NAVIGATION SYSTEM

PRECAUTION

NOTICE:
When disconnecting the cable from the negative (-) battery terminal, initialize the following systems after the cable is reconnected.

<table>
<thead>
<tr>
<th>System Name</th>
<th>See procedure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Window Control System</td>
<td>IN-32</td>
</tr>
</tbody>
</table>
PARTS LOCATION

ENGINE ROOM RELAY BLOCK, RELAY BLOCK
- BK/UP LP RELAY
- DOME FUSE
SYSTEM DIAGRAM

- Steering Pad Switch
- Air Conditioning Amplifier
- Gateway ECU*2
- Combination Meter
- BK/UP LP Relay
- Navigation ECU*2
- Stereo Component Amplifier*2
- Radio Receiver*2
- Multi-display*1
- GPS Antenna
- Television Camera*3
- Microphone

*1: Master Unit
*2: Slave Unit
*3: w/ Rear View Monitor System

Legend:
- : BEAN
- : AVC-LAN
SYSTEM DESCRIPTION

1. NAVIGATION SYSTEM OUTLINE
   (a) Vehicle position tracking methods
       (1) It is essential that the navigation system
correctly tracks the current vehicle position and
displays it on the map. There are 2 methods to
track the current vehicle position: autonomous
(dead reckoning) and GPS* (satellite)
navigation. Both navigation methods are used in
conjunction with each other.
HINT:
*: GPS (Global Positioning System)
**Operation Description**

Vehicle Position Calculation Navigation ECU calculates current vehicle position (direction and current position) using direction deviation signal from gyro sensor and running distance signal from vehicle speed sensor, and creates driving route.

<table>
<thead>
<tr>
<th>Operation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vehicle Position Calculation</td>
<td>Navigation ECU calculates current vehicle position (direction and current position) using direction deviation signal from gyro sensor and running distance signal from vehicle speed sensor, and creates driving route.</td>
</tr>
</tbody>
</table>
HINT:
The combination of autonomous and GPS navigation makes it possible to display the vehicle position even when the vehicle is in places where the GPS radio wave cannot receive a signal. When only autonomous navigation is used, however, the mapping accuracy may slightly decline.
(b) Autonomous navigation
This method determines the relative vehicle position based on the running track determined by the gyro and vehicle speed sensors located in the navigation ECU.

1) Gyro sensor
   Calculates the direction by detecting angular velocity. It is located in the navigation ECU.

2) Vehicle speed sensor
   Used to calculate the vehicle running distance.

(c) GPS navigation (Satellite navigation)
This method detects the absolute vehicle position using radio waves from a GPS satellite*.

HINT:
*: GPS satellites were launched by the U.S. Department of Defense for military purposes.
Current longitude/latitude/altitude is determined using the radio wave arrival time from four satellites.

<table>
<thead>
<tr>
<th>Number of satellites</th>
<th>Measurement</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 or less</td>
<td>Measurement impossible</td>
<td>Vehicle position cannot be obtained because number of satellites is not enough.</td>
</tr>
<tr>
<td>3</td>
<td>2-dimensional measurement is possible</td>
<td>Vehicle position is obtained based on current longitude and latitude (this is less precise than 3-dimensional measurement).</td>
</tr>
<tr>
<td>4</td>
<td>3-dimensional measurement is possible</td>
<td>Vehicle position is obtained based on current longitude, latitude and altitude.</td>
</tr>
</tbody>
</table>
(d) Map matching
The current driving route is calculated by autonomous navigation (according to the gyro sensor and vehicle speed sensor) and GPS navigation. This information is then compared with possible road shapes from the map data in the map disc and the vehicle position is set onto the most appropriate road.

The system compares the shape of the roads L1, L2, and L3 to the estimated running track after the vehicle makes a right turn. At point A, the vehicle position differs enough from the shape of L1 that the display switches to the road L2.
2. MULTI-DISPLAY OUTLINE
(a) Touch switch

Touch switches are touch-sensitive (interactive) switches operated by touching the screen. When a switch is pressed, the outer glass bends in to contact the inner glass at the pressed position. By doing this, the voltage ratio is measured and the pressed position is detected.

3. DVD (DIGITAL VERSATILE DISC) PLAYER OUTLINE
(for Navigation Map)
(a) The navigation ECU uses a laser pickup to read the digital signals recorded on a DVD.

CAUTION:
Because the navigation system uses an invisible laser beam, do not look directly at the laser pickup. Be sure to only operate the navigation as instructed.

NOTICE:
• Do not disassemble any part of the navigation ECU.
• Do not apply oil to the navigation ECU.
• Do not insert anything but a DVD into the navigation ECU.

4. BLUETOOTH OUTLINE
(a) Bluetooth is a new wireless connection technology that uses the 2.4 GHz frequency band. This makes it possible to connect a cellular phone (Bluetooth capable phone*) to the multi-display (Bluetooth system is built-in), and use a handsfree function with the cellular phone in a pocket or bag. As a result, it is not necessary to use a connector for the cellular phone.

HINT:
*: The communication performance of Bluetooth may vary depending on the Bluetooth version, obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity, or antenna capacity.
5. AVC-LAN DESCRIPTION

(a) What is AVC-LAN?
AVC-LAN, an abbreviation for "Audio Visual Communication Local Area Network", is a united standard developed by the manufacturers in affiliation with Toyota Motor Corporation. This standard pertains to audio and visual signals as well as switch and communication signals.

(b) Purpose:
Recently, car audio systems have rapidly developed and the functions have vastly changed. The conventional car audio system is being integrated with multimedia interfaces similar to those in navigation systems. At the same time, customers are demanding higher quality from their audio systems. This is merely an overview of the standardization background. The specific purposes are as follows:

(1) To solve sound problems, etc. caused by using components of different manufacturers thorough signal standardization.

(2) To allow each manufacturer to concentrate on developing products they do best. From this, reasonably priced products can be produced.

HINT:
• If a short +B or short to ground is detected in the AVC-LAN circuit, communication is interrupted and the audio system will stop functioning.
• If an audio system is equipped with a navigation system, the multi-display unit acts as the master unit. If the navigation system is not equipped, the audio head unit acts as the master unit instead. If the multi-display is equipped, it is the navigation ECU master unit.
6. COMMUNICATION SYSTEM OUTLINE
   (a) Components of the navigation system communicate with each other via the AVC-LAN.
   (b) Radio receiver assembly has enough resistance (60 to 80 Ω) necessary for transmitting the communication. This is essential for communication.
   (c) If a short circuit or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the navigation system will stop functioning.

7. DIAGNOSTIC FUNCTION OUTLINE
   (a) The navigation system has a diagnostic function (the result is indicated on the master unit).
   (b) A 3-digit hexadecimal component code (physical address) is allocated to each component on the AVC-LAN. Using this code, the component in the diagnostic function can be displayed.
HOW TO PROCEED WITH TROUBLESHOOTING

HINT:
- Use these procedures to troubleshoot the navigation system.
- *: Use intelligent tester.

1 VEHICLE Brought TO WORKSHOP

2 INSPECT BATTERY VOLTAGE

Standard voltage:
11 to 14 V
If the voltage is below 11 V, recharge or replace the battery before proceeding.

3 BASIC INSPECTION

(a) Turn the power switch ON (ACC).
(b) Check whether or not the display appears on the multi-display.

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display appears</td>
<td>A</td>
</tr>
<tr>
<td>Display does not appear</td>
<td>B</td>
</tr>
</tbody>
</table>

A  Go to step 7

4 INSPECT COMMUNICATION FUNCTION OF MULTIPLEX COMMUNICATION SYSTEM (BEAN)*

(a) Use the intelligent tester to check if the Multiplex Communication System (MPX) is functioning normally.

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>MPX DTC is not output</td>
<td>A</td>
</tr>
<tr>
<td>MPX DTC is output</td>
<td>B</td>
</tr>
</tbody>
</table>

B  Go to MULTIPLEX COMMUNICATION SYSTEM
5 CHECK FOR DTC

(a) Check for DTCs and note any codes that are output.
(b) Delete for DTC.
(c) Recheck for DTCs. Based on the DTC output in the first step, try to force output of the audio system DTC by simulating the operation indicated by the DTC.

HINT:
• If the system cannot enter the diagnosis mode, inspect each AVC-LAN communication signal and repair or replace problem parts.
• Even if the malfunction symptom is not confirmed, check for DTCs. This is because the system stores past DTCs.
• Refer to the detailed description on the diagnostic screen, as necessary (see page NS-27).
• Check and clear past diagnostic trouble codes. Check the diagnostic trouble code and inspect the area the code indicates.

Result

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTC does not reoccur</td>
<td>A</td>
</tr>
<tr>
<td>DTC does not reoccurs</td>
<td>B</td>
</tr>
</tbody>
</table>

Go to step 8

6 PROBLEM SYMPTOMS TABLE

Result

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fault is not listed in problem symptoms table</td>
<td>A</td>
</tr>
<tr>
<td>Fault is listed in problem symptoms table</td>
<td>B</td>
</tr>
</tbody>
</table>

Go to step 8

7 OVERALL ANALYSIS AND TROUBLESHOOTING

(a) Terminals of ECU (see page NS-40)
8 ADJUST, REPAIR OR REPLACE

NEXT

END
**SYSTEM NORMAL CONDITION CHECK**

1. **CHECK NORMAL CONDITION**
   
   (a) If the symptom is applicable to any of the following, it is the intended behavior, not a malfunction.

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Answer</th>
</tr>
</thead>
<tbody>
<tr>
<td>A longer route than expected is chosen.</td>
<td>Depending on the road conditions, the navigation ECU may determine that a longer route is quicker.</td>
</tr>
<tr>
<td>Even when distance priority is high, the shortest route is not shown.</td>
<td>Some paths may not be advised due to safety concerns.</td>
</tr>
<tr>
<td>When the vehicle is put into motion immediately after the hybrid system starts, the navigation system deviates from the actual position.</td>
<td>If the vehicle starts before the navigation system activates, the system may not react.</td>
</tr>
<tr>
<td>When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position.</td>
<td>When the vehicle is driving on new roads not available on the map disc, the system attempts to match it to another nearby road, causing the position mark to deviate.</td>
</tr>
</tbody>
</table>

   (b) The following symptoms are not a malfunction, but are caused by errors inherent in the GPS, gyro sensor, speed sensor, and navigation ECU.

   1. The current position mark may be displayed on a nearby parallel road.

   2. Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.

   3. When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.
(4) When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.

(5) When the vehicle runs on a steep hill, the current vehicle position mark may deviate from the correct position.

(6) When the vehicle makes a continuous turn of 360°, 720°, 1,080°, etc., the current vehicle position mark may deviate from the correct position.

(7) When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.

(8) When the power switch is turned ON (ACC or ON) on a turntable before parking, the current vehicle position mark may not point in the correct direction. The same will occur when the vehicle comes out of parking.
(9) When the vehicle runs on a snowy road or a mountain path with tire chains installed or using a spare tire, the current vehicle position mark may deviate from the correct position.

(10) When a tire is changed, the current vehicle position mark may deviate from the correct position.
HINT:
- The diameter of the tire may change, causing a speed sensor error.
- Performing the "tire change" in calibration mode will allow the system to correct the current vehicle position faster.
DISPLAY CHECK MODE

HINT:
- This mode checks the color display on the multi-display.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.

1. ENTER DIAGNOSTIC MODE (See page NS-43)

2. DISPLAY CHECK
   (a) Select "Display Check" from the "Diagnosis MENU" screen.

3. COLOR BAR CHECK
   (a) Select "Color Bar Check" from the "Display Check" screen.
   (b) Select a color bar from the "Color Bar Check Mode" screen.
   (c) Check the display color.
      HINT:
      - The entire screen turns to the color or stripe selected.
      - Touch the display to return to the "Color Bar Check" screen.
4. TOUCH SWITCH CHECK
(a) Select "Touch Switch Check" from the "Display Check" screen.

(b) Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.
HINT:
A "+" mark is displayed on the display is touched.

5. PANEL SWITCH CHECK
(a) Select "Panel Switch Check" from the "Display Check" screen.

(b) Operate each switch and check that the switch name and condition are correctly displayed.

---

Display | Contents
---|---
Push switch name/* | • Name of the pressed switch is displayed.
• If more than one switch is pressed, "MULTIPLE" is displayed.
6. VEHICLE SIGNAL CHECK
(a) Select "Vehicle Signal Check" from the "Display Check" screen.

(b) When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions. HINT:
   - Only conditions having inputs are displayed.
   - This screen is updated once per second when input signals to the vehicle are changed.
   - For details of this function, refer to DIAGNOSIS DISPLAY DETAILED DESCRIPTION (see page NS-27).

7. MIC & VOICE RECOGNITION CHECK
(a) Select "Mic & Voice Recognition Check" on the "Display Check" screen to display "MICROPHONE & VOICE RECOGNITION CHECK" screen.

(b) When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

(c) Push the recording switch and perform voice recording.

(d) Check that the recording indicator remains on while recording and that the recorded voice is played normally.

HINT:
For details of this function, refer to DIAGNOSIS DISPLAY DETAILED DESCRIPTION (see page NS-27).
BLUETOOTH TEL CHECK MODE

HINT:
Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed area may not be shown the same as on the actual vehicle.

1. ENTER DIAGNOSTIC MODE (see page NS-43)

2. BLUETOOTH TEL CHECK
   (a) Select "Bluetooth TEL Check" from the "Diagnosis MENU" screen.

3. BLUETOOTH CHECK
   (a) Select "Bluetooth Check" from the "Bluetooth Handsfree Check Menu" screen.
   (b) Select "Serial Communication Log" from the "Bluetooth Check Menu" screen

(1) The communication log data in the multi-display are displayed on this screen.
HINT: The displayed data can be used as a reference.
(c) Select "Software Version" from the "Bluetooth Check Menu" screen.

(1) Check the software version of the Bluetooth module.

**Screen description:**

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Version/*1</td>
<td>• Overall software version of Bluetooth module</td>
</tr>
<tr>
<td></td>
<td>• If any of the API version, upper stack version, and low stack version is updated, the general version is upgraded.</td>
</tr>
<tr>
<td>API Version/*2</td>
<td>API software version is displayed.</td>
</tr>
<tr>
<td>Upper Stack Version/*3</td>
<td>Upper Stack version is displayed.</td>
</tr>
<tr>
<td>Lower Stack Version/*4</td>
<td>Lower Stack version is displayed.</td>
</tr>
</tbody>
</table>

**HINT:**
This function is controlled by the multi-display.

4. **HANDSFREE VOICE QUALITY SET**
(a) Select "Handsfree Voice Quality Set" from the "Bluetooth Handsfree Check Menu" screen.
(b) Check the handsfree voice level.

<table>
<thead>
<tr>
<th>Screen description:</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Received voice level adjustment/*1</td>
<td>Setting possible for the voice level received from Bluetooth compatible phones.</td>
</tr>
<tr>
<td>Sent voice level adjustment/*2</td>
<td>Setting possible for the voice sent to Bluetooth compatible phones.</td>
</tr>
</tbody>
</table>

**HINT:**
This function is controlled by the multi-display.

**NOTICE:**
"Voice Quality Type" should not be changed.
NAVIGATION CHECK MODE

HINT:
• This mode displays GPS satellite information.
• Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown the same as on the actual vehicle.

1. ENTER DIAGNOSTIC MODE (see page NS-43)

2. NAVIGATION CHECK
   (a) Select “Navigation Check” from the “Diagnosis MENU” screen.

3. GPS INFORMATION
   (a) Select “GPS Information” from the “Navigation Check” screen.
   (b) When GPS information is displayed, check the GPS conditions.
       HINT:
       • This screen is updated once per second when input signals to the vehicle are changed.
       • For details of this function, refer to DIAGNOSIS DISPLAY DETAILED DESCRIPTION (see page NS-27).

4. VEHICLE SENSORS
   (a) Select “Vehicle Sensors” from the “Navigation Check” screen.
5. COLOR BAR CHECK
(a) Select "Color Bar Check" from the "Navigation Check" screen.
(b) Check each color of the color bar when the "NAVI Color Bar Check" screen is displayed.
HINT:
• Colors will not be displayed full-screen as in "Display Check Mode".
• This screen displays the navigation ECU display color.

6. MEMORY COPY/PASTE CHECK
HINT:
This function cannot be used.

7. PARTS INFORMATION
(a) Select "Parts Information" from the "Navigation Check" screen.
(b) Check the navigation and disc information when the "Parts Information" screen is displayed.

Screen description:

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navigation Manufacturer*1</td>
<td>Navigation ECU manufacturer is displayed.</td>
</tr>
<tr>
<td>Navigation Version*2</td>
<td>Navigation ECU version is displayed.</td>
</tr>
<tr>
<td>Disc Manufacturer*3</td>
<td>Map disc manufacturer is displayed.</td>
</tr>
<tr>
<td>Disc Version*4</td>
<td>Map disc version is displayed.</td>
</tr>
</tbody>
</table>

8. MIC & VOICE RECOGNITION CHECK

(a) Select "Mic & Voice Recognition Check" on the "Display Check" screen to display "MICROPHONE & VOICE RECOGNITION CHECK" screen.

(b) When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.

(c) Push the recording switch and perform voice recording.

(d) Check that the recording indicator remains on while recording and that the recorded voice is played normally.

HINT:
- For details of this function, refer to DIAGNOSIS DISPLAY DETAILED DESCRIPTION (see page NS-27).
- This function is controlled by the built-in navigation ECU.
9. DVD PLAYER INFORMATION CHECK
(a) Select "DVD Player Information" from the "Navigation Check" screen.

(b) Check for DTCs.
HINT:
• This is a DVD player check function in the navigation ECU.
• For details of this function, refer to DIAGNOSIS DISPLAY DETAILED DESCRIPTION (see page NS-27).
DIAGNOSIS DISPLAY DETAILED DESCRIPTION

HINT:
• This section contains a detailed description of displays within diagnostic mode.
• Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.

1. SYSTEM CHECK
   (a) System Check Mode Screen

(1) Device Names and Hardware Address/*1
HINT:
• Registered device names are displayed.
• If a device name is unknown to the system, its physical address is shown instead.

<table>
<thead>
<tr>
<th>Address No.</th>
<th>Name</th>
<th>Address No.</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>110</td>
<td>EMV</td>
<td>120</td>
<td>AVX</td>
</tr>
<tr>
<td>128</td>
<td>1DIN TV</td>
<td>140</td>
<td>AVN</td>
</tr>
<tr>
<td>144</td>
<td>G-BOOK</td>
<td>178</td>
<td>NAVI</td>
</tr>
<tr>
<td>17C</td>
<td>MONET</td>
<td>190</td>
<td>AUDIO H/U</td>
</tr>
<tr>
<td>1AC</td>
<td>CAMERA-C</td>
<td>1B0</td>
<td>Rr-TV</td>
</tr>
<tr>
<td>1C0</td>
<td>Rr-CONT</td>
<td>19D</td>
<td>BT-HF</td>
</tr>
<tr>
<td>1C4</td>
<td>PANEL</td>
<td>1C6</td>
<td>G/W</td>
</tr>
<tr>
<td>1C8</td>
<td>FM-M-LCD</td>
<td>1D8</td>
<td>CONT-SW</td>
</tr>
<tr>
<td>1EC</td>
<td>Body</td>
<td>118</td>
<td>EMVN</td>
</tr>
<tr>
<td>1F1</td>
<td>XM</td>
<td>1F2</td>
<td>SIRIUS</td>
</tr>
<tr>
<td>230</td>
<td>TV-TUNER</td>
<td>240</td>
<td>CD-CH2</td>
</tr>
<tr>
<td>250</td>
<td>DVD-CH</td>
<td>280</td>
<td>CAMERA</td>
</tr>
<tr>
<td>360</td>
<td>CD-CH1</td>
<td>3A0</td>
<td>MD-CH</td>
</tr>
</tbody>
</table>
(2) Check Result/*2
HINT:
Result codes for all devices are displayed.

<table>
<thead>
<tr>
<th>Result</th>
<th>Meaning</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>OK</td>
<td>Device did not respond with DTC (excluding communication DTCs from AVC-LAN).</td>
<td>-</td>
</tr>
<tr>
<td>EXCH</td>
<td>Device responds with &quot;replace&quot; type DTC.</td>
<td>Look up DTC in &quot;Unit Check Mode&quot; and replace device.</td>
</tr>
<tr>
<td>CHEK</td>
<td>Device responds with &quot;check&quot; type DTC.</td>
<td>Look up DTC in &quot;Unit Check Mode&quot;.</td>
</tr>
<tr>
<td>NCON</td>
<td>Device was previously present, but does not respond in diagnostic mode.</td>
<td>1. Check power supply wire harness of device. 2. Check AVC-LAN of device.</td>
</tr>
<tr>
<td>Old</td>
<td>Device responds with &quot;old&quot; type DTC.</td>
<td>Look up DTC in &quot;Unit Check Mode&quot;.</td>
</tr>
<tr>
<td>NRES</td>
<td>Device responds in diagnostic mode, but gives no DTC information.</td>
<td>1. Check power supply wire harness of device. 2. Check AVC-LAN of device.</td>
</tr>
</tbody>
</table>

(3) Code Clear/*3
- Present DTCs are cleared.
- Press the "Code CLR" switch for 3 seconds.

(4) Memory Clear/*4
- Present and past DTCs and registered connected device names are cleared.
- Press the "Memory CLR" switch for 3 seconds.

(b) Diagnosis MENU Screen
HINT:
Each item is grayed out or not displayed based on the device settings.
(c) Unit Check Mode Screen

Screen description:

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device name/*1</td>
<td>Target device</td>
</tr>
<tr>
<td>Segment/*2</td>
<td>Target device logical address</td>
</tr>
<tr>
<td>DTC/3</td>
<td>DTC (Diagnostic Trouble Code)</td>
</tr>
<tr>
<td>Timestamp/*4</td>
<td>Time and date of past DTCs are displayed (Year is displayed in 2-digit format).</td>
</tr>
<tr>
<td>Present Code/*5</td>
<td>DTCs output at service check are displayed.</td>
</tr>
<tr>
<td>Past Code/*6</td>
<td>Diagnostic memory results and recorded DTCs are displayed.</td>
</tr>
<tr>
<td>Diagnosis Clear Switch/*7</td>
<td>Pushing this switch for 3 seconds clears diagnostic memory data of target device (both response to diagnostic system check result and displayed data is cleared).</td>
</tr>
</tbody>
</table>
(1) Check Result/*

HINT:
Check results of all the devices are displayed.

<table>
<thead>
<tr>
<th>Result</th>
<th>Meaning</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Err (OK)</td>
<td>There are no communication DTCs.</td>
<td>-</td>
</tr>
<tr>
<td>CHEK</td>
<td>Device responds with &quot;check&quot; type DTC.</td>
<td>Look up DTC in &quot;Unit Check Mode&quot;.</td>
</tr>
</tbody>
</table>
| NCON  | Device was previously present, but does not respond in diagnostic mode. | 1. Check power supply wire harness of device.  
2. Check AVC-LAN of device. |
| Old   | Device responded with "old" type DTC. | Look up DTC in "Unit Check Mode".                                      |
| NRES  | Device responds in diagnostic mode, but gives no DTC information. | 1. Check power supply wire harness of device.  
2. Check AVC-LAN of device. |
(e) LAN Monitor (Individual) Screen

**Screen description:**

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Device name/*1</td>
<td>Target device</td>
</tr>
<tr>
<td>Segment/*2</td>
<td>Target logical address</td>
</tr>
<tr>
<td>DTC/*3</td>
<td>DTC (Diagnostic Trouble Code)</td>
</tr>
<tr>
<td>Sub-code (device address)/*4</td>
<td>Physical address stored with DTC (If there is no address, nothing is displayed).</td>
</tr>
<tr>
<td>Connection check No./*5</td>
<td>Connection check number stored with DTC</td>
</tr>
<tr>
<td>DTC occurrence/*6</td>
<td>Number of times same DTC has been recorded</td>
</tr>
<tr>
<td>Diagnosis Clear Switch/*7</td>
<td>Pushing this switch for 3 seconds clears diagnostic memory data of target device (both response to diagnostic system check result and displayed data is cleared).</td>
</tr>
</tbody>
</table>
2. DISPLAY CHECK
   (a) Vehicle Signal Check Mode Screen

Screen description:

<table>
<thead>
<tr>
<th>Name</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Battery</td>
<td>Battery voltage is displayed.</td>
</tr>
<tr>
<td>PKB</td>
<td>Parking brake ON / OFF state is displayed.</td>
</tr>
<tr>
<td>REV</td>
<td>Reverse signal ON / OFF state is displayed.</td>
</tr>
<tr>
<td>IG</td>
<td>Power switch ON / OFF state is displayed.</td>
</tr>
<tr>
<td>ADIM/TCAN</td>
<td>Brightness state DIM (with) / BRIGHT (without) is displayed.</td>
</tr>
<tr>
<td>TAIL</td>
<td>TAIL signal (Light control switch) ON / OFF state is displayed.</td>
</tr>
<tr>
<td>SPEED</td>
<td>Vehicle speed is displayed in km/h.</td>
</tr>
</tbody>
</table>

HINT:
- Only items sending a vehicle signal will be displayed.
- This screen is updated once per second when input signals to the vehicle are changed.
(b) Microphone & Voice Recognition Check Screen

Screen description:

<table>
<thead>
<tr>
<th>Name</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microphone input level */1</td>
<td>Monitors microphone input level every 100 ms and displays results in 8 different levels.</td>
</tr>
<tr>
<td>Recording switch */2</td>
<td>Starts recording.</td>
</tr>
<tr>
<td>Stop switch */3</td>
<td>Stops recording.</td>
</tr>
<tr>
<td>Play switch */4</td>
<td>Plays recorded voice.</td>
</tr>
<tr>
<td>Recording indicator */5</td>
<td>Comes on while recording.</td>
</tr>
</tbody>
</table>

HINT:
- The microphone input function is on at all times when this screen is displayed.
- While recording or playing, the switches other than the stop switch cannot be pushed.
- When no voice is recorded, the play switch cannot be pushed.
- Recording will stop after 5 seconds or by pushing the stop switch.
3. NAVIGATION CHECK

(a) Navigation Check Screen

HINT:
Each item is grayed out or not displayed based on the device settings.

(b) GPS Information Screen

(1) Satellite information/*1
Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction, and signal level.
(DENSO model):

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>T</td>
<td>System is receiving GPS signal, but is not using it for location.</td>
</tr>
<tr>
<td>P</td>
<td>System is using GPS signal for location.</td>
</tr>
<tr>
<td>-</td>
<td>System cannot receive GPS signal.</td>
</tr>
</tbody>
</table>

(AISIN AW model):

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>01H</td>
<td>System cannot receive a GPS signal.</td>
</tr>
<tr>
<td>02H</td>
<td>System is tracing a satellite.</td>
</tr>
<tr>
<td>03H</td>
<td>System is receiving a GPS signal, but is not using it for location.</td>
</tr>
<tr>
<td>04H</td>
<td>System is using the GPS signal for location.</td>
</tr>
</tbody>
</table>

Measurement information/*3:

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D</td>
<td>2-dimensional location method is being used.</td>
</tr>
<tr>
<td>3D</td>
<td>3-dimensional location method is being used.</td>
</tr>
<tr>
<td>NG</td>
<td>Location data cannot be used.</td>
</tr>
<tr>
<td>Error</td>
<td>Reception error has occurred.</td>
</tr>
<tr>
<td>-</td>
<td>Any other state.</td>
</tr>
</tbody>
</table>

Position information/*4

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position</td>
<td>Latitude and longitude information on current position is displayed.</td>
</tr>
</tbody>
</table>

Date information/*5:

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
<td>Date / time information obtained from GPS signal is displayed in Greenwich mean time (GMT). Last 4 digits are displayed.</td>
</tr>
</tbody>
</table>

(c) Vehicle Sensors Screen
Vehicle signal:

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>REV/*1</td>
<td>REV signal ON/OFF state is displayed.</td>
</tr>
<tr>
<td>SPD/*2</td>
<td>SPD signal condition is displayed.</td>
</tr>
</tbody>
</table>

Sensor signal:

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gyro sensor/*3</td>
<td>Gyro sensor output condition is displayed (when vehicle runs straight or is stationary, voltage is approximately 2.5 V).</td>
</tr>
</tbody>
</table>

HINT:
Signals are updated once per second only when vehicle sensor signals are changed.

(d) Microphone & Voice Recognition Check Screen

Screen description:

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Microphone input level/*1</td>
<td>Monitors the microphone input level every 100 ms and displays results in 8 different levels.</td>
</tr>
<tr>
<td>Recording switch/*2</td>
<td>Starts recording.</td>
</tr>
<tr>
<td>Stop switch/*3</td>
<td>Starts recording.</td>
</tr>
<tr>
<td>Play switch/*4</td>
<td>Plays recorded voice.</td>
</tr>
<tr>
<td>Recording indicator/*5</td>
<td>Comes on while recording.</td>
</tr>
</tbody>
</table>

HINT:
- The microphone input function is on at all times when this screen is displayed.
- While recording or playing, the switches other than the stop switch cannot be pushed.
- When no voice is recorded, the play switch cannot be pushed.
- Recording will stop after 5 seconds or by pushing the stop switch.
(e) DVD Player Information Screen

**Screen description:**

<table>
<thead>
<tr>
<th>Display</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trouble code/*1</td>
<td>Each code corresponding to malfunctions is displayed. For details, refer to &quot;Trouble Code Description&quot;.</td>
</tr>
<tr>
<td>Occurrence time/*2</td>
<td>• Date (year, month, day) and time (hour, minute, second) when trouble code was detected are displayed as time stamp (Greenwich mean time).</td>
</tr>
<tr>
<td></td>
<td>• Time data to be displayed are received from GPS receiver.</td>
</tr>
<tr>
<td>Trouble code clear switch/*3</td>
<td>All code data being displayed is cleared by pushing this switch for 3 seconds.</td>
</tr>
<tr>
<td>Returning switch/*4</td>
<td>Previous page is displayed. If current displayed page is first page, this switch cannot be operated.</td>
</tr>
<tr>
<td>Proceeding switch/*5</td>
<td>Next page is displayed. If current displayed page is last page, this switch cannot be operated.</td>
</tr>
</tbody>
</table>

**Trouble code description:**

<table>
<thead>
<tr>
<th>Code</th>
<th>Malfunction</th>
<th>Countermeasure</th>
</tr>
</thead>
<tbody>
<tr>
<td>01</td>
<td>Cannot be recognized</td>
<td>Replace navigation ECU.</td>
</tr>
<tr>
<td>03</td>
<td>Cannot be read</td>
<td>Follow inspection procedure for DTC 58-42 (see page NS-80).</td>
</tr>
</tbody>
</table>

**HINT:**
This is a DVD player check function in the navigation ECU.
# PROBLEM SYMPTOMS TABLE

## Display function

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Suspected area</th>
<th>See page</th>
</tr>
</thead>
</table>
| Pressing power switch does not turn on system. | 1. Multi-display power source circuit  
2. AVC-LAN circuit  
3. Multi-display | NS-167  
NS-136  
- |
| No image appears on multi-display. | 1. Proceed to "No image Appears on Multi-display"  
2. Multi-display power source circuit  
3. Illumination circuit  
4. AVC-LAN circuit  
5. Multi-display | NS-88  
NS-167  
NS-131  
NS-136  
- |
| Illumination for panel switch does not come on with TAIL switch on. | 1. Proceed to "Illumination for Panel Switch does not Come on with Tail Switch ON"  
2. Illumination circuit  
3. Multi-display | NS-89  
NS-131  
- |
| Display does not dim when light control switch is turn on. | 1. Proceed to "Display does not DIM when Light Control Switch is Turn ON"  
2. Illumination circuit  
3. Multi-display | NS-90  
NS-131  
- |
| Power does not turn off (The screen remains on). | 1. Multi-display power source circuit  
2. Multi-display | NS-167  
- |
| Panel switches do not function. | 1. Proceed to "Panel Switches do not Function"  
2. Steering pad switch circuit  
3. Multi-display power source circuit  
4. Multi-display | NS-91  
NS-126  
NS-167  
- |
| Touch panel switch does not function. | 1. Proceed to "Touch Panel Switch does not Function"  
2. Steering pad switch circuit  
3. Multi-display power source circuit  
4. Multi-display | NS-92  
NS-126  
NS-167  
- |
| Navigation screen is not displayed. | 1. Display signal circuit between navigation ECU and multi-display  
2. Map disc  
3. Navigation ECU  
4. Multi-display | NS-147  
-  
-  
- |
| Navigation screen flicker or color distortion. | 1. Proceed to "Screen Flicker or Color Distortion"  
2. Display signal circuit between navigation ECU and multi-display  
3. Navigation ECU  
4. Multi-display | NS-93  
NS-147  
-  
- |
| Navigation function switches can be operated while vehicle is running. | Vehicle speed signal circuit between multi-display and combination meter | NS-140 |

## Navigation function

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Suspected area</th>
<th>See page</th>
</tr>
</thead>
</table>
| Map disc cannot be inserted. | 1. Proceed to "Map Disc cannot be inserted"  
2. Navigation ECU power source circuit  
3. Navigation ECU | NS-95  
NS-169  
- |
| Map disc cannot be ejected. | 1. Proceed to "Map Disc cannot be Ejected"  
2. Navigation ECU power source circuit  
3. Navigation ECU | NS-96  
NS-169  
- |
### Symptom: Vehicle position mark deviates greatly.
1. Proceed to "Vehicle Position Mark Deviates Greatly" NS-97
2. GPS antenna
3. Navigation ECU

### Symptom: Cursor or map rotates when vehicle is stopped.
1. Proceed to "Cursor or Map Rotates when Vehicle is Stopped" NS-99
2. Navigation ECU

### Symptom: Vehicle position mark is not updated.
1. Proceed to "Vehicle Position Mark is not Updated" NS-100
2. Map disc
3. Navigation ECU

### Symptom: Current position display does not appear.
1. Proceed to "Current Position Display does not Appear" NS-101
2. Map disc
3. GPS antenna
4. Navigation ECU

### Symptom: GPS mark is not displayed.
1. Proceed to "GPS Mark is not Displayed" NS-102
2. GPS antenna
3. Navigation ECU

### Symptom: Voice guidance does not function.
1. Proceed to "Voice Guidance does not Function" NS-105
2. Navigation voice speaker circuit NS-144
3. Map disc
4. Navigation ECU
5. Stereo component amplifier

### Symptom: Map display incomplete.
1. Proceed to "Map Display Incomplete" NS-108
2. Map disc
3. Navigation ECU

### Symptom: Route cannot be calculated.
1. Proceed to "Route cannot be Calculated" NS-109
2. Map disc
3. Navigation ECU

### Symptom: Voice recognition difficulty.
1. Proceed to "Voice Recognition Difficulty" NS-112
2. Navigation ECU

### Symptom: Voice is not recognized.
1. Proceed to "Voice is not Recognized" NS-114
2. Microphone circuit between overhead J/B and multi-display NS-148
3. Microphone circuit between multi-display and navigation ECU NS-150
4. Steering pad switch circuit NS-126
5. Microphone
6. Microphone amplifier
7. Navigation ECU

### Symptom: Speed signal does not change in the navigation check mode.
Vehicle speed signal circuit between navigation ECU and combination meter NS-138

### Symptom: Reverse signal does not change in the navigation check mode.
Reverse Signal Circuit NS-142

### Steering pad switch function

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Suspected area</th>
<th>See page</th>
</tr>
</thead>
<tbody>
<tr>
<td>The system cannot be operated by the steering pad switch.</td>
<td>1. Steering pad switch circuit</td>
<td>NS-126</td>
</tr>
<tr>
<td></td>
<td>2. Radio receiver</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3. Air conditioning amplifier</td>
<td>-</td>
</tr>
<tr>
<td>Illumination for steering pad switch does not come on with tail switch on.</td>
<td>1. Illumination circuit</td>
<td>NS-131</td>
</tr>
<tr>
<td></td>
<td>2. Radio receiver</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>3. Air conditioning amplifier</td>
<td>-</td>
</tr>
<tr>
<td>Symptom</td>
<td>Suspected area</td>
<td>See page</td>
</tr>
<tr>
<td>------------------------------------------------------------------------</td>
<td>--------------------------------------------------------------------------------</td>
<td>-----------</td>
</tr>
<tr>
<td>Cellular phone registration failure, phone directory transfer failure.</td>
<td>Proceed to &quot;Cellular Phone Registration Failure, Phone Directory Transfer Failure&quot;</td>
<td>NS-117</td>
</tr>
<tr>
<td>Cellular phone cannot send / receive.</td>
<td>1. Proceed to &quot;Cellular phone cannot Send / Receive&quot;</td>
<td>NS-119</td>
</tr>
<tr>
<td></td>
<td>2. Steering pad switch circuit</td>
<td>NS-126</td>
</tr>
<tr>
<td></td>
<td>3. Multi-display</td>
<td>-</td>
</tr>
<tr>
<td>Cannot call in a certain place.</td>
<td>Proceed to &quot;Cannot call in a Certain Place&quot;</td>
<td>NS-121</td>
</tr>
<tr>
<td>The other caller's voice cannot be heard, is too quiet, or distorted.</td>
<td>1. Proceed to &quot;The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted&quot;</td>
<td>NS-122</td>
</tr>
<tr>
<td></td>
<td>2. Multi-display</td>
<td>-</td>
</tr>
<tr>
<td>The other caller cannot hear your voice, or your voice is too quiet or distorted.</td>
<td>1. Proceed to &quot;The Other Caller cannot hear your voice, or Your Voice is too Quiet or Distorted&quot;</td>
<td>NS-124</td>
</tr>
<tr>
<td></td>
<td>2. Microphone circuit between overhead J/B and multi-display</td>
<td>NS-148</td>
</tr>
<tr>
<td></td>
<td>3. Microphone</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>4. Microphone amplifier</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>5. Multi-display</td>
<td>-</td>
</tr>
</tbody>
</table>
TERMINALS OF ECU

1. CHECK MULTI-DISPLAY

(a) Disconnect the M13 display connector.
(b) Measure the resistance and voltage of the wire harness side connector.
(c) Reconnect the M13 display connector.
(d) Measure the voltage of the connector.

If the results are not as specified, there may be a malfunction on the wire harness side.
If the result is not as specified, the multi-display may have a malfunction.

2. **CHECK NAVIGATION ECU**

### Table: Navigation System Connections

<table>
<thead>
<tr>
<th>Symbols (Terminal No.)</th>
<th>Wiring Color</th>
<th>Terminal Description</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>TX1- (M13-5) - Body ground</td>
<td>W - Body ground</td>
<td>AVC-LAN communication signal</td>
<td>Power switch ON (ACC)</td>
<td>2 to 3 V</td>
</tr>
<tr>
<td>TX4- (M15-6) - Body ground</td>
<td>P - Body ground</td>
<td>AVC-LAN communication signal</td>
<td>Power switch ON (ACC)</td>
<td>2 to 3 V</td>
</tr>
<tr>
<td>TX4+ (M15-3) - Body ground</td>
<td>W - Body ground</td>
<td>AVC-LAN communication signal</td>
<td>Power switch ON (ACC)</td>
<td>2 to 3 V</td>
</tr>
<tr>
<td>SLD (M14-24) - Body ground</td>
<td>Shielded - Body ground</td>
<td>Shielded ground</td>
<td>Always</td>
<td>Below 1 V</td>
</tr>
<tr>
<td>IVO- (M14-26) - Body ground</td>
<td>R - Body ground</td>
<td>Voice guidance signal</td>
<td>Voice guidance is provided</td>
<td>Waveform synchronized with sound is output</td>
</tr>
<tr>
<td>IVO+ (M14-25) - Body ground</td>
<td>G - Body ground</td>
<td>Voice guidance signal</td>
<td>Voice guidance is provided</td>
<td>Waveform synchronized with sound is output</td>
</tr>
<tr>
<td>SPD (M13-20) - Body ground</td>
<td>V - Body ground</td>
<td>Speed signal</td>
<td>See &quot;Vehicle Signal Check&quot; mode</td>
<td>-</td>
</tr>
<tr>
<td>TC (M13-7) - Body ground</td>
<td>P - Body ground</td>
<td>Diagnosis ON signal</td>
<td>Power switch ON (IG)</td>
<td>9 to 14 V</td>
</tr>
<tr>
<td>DR (M13-17) - Body ground</td>
<td>B - Body ground</td>
<td>Illumination signal</td>
<td>Light control switch TAIL or HEAD</td>
<td>2 to 3 V</td>
</tr>
<tr>
<td>MIN+ (M14-2) - Body ground</td>
<td>G - Body ground</td>
<td>Microphone voice signal</td>
<td>See &quot;Microphone &amp; Voice Recognition Check&quot; mode</td>
<td>-</td>
</tr>
<tr>
<td>MIN- (M14-3) - Body ground</td>
<td>R - Body ground</td>
<td>Microphone voice signal</td>
<td>See &quot;Microphone &amp; Voice Recognition Check&quot; mode</td>
<td>-</td>
</tr>
<tr>
<td>MACC (M14-4) - Body ground</td>
<td>BR - Body ground</td>
<td>Microphone amplifier power supply</td>
<td>Power switch ON (IG)</td>
<td>5 V</td>
</tr>
<tr>
<td>GVIF (M16-1) - Body ground</td>
<td>B - Body ground</td>
<td>Digital image signal</td>
<td>Multi-display ON</td>
<td>Pulse generation</td>
</tr>
<tr>
<td>IVI- (M14-6) - Body ground</td>
<td>W - Body ground</td>
<td>Voice guidance signal</td>
<td>Voice guidance is provided</td>
<td>Waveform synchronized with sound is output</td>
</tr>
<tr>
<td>IVI+ (M14-5) - Body ground</td>
<td>B - Body ground</td>
<td>Voice guidance signal</td>
<td>Voice guidance is provided</td>
<td>Waveform synchronized with sound is output</td>
</tr>
</tbody>
</table>

(a) Disconnect the N3 ECU connector.
(b) Measure the resistance and voltage of the wire harness side connector.

<table>
<thead>
<tr>
<th>Symbols (Terminal No.)</th>
<th>Wiring Color</th>
<th>Terminal Description</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>+B (N3-1) - Body ground</td>
<td>SB - Body ground</td>
<td>Battery power supply</td>
<td>Always</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>
If the results are not as specified, there may be a malfunction on the wire harness side.

(c) Reconnect the N3 ECU connector.
(d) Measure the voltage of the connector.

### Symbols (Terminal No.) - Wiring Color - Terminal Description - Condition - Specified Condition

<table>
<thead>
<tr>
<th>Symbols (Terminal No.)</th>
<th>Wiring Color</th>
<th>Terminal Description</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACC (N3-13) - Body ground</td>
<td>GR - Body ground</td>
<td>ACC power supply</td>
<td>Power switch ON (ACC)</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>GND1 (N3-15) - Body ground</td>
<td>W-B - Body ground</td>
<td>Ground</td>
<td>Always</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

### Symbols (Terminal No.) - Wiring Color - Terminal Description - Condition - Specified Condition

<table>
<thead>
<tr>
<th>Symbols (Terminal No.)</th>
<th>Wiring Color</th>
<th>Terminal Description</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>SPD (N3-4) - Body ground</td>
<td>V - Body ground</td>
<td>Speed signal</td>
<td>See &quot;Vehicle Signal Check&quot; mode</td>
<td>-</td>
</tr>
<tr>
<td>REV (N3-20) - Body ground</td>
<td>R - Body ground</td>
<td>Reverse signal</td>
<td>See &quot;Vehicle Signal Check&quot; mode</td>
<td>-</td>
</tr>
<tr>
<td>MIC+ (N4-3) - Body ground</td>
<td>R - Body ground</td>
<td>Microphone voice signal</td>
<td>See &quot;Microphone &amp; Voice Recognition Check&quot; mode</td>
<td>-</td>
</tr>
<tr>
<td>MIC- (N4-5) - Body ground</td>
<td>G - Body ground</td>
<td>Microphone voice signal</td>
<td>See &quot;Microphone &amp; Voice Recognition Check&quot; mode</td>
<td>-</td>
</tr>
<tr>
<td>TX- (N3-18) - Body ground</td>
<td>P - Body ground</td>
<td>AVC-LAN communication signal</td>
<td>Power switch ON (ACC)</td>
<td>2 to 3 V</td>
</tr>
<tr>
<td>TX+ (N3-19) - Body ground</td>
<td>W - Body ground</td>
<td>AVC-LAN communication signal</td>
<td>Power switch ON (ACC)</td>
<td>2 to 3 V</td>
</tr>
<tr>
<td>GVIF (N8-1) - Body ground</td>
<td>B - Body ground</td>
<td>Digital image signal</td>
<td>Multi-display ON</td>
<td>Pulse generation</td>
</tr>
<tr>
<td>SLD1 (N4-7) - Body ground</td>
<td>Shielded - Body ground</td>
<td>Shielded ground</td>
<td>Always</td>
<td>Below 1 V</td>
</tr>
<tr>
<td>VOI- (N3-8) - Body ground</td>
<td>W - Body ground</td>
<td>Voice guidance signal</td>
<td>Voice guidance is provided</td>
<td>Waveform synchronized with sound is output</td>
</tr>
<tr>
<td>VOI+ (N3-9) - Body ground</td>
<td>B - Body ground</td>
<td>Voice guidance signal</td>
<td>Voice guidance is provided</td>
<td>Waveform synchronized with sound is output</td>
</tr>
</tbody>
</table>

If the result is not as specified, the ECU may have a malfunction.

3. **CHECK RADIO RECEIVER** (See page AV-31)
4. **CHECK STEREO COMPONENT AMPLIFIER** (See page AV-31)
5. **CHECK TELEVISION CAMERA** (See page PM-8) *(w/ Rear View Monitor System)*
6. **CHECK GATEWAY ECU** (See page AV-31)
DTC CHECK / CLEAR

HINT:
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be exactly the same as on the actual vehicle.
- If the system cannot enter the diagnostic mode, inspect all AVC-LAN communication components and repair or replace problem parts. (see page NS-136)
- After the power switch is turned ON (IG), check that the map is displayed before starting the diagnostic mode. Otherwise, some items cannot be checked.

1. START DIAGNOSTIC MODE
   (a) There are 2 methods to start diagnostic mode. Start the mode by using one of them.
   (b) Method 1
      (1) Start the hybrid system.
      (2) While pressing and holding the "INFO" switch, operate the light control switch: OFF → Turn ON → Turn OFF → Turn ON → Turn OFF → Turn ON → Turn OFF.
      (3) The diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.
   (c) Method 2
      (1) Start the hybrid system.
      (2) Press the "DISPLAY" switch.
      (3) From the display quality adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.
      (4) The diagnostic mode starts and the "System Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.

2. FINISH DIAGNOSTIC MODE
   (a) There are 2 methods to end diagnostic mode. Use one of them.
   (1) Turn the power switch OFF.
   (2) Press and hold the "DISP" switch for 3 seconds.
3. DIAGNOSIS MENU

(a) The “Diagnosis MENU” screen will be displayed by pressing the menu switch on the “System Check Mode” screen.
4. CHECK DTC
(a) Read the system check result.
   (1) If the check result is "EXCH", "CHEK" or "Old", touch the displayed check result to view the results on the "Unit Check Mode" screen and record them.
   HINT:
   • If all check results are "OK", go to the communication DTC check.
   • If a device name is not known, its physical address is displayed.
   HINT:
   When proceeding to view the results of another device, press the service switch to return to the "System Check Mode" screen. Repeat this step.
(b) Read the communication diagnostic check result.
(1) Return to the "System Check Mode" screen, and press the "LAN Mon" switch to enter the "LAN Monitor" screen.
(2) If the check result is "CHEK" or "Old", touch the displayed check result to view the results on the individual communication diagnostic screen and record them.

HINT:
- If all check results are "No Err", the system judges that no DTC exists.
- The sub-code (relevant device) will be indicated by its physical address.
- When proceeding to view the results of another device, press the "Service" switch to return to the original "LAN Monitor" screen. Repeat this step.
5. DTC CLEAR/RECHECK

(a) Clear DTC
(1) Press the "Code CLR" switch for 3 seconds.
(2) The check results are cleared.

(b) Recheck
(1) Press the "Recheck" switch.
(2) Confirm that all diagnostic codes are "OK" when the check results are displayed. If a code other than "OK" is displayed, troubleshoot again.
(3) Press the "LAN Mon" switch to change to the "LAN Monitor" screen.
(4) Confirm that all diagnostic codes are "No Err". If a code other than "No Err" is displayed, troubleshoot again.
<table>
<thead>
<tr>
<th>DTC No.</th>
<th>Detection Item</th>
<th>Trouble Area</th>
<th>See page</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-21</td>
<td>ROM Error</td>
<td>Multi-display</td>
<td>NS-52</td>
</tr>
<tr>
<td>01-22</td>
<td>RAM Error</td>
<td>Multi-display</td>
<td>NS-52</td>
</tr>
<tr>
<td>01-D5</td>
<td>Absence of Registration Unit</td>
<td>1. Power source circuit of component shown by sub-code 2. AVC-LAN circuit between multi-display and component shown by sub-code 3. Component shown by sub-code</td>
<td>NS-53</td>
</tr>
<tr>
<td>01-D6</td>
<td>No Master</td>
<td>1. Multi-display power source circuit 2. Power source circuit of component which has stored this code 3. AVC-LAN circuit between multi-display and component which has stored this code 4. Component which has stored this code 5. Multi-display</td>
<td>NS-55</td>
</tr>
<tr>
<td>01-D7</td>
<td>Connection Check Error</td>
<td>1. Multi-display power source circuit 2. Power source circuit of component which has stored this code 3. AVC-LAN circuit between multi-display and component which has stored this code 4. Component which has stored this code 5. Multi-display</td>
<td>NS-55</td>
</tr>
<tr>
<td>01-D8</td>
<td>No Response for Connection Check</td>
<td>1. Power source circuit of component shown by sub-code 2. AVC-LAN circuit between multi-display and component shown by sub-code 3. Component shown by sub-code</td>
<td>NS-53</td>
</tr>
<tr>
<td>01-D9</td>
<td>Last Mode Error</td>
<td>1. Power source circuit of component shown by sub-code 2. AVC-LAN circuit between multi-display and component shown by sub-code 3. Component shown by sub-code</td>
<td>NS-53</td>
</tr>
<tr>
<td>01-DA</td>
<td>No Response Against ON / OFF Command</td>
<td>1. Power source circuit of component shown by sub-code 2. AVC-LAN circuit between multi-display and component shown by sub-code 3. Component shown by sub-code</td>
<td>NS-53</td>
</tr>
<tr>
<td>01-DB</td>
<td>Mode Status Error</td>
<td>1. Power source circuit of component shown by sub-code 2. AVC-LAN circuit between multi-display and component shown by sub-code 3. Component shown by sub-code</td>
<td>NS-53</td>
</tr>
<tr>
<td>DTC No.</td>
<td>Detection Item</td>
<td>Trouble Area</td>
<td>See page</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------</td>
<td>-------------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>01-DC</td>
<td>Transmission Error</td>
<td>If same sub-code is recorded in other components, check harness for power supply and communication system of all components shown by code</td>
<td>NS-59</td>
</tr>
</tbody>
</table>
| 01-DD   | Master Reset                          | 1. Multi-display power source circuit  
2. AVC-LAN circuit between multi-display and component which has stored this code  
3. Multi-display  
4. Component which has stored this code | NS-62    |
| 01-DE   | Slave Reset                           | 1. Power source circuit of component shown by sub-code  
2. AVC-LAN circuit between multi-display and component shown by sub-code  
3. Component shown by sub-code | NS-53    |
| 01-DF   | Master Error                          | 1. Multi-display power source circuit  
2. AVC-LAN circuit between multi-display and component which has stored this code  
3. AVC-LAN circuit between multi-display and radio receiver  
4. Multi-display  
5. Component which has stored this code | NS-66    |
| 01-E0   | Registration Complete Indication Error| -                                                                             | NS-71    |
| 01-E1   | Voice Processing Device ON Error      | 1. Multi-display power source circuit  
2. AVC-LAN circuit between multi-display and component which has stored this code  
3. Multi-display  
4. Component which has stored this code | NS-62    |
| 01-E2   | ON / OFF Indication Parameter Error   | Multi-display                                                                 | NS-72    |
| 01-E3   | Registration Demand Transmission      | -                                                                             | NS-71    |
| 01-E4   | Multiple Frame Incomplete             | -                                                                             | NS-71    |
| 21-10   | Panel Switch Error                    | Multi-display                                                                 | NS-73    |
| 21-11   | Touch Switch Error                    | Multi-display                                                                 | NS-73    |
| 23-10   | Panel Switch Error                    | Multi-display                                                                 | NS-73    |
| 23-11   | Touch Switch Error                    | Multi-display                                                                 | NS-73    |
| 24-10   | Panel Switch Error                    | Multi-display                                                                 | NS-73    |
| 24-11   | Touch Switch Error                    | Multi-display                                                                 | NS-73    |
| 25-10   | Panel Switch Error                    | Multi-display                                                                 | NS-73    |
| 25-11   | Touch Switch Error                    | Multi-display                                                                 | NS-73    |
| 34-10   | Error in Picture Circuit              | Multi-display                                                                 | NS-74    |
| 34-11   | No Current in Back-light Error        | Multi-display                                                                 | NS-74    |
| 34-12   | Excess Current in Back-light Error    | Multi-display                                                                 | NS-74    |
| 57-47   | Bluetooth Module Initialization Failed| Multi-display                                                                 | NS-75    |
| 58-10   | Gyro Error                            | 1. Gyro sensor  
2. Navigation ECU                                                     | NS-76    |
<table>
<thead>
<tr>
<th>DTC No.</th>
<th>Detection Item</th>
<th>Trouble Area</th>
<th>See page</th>
</tr>
</thead>
<tbody>
<tr>
<td>58-11</td>
<td>GPS Receiver Error</td>
<td>Navigation ECU</td>
<td>NS-78</td>
</tr>
<tr>
<td>58-44</td>
<td>Player Error</td>
<td>Navigation ECU</td>
<td>NS-83</td>
</tr>
<tr>
<td>58-45</td>
<td>High Temperature</td>
<td>Navigation ECU</td>
<td>NS-84</td>
</tr>
<tr>
<td>80-11</td>
<td>GPS Receiver Error</td>
<td>Navigation ECU</td>
<td>NS-78</td>
</tr>
<tr>
<td>80-44</td>
<td>Player Error</td>
<td>Navigation ECU</td>
<td>NS-83</td>
</tr>
<tr>
<td>80-45</td>
<td>High Temperature</td>
<td>Navigation ECU</td>
<td>NS-84</td>
</tr>
</tbody>
</table>
### DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-21</td>
<td>Malfunction exists in ROM.</td>
<td>Multi-display</td>
</tr>
<tr>
<td>01-22</td>
<td>Malfunction exists in RAM.</td>
<td></td>
</tr>
</tbody>
</table>

### INSPECTION PROCEDURE

HINT:
After the inspection is completed, clear the DTCs.

1. REPLACE MULTI-DISPLAY

END
<table>
<thead>
<tr>
<th>DTC</th>
<th>01-D5</th>
<th>Absence of Registration Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>DTC</td>
<td>01-D8</td>
<td>No Response for Connection Check</td>
</tr>
<tr>
<td>DTC</td>
<td>01-D9</td>
<td>Last Mode Error</td>
</tr>
<tr>
<td>DTC</td>
<td>01-DA</td>
<td>No Response Against ON / OFF Command</td>
</tr>
<tr>
<td>DTC</td>
<td>01-DB</td>
<td>Mode Status Error</td>
</tr>
<tr>
<td>DTC</td>
<td>01-DE</td>
<td>Slave Reset</td>
</tr>
</tbody>
</table>

**DESCRIPTION**

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
</table>
| 01-D5*1, *3 | When either condition below is met:  
• Component shown by sub-code is (was) disconnected from system when turning power switch on (ACC or IG).  
• Communication condition with device that code shows cannot be obtained when hybrid system starts. | Power source circuit of component shown by sub-code  
AVC-LAN circuit between multi-display and component shown by sub-code  
Component shown by sub-code |
| 01-D8*2, *3 | Component shown by sub-code is (was) disconnected from system after hybrid system start. |  |
| 01-D9*1, *3 | Device that had functioned before the hybrid system stopped is (was) disconnected from system when power switch is (was) ON (IG or ACC). |  |
| 01-DA*3 | When either condition below is met:  
• No response is identified when changing mode.  
• Sound and image do not change by switch operation. |  |
| 01-DB*1, *3 | Dual alarm is detected. |  |
| 01-DE*3 | Slave device has been disconnected after hybrid system start. |  |

**HINT:**
- *1: Even if no fault is present, this trouble code may be stored depending on the battery condition or hybrid system start voltage.
- *2: If the power connector is disconnected after the hybrid system starts, this code is stored after 180 seconds.
- *3: If it is reported that the device does not exist during verification, check the power source circuit and AVC-LAN circuit for the device.

**NOTICE:**
- Before starting troubleshooting, be sure to clear DTCs to erase codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.
- The multi-display is the master unit.
- Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.

**INSPECTION PROCEDURE**

**NOTICE:**
Be sure to read DESCRIPTION before performing the following procedures.
1 CHECK "MULTI-DISPLAY COMMUNICATION ERROR" IN FLOWCHART

(a) Refer to the multi-display communication error (see page NS-161).

NEXT

END
**DESCRIPTION**

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
</table>
| 01-D6*1 | When either of the following conditions is met:  
• The component which has stored the code has (had) been disconnected when the power switch is ON (ACC or IG).  
• The master device has (had) been disconnected when this code is stored. |  
• Multi-display power source circuit  
• Power source circuit of the component which has stored this code  
• AVC-LAN circuit between the multi-display and the component which has stored this code  
• Component which has stored this code  
• Multi-display |
| 01-D7*2 | When either of the following conditions is met:  
• The component which has stored the code has (had) been disconnected after the hybrid system starts (started).  
• The master device has (had) been disconnected when this code is (was) stored. |  

**HINT:**
- *1: Even if no fault is present, this trouble code may be stored depending on the battery condition or hybrid system start voltage.
- *2: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the power switch ON (ACC or IG), this code is stored.

**NOTICE:**
- Before starting troubleshooting, be sure to clear DTCs to erase codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.
- The multi-display is the master unit.
- Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.

**INSPECTION PROCEDURE**

**NOTICE:**
Be sure to read DESCRIPTION before performing the following procedures.

---

**1 CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT**

(a) Refer to the multi-display power source circuit (see page NS-167).
If the power source circuit is operating normally, proceed to the next step.
2 IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component which has stored this code.

Component table:

<table>
<thead>
<tr>
<th>Display</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDIO H/U</td>
<td>Radio receiver</td>
</tr>
<tr>
<td>DSP-AMP</td>
<td>Stereo component amplifier</td>
</tr>
<tr>
<td>G/W</td>
<td>Gateway ECU</td>
</tr>
<tr>
<td>NAVI</td>
<td>Navigation ECU</td>
</tr>
<tr>
<td>CAMERA</td>
<td>Intelligent parking assist ECU</td>
</tr>
</tbody>
</table>

HINT: "NAVI" is the component which has stored this code in the example shown in the illustration.

3 CHECK POWER SOURCE CIRCUIT OF COMPONENT WHICH HAS STORED THIS CODE

(a) Inspect the power source circuit of the component which has stored this code.
If the power source circuit is operating normally, proceed to the next step.

Component table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio receiver (AUDIO H/U)</td>
<td>Radio receiver power source circuit (see page AV-171)</td>
</tr>
<tr>
<td>Stereo component amplifier (DSP-AMP)</td>
<td>Stereo component amplifier power source circuit (see page AV-173)</td>
</tr>
<tr>
<td>Gateway ECU (G/W)</td>
<td>Gateway ECU power source circuit (see page AV-177)</td>
</tr>
<tr>
<td>Navigation ECU (NAVI)</td>
<td>Navigation ECU power source circuit (see page NS-169)</td>
</tr>
</tbody>
</table>
4 INSPECT RADIO RECEIVER

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
</tbody>
</table>

**REPLACE RADIO RECEIVER ASSEMBLY**

5 CHECK WIRE HARNESS (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

**HINT:**
For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

1. Disconnect all connectors between the multi-display and the component which has stored this code.
2. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.

**OK:**
There is no open or short circuit.
OK

6 REPLACE COMPONENT WHICH HAS STORED THIS CODE

(a) Replace the component which has stored this code with a normal one and check if the same problem occurs again.

OK:
Same problem does not occur.

NG REPLACE MULTI-DISPLAY

OK

END
DTC | 01-DC | Transmission Error

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-DC</td>
<td>Transmission to component shown by sub-code failed. (Detecting this DTC does not always mean actual failure.)</td>
<td>If same sub-code is recorded in other components, check harness for power supply and communication system of all components shown by code</td>
</tr>
</tbody>
</table>

NOTICE:
- The multi-display is the master unit.
- Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.

INSPECTION PROCEDURE

NOTICE:
Be sure to read DESCRIPTION before performing the following procedures.

1. CHECK FOR DTC OF OTHER COMPONENTS

   (a) Check if the component shown by the sub-code is displayed in the check result of the other components.
   
      (1) Check if "01-DC" is output for the other components.
      
      (2) If "01-DC" is output for any other components, check if the same physical address is displayed.
      
      HINT:
      For the list of the components shown by sub-codes, refer to the table in the next step.

   Result

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;01-DC&quot; is output and the same physical address is displayed</td>
<td>A</td>
</tr>
<tr>
<td>&quot;01-DC&quot; is not output or the same physical address is not displayed</td>
<td>B</td>
</tr>
</tbody>
</table>

   B  Go to step 4
2 IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component which has stored this code.

Component table:

<table>
<thead>
<tr>
<th>Display</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDIO H/U</td>
<td>Radio receiver</td>
</tr>
<tr>
<td>DSP-AMP</td>
<td>Stereo component amplifier</td>
</tr>
<tr>
<td>G/W</td>
<td>Gateway ECU</td>
</tr>
<tr>
<td>NAVI</td>
<td>Navigation ECU</td>
</tr>
<tr>
<td>EMV</td>
<td>Multi-display</td>
</tr>
</tbody>
</table>

HINT: "NAVI" is the component which has stored this code in the example shown in the illustration.

Example

3 CHECK COMPONENT WHICH HAS STORED THIS CODE

(a) Select the component which has stored this code.

Component table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway ECU (G/W)</td>
<td>Gateway ECU communication error (see page NS-152)</td>
</tr>
<tr>
<td>Radio receiver (AUDIO H/U)</td>
<td>Radio receiver communication error (see page NS-155)</td>
</tr>
<tr>
<td>Stereo component amplifier (DSP-AMP)</td>
<td>Stereo component amplifier communication error (see page NS-158)</td>
</tr>
<tr>
<td>Navigation ECU (NAVI)</td>
<td>Navigation ECU communication error (see page NS-164)</td>
</tr>
<tr>
<td>Multi-display (EMV)</td>
<td>Multi-display communication error (see page NS-161)</td>
</tr>
</tbody>
</table>
(a) Clear the DTCs (see page NS-43).

HINT:
If "01-DC" is output for only one component, this may not indicate a malfunction.

(a) Recheck for DTCs and check if the same trouble occurs again.

OK:
Malfunction disappears.

NG  Go to step 3

OK  Go to step 3
DTC 01-DD  Master Reset

DTC 01-E1  Voice Processing Device ON Error

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-DD</td>
<td>Device that should be master has been disconnected after hybrid system starts.</td>
<td>• Multi-display power source circuit</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• AVC-LAN circuit between multi-display and component</td>
</tr>
<tr>
<td></td>
<td></td>
<td>which has stored this code</td>
</tr>
<tr>
<td>01-E1*</td>
<td>Amplifier device records that amplifier output does not function even while source device is operating.</td>
<td>• Multi-display</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Component which has stored this code</td>
</tr>
</tbody>
</table>

HINT:
*: Even if no fault is present, this trouble code may be stored depending on the battery condition or hybrid system start voltage.

NOTICE:
• Before starting troubleshooting, be sure to clear DTCs to erase codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.
• The multi-display is the master unit.
• Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.

INSPECTION PROCEDURE

NOTICE:
Be sure to read DESCRIPTION before performing the following procedures.

1 CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

(a) Refer to the multi-display power source circuit (see page NS-167).
   If the power source circuit is operating normally, proceed to the next step.
2 INSPECT RADIO RECEIVER

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
</tbody>
</table>

OK 

NG > REPLACE RADIO RECEIVER ASSEMBLY
### 3 IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

- Enter the diagnostic mode.
- Press the "LAN Mon" switch to change to "LAN Monitor" mode.
- Identify the component which has stored this code.

#### Component table:

<table>
<thead>
<tr>
<th>Display</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDIO H/U</td>
<td>Radio receiver</td>
</tr>
<tr>
<td>DSP-AMP</td>
<td>Stereo component amplifier</td>
</tr>
<tr>
<td>G/W</td>
<td>Gateway ECU</td>
</tr>
<tr>
<td>NAVI</td>
<td>Navigation ECU</td>
</tr>
</tbody>
</table>

HINT:
"NAVI" is the component which has stored this code in the example shown in the illustration.

### 4 CHECK WIRE HARNESS (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

HINT:
For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the multi-display and the component which has stored this code.

1. Disconnect all connectors between the multi-display and the component which has stored this code.
2. Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.
OK:
There is no open or short circuit.

NG
REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

5 REPLACE MULTI-DISPLAY

(a) Replace the multi-display with a normal one and check if the same problem occurs again.

OK:
Same problem does not occur.

NG
REPLACE COMPONENT WHICH HAS STORED THIS CODE

OK

END
DTC 01-DF Master Error

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-DF*</td>
<td>When either condition below is met:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Device with a display fails and master is switched to the audio device.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Communication error between sub-master (radio receiver) and master occurs.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Multi-display power source circuit</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• AVC-LAN circuit between multi-display and component which has stored this code</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• AVC-LAN circuit between multi-display and radio receiver</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Multi-display</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Component which has stored this code</td>
<td></td>
</tr>
</tbody>
</table>

HINT:
*: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the power switch ON (ACC or IG), this code is stored.

NOTICE:
• Before starting troubleshooting, be sure to clear DTCs to erase codes stored due to the reasons described in the HINT above. Then, check for DTCs and troubleshoot according to the output DTCs.
• The multi-display is the master unit.
• Be sure to clear and recheck DTCs after the inspection is completed to confirm that no DTCs are output.

INSPECTION PROCEDURE

NOTICE:
Be sure to read DESCRIPTION before performing the following procedures.

1. CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT

(a) Refer to the multi-display power source circuit (see page NS-167).
If the power source circuit is operating normally, proceed to the next step.
(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
</tbody>
</table>

NG ➞ REPLACE RADIO RECEIVER ASSEMBLY
3 IDENTIFY COMPONENT WHICH HAS STORED THIS CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component which has stored this code.

Component table:

<table>
<thead>
<tr>
<th>Display</th>
<th>Component</th>
</tr>
</thead>
<tbody>
<tr>
<td>AUDIO H/U</td>
<td>Radio receiver</td>
</tr>
<tr>
<td>DSP-AMP</td>
<td>Stereo component amplifier</td>
</tr>
<tr>
<td>G/W</td>
<td>Gateway ECU</td>
</tr>
<tr>
<td>NAVI</td>
<td>Navigation ECU</td>
</tr>
</tbody>
</table>

HINT: "NAVI" is the component which has stored this code in the example shown in the illustration.

4 CHECK WIRE HARNESS (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)

HINT:
For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).
(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the multi-display and the component which has stored this code.
   (1) Disconnect all connectors between the multi-display and the component which has stored this code.
   (2) Check for an open or short in the AVC-LAN circuit between the multi-display and the component which has stored this code.
OK:
There is no open or short circuit.

HINT:
For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the multi-display and the radio receiver.

(1) Disconnect all connectors between the multi-display and the radio receiver.

(2) Check for an open or short in the AVC-LAN circuit between the multi-display and the radio receiver.

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

5 CHECK WIRE HARNESS (MULTI-DISPLAY - RADIO RECEIVER)
OK:
There is no open or short circuit.

AVC-LAN Wiring Diagram

OK: Same problem does not occur.

NG 
REPAIR OR REPLACE HARNESS AND CONNECTOR

6 REPLACE MULTI-DISPLAY

(a) Replace the multi-display with a normal one and check if the same problem occurs again.

OK:
Same problem does not occur.

NG 
REPLACE COMPONENT WHICH HAS STORED THIS CODE

END
DTC 01-E0 Registration Complete Indication Error

DTC 01-E3 Registration Demand Transmission

DTC 01-E4 Multiple Frame Incomplete

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-E0</td>
<td>&quot;Registration complete&quot; signal from master device cannot be received.</td>
<td>-</td>
</tr>
<tr>
<td>01-E3</td>
<td>Registration demand signal from the slave device is output. Or registration demand signal is output by receiving connection confirmation signal from sub-master device.</td>
<td>-</td>
</tr>
<tr>
<td>01-E4</td>
<td>Multiple frame transmission is incomplete.</td>
<td>-</td>
</tr>
</tbody>
</table>

HINT:
Even if no fault is present, this trouble code may be stored depending on the battery condition or hybrid system start voltage.

INSPECTION PROCEDURE

HINT:
- After the inspection is completed, clear the DTCs.
- These DTCs do not indicate a malfunction.
DTC 01-E2 ON / OFF Indication Parameter Error

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-E2</td>
<td>Signal for ON / OFF control from master device has problem.</td>
<td>Multi-display</td>
</tr>
</tbody>
</table>

INSPECTION PROCEDURE

HINT:
After the inspection is completed, clear the DTCs.

1 REPLACE MULTI-DISPLAY

END
DTC | 21-10 | Panel Switch Error
---|---|---
DTC | 21-11 | Touch Switch Error
---|---|---
DTC | 23-10 | Panel Switch Error
---|---|---
DTC | 23-11 | Touch Switch Error
---|---|---
DTC | 24-10 | Panel Switch Error
---|---|---
DTC | 24-11 | Touch Switch Error
---|---|---
DTC | 25-10 | Panel Switch Error
---|---|---
DTC | 25-11 | Touch Switch Error

### DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>21-10</td>
<td>Panel switch detection circuit has a problem.</td>
<td></td>
</tr>
<tr>
<td>21-11</td>
<td>Touch panel switch has a problem.</td>
<td></td>
</tr>
<tr>
<td>23-10</td>
<td>Panel switch detection circuit has a problem.</td>
<td></td>
</tr>
<tr>
<td>23-11</td>
<td>Touch panel switch has a problem.</td>
<td></td>
</tr>
<tr>
<td>24-10</td>
<td>Panel switch detection circuit has a problem.</td>
<td>Multi-display</td>
</tr>
<tr>
<td>24-11</td>
<td>Touch panel switch has a problem.</td>
<td></td>
</tr>
<tr>
<td>25-10</td>
<td>Panel switch detection circuit has a problem.</td>
<td></td>
</tr>
<tr>
<td>25-11</td>
<td>Touch panel switch has a problem.</td>
<td></td>
</tr>
</tbody>
</table>

### INSPECTION PROCEDURE

**HINT:**
After the inspection is completed, clear the DTCs.

1. REPLACE MULTI-DISPLAY

END
### DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>34-10</td>
<td>Error in power supply system for picture circuit</td>
<td></td>
</tr>
<tr>
<td>34-11</td>
<td>Decline in power output from inverter circuit for back-light</td>
<td>Multi-display</td>
</tr>
<tr>
<td>34-12</td>
<td>Excess power output from inverter circuit for back-light</td>
<td></td>
</tr>
</tbody>
</table>

### INSPECTION PROCEDURE

**HINT:**
After the inspection is completed, clear the DTCs.

1. REPLACE MULTI-DISPLAY

END
DTC | 57-47 | Bluetooth Module Initialization Failed

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
</table>
| 57-47   | When one of following conditions is met:  
• Bluetooth module is not installed  
• Problem with Bluetooth module  
• Problem in communication line to Bluetooth module | Multi-display |

INSPECTION PROCEDURE

HINT:
After the inspection is completed, clear the DTCs.

1. REPLACE MULTI-DISPLAY
DTC 58-10 Gyro Error
DTC 80-10 Gyro Error

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>58-10</td>
<td>Ground short, power supply short, or open circuit in gyro</td>
<td>• Gyro sensor</td>
</tr>
<tr>
<td></td>
<td>signal</td>
<td>• Navigation ECU</td>
</tr>
<tr>
<td>80-10</td>
<td>Ground short, power supply short, or open circuit in gyro</td>
<td></td>
</tr>
<tr>
<td></td>
<td>signal</td>
<td></td>
</tr>
</tbody>
</table>

INSPECTION PROCEDURE

HINT:
After the inspection is completed, clear the DTCs.

1 CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page NS-24).
(b) Check the gyro voltage.
   Standard voltage:
   0.5 to 4.5 V

   NG > REPLACE NAVIGATION ECU

OK

2 CLEAR DTC

(a) Clear the DTCs (see page NS-43).

NEXT

3 RECHECK DTC

(a) Recheck for DTCs and check if the same trouble occurs again.
   HINT:
   If DTCs are detected frequently, replace the navigation ECU.
   OK:
   Malfunction disappears.

   NG > REPLACE NAVIGATION ECU
OK

END
## DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
</table>
| 58-11   | When either condition below is met:  
                    • RTC, ROM, and RAM of GPS receiver and TCXO error  
                    • GPS receiver has failed. | Navigation ECU |
| 80-11   | When either condition below is met:  
                    • RTC, ROM, and RAM of GPS receiver and TCXO error  
                    • GPS receiver has failed. | Navigation ECU |

## INSPECTION PROCEDURE

**HINT:**
After the inspection is completed, clear the DTCs.

1. REPLACE NAVIGATION ECU

END
### NS-84 NAVIGATION – NAVIGATION SYSTEM

#### DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
</table>
| 58-40   | GPS antenna error       | • Wire harness  
|         |                         | • GPS antenna  
|         |                         | • Navigation ECU |
| 58-41   | Error of power source to GPS antenna |
| 80-40   | GPS antenna error       |
| 80-41   | Error of power source to GPS antenna |

#### INSPECTION PROCEDURE

**HINT:**
After the inspection is completed, clear the DTCs.

1. **CHECK HARNESS AND CONNECTOR (GPS ANTENNA - NAVIGATION ECU)**

   (a) Check that the GPS antenna cord is securely connected to the navigation ECU.
   
   **OK:**
   The cord is securely connected.
   
   **NG** REPAIR OR REPLACE HARNESS AND CONNECTOR

2. **REPLACE GPS ANTENNA**

   (a) Replace the GPS antenna with a normal one and check if the same problem occurs again.
   
   (1) Clear the DTCs (see page NS-43).
   
   (2) Recheck for DTCs and check if the same trouble occurs again.
   
   **OK:**
   Same problem does not occur.

   **NG** REPLACE NAVIGATION ECU

**END**
### DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>58-42</td>
<td>When one of following conditions is met:</td>
<td>• Map disc</td>
</tr>
<tr>
<td></td>
<td>• Player error</td>
<td>• Navigation ECU</td>
</tr>
<tr>
<td></td>
<td>• Scratches or dirt on disc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access to invalid address due to software error</td>
<td></td>
</tr>
<tr>
<td>80-42</td>
<td>When one of following conditions is met:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Player error</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Scratches or dirt on disc</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Access to invalid address due to software error</td>
<td></td>
</tr>
</tbody>
</table>

### INSPECTION PROCEDURE

**HINT:**

After the inspection is completed, clear the DTCs.

1. **CHECK MAP DISC**

   (a) Check that the map disc is not deformed or cracked.

   **OK:**
   
   No deformations or cracks on the map disc.

   **NG**
   
   Go to step 4

2. **DISC CLEANING**

   (a) If dirt is on the disc surface, wipe it clean with a soft cloth from the inside to the outside in a radial direction.

   **NOTICE:**
   
   Do not use a conventional record cleaner or anti-static preservative.
### 3 DTC CLEAR AND RECHECK

(a) Clear the DTCs (see page NS-43).
(b) Recheck for DTCs and check if the same trouble occurs again.

**OK:**

Same problem does not occur.

<table>
<thead>
<tr>
<th>OK</th>
<th>END</th>
</tr>
</thead>
</table>

### 4 REPLACE MAP DISC

(a) Replace the map disc.
(b) Clear the DTCs and recheck for DTCs.
(c) Check if the same trouble occurs again.

**OK:**

Same problem does not occur.

<table>
<thead>
<tr>
<th>OK</th>
<th>END</th>
</tr>
</thead>
</table>

### REPLACE NAVIGATION ECU
**DESCRIPTION**

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
</table>
| 58-43   | Difference between GPS speed and SPD pulse is detected. | • Speed signal circuit  
|         |                         | • Navigation ECU |
| 80-43   | Difference between GPS speed and SPD pulse is detected. | |

**INSPECTION PROCEDURE**

**HINT:**
After the inspection is completed, clear the DTCs.

1. **CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)**
   
   (a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page NS-24).
   (b) While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

   **OK:**
   The readings are almost equal.

   ![Vehicle Sensors screenshot](E120089)

   **OK ➤ REPLACE NAVIGATION ECU**

2. **PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE**

   (a) Refer to "Speed signal does not change in the navigation check mode" in the problem symptoms table.
NS–88  
NAVIGATION – NAVIGATION SYSTEM

DTC | 58-44  | Player Error
---|---------|------------------
DTC | 80-44  | Player Error

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>58-44</td>
<td>Map player error is detected.</td>
<td>Navigation ECU</td>
</tr>
<tr>
<td>80-44</td>
<td>Map player error is detected.</td>
<td>Navigation ECU</td>
</tr>
</tbody>
</table>

INSPECTION PROCEDURE

HINT:
After the inspection is completed, clear the DTCs.

1 CHECK NAVIGATION ECU

(a) Check if a disc can be inserted or ejected normally.
   OK:
   A disc can be inserted or ejected normally.
   
   NG  REPLACE NAVIGATION ECU

OK

2 DTC CLEAR AND RECHECK

(a) Clear the DTCs (see page NS-43).
(b) Recheck for DTCs and check if the same trouble occurs again.
   OK:
   Same problem does not occur.

OK  END

NG

REPLACE NAVIGATION ECU
### INSPECTION PROCEDURE

**HINT:**
After the inspection is completed, clear the DTCs.

#### 1 CHECK NAVIGATION ECU

(a) Park the vehicle in a cool place.

(b) Check that the temperature of the navigation ECU has become sufficiently low, then start the engine to verify the malfunction symptom.

**OK:**
Same problem does not occur.

**NG** REPAIR NAVIGATION ECU

END
DTC | 5C-40 | Camera Picture Error

DESCRIPTION

<table>
<thead>
<tr>
<th>DTC No.</th>
<th>DTC Detection Condition</th>
<th>Trouble Area</th>
</tr>
</thead>
</table>
| 5C-40   | Synchronous signal from the camera cannot be transmitted. | • Wire harness  
• Television camera  
• Multi-display |

HINT: After the inspection is completed, clear the DTCs.

WIRING DIAGRAM

INSPECTION PROCEDURE

HINT: After the inspection is completed, clear the DTCs.
1 CHECK WIRE HARNESS (MULTI-DISPLAY - TELEVISION CAMERA)

(a) Disconnect the M14 display connector.
(b) Disconnect the T13 camera connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>T13-4 (CB+) - M14-29 (CA+)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>T13-3 (CGND) - M14-30 (CGND)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>T13-2 (CV+) - M14-27 (V+)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>T13-1 (CV-) - M14-28 (V-)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>T13-4 (CB+) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>T13-3 (CGND) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>T13-2 (CV+) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>T13-1 (CV-) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG → REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

2 CHECK MULTI-DISPLAY (CA+ VOLTAGE)

(a) Measure the voltage of the display.

**Standard voltage**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14-29 (CA+) - M14-30 (CGND)</td>
<td>Power switch ON (IG), shift lever R position</td>
<td>Approx. 6 V</td>
</tr>
</tbody>
</table>

NG → REPLACE MULTI-DISPLAY

OK

REPLACE TELEVISION CAMERA ASSEMBLY
No Sound can be Heard from Speakers

INSPECTION PROCEDURE

1. CHECK AUDIO SETTINGS

(a) Enter the sound adjustment screen by pressing the "SOUND" switch on the AUDIO display.

(b) Set volume, fader, and balance to the initial values and check that sound is normal.

OK:
Audio returns to normal.

HINT:
Sound quality adjustment items vary depending on the type of the amplifier.

OK → END

NG

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
**No Image Appears on Multi-display**

**INSPECTION PROCEDURE**

1. **CHECK DISPLAY SETTING**
   (a) Check that the display is not in "Screen OFF" mode.
      **OK:** The display setting is not in "screen OFF" mode.
      **NG** CHANGE SCREEN TO "SCREEN ON" MODE

2. **CHECK IMAGE QUALITY SETTING**
   (a) Check that the screen color quality can be set.
      **OK:** Setting is possible.
      **NG**

3. **CHECK CABIN**
   (a) Check that condensation is not likely to occur in the cabin, and that the temperature is not high or extremely low in the cabin.
      **HINT:**
      • A humid cabin and a rapid change in temperature may lead to condensation. Condensation in the cabin may short circuit the screen.
      • The appropriate cabin temperature is 20 to 30°C (68 to 86°F).
      **OK:** Condensation is not likely and temperature is not high or extremely low.
      **NG** SET CABIN TO APPROPRIATE TEMPERATURE

**PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE**
Illumination for Panel Switch does not Come on with Tail Switch ON

INSPECTION PROCEDURE

1 INSPECT NIGHTTIME ILLUMINATION

(a) Turn on the light control switch and check the nighttime illumination of the vehicle interior.

<table>
<thead>
<tr>
<th>Result</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Only multi-display nighttime illumination does not operate</td>
<td>A</td>
</tr>
<tr>
<td>No nighttime illumination at all</td>
<td>B</td>
</tr>
</tbody>
</table>

2 CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

(a) Enter the "Display Check" mode (Vehicle Signal Check Mode) (see page NS-18).
(b) Check that the display changes between ON and OFF according to the light control switch operation.

<table>
<thead>
<tr>
<th>Light Control Switch</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>TAIL or ON</td>
<td>ON</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
</tr>
</tbody>
</table>

HINT:
This display is updated once per second. As a result, it is normal for the display to lag behind the actual change in the switch.

OK REPLACE MULTI-DISPLAY

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Display does not Dim when Light Control Switch is Turned ON

INSPECTION PROCEDURE

1 CHECK IMAGE QUALITY SETTING

- (a) Enter the display adjustment screen by pressing the "DISPLAY" switch.
- (b) Turn the light control switch to the TAIL position.
- (c) Check if "Day Mode" on the display is ON.

   OK: "Day Mode" is ON.

   OK → TURN "DAY MODE" SETTING OFF

NG

2 CHECK VEHICLE SIGNAL (DISPLAY VEHICLE SIGNAL)

- (a) Enter the "Display Check" mode (Vehicle Signal Check Mode) (see page NS-18).
- (b) Check that the display changes between ON and OFF according to the light control switch operation.

   OK

   HINT:
   The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

   NG → REPLACE MULTI-DISPLAY

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Panel Switches do not Function

INSPECTION PROCEDURE

1 CHECK PANEL SWITCH

(a) Check for foreign matter around the switch that might prevent operation.
   OK: No foreign matter is found.
   NG REMOVE ANY FOREIGN MATTER FOUND

2 CHECK PANEL SWITCH (DISPLAY CHECK MODE)

(a) Enter the "Display Check" mode (Panel Switch Check Mode) (see page NS-18).
(b) Operate the abnormal switch and check if the switch name and status are correctly displayed.
   OK: The switch name and status are correctly displayed as operated.
   NG REPLACE MULTI-DISPLAY

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Touch Panel Switch does not Function

INSPECTION PROCEDURE

1 CHECK TOUCH PANEL

(a) Check for foreign matter on the display.
   OK: The display is clean.
   NG CLEAN DISPLAY AND RECHECK TOUCH PANEL

2 CHECK TOUCH SWITCH (DISPLAY CHECK MODE)

(a) Enter the "Display Check" mode (Touch Switch Check) (see page NS-18).
(b) Touch the display in the area where the switch malfunction occurs.
   OK: A "+" mark appears at the touched position.
   NG REPLACE MULTI-DISPLAY

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Screen Flicker or Color Distortion

INSPECTION PROCEDURE

1 CHECK DISPLAY SETTING

(a) Enter the display adjustment screen by pressing the "DISP" switch.

(b) Reset display settings (contrast, brightness) and check that the screen appears normal.

(c) Press the "INFO" switch and then select "Screen Setting."

(d) Set the "Switch Color" to "Green" (initial setting) and check if the display returns to normal.

   OK: Returns to normal.

2 CHECK CABIN

(a) Check that the cabin temperature is warmer than -20°C (-4.0°F).

   OK: Cabin is warmer than -20°C (-4.0°F).

   NG HEAT CABIN AND RECHECK TEMPERATURE
3 CHECK COLOR BAR (DISPLAY CHECK MODE)

(a) Enter the "Display Check" mode (Color Bar Check) (see page NS-18).
(b) Check that the color bars match the displayed names.

- **OK:** Color bars match the displayed names.

- **NG** 
  
  REPLACE MULTI-DISPLAY

The entire screen is changed to the color which is selected in the color bar check mode.

4 CHECK NAVI COLOR BAR (NAVIGATION CHECK MODE)

(a) Enter the "Navigation Check" mode (NAVI Color Bar Check) (see page NS-24).
(b) Check that the color bars match the displayed names.

- **OK:** Color bars match the displayed names.

- **NG**

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
**MAP Disc cannot be Inserted**

**INSPECTION PROCEDURE**

| 1 | CHECK MAP DISC |

(a) Check that the map disc is not deformed or cracked.

OK:
No deformations or cracks on the map disc.

NG > REPLACE MAP DISC

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
### MAP Disc cannot be Ejected

**INSPECTION PROCEDURE**

1. **CHECK MULTI-DISPLAY**
   - (a) Turn the power switch ON (ACC).
   - (b) Keep pressing the MAP eject switch for 5 seconds and check if the disc is ejected by forced ejection.
     - **OK:** The disc is ejected.
     - **NG**
       - **PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE**

2. **CHECK MAP DISC**
   - (a) Check that the map disc is not deformed or cracked.
     - **OK:** No deformations or cracks on the map disc.
     - **NG**
       - **REPLACE MAP DISC**

**END**
Vehicle Position Mark Deviates Greatly

INSPECTION PROCEDURE

1  CHECK GPS MARK

(a) Check that the GPS mark is displayed.

OK:
GPS mark is displayed.

NG  GO TO "GPS MARK IS NOT DISPLAYED" IN PROBLEM SYMPTOMS TABLE

2  CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page NS-24).

(b) While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check that these readings are almost equal.

OK:
The readings are almost equal.

NG  GO TO "SPEED SIGNAL DOES NOT CHANGE IN NAVIGATION CHECK MODE" IN PROBLEM SYMPTOMS TABLE

3  CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

(a) Check that the display changes between ON and OFF according to the shift lever operation (P and R).

OK

<table>
<thead>
<tr>
<th>Shift Lever Position</th>
<th>Display</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>OFF</td>
</tr>
<tr>
<td>Reverse position</td>
<td>ON</td>
</tr>
</tbody>
</table>

HINT:
The display is updated once per second. It is normal for the display to lag behind the actual switch operation.

NG  GO TO "REVERSE SIGNAL DOES NOT CHANGE IN THE NAVIGATION CHECK MODE" IN PROBLEM SYMPTOMS TABLE
PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Cursor or MAP Rotates when Vehicle Stopped

INSPECTION PROCEDURE

1 CHECK CONDITION

(a) Check with the customer if the vehicle has been turned by a turntable at parking.

**OK:**
Vehicle has not been turned by turntable.

**HINT:**
If the power switch is turned to the ON (ACC or IG) position while the vehicle is being turned by a turntable, the system may store the angular velocity at this time. For this reason, the vehicle position cursor could deviate.

**NG**
TURN POWER SWITCH TO ON (IG) POSITION WHEN VEHICLE IS COMPLETELY STOPPED

**OK**

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Vehicle Position Mark is not Updated

INSPECTION PROCEDURE

1 CHECK MAP DISC

(a) Check that the map disc is not deformed or cracked.
   OK: No deformations or cracks on map disc.
   NG REPLACE MAP DISC

2 CHECK MAP DISPLAY

(a) Check if a touch scroll can be performed on the map display.
   OK: Touch scroll can be performed.
   NG PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE

3 CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page NS-24).
(b) While driving the vehicle, compare the "Speed" indicator to the reading on the speedometer. Check if these readings are almost equal.
   OK: The readings are almost equal.
   NG GO TO "SPEED SIGNAL DOES NOT CHANGE IN NAVIGATION CHECK MODE" IN PROBLEM SYMPTOMS TABLE

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Current Position Display does not Appear

INSPECTION PROCEDURE

1. CHECK MAP DISC

   (a) Check that the map disc is not deformed or cracked.
      OK: No deformations or cracks on the map disc.
      NG REPLACE MAP DISC

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
GPS Mark is not Displayed

INSPECTION PROCEDURE

1  CHECK CABIN

(a) Check the cabin for any object that might interrupt radio reception on the instrument panel. If such an object exists, remove it and check if the GPS mark reappears.

HINT:
The GPS uses extremely faint radio waves originating from satellites. If the signal is interrupted by obstructions or other radio waves, the GPS may not be able to properly receive the signal.

OK:
Mark appears.

2  CHECK SURROUNDINGS

(a) Check if the vehicle is in a location where GPS signal reception is poor. If the vehicle is in such a place, relocate the vehicle and check if the GPS mark reappears.

HINT:
The GPS uses 24 satellites in 6 orbits. At any point in time, 4 satellites should be able to pinpoint your vehicle. However, GPS signals may not reach the vehicle due to influence from the surroundings, vehicle direction, and time. For illustrated examples, see below.
OK:
GPS mark is displayed.

OK ➔ SYSTEM RETURN TO NORMAL

NG

3 CHECK GPS INFORMATION (NAVIGATION CHECK MODE)

(a) Enter the "Navigation Check" mode (GPS Information) (see page NS-24).
(b) Check how many of the following codes appear in the "STS" column.
For DENSO Made:
T, P
For AISIN AW Made:
08H, 04H
OK:
At least 3 codes appear.

 NG ➔ PROCEED TO NEXT INSPECTION
PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
OK

REPLACE NAVIGATION ECU
**Voice Guidance does not Function**

**INSPECTION PROCEDURE**

**1 CHECK NAVIGATION SYSTEM SETTING**

(a) Enter the "Menu" screen by pressing the "MENU" switch.
(b) Select "Volume".

(c) Check that "OFF" is not selected.

**OK:**
OFF is not selected.

**NG TURN VOICE GUIDANCE VOLUME UP TO 4 USING VOICE ADJUSTMENT SWITCHES**

**2 CHECK NAVIGATION SETTING**

(a) Enter the "Menu" screen by pressing the "MENU" switch.
(b) Select "Setup".
3 CHECK NAVIGATION SETTING

(a) Enter the "Menu" screen by pressing the "MENU" switch.
(b) Select "Setup".
(c) Check that "Auto Voice Guidance" is not OFF.
   OK: "Auto Voice Guidance" is not OFF.

NG  TURN AUTO VOICE GUIDANCE "ON"

4 CHECK MAP DISC

(a) Check that the map disc is not deformed or cracked.
   OK: No deformations or cracks on map disc.

NG  REPLACE MAP DISC
5 CHECK RADIO RECEIVER

(a) Check that audio can be heard from the speakers.

**OK:** Audio can be heard.

**NG** Go to Audio and Visual System

**OK**

Proceed to next inspection procedure shown in problem symptoms table.
MAP Display Incomplete

INSPECTION PROCEDURE

1 CHECK MAP DISC

(a) Check that the map disc is not deformed or cracked.

OK: No deformations or cracks on map disc.

NG REPLACE MAP DISC

2 CHECK NAVIGATION DISPLAY

(a) Check that displays other than the navigation display are complete.

OK: No other incomplete displays are found.

NG PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE

OK

REPLACE NAVIGATION ECU
Route cannot be Calculated

INSPECTION PROCEDURE

1 CHECK MAP DISC
   (a) Check that the map disc is not deformed or cracked.
      OK: No deformations or cracks on map disc.
      NG REPLACE MAP DISC

2 SET DESTINATION
   (a) Set another destination and check if the system can calculate the route correctly.
      OK: Route can be correctly calculated.
      NG PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE

END
GYRO Error

INSPECTION PROCEDURE

1 CHECK VEHICLE SENSOR (NAVIGATION CHECK MODE)

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page NS-24).
(b) Check the gyro voltage.

Standard voltage: 0.5 to 4.5 V

NG REPLACE NAVIGATION ECU

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
## MAP Disc Read Error

### INSPECTION PROCEDURE

<table>
<thead>
<tr>
<th>Step</th>
<th>Task</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CHECK MAP DISC</td>
<td>(a) Check for dirt on the map disc surface.</td>
</tr>
<tr>
<td></td>
<td>OK</td>
<td><strong>OK:</strong> No dirt is on the map disc surface.</td>
</tr>
<tr>
<td></td>
<td>NG</td>
<td><strong>NOTICE:</strong> Do not use a conventional record cleaner or anti-static preservative.</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>HINT:</strong> If the disc is dirty, clean the disc by wiping the disc surface radially with a soft cloth.</td>
</tr>
<tr>
<td></td>
<td>CLEAN MAP DISC</td>
<td><strong>NG</strong> CHECK MAP DISC</td>
</tr>
<tr>
<td></td>
<td>OK</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>CHECK MAP DISC</td>
<td>(a) Check that the map disc is not deformed or cracked.</td>
</tr>
<tr>
<td></td>
<td>OK</td>
<td><strong>OK:</strong> No deformations or cracks appear on the map disc.</td>
</tr>
<tr>
<td></td>
<td>NG</td>
<td><strong>NG</strong> REPLACE MAP DISC</td>
</tr>
</tbody>
</table>

**PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE**
# Voice Recognition Difficulty

## INSPECTION PROCEDURE

### 1  CHECK CONDITION

(a) Check if the system's voice recognition level is low by using only one particular voice.

**OK:** System's voice recognition level is low with any voice.

**NG**

**SYSTEM'S VOICE RECOGNITION LEVEL VARIES DEPENDING ON VOICE AND PRONUNCIATION. THIS IS NOT A MALFUNCTION.**

### 2  CHECK MAP DISC

(a) Check that the map disc is not deformed or cracked.

**OK:** No deformations or cracks on map disc.

**NG**

**REPLACE MAP DISC**

### 3  CHECK MAP DISC

(a) Check for dirt on the map disc surface.

**OK:** No dirt is on map disc surface.

**NOTICE:**

Do not use a conventional record cleaner or anti-static preservative.

**HINT:**

If the disc is dirty, clean the disc by wiping the disc surface radially with a soft cloth.

**NG**

**CLEAN MAP DISC**
CHECK MICROPHONE (NAVIGATION CHECK MODE)

(a) Enter the "MICROPHONE & VOICE RECOGNITION CHECK" mode (see page NS-24).
(b) When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.
(c) Push the recording switch and perform voice recording. HINT: The recording limit is 5 seconds.
(d) Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

OK:
All check results are normal.

NG
PROCEED TO NEXT INSPECTION
PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE

END
Voice is not Recognized

INSPECTION PROCEDURE

1  CHECK NAVIGATION SETTINGS

(a) Enter the "Menu" screen by pressing the "MENU" switch.
(b) Select "Set up".

(c) Check that "Voice Recognition Guidance" is not OFF.
OK:
Voice Recognition Guidance is not OFF.

NG  TURN VOICE RECOGNITION GUIDANCE "ON"

OK

2  CHECK MAP DISC

(a) Check that the map disc is not deformed or cracked.
OK:
No deformations or cracks on map disc.

NG  REPLACE MAP DISC

OK
3 CHECK MAP DISC

(a) Check for dirt on the map disc surface.
   **OK:**
   - No dirt is on the map disc surface.
   **NOTICE:**
   - Do not use a conventional record cleaner or anti-static preservative.
   **HINT:**
   - If the disc is dirty, clean the disc by wiping the disc surface radially with a soft cloth.

4 CHECK MICROPHONE (NAVIGATION CHECK MODE)

(a) Enter the "MICROPHONE & VOICE RECOGNITION CHECK" mode (see page NS-24).
(b) When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.
(c) Push the recording switch and perform voice recording.
   **HINT:**
   - The recording limit is 5 seconds.
(d) Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.
   **OK:**
   - All check results are normal.
5 CHECK MICROPHONE (DISPLAY CHECK MODE)

(a) Enter the "MICROPHONE & VOICE RECOGNITION CHECK" mode (see page NS-18).
(b) When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.
(c) Push the recording switch and perform voice recording.
   HINT:
   The recording limit is 5 seconds.
(d) Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:**
All check results are normal.

**NG**
PROCEED TO NEXT INSPECTION
PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE

END
INSPECTION PROCEDURE

1 CHECK CURRENT CONDITION

(a) Check for Bluetooth capable cellular phones and vehicles in the area.

Result:

<table>
<thead>
<tr>
<th>Conditions</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Another Bluetooth compatible cellular phone is present</td>
<td>A</td>
</tr>
<tr>
<td>Another Bluetooth compatible vehicle is present</td>
<td>B</td>
</tr>
<tr>
<td>None of the above</td>
<td>C</td>
</tr>
</tbody>
</table>

B ➔ Go to step 3
C ➔ Go to step 4

2 CHECK USING ANOTHER CELLULAR PHONE

(a) Check if the system functions using another Bluetooth compatible cellular phone.

HINT:
- Confirm that either the same or a different version of another Bluetooth compatible cellular phone complies with the system.
- Depending on the version, some Bluetooth compatible cellular phones cannot be used.

OK: System functions.

NG ➔ REPLACE MULTI-DISPLAY

OK ➔ USE BLUETOOTH COMPATIBLE CELLULAR PHONE (DEPENDING ON THE VERSION)

3 CHECK USING ANOTHER BLUETOOTH CAPABLE VEHICLE

(a) Register the cellular phone with another vehicle and check if the system functions normally.

HINT:
Depending on the version, some Bluetooth compatible cellular phones cannot be used.

OK: System functions.

OK ➔ REPLACE MULTI-DISPLAY

Cellular Phone Registration Failure, Phone Directory Transfer Failure

Conditions Proceed to
Another Bluetooth compatible cellular phone is present A
Another Bluetooth compatible vehicle is present B
None of the above C

Go to step 3
Go to step 4
4 CHECK CELLULAR PHONE

(a) Check if the cellular phone is Bluetooth compatible.
HINT:
Some versions of Bluetooth compatible cellular phones may not function.
OK:
The phone is Bluetooth compatible.

5 CHECK CELLULAR PHONE

(a) Check if a call can be made from the cellular phone.
HINT:
When the battery is low, registration or directory transfer cannot be done.
OK:
A call can be made from the cellular phone.
## Cellular Phone cannot Send / Receive

### INSPECTION PROCEDURE

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CHECK BLUETOOTH SETTING</td>
</tr>
</tbody>
</table>

(a) Check if the Bluetooth settings are correct.

**OK:**
Bluetooth settings are correct.

**NG**
SET SETTINGS CORRECTLY

### CHECK CELLULAR PHONE

(a) Check if the cellular phone is Bluetooth compatible.

**HINT:**
Some versions of Bluetooth compatible cellular phones may not function.

**OK:**
Phone is Bluetooth compatible.

**NG**
END (ONLY A BLUETOOTH COMPATIBLE CELLULAR PHONE CAN BE USED)

### CHECK SETTING

(a) Check if the cellular phone functions.

**HINT:**
The cellular phone is unable to call under any of the following conditions.
- The cellular phone is locked.
- The directory is being transferred.
- The line is crossed.
- Transmission is regulated.
- The power is OFF.
- The cellular phone is not connected to Bluetooth ("Bluetooth mark" is displayed while connected).

**OK:**
Above conditions do not exist.

**NG**
SET CORRECTLY

### CHECK CELLULAR PHONE

(a) Check if the cellular phone can call.
### NAVIGATION – NAVIGATION SYSTEM

**HINT:**
When the battery is low, calls cannot be made or received.

**OK:**
Cellular phone can call.

<table>
<thead>
<tr>
<th>OK</th>
<th>REPLACE CELLULAR PHONE</th>
</tr>
</thead>
</table>

NG

**5** CHECK RECEPTION

(a) Set the cellular phone so that it can receive calls.
(b) Place the cellular phone close to the multi-display.
(c) Check if the cellular phone has reception according to the multi-display.

**OK:**
Cellular phone has reception.

<table>
<thead>
<tr>
<th>NG</th>
<th>REPLACE MULTI-DISPLAY</th>
</tr>
</thead>
</table>

OK

**PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE**
Cannot Call in a Certain Place

INSPECTION PROCEDURE

1 CHECK SURROUNDING CONDITION

(a) Check if the cellular phone can make calls in a certain location.
   OK: It can make calls.
   NG END (CELULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

2 CHECK RECEPTION

(a) Enter the "Information" screen by pressing the "INFO" switch.
(b) Select "Telephone".
(c) Check the "BT" mark.

Result

<table>
<thead>
<tr>
<th>Condition</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yellow color</td>
<td>A</td>
</tr>
<tr>
<td>Blue color</td>
<td>B</td>
</tr>
<tr>
<td>No connection mark is displayed</td>
<td>C</td>
</tr>
</tbody>
</table>

B REPLACE MULTI-DISPLAY

C SELECT A REGISTERED CELLULAR PHONE OR REGISTER A BLUETOOTH COMPATIBLE PHONE

BRING CELLULAR PHONE TO LOCATION WHERE THE BT MARK TURNS BLUE
The Other Caller's Voice cannot be Heard, is too Quiet, or Distorted

INSPECTION PROCEDURE

1 CHECK CELLULAR PHONE

(a) Check if the voice on the other side can be heard using a cellular phone.
OK: Voice can be heard.

NG REPAIR OR REPLACE CELLULAR PHONE

OK

2 CHECK NAVIGATION SYSTEM

(a) Check that voice guidance can be heard from the driver side speaker.
OK: Voice guidance can be heard.

NG GO TO "VOICE GUIDANCE DOES NOT FUNCTION" IN PROBLEM SYMPTOMS TABLE

OK

3 CHECK SETTINGS

(a) Check if the volume level is set to a low level on the CALL screen.
OK: The level is not low.

NG SET VOLUME TO HIGH

OK
4 CHECK SETTINGS

(a) Enter the "Handsfree Voice Quality Set" mode (see page NS-21).

(b) Check if the Receive Voice Level is set to "0".
   HINT:
   The Receive Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.

(c) Check if the Receive Voice Level is set to the minimum or maximum level.
   HINT:
   When the Receive Voice Level is set to the minimum or maximum level, the sound may be distorted.
   OK:
   The Receive Voice Level is set to "0".

NG SET RECEIVE VOICE LEVEL TO "0"

OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
The Other Caller cannot Hear Your Voice, or Your Voice is too Quiet or Distorted

INSPECTION PROCEDURE

1. CHECK CELLULAR PHONE
   (a) Check if the other side can hear your voice properly.
   OK:
   Your voice can be heard correctly.
   NG  REPLACE CELLULAR PHONE

2. CHECK SETTINGS
   (a) Check if the mute switch is set to ON.
   OK:
   Mute switch is not set to ON.
   NG  TURN MUTE SWITCH OFF

3. CHECK SETTINGS
   (a) Enter the "Handsfree Voice Quality Set" mode (see page NS-21).
   (b) Check if the Send Voice Level is set to "0".
   HINT:
   The Send Voice Level can be set to 11 different levels, -5 to +5, with a 3 dB difference.
   (c) Check if the Send Voice Level is set to the minimum or maximum level.
   HINT:
   When the Send Voice Level is set to the minimum or maximum level, the sound may be distorted.
   OK:
   The Send Voice Level is set to "0".
   NG  SET SEND VOICE LEVEL TO "0"
(a) Enter the "MICROPHONE & VOICE RECOGNITION CHECK" mode (see page NS-18).
(b) When a voice is input into the microphone, check that the microphone input level meter changes according to the input voice.
(c) Push the recording switch and perform voice recording. HINT: The recording limit is 5 seconds.
(d) Check that the recording indicator remains on while recording and that the recorded voice is played normally without noise or distortion.

**OK:** All check results are normal.

**NG** PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE

REPLACE MULTI-DISPLAY
Steering Pad Switch Circuit

DESCRIPTION
This circuit sends an operation signal from the steering pad switch to the radio receiver. If there is an open in the circuit, the navigation system cannot be operated using the steering pad switch. If there is a short in the circuit, the resulting condition is the same as if the switch were continuously depressed. Therefore, the navigation system cannot be operated using the steering pad switch, and the navigation system itself cannot function.

WIRING DIAGRAM

INSPECTION PROCEDURE
NOTICE:
The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the precautionary notice for the Supplemental Restraint System (see page RS-22).
1 INSPECT STEERING PAD SWITCH ASSEMBLY

(a) Disconnect the switch connector.
(b) Measure the resistance of the switch.

Standard resistance

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Condition</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>9 (AU2) - 8 (EAU)</td>
<td>No switch is pushed</td>
<td>100 kΩ or higher</td>
</tr>
<tr>
<td>9 (AU2) - 8 (EAU)</td>
<td>VOICE switch pushed</td>
<td>3,110 Ω</td>
</tr>
<tr>
<td>9 (AU2) - 8 (EAU)</td>
<td>OFF HOOK switch pushed</td>
<td>329 Ω</td>
</tr>
<tr>
<td>9 (AU2) - 8 (EAU)</td>
<td>ON HOOK switch pushed</td>
<td>1,000 Ω</td>
</tr>
<tr>
<td>3 (AC1) - 7 (EAC)</td>
<td>Not pushed</td>
<td>30 kΩ or higher</td>
</tr>
<tr>
<td>3 (AC1) - 7 (EAC)</td>
<td>INFO switch pushed</td>
<td>3,062 Ω</td>
</tr>
<tr>
<td>2 (AC2) - 7 (EAC)</td>
<td>Not pushed</td>
<td>30 kΩ or higher</td>
</tr>
<tr>
<td>2 (AC2) - 7 (EAC)</td>
<td>MAP switch pushed</td>
<td>3,062 Ω</td>
</tr>
</tbody>
</table>

NG REPLACE STEERING PAD SWITCH ASSEMBLY

OK
2 INSPECT SPIRAL CABLE

(a) Disconnect the cable connectors.
(b) Measure the resistance of the cable.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Spiral Cable Position</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>C12-4 (EAU) - 8 (EAU)</td>
<td>Center</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the right</td>
<td></td>
</tr>
<tr>
<td>C12-5 (AU2) - 9 (AU2)</td>
<td>Center</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the right</td>
<td></td>
</tr>
<tr>
<td>C12-3 (EAC) - 7 (EAC)</td>
<td>Center</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the right</td>
<td></td>
</tr>
<tr>
<td>C12-9 (AC2) - 2 (AC2)</td>
<td>Center</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the right</td>
<td></td>
</tr>
<tr>
<td>C12-10 (AC1) - 3 (AC1)</td>
<td>Center</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the right</td>
<td></td>
</tr>
</tbody>
</table>

**NOTICE:**
The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the page shown in the brackets (see page RS-22).

**OK**

**NG** REPLACE SPIRAL CABLE SUB-ASSEMBLY
3 CHECK WIRE HARNESS (SPIRAL CABLE - RADIO RECEIVER)

(a) Disconnect the R5 receiver connector.
(b) Disconnect the C12 cable connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R5-8 (SW2) - C12-5 (AU2)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>R5-6 (SWG) - C12-4 (EAU)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>R5-8 (SW2) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>R5-6 (SWG) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

**NG** REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

4 CHECK WIRE HARNESS (SPIRAL CABLE - AIR CONDITIONING AMPLIFIER)

(a) Disconnect the A7 amplifier connector.
(b) Disconnect the C12 cable connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>A7-2 (ST1) - C12-10 (AC1)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>A7-15 (SGST) - C12-3 (EAC)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>A7-1 (ST2) - C12-9 (AC2)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>A7-2 (ST1) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>A7-15 (SGST) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>A7-1 (ST2) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

**NG** REPAIR OR REPLACE HARNESS AND CONNECTOR
OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Illumination Circuit

DESCRIPTION
Power is supplied to the multi-display and steering pad switch illumination when the light control switch is in the TAIL or HEAD position.

WIRING DIAGRAM

INSPECTION PROCEDURE
NOTICE:
The vehicle is equipped with an SRS (Supplemental Restraint System) which includes components such as airbags. Before servicing (including removal or installation of parts), be sure to read the precautionary notice for the Supplemental Restraint System (see page RS-22).
### 1 CHECK WIRE HARNESS (SPIRAL CABLE - BATTERY)

(a) Disconnect the C12 cable connector.
(b) Measure the voltage of the wire harness side connector.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>Light control switch</td>
<td>TAIL or HEAD</td>
</tr>
<tr>
<td></td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

#### Standard voltage

- **NG** REPAIR OR REPLACE HARNESS AND CONNECTOR

#### Wire Harness Side

- **OK**

### 2 CHECK STEERING PAD SWITCH ASSEMBLY

(a) Disconnect the switch connector.
(b) Connect the positive (+) lead to terminal 5 (ILL+) and the negative (-) lead to terminal 8 (EAU) of the steering pad switch connector.
(c) Check if the illumination for the steering pad switch comes on.

**OK:**
- Illumination for the steering pad switch assembly comes on.

#### Steering Pad Switch Assembly

- **NG** REPLACE STEERING PAD SWITCH ASSEMBLY

- **OK**
## INSPECT SPIRAL CABLE

(a) Disconnect the cable connectors.
(b) Measure the resistance of the cable.

### Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Spiral Cable Position</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>C12-4 (EAU) - 8 (EAU)</td>
<td>Center</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the right</td>
<td></td>
</tr>
<tr>
<td>C12-12 (ILL+) - 5 (ILL+)</td>
<td>Center</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the left</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2.5 rotations to the right</td>
<td></td>
</tr>
</tbody>
</table>

**NOTICE:**
The spiral cable is an important part of the SRS airbag system. Incorrect removal or installation of the spiral cable may prevent the airbag from deploying. Be sure to read the page shown in the brackets (see page RS-22).

NG  REPLACE SPIRAL CABLE SUB-ASSEMBLY

**OK**
4  CHECK WIRE HARNESS (RADIO RECEIVER - SPIRAL CABLE AND BODY GROUND)

(a) Disconnect the R5 and R6 receiver connectors.
(b) Disconnect the C12 cable connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R5-6 (SWG) - C12-4 (EAU)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>R6-12 (ILL-) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG  REPAIR OR REPLACE HARNESS AND CONNECTOR

5  CHECK WIRE HARNESS (MULTI-DISPLAY - BATTERY AND BODY GROUND)

(a) Disconnect the M14 display connector.
(b) Measure the voltage and resistance of the wire harness side connector.

**Standard voltage**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14-11 (ILL+) - Body ground</td>
<td>Light control switch TAIL or HEAD</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14-12 (ILL-) - Body ground</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

NG  REPAIR OR REPLACE HARNESS AND CONNECTOR
OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
AVC-LAN Circuit

DESCRIPTION
Each unit of the navigation system connected to the AVC-LAN (communication bus) transfers the signal of each switch by communication. When a short to +B or short to ground occurs in this AVC-LAN, the navigation system will not function normally as the communication is discontinued.

INSPECTION PROCEDURE

1 CHECK RADIO RECEIVER ASSEMBLY

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

<table>
<thead>
<tr>
<th>Standard resistance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tester Connection</td>
</tr>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
</tr>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
</tr>
</tbody>
</table>

NG REPLACE RADIO RECEIVER ASSEMBLY

OK

2 CHECK WIRE HARNESS

HINT:
For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).
(a) Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.
   (1) Disconnect all connectors in all AVC-LAN circuits.
   (2) Check for an open or short in all AVC-LAN circuits.

OK:
There is no open or short circuit.
AVC-LAN Wiring Diagram

- Gateway ECU (Slave Unit)
- Multi-display (Master Unit)
- Navigation ECU (Slave Unit)
- Stereo Component Amplifier (Slave Unit)
- Radio Receiver (Slave Unit)

NG ➔ REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Vehicle Speed Signal Circuit between Navigation ECU and Combination Meter

DESCRIPTION
This circuit sends a speed signal from combination meter to the navigation ECU.

WIRING DIAGRAM

INSPECTION PROCEDURE

1 CHECK OPERATION OF SPEEDOMETER

(a) Drive the vehicle and check if the function of the speedometer in the combination meter is normal.
   OK:
   Actual vehicle speed and the speed indicated on the speedometer are the same.
   HINT:
The vehicle speed sensor is functioning normally when the indication on the speedometer is normal.

NG GO TO METER / GAUGE SYSTEM

OK
(a) Disconnect the N3 ECU connector.
(b) Disconnect the C10 meter connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3-4 (SPD) - C10-13</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

**NG** REPAIR OR REPLACE HARNESS AND CONNECTOR

**OK**

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Vehicle Speed Signal Circuit between Multi-display and Combination Meter

DESCRIPTION
The multi-display performs switch operation control during driving by receiving a vehicle speed signal from the combination meter.

WIRING DIAGRAM

![Wiring Diagram]

INSPECTION PROCEDURE

1. CHECK OPERATION OF SPEEDOMETER

   (a) Drive the vehicle and check if the function of the speedometer in the combination meter is normal.
     OK:
     Actual vehicle speed and the speed indicated on the speedometer are the same.
     HINT:
     The vehicle speed sensor is functioning normally when the indication on the speedometer is normal.

   NG ➜ GO TO METER / GAUGE SYSTEM

OK
2 CHECK WIRE HARNESS (COMBINATION METER - MULTI-DISPLAY)

(a) Disconnect the M13 display connector.
(b) Disconnect the C10 meter connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester connection</th>
<th>Specified condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13-20 (SPD) - C10-13</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

**NG** REPAIR OR REPLACE HARNESS AND CONNECTOR

**OK**

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Reverse Signal Circuit

DESCRIPTION
The navigation ECU receives a reverse signal from the BK/UP LP relay and information about the GPS antenna, and then adjusts vehicle position.

WIRING DIAGRAM

INSPECTION PROCEDURE

1 CHECK BACK-UP LIGHT

(a) Move the shift lever to the R position and check if the back-up lights turn on.
   OK:
   The back-up lights turn on.

   NG GO TO LIGHTING SYSTEM
2 CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)

(a) Enter the "Display Check" mode (Vehicle Signal Check Mode) (see page NS-18).
(b) Check that the display changes between ON and OFF according to the shift lever operation (P and R).

OK

HINT:
This display is updated once per seconds. As a result, it is normal for the display to lag behind the actual change in the switch.

OK > REPLACE NAVIGATION ECU

3 CHECK WIRE HARNESS (BK/UP LP RELAY - NAVIGATION ECU AND BODY GROUND)

(a) Disconnect the N3 ECU connector.
(b) Disconnect the 3H engine room relay block connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3-20 (REV) - 3H-8</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>N3-20 (REV) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

NG > REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
**Navigation Voice Speaker Circuit**

**DESCRIPTION**
This circuit is used when the voice guidance in the navigation system is on.

**WIRING DIAGRAM**

```
Stereo Component Amplifier

INT-  INT+

Navigation ECU

SLD1
VOI-  VOI+

Multi-display

IVO-  IVO+  SLD

IVO-  IVO+

Shielded

Shielded
```

E126488E01
# INSPECTION PROCEDURE

## 1 CHECK WIRE HARNESS (MULTI-DISPLAY - NAVIGATION ECU)

(a) Disconnect the M14 display connector.

(b) Disconnect the N3 ECU connector.

(c) Measure the resistance of the wire harness side connectors.

### Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3-8 (VOI-) - M14-6 (IVI-)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>N3-9 (VOI+) - M14-5 (IVI+)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>N3-8 (VOI-) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>N3-9 (VOI+) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

**NG** PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE

## 2 CHECK WIRE HARNESS (MULTI-DISPLAY - STEREO COMPONENT AMPLIFIER)

(a) Disconnect the M14 display connector.

(b) Disconnect the S15 amplifier connector.

(c) Measure the resistance of the wire harness side connectors.

### Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14-25 (IVO+) - S15-23 (INT+)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>M14-26 (IVO-) - S15-22 (INT-)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>M14-25 (IVO+) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>M14-26 (IVO-) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

**NG** REPAIR OR REPLACE HARNESS AND CONNECTOR
OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Display Signal Circuit between Navigation ECU and Multi-display

DESCRIPTION
This is the display signal circuit from the navigation ECU to the multi-display.

WIRING DIAGRAM

INSPECTION PROCEDURE

1. CHECK WIRE HARNESS (NAVIGATION ECU - MULTI-DISPLAY)

(a) Disconnect the N8 ECU connector.
(b) Disconnect the M16 display connector.
(c) Measure the resistance of the wire harness side connectors.

Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N8-1 (GVIF) - M16-1 (GVIF)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>N8-1 (GVIF) - Body ground</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

NG  REPAIR OR REPLACE HARNESS AND CONNECTOR

OK  PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
**Microphone Circuit between Overhead J/B and Multi-display**

**DESCRIPTION**
This circuit sends a microphone signal from the microphone to the multi-display. It also supplies power from multi-display to the microphone.

**WIRING DIAGRAM**

![Wiring Diagram](image)

**INSPECTION PROCEDURE**

1. **CHECK MULTI-DISPLAY (MACC VOLTAGE)**

   (a) Measure the voltage of the display.

   **Standard voltage**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14-4 (MACC) - Body ground</td>
<td>Power switch ON (ACC)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

   **NG** REPLACE MULTI-DISPLAY

   **OK**
(a) Disconnect the M14 display connector.
(b) Disconnect the O3 junction block connector.
(c) Measure the resistance of the wire harness side connectors.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14-4 (MACC) - O3-7 (ACC)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>M14-2 (MIN+) - O3-8 (MI1+)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>M14-3 (MIN-) - O3-9 (MIC-)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>M14-4 (MACC) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>M14-2 (MIN+) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>M14-3 (MIN-) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

**NG** REPAIR OR REPLACE HARNESS AND CONNECTOR

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Microphone Circuit between Multi-display and Navigation ECU

**DESCRIPTION**
This circuit sends a microphone signal from the multi-display to the navigation ECU.

**WIRING DIAGRAM**

![Wiring Diagram](image)

**INSPECTION PROCEDURE**

1. **CHECK WIRE HARNESS (MULTI-DISPLAY - NAVIGATION ECU)**

   (a) Disconnect the M14 display connector.
   (b) Disconnect the N4 ECU connector.
   (c) Measure the resistance of the wire harness side connectors.

   **Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M14-22 (MCO+) - N4-3 (MIC+)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>M14-23 (MCO-) - N4-5 (MIC-)</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>M14-22 (MCO+) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
<tr>
<td>M14-23 (MCO-) - Body ground</td>
<td>10 kΩ or higher</td>
</tr>
</tbody>
</table>

   **NG** REPAIR OR REPLACE HARNESS AND CONNECTOR
OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
Gateway ECU Communication Error

INSPECTION PROCEDURE

1 IDENTIFY COMPONENT SHOWN BY SUB-CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component shown by the sub-code.

HINT:
- "110 (multi-display)" is the component shown by the sub-code in the example shown in the illustration.
- The sub-code will be indicated by its physical address.
- For the component list, refer to "DIAGNOSIS DISPLAY DETAILED DESCRIPTION" (see page NS-27).

Component table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio receiver (190)</td>
<td>Radio receiver power source circuit (see page AV-171)</td>
</tr>
<tr>
<td>Stereo component amplifier (440)</td>
<td>Stereo component amplifier power source circuit (see page AV-173)</td>
</tr>
</tbody>
</table>
3 INSPECT RADIO RECEIVER ASSEMBLY

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

**Standard resistance**

- **Tester Connection** | **Specified Condition**
- R6-5 (TX+) - R6-15 (TX-) | 60 to 80 Ω
- R5-9 (TX+) - R5-10 (TX-) | 60 to 80 Ω

NG REPLACE RADIO RECEIVER ASSEMBLY

4 CHECK WIRE HARNESS (GATEWAY ECU - COMPONENT SHOWN BY SUB-CODE)

**HINT:**
- Start the check from the circuit that is near the component shown by the sub-code first.
- For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the gateway ECU and the component shown by the sub-code.

1) Disconnect all connectors between the gateway ECU and the component shown by sub-code.
2) Check for an open or short in the AVC-LAN circuit between the gateway ECU and the component shown by the sub-code.

**OK:** There is no open or short circuit.
OK

5 REPLACE COMPONENT SHOWN BY SUB-CODE

(a) Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

OK: Same problem does not occur.

NG REPLACE GATEWAY ECU

OK

END
Radio Receiver Communication Error

INSPECTION PROCEDURE

1 IDENTIFY COMPONENT SHOWN BY SUB-CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component shown by the sub-code.
   HINT:
   • "110 (multi-display)" is the component shown by the sub-code in the example shown in the illustration.
   • The sub-code will be indicated by its physical address.
   • For the component list, refer to "DIAGNOSIS DISPLAY DETAILED DESCRIPTION" (see page NS-27).

Component table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gateway ECU (1C6)</td>
<td>Gateway ECU power source circuit (see page AV-171)</td>
</tr>
<tr>
<td>Stereo component amplifier (440)</td>
<td>Stereo component amplifier power source circuit (see page AV-173)</td>
</tr>
</tbody>
</table>
3 INSPECT RADIO RECEIVER ASSEMBLY

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
</tbody>
</table>

**OK**

4 CHECK WIRE HARNESS (RADIO RECEIVER - COMPONENT SHOWN BY SUB-CODE)

**HINT:**
- Start the check from the circuit that is near the component shown by the sub-code first.
- For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the radio receiver and the component shown by the sub-code.

1. Disconnect all connectors between the radio receiver and the component shown by sub-code.
2. Check for an open or short in the AVC-LAN circuit between the radio receiver and the component shown by the sub-code.

**OK:**
- There is no open or short circuit.
(a) Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

**OK:**
Same problem does not occur.

**NG**
REPLACE RADIO RECEIVER ASSEMBLY

**OK**
Stereo Component Amplifier Communication Error

INSPECTION PROCEDURE

1 IDENTIFY COMPONENT SHOWN BY SUB-CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component shown by the sub-code.

HINT:
- "110 (multi-display)" is the component shown by the sub-code in the example shown in the illustration.
- The sub-code will be indicated by its physical address.
- For the component list, refer to "DIAGNOSIS DISPLAY DETAILED DESCRIPTION" (see page NS-27).

Component table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio receiver (190)</td>
<td>Radio receiver power source circuit (see page AV-171)</td>
</tr>
<tr>
<td>Gateway ECU (1C6)</td>
<td>Gateway ECU power source circuit (see page AV-173)</td>
</tr>
</tbody>
</table>

2 CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

(a) Inspect the power source circuit of the component shown by the sub-code.

If the power source circuit is operating normally, proceed to the next step.
3 INSPECT RADIO RECEIVER ASSEMBLY

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
</tbody>
</table>

**OK**

4 CHECK WIRE HARNESS (STEREO COMPONENT AMPLIFIER - COMPONENT SHOWN BY SUB-CODE)

**HINT:**
- Start the check from the circuit that is near the component shown by the sub-code first.
- For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the stereo component amplifier and the component shown by the sub-code.

(1) Disconnect all connectors between the stereo component amplifier and the component shown by sub-code.
(2) Check for an open or short in the AVC-LAN circuit between the stereo component amplifier and the component shown by the sub-code.

**OK:**

There is no open or short circuit.
AVC-LAN Wiring Diagram

5 REPLACE COMPONENT SHOWN BY SUB-CODE

(a) Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

OK: Same problem does not occur.

NG REPLACE STEREO COMPONENT AMPLIFIER

END
Multi-display Communication Error

INSPECTION PROCEDURE

1 IDENTIFY COMPONENT SHOWN BY SUB-CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component shown by the sub-code.

HINT:
- "110 (multi-display)" is the component shown by the sub-code in the example shown in the illustration.
- The sub-code will be indicated by its physical address.
- For the component list, refer to "DIAGNOSIS DISPLAY DETAILED DESCRIPTION" (see page NS-27).

Example

Component table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio receiver (190)</td>
<td>Radio receiver power source circuit (see page AV-171)</td>
</tr>
<tr>
<td>Stereo component amplifier (440)</td>
<td>Stereo component amplifier power source circuit (see page AV-173)</td>
</tr>
</tbody>
</table>
3 CHECK RADIO RECEIVER ASSEMBLY

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
</tbody>
</table>

NG REPLACE RADIO RECEIVER ASSEMBLY

OK

4 CHECK WIRE HARNESS (MULTI-DISPLAY - COMPONENT SHOWN BY SUB-CODE)

HINT:
- Start the check from the circuit that is near the component shown by the sub-code first.
- For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the multi-display and the component shown by the sub-code.

(1) Disconnect all connectors between the multi-display and the component shown by sub-code.
(2) Check for an open or short in the AVC-LAN circuit between the multi-display and the component shown by the sub-code.

OK:
There is no open or short circuit.
5 REPLACE COMPONENT SHOWN BY SUB-CODE

(a) Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

OK: Same problem does not occur.
Navigation ECU Communication Error

INSPECTION PROCEDURE

1 IDENTIFY COMPONENT SHOWN BY SUB-CODE

(a) Enter the diagnostic mode.
(b) Press the "LAN Mon" switch to change to "LAN Monitor" mode.
(c) Identify the component shown by the sub-code.

HINT:
- "110 (multi-display)" is the component shown by the sub-code in the example shown in the illustration.
- The sub-code will be indicated by its physical address.
- For the component list, refer to "DIAGNOSIS DISPLAY DETAILED DESCRIPTION" (see page NS-27).

Example

Component table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Proceed to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio receiver (190)</td>
<td>Radio receiver power source circuit (see page AV-171)</td>
</tr>
<tr>
<td>Stereo component amplifier (440)</td>
<td>Stereo component amplifier power source circuit (see page AV-173)</td>
</tr>
</tbody>
</table>

2 CHECK POWER SOURCE CIRCUIT OF COMPONENT SHOWN BY SUB-CODE

(a) Inspect the power source circuit of the component shown by the sub-code.

If the power source circuit is operating normally, proceed to the next step.
### 3 INSPECT RADIO RECEIVER ASSEMBLY

(a) Disconnect the R5 and R6 receiver connectors.
(b) Measure the resistance of the receiver.

#### Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>R6-5 (TX+) - R6-15 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
<tr>
<td>R5-9 (TX+) - R5-10 (TX-)</td>
<td>60 to 80 Ω</td>
</tr>
</tbody>
</table>

- **OK**: There is no open or short circuit.
- **NG**: REPLACE RADIO RECEIVER ASSEMBLY

### 4 CHECK WIRE HARNESS (NAVIGATION ECU - COMPONENT SHOWN BY SUB-CODE)

**HINT:**
- Start the check from the circuit that is near the component shown by the sub-code first.
- For details of the connectors, refer to "TERMINALS OF ECU" (see page NS-40).

(a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the navigation ECU and the component shown by the sub-code.
   (1) Disconnect all connectors between the navigation ECU and the component shown by sub-code.
   (2) Check for an open or short in the AVC-LAN circuit between the navigation ECU and the component shown by the sub-code.

- **OK:** There is no open or short circuit.
5 REPLACE COMPONENT SHOWN BY SUB-CODE

(a) Replace the component shown by the sub-code with a normal one and check if the same problem occurs again.

OK:
Same problem does not occur.

NG REPLACE NAVIGATION ECU
Multi-display Power Source Circuit

DESCRIPTION
The circuit provides power to the multi-display.

WIRING DIAGRAM

![Wiring Diagram](image)

INSPECTION PROCEDURE

1. **INSPECT FUSE (ACC, ECU-B, ECU-IG)**

(a) Disconnect the ACC, ECU-B and ECU-IG fuses from the driver side junction block.
(b) Measure the resistance of the fuses.

**Standard resistance:**
Below 1 Ω

NG > REPLACE FUSE
### 2 CHECK WIRE HARNESS (MULTI-DISPLAY - BATTERY AND BODY GROUND)

(a) Disconnect the M13 display connector.
(b) Measure the resistance and voltage of the wire harness side connector.

#### Standard resistance

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13-1 (GND1) - Body ground</td>
<td>Below 1 Ω</td>
</tr>
</tbody>
</table>

#### Standard voltage

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>M13-3 (+B1) - Body ground</td>
<td>Always</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>M13-2 (ACC) - Body ground</td>
<td>Power switch ON (ACC)</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>M13-10 (IG) - Body ground</td>
<td>Power switch ON (IG)</td>
<td>10 to 14 V</td>
</tr>
</tbody>
</table>

### OK

**PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE**
**Navigation ECU Power Source Circuit**

**DESCRIPTION**
This is the power source circuit to operate the navigation ECU.

**WIRING DIAGRAM**

**INSPECTION PROCEDURE**

1. **INSPECT FUSE (DOME, ACC)**
   
   (a) Disconnect the DOME fuse from the engine room junction block.
   (b) Disconnect the ACC fuse from the driver side junction block.
   (c) Measure the resistance of the fuses.
      
       **Standard resistance:**
       Below 1 Ω

   **NG**  **REPLACE FUSE**

**OK**
2 CHECK WIRE HARNESS (NAVIGATION ECU - BATTERY AND BODY GROUND)

(a) Disconnect the N3 ECU connector.
(b) Measure the voltage and resistance of the wire harness side connector.

**Standard voltage**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Condition</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3-1 (+B) - Body ground</td>
<td>Always</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>N3-13 (ACC) - Body</td>
<td>Power switch ON (ACC)</td>
<td>10 to 14 V</td>
</tr>
<tr>
<td>ground</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Standard resistance**

<table>
<thead>
<tr>
<th>Tester Connection</th>
<th>Specified Condition</th>
</tr>
</thead>
<tbody>
<tr>
<td>N3-15 (GND1) - Body</td>
<td>Below 1 Ω</td>
</tr>
<tr>
<td>ground</td>
<td></td>
</tr>
</tbody>
</table>

NG REPAIR OR REPLACE HARNESS AND CONNECTOR

OK

PROCEED TO NEXT INSPECTION PROCEDURE SHOWN IN PROBLEM SYMPTOMS TABLE
MULTI-DISPLAY

COMPONENTS

MULTI-DISPLAY ASSEMBLY

NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY

NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY
REMOVAL
1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
   CAUTION:
   Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. REMOVE NO. 3 INSTRUMENT PANEL REGISTER ASSEMBLY (See page IP-6)

3. REMOVE NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY (See page IP-6)

4. REMOVE MULTI-DISPLAY ASSEMBLY
   (a) Remove the 2 bolts.
   (b) Disconnect the connector and remove the multi-display.

INSTALLATION
1. INSTALL MULTI-DISPLAY ASSEMBLY
   (a) Connect the connector and install the multi-display.
   (b) Install the 2 bolts.

2. INSTALL NO. 4 INSTRUMENT PANEL REGISTER ASSEMBLY (See page IP-12)

3. INSTALL NO. 2 INSTRUMENT PANEL REGISTER ASSEMBLY (See page IP-13)

4. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

5. PERFORM INITIALIZATION
   (a) Perform initialization (see page IN-32).
   NOTICE:
   Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.
REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
   CAUTION: Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. REMOVE FRONT SEAT ASSEMBLY LH (See page SE-4)

3. REMOVE NAVIGATION ECU COVER
   (a) Detach the 2 clips and remove the navigation ECU cover.

4. REMOVE NAVIGATION ECU WITH BRACKET
   (a) Disconnect the connector.
   (b) Remove the 3 bolts and navigation ECU with bracket.

5. REMOVE NO. 1 DISC PLAYER BRACKET
   (a) Remove the 2 bolts and disc player bracket.

6. REMOVE NO. 2 DISC PLAYER BRACKET
   (a) Remove the 2 bolts and No. 2 disc player bracket.
INSTALLATION

1. INSTALL NO. 2 DISC PLAYER BRACKET
   (a) Install the bracket with the 2 bolts.

2. INSTALL NO. 1 DISC PLAYER BRACKET
   (a) Install the bracket with the 2 bolts.

3. INSTALL NAVIGATION ECU WITH BRACKET
   (a) Install the navigation ECU with the 3 bolts.
   (b) Connect the connector.

4. INSTALL NAVIGATION ECU COVER
   (a) Install the cover and attach the 2 clips.

5. INSTALL FRONT SEAT ASSEMBLY LH (See page SE-10)

6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

7. PERFORM INITIALIZATION
   (a) Perform initialization (see page IN-32).

   NOTICE:
   Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (−) battery terminal.
NAVIGATION ANTENNA

COMPONENTS

NAVIGATION ANTENNA ASSEMBLY
REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL
   CAUTION:
   Wait at least 90 seconds after disconnecting the cable from the negative (-) battery terminal to prevent airbag and seat belt pretensioner activation.

2. REMOVE INSTRUMENT PANEL SUB-ASSEMBLY
   (a) Remove the instrument panel (see page IP-5).

3. REMOVE NAVIGATION ANTENNA ASSEMBLY
   (a) Remove the 2 screws and detach the 3 clamps to remove the navigation antenna.

INSTALLATION

1. INSTALL NAVIGATION ANTENNA ASSEMBLY
   (a) Install the navigation antenna with the 2 screws and attach the 3 clamps.

2. INSTALL INSTRUMENT PANEL SUB-ASSEMBLY
   (a) Install the instrument panel (see page IP-11).

3. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

4. PERFORM INITIALIZATION
   (a) Perform initialization (see page IN-32).
   NOTICE:
   Certain systems need to be initialized after disconnecting and reconnecting the cable from the negative (-) battery terminal.