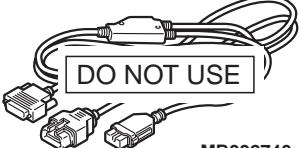
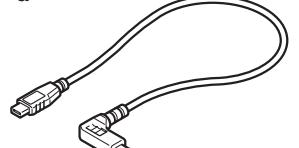
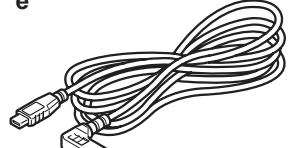
5. CAN box unit
6. Multivision display bracket
7. GPS antenna

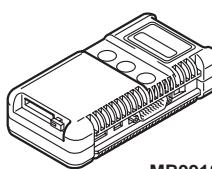
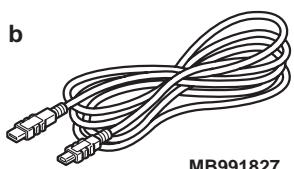
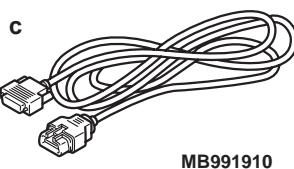
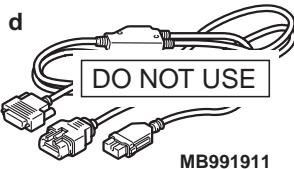
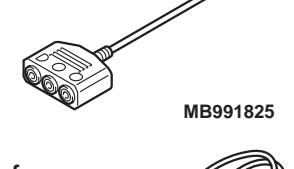
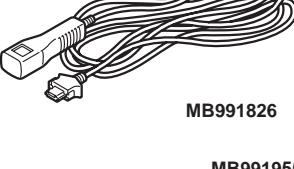
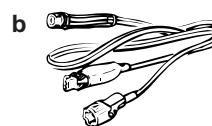
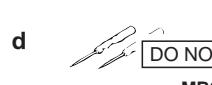
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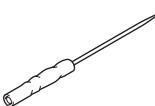
## REAR VIEW CAMERA

## SPECIAL TOOLS

M1540902100212

| Tool   | Number  | Name  | Use  |
|--|---|---|--|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | CAN bus diagnostics or service data check. |
| b<br><br>MB992745                 |   |   |  |
| c<br><br>MB992746                 |   |   |  |
| d<br><br>MB992747               |   |   |  |
| e<br><br>MB992748<br>ACB05421AB |   |   |  |

| Tool  | Number   | Name  | Use   |
|---|--|---|---|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication Interface (V.C.I.)<br>b. M.U.T.-III<br>USB cable<br>c. M.U.T.-III<br>main harness<br>A (Vehicles<br>with CAN<br>communication<br>system)<br>d. M.U.T.-III<br>main harness<br>B (Vehicles<br>without CAN<br>communication<br>system)<br>e. M.U.T.-III<br>measure<br>adapter<br>f. M.U.T.-III<br>trigger<br>harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>CAN bus diagnostics or service data check. |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><b>MB991223</b>   | MB991223<br>a: MB991219<br>b: MB991220<br>c: MB991221<br>d: MB991222                               | Harness set<br>a: Test harness<br>b: LED harness<br>c: LED harness<br>adapter<br>d: Probe   | Making voltage and resistance measurements during troubleshooting<br>a: Connect pin contact pressure inspection<br>b: Power circuit inspection<br>c: Power circuit inspection<br>d: Commercial tester connection  |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

**TROUBLESHOOTING****STANDARD FLOW OF DIAGNOSTIC  
TROUBLESHOOTING**

M1540902300238

Refer to GROUP 00 – Contents of troubleshooting .

**TROUBLE SYMPTOM CHART**

M1540900300533

| Trouble symptom                                   | Inspection Procedure No.    | Reference page                 |
|---|-----------------------------|--------------------------------|
| Rear view camera image is not correctly displayed | Vehicles with display audio | 1<br><a href="#">P.54A-241</a> |

**SYMPTOM PROCEDURES**

**Inspection Procedure 1: Rear view camera image is not correctly displayed <Vehicles with display audio>.**

**⚠ CAUTION**

Before replacing the rear view camera or radio and CD player, ensure that the power supply circuit, the earth circuit, and the communication circuit are normal (Check that the voltage is 10 V or more).

**COMMENTS ON TROUBLE SYMPTOM**

When the screen of rear view camera is not shown even if the selector lever is "R" (Reverse) position, the rear view camera, the radio and CD player, the wiring harness, connectors, inhibitor switch may be defective.

**PROBABLE CAUSES**

- Damaged harness wires and connectors
- Malfunction of the rear view camera
- Malfunction of the radio and CD player
- Malfunction of the inhibitor switch
- Malfunction of CAN bus line

**DIAGNOSIS PROCEDURE****STEP 1. Check the radio and CD player operation.**

Check if the radio and CD player normally and the sound is output.

**Q: Is the check result normal?**

**YES** : Go to Step 2

**NO** : Troubleshoot the radio and CD player.  
(Refer to [P.54A-228.](#))

**STEP 2. Confirmation in display audio service mode.**

- (1) Display the "Vehicle Signal Check" screen (Refer to [P.54A-211](#)).
- (2) Move the selector lever to the "R" (reverse) position.
- (3) Check that "Shift Position R" is "ON."

**Q: Is the check result normal?**

**YES** : Go to Step 5

**NO** : Go to Step 3

**STEP 3. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 4

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 4. Check of short to power supply, short to earth, and open circuit in BLP1 line between ETACS-ECU connector and inhibitor switch connector**

**Q: Is the check result normal?**

**YES** : Go to Step 7

**NO** : Repair the connector(s) or wiring harness.

**STEP 5. Confirmation in display audio service mode.**

(1) Display the "External Device Connection Check" screen (Refer to [P.54A-211](#)).

(2) Check that "Rear Camera" is "OK."

**Q: Is the check result normal?**

**YES** : Go to Step 7

**NO** : Go to Step 6

**STEP 6. Check of short to power supply, short to earth, and open circuit in CACC, CDET, CGND, CMP+, CMP- line between radio and CD player connector and rear view camera connector**

**Q: Is the check result normal?**

**Pre-removal Operation**

- Tailgate Trim Removal (Refer to GROUP 52A – Tailgate Trim ).

**YES** : Go to Step 7

**NO** : Repair the connector(s) or wiring harness.

**STEP 7. Trouble symptom recheck.**

Check that the display of rear view camera is shown 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 Malfunctions ).

**NO** : Replace the rear view camera temporarily and go to Step 8.

**STEP 8. Trouble symptom recheck.**

Check that the display of rear view camera is shown normally.

**Q: Is the check result normal?**

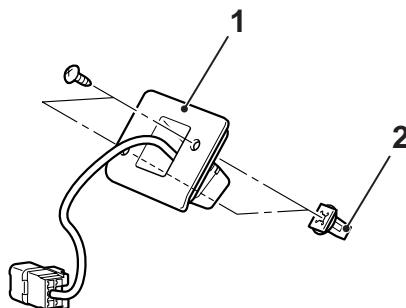
**YES** : Replace the rear view camera.

**NO** : Replace the radio and CD player.

**REAR VIEW CAMERA**

**REMOVAL AND INSTALLATION**

M1540901800166



ACB05391AB

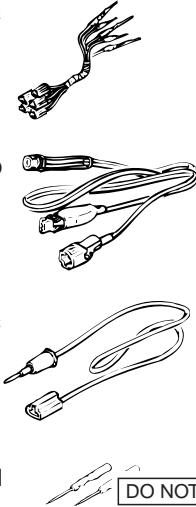
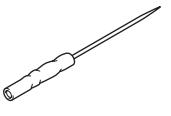
**Removal steps**

1. Rear view camera
2. Grommet

# STEERING WHEEL AUDIO REMOTE CONTROL SWITCH

## SPECIAL TOOLS

M1544000600759

| Tool   | Number   | Name   | Use  |
|--|--|--|--|
| <br><b>a</b><br><b>b</b><br><b>c</b><br><b>d</b> <br><b>MB991223</b> | MB991223<br>a: MB991219<br>b: MB991220<br>c: MB991221<br>d: MB991222 | Harness set<br>a: Test harness<br>b: LED harness<br>c: LED harness adapter<br>d: Probe | Making voltage and resistance measurements during troubleshooting<br>a: Connect pin contact pressure inspection<br>b: Power circuit inspection<br>c: Power circuit inspection<br>d: Commercial tester connection |
| <br><b>MB992006</b>  | MB992006   | Extra fine probe   | Continuity check and voltage measurement at harness wire or connector  |

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1544004800540

Refer to GROUP 00 – Contents of troubleshooting .

## TROUBLE SYMPTOM CHART

M1544004902770

| Trouble symptom   | Inspection Procedure No. | Reference page            |
|---|--------------------------|---------------------------|
| Steering wheel remote control switch (audio remote control switch) does not function. | 1                        | <a href="#">P.54A-243</a> |
| Steering wheel remote control switch illumination does not come on.                   | 2                        | <a href="#">P.54A-244</a> |

## SYMPTOM PROCEDURES

**Inspection Procedure 1: Steering wheel remote control switch (audio remote control switch) does not function. <Vehicles with radio and CD player>**

### TECHNICAL DESCRIPTION (COMMENT)

The power supply circuit to the steering wheel remote control switch (audio remote control switch), the steering wheel remote control switch, the radio

and CD player, or the clock spring may be defective.

**TROUBLESHOOTING HINTS**

- Malfunction of steering wheel remote control switch
- Malfunction of radio and CD player
- Malfunction of the clock spring
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the steering wheel remote control switch.**

Check the steering wheel remote control switch (Refer to [P.54A-245](#)).

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the steering wheel remote control switch.

**STEP 2. Check the clock spring.**

Check whether the clock spring is in good condition. Refer to GROUP 52B – Air bag module and clock spring .

**Q: Is the check result normal?**

**YES** : Go to Step 3.

**NO** : Replace the clock spring.

**STEP 3. Check of short to power supply, short to earth, and open circuit in REM+, REM- line between radio and CD player connector and steering wheel remote control switch connector**

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Retest the system**

Check whether you can operate the radio and CD player by using the steering wheel 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 ).

**NO** : Replace the radio and CD player.

**Inspection Procedure 2: Steering wheel remote control switch illumination does not come on.****TECHNICAL DESCRIPTION (COMMENT)**

The power supply circuit to the steering wheel remote control switch, the steering wheel remote control switch, the combination meter, or the clock spring may be defective.

**PROBABLE CAUSES**

- Malfunction of steering wheel remote control switch
- Malfunction of combination meter
- Malfunction of the clock spring
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the steering wheel remote control switch.**

Check the steering wheel remote control switch (Refer to [P.54A-245](#)).

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the steering wheel remote control switch.

**STEP 2. Resistance measurement at steering wheel remote control switch connector (earth terminal)**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the steering wheel remote control switch connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Go to Step 3.

**STEP 3. Check of open circuit in earth line between steering wheel remote control switch connector and the body earth**

**Q: Is the check result normal?**

**YES** : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Check the clock spring.**

Check whether the clock spring is in good condition.  
Refer to GROUP 52B – Air bag module and clock  
spring .

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Replace the clock spring.

**STEP 5. Check of short to power supply, short to earth, and open circuit in ILL+ line between combination meter connector and steering wheel remote control switch connector**

**Q: Is the check result normal?**

YES : Go to Step 6.

NO : Repair the connector(s) or wiring harness.

**STEP 6. Retest the system**

Check whether the illumination of the steering wheel 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 ).

NO : Replace the combination meter.

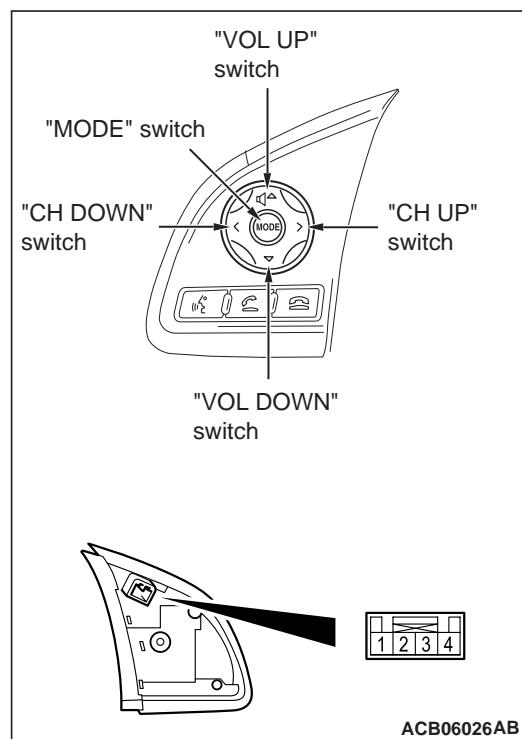
**STEERING WHEEL AUDIO REMOTE CONTROL SWITCH**

**REMOVAL AND INSTALLATION**

M1544015600302  
For the steering wheel remote control switch removal and installation procedures, refer to GROUP 37 – Steering .

**STEERING WHEEL AUDIO REMOTE CONTROL SWITCH CHECK**

M1544015700406



| Switch Position          | Tester Connection | Resistance           |
|--------------------------|-------------------|----------------------|
| "MODE" switch pushed     | 1 – 2             | Approximately 270 Ω  |
| "CH UP" switch pushed    |                   | Approximately 740 Ω  |
| "CH DOWN" switch pushed  |                   | Approximately 1.3 kΩ |
| "VOL UP" switch pushed   |                   | Approximately 2.1 kΩ |
| "VOL DOWN" switch pushed |                   | Approximately 3.1 kΩ |

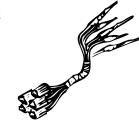
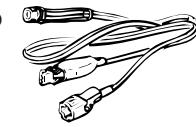
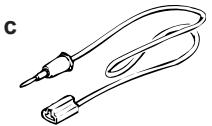
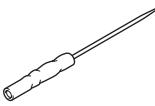
**ILLUMINATION CHECK**

Apply the battery voltage to the connector terminal No. 3, earth the terminal No. 4, and then check that the illumination lights up.

## USB

## SPECIAL TOOLS

M1549100300017

| Tool   | Number   | Name  | Use   |
|--|--|---|---|
| <br><br><br><br><b>a</b><br><b>b</b><br><b>c</b><br><b>d</b> <br><b>DO NOT USE</b><br><b>MB991223</b> | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222 | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester |
| <br><br><b>MB992006</b>  | MB992006   | Extra fine probe  | Continuity check and voltage measurement at harness wire or connector   |

## TROUBLESHOOTING

## STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 – Contents of troubleshooting .

## TROUBLE SYMPTOM CHART

M1549100400014

M1549100500260

| Trouble symptom   | Reference page            |
|---|---------------------------|
| The USB adapter data cannot be replayed. <Vehicles without display audio> | <a href="#">P.54A-246</a> |

## SYMPTOM PROCEDURES

## The USB adapter data cannot be replayed. &lt;Vehicles without display audio&gt;

**CAUTION**

Whenever the radio and CD player is replaced, ensure that the input signal circuit is normal. Check that the USB memory device or iPod® is also normal.

## COMMENTS ON TROUBLE SYMPTOM

If the sound replay is impossible with the USB/iPod® mode, the USB cable or radio and CD player may be

defective.

*NOTE: Before troubleshooting, check that the music file (the customer tried to replay) can be replayed.*

## PROBABLE CAUSES

- The radio and CD player may be defective.
- The USB cable may be defective.
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

---

**STEP 1. Check if the error message is displayed on the radio and CD player.**

(Refer to [P.54A-210](#).)

**Q: Is the error message displayed on the monitor?**

**YES** : Refer to error message (refer to

[P.54A-210](#)), take necessary steps. If the USB memory/iPod® is still not be played, go to Step 2.

**NO** : Go to Step 2

---

**STEP 2. Check the USB adapter.**

Check if the USB adapter works normally. (Refer to [P.54A-249](#).)

**Q: Is the check result normal?**

**YES** : Go to Step 3

**NO** : Replace the USB adapter.

---

**STEP 3. Check the USB cable.**

Check that the USB cable is connected to the radio and CD player normally. Or check the USB cable for damage such as bend.

**Q: Is the check result normal?**

**YES** : Go to Step 4

**NO** : Replace or repair the USB cable.

---

**STEP 4. Retest the system**

Check whether an audio file, which is stored in the USB memory/iPod®, can be played.

**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 ).

**NO** : Replace the radio and CD player.

## USB

## REMOVAL AND INSTALLATION

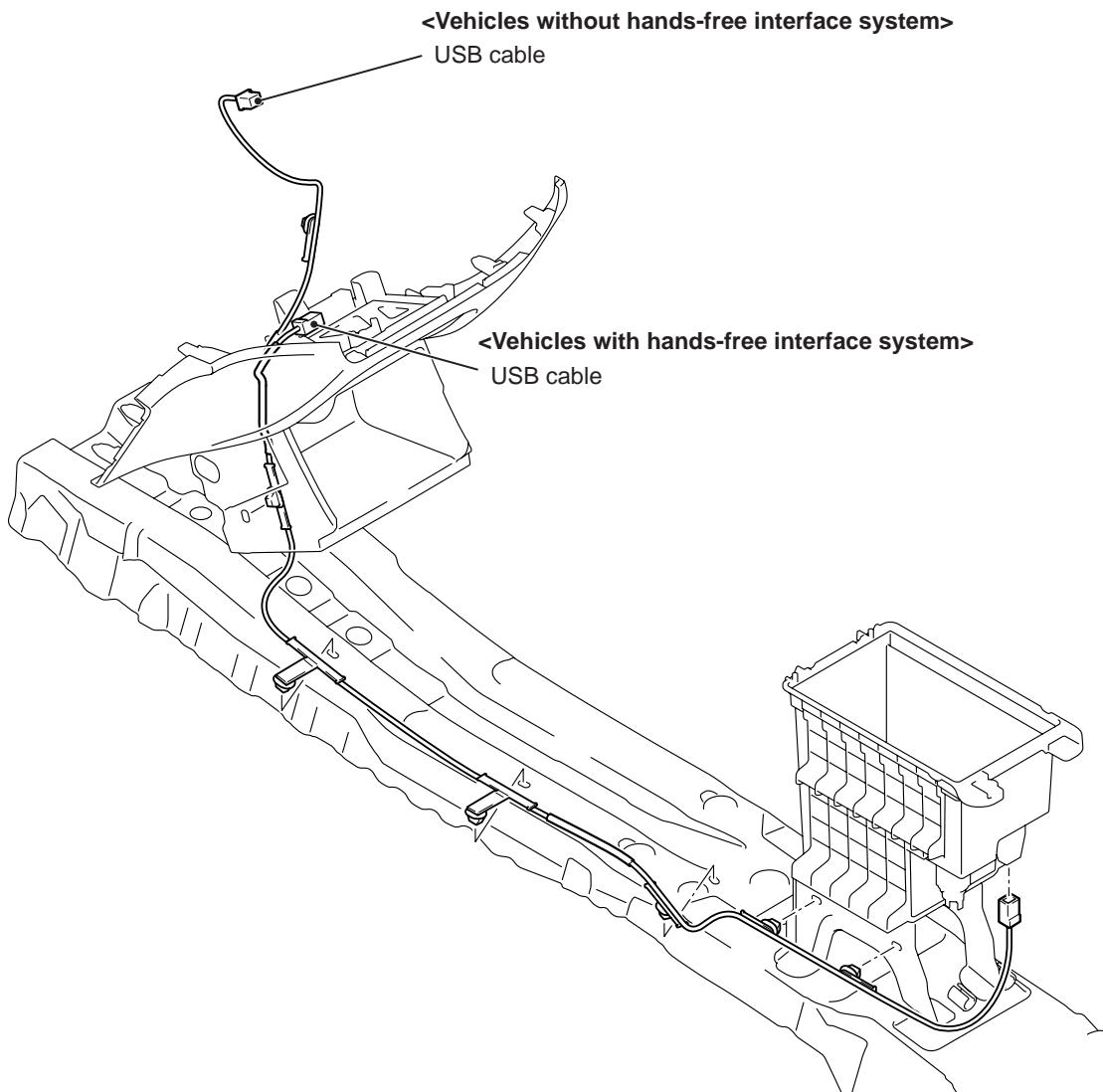
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## Pre-removal Operation

- Radio and CD Player Removal (Refer to [P.54A-233](#)) <Vehicles without MMCS>.
- Multivision Display Removal (Refer to [P.54A-238](#)) <Vehicles with MMCS>.
- Centre Lower Box Assembly and Centre Lower Panel Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).
- Selector Lever Assembly Removal (Refer to GROUP 23A – Transmission Control ).
- Floor Console Trim Plate Bracket Removal (Refer to GROUP 52A – Front Floor Console Assembly ).

## Post-installation Operation

- Floor Console Trim Plate Bracket Installation (Refer to GROUP 52A –Front Floor Console Assembly ).
- Selector Lever Assembly Installation (Refer to GROUP 23A – Transmission Control ).
- Centre Lower Box Assembly and Centre Lower Panel Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).
- Radio and CD Player Installation (Refer to [P.54A-233](#)) <Vehicles without MMCS>.
- Multivision Display Installation (Refer to [P.54A-238](#)) <Vehicles with MMCS>.



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## REMOVAL AND INSTALLATION

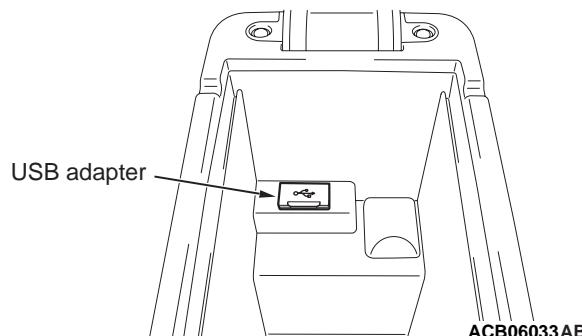
M1549100800465

## Pre-removal Operation

- Rear Floor Console Assembly Removal (Refer to GROUP 52A – Rear Floor Console ).

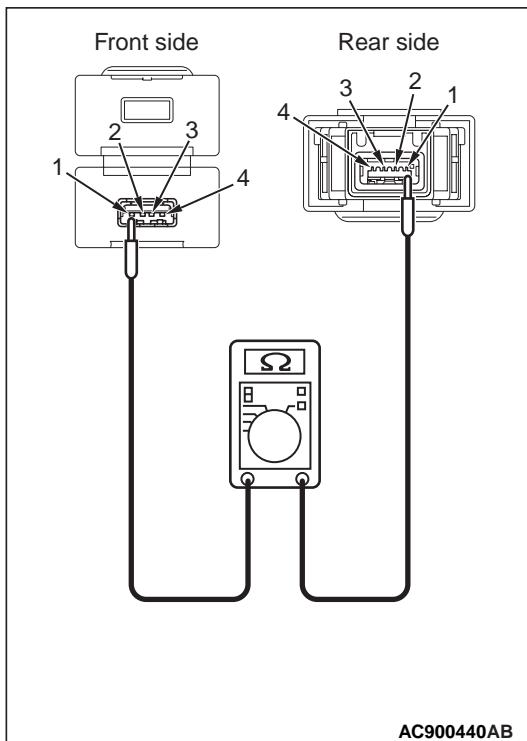
## Post-installation Operation

- Rear Floor Console Assembly Installation (Refer to GROUP 52A – Rear Floor Console ).



## USB ADAPTER CHECK

M1549101100317

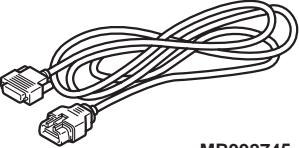
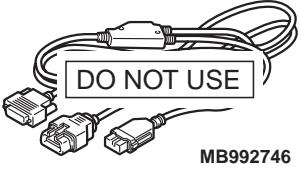
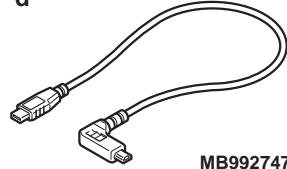
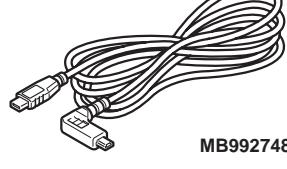


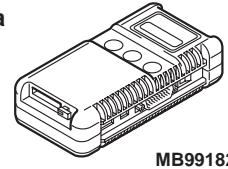
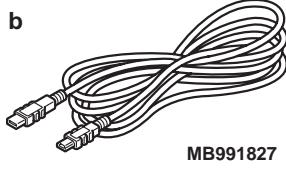
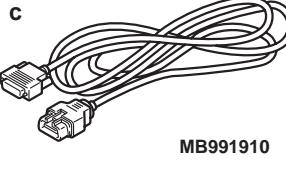
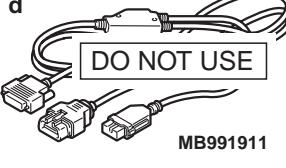
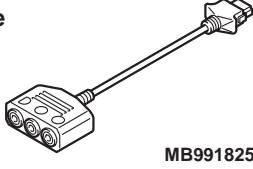
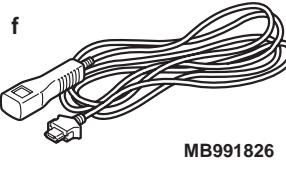
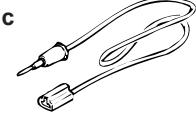
| Front side terminal | Rear side terminal | Measurement value               |
|---------------------|--------------------|---------------------------------|
| 1                   | 1                  | Continuity exists (2 Ω or less) |
| 2                   | 2                  |                                 |
| 3                   | 3                  |                                 |
| 4                   | 4                  |                                 |

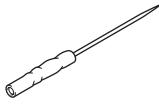
## HANDS FREE ECU

## SPECIAL TOOLS

M1544403500221

| Tool   | Number  | Name  | Use                                    |
|--|---|---|--|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | CAN bus diagnostics or diagnosis code. |
| b<br><br>MB992745                 |   |   |  |
| c<br><br>MB992746                |   |   |  |
| d<br><br>MB992747               |   |   |  |
| e<br><br>MB992748<br>ACB05421AB |   |   |  |

| Tool  | Number  | Name   | Use   |
|---|---|--|---|
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>e</b><br><br><b>f</b><br><br><b>MB991955</b> | <b>MB991955</b><br><b>a.</b> MB991824<br><b>b.</b> MB991827<br><b>c.</b> MB991910<br><b>d.</b> MB991911<br><b>e.</b> MB991825<br><b>f.</b> MB991826 | <b>M.U.T.-III</b><br>sub-assembly<br><b>a.</b> Vehicle<br>Communication<br>Interface (V.C.I.)<br><b>b.</b> M.U.T.-III USB<br>cable<br><b>c.</b> M.U.T.-III main<br>harness A<br>(Vehicles with CAN<br>communication<br>system)<br><b>d.</b> M.U.T.-III main<br>harness B<br>(Vehicles without<br>CAN<br>communication<br>system)<br><b>e.</b> M.U.T.-III measure<br>adapter<br><b>f.</b> M.U.T.-III trigger<br>harness | <br><b>CAUTION</b><br>For vehicles with CAN<br>communication, use M.U.T.-III<br>main harness A to send<br>simulated vehicle speed. If you<br>connect M.U.T.-III main harness<br>B instead, the CAN<br>communication does not<br>function correctly.<br>CAN bus diagnostics or diagnosis<br>code. |
| <br><b>a</b><br><br><b>b</b><br><br><b>c</b><br><br><b>d</b><br><br><b>MB991223</b>  | <b>MB991223</b><br><b>a.</b> MB991219<br><b>b.</b> MB991220<br><b>c.</b> MB991221<br><b>d.</b> MB991222   | Harness set<br><b>a.</b> Check harness<br><b>b.</b> LED harness<br><b>c.</b> LED harness<br>adapter<br><b>d.</b> Probe   | Continuity check and voltage<br>measurement at harness wire or<br>connector<br><b>a.</b> For checking connector pin<br>contact pressure<br><b>b.</b> For checking power supply<br>circuit<br><b>c.</b> For checking power supply<br>circuit<br><b>d.</b> For connecting a locally<br>sourced tester   |

| Tool  | Number   | Name             | Use   |
|---|----------|------------------|---|
| <br>MB992006 | MB992006 | Extra fine probe | Continuity check and voltage measurement at harness wire or connector |

## TROUBLESHOOTING

### INTRODUCTION TO DIAGNOSIS

M1544404500309

*NOTE: For detail of the hands free-ECU, you can see to access via the MITSUBISHI MOTORS web site. Please read and agree the "Warning about Links to the Web Sites of Other Companies" because it connects other than MITSUBISHI MOTORS web site. <http://www.mitsubishi-motors.com/en/products/index.html>*

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

**Pairing of the Bluetooth®device (mobile phone or music player) and hands free-ECU cannot be made.  
The hands free-ECU does not recognize the Bluetooth®device (mobile phone or music player)**

| Cause  | Solution   |
|--|--|
| The power of the bluetooth®device is off.  | With the power of the bluetooth®device turned on, check the trouble symptom again.   |
| In addition to the bluetooth®device to be recognized, two or more bluetooth®device exist in the vehicle.                   | <ul style="list-style-type: none"> <li>With the voice operation, select the device to be connected.</li> <li>Select the device to be connected on the radio and CD player. &lt;Vehicles with display audio&gt;</li> </ul>  |
| Power supply abnormality in the hands free-ECU, or communication error between the radio and CD player and hands free-ECU. | Turn the ignition switch to the "ON" position and check if iPod® connected to the USB adapter or USB device can be played. If the hands free-ECU is defective, music cannot be played. Perform the Inspection procedure 2: The USB adapter data cannot be replayed. (Refer to <a href="#">P.54A-259</a> .) If the diagnosis mode of hands free-ECU can be made an entry, the ECU status can be checked by the hands free-ECU self-check, however, if the power supply of hands free-ECU, or the communication with the radio and CD player may have a problem, the ECU status can not be checked. (Refer to <a href="#">P.54A-254</a> <Vehicles with 1CD audio> or <a href="#">P.54A-256</a> <Vehicles with display audio>.) |

**Calling cannot be made using the hands free cellular phone function.**

**Bluetooth®The music player cannot be replayed.**

**The music data received from the USB adapter cannot be replayed.**

| Cause  | Solution   |
|--|--|
| The Bluetooth® connection is not made between the hands free-ECU and Bluetooth®device. | Connect the Bluetooth®device to the hands free-ECU via Bluetooth®.   |
| The vehicle is not located in the communication area of the cellular phone.            | Check the radio wave condition of the mobile phone shown on the display, or check the radio wave condition shown on the mobile phone itself. |

| Cause   | Solution   |
|---|--|
| communication error between the hands free-ECU and the radio and CD player. | Check if the data of music file sent to the hands free-ECU can be replayed. If there are no problems, the communication between the hands free-ECU and the radio and CD player may have a problem. |

**The voice recognition operation cannot be performed.**

**The communication voice cannot be heard by the other party.**

| Cause  | Solution   |
|--|--|
| During the conversation, the microphone unit is set to mute.                     | During the conversation, press the speech switch and set to mute off by voice recognition. Perform Inspection Procedure 3: When the speech switch is pressed, the voice guide is output, but the voice recognition is not performed. (Refer to <a href="#">P.54A-260</a> .)  |
| The hands free-ECU cannot recognize the speech voice because of noise or others. | Minimize the noise by turning off the A/C, closing the window, and stopping the engine, and then clearly speak up near the microphone unit.  |
| The microphone unit , or the connection has a problem.                           | The microphone unit may have a problem. Perform Inspection Procedure 3: When the speech switch is pressed, the voice guide is output, but the voice recognition is not performed. (Refer to <a href="#">P.54A-260</a> .) The connection with the microphone unit can be checked by the microphone check result on the diagnosis mode. (Refer to <a href="#">P.54A-254</a> <Vehicles with 1CD audio> or <a href="#">P.54A-256</a> <Vehicles with display audio>.) |
| The speech switch, or the connection has a problem.                              | If the voice guide is not output when the speech switch is operated, the speech switch has a problem. Perform the Inspection Procedure 4: When the speech switch is pressed, the voice guide is not output. (Refer to <a href="#">P.54A-260</a> .)   |

**A call cannot be received when the OFF HOOK switch is pressed.**

**The voice guide cannot be output from the speaker.**

| Cause  | Solution   |
|--|--|
| The Bluetooth® connection is not made between the hands free-ECU and cellular phone. | Connect the cellular phone to the hands free-ECU via Bluetooth®.   |
| The OFF HOOK switch, speech switch, or the connection has a problem.                 | If the voice guide is not output when the speech switch is operated, the speech switch has a problem. Perform the Inspection Procedure 4: When the speech switch is pressed, the voice guide is not output. (Refer to <a href="#">P.54A-260</a> .) |

**Voice guide "Unable to obtain vehicle speed. Please try again or contact your dealer for service" is sent from the speaker.**

| Cause  | Solution  |
|--|---|
| The hands free-ECU cannot receive the vehicle speed signal from the radio and CD player. | If the vehicle speed signal the hands free-ECU receives has a problem, the vehicle speed signal of radio and CD player or the hands free-ECU may have a problem. Perform the Inspection Procedure 8: Voice guide "Unable to obtain vehicle speed. Please try again or contact your dealer for service" is sent from the speaker. (Refer to <a href="#">P.54A-262</a> .) |

## STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

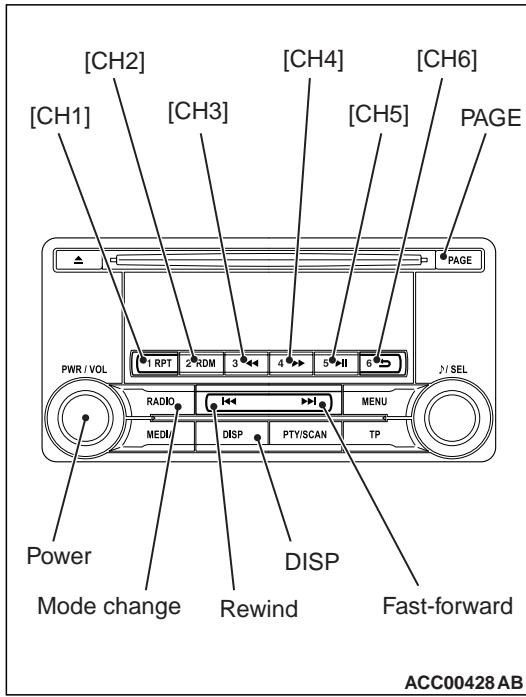
Refer to GROUP 00 – Contents of troubleshooting .

## DIAGNOSIS MODE &lt;VEHICLES WITH 1CD AUDIO&gt;

M1544404800430

Enter the diagnosis 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.

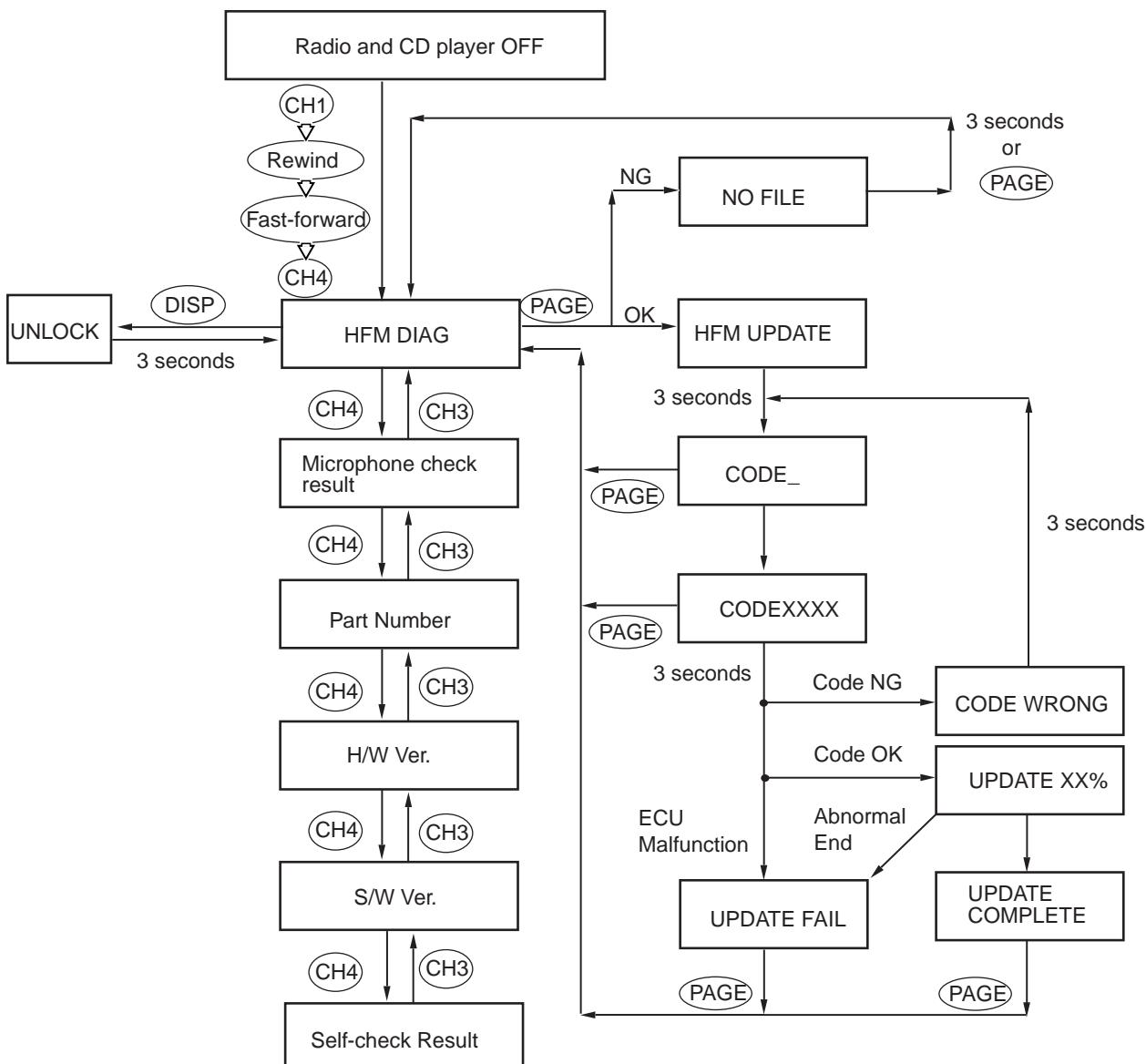


2. Press the following buttons in that order within sixty seconds from step (1).

- (1) [CH1] button.
- (2) Rewind button.
- (3) Fast-forward button.
- (4) [CH4] button.

## NOTE:

- When the "Power" button of the radio and CD player is pressed during the diagnosis mode, the diagnosis mode will be cancelled, thus switching off the radio and CD player. However, if the "Power" button is pressed while the hands free-ECU is being updated, the update will not be cancelled.
  - When the "Mode change" button is pressed during diagnosis mode except the hands free-ECU update, the diagnosis mode will be cancelled and relevant operation will be carried out.
  - When an invalid button is pressed during diagnosis mode except the hands free-ECU update, the diagnosis mode will be cancelled, thus switching off the radio and CD player.
  - During the diagnosis mode, voice which is input through the microphone unit is played through a relevant loudspeaker.
3. "HFM DIAG" is displayed.



AC904648AE

| Description in the illustrations | Actual display | Condition  |
|----------------------------------|----------------|--|
| UNLOCK                           | UNLOCK         | Four-digit password, which has been set by the security function, will be erased.                  |
| HFM DIAG                         | HFM DIAG       | Displayed when the diagnosis mode is being entered.  |
| Result of microphone check       | MIC Short      | Displayed when the line between the microphone and the hands free-ECU is short-circuited.          |
|                                  | MIC Open       | Displayed when the line between the microphone and the hands free-ECU is open-circuited.           |
|                                  | MIC OK         | Normal status (the line between the microphone and the hands free-ECU is not open/short-circuited) |
| Part number                      | PN XXXXXXXX    | Eight-digit part number is displayed.  |
| H/W Ver.                         | H/W XX         | Two-digit hardware version is displayed.   |

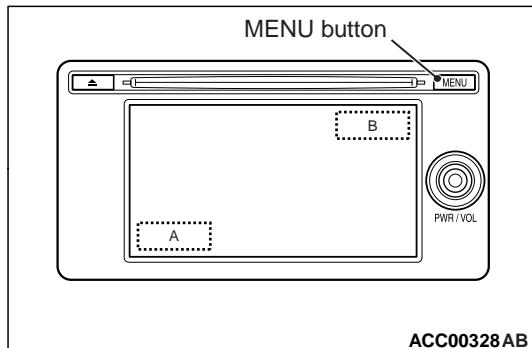
| Description in the illustrations | Actual display  | Condition  |
|----------------------------------|-----------------|--|
| S/W Ver.                         | S/W XXXXXXX     | Seven-digit software version is displayed.   |
| Self-check result                | HFM OK          | Displayed when the hands free-ECU is not defective.  |
|                                  | HFM Error       | Displayed when the hands free-ECU is suspected to be defective.<br><br><i>NOTE: Turn the ignition switch to the "OFF" position once when "ERROR" is displayed. Enter the diagnosis mode by turning the ignition switch to the "ON" position again. If the self-check result shows "ERROR" again, the hands free-ECU is determined to be defective.</i> |
| NO FILE                          | NO file         | A USB device stores no data.   |
| HFM UPDATE                       | HFM Update      | Displayed when the hands free-ECU update file is found, at the transition to the hands free-ECU update mode, in the USB memory that is connected to the USB adapter.   |
| CODE_                            | CODE_           | Input four-digit code for update. Use the "CH" button when a code is input.  |
| CODE XXXX                        | Code XXXX       | XXXX after Code shows the numbers from 1 to 6, corresponding to the buttons "CH1" to "CH6".  |
| CODE WRONG                       | Code wrong      | The code, which has been input, is wrong.  |
| UPDATING XX%                     | Updating XX%    | Displayed when updating is carried out.  |
| UPDATING COMPLETE                | Update complete | The updating mode is complete.   |
| UPDATE FAIL                      | Update fail     | Displayed when the update of the hands free-ECU fails.   |

## DIAGNOSIS MODE <VEHICLES WITH DISPLAY AUDIO>

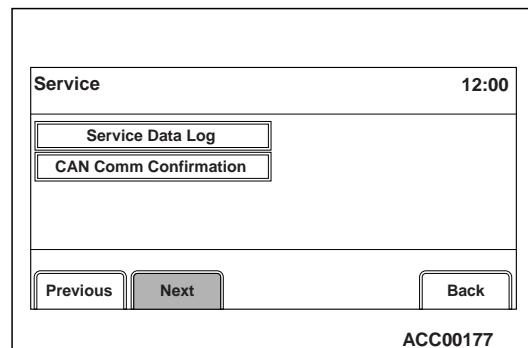
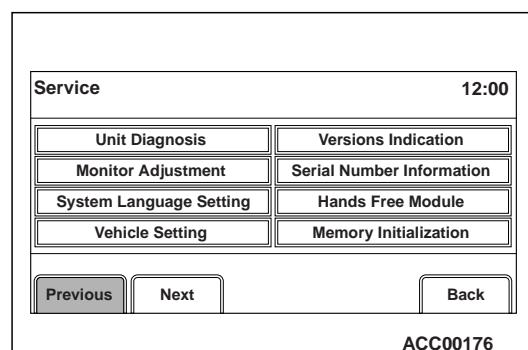
M1544404800429

As a diagnosis mode for the hands free-ECU, version information of the hands free-ECU and diagnostic results of the hands free-ECU and the microphone unit can be displayed by the service mode of the radio and CD player.

### HOW TO INITIATE THE SERVICE MODE



1. While pressing the "MENU" button, press "A" portion (shown in the illustration) on the display briefly. Then press "B" portion for at least two 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.

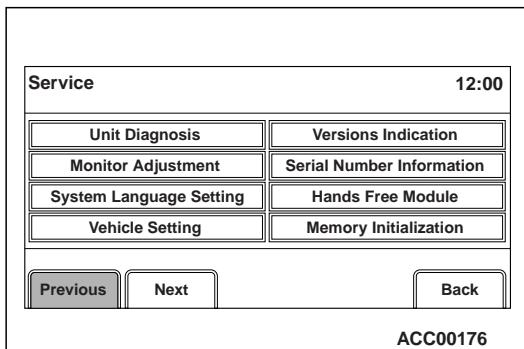
- If "Back" button is selected on "Service" screen, the service mode will terminate and then return to the previous screen.

## DIAGNOSIS MODE

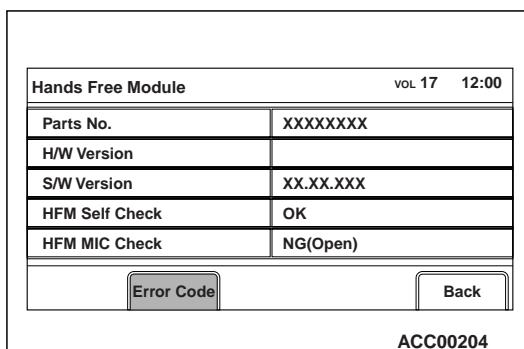
### Hands Free Module

#### NOTE:

- While the hands free-ECU is in diagnosis mode, connection with the Bluetooth® device is shut down.
- While the hands free-ECU is in diagnosis mode, the sound input to the microphone unit is output directly through the speaker.



1. When you select "Hands Free Module" button on "Service" screen, the handsfree system will be diagnosed.



## TROUBLE SYMPTOM CHART

NOTE: Some Bluetooth® devices may not be compatible with the hands free-ECU

M1546001801971

| Trouble symptom                                | Inspection Procedure No. | Reference page |
|--|--------------------------|----------------|
| Check the hands free-ECU power supply circuit. | 1                        | P.54A-258      |

2. The diagnosis result will be displayed.

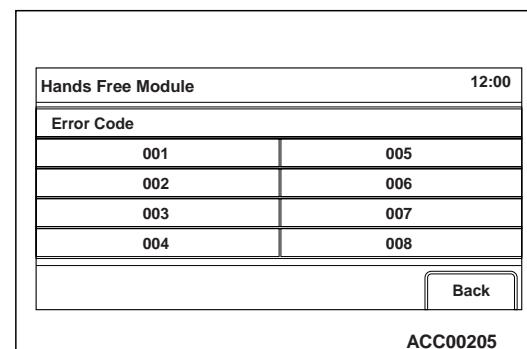
#### HFM Self Check

- "OK": Normal (There is no abnormality in the hands free-ECU.)
- "NG": Abnormal (The hands free-ECU may have a problem.)

*NOTE: If "NG" is displayed, turn the ignition switch to the "OFF" position once. Then, turn the ignition switch to the "ON" position, and enter into the diagnosis mode. When the HFM Self Check display is NG again, the hands free-ECU is determined to be defective.*

#### HFM MIC Check

- "OK": Normal (There is no short circuit or open circuit in the line between the microphone unit and the hands free-ECU.)
- "NG (Short)": This message is displayed when the line between the microphone unit and the hands free-ECU is shorted.
- "NG (Open)": This message is displayed when there is an open circuit in the line between the microphone unit and the hands free-ECU.



3. If the result of "HFM Self Check" is "NG", an error code will be displayed by selecting "Error Code."

| Trouble symptom   | Inspection Procedure No. | Reference page |
|---|--------------------------|----------------|
| The USB adapter data cannot be replayed.  | 2                        | P.54A-259      |
| When the speech switch is pressed, the voice guide is output, but the voice recognition is not performed.                   | 3                        | P.54A-260      |
| When the speech switch is pressed, the voice guide is not output.   | 4                        | P.54A-260      |
| DIAGNOSIS MODE cannot be made an entry. Mobile Phone item is not displayed on the MENU screen of display audio.             | 5                        | P.54A-261      |
| Voice guide "Unable to obtain vehicle speed. Please try again or contact your dealer for service" is sent from the speaker. | 6                        | P.54A-262      |

## SYMPTOM PROCEDURES

### Inspection Procedure 1: Check the hands free-ECU power supply circuit.

#### CAUTION

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

#### CIRCUIT OPERATION

- The handsfree-ECU is energised via the fusible link.
- The ACC signal is received through the radio and CD player connector.

#### PROBABLE CAUSES

- Malfunction of the hands free-ECU
- Malfunction of the radio and CD player
- Damaged harness wires and connectors

#### DIAGNOSIS PROCEDURE

##### STEP 1. Resistance measurement at hands free-ECU connector (GND terminal).

- Disconnect hands free-ECU connector, and measure at the wiring harness side.
- Check the continuity between GND terminal and earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

- YES : Go to Step 3  
NO : Go to Step 2

##### STEP 2. Check of open circuit in GND line between hands free-ECU connector and body earth.

**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 ).

**NO** : Repair the connector(s) or wiring harness.

##### STEP 3. Voltage measurement at hands free-ECU connector (+B terminal).

- Disconnect hands free-ECU connector, and measure at the wiring harness side.
- Measure the voltage between +B terminal and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

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

##### STEP 4. Check of short to power supply, short to earth, and open circuit in +B line between fusible link and hands free-ECU connector.

**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 ).

**NO** : Repair the connector(s) or wiring harness.

##### STEP 5. Voltage measurement at hands free-ECU connector (ACC terminal).

- Disconnect hands free-ECU connector, and

- measure at the wiring harness side.
- (2) Turn the ignition switch to "ACC" position.
- (3) Measure the voltage between ACC terminal and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Replace the hands free-ECU.

NO : Go to Step 6

**STEP 6. Check of short to power supply, short to earth, and open circuit in ACC line between hands free-ECU connector and radio and CD player connector.**

**Q: Is the check result normal?**

YES : Replace the radio and CD player.

NO : Repair the connector(s) or wiring harness.

---

**Inspection Procedure 2: The USB adapter data cannot be replayed.**

---

**⚠ CAUTION**

Before replacing the hands free-ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal. Check that the USB memory device or iPod® is also normal.

**COMMENTS ON TROUBLE SYMPTOM**

If the sound replay is impossible with the USB mode, the USB adapter, USB cable, hands free-ECU, or radio and CD player may be defective, or a communication error between the radio and CD player and hands free-ECU may have occurred.

*NOTE: Before troubleshooting, check that the music file (the customer tried to replay) can be replayed.*

**PROBABLE CAUSES**

- The radio and CD player may be defective.
- The hands free-ECU may be defective.
- The USB adapter may be defective.
- The USB cable may be defective.
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE**

---

**STEP 1. Check the radio and CD player operation.**

Check if the radio and CD player normally and the sound is output.

**Q: Is the check result normal?**

YES : Go to Step 2

NO : Troubleshoot the radio and CD player.  
(Refer to [P.54A-228](#).)

---

**STEP 2. Check the diagnosis mode**

Check if the hands free-ECU can be switched to the diagnosis mode. (Refer to [P.54A-254](#) <Vehicles with 1CD audio> or [P.54A-256](#) <Vehicles with display audio>.)

**Q: Is the check result normal?**

YES : Go to Step 3

NO : Perform Inspection Procedure 5

"DIAGNOSIS MODE cannot be made an entry." (Refer to [P.54A-261](#).)

---

**STEP 3. Check the USB adapter.**

Check that the continuity exists between the front side terminals of USB adapter and rear side terminals of USB adapter. (Refer to [P.54A-249](#).)

**Q: Is the check result normal?**

YES : Go to Step 4

NO : Replace the USB adapter.

---

**STEP 4. Check the USB cable.**

Check that the USB cable is connected to the USB adapter or hands free-ECU normally. Or check the USB cable for damage such as bend.

**Q: Is the check result normal?**

YES : Go to Step 5

NO : Replace or repair the USB cable.

---

**STEP 5. Check of short to power supply, short to earth, and open circuit in AAL+, AAR+ line between hands free-ECU connector and radio and CD player connector.**

**Q: Is the check result normal?**

YES : Go to Step 6

NO : Repair the connector(s) or wiring harness.

---

**STEP 6. Replace the hands free-ECU temporarily, and check the trouble symptom.**

Replace the hands free-ECU temporarily, and check that the sound is output from the speaker.

**Q: Is the check result normal?**

YES : Replace the hands free-ECU.

NO : Replace the radio and CD player.

**Inspection Procedure 3: When the speech switch is pressed, the voice guide is output, but the voice recognition is not performed.****⚠ CAUTION**

Before replacing the hands free-ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

When the speech switch is pushed, if the voice guide is sent but voice recognition is not executed, the microphone unit, hands free-ECU or the communication between the microphone unit and hands free-ECU may have a problem. It may also be possible that the voice recognition is interfered by external noise.

**PROBABLE CAUSES**

- The hands free-ECU may be defective.
- The microphone unit may be defective.
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Retest the system**

Close all the windows to suppress external noise as much as possible. Then check whether the voice recognition operates normally when you utter a word as close to the microphone unit as possible

**Q: Is the check result normal?**

- YES : Diagnosis complete.  
NO : Go to Step 2

**STEP 2. Check the diagnosis mode**

Check if the microphone check result "HFM MIC Check" is displayed on the diagnosis mode of hands free-ECU. (Refer to [P.54A-254](#) <Vehicles with 1CD audio> or [P.54A-256](#) <Vehicles with display audio>.)

**Q: Is the check result normal?**

**YES** : Go to Step 4

**NO** : Go to Step 3

**STEP 3. Check of short to power supply, short to earth, and open circuit in MIC+, MIC- line between hands free-ECU connector and microphone unit connector.****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 ).

**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Replace the microphone unit temporarily, and check the trouble symptom.****Q: Is the check result normal?**

**YES** : Replace the microphone unit.  
**NO** : Go to Step 5

**STEP 5. Replace the hands free-ECU temporarily, and check the trouble symptom.****Q: Is the check result normal?**

**YES** : Replace the hands free-ECU.  
**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 ).

**Inspection Procedure 4: When the speech switch is pressed, the voice guide is not output.****⚠ CAUTION**

Before replacing the hands free-ECU or radio and CD player, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

If the voice guide is not sent when the steering wheel remote control switch (speech switch) is pushed, the

communication between the radio and CD player and the hands free-ECU, or the communication between the radio and CD player and the steering wheel remote control switch, the hands free-ECU or the steering wheel remote control switch may have a problem.

**PROBABLE CAUSES**

- The radio and CD player may be defective.

- The hands free-ECU may be defective.
- The steering wheel remote control switch may be defective.
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

### STEP 1. Check the diagnosis mode

Check if the hands free-ECU can be switched to the diagnosis mode. (Refer to [P.54A-254](#) <Vehicles with 1CD audio> or [P.54A-256](#) <Vehicles with display audio>.)

Q: Is the check result normal?

YES : Go to Step 2.

NO : Perform Inspection Procedure 5

"DIAGNOSIS MODE cannot be made an entry." (Refer to [P.54A-261](#).)

### STEP 2. Operation check of the steering wheel remote control switch (audio remote control switch)

Check that the radio and CD player can be operated by the steering wheel remote control switch.

Q: Is the check result normal?

**Inspection Procedure 5: DIAGNOSIS MODE cannot be made an entry. Mobile Phone item is not displayed on the MENU screen of display audio.**

#### **CAUTION**

Before replacing the hands free-ECU or radio and CD player, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

#### **COMMENTS ON TROUBLE SYMPTOM**

If the diagnosis mode cannot be made an entry, the hands free-ECU, the communication between the hands free-ECU and the radio and CD player, or the power supply system of hands free-ECU may have a problem.

#### **PROBABLE CAUSES**

- The hands free-ECU may be defective.
- The radio and CD player may be defective.
- Damaged harness wires and connectors

YES : Go to Step 3.

NO : Troubleshoot the steering wheel remote control switch.

### STEP 3. Check the steering wheel remote control switch (speech switch).

Check the continuity of the steering wheel remote control switch. (Refer to [P.54A-267](#))

Q: Is the check result normal?

YES : Go to Step 4.

NO : Replace the steering wheel remote control switch.

### STEP 4. Temporarily replace the hands free-ECU, and check the trouble symptom.

Q: Is the check result normal?

YES : Replace the hands free-ECU.

NO : Replace the radio and CD player.

## DIAGNOSIS PROCEDURE

### STEP 1. Check the radio and CD player operation.

Check if the radio and CD player work normally and the sound is output.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Troubleshoot the radio and CD player. (Refer to [P.54A-228](#).)

### STEP 2. Check of short to power supply, short to earth, and open circuit in IE+, IE- line between hands free-ECU connector and radio and CD player connector.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the connector(s) or wiring harness.

**STEP 3. Check if the power supply circuit of hands free-ECU have a problem.**

Perform the Inspection procedure 1 "Check the hands free-ECU power supply circuit." of the troubleshooting. (Refer to [P.54A-258](#).)

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair according to the troubleshooting for reference.

**STEP 4. Replace the hands free-ECU temporarily, and check the trouble symptom.**

Q: Is the check result normal?

YES : Replace the hands free-ECU.

NO : Replace the radio and CD player.

**Inspection Procedure 6: Voice guide "Unable to obtain vehicle speed. Please try again or contact your dealer for service" is sent from the speaker**

**CAUTION**

Before replacing the hands free-ECU or radio and CD player, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.

**COMMENTS ON TROUBLE SYMPTOM**

If the voice guide "Unable to obtain vehicle speed. Please try again or contact your dealer for service" is sent from the speaker, the vehicle speed signal of hands free-ECU has a problem. At this time, the hands free-ECU, and the vehicle speed signal of radio and CD player may have a problem.

**PROBABLE CAUSES**

- The hands free-ECU may be defective.
- The radio and CD player may be defective.
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the radio and CD player operation.**

Check if the speed compensated volume function of radio and CD player works normally during driving.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Troubleshoot the radio and CD player (Refer to [P.54A-228](#)).

**STEP 2. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 3. M.U.T.-III other system diagnosis code**

Check again if the diagnosis code is set to the radio and CD player.

Q: Is the diagnosis code set?

YES : Troubleshoot the radio and CD player (Refer to [P.54A-220](#)).

NO : Go to Step 4.

**STEP 4. Check the diagnosis mode**

Check if the hands free-ECU can be switched to the diagnosis mode.(Refer to [P.54A-254](#) <Vehicles with 1CD audio> or [P.54A-256](#) <Vehicles with display audio>.)

Q: Is the check result normal?

YES : Go to Step 5.

NO : Perform Inspection Procedure 5: "DIAGNOSIS MODE cannot be made an entry." (Refer to [P.54A-261](#).)

**STEP 5. Replace the hands free-ECU temporarily, and check the trouble symptom.**

Q: Is the check result normal?

YES : Replace the hands free-ECU.

NO : Replace the radio and CD player.

## ON-VEHICLE SERVICE

METHODS FOR PAIRING AND PAIRING DELETION WITH BLUETOOTH® DEVICE  
<USING STEERING WHEEL REMOTE CONTROL SWITCH>

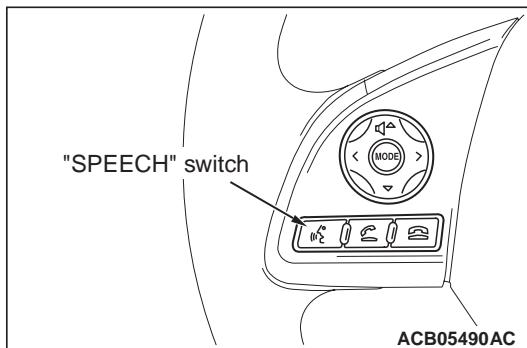
M1544405500454

## NOTE:

- For detail of the hands free-ECU, you can see to access via the MITSUBISHI MOTORS web site. Please read and agree the "Warning about Links to the Web Sites of Other Companies" because it connects other than MITSUBISHI MOTORS web site.  
<http://www.mitsubishi-motors.com/en/products/index.html>
- Some Bluetooth® devices (mobile phone or music player) may not be compatible with the hands free-ECU.
- A maximum of seven Bluetooth® devices can be registered.
- This system cannot be used when a battery of Bluetooth® devices was exhausted.

## PAIRING METHOD

Turn the ignition switch to "ACC" or "ON" position.



1. Press the "SPEECH" switch.
2. Say "Setup."
3. Say "Pairing options."
4. The voice guide will say "Select one of the following: pair, edit, delete, or list?"
5. Say "Pair."
6. The voice guide will say "Please say a 4-digit pairing code."
7. Say a 4 digit number. The 4 digit number will be registered as a pairing code for the device.
- When the confirmation function is on, the system will confirm whether the number said is acceptable. Answer "Yes" to go Step 8. Say "No" to return to pairing code selection.

## NOTE:

- The pairing code entered here is only used for the Bluetooth® connection certification. It is any 4-digit number the user would like to select. A predetermined 4-digit number may be assigned to some Bluetooth® devices.
  - Remember the pairing code as it needs to be keyed into the device later in the pairing process.
  - Depending on the connection settings of the Bluetooth® device, this code may have to be entered each time you connect the Bluetooth® device to the hands free-ECU. For the default connection settings, refer to the instructions for device.
8. The voice guide will say "Start pairing procedure on device. See device manual for instructions." Refer to the owner's manual for your device and enter into the device the pairing code that was registered in Step 7.
  9. When this system finds a Bluetooth® device, the voice guide will say "Please say the name of the device after the beep."
  10. After you hear the beep, name the device by saying a name of your preference.
- NOTE: When the confirmation function is on, after repeating the device tag you have said, the voice guide will ask "Is this correct?" Answer "Yes". To change the device tag, answer "No" and then say the device tag again.*

11. The voice guide will say "Pairing complete," after which a beep will be played and the pairing process will end.

## PAIRING DELETION METHOD

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 "Select one of the following: pair, edit, delete, or list"
6. Say "Delete."
7. After the voice guide says "Please say," the numbers of the devices and device tags of corresponding devices will be read out in order, starting with the device that has been most recently connected. After it completes reading all pairs, the voice guide will say "or all." Say the number of the device that you want to delete from the system.  
If you want to delete all paired devices from the system, say "All."
8. For confirmation purposes, the voice guide will say "Deleting (device tag) (number). Is this correct?" or "Deleting all devices, Is this correct?"
9. Answer "Yes" to delete the devices.  
Answer "No" the system will return to Step 5.
10. The voice guide will say "Deleted", and then the system will end the device deletion process.
- If the device deletion process fails for some reason, the voice guide will say "Delete failed." and then the system will cancel deleting the device.

## HOW TO REGISTER AND DELETE BLUETOOTH® DEVICE <USING DISPLAY AUDIO>

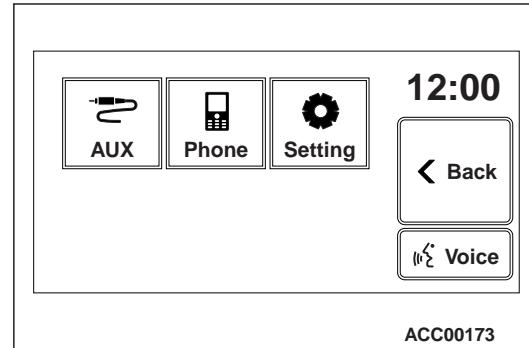
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It is possible to perform Bluetooth® pairing and remove a paired Bluetooth® device from the hands free-ECU via a touch panel operation on the radio and CD player screen.

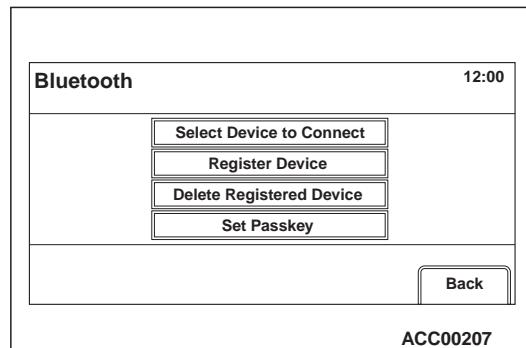
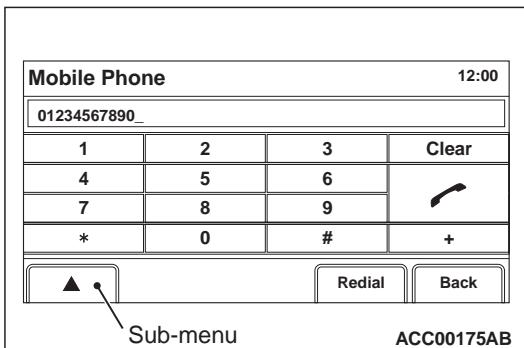
### NOTE:

- For detail of the hands free-ECU, you can see to access via the MITSUBISHI MOTORS web site. Please read and agree the "Warning about Links to the Web Sites of Other Companies" because it connects other than MITSUBISHI MOTORS web site.  
<http://www.mitsubishi-motors.com/en/products/index.html>
- Some Bluetooth® devices (cellular phone and music player) may not be compatible with the hands free-ECU.
- A maximum of seven Bluetooth® devices can be registered.
- This system cannot be used when a battery of Bluetooth® devices was exhausted.

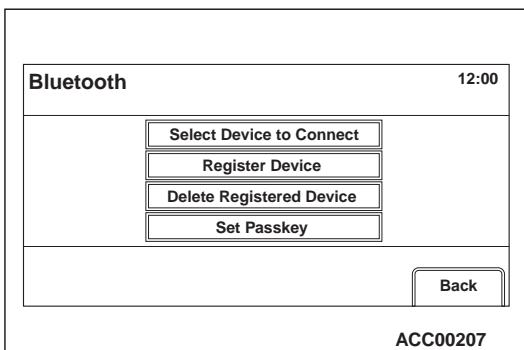
## HOW TO DISPLAY "BLUETOOTH" SCREEN OPERATION ON THE MOBILE PHONE SCREEN



1. Select "Phone" button on the menu screen.

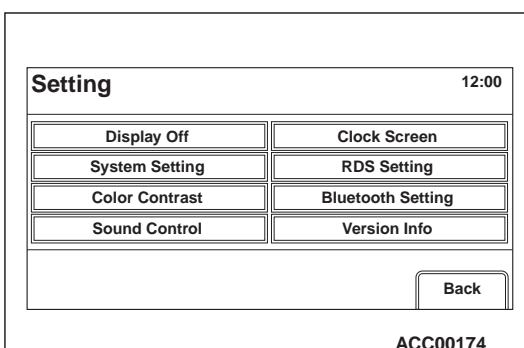
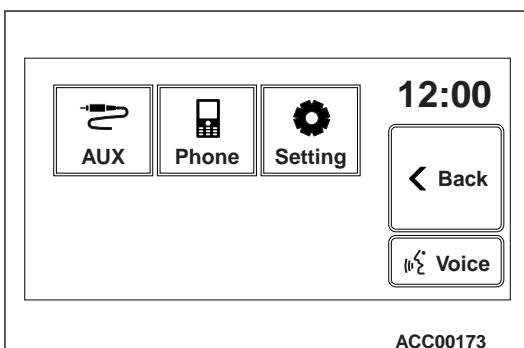


2. Select the sub-menu button on "Mobile Phone" screen to go to the sub-menu screen.



3. Select "Bluetooth Setting" in the sub-menu to go to "Bluetooth" screen.

## OPERATION ON THE MENU SCREEN

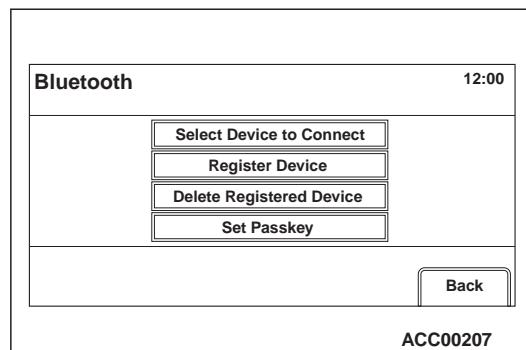


1. Select "Setting" button on the menu screen.  
2. "Starting registration to Bluetooth device" will be displayed. Then "Register Device" screen will be

2. Select "Bluetooth Setting" button in "Setting" screen to go to "Bluetooth" screen.

## HOW TO REGISTER BLUETOOTH® DEVICE

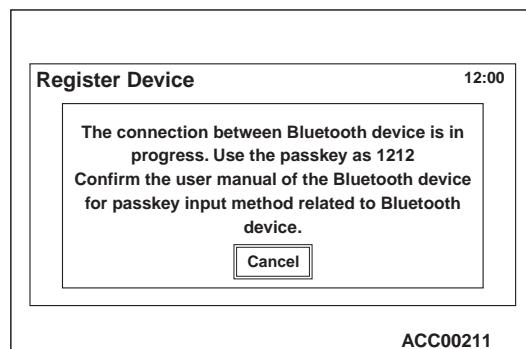
Go to "Bluetooth" screen.



1. Select "Register Device" button on "Bluetooth" screen.

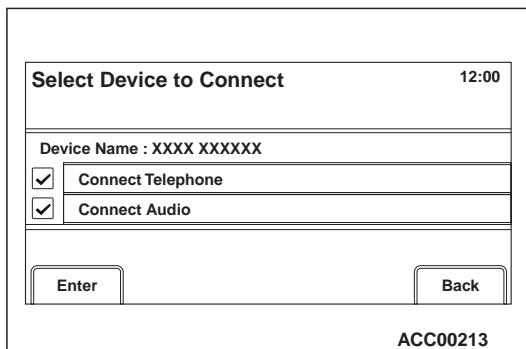
*NOTE: "Register Device" is inactive under the following cases:*

- Seven Bluetooth® devices have been registered.
- Mobile phone is being used.
- Bluetooth® device(s) are being removed.
- Registration of Bluetooth® device(s) are being cancelled.



displayed. Enter the passkey (4-digit number), which is displayed on the screen, to the appropriate Bluetooth® device.

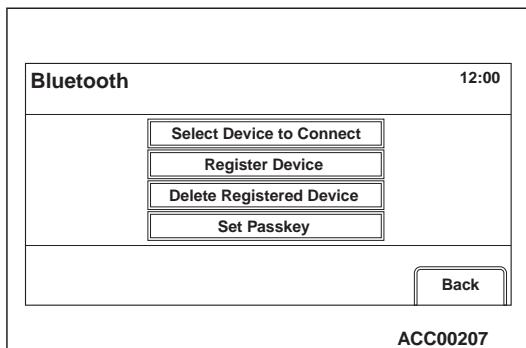
**NOTE:** A predetermined 4-digit number may be assigned to some Bluetooth® devices.



3. If the registration is successfully completed, "Bluetooth device certification process finished with XXXX(Bluetooth® device name)" will be displayed. It will be switched to "Select Device to Connect" screen in several seconds and then display registered Bluetooth® device(s).

## HOW TO DELETE BLUETOOTH® DEVICE

Go to "Bluetooth" screen.



## REMOVAL AND INSTALLATION

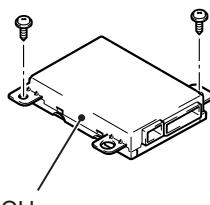
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### Pre-removal Operation

- Centre Lower Box Assembly Removal (Refer to GROUP 52A – Instrument Panel Assembly ).

### Post-installation Operation

- Centre Lower Box Assembly Installation (Refer to GROUP 52A – Instrument Panel Assembly ).



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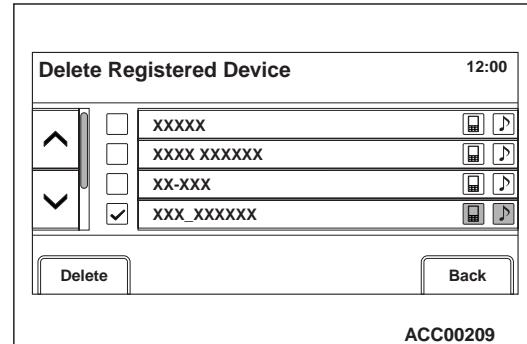
## REMOVAL AND INSTALLATION

M1549101300355

For the USB cable removal and installation proce-

dures, refer to [P.54A-248](#).

1. If you select "Delete Registered Device" button on "Bluetooth" screen, "Delete Registered Device" screen will be displayed.



2. On "Delete Registered Device" screen, select a Bluetooth® device you want to remove. Then select "Delete" button.

*NOTE: You cannot select the Bluetooth® device(s) you are using.*

3. When "Do you want to delete the Bluetooth device entry?" is displayed, select "Delete" button again.
4. If at least one Bluetooth® device is still registered, it will be switched to "Delete Registered Device" screen. If no devices are registered, it will be switched to "Bluetooth" screen.

## HANDS FREE ECU

**REMOVAL AND INSTALLATION**

M1549100800476  
For the USB adapter removal and installation procedures, refer to [P.54A-249](#).

**REMOVAL AND INSTALLATION**

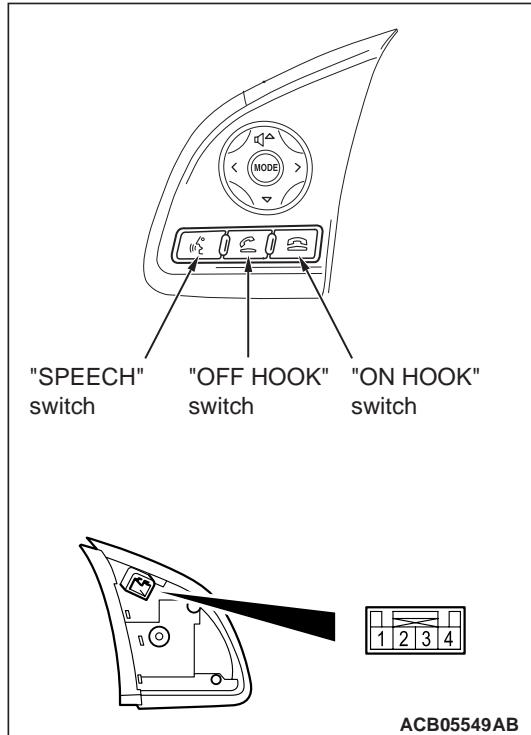
M1546024200331  
For the steering wheel remote control switch removal and installation procedures, refer to GROUP 37 – Steering.

**USB ADAPTER CHECK**

M1549101100328  
For the inspection procedures, refer to [P.54A-249](#).

**STEERING WHEEL VOICE CONTROL  
SWITCH CHECK**

M1544401100476

**REMOVAL AND INSTALLATION**

M1546023300324  
For the microphone unit removal and installation procedures, refer to [P.54A-167](#).

| Switch position          | Tester connection | Resistance           |
|--------------------------|-------------------|----------------------|
| "SPEECH" switch pushed   | 1 – 2             | Approximately 4.6 kΩ |
| "OFF HOOK" switch pushed |                   | Approximately 6.3 kΩ |
| "ON HOOK" switch pushed  |                   | Approximately 8.6 kΩ |

**ILLUMINATION CHECK**

Apply the battery voltage to the connector terminal No. 3, earth the terminal No. 4, and then check that the illumination lights up.

## AMPLIFIER

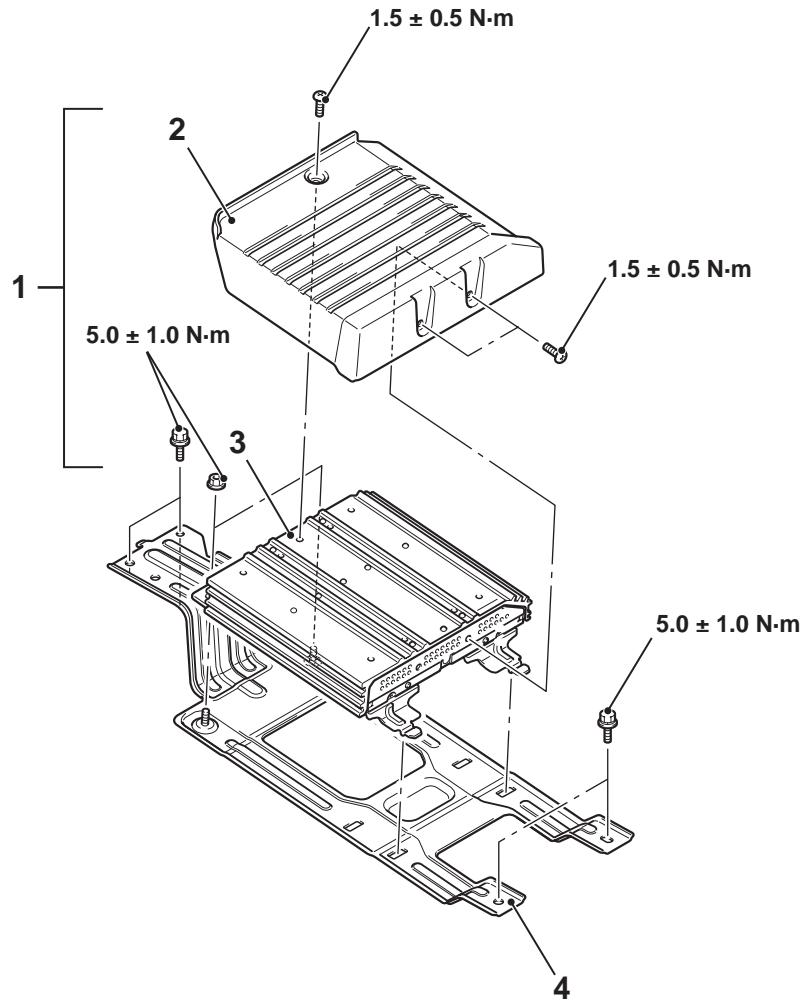
## REMOVAL AND INSTALLATION

M1544004100789

**CAUTION**

To remove the front seat assembly of vehicle with side-air bag, refer to GROUP 52B – Service Precautions and Side-airbag Module(s) .

| Pre-removal Operation  | Post-installation Operation   |
|--|---|
| <ul style="list-style-type: none"> <li>Front Seat Assembly Removal (Refer to GROUP 52A – Front Seat Assembly ).</li> </ul> | <ul style="list-style-type: none"> <li>Front Seat Assembly Installation (Refer to GROUP 52A – Front Seat Assembly ).</li> </ul> |



ACB05392AB

**Removal steps**

1. Audio amplifier assembly
2. Audio amplifier cover
3. Audio amplifier
4. Bracket

&lt;&lt;A&gt;&gt;

**REMOVAL SERVICE POINT****<<A>> BRACKET REMOVAL**

Turn up and remove the carpet.

## SPEAKER

## ON-VEHICLE SERVICE

SPEAKER TEST <VHICLES WITH RADIO  
AND CD PLAYER>

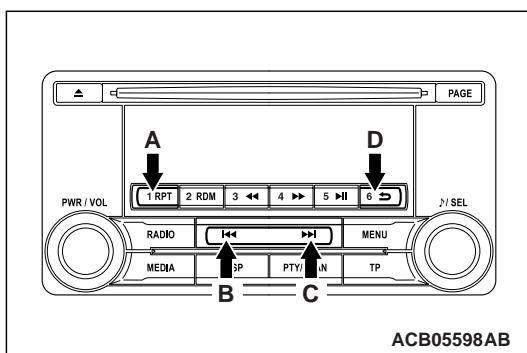
&lt;Vehicles with 1CD audio&gt;

M1544100500641

HOW TO START 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.

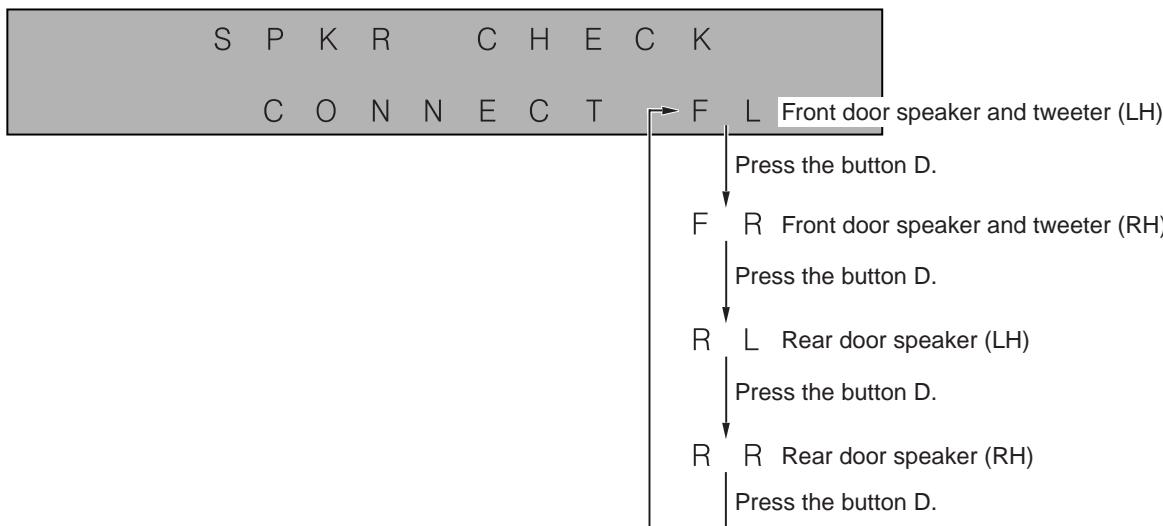
- (1) Button A
- (2) Button B
- (3) Button C
- (4) Button D

## SPEAKER CONNECTION CHECK MODE

With the speaker connection check mode, the connection status of each speaker can be checked based on the sound output from each speaker. The procedure is as follows.

*NOTE: If a button other than the button D is pressed, or the ignition switch is turned to "LOCK" (OFF) position, you will exit from the speaker connection check mode.*

Display



ACC00003

1. At the same time with the start of speaker check mode, the sound for speaker connection check is output from the front door speaker (LH) and tweeter (LH).
2. Press the button D to switch the sound output for speaker connection check from the front door speaker (RH) and tweeter (RH).
3. Press the button D to switch the sound output for speaker connection check from the rear door speaker (LH).

4. Press the button D to switch the sound output for speaker connection check from the rear door speaker (RH).

## SPEAKER

### REMOVAL AND INSTALLATION

M1544100300487

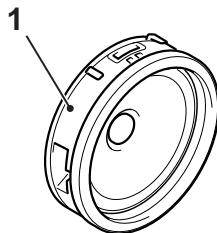
#### <Vehicles with display audio>

Refer to service mode [P.54A-211](#).

### FRONT DOOR SPEAKER, REAR DOOR SPEAKER

#### Post-installation Operation

- Learning of the Power Window Fully Closed Position (Refer to GROUP 42A – Door, On-vehicle Service, Learning Procedures of Power Window Fully Closed Position ).



ACB05393AB

#### Front door speaker removal step

- Front door trim (Refer to GROUP 52A – Door Trim ).
- <<A>> 1. Front door speaker

#### Rear door speaker removal step

- Rear door trim (Refer to GROUP 52A – Door Trim ).
- <<A>> 1. Rear door speaker

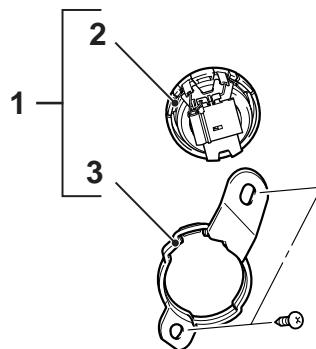
### TWEETER

#### Pre-removal Operation

- Front Door Sash Trim Removal (Refer to GROUP 52A – Door Trim ).

#### Post-installation Operation

- Front Door Sash Trim Installation (Refer to GROUP 52A – Door Trim ).



ACB05394AB

#### Removal steps

1. Tweeter assembly
2. Tweeter
3. Bracket

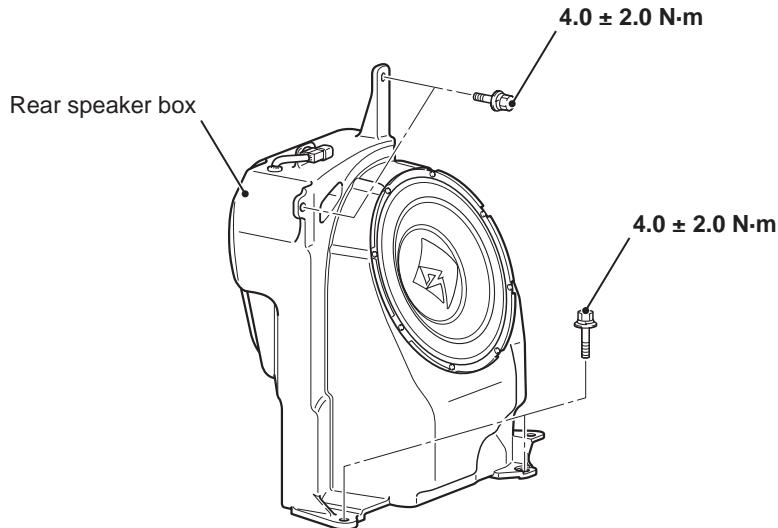
## SUBWOOFER

**Pre-removal Operation**

- Quarter Trim Lower Removal (Refer to GROUP 52A – Trim ).

**Post-installation Operation**

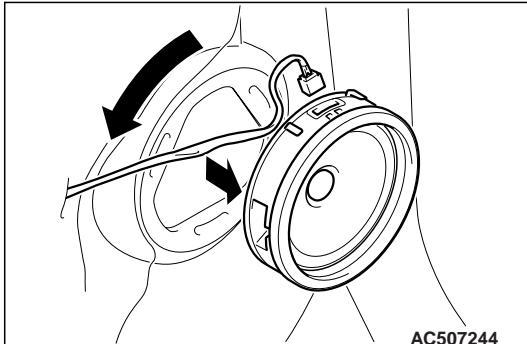
- Quarter Trim Lower Installation (Refer to GROUP 52A – Trim ).



ACB05395AB

## REMOVAL SERVICE POINT

### <<A>> DOOR SPEAKER REMOVAL



Disconnect the connector, and remove by twisting as shown in the figure.

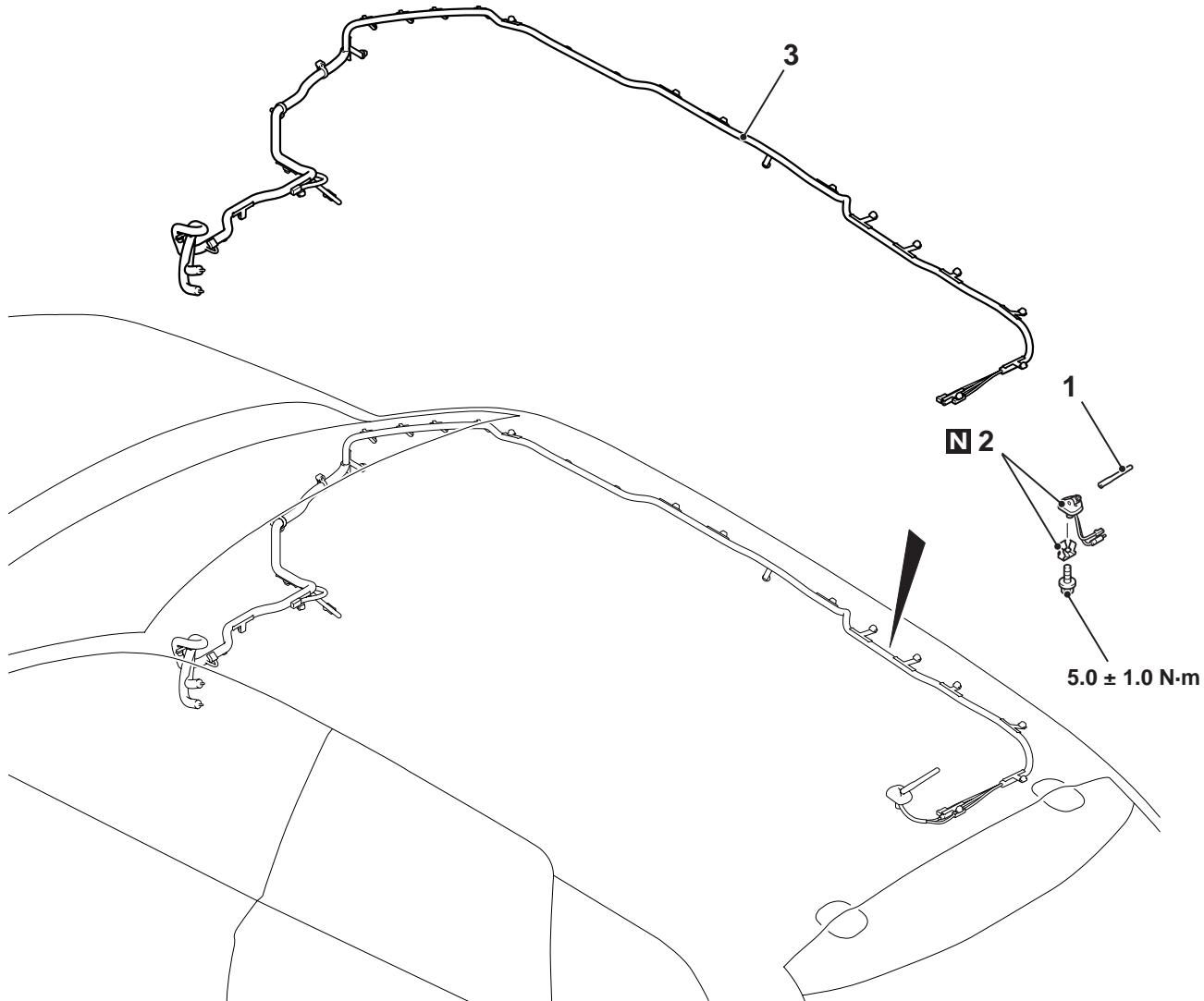
## ANTENNA

## REMOVAL AND INSTALLATION

M1544200201134

**CAUTION**

To remove the curtain air bag module of vehicle with Curtain air bag, refer to GROUP 52B – Service Precautions and Curtain Air Bag Module(s) .



ACB05396AB

**Removal steps**

1. Antenna rod
- Headlining (Refer to GROUP 52A – Headlining ).
2. Antenna base

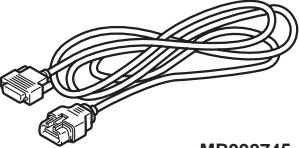
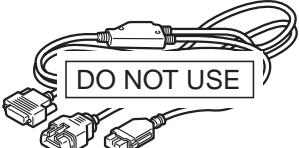
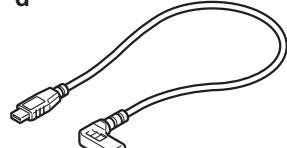
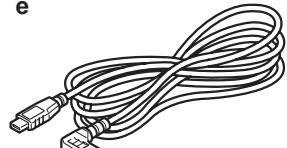
**Removal steps (Continued)**

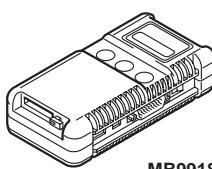
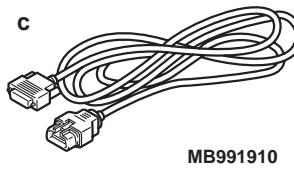
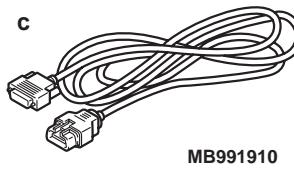
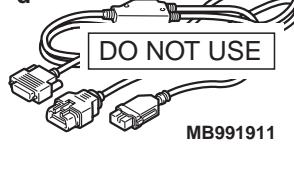
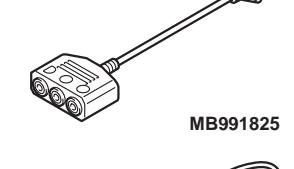
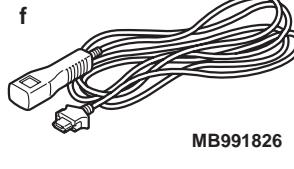
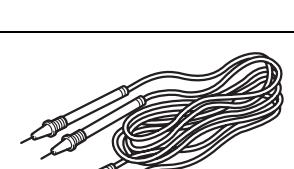
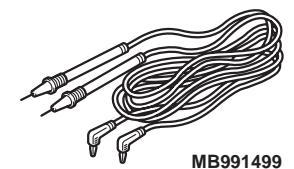
- Curtain air bag module [Refer to GROUP 52B – Curtain Air Bag Module(s) ].
- 3. Antenna feeder

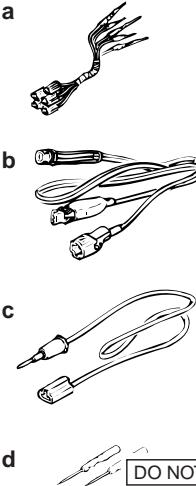
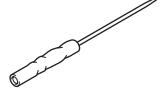
## DEFOGGER

## SPECIAL TOOLS

M1545000600268

| Tool   | Number  | Name  | Use  |
|--|---|---|--|
| a<br><br>MB992744                 | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long | ETACS-ECU check (Diagnosis code, service data) |
| b<br><br>MB992745                 |   |   |  |
| c<br><br>MB992746                 |   |   |  |
| d<br><br>MB992747               |   |   |  |
| e<br><br>MB992748<br>ACB05421AB |   |   |  |

| Tool   | Number  | Name  | Use  |
|--|---|---|--|
| <br><b>a</b><br><b>MB991824</b>   | <b>MB991955</b><br><b>a. MB991824</b><br><b>b. MB991827</b><br><b>c. MB991910</b><br><b>d. MB991911</b><br><b>e. MB991825</b><br><b>f. MB991826</b> | <b>M.U.T.-III</b><br><b>sub-assembly</b><br><b>a. Vehicle</b><br><b>Communication</b><br><b>Interface (V.C.I.)</b><br><b>b. M.U.T.-III USB</b><br><b>cable</b><br><b>c. M.U.T.-III main</b><br><b>harness A</b><br><b>(Vehicles with CAN</b><br><b>communication</b><br><b>system)</b><br><b>d. M.U.T.-III main</b><br><b>harness B</b><br><b>(Vehicles without</b><br><b>CAN</b><br><b>communication</b><br><b>system)</b><br><b>e. M.U.T.-III measure</b><br><b>adapter</b><br><b>f. M.U.T.-III trigger</b><br><b>harness</b> | <b>⚠ CAUTION</b><br><b>For vehicles with CAN</b><br><b>communication, use M.U.T.-III</b><br><b>main harness A to send</b><br><b>simulated vehicle speed. If you</b><br><b>connect M.U.T.-III main harness</b><br><b>B instead, the CAN</b><br><b>communication does not</b><br><b>function correctly.</b><br><b>ETACS-ECU check (Diagnosis</b><br><b>code, service data)</b> |
| <br><b>b</b><br><b>MB991827</b>   |   |   |  |
| <br><b>c</b><br><b>MB991910</b>   |   |   |  |
| <br><b>d</b><br><b>MB991911</b>   |   |   |  |
| <br><b>e</b><br><b>MB991825</b> |   |   |  |
| <br><b>f</b><br><b>MB991826</b> |   |   |  |
| <br><b>MB991955</b>             |   |   |  |
| <br><b>MB991499</b>             | <b>MB991499</b>   | Measurement probe   | Measurements of voltage and<br>resistance value<br><i>NOTE: M.U.T.-II attached probe</i><br><i>(Commercial probes can also be</i><br><i>used.)</i>   |

| Tool  | Number   | Name  | Use   |
|---|--|---|---|
| <br><b>a</b><br><b>b</b><br><b>c</b><br><b>d</b>  | MB991223<br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222 | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester |
|    | MB992006   | Extra fine probe  | Continuity check and voltage measurement at harness wire or connector   |

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

M1540500700038  
Refer to GROUP 00 – Contents of Troubleshooting .

### TROUBLE SYMPTOM CHART

M1540500800035

| Trouble symptom                         | Reference page            |
|---|---------------------------|
| The rear window defogger does not work. | <a href="#">P.54A-276</a> |

## SYMPTOM PROCEDURES

The rear window defogger does not work.

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**COMMENTS ON TROUBLE SYMPTOM**

The rear window defogger relay may be defective when the rear window defogger cannot be activated although the rear window defogger switch is turned on (the 20-minute timer initiates) or the ambient temperature is 3 °C or less (the rear window defogger has never been activated since the ignition switch is turned ON) with "Auto Rear Defogger (Engine Start)" enabled by using the customisation function of the ETACS-ECU.

*NOTE: When the engine is not running, the rear window defogger does not work.*

**PROBABLE CAUSES**

- Wiring harness or connector failure
- Malfunction of A/C-ECU
- Malfunction of ETACS-ECU

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

YES : Go to Step 2

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III diagnosis code**

Check that the air conditioner has not set a diagnosis code.

**Q: Is the diagnosis code set?**

YES : Carry out the diagnosis code procedures. (Refer to GROUP 55-trouble shooting .)

NO : Go to Step 3

**STEP 3. M.U.T.-III other system's diagnosis code**

Check that the ETACS-ECU has not set a diagnosis code.

**Q: Is the diagnosis code set?**

YES : Carry out the diagnosis code procedures.  
Refer to [P.54A-281](#).

NO : Go to Step 4

**STEP 4. M.U.T.-III data list**

Check the rear window defogger switch signal by the data list of the A/C-ECU.

- Start the engine.
- Turn the rear window defogger switch from off to on.

| Item No. | Item name            | Normal condition |
|----------|----------------------|------------------|
| Item 60  | Rear defogger switch | OFF → ON         |

**Q: Is the check result normal?**

YES : Go to Step 5

NO : Refer to GROUP 55 – Inspection Procedure 13 "A/C-ECU power supply system"

**STEP 5. Voltage measurement at rear window defogger connector (power supply terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Ignition switch: ON
- (3) Rear window defogger switch must be turned on, or the operational conditions for the customisation function "Auto Rear Defogger (Engine Start)" must be satisfied (measure within 20 minutes after the switch is turned on).
- (4) Check the voltage between the rear window defogger connector (power supply terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 6

NO : Go to Step 8

**STEP 6. Resistance measurement at rear window defogger connector (earth terminal).**

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

- (2) Measure the resistance between the rear window defogger connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

**YES** : Go to Step 11

**NO** : Go to Step 7

### STEP 7. Check of open circuit in earth line between rear window defogger connector and body earth.

**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 ).

**NO** : Repair the connector(s) or wiring harness.

### STEP 8. Voltage measurement at ETACS-ECU connector (+B2 terminal).

- (1) Disconnect the connector, and measure at the wiring harness side.  
(2) Check the voltage between the ETACS-ECU connector (+B2 terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

**YES** : Go to Step 10

**NO** : Go to Step 9

### STEP 9. Check of short to power supply, short to earth, and open circuit in +B2 line between fusible link and ETACS-ECU connector.

**Q: Is the check result normal?**

**YES** : Intermittent malfunction (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction ).

**NO** : Repair the connector(s) or wiring harness.

### STEP 10. Check of short to power supply, short to earth, and open circuit in DEFL line between ETACS-ECU connector and rear window defogger connector.

**Q: Is the check result normal?**

**YES** : Go to Step 11

**NO** : Repair the connector(s) or wiring harness.

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

### STEP 11. Check the rear window defogger.

Check the rear window defogger (Refer to P.54A-277).

**Q: Is the check result normal?**

**YES** : Go to Step 12

**NO** : Replace the rear window glass, and then go to Step 12.

### STEP 12. Check the rear window defogger.

Check the rear window defogger (Refer to P.54A-277).

**Q: Is the check result normal?**

**YES** : Return to Step 1.

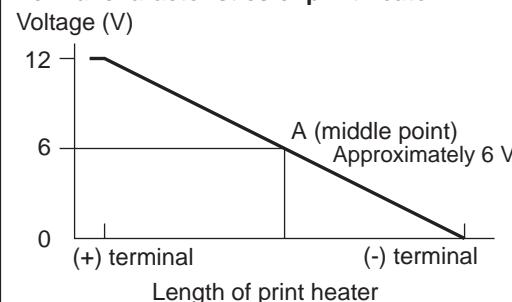
**NO** : Replace the ETACS-ECU.

## ON-VEHICLE SERVICE

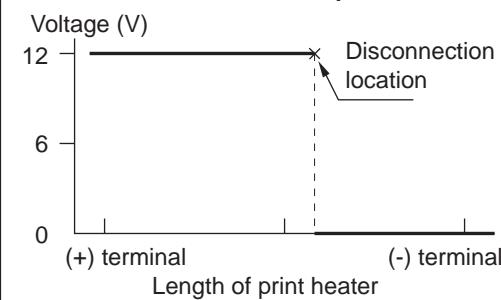
### PRINTED HEATER CHECK

M1540500500283

#### Normal characteristics of print heater



#### Abnormal characteristics of print heater



AC407247AD

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 centre A point. If approximately 6 V is indicated, it is judged good.

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 tailgate window glass (Refer to GROUP 42A – Tailgate Window Glass ).

## DEFROGGER SWITCH

### REMOVAL AND INSTALLATION

M1540600200386

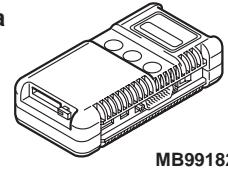
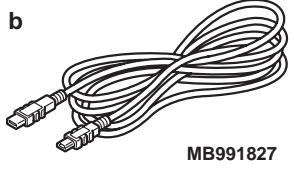
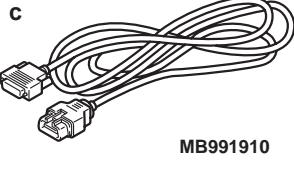
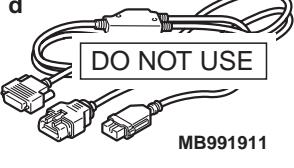
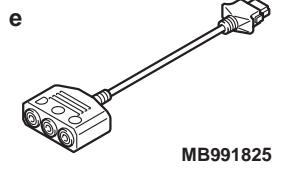
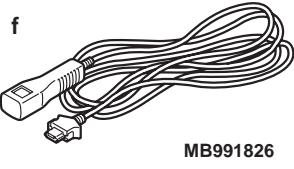
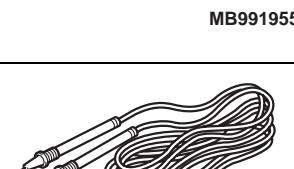
For the defogger switch removal and installation procedures, refer to 55 – Heater Control Unit .

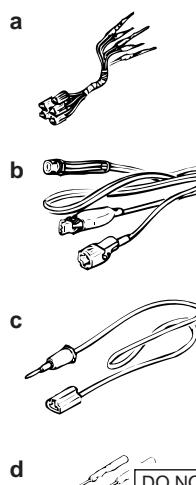
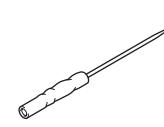
## ETACS

### SPECIAL TOOLS

M1545000600257

| Tool | Number                 | Name  | Use   |
|------|------------------------|---|---|
| a    | MB992744               | a. MB992744<br>b. MB992745<br>c. MB992746<br>d. MB992747<br>e. MB992748 | a. Vehicle communication interface-Lite (V.C.I.-Lite)<br>b. V.C.I.-Lite main harness A (for vehicles with CAN communication)<br>c. V.C.I.-Lite main harness B (for vehicles without CAN communication)<br>d. V.C.I.-Lite USB cable short<br>e. V.C.I.-Lite USB cable long |
| b    | MB992745               |   |   |
| c    | MB992746               |   |   |
| d    | MB992747               |   |   |
| e    | MB992748<br>ACB05421AB |   |   |

| Tool   | Number   | Name  | Use   |
|--|--|---|---|
| <br><b>a</b><br><b>MB991824</b>   | MB991955<br>a. MB991824<br>b. MB991827<br>c. MB991910<br>d. MB991911<br>e. MB991825<br>f. MB991826 | M.U.T.-III<br>sub-assembly<br>a. Vehicle<br>Communication<br>Interface (V.C.I.)<br>b. M.U.T.-III USB<br>cable<br>c. M.U.T.-III main<br>harness A<br>(Vehicles with CAN<br>communication<br>system)<br>d. M.U.T.-III main<br>harness B<br>(Vehicles without<br>CAN<br>communication<br>system)<br>e. M.U.T.-III measure<br>adapter<br>f. M.U.T.-III trigger<br>harness | <b>⚠ CAUTION</b><br><b>For vehicles with CAN communication, use M.U.T.-III main harness A to send simulated vehicle speed. If you connect M.U.T.-III main harness B instead, the CAN communication does not function correctly.</b><br>ETACS-ECU check (Diagnosis code, service data) |
| <br><b>b</b><br><b>MB991827</b>   |  |   |   |
| <br><b>c</b><br><b>MB991910</b>   |  |   |   |
| <br><b>d</b><br><b>MB991911</b>   |  |   |   |
| <br><b>e</b><br><b>MB991825</b>  |  |   |   |
| <br><b>f</b><br><b>MB991826</b> |  |   |   |
| <br><b>MB991955</b>             |  |   |   |
| <br><b>MB991499</b>             | MB991499   | Measurement probe   | Measurements of voltage and<br>resistance value<br><i>NOTE: M.U.T.-II attached probe<br/>(Commercial probes can also be<br/>used.)</i>  |

| Tool  | Number   | Name  | Use   |
|---|----------|---|---|
| <br>a. MB991219<br>b. MB991220<br>c. MB991221<br>d. MB991222 | MB991223 | Harness set<br>a. Check harness<br>b. LED harness<br>c. LED harness adapter<br>d. Probe | Continuity check and voltage measurement at harness wire or connector<br>a. For checking connector pin contact pressure<br>b. For checking power supply circuit<br>c. For checking power supply circuit<br>d. For connecting a locally sourced tester |
| <br>MB992006   | MB992006 | Extra fine probe  | Continuity check and voltage measurement at harness wire or connector   |

## TROUBLESHOOTING

### STANDARD FLOW OF DIAGNOSTIC TROUBLESHOOTING

Refer to GROUP 00 – Contents of troubleshooting .

### DIAGNOSIS FUNCTION

M1545000900076  
HOW TO READ DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

### HOW TO ERASE DIAGNOSIS CODE

Refer to GROUP 00 – Diagnosis function .

### Display item list

| Item No. | Item name                         | Data item  | Unit                           |
|----------|-----------------------------------|--|--------------------------------|
| 1        | Odometer                          | Total driving distance after the diagnosis code is generated   | km                             |
| 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. |
| 3        | Elapsed time after failure        | Total elapsed time after a diagnosis code is generated   | min*                           |
| 4        | Current trouble accumulative time | Cumulative time for current malfunction of diagnosis code  | min                            |

## CHECK OF FREEZE FRAME DATA

The freeze frame data can be checked by using the M.U.T.-III.

When detecting fault and storing the diagnosis code, the ECU connected to CAN bus line obtains the data before the determination of the diagnosis code and the data when the diagnosis code is determined, and then stores the ECU status of that time. By analysing each data from M.U.T.-III, the troubleshooting can be performed more efficiently. The displayed items are as the table below.

**NOTE:** \* : Total elapsed time can be stored up to 65,534 minutes (45.5 days). The display of M.U.T.-III 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 timeout.

## DIAGNOSIS CODE CHART

M1545001101399

| Diagnosis code No.  | Diagnostic item  | Reference page                             |
|---------------------|--|--|
| B1034               | Ambient temperature sensor low   | Refer to GROUP 55 – Diagnosis code chart . |
| B1035               | Ambient temperature sensor high  |  |
| B16A2               | Turn signal (LH) bulb outage   | <a href="#">P.54A-89</a>                   |
| B16A3               | Turn signal (LH) circuit short   |  |
| B16A4               | Turn signal (RH) bulb outage   |  |
| B16A5               | Turn signal (RH) circuit short   |  |
| B16A6               | Turn signal fuse blown   | <a href="#">P.54A-94</a>                   |
| B16A7               | Tail lamp (RH) circuit short <Short circuit in the position lamp (RH) circuit or the tail lamp (RH) circuit>                             | <a href="#">P.54A-137</a>                  |
| B16A8               | Tail lamp (LH) circuit short <Short circuit in the position lamp (LH) circuit, tail lamp (LH) circuit or the licence plate lamp circuit> |  |
| B1761 <sup>*1</sup> | Chassis No. not programmed   | <a href="#">P.54A-283</a>                  |
| B1762 <sup>*2</sup> | IOD fuse not seated fully  | <a href="#">P.54A-283</a>                  |
| B1731               | immobilizer system   | <a href="#">P.54A-23</a>                   |
| B1A24               |  |  |
| B1A25               |  |  |
| B1A28               |  |  |
| B1A35               |  |  |
| B2352               |  |  |
| B210A               | +B power supply (low)  | <a href="#">P.54A-285</a>                  |
| B210B               | +B power supply (high)   |  |
| B2206 <sup>*1</sup> | Chassis No. mismatch   | <a href="#">P.54A-286</a>                  |
| B2215 <sup>*1</sup> | ECU internal error (EEPROM)  | <a href="#">P.54A-287</a>                  |
| B222C <sup>*1</sup> | Coding not completed   | <a href="#">P.54A-287</a>                  |
| B2350               | Lighting switch  | <a href="#">P.54A-203</a>                  |
| B2351               | Wiper switch   |  |
| B2353               | Ignition power supply (low)  | <a href="#">P.54A-287</a>                  |
| B2354               | Ignition power supply (high)   |  |

| Diagnosis code No. | Diagnostic item                                  |   | Reference page                                 |
|--------------------|--|---|--|
| B2510              | Headlam<br>p<br>automatic<br>levelling<br>system | Height Sensor Not Initialized                                     | <a href="#">P.54A-122</a>                      |
| B2513              |  | Levelling actuator output voltage                                 |  |
| B2514              |  | Height sensor supply voltage                                      |  |
| B2515              |  | Front height sensor signal  |  |
| B2516              |  | Rear height sensor signal   |  |
| U0100              | CAN<br>communi<br>cation                         | Engine CAN timeout  | <a href="#">P.54A-288</a>                      |
| U0101              |  | T/M CAN timeout   | <a href="#">P.54A-289</a>                      |
| U0114              |  | 4WD CAN timeout   | <a href="#">P.54A-290</a>                      |
| U0121              |  | ABS/ASC CAN timeout   | <a href="#">P.54A-291</a>                      |
| U0131              |  | EPS CAN timeout   | <a href="#">P.54A-292</a>                      |
| U0151              |  | SRS-ABG CAN timeout   | <a href="#">P.54A-294</a>                      |
| U0155              |  | Meter CAN timeout   | <a href="#">P.54A-295</a>                      |
| U0164              |  | A/C CAN timeout   | <a href="#">P.54A-296</a>                      |
| U0168              |  | KOS/WCM CAN timeout   | <a href="#">P.54A-297</a>                      |
| U0184              |  | Audio CAN timeout   | <a href="#">P.54A-298</a>                      |
| U0230              |  | Power Gate CAN timeout  | <a href="#">P.54A-299</a>                      |
| U0245              |  | AND CAN timeout   | <a href="#">P.54A-300</a>                      |
| U1000              |  | OSS CAN timeout   | <a href="#">P.54A-301</a>                      |
| U1005              |  | Corner/Back SNS. ECU CAN timeout                                  | <a href="#">P.54A-302</a>                      |
| U0331              | ECU internal error (ROM)                         |   | <a href="#">P.54A-303</a>                      |
| U1073              | Bus off (CAN-C-Mid)                              |   | <a href="#">P.54A-303</a>                      |
| U0169              | LIN<br>communi<br>cation                         | Sunroof LIN timeout <Vehicles with sunroof>                       | Refer to GROUP 54B –<br>Diagnosis Code Chart . |
| U0231              |  | RLS LIN timeout <vehicles with lighting control<br>sensor>        |  |
| U150B              |  | Column SW LIN checksum error                                      |  |
| U1511              |  | Sunroof ECU LIN checksum error <Vehicles with<br>sunroof>         |  |
| U1512              |  | RLS LIN checksum error <vehicles with lighting<br>control sensor> |  |
| U1514              |  | LIN transmission bit error  |  |
| U1515              |  | No bus activity error for LIN                                     |  |

## NOTE:

- <sup>1</sup>: If diagnosis codes No. B1761, B2206, B2215, B222C is set, there may be an error with the coding data stored in the ETACS-ECU.

- <sup>2</sup>: Does not detect historic trouble.

## DIAGNOSIS CODE PROCEDURES

### Code No.B1761 Chassis No. not programmed

#### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

#### JUDGMENT CRITERIA

If the chassis number is not written to the ETACS-ECU, the ETACS-ECU sets diagnosis code No. B1761.

#### PROBABLE CAUSES

- Chassis No. not programmed

- Malfunction of the ETACS-ECU

#### DIAGNOSIS PROCEDURE

##### Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) If no chassis number is stored in the ETACS-ECU, check whether a chassis number is stored in the engine-ECU.(Refer to GROUP 13A – Diagnosis code No.P0630 "Chassis Number not Programmed" ).
- (4) Check if diagnosis code is set.

##### Q: Is the diagnosis code set?

YES : Replace the ETACS-ECU.

NO : The diagnosis is complete.

### Code No. B1762 IOD fuse not seated fully

#### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

#### TROUBLE JUDGMENT

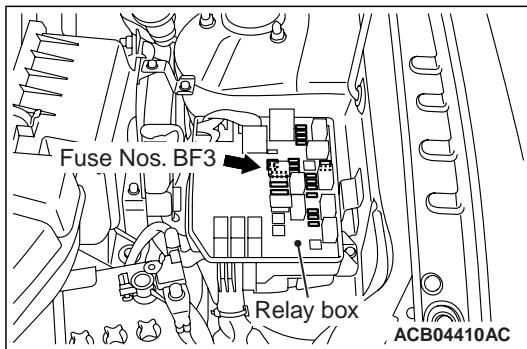
- When voltage at the power supply fuse (fuse No. BF3) drops below 5 V with the ignition switch ON and then the ACC OFF signal is detected for 5 seconds, the ETACS-ECU will store diagnosis code No. B1762.

#### PROBABLE CAUSES

- Malfunction of fuse No. BF3
- Malfunction of the ETACS-ECU
- Malfunction of the OSS-ECU <Vehicles with one touch start system>
- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

## STEP 1. Check the power supply fuses (fuse No. BF3)



Check the power supply fuses (fuse No. BF3). (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – Inspection Service Points for a Blown Fuse.)

## Q: Is the fuse in good condition?

YES : Go to Step 2

NO : Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – Inspection Service Points for a Blown Fuse . Then go to Step 5.

## STEP 2. Check of short to power supply, short to earth, and open circuit in IOD1 line between fusible link and ETACS-ECU connector

## Q: Is the check result normal?

YES <vehicles with one touch start system> : Go to Step 3

YES <vehicles without one touch start system> : Go to Step 4

NO : Repair the connector(s) or wiring harness. Then go to Step 5.

## STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check that the OSS-ECU set a diagnosis code.

## Q: Is the diagnosis code set?

YES : Diagnose the OSS-ECU. Refer to GROUP 42B, Troubleshooting P.54A-39.

NO : Go to Step 4

## STEP 4. Check of short to power supply, short to earth, and open circuit in ACC line between ignition switch (ACC) &lt;vehicles without one touch start system&gt; or OSS-ECU (ACC) &lt;vehicles with one touch start system&gt; and ETACS-ECU connector

## Q: Is the check result normal?

YES : Go to Step 5

NO : Repair the connector(s) or wiring harness. Then go to Step 5.

## STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

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

## Q: Is the diagnosis code set?

YES : Replace the ETACS-ECU.

NO : If the trouble symptom is resolved, an intermittent malfunction such as poorly engaged connector(s) or wiring harness is suspected. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction .)

Code No.B210A +B power supply (low)  
Code No.B210B +B power supply (high)

**CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**TROUBLE JUDGMENT**

The ETACS-ECU sets the code No. B210A if the power supply fuse (IOD fuse) voltage decreases to the specified value or less, and sets the code No. B210B if the power supply fuse (IOD fuse) voltage increases to the specified value or more. However, when the status returns to normal, the ETACS-ECU automatically erases the code Nos. B210A and B210B.

**COMMENTS ON TROUBLE SYMPTOM**

The power supply fuse or the ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of power supply fuse
- Malfunction of the ETACS-ECU
- Malfunction of the battery
- Malfunction of the alternator
- Malfunction of harness

**DIAGNOSIS PROCEDURE****STEP 1. Power supply fuse check**

Q: Is the fuse in good condition?

YES : Go to Step 2P.54A-285.

NO : Replace the power supply fuse, and then go to Step 7.

**STEP 2. Battery check**

Refer to GROUP 54A – Battery Test P.54A-10.

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 – Charging System .

Q: Is the charging system in good condition?

YES : Go to Step 4.

NO : Repair or replace the charging system component(s).

**STEP 4. Voltage measurement at ETACS-ECU connector (IOD1 terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the ETACS-ECU connector (IOD1 terminal) and body earth.

**OK: System voltage**

Q: Is the check result normal?

YES : Go to Step 6.

NO : Go to Step 5.

**STEP 5. Check of short to power supply, short to earth, and open circuit in IOD1 line between fusible link and ETACS-ECU connector**

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 ).

NO : Repair the connector(s) or wiring harness.

**STEP 6. M.U.T.-III data list**

Check the power supply fuse voltage.

- Ignition switch: OFF

| Item No. | Item name                   | Normal condition |
|----------|-----------------------------|------------------|
| Item 253 | Voltage sensing of IOD Line | System voltage   |

**OK: Normal condition is displayed.**

Q: Is the check result normal?

YES : Go to Step 7.

NO : Replace the ETACS-ECU.

**STEP 7. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.

(3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU.

**NO** : The trouble can be an intermittent malfunction (GROUP 00 – How to use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

**Code No.B2206 Chassis No. mismatch****⚠ CAUTION**

- If the diagnosis code No. B2206 is set, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

If the chassis number which is stored in the ETACS-ECU does not correspond to that which is stored in the engine-ECU, diagnosis code No.B2206 will be set.

**JUDGMENT CRITERIA**

If the chassis number which is stored in the ETACS-ECU does not correspond to that which is stored in the engine-ECU, the ETACS-ECU will determine that the system is defective.

**PROBABLE CAUSES**

- Chassis number not written
- Malfunction of the ETACS-ECU
- Malfunction of engine-ECU

**DIAGNOSIS PROCEDURE****STEP 1. Check the chassis numbers which have been stored in the ETACS-ECU and the engine-ECU.**

Check whether the chassis numbers which have been stored in the ETACS-ECU and the engine-ECU correspond to the actual chassis number written on the vehicle document.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** <engine-ECU> : Perform the variant coding for the engine-ECU, and then go to Step 2.

**NO** <ETACS-ECU> : Perform the variant coding for the ETACS-ECU, and then go to Step 3.

**STEP 2. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the engine-ECU, and then go to Step 3.

**NO** : The diagnosis is complete.

**STEP 3. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU.

**NO** : The diagnosis is complete.

**Code No.B2215 ECU internal error (EEPROM)****JUDGMENT CRITERIA**

When the ETACS-ECU internal error count reaches "255," the diagnosis code No. B2215 is set.

**PROBABLE CAUSES**

- Malfunction of the ETACS-ECU

**Code No.B222C Coding not completed****JUDGMENT CRITERIA**

If the ETACS-ECU is in the initial state or the variant coding is incomplete, the ETACS-ECU sets the diagnosis code No. B222C.

**PROBABLE CAUSES**

- Variant code not written
- Malfunction of the ETACS-ECU

**Code No.B2353 Ignition power supply (low)****Code No.B2354 Ignition power supply (high)****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**TROUBLE JUDGEMENT**

These diagnosis codes are set when the IG voltage decreases to the specified value or less (code No. B2353) or increases to the specified value or more (code No. B2354). However, when the status returns to normal, the code Nos. B2353 and B2354 are automatically erased.

**COMMENTS ON TROUBLE SYMPTOM**

The power supply circuit or the ETACS-ECU may have a problem.

**PROBABLE CAUSES**

- Malfunction of power supply circuit
- Malfunction of the battery
- Malfunction of the alternator
- Malfunction of harness
- Malfunction of the ignition switch
- Malfunction of the ETACS-ECU
- Malfunction of the OSS-ECU <Vehicles with one touch start system>

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III data list**

Check the IG voltage.

- Turn the ignition switch to the ON position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 254 | IG voltage | System voltage   |

**OK: Normal condition is displayed.**

**Q: Is the check result normal?**

YES : Go to Step 6.

NO : Go to Step 2.

**STEP 2. Battery check**

Refer to GROUP 54A – Battery Test [P.54A-10](#).

**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 – Charging System .

**Q: Is the charging system in good condition?**

YES : Go to Step 4.

NO : Repair or replace the charging system component(s).

**STEP 4. Voltage measurement at ETACS-ECU connector (IG1 terminal)**

- (1) Measure by backprobing without disconnecting the connector.

- (2) Turn the ignition switch to the "ON" position.  
 (3) Check the voltage between the ETACS-ECU connector (IG1 terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

**YES** : Go to Step 6.

**NO** : Go to Step 5.

**STEP 5. Check of short to power supply, short to earth, and open circuit in ETACS +B line between ignition switch (IG1) <vehicles without one touch start system> or OSS-ECU (IG1) connector <vehicles with one touch start system> and ETACS-ECU connector**

**Q: Is the check result normal?**

**YES** : Refer to Inspection Procedure 2 "Malfunction of the ignition switch power supply system." [P.54A-16](#)

**NO** : Repair the connector(s) or wiring harness.

**STEP 6. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU.

**NO** : The trouble can be an intermittent malfunction (GROUP 00 – How to use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

**Code No.U0100 Engine CAN timeout**

**△ CAUTION**

- If diagnosis code No. U0100 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**DIAGNOSTIC FUNCTION**

If the signal from engine-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U0100.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the engine-ECU cannot be established for 600 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of engine-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE**

**STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the engine-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the engine (Refer to GROUP 13A – Diagnosis Code Chart ).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

Check if diagnosis code No. U0100 is set to the CVT-ECU, 4WD-ECU, ABS-ECU and ASC-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the engine-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-ECU and the ETACS-ECU  
(GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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-ECU and the ETACS-ECU  
(GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**Code No.U0101 T/M CAN timeout****⚠ CAUTION**

- If diagnosis code No. U0101 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

If the signal from CVT-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U0101.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the CVT-ECU cannot be established for 600 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of CVT-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the CVT-ECU, A/T-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the CVT. Refer to GROUP 23A – Diagnosis code chart .

**NO** : Go to Step 3.

### STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0101 is set to the engine-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

### STEP 4. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the CVT-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 and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

### Code No.U0114 4WD CAN timeout

#### ⚠ CAUTION

- If the diagnosis code No. U0114 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

### DIAGNOSTIC FUNCTION

If the signal from 4WD-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U0114.

### JUDGEMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the 4WD-ECU cannot be established for 600 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

### PROBABLE CAUSES

- Malfunction of 4WD-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the 4WD-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the electronically controlled 4WD (Refer to GROUP 27C – Troubleshooting ).

**NO** : Go to Step 3.

### STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0114 is set to the ABS-ECU or ASC-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

### STEP 4. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

(1) Erase the diagnosis code.

- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the 4WD-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the 4WD-ECU and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

(1) Erase the diagnosis code.

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

(3) Check if diagnosis code is set.

**Q: Is the diagnosis code 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 4WD-ECU and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

## Code No.U0121 ABS/ASC CAN timeout

### ⚠ CAUTION

- If diagnosis code No. U0121 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

## DIAGNOSTIC FUNCTION

If the signal from ABS-ECU <vehicles without ASC>

or ASC-ECU <vehicles with ASC> cannot be received, the ETACS-ECU sets the diagnosis code No. U0121.

## JUDGEMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC> cannot be established for 600 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of ABS-ECU <vehicles without ASC>
- Malfunction of ASC-ECU <vehicles with ASC>
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC>.

**Q: Is the diagnosis code set?**

**Set to the ABS-ECU** : Troubleshoot the ABS.  
Refer to GROUP 35B – Troubleshooting .

**Set to the ASC-ECU** : Troubleshoot the ASC.  
Refer to GROUP 35C – Troubleshooting .

**The diagnosis code is not set** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

Check if the diagnosis code No. U0121 is set to the engine-ECU or 4WD-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC>.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC> and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 ABS-ECU <vehicles without ASC> or ASC-ECU <vehicles with ASC> and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**Code No.U0131 EPS CAN timeout****⚠ CAUTION**

- If diagnosis code No. U0131 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the

**ETACS-ECU.** (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

If the signal from EPS-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U0131.

## JUDGEMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the EPS-ECU cannot be established for 600 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

## PROBABLE CAUSES

- Malfunction of the EPS-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

## DIAGNOSIS PROCEDURE

### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the EPS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the EPS. Refer to GROUP 37 – Troubleshooting .

**NO** : Go to Step 3.

### STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0131 is set to the engine-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

### STEP 4. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the EPS-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the EPS-ECU and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 EPS-ECU and the ETACS-ECU (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

## Code No.U0151 SRS-ABG CAN timeout

**⚠ CAUTION**

- If the diagnosis code No. U0151 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

If the signal from SRS-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U0151.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the SRS-ECU cannot be established for 2,500 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of the SRS-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the SRS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the SRS air bag (Refer to GROUP 52B – Troubleshooting ).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

Check if the diagnosis code No. U0151 is set to the KOS-ECU, WCM, radio and CD player, combination meter, or A/C-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 (GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**Code No.U0155 Meter CAN timeout****⚠ CAUTION**

- If the diagnosis code No. U0155 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU or combination meter, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**DIAGNOSTIC FUNCTION**

If the signal from combination meter cannot be received, the ETACS-ECU sets the diagnosis code No. U0155.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the combination meter cannot be established for 2,500 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of combination meter
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the combination meter.

**Q: Is the diagnosis code set?**

YES : Troubleshoot the combination meter. Refer to [P.54A-39](#).

NO : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

Check if the diagnosis code No. U0155 is set to the KOS-ECU, WCM, radio and CD player, SRS-ECU, or A/C-ECU.

**Q: Is the diagnosis code set?**

YES : Go to Step 4.

NO : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

## Code No.U0164 A/C CAN timeout

### ⚠ CAUTION

- If the diagnosis code No. U0164 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

### DIAGNOSTIC FUNCTION

If the signal from A/C-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U0164.

### JUDGEMENT CRITERIA

After the following statuses continue to be true for 5 seconds, if the communication with the A/C-ECU cannot be established for 2,500 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

### PROBABLE CAUSES

- Malfunction of the A/C-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**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

### DIAGNOSIS PROCEDURE

#### STEP 1. M.U.T.-III CAN bus diagnostics

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

#### STEP 2. M.U.T.-III other system diagnosis code

Check if diagnosis code is set to the A/C-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the A/C (Refer to GROUP 55 – Troubleshooting ).

**NO** : Go to Step 3.

#### STEP 3. M.U.T.-III other system diagnosis code

Check if the diagnosis code No. U0164 is set to the KOS-ECU, WCM, radio and CD player, combination meter, or SRS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

#### STEP 4. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

GROUP 00 – How to use

Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

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**Code No.U0168 KOS/WCM CAN timeout**

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**⚠ CAUTION**

- If the diagnosis code No. U0168 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

If the signal from KOS-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U0168.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the KOS-ECU cannot be established for 2,500 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of the KOS-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**YES** : Replace the KOS-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between

**DIAGNOSIS PROCEDURE**

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**STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

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**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the KOS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the KOS. Refer to GROUP 42B – Diagnosis Code Chart .

**NO** : Go to Step 3.

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**STEP 3. M.U.T.-III other system diagnosis code**

Check if the diagnosis code No. U0168 is set to the SRS-ECU, radio and CD player, combination meter, or A/C-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

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**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

the KOS-ECU and the ETACS-ECU (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 KOS-ECU and the ETACS-ECU (Refer to GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**Code No.U0184 Audio CAN timeout****⚠ CAUTION**

- If the diagnosis code No. U0184 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU or radio and CD player, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

**DIAGNOSTIC FUNCTION**

When the signals from radio and CD player cannot be received, the ETACS-ECU sets the diagnosis code No. U0184.

**JUDGEMENT 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 2,500 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the radio and CD player.

**Q: Is the diagnosis code set?**

**YES** : Perform the diagnosis code troubleshooting to the audio unit. Refer to [P.54A-220](#).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

Check if the diagnosis code No. U0184 is set to the SRS-ECU, combination meter, or A/C-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**PROBABLE CAUSES**

- Malfunctions of radio and CD player
- Malfunction of the ETACS-ECU

**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 ETACS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

#### STEP 5. Check whether the diagnosis code is reset.

Check again if the diagnosis code is set to the ETACS-ECU.

(1) Erase the diagnosis code.

- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if diagnosis code is set.

**Q: Is the diagnosis code 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 and the ETACS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

#### Code No. U0230 Power Gate CAN timeout

##### **CAUTION**

- If diagnosis code No.U0230 is set in the ETACS-ECU, always diagnose the CAN main bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

#### DIAGNOSTIC FUNCTION

If no signal from the electric tailgate control unit can be received, ETACS-ECU sets diagnosis code No. U0230.

#### JUDGEMENT CRITERIA

After the following statuses continue for 5 seconds, if the communication with the electric tailgate control unit cannot be established for 2,500 ms or more, 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 or more.
- ETACS-ECU system voltage is at 10 to 16 V.

#### PROBABLE CAUSES

- Malfunction of the electric tailgate control unit
- Malfunction of ETACS-ECU
- Damaged wiring harness and connectors

#### DIAGNOSIS PROCEDURE

##### STEP 1. M.U.T.-III CAN bus diagnostics

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

##### STEP 2. Check the M.U.T.-III Diagnosis code for other systems

Check if a diagnosis code is set in the electric tailgate control unit.

**Q: Is the diagnosis code set?**

**YES** : Diagnose the electric tailgate control system. (Refer to GROUP 42A – Troubleshooting )

**NO** : Go to Step 3.

##### STEP 3. Check the M.U.T.-III Diagnosis code for other systems

Check if diagnosis code No. U0230 is set to A/C-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Diagnosis code recheck**

Check again if the diagnosis code is set to ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the electric tailgate control unit.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the electric tailgate control unit and the ETACS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

**STEP 5. Diagnosis code recheck**

Check again if the diagnosis code is set to ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU.

**NO** : A poor connection, open circuit or other intermittent malfunction in the CAN bus line between the electric tailgate control unit and the ETACS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

**Code No.U0245 AND CAN timeout****⚠ CAUTION**

- If the diagnosis code No. U0245 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU or CAN box unit (MMCS), ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

When the signals from CAN box unit (MMCS) cannot be received, the ETACS-ECU sets the diagnosis code No. U0245.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the CAN box unit (MMCS) be established for 2,500 ms 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 or more.

- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunctions of CAN box unit (MMCS)
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the CAN box unit (MMCS).

**Q: Is the diagnosis code set?**

**YES** : Perform the diagnosis code troubleshooting to the CAN box unit (MMCS).

**NO** : Go to Step 3.

**STEP 3. M.U.T.-III other system diagnosis code**

Check if the diagnosis code No. U0245 is set to the KOS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the CAN box unit (MMCS).

**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 (MMCS) and the ETACS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 (MMCS) and the ETACS-ECU (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

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**Code No.U1000 OSS CAN timeout**

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**△ CAUTION**

- If the diagnosis code No. U1000 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**DIAGNOSTIC FUNCTION**

If the signal from OSS-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U1000.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the OSS-ECU cannot be established for 2,500 ms 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 or more.

- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of the OSS-ECU
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE**

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**STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ).

---

**STEP 2. M.U.T.-III other system diagnosis code**

Check if diagnosis code is set to the OSS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Troubleshoot the OSS. Refer to GROUP 42B – Troubleshooting .

**NO** : Go to Step 3.

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**STEP 3. M.U.T.-III other system diagnosis code**

Check if the diagnosis code No. U1000 is set to the KOS-ECU.

**Q: Is the diagnosis code set?**

**YES** : Go to Step 4.

**NO** : Go to Step 5.

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code set?**

**YES** : Replace the OSS-ECU.

**NO** : The trouble can be an intermittent malfunction such as a poor connection or open circuit in the CAN bus lines between the OSS-ECU and the ETACS-ECU  
(GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**STEP 5. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

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

**Q: Is the diagnosis code 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 OSS-ECU and the ETACS-ECU  
(GROUP 00 – How to use Troubleshooting/inspection Service Points – How to Cope with Intermittent Malfunction ).

**Code No. U1005 Corner/Back SNS. ECU CAN timeout****CAUTION**

- If diagnosis code No. U1005 is set to the ETACS-ECU, always diagnose the CAN bus line.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

**DIAGNOSTIC FUNCTION**

If the signal from corner sensor/back sensor-ECU cannot be received, the ETACS-ECU sets the diagnosis code No. U1005.

**JUDGEMENT CRITERIA**

After the following statuses continue to be true for 5 seconds, if the communication with the corner sensor/back sensor-ECU cannot be established for 600 ms 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 or more.
- ETACS-ECU system voltage is at 10–16 V.

**PROBABLE CAUSES**

- Malfunction of the corner sensor/back sensor-ECU
- Malfunction of the ETACS-ECU
- Malfunction of the CAN bus

**DIAGNOSIS PROCEDURE****STEP 1. M.U.T.-III CAN bus diagnostics**

Use M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Repair the CAN bus lines. (Refer to GROUP 54C – Troubleshooting .)

**STEP 2. Check the M.U.T.-III Diagnosis code for other systems**

Check if a diagnosis code is set to the corner sensor/back sensor-ECU.

**Q: Is the diagnosis code set?**

**YES** : Perform troubleshooting for the corner sensor/back sensor-ECU. (Refer to [P.54A-179.](#))

**NO** : Go to Step 3.

**STEP 3. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the corner sensor/back sensor-ECU. Go to Step 4.

**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the corner sensor/back sensor-ECU and ETACS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

**STEP 4. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from the LOCK (OFF) position to the ON position.
- (3) Check if the diagnosis code is set.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU.

**NO** : A poor connection, open circuit, or other intermittent malfunction in the CAN bus line between the corner sensor/back sensor-ECU and ETACS-ECU. (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points - How to Cope with Intermittent Malfunction .)

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**Code No.U0331 ECU internal error (ROM)**

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**JUDGMENT CRITERIA**

If the ETACS-ECU error counter value is detected to be "255," the diagnosis code No. U0331 is set, and the ETACS-ECU is reset. The diagnosis code No. U0331 exists only for the past trouble.

**PROBABLE CAUSES**

- Malfunction of the ETACS-ECU

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**Code No.U1073 Bus off (CAN-C-Mid)**

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**CAUTION**

- If diagnosis code No.U1073 is set in the ETACS-ECU, diagnose the CAN bus (CAN-C-Mid) lines.
- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**TROUBLE JUDGMENT**

If the ETACS-ECU detects a bus off error (CAN-C-Mid), diagnosis code No. U1073 will be set.

**COMMENTS ON TROUBLE SYMPTOM**

The ETACS-ECU or its CAN bus (CAN-C-Mid) lines may be defective.

**PROBABLE CAUSES**

- Malfunction of the ETACS-ECU
- Malfunction of wiring harness or connector

**DIAGNOSIS PROCEDURE**

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**STEP 1. M.U.T.-III CAN bus diagnostics**

Use the M.U.T.-III to diagnose the CAN bus lines.

**Q: Is the check result normal?**

**YES** : Go to Step 2

**NO** : Repair the CAN bus line (Refer to GROUP 54C – Troubleshooting ). On completion, go to Step 3.

**STEP 2. Check whether the diagnosis code is reset.**

Check again if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) On completion, check that the diagnosis code is reset.

**Q: Is the diagnosis code set?**

**YES** : Refer to GROUP 54C, Diagnosis Item 5 "Communication with no ECUs is possible (CAN-C-Mid)" , and Then go to Step 3.

**NO** : If the trouble is solved, it is determined that there is an intermittent malfunction such as poor engaged connector(s) or open circuit (Refer to GROUP 00, How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunctions ).

| Item No. | M.U.T.-III display          | Check condition                         | Normal condition  |
|----------|-----------------------------|---|---|
| 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  |
| 203      | Process error               | When no error is present                | No error  |
|          |                             | When error is present                   | Interrupt error or Switch error or Sequence error or Stick pointer Err or Dispatch call Err or RAM error or Other error |
| 204      | Coding counter              | –                                       | 0–255 times   |
| 205      | Coding counter Option       | –                                       | 0–255 times   |
| 206      | Head lamp LO ON duty        | When low-beam headlamps are on          | 100 %   |
|          |                             | When headlamps (low-beam) are off       | 0 %   |
| 207      | Fan control relay ON duty   | When fan is in operation                | 100 %   |
|          |                             | When fan is stopped                     | 0 %   |
| 208      | Room lamp ON duty           | When room lamp is turned from ON to OFF | Lamp is dimmed from 100% (when ON) to 0%.   |
| 209      | Gate lamp ON duty           | When tailgate is opened                 | 100 %   |
|          |                             | When tailgate is closed                 | 0 %   |

**STEP 3. Check whether the diagnosis code is reset.**

Recheck if the diagnosis code is set to the ETACS-ECU.

- (1) Erase the diagnosis code.
- (2) Turn the ignition switch from "LOCK" (OFF) position to "ON" position.
- (3) Check if the diagnosis code is reset.

**Q: Is the diagnosis code set?**

**YES** : Replace the ETACS-ECU, and Then go to Step 1.

**NO** : The procedure is complete.

**DATA LIST REFERENCE TABLE**

M1545001300657

*NOTE: Some items are not displayed on M.U.T.-III according to the information in the ECU.*

| Item No. | M.U.T.-III display  | Check condition  | Normal condition |
|----------|---------------------|--|------------------|
| 210      | IG key illumination | When door is opened  | 100 %            |
|          |                     | When door is closed  | 0 %              |
| 211      | Head lamp Hi        | When high-beam headlamps are on  | ON               |
|          |                     | When high-beam headlamps are off   | OFF              |
| 212      | Front fog lamp      | When front fog lamp is on  | ON               |
|          |                     | When front fog lamp is off   | OFF              |
| 213      | Horn security horn  | Not used   | —                |
| 214      | Head lamp washer    | When headlamp washer is in operation   | ON               |
|          |                     | Other than above   | OFF              |
| 215      | Security indicator  | Not used   | —                |
| 216      | IG1-2 fuel pump     | Ignition switch: ON position   | ON               |
|          |                     | Ignition switch: Other than ON position  | OFF              |
| 218      | Tail lamp           | When tail lamp and position lamp are on  | ON               |
|          |                     | When tail lamp and position lamp are off   | OFF              |
| 219      | Turn RH/LH lamp     | When turn-signal lamp is on  | ON               |
|          |                     | When turn-signal lamp is off   | OFF              |
| 220      | Blower fan relay    | Ignition switch: ON position   | ON               |
|          |                     | Ignition switch: Other than ON position  | OFF              |
| 221      | Defogger            | 1. Engine: ON (2000 r/min)<br>2. Defogger switch: ON                                       | ON               |
|          |                     | Other than above   | OFF              |
| 222      | Interior lamp cut   | When interior lamp is on   | ON               |
|          |                     | When the lamp is turned OFF by the activation of interior lamp automatic shutdown function | OFF              |
| 224      | Door lock           | When locking is performed by central door locking  | ON               |
|          |                     | Other than above   | OFF              |
| 227      | Door unlock         | When unlocking is performed by central door locking  | ON               |
|          |                     | Other than above   | OFF              |
| 228      | Dr door unlock      | When unlocking is performed by central door locking  | ON               |
|          |                     | Other than above   | OFF              |

| Item No. | M.U.T.-III display          | Check condition                                    | Normal condition                   |
|----------|-----------------------------|--|------------------------------------|
| 230      | Gate opener                 | Tailgate lock release handle: ON                   | ON                                 |
|          |                             | Other than above                                   | OFF                                |
| 231      | Rear fog lamp               | When rear fog lamp is on                           | ON                                 |
|          |                             | When rear fog lamp is off                          | OFF                                |
| 232      | ACC Relay                   | Ignition switch: ACC or ON position                | ON                                 |
|          |                             | Ignition switch: Other than ACC or ON position     | OFF                                |
| 233      | Fan Lo                      | When fan is in Lo operation                        | ON                                 |
|          |                             | When fan is stopped                                | OFF                                |
| 234      | Fan Hi                      | When fan is in Hi operation                        | ON                                 |
|          |                             | When fan is stopped                                | OFF                                |
| 235      | Front wiper ACT             | When windshield wipers are in operation            | ON                                 |
|          |                             | Other than above                                   | OFF                                |
| 236      | Front wiper Lo/Hi           | When windshield wipers are in high-speed operation | ON                                 |
|          |                             | Other than above                                   | OFF                                |
| 237      | Front washer                | When windshield washer is in operation             | ON                                 |
|          |                             | Other than above                                   | OFF                                |
| 238      | Rear washer                 | When rear washer is in operation                   | ON                                 |
|          |                             | Other than above                                   | OFF                                |
| 239      | Rear wiper                  | When rear wiper 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 turned) |
| 241      | Hold mirror open            | Door mirror: Opened                                | ON                                 |
|          |                             | Door mirror: Closed                                | OFF                                |
| 242      | Hold mirror close           | Door mirror: Closed                                | ON                                 |
|          |                             | Door mirror: Opened                                | OFF                                |
| 243      | Dead lock                   | Not used   | OFF                                |
| 244      | Independent DRL             | Not used   | OFF                                |
| 251      | Auto lamp Sensor            | Not used   | —                                  |
| 252      | Ambient temperature sensor  | Ignition switch: ON position                       | 0–5 V                              |
| 253      | Voltage sensing of IOD Line | Always   | System voltage                     |
| 254      | IG voltage                  | Ignition switch: ON position                       | System voltage                     |
| 256      | Dr door ajar switch         | Driver's door: Open                                | Open                               |
|          |                             | Driver's door: Closed                              | Close                              |

| Item No. | M.U.T.-III display              | Check condition  | Normal condition |
|----------|---------------------------------|--|------------------|
| 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      | RL door ajar switch             | Rear left door: Open   | Open             |
|          |                                 | Rear left door: Closed   | Close            |
| 260      | Gate ajar switch                | Tailgate: Open   | Open             |
|          |                                 | Tailgate: Closed   | Close            |
| 262      | Room lamp centre ON switch      | Not used   | OFF              |
| 263      | Room lamp centre OFF switch     | Not used   | OFF              |
| 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 hazard switch is pressed   | ON               |
|          |                                 | Other than above   | OFF              |
| 266      | Hood switch                     | Not used   | OFF              |
| 267      | Mirror switch                   | Remote controlled mirror switch: ON (when the switch is operated)      | ON               |
|          |                                 | Remote controlled mirror switch: OFF (when the switch is not operated) | OFF              |
| 268      | Gate opener switch              | Not used   | OFF              |
| 270      | Dr door lock switch             | When driver's door is locked   | Lock             |
|          |                                 | Other than above   | Not lock         |
| 271      | Dr door unlock switch           | When driver's door is unlocked   | Unlock           |
|          |                                 | Other than above   | Not Unlock       |
| 272      | As door unlock switch           | When front passenger's door is unlocked                                | Unlock           |
|          |                                 | Other than above   | Not Unlock       |
| 273      | Except Dr/As door unlock switch | Not used   | Unlock           |
|          |                                 |  | Not Unlock       |
| 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               | Power window main switch (door lock switch): Lock                      | ON               |
|          |                                 | Other than above   | OFF              |

| Item No. | M.U.T.-III display               | Check condition                                     | Normal condition |
|----------|----------------------------------|---|------------------|
| 278      | Power unlock switch              | Power window main switch (door lock switch): Unlock | ON               |
|          |                                  | Other than above                                    | OFF              |
| 279      | Brake fluid switch               | When brake fluid level is normal                    | ON               |
|          |                                  | When brake fluid level is low                       | OFF              |
| 280      | Washer fluid/Trailer turn SW     | Not used  | OFF              |
| 281      | ASC/TCL OFF switch               | ASC OFF switch: During ON operation                 | ON               |
|          |                                  | Other than above                                    | OFF              |
| 283      | ESS cancel switch                | Not used  | OFF              |
| 287      | Starter switch                   | Ignition switch: START position                     | ON               |
|          |                                  | Ignition switch: Other than START position          | OFF              |
| 288      | ACC switch                       | Ignition switch: ACC or ON position                 | ON               |
|          |                                  | Ignition switch: Other than ACC and ON position     | OFF              |
| 289      | Backup lamp or shift reverses SW | Shift lever is in reverse position                  | ON               |
|          |                                  | Other than above                                    | OFF              |
| 290      | Stop lamp switch                 | Brake pedal depressed                               | ON               |
|          |                                  | Other than above                                    | OFF              |
| 291      | Front wiper auto stop switch     | When windshield wipers are in operation             | ON               |
|          |                                  | Other than above                                    | OFF              |
| 292      | Rear wiper auto stop switch      | When rear wiper is in operation                     | ON               |
|          |                                  | Other than above                                    | OFF              |
| 293      | Process error information        | —   | —                |
| 294      | Process error counter            | —   | 0–255 times      |
| 295      | Rear sunroof unlock              | Not used  | OFF              |
| 340      | Head lamp switch(tail)           | Lighting switch: Position lamp position             | ON               |
|          |                                  | Other than above                                    | OFF              |
| 341      | Head lamp switch                 | Lighting switch: During dimmer switch operation     | ON               |
|          |                                  | Other than above                                    | OFF              |
| 342      | Head lamp switch(Dimmer)         | Lighting switch: High beam position                 | ON               |
|          |                                  | Other than above                                    | OFF              |
| 343      | Turn switch left                 | Turn-signal lamp switch: LH position                | ON               |
|          |                                  | Other than above                                    | OFF              |

| Item No. | M.U.T.-III display           | Check condition   | Normal condition                     |
|----------|------------------------------|---|--------------------------------------|
| 344      | Turn switch right            | Turn-signal lamp switch: RH position                                    | ON                                   |
|          |                              | Other than above  | OFF                                  |
| 345      | Fog lamp ON                  | Fog lamp switch: During ON operation                                    | ON                                   |
|          |                              | Other than above  | OFF                                  |
| 346      | Fog lamp OFF                 | Fog lamp switch: During OFF operation                                   | ON                                   |
|          |                              | Other than above  | OFF                                  |
| 347      | Switch type                  | —   | LHD                                  |
| 348      | Head lamp switch(auto)       | Lighting switch: AUTO position  | ON                                   |
|          |                              | Other than above  | OFF                                  |
| 349      | Head lamp cleaner            | Not used  | OFF                                  |
| 350      | Head lamp switch(flasher)    | Lighting switch: During dimmer switch operation                         | ON                                   |
|          |                              | Other than above  | OFF                                  |
| 351      | Column ECU sleep             | Ignition switch: Other than ON and 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                                  |
| 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 (-). | Value changes from 0 (+) to 254 (-). |
| 360      | Wiper switch lever fail      | When normal   | No fail                              |
|          |                              | When abnormality is present   | Fail                                 |

| Item No. | M.U.T.-III display               | Check condition                                      | Normal condition |
|----------|----------------------------------|--|------------------|
| 361      | Turn/Lamp switch lever fail      | When normal  | No fail          |
|          |                                  | When abnormality is present                          | Fail             |
| 400      | Indirect lamp switch             | Not used   | OFF              |
| 401      | Indirect lamp                    | Not used   | —                |
| 404      | FCM switch                       | Not used   | OFF              |
| 405      | LDW switch                       | Not used   | OFF              |
| 406      | ACCS vehicle interval setting SW | Not used   | OFF              |
| 407      | Charging Lid ajar switch         | Not used   | Open             |
|          |                                  |  | Close            |
| 408      | Filler lid Open SW/ECO mode SW   | Not used   | OFF              |
| 409      | LED Head lamp fail               | Not used   | —                |
| 410      | HS power supply voltage          | Ignition switch: ON position                         | 5 V              |
| 411      | Front HS signal voltage          | Ignition switch: ON position                         | 0.7 – 4.1 V      |
| 412      | Rear HS signal voltage           | Ignition switch: ON position                         | 0.7 – 4.1 V      |
| 413      | Front HS initial position        | Ignition switch: ON position                         | 5 V              |
| 414      | Rear HS initial position         | Ignition switch: ON position                         | 5 V              |
| 415      | HS initialization status         | The ETACS-ECU initialisation is not implemented.     | Not run          |
|          |                                  | The ETACS-ECU initialisation is completed.           | Completed        |
| 416      | A/L indicating voltage ratio     | Ignition switch: ON position                         | 0 – 100 %        |
| 417      | A/L actuator line voltage        | Ignition switch: ON position                         | V                |
| 418      | A/L actuator output voltage      | Ignition switch: ON position                         | V                |
| 419      | EEPROM error                     | When no error is present                             | ON               |
|          |                                  | When error is present                                | OFF              |
| 420      | Boot loader Err                  | When no error is present                             | ON               |
|          |                                  | When error is present                                | OFF              |
| 421      | ADC Error                        | When no error is present                             | ON               |
|          |                                  | When error is present                                | OFF              |
| 422      | PLL Error                        | When no error is present                             | ON               |
|          |                                  | When error is present                                | OFF              |
| 423      | IG key illumination fail         | Ignition key cylinder illumination lamp: Illuminates | ON               |
|          |                                  | Ignition key cylinder illumination lamp: OFF         | OFF              |
| 424      | Shift Lock solenoid fail         | When a problem is present (short to power supply)    | ON               |
|          |                                  | Other than above                                     | OFF              |

## TROUBLE SYMPTOM CHART

M1545001200412

| Trouble symptom                               | Reference page            |
|---|---------------------------|
| Malfunction of ETACS-ECU power supply circuit | <a href="#">P.54A-311</a> |

## SYMPTOM PROCEDURES

## Malfunction of ETACS-ECU power supply circuit

**⚠ CAUTION**

When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

## COMMENTS ON TROUBLE SYMPTOM

If the ETACS-ECU functions do not work at all, the ETACS-ECU power supply system, earth system, or ETACS-ECU may have a problem.

## PROBABLE CAUSES

- Damaged harness wires and connectors
- Malfunction of the ETACS-ECU

## DIAGNOSIS PROCEDURE

## STEP 1. Resistance measurement at ETACS-ECU connector (EARTH, SGND terminal).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the ETACS-ECU connector (EARTH terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

- (3) Measure the resistance between the ETACS-ECU connector (SGND terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

- YES : Go to Step 3.  
NO : Go to Step 2.

## STEP 2. Check of open circuit in EARTH, SGND line between ETACS-ECU connector and body earth.

**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 ).

**NO** : Repair the connector(s) or wiring harness.

## STEP 3. Voltage measurement at ETACS-ECU connector (+B terminal).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the voltage between the ETACS-ECU connector (+B terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

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

## STEP 4. Check of short to power supply, short to earth, and open circuit in IOD1 line between fusible link and ETACS-ECU connector.

**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 ).

**NO** : Repair the connector(s) or wiring harness.

## STEP 5. Voltage measurement at ETACS-ECU connector (+B1 terminal).

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Check the voltage between the ETACS-ECU connector (+B1 terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

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

**STEP 6. Check of short to power supply, short to earth, and open circuit in +B1 line between fusible link and ETACS-ECU connector.****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 ).

**NO** : Repair the connector(s) or wiring harness.

**STEP 7. Retest the system**

Check that the ETACS-ECU functions work 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 ).

**NO** : Replace the ETACS-ECU.

**TROUBLE SYMPTOM CHART FOR INPUT SIGNAL**

M1545004900595

| Trouble symptom   | Inspection Procedure No. | Reference page            |
|---|--------------------------|---------------------------|
| The ignition switch (ACC) signal is not received.   | 1                        | <a href="#">P.54A-312</a> |
| The ignition switch (IG1) signal is not received.   | 2                        | <a href="#">P.54A-313</a> |
| The key reminder switch signal is not received. <Vehicles without KOS>  | 3                        | <a href="#">P.54A-314</a> |
| The front door lock actuator (driver's side) signal is not received.  | 4                        | <a href="#">P.54A-315</a> |
| The front door switch (driver's side) signal is not received.   | 5                        | <a href="#">P.54A-316</a> |
| The front door switch (passenger's side) signal is not received.  | 6                        | <a href="#">P.54A-317</a> |
| The rear door switch (RH) signal is not received.   | 7                        | <a href="#">P.54A-318</a> |
| The rear door switch (LH) signal is not received.   | 8                        | <a href="#">P.54A-318</a> |
| The tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> signal is not received. | 9                        | <a href="#">P.54A-319</a> |
| The hazard warning lamp switch signal is not received.  | 10                       | <a href="#">P.54A-320</a> |
| The column switch signal is not received.   | 11                       | <a href="#">P.54A-321</a> |
| The stop lamp switch signal is not received.  | 12                       | <a href="#">P.54A-321</a> |
| The remote controlled mirror switch (fold switch) signal is not received.   | 13                       | <a href="#">P.54A-322</a> |
| The ASC OFF switch signal is not received.  | 14                       | <a href="#">P.54A-323</a> |

**INPUT SIGNAL PROCEDURES****Inspection Procedure 1: The ignition switch (ACC) signal is not received.****CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in

**Immobilizer System – How to Register Key ID**  
[P.54A-33.](#))

**COMMENTS ON TROUBLE SYMPTOM**

If there is an error to the input signal (ACC) from the ignition switch <Vehicles without KOS> or OSS-ECU <Vehicles with one touch start system>, or if the ACC relay in ETACS-ECU does not function normally, the ignition switch (ACC) signal is no longer output to the communication line.

**PROBABLE CAUSES**

- Malfunction of the ETACS-ECU
- Malfunction of the ignition switch <Vehicles without KOS>
- Malfunction of the OSS-ECU <Vehicles with one touch start system>
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Voltage measurement at ETACS-ECU connector (ACC terminal).**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ACC" position.
- (3) Check the voltage between the ETACS-ECU connector (ACC terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO <vehicles with one touch start system> : Go to Step 2.

NO <vehicles without one touch start system> : Go to Step 3.

**STEP 2. Check the M.U.T.-III Diagnosis code for other systems**

Check that the OSS-ECU set a diagnosis code.

**Q: Is the diagnosis code set?**

YES : Diagnose the OSS-ECU. Refer to GROUP 42B, Troubleshooting [P.54A-39](#).

NO : Go to Step 4.

**Inspection Procedure 2: The ignition switch (IG1) signal is not received.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)
- Malfunction of the OSS-ECU <Vehicles with one

**STEP 3. Ignition switch check**

Check the ignition switch. Refer to [P.54A-19](#).

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Troubleshoot the ignition switch. Refer to Inspection Procedure 2 "Malfunction of the ignition switch power supply system"

[P.54A-14](#).

**STEP 4. Check of short to power supply, short to earth, and open circuit in ACC line between ignition switch (ACC) <Vehicles without KOS> or OSS-ECU (ACC) <Vehicles with one touch start system> and ETACS-ECU connector.**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. M.U.T.-III data list**

Check the input signals from the ignition switch (ACC).

- Turn the ignition switch to the ACC position.

| 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 ).

NO : Replace the ETACS-ECU.

**COMMENTS ON TROUBLE SYMPTOM**

If there is an error to the input signal (IG1) from the ignition switch <Vehicles without KOS> or OSS-ECU <Vehicles with one touch start system>, or if the IG relay in ETACS-ECU does not function normally, the ignition switch (IG1) signal is no longer output to the communication line.

**PROBABLE CAUSES**

- Malfunction of the ETACS-ECU
- Malfunction of the ignition switch <Vehicles without KOS>
- Malfunction of the OSS-ECU <Vehicles with one touch start system>

- Damaged harness wires and connectors

## DIAGNOSIS PROCEDURE

### STEP 1. Voltage measurement at ETACS-ECU connector (IG1 terminal)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Turn the ignition switch to the "ON" position.
- (3) Check the voltage between the ETACS-ECU connector (IG1 terminal) and body earth.

**OK: System voltage**

**Q: Is the check result normal?**

YES : Go to Step 5.

NO <vehicles with one touch start system> : Go to Step 2.

NO <vehicles without one touch start system> : Go to Step 3.

### STEP 2. Check the M.U.T.-III Diagnosis code for other systems

Check that the OSS-ECU set a diagnosis code.

**Q: Is the diagnosis code set?**

YES : Diagnose the OSS-ECU. Refer to GROUP 42B, Troubleshooting [P.54A-39](#).

NO : Go to Step 4.

### STEP 3. Ignition switch check

Check the ignition switch. Refer to [P.54A-19](#).

**Q: Is the check result normal?**

**YES** : Go to Step 4.

**NO** : Troubleshoot the ignition switch. Refer to Inspection Procedure 2 "Malfunction of the ignition switch power supply system"

[P.54A-14](#).

### STEP 4. Check of short to power supply, short to earth, and open circuit in IG1 line between ignition switch (IG1) <Vehicles without KOS> or OSS-ECU (IG1) <Vehicles with one touch start system> and ETACS-ECU connector.

**Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

### STEP 5. M.U.T.-III data list

Check the input signal from the ignition switch (IG1).

- Turn the ignition switch to the "ON" position.

| Item No. | Item name  | Normal condition |
|----------|------------|------------------|
| Item 254 | IG voltage | System 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 ).

NO : Replace the ETACS-ECU.

## Inspection Procedure 3: The key reminder switch signal is not received. <Vehicles without KOS>

### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

### COMMENTS ON TROUBLE SYMPTOM

The key reminder switch input signal is used for the operation judgement of the functions below. If the signal is abnormal, these functions will not work.

- Ignition key reminder function
- Central door locking
- Keyless entry system
- Ignition key cylinder illumination lamp
- Room lamp

### PROBABLE CAUSES

- Malfunction of the key reminder switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

### DIAGNOSIS PROCEDURE

#### STEP 1. Check the key reminder switch.

Refer to [P.54A-20](#).

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Replace the key reminder switch.

#### STEP 2. Resistance measurement at key reminder switch connector (earth terminal)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the key reminder switch connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

Q: Is the check result normal?

YES : Go to Step 4.

NO : Go to Step 3.

#### STEP 3. Check of open circuit in earth line between key reminder switch connector and the body earth

Q: Is the check result normal?

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

NO : Repair the connector(s) or wiring harness.

#### STEP 4. Check of short to power supply, short to earth, and open circuit in HL1+ line between ETACS-ECU connector and key reminder switch connector

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

#### STEP 5. M.U.T.-III data list

Check the input signals from the key reminder switch.

- Ignition switch: "LOCK" (OFF) (key inserted)

| Item No. | Item name          | Normal condition |
|----------|--------------------|------------------|
| Item 264 | Handle lock switch | Key in           |

**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 ).

NO : Replace the ETACS-ECU.

#### Inspection Procedure 4: The front door lock actuator (driver's side) signal is not received.

##### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

#### COMMENTS ON TROUBLE SYMPTOM

The front door lock actuator (driver's side) input signal is used for the operation judgement 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
- Room lamp

#### PROBABLE CAUSES

- Malfunction of the front door lock actuator (driver's side)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

#### DIAGNOSIS PROCEDURE

##### STEP 1. Front door lock actuator (driver's side) check

Refer to GROUP 42A – Door .

Q: Is the check result normal?

YES : Go to Step 2.

NO : Replace the front door lock actuator (driver's side).

##### STEP 2. Resistance measurement at front door lock actuator (LH) connector (earth terminal)

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the door lock actuator (LH) connector (earth terminal) and body

earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Go to Step 3.

**STEP 3. Check of open circuit in earth line between front door lock actuator (LH) connector and body earth**

**Q: Is the check result normal?**

YES : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

NO : Repair the connector(s) or wiring harness.

**STEP 4. Check of short to power supply, short to earth, and open circuit in DDUK line between ETACS-ECU connector and front door lock actuator (LH) connector**

**Q: Is the check result normal?**

**YES : Go to Step 5.**

**NO : Repair the connector(s) or wiring harness.**

**STEP 5. M.U.T.-III data list**

Change the status of driver's door from unlocked to locked.

| Item No. | Item name             | Normal condition |
|----------|-----------------------|------------------|
| Item 271 | Dr door unlock switch | Unlock → Lock    |

**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 ).

NO : Replace the ETACS-ECU.

**Inspection Procedure 5: The front door switch (driver's side) signal is not received.**

**⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**COMMENTS ON TROUBLE SYMPTOM**

If there is an error to the front door switch (driver's side) input signal, the door switch (driver's side) signal is no longer output to the communication line.

**PROBABLE CAUSES**

- Malfunction of front door switch (LH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE**

**STEP 1. Check the installation condition.**

Check that the front door switch (driver's side) is installed to the body correctly.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Correct the installation condition.

**STEP 2. Front door switch (driver's side) check**

Refer to GROUP 42A – Door .

**Q: Is the check result normal?**

YES : Go to Step 3.

NO : Replace the front door switch (driver's side).

**STEP 3. Check of short to power supply, short to earth, and open circuit in DDR line between ETACS-ECU connector and front door switch (LH) connector**

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

**STEP 4. M.U.T.-III data list**

Open the driver's door.

| Item No. | Item name           | Normal condition |
|----------|---------------------|------------------|
| Item 256 | Dr door ajar switch | Open             |

**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 ).

**NO :** Replace the ETACS-ECU.

**Inspection Procedure 6: The front door switch (passenger's side) signal is not received.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**COMMENTS ON TROUBLE SYMPTOM**

If there is an error to the front door switch (passenger's side) input signal, the front door switch (passenger's side) signal is no longer output to the communication line.

**PROBABLE CAUSES**

- Malfunction of front door switch (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the installation condition.**

Check that the front door switch (passenger's side) is installed to the body correctly.

**Q: Is the check result normal?**

**YES :** Go to Step 2.

**NO :** Correct the installation condition.

**STEP 2. Front door switch (passenger's side) check**

Refer to GROUP 42A – Door .

**Q: Is the check result normal?**

**YES :** Go to Step 3.

**NO :** Replace the front door switch (passenger's side).

**STEP 3. Check of short to power supply, short to earth, and open circuit in DAS line between ETACS-ECU connector and front door switch (RH) connector**

**Q: Is the check result normal?**

**YES :** Go to Step 4.

**NO :** Repair the connector(s) or wiring harness.

**STEP 4. M.U.T.-III data list**

Open the front passenger's door.

| Item No. | Item name           | Normal condition |
|----------|---------------------|------------------|
| Item 257 | As door ajar switch | Open             |

**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 ).

**NO :** Replace the ETACS-ECU.

**Inspection Procedure 7: The rear door switch (RH) signal is not received.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

**COMMENTS ON TROUBLE SYMPTOM**

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.

**PROBABLE CAUSES**

- Malfunction of rear door switch (RH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the installation condition.**

Check that the rear door switch (RH) is installed to the body correctly.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Correct the installation condition.

**STEP 2. Rear door switch (RH) check**

Refer to GROUP 42A – Door .

**Q: Is the check result normal?**

YES : Go to Step 3.

NO : Replace the rear door switch (RH).

**STEP 3. Check of short to power supply, short to earth, and open circuit in DRH line between ETACS-ECU connector and rear door switch (RH) connector**

**Q: Is the check result normal?**

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

**STEP 4. M.U.T.-III data list**

Open the rear right door.

| Item No. | Item name           | Normal condition |
|----------|---------------------|------------------|
| Item 258 | RR door ajar switch | Open             |

**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 ).

NO : Replace the ETACS-ECU.

**Inspection Procedure 8: The rear door switch (LH) signal is not received.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

**COMMENTS ON TROUBLE SYMPTOM**

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.

**PROBABLE CAUSES**

- Malfunction of rear door switch (LH)
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the installation condition.**

Check that the rear door switch (LH) is installed to the body correctly.

**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Correct the installation condition.

#### STEP 2. Rear door switch (LH) check

Refer to GROUP 42A – Door .

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the rear door switch (LH).

#### STEP 3. Check of short to power supply, short to earth, and open circuit in DLH line between ETACS-ECU connector and rear door switch (LH) connector

Q: Is the check result normal?

YES : Go to Step 4.

NO : Repair the connector(s) or wiring harness.

#### STEP 4. M.U.T.-III data list

Open the rear left door.

| Item No. | Item name           | Normal condition |
|----------|---------------------|------------------|
| Item 259 | RL door ajar switch | Open             |

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 ).

NO : Replace the ETACS-ECU.

### Inspection Procedure 9: The tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> signal is not received.

#### ⚠ CAUTION

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

#### COMMENTS ON TROUBLE SYMPTOM

If there is an error to the tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> input signal, the tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> signal is no longer output to the communication line.

#### PROBABLE CAUSES

- Malfunction of tailgate lock actuator <vehicles without electric tailgate>
- Malfunction of tailgate latch <vehicles with electric tailgate>
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

YES : Go to Step 4.

#### DIAGNOSIS PROCEDURE

##### STEP 1. Check the installation condition.

Check that the tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> is installed to the body correctly.

Q: Is the check result normal?

YES : Go to Step 2.

NO : Correct the installation condition.

##### STEP 2. Tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> check

Refer to GROUP 42A – Tailgate <vehicles without Electric Tailgate> or <vehicles with Electric Tailgate>.

Q: Is the check result normal?

YES : Go to Step 3.

NO : Replace the tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate>.

##### STEP 3. Check of short to power supply, short to earth, and open circuit in TRID line between ETACS-ECU connector and tailgate lock actuator <vehicles without electric tailgate> or tailgate latch <vehicles with electric tailgate> connector

Q: Is the check result normal?

NO : Repair the connector(s) or wiring harness.

**STEP 4. M.U.T.-III data list**

Open the tailgate.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 260 | Gate ajar switch | Open             |

**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 ).

**NO** : Replace the ETACS-ECU.

**Inspection Procedure 10: The hazard warning lamp switch signal is not received.****△ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

**COMMENTS ON TROUBLE SYMPTOM**

The hazard warning lamp switch input signal is used for the operation judgement of hazard warning lamp. Therefore, if the signal is abnormal, the hazard warning lamp will not illuminate.

**PROBABLE CAUSES**

- Malfunction of hazard indicator assembly
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the hazard indicator assembly.**Refer to [P.54A-174.](#)**Q: Is the check result normal?**

YES : Go to Step 2.

NO : Replace the hazard indicator assembly.

**STEP 2. Resistance measurement at hazard indicator assembly connector (earth terminal)**

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

- (2) Measure the resistance between the hazard indicator assembly connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)****Q: Is the check result normal?**

YES : Go to Step 4.

NO : Go to Step 3.

**STEP 3. Check of open circuit in earth line between hazard indicator assembly connector and body earth****Q: Is the check result normal?**

**YES** : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).

**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Check of short to power supply, short to earth, and open circuit in B line between ETACS-ECU connector and hazard indicator assembly connector****Q: Is the check result normal?**

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**STEP 5. M.U.T.-III data list**

Check the input signals from the hazard warning lamp switch.

- Turn ON the hazard warning lamp switch.

| Item No. | Item name     | Normal condition |
|----------|---------------|------------------|
| Item 265 | Hazard 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 ).

**NO** : Replace the ETACS-ECU.

---

#### Inspection Procedure 11: The column switch signal is not received.

---

#### COMMENTS ON TROUBLE SYMPTOM

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.

#### PROBABLE CAUSES

- Malfunction of column switch
- Faulty LIN bus line

#### DIAGNOSIS PROCEDURE

---

##### STEP 1. M.U.T.-III diagnosis code

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

**Q: Is the diagnosis code set?**

**YES** : Refer to Diagnosis code chart [P.54A-281](#).

**NO** : Go to Step 2.

---

##### STEP 2. Column switch check

- Check the continuity for wiper switch. Refer to [P.54A-206](#).
- Check the continuity for column switch (switch body part). Refer to [P.54A-207](#).

**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 ).

**NO** : Replace the column switch.

---

#### Inspection Procedure 12: The stop lamp switch signal is not received.

---

##### **CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)

#### COMMENTS ON TROUBLE SYMPTOM

The stop lamp switch input signal is used for the operation judgment of the functions below. If the signal is abnormal, these functions will not work.

- ABS, ASC
- Shift lock mechanism
- OSS
- Cruise control system

#### PROBABLE CAUSES

- Malfunction of stop lamp switch
- Malfunction of stop lamp relay\*
- Malfunction of ETACS-ECU
- Damaged harness wires and connectors

*NOTE: \* : The stop lamp relay cannot be inspected because it is a semiconductor relay.*

#### DIAGNOSIS PROCEDURE

---

##### STEP 1. Check the stop lamp switch.

Check the stop lamp switch. Refer to GROUP 35A – Brake Pedal .

**Q: Is the check result normal?**

**YES** : Go to Step 2.

**NO** : Replace the stop lamp switch.

---

##### STEP 2. Voltage measurement at ETACS-ECU connector (BKLP terminal).

- (1) Measure by backprobing without disconnecting the ETACS-ECU connector and stop lamp switch

- connector.  
(2) Check the voltage between the ETACS-ECU connector (BKLP terminal) and body earth.

**OK:**

**When the brake pedal is released:** Approximately 0 V – 5 V (pulse)

**When the brake pedal is depressed:** Approximately system voltage

**Q: Is the check result normal?**

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

**STEP 3. Check of short to power supply, short to earth, and open circuit in BKLP line between ETACS-ECU connector and stop lamp switch connector.**

**Q: Is the check result normal?**

- YES** : Go to Step 4.  
**NO** : Repair the connector(s) or wiring harness

**STEP 4. Check of short to power supply, short to earth, and open circuit in STP line between ETACS-ECU connector and stop lamp switch connector.**

**Q: Is the check result normal?**

- YES** : Go to Step 5.  
**NO** : Repair the connector(s) or wiring harness

**STEP 5. M.U.T.-III data list**

Temporarily replace the stop lamp relay, and then depress the brake pedal.

| Item No. | Item name        | Normal condition |
|----------|------------------|------------------|
| Item 290 | Stop lamp 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 ).  
**NO** : Replace the ETACS-ECU.

### Inspection Procedure 13: The remote controlled mirror switch (fold switch) signal is not received.

#### **CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33.](#))

#### COMMENTS ON TROUBLE SYMPTOM

Input signal from the remote controlled mirror switch (fold switch) is used to operate the functions below. If the signal is abnormal, these functions will not work normally.

- Electric-folding door mirrors

#### PROBABLE CAUSES

- Malfunction of the remote controlled mirror switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

#### DIAGNOSIS PROCEDURE

**STEP 1. Check the remote controlled mirror switch.**

Refer to GROUP 51 – Door Mirror .

**Q: Is the check result normal?**

- YES** : Go to Step 2.  
**NO** : Replace the remote controlled mirror switch.

**STEP 2. Resistance measurement at remote controlled mirror switch connector (earth terminal)**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the remote controlled mirror switch connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)**

**Q: Is the check result normal?**

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

**STEP 3. Check of open circuit in earth line between remote controlled mirror switch connector and body earth****Q: Is the check result normal?**

- YES** : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).  
**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Check of short to power supply, short to earth, and open circuit in MRR line between ETACS-ECU connector and remote controlled mirror switch connector****Q: Is the check result normal?**

- YES** : Go to Step 5.  
**NO** : Repair the connector(s) or wiring harness.

**STEP 5. M.U.T.-III data list**

Check the input signals from the remote controlled mirror switch (fold switch).

- Operate the remote controlled mirror switch (fold switch).

| Item No. | Item name     | Normal condition                         |
|----------|---------------|--|
| 267      | Mirror switch | OFF to ON (only when switch is operated) |

**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 ).  
**NO** : Replace the ETACS-ECU.

**Inspection Procedure 14: The ASC OFF switch signal is not received.****⚠ CAUTION**

- Before replacing the ECU, ensure that the power supply circuit, the earth circuit and the communication circuit are normal.
- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID P.54A-33.)

**COMMENTS ON TROUBLE SYMPTOM**

If there is an error to the ASC OFF switch input signal, the ASC OFF switch signal is no longer output to the communication line.

**PROBABLE CAUSES**

- Malfunction of the ASC OFF switch
- Malfunction of the ETACS-ECU
- Damaged harness wires and connectors

**DIAGNOSIS PROCEDURE****STEP 1. Check the ASC OFF switch.**

Refer to GROUP 35C – ASC OFF switch .

**Q: Is the check result normal?****YES** : Go to Step 2.**NO** : Replace the ASC OFF switch.**STEP 2. Resistance measurement at ASC OFF switch connector (earth terminal)**

- (1) Disconnect the connector, and measure at the wiring harness side.
- (2) Measure the resistance between the ASC OFF switch connector (earth terminal) and body earth.

**OK: Continuity exists (2 Ω or less)****Q: Is the check result normal?**

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

**STEP 3. Check of open circuit in earth line between ASC OFF switch connector and body earth****Q: Is the check result normal?**

- YES** : Intermittent malfunction is suspected (Refer to GROUP 00 – How to Use Troubleshooting/Inspection Service Points – How to Cope with Intermittent Malfunction ).  
**NO** : Repair the connector(s) or wiring harness.

**STEP 4. Check of short to power supply, short to earth, and open circuit in ASCS line between ETACS-ECU connector and ASC OFF switch connector**

Q: Is the check result normal?

YES : Go to Step 5.

NO : Repair the connector(s) or wiring harness.

**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 ).

**NO :** Replace the ETACS-ECU.

**CHECK WITH TERMINAL VOLTAGE**

M1545004800606

**STEP 5. M.U.T.-III data list**

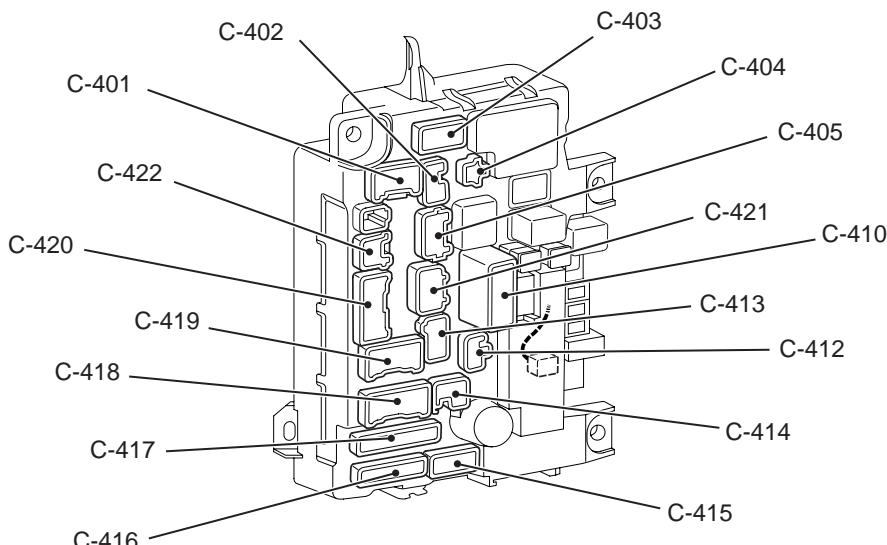
Check the input signals from the ASC OFF switch.

- Operate the ASC OFF switch.

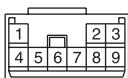
| Item No. | Item name          | Normal condition                         |
|----------|--------------------|--|
| 281      | ASC/TCL OFF switch | OFF to ON (only when switch is operated) |

**OK: Normal condition is displayed.**

Q: Is the check result normal?



ACB05919AB

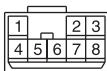
**CONNECTOR: C-401**

ACB05920AB

| Terminal No. | Terminal code | Check item  | Check condition  | Normal condition |
|--------------|---------------|---|--|------------------|
| 1            | —             | —   | —  | —                |
| 2            | DUL2          | Output to central door locking (for unlocking the passenger's door) | When the door lock actuators unlock the passenger's door | System voltage   |
| 3            | LP+3          | Ignition key cylinder illumination lamp output (high side)          | When the ignition key cylinder illumination lamp is ON   | System voltage   |

| Terminal No. | Terminal code | Check item   | Check condition                                       | Normal condition |
|--------------|---------------|--|---|------------------|
| 4            | —             | —  | —   | —                |
| 5            | DUN           | Output to central door locking (for unlocking the driver's door) | When the door lock actuators unlock the driver's door | System voltage   |
| 6            | DLK1&DLK2     | Output to central door locking (for locking the doors)           | When the door lock actuators lock the doors           | System voltage   |
| 7            | ASK2          | Power supply (fuse No. 23)                                       | Ignition switch: ACC                                  | System voltage   |
| 8            | CIG1          |  |   |                  |
| 9            | MUT           | Power supply (fuse No. 11)                                       | Always  | System voltage   |

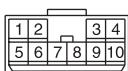
## CONNECTOR: C-402



ACB05928AB

| Terminal No. | Terminal code | Check item   | Check condition                       | Normal condition |
|--------------|---------------|--|---------------------------------------|------------------|
| 1            | TL2-2         | Side turn-signal lamp (LH) output <door mirror type> | When side turn-signal lamp (LH) is ON | System voltage   |
| 2            | IG1           | Power supply from ignition switch (IG1)              | Ignition switch: ON or START          | System voltage   |
| 3            | —             | —  | —                                     | —                |
| 4            | ACC           | Ignition switch (ACC) input                          | Ignition switch: ACC                  | System voltage   |
| 5            | IG11          | Power supply (fuse No. 15)                           | Ignition switch: ON                   | System voltage   |
| 6            | TAR3          | Tail lamp (RH) output                                | When tail lamps are ON                | System voltage   |
| 7 – 8        | —             | —  | —                                     | —                |

## CONNECTOR: C-403



ACB05927AB

| Terminal No. | Terminal code | Check item   | Check condition                       | Normal condition |
|--------------|---------------|--|---------------------------------------|------------------|
| 1            | —             | —  | —                                     | —                |
| 2            | RAD1          | Power supply (fuse No. 17)                           | Always                                | System voltage   |
| 3            | BUP1          | Power supply (fuse No. 18)                           | Always                                | System voltage   |
| 4            | TR2-2         | Side turn-signal lamp (RH) output <door mirror type> | When side turn-signal lamp (RH) is ON | System voltage   |

| Terminal No. | Terminal code | Check item                                      | Check condition                                      | Normal condition |
|--------------|---------------|---|--|------------------|
| 5            | IG+           | Power supply (fuse No. 10)                      | Always   | System voltage   |
| 6            | —             | —   | —  | —                |
| 7            | MO-1&M O-2    | Electric folding door mirror (unfolding) output | When the electric folding door mirrors are unfolding | System voltage   |
| 8            | —             | —   | —  | —                |
| 9            | MC-1&M C-2    | Electric folding door mirror (folding) output   | When the door mirrors are folding                    | System voltage   |
| 10           | ROOM          | Combination meter power supply                  | Always   | System voltage   |

## CONNECTOR: C-404



ACB05921AB

| Terminal No. | Terminal code | Check item          | Check condition           | Normal condition |
|--------------|---------------|---------------------|---------------------------|------------------|
| 1            | HTR           | Blower motor output | Blower motor in operation | System voltage   |

## CONNECTOR: C-405



ACB05929AB

| Terminal No. | Terminal code                   | Check item                   | Check condition             | Normal condition            |
|--------------|---------------------------------|------------------------------|-----------------------------|-----------------------------|
| 1            | LIN2-1,<br>LIN2-2&LI<br>N2-3    | LIN communication line       | Always                      | 0 to 12 V<br>(pulse signal) |
| 2            | RLP-1,<br>RLP-2&R<br>LP-3       | Room lamp output (low side)  | When room lamp is ON (duty) | Pulse signal                |
| 3            | LP+1,<br>LP+2,<br>LP+3&LP<br>+4 | Room lamp output (high side) | When the room lamp is ON    | System voltage              |
| 4 – 5        | —                               | —                            | —                           | —                           |
| 6            | SR+                             | +B power supply              | Always                      | System voltage              |
| 7            | —                               | —                            | —                           | —                           |

## CONNECTOR: C-410



AC507033AB

| Terminal No. | Terminal code | Check item | Check condition | Normal condition |
|--------------|---------------|------------|-----------------|------------------|
| 1            | +B2           | Battery 2  | Always          | System voltage   |
| 2            | +B1           | Battery 1  | Always          | System voltage   |

## CONNECTOR: C-412



AC507037AB

| Terminal No. | Terminal code | Check item                   | Check condition     | Normal condition |
|--------------|---------------|------------------------------|---------------------|------------------|
| 1            | F/PB          | Fuel pump power supply input | Ignition switch: ON | System voltage   |
| 2            | IOD1          | +B power supply input        | Always              | System voltage   |

## CONNECTOR: C-413



ACB05922AB

| Terminal No. | Terminal code | Check item                        | Check condition                                 | Normal condition |
|--------------|---------------|-----------------------------------|---|------------------|
| 1            | BATT          | Power supply (fuse No. 13)        | Always  | System voltage   |
| 2            | RWLO          | Output to rear wiper              | When rear wiper is operating                    | System voltage   |
| 3            | RWF           | Rear wiper motor output           | When rear wiper is operating                    | System voltage   |
| 4            | STLO          | Stop lamp switch power supply     | When tail lamp and high-mounted stop lamp is ON | System voltage   |
| 5            | DLK3&DLK4     | Rear door lock output             | When rear door is locked                        | System voltage   |
| 6            | —             | —                                 | —   | —                |
| 7            | DUL3&DUL4     | Rear door unlock output           | When rear door is unlocked                      | System voltage   |
| 8            | RWAS          | Rear wiper auto stop switch input | When rear wiper is operating                    | System voltage   |

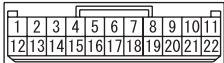
## CONNECTOR: C-414



ACB05922AB

| Terminal No. | Terminal code | Check item                | Check condition     | Normal condition |
|--------------|---------------|---------------------------|---------------------|------------------|
| 1            | DEFL          | Power supply (fuse No. 2) | Ignition switch: ON | System voltage   |
| 2            | F/P           | Fuel pump output          | Engine: Started     | System voltage   |
| 3            | —             | —                         | —                   | —                |

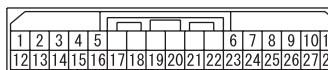
## CONNECTOR: C-415



ACC00011AB

| Terminal No. | Terminal code | Check item                              | Check condition                        | Normal condition |
|--------------|---------------|---|--|------------------|
| 1            | SBR           | Rear height sensor power supply         | Ignition switch: ON                    | 4.2 to 5.7 V     |
| 2 – 7        | —             | —                                       | —                                      | —                |
| 8            | TRAT          | —                                       | —                                      | —                |
| 9            | DDR           | Front door switch (LH) input            | Front door switch (LH): ON (door open) | 1 V or less      |
| 10           | DAS           | Front door switch (RH) input            | Front door switch (RH): ON (door open) | 1 V or less      |
| 11           | DRH           | Rear door switch (RH) input             | Rear door switch (RH): ON (door open)  | 1 V or less      |
| 12           | IG12&IG16     | Power supply (fuse No. 15)              | Ignition switch: ON                    | System voltage   |
| 13           | BLP+-1&BLP+-2 | Power supply (fuse No. 20)              | Ignition switch: ON                    | System voltage   |
| 14           | BAT2          | Power supply (fuse No. 18)              | Always                                 | System voltage   |
| 15           | SHR           | Input from the rear height sensor       | Ignition switch: ON                    | 0.5 to 4.5 V     |
| 16           | —             | —                                       | —                                      | —                |
| 17           | SGR           | Rear height sensor earth                | Always                                 | 1 V or less      |
| 18           | GTOP          | Input from tailgate lock release handle | Tailgate lock release handle: ON       | 1 V or less      |
| 19           | TRID          | Input from tailgate lock release handle | Tailgate lock release handle: ON       | 1 V or less      |
| 20           | DLH           | Rear door switch (LH) input             | Rear door switch (LH): ON (door open)  | 1 V or less      |
| 21 – 22      | —             | —                                       | —                                      | —                |

## CONNECTOR: C-416

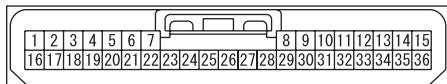


ACC00008AB

| Terminal No. | Terminal code | Check item                                 | Check condition   | Normal condition                            |
|--------------|---------------|--|---|---|
| 1            | —             | —  | —   | —   |
| 2            | SHF           | Input from the front height sensor         | Ignition switch: ON   | 0.5 to 4.5 V                                |
| 3            | SGF           | Front height sensor earth                  | Always  | 1 V or less                                 |
| 4            | AMB-          | Earth (ambient temperature sensor)         | Always  | 1 V or less                                 |
| 5            | MGL           | Headlamp levelling unit (LH) earth         | Always  | 1 V or less                                 |
| 6            | MGR           | Headlamp levelling unit (RH) earth         | Always  | 1 V or less                                 |
| 7            | SBF           | Rear height sensor power supply            | Ignition switch: ON   | 4.2 to 5.7 V                                |
| 8            | HWA           | Headlamp washer output                     | When headlamp washer is ON  | 1 V or less                                 |
| 9            | AMB+          | Ambient temperature sensor input           | Always  | 0.2 – 2.72 V                                |
| 10           | —             | —  | —   | —   |
| 11           | HLO           | Headlamp (LO) output                       | When headlamp (LO) is ON  | 1 V or less                                 |
| 12           | —             | —  | —   | —   |
| 13           | F/HI          | Cooling fan (HI) output                    | When cooling fan HI is operating  | 1 V or less                                 |
| 14           | —             | —  | —   | —   |
| 15           | —             | —  | —   | —   |
| 16           | N.HO          | Output to horn                             | When horn sounds  | 1 V or less                                 |
| 17           | —             | —  | —   | —   |
| 18           | HHI           | Headlamp (HI) output                       | When headlamp (HI) is ON  | 1 V or less                                 |
| 19           | —             | —  | —   | —   |
| 20           | BFSW          | Brake fluid switch input                   | Brake fluid switch: ON  | 1 V or less                                 |
| 21 – 22      | —             | —  | —   | —   |
| 23           | F/LO          | Cooling fan (LO) output                    | When cooling fan LO is operating  | 1 V or less                                 |
| 24           | MBL           | Headlamp levelling unit (LH) power supply  | Ignition switch: ON   | System voltage                              |
| 25           | MBR           | Headlamp levelling unit (RH) power supply  | Ignition switch: ON   | System voltage                              |
| 26           | MSL           | Output to the headlamp levelling unit (LH) | Ignition switch: ON<br>When the levelling motor is stopped<br>When the levelling motor is operating | 1 V or less<br>16% to 84% of system voltage |

| Terminal No. | Terminal code | Check item                                 | Check condition     |                                       | Normal condition             |
|--------------|---------------|--|---------------------|---------------------------------------|------------------------------|
| 27           | MSR           | Output to the headlamp levelling unit (RH) | Ignition switch: ON | When the levelling motor is stopped   | 1 V or less                  |
|              |               |  |                     | When the levelling motor is operating | 16% to 84% of system voltage |
| 28           | –             | –  | –                   |                                       | –                            |

## CONNECTOR: C-417

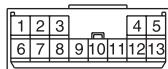


ACC00010AB

| Terminal No. | Terminal code | Check item   | Check condition   | Normal condition        |
|--------------|---------------|--|---|-------------------------|
| 1            | SV            | Power supply (5V)                                  | Always  | 5 V                     |
| 2            | SIGR          | Keyless entry system signal output                 | Always  | 0 to 5 V (pulse signal) |
| 3            | PWRC          | Receiver antenna module (door entry) power control | Ignition switch: ON   | System voltage          |
| 4            | SIGI          | Immobilizer signal input/output                    | When immobilizer authentication (When insert ignition key to ignition switch or turn ignition switch from ACC to ON.) | 0 to 5 V (pulse signal) |
| 5            | CLOC          | Immobilizer CLOCK input                            | When immobilizer authentication (When insert ignition key to ignition switch or turn ignition switch from ACC to ON.) | 0 to 5 V (pulse signal) |
| 6            | IG1A          | Power supply (fuse No. 16)                         | Ignition switch: ON   | System voltage          |
| 7            | REV           | Back-up lamp switch power supply                   | When back-up lamp is ON   | System voltage          |
| 8 – 10       | –             | –  | –   | –                       |
| 11           | DDUK          | Input to driver's door lock actuator (unlock)      | Driver's door lock: Unlocked  | 1 V or less             |
| 12 – 14      | –             | –  | –   | –                       |
| 15           | ASCS          | ASC off switch input                               | ASC off switch: ON  | 1 V or less             |
| 16           | CNML          | CAN-C-Mid_L  | –   | –                       |
| 17           | CNMH          | CAN-C-Mid_H  | –   | –                       |
| 18           | CANL          | CAN-C_L  | –   | –                       |
| 19           | CANH          | CAN-C_H  | –   | –                       |
| 20           | –             | –  | –   | –                       |

| Terminal No. | Terminal code | Check item  | Check condition   | Normal condition         |
|--------------|---------------|---|---|--------------------------|
| 21           | DATA          | LIN communication line  | Always  | 0 to 12 V (pulse signal) |
| 22 – 23      | –             | –   | –   | –                        |
| 24           | WB/U          | Windshield wiper backup input                                       | Windshield low-speed wiper switch or windshield high-speed wiper switch: ON | 1 V or less              |
| 25           | MRR           | Input to remote controlled mirror switch (folding/unfolding switch) | Remote controlled mirror switch (folding/unfolding switch): ON              | 1 V or less              |
| 26           | B             | Hazard switch input   | Hazard switch: ON   | 1 V or less              |
| 27           | ADUK          | Input to front passenger's door lock actuator (unlock)              | Front passenger's door lock: Unlocked                                       | 1 V or less              |
| 28           | D-LS          | Door lock switch (lock) input                                       | Power window main switch (door lock switch): Lock                           | 1 V or less              |
| 29           | –             | –   | –   | –                        |
| 30           | HL1+          | Input to key reminder switch  | Key reminder switch: ON (ignition key removed)                              | 1 V or less              |
| 31           | D-US          | Door lock switch (unlock) input                                     | Power window main switch (door lock switch): Unlock                         | 1 V or less              |
| 32 – 35      | –             | –   | –   | –                        |
| 36           | GND           | Ground  | Always  | 1 V or less              |

## CONNECTOR: C-418

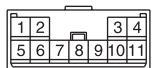


ACB05932 AB

| Terminal No. | Terminal code | Check item                                   | Check condition                                   | Normal condition |
|--------------|---------------|--|---|------------------|
| 1 – 2        | –             | –  | –   | –                |
| 3            | TAR2          | Tail lamp (RH) output                        | When tail lamps are ON                            | System voltage   |
| 4            | GLK           | Tailgate lock release handle output          | Tailgate lock release handle: ON                  | System voltage   |
| 5            | TR3-1&T R3-2  | Rear turn-signal lamp (LH) output            | When rear turn-signal lamp (LH) is ON             | System voltage   |
| 6            | TAL2          | Tail lamp (LH) and licence plate lamp output | With tail lamp and licence plate lamp illuminated | System voltage   |
| 7            | –             | –  | –   | –                |
| 8            | PWS           | Rear power window sub switch power supply    | Ignition switch: ON                               | System voltage   |
| 9            | –             | –  | –   | –                |
| 10           | RFOG          | Output to rear fog lamp                      | Rear fog lamp is on                               | System voltage   |

| Terminal No. | Terminal code  | Check item                         | Check condition                              | Normal condition         |
|--------------|----------------|------------------------------------|--|--------------------------|
| 11           | TR3            | Rear turn-signal lamp (RH) output  | When rear turn-signal lamp (RH) is ON        | System voltage           |
| 12           | BLP2-1, BLP2-2 | Back-up lamp switch power supply   | When back-up lamp is ON                      | System voltage           |
| 13           | GLP-           | Output to luggage compartment lamp | When luggage compartment lamp is illuminated | Battery positive voltage |

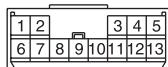
## CONNECTOR: C-419



ACB05925AB

| Terminal No. | Terminal code | Check item   | Check condition                                       | Normal condition |
|--------------|---------------|--|---|------------------|
| 1            | IGN           | Engine ECU (IG1) output  | Ignition switch: ON                                   | System voltage   |
| 2            | WACC          | Windshield wiper (ACC) output  | Ignition switch: ACC                                  | System voltage   |
| 3            | BKLP          | Input from stop lamp switch  | Stop lamp switch: ON                                  | 5 V              |
| 4            | FOGY          | Output to fog lamps  | Fog lamp switch: ON                                   | 1 V or less      |
| 5            | STOE          | Ignition switch (START) switch output  | Ignition switch: START                                | System voltage   |
| 6            | WASH          | Output to windshield washer  | When windshield washer is operating                   | System voltage   |
| 7            | W.WA          | Rear washer output   | When rear washer is operating                         | System voltage   |
| 8            | W.AS          | Windshield wiper auto stop switch input  | When windshield wipers are operating                  | System voltage   |
| 9            | TR1&TR2-1     | Front turn-signal lamp and side turn-signal lamp (RH) <fender panel type> output | With front and side turn-signal lamp (RH) illuminated | System voltage   |
| 10           | TL1&TL2-1     | Front turn-signal lamp and side turn-signal lamp (LH) <fender panel type> output | With front and side turn-signal lamp (LH) illuminated | System voltage   |
| 11           | FP/R          | Engine ECU (fuel control) input  | Engine: Started                                       | 1 V or less      |

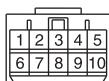
## CONNECTOR: C-420



ACB05933AB

| Terminal No. | Terminal code | Check item | Check condition | Normal condition |
|--------------|---------------|------------|-----------------|------------------|
| 1 – 2        | –             | –          | –               | –                |

| Terminal No. | Terminal code   | Check item                         | Check condition        | Normal condition |
|--------------|-----------------|------------------------------------|------------------------|------------------|
| 3            | +BP             | Power supply (fusible link No. 1)  | Ignition switch: ON    | System voltage   |
| 4 – 5        | –               | –                                  | –                      | –                |
| 6            | DEFO-1 & DEFO-2 | Defogger output                    | Defogger switch: ON    | 1 V or less      |
| 7            | –               | –                                  | –                      | –                |
| 8            | HOSW            | Horn switch input                  | Horn switch: ON        | 1 V or less      |
| 9            | ST              | Ignition switch (START) input      | Ignition switch: START | System voltage   |
| 10 – 11      | –               | –                                  | –                      | –                |
| 12           | +B, PWM         | Power supply (fusible link No. 20) | Ignition switch: ON    | System voltage   |
| 13           | ACC1            | Power supply (fuse No. 22)         | Ignition switch: ACC   | System voltage   |

**CONNECTOR: C-421**

ACB05926AB

| Terminal No. | Terminal code | Check item                    | Check condition                                    | Normal condition |
|--------------|---------------|-------------------------------|--|------------------|
| 1            | –             | –                             | –  | –                |
| 2            | W.HI          | Windshield wiper (HI) output  | When windshield wipers are operating at high speed | System voltage   |
| 3            | TAR1          | Position lamp (RH) output     | With position lamp ON                              | System voltage   |
| 4 – 5        | –             | –                             | –  | –                |
| 6            | STP           | Stop lamp switch power supply | Stop lamp switch: ON                               | System voltage   |
| 7            | W.LO          | Windshield wiper (LO) output  | When windshield wipers are operating at low speed  | System voltage   |
| 8            | TAL1          | Position lamp (LH) output     | With position lamp ON                              | System voltage   |
| 9            | BLP1          | Inhibitor switch (R) input    | Selector lever: R and ignition switch: ON          | System voltage   |
| 10           | DEFR          | Defogger output               | Defogger switch: ON                                | 1 V or less      |

**CONNECTOR: C-422**

ACB05924AB

| Terminal No. | Terminal code | Check item          | Check condition   | Normal condition |
|--------------|---------------|---------------------|---|------------------|
| 1            | SLSO          | Shift lock solenoid | When all the following conditions are met.<br>• Ignition switch: ON<br>• Brake pedal: depressed | System voltage   |

## ON-VEHICLE SERVICE

### CUSTOMISATION FUNCTION

M1545002501550

By operating the M.U.T.-III ETACS system, the following functions can be customised. The programmed information is held even when the battery is disconnected.

| Adjustment item (M.U.T.-III display) | Adjustment item   | Adjusting content (M.U.T.-III display) | Adjusting content   |
|--------------------------------------|---|--|---|
| Turn power source                    | Adjustment of turn-signal lamp operation condition                          | ACC or IG1                             | Operable with ACC or ON position                              |
|                                      |   | IG1                                    | Operable with ON position (initial condition)                 |
| Comfort flasher                      | With/without comfort flasher function                                       | Disable                                | No function   |
|                                      |   | Enable                                 | With function (initial condition)                             |
| Hazard answer back                   | Adjustment of the number of keyless hazard warning lamp 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 (M.U.T.-III display) | Adjustment item   | Adjusting content (M.U.T.-III display) | Adjusting content   |
|--------------------------------------|---|--|---|
| Front wiper operation                | Adjustment of the intermittent windshield wiper operation <vehicles without lighting control sensor>                          | 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 lighting control sensor>                             | 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/rear 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   |
| 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   | Disable                                | No function   |
|                                      |   | Enable                                 | With function (initial condition)   |
| Auto fold mirror                     | Electric folding door mirror automatic unfolding function <vehicles with electric retractable remote controlled door mirrors> | Not Auto                               | No synchronised operation   |
|                                      |   | Open Vehicle SPD                       | Vehicle speed-dependent operation   |
|                                      |   | Open/Close by IG                       | Ignition switch linked operation  |
|                                      |   | OPN/CLS Keyless                        | Keyless entry linked operation (initial condition)  |
| Sensitivity for auto lamp            | Lighting control sensor sensitivity (illumination intensity) <vehicles with lighting control sensor>                          | Level 1 bright                         | High ambient brightness   |
|                                      |   | Level 2 bright                         | Standard ambient brightness (initial condition)   |
|                                      |   | Level 3                                | Low ambient brightness  |
|                                      |   | Level 4 dark                           | Low-low ambient brightness  |

| Adjustment item (M.U.T.-III display) | Adjustment item  | Adjusting content (M.U.T.-III display) | Adjusting content  |
|--------------------------------------|--|--|--|
| Room lamp delay timer with door      | Adjustment of interior lamp delay shutdown time                        | 0 sec.                                 | 0 second (no delay shutdown time)  |
|                                      |  | 7.5 sec.                               | 7.5 seconds  |
|                                      |  | 15 sec.                                | 15 seconds (initial condition)   |
|                                      |  | 30 sec.                                | 30 seconds   |
|                                      |  | 60 sec.                                | 60 seconds   |
|                                      |  | 120 sec.                               | 120 seconds  |
|                                      |  | 180 sec.                               | 180 seconds  |
| Head lamp auto cut customise         | Adjustment of headlamp automatic shutdown function                     | Disable                                | No function  |
|                                      |  | Enable (B-spec.)                       | With function (initial condition)  |
| Interior lamp auto cut timer         | Adjustment of interior lamp automatic shutdown function operation time | Disable                                | No function  |
|                                      |  | 3 min                                  | 3 minutes  |
|                                      |  | 30 min                                 | 30 minutes (initial condition)   |
|                                      |  | 60 min                                 | 60 minutes   |
| Comfort flasher switch time          | Switch operation time to activate the comfort flasher function         | Normal                                 | 0.4 second (initial condition)   |
|                                      |  | Long                                   | 0.8 second   |
| Intelligent/Comfort washer           | With/without Comfort washer function                                   | Disable                                | No function (Initial condition)  |
|                                      |  | Enable                                 | With function  |
| Auto door unlock                     | Adjustment of the auto door unlock function                            | Disable                                | Without function (initial condition)   |
|                                      |  | Always (P pos)                         | With function: Operates when the shift lever or the selector lever is moved to the P position.   |
|                                      |  | Always(Lock pos)                       | With function: Operates when the ignition switch is moved to the LOCK (OFF) position.  |
| 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 (initial condition).  |
|                                      |  | 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. |
| Timer lock timer                     | Timer lock period adjustment   | 30 sec.                                | 30 seconds (initial condition)   |
|                                      |  | 60 sec.                                | 60 seconds   |
|                                      |  | 120 sec.                               | 120 seconds  |
|                                      |  | 180 sec.                               | 180 seconds  |

| Adjustment item (M.U.T.-III display) | Adjustment item  | Adjusting content (M.U.T.-III display) | Adjusting content  |
|--------------------------------------|--|--|--|
| Multi mode                           | Multi-mode keyless entry function customisation<br><Vehicles with electric retractable remote controlled door mirrors> | Disable                                | No function  |
|                                      |  | D/M: O&C                               | Door mirror fold/unfold operation only (initial condition)                   |
| Duration of horn chirp               | Horn sounding time during horn answer back   | Short                                  | 0.01 second (initial condition)  |
|                                      |  | Long                                   | 0.02 second  |
| Rear wiper(linked reverse gear)      | 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). |
| KOS key detect out from window       | With/without KOS key exterior detection function<br><Vehicles with KOS>  | Enable                                 | No function  |
|                                      |  | Disable                                | With function (initial condition)  |
| KOS feature                          | KOS function adjustment<br><Vehicles with KOS>   | Both enable                            | All KOS functions are enabled (initial condition).                           |
|                                      |  | Door Entry enable                      | Only door entry function is enabled.   |
|                                      |  | ENG start enable                       | Only engine starting function is enabled.                                    |
|                                      |  | Both disable                           | All KOS functions are disabled.  |
| KOS unlock disable time              | Adjusts the door unlock inhibition period after door lock is activated.<br><Vehicles with KOS>                         | 0 sec.                                 | 0 second   |
|                                      |  | 3 sec.                                 | 3 seconds (Initial condition)  |
|                                      |  | 5 sec.                                 | 5 seconds  |
| Remote ENG starter answer back       | Remote engine starter answer back function adjustment  | Disable                                | No function (Initial condition)  |
|                                      |  | Enable                                 | With function  |
| 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   |
| Coming home light                    | Disabling or enabling coming home light function   | Disable                                | No function  |
|                                      |  | 15 sec.                                | The headlamps illuminate for 15 seconds.                                     |
|                                      |  | 30 sec.                                | The headlamps illuminate for 30 seconds. (initial condition)                 |
|                                      |  | 60 sec.                                | The headlamps illuminate for 60 seconds.                                     |
|                                      |  | 180 sec.                               | The headlamps illuminate for 180 seconds.                                    |

| Adjustment item (M.U.T.-III display) | Adjustment item  | Adjusting content (M.U.T.-III display) | Adjusting content  |
|--------------------------------------|--|--|--|
| Welcome light                        | Disabling or enabling welcome light function                               | Disable                                | No function  |
|                                      |  | Small lamp                             | The tail lamps illuminate. <initial condition>   |
|                                      |  | Head lamp                              | The headlamps illuminate.  |
| Outer buzzer volume                  | Volume adjustment for the KOS outer buzzer <Vehicles with KOS>             | Volume 1                               | Quieter than the standard  |
|                                      |  | Volume 2                               | Standard volume (Initial condition)  |
|                                      |  | Volume 3                               | Louder than the standard   |
| A/C Recirculation Control            | With/without the inside/outside air automatic control function             | Disable                                | No function  |
|                                      |  | Enable                                 | With function (Initial condition)  |
| A/C Switch Control                   | With/without A/C automatic control function                                | Disable                                | No function  |
|                                      |  | Enable                                 | With function (Initial condition)  |
| A/C Sensible temp. customize         | Adjusting mean value for temperature setting                               | -2                                     | Decreases the control temperature two degrees than the temperature displayed on the LCD. |
|                                      |  | -1                                     | Decreases the control temperature one degree than the temperature displayed on the LCD.  |
|                                      |  | 0                                      | No change (Initial condition)  |
|                                      |  | 1                                      | Increases the control temperature one degree than the temperature displayed on the LCD.  |
|                                      |  | 2                                      | Increases the control temperature two degrees than the temperature displayed on the LCD. |
| FOOT / DEF Air outlet ratio          | Changes air distribution rate for DEF/FOOT vents during manual operation.  | Normal                                 | D/F2 (Initial condition)   |
|                                      |  | FOOT > DEF                             | D/F1(more to FOOT vent): More air flows through FOOT vents.                              |
|                                      |  | FOOT < DEF                             | D/F3(more to DEF vent): More air flows through DEF vents.                                |
| FACE / FOOT Air outlet ratio         | Changes air distribution rate for FACE/FOOT vents during manual operation. | Normal                                 | B/L2 (Initial condition)   |
|                                      |  | FACE > FOOT                            | B/L1(more to FACE vent): More air flows through FACE vents.                              |
|                                      |  | FACE < FOOT                            | B/L3(more to FOOT vent): More air flows through FOOT vents.                              |

| Adjustment item (M.U.T.-III display) | Adjustment item  | Adjusting content (M.U.T.-III display) | Adjusting content               |
|--------------------------------------|--|--|---------------------------------|
| Auto Rear Defogger(Engine Start)     | When ambient temperature is 3 degree or less, the rear defogger will be turned on automatically. (The rear window defogger has never been activated since the ignition switch was turned on last time) | Disable                                | No function (Initial condition) |
|                                      |  | Enable                                 | With function                   |

## ETACS-ECU

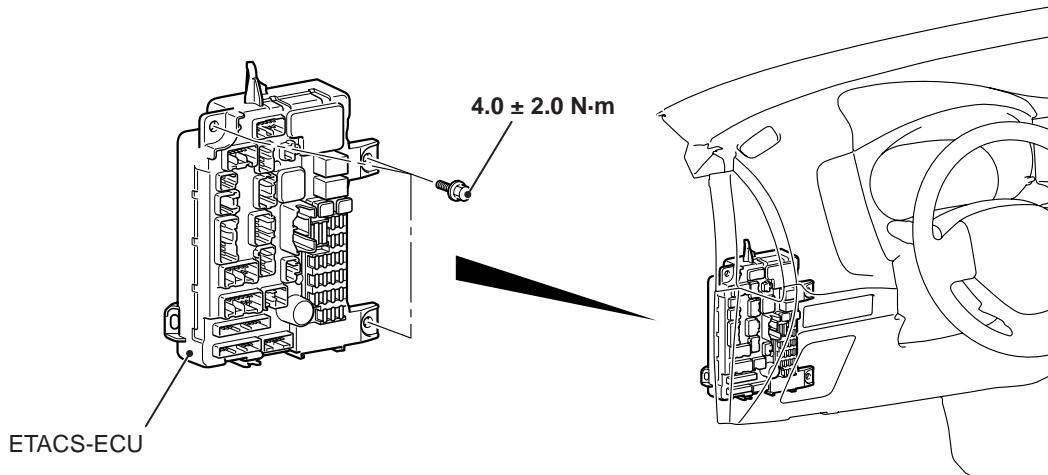
## REMOVAL AND INSTALLATION

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**CAUTION**

- When the ETACS-ECU of vehicles without KOS is replaced, the encrypted code of the ignition key needs to be registered to the ETACS-ECU. (If the encrypted code is not registered, the engine cannot be started. Register the encrypted code as described in Immobilizer System – How to Register Key ID [P.54A-33](#).)
- When the ETACS-ECU is replaced, chassis number writing and coding must be performed. When diagnosis 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 operation manual" and perform coding.
- When the ETACS-ECU is replaced, initialise the ETACS-ECU (headlamp automatic levelling system) using M.U.T.-III (Refer to [P.54A-131](#)).

| Pre-removal Operation  | Post-installation Operation   |
|--|---|
| <ul style="list-style-type: none"> <li>Bottom Cover Assembly (Driver's Side) Removal (Refer to GROUP 52A – Instrument Panel Assembly ).</li> <li>Instrument Panel Lower Removal (Refer to GROUP 52A – Instrument Panel Assembly ) &lt;Vehicles without Knee Air Bag&gt;.</li> <li>Instrument Panel Lower LH Removal (Refer to GROUP 52A – Instrument Panel Assembly ) &lt;Vehicles with Knee Air Bag&gt;.</li> </ul> | <ul style="list-style-type: none"> <li>Instrument Panel Lower Installation (Refer to GROUP 52A – Instrument Panel Assembly ) &lt;Vehicles without Knee Air Bag&gt;.</li> <li>Instrument Panel Lower LH Installation (Refer to GROUP 52A – Instrument Panel Assembly ) &lt;Vehicles with Knee Air Bag&gt;.</li> <li>Bottom Cover Assembly (Driver's Side) Installation (Refer to GROUP 52A – Instrument Panel Assembly ).</li> </ul> |



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