

NAVIGATION SYSTEM

PRECAUTION

1. INITIALIZATION

NOTICE:

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

System Name	See procedure
Power Window Control	IN-29
Sliding Roof System	

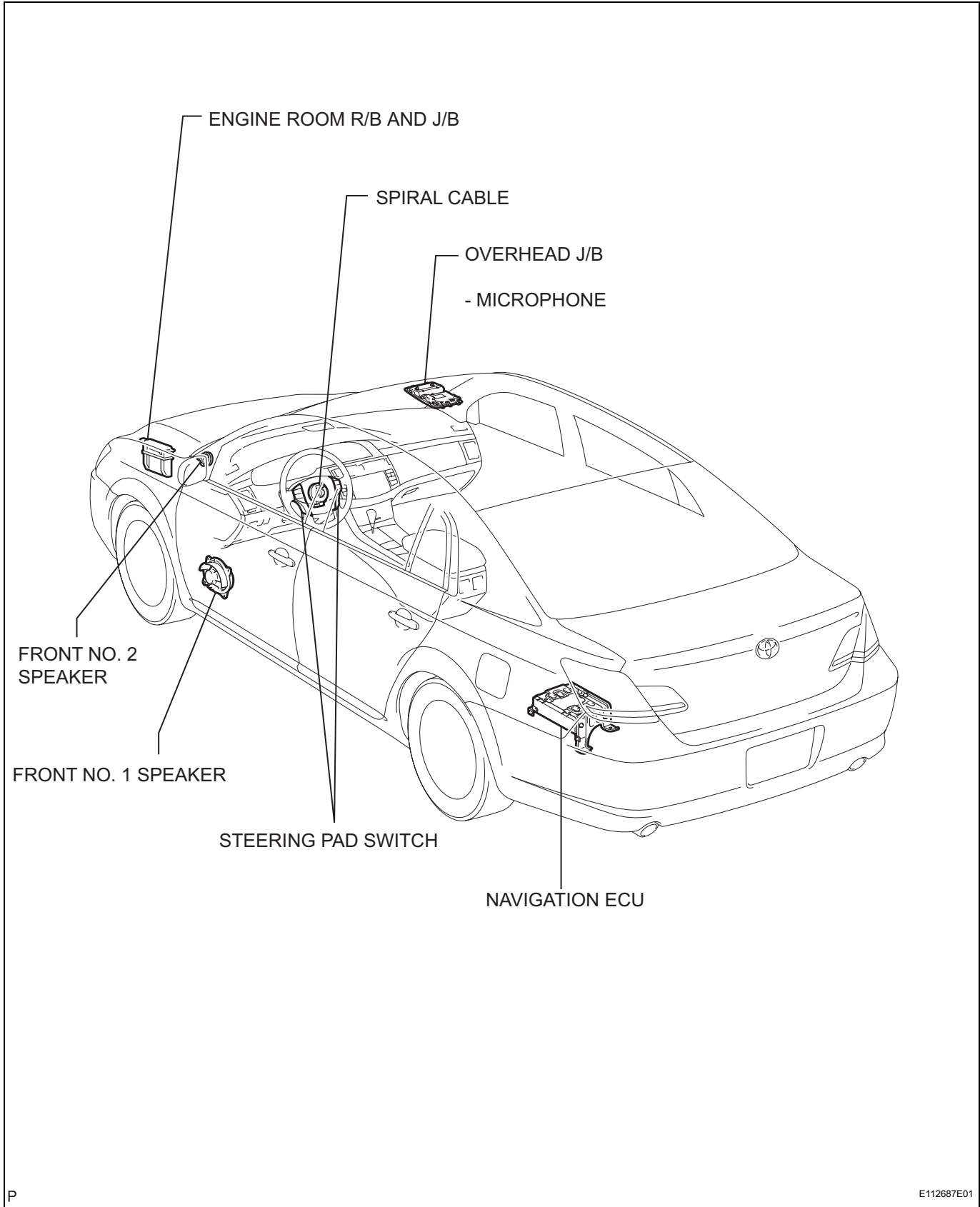
2. EXPRESSIONS OF IGNITION SWITCH

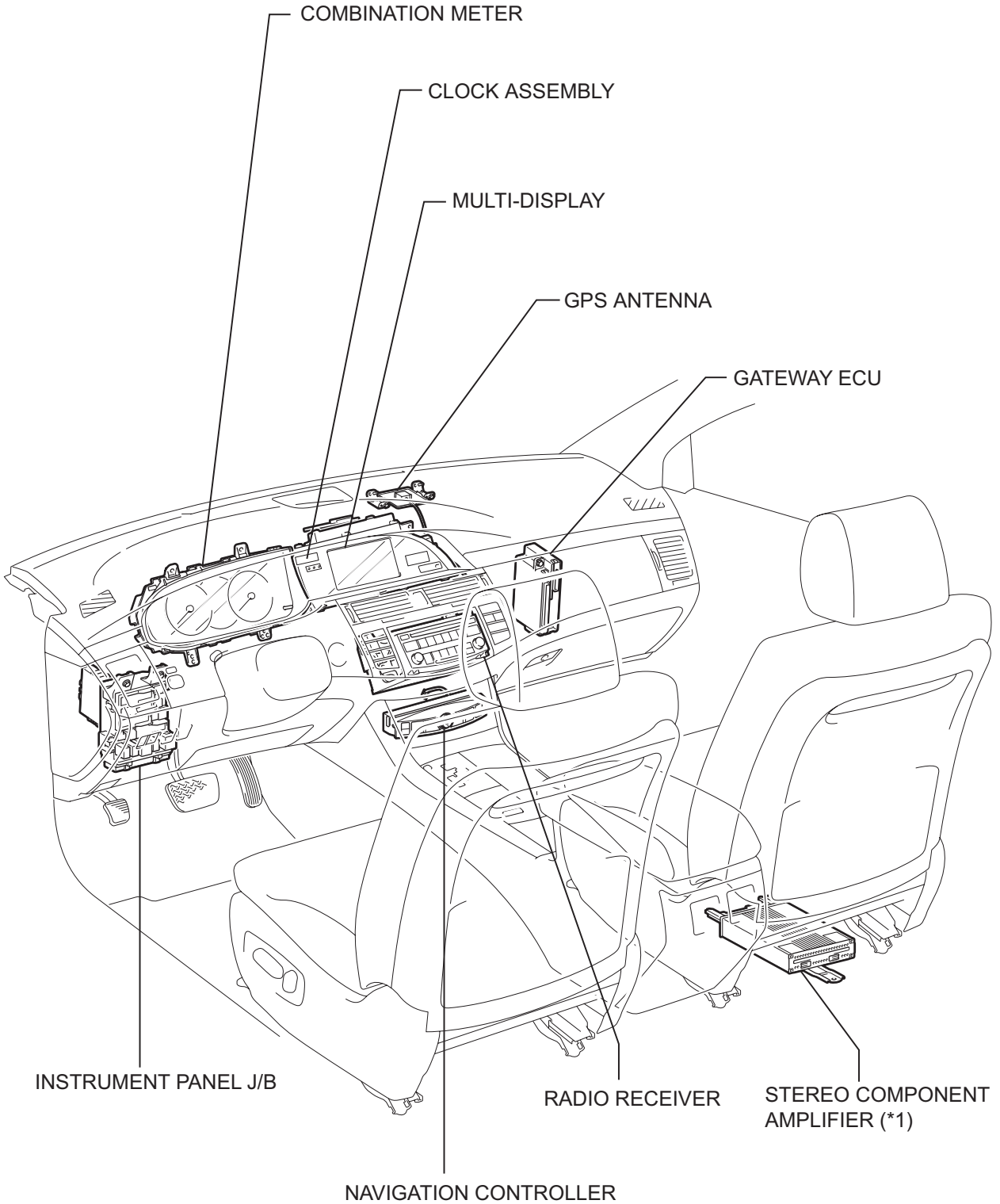
The type of ignition switch used on this model differs according to the specifications of the vehicle.

The expressions listed in the table below are used in this section.

Expression	Switch Type	
	Ignition Switch (position)	Engine Switch (condition)
Ignition Switch off	LOCK	Off
Ignition Switch on (IG)	ON	On (IG)
Ignition Switch on (ACC)	ACC	On (ACC)
Engine Start	START	Start

PARTS LOCATION

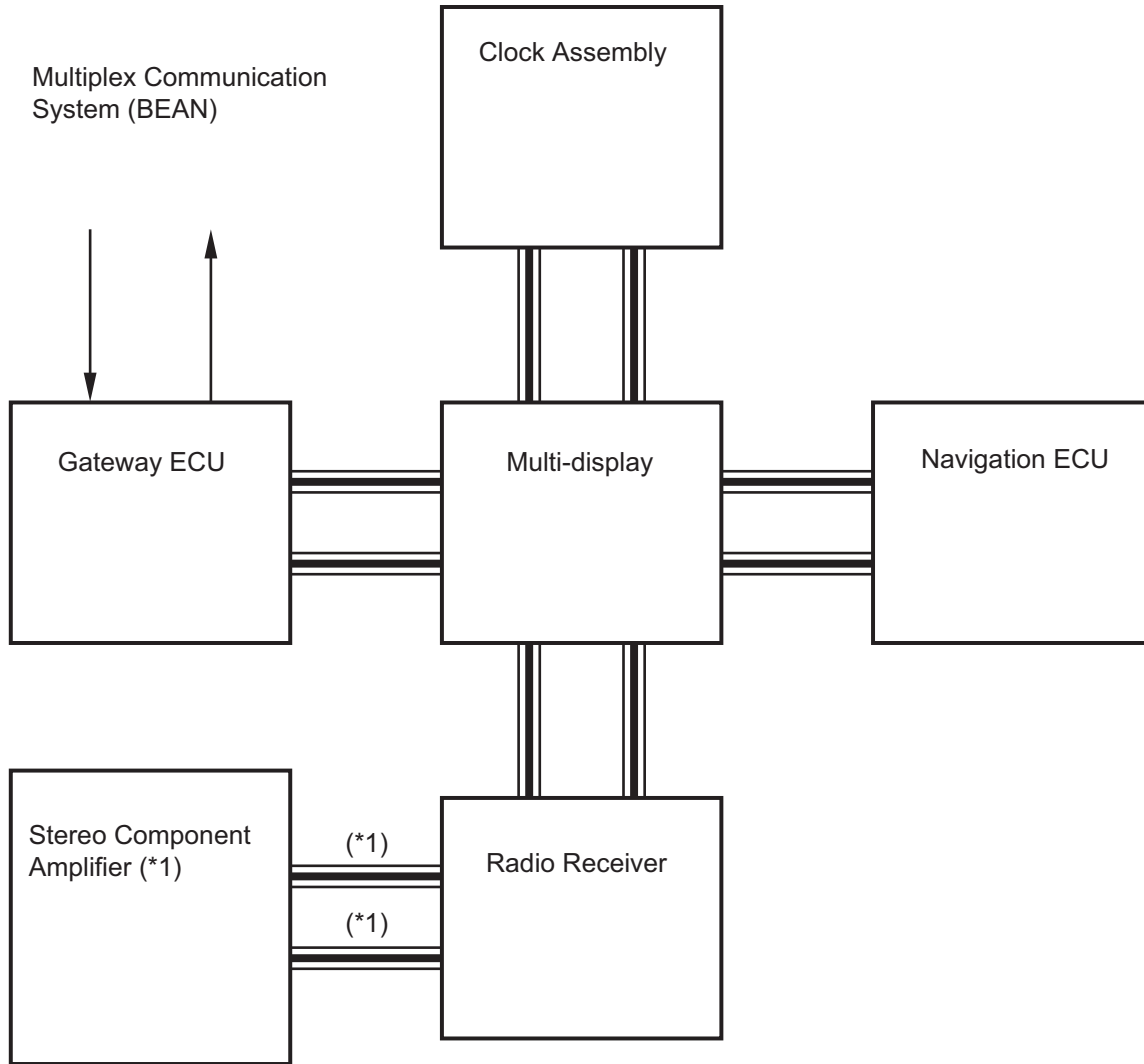




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*1: 12 Speaker System

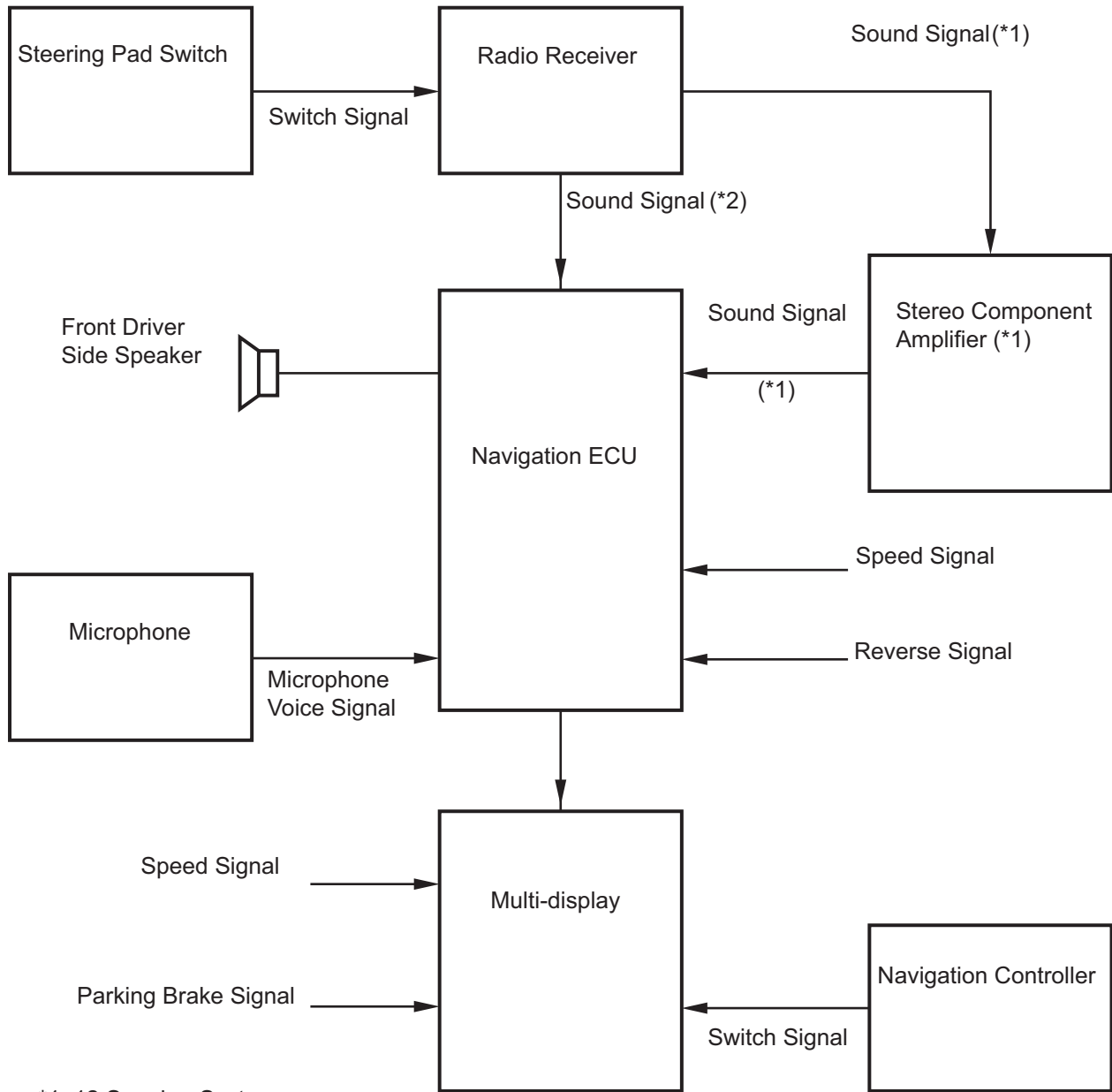
SYSTEM DIAGRAM



==== : AVC-LAN

*1: 12 Speaker System

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*1: 12 Speaker System

*2: 9 Speaker System

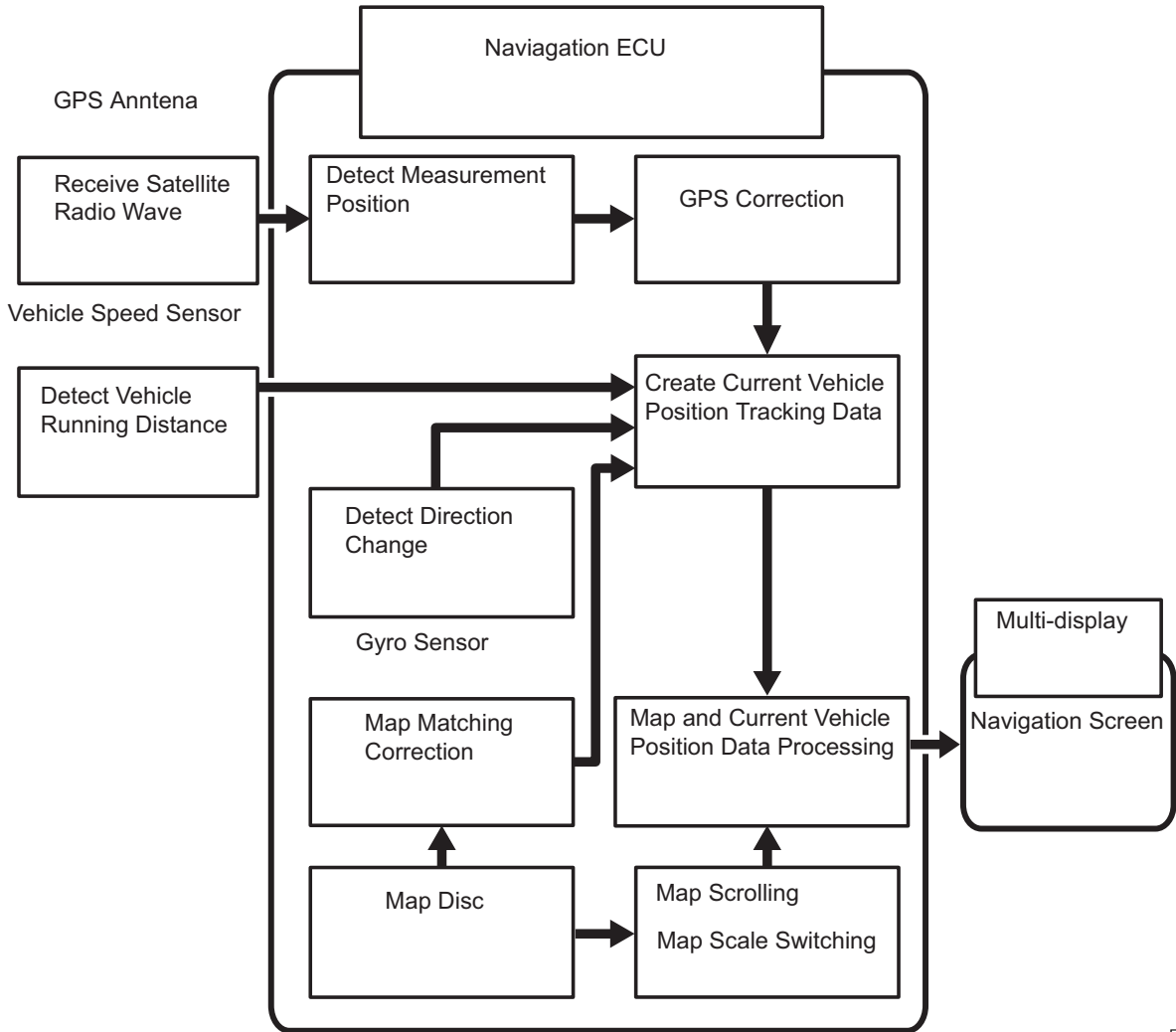
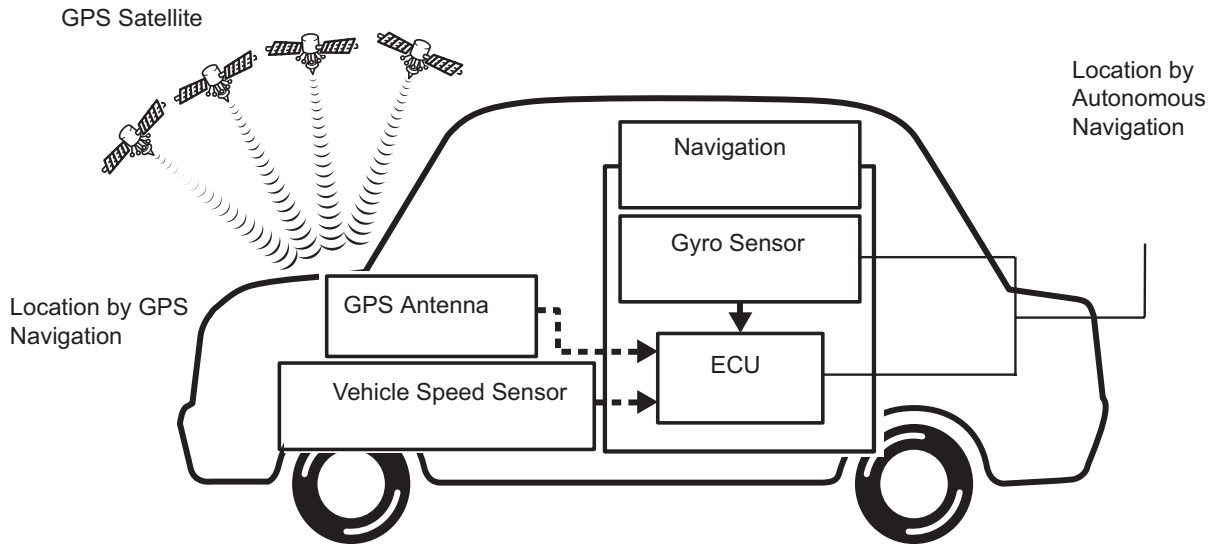
SYSTEM DESCRIPTION

1. Navigation system outline

(a) Vehicle position tracking methods

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.

* GPS (Global Positioning System)



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Operation	Description
Vehicle Position Calculation	The navigation ECU calculates the current vehicle position (direction and current position) using the direction deviation signal from the gyro sensor and the running distance signal from the vehicle speed sensor and creates the driving route.
Map Display Processing	The navigation ECU displays the vehicle track on the map by processing the vehicle position data, vehicle running track, and map data from the map disc.

Operation	Description
Map Matching	The map data from the map disc is compared to the vehicle position and running track data. Then, the vehicle position is matched with the nearest road.
GPS Correction	The vehicle position is matched to the position measured by GPS. Then, the measurement position data from the GPS unit is compared with the vehicle position and running track data. If the position is widely different, the GPS measurement position is used.
Distance Correction	The running distance signal from the vehicle speed sensor includes the error caused by tire wear and slippage between the tires and road surface. Distance correction is performed to account for this. The navigation ECU automatically offsets the running distance signal to make up for the difference between it and the distance data of the map. The offset is automatically updated.

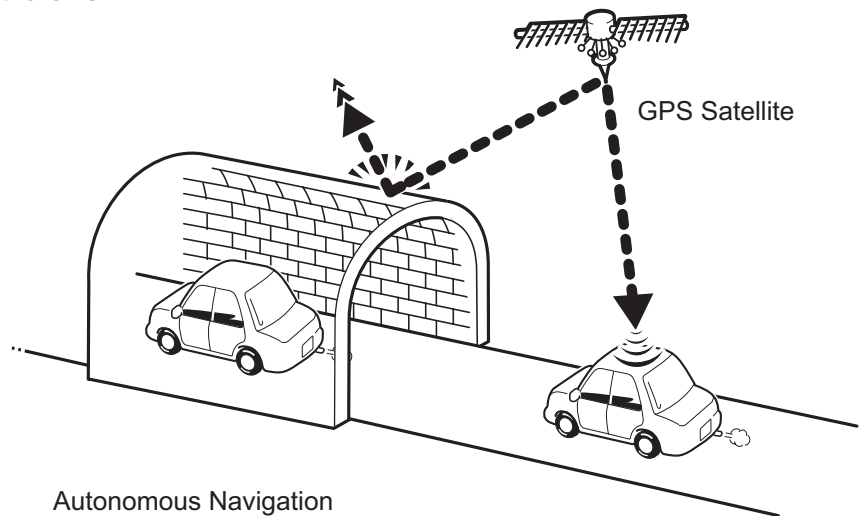
HINT:

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.

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Navigation is performed even where the GPS radio wave does not reach.

- In a tunnel
- In an indoor parking lot
- Between tall buildings
- Under an overpass
- On a forest or tree-lined path

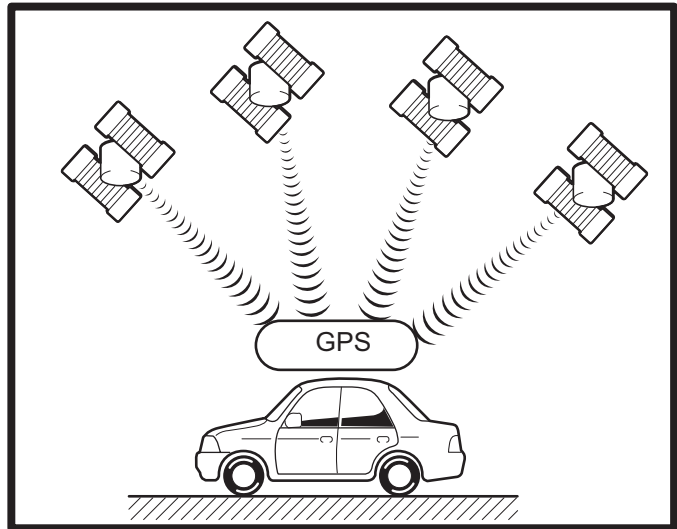
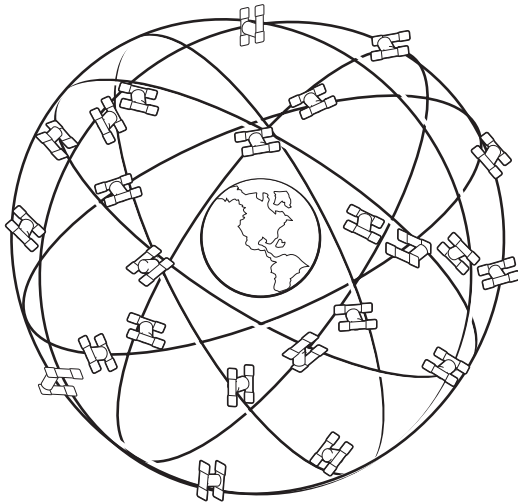


Autonomous Navigation

Autonomous Navigation and GPS Wave Navigation

- (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.
* GPS satellites were launched by the U.S. Department of Defence for military purposes.

Current longitude/latitude/altitude is determined using the radio wave arrival time from four satellites.



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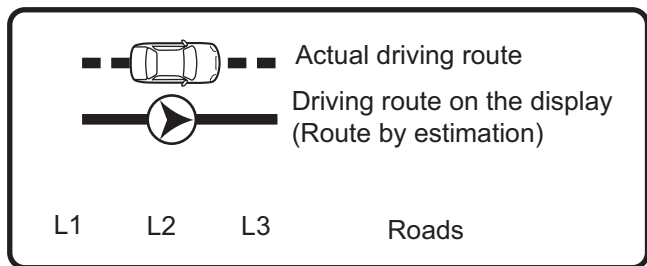
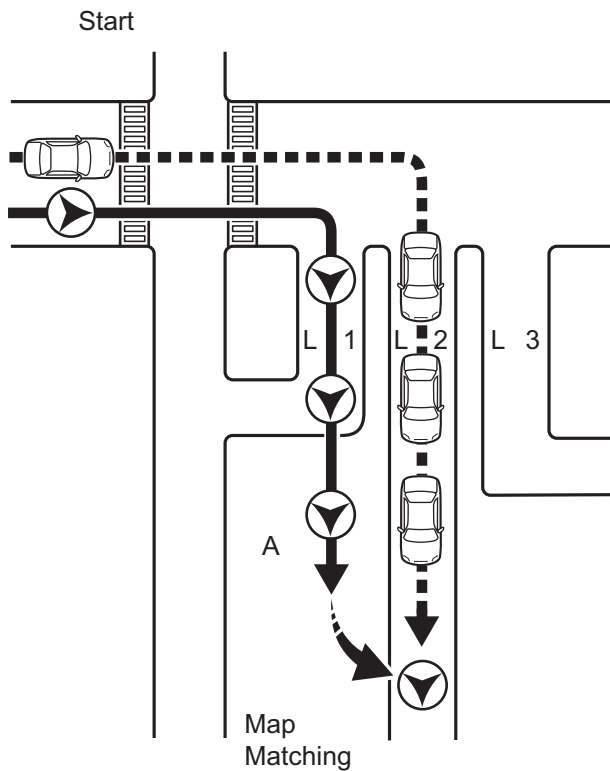
I100029E03

Number of satellites	Measurement	Description
2 or less	Measurement impossible	Vehicle position cannot be obtained because the number of satellites is not enough.
3	2-dimensional measurement is possible	Vehicle position is obtained based on the current longitude and latitude. (This is less precise than 3-dimensional measurement.)
4	3-dimensional measurement is possible	Vehicle position is obtained based on the current longitude, latitude and altitude.

(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.

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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. 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.

HINT:

- 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.

CAUTION:

Do not look directly at the laser pickup because the navigation system uses an invisible laser beam.

Be sure to only operate the navigation system as instructed.

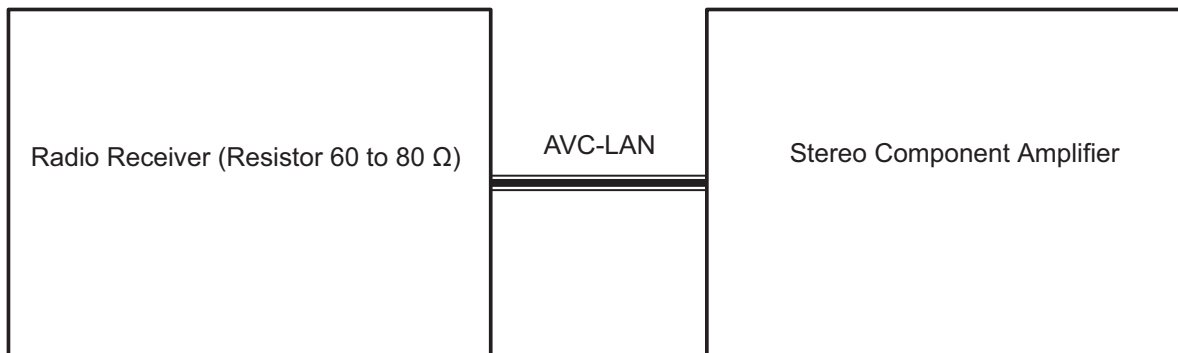
3. AVC-LAN Description

- (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.

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Example:



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I100032E09

- (b) Purpose:

Recently, car audio systems have rapidly developed and the functions have vastly changed. The conventional car audio system is being integrated with multi-media 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 through 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 to +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 radio and navigation assembly is equipped, it is the master unit.

- The radio receiver provides resistance to make communication possible.
- The car audio system with an AVC-LAN circuit has a diagnostic function.
- Each component has a specified number (3-digit) called a physical address. Each function has a number (2-digit) called a logical address.

4. Communication system outline

- (a) Components of the navigation system communicate with each other via the AVC-LAN.
- (b) The radio receiver has enough resistance (60 to 80 Ω) necessary 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.

5. Diagnostic function outline

- (a) The audio 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

1 VEHICLE BROUGHT INTO A WORKSHOP

NEXT

2 DIAGNOSTIC QUESTIONING AND SYMPTOM CONFIRMATION

(a) Ask the customer about symptoms and confirm malfunctions.



THE SCREEN DISPLAYS NOTHING (GO TO STEP 7, AND PROCEED TO "No Image Appears on Multi-display")



OTHER SYMPTOMS (GO TO STEP 3)

3 CHECK MULTIPLEX COMMUNICATION SYSTEM (BEAN)

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(a) Use the intelligent tester to check for normal function of the body multiplex communication system.



A CODE IS OUTPUT (PROCEED TO "BODY MULTIPLEX COMMUNICATION SYSTEM")



A CODE IS NOT OUTPUT (GO TO STEP 4)

4 CONFIRM THE SYSTEM NORMAL CONDITION



APPLICABLE (THIS IS NOT A MALFUNCTION)



NOT APPLICABLE (GO TO STEP 5)

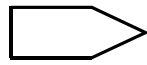
5 CHECK THE DIAGNOSTIC TROUBLE CODES

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 diagnostic trouble codes. This is because the system stores past diagnostic trouble codes.
- Check and clear past diagnostic trouble codes. Check the diagnostic trouble code and inspect the area the code indicates.



A CODE IS OUTPUT (GO TO STEP 6)

**A CODE IS NOT OUTPUT (GO TO STEP 7)****6 DIAGNOSTIC TROUBLE CODE CHART**

- (a) Find the output code on the diagnostic trouble code chart.

**GO TO STEP 9****7 PROBLEM SYMPTOMS TABLE**

- (a) Find the applicable symptom code in the problem symptoms table.
HINT:
If the symptom does not recur and no code is output, perform the symptom reproduction method (See page [IN-36](#)).

**THERE IS AN APPLICABLE SYMPTOM CODE IN THE TABLE (GO TO STEP 9)****THERE IS NO APPLICABLE SYMPTOM CODE IN THE TABLE (GO TO STEP 8)****8 CHECK THE ECU TERMINAL ARRANGEMENT BASED ON THE MALFUNCTION SYMPTOM****NEXT****9 CHECK THE CIRCUIT**

- (a) Adjust, repair or replace as necessary.

NEXT**10 RECHECK THE DIAGNOSTIC TROUBLE CODE**

- HINT:
After deleting the DTC, recheck for diagnostic trouble codes.

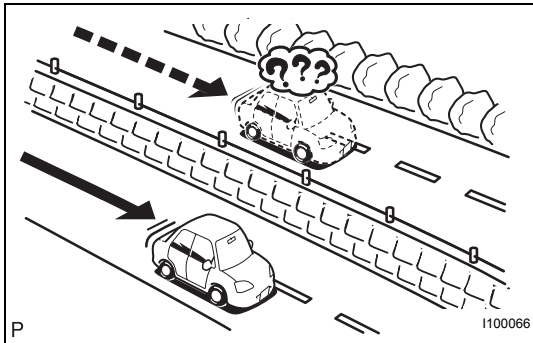
NEXT**11 PERFORM CONFIRMATION TEST****NEXT****END**

SYSTEM NORMAL CONDITION CHECK

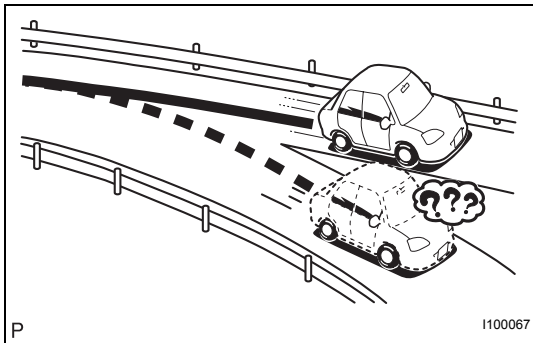
1. CHECK NORMAL CONDITION

- (a) If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

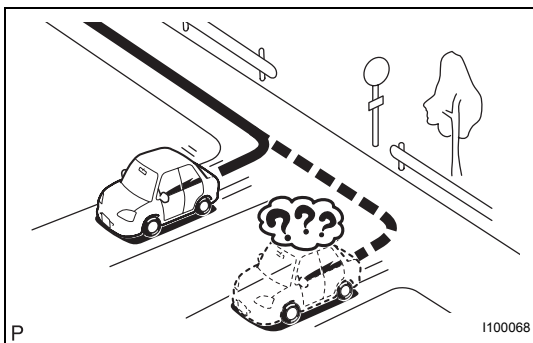
Symptom	Answer
A longer route than expected is chosen.	Depending on the road conditions, the navigation ECU may determine that a longer route is quicker.
Even when distance priority is high, the shortest route is not shown.	Some paths may not be advised due to safety concerns.
When the vehicle is put into motion immediately after the engine starts, the navigation system deviates from the actual position.	If the vehicle starts before the navigation system activates, the system may not react.
When running on certain types of roads, especially new roads, the vehicle position deviates from the actual position.	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.



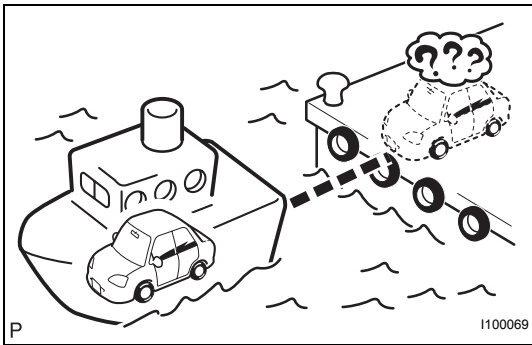
- (b) The following symptoms are not a malfunction, but are caused by errors inherent in the GPS, gyro sensor, speed sensor, and navigation ECU.
- (1) The current position mark may be displayed on a nearby parallel road.



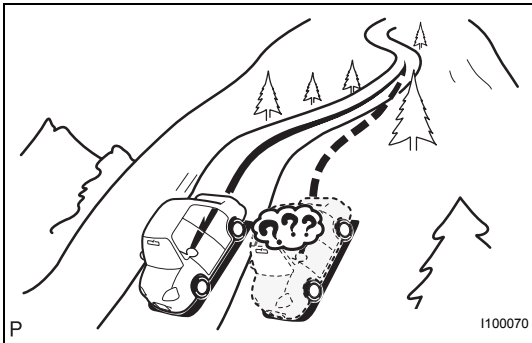
- (2) Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



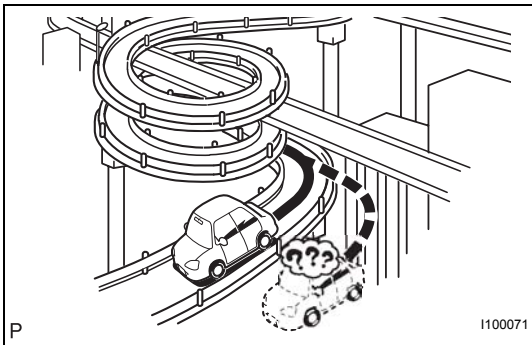
- (3) When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



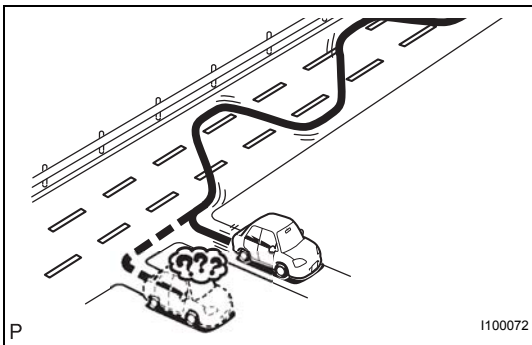
- (4) When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



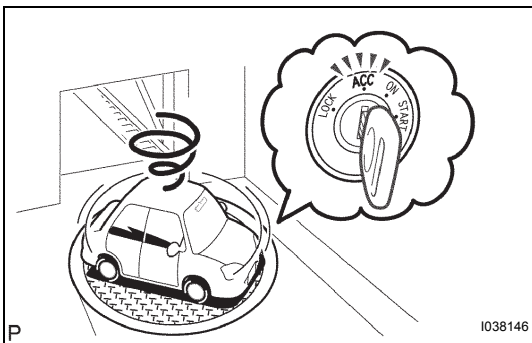
- (5) When the vehicle runs on a steep hill, the current vehicle position mark may deviate from the correct position.



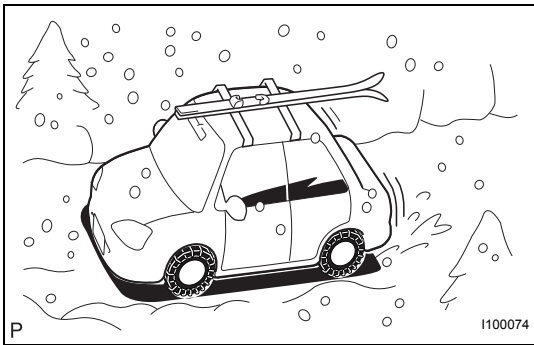
- (6) When the vehicle makes a continuous turn of 360, 720, 1,080, etc. degrees, the current vehicle position mark may deviate from the correct position.



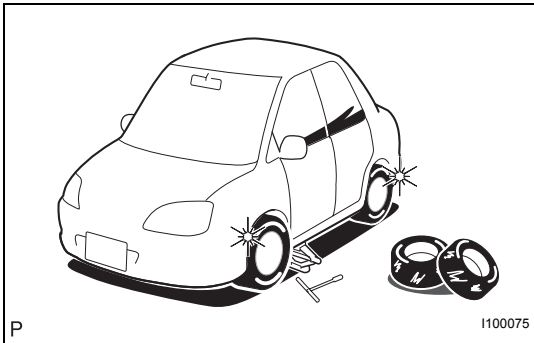
- (7) When the vehicle moves erratically, such as constant lane changes, the current vehicle position mark may deviate from the correct position.



- (8) When the ignition switch is turned on (ACC or IG) 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 the 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:

- 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.

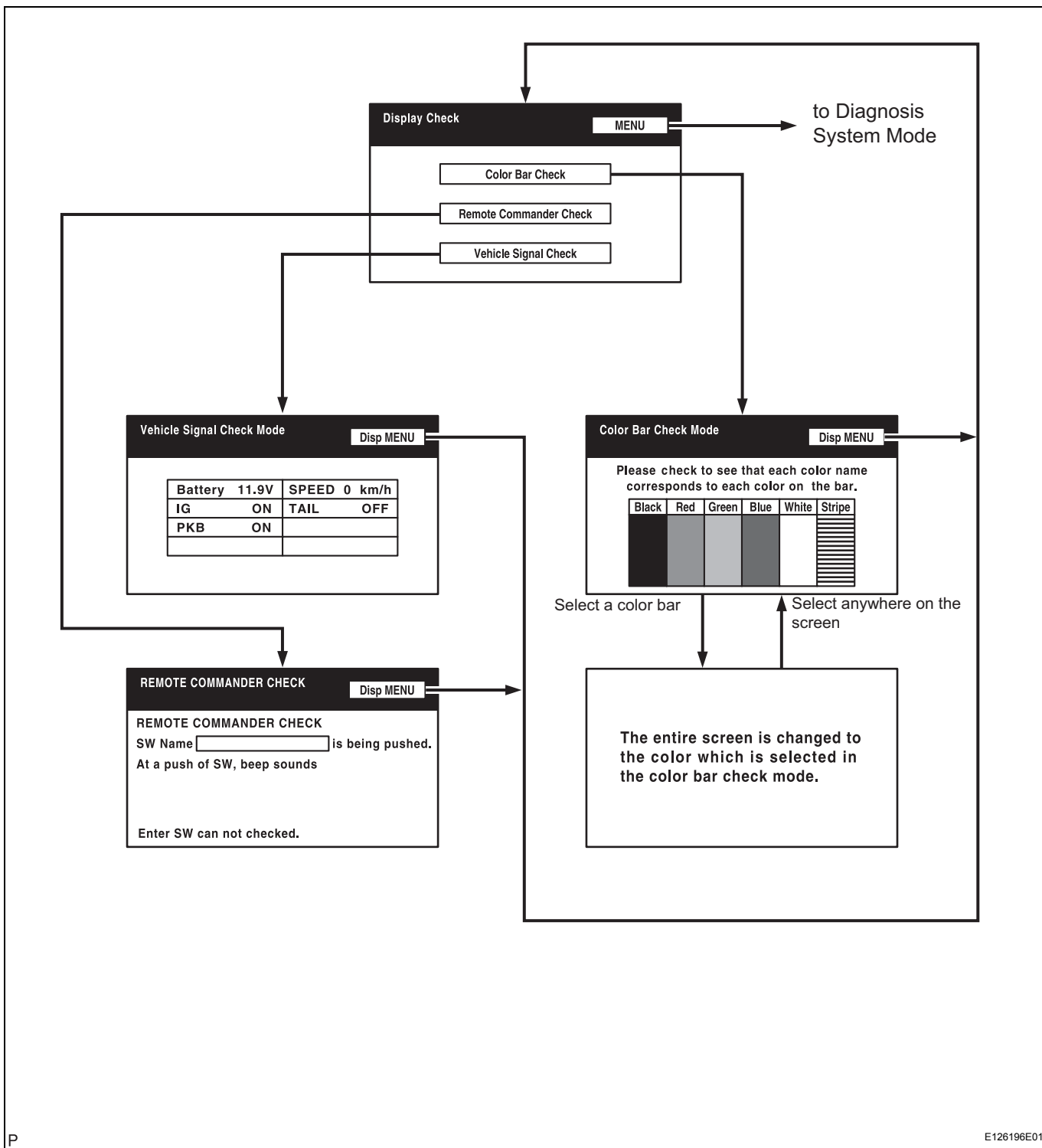
DISPLAY CHECK MODE

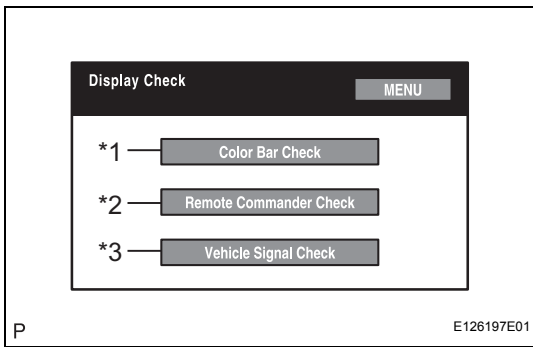
HINT:

- 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 shown exactly the same as on the actual vehicle.

1. Enter diagnostic mode (See page NS-28).
2. Read the display check result.

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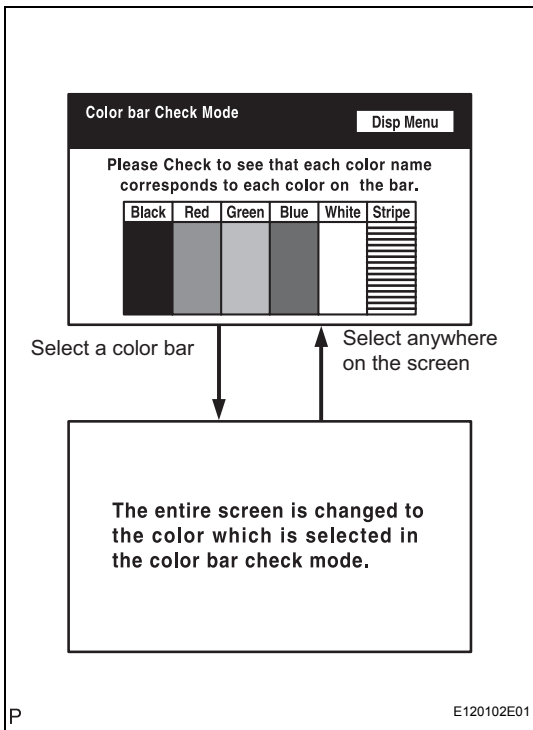
(a) Display Check Mode

Display	Contents
Color Bar Check/*1	Color display is checked.
Remote Commander Check/*2	Operating condition of switches on navigation controller is checked.
Vehicle Signal Check/*3	Status of the vehicle signal which has been loaded into the display is checked.

HINT:

In Display Check Mode, above checks can be performed.

Display Item	Meaning
MENU	Selecting this activates the "Diagnosis MENU".



(b) Display Color Bar Check

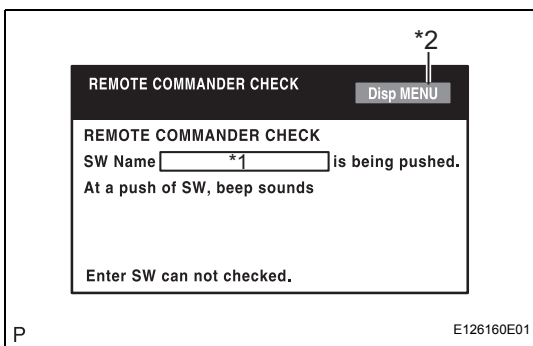
- (1) Start Diagnosis System.
- (2) Select "MENU".
- (3) Select "Display Check".
- (4) Select "Color Bar Check".
- (5) Make sure that each color name is corresponding to each color on the bar.

HINT:

Select Black, Red, Green, Blue, White and Stripe to display selected colors and stripe on the entire screen.

- (6) Compare with the Color Bar Check in the Navigation Check and make sure that no difference is found.

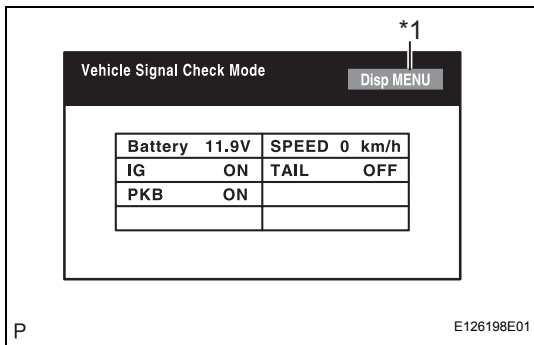
Display Item	Meaning
Disp MENU	Selecting this activates the "Display Check".



(c) Remote Commander Check

- (1) Start the Diagnosis System.
- (2) Select "MENU".
- (3) Select "Display Check".
- (4) Select "Remote Commander Check".
- (5) Press each switch and make sure that it corresponds to the display on the screen.

Display Data	Description
Names of push-button switches/*1	<ul style="list-style-type: none"> • Names of push-button switches pressed are displayed. • "MULTIPLE" is displayed when 2 or more push-button switches are pressed. • After that if the number of push-button switches being pressed becomes 1, the name of the push-button switch being pressed is displayed.
Disp MENU/*2	Pressing this switch activates Display Check Menu.



- (d) Display Vehicle Signal Check
- (1) Start the Diagnosis System.
 - (2) Select "MENU".
 - (3) Select "Display Check".
 - (4) Select "Vehicle Signal Check".
 - (5) Check the status of the vehicle signal loaded into the display.

HINT:

Vehicle signal data is updated every second.

Display Item	Meaning
Battery	Battery voltage is displayed by V.
IG	IG (Signal State) is displayed by ON/ OFF.
PKB	IG (Signal State) is displayed by ON/ OFF. (Ignition switch is on (IG))
SPEED	SPD is displayed by calculating the vehicle speed from the pulse signal.
TAIL	TAIL (Signal State) is displayed by ON/ OFF.
Disp MENU/*1	Selecting this activates Display Check Menu.

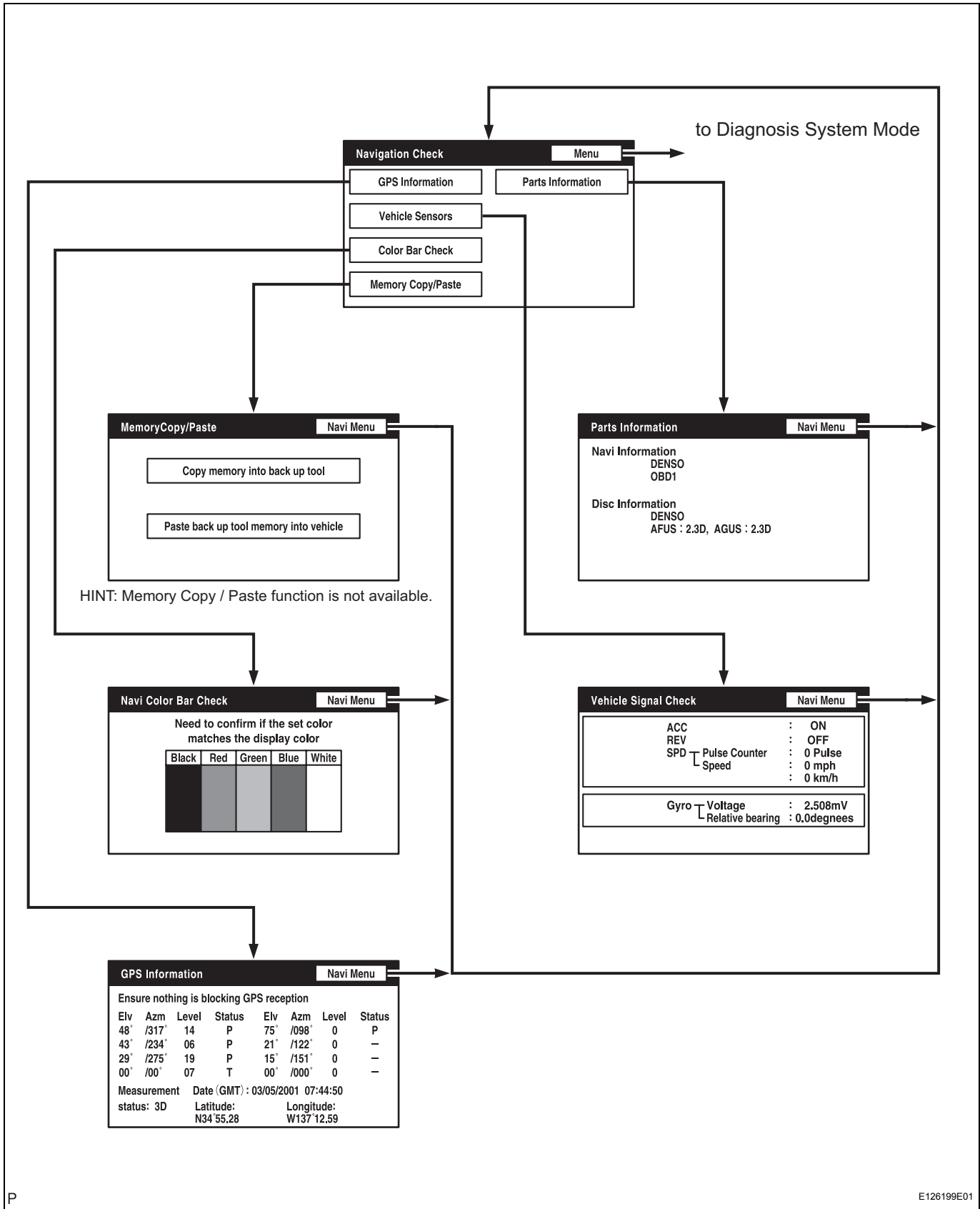
NAVIGATION CHECK MODE

HINT:

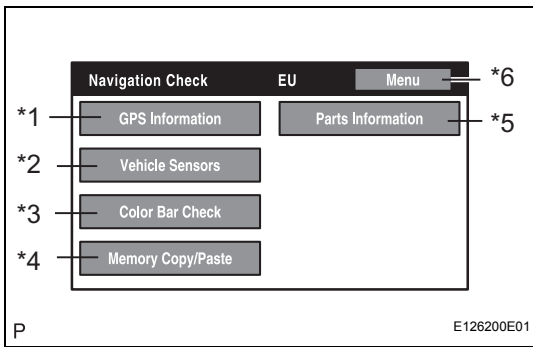
- This mode displays product information on the navigation systems and discs.
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

1. **Enter diagnostic mode (See page [NS-28](#)).**

2. Read the navigation check result.



NS



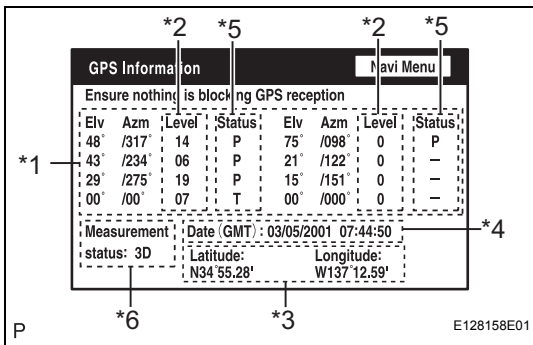
(a) Navigation Check Mode

Display	Description
GPS Information/*1	Information related to GPS is displayed (updated every second).
Vehicle Sensors/*2	Vehicle signal information to be loaded in the Navigation ECU is displayed (updated every second).
Color Bar Check/*3	Color display of the Navigation ECU is checked. (Compare with the Color Bar Check results in the Display Check.)
Memory Copy / Paste/*4	This function is not available.
Parts Information/*5	Navigation program version and disc version are displayed.

HINT:

- In the Navigation Check mode, the checks mentioned above can be conducted.
- The Navigation ECU operates each Navigation Check screen.

Display Item	Meaning
MENU/*6	Selecting this activates the "Diagnosis MENU".



(b) GPS Information

- (1) Start Diagnosis System.
- (2) Select "MENU".
- (3) Select "Navigation Check".
- (4) Select "GPS Information".
- (5) Check the GPS-related information.

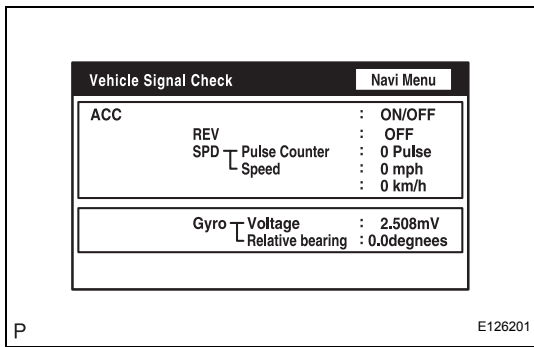
Display Data	Description
Satellite Information/*1	"Angle of elevation", "Azimuth", "Level of Signal" and "Status of Wave Reception" of the Satellite captured by the antenna are displayed (for 8 satellites max.).
Level of Signal/*2	As the level of signal gets higher, the receiving sensitivity becomes better.
Position Data/*3	The latitude and longitude of the current position are displayed in degree, minute and second.
Time Data/*4	Date and time data obtained from the GPS receiver is displayed.

Status of Wave Reception: /*5

Display	Conditions
-	Unable to receive GPS
T	Receiving but not using GPS
P	Using GPS

Measurement Status: /*6

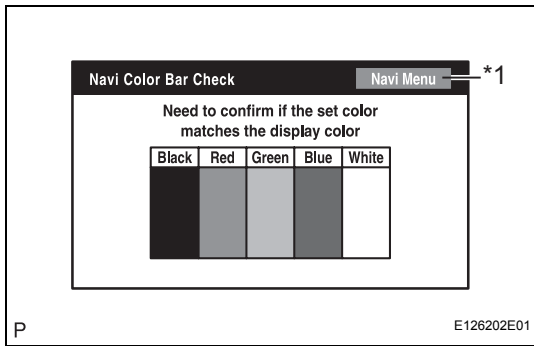
Display	Conditions
2D	Measurement on 2 dimensions
3D	Measurement on 3 dimensions
NG	GPS information cannot be used.
Error	Reception error occurs.
-	Other than the above



- (c) Vehicle Sensors
- (1) Start Diagnosis System.
 - (2) Select "MENU".
 - (3) Select "Navigation Check".
 - (4) Select "Vehicle Sensors".
 - (5) Check the vehicle signals (ACC, REV, SPD) and the output signal of the gyro sensor introduced into the navigation ECU.

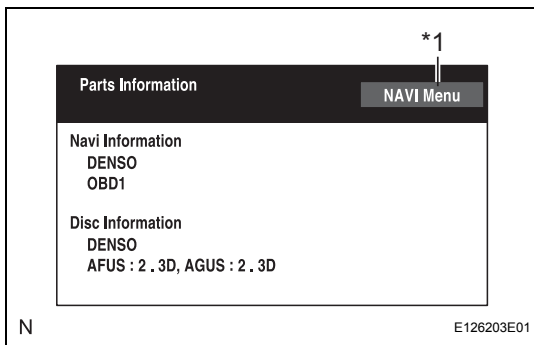
Items	Display Method
ACC signal status	Displayed as ON/OFF
REV signal status	Displayed as ON/OFF
SPD signal status	The cumulative value of input pulse count and the vehicle speed [km/h] [mph] are displayed. [The cumulative value of input pulse count is set to 0 when this screen is displayed. When the vehicle starts to drive, it is counted and displayed continually.]
Output signal of the gyro sensor	Voltage [V] and relative azimuthal angle [degree] are displayed. [The position of the vehicle when this screen is displayed is set to 0 degree in azimuth. Based on this, relative azimuthal angle is measured and displayed continually.]
Navi Menu	Selecting this activates the "Navigation Check".

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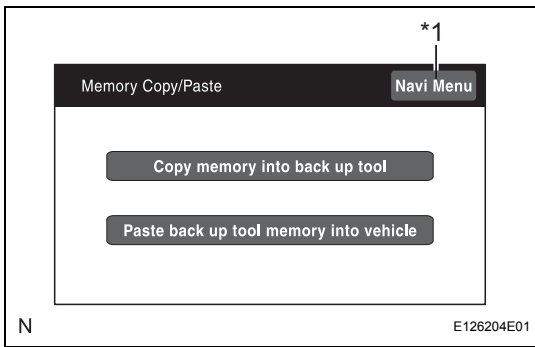
- (d) Navigation Color Bar Check
- (1) Start Diagnosis System.
 - (2) Select "MENU".
 - (3) Select "Navigation Check".
 - (4) Select "Color Bar Check".
 - (5) Make sure that the set color matches the display color.
 - (6) Compare with the Color Bar Check in the Display Check and make sure that no difference is found.

Display Item	Meaning
Navi Menu/*1	Selecting this activates the "Navigation Check".



- (e) Parts Information
- (1) Start Diagnosis System.
 - (2) Select "MENU".
 - (3) Select "Navigation Check".
 - (4) Select "Parts Information".
 - (5) Check the program and disc version.

Display Item	Meaning
Navi Menu/*1	Selecting this activates the "Navigation Check".



(f) Memory Copy/Paste

HINT:

This function is not available.

Display Item	Meaning
Navi Menu/*1	Selecting this activates the "Navigation Check".

PROBLEM SYMPTOMS TABLE

HINT:

- Before performing verification listed in the table below, check the fuse and relay.
- Methods used to verify the cause of the problem are listed in order of probability in the verification column.

Display function:

Symptom	Suspected area	See page
Black screen (No image appears on navigation / audio screen).	1. "No Image Appears on Multi-display"	NS-82
	2. Illumination circuit	NS-106
	3. Multi-display power source circuit	NS-161
	4. Replace multi-display	AV-162
Illumination for navigation controller does not come on with TAIL switch on.	1. Illumination circuit	NS-106
	2. Replace navigation controller	NS-175
Display does not dim (Night Screen) with TAIL switch on.	1. "Display does not Dim when Light Control Switch is Turned ON"	NS-83
	2. Illumination circuit	NS-106
	3. Replace multi-display	AV-162
Power does not turn off (Screen remains on).	1. Multi-display power source circuit	NS-161
	2. Navigation controller power source circuit	NS-159
	3. Switch Signal Circuit between Multi-display and Navigation Controller	NS-130
	4. Replace multi-display	AV-162
	5. Replace navigation controller	NS-175
Navigation controller does not function.	1. "Panel Switches do not Function"	NS-84
	2. Multi-display power source circuit	NS-161
	3. Navigation controller power source circuit	NS-159
	4. Switch Signal Circuit between Multi-display and Navigation Controller	NS-130
	5. Steering pad switch circuit	NS-102
	6. Replace navigation controller	NS-175
	7. Replace multi-display	AV-162
Only navigation screen is not displayed.	1. Display Signal Circuit between Navigation ECU and Multi-display	NS-127
	2. Replace map disc	-
	3. Replace multi-display	AV-162
	4. Replace navigation ECU	NS-171
Screen flicker or color distortion	1. "Screen Flicker or Color Distortion"	NS-85
	2. Display Signal Circuit between Navigation ECU and Multi-display	NS-127
	3. Replace map disc	-
	4. Replace multi-display	AV-162
	5. Replace navigation ECU	NS-171
Navigation function switches can be operated while vehicle is running.	Vehicle Speed Signal Circuit between Multi-display and Combination Meter	NS-117

Navigation function:

Symptom	Suspected area	See page
Map disc cannot be inserted.	1. "MAP Disc cannot be Inserted"	NS-87
	2. Navigation ECU power source circuit	NS-164
	3. Replace navigation ECU	NS-171
Map disc cannot be ejected.	1. Navigation ECU power source circuit	NS-164
	2. Replace navigation ECU	NS-171

Symptom	Suspected area	See page
Vehicle position mark deviates greatly.	1. "Vehicle Position Mark Deviates Greatly"	NS-88
	2. Replace GPS antenna	NS-178
	3. Replace navigation ECU	NS-171
Cursor or map rotates when vehicle is stopped.	1. "Cursor or MAP Rotates when Vehicle is Stopped"	NS-90
	2. Replace navigation ECU	NS-171
Vehicle position mark is not updated.	1. "Vehicle Position Mark is not Updated"	NS-91
	2. Replace map disc	-
	3. Replace navigation ECU	NS-171
Current position display does not appear.	1. "Current Position Display does not Appear"	NS-92
	2. Replace map disc	-
	3. Replace navigation ECU	NS-171
GPS mark is not displayed.	1. "GPS Mark is not Displayed"	NS-93
	2. Replace GPS antenna	NS-178
	3. Replace navigation ECU	NS-171
Voice guidance does not function.	1. "Voice Guidance does not Function"	NS-96
	2. Navigation Voice Speaker Circuit	NS-124
	3. Replace map disc	-
	4. Replace navigation ECU	NS-171
Map display incomplete	1. "MAP Display Incomplete"	NS-98
	2. Replace map disc	-
	3. Replace navigation ECU	NS-171
Route cannot be calculated.	1. "Route cannot be Calculated"	NS-99
	2. Replace map disc	-
	3. Replace navigation ECU	NS-171
Voice recognition difficulty	1. "Voice Recognition Difficulty"	NS-100
	2. Replace navigation ECU	NS-171
Voice is not recognized.	1. "Voice is not Recognized"	NS-101
	2. Microphone Circuit between Overhead J/B and Navigation ECU	NS-132
	3. Steering pad switch circuit	NS-102
	4. Replace microphone	AV-219
	5. Replace microphone amplifier	AV-222
	6. Replace navigation ECU	NS-171
	7. Replace radio receiver	AV-159
Speed signal does not change in the navigation check mode.	"Vehicle Speed Signal Circuit between Navigation ECU and Combination meter"	NS-113
Reverse signal does not change in the navigation check mode.	"Reverse Signal Circuit"	NS-121

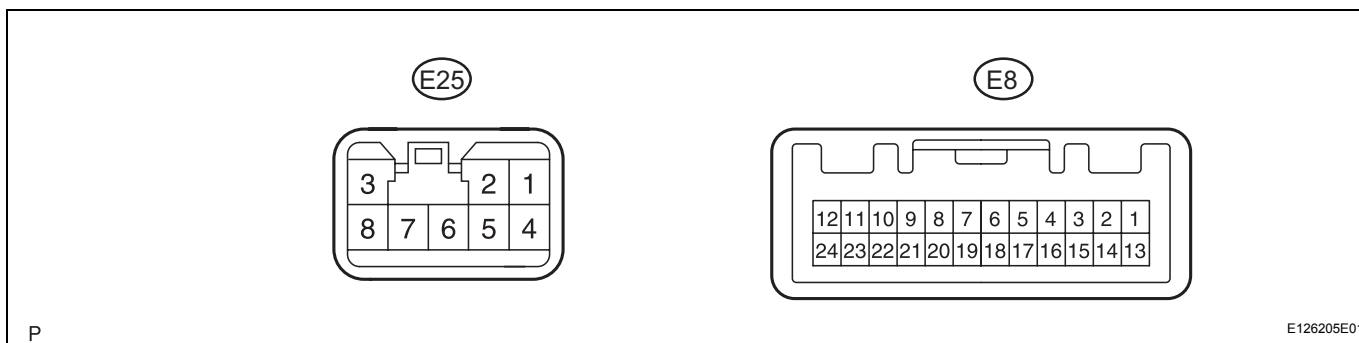
NS

Steering pad switch function:

Symptom	Suspected area	See page
Voice navigation cannot be operated with steering pad switch.	1. Steering pad switch circuit	NS-102
	2. Replace radio receiver	AV-159
	3. Replace navigation ECU	NS-171

TERMINALS OF ECU

1. MULTI-DISPLAY:



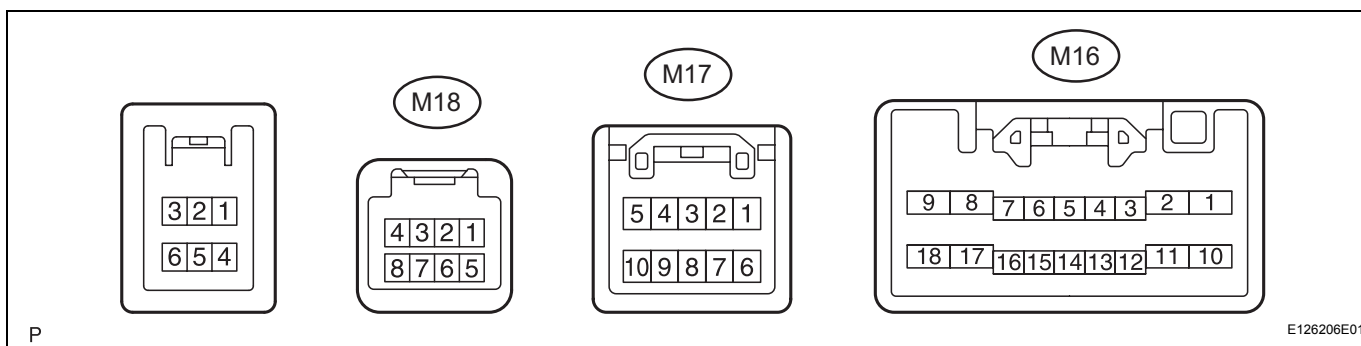
P

E126205E01

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
GND4 (E8-1) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
PKB (E8-2) - GND1 (E25-6)	R - W-B	Parking Brake signal	Turn parking Brake switch ON → OFF	Below 1 V → 10 to 14 V
VR (E8-3) - GND1 (E25-6)	Y - W-B	Video return signal	Turn ignition switch off	Below 1 V
R (E8-4) - GND1 (E25-6)	G - W-B	Display signal (red)	Navigation display is on	-
B (E8-5) - GND1 (E25-6)	R - W-B	Display signal (blue)	Navigation display is on	-
TX+ (E8-6) - GND1 (E25-6)	Y - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
TX1+ (E8-7) - GND1 (E25-6)	V - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
RE1 (E8-8) - GND1 (E25-6)	B - W-B	Navigation controller communication signal	Navigation controller switch is ON	-
TX2+ (E8-9) - GND1 (E25-6)	BR - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
TX4+ (E8-10) - GND1 (E25-6)	GR - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
GND2 (E8-11) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
SGD1 (E8-12) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
SGND (E8-13) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
TC (E8-14) - GND1 (E25-6)	Y - W-B	Diagnosis ON signal	Turn ignition switch on (IG)	9 to 14 V
VG (E8-15) - Body ground	W-B - Body ground	Shielded ground	Always	Below 1 V
G (E8-16) - GND1 (E25-6)	W - W-B	Display signal (green)	Navigation display is on	-
SYNC (E8-17) - GND1 (E25-6)	B - W-B	Display signal (synchronize)	Navigation display is on	-
TX- (E8-18) - GND1 (E25-6)	B - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
TX1- (E8-19) - GND1 (E25-6)	LG - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
SG (E8-20) - Body ground	Shielded - Body ground	Shielded ground	Always	Below 1 V
TX2- (E8-21) - GND1 (E25-6)	R - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
TX4- (E8-22) - GND1 (E25-6)	B - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
GND3 (E8-23) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
SGD2 (E8-24) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
+B1 (E25-1) - GND1 (E25-6)	R - W-B	Battery	Always	10 to 14 V
IG (E25-2) - GND1 (E25-6)	B - W-B	Ignition (ON)	Turn ignition switch off → on (IG)	Below 1 V → 10 to 14 V

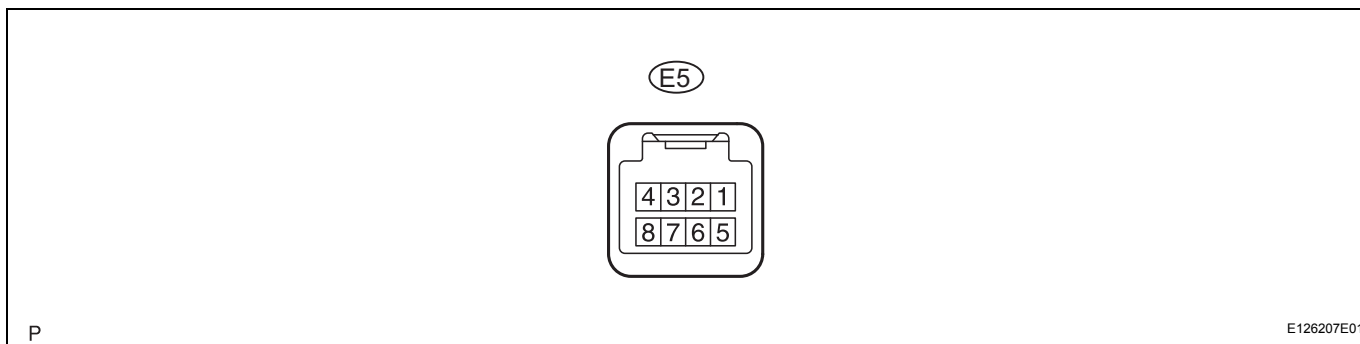
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
ACC (E25-4) - GND1 (E25-6)	GR - W-B	Accessory (ON)	Turn ignition switch off → on (ACC or IG)	Below 1 V → 10 to 14 V
SPD (E25-5) - GND1 (E25-6)	L - W-B	Speed signal from combination meter	See "Display Check Mode" (See page NS-17)	-
GND1 (E25-6) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
GND5 (E25-7) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
ILL+ (E25-8) - GND1 (E25-6)	G - W-B	Illumination signal	Light control switch OFF → TAIL or ON	Below 1 V → 10 to 14 V

2. NAVIGATION ECU:

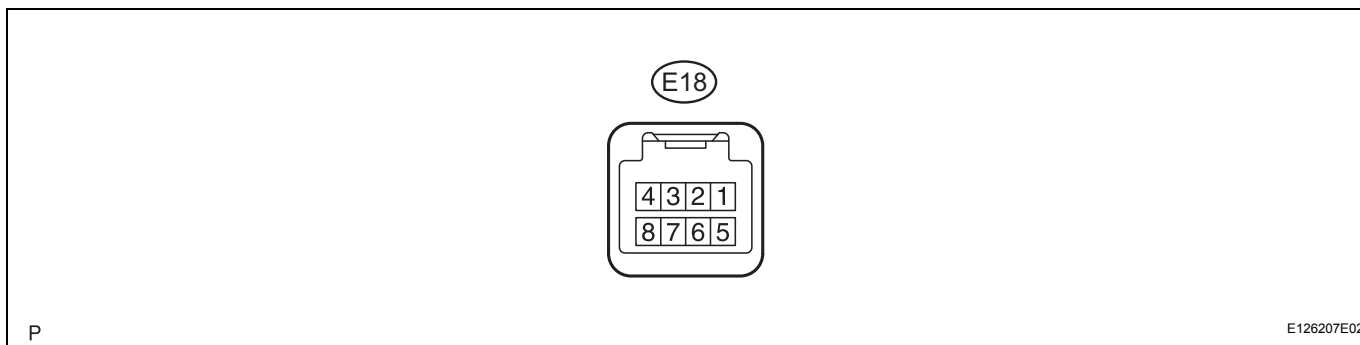


Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
AUI+ (M16-1) - GND1 (M16-17)	GR - W-B	Sound signal (input)	Audio system is playing	-
AUO+ (M16-2) - GND1 (M16-17)	P - W-B	Sound signal (output)	Audio system is playing	-
SPD (M16-5) - GND1 (M16-17)	BR - W-B	Speed signal from combination meter	See "Navigation Check Mode" (See page NS-20)	-
+B (M16-9) - GND1 (M16-17)	R - W-B	Battery	Always	10 to 14 V
AUI- (M16-10) - GND1 (M16-17)	Y - W-B	Sound signal (input)	Audio system is playing	-
AUO- (M16-11) - GND1 (M16-17)	V - W-B	Sound signal (output)	Audio system is playing	-
REV (M16-14) - GND1 (M16-17)	B - W-B	Reverse signal from combination meter	See "Navigation Check Mode" (See page NS-20)	-
GND1 (M16-17) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
ACC (M16-18) - GND1 (M16-17)	L - W-B	Accessory (ON)	Turn ignition switch off → on (ACC or IG)	Below 1 V → 10 to 14 V
VR (M17-1) - GND1 (M16-17)	Y - W-B	Video return signal	Turn ignition switch off	Below 1 V
R (M17-2) - GND1 (M16-17)	G - W-B	Display signal (red)	Navigation display is on	-
B (M17-3) - GND1 (M16-17)	R - W-B	Display signal (blue)	Navigation display is on	-
TX1+ (M17-5) - GND1 (M16-17)	GR - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
VG (M17-6) - Body ground	Shielded - Body ground	Shielded ground	Always	Below 1 V
G (M17-7) - GND1 (M16-17)	W - W-B	Display signal (green)	Navigation display is on	-
SYNC (M17-8) - GND1 (M16-17)	B - W-B	Display signal (synchronize)	Navigation display is on	-
TX1- (M17-10) - GND1 (M16-17)	LG - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
MIC+ (M18-3) - GND1 (M16-17)	R - W-B	Microphone voice signal	Steering pad switch RH (VOICE) is pushed	-
MAcc (M18-4) - GND1 (M16-3)	W - W-B	Microphone AMP power supply	Turn ignition switch off → on (IG)	Below 1 V → 5 V
MIC- (M18-5) - GND1 (M16-17)	G - W-B	Microphone voice signal	Always	Below 1 V
SGND (M18-6) - GND1 (M16-17)	G - W-B	Microphone voice signal	Always	Below 1 V
SNSE (M18-7) - Body ground	W-B - Body ground	Microphone connection detection signal	Always	Below 1 V



3. CLOCK ASSEMBLY:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
TX-1 (E5-5) - E (E5-7)	LG - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
TX+1 (E5-6) - E (E5-7)	V - W-B	AVC-LAN communication signal	Turn ignition switch on (ACC)	2 to 3 V
E (E5-7) - Body ground	W-B - Body ground	Ground	Always	Below 1 V
B (E5-8) - E (E5-7)	W - W-B	Battery	Always	10 to 14 V
ACC (E5-4) - E (E5-7)	B - W-B	Accessory (ON)	Turn ignition switch off → on (ACC or IG)	Below 1 V → 10 to 14 V

4. NAVIGATION CONTROLLER ASSEMBLY:

Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specified Condition
+B (E18-1) - GND (E18-8)	Y - W-B	Battery	Always	10 to 14 V
RE (E18-2) - GND (E18-8)	B - W-B	Navigation controller communication signal	Navigation controller switch is pushed	-
ACC (E18-4) - GND (E18-8)	GR - W-B	Accessory (ON)	Turn ignition switch off → on (ACC or IG)	Below 1 V → 10 to 14 V
SGND (E18-6) - Body ground	Shielded - Body ground	Shielded ground	Always	Below 1 V
GND (E18-8) - Body ground	W-B - Body ground	Ground	Always	Below 1 V

5. **RADIO RECEIVER** (See page [AV-13](#))
6. **STEREO COMPONENT AMPLIFIER** (See page [AV-13](#))
7. **GATEWAY ECU** (See page [AV-13](#))

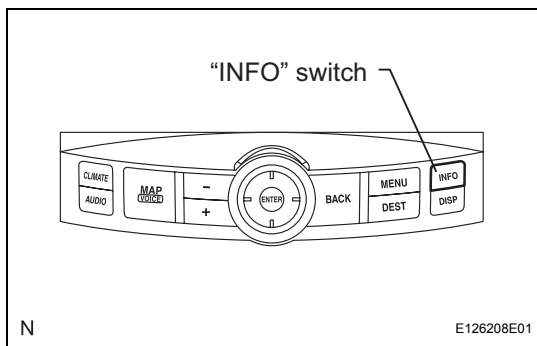
DTC CHECK / CLEAR

HINT:

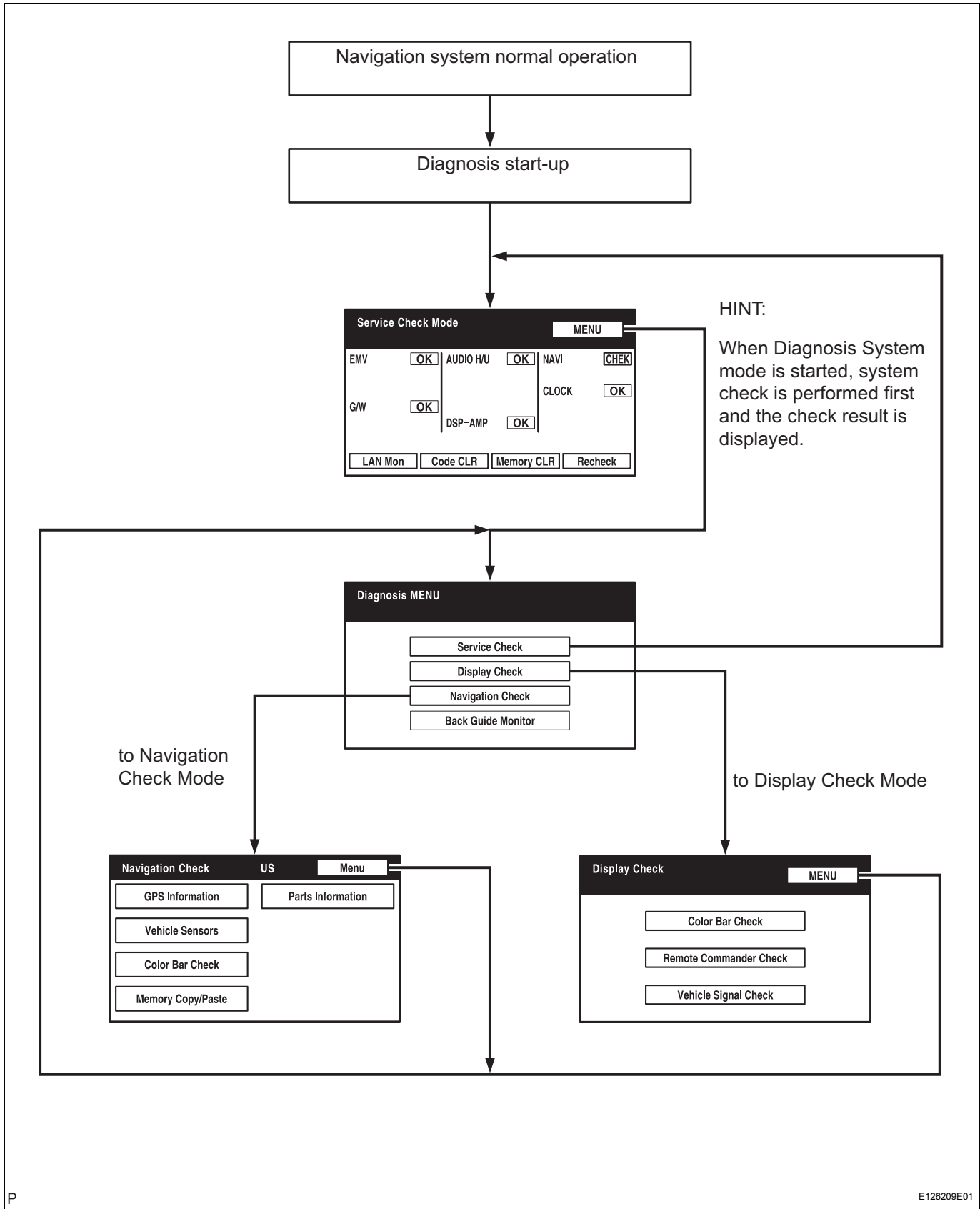
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
- After the ignition switch is turned on (IG), check that the map is displayed before starting the diagnostic mode. Otherwise, some items cannot be checked.

1. Starting diagnostic mode

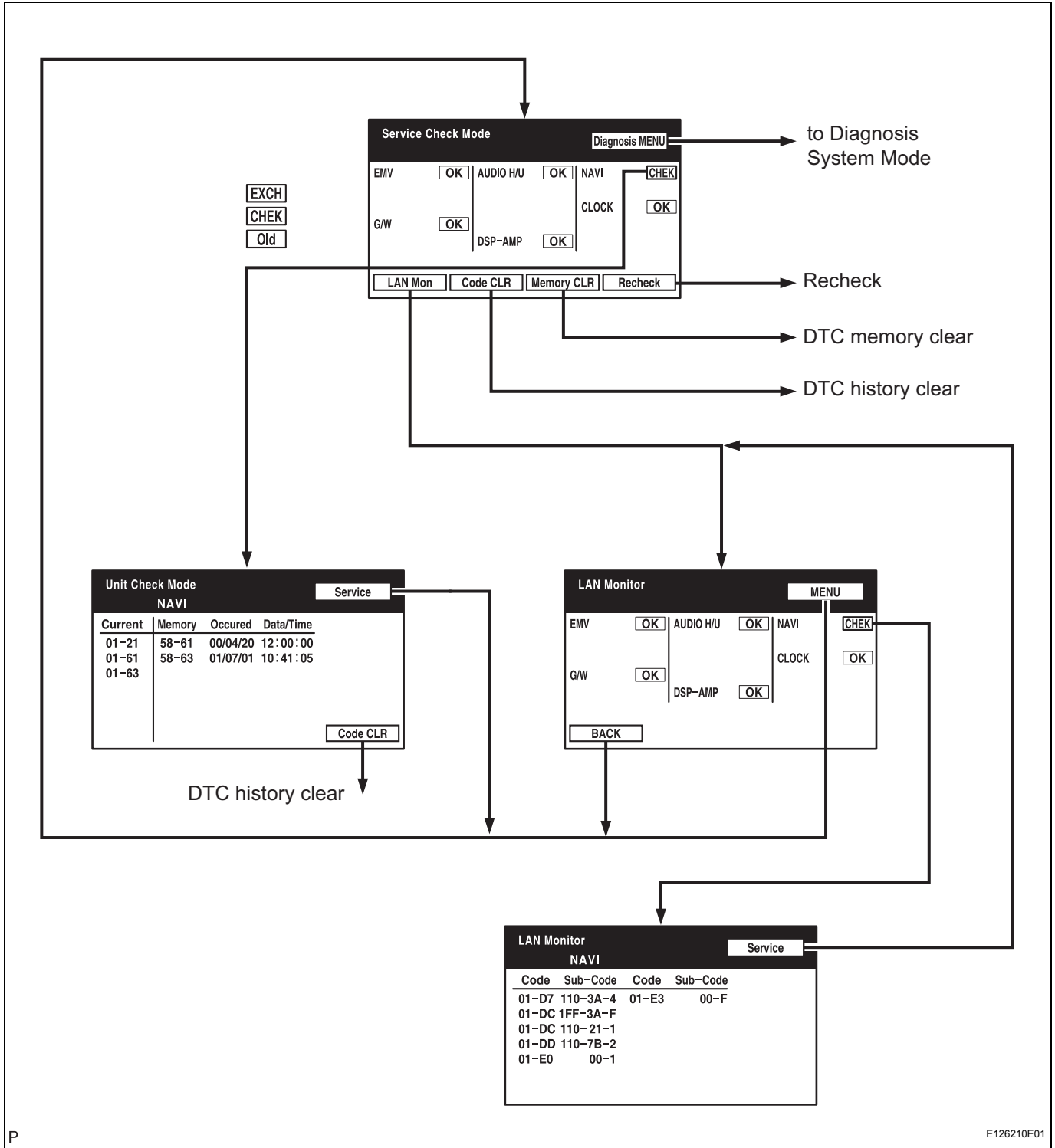
- (a) Start the engine.
- (b) While pressing and holding the "INFO" switch, operate the light control switch: OFF → ON → OFF → ON → OFF → ON → OFF.
- (c) The diagnostic mode starts and the "Service Check Mode" screen will be displayed. Service inspection starts automatically and the result will be displayed.



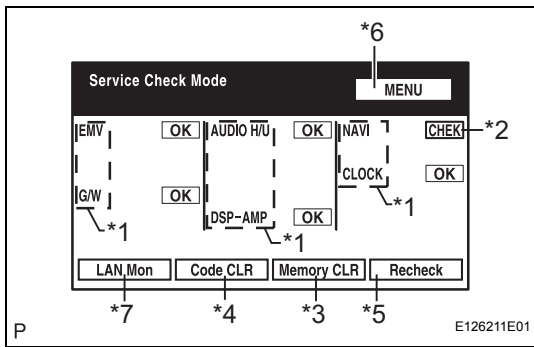
2. Diagnosis system mode



3. Read the system check result.



NS



- (a) Service Check Mode
- (b) System Check
- (1) Start the diagnosis system.

Display Item	Function
Component/*1	List of components including optional components (15 components max.) is displayed. When the names are not identified, their physical addresses are displayed.
Check/*2	Check results are displayed.
Memory CLR/*3	Selecting this for 3 sec. deletes all the information about master component registration.
Code CLR/*4	Selecting this for 3 sec. deletes diagnosis memory of all the components. It deletes Service Check results and the screen displaying the check results.
Recheck/*5	Selecting this performs System Check again.
MENU/*6	Selecting this activates the Diagnosis Menu screen.
LAN Mon/*7	Selecting this activates the LAN monitor screen.

Abbreviated component names are shown on the display. Details of each abbreviation are as follows:

Display	Name
EMV	Multi-display
NAVI	Navigation ECU
G/W	Gateway ECU
AUDIO H/U	Radio receiver
DSP-AMP	Stereo component amplifier
CLOCK	Clock assembly
-	-

HINT:

Service check displays the check results based on the information obtained from each component's response to "System Check Execution" and "Diagnosis Memory Request", and the information of "Current DTC Notification" (the Unit Check Mode and the LAN Monitor information that will be displayed on the next screens).

- (2) Read Check Result.

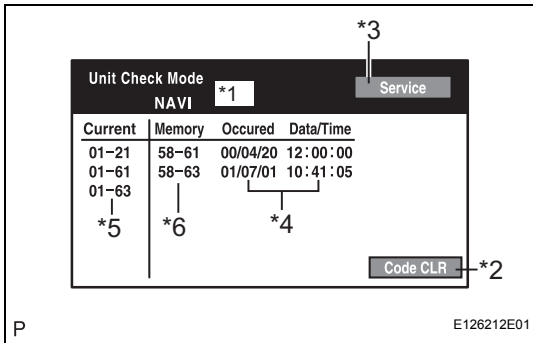
Check Result	Meaning
OK	No DTC is identified.
EXCH	One or more DTCs requesting for exchange are detected.
CHEK	One or more DTCs requesting for check are detected.
NCON	No connection response to Diagnosis System start-up, whereas it has the connection response to the AVC-LAN system when the ignition switch is turned on (when IG is turned to ACC).
Old	One or more DTCs are detected because of old version.
NRES	No response to the information about the Diagnosis System, whereas it responds to the Diagnosis System start-up.

Check Result	Meaning
No Err	No DTC is identified.

HINT:

- After repair and check, select "Code CLR" for more than 3 sec. to delete diagnosis memory.
- After deleting diagnosis memory, select "Recheck" and make sure "OK" is displayed on the screen.

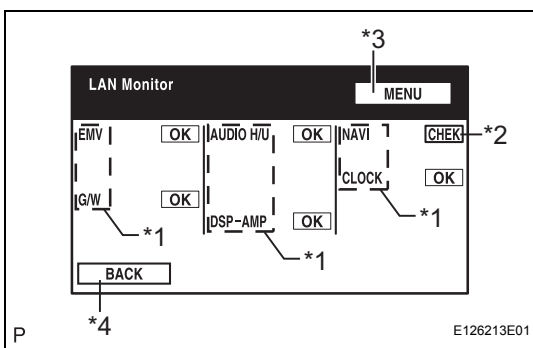
(3) "EXCH", "CHEK" and "Old" can be used as switches to activate "Unit Check Mode" for detailed information. Check troubled parts of the components in these modes by referring to the DTC code list.



Display Item	Description
Component/*1	Component to be checked is displayed.
Code CLR/*2	Selecting this for 3 sec. deletes DTC memory of the selected diagnosis component.
Service/*3	Selecting this returns to the System Check Mode screen.
Data/Time/*4	The date and time stamped at the time of DTC occurrence are displayed in the order of year - month - day - hour - minute - second. (If the date and time data is invalid, it is displayed as a blank.)
Current/*5	Up to 6 DTC codes detected during the System Check are displayed.
Memory/*6	DTC memories stored and current DTC Notification are displayed.

HINT:

- Detecting Unit DTC activates the Unit Check Mode on the screen.
- In the Unit Check Mode, DTC identified as "EXCH" in the Service Check is displayed as classified into Current DTC and Past DTC.



(c) LAN Monitor

(1) Start the Diagnosis System.

Display Item	Function
Component/*1	List of components including optional components (15 components max.) is displayed. When the names are not identified, their physical addresses are displayed.
CHEK/*2	Check results are displayed.
MENU/*3	Selecting this activates the service check mode screen.
BACK/*4	Selecting this activates the service check mode screen.

HINT:

System check displays the check results based on the information obtained from each component's response to "System Check Execution" and "Diagnosis Memory Request", and the information of "Current DTC Notification" (the LAN Monitor that will be displayed on the next screens).

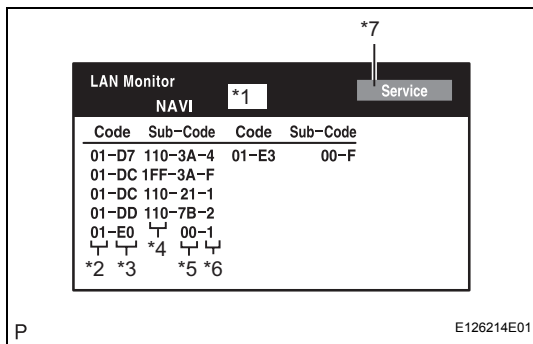
(2) Read Check Result

Check Result	Meaning
OK	No DTC is identified.
EXCH	One or more DTCs requesting for exchange are detected.
CHEK	One or more DTCs requesting for check are detected.
NCON	No connection response to Diagnosis System start-up, whereas it has the connection response to the AVC-LAN system when the ignition switch is turned on (when IG is turned to ACC).
Old	One or more DTCs are detected because of old version.
NRES	No response to the information about the Diagnosis System, whereas it responds to the Diagnosis System start-up.
No Err	No DTC is identified.

HINT:

- After repair and check, select "Code CLR" for more than 3 sec. to delete diagnosis memory.
- After deleting diagnosis memory, select "Recheck" and make sure "OK" is displayed on the screen.

- (3) "CHEK" can be used as a switch to activate "LAN Monitor" for detailed information. Check troubled parts of the components in these modes by referring to the DTC code list.**



Display Item	Description
Component/*1	Component to be checked is displayed.
Segment/*2	Logical address codes corresponding to DTC are displayed.
DTC/*3	DTC is displayed.
Sub-code (address numbers of related components)/*4	Physical address codes memorized together with DTC are displayed.
Sub-code (Connection confirmation number)/*5	Connection confirmation numbers memorized together with DTC are displayed.
Sub-code (Number of occurrence)/*6	The number of occurrence of the same DTC is displayed.
Service/*7	Selecting this returns to the LAN monitor screen.

HINT:

Detecting no LAN DTC activates the LAN Check Mode on the screen.

4. Finish diagnostic mode.

- (a) Turn the ignition switch off.

DIAGNOSTIC TROUBLE CODE CHART

COMMUNICATION DIAGNOSIS:

DTC No.	Detection Item	Trouble Area	See page
01-21	ROM Error	Multi-display	NS-39
01-22	RAM Error	Multi-display	NS-39
01-D5	Absence of Registration Unit	<ol style="list-style-type: none"> 1. Power source circuit of the component shown by the sub-code 2. AVC-LAN circuit between the multi-display and the component shown by the sub-code 3. Component shown by the sub-code 	NS-40
01-D6	No Master	<ol style="list-style-type: none"> 1. Multi-display power source circuit 2. Power source circuit of the component which has stored this code 3. AVC-LAN circuit between the multi-display and the component which has stored this code 4. Component which has stored this code 5. Multi-display 	NS-42
01-D7	Connection Check Error	<ol style="list-style-type: none"> 1. Multi-display power source circuit 2. Power source circuit of the component which has stored this code 3. AVC-LAN circuit between the multi-display and the component which has stored this code 4. Component which has stored this code 5. Multi-display 	NS-42
01-D8	No Response for Connection Check	<ol style="list-style-type: none"> 1. Power source circuit of the component shown by the sub-code 2. AVC-LAN circuit between the multi-display and the component shown by the sub-code 3. Component shown by the sub-code 	NS-40
01-D9	Last Mode Error	<ol style="list-style-type: none"> 1. Power source circuit of the component shown by the sub-code 2. AVC-LAN circuit between the multi-display and the component shown by the sub-code 3. Component shown by the sub-code 	NS-40
01-DA	No Response Against ON / OFF Command	<ol style="list-style-type: none"> 1. Power source circuit of the component shown by the sub-code 2. AVC-LAN circuit between the multi-display and the component shown by the sub-code 3. Component shown by the sub-code 	NS-40

NS

DTC No.	Detection Item	Trouble Area	See page
01-DB	Mode Status Error	1. Power source circuit of the component shown by the sub-code 2. AVC-LAN circuit between the multi-display and the component shown by the sub-code 3. Component shown by the sub-code	NS-40
01-DC	Transmission Error	If the same sub-code is recorded in other components, check harness for power supply and communication system of all components shown by code	NS-47
01-DD	Master Reset	1. Multi-display power source circuit 2. AVC-LAN circuit between the multi-display and the component which has stored this code 3. Multi-display 4. Component which has stored this code	NS-50
01-DE	Slave Reset	1. Power source circuit of the component shown by the sub-code 2. AVC-LAN circuit between the multi-display and the component shown by the sub-code 3. Component shown by the sub-code	NS-40
01-DF	Master Error	1. Multi-display power source circuit 2. AVC-LAN circuit between the multi-display and the component which has stored this code 3. AVC-LAN circuit between the multi-display and the radio receiver 4. Multi-display 5. Component which has stored this code	NS-55
01-E0	Registration Complete Indication Error	-	NS-60
01-E1	Voice Processing Device ON Error	1. Multi-display power source circuit 2. AVC-LAN circuit between the multi-display and the component which has stored this code 3. Multi-display 4. Component which has stored this code	NS-50
01-E2	ON / OFF Indication Parameter Error	Multi-display	NS-61
01-E3	Registration Demand Transmission	-	NS-60
01-E4	Multiple Frame Incomplete	-	NS-60

FRONT MONITOR:

DTC No.	Detection Item	Trouble Area	See page
34-10	Error in Picture Circuit	Multi-display	NS-62
34-11	No Current in Back-light Error	Multi-display	NS-62
34-12	Excess Current in Back-light Error	Multi-display	NS-62

NAVI:

DTC No.	Detection Item	Trouble Area	See page
58-10	Gyro Error	1. Gyro sensor 2. Navigation ECU	NS-63
58-11	GPS Receiver Error	Navigation ECU	NS-65
58-40	GPS Antenna Error	1. Wire harness 2. GPS antenna 3. Navigation ECU	NS-66
58-41	GPS Antenna Power Source Error	1. Wire harness 2. GPS antenna 3. Navigation ECU	NS-66
58-42	Map Disc Read Error	1. Map Disc 2. Navigation ECU	NS-67
58-43	SPD Signal Error	1. Speed signal circuit 2. Navigation ECU	NS-69
58-44	Player Error	Navigation ECU	NS-70
58-45	High Temperature	Navigation ECU	NS-71

CD PLAYER:

DTC No.	Detection Item	Trouble Area	See page
62-10	CD Player Mechanical Error	Radio Receiver	NS-73
62-11	CD Insertion and Eject Error	Radio Receiver	NS-73
62-12	CD Reading Abnormal	Radio Receiver	NS-73
62-40	No Disc	Radio Receiver	NS-72
62-41	Wrong Disc	1. CD 2. Radio Receiver	NS-74
62-42	Disc cannot be Read	1. CD 2. Radio Receiver	NS-74
62-43	CD-ROM Abnormal	1. CD 2. Radio Receiver	NS-76
62-44	CD Abnormal	Radio Receiver	NS-77
62-45	Eject Error	Radio Receiver	NS-78
62-46	Scratched / Reversed Disc	1. CD 2. Radio Receiver	NS-79
62-47	High Temperature	Radio Receiver	NS-81
62-48	Excess Current	Radio Receiver	NS-77
62-50	Tray Insertion / Ejection Error	Radio Receiver	NS-77
62-51	Elevator Error	Radio Receiver	NS-78
62-52	Clamp Error	Radio Receiver	NS-78

NS

IN-DASH CD CHANGER:

DTC No.	Detection Item	Trouble Area	See page
63-10	CD Changer Mechanical Error	Radio Receiver	NS-73
63-11	CD Insertion and Eject Error	Radio Receiver	NS-73
63-12	CD Reading Abnormal	Radio Receiver	NS-73
63-40	No Disc	Radio Receiver	NS-72
63-41	Wrong Disc	1. CD 2. Radio Receiver	NS-74
63-42	Disc cannot be Read	1. CD 2. Radio Receiver	NS-74
63-43	CD-ROM Abnormal	1. CD 2. Radio Receiver	NS-76
63-44	CD Abnormal	Radio Receiver	NS-77
63-45	Eject Error	Radio Receiver	NS-78
63-46	Scratched / Reversed Disc	1. CD 2. Radio Receiver	NS-79

DTC No.	Detection Item	Trouble Area	See page
63-47	High Temperature	Radio Receiver	NS-81
63-48	Excess Current	Radio Receiver	NS-77
63-50	Tray Insertion / Ejection Error	Radio Receiver	NS-77
63-51	Elevator Error	Radio Receiver	NS-78
63-52	Clamp Error	Radio Receiver	NS-78

GPS:

DTC No.	Detection Item	Trouble Area	See page
80-10	Gyro Error	1. Gyro sensor 2. Navigation ECU	NS-63
80-11	GPS Receiver Error	Navigation ECU	NS-65
80-40	GPS Antenna Error	1. Wire harness 2. GPS antenna 3. Navigation ECU	NS-66
80-41	GPS Antenna Power Source Error	1. Wire harness 2. GPS antenna 3. Navigation ECU	NS-66
80-42	Map Disc Read Error	1. Map disc 2. Navigation ECU	NS-67
80-43	SPD Signal Error	1. Speed signal circuit 2. Navigation ECU	NS-69
80-44	Player Error	Navigation ECU	NS-70
80-45	High Temperature	Navigation ECU	NS-71

NS

DTC	01-21	ROM Error
------------	--------------	------------------

DTC	01-22	RAM Error
------------	--------------	------------------

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-21	A malfunction exists in ROM.	Multi-display
01-22	A malfunction exists in RAM.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	REPLACE MULTI-DISPLAY
----------	------------------------------

NEXT

END

DTC	01-D5	Absence of Registration Unit
DTC	01-D8	No Response for Connection Check
DTC	01-D9	Last Mode Error
DTC	01-DA	No Response Against ON / OFF Command
DTC	01-DB	Mode Status Error
DTC	01-DE	Slave Reset

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-D5 *1, *3	<ul style="list-style-type: none"> A component shown by the sub-code is (was) disconnected from the system when turning the ignition switch on (IG or ACC). The communication condition with the device that the code shows cannot be obtained when the engine starts. 	<ul style="list-style-type: none"> Power source circuit of the component shown by the sub-code AVC-LAN circuit between the multi-display and the component shown by the sub-code Component shown by the sub-code
01-D8 *2, *3	A component shown by the sub-code is (was) disconnected from the system after engine start.	
01-D9 *1, *3	The device that had functioned before the engine stopped is (was) disconnected from the system when the ignition switch is (was) on (IG or ACC).	
01-DA *3	<ul style="list-style-type: none"> No response is identified when changing mode. Sound and image do not change by switch operation. 	
01-DB *1, *3	A dual alarm is detected.	
01-DE *3, *4	A slave device has been disconnected after engine start.	

HINT:

- *1: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine start voltage.
- *2: If the power connector is disconnected after the engine 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.
- *4: This code may be stored if the engine is started and the ignition switch is turned to the START position again. (Key type ignition switch only)

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 FLOW CHART**

Refer to the multi-display communication error (See page [NS-147](#)).

NEXT**END**

DTC	01-D6	No Master
DTC	01-D7	Connection Check Error

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-D6 *1	When either of the following conditions is met: <ul style="list-style-type: none"> The component which has stored the code has (had) been disconnected when the ignition switch is on (ACC or IG). The master device has (had) been disconnected when this code is stored. 	<ul style="list-style-type: none"> 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: <ul style="list-style-type: none"> The component which has stored the code has (had) been disconnected after the engine 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 engine start voltage.
- *2: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the ignition 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.

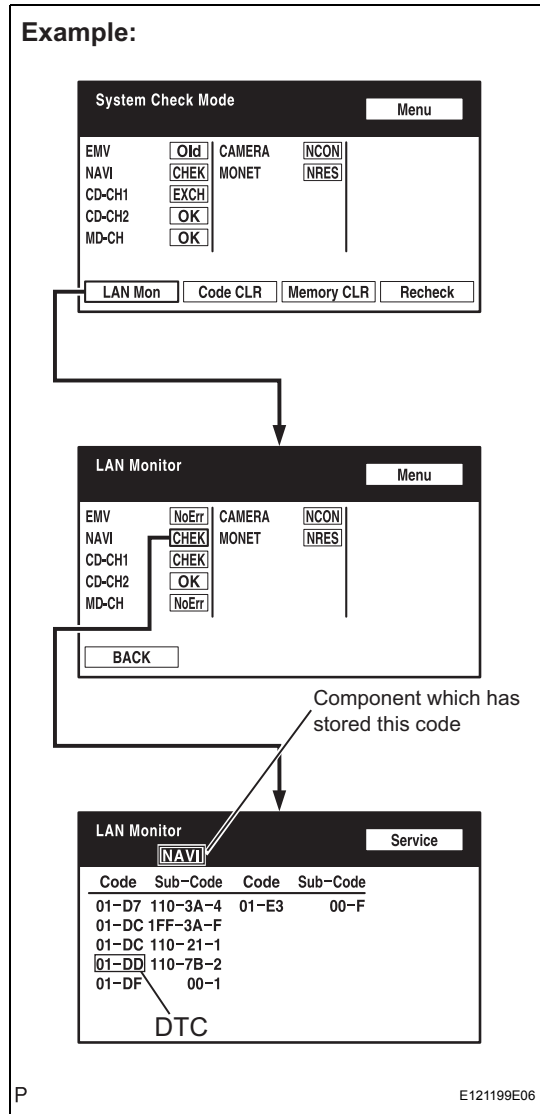
1	CHECK MULTI-DISPLAY POWER SOURCE CIRCUIT
----------	---

Refer to the multi-display power source circuit (See page [NS-161](#)).

If the power source circuit is operating normally, proceed to the next step.



2 IDENTIFY THE 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:

Display	Component
AUDIO H/U	Radio receiver
DSP-AMP	Stereo component amplifier
G/W	Gateway ECU
NAVI	Navigation ECU
CLOCK	Clock assembly

HINT:

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

NS

NEXT

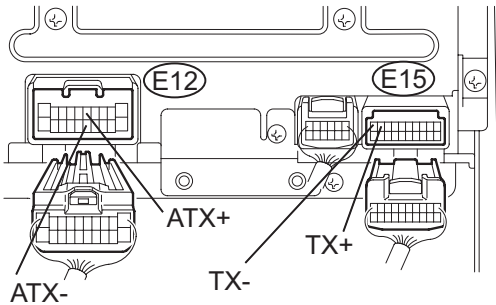
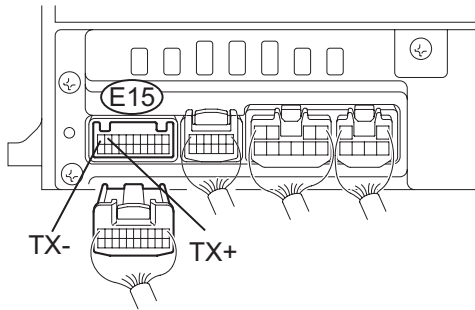
3 CHECK POWER SOURCE CIRCUIT OF COMPONENT WHICH HAS STORED THIS CODE

- (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:

Component	Proceed to
Radio receiver (AUDIO H/U)	Radio receiver power source circuit (See page AV-147)
Stereo component amplifier (DSP-AMP)	Stereo component amplifier power source circuit (See page AV-149)
Gateway ECU (G/W)	Gateway ECU power source circuit (See page NS-166)
Navigation ECU (NAVI)	Navigation ECU power source circuit (See page NS-164)
Clock assembly (CLOCK)	Clock power source circuit (See page NS-168)

NEXT

4 CHECK RADIO RECEIVER**Wire Harness View (12 Speaker):****Wire Harness View (9 Speaker):**

P

E126157E01

- (a) Disconnect the radio receiver connectors.
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NG

REPLACE RADIO RECEIVER

NS

OK

5 CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - COMPONENT WHICH HAS STORED THIS CODE)**HINT:**

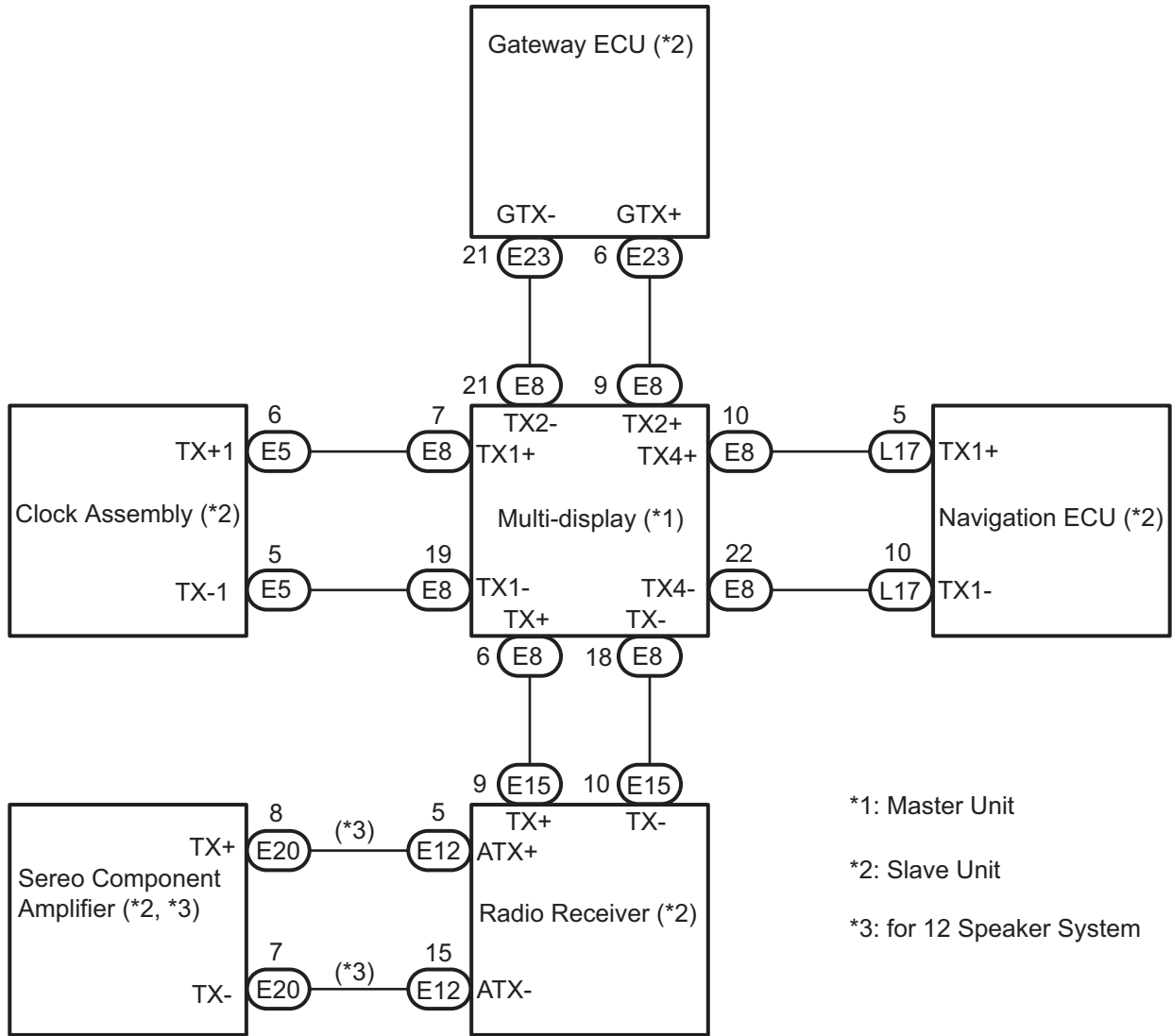
For details of the connectors, refer to "TERMINALS OF ECU"
 (See page [NS-26](#)).

- (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.

AVC-LAN WIRING DIAGRAM



NS

P

E124120E03

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

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

DTC No.	DTC Detection Condition	Trouble Area
01-DC *1	Transmission to component shown by sub-code failed. (Detecting this DTC does not always mean actual failure.)	If the same sub-code is recorded in other components, check harness for power supply and communication system of all components shown by code

HINT:

*1: This code may be stored if the engine is started, idled for 60 seconds and then started again (Key type ignition switch only).

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.

NS

1	CHECK FOR DTC OF OTHER COMPONENTS
----------	--

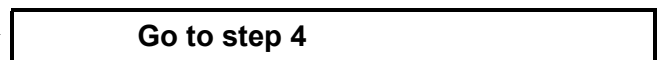
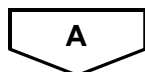
- (a) Check if the component shown by the sub-code is displayed in the check result of the other components.
- (1) Check if "01-DC" is output for the other components.
 - (2) If "01-DC" is output for any other components, check if the same physical address is displayed.

HINT:

For the list of the components shown by sub-codes, refer to the table in step 2.

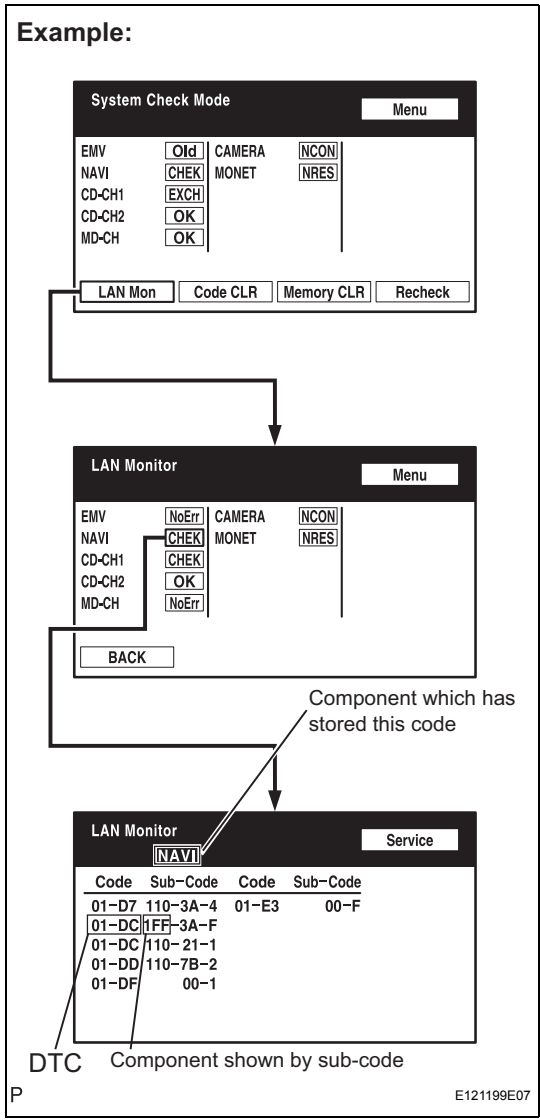
Result

Result	Proceed to
"01-DC" is output and the same physical address is displayed	A
"01-DC" is not output or the same physical address is not displayed	B



2 IDENTIFY THE COMPONENT WHICH HAS STORED THIS CODE

Example:



- (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:

Display	Component
AUDIO H/U (190)	Radio receiver
DSP-AMP (440)	Stereo component amplifier
G/W (1C6)	Gateway ECU
NAVI (178)	Navigation ECU
EMV (110)	Multi-display
CLOCK (1D6)	Clock assembly

HINT:

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

NS

NEXT

3 CHECK COMPONENT WHICH HAS STORED THIS CODE

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

Component Table:

Component	Proceed to
Gateway ECU (G/W)	Gateway ECU communication error (See page NS-135)
Radio receiver (AUDIO H/U)	Radio receiver communication error (See page NS-139)
Stereo component amplifier (DSP-AMP)	Stereo component amplifier communication error (See page NS-143)
Navigation ECU (NAVI)	Navigation ECU communication error (See page NS-151)
Multi-display (EMV)	Multi-display communication error (See page NS-147)
Clock assembly (1D6)	Clock communication error (See page NS-155)

NEXT

END

4 CLEAR DTC

(a) Clear the DTCs (See page [NS-28](#)).

HINT:

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

NEXT

5 RECHECK DTC

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

OK:

Malfunction disappears.

NG

Go to step 3

OK

END

DTC	01-DD	Master Reset
DTC	01-E1	Voice Processing Device ON Error

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-DD *1	The device that should be the master has been disconnected after the engine starts.	<ul style="list-style-type: none"> Multi-display power source circuit AVC-LAN circuit between the multi-display and the component which has stored this code
01-E1 *2	The AMP device records that the AMP output does not function even while the source device is operating.	<ul style="list-style-type: none"> Multi-display Component which has stored this code

HINT:

- *1: This code may be stored if the engine is started and the ignition switch is turned to the START position again. (Key type ignition switch only)
- *2: Even if no fault is present, this trouble code may be stored depending on the battery condition or engine 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
----------	---

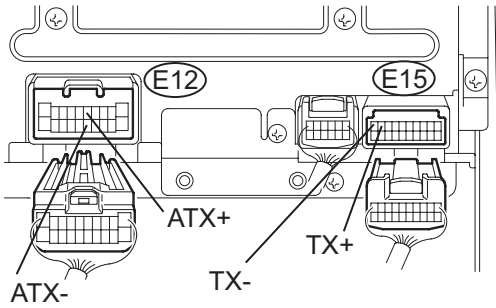
Refer to the multi-display power source circuit (See page [NS-161](#)).

If the power source circuit is operating normally, proceed to the next step.

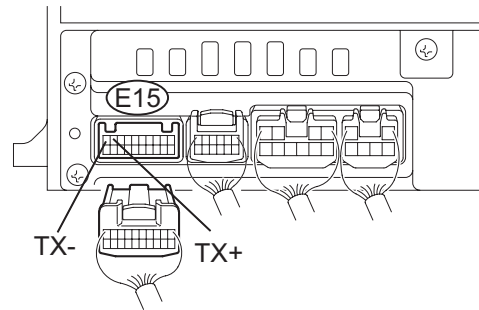


2 INSPECT RADIO RECEIVER

Wire Harness View (12 Speaker):



Wire Harness View (9 Speaker):



P

E126157E01

- (a) Disconnect the radio receiver connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

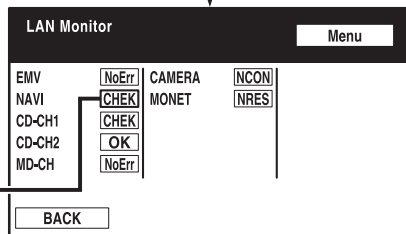
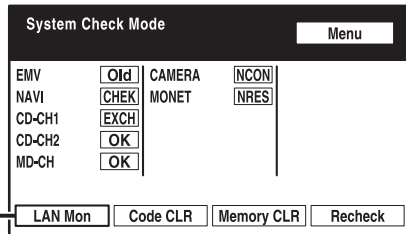
NG **REPLACE RADIO RECEIVER**

OK

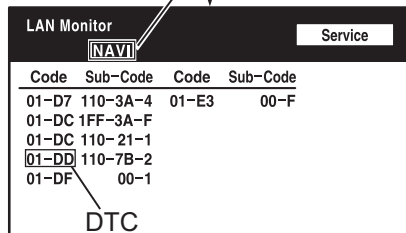
NS

3 IDENTIFY THE COMPONENT WHICH HAS STORED THIS CODE

Example:



Component which has stored this code



DTC

P

E121199E06

- (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:

Display	Component
AUDIO H/U	Radio receiver
DSP-AMP	Stereo component amplifier
G/W	Gateway ECU
NAVI	Navigation ECU
CLOCK	Clock assembly

HINT:

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

NS

NEXT

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

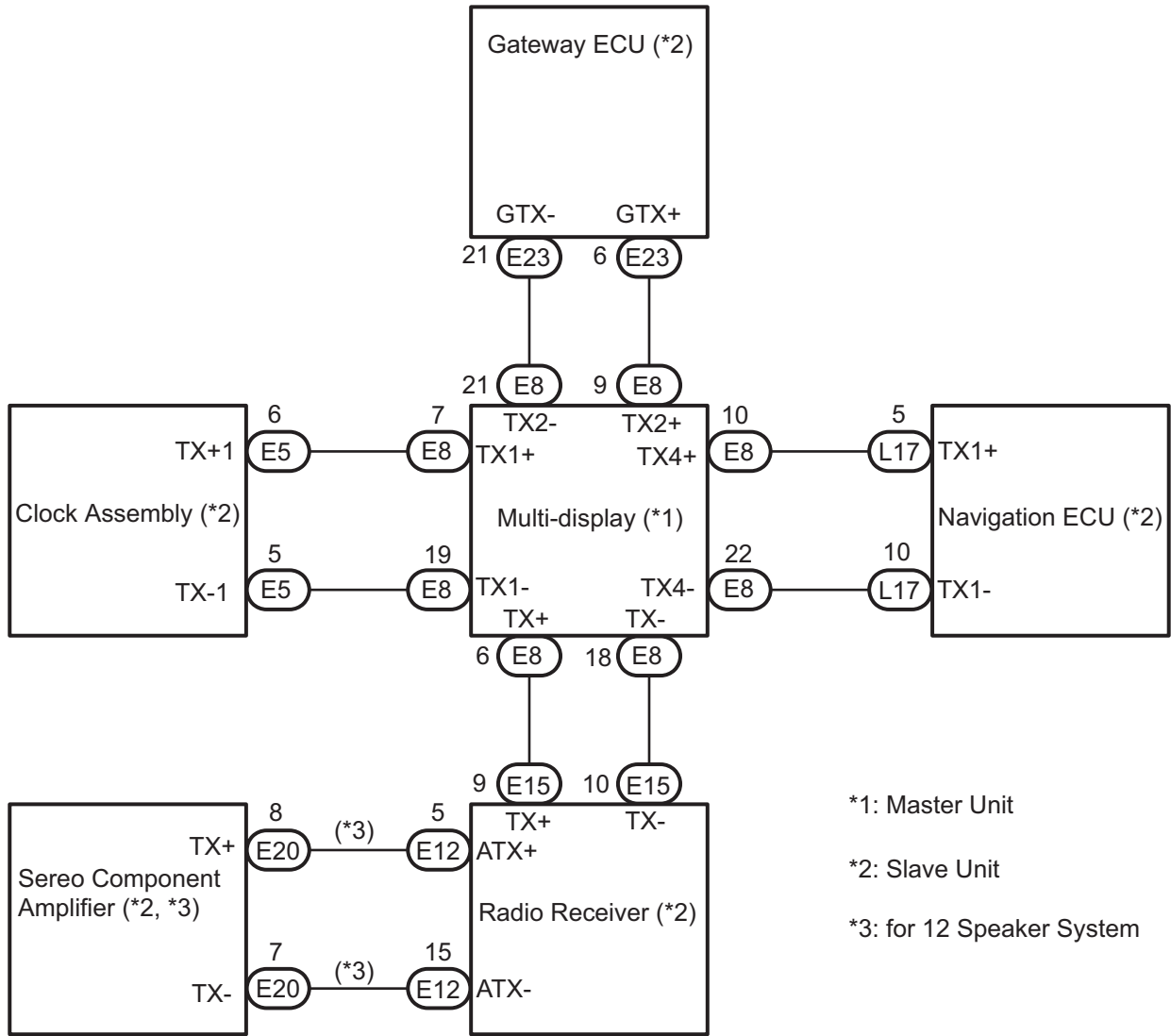
HINT:

For details of the connectors, refer to "TERMINALS OF ECU" (See page NS-26).

- (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.

AVC-LAN WIRING DIAGRAM



NS

NG

REPAIR OR REPLACE HARNESS OR 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

DTC No.	DTC Detection Condition	Trouble Area
01-DF *1	<ul style="list-style-type: none"> • The device with a display fails and the master is switched to the audio device. • A communication error between sub-master (radio receiver) and master occurs. 	<ul style="list-style-type: none"> • Multi-display power source circuit • AVC-LAN circuit between the multi-display and the component which has stored this code • AVC-LAN circuit between the multi-display and the radio receiver • Multi-display • Component which has stored this code

HINT:

*1: When 210 seconds have elapsed after disconnecting the power supply connector of the master component with the ignition 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.**

NS

INSPECTION PROCEDURE

NOTICE:

Be sure to read DESCRIPTION before performing the following procedures:

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

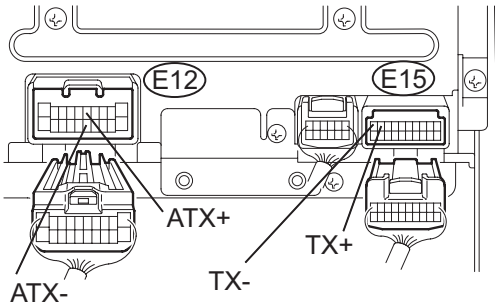
Refer to the multi-display power source circuit (See page [NS-161](#)).

If the power source circuit is operating normally, proceed to the next step.

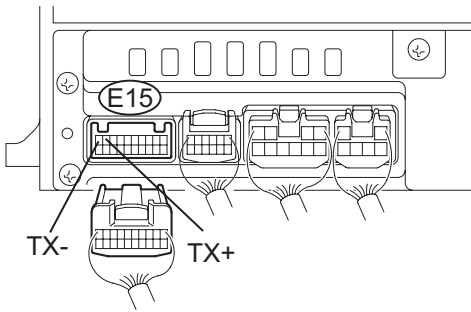


2 INSPECT RADIO RECEIVER

Wire Harness View (12 Speaker):



Wire Harness View (9 Speaker):



P

E126157E01

- (a) Disconnect the radio receiver connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

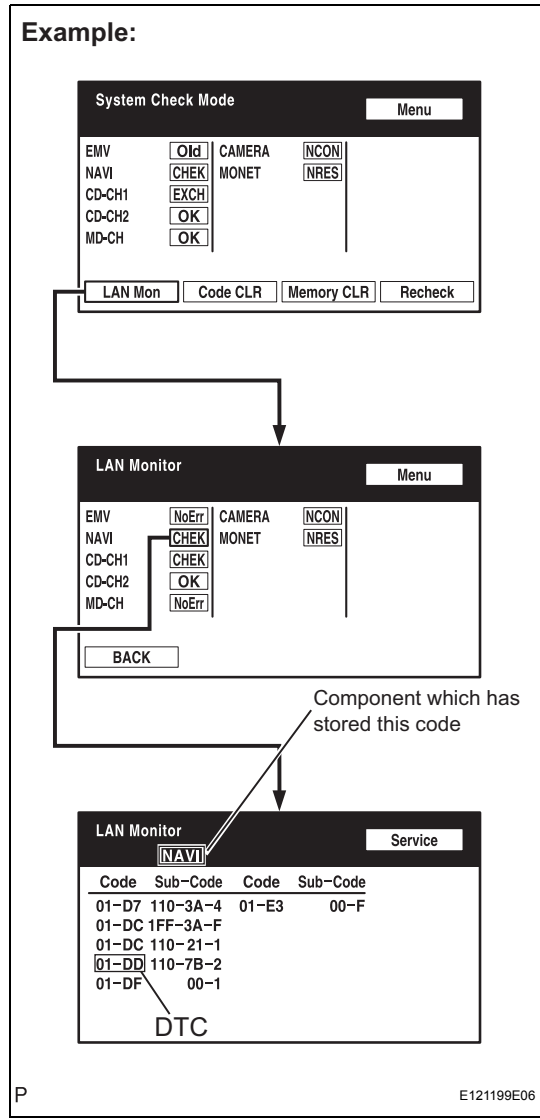
*1: for 12 Speaker System

NG **REPLACE RADIO RECEIVER**

NS

OK

3 IDENTIFY THE 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:

Display	Component
AUDIO H/U	Radio receiver
DSP-AMP	Stereo component amplifier
G/W	Gateway ECU
NAVI	Navigation ECU
CLOCK	Clock assembly

HINT:

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

NS

NEXT

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

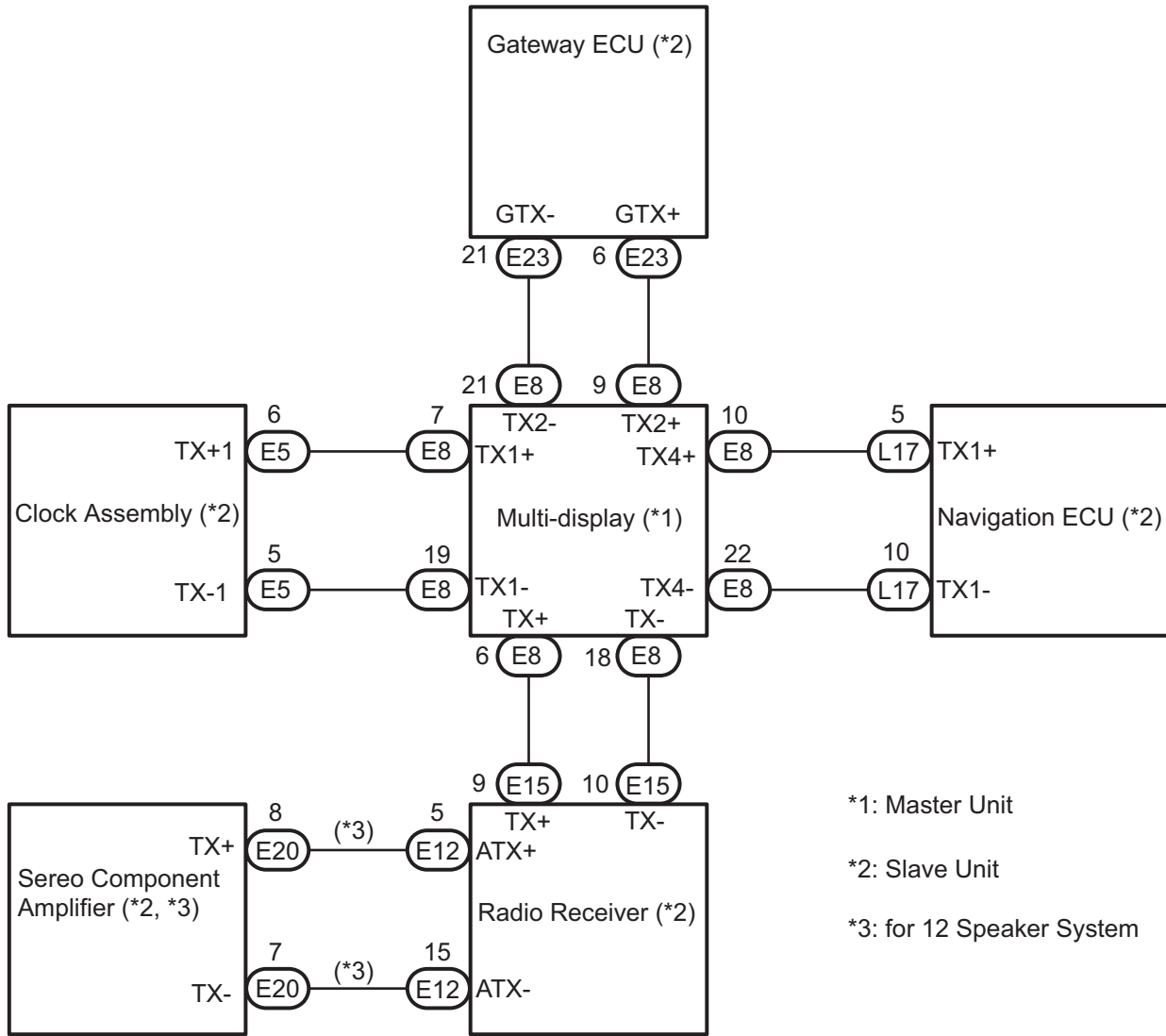
HINT:

For details of the connectors, refer to "TERMINALS OF ECU" (See page NS-26).

- (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.

AVC-LAN WIRING DIAGRAM



NS

P

E124120E03

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5 CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - RADIO RECEIVER)

HINT:

For details of the connectors, refer to "TERMINALS OF ECU" (See page [NS-26](#)).

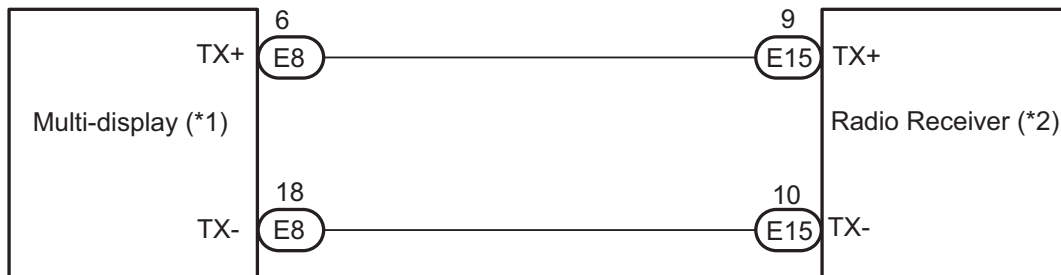
- (a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the multi-display and the radio receiver.

- (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.

OK:

There is no open or short circuit.

AVC-LAN WIRING DIAGRAM



*1: Master Unit

*2: Slave Unit

P

E111831E07

NS

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

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**

OK

END

DTC	01-E0	Registration Complete Indication Error
DTC	01-E3	Registration Demand Transmission
DTC	01-E4	Multiple Frame Incomplete

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
01-E0	"Registration complete" signal from the master device cannot be received.	-
01-E3	The registration demand signal from the slave device is output. Or the registration demand signal is output by receiving connection confirmation signal from the sub-master device.	-
01-E4	The multiple frame transmission is incomplete.	-

HINT:

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

NS 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

DTC No.	DTC Detection Condition	Trouble Area
01-E2	The signal for ON/OFF control from the master device has a problem.	Multi-display

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	REPLACE MULTI-DISPLAY
----------	------------------------------

NEXT

END

DTC	34-10	Error in Picture Circuit
DTC	34-11	No Current in Back-light Error
DTC	34-12	Excess Current in Back-light Error

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
34-10	Error in power supply system for picture circuit	Multi-display
34-11	Decline in power output from inverter circuit for back-light	
34-12	Excess power output from inverter circuit for back-light	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

NS

1	REPLACE MULTI-DISPLAY
----------	------------------------------

NEXT

END

DTC	58-10	Gyro Error
DTC	80-10	Gyro Error

DESCRIPTION

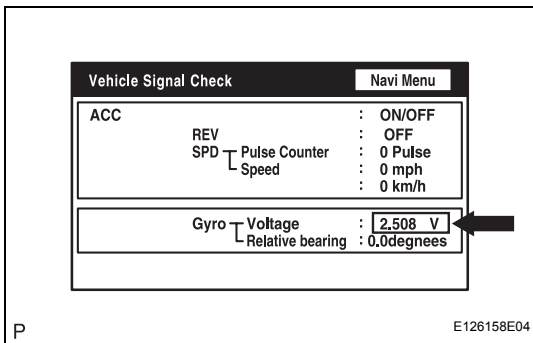
DTC No.	DTC Detection Condition	Trouble Area
58-10	Ground short, power supply short, or open circuit in the gyro signal	<ul style="list-style-type: none"> Gyro sensor Navigation ECU
80-10	Ground short, power supply short, or open circuit in the gyro signal	

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-20](#)).

(b) Check the gyro voltage.

Standard voltage:

0.1 to 4.5 V

NG → **REPLACE NAVIGATION ECU**

OK

2 CLEAR DTC

(a) Clear the DTCs (See page [NS-28](#)).

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

DTC	58-11	GPS Receiver Error
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DTC	80-11	GPS Receiver Error
------------	--------------	---------------------------

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
58-11	<ul style="list-style-type: none"> RTC, ROM, and RAM of the GPS receiver and TCXO error GPS receiver is failed. 	Navigation ECU
80-11	<ul style="list-style-type: none"> RTC, ROM, and RAM of the GPS receiver and TCXO error GPS receiver is failed. 	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	REPLACE NAVIGATION ECU
----------	-------------------------------

NEXT

END

DTC	58-40	GPS Antenna Error
DTC	58-41	GPS Antenna Power Source Error
DTC	80-40	GPS Antenna Error
DTC	80-41	GPS Antenna Power Source Error

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
58-40	GPS antenna error	<ul style="list-style-type: none"> • Wire harness • GPS antenna • Navigation ECU
58-41	Error of the power source to the GPS antenna	
80-40	GPS antenna error	
80-41	Error of the power source to the GPS antenna	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

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

- (a) Check that the GPS antenna cord is securely connected to the navigation ECU connector.

OK:

The cord is securely connected.

NG**REPAIR OR REPLACE HARNESS OR CONNECTOR****OK****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-28](#)).

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

OK:

Same problem does not occur.

NG**REPLACE NAVIGATION ECU****OK****END**

DTC	58-42	Map Disc Read Error
DTC	80-42	Map Disc Read Error

DESCRIPTION

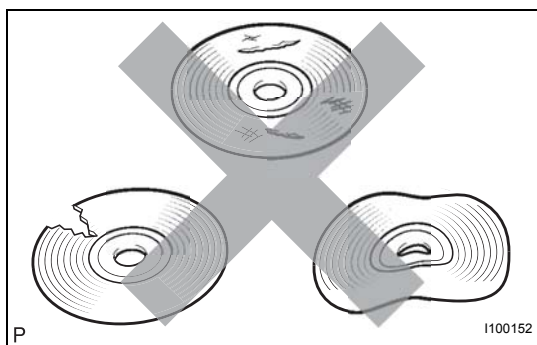
DTC No.	DTC Detection Condition	Trouble Area
58-42	<ul style="list-style-type: none"> • Player error • Scratches or dirt on the disc • Access to an invalid address due to software error 	<ul style="list-style-type: none"> • Map disc • Navigation ECU
80-42	<ul style="list-style-type: none"> • Player error • Scratches or dirt on the disc • Access to an invalid address due to software error 	

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.

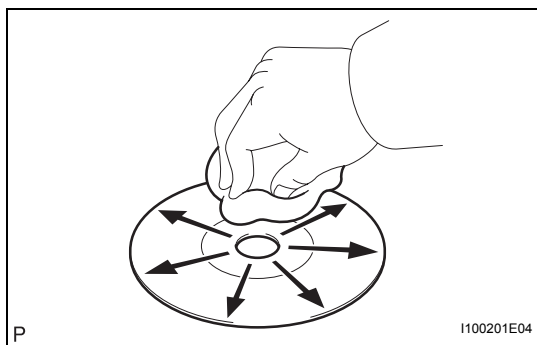
NG →

Go to step 4

NS

OK

2 CLEAN DISC



(a) Disc cleaning

(1) 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.

NEXT

3 RECHECK DTC

(a) Clear the DTCs (See page [NS-28](#)).

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

OK:

Same problem does not occur.

OK  **END**

NG

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.

OK  **END**

NG

NS **REPLACE NAVIGATION ECU**

DTC	58-43	SPD Signal Error
DTC	80-43	SPD Signal Error

DESCRIPTION

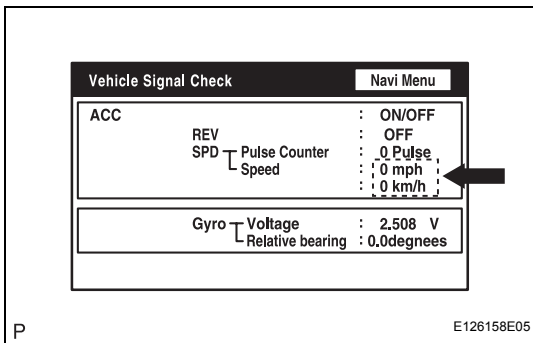
DTC No.	DTC Detection Condition	Trouble Area
58-43	A difference between the GPS speed and SPD pulse is detected.	<ul style="list-style-type: none"> Speed signal circuit Navigation ECU
80-43	A difference between the GPS speed and SPD pulse is detected.	

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-20](#)).
- (b) While driving the vehicle, compare the "SPD" indicator to the reading on the speedometer. Check if these readings are almost equal.

NS

OK:

The readings are almost equal.

OK → **REPLACE NAVIGATION ECU**

NG

2 PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Refer to "Speed signal does not change in the navigation check mode" in the problem symptoms table (See page [NS-24](#)).

NEXT

END

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

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
58-44	Map player error is detected.	Navigation ECU
80-44	Map player error is detected.	

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	RECHECK DTC
----------	--------------------

(a) Clear the DTCs (See page [NS-28](#)).

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

OK:

Same problem does not occur.

OK**END****NG**

REPLACE NAVIGATION ECU

NS

DTC	58-45	High Temperature
DTC	80-45	High Temperature

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
58-45	High map disc player temperature is detected. (Over 80°C)	Navigation ECU
80-45	High map disc player temperature is detected. (Over 80°C)	

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	REPLACE NAVIGATION ECU
-----------	-------------------------------

OK

END

NS

DTC	62-40	No Disc
------------	--------------	----------------

DTC	63-40	No Disc
------------	--------------	----------------

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
62-40	No disc is inserted	Radio receiver
63-40	No disc is inserted	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	CHECK RADIO RECEIVER
----------	-----------------------------

(a) Check if a disc is inserted.

OK:

A disc is inserted.

NS



REPLACE RADIO RECEIVER



END

DTC	63-10	CD Changer Mechanical Error
DTC	62-10	CD Player Mechanical Error
DTC	62-11	CD Insertion and Eject Error
DTC	62-12	CD Reading Abnormal
DTC	63-11	CD Insertion and Eject Error
DTC	63-12	CD Reading Abnormal

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-10	A mechanical error in the CD changer is detected while the CD is not being inserted or ejected.	Radio receiver
63-11	CD insertion or ejection is failed.	
63-12	CD read problem occurs.	
62-10	A mechanical error in the CD player is detected while the CD is not being inserted or ejected.	
62-11	CD insertion or ejection is failed.	
62-12	CD read problem occurs.	

NS

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	REPLACE RADIO RECEIVER
----------	-------------------------------

NEXT

END

DTC	63-41	Wrong Disc
DTC	62-41	Wrong Disc
DTC	62-42	Disc cannot be Read
DTC	63-42	Disc cannot be Read

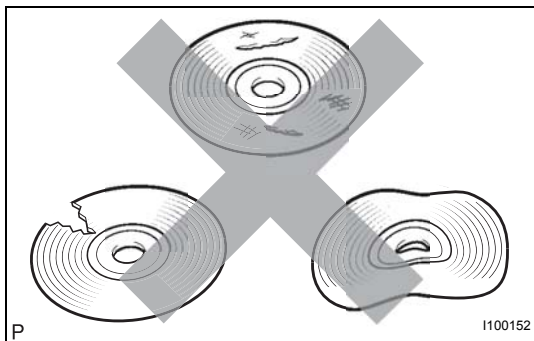
DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-41	An unsuitable disc is inserted.	<ul style="list-style-type: none"> • CD • Radio receiver
63-42	The disc cannot be read.	
62-41	An unsuitable disc is inserted.	
62-42	The disc cannot be read.	

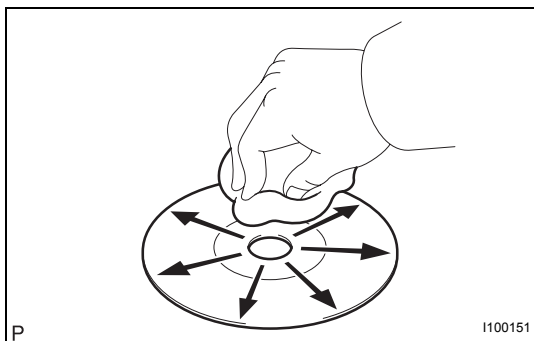
INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

NS**1 CHECK DISC**

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

OK:**No deformations or cracks on the disc.****NG****CHANGE DISC****OK****2 CLEAN DISC**

(a) Disc cleaning

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

NOTICE:**Do not use a conventional record cleaner or anti-static preservative.****NEXT**

3 CLEAR DTC

(a) Clear the DTCs (See page [NS-28](#)).

NEXT

4 RECHECK DTC

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

OK:

Malfunction disappears.

OK → **END**

NG

5 REPLACE DISC

(a) Replace the disc with another and recheck.

(1) Replace the disc with another normal one.

(2) Clear the DTCs (See page [NS-28](#)).

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

OK:

Malfunction disappears.

NG → **REPLACE RADIO RECEIVER**

OK

END

DTC	63-43	CD-ROM Abnormal
DTC	62-43	CD-ROM Abnormal

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-43	CD-ROM operation is abnormal.	<ul style="list-style-type: none"> • CD • Radio receiver
62-43	CD-ROM operation is abnormal.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	CHECK DISC
----------	-------------------

- (a) Make sure that the disc is a normal disc, and that it is not deformed, flawed, stained, burred, or otherwise defective.

OK:**Normal disc**

HINT:

Translucent or uniquely-shaped CDs cannot be played.

NG**DISC IS FAULTY****OK**

2	CHANGE DISC
----------	--------------------

- (a) Replace the CD with another disc and recheck.
- (1) Replace the CD with another normal disc.
 - (2) Clear the DTCs (See page [NS-28](#)).
 - (3) Recheck for DTCs and check if the same trouble occurs again.

OK:**Malfunction disappears.****NG****REPLACE RADIO RECEIVER****OK**

END

NS

DTC	63-44	CD Abnormal
DTC	62-44	CD Abnormal
DTC	62-48	Excess Current
DTC	62-50	Tray Insertion / Ejection Error
DTC	63-48	Excess Current
DTC	63-50	Tray Insertion / Ejection Error

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-44	Operation error in the CD mechanism	Radio receiver
63-48	Excess current is present in the CD changer.	
63-50	Malfunction in insertion/ejection system	
62-44	Operation error in the CD mechanism	
62-48	Excess current is present in the CD player	
62-50	Malfunction in insertion / ejection system	

NS

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	CLEAR DTC
----------	------------------

(a) Clear the DTCs (See page [NS-28](#)).

NEXT

2	RECHECK DTC
----------	--------------------

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

HINT:

If DTCs are detected frequently, replace the radio receiver.

OK:

Malfunction disappears.

NG	REPLACE RADIO RECEIVER
-----------	-------------------------------

OK

END

DTC	63-45	Eject Error
DTC	62-45	Eject Error
DTC	62-51	Elevator Error
DTC	62-52	Clamp Error
DTC	63-51	Elevator Error
DTC	63-52	Clamp Error

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-45	Magazine cannot be ejected.	Radio receiver
63-51	Mechanical error occurs during elevator operation.	
63-52	Error occurs in CD changer clamp.	
62-45	Magazine cannot be ejected.	
62-51	Mechanical error occurs during elevator operation.	
62-52	Error occurs in CD player clamp.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	CHECK RADIO RECEIVER
----------	-----------------------------

- (a) Check if a disc can be changed, inserted, or ejected normally.

OK:**Malfunction disappears.****NG****REPLACE RADIO RECEIVER****OK****END**

DTC	63-46	Scratched / Reversed Disc
DTC	62-46	Scratched / Reversed Disc

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-46	Scratches or dirt is found on CD surface or CD is inserted upside down.	<ul style="list-style-type: none"> • CD • Radio receiver
62-46	Scratches or dirt is found on CD surface or CD is inserted upside down.	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1 CHECK DISC

(a) Check that the CD is not inserted upside down.

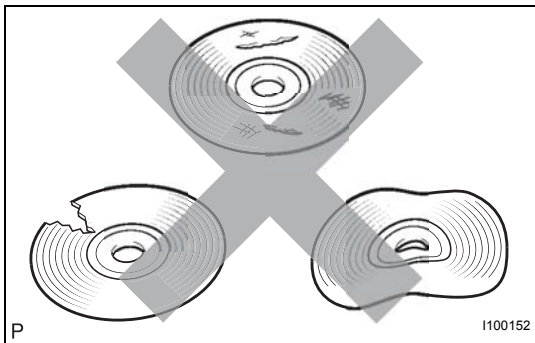
OK:

CD or DVD is properly inserted.

NG → **INSERT DISC**

OK

2 CHECK DISC



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

OK:

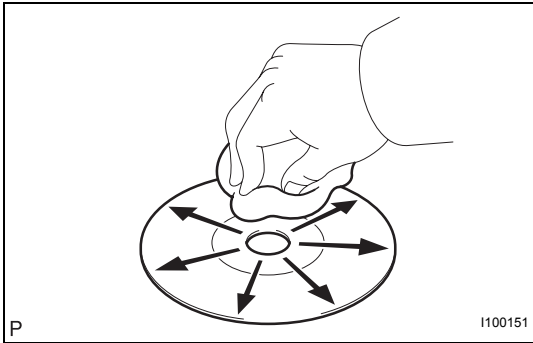
No deformations or cracks on the disc.

NG → **CHANGE DISC**

OK

NS

3	CLEAN DISC
----------	-------------------



- (a) Disc cleaning
- (1) 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.

NEXT

4	CLEAR DTC
----------	------------------

- (a) Clear the DTCs (See page [NS-28](#)).

NEXT

5	RECHECK DTC
----------	--------------------

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

OK:

Malfunction disappears.

OK

END

NG

6	REPLACE DISC
----------	---------------------

- (a) Replace the disc with another and recheck.
- (1) Replace the disc with another normal one.
 - (2) Clear the DTCs (See page [NS-28](#)).
 - (3) Recheck for DTCs and check if the same trouble occurs again.

OK:

Malfunction disappears.

NG

REPLACE RADIO RECEIVER

OK

END

DTC	63-47	High Temperature
DTC	62-47	High Temperature

DESCRIPTION

DTC No.	DTC Detection Condition	Trouble Area
63-47	Sensor detects that CD unit temperature is high. (Over 80°C)	Radio receiver
62-47	Sensor detects that CD unit temperature is high. (Over 80°C)	

INSPECTION PROCEDURE

HINT:

After the inspection is completed, clear the DTCs.

1	CHECK RADIO RECEIVER
----------	-----------------------------

- (a) Park the vehicle in a cool place.
- (b) Check that the temperature of the radio receiver has become sufficiently low, then start the engine. Check that the malfunction disappears.

OK:

Malfunction disappears.

NG	REPLACE RADIO RECEIVER
-----------	-------------------------------

OK

END

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

OK

2 CHECK IMAGE QUALITY SETTING

- (a) Check that the screen color quality can be set.

OK:

Setting is possible.

NG

Go to step 3

OK

SET SCREEN COLOR QUALITY TO NORMAL

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

OK

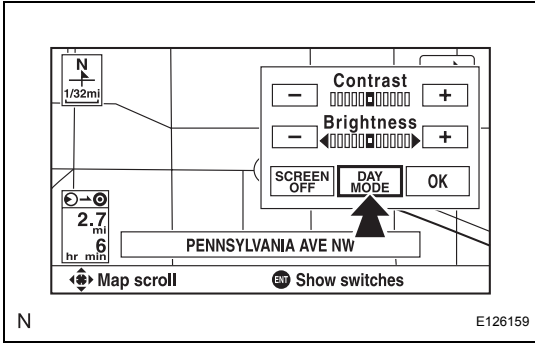
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

NS

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 "DISP" switch.
 - (b) Turn the light control switch to the TAIL position.
 - (c) Check if "DAY MODE" on the display adjustment is ON.
- OK:**
"DAY MODE" is ON.

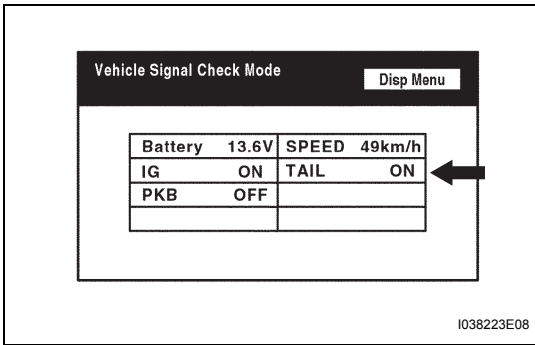
NG → **Go to step 2**

OK

TURN "DAY MODE" SETTING OFF

NS

2 CHECK VEHICLE SIGNAL (DISPLAY CHECK MODE)



- (a) Enter the "Display Check Mode" (See page NS-17).
 - (b) Check that the display changes between ON and OFF according to the light control switch operation.
- OK**

Light Control Switch	Display
TAIL or ON	ON
OFF	OFF

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

NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

OK

REPLACE MULTI-DISPLAY

Panel Switches do not Function

INSPECTION PROCEDURE

1 CHECK NAVIGATION CONTROLLER

- (a) Check for foreign matter around the switches that might prevent operation.

OK:

No foreign matter is found.

NG

REMOVE ANY FOREIGN OBJECT

OK

2 CHECK REMOTE COMMANDER CHECK (DISPLAY CHECK MODE)

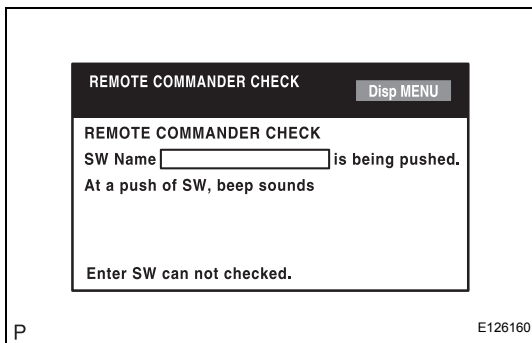
- (a) Enter the "Display Check Mode" (See page [NS-17](#)).
 (b) Operate the abnormal switch and check if the switch name and status are correctly displayed.

OK:

The switch name and status are correctly displayed as operated.

NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE



OK

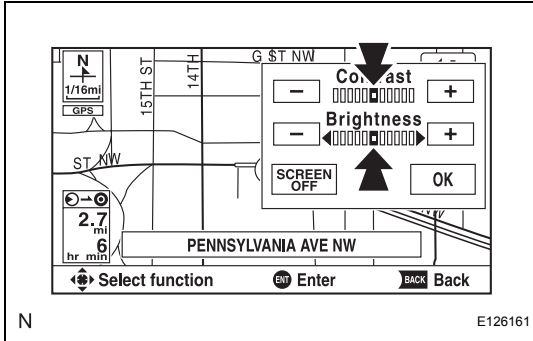
REPLACE MULTI-DISPLAY

NS

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.

OK:
Returns to normal.

NG → **Go to step 2**

OK

END

NS

2 CHECK CABIN

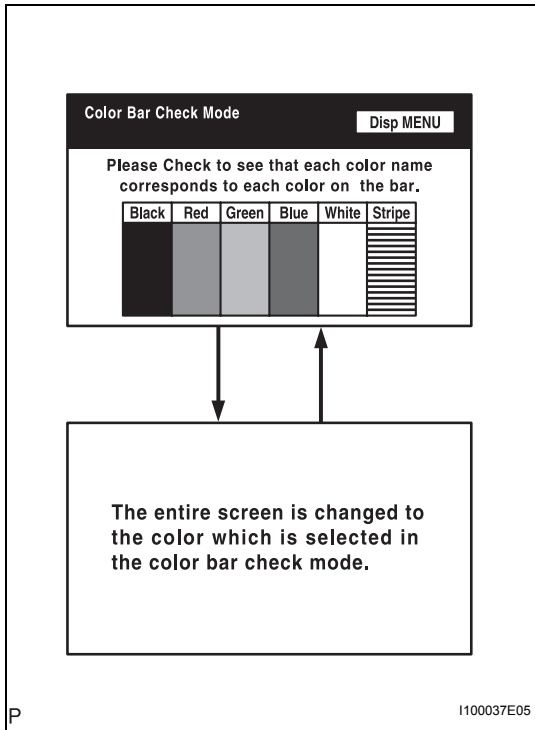
- (a) Check that the cabin temperature is warmer than -20°C (-4.0°F).

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

NG → **HEAT CABIN**

OK

3 CHECK COLOR BAR (DISPLAY CHECK MODE)



- (a) Enter the "Display Check Mode" (See page [NS-17](#)).
- (b) Check that the color bars match the displayed names.

OK:

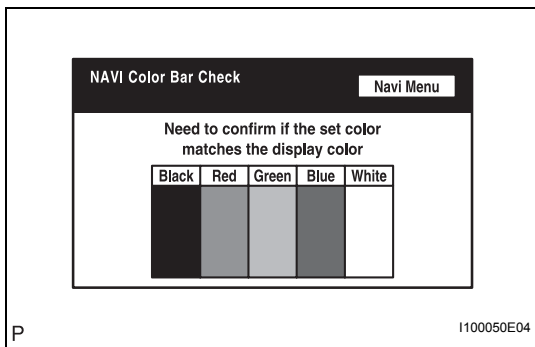
Color bars match the displayed names.

NG → **REPLACE MULTI-DISPLAY**

NS

OK

4 CHECK NAVI COLOR BAR (NAVIGATION CHECK MODE)



- (a) Enter the "Navigation Check Mode" (See page [NS-20](#)).
- (b) Check that the color bars match the displayed names.

OK:

Color bars match the displayed names.

NG → **REPLACE MULTI-DISPLAY**

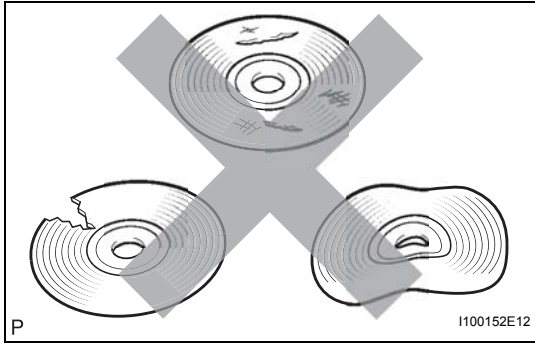
OK

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 map disc.

NG

REPLACE MAP DISC

OK

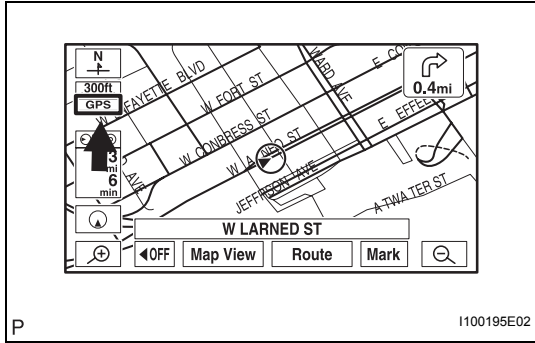
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

NS

Vehicle Position Mark Deviates Greatly

INSPECTION PROCEDURE

1 CHECK GPS MARK



OK

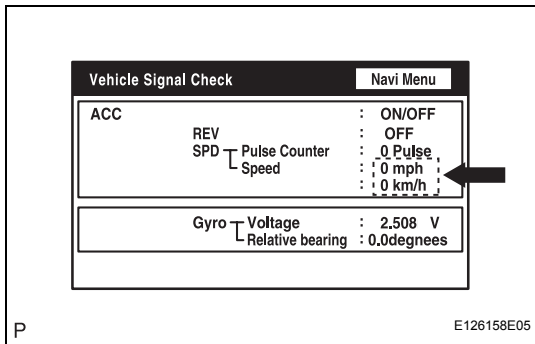
(a) Check that the GPS mark is displayed.

OK:
GPS mark is displayed.

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

NS

2 CHECK VEHICLE SIGNAL (NAVIGATION CHECK MODE)



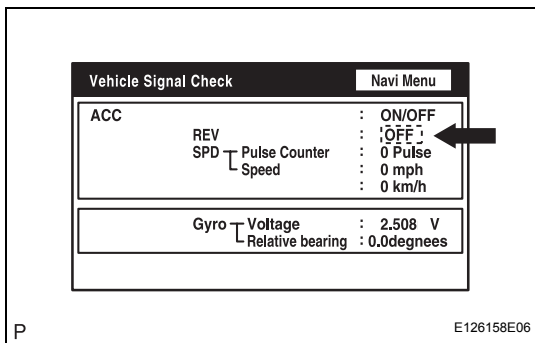
OK

(a) Enter the "Navigation Check Mode" (See page NS-20).
(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 SIGNAL (NAVIGATION CHECK MODE)



OK

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

OK

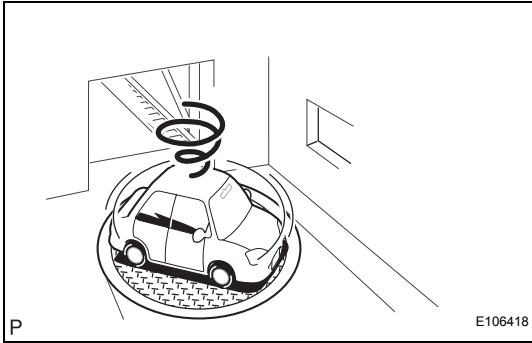
Shift Lever Position	Display
P	OFF
R	ON

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 NAVIGATION CHECK MODE" IN PROBLEM SYMPTOMS TABLE

OK

PROCEED TO NEXT CIRCUIT INSPECTION 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.

OK:

Vehicle has not been turned by turntable.

HINT:

If the vehicle is rotated on a turntable with the ignition switch is turned on (ACC or IG), the system may store the angular velocity. As a result, the vehicle position cursor may deviate.

NG

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

NS

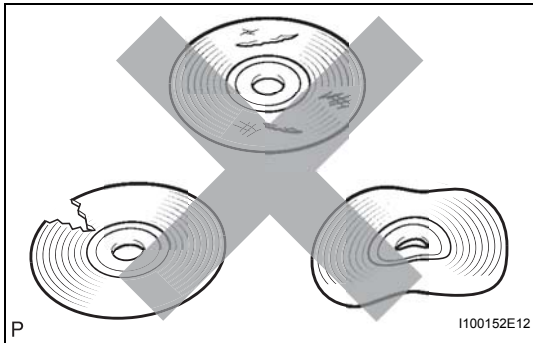
OK

PROCEED TO NEXT CIRCUIT INSPECTION 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

OK

2 CHECK NAVIGATION DISPLAY

NS

(a) Check if a touch scroll can be performed on the map display.

OK:

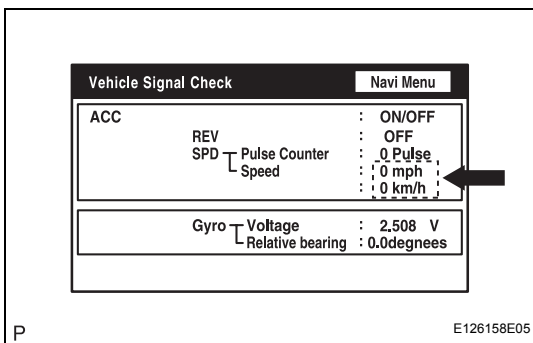
Touch scroll can be performed.

NG →

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

OK

3 CHECK VEHICLE SIGNAL (NAVIGATION CHECK MODE)



(a) Enter the "Navigation Check Mode" (See page [NS-20](#)).

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

OK:

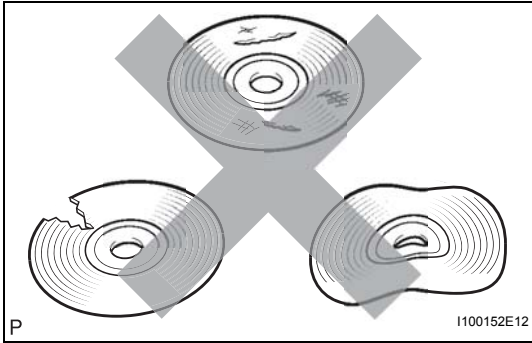
The readings are almost equal.

NG →

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

OK

PROCEED TO NEXT CIRCUIT INSPECTION 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 map disc.

NG

REPLACE MAP DISC

OK

NS

PROCEED TO NEXT CIRCUIT INSPECTION 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.

NG 

Go to step 2

OK 

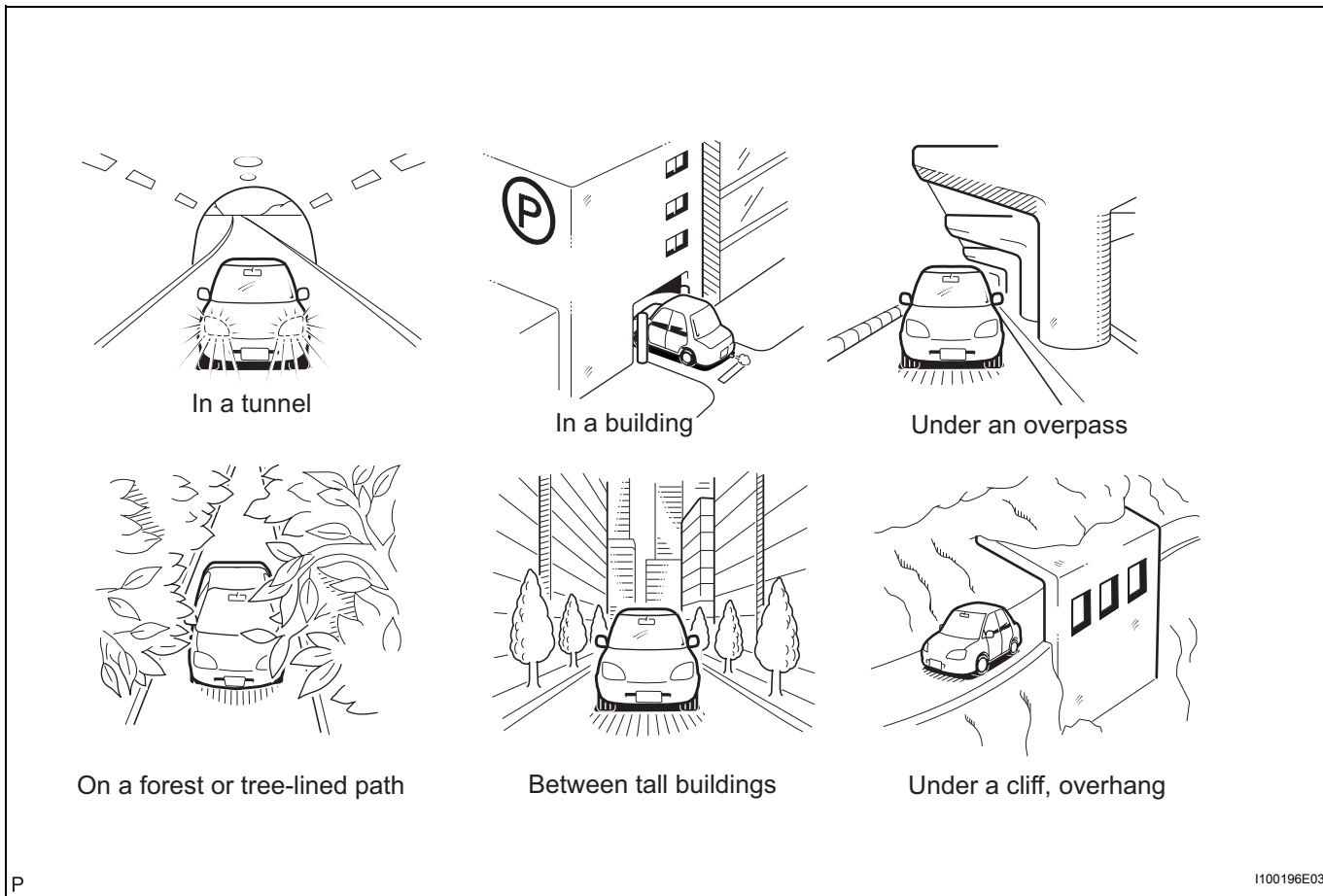
END

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.

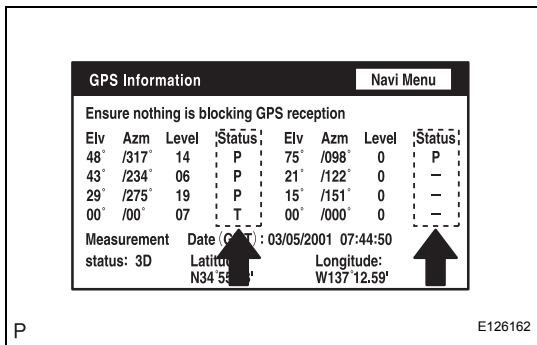
NG

Go to step 3

OK

SYSTEM RETURN TO NORMAL

3 CHECK GPS INFORMATION (NAVIGATION CHECK MODE)



- (a) Enter the "Navigation Check Mode" (See page NS-20).
- (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 CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

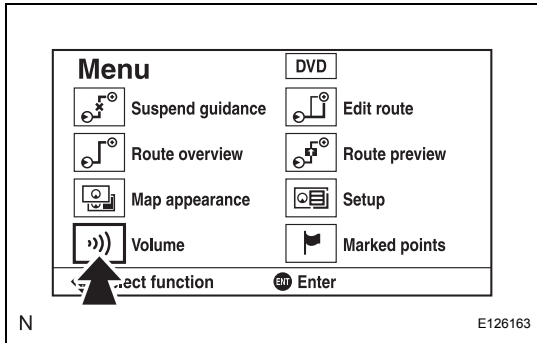
OK

REPLACE NAVIGATION ECU

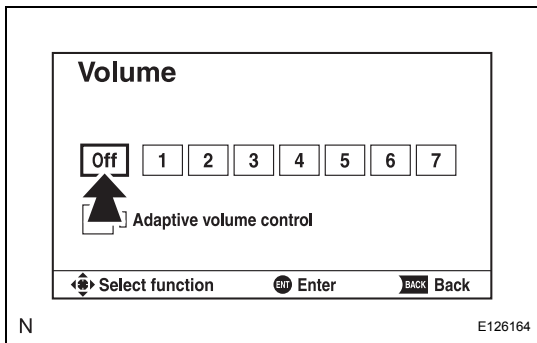
Voice Guidance does not Function

INSPECTION PROCEDURE

1 CHECK NAVIGATION SETTING



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



- (c) Check that "Off" is not selected.

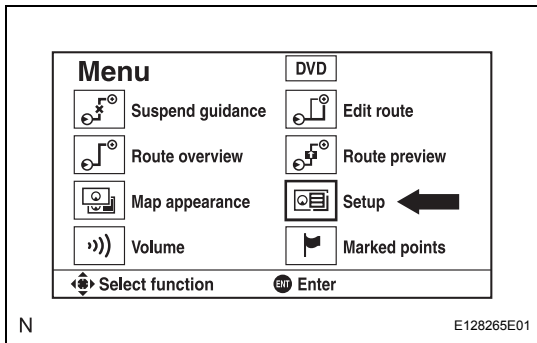
OK:

"Off" is not selected.

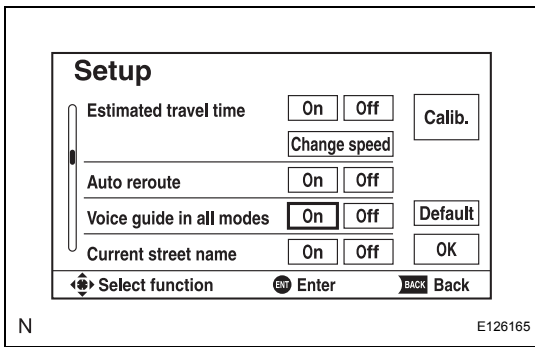
NG → **TURN VOICE GUIDANCE VOLUME UP TO 4 USING VOICE ADJUSTMENT SWITCHES**

OK

2 CHECK NAVIGATION SETTING



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



(c) Check that "Voice guide in all modes" is not OFF.

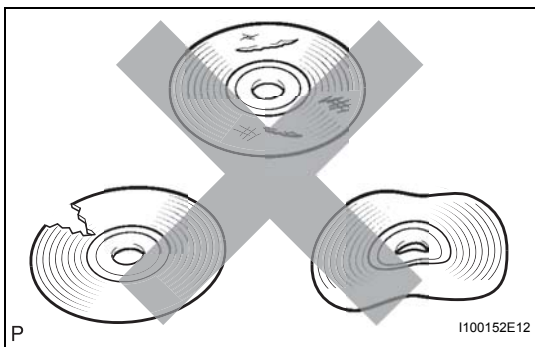
OK:

Voice guide in all modes is not OFF.

NG → **TURN VOICE GUIDANCE IN ALL MODES "ON"**

OK

3 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

4 CHECK RADIO RECEIVER

(a) Check that audio sound can be heard from the driver side speaker.

OK:

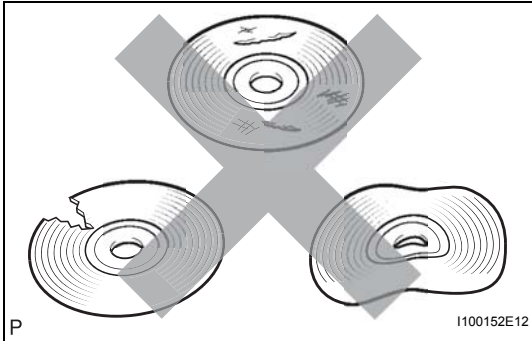
Audio sound can be heard.

NG → **PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE**

OK

REPLACE NAVIGATION ECU

NS

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

OK

NS

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 CIRCUIT INSPECTION
SHOWN IN PROBLEM SYMPTOMS TABLE**

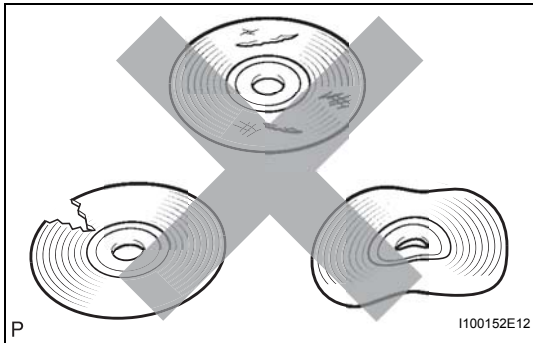
OK

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

OK

2 SET DESTINATION

NS

(a) Set another destination and check if the system can calculate the route correctly.

OK:

Route can be correctly calculated.

NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

OK

END

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:

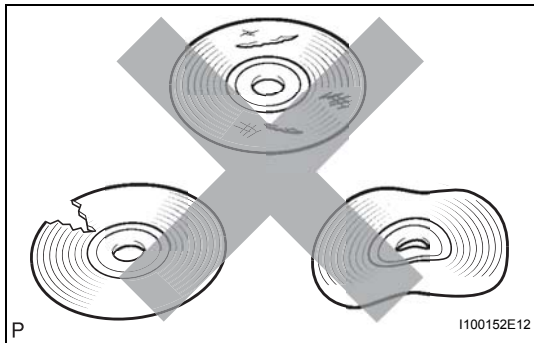
System's voice recognition level is low with any voice.

NG →

END

OK

2 CHECK MAP DISC



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

OK:

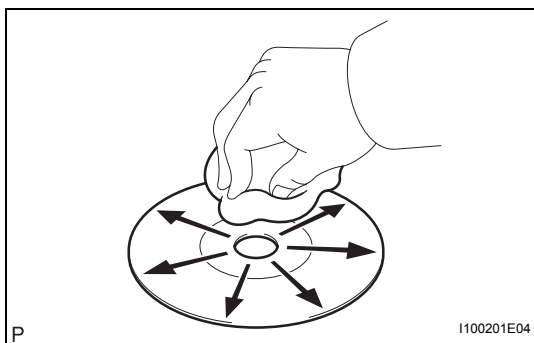
No deformations or cracks on map disc.

NG →

REPLACE MAP DISC

OK

3 CHECK MAP DISC



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

OK:

No dirt is on 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's surface radially with a soft cloth.

NG →

CLEAN MAP DISC

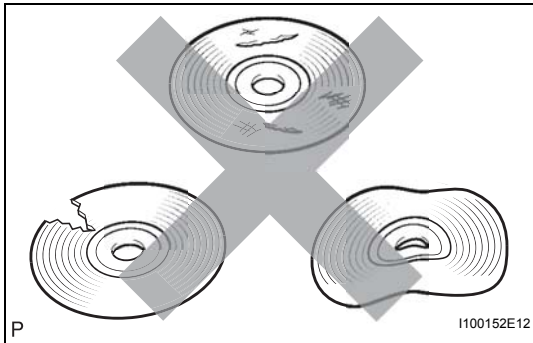
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Voice is not Recognized

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.

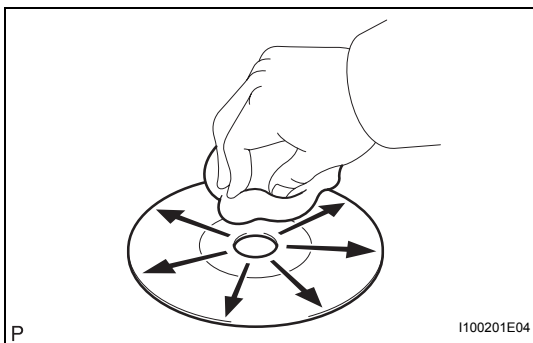
NG

REPLACE MAP DISC

OK

2 CHECK MAP DISC

NS



(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.

NG

CLEAN MAP DISC

OK

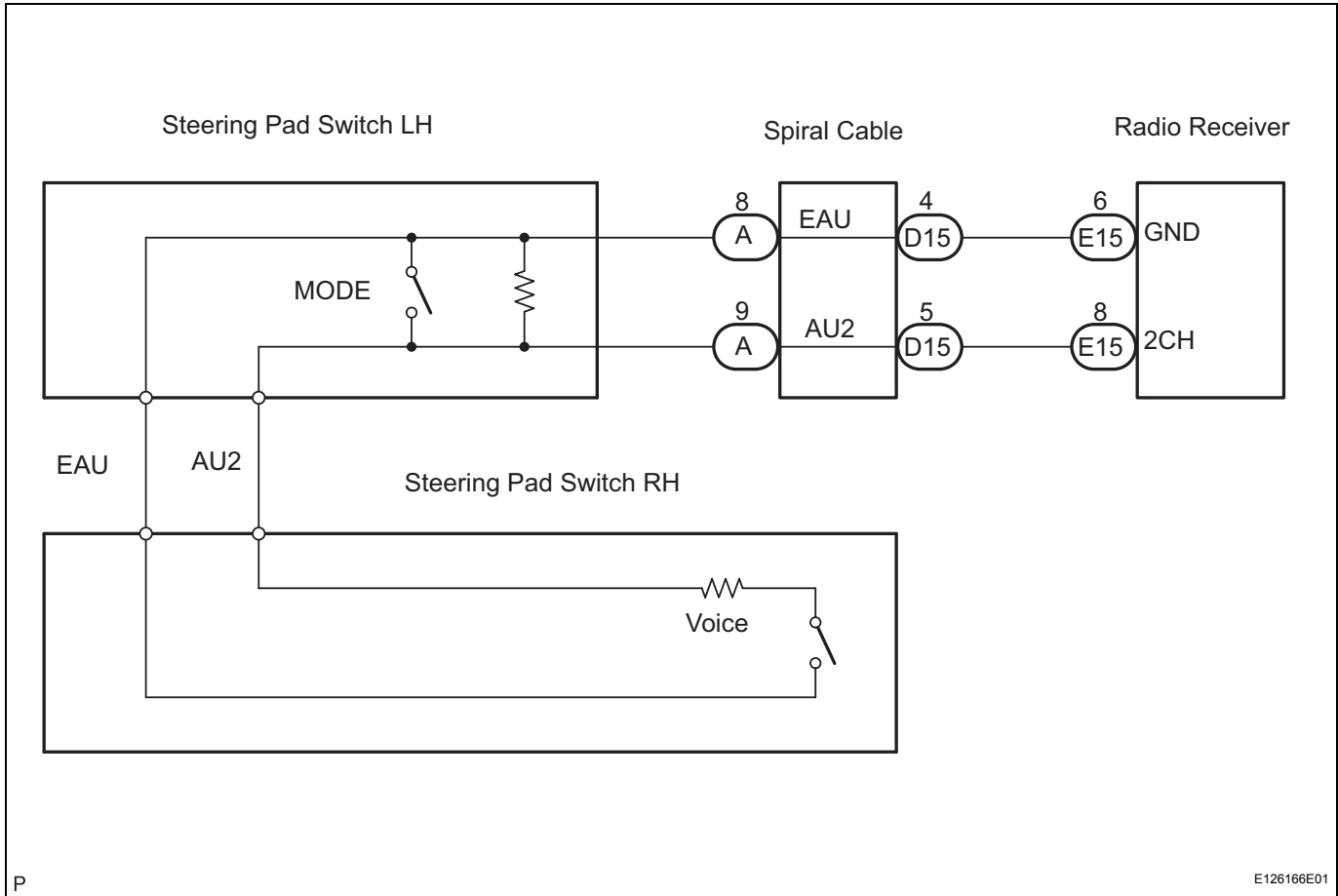
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

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 by 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 by the steering pad switch, and the navigation system itself cannot function.

WIRING DIAGRAM

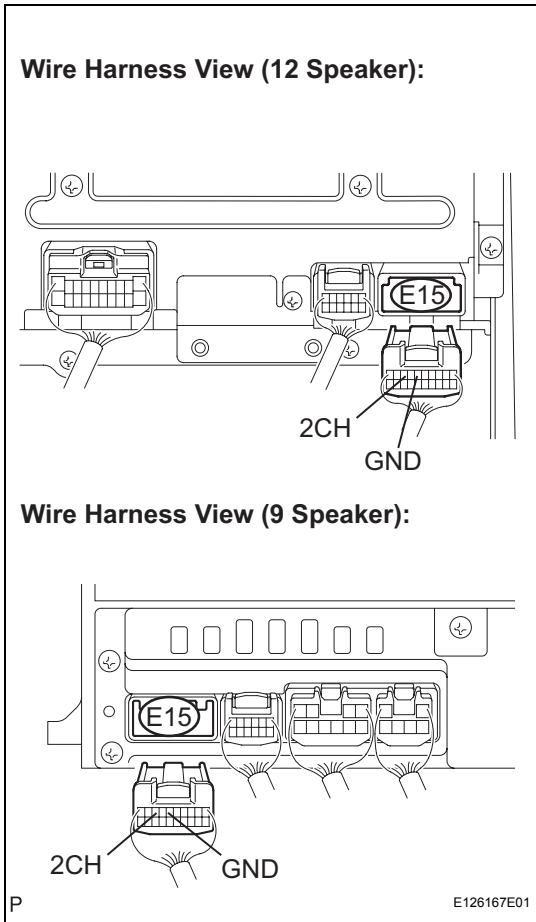


INSPECTION PROCEDURE

NOTICE:

The vehicle is equipped with an SRS (Supplemental Restraint System) 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-1](#)).

1 INSPECT RADIO RECEIVER



- (a) Disconnect the radio receiver connector E15.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
2CH - GND	No switch is pushed	Approx. 100 kΩ
2CH - GND	VOICE switch: push	Approx. 3.2 kΩ

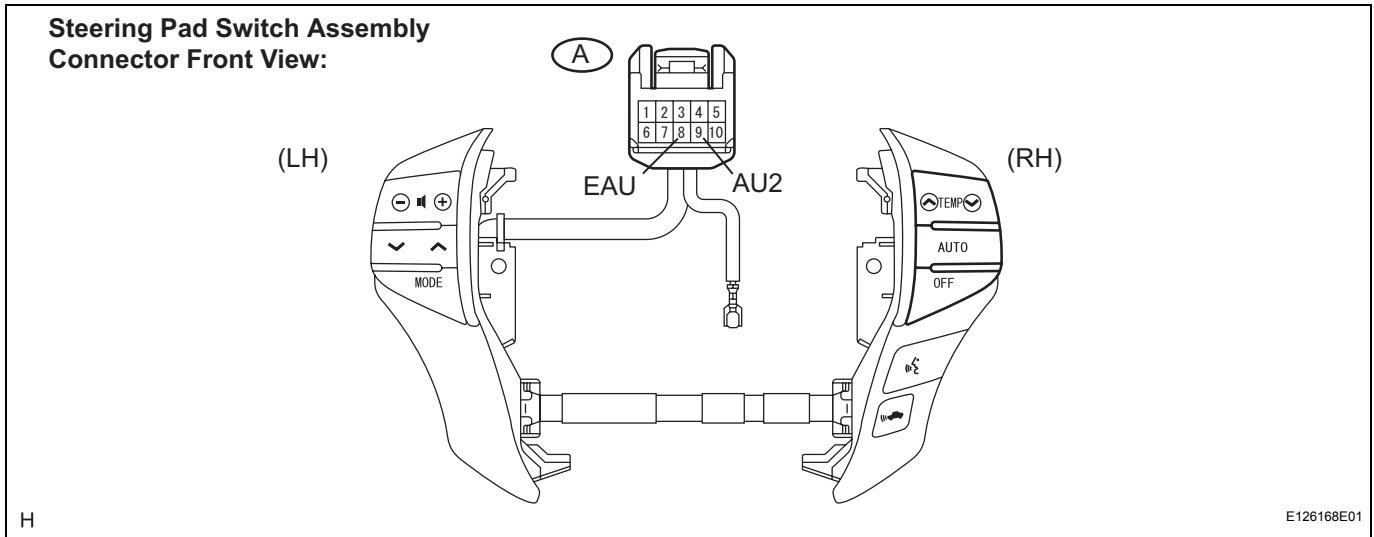
NG → **Go to step 2**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

2 INSPECT STEERING PAD SWITCH ASSEMBLY

- (a) Disconnect the steering pad switch assembly connector A.



(b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
AU2 - EAU	No switch is pushed	Approx. 100 kΩ
AU2 - EAU	VOICE switch: push	Approx. 3.2 kΩ

NS

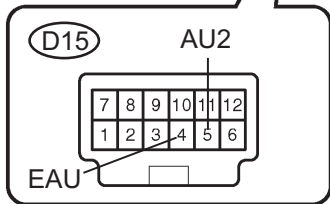
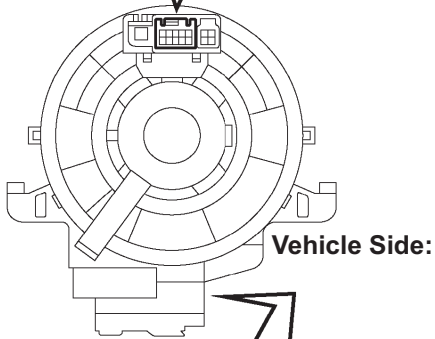
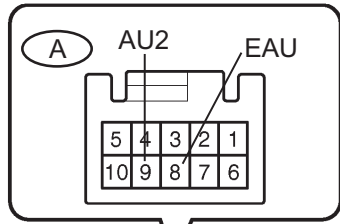
NG

REPLACE STEERING PAD SWITCH ASSEMBLY

OK

3 INSPECT SPIRAL CABLE

Steering Pad Switch Assembly Side:



N I039337E24

- (a) Disconnect the spiral cable connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
EAU - EAU	Always	Below 1 Ω
AU2 - AU2	Always	Below 1 Ω

NG → **REPLACE SPIRAL CABLE**

NS

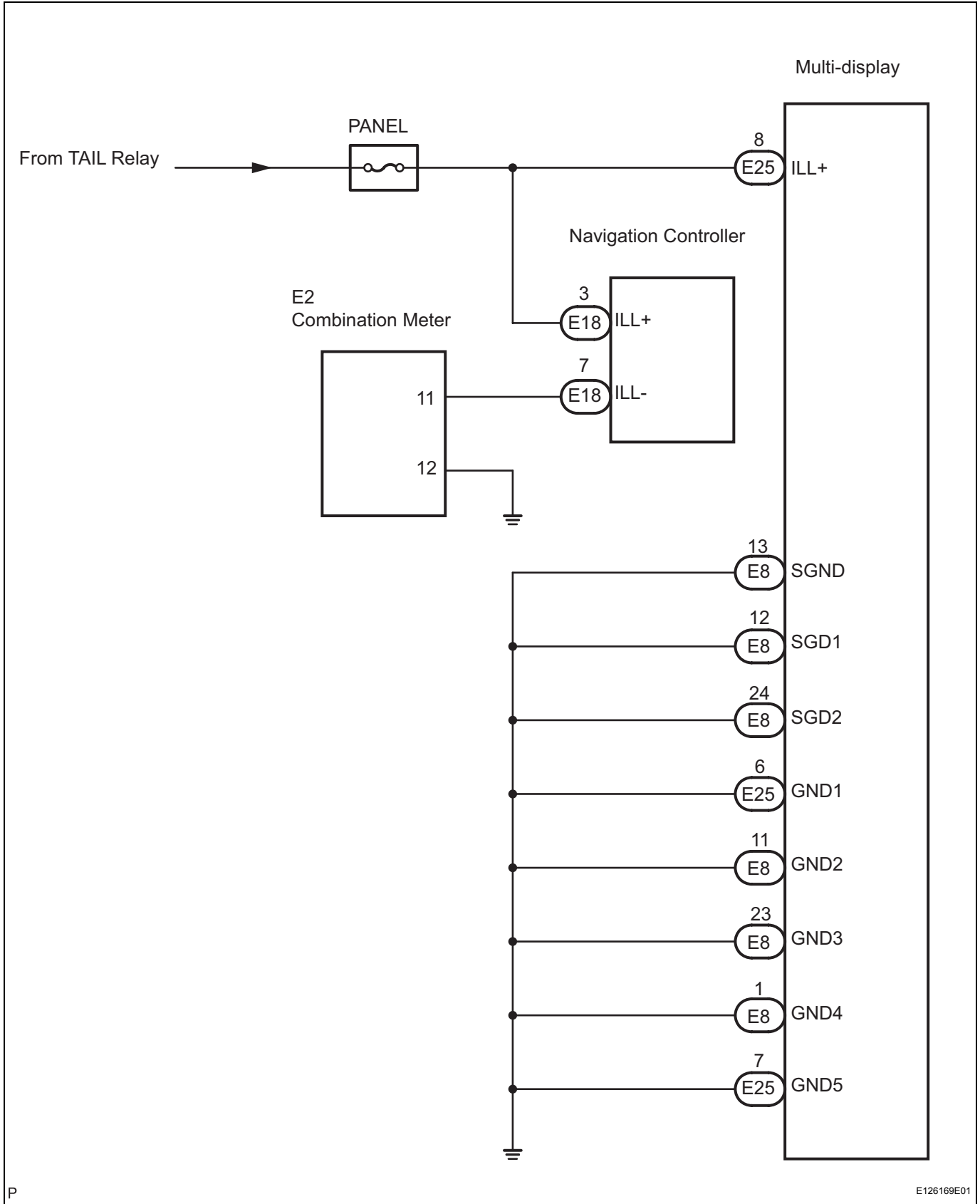
OK

REPAIR OR REPLACE HARNESS OR CONNECTOR (SPIRAL CABLE - RADIO RECEIVER)

Illumination Circuit**DESCRIPTION**

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

WIRING DIAGRAM



NS

INSPECTION PROCEDURE

1 CHECK ILLUMINATION

- (a) Check if the illumination for the multi-display, radio receiver, navigation controller or others (transmission control SW, hazard warning switch, cigarette lighter, etc.) comes on when the light control switch is turned to the HEAD or TAIL position.

Result

Condition	Proceed to
Illumination comes on for components except multi-display	A
Illumination comes on for components except navigation controller	B
No illumination comes on (multi-display, radio receiver, navigation controller, etc.)	C

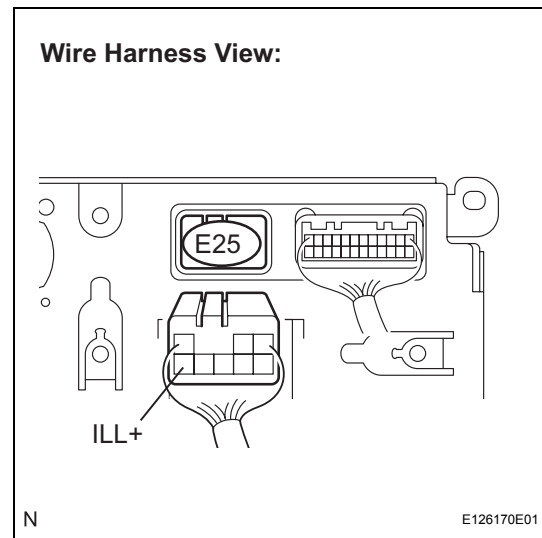
B → **Go to step 4**

C → **GO TO LIGHTING SYSTEM**

A

NS

2 INSPECT MULTI-DISPLAY



- (a) Disconnect the multi-display connector E25.
- (b) Measure the voltage according to the value(s) in the table below.

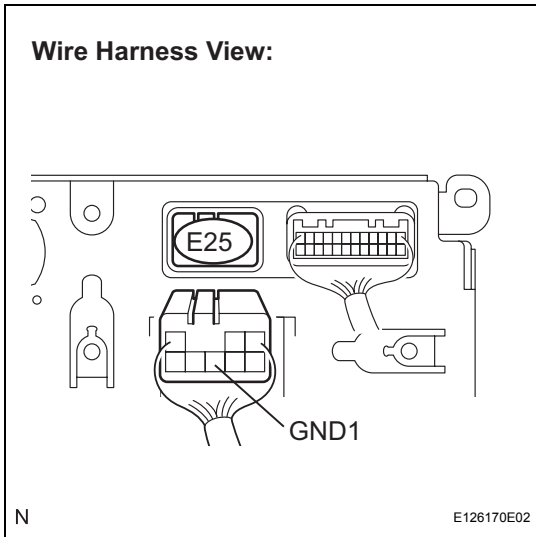
Standard voltage

Tester connection	Condition	Specified condition
ILL+ - Body ground	Light control SW HEAD or TAIL	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

3 CHECK HARNESS AND CONNECTOR (MULTI-DISPLAY - BODY GROUND)



- (a) Disconnect the multi-display connector E25.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

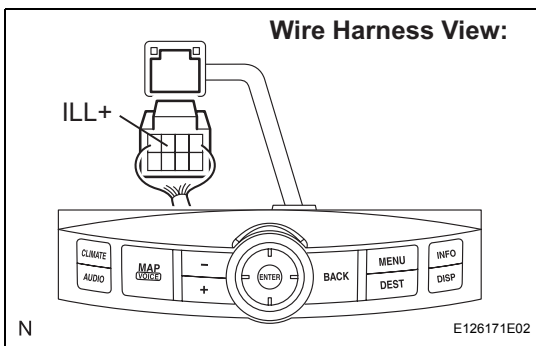
Tester connection	Condition	Specified condition
GND1 - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE MULTI-DISPLAY

4 INSPECT NAVIGATION CONTROLLER



- (a) Disconnect the navigation controller connector E18.
- (b) Measure the voltage according to the value(s) in the table below.

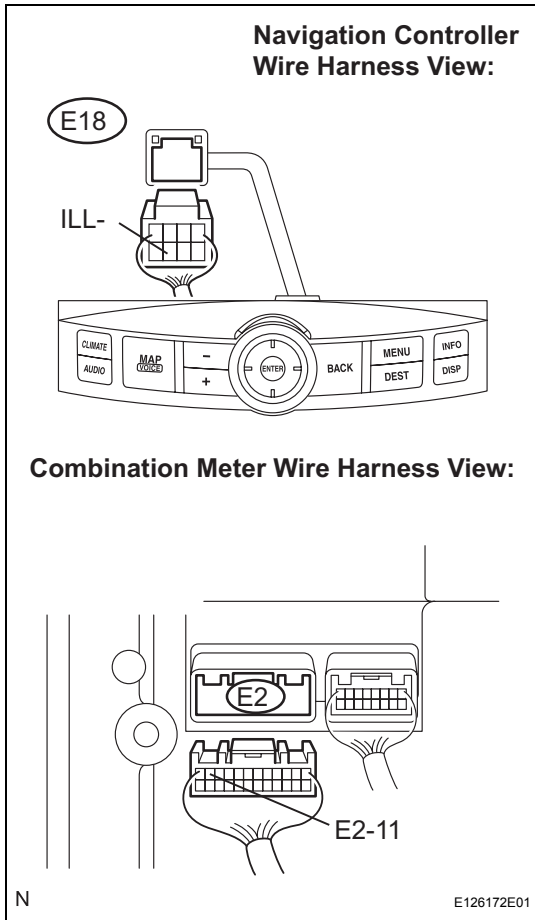
Standard voltage

Tester connection	Condition	Specified condition
ILL+ - Body ground	Light control SW HEAD or TAIL	10 to 14 V

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

5 CHECK HARNESS AND CONNECTOR (NAVIGATION CONTROLLER - COMBINATION METER)



- (a) Disconnect the combination meter connector E2.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
ILL- - E2-11	Always	Below 1 Ω

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR**

OK

REPLACE NAVIGATION CONTROLLER

NS

AVC-LAN Circuit

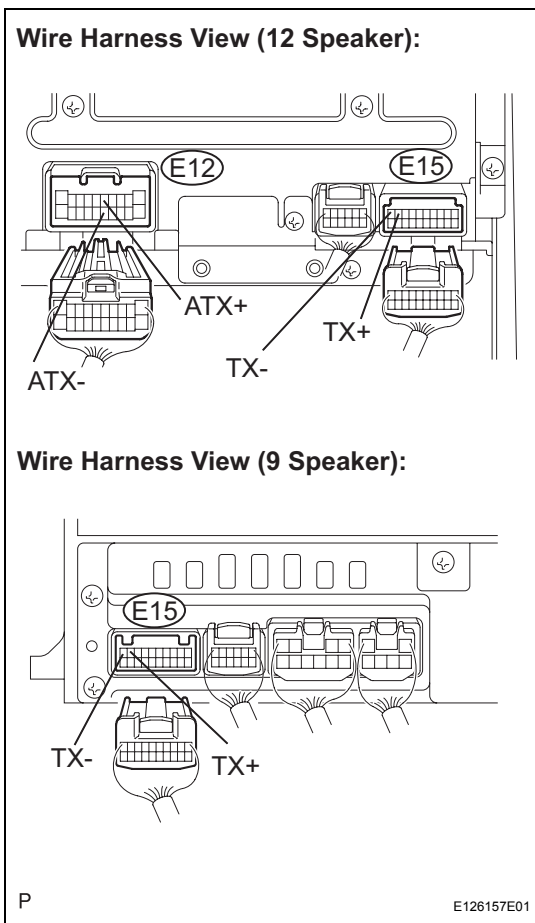
DESCRIPTION

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 INSPECT RADIO RECEIVER



- (a) Disconnect the radio receiver connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NG REPLACE RADIO RECEIVER

OK

2 CHECK HARNESS AND CONNECTOR

HINT:

For details of the connectors, refer to "TERMINALS OF ECU" (See page [NS-26](#)).

- (a) Referring to the AVC-LAN wiring diagram below, check all AVC-LAN circuits.

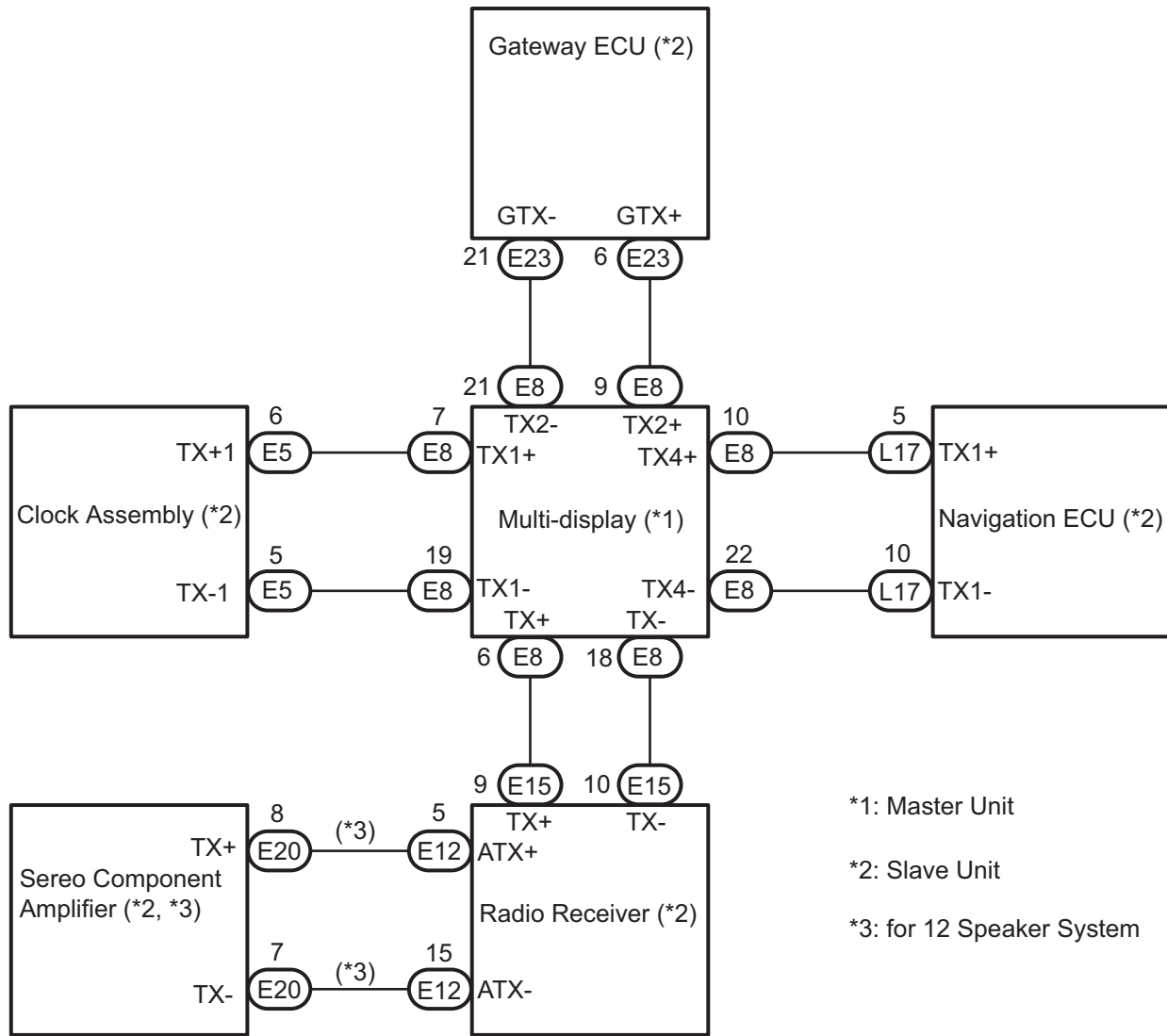
- (1) Check for an open or short in all AVC-LAN circuits.

OK:

There is no open or short circuit.

NS

AVC-LAN WIRING DIAGRAM



NS

P

E124120E03

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Vehicle Speed Signal Circuit between Navigation ECU and Combination Meter

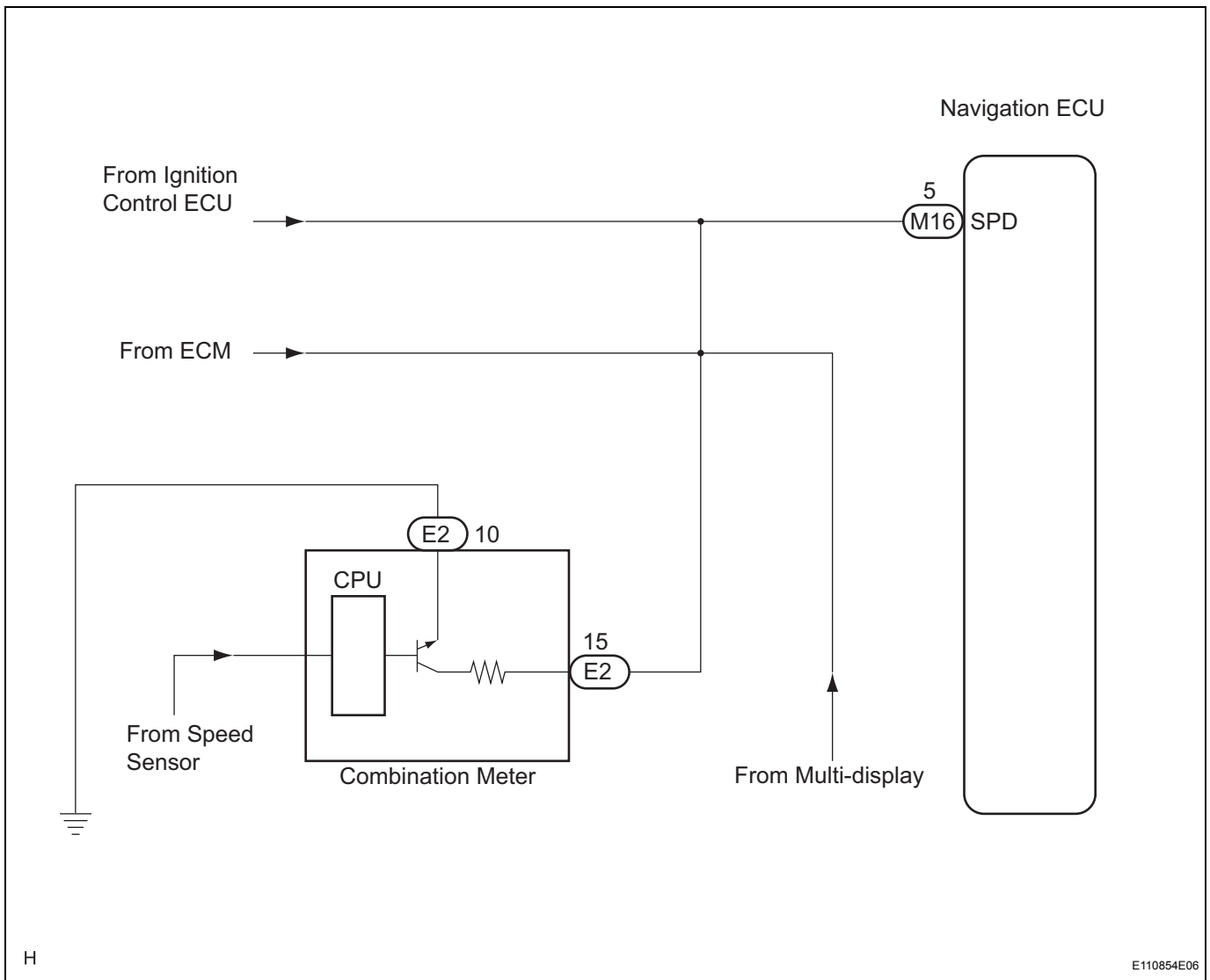
DESCRIPTION

The navigation ECU receives a vehicle speed signal from the combination meter and information about the GPS antenna, and then adjusts vehicle position.

HINT:

- A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter. The signal is changed to a pulse signal at the transistor in the combination meter. Each ECU controls the respective system based on the pulse signal.
- If a short occurs in an ECU, all systems in the diagram below will not operate normally.

WIRING DIAGRAM



NS

INSPECTION PROCEDURE

1 CHECK 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.

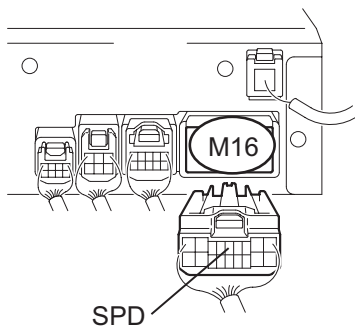
NG

GO TO COMBINATION METER SYSTEM

OK

2 INSPECT NAVIGATION ECU

Wire Harness View:



P

E126173E01

- (a) Disconnect the navigation ECU connector M16.
 (b) Measure voltage.
 (1) Jack up either one of the drive wheels.
 (2) Move the shift lever to the neutral position.
 (3) Turn the ignition switch on (IG).

- (4) Measure the voltage between terminal SPD of the navigation ECU and body ground when the drive wheels are turned slowly.

OK:

Voltage pulses as shown in the illustration.

4.5 to 14 V

Below 2 V

0 Turn the wheel

H

E110855E01

OK

REPLACE NAVIGATION ECU

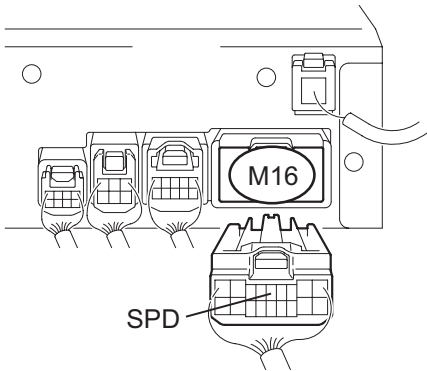
NG

NS

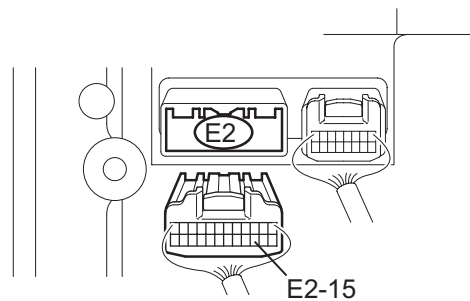
3

CHECK HARNESS AND CONNECTOR (COMBINATION METER - NAVIGATION ECU)

**Navigation ECU
Wire Harness View:**



**Combination Meter
Wire Harness View:**



P

E126174E01

- (a) Disconnect the navigation ECU connector M16 and combination meter connector E2.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
SPD - E2-15	Ignition switch OFF	Below 1 Ω

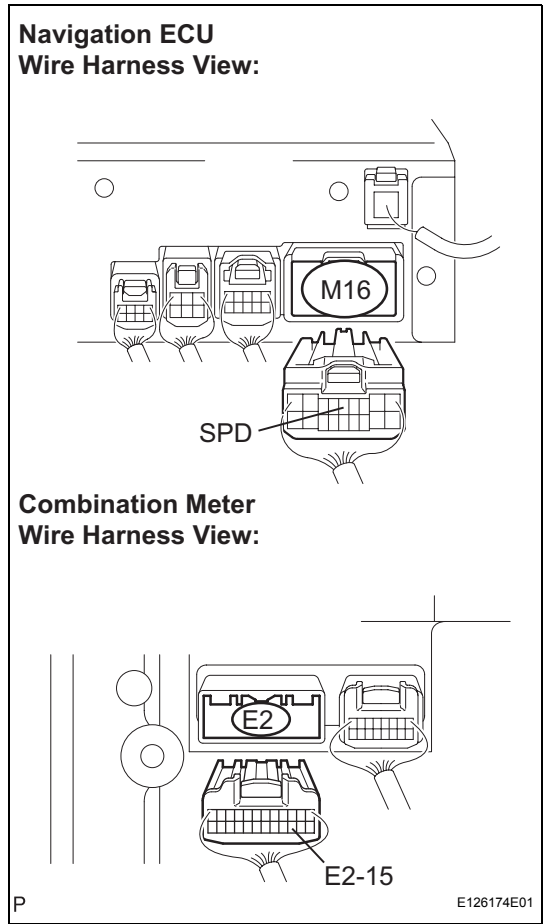
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

NS

4 CHECK HARNESS AND CONNECTOR (COMBINATION METER - NAVIGATION ECU)



- (a) Disconnect the navigation ECU connector M16 and combination meter connector E2.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
SPD - Body ground	Ignition switch OFF	10 kΩ or higher

HINT:

If the resistance between terminal SPD and body ground is less than 10 kΩ, there may be a short in a wire harness, connector, or ECU.

NG **REPAIR OR REPLACE HARNESS OR CONNECTOR OR EACH ECU**

OK

REPLACE COMBINATION METER

NS

Vehicle Speed Signal Circuit between Multi-display and Combination Meter

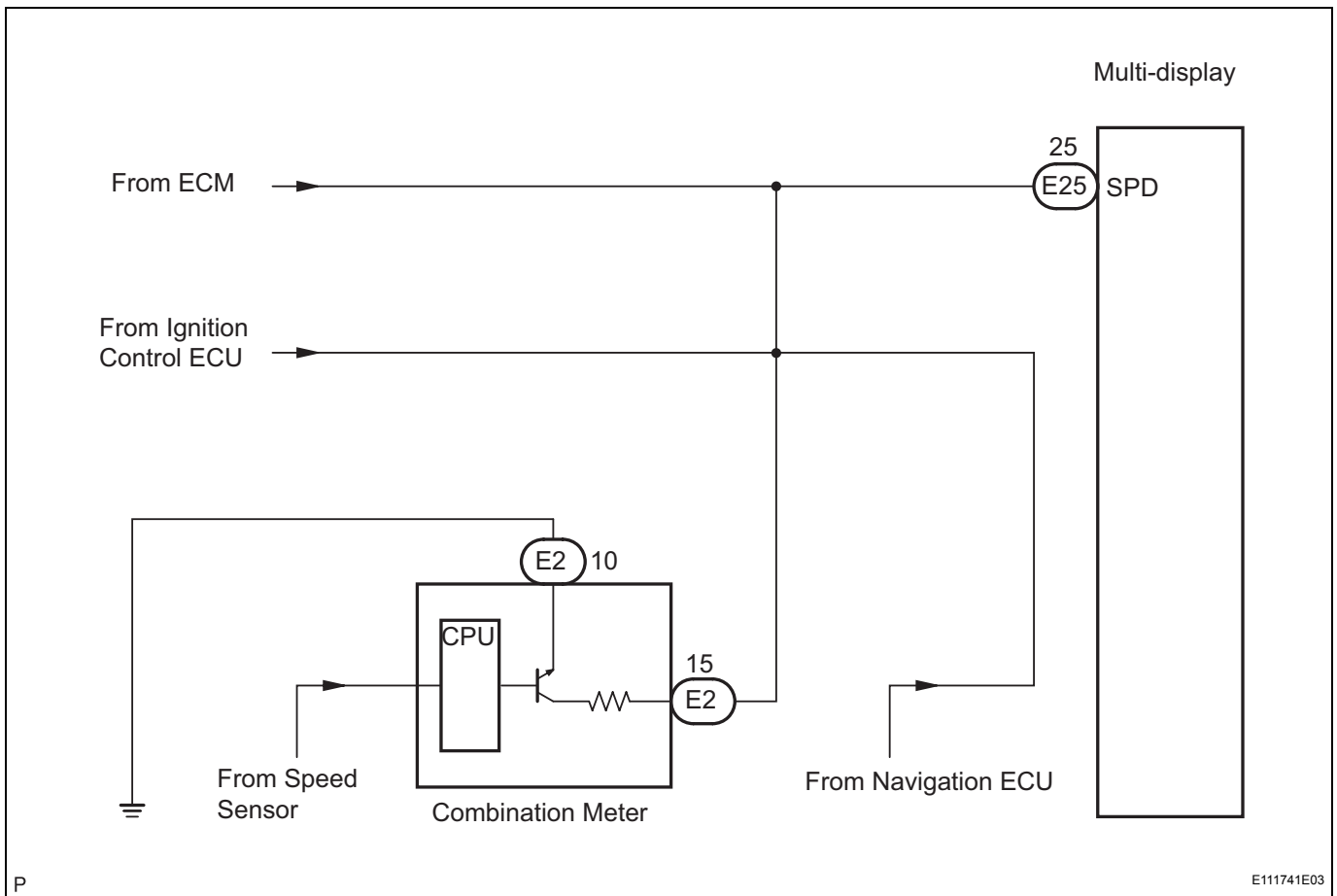
DESCRIPTION

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

HINT:

- A voltage of 12 V or 5 V is output from each ECU and then input to the combination meter. The signal is changed to a pulse signal at the transistor in the combination meter. Each ECU controls the respective system based on the pulse signal.
- If a short occurs in an ECU, all systems in the diagram below will not operate normally.

WIRING DIAGRAM



NS

INSPECTION PROCEDURE

1 CHECK 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.

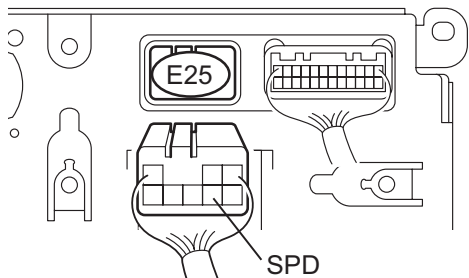
NG

GO TO COMBINATION METER SYSTEM

OK

2 INSPECT MULTI-DISPLAY

Wire Harness View:



N

E126170E03

- (a) Disconnect the multi-display connector E25.
- (b) Measure voltage.
 - (1) Jack up either one of the drive wheels.
 - (2) Move the shift lever to the neutral position.
 - (3) Turn the ignition switch on (IG).

- (4) Measure the voltage between terminal SPD of the multi-display and body ground when the drive wheels are turned slowly.

OK:

Voltage pulses as shown in the illustration.

4.5 to 14 V

Below 2 V

0

Turn the wheel

H

E110855E01

OK

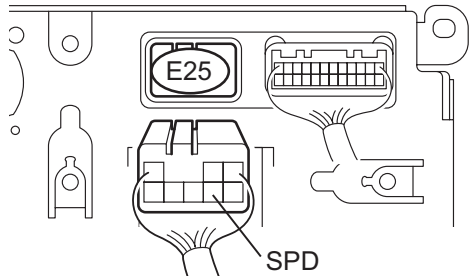
REPLACE MULTI-DISPLAY

NG

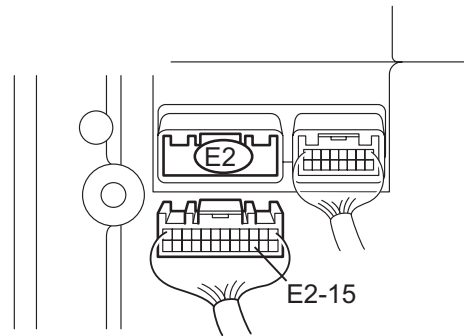
NS

3 CHECK HARNESS AND CONNECTOR (COMBINATION METER - MULTI-DISPLAY)

Multi-display Wire Harness View:



Combination Meter Wire Harness View:



N

E126175E01

- (a) Disconnect the multi-display connector E25 and combination meter connector E2.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
SPD - E2-15	Ignition switch OFF	Below 1 Ω

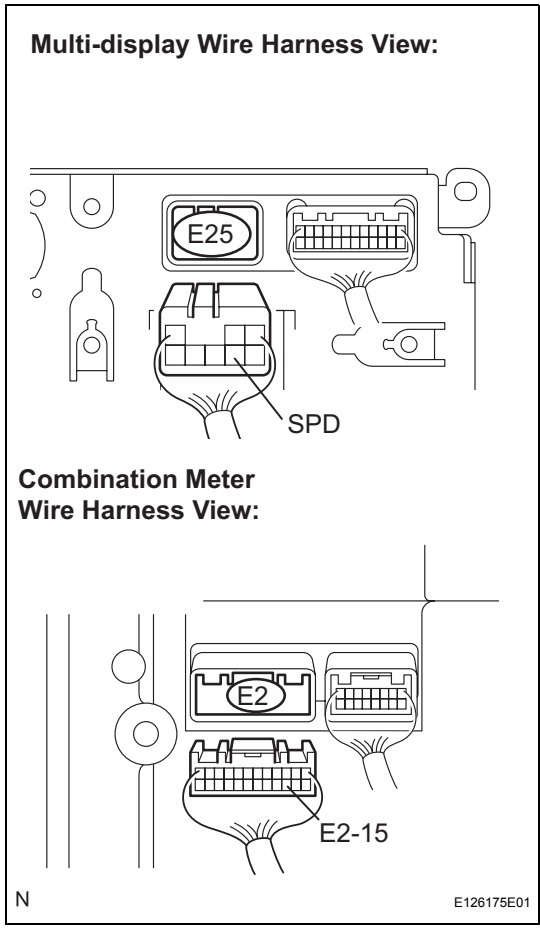
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

NS

4 CHECK HARNESS AND CONNECTOR (COMBINATION METER - MULTI-DISPLAY)



- (a) Disconnect the multi-display connector E25 and combination meter connector E2.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
SPD - Body ground	Ignition switch OFF	10 kΩ or higher

HINT:

If the resistance between terminal SPD and body ground is less than 10 kΩ, there may be a short in a wire harness, connector, or ECU.

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR OR EACH ECU

OK

REPLACE COMBINATION METER

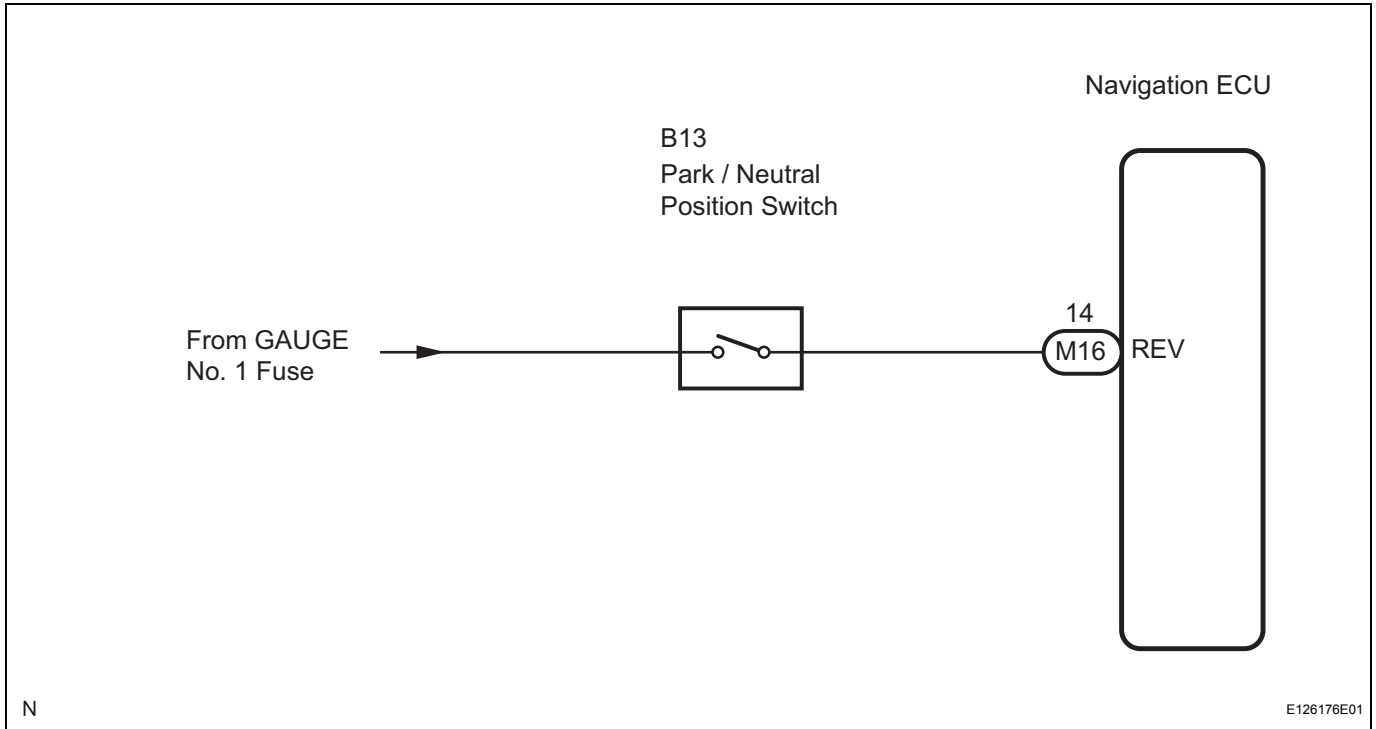
NS

Reverse Signal Circuit

DESCRIPTION

The navigation ECU receives a reverse signal from the park / neutral position switch and information about the GPS antenna, and then adjusts vehicle position.

WIRING DIAGRAM

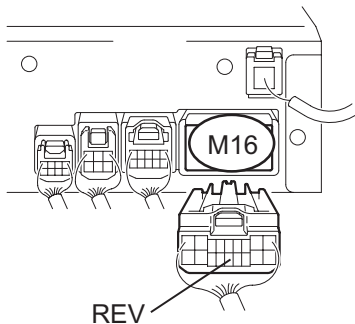


NS

INSPECTION PROCEDURE

1 INSPECT NAVIGATION ECU

Wire Harness View:



- (a) Disconnect the navigation ECU connector M16.
- (b) Measure the voltage according to the value(s) in the table below.

Standard voltage

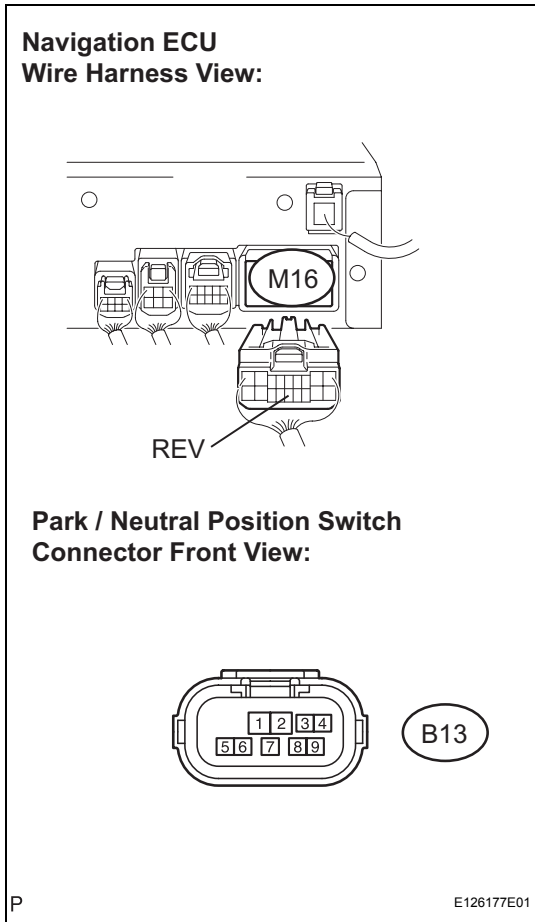
Tester connection	Condition	Specified condition
REV - Body ground	Ignition switch is on (IG). Shift lever is moved to R position.	10 to 14 V
REV - Body ground	Ignition switch is on (IG). Shift lever is moved to any position except R.	Below 1 V

OK

REPLACE NAVIGATION ECU

NG

2 CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - PARK / NEUTRAL POSITION SWITCH)



- (a) Disconnect the navigation ECU connector M16 and park / neutral position switch connector B13.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

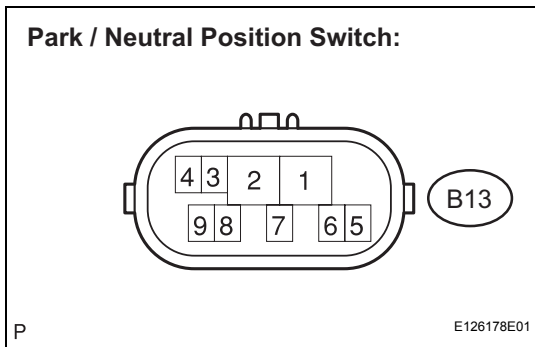
Tester connection	Condition	Specified condition
REV - B13-1	Always	Below 1 Ω
REV - Body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

NS

OK

3 INSPECT PARK / NEUTRAL POSITION SWITCH



- (a) Disconnect the park / neutral position switch connector B13.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
B13-1 - B13-2	Shift lever is moved to R position.	Below 1 Ω
B13-1 - B13-2	Shift lever is moved to any position except R.	10 kΩ or higher

NG REPLACE PARK / NEUTRAL POSITION SWITCH

OK

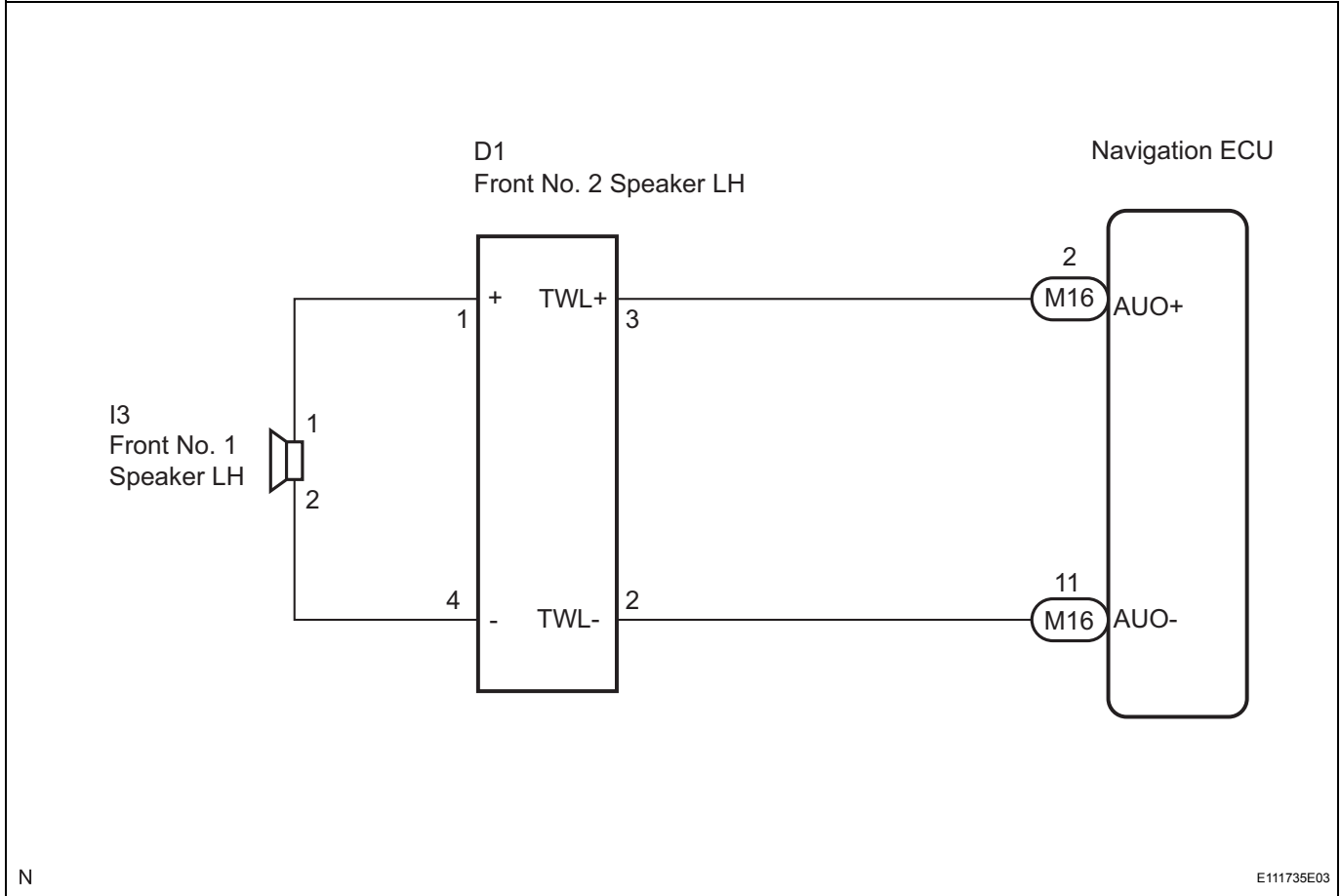
REPAIR OR REPLACE HARNESS OR CONNECTOR

Navigation Voice Speaker Circuit

DESCRIPTION

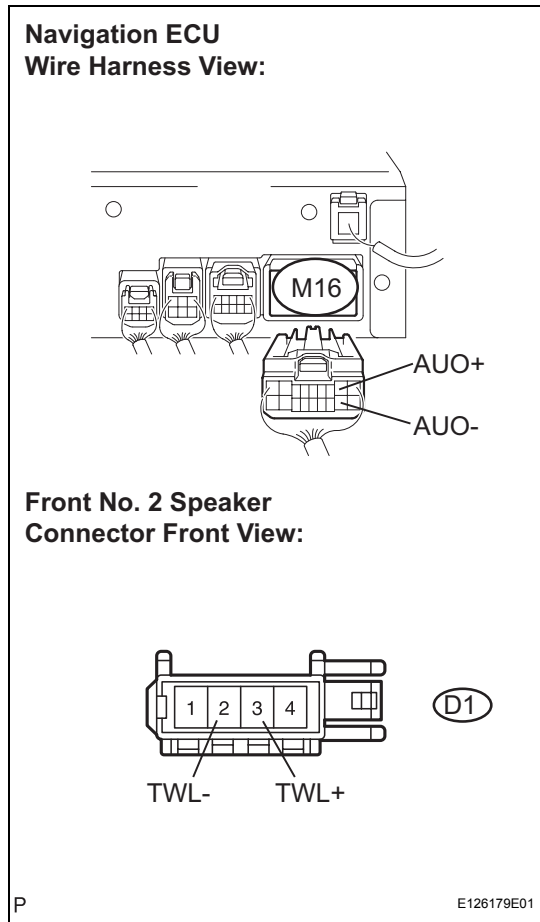
This circuit is used when the voice guidance in the navigation system is on.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - FRONT NO. 2 SPEAKER)



- (a) Disconnect the navigation ECU connector M16 and front No. 2 speaker connector D1.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
TWL+ - AUO+	Always	Below 1 Ω
TWL- - AUO-	Always	Below 1 Ω
AUO+ - Body ground	Always	10 kΩ or higher
AUO- - Body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

NS

OK

2 INSPECT FRONT NO. 2 SPEAKER

- (a) Check that the malfunction disappears when another speaker in good condition is installed.

OK:

Malfunction disappears.

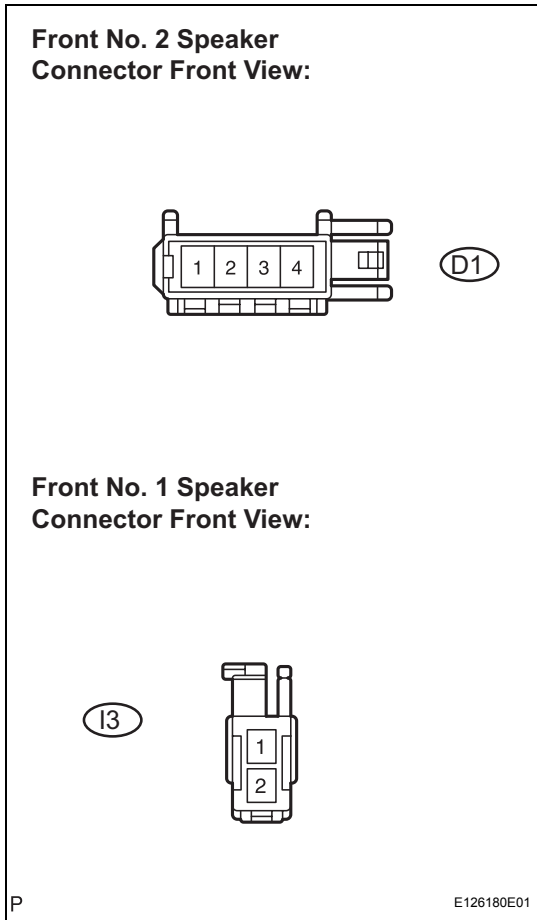
HINT:

- Connect all the connectors to the speakers.
- When there is a possibility that either the right or left front speaker is defective, inspect by interchanging the right one with the left one.

OK REPLACE FRONT NO. 2 SPEAKER

NG

3 CHECK HARNESS AND CONNECTOR (FRONT NO. 1 SPEAKER - FRONT NO. 2 SPEAKER)



- (a) Disconnect the front No. 1 speaker connector I3.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
D1-4 - I3-1	Always	Below 1 Ω
D1-1 - I3-2	Always	Below 1 Ω
D1-4 - Body ground	Always	10 kΩ or higher
D1-1 - Body ground	Always	10 kΩ or higher

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

NS

OK

4 INSPECT FRONT NO. 1 SPEAKER

- (a) Resistance check
 - (1) Measure the resistance between the terminals of the speaker.

Standard resistance:
1.8 to 2.6 Ω

NG → **REPLACE FRONT NO. 1 SPEAKER**

OK

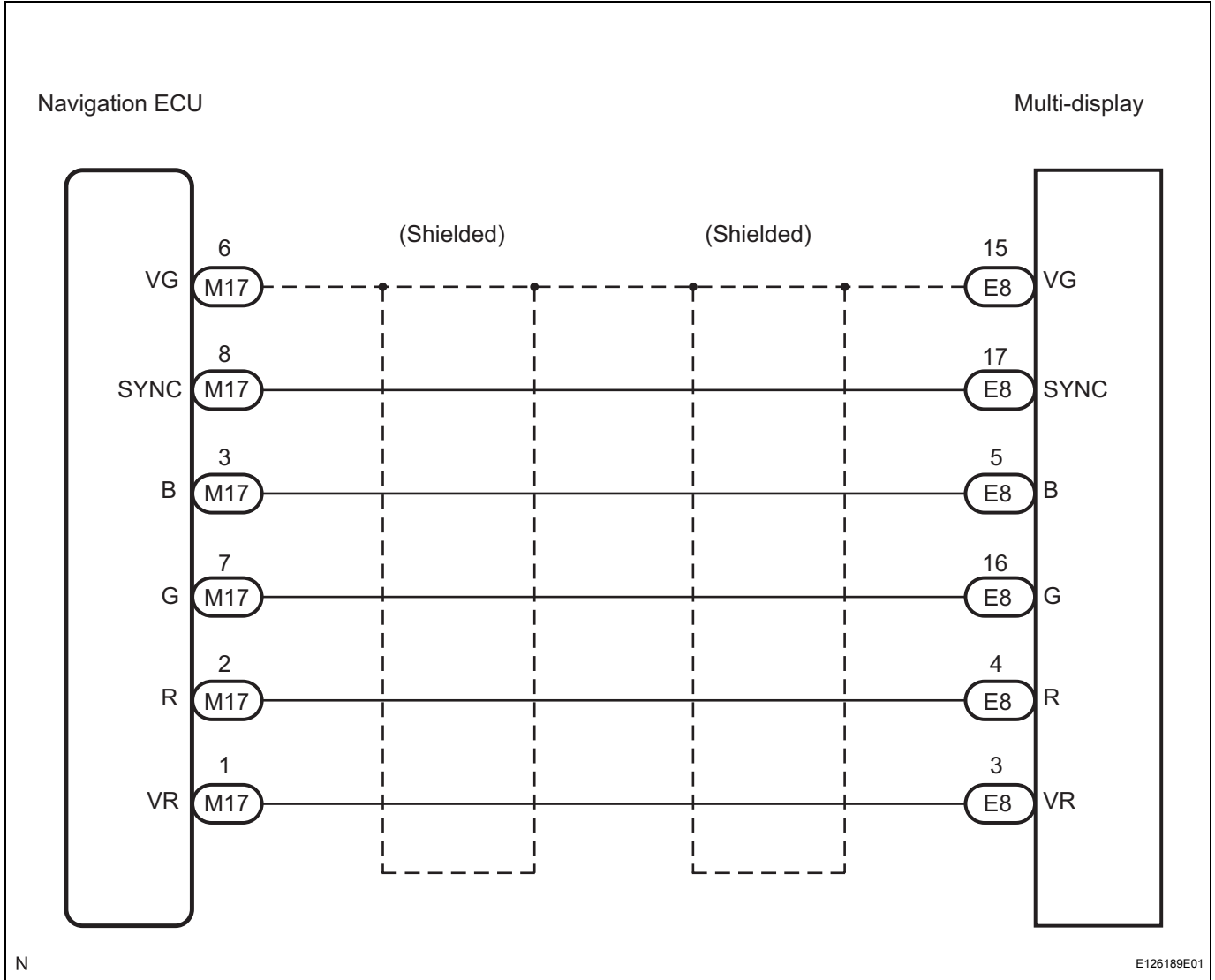
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

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

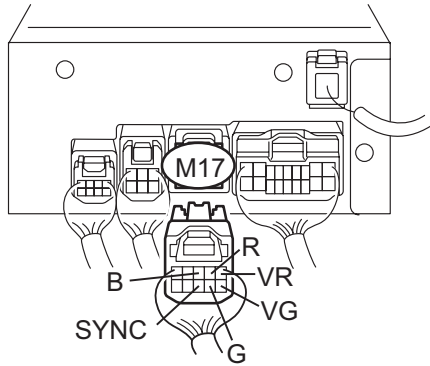


NS

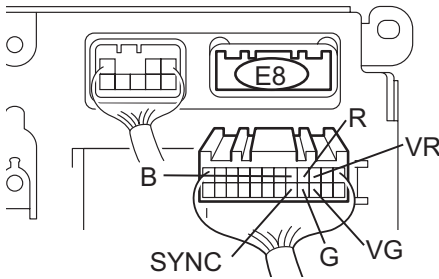
INSPECTION PROCEDURE

1 CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - MULTI-DISPLAY)

Navigation ECU Wire Harness View:



Multi-display Wire Harness View:



N E126182E01

- (a) Disconnect the navigation ECU connector M17 and multi-display connector E8.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

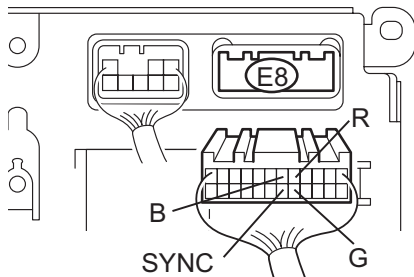
Tester connection	Condition	Specified condition
R - R	Always	Below 1 Ω
G - G	Always	Below 1 Ω
B - B	Always	Below 1 Ω
SYNC - SYNC	Always	Below 1 Ω
VR - VR	Always	Below 1 Ω
VG - VG	Always	Below 1 Ω
R - Body ground	Always	10 kΩ or higher
G - Body ground	Always	10 kΩ or higher
B - Body ground	Always	10 kΩ or higher
SYNC - Body ground	Always	10 kΩ or higher
VR - Body ground	Always	10 kΩ or higher
VG - Body ground	Always	10 kΩ or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2 INSPECT NAVIGATION ECU (OUTPUT SIGNAL)

Multi-display Wire Harness View:



N E126183E01

- (a) Reconnect the navigation ECU connector M17.
- (b) Measure the waveform according to the table below.

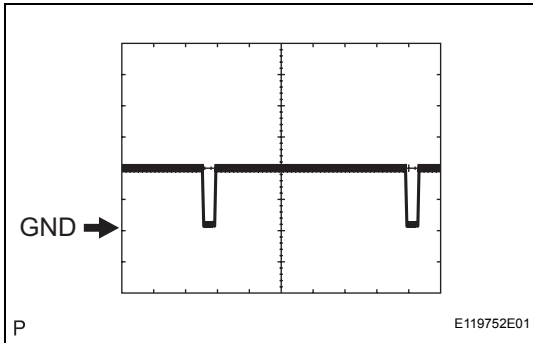
Standard

Tester connection	Condition	Specified condition
R - Body ground	Navigation display is ON.	A waveform synchronized with display signals is output.
G - Body ground	Navigation display is ON.	A waveform synchronized with display signals is output.
B - Body ground	Navigation display is ON.	A waveform synchronized with display signals is output.
SYNC - Body ground	Navigation display is ON.	A waveform synchronized with display signals is output.

HINT:

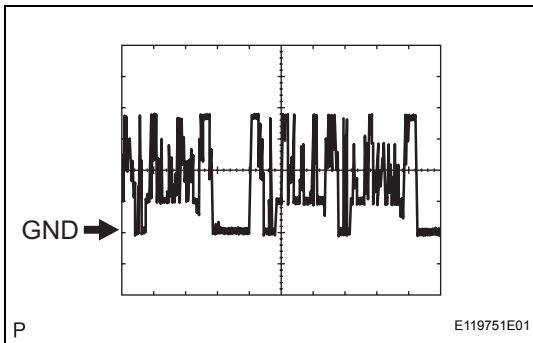
- If SYNC signals are not being input to the multi-display due to an open circuit or other causes, the green initial screen may seem pinkish-green.
- The waveform pattern may differ from those shown in the illustrations below due to differences in oscilloscope settings. A normal navigation ECU operating condition can be determined if any waveform is output.

(1) Oscilloscope wave



Terminals	SYNC - Body ground
Setting	500 mV/DIV 10 s μ /DIV
Condition	Navigation display is on.

(2) Oscilloscope wave



Terminals	R, G, B - Body ground
Setting	200 mV/DIV 10 s μ /DIV
Condition	Navigation display is on.

NS

NG **REPLACE NAVIGATION ECU**

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

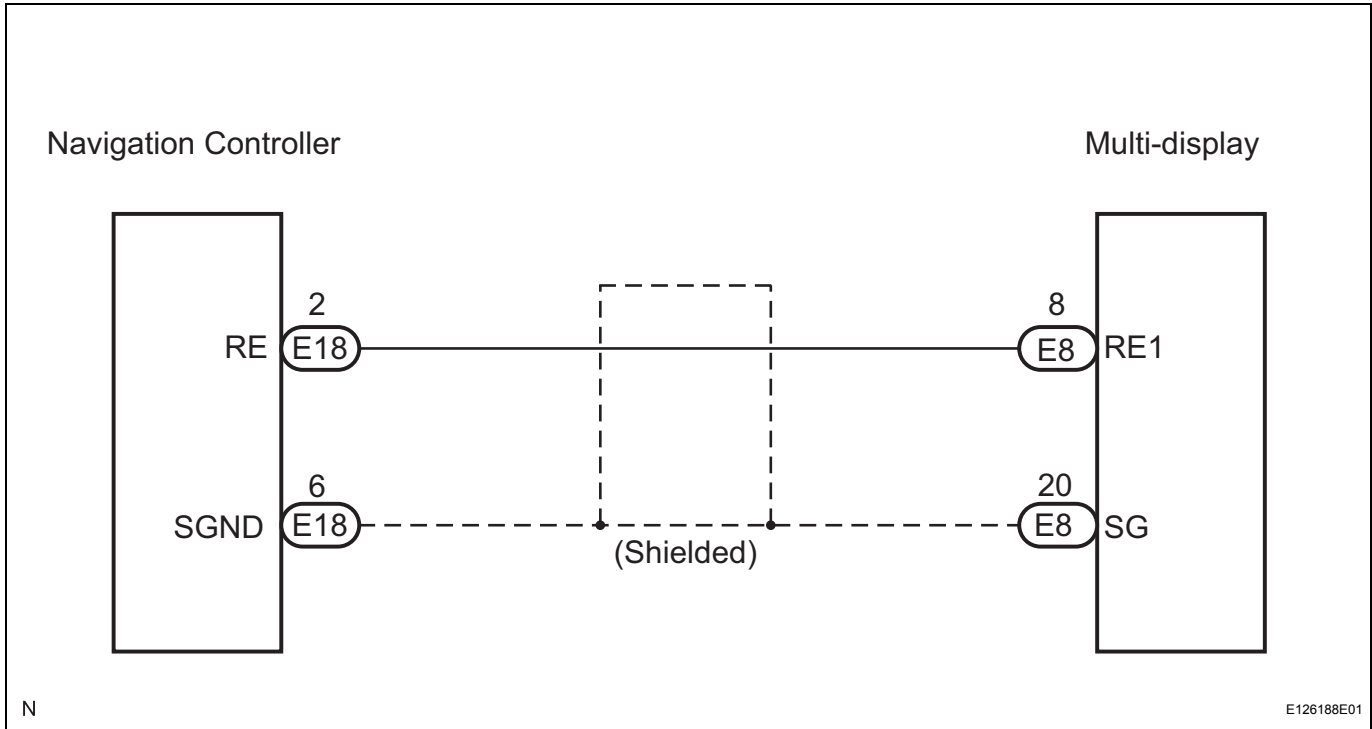
Switch Signal Circuit between Multi-display and Navigation Controller

DESCRIPTION

This circuit is from navigation controller to the multi-display.

This is a communication circuit. If an open or short occurs, navigation control will be impossible.

WIRING DIAGRAM

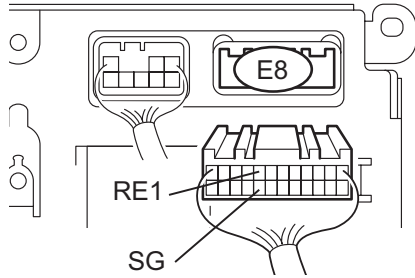


NS

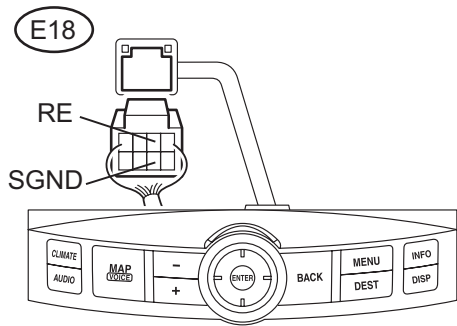
INSPECTION PROCEDURE

1 CHECK HARNESS AND CONNECTOR (NAVIGATION CONTROLLER - MULTI-DISPLAY)

Multi-display Wire Harness View:



Navigation Controller Wire Harness View:



N

E126181E01

- (a) Disconnect the multi-display connector E8 and navigation controller connector E18.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
RE1 - RE	Always	Below 1 Ω
SG - SGND	Always	Below 1 Ω
RE1 - Body ground	Always	10 k Ω or higher
SGND - Body ground	Always	10 k Ω or higher

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

NS

OK

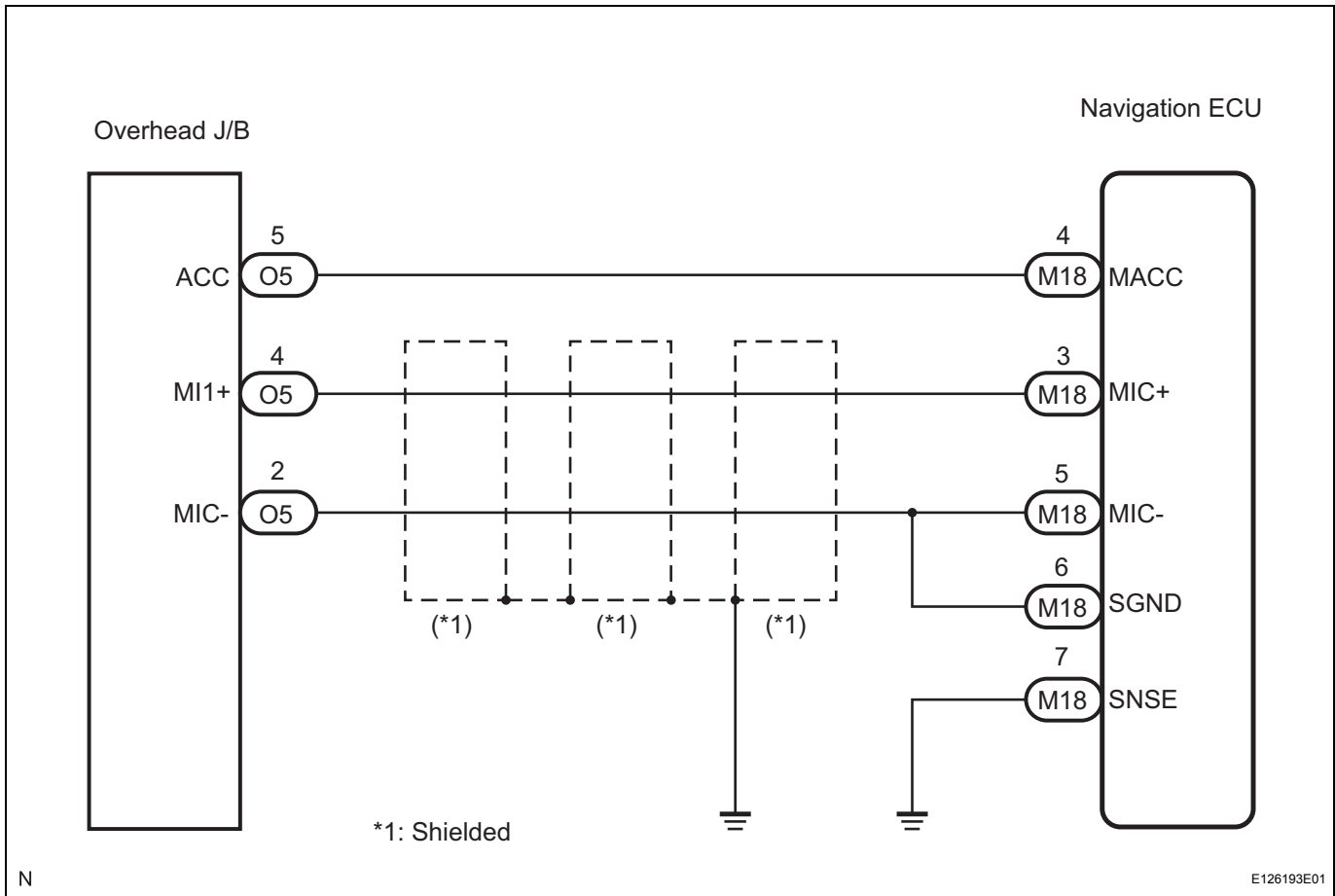
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Microphone Circuit between Overhead J/B and Navigation ECU

DESCRIPTION

This circuit sends a microphone signal from the overhead J/B to the navigation ECU. It also supplies power from the navigation ECU to the overhead J/B.

WIRING DIAGRAM

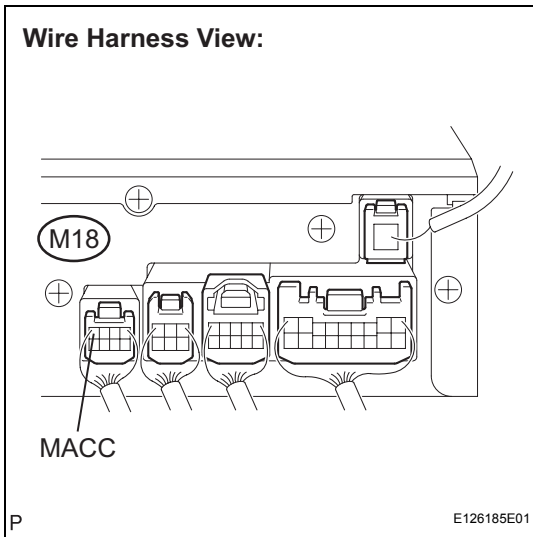


NS

INSPECTION PROCEDURE

1 INSPECT NAVIGATION ECU

Wire Harness View:



(a) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified condition
MACC - Body ground	Ignition switch on (ACC)	4 to 6 V

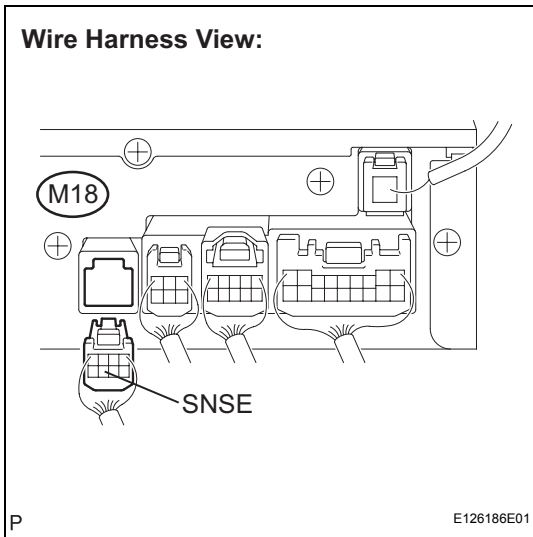
NG → **REPLACE NAVIGATION ECU**

OK

NS

2 CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - BODY GROUND)

Wire Harness View:



(a) Disconnect the navigation ECU connector M18.
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

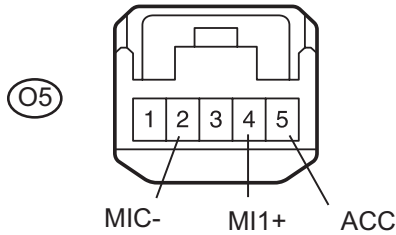
Tester connection	Condition	Specified condition
SNSE - Body ground	Always	Below 1 Ω

NG → **REPAIR OR REPLACE HARNESS OR CONNECTOR**

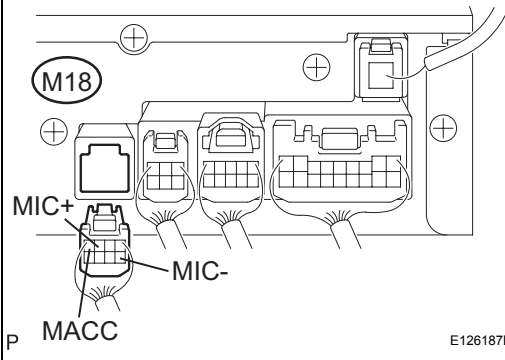
OK

3 CHECK HARNESS AND CONNECTOR (OVERHEAD J/B - NAVIGATION ECU)

Overhead J/B Connector Front View:



Navigation ECU Wire Harness View:



- (a) Disconnect the overhead J/B connector O5 and navigation ECU connector M18.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
MACC - ACC	Always	Below 1 Ω
MIC+ - MI1+	Always	Below 1 Ω
MIC- - MIC-	Always	Below 1 Ω
MACC - Body ground	Always	10 kΩ or higher
MIC+ - Body ground	Always	10 kΩ or higher
MIC- - Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

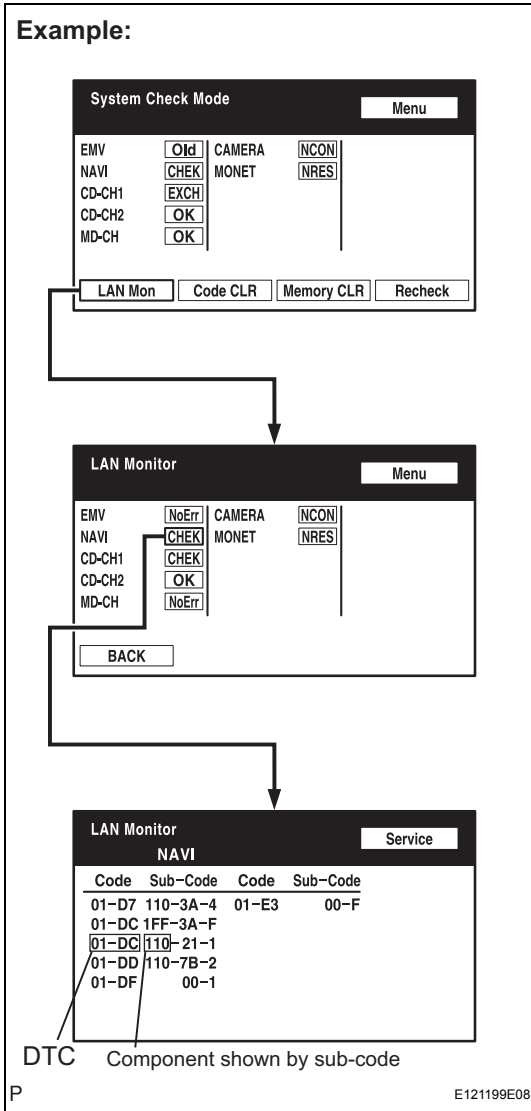
NS

Gateway ECU Communication Error

INSPECTION PROCEDURE

1 IDENTIFY THE COMPONENT SHOWN BY SUB-CODE

Example:



- (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.

NS

NEXT

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.

Component Table:

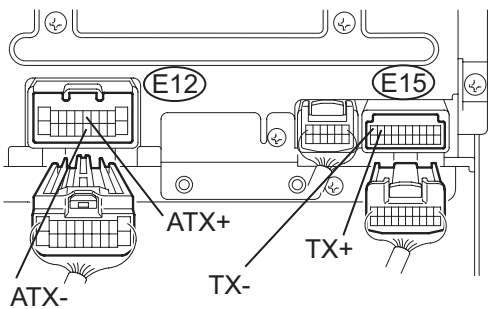
Component	Proceed to
Radio receiver (190)	Radio receiver power source circuit (See page AV-147)
Stereo component amplifier (440)	Stereo component amplifier power source circuit (See page AV-149)

Component	Proceed to
Multi-display (110)	Multi-display power source circuit (See page NS-161)
Navigation ECU (178)	Navigation ECU power source circuit (See page NS-164)
Clock assembly (1D6)	Clock power source circuit (See page NS-168)

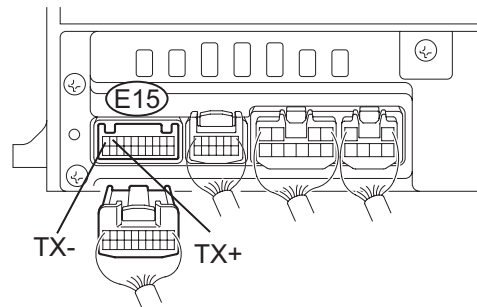
NEXT

3 INSPECT RADIO RECEIVER

Wire Harness View (12 Speaker):



Wire Harness View (9 Speaker):



P

E126157E01

- Disconnect the radio receiver connectors.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NG

REPLACE RADIO RECEIVER

OK

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

HINT:

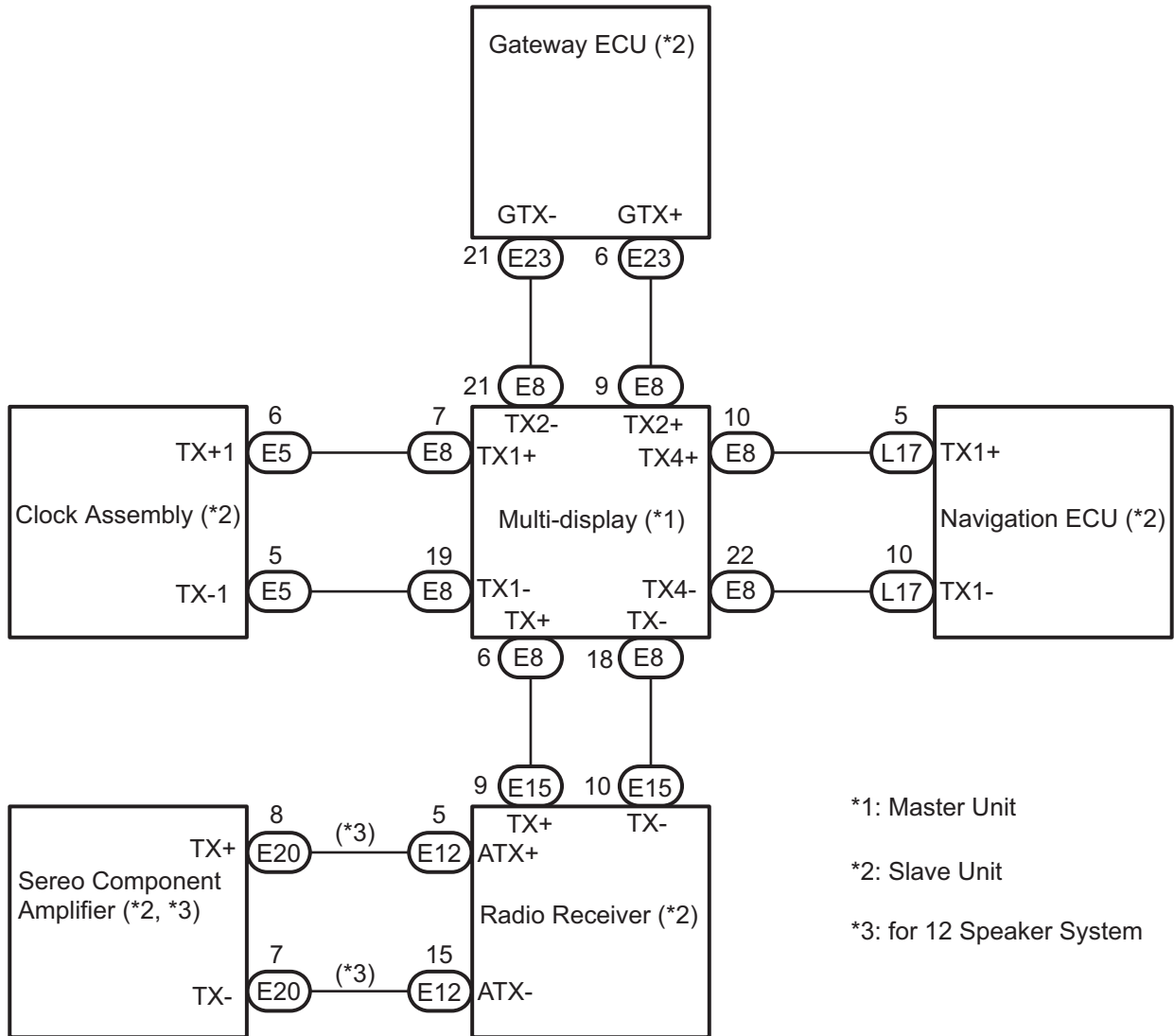
- Start the check from the circuit that is near the component shown by the sub-code first.
 - For details of the connectors, refer to "TERMINALS OF ECU" (See page [NS-26](#)).
- Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the gateway ECU and the component shown by the sub-code.
 - 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.

AVC-LAN WIRING DIAGRAM



NS

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

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 THE COMPONENT SHOWN BY SUB-CODE

Example:

LAN Mon Code CLR Memory CLR Recheck

LAN Monitor Menu

LAN Monitor Service

Code	Sub-Code	Code	Sub-Code
01-D7	110-3A-4	01-E3	00-F
01-DC	1FF-3A-F		
01-DC	110-21-1		
01-DD	110-7B-2		
01-DF	00-1		

DTC Component shown by sub-code

P E121199E08

- (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.

NS

NEXT

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

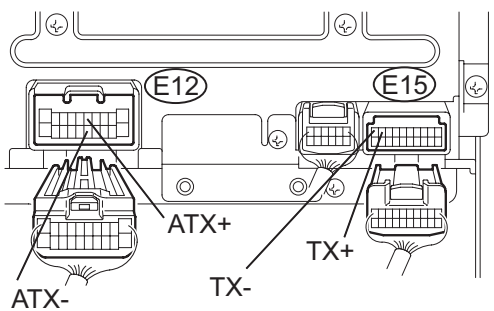
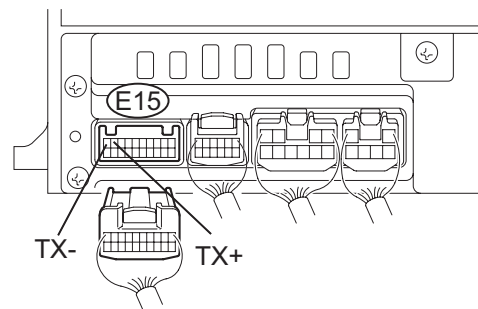
- (a) Inspect the power source circuit of the component shown by the sub-code.
If the power source circuit is operating normally, proceed to the next step.

Component Table:

Component	Proceed to
Gateway ECU (1C6)	Gateway ECU power source circuit (See page NS-166)
Stereo component amplifier (440)	Stereo component amplifier power source circuit (See page AV-149)

Component	Proceed to
Multi-display (110)	Multi-display power source circuit (See page NS-161)
Navigation ECU (178)	Navigation ECU power source circuit (See page NS-164)
Clock assembly (1D6)	Clock power source circuit (See page NS-168)

NEXT

3 INSPECT RADIO RECEIVER**Wire Harness View (12 Speaker):****Wire Harness View (9 Speaker):**

P

E126157E01

- (a) Disconnect the radio receiver connectors.
 (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NG

REPLACE RADIO RECEIVER

OK

4 CHECK HARNESS AND CONNECTOR (RADIO RECEIVER - COMPONENT SHOWN BY SUB-CODE)**HINT:**

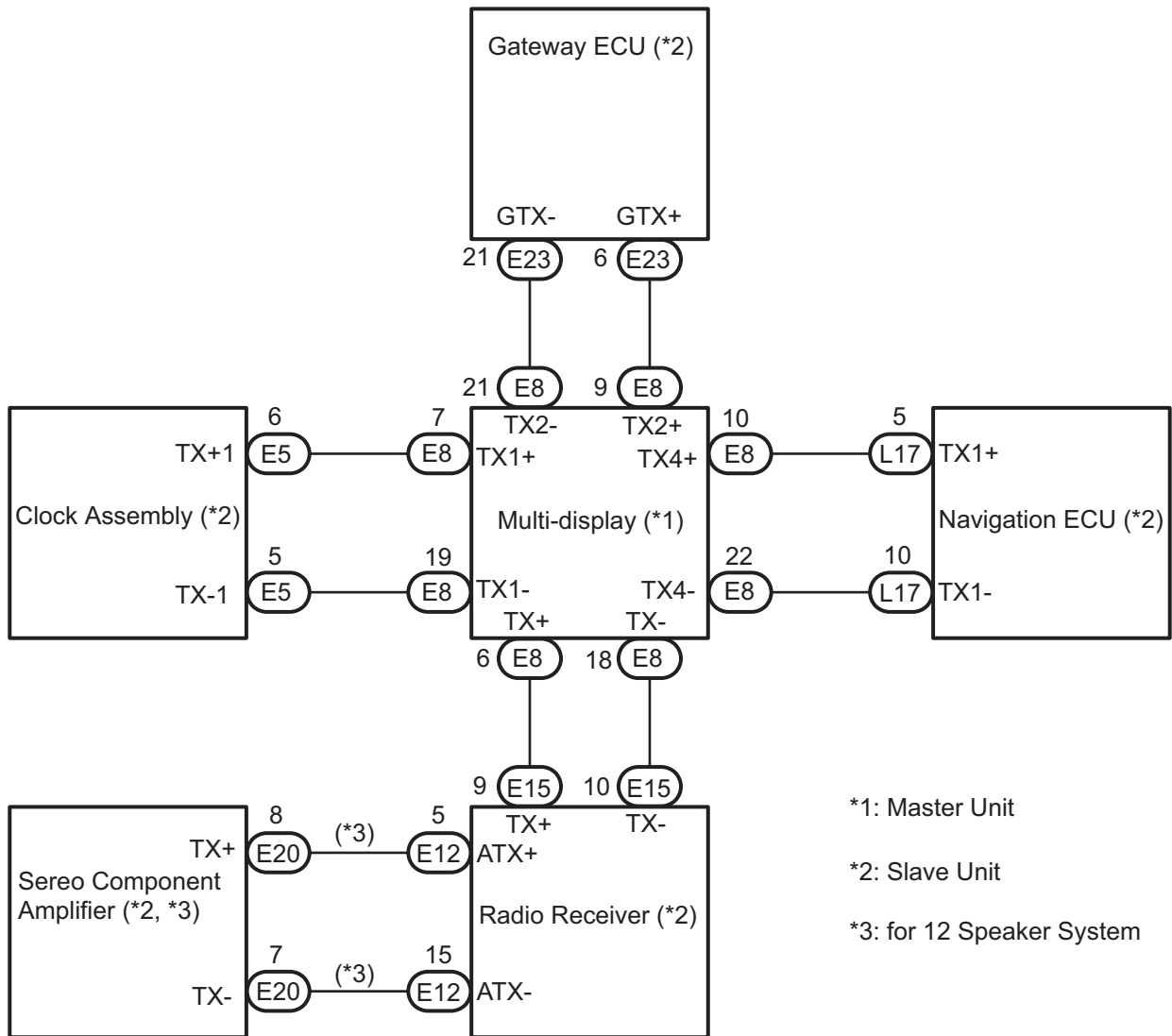
- Start the check from the circuit that is near the component shown by the sub-code first.
 - For details of the connectors, refer to "TERMINALS OF ECU" (See page [NS-26](#)).
- (a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the radio receiver and the component shown 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.

AVC-LAN WIRING DIAGRAM



NS

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

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 RADIO RECEIVER

OK

END

Stereo Component Amplifier Communication Error

INSPECTION PROCEDURE

1 IDENTIFY THE COMPONENT SHOWN BY SUB-CODE

Example:

LAN Mon Code CLR Memory CLR Recheck

LAN Monitor

BACK

LAN Monitor Service

Code	Sub-Code	Code	Sub-Code
01-D7	110-3A-4	01-E3	00-F
01-DC	1FF-3A-F		
01-DC	110-21-1		
01-DD	110-7B-2		
01-DF	00-1		

DTC Component shown by sub-code

P E121199E08

- (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.

NS

NEXT

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.

Component Table:

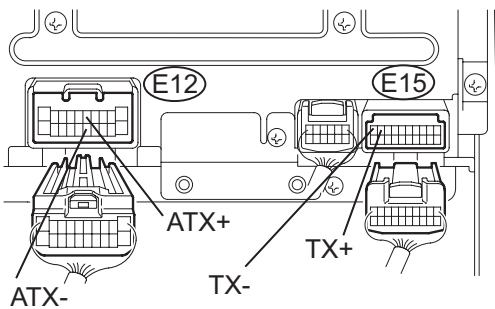
Component	Proceed to
Radio receiver (190)	Radio receiver power source circuit (See page AV-147)
Gateway ECU (1C6)	Gateway ECU power source circuit (See page NS-166)

Component	Proceed to
Multi-display (110)	Multi-display power source circuit (See page NS-161)
Navigation ECU (178)	Navigation ECU power source circuit (See page NS-164)
Clock assembly (1D6)	Clock power source circuit (See page NS-168)

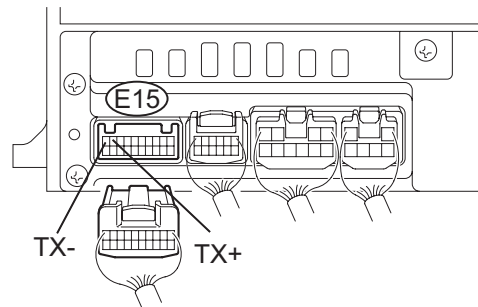
NEXT

3 INSPECT RADIO RECEIVER

Wire Harness View (12 Speaker):



Wire Harness View (9 Speaker):



P

E126157E01

- Disconnect the radio receiver connectors.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NG

REPLACE RADIO RECEIVER

OK

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

HINT:

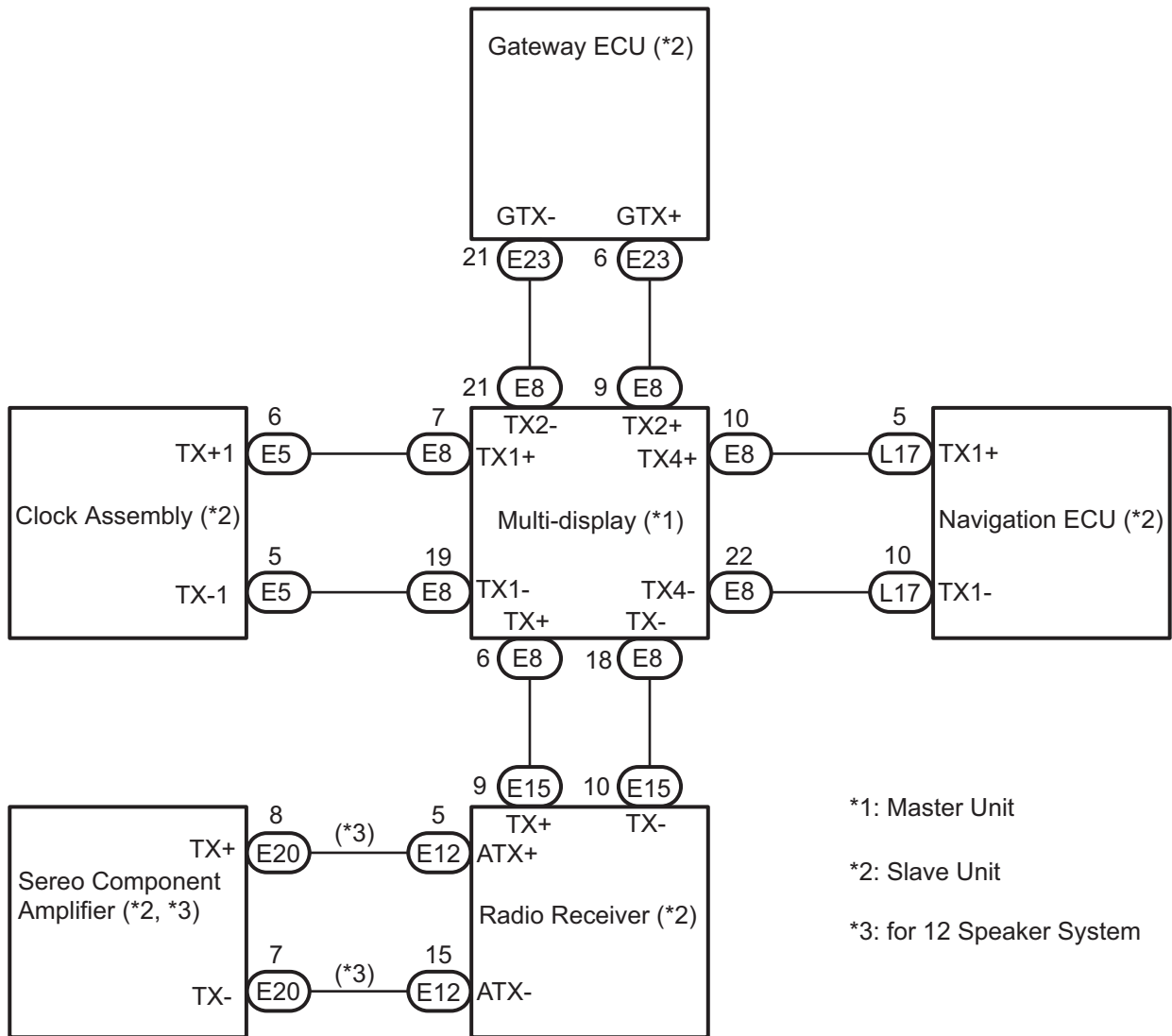
- Start the check from the circuit that is near the component shown by the sub-code first.
 - For details of the connectors, refer to "TERMINALS OF ECU" (See page [NS-26](#)).
- Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the stereo component amplifier and the component shown by the sub-code.
 - 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



*1: Master Unit
 *2: Slave Unit
 *3: for 12 Speaker System

NS

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

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.

P

E124120E03

OK:

Same problem does not occur.

NG

REPLACE STEREO COMPONENT
AMPLIFIER

OK

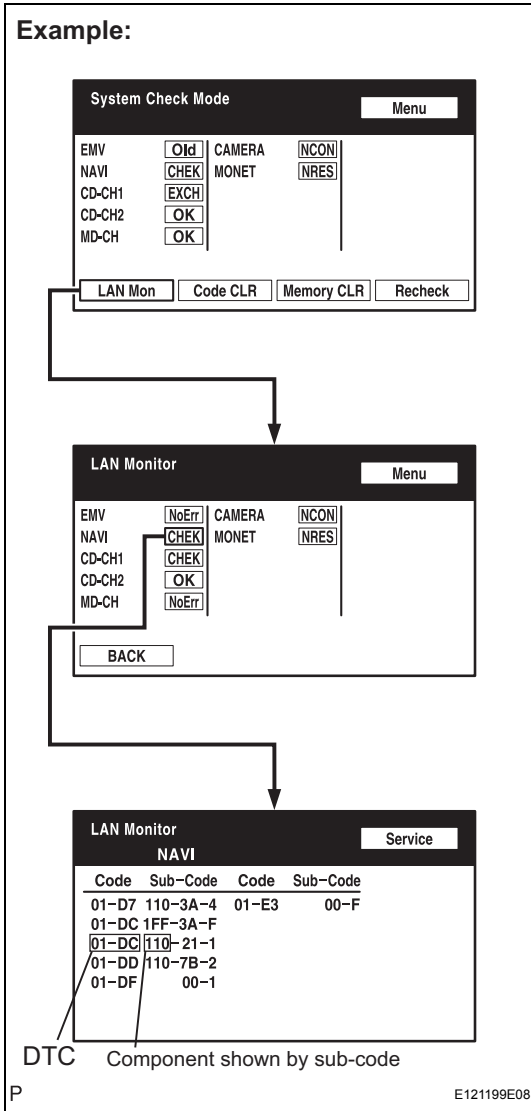
END

Multi-display Communication Error

INSPECTION PROCEDURE

1 IDENTIFY THE COMPONENT SHOWN BY SUB-CODE

Example:



- Enter the diagnostic mode.
- Press the "LAN Mon" switch to change to "LAN Monitor" mode.
- 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.

NEXT

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

- 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.

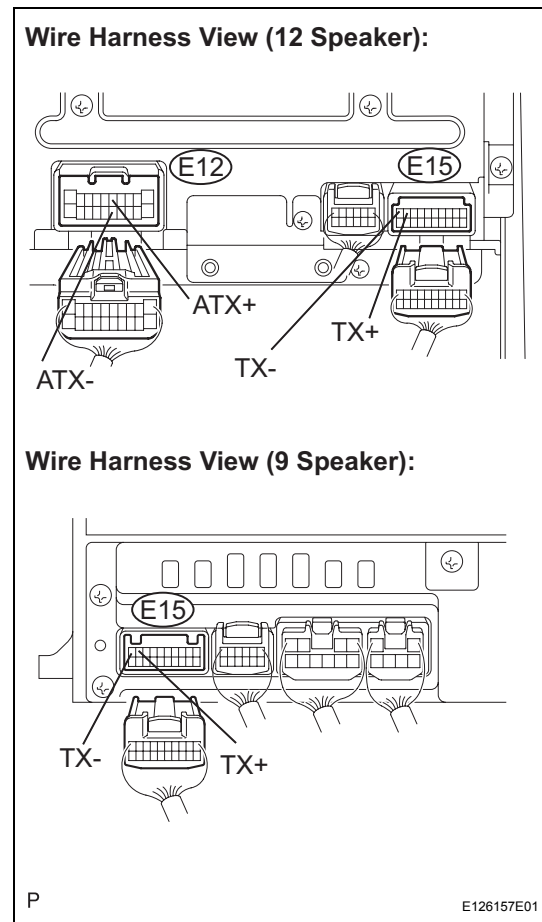
Component Table:

Component	Proceed to
Radio receiver (190)	Radio receiver power source circuit (See page AV-147)
Stereo component amplifier (440)	Stereo component amplifier power source circuit (See page AV-149)

Component	Proceed to
Gateway ECU (1C6)	Gateway ECU power source circuit (See page NS-166)
Navigation ECU (178)	Navigation ECU power source circuit (See page NS-164)
Clock assembly (1D6)	Clock power source circuit (See page NS-168)

NEXT

3 INSPECT RADIO RECEIVER



- (a) Disconnect the radio receiver connectors.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NS

NG REPLACE RADIO RECEIVER

OK

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

HINT:

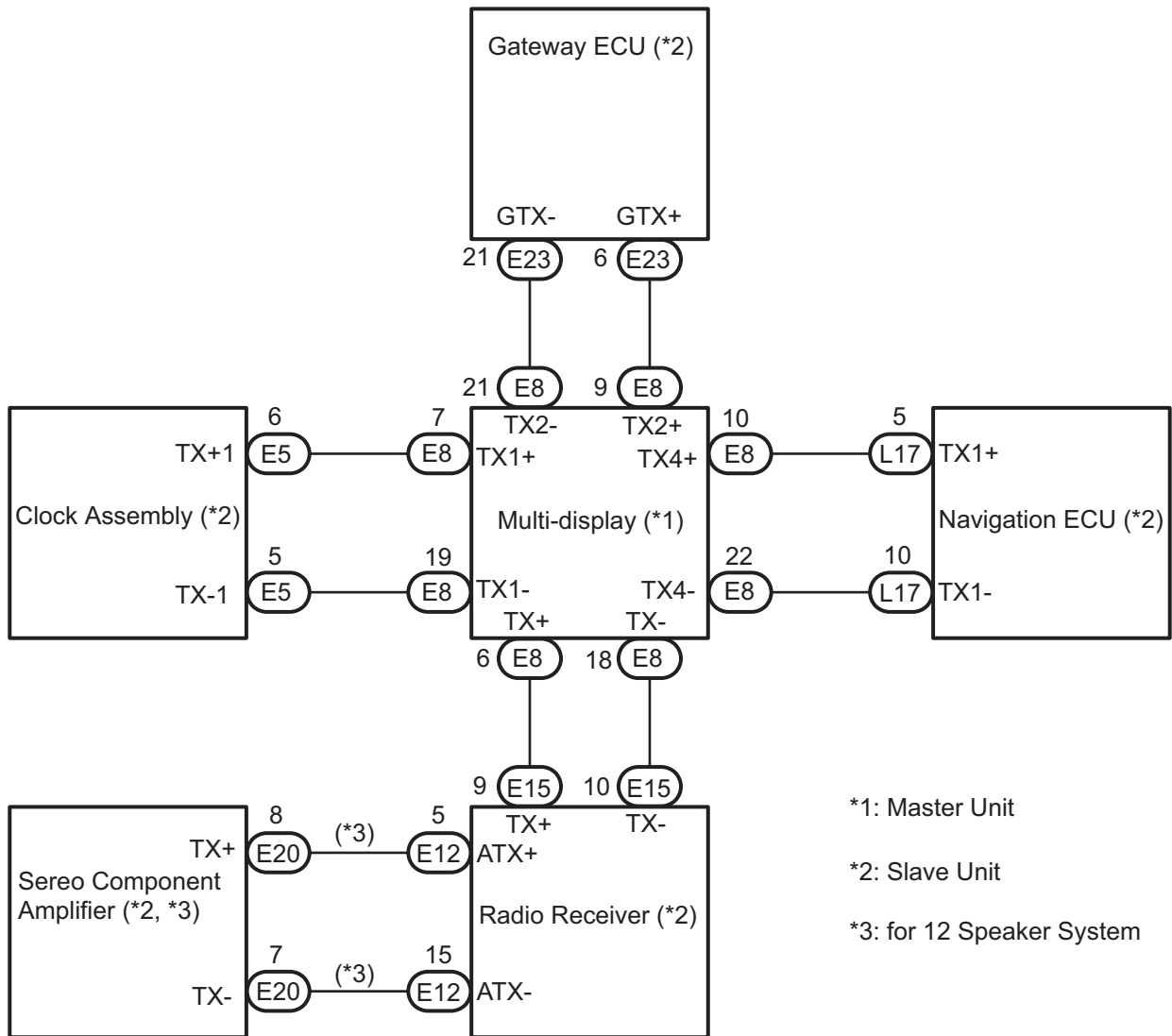
- Start the check from the circuit that is near the component shown by the sub-code first.
 - For details of the connectors, refer to "TERMINALS OF ECU" (See page [NS-26](#)).
- (a) Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the multi-display and the component shown 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.

AVC-LAN WIRING DIAGRAM



NS

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

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 MULTI-DISPLAY

OK

END

Navigation ECU Communication Error

INSPECTION PROCEDURE

1 IDENTIFY COMPONENT SHOWN BY SUB-CODE

Example:

LAN Mon Code CLR Memory CLR Recheck

LAN Monitor

BACK

LAN Monitor Service

Code	Sub-Code	Code	Sub-Code
01-D7	110-3A-4	01-E3	00-F
01-DC	1FF-3A-F		
01-DC	110-21-1		
01-DD	110-7B-2		
01-DF	00-1		

DTC Component shown by sub-code

P E121199E08

- (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.

NS

NEXT

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.

Component Table:

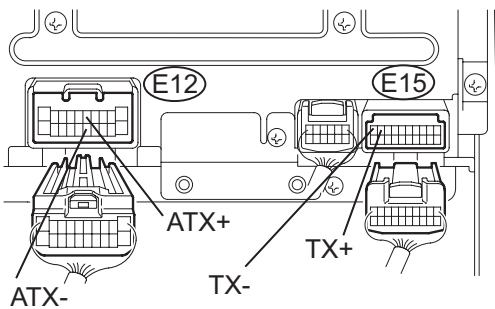
Component	Proceed to
Radio receiver (190)	Radio receiver power source circuit (See page AV-147)
Stereo component amplifier (440)	Stereo component amplifier power source circuit (See page AV-149)

Component	Proceed to
Multi-display (110)	Multi-display power source circuit (See page NS-161)
Gateway ECU (1C6)	Gateway ECU power source circuit (See page NS-166)
Clock assembly (1D6)	Clock power source circuit (See page NS-168)

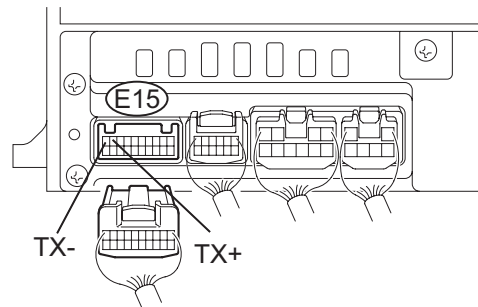
NEXT

3 INSPECT RADIO RECEIVER

Wire Harness View (12 Speaker):



Wire Harness View (9 Speaker):



P

E126157E01

- Disconnect the radio receiver connectors.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester Connection	Condition	Specified Condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NG

REPLACE RADIO RECEIVER

OK

4 CHECK HARNESS AND CONNECTOR (NAVIGATION ECU - COMPONENT SHOWN BY SUB-CODE)

HINT:

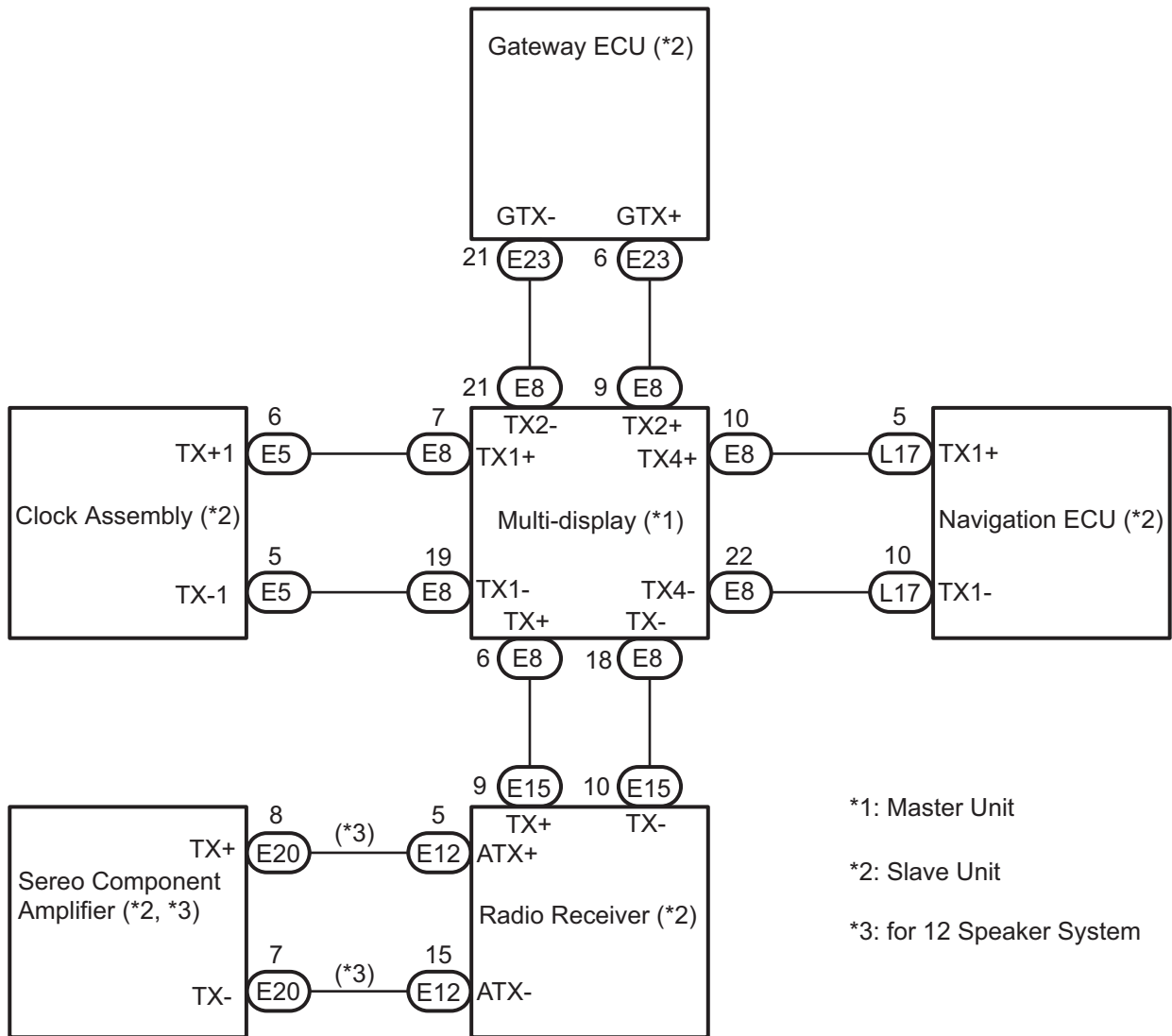
- Start the check from the circuit that is near the component shown by the sub-code first.
 - For details of the connectors, refer to "TERMINALS OF ECU" (See page [NS-26](#)).
- Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the navigation ECU and the component shown by the sub-code.
 - 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.

AVC-LAN WIRING DIAGRAM



NS

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

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 NAVIGATION ECU

OK

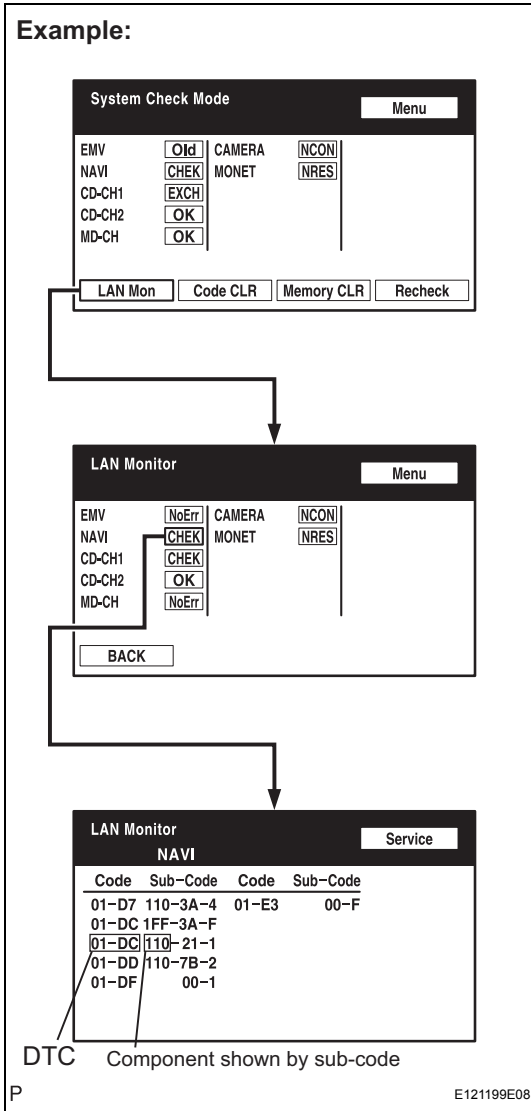
END

Clock Communication Error

INSPECTION PROCEDURE

1 IDENTIFY THE COMPONENT SHOWN BY SUB-CODE

Example:



- (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.

NS

NEXT

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.

Component Table:

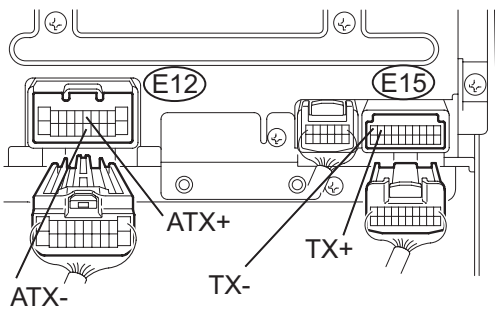
Component	Proceed to
Gateway ECU (1C6)	Gateway ECU power source circuit (See page NS-166)
Stereo component amplifier (440)	Stereo component amplifier power source circuit (See page AV-149)

Component	Proceed to
Multi-display (110)	Multi-display power source circuit (See page NS-161)
Navigation ECU (178)	Navigation ECU power source circuit (See page NS-164)
Radio receiver (190)	Radio receiver power source circuit (See page AV-147)

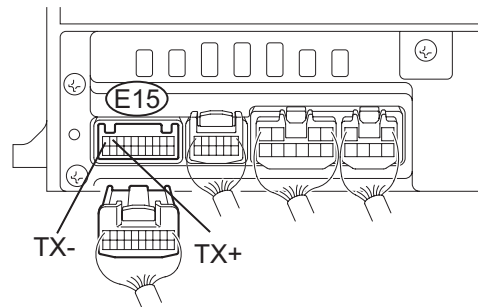
NEXT

3 INSPECT RADIO RECEIVER

Wire Harness View (12 Speaker):



Wire Harness View (9 Speaker):



P

E126157E01

- Disconnect the radio receiver connectors.
- Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
ATX+ (E12-5) - ATX- (E12-15) (*1)	Always	60 to 80 Ω
TX+ (E15-9) - TX- (E15-10)	Always	60 to 80 Ω

*1: for 12 Speaker System

NG

REPLACE RADIO RECEIVER

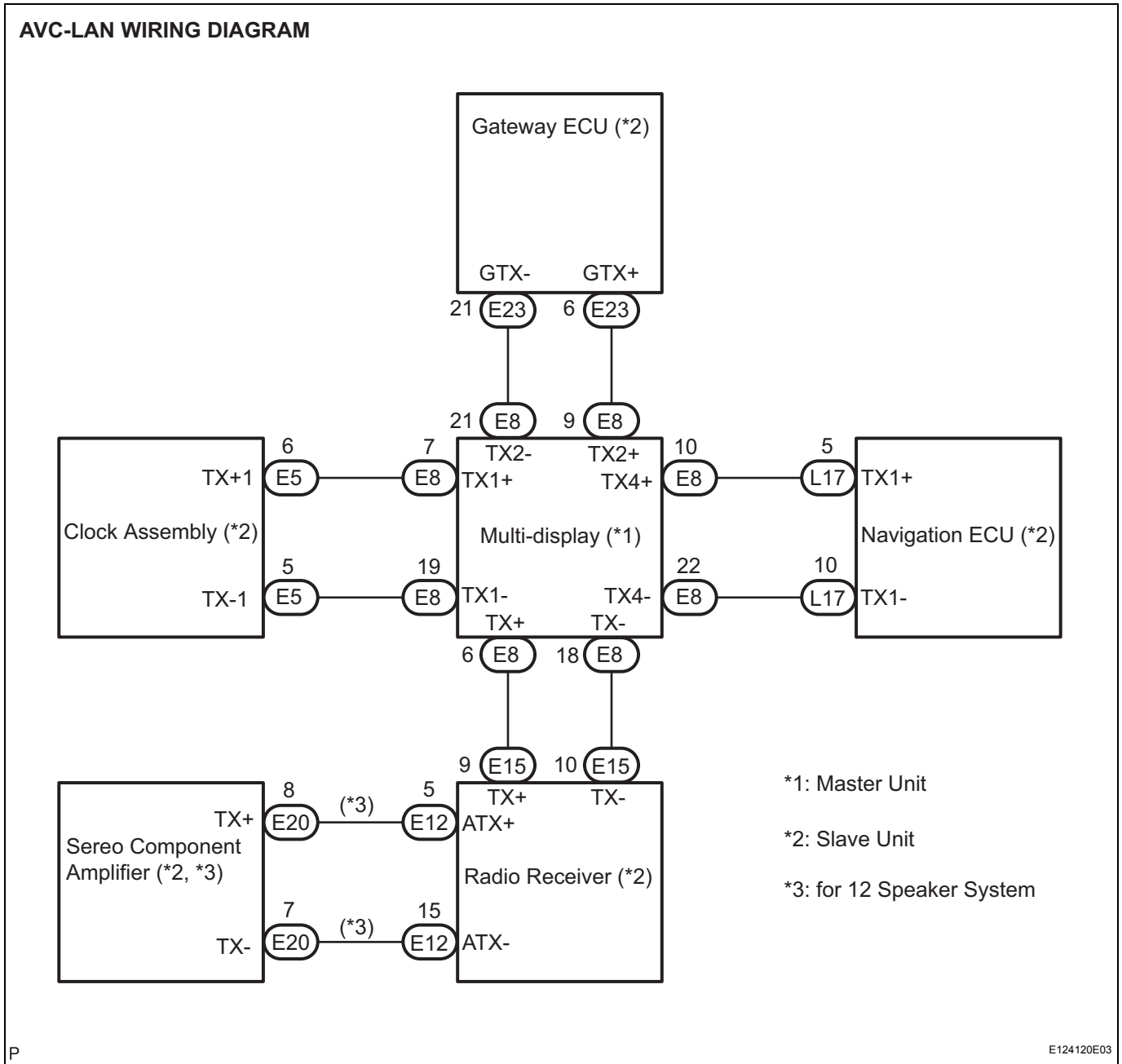
OK

4 CHECK HARNESS AND CONNECTOR (CLOCK ASSEMBLY - 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-26](#)).
- Referring to the AVC-LAN wiring diagram below, check the AVC-LAN circuit between the clock assembly and the component shown by the sub-code.
 - Disconnect all connectors between the clock assembly and the component shown by sub-code.

- (2) Check for an open or short in the AVC-LAN circuit between the clock assembly and the component shown by the sub-code.



OK:
 There is no open or short circuit.

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

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.

NS

OK:
Same problem does not occur.

NG → REPLACE CLOCK ASSEMBLY

OK

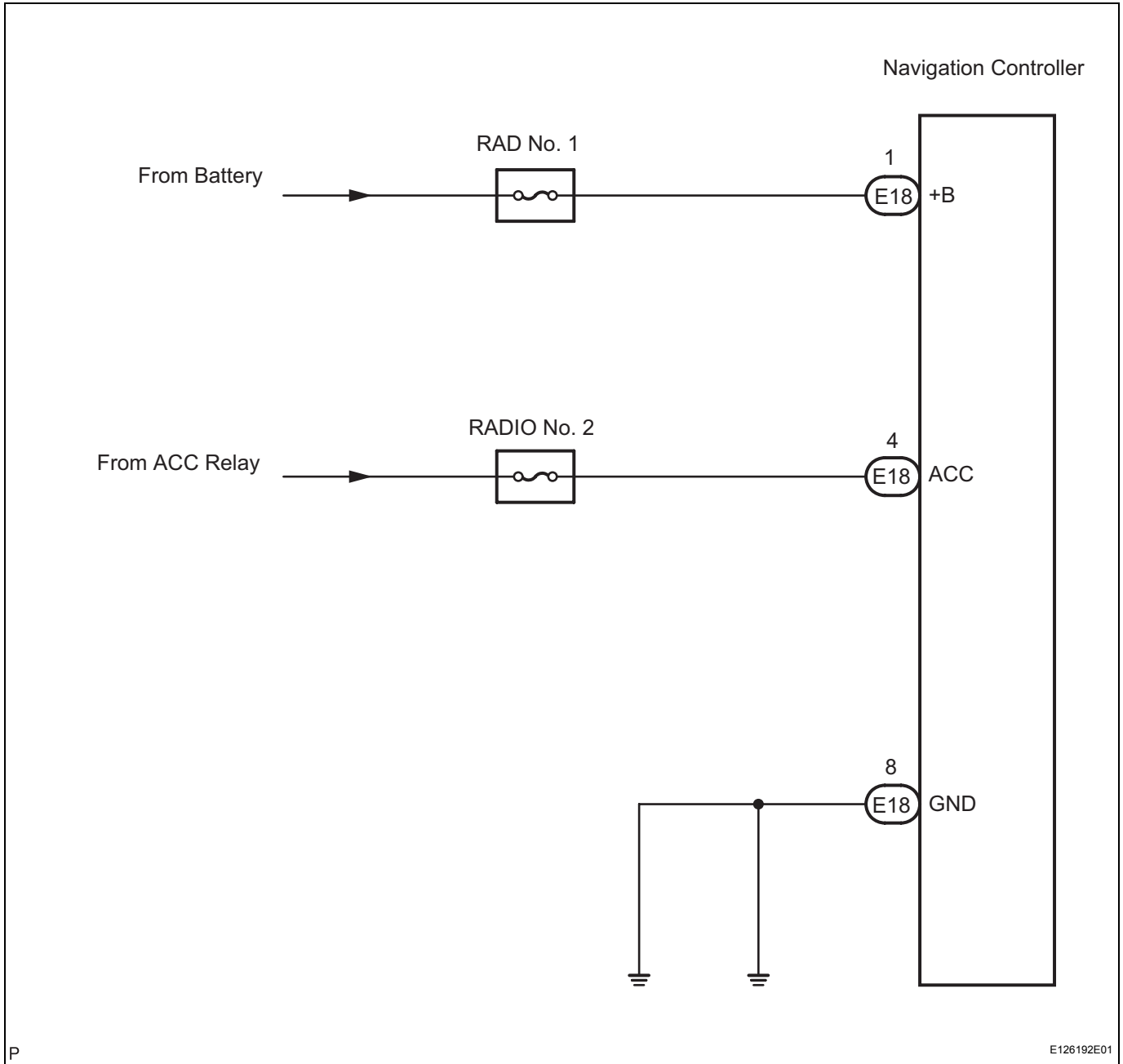
END

Navigation Controller Power Source Circuit

DESCRIPTION

This circuit provides power to the navigation controller.

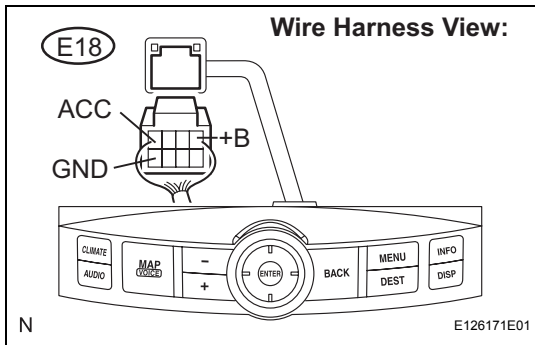
WIRING DIAGRAM



NS

INSPECTION PROCEDURE

1 INSPECT NAVIGATION CONTROLLER



- (a) Disconnect the navigation controller E18 connector.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
GND - Body ground	Always	Below 1 Ω

- (c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified condition
+B - GND	Always	10 to 14 V
ACC - GND	Ignition switch on (ACC)	10 to 14 V

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

NS

OK

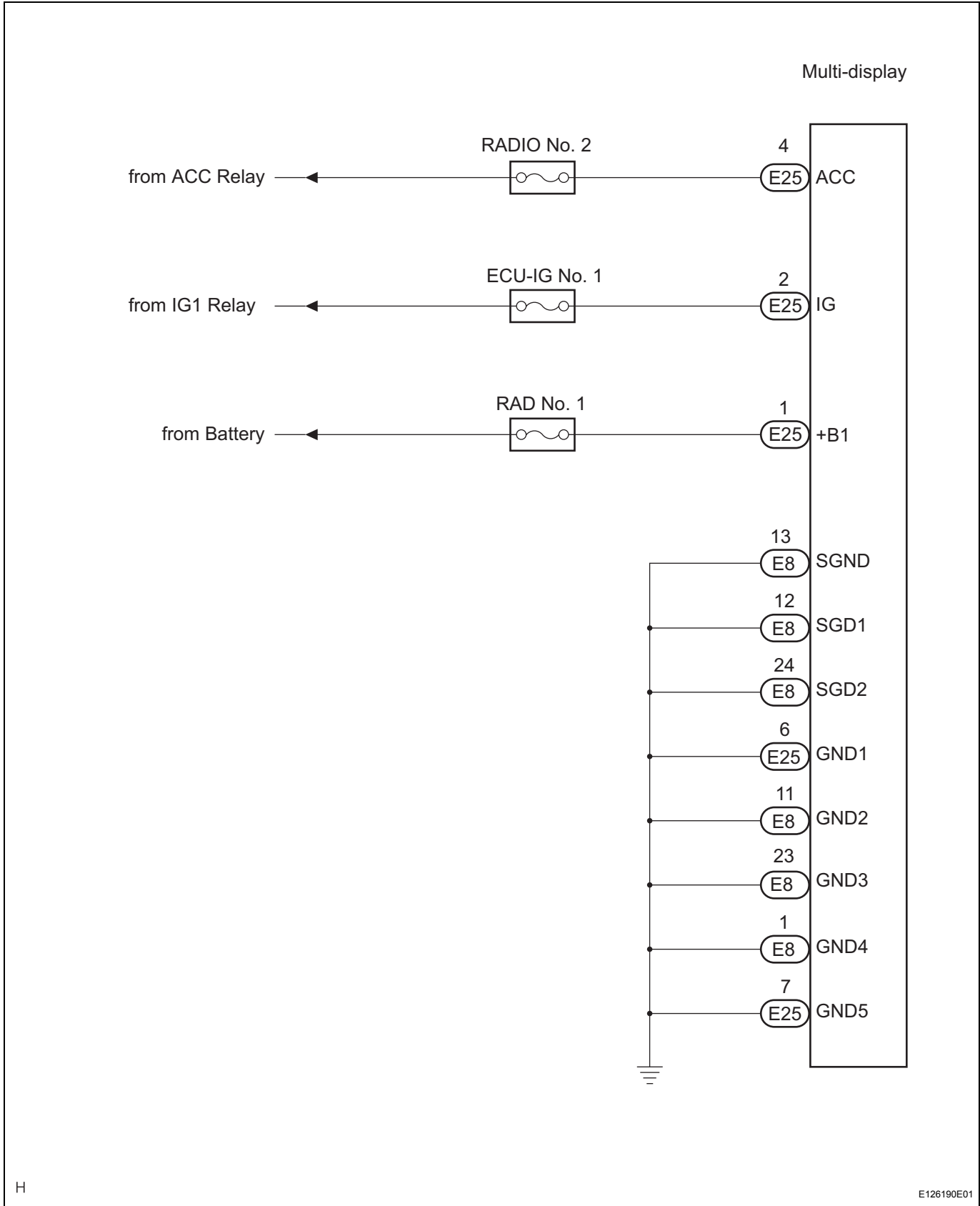
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Multi-display Power Source Circuit

DESCRIPTION

This is the power source circuit to operate the multi-display.

WIRING DIAGRAM

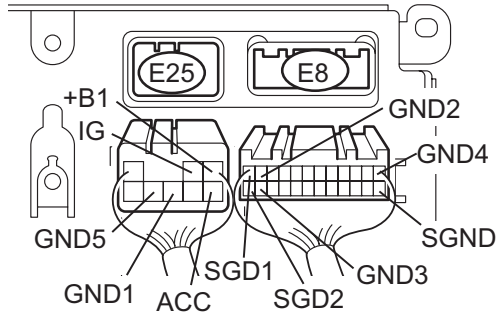


NS

INSPECTION PROCEDURE

1 INSPECT MULTI-DISPLAY

Wire Harness View:



N

E126191E01

- (a) Disconnect the multi-display connectors E25 and E8.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
GND1 - Body ground	Always	Below 1 Ω
GND2 - Body ground	Always	Below 1 Ω
GND3 - Body ground	Always	Below 1 Ω
GND4 - Body ground	Always	Below 1 Ω
GND5 - Body ground	Always	Below 1 Ω
SGD1 - Body ground	Always	Below 1 Ω
SGD2 - Body ground	Always	Below 1 Ω
SGND - Body ground	Always	Below 1 Ω

- (c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified condition
+B1 - GND1	Always	10 to 14 V
ACC - GND1	Ignition SW on (ACC)	10 to 14 V
IG - GND1	Ignition SW on (IG)	10 to 14 V

NS

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

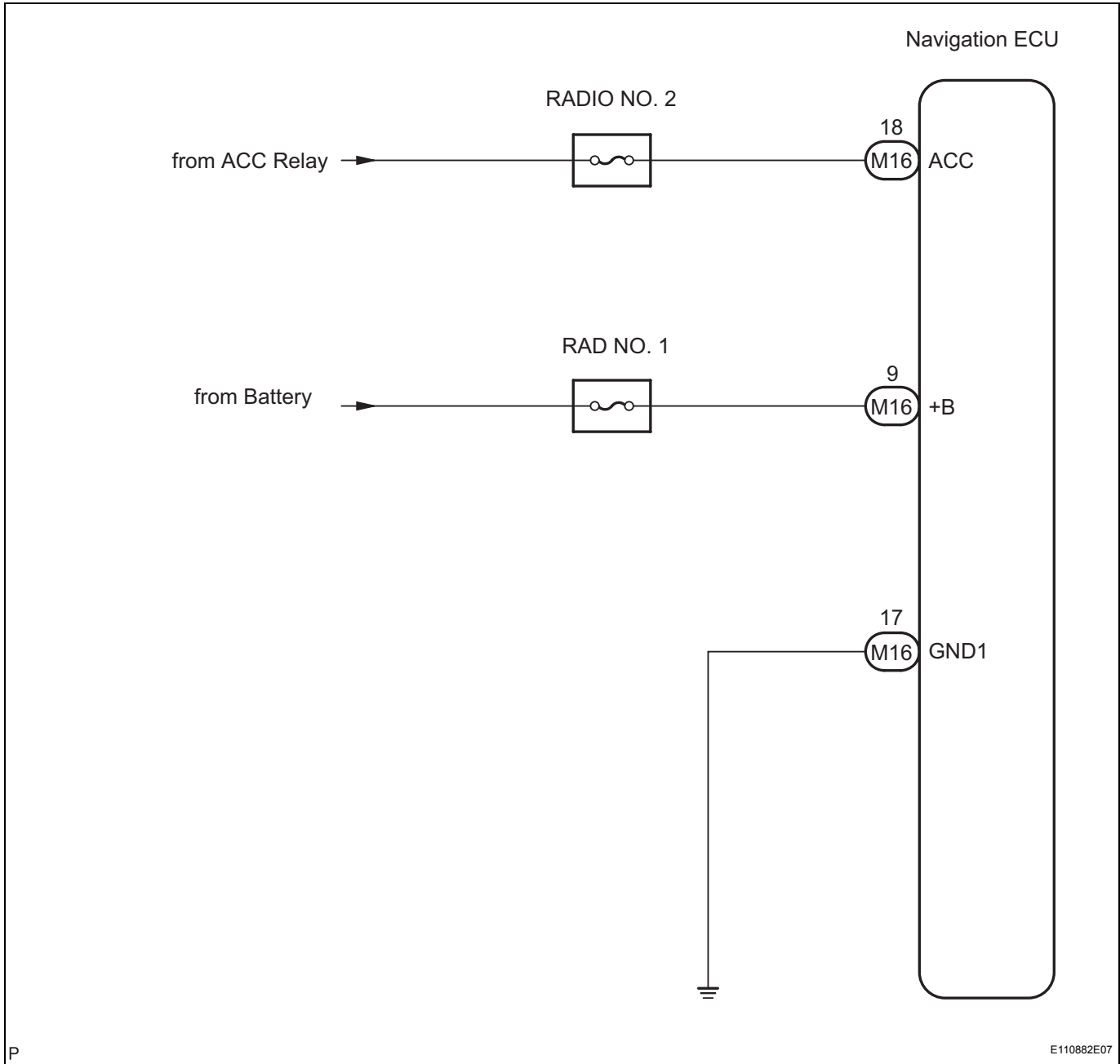
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Navigation ECU Power Source Circuit

DESCRIPTION

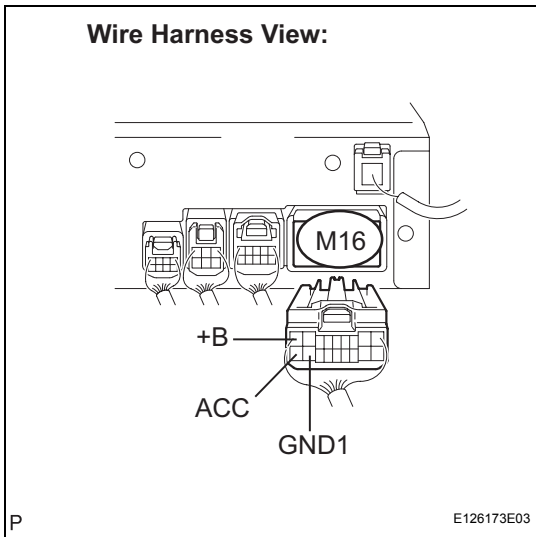
This is the power source circuit to operate the navigation ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT NAVIGATION ECU



- (a) Disconnect the navigation ECU connector M16.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
GND1 - Body ground	Always	Below 1 Ω

- (c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified condition
+B - GND1	Always	10 to 14 V
ACC - GND1	Ignition SW on (ACC)	10 to 14 V

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

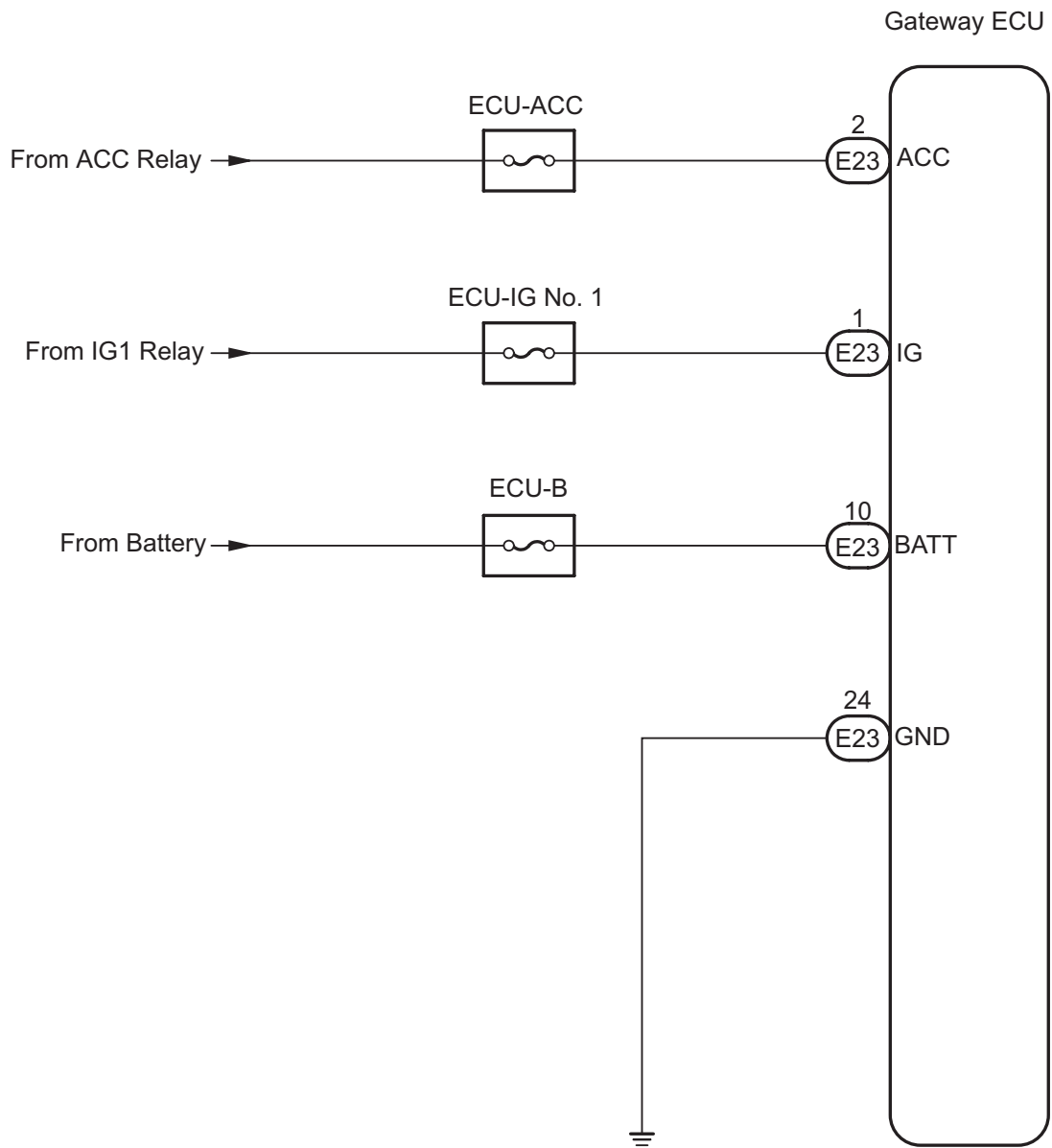
NS

Gateway ECU Power Source Circuit

DESCRIPTION

This is the power source circuit to operate the gateway ECU.

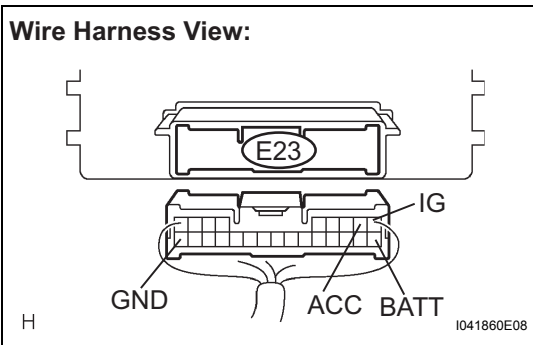
WIRING DIAGRAM



NS

INSPECTION PROCEDURE

1 INSPECT GATEWAY ECU



- (a) Disconnect the gateway ECU connector E23.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
GND - Body ground	Always	Below 1 Ω

- (c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified condition
BATT - GND	Always	10 to 14 V
ACC - GND	Ignition SW on (ACC)	10 to 14 V
IG - GND	Ignition SW on (IG)	10 to 14 V

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

NS

OK

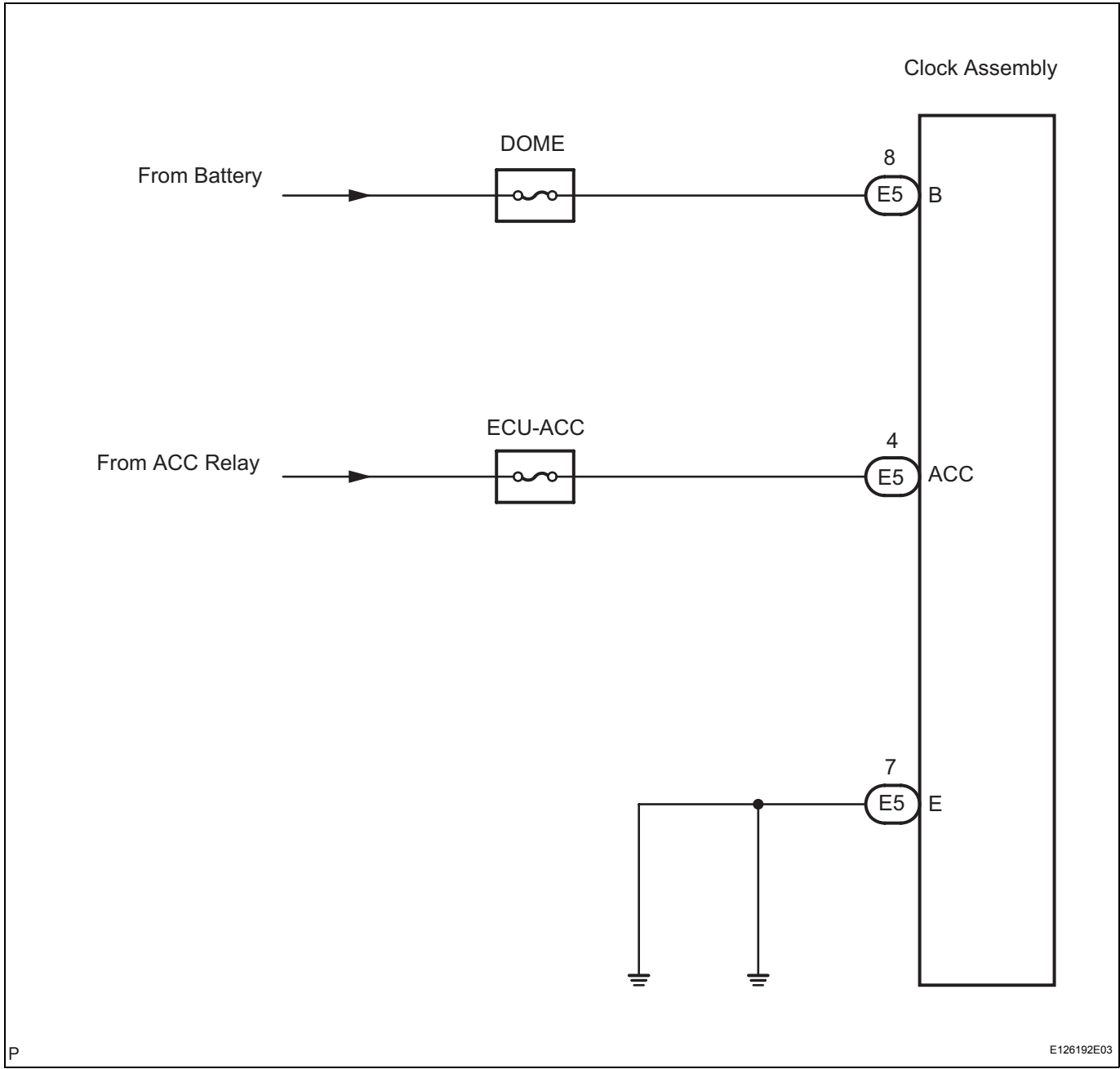
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

Clock Power Source Circuit

DESCRIPTION

This is the power source circuit to operate the clock assembly.

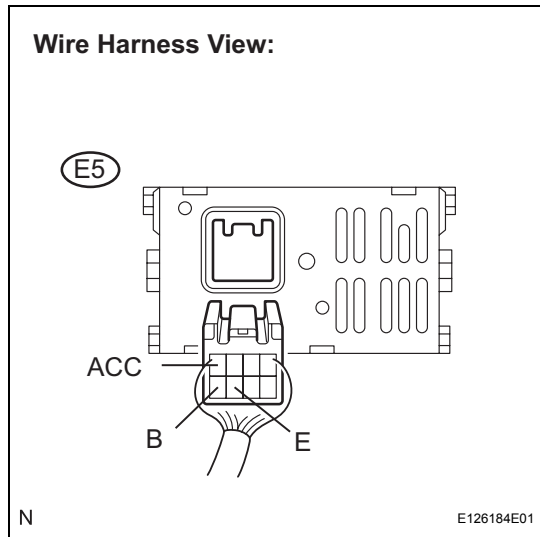
WIRING DIAGRAM



NS

INSPECTION PROCEDURE

1 INSPECT CLOCK ASSEMBLY



- (a) Disconnect the clock assembly connector E5.
- (b) Measure the resistance according to the value(s) in the table below.

Standard resistance

Tester connection	Condition	Specified condition
E - Body ground	Always	Below 1 Ω

- (c) Measure the voltage according to the value(s) in the table below.

Standard voltage

Tester connection	Condition	Specified condition
B - E	Always	10 to 14 V
ACC - E	Ignition switch on (ACC)	10 to 14 V

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

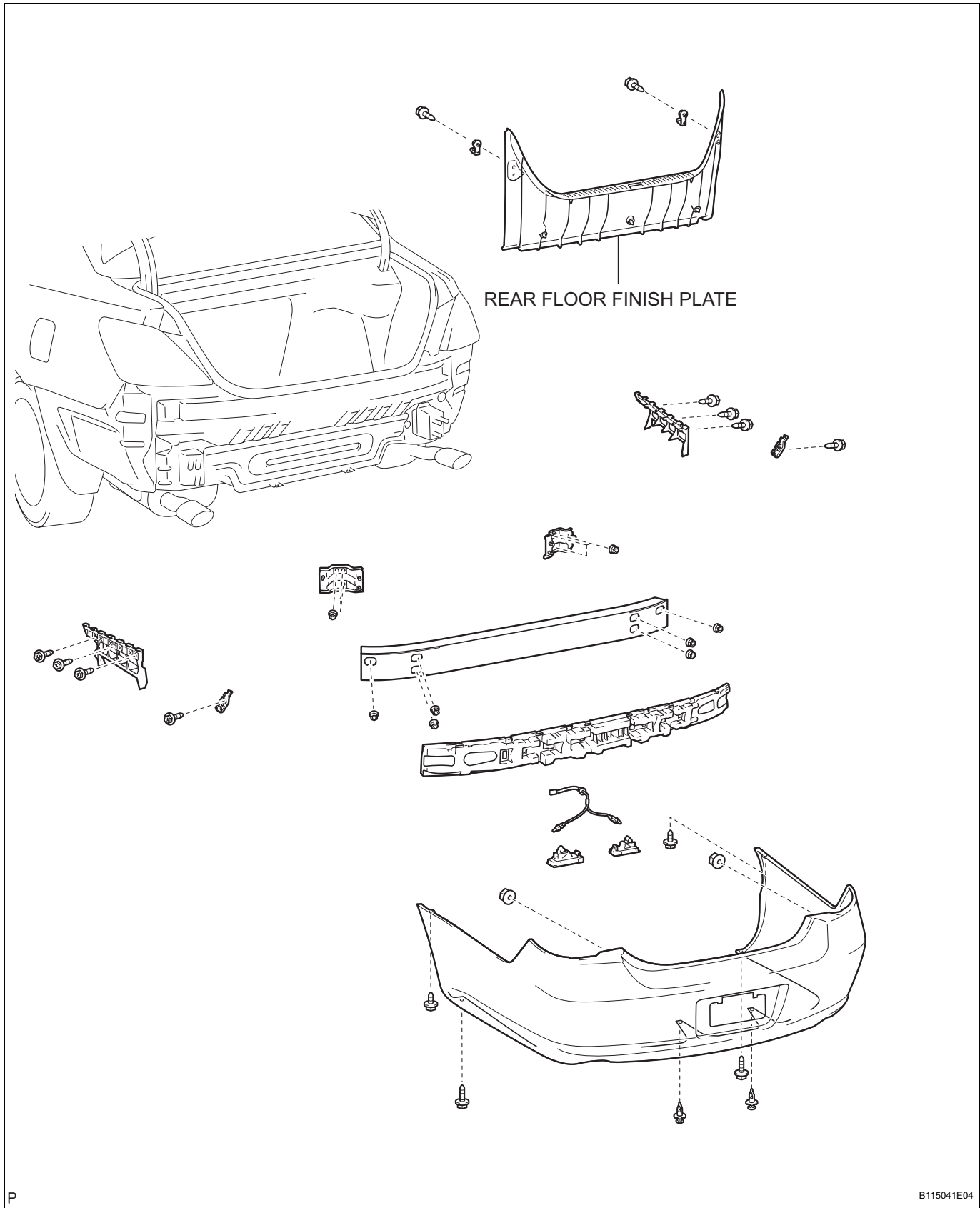
OK

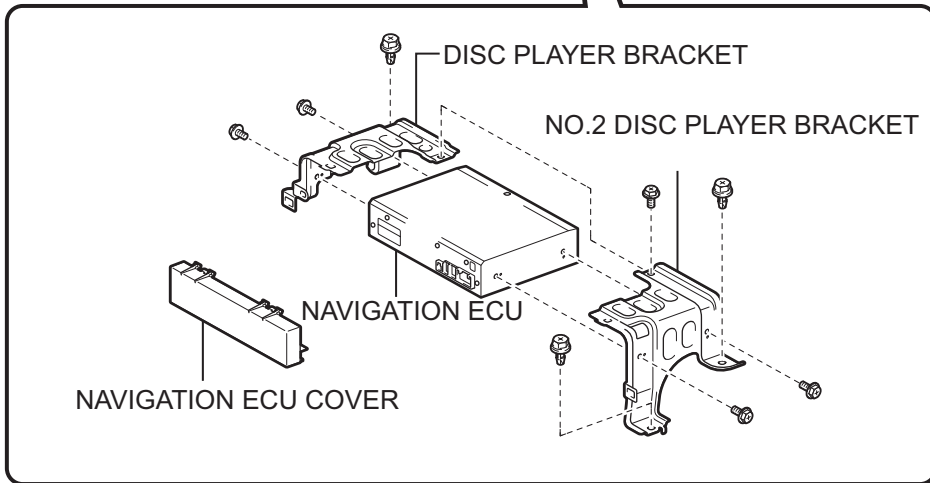
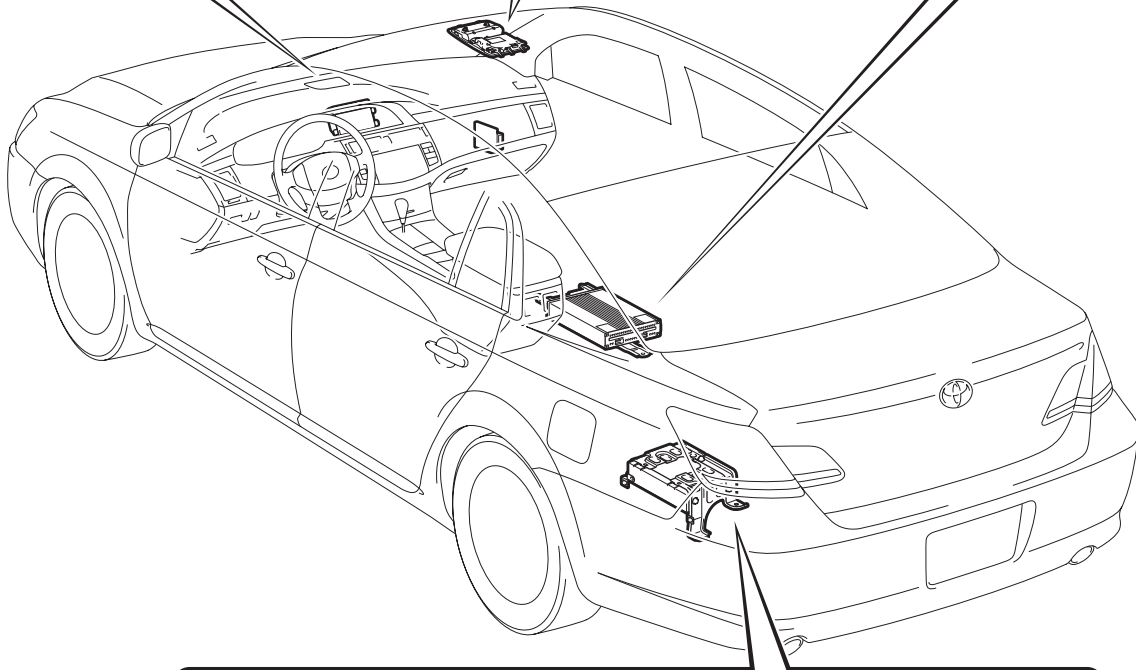
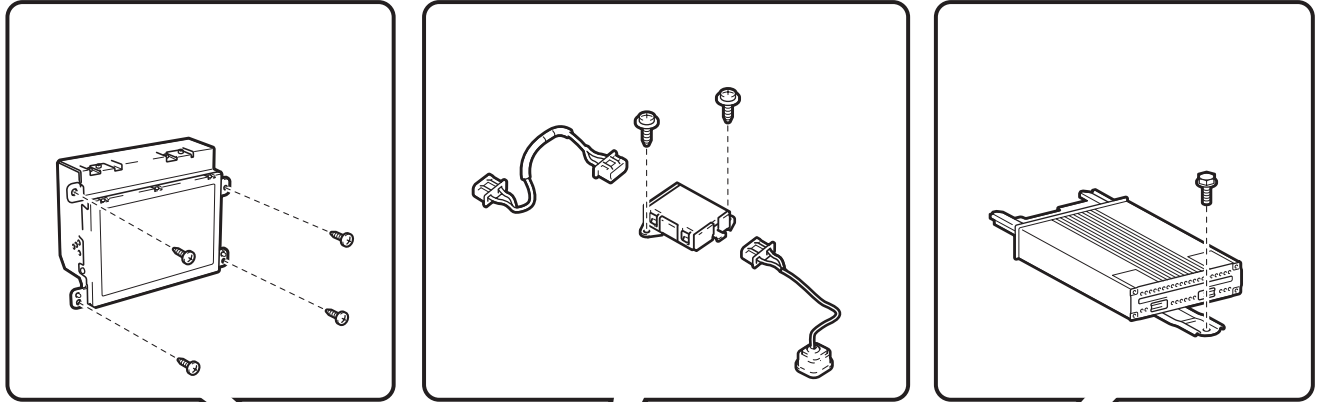
NS

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE

NAVIGATION ECU

COMPONENTS

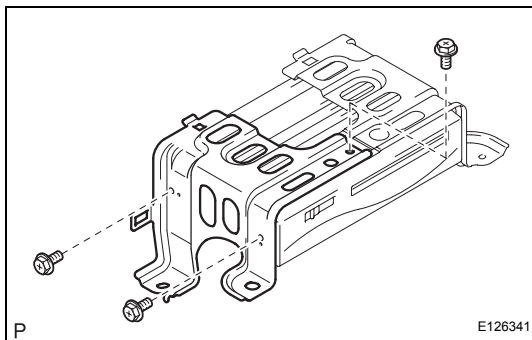
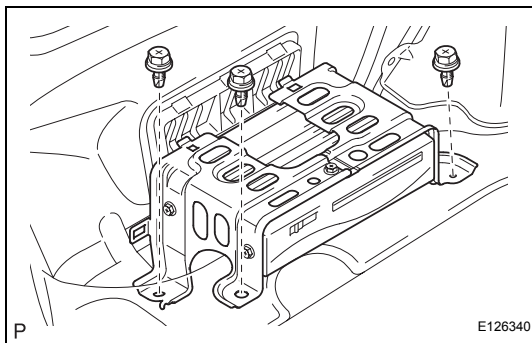
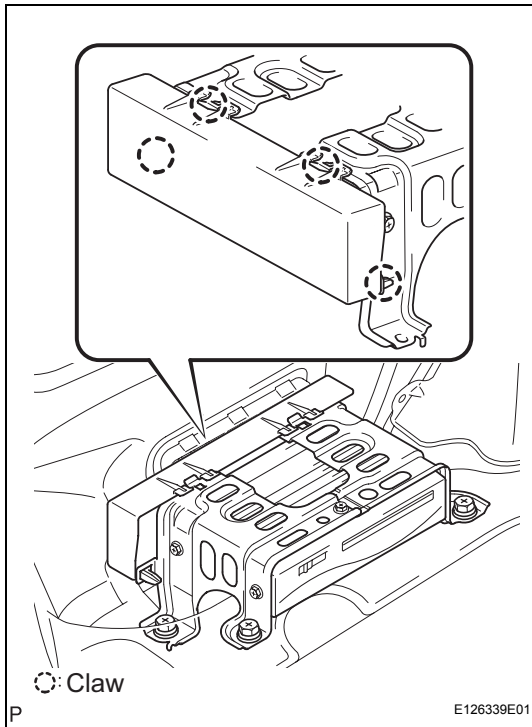




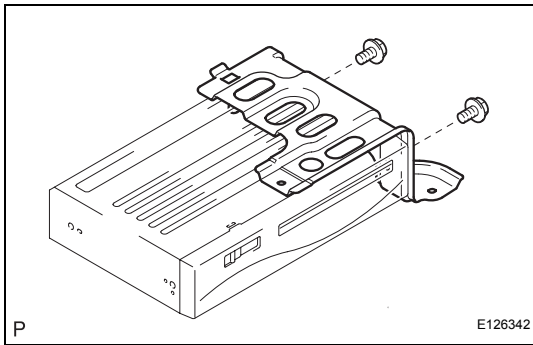
NS

REMOVAL

1. **REMOVE LUGGAGE COMPARTMENT TRIM COVER INNER LH**
2. **REMOVE REAR FLOOR FINISH PLATE** (See page [ET-6](#))
3. **REMOVE DISC PLAYER DISC**
 - (a) Eject the disc player disc.
4. **REMOVE NAVIGATION ECU COVER**
 - (a) Disengage the 4 claws and remove the navigation ECU cover.



5. **REMOVE NAVIGATION COMPUTER WITH BRACKET**
 - (a) Remove the 3 screws and navigation computer w/ bracket.
6. **REMOVE NO.2 DISC PLAYER BRACKET**
 - (a) Remove the 3 bolts and No. 2 disc player bracket.



- 7. REMOVE DISC PLAYER BRACKET**
 - (a) Remove the 2 bolts and disc player bracket.
- 8. REMOVE NAVIGATION ECU**

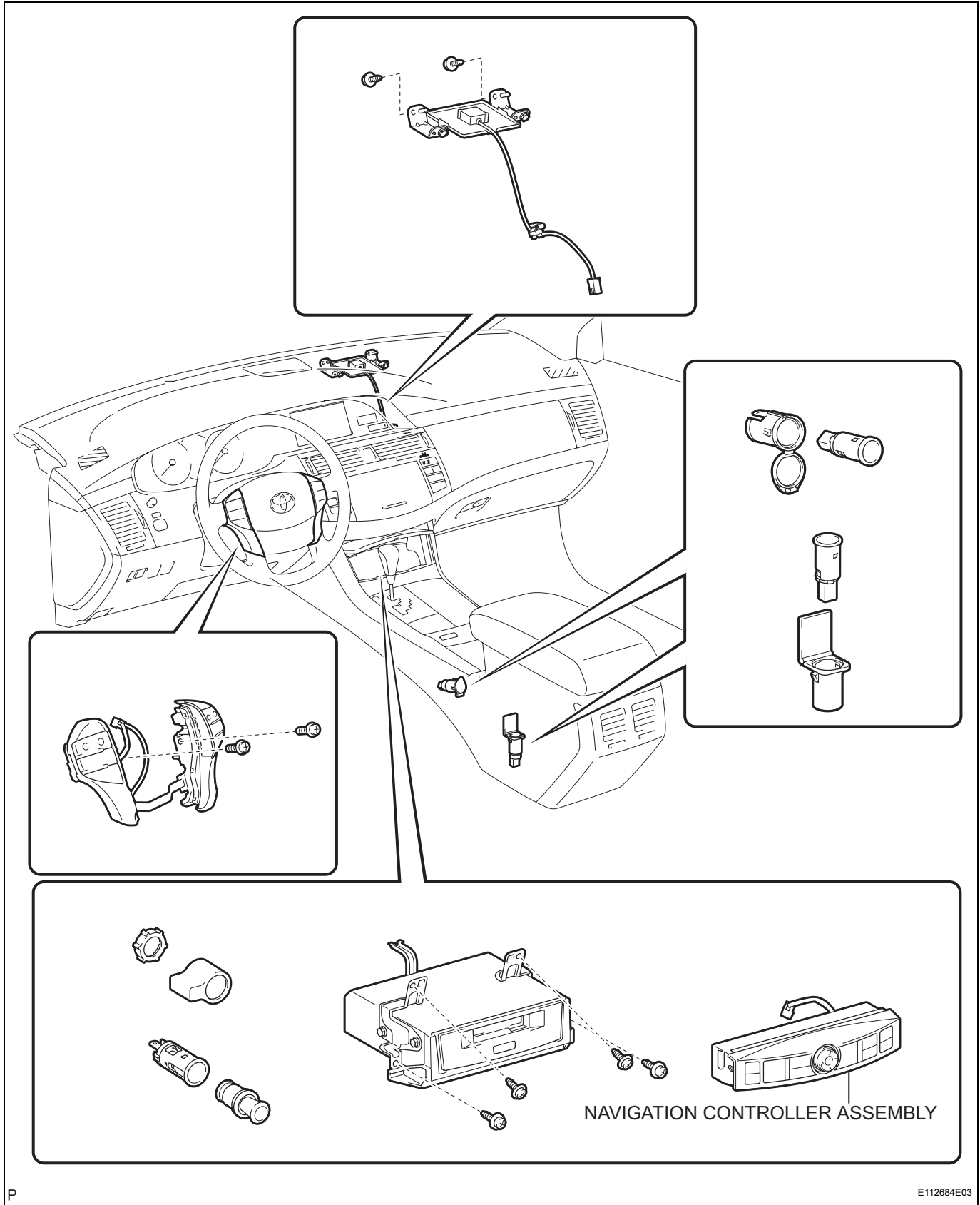
INSTALLATION

- 1. INSTALL NAVIGATION ECU**
- 2. INSTALL DISC PLAYER BRACKET**
- 3. INSTALL NO.2 DISC PLAYER BRACKET**
- 4. INSTALL NAVIGATION COMPUTER WITH BRACKET**
- 5. INSTALL NAVIGATION ECU COVER**
- 6. INSTALL DISC PLAYER DISC**
- 7. INSTALL REAR FLOOR FINISH PLATE**
- 8. INSTALL LUGGAGE COMPARTMENT TRIM COVER
INNER LH**

NAVIGATION CONTROLLER

COMPONENTS

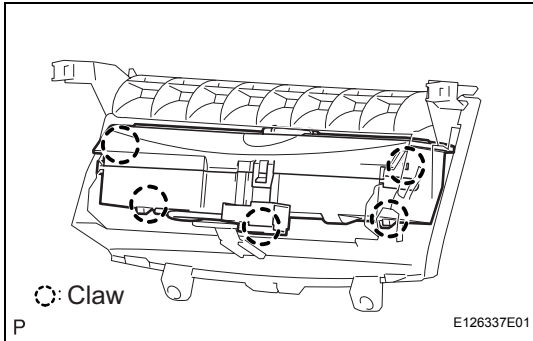
NS



NAVIGATION CONTROLLER ASSEMBLY

REMOVAL

1. REMOVE CONSOLE PANEL SUB-ASSEMBLY UPPER
(See page [IP-13](#))
2. REMOVE NAVIGATION CONTROLLER ASSEMBLY
 - (a) Disengage the 5 claws and remove the navigation controller assembly.

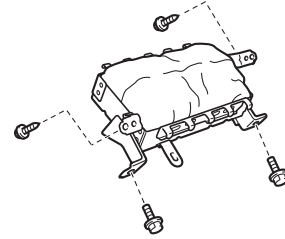
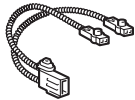
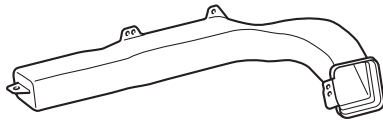


INSTALLATION

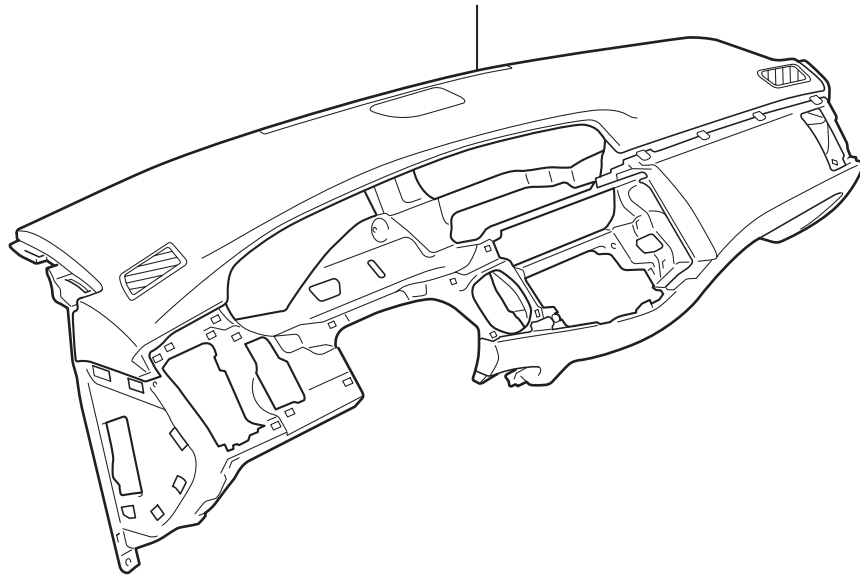
- 1. INSTALL NAVIGATION CONTROLLER ASSEMBLY**
- 2. INSTALL CONSOLE PANEL SUB-ASSEMBLY UPPER**

NAVIGATION ANTENNA

COMPONENTS

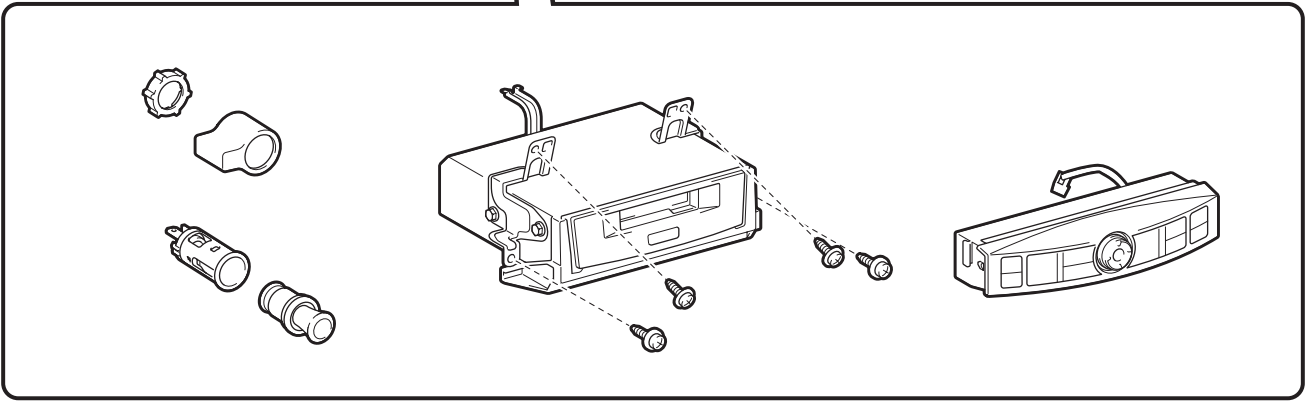
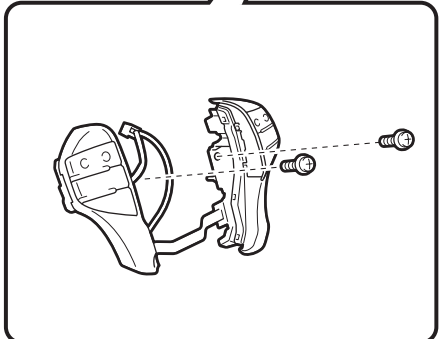
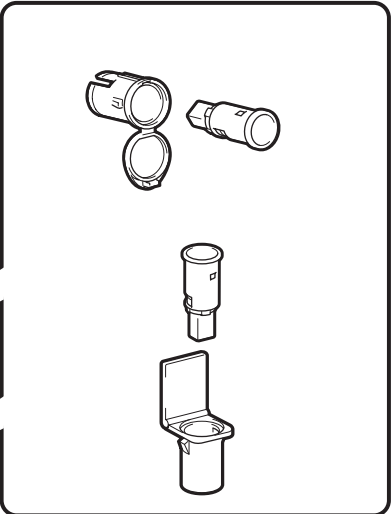
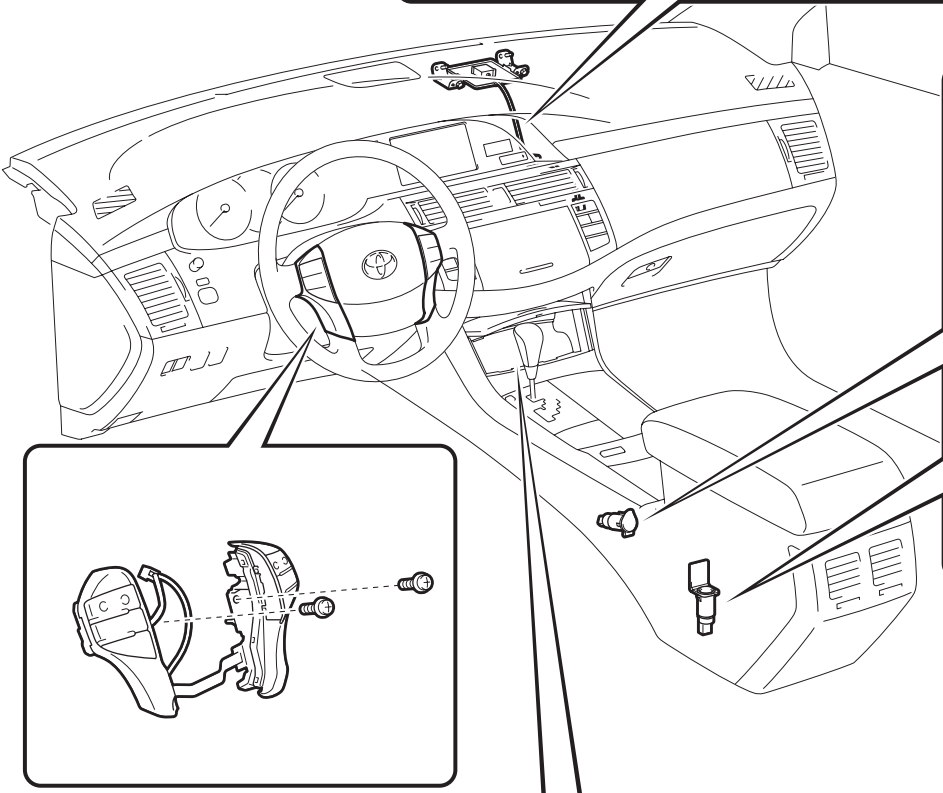
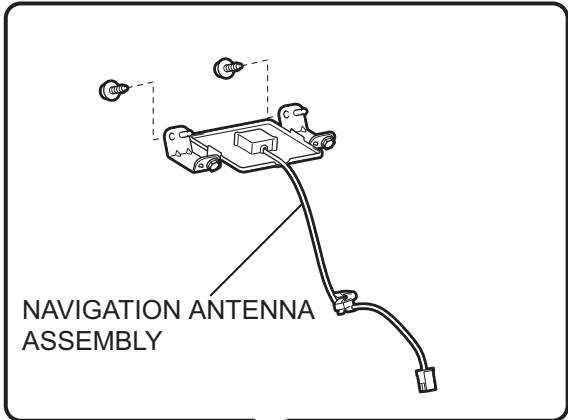


INSTRUMENT PANEL SAFETY
PAD SUB-ASSEMBLY



NS

NS



REMOVAL

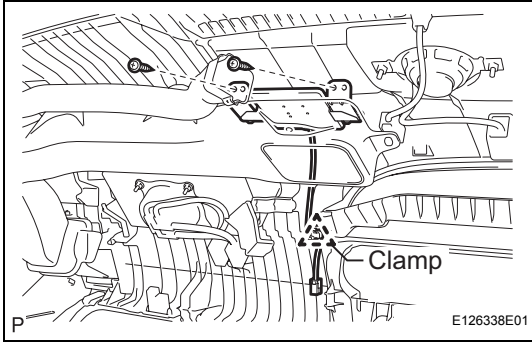
1. REMOVE INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY (w/ Front Passenger Airbag)

HINT:

Refer to the procedures up to the removal of the instrument panel safety pad sub-assembly (w/ front passenger airbag) (See page [IP-8](#)).

2. REMOVE NAVIGATION ANTENNA ASSEMBLY

- (a) Remove the clamp.
- (b) Remove the 2 screws and remove the navigation antenna assembly.



INSTALLATION

1. INSTALL NAVIGATION ANTENNA ASSEMBLY
2. INSTALL INSTRUMENT PANEL SAFETY PAD SUB-ASSEMBLY (w/ Front Passenger Airbag) (See page [IP-17](#))
3. ADJUST SPIRAL CABLE
4. INSTALL STEERING WHEEL ASSEMBLY (See page [SR-46](#))
5. INSTALL STEERING PAD (See page [RS-305](#))
6. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL
7. PERFORM SYSTEM INITIALIZE (See page [IP-18](#))
8. INSPECT STEERING PAD (See page [RS-315](#))
9. INSPECT SRS WARNING LIGHT (See page [IP-18](#))