

STEERING PAD SWITCH CIRCUIT

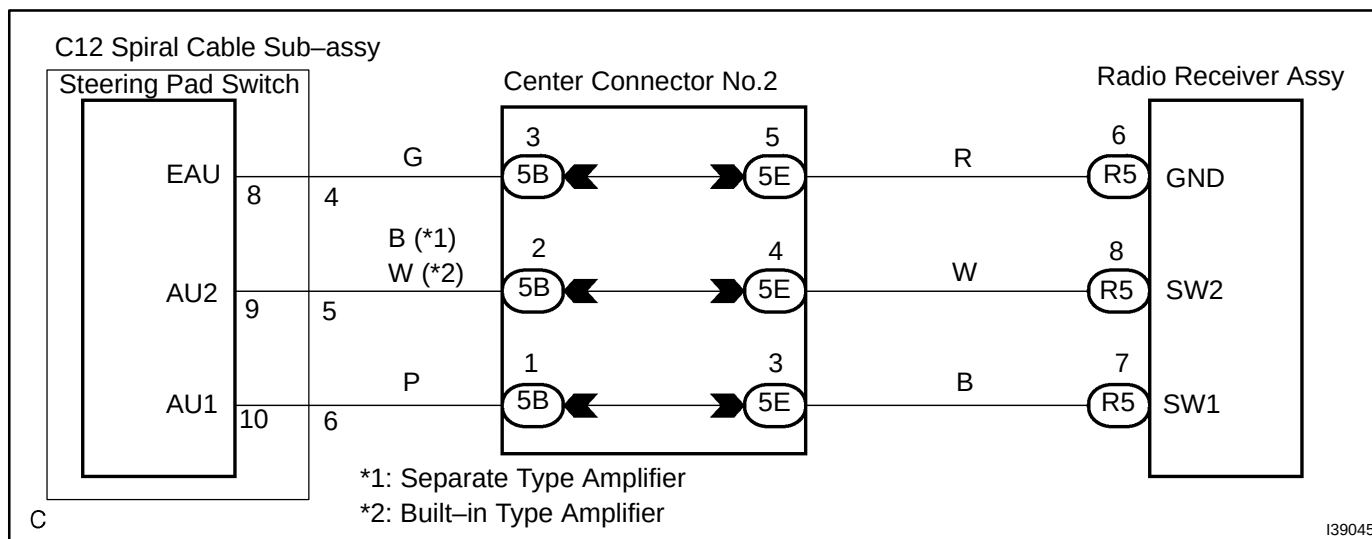
CIRCUIT DESCRIPTION

This circuit sends an operation signal from the steering pad switch to the radio receiver assy.

If there is an open in the circuit, the audio system cannot be operated by the steering pad switch.

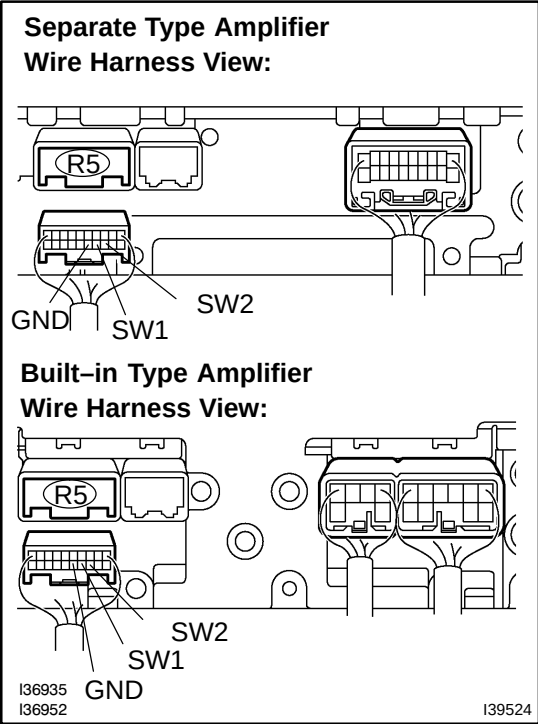
If there is a short in the circuit, the same condition as that when the switch is continuously depressed occurs. Therefore, not only the steering pad switch cannot operate the radio receiver assy, but also the radio receiver assy itself does not function.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT STEERING PAD SWITCH ASSY



- (a) Disconnect the radio receiver assy R5 connector.
- (b) Measure the resistance according to the values in the table below.

Standard:

Tester connection	Condition	Specified condition
SW1 (R5-7) – GND (R5-6)	Do not switch position	Approx. 100 kΩ
SW1 (R5-7) – GND (R5-6)	SEEK+ switch: push	Below 2.5 Ω
SW1 (R5-7) – GND (R5-6)	SEEK- switch: push	Approx. 0.3 kΩ
SW1 (R5-7) – GND (R5-6)	VOL+ switch: push	Approx. 1 kΩ
SW1 (R5-7) – GND (R5-6)	VOL- switch: push	Approx. 3.2 kΩ
SW2 (R5-8) – GND (R5-6)	Do not switch position	Approx. 100 kΩ
SW2 (R5-8) – GND (R5-6)	MODE switch: push	Below 2.5 Ω

NG Go to step 2

OK

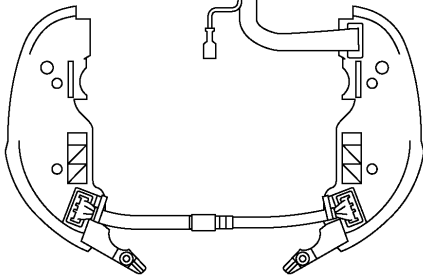
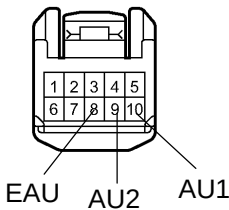
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)

2

INSPECT STEERING PAD SWITCH ASSY

Steering Pad Switch Assy:

Connector Front View:



- (a) Disconnect the steering pad switch assy connector.
- (b) Measure the resistance according to the values in the table below.

Standard:

Tester connection	Condition	Specified condition
AU1 (10) – EAU (8)	Do not switch position	Approx. 100 kΩ
AU1 (10) – EAU (8)	SEEK+ switch: push	Approx. 2.5 Ω
AU1 (10) – EAU (8)	SEEK– switch: push	Approx. 0.3 kΩ
AU1 (10) – EAU (8)	VOL+ switch: push	Approx. 1 kΩ
AU1 (10) – EAU (8)	VOL– switch: push	Approx. 3.2 kΩ
AU1 (10) – EAU (8)	Do not switch position	Approx. 100 kΩ
AU2 (9) – EAU (8)	MODE switch: push	Below 2.5 Ω

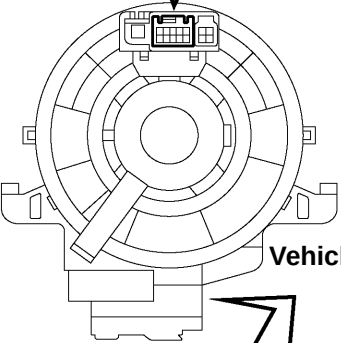
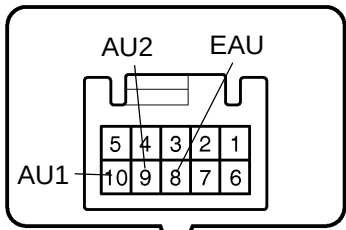
NG

REPLACE STEERING PAD SWITCH ASSY

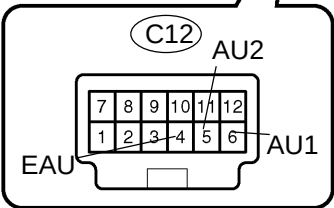
OK

3 INSPECT SPIRAL CABLE SUB-ASSY

Steering Pad Switch Assy Side:



Vehicle Side:



N

I39337

- (a) Disconnect the connectors from the spiral cable sub-assy.
- (b) Measure the resistance according to the values in the table below.

Standard:

Tester connection	Specified condition
EAU (C12-4) – EAU (8)	Below 1 Ω
AU1 (C12-6) – AU1 (10)	Below 1 Ω
AU2 (C12-5) – AU2 (9)	Below 1 Ω

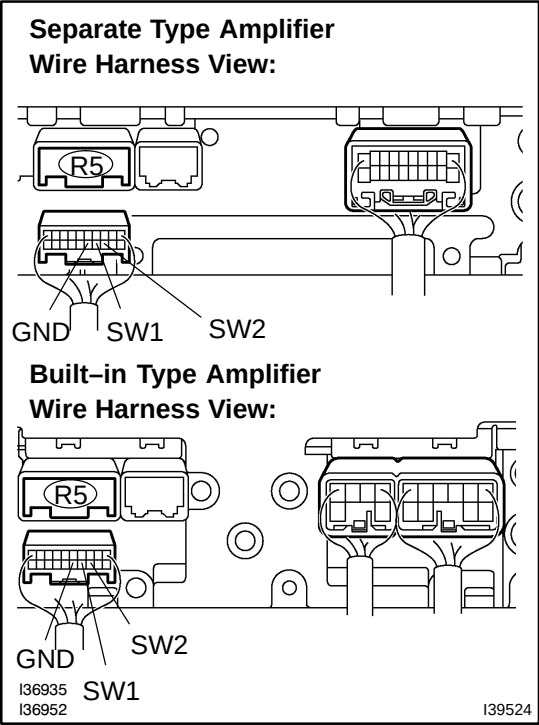
OK

NG

REPLACE SPIRAL CABLE SUB-ASSY

4

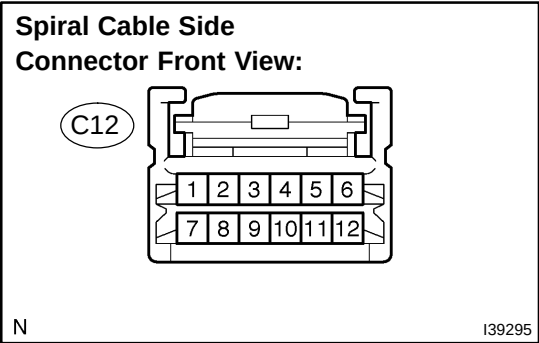
CHECK HARNESS AND CONNECTOR(SPIRAL CABLE SUB-ASSY – RADIO RECEIVER ASSY)



- (a) Disconnect the spiral cable sub-assy connector.
- (b) Measure the resistance according to the values in the table below.

Standard:

Tester connection	Specified condition
SW1 (R5-7) – AU1 (C12-6)	Below 1 Ω
SW2 (R5-8) – AU2 (C12-5)	Below 1 Ω
GND (R5-6) – EAU (C12-4)	Below 1 Ω
SW1 (R5-7) – Body ground	10 kΩ or higher
SW2 (R5-8) – Body ground	10 kΩ or higher
GND (R5-6) – Body ground	10 kΩ or higher



NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

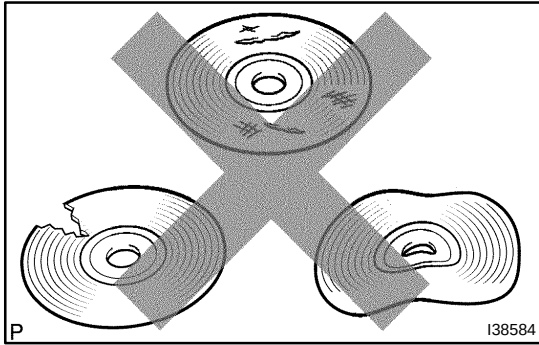
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)

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 appear on the map disc.

NG**REPLACE THE MAP DISC****OK**

2 CHECK NAVIGATION ECU

- (a) Check that the "PUSH" indicator near the disc slot comes on.
OK: It does not come on.

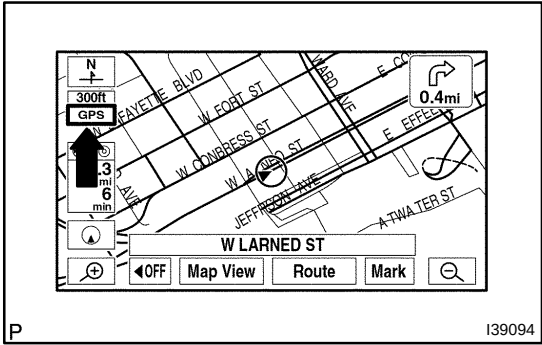
NG**PRESS THE EJECT SWITCH TO EJECT THE DISC****OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE [05-1873](#))**

VEHICLE POSITION MARK DEVIATES GREATLY

INSPECTION PROCEDURE

1 CHECK THE GPS MARK



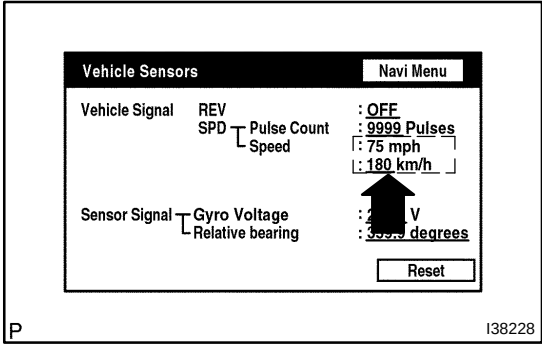
- (a) Check that the GPS mark is displayed.
OK: The GPS mark is displayed.

NG GO TO "GPS MARK IS NOT DISPLAYED" IN THE FLOW CHART (SEE PAGE 05-1912)

OK

2 NAVIGATION CHECK MODE(VEHICLE SENSORS)

- (a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page 05-1859).



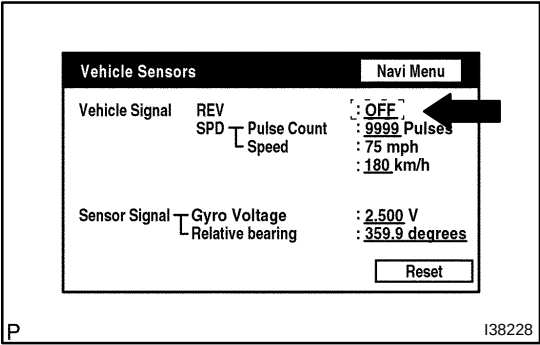
- (b) While driving, compare the "SPEED" indicator to the reading on the speedometer. Check that these readings are almost the same.
OK: The readings are almost the same.

NG GO TO "SPEED SIGNAL CIRCUIT (NAVIGATION ECU – COMBINATION METER ASSY)" IN THE FLOW CHART (SEE PAGE 05-1937)

OK

3

NAVIGATION CHECK MODE(VEHICLE SENSORS)



(a) Move the shift position to the R or P range.

Standard:

Shift lever	Display
P	OFF
R	ON

HINT:

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

NG

GO TO "REVERSE SIGNAL CIRCUIT" IN THE FLOW CHART (SEE PAGE 05-1943)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

BLACK SCREEN (NO IMAGE APPEARS ON NAVIGATION AND AUDIO SCREEN)

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 if screen color quality can be set.

OK: Switching is possible.

OK

PRESS PANEL SWITCH "DISPLAY" AND SET SCREEN COLOR QUALITY TO NORMAL

NG

3 CHECK CABIN

- (a) Check if condensation is likely to occur, or the temperature is high or low (extremely cold) in the cabin.
HINT:

This problem occurs when the cabin is humid and the temperature rapidly changes. This condition may produce condensation, resulting in a short circuit.

OK: The above condition is not observed.

NG

SET CABIN TEMPERATURE TO APPROPRIATE DEGREES

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)**

CURSOR OR MAP ROTATES WHEN VEHICLE IS STOPPED**INSPECTION PROCEDURE****1 CHECK CONDITION**

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

OK: The vehicle has not been turned by a turntable.

HINT:

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

NG

**TURN POWER SWITCH TO ON POSITION WHEN
VEHICLE IS COMPLETELY STOPPED**

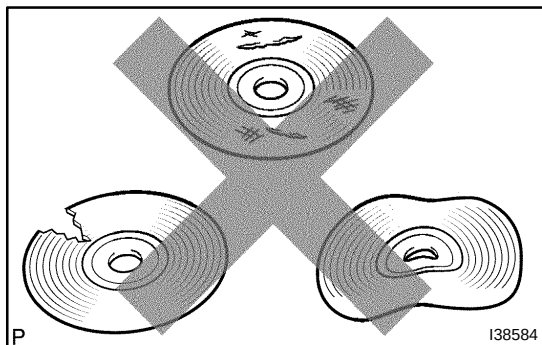
OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE [05-1873](#))**

VEHICLE POSITION MARK IS NOT UPDATED

INSPECTION PROCEDURE

1 CHECK THE MAP DISC



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

NG

REPLACE THE MAP DISC

OK

2 CHECK THE MAP DISPLAY

- (a) Check if a touch scroll can be performed on the map display.
OK: Touch scroll can be performed.

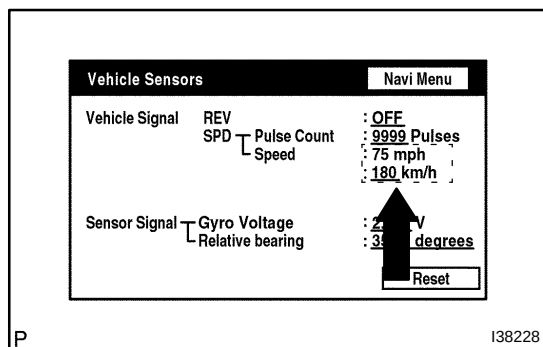
NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

OK

3 NAVIGATION CHECK MODE(VEHICLE SENSORS)

- (a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page 05-1859).



- (b) While driving, compare the "SPEED" indicator to the reading on the speedometer. Check if these readings are almost the same.

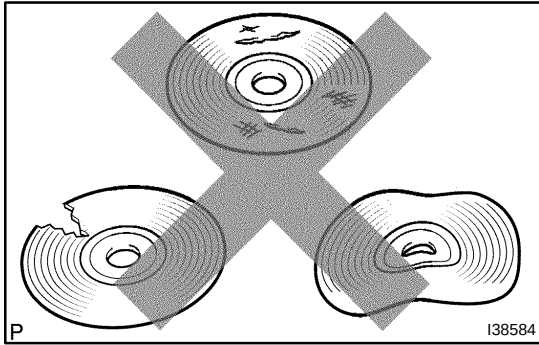
OK: The readings are almost the same.

NG

GO TO "SPEED SIGNAL CIRCUIT (NAVIGATION ECU – COMBINATION METER ASSY)" IN THE FLOW CHART (SEE PAGE 05-1937)

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

CURRENT POSITION DISPLAY DOES NOT APPEAR**INSPECTION PROCEDURE****1 CHECK THE MAP DISC**

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

NG**REPLACE THE MAP DISC****OK**

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE [05-1873](#))**

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:

GPS works using extremely weak radio waves originating from satellites. If the signal is interrupted by obstructions or another radio wave, the GPS system may not be able to properly receive the signal.

OK: Mark appears.

OK

NORMAL OPERATION

NG

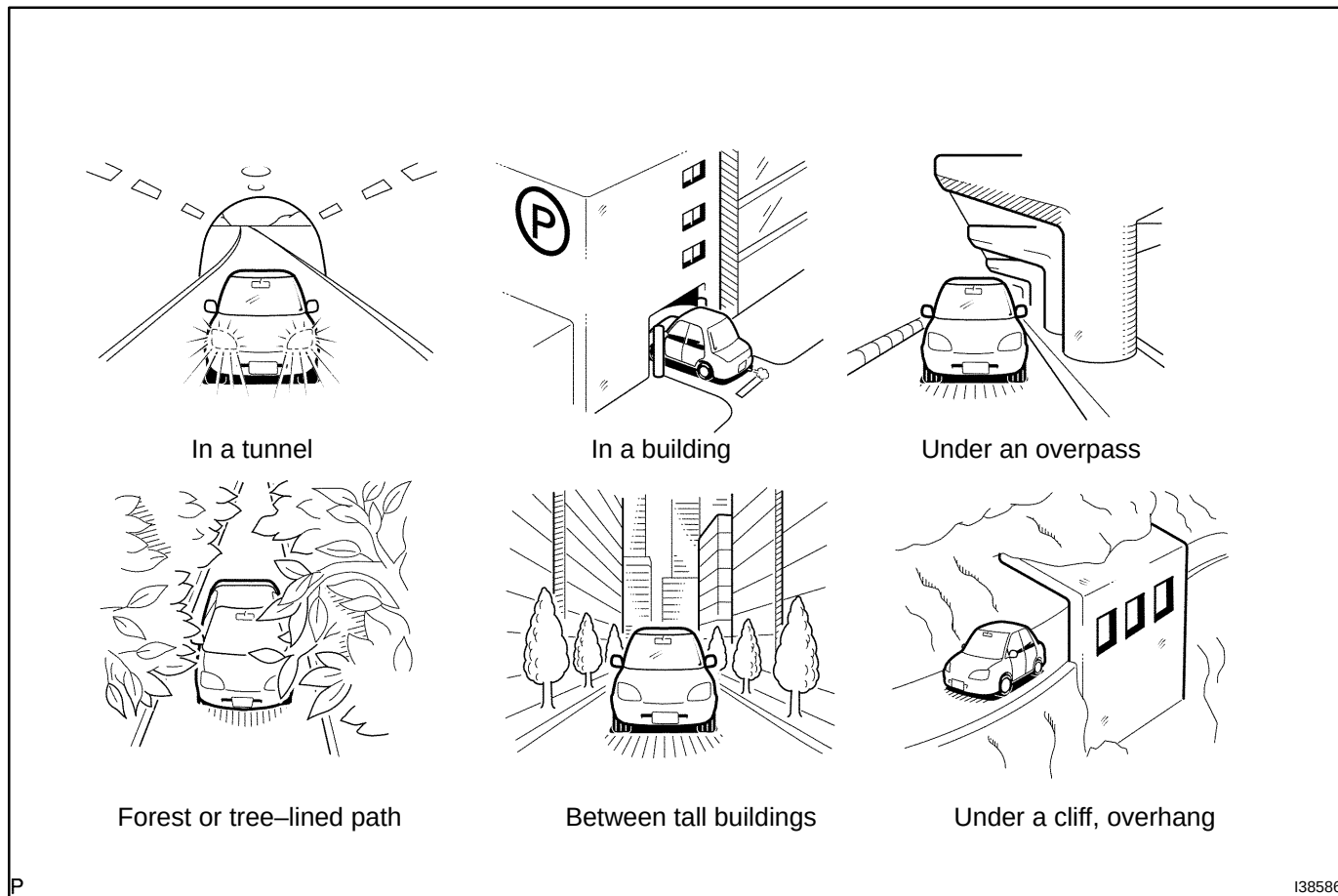
2 CHECK SURROUNDINGS

- (a) Check if the vehicle is in a location where GPS signal reception is bad. If the vehicle is in such a place, move it elsewhere and check if the GPS mark reappears.

HINT:

- GPS uses 24 satellites in 6 orbits so that at any time 5 satellites will be in line-of-sight of your vehicle.
- GPS signals may not be received, however, based on surroundings, vehicle direction, and time.

- The following illustrations show some conditions where it may be difficult to receive GPS signals.



OK: GPS mark is displayed.

OK

RETURNS TO NORMAL

NG

3 NAVIGATION CHECK MODE(GPS INFORMATION)

- (a) Enter the "Navigation Check" mode (GPS information) (see page 05-1858).

GPS Information					Navi Menu				
No.	Elv	Azm	LVL	STS	No.	Elv	Azm	LVL	STS
3	73°	/021°	12	P	5	80°	/279°	54	P
8	52°	/183°	58	P	9	27°	/121°	26	-
10	32°	/219°	39	P	13	19°	/330°	11	-
16	49°	/097°	20	T	18	22°	/300°	12	-
20	61°	/045°	39	T	21	40°	/142°	49	T
23	72°	/278°	57	P	24	17°	/350°	13	-
Measurement Date (G) 98/05/47 09:46:00									
status: 3D									
Latitude 39° 58'					Longitude 137° 00.12'				

P

I38226

- (b) Check how many of the following codes occur in the "STS" column.

For DENSO Models: T, P

For AISIN AW Models: 04H, 08H

OK: At least 3 codes occur.

OK

**REPLACE NAVIGATION ECU
(SEE PAGE 67-23)**

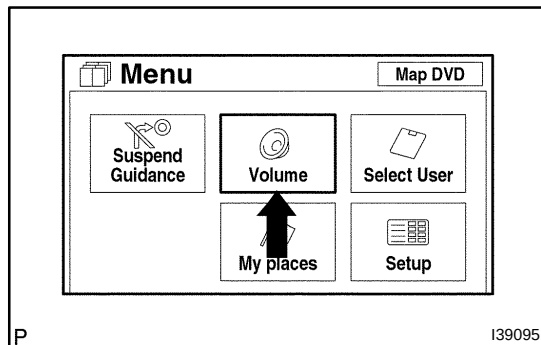
NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)**

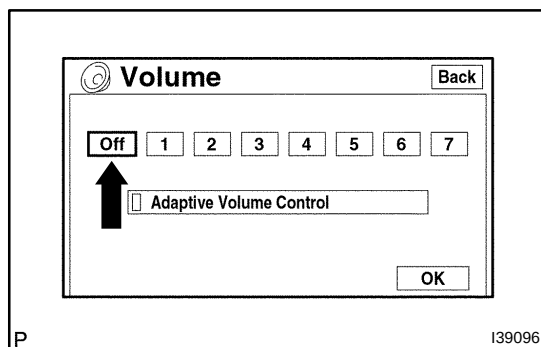
VOICE GUIDANCE DOES NOT FUNCTION

INSPECTION PROCEDURE

1 CHECK NAVIGATION SYSTEM SETTING



- (a) Enter the "MENU" screen by pressing the "MENU" switch.
- (b) Enter the volume adjustment screen by pressing the "Volume" switch.

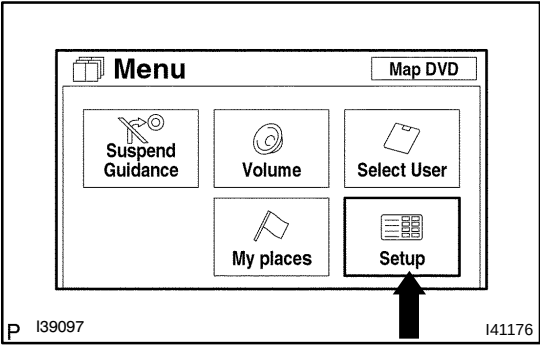


- (c) Check that "OFF" is not selected.
OK: OFF is not selected.

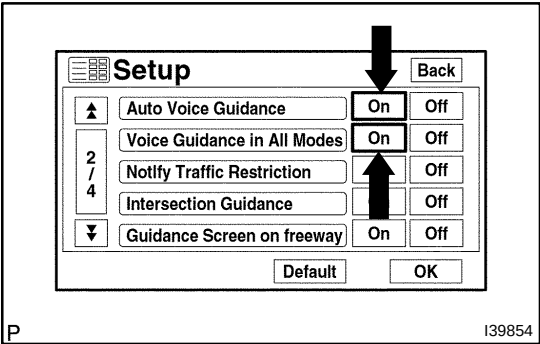
NG**TURN VOICE GUIDANCE VOLUME UP TO 4
USING VOICE ADJUSTMENT SWITCHES****OK**

cardiagn.com

2 CHECK NAVIGATION SETTING



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

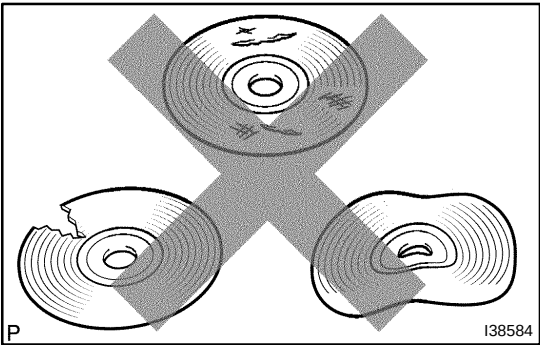


- (c) Check that "Auto Voice Guidance" is not OFF.
OK: Auto voice guidance is not OFF.
- (d) Check if "Voice Guidance in All Modes" is ON.
OK: Voice guidance in all modes is ON.

NG TURN AUTO VOICE GUIDANCE TO "ON"

OK

3 CHECK THE MAP DISC



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

NG REPLACE THE MAP DISC

OK

4 CHECK RADIO RECEIVER ASSY

- (a) Check if audio sound can be heard from the driver's side speaker.

OK: Audio sound can be heard.

NG

**PROCEED TO NEXT CIRCUIT INSPECTION
SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE [05-1873](#))**

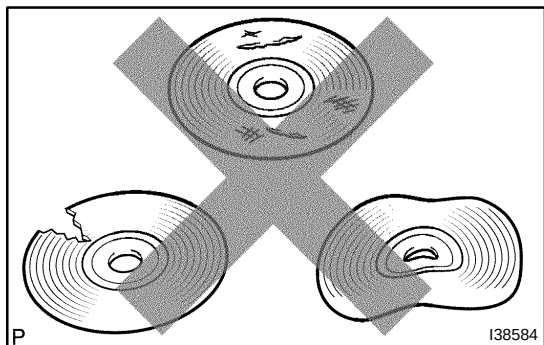
OK

REPLACE NAVIGATION ECU (SEE PAGE [67-23](#))

MAP DISPLAY INCOMPLETE

INSPECTION PROCEDURE

1 CHECK THE MAP DISC



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

NG

REPLACE THE MAP DISC

OK

2 CHECK THE DISPLAY

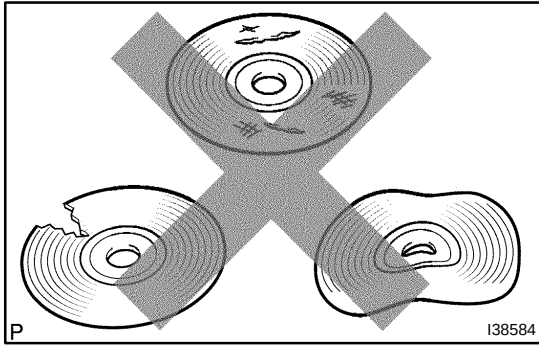
- (a) Check that displays other than the navigation display are complete.
OK: No other incomplete displays are found.

OK

REPLACE NAVIGATION ECU
 (SEE PAGE [67-23](#))

NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
 (SEE PAGE [05-1873](#))

ROUTE CANNOT BE CALCULATED**INSPECTION PROCEDURE****1 CHECK THE MAP DISC**

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

NG**REPLACE THE MAP DISC****OK****2 SET DESTINATION**

- (a) Set another destination and check if the system can calculate the route correctly.
OK: Route can be correctly calculated.

OK**NORMAL OPERATION****NG**

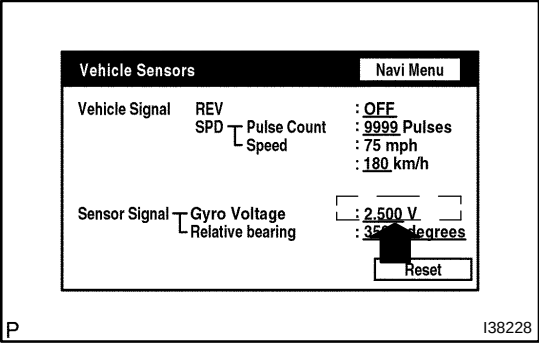
**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)**

GYRO ERROR

INSPECTION PROCEDURE

1 NAVIGATION CHECK MODE(VEHICLE SENSORS)

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page 05-1859).



(b) Check the gyro voltage.
Standard: 0.1 to 4.5 V

NG REPLACE NAVIGATION ECU
(SEE PAGE 67-23)

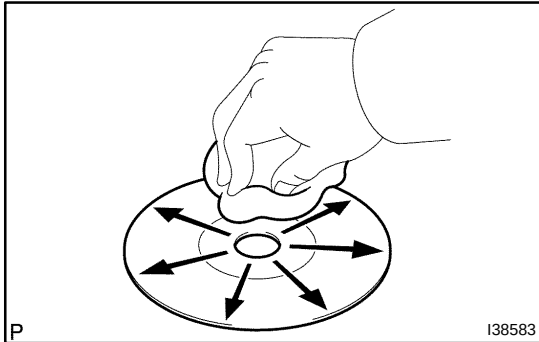
OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART
(SEE PAGE 05-1888)

MAP DISC READ ERROR

INSPECTION PROCEDURE

1 CHECK THE MAP DISC



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

OK: No dirt is on the map disc surface.

HINT:

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

NOTICE:

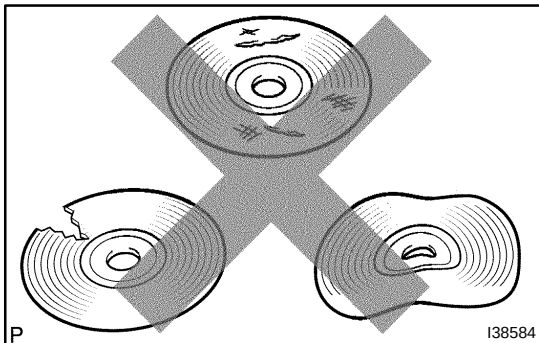
Do not use conventional record cleaner or anti-static preservative.

NG

CLEAN THE MAP DISC

OK

2 CHECK THE MAP DISC



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

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

NG

REPLACE THE MAP DISC

OK

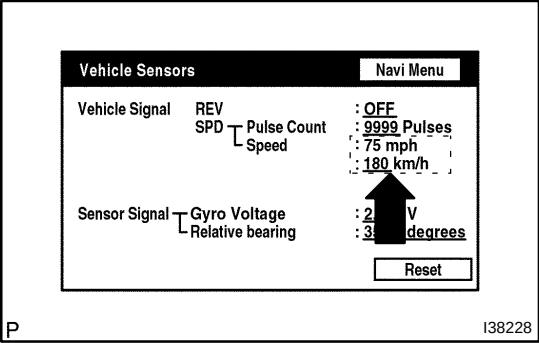
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1888)

SPEED SIGNAL ERROR

INSPECTION PROCEDURE

1 NAVIGATION CHECK MODE(VEHICLE SENSORS)

(a) Enter the "Navigation Check" mode (Vehicle Sensors) (see page 05-1859).



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

OK: The readings are almost the same.

OK REPLACE NAVIGATION ECU
(SEE PAGE 67-23)

NG

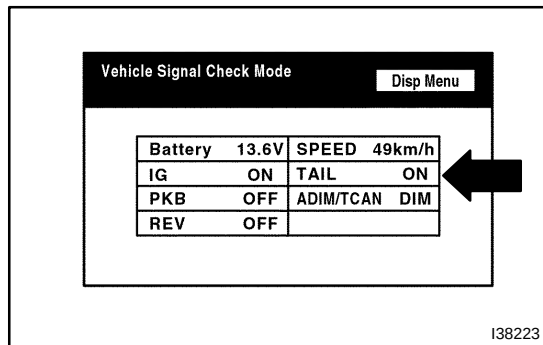
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART
(SEE PAGE 05-1888)

ILLUMINATION FOR PANEL SWITCH DOES NOT COME ON WITH TAIL SWITCH ON

INSPECTION PROCEDURE

1 DISPLAY CHECK MODE(VEHICLE SIGNAL CHECK MODE)

(a) Enter the "Display Check" mode (Vehicle Signal Check Mode) (see page 05-1857).



(b) Turn the light control switch TAIL or ON and OFF.

Standard:

TAIL Switch	Display
TAIL or ON	ON
OFF	OFF

HINT:

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

OK

**REPLACE MULTI-DISPLAY
(SEE PAGE 67-7)**

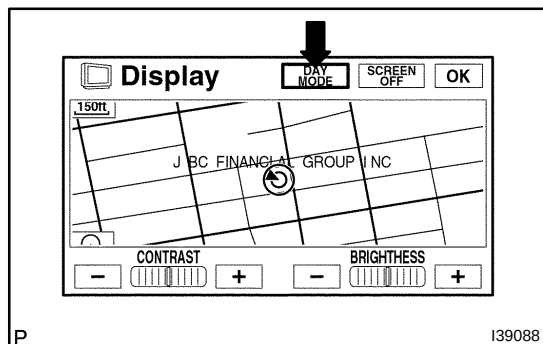
NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)**

DISPLAY DOES NOT DIM (NIGHT SCREEN) WITH TAIL SWITCH ON

INSPECTION PROCEDURE

1 CHECK IMAGE QUALITY SETTING



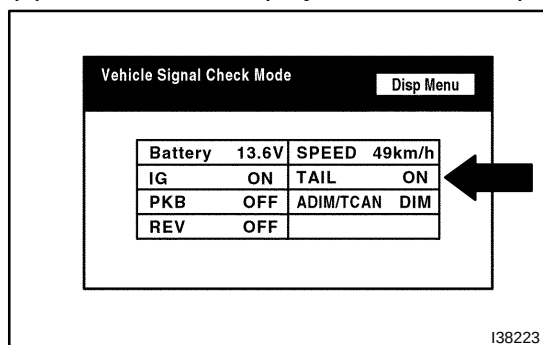
- Enter the display adjustment screen by pressing the "DISPLAY" switch.
- Turn the light control switch to TAIL.
- Check if "DAY MODE" on the display adjustment is ON.
OK: "DAY MODE" is ON.

OK → **TURN FORCED "DAY MODE" SETTING OFF**

NG

2 DISPLAY CHECK MODE(VEHICLE SIGNAL CHECK MODE)

- Enter the "Display Check" mode (Vehicle Signal Check Mode) (see page 05-1857).



- Turn the light control switch TAIL or ON and OFF.

Standard:

TAIL switch	Display
TAIL or ON	ON
OFF	OFF

HINT:

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

OK → **REPLACE MULTI-DISPLAY (SEE PAGE 67-7)**

NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

PANEL SWITCH DOES NOT FUNCTION

INSPECTION PROCEDURE

1 CHECK THE PANEL SWITCH

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

OK: No foreign matter is found.

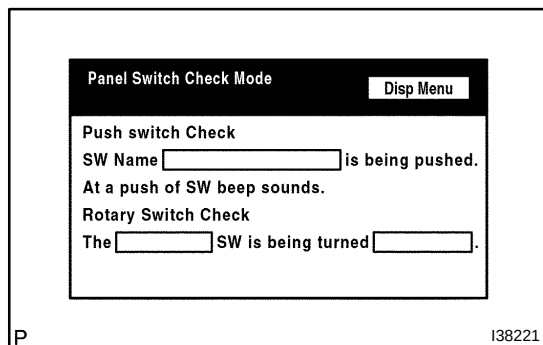
NG

REMOVE ANY FOREIGN MATTER FOUND

OK

2 DISPLAY CHECK MODE(PANEL SWITCH CHECK MODE)

- (a) Enter the "Display Check" mode (Panel Switch Check Mode) (see page [05-1856](#)).



- (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.

OK

**REPLACE MULTI-DISPLAY
(SEE PAGE [67-7](#))**

NG

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE [05-1873](#))**

TOUCH PANEL SWITCH DOES NOT FUNCTION

INSPECTION PROCEDURE

1 CHECK TOUCH PANEL

- (a) Check for dirt on the display surface.
OK: The display surface is clean.

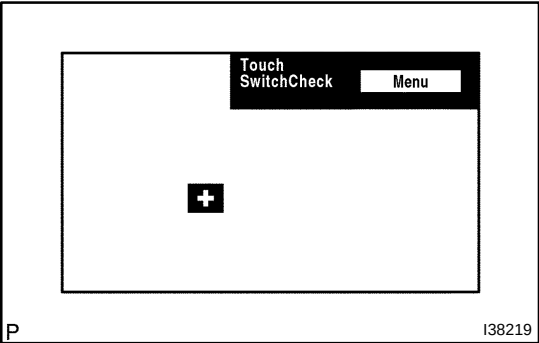
NG

REMOVE ANY DIRT FOUND AND RECHECK TOUCH PANEL

OK

2 DISPLAY CHECK MODE(TOUCH SWITCH CHECK)

- (a) Enter the "Display Check" mode (Touch Switch Check) (see page 05-1855).
- (b) Touch the display in the area where the abnormal switch occurs.
OK: A "+" mark appears at the touched position.



OK

REPLACE MULTI-DISPLAY (SEE PAGE 67-7)

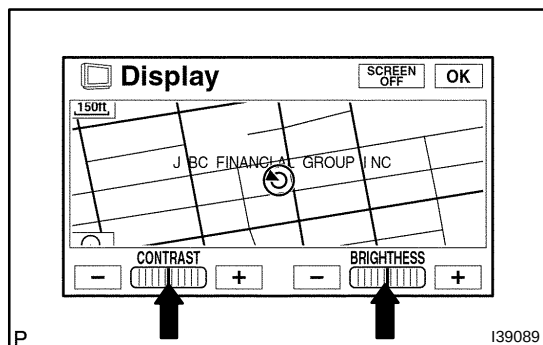
NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

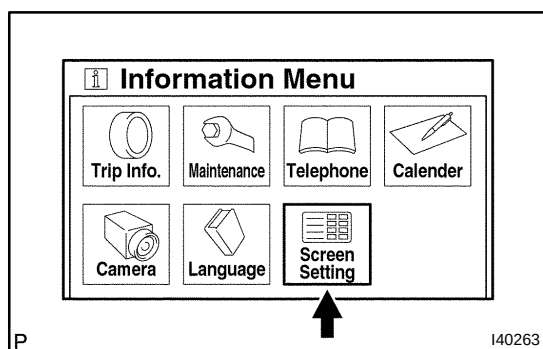
SCREEN FLICKER OR COLOR DISTORTION

INSPECTION PROCEDURE

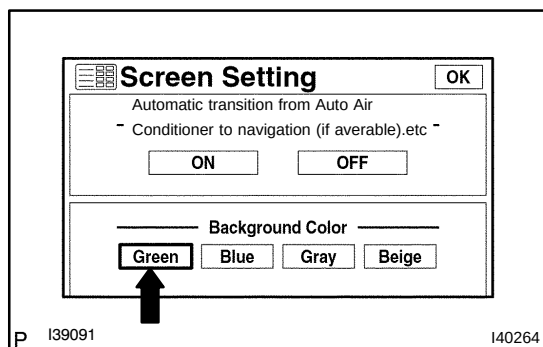
1 CHECK DISPLAY SETTING



- (a) Enter the display adjustment screen by pressing the "DISPLAY" switch.
- (b) Reset display settings (contrast, brightness) and check if the screen appears normal.



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



- (d) Set the "Background Color" to "Green" (initial setting) and check if it is normal.

OK: Returns to normal.

OK → **END**

NG

2 CHECK CABIN

- (a) Check if the cabin temperature is -20°C (-4.0°F) or less.
OK: Cabin is warmer than -20°C (-4.0°F).

NG →

HEAT THE CABIN AND RECHECK THE TEMPERATURE

OK

3

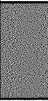
DISPLAY CHECK MODE(COLOR BAR CHECK MODE)

- (a) Enter the "Display Check" mode (Color Bar Check Mode) (see page 05-1854).
- (b) Check that color bars match the displayed names.
OK: Color bars match the displayed names.

Color Bar Check Mode

Disp MENU

Please Check to see that each color name corresponds to each color on the bar.

Black	Red	Green	Blue	White	Stripe
					

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

P

138217

NG

REPLACE MULTI-DISPLAY
(SEE PAGE 67-7)

OK

4

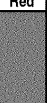
NAVIGATION CHECK MODE(NAVI COLOR BAR CHECK)

- (a) Enter the "Navigation Check" mode (NAVI Color Bar Check) (see page 05-1860).
- (b) Check that color bars match the displayed names.
OK: Color bars match the displayed names.

NAVI Color Bar Check

Navi Menu

Need to confirm if the set color matches the display color

Black	Red	Green	Blue	White
				

138230

OK

REPLACE MULTI-DISPLAY
(SEE PAGE 67-7)

NG

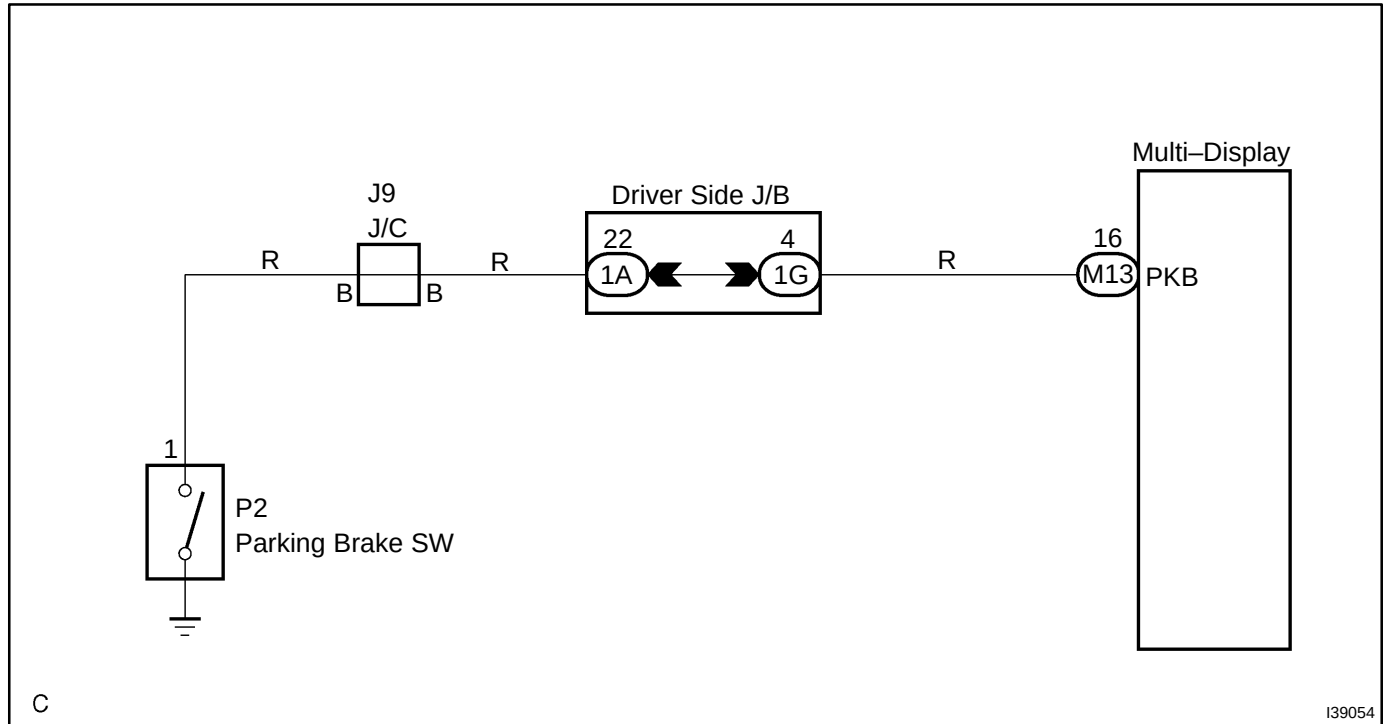
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)

PARKING BRAKE SWITCH CIRCUIT

CIRCUIT DESCRIPTION

This is circuit from the parking brake switch to the multi-display.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK BRAKE WARNING LIGHT

- (a) Check that the brake warning light comes on when parking brake pedal is depressed, and goes off when the parking brake pedal is released.

OK

Go to step 3

NG

2 INSPECT PARKING BRAKE SWITCH ASSY

- (a) Disconnect the parking brake switch assy.
 (b) Measure the resistance according to the value(s) in the table below.

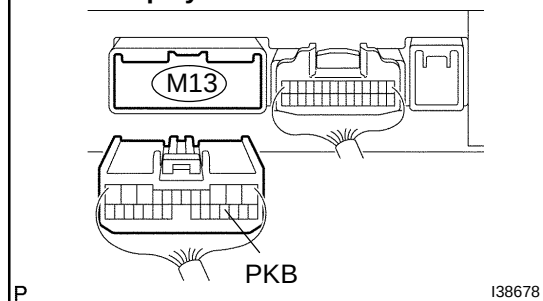
Standard:

Tester connection	Condition	Specified condition
Switch connector – Switch body	Switch pin free	Below 1Ω
Switch connector – Switch body	Switch pin pushed in	10 kΩ or higher

NG

REPLACE PARKING BRAKE SWITCH ASSY

OK

3 CHECK HARNESS AND CONNECTOR(PARKING BRAKE SWITCH ASSY – MULTI-DISPLAY)**Multi-Display:**

- (a) Disconnect the connector from multi-display M13.
 (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
PKB – P2-1	Always	Below 1 Ω
PKB – Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

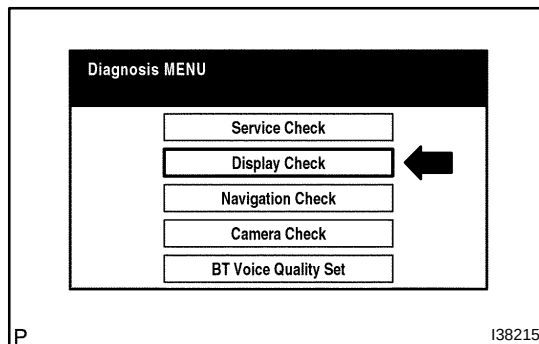
OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE
 (SEE PAGE 05-1873)**

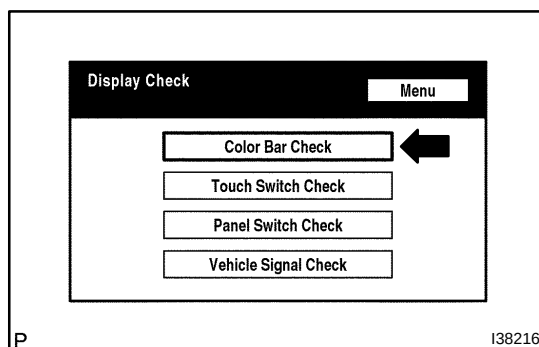
DISPLAY CHECK MODE (COLOR BAR CHECK)

HINT:

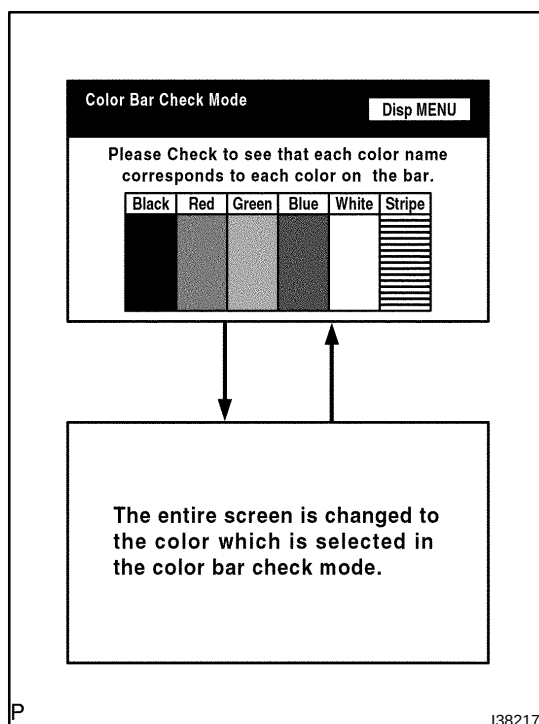
- This mode checks the color display on the multi-display.
 - Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
1. Enter diagnostic mode (see page [05-1881](#)).



2. Select "Display Check" from the "Diagnosis MENU" screen.



3. Select "Color Bar Check" from the "Display Check" screen.



4. Select a color bar from the "Color Bar Check Mode" screen.

HINT:

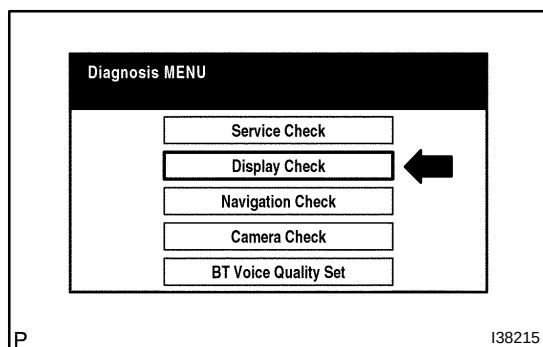
- The entire screen turns to the color or stripe selected.
- Touching the display will return to the "Color Bar Check" screen.

DISPLAY CHECK MODE (PANEL SWITCH CHECK)

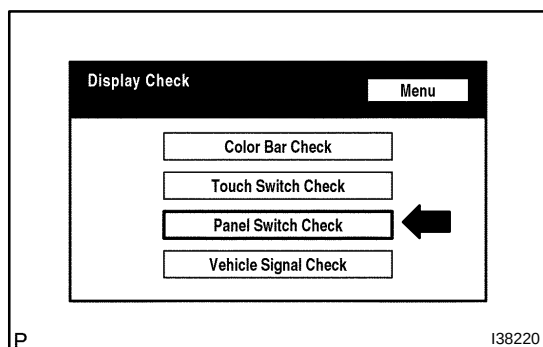
HINT:

- This mode checks the panel switch operation response 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.

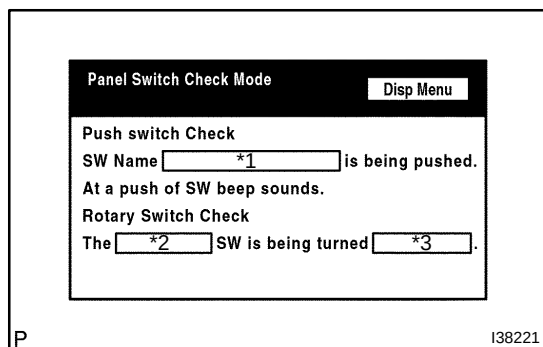
1. Enter diagnostic mode (see page 05-1881).



2. Select "Display Check" from the "Diagnosis Menu" screen.



3. Select "Panel Switch Check" from the "Display Check" screen.



4. Operate each switch and check that the switch name and condition is correctly displayed.

HINT:

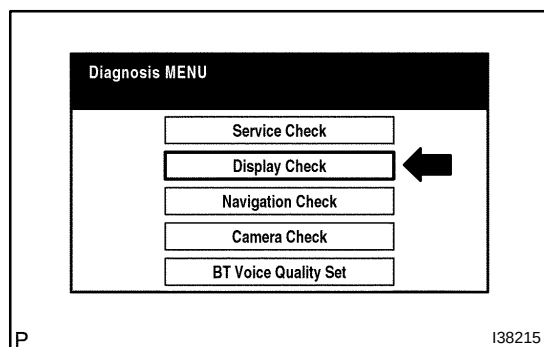
- Pressing the "DISPLAY" switch for 3 seconds will exit the diagnostic mode.

Display	Contents
Push switch name/*1	• Name of the pressed switch is displayed. • If more than one switch is pressed, "MULTIPLE" is displayed.
Rotary switch name/*2	Name of the rotary switch is displayed.
Rotary switch direction/*3	Direction of the rotary switch is rotated.

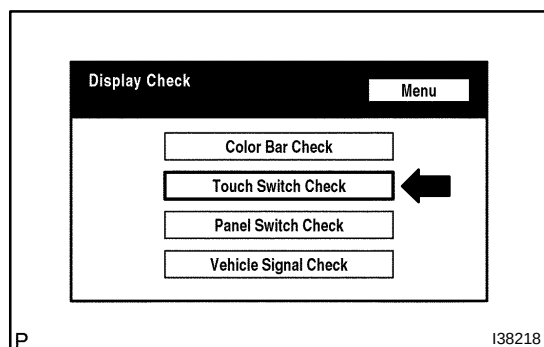
DISPLAY CHECK MODE (TOUCH SWITCH CHECK)

HINT:

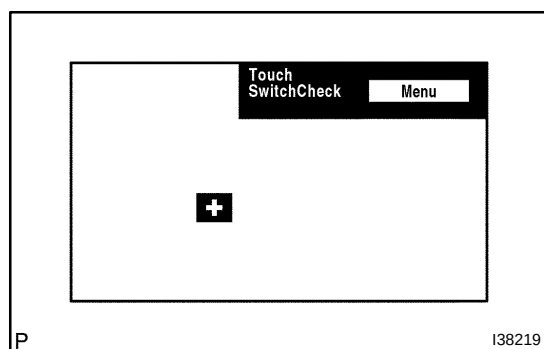
- This mode checks the touch switch operation condition on the multi-display.
 - Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
1. Enter diagnostic mode (see page 05-1881).



2. Select "Display Check" from the "Diagnosis MENU" screen.



3. Select "Touch Switch Check" from the "Display Check" screen.



4. Touch the display anywhere in the open area to perform the check when the "Touch Switch Check" screen is displayed.

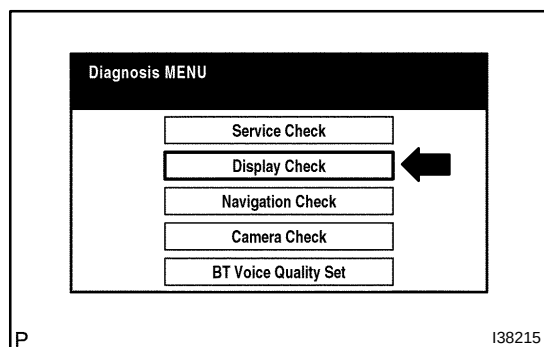
HINT:

- A "+" mark is displayed where the display is touched.
- The "+" mark remains on the display even after the finger is removed.

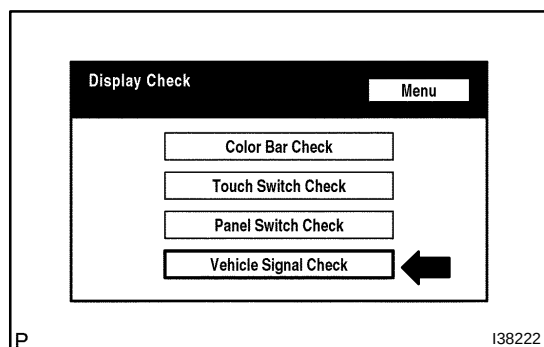
DISPLAY CHECK MODE (VEHICLE SIGNAL CHECK)

HINT:

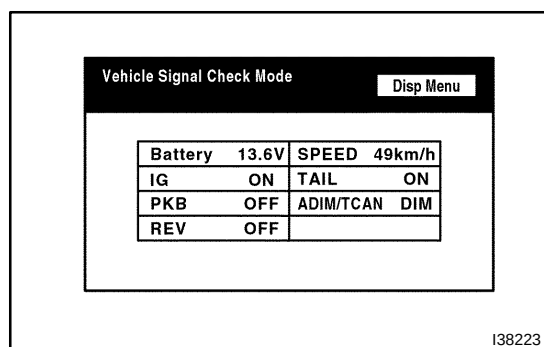
- This mode checks the vehicle signal status input to the multi-display.
 - Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
1. Enter diagnostic mode (see page 05-1881).



2. Select "Display Check" from the "Diagnosis MENU" screen.



3. Select "Vehicle Signal Check" from the "Display Check" screen.



4. When the "Vehicle Signal Check Mode" screen is displayed, check all the vehicle signal conditions.

HINT:

- Only conditions having inputs are displayed.
- This screen is updated once per second when input signals to the vehicle are changed.

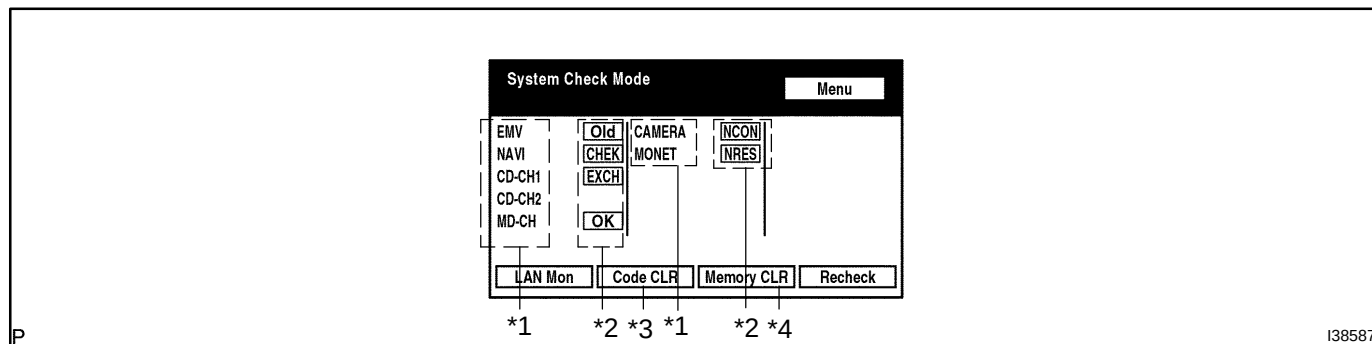
DIAGNOSIS DISPLAY DETAILED DESCRIPTION

HINT:

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

1. System Check

(a) System Check Mode Display



Device Names and hardware Address/*1

HINT:

- Registered device names are displayed below.
- If a device name is unknown to the system, its physical address is shown instead.

Address No.	Name	Address No.	Name
110	EMV	120	AVX
128	1DIN TV	140	AVN
144	G-BOOK	178	NAVI
17C	MONET	190	AUDIO H/U
1AC	CAMERA-C	1B0	Rr-TV
1C0	Rr-CONT	1C2	TV-TUNER2
1C4	PANEL	1C6	G/W
1C8	FM-M-LCD	1D8	CONT-SW
1EC	Body	1F0	RADIO TUNER
1F1	XM	1F2	SIRIUS
230	TV-TUNER	240	CD-CH2
250	DVD-CH	280	CAMERA
360	CD-CH1	3A0	MD-CH
17D	TEL	440	DSP-AMP
530	ETC	5C8	MAYDAY
1A0	DVD-P	1C6	CLOCK
1F4	RSA	1F6	RSE
480	AMP	-	-

Check Result/*2

HINT:

Result codes for all devices are shown below.

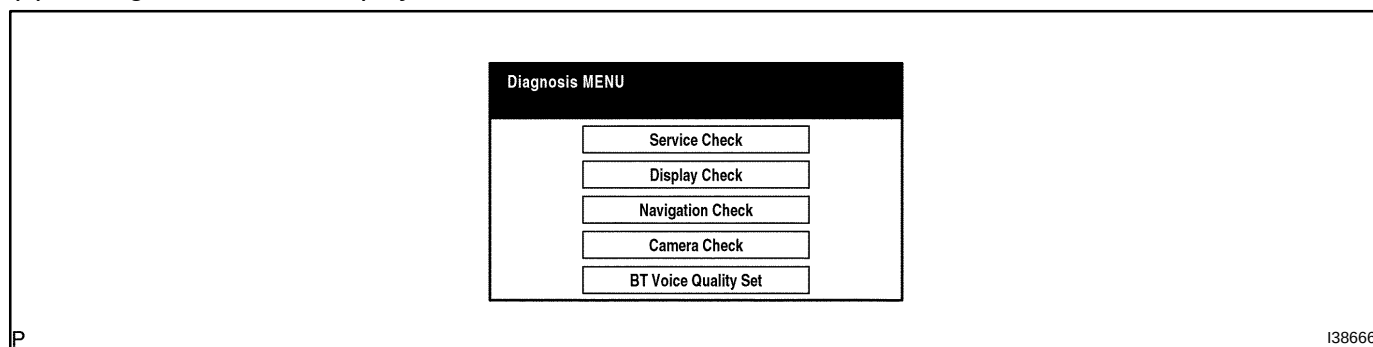
Result	Meaning	Action
OK	The device did not respond with a DTC (excluding communication DTCs from the AVC-LAN).	–
EXCH	The device responds with a "replace"-type DTC.	Look up the DTC in "Unit Check Mode" and replace the device.
CHEK	The device responds with a "check"-type DTC.	Look up the DTC in "Unit Check Mode".
NCON	The device was previously present, but does not respond in diagnostic mode.	1. Check power supply wire harness of the device. 2. Check the AVC-LAN of the device.
Old	The device responds with an "old"-type DTC.	Look up the DTC in "Unit Check Mode".
NRES	The device responds in diagnostic mode, but gives no DTC information.	1. Check power supply wire harness of the device. 2. Check the AVC-LAN of the device.

Code Clear/*3

Present DTCs are cleared.

Memory Clear/*4

Present and past DTCs and registered connected device names are cleared.

(b) Diagnosis MENU Display

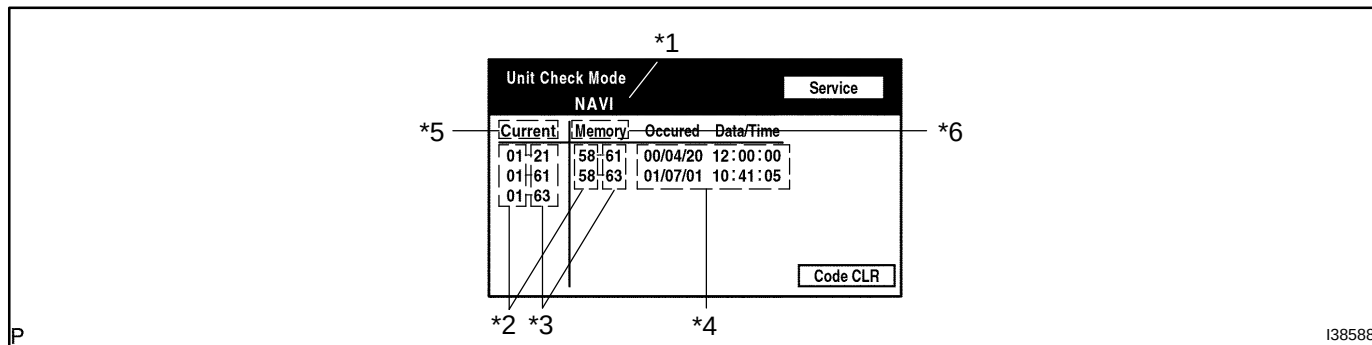
P

I38666

HINT:

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

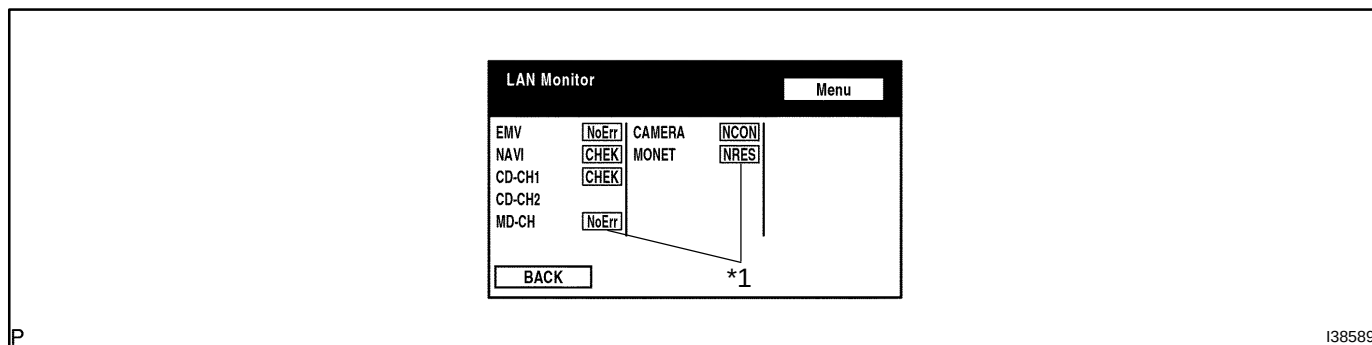
(c) Unit Check Mode Screen



Screen Description

Display	Contents
Device name/*1	Target Device
Segment/*2	Target Device Logical address
DTC/*3	DTC (Diagnostic Trouble Code)
Timestamp/*4	The time and date of past DTCs displayed. (The year is displayed in 2 digit format.)
Present Code/*5	The DTC output at the service check is displayed.
Past Code/*6	Diagnostic memory results and recorded DTCs are displayed.

(d) LAN Monitor (Original) Screen



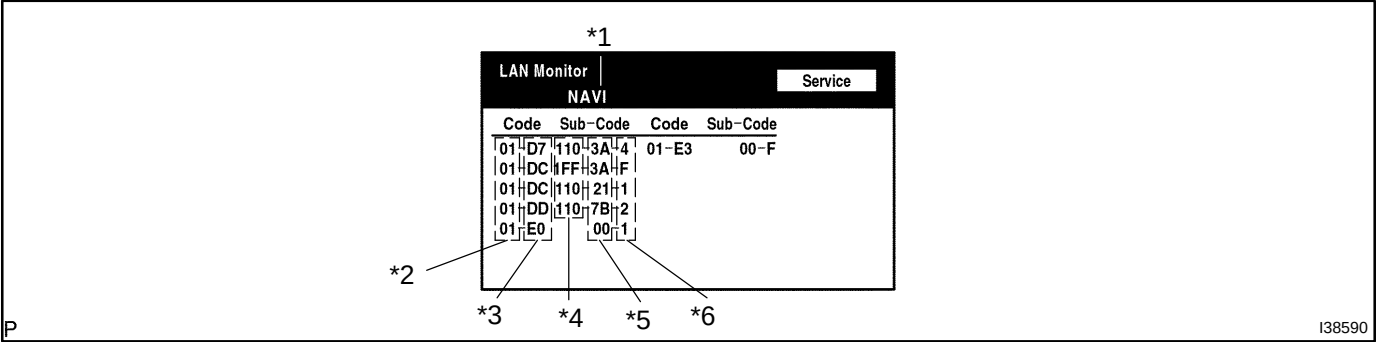
Check result

HINT:

Check results of all the devices are displayed.

Result	Meaning	Action
No Err (OK)	There are no communication DTCs.	—
CHEK	The device responds with a "check"-type DTC.	Look up the DTC in "Unit Check Mode".
NCON	The device was previously present, but does not respond in diagnostic mode.	1. Check power supply wire harness of the device. 2. Check the AVC-LAN of the device.
Old	The device responded with an old-type DTC.	Look up the DTC in "Unit Check Mode".
NRES	Device responds in diagnostic mode, but gives no DTC information.	1. Check power supply wire harness of the device. 2. Check the AVC-LAN of the device.

(e) LAN Monitor (Individual) Screen

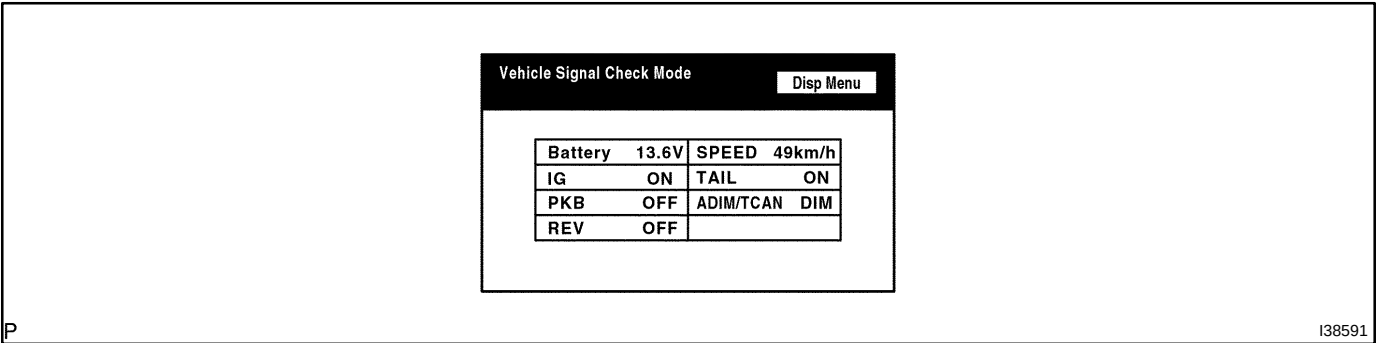


Screen Description

Display	Contents
Device name/*1	Target device
Segment/*2	Target logical address
DTC/*3	DTC (Diagnostic Trouble Code)
Sub-Code (device address)/*4	Physical address stored with DTC. (If there is no address, nothing is displayed.)
Connection check No./*5	Connection check number stored with DTC.
DTC occurrence/*6	Number of times the same DTC has been recorded.

2. DISPLAY CHECK

(a) Vehicle Signal Check Mode Screen



Screen Description

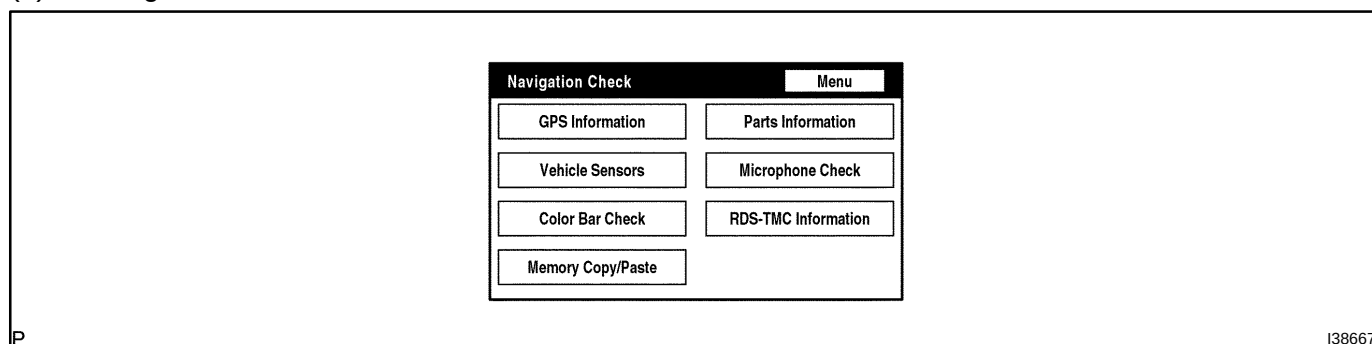
Name	Contents
Battery	Battery voltage is displayed.
PKB	Parking brake ON/OFF state is displayed.
REV	Reverse signal ON/OFF state is displayed.
IG	Power switch ON/OFF state is displayed.
ADIM/TCAN	Brightness state DIM (with)/ BRIGHT (without) is displayed.
SPEED	The vehicle speed, displayed in km/h.
TAIL	TAIL signal (Head lamp dimmer switch) ON/OFF state is displayed.

HINT:

- Only items sending a vehicle signal will be displayed.
- This screen is updated once per second when input signals to the vehicle are changed.

3. NAVIGATION CHECK

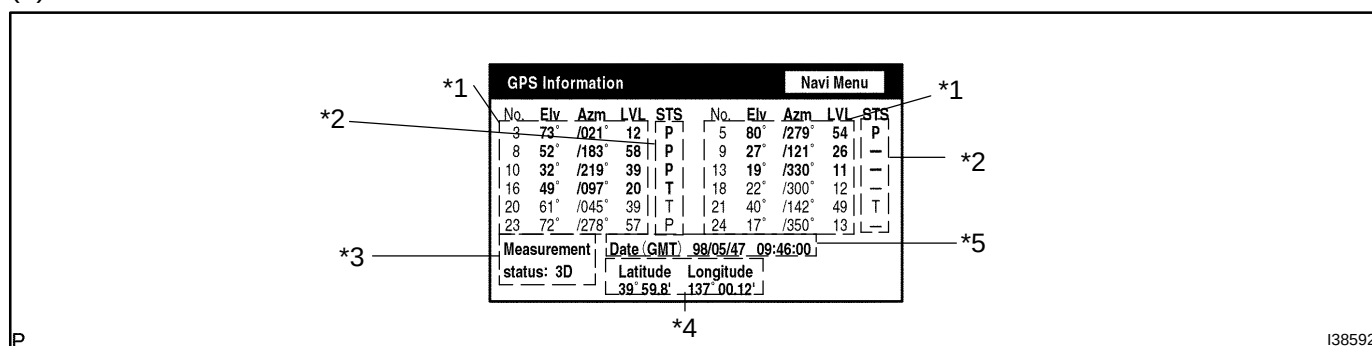
(a) Navigation Check MENU Screen



HINT:

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

(b) GPS information Screen



Satellite information/*1

Information from a maximum of 12 satellites is displayed on the screen. This information includes the target GPS satellite number, elevation angle, direction and signal level.

Receiving condition/*2

(DENSO model)

Display	Contents
T	The system is receiving a GPS signal, but is not using it for location.
P	The system is using the GPS signal for location.
–	The system cannot receive a GPS signal.

(AISIN AW Model)

Display	Contents
01H	The system cannot receive a GPS signal.
02H	The system is tracing a satellite.
03H	The system is receiving a GPS signal, but is not using it for location.
04H	The system is using the GPS signal for location.

Measurement information/*3

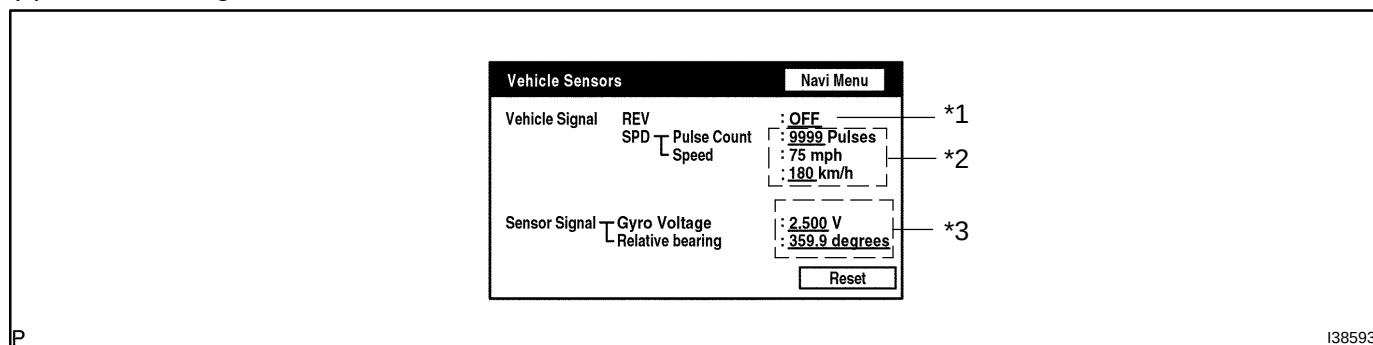
Display	Contents
2D	2-dimensional location method is being used.
3D	3-dimensional location method is being used.
NG	Location data cannot be used.
Error	Reception error has occurred.
–	Any other state.

Position information/*4

Display	Contents
Position	Latitude and longitude information on the current position is displayed.

Date information/*5

Display	Contents
Date	The date/time information obtained from GPS signal is displayed in Greenwich mean time (GMT). The last 4 digits are displayed.

(c) Vehicle Signal Check Screen**Vehicle signal**

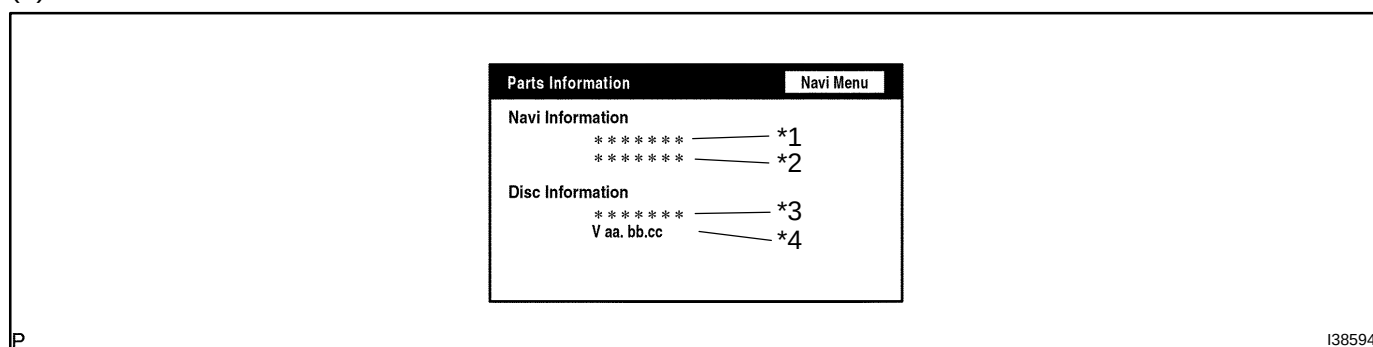
Display	Contents
REV/*1	REV signal ON/OFF state is displayed.
SPD/*2	SPD signal condition is displayed.

Sensor signal

Display	Contents
Gyro sensor/*3	Gyro sensor output condition is displayed (when the vehicle runs straight or is stationary, the voltage is approximately 2.5 V).

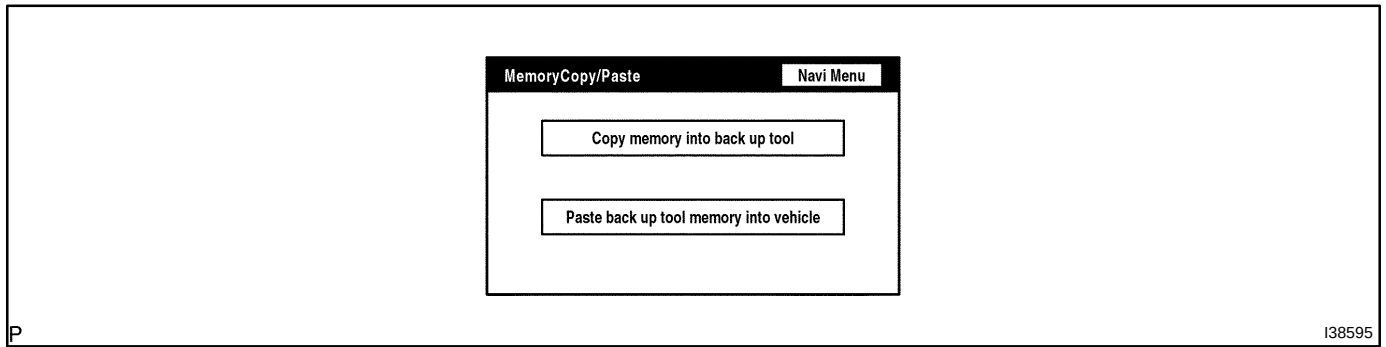
HINT:

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

(d) Parts Information Screen**Screen description**

Display	Contents
Navigation Manufacturer/*1	Navigation ECU manufacturer is displayed.
Navigation Version No.//*2	Navigation ECU version is displayed.
Disc Manufacturer/*3	Map disc manufacturer is displayed.
Disc Version No.//*4	Map disc version is displayed.

(e) Memory Copy/Paste Screen



HINT:

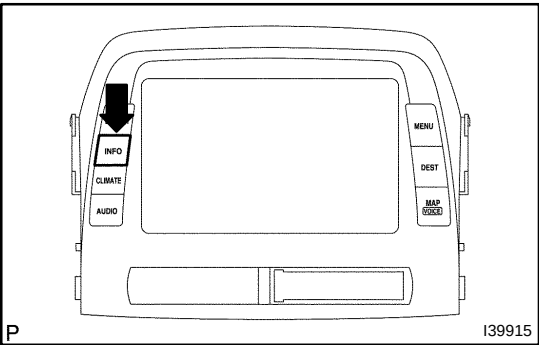
This function cannot be used.

DIAGNOSTIC START-UP/FINISH

HINT:

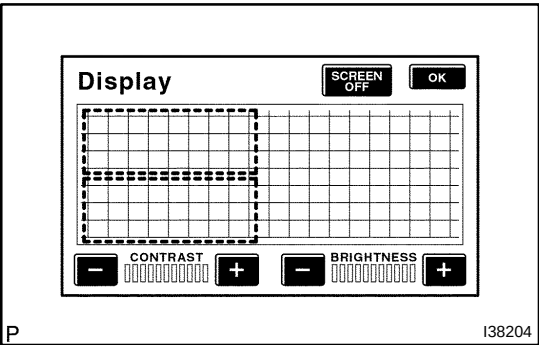
- Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
- After the power switch is ON (ACC), check that the map is displayed before starting the diagnostic mode. Otherwise,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

1. There are 2 methods to start diagnostic mode. Start the mode by using one of them.



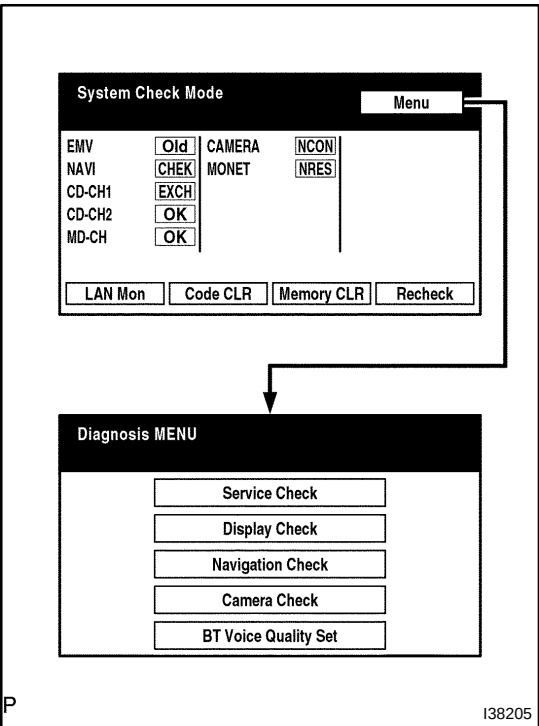
2. Method 1

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



3. Method 2

- (a) Start the HV system.
- (b) Switch to the "Display Check" screen.
- (c) From the display adjustment screen, touch the corners of the screen in the following order: upper left → lower left → upper left → lower left → upper left → lower left.
- (d) The diagnostic mode starts and "Service Check" screen will be displayed. Service inspection starts automatically and the result will be displayed.



4. Diagnosis MENU

- (a) Diagnostic screen will be displayed by pressing the menu switch on the service check screen.

5. There are 2 methods to exit. Use one of them.

- (a) Turn the power switch off.
- (b) Press the "DISPLAY" switch for 3 seconds.

ILLUMINATION CIRCUIT

CIRCUIT DESCRIPTION

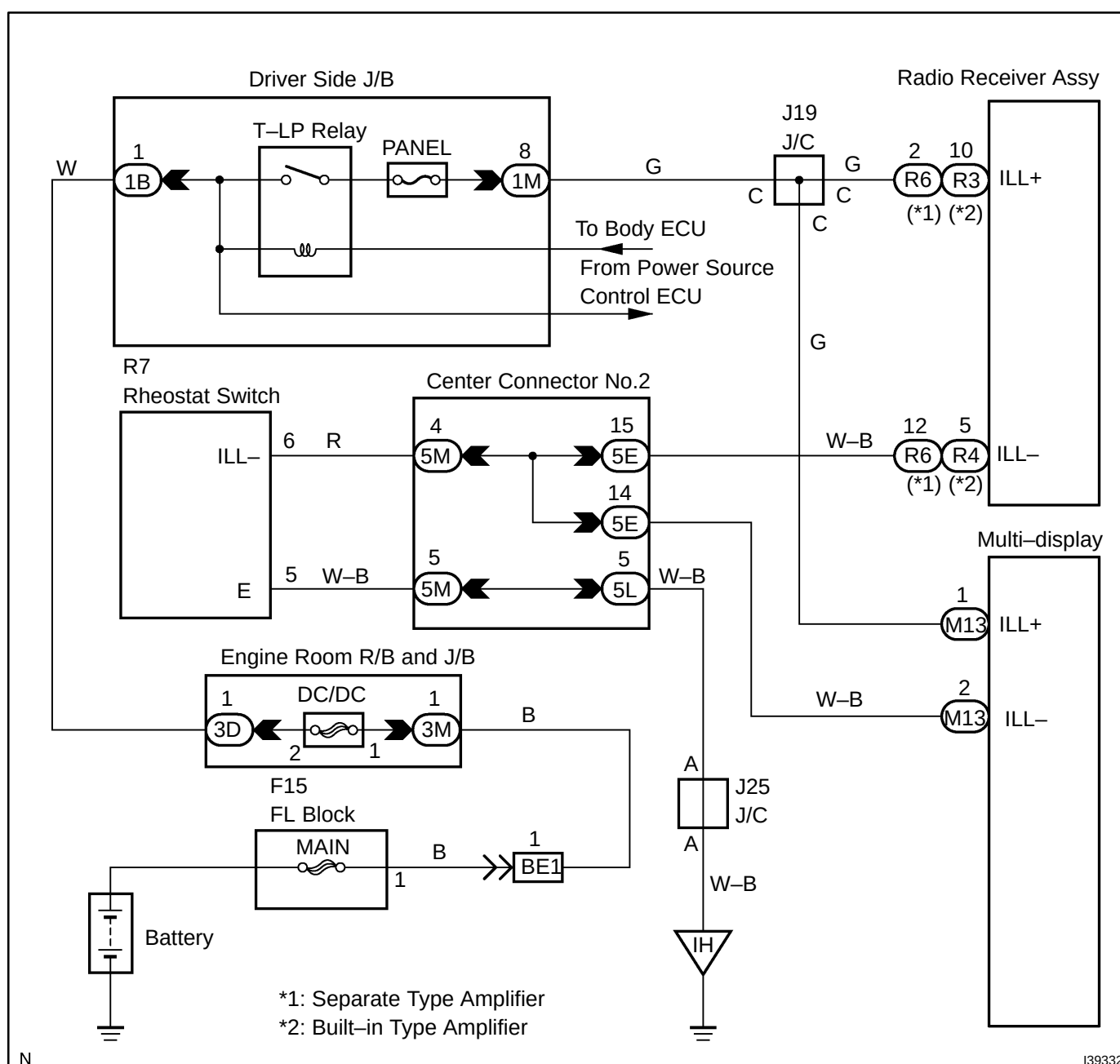
When the light control switch is turned to TAIL or HEAD position, the T-LP relay activates and power is supplied to the radio receiver assy and the multi-display panel illumination. The body ECU determines the surrounding illumination intensity according to the illumination intensity detected by the automatic light control sensor and activates the T-LP relay, allowing power to be supplied to the radio receiver assy and the multi-display panel illumination.

Illumination intensity adjustment for the radio receiver assy and multi-display panel illumination is performed with the rheostat switch.

HINT:

If a problem exists in the automatic light control sensor, DTC B1244 is output.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 CHECK CONDITION

(a) Check all components with illumination malfunctions.

Components with malfunction	Go to step
Radio receiver assy and/or multi-display	A
All illumination (Radio receiver assy, multi-display combination meter and hazard warning switch)	B

HINT:

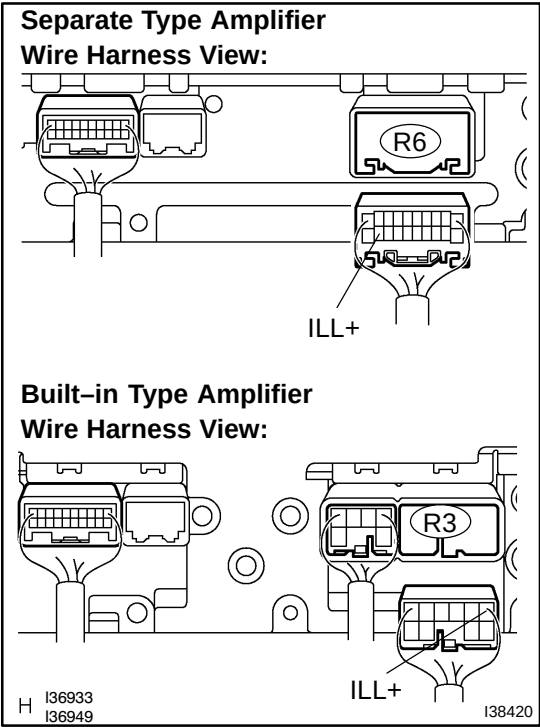
If all the illuminations have malfunctions, check the rheostat switch.

B

GO TO COMBINATION METER SYSTEM
(SEE PAGE 05-1983)

A

2 CHECK HARNESS AND CONNECTOR (COMPONENTS WITH MALFUNCTION – BATTERY)



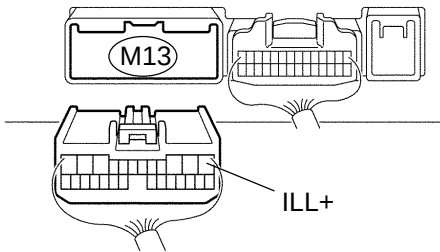
- (a) RADIO RECEIVER ASSY
- (1) Disconnect the radio receiver assy R6 or R3 connector.
 - (2) Measure the voltage according to the values in the table below.

Standard:

Tester connection	Condition	Specified condition
ILL+ (R6-2) – Body ground *1	Light control switch TAIL or HEAD	10 to 14 V
ILL+ (R3-10) – Body ground *2	Light control switch TAIL or HEAD	10 to 14 V

*1: Separate Type Amplifier
*2: Built-in Type Amplifier

Multi-display Wire Harness View:



P

I39881

- (b) **MULTI-DISPLAY**
- (1) Disconnect the multi-display M13 connector.
 - (2) Measure the voltage according to the values in the table below.

Standard:

Tester connection	Condition	Specified condition
ILL+ (M13-1) – Body ground	Light control switch TAIL or HEAD	10 to 14 V

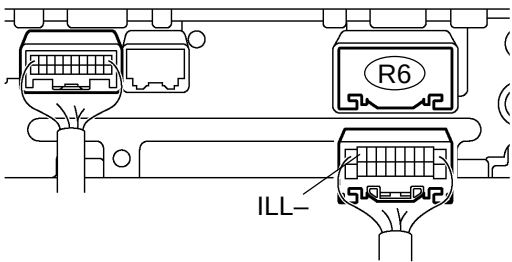
NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

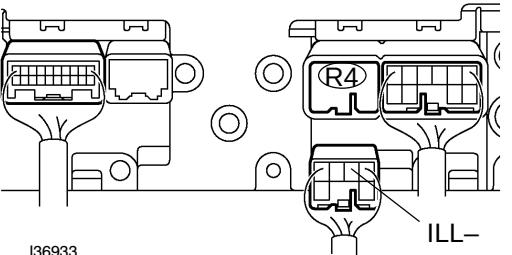
OK

3 CHECK HARNESS AND CONNECTOR (COMPONENTS WITH MALFUNCTION – RHEOSAT SWITCH)

Separate Type Amplifier Wire Harness View:



Built-in Type Amplifier Wire Harness View:



H I36933
I36950

I40257

- (a) **RADIO RECEIVER ASSY**
- (1) Disconnect the radio receiver assy R4 or R6 connector and rheostat switch R7 connector.
 - (2) Measure the resistance according to the values in the table below.

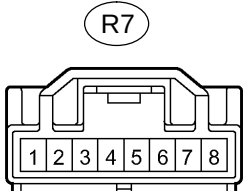
Standard:

Tester connection	Condition	Specified condition
ILL– (R6-12) – ILL– (R7-6) *1	Always	Below 1 Ω
ILL– (R4-5) – ILL– (R7-6) *2	Always	Below 1 Ω

*1: Separate Type Amplifier

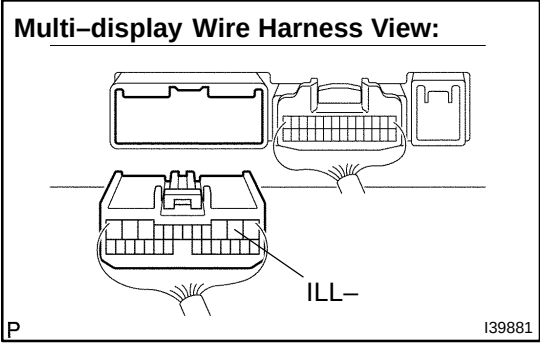
*2: Built-in Type Amplifier

Light Control Rheostat Wire Harness View:



H

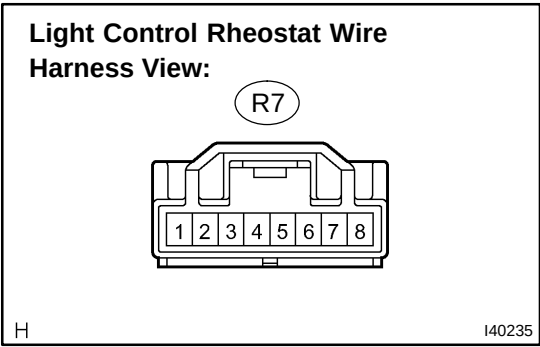
I40235



- (b) MULTI-DISPLAY
- (1) Disconnect the rheostat switch R7 connector.
 - (2) Measure the resistance according to the values in the table below.

Standard:

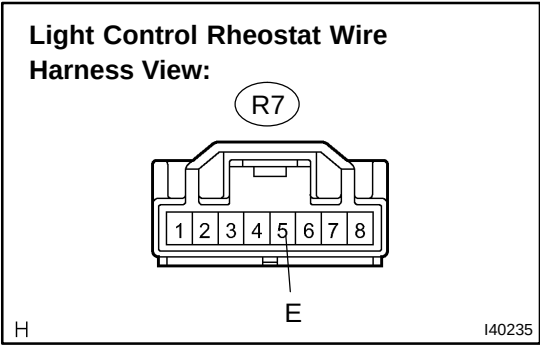
Tester connection	Condition	Specified condition
ILL- (M13-2) – ILL- (R7-6)	Always	Below 1 Ω



NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

4 CHECK HARNESS AND CONNECTOR



- (a) Measure the resistance according to the values in the table below.

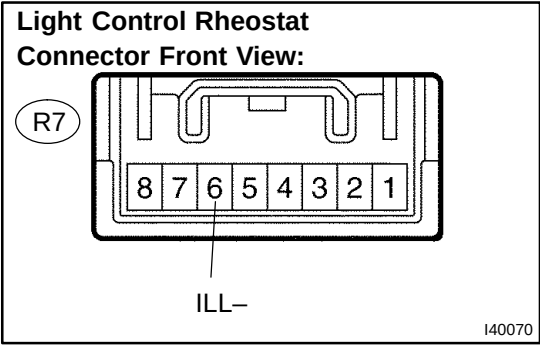
Standard:

Tester connection	Condition	Specified condition
E (R7-5) – Body ground	Always	Below 1 Ω

NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

5 INSPECT LIGHT CONTROL RHEOSTAT



- (a) Reconnect the connectors.
- (b) Measure the voltage according to the values in the table below.

Standard:

Tester connection	Condition	Specified condition
ILL- (R7-6) – Body ground	Light control rheostat is turned volume up → volume down	Pulse generation (see waveform 1)

HINT:

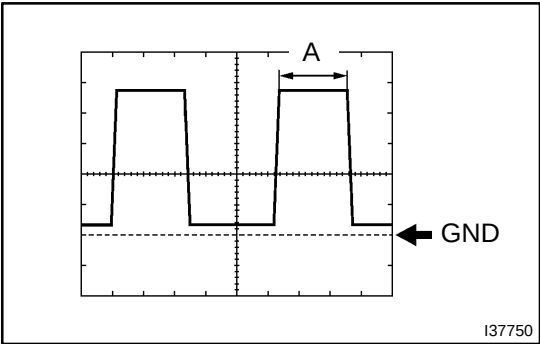
Waveform 1: Inspection using oscilloscope.

Standard:

Item	Condition
Tool setting	2 V/DIV, 1 ms/DIV
Vehicle condition	Light control switch TAIL or HEAD

HINT:

Duty ratio changes as illumination becomes darker ("A" becomes longer).



NG REPLACE LIGHT CONTROL RHEOSTAT

OK

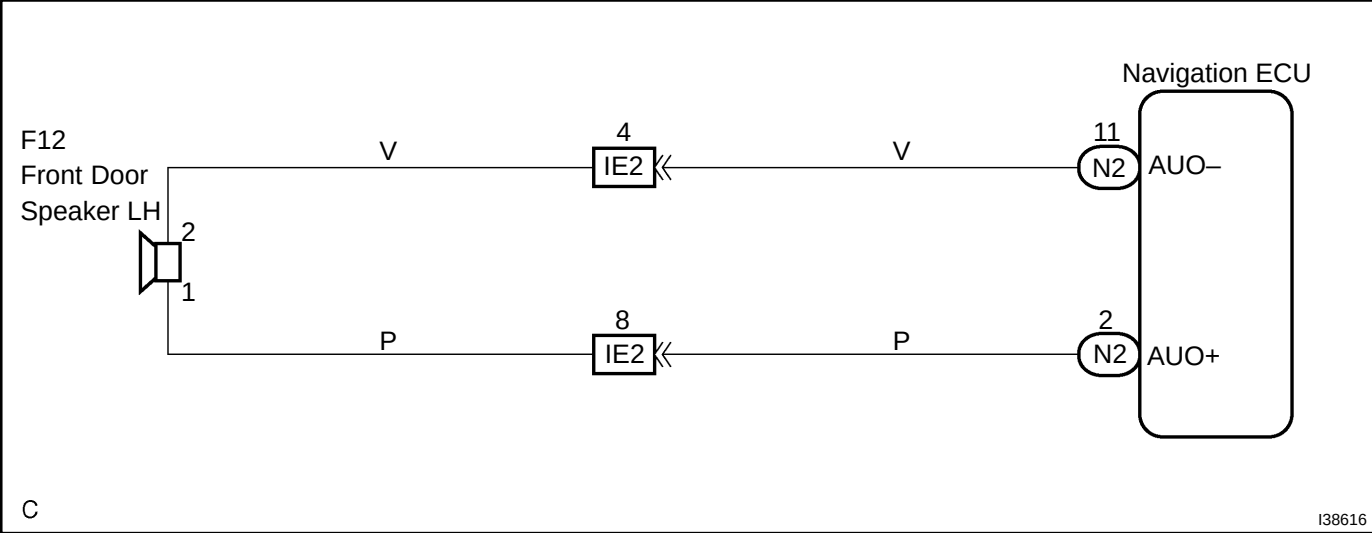
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)

SPEAKER CIRCUIT (NAVIGATION VOICE)

CIRCUIT DESCRIPTION

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

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT FRONT NO. 1 SPEAKER ASSY

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

NOTICE:

The speaker should not be removed for checking.

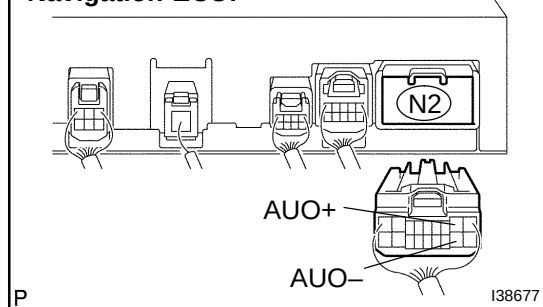
Standard Models: 4 Ω

JBL Models: 2.6 Ω

NG

**REPLACE FRONT NO. 1 SPEAKER ASSY
 (SEE PAGE 67-8)**

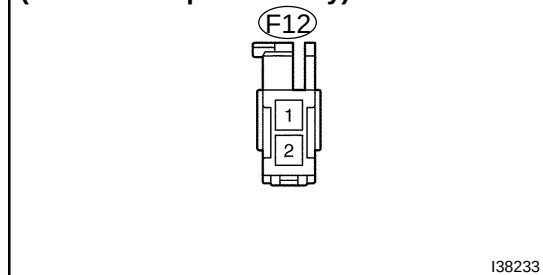
OK

2 CHECK HARNESS AND CONNECTOR(FRONT NO. 1 SPEAKER ASSY – NAVIGATION ECU)**Navigation ECU:**

- (a) Disconnect the connector from navigation ECU N2 and front No.1 speaker assy F12.
 (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
F12-1 – AUO+	Always	Below 1 Ω
F12-2 – AUO-	Always	Below 1 Ω
F12-1 – Body ground	Always	10 k Ω or higher
F12-2 – Body ground	Always	10 k Ω or higher

**Connector Front View
 (Front No.1 Speaker Assy):**

NG

**REPAIR OR REPLACE HARNESS OR
 CONNECTOR**

OK

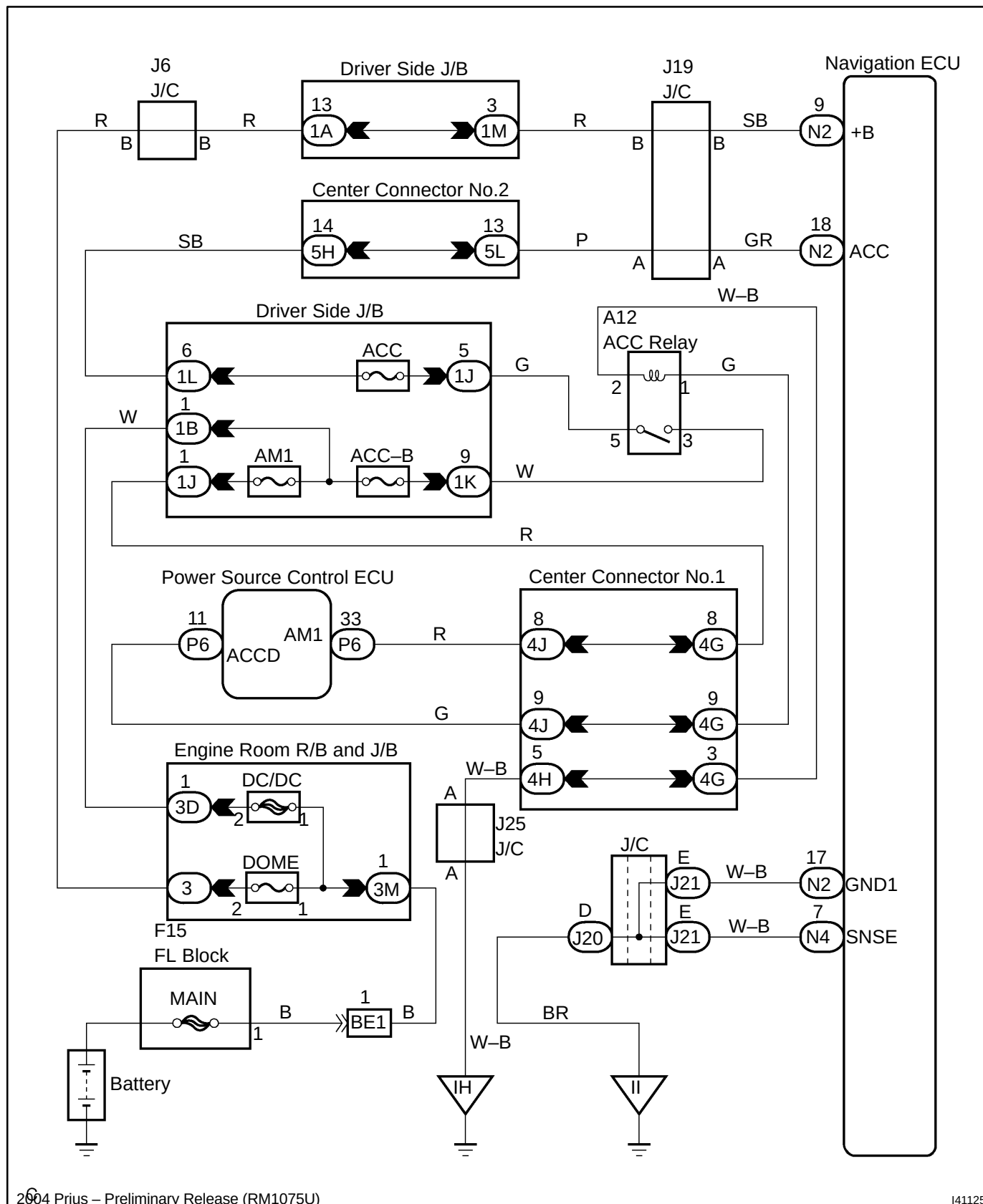
REPLACE NAVIGATION ECU (SEE PAGE 67-23)

POWER SOURCE CIRCUIT (NAVIGATION ECU)

CIRCUIT DESCRIPTION

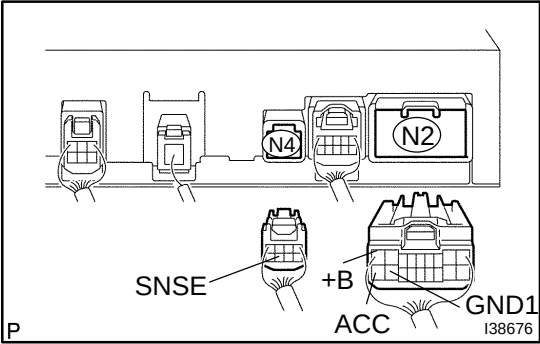
This circuit provides the power to the navigation ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT NAVIGATION ECU(+B, ACC, GND1, SNSE)



- (a) Disconnect the navigation ECU connector N2, N4.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

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

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

Standard:

Tester connection	Condition	Specified condition
+B – GND1	Always	10 to 14 V
ACC – GND1	Power switch ON (ACC)	10 to 14 V

NG

REPAIR OR
CONNECTOR

REPLACE HARNESS OR

OK

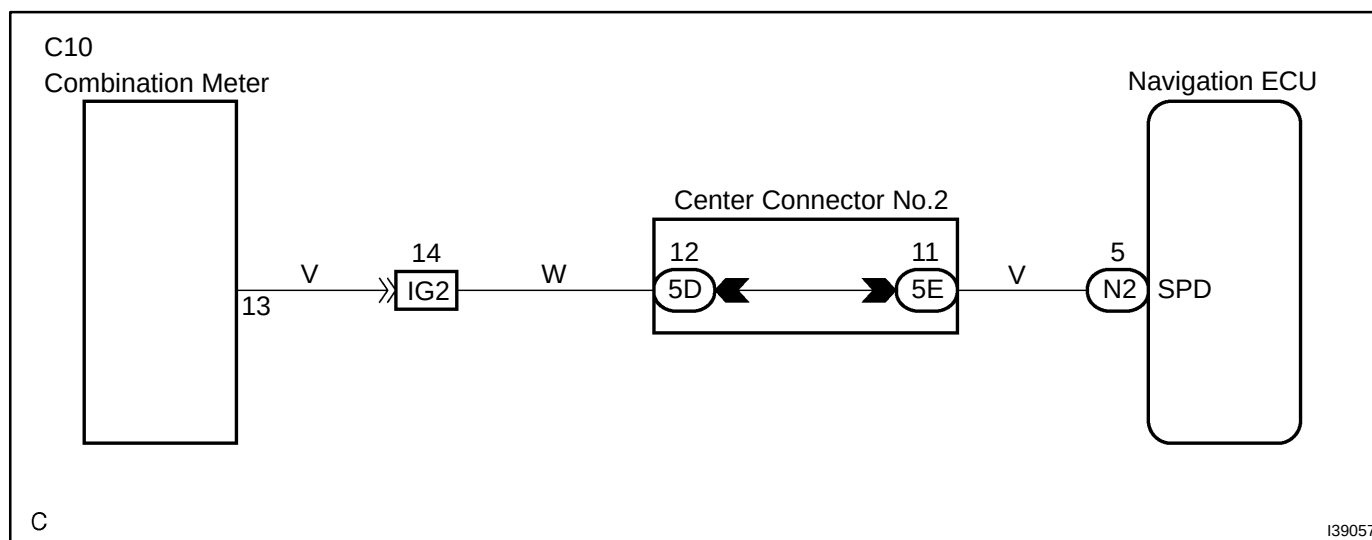
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE OR DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1873 or 05-1888)

SPEED SIGNAL CIRCUIT (NAVIGATION ECU – COMBINATION METER ASSY)

CIRCUIT DESCRIPTION

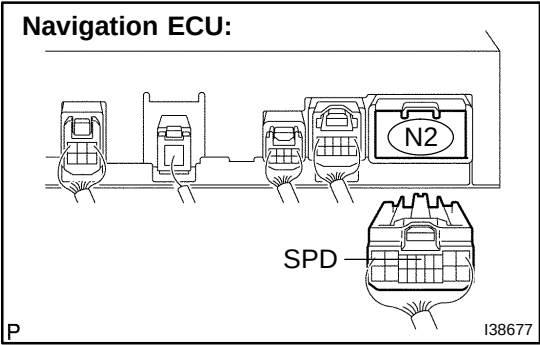
The navigation ECU receives the vehicle speed signal and information about the GPS antenna, and then adjusts the vehicle position.

WIRING DIAGRAM



INSPECTION PROCEDURE

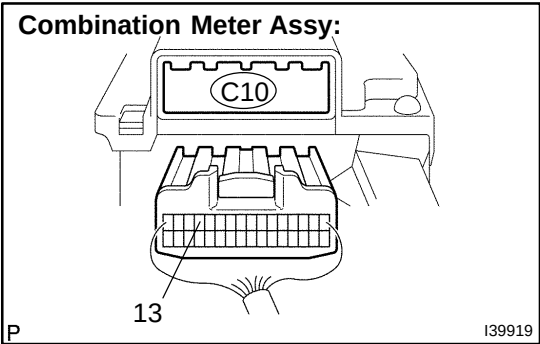
1 CHECK HARNESS AND CONNECTOR(COMBINATION METER ASSY – NAVIGATION ECU)



- (a) Disconnect the connector from the navigation ECU N2 and combination meter assy C10.
- (b) Measure the resistance according to the value(s) in the table below.

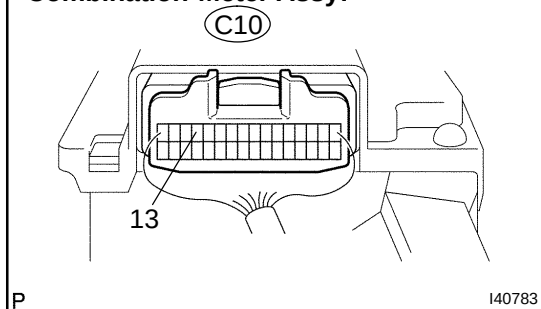
Standard:

Tester connection	Condition	Specified condition
SPD – C10-13	Always	Below 1 Ω
SPD – Body ground	Always	10 kΩ or higher



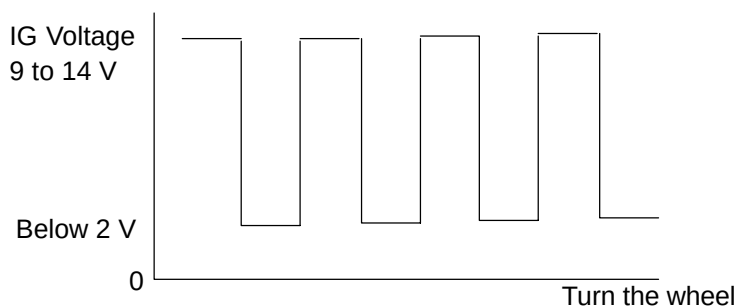
NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

2 INSPECT COMBINATION METER ASSY**Combination Meter Assy:**

- (a) Connect the combination meter assy connector C10.
- (b) Measure voltage.
 - (1) Adjust the shift lever to the neutral position.
 - (2) Jack up either one of the front wheels.
 - (3) Turn power switch to the ON (IG) position.
 - (4) Measure the voltage between terminal 13 and body ground of combination meter assy when the front wheels are turned slowly.

OK: Voltage is pulsed as shown below.

**NG**

**GO TO COMBINATION METER SYSTEM
(SEE PAGE 05-1975)**

OK

REPLACE NAVIGATION ECU (SEE PAGE 67-23)

MUTE SIGNAL CIRCUIT (STEREO COMPONENT AMPLIFIER ASSY – NAVIGATION ECU)

CIRCUIT DESCRIPTION

This circuit sends the signal to the stereo component amplifier to mute the noise. Because of that, the noise produced by changing the sound source ceases.

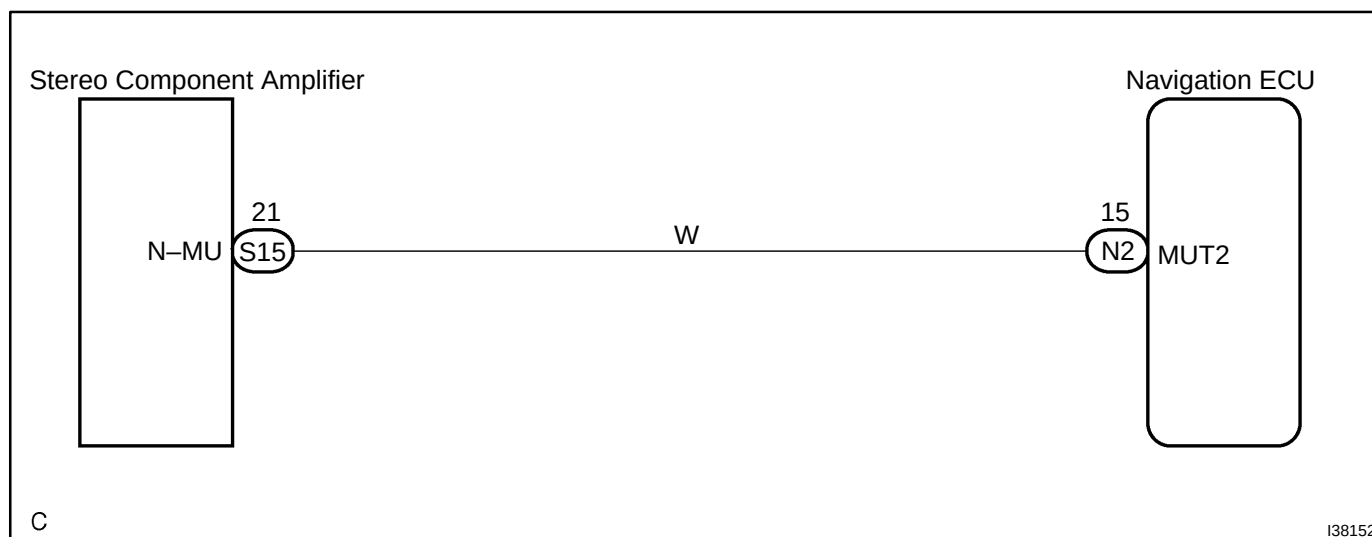
In addition, this circuit is used to mute the sound when the navigation system performs voice guide.

If there is an open in the circuit, noise can be heard from the speaker when changing the sound source.

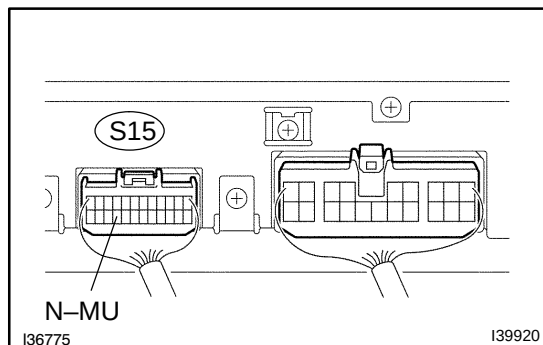
When the vehicle is equipped with the navigation system, audio sound keeps coming out from the speaker on the driver's side while the voice navigation is in operation.

If there is a short in the circuit, even though the stereo component amplifier assy is normal, no sound or only extremely small sound can be produced.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT STEREO COMPONENT AMPLIFIER ASSY

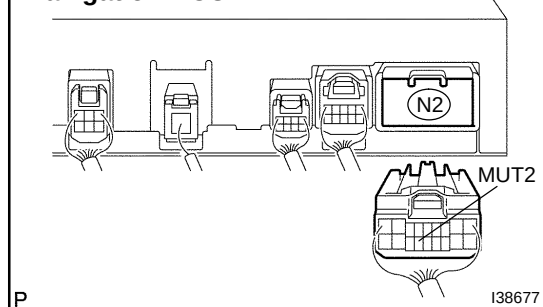
- (a) Measure the voltage according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
N-MU – Body ground	Turn power switch to ON (ACC), Audio system is playing → Changing	Above 3.5 V → Below 1 V

NG**Go to step 2****OK**

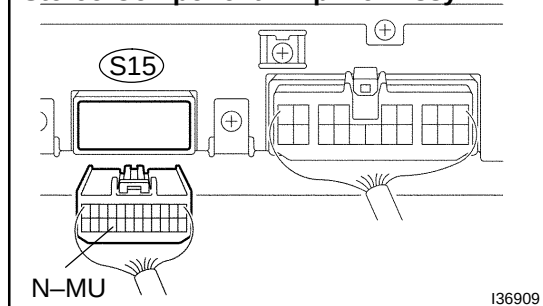
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

2 CHECK HARNESS AND CONNECTOR(NAVIGATION ECU – STEREO COMPONENT AMPLIFIER ASSY)**Navigation ECU:**

- (a) Disconnect the connectors from the stereo component amplifier assy S15 and navigation ECU N2.
 (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
MUT2 – N-MU	Always	Below 1 Ω
MUT2 – Body ground	Always	10 k Ω or higher

Stereo Component Amplifier Assy:**NG****REPAIR OR REPLACE HARNESS OR CONNECTOR****OK**

REPLACE STEREO COMPONENT AMPLIFIER ASSY (SEE PAGE 67-25)

AVC-LAN CIRCUIT (RADIO RECEIVER ASSY – MULTI-DISPLAY)

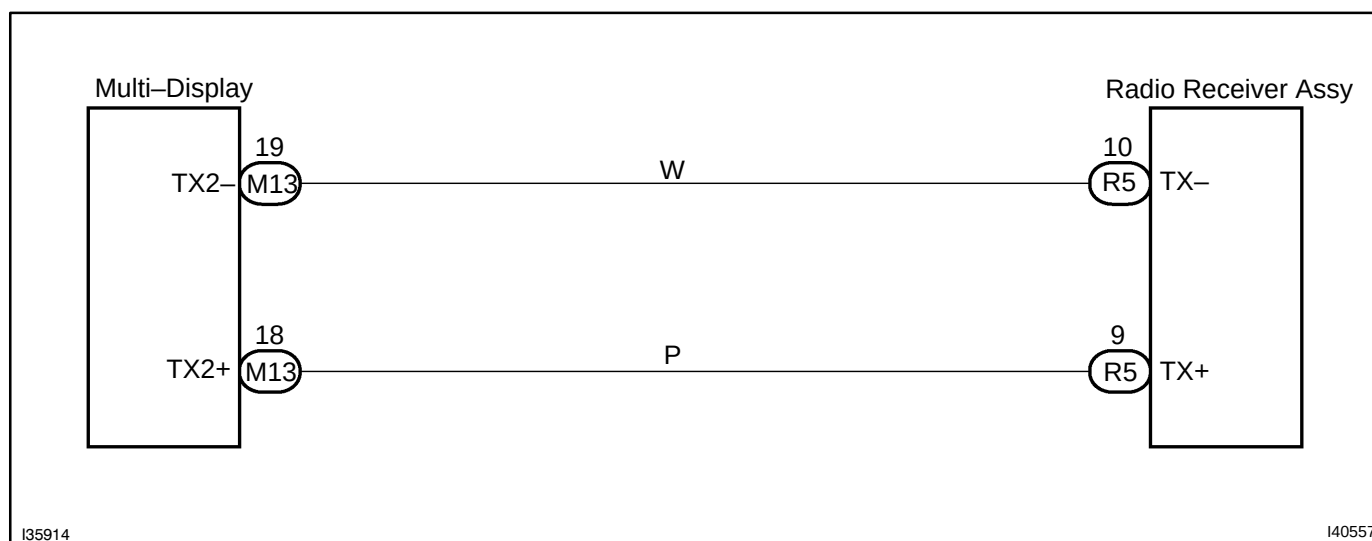
CIRCUIT DESCRIPTION

Each unit of the navigation system connected to AVC-LAN (communication bus) communicates by transferring the signals from each switch.

When +B short and GND short occur in this AVC-LAN, navigation system will not function normally as communication is discontinued.

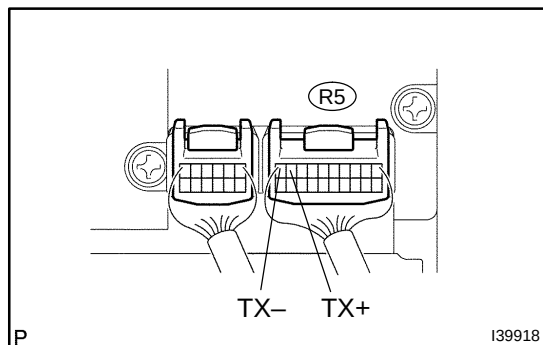
In AVC-LAN, multi-display becomes the communication master, and the radio receiver assy has enough resistance necessary for transmitting the communication.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT RADIO RECEIVER ASSY



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

Standard:

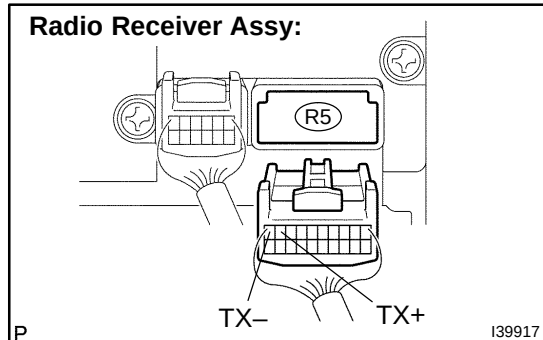
Tester connection	Condition	Specified condition
TX+ – TX–	Always	60 to 80 Ω

NG

REPLACE RADIO RECEIVER ASSY
(SEE PAGE 67-5)

OK

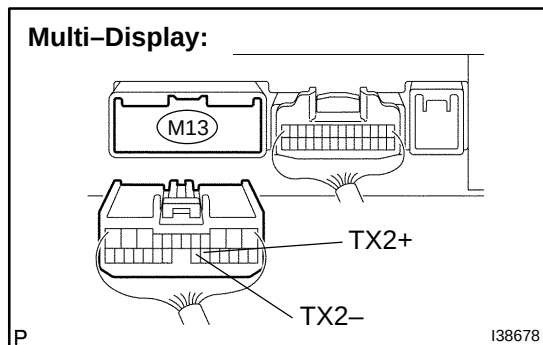
2 CHECK HARNESS AND CONNECTOR(RADIO RECEIVER ASSY – MULTI-DISPLAY)

Radio Receiver Assy:

- (a) Disconnect the connector from the radio receiver assy R5 and stereo multi-display M13.
(b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
TX+ – TX2+	Always	Below 1 Ω
TX– – TX2–	Always	Below 1 Ω
TX+ – Body ground	Always	10 k Ω or higher
TX– – Body ground	Always	10 k Ω or higher

Multi-Display:

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

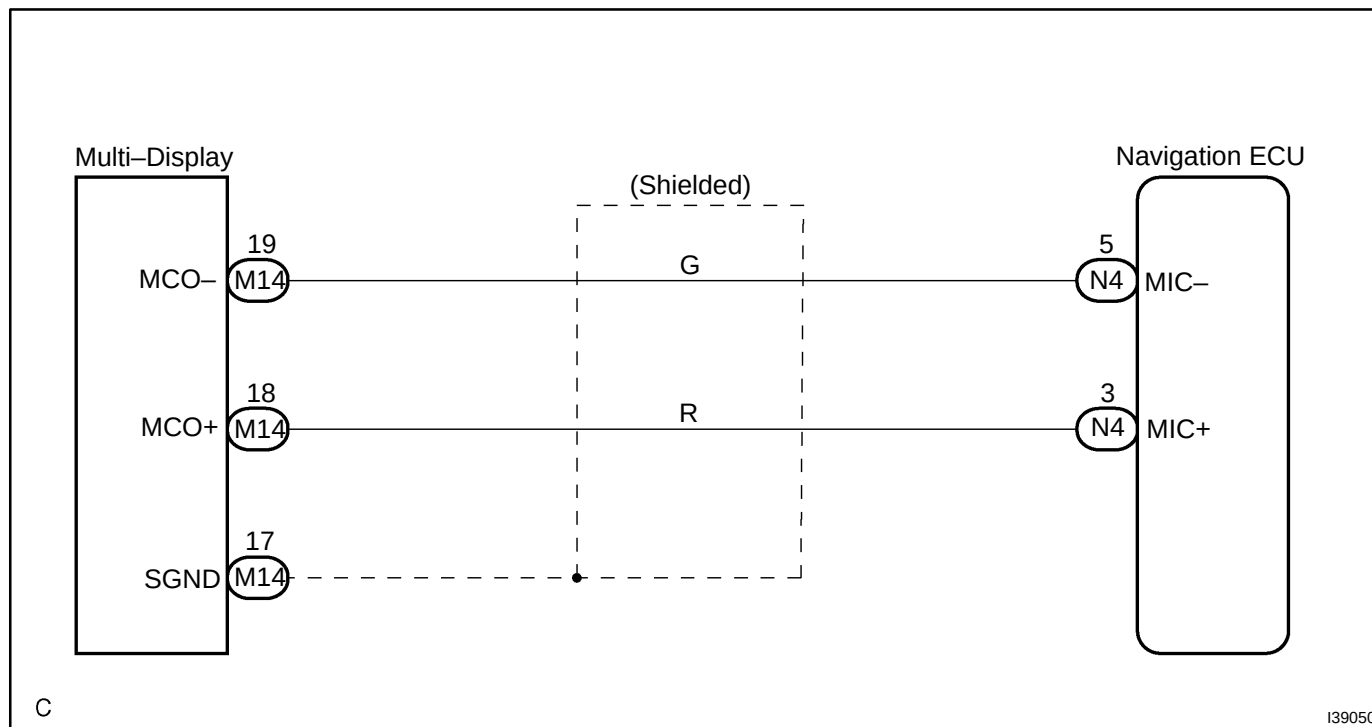
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART
(SEE PAGE 05-1888)

MICROPHONE CIRCUIT (MULTI-DISPLAY – NAVIGATION ECU)

CIRCUIT DESCRIPTION

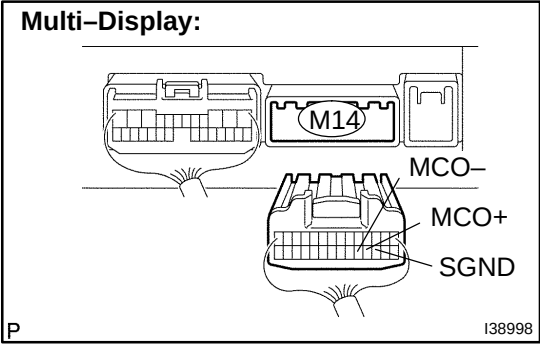
This circuit sends a microphone signal from the multi-display to the navigation ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

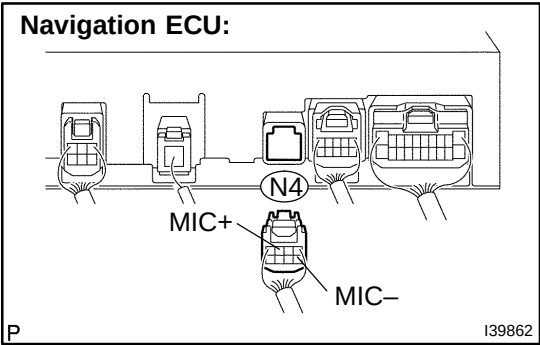
1 CHECK HARNESS AND CONNECTOR(MULTI-DISPLAY – NAVIGATION ECU)



- (a) Disconnect the connector from the multi-display M14 and navigation ECU N4.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
MCO+ – MIC+	Always	Below 1 Ω
MCO– – MIC–	Always	Below 1 Ω
MCO+ – Body ground	Always	10 kΩ or higher
MCO– – Body ground	Always	10 kΩ or higher
SGND – Body ground	Always	10 kΩ or higher



NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

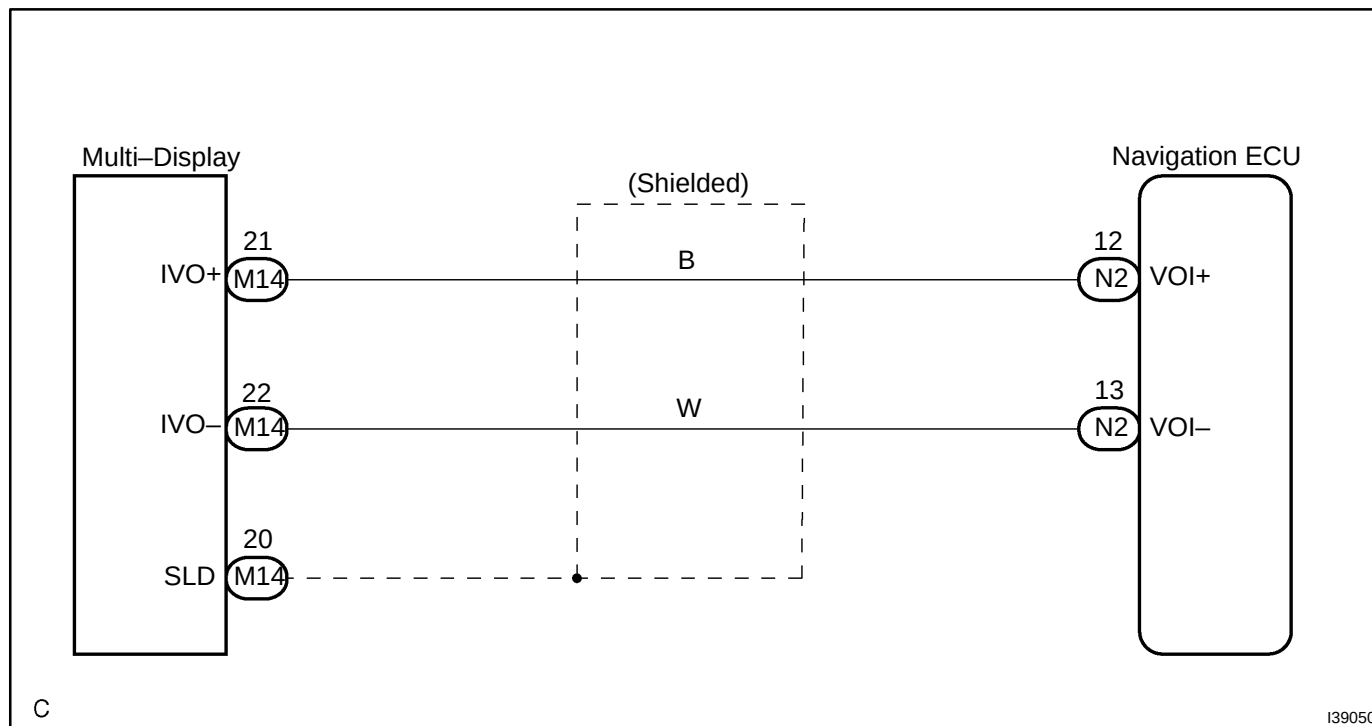
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

CELLULAR PHONE VOICE CIRCUIT (MULTI-DISPLAY – NAVIGATION ECU)

CIRCUIT DESCRIPTION

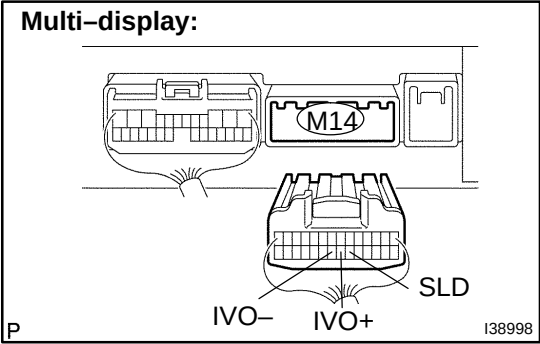
This circuit sends a voice signal of the cellular phone from the multi-display to the navigation ECU.

WIRING DIAGRAM



INSPECTION PROCEDURE

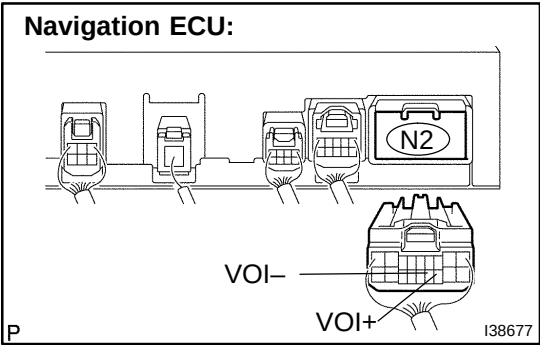
1 CHECK HARNESS AND CONNECTOR(NAVIGATION ECU – MULTI-DISPLAY)



- (a) Disconnect the connector from the navigation ECU N2 and multi-display M14.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
IVO+ – VOI+	Always	Below 1 Ω
IVO– – VOI–	Always	Below 1 Ω
IVO+ – Body ground	Always	10 kΩ or higher
IVO– – Body ground	Always	10 kΩ or higher
SLD – Body ground	Always	10 kΩ or higher



NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

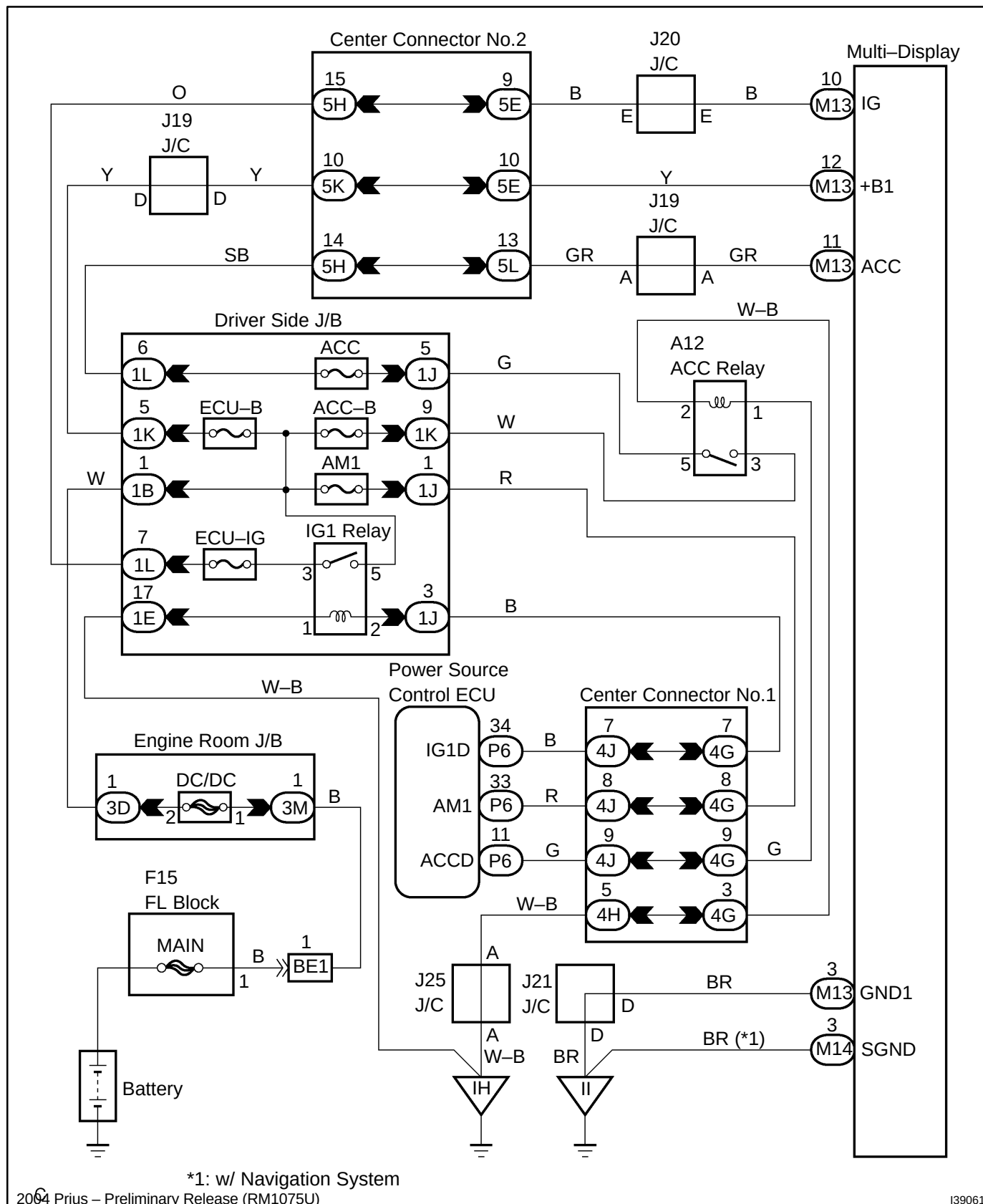
cardiagn.com

POWER SOURCE CIRCUIT (MULTI-DISPLAY)

CIRCUIT DESCRIPTION

This circuit provides the power to the multi-display.

WIRING DIAGRAM



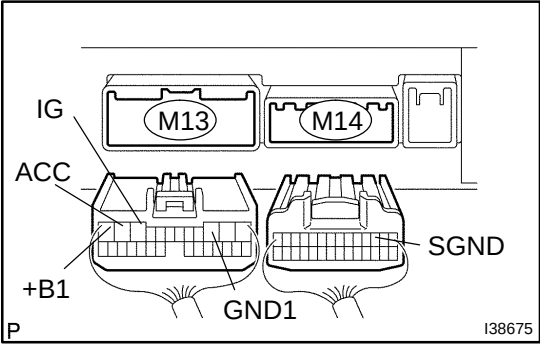
*1: w/ Navigation System

2004 Prius - Preliminary Release (RM1075U)

I39061

INSPECTION PROCEDURE

1 INSPECT MULTI-DISPLAY(+B1, ACC, IG, SGND, GND1)



- (a) Disconnect the multi-display connector M13, M14.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
GND1 – 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:

Tester connection	Condition	Specified condition
+B1 – GND1	Always	10 to 14 V
ACC – GND1	Power switch ON (ACC)	10 to 14 V
IG – GND1	Power switch ON (IG)	10 to 14 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE OR DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1873 or 05-1888)

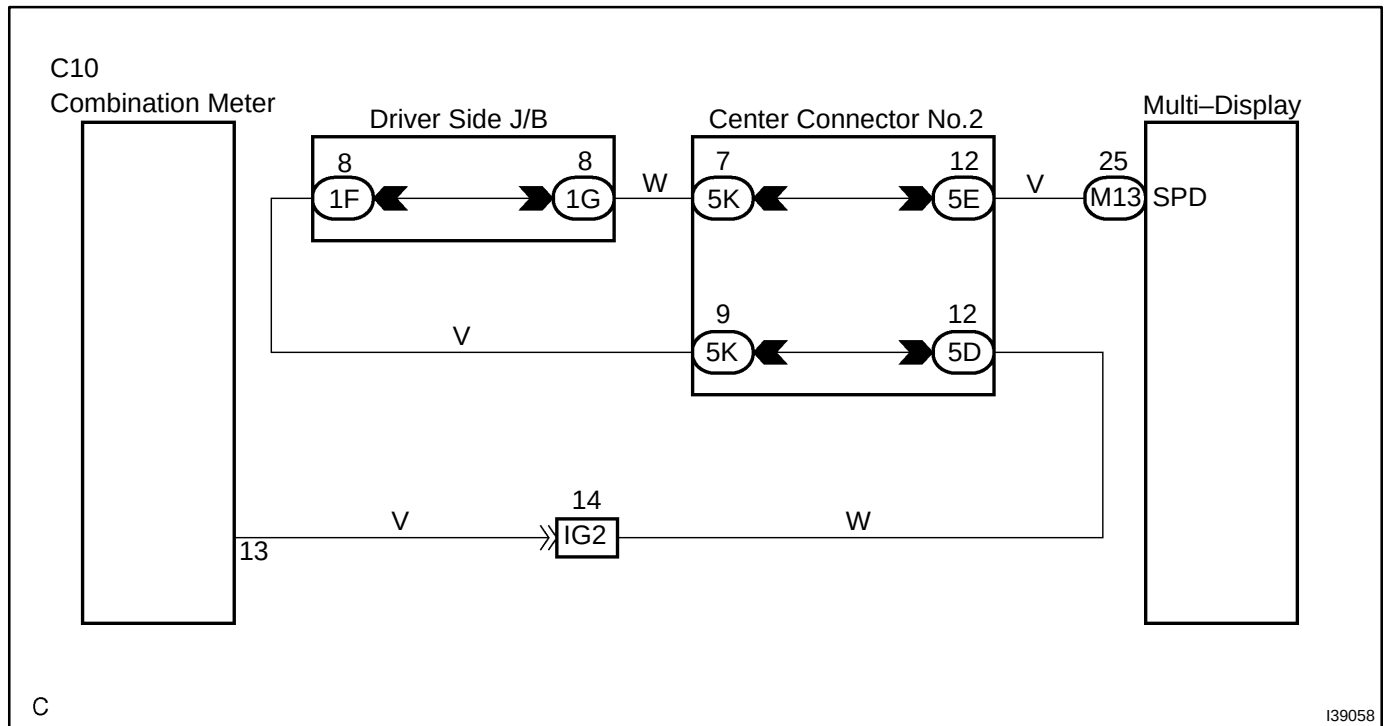
cardiagn.com

SPEED SIGNAL CIRCUIT (MULTI-DISPLAY – COMBINATION METER ASSY)

CIRCUIT DESCRIPTION

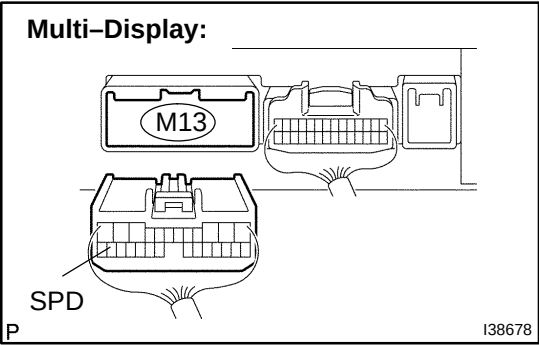
The multi-display performs the switch operation control during running by receiving the vehicle speed signal from the combination meter assy.

WIRING DIAGRAM



INSPECTION PROCEDURE

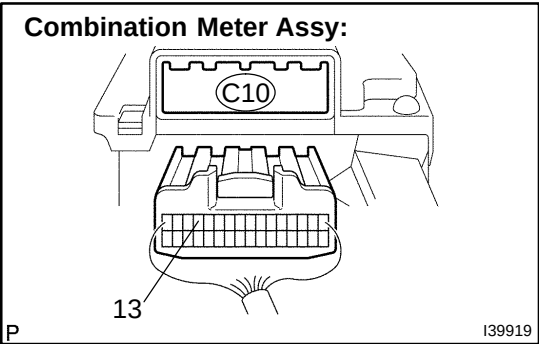
1 CHECK HARNESS AND CONNECTOR(COMBINATION METER ASSY – MULTI-DISPLAY)



- (a) Disconnect the connector from the multi-display M13 and combination meter assy C10.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
SPD – C10-13	Always	Below 1 Ω
SPD – Body ground	Always	10 kΩ or higher

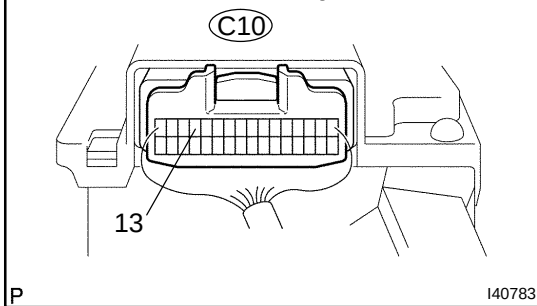


NG

REPAIR OR CONNECTOR

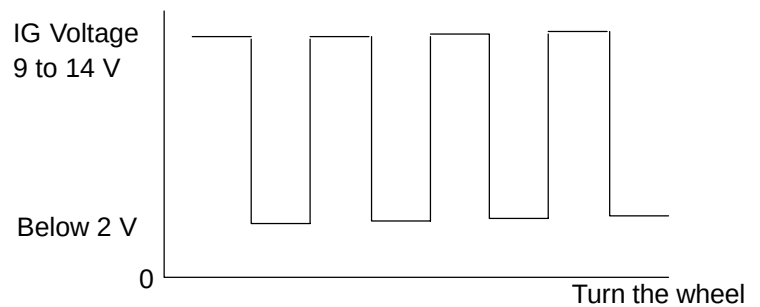
REPLACE HARNESS OR

OK

2 INSPECT COMBINATION METER ASSY**Combination Meter Assy:**

- (a) Connect the combination meter assy connector C10.
- (b) Measure voltage.
 - (1) Adjust the shift lever to the neutral position.
 - (2) Jack up either one of the front wheels.
 - (3) Turn power switch to the ON (ACC) position.
 - (4) Measure the voltage between terminal 13 and body ground of combination meter assy when the front wheels are turned slowly.

OK: Voltage is pulsed as shown below.

**NG**

**GO TO COMBINATION METER SYSTEM
(SEE PAGE 05-1975)**

OK

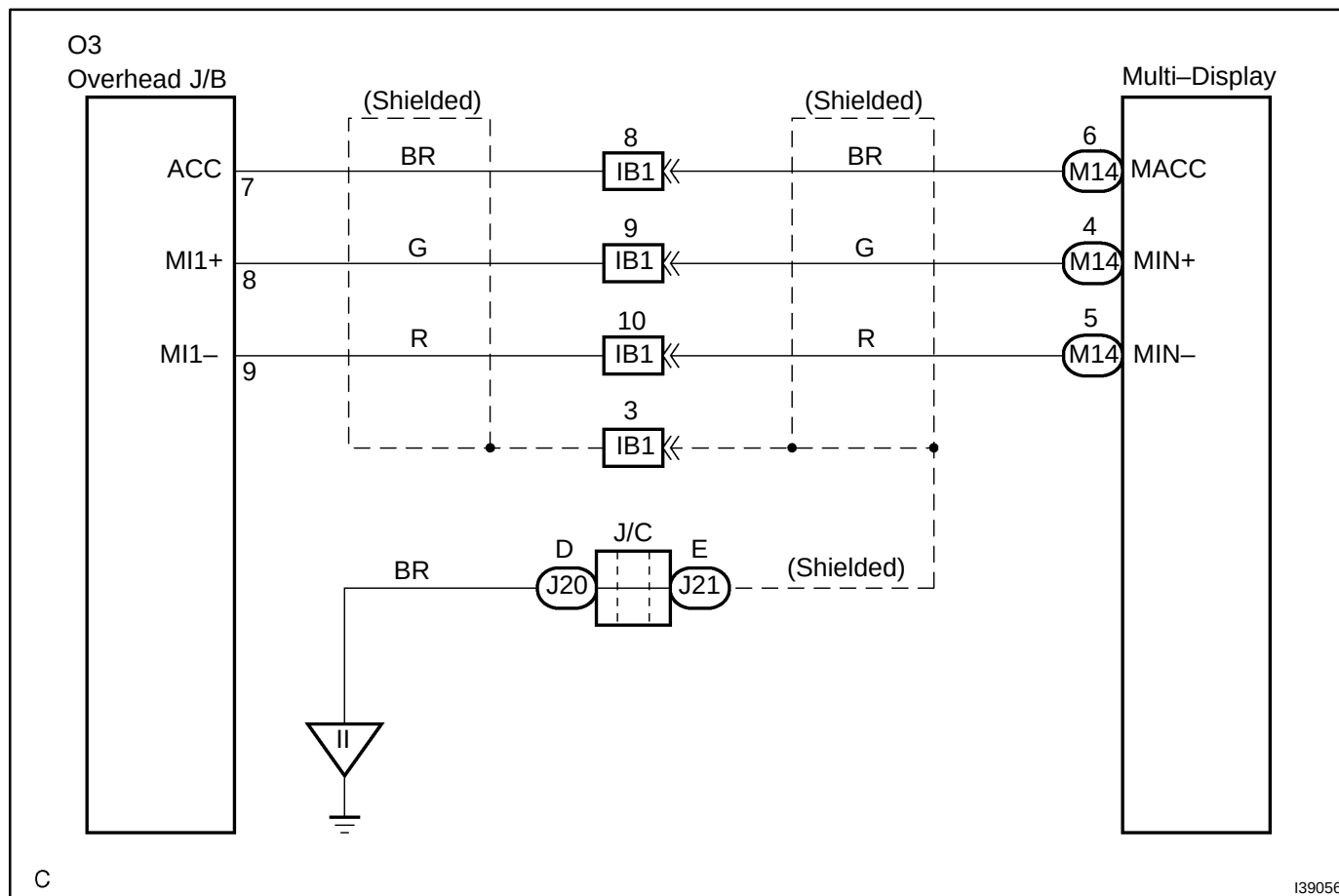
REPLACE MULTI-DISPLAY (SEE PAGE 67-7)

MICROPHONE CIRCUIT (OVERHEAD J/B - MULTI-DISPLAY)

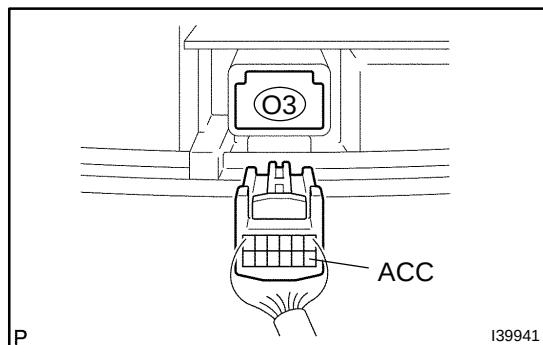
CIRCUIT DESCRIPTION

This circuit sends a microphone signal from the overhead J/B to the multi-display. It also supplies power from the multi-display to the overhead J/B.

WIRING DIAGRAM



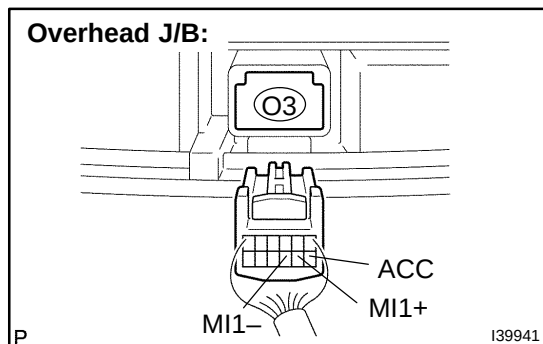
INSPECTION PROCEDURE

1 INSPECT MICROPHONE(OVERHEAD J/B)

- (a) Disconnect the overhead J/B O3.
 (b) Measure the voltage according to the value(s) in the table below.

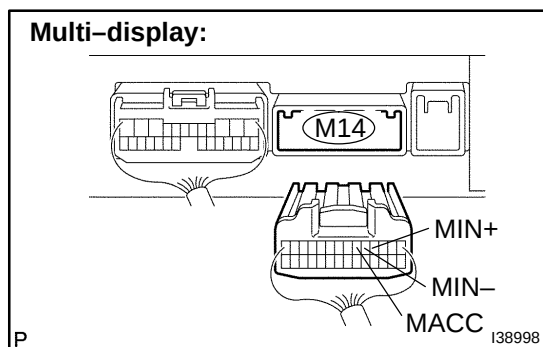
Standard:

Tester connection	Condition	Specified Condition
ACC – Body ground	Power switch ON (ACC)	10 to 14 V

OK**REPLACE OVERHEAD J/B****NG****2 CHECK HARNESS AND CONNECTOR(OVERHEAD J/B – MULTI-DISPLAY)****Overhead J/B:**

- (a) Disconnect the connector from the overhead J/B O3 and multi-display M14.
 (b) Measure the resistance according to the value(s) in the table below.

Tester connection	Condition	Specified Condition
ACC – MACC	Always	Below 1 Ω
MI1+ – MIN+	Always	Below 1 Ω
MI1- – MIN-	Always	Below 1 Ω
ACC – Body ground	Always	10 k Ω or higher
MI1+ – Body ground	Always	10 k Ω or higher
MI1- – Body ground	Always	10 k Ω or higher

Multi-display:**NG****REPAIR OR REPLACE HARNESS OR CONNECTOR****OK**

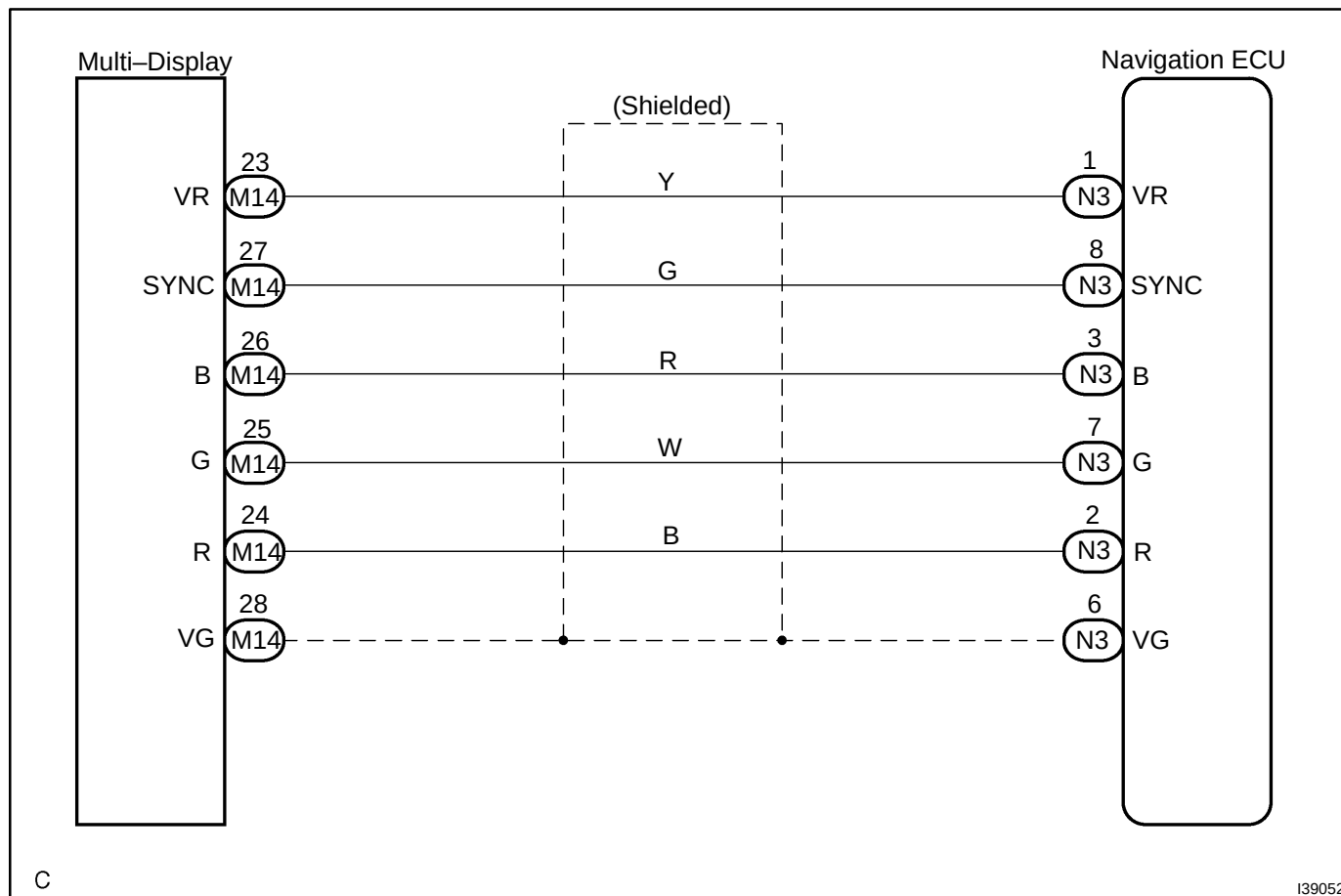
PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1888)

DISPLAY SIGNAL CIRCUIT (NAVIGATION ECU – MULTI-DISPLAY)

CIRCUIT DESCRIPTION

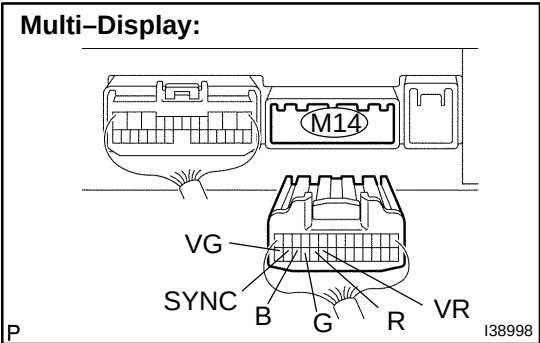
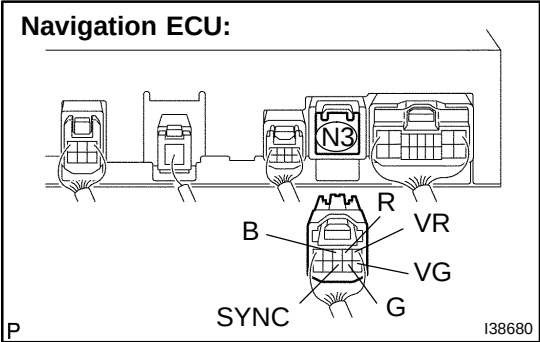
This is the display signal circuit from the navigation ECU to the multi-display.

WIRING DIAGRAM



INSPECTION PROCEDURE

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



- (a) Disconnect the connector from navigation ECU N3 and multi-display M14.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
R (N3) – R (M14)	Always	Below 1 Ω
G (N3) – G (M14)	Always	Below 1 Ω
B (N3) – B (M14)	Always	Below 1 Ω
SYNC (N3) – SYNC (M14)	Always	Below 1 Ω
VR (N3) – VR (M14)	Always	Below 1 Ω
VG (N3) – VG (M14)	Always	Below 1 Ω
R (N3 or M14) – Body ground	Always	10 kΩ or higher
G (N3 or M14) – Body ground	Always	10 kΩ or higher
B (N3 or M14) – Body ground	Always	10 kΩ or higher
SYNC (N3 or M14) – Body ground	Always	10 kΩ or higher
VR (N3 or M14) – Body ground	Always	10 kΩ or higher

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN ON PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

AVC-LAN CIRCUIT (NAVIGATION ECU – MULTI-DISPLAY)

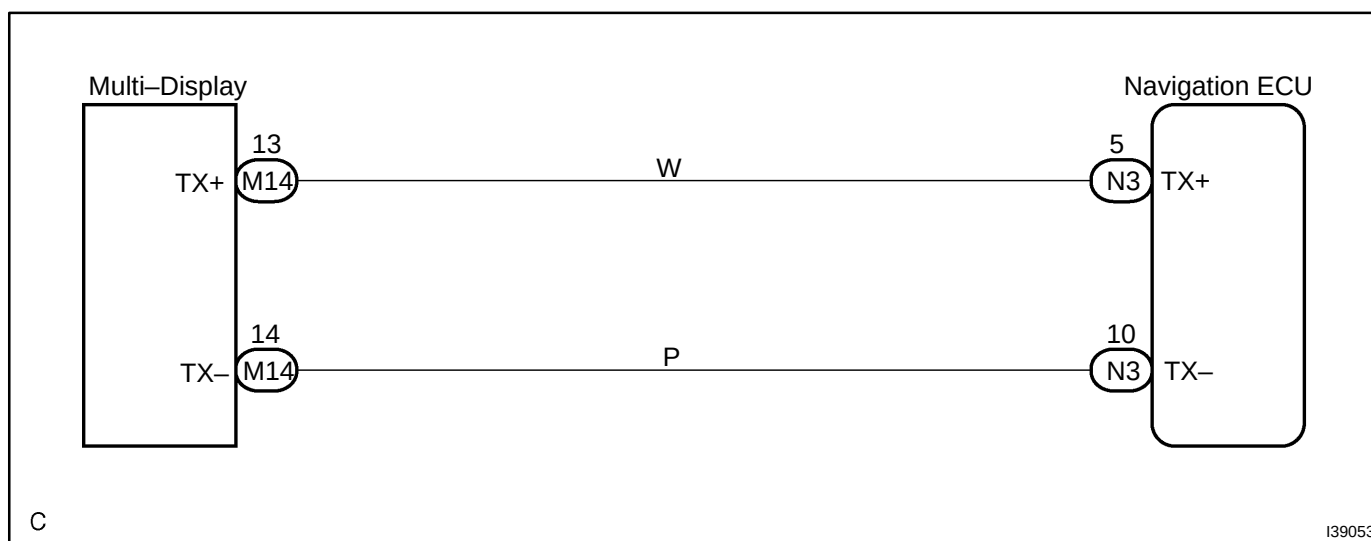
CIRCUIT DESCRIPTION

Each unit of the navigation system connected to AVC-LAN (communication bus) communicates by transferring the signals from each switch.

When +B short and GND short occur in this AVC-LAN, navigation system will not function normally as communication is discontinued.

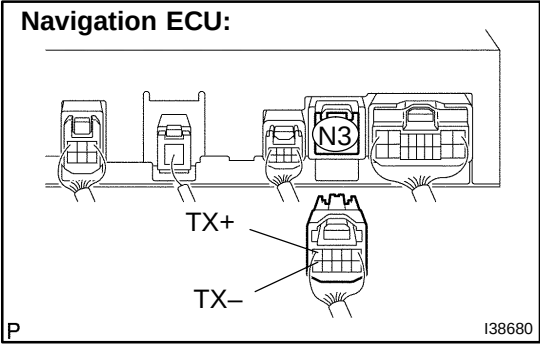
In AVC-LAN, multi-display becomes the communication master, and the radio receiver assy has enough resistance necessary for transmitting the communication.

WIRING DIAGRAM



INSPECTION PROCEDURE

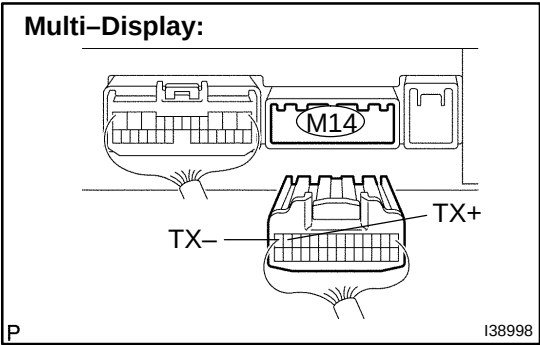
1 CHECK HARNESS AND CONNECTOR(NAVIGATION ECU – MULTI-DISPLAY)



- (a) Disconnect the connector from the navigation ECU N3 and multi-display M14.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
TX+ (N3) – TX+ (M14)	Always	Below 1 Ω
TX- (N3) – TX- (M14)	Always	Below 1 Ω
TX+ (N3) – Body ground	Always	10 kΩ or higher
TX- (N3) – Body ground	Always	10 kΩ or higher



NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1888)

AVC-LAN CIRCUIT (MULTI-DISPLAY – GATEWAY ECU)

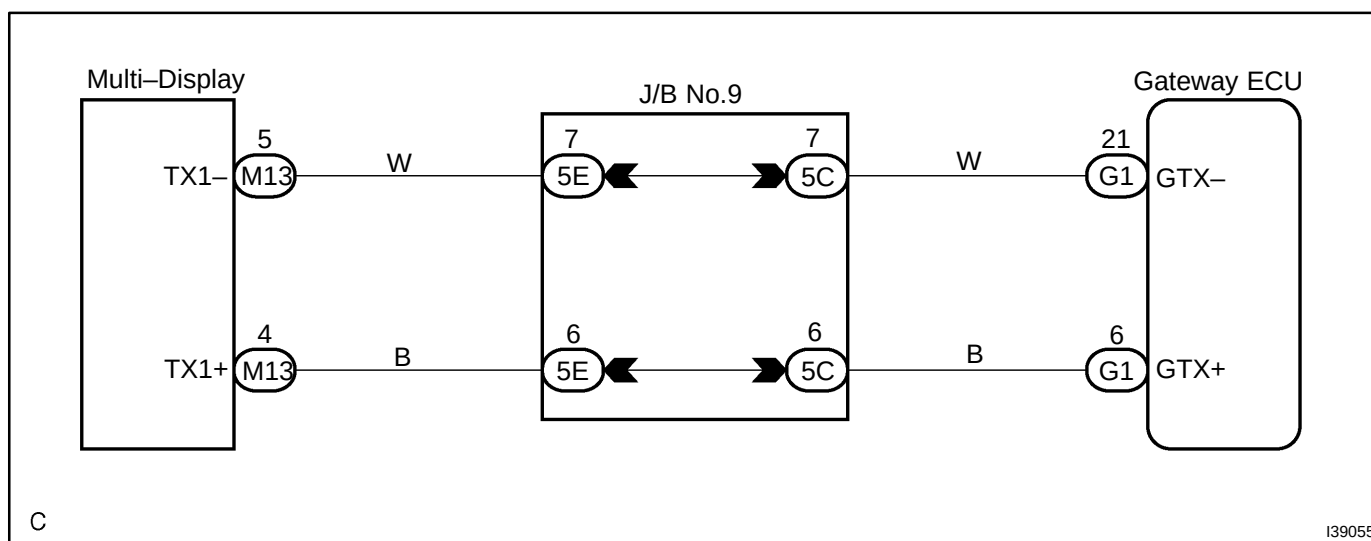
CIRCUIT DESCRIPTION

Each unit of the navigation system connected to AVC-LAN (communication bus) communicates by transferring the signals from each switch.

When +B short and GND short occur in this AVC-LAN, navigation system will not function normally as communication is discontinued.

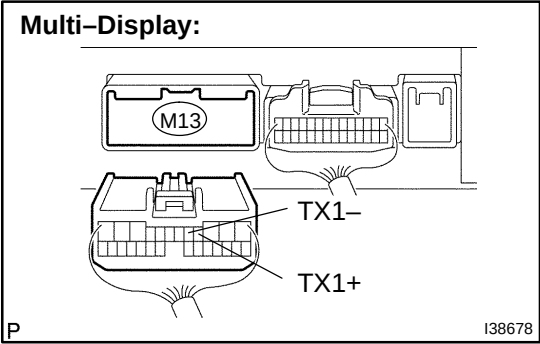
In AVC-LAN, multi-display becomes the communication master, and the radio receiver assy has enough resistance necessary for transmitting the communication.

WIRING DIAGRAM



INSPECTION PROCEDURE

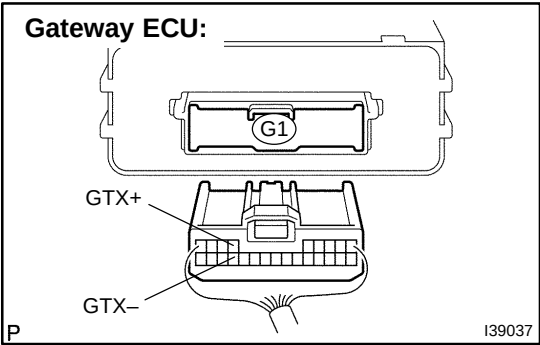
1 CHECK HARNESS AND CONNECTOR(MULTI-DISPLAY – GATEWAY ECU)



- (a) Disconnect the connector from the multi-display M13 and gateway ECU G1.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
TX1+ – GTX+	Always	Below 1 Ω
TX1– – GTX–	Always	Below 1 Ω
TX1+ – Body ground	Always	10 kΩ or higher
TX1– – Body ground	Always	10 kΩ or higher



NG REPAIR OR REPLACE HARNESS OR CONNECTOR

OK

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN DIAGNOSTIC TROUBLE CODE CHART (SEE PAGE 05-1888)

VOICE RECOGNITION DIFFICULTY

INSPECTION PROCEDURE

1 CHECK CONDITION

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

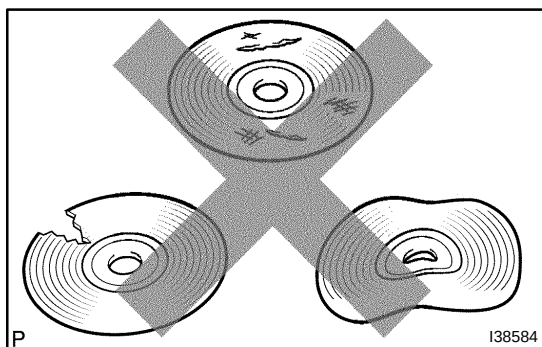
OK: The system's voice recognition level is low with any voice.

NG

SYSTEMS VOICE RECOGNITION LEVEL VARIES DEPENDING ON VOICE AND PRONUNCIATION. THIS IS NOT A MALFUNCTION

OK

2 CHECK MAP DISC



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

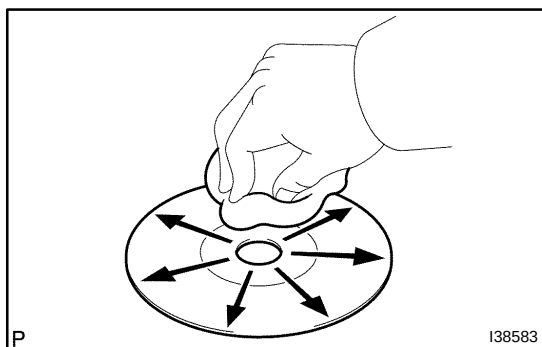
OK: No deformations or cracks appear on the map disc.

NG

REPLACE MAP DISC

OK

3 CHECK MAP DISC



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

OK: No dirt is on the map disc surface.

HINT:

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

NOTICE:

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

NG

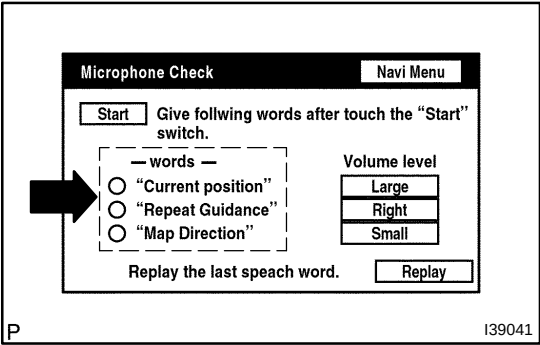
CLEAN THE MAP DISC

OK

4

NAVIGATION CHECK MODE(MICROPHONE CHECK)

(a) Enter the "Microphone Check" mode (see page 05-1862)



(b) Follow the directions on the screen. Check if the word recognition indicator is displayed in green in each item.
OK: All check items are recognized.

NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

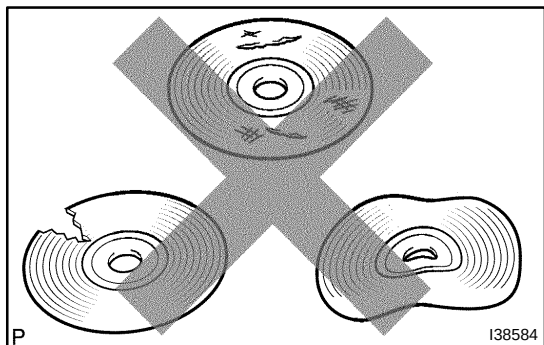
OK

NORMAL OPERATION

VOICE IS NOT RECOGNIZED

INSPECTION PROCEDURE

1 CHECK MAP DISC



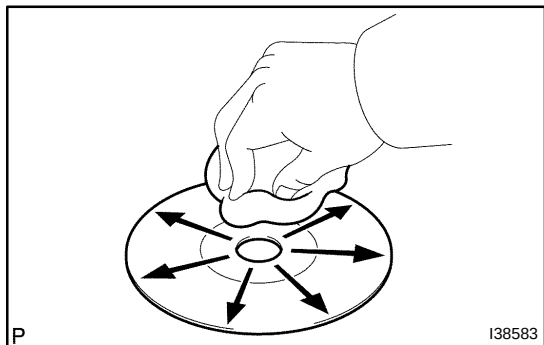
- (a) Check that the map disc is not deformed or cracked.
OK: No deformations or cracks appear on the map disc.

NG

REPLACE MAP DISC

OK

2 CHECK MAP DISC



- (a) Check for dirt on the map disc surface.
OK: No dirt is on the map disc surface.

HINT:

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

NOTICE:

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

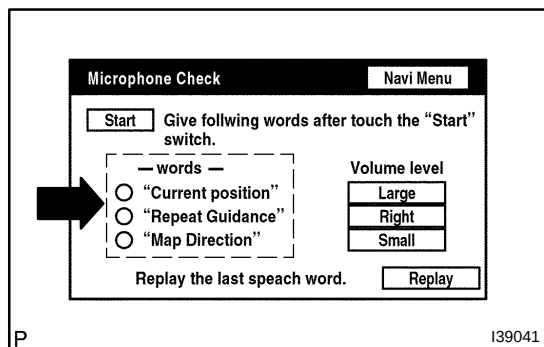
NG

REPLACE CLEAN THE MAP DISC

OK

3 NAVIGATION CHECK MODE(MICROPHONE CHECK)

- (a) Enter the "Microphone Check" mode (see page 05-1862)



- (b) Follow the directions on the screen. Check if the word recognition indicator is displayed in green in each item.

OK: All check items are recognized.

NG

PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE (SEE PAGE 05-1873)

OK

REPLACE NAVIGATION ECU (SEE PAGE 67-23)

CELLULAR PHONE REGISTRATION FAILURE, PHONE DIRECTORY TRANSFER FAILURE

INSPECTION PROCEDURE

1 CHECK CELLULAR PHONE

(a) Check by following the conditions below.

Conditions	See page
Another BLUETOOTH capable cellular phone is present.	A
Another BLUETOOTH capable vehicle is present.	B
None of the above	C

B

Go to step 3

C

Go to step 4

A

2 CHECK USING ANOTHER CELLULAR PHONE

(a) Check if the system functions using another BLUETOOTH capable cellular phone.

OK: The system functions.

NG

Go to step 4

OK

USE A CAPABLE BLUETOOTH CELLULAR PHONE (DEPENDING ON THE VERSION)

3 CHECK USING ANOTHER BLUETOOTH CAPABLE VEHICLE

(a) Check if the cellular phone is BLUETOOTH capable.

OK: The system functions.

OK

REPLACE MULTI-DISPLAY
(SEE PAGE 67-7)

NG

4 CHECK CELLULAR PHONE

(a) Check if the cellular phone is BLUETOOTH capable.

HINT:

Some version of BLUETOOTH capable cellular phone may not function.

OK: The phone is BLUETOOTH capable.

NG

USE A BLUETOOTH CAPABLE CELLULAR PHONE

OK

5 CHECK CELLULAR PHONE

(a) Check if the cellular phone can call.

HINT:

When the battery charge is low, registration or directory transfer cannot be performed.

OK: The cellular phone can call.

NG

REPLACE THE CELLULAR PHONE

OK

REPLACE MULTI-DISPLAY (SEE PAGE [67-7](#))

THE CELLULAR PHONE CANNOT SEND/RECEIVE

INSPECTION PROCEDURE

1 CHECK THE BLUETOOTH SETTINGS

- (a) Check if the BLUETOOTH settings are correct.

OK: BLUETOOTH settings are correct.

NG

SET SETTINGS CORRECTLY

OK

2 CHECK CELLULAR PHONE

- (a) Check if the cellular phone is BLUETOOTH capable.

HINT:

Some versions of BLUETOOTH capable cellular phone may not be compatible.

OK: The phone is BLUETOOTH capable.

NG

END (ONLY A BLUETOOTH CAPABLE CELLULAR PHONE CAN BE USED)

OK

3 CHECK SETTINGS

- (a) Check if the cellular phone functions.

HINT:

- The cellular phone is unable to call under any of the following conditions.
- The cellular phone is locked.
- The directory is being transferred.
- The line is crossed.
- Transmission is regulated.
- The power is off.
- An emergency call is being made (LEXUS LINK SYSTEM is in operation).
- The cellular phone is not connected to BLUETOOTH ("BT" is displayed while a connection is present).

OK: None of the above conditions exists.

NG

SET SETTINGS CORRECTLY

OK

4 CHECK CELLULAR PHONE

(a) Check if the cellular phone can call.

HINT:

When the battery charge is low, calls cannot be made or received.

OK: The cellular phone can call.

NG

REPLACE THE CELLULAR PHONE

OK

5 CHECK RECEPTION

(a) Put a cellular phone into a receiving state.

(b) Place the cellular phone close to the multi-display.

(c) Check if the cellular phone has reception according to the multi-display.

OK: The cellular phone has reception.

NG

**REPLACE MULTI-DISPLAY
(SEE PAGE 67-7)**

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)**

CANNOT CALL IN A CERTAIN PLACE

INSPECTION PROCEDURE

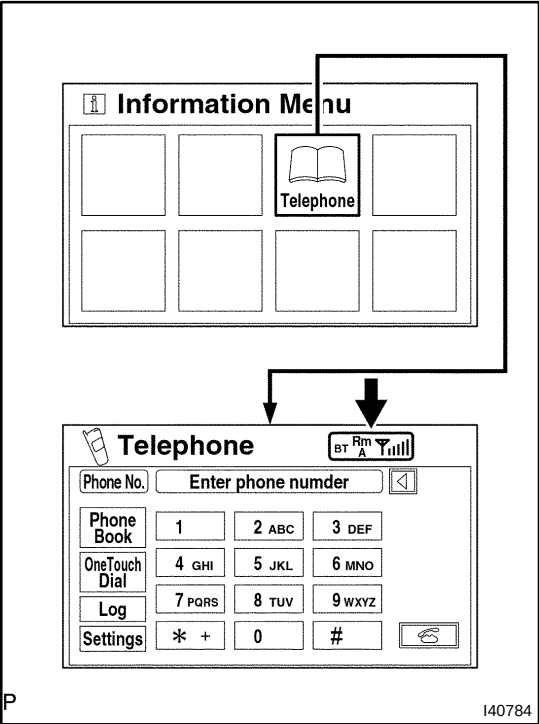
1 CHECK SURROUNDING CONDITIONS

- (a) Check if a cellular phone can make calls in a certain place.
OK: It can make calls.

NG END (CELLULAR PHONES CAN ONLY FUNCTION IN CELLULAR SERVICE AREAS)

OK

2 CHECK RECEPTION

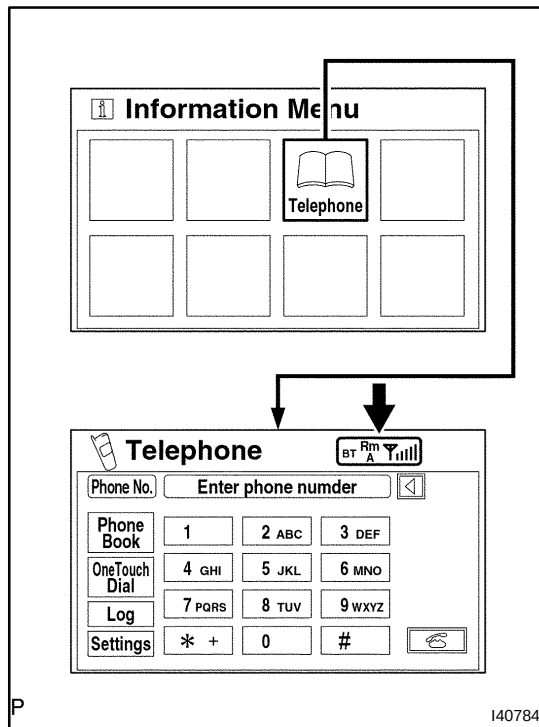


- (a) Check if the reception level is the same on a cellular phone and the multi-display.
OK: The reception level is different.

NG REPLACE MULTI-DISPLAY (SEE PAGE 67-7)

OK

3 CHECK RECEPTION



- Place a cellular phone close to the multi-display.
- Check if the reception level becomes the same on the cellular phone and the multi-display.

OK: The reception level does not become the same.

NG

**REPLACE MULTI-DISPLAY
(SEE PAGE 67-7)**

OK

END (MULTI-DISPLAY RECEIVES THE DIFFERENT STRENGTH OF RADIO WAVE DEPENDING ON THE RADIO WAVES STRENGTH TRANSMITTED BY CELLULAR PHONE)

VOICE ON PHONE CANNOT BE HEARD, TOO QUIET, OR DISTORTED

INSPECTION PROCEDURE

1 CHECK CELLULAR PHONE

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

OK: Voice can be heard.

NG

REPLACE THE CELLULAR PHONE

OK

2 CHECK SETTINGS

- (a) Check if the volume is set to the minimum or maximum setting.

HINT:

When the volume is set to the minimum or maximum setting, the sound may be distorted.

- (b) Check if the MUTE switch is set to ON.

OK: MUTE switch is not set to ON.

NG

SET MUTE SWITCH CORRECTLY

OK

3 CHECK VOICE

- (a) Check if the navigation voice can be heard.

OK: The voice can be heard.

NG

GO TO "VOICE GUIDANCE DOES NOT FUNCTION" (SEE PAGE 05-1914)

OK

**PROCEED TO NEXT CIRCUIT INSPECTION SHOWN IN PROBLEM SYMPTOMS TABLE
(SEE PAGE 05-1873)**

OWN VOICE CANNOT BE HEARD, TOO QUIET OR DISTORTED

INSPECTION PROCEDURE

1 CHECK CELLULAR PHONE

- (a) Check if the other side can hear your voice properly.

OK: Own voice can be heard correctly.

NG

REPLACE THE CELLULAR PHONE

OK

2 CHECK SETTINGS

- (a) Check if the mute switch is set to ON.

OK: MUTE switch is not set to ON.

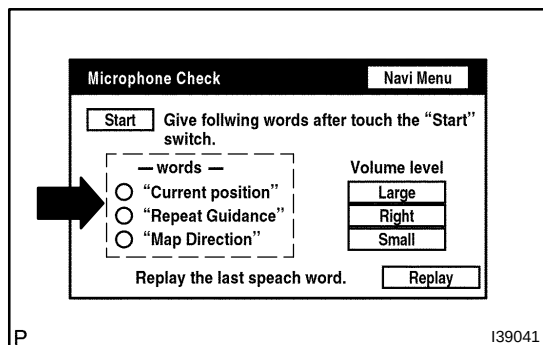
NG

TURN THE MUTE SWITCH OFF

OK

3 NAVIGATION CHECK MODE(MICROPHONE CHECK)

- (a) Enter the "Microphone Check" mode (see page [05-1862](#))



- (b) Follow the directions on the screen. Check if the word recognition indicator is displayed in green in each item.

OK: All check items are recognized.

NG

GO TO "VOICE IS NOT RECOGNIZED" (SEE PAGE [05-1924](#))

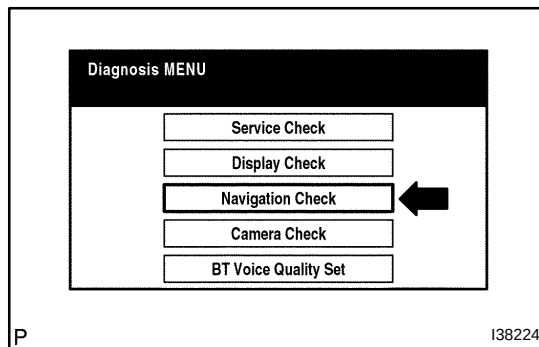
OK

REPLACE MULTI-DISPLAY (SEE PAGE [67-7](#))

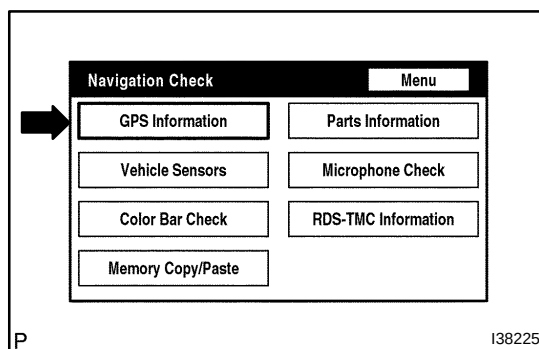
NAVIGATION CHECK MODE (GPS INFORMATION)

HINT:

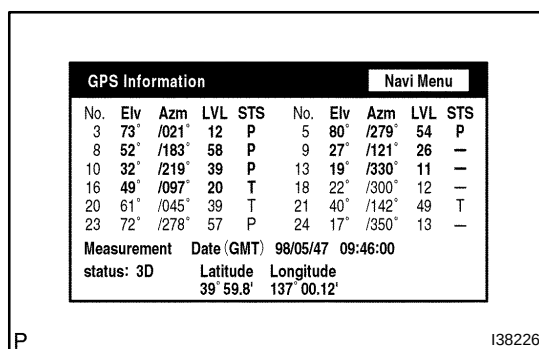
- This mode displays GPS satellite information.
 - Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
1. Enter diagnostic mode (see page [05-1881](#)).



2. Select "Navigation Check" from the "Diagnosis MENU" screen.



3. Select "GPS Information" from the "Navigation Check" screen.



4. When GPS information is displayed, check the GPS conditions.

HINT:

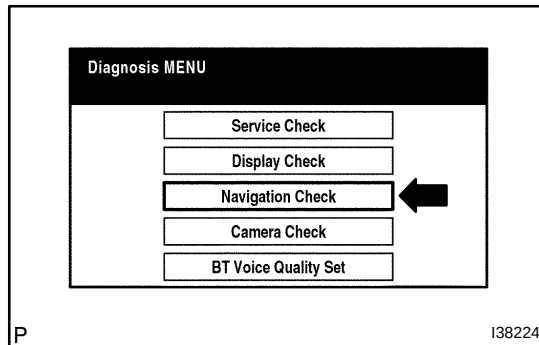
This screen is updated once per second when input signals to the vehicle are changed.

NAVIGATION CHECK MODE (MICROPHONE CHECK)

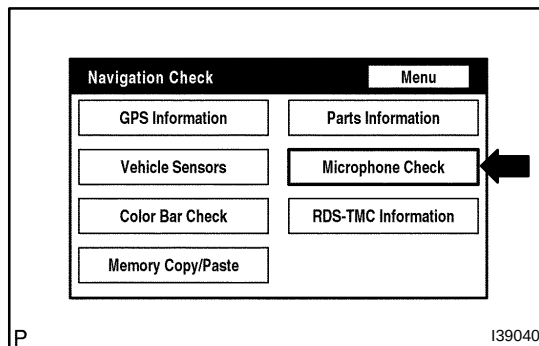
HINT:

- The microphone is checked in the "Navigation Check (Microphone Check)" mode.
- Illustrations may differ from the actual vehicle depending on vehicle specifications.

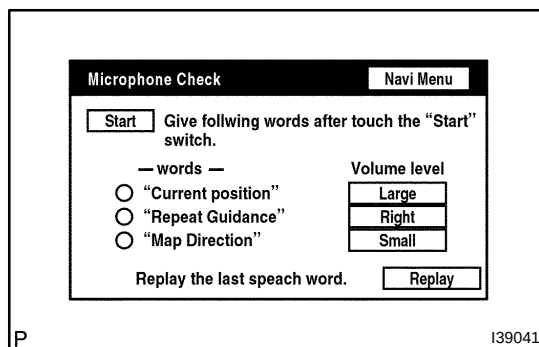
1. Start the diagnostic mode (see page 05-1881)



2. Select "Navigation Check" from "Diagnosis MENU".



3. Select "Microphone Check" from "Navigation Check".



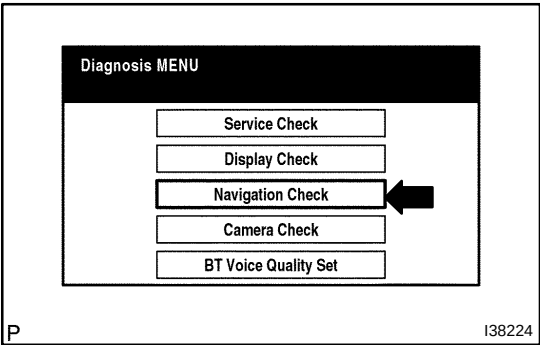
4. Perform the microphone check by following the directions on the "Microphone Check" screen.

NAVIGATION CHECK MODE (NAVI COLOR BAR CHECK)

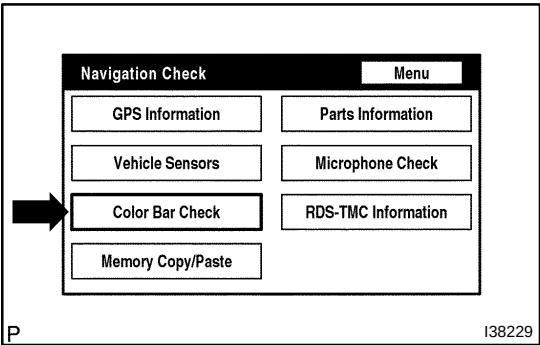
HINT:

- This mode checks the color display on the navigation ECU.
- 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.

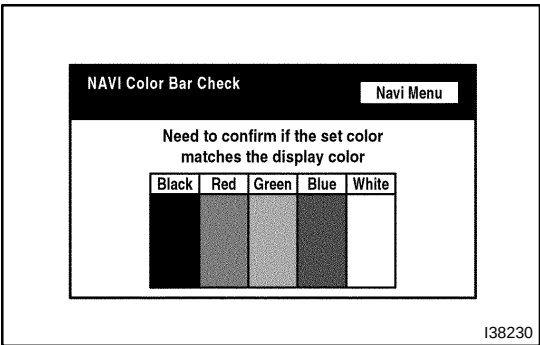
1. Enter diagnostic mode (see page 05-1881).



2. Select "Navigation Check" from the "Diagnosis MENU" screen.



3. Select "Color Bar Check" from the "Navigation Check" screen.



4. Check each color of the color bar when the "NAVI Color Bar Check" screen is displayed.

HINT:

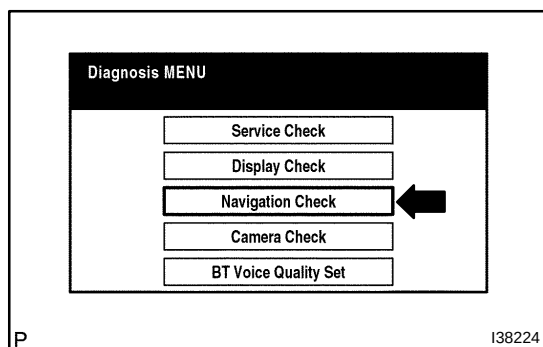
Colors will not be displayed full-screen as in "Display Check Mode".

NAVIGATION CHECK MODE (PARTS INFORMATION)

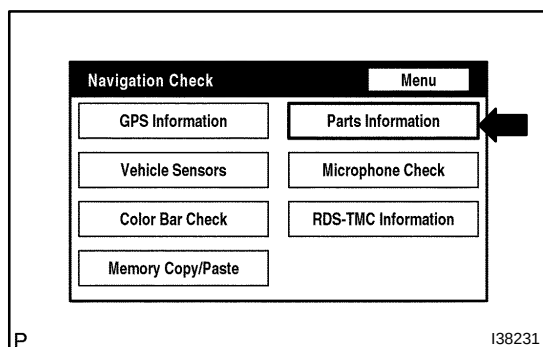
HINT:

- 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.

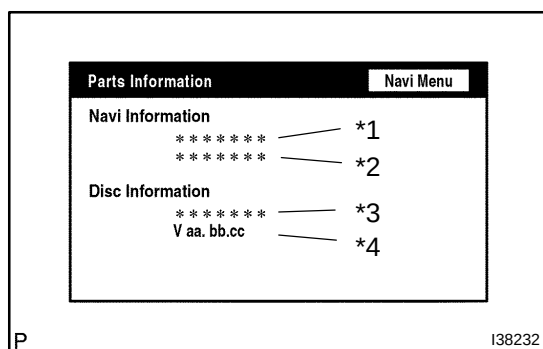
1. Enter diagnostic mode (see page 05-1881).



2. Select "Navigation Check" from the "Diagnosis MENU" screen.



3. Select "Parts Information" from the "Navigation Check" screen.



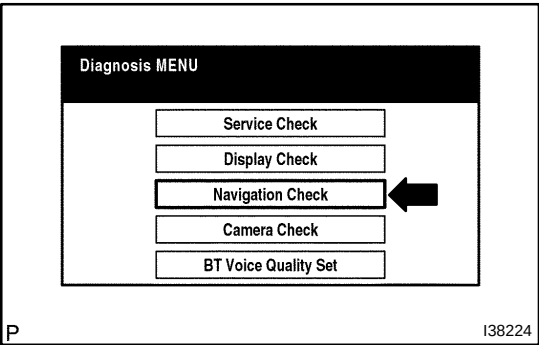
4. Check the navigation and disc information when the "Parts Information" screen is displayed.

Display	Contents
Navigation Manufacturer/*1	Navigation ECU manufacturer name is displayed.
Navigation Version/*2	Navigation ECU version is displayed.
Disc Manufacturer/*3	Map disc manufacturer is displayed.
Disc Version/*4	Map disc version is displayed.

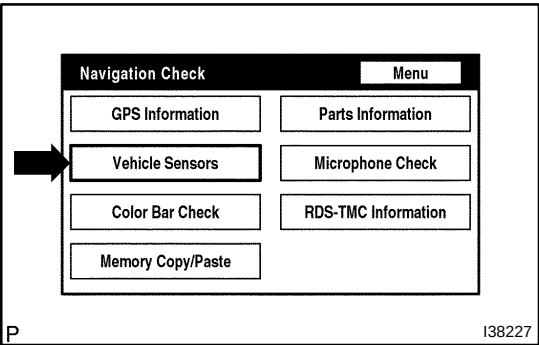
NAVIGATION CHECK MODE (VEHICLE SENSORS)

HINT:

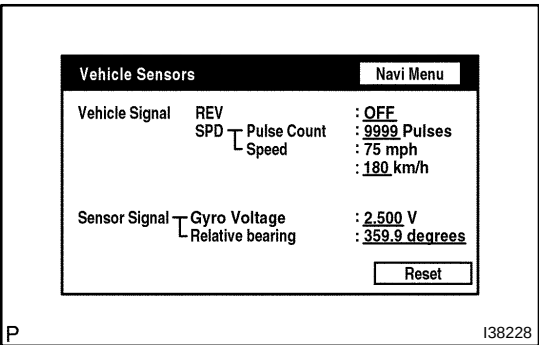
- This mode checks the vehicle signal status to the navigation ECU.
 - Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.
1. Enter diagnostic mode (see page 05-1881).



2. Select "Navigation Check" from the "Diagnosis MENU" screen.



3. Select "Vehicle Sensors" from the "Navigation Check" screen.



4. Check all the signals and sensors when vehicle signal information is displayed.

HINT:

This screen is updated once per second when input signals to the vehicle are changed.

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	Verification	See page
Black screen (No image appears on navigation/audio screen).	1. "BLACK SCREEN (NO IMAGE APPEARS ON NAVIGATION AND AUDIO SCREEN)" 2. Illumination circuit 3. Power source circuit (multi-display) 4. Replace multi-display	05-1899 05-1957 05-1933 67-7
Illumination for panel switch does not come on with TAIL switch on.	1. "ILLUMINATION FOR PANEL SWITCH DOES NOT COME ON WITH TAIL SWITCH ON" 2. Illumination circuit 3. Replace multi-display	05-1900 05-1957 67-7
Display does not dim (Night Screen) with TAIL switch on.	1. "DISPLAY DOES NOT DIM (NIGHT SCREEN) WITH TAIL SWITCH ON" 2. Illumination circuit 3. Replace multi-display	05-1901 05-1957 67-7
Power does not turn off (The screen remains on).	1. Power source circuit (multi-display) 2. Replace multi-display	05-1933 67-7
Panel switch does not function.	1. "PANEL SWITCH DOES NOT FUNCTION" 2. Steering pad switch circuit 3. Power source circuit (multi-display) 4. Replace multi-display	05-1902 05-1962 05-1933 67-7
Touch panel switch does not function.	1. "TOUCH PANEL SWITCH DOES NOT FUNCTION" 2. Steering pad switch circuit 3. Power source circuit (multi-display) 4. Replace multi-display	05-1903 05-1962 05-1933 67-7
Screen is distorted.	1. Display signal circuit (navigation ECU – multi-display) 2. Replace navigation ECU 3. Replace multi-display	05-1949 67-23 67-7
Screen flicker or color distortion.	1. "SCREEN FLICKER OR COLOR DISTORTION" 2. Display signal circuit (navigation ECU – multi-display) 3. Replace navigation ECU 4. Replace multi-display	05-1904 05-1949 67-23 67-7
No switches function while vehicle is running	1. Speed signal circuit (multi-display – combination meter Assy)	05-1940

Navigation function

Symptom	Verification	See page
Map disc cannot be inserted.	1. "MAP DISC CANNOT BE INSERTED" 2. Power source circuit (navigation ECU) 3. Replace navigation ECU	05-1906 05-1935 67-23
Map disc cannot be ejected.	1. Power source circuit (navigation ECU) 2. Replace navigation ECU	05-1935 67-23
Vehicle position mark deviates greatly.	1. "VEHICLE POSITION MARK DEVIATES GREATLY" 2. Replace GPS antenna assy 3. Replace navigation ECU	05-1907 67-22 67-23
Cursor or map rotates when vehicle is stopped.	1. "CURSOR OR MAP ROTATES WHEN VEHICLE IS STOPPED" 2. Replace navigation ECU	05-1909 67-23
Vehicle position mark is not updated.	1. "VEHICLE POSITION MARK IS NOT UPDATED" 2. Replace map disc 3. Replace navigation ECU	05-1910 – 67-23
Current position display does not appear.	1. "CURRENT POSITION DISPLAY DOES NOT APPEAR" 2. Replace map disc 3. Replace navigation ECU	05-1911 – 67-23
GPS mark is not displayed.	1. "GPS MARK IS NOT DISPLAYED" 2. Replace GPS antenna assy 3. Replace navigation ECU	05-1912 67-22 67-23
Voice guidance does not function.	1. "VOICE GUIDANCE DOES NOT FUNCTION" 2. Mute signal circuit (stereo component amplifier assy – navigation ECU) 3. Speaker circuit (navigation voice) 4. Replace map disc 5. Replace stereo component amplifier assy 6. Replace navigation ECU	05-1914 05-1973 05-1947 – 67-25 67-23
Map display incomplete	1. "MAP DISPLAY INCOMPLETE" 2. Replace map disc 3. Replace navigation ECU	05-1917 – 67-23
Route cannot be calculated.	1. "ROUTE CANNOT BE CALCULATED" 2. Replace map disc 3. Replace navigation ECU	05-1918 – 67-23
Voice recognition difficulty	1. "VOICE RECOGNITION DIFFICULTY" 2. Replace navigation ECU	05-1922 67-23
Voice is not recognized.	1. "VOICE IS NOT RECOGNIZED" 2. Microphone circuit (overhead J/B – multi-display) 3. Microphone circuit (multi-display – navigation ECU) 4. Replace microphone 5. Replace microphone amplifier 6. Replace navigation ECU 7. Replace multi-display	05-1924 05-1953 05-1955 – – 67-23 67-7

Steering pad function

Symptom	Verification	See page
Voice navigation cannot be operated with steering pad switch.	1. Steering pad switch circuit 2. Replace steering pad switch 3. Replace navigation ECU	05-1962 67-28 67-29 67-23

Bluetooth function

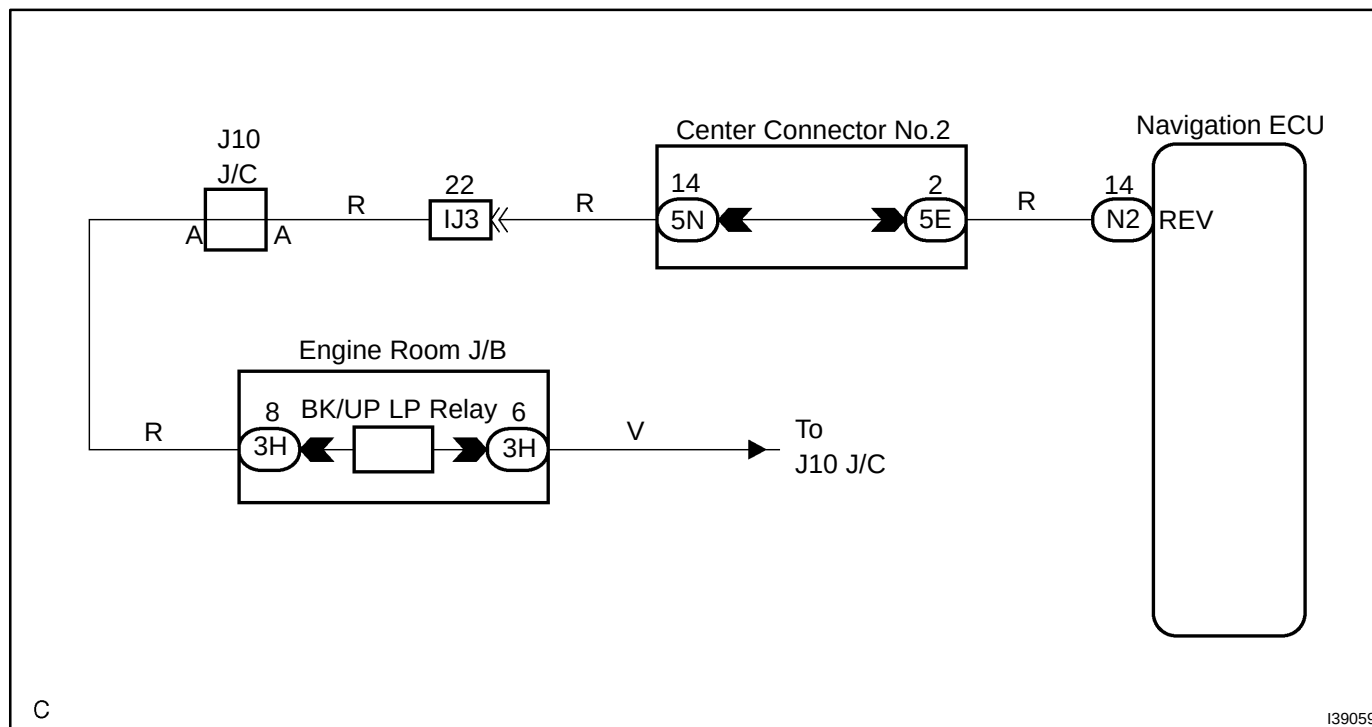
Symptom	Verification	See page
Cellular phone registration failure, phone directory transfer failure	1. "CELLULAR PHONE REGISTRATION FAILURE, PHONE DIRECTORY TRANSFER FAILURE"	05-1925
The cellular phone cannot send/receive.	1. "THE CELLULAR PHONE CANNOT SEND/RECEIVE" 2. "OWN VOICE CANNOT BE HEARD, TOO QUIET OR DISTORTED" 3. Cellular phone voice circuit (multi-display – navigation ECU) 4. Replace navigation ECU 5. Replace multi-display	05-1927 05-1931 05-1951 67-23 67-7
Cannot call in a certain place.	1. "CANNOT CALL IN A CERTAIN PLACE"	05-1929
Voice on phone cannot be heard, too quiet, or distorted.	1. "VOICE ON PHONE CANNOT BE HEARD, TOO QUIET OR DISTORTED" 2. Cellular phone voice circuit (multi-display – navigation ECU) 3. Replace navigation ECU 4. Replace multi-display	05-1931 05-1951 67-23 67-7
Own voice cannot be heard, too quiet or distorted.	1. "OWN VOICE CANNOT BE HEARD, TOO QUIET OR DISTORTED"	05-1931

REVERSE SIGNAL CIRCUIT

CIRCUIT DESCRIPTION

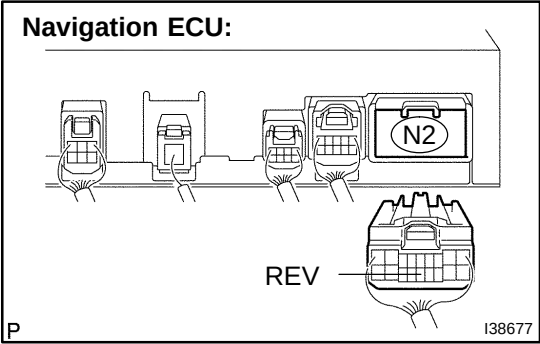
The navigation ECU receives the reverse signal from the passenger side J/B ECU and information about the GPS antenna, and then adjusts the vehicle position.

WIRING DIAGRAM



INSPECTION PROCEDURE

1 INSPECT NAVIGATION ECU



- (a) Disconnect the connector from navigation ECU N2.
- (b) Measure the resistance according to the value(s) in the table below.

Standard:

Tester connection	Condition	Specified condition
REV – Body ground	Shift lever is moved to R position.	10 to 14 V
REV – Body ground	Shift lever is moved to except R position.	Below 1 V

NG

REPAIR OR REPLACE HARNESS OR CONNECTOR

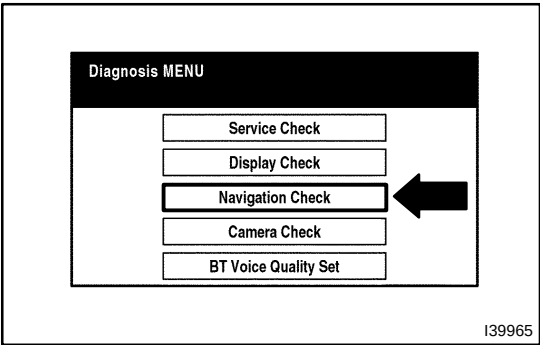
OK

REPLACE NAVIGATION ECU (SEE PAGE 67-23)

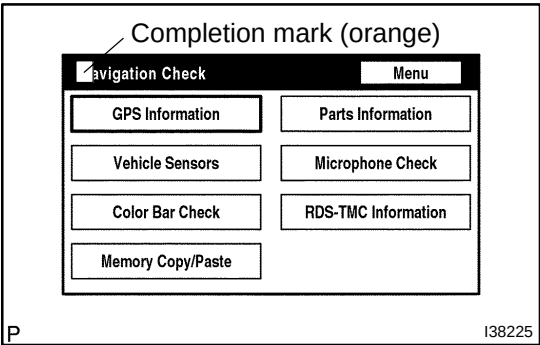
SCREEN NOISE AUTOMATIC ADJUSTMENT

HINT:

- This adjustment is performed to reduce noise when screen noise occurs upon replacing the multi-display, the navigation ECU or the television camera ECU.
 - 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.
 - Perform both procedures below when the multi-display is replaced.
1. **When either the multi-display or the navigation ECU is replaced:**

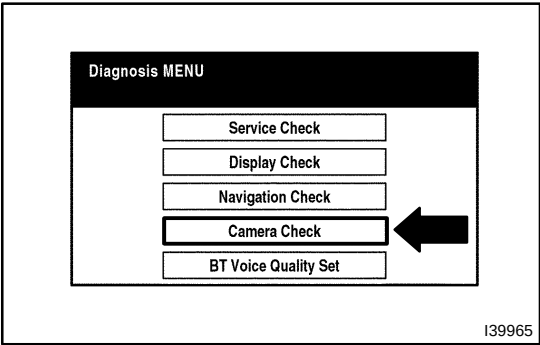


- (a) Turn the power switch to the ON (ACC) position and wait for at least 6 seconds to activate the diagnostic mode (see page 05-1881).
- (b) Select "Navigation Check" from the "Diagnosis MENU" screen.

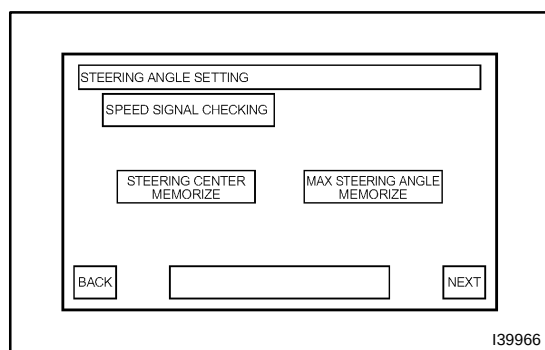


- (c) The screen enters "Navigation Check" with a beeping sound. Adjustment is completed when the completion mark is displayed.
- (d) Cancel the diagnostic mode (see page 05-1881).

2. **When either the multi-display or the television camera ECU is replaced:**



- (a) Turn the power switch to the ON (ACC) position and wait for at least 6 seconds to activate the diagnostic mode (see page 05-1881).
- (b) Select "Camera Check" from the "Diagnosis MENU" screen.



(c) Adjustment is completed when the steering angle setting screen is displayed.

(d) Cancel the diagnostic mode (see page [05-1881](#)).

HINT:

- If the automatic adjustment is not performed (only step 1) only upon replacing the multi-display, a beeping sound can be heard for 3 seconds (while the initial screen is displayed) after turning the power switch to the ON (ACC) position.
- Perform the automatic adjustment again if a beeping sound can be heard within 3 seconds.

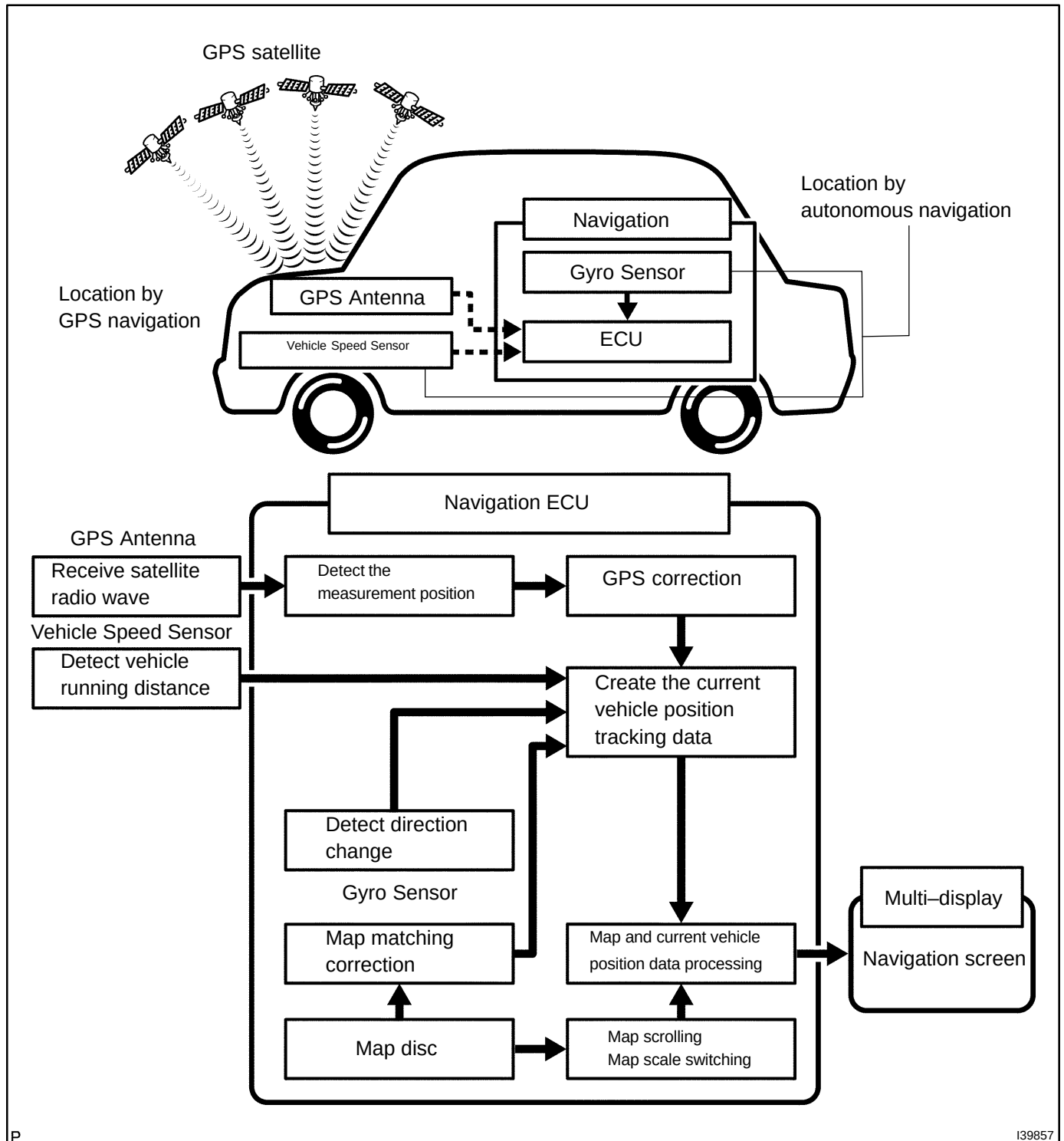
SYSTEM DESCRIPTION

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.

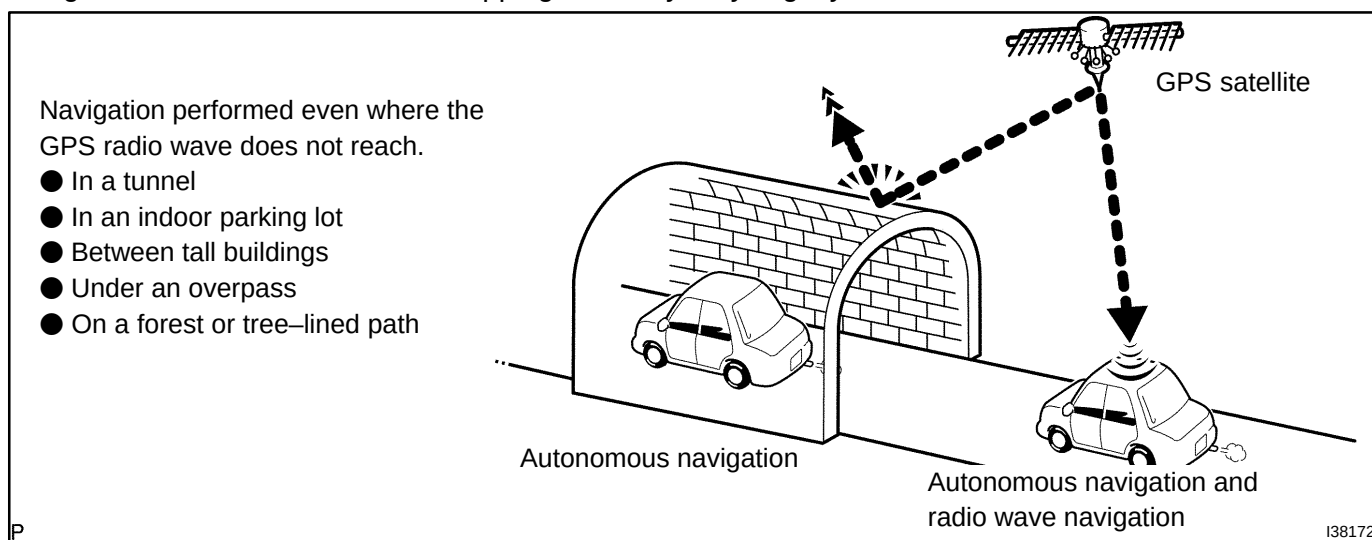
*GPS (Global Positioning System)



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.
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.



(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 radio and navigation assy.

(2) Vehicle speed sensor

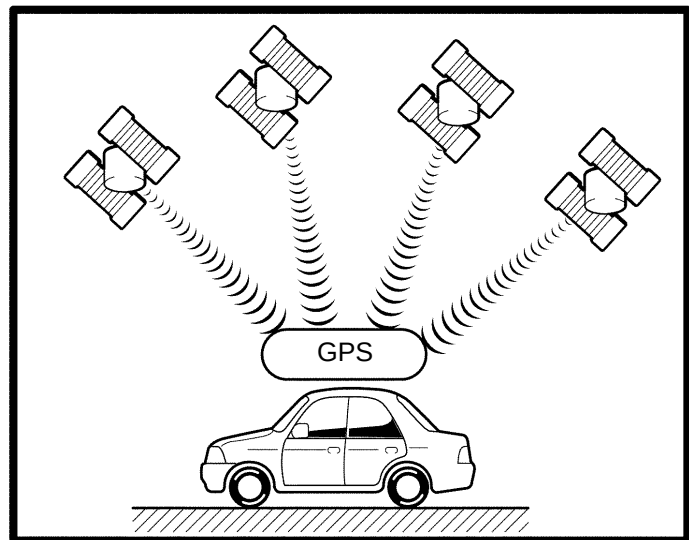
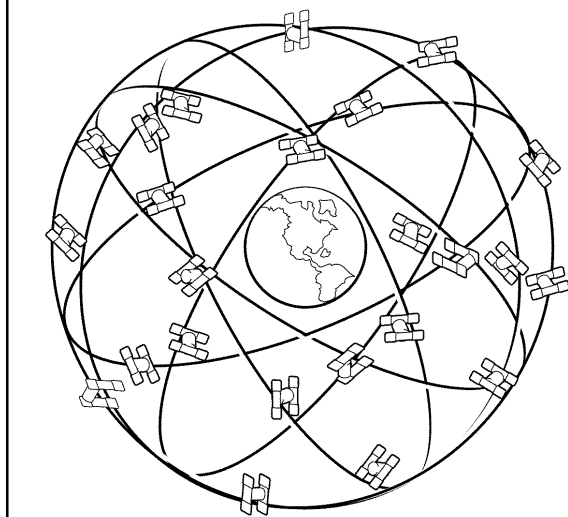
Used to calculate the vehicle running distance.

(c) GPS navigation (Satellite navigation)

This method detects the absolute vehicle position using radio wave 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.



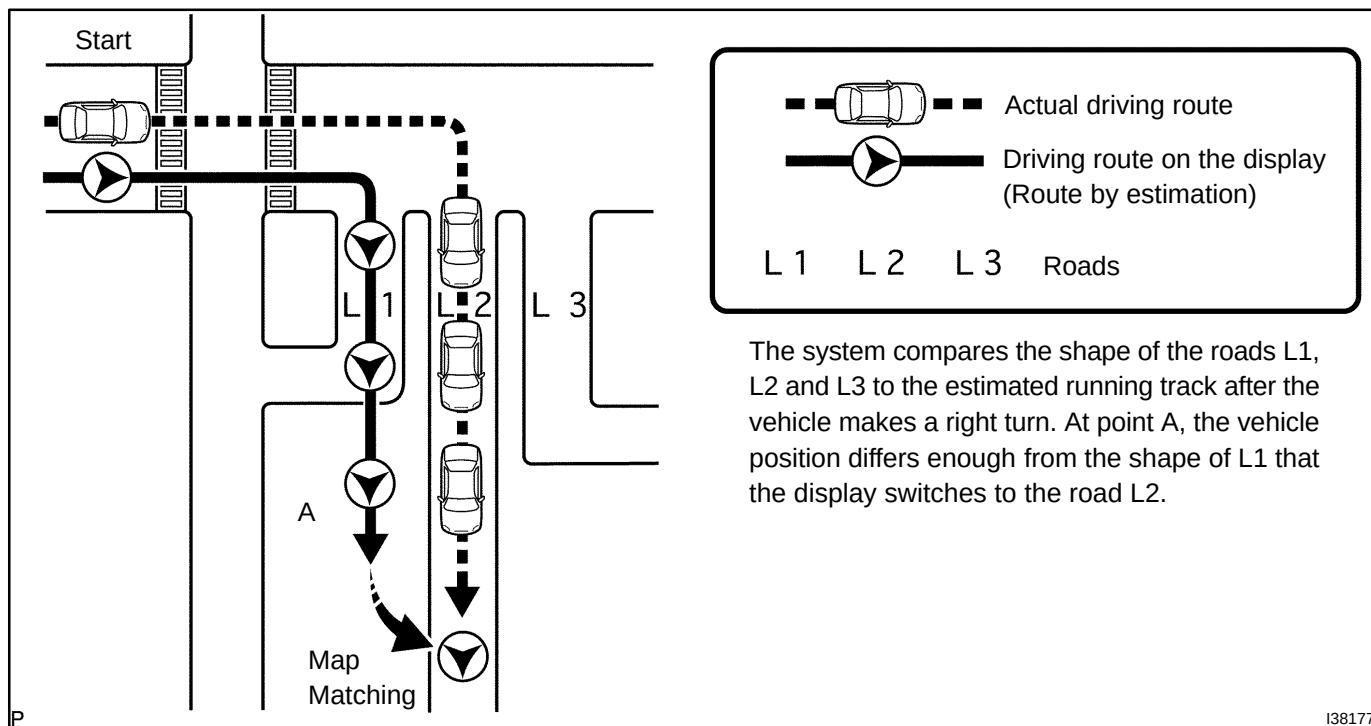
P

I38174

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.



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.

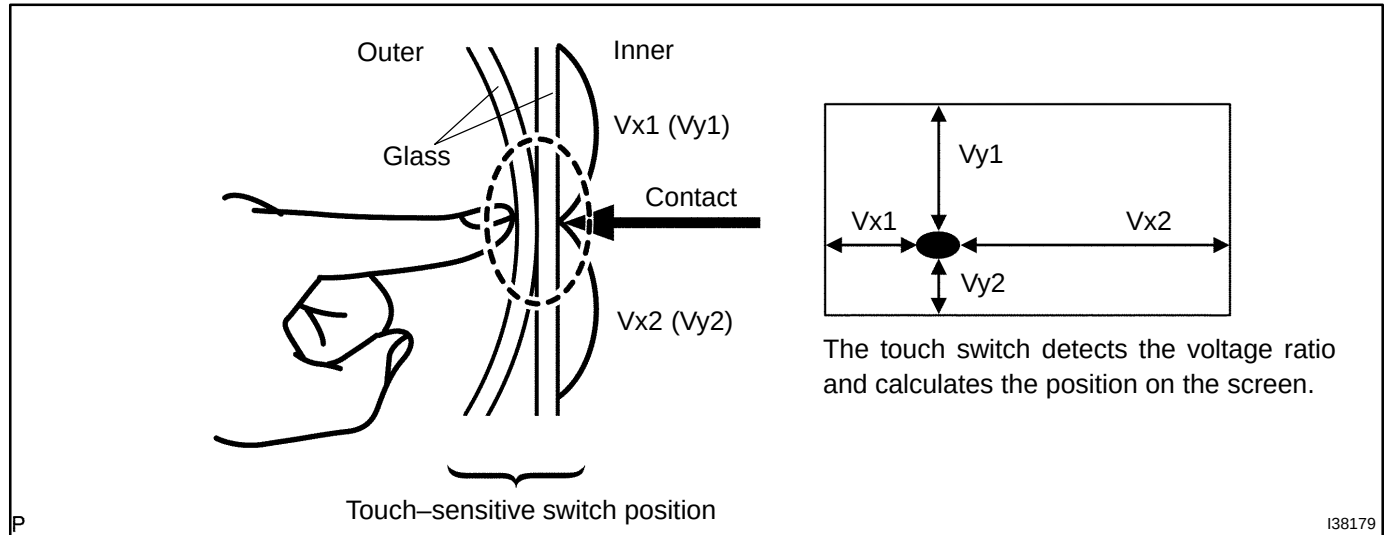
CAUTION:

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

3. Multi-display outline

(a) Touch switch

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



4. 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.

Example:



P

I39082

(b) Purpose:

Recently, car audio systems have rapidly developed and the functions 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 +B or GND short 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 assy is equipped, it is the master unit.
- The radio receiver assy 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.

5. Communication system outline

- (a) Components of the navigation system communicate with each other via the AVC-LAN.
- (b) Radio receiver assy has enough resistance (60 to 80 Ω) necessary for transmitting the communication. This is essential for communication.
- (c) If a short circuit or open circuit occurs in the AVC-LAN circuit, communication is interrupted and the audio system will stop functioning.

6. Diagnostic function outline

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

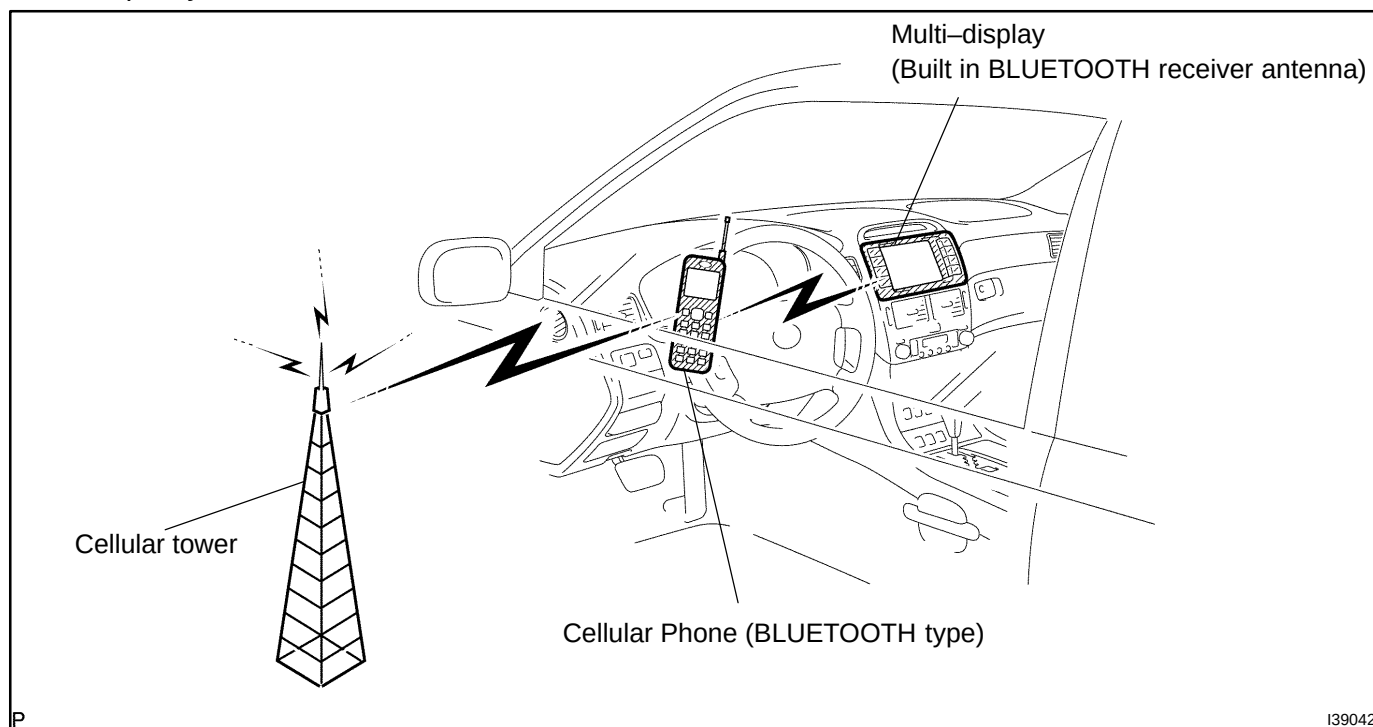
7. Bluetooth outline

- (a) BLUETOOTH is a new wireless connection technology that uses the 2.4 GHz frequency band. This makes it possible to connect a cellular phone (BLUETOOTH capable phone^{*1}) to the multi-display (BLUETOOTH system is built in), and use a hands-free function with the cellular phone in a pocket or bag. As a result, it is not necessary to use a connector for the cellular phone.

^{*1}: Some versions of BLUETOOTH capable cellular phone may not function.

HINT:

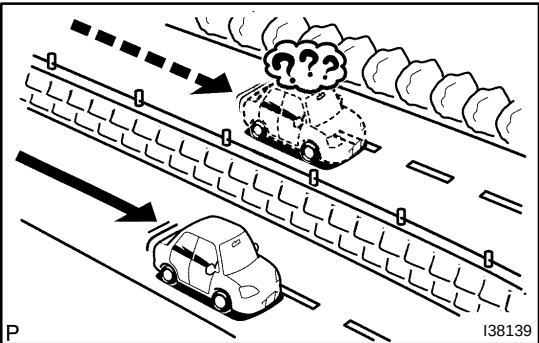
The communication performance of BLUETOOTH may vary depending on obstructions or radio wave conditions between communication devices, electromagnetic radiation, communication device sensitivity, or antenna capacity.



SYSTEM NORMAL CONDITION CHECK

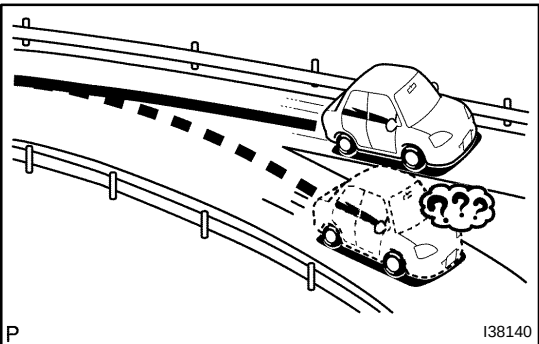
(f) If the symptom is applicable to any of the following, it is intended behavior, and not a malfunction.

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.

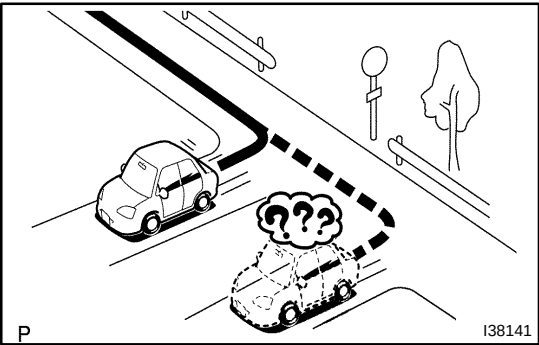


(g) The following symptoms are not a malfunction, but are caused by errors inherent in the GPS, gyro sensor, speed sensor, and navigation ECU.

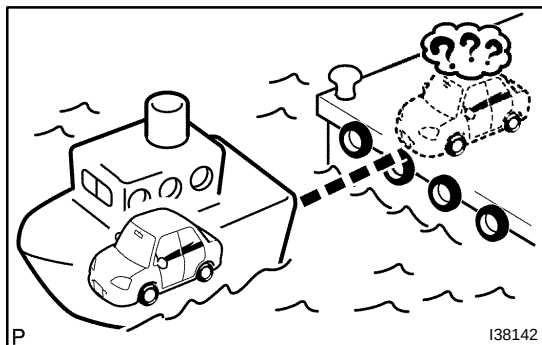
(1) The current position mark may be displayed on a nearby parallel road the vehicle actually runs on.



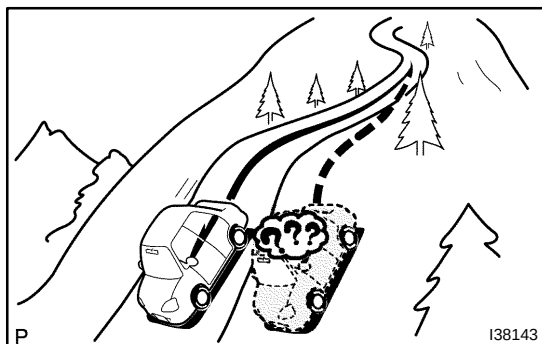
(2) Immediately after a fork in the road, the current vehicle position mark may be displayed on the wrong road.



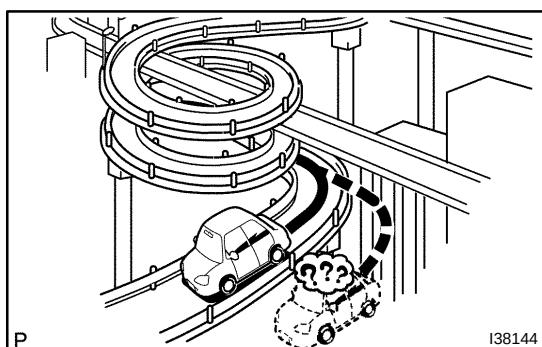
(3) When the vehicle turns right or left at an intersection, the current vehicle position mark may be displayed on a nearby parallel road.



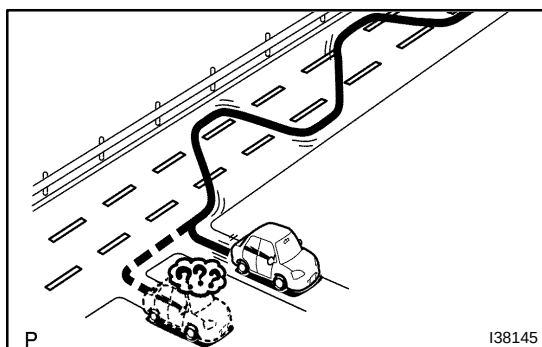
- (4) When the vehicle is carried, such as on a ferry, and the vehicle itself is not running, the current vehicle position mark may be displayed in the position where the vehicle was until a measurement can be performed by GPS.



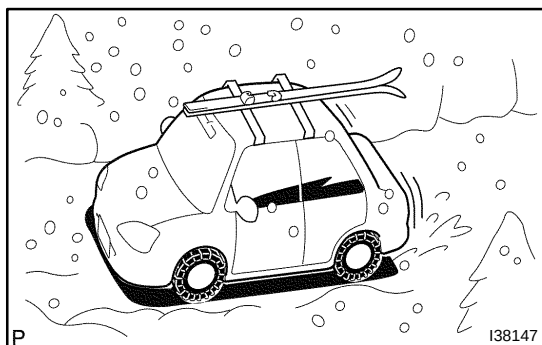
- (5) When the vehicle runs on a steep hill, the current vehicle position mark may deviate from the correct position.



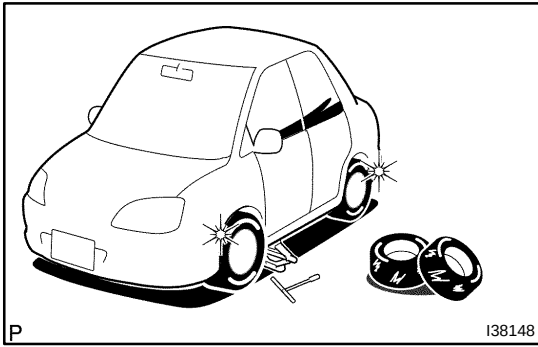
- (6) When the vehicle makes a continuous turn of 360, 720, 1,080, etc. degrees, the current vehicle position mark may deviate from the correct position.



- (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 power switch is put into the ACC/OFF position on a turn table 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 the 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:

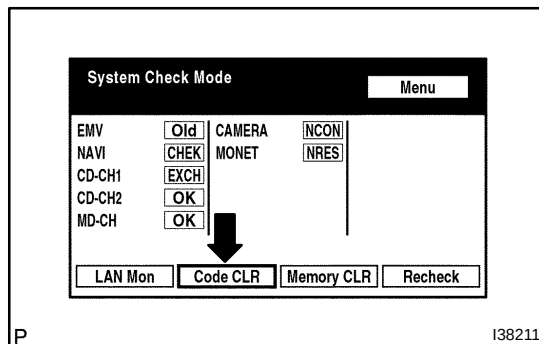
- Diameter of the tire may change, causing a speed sensor error.
- Performing the "tire change" in calibration mode will allow the system to correct the current vehicle position faster.

SYSTEM CHECK MODE (DTC CLEAR/RECHECK)

HINT:

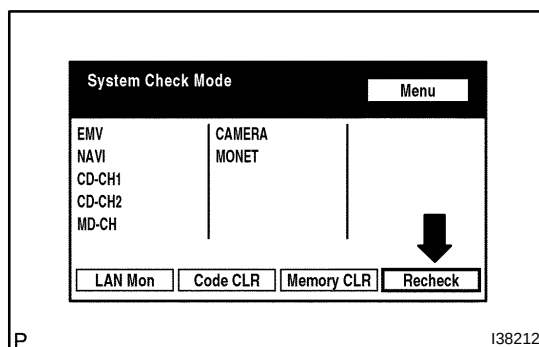
Illustrations may differ from the actual vehicle depending on the device settings and options. Therefore, some detailed areas may not be shown exactly the same as on the actual vehicle.

1. Enter the diagnostic mode (see page 05-1881).



2. Clear DTC

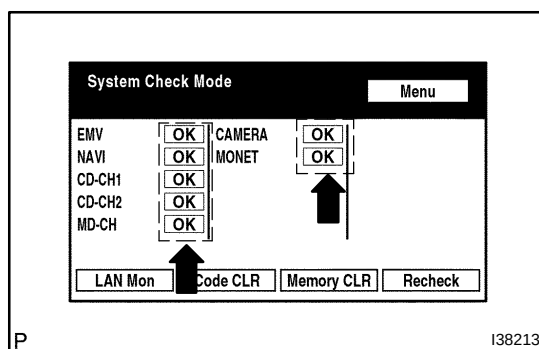
- (a) Press the "Code CLR" switch for 3 seconds.



- (b) Check result is cleared.

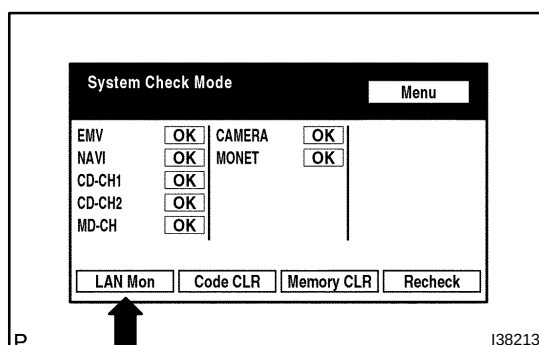
3. Recheck

- (a) Press the "Recheck" switch.

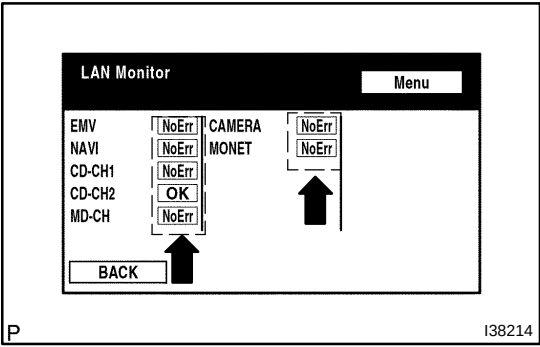


- (b) Confirm that all diagnostic codes are "OK" when the check results are displayed.

If a code other than "OK" is displayed, troubleshoot again.



- (c) Press the "LAN Mon" switch to change to "LAN Monitor" mode.



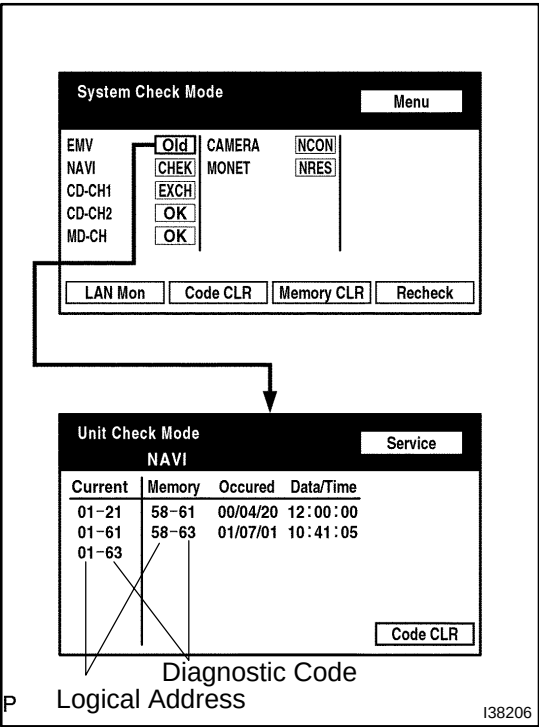
(d) Confirm that all diagnostic codes are "No Err".
If a code other than "No Err" is displayed, troubleshoot again.

SYSTEM CHECK MODE (DTC CHECK)

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.

1. Start the diagnostic mode (see page 05-1881).

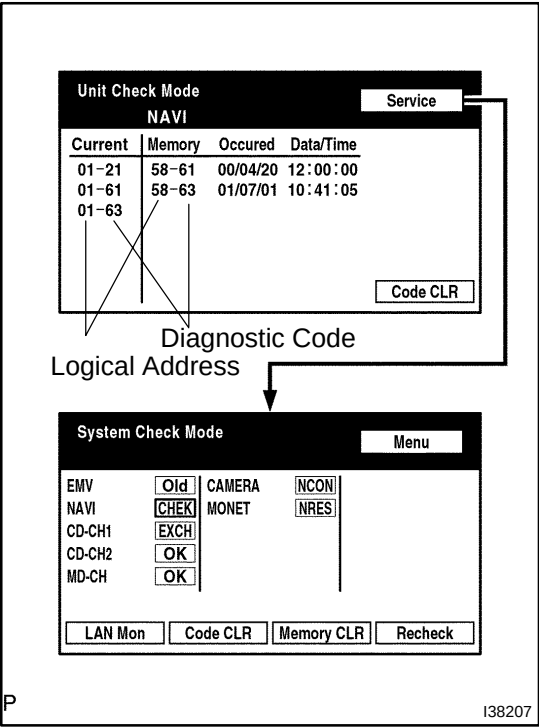


2. Read the system check result.

(a) If all check results of other devices are "EXCH," "CHEK" or "Old," touch the display to check the contents on the "Unit Check Mode" screen and record them on the customer problem analysis check sheet.

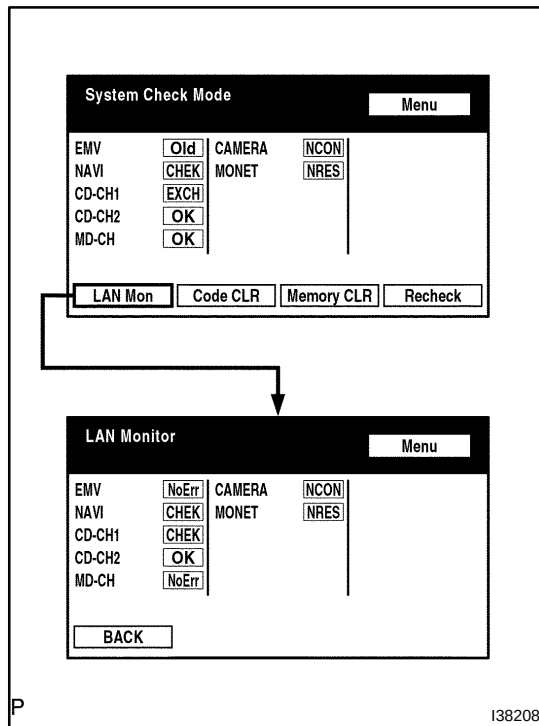
HINT:

- If all check results are "OK," go to communication DTC check (go to step 3).
- If a device name is not known, its physical address is displayed.

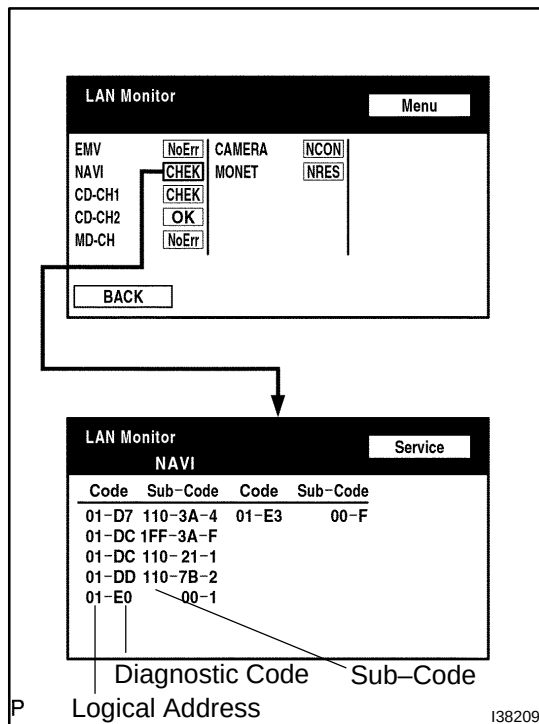


HINT:

If "EXCH", "CHEK" and "Old" as well as "OK" exist, press the service switch to return to the "System Check Mode". Then, check the "Unit Check Mode" screen and record them on the customer problem analysis check sheet.



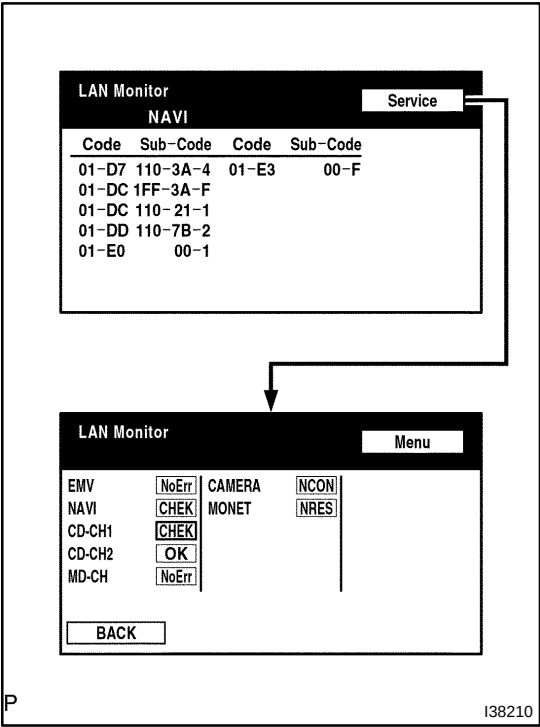
- 3. Read the communication diagnostic check result.**
- (a) Return to the "System Check Mode", and press "LAN Mon" switch to enter the LAN monitor screen.



- (b) If the result is "CHEK" or "Old," touch the result switch to check the contents on the individual communication diagnostic screen and record them on the customer problem analysis check sheet.

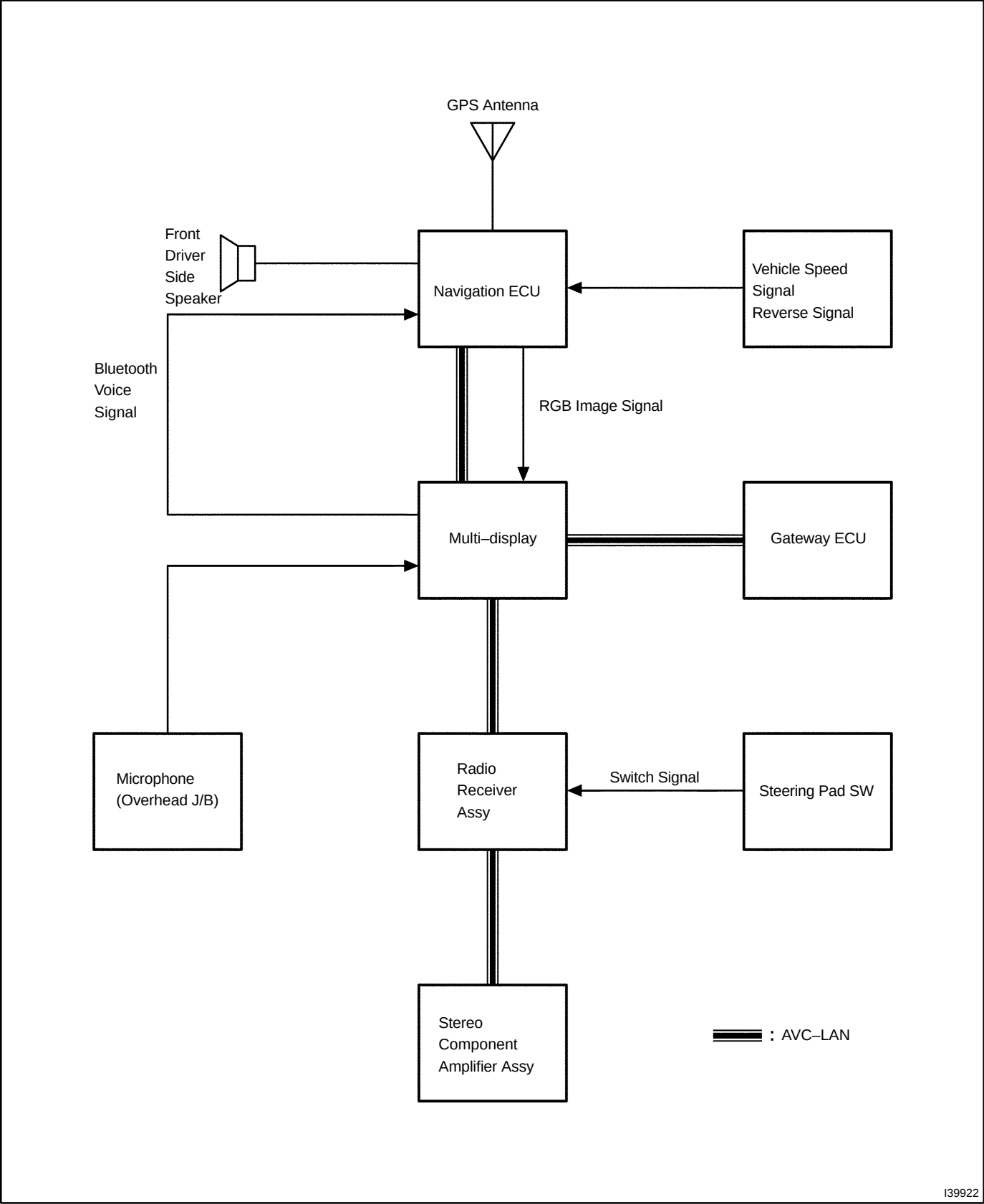
HINT:

- If all check results are "No Err," the system judges that no DTC exists.
- The sub-code (relevant device) will be indicated by its physical address.



HINT:
If check results of other devices are "CHEK," press the "Service" switch to return to the original "LAN Monitor" screen. Then, check the individual communication diagnostic screen for the next device and record the result on the customer problem analysis check sheet.

SYSTEM DIAGRAM



cardiagn.com

CUSTOMER PROBLEM ANALYSIS CHECK

NAVIGATION SYSTEM Check Sheet

Inspector's name: _____

Customer's Name		VIN	
		Production Date	
		Licence Plate No.	
Date Vehicle Brought in	/ /	Odometer Reading	km mile

Date Problem First Occurred	/ /
Frequency Problem Occurs	☐ Always ☐ Intermittently (Times a day)

DTC Check

1st time trouble code.

Unit Check Mode			
Current	Memory	Occured	Data/Time

LAN Monitor			
Code	Sub-Code	Code	Sub-Code

2nd time trouble code.

Unit Check Mode			
Current	Memory	Occured	Data/Time

LAN Monitor			
Code	Sub-Code	Code	Sub-Code

Problem Symptom

DIAGNOSTIC TROUBLE CODE CHART

Terms	Description
Physical address	3-digit, hexadecimal code assigned to all components connected to the AVC-LAN. Individual symbols are specified based on function. Units whose names are unknown or relevant units are displayed with physical addresses.
Logical address	2-digit, hexadecimal code assigned to all the functions in the AVC-LAN system.

HINT:

Titles for each unit are stated in the following order: parts name (physical address) [Name indicated by DTC]

1. MULTI-DISPLAY (physical address: 110) [EMV]

(a) Logical address: 01 (Communication control)

DTC	Name	Diagnosis	Verification	See page
D5	Absence of registration unit	A device that the sub code shows is (was) disconnected from the system when turning the power switch to the ON (ACC) or ON (ON) position. The communication condition with the device that the code shows cannot be obtained when the system starts.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
D8	No response for connection check	The device indicated by the sub code is (was) disconnected from the system after system start.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
D9	Last mode error	The device (for audio visual system) that had functioned before the system stopped is (was) disconnected from the system when the power switch is (was) in the ON (ACC) or ON (ON) position.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DA	No response against ON/OFF command	No response is identified when changing mode (audio and visual mode change). Detected when sound and image do not change by switch operation.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DB	Mode status error	This code detects a dual alarm.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DC	Failure in transmission	This code indicates a transmission failure to the device indicated by the sub code. NOTE: This DTC may have no direct relationship with the malfunction.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DE	Slave reset	This code is stored when a slave device has been disconnected after system start.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
21	ROM error	This code is output when a malfunction exists in ROM.	Replace multi-display	67-7
22	RAM error	This code is output when a malfunction exists in RAM.	Replace multi-display	67-7

(b) Logical address: 21 (SW): 23 (SW with name): 24 (SW converting): 25 (command SW)

DTC	Name	Diagnosis	Verification	See page
10	Panel switch error	The panel SW detection circuit has a failure.	Replace multi-display	67-23

2. NAVIGATION ECU (Physical address: 178) [NAVI]

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
D6	No master	When either the following condition meets. • The device that stores (stored) the code has (had) been disconnected when the power switch is in ON (ACC) or ON (ON) position. • The master device has (had) been disconnected when this code is stored.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (navigation ECU-multi-display) 3. Power source circuit (navigation ECU) 4. Replace multi-display 5. Replace navigation ECU	05-1933 05-1967 05-1935 67-7 67-23
D7	Connection check error	When either the following condition meets. • The device that stored this code has (had) been disconnected after the system starts (started). • The master device has (had) been disconnected when this code is (was) stored.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (navigation ECU-multi-display) 3. Power source circuit (navigation ECU) 4. Replace multi-display 5. Replace navigation ECU	05-1933 05-1967 05-1935 67-7 67-23
DC	Transmission error	The device stores the fact that transmission to the device indicated by the sub code has failed.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DD	Master reset	When the device that should be the master has been disconnected after system starts.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (navigation ECU-multi-display) 3. Replace multi-display	05-1933 05-1967 67-7
DF	Master error	When the device with a display fails and the master is switched to the audio device. Also when a communication error between sub master (audio) and master occurs, this code is stored.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (navigation ECU-multi-display) 3. Replace multi-display	05-1933 05-1967 67-7
E0	Registration complete indication error	When "Registration complete" command from the master device cannot be received.	This code will be detected when signal receiving time is delayed.	–
E1	Voice processing device ON error	When the AMP device records that the AMP output does not function even while the source device operates.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (navigation ECU-multi-display) 3. Replace multi-display	05-1933 05-1967 67-7
E2	ON/OFF indication parameter error	When the command for ON/OFF control from the master device has a problem.	Replace multi-display	67-7
E3	Registration demand transmission	When the registration demand command from the slave device is output, or when the registration demand command is output by receiving connection confirmation command from the sub master device.	–	–
E4	Multiple frame incomplete	When the multiple frame transmission ends incomplete.	–	–

(b) Logical address: 58 (Navigation): 80 (GPS)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
10	Gyro error	Ground short, power supply short, or open circuit in the gyro signal, gyro failure.	1. Inspect the gyro error 2. Replace GPS antenna 3. Replace navigation ECU	05–1919 67–22 67–23
11	GPS receiver error	RTC, ROM, and RAM of the GPS receiver and TCXO errors. GPS receiver is failed.	Replace navigation ECU	67–23
40	GPS antenna error	GPS antenna error	1. Replace GPS antenna 2. Replace navigation ECU	67–22 67–23
41	GPS antenna power source error	Error of the power source to the GPS antenna	1. Replace GPS antenna 2. Replace navigation ECU	67–22 67–23
42	Map disc read error	Player error. A scratch or dirt on the disc. Access to an invalid address due to software error.	1. Inspect map disc read error 2. Replace map disc 3. Replace navigation ECU	05–1920 – 67–23
43	SPD signal error	The difference between the GPS speed and SPD pulse is detected.	1. Inspect speed signal error 2. Speed signal circuit 3. Replace navigation ECU	05–1921 05–1937 67–23

3. RADIO RECEIVER ASSY (Physical address: 190) [AUDIO H/U]

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
D6	No master	When either the following condition meets. • The device that stores (stored) the code has (had) been disconnected when the power switch is in ON (ACC) or ON (ON) position. • The master device has (had) been disconnected when this code is stored.	1. Power source circuit (multi–display) 2. AVC–LAN circuit (multi–display – radio receiver assy) 3. Power source circuit (radio receiver assy) 4. Replace multi–display 5. Replace radio receiver assy	05–1933 05–1971 05–1793 67–7 67–5
D7	Connection check error	When either the following condition meets. • The device that stored this code has (had) been disconnected after the system starts (started). • The master device has (had) been disconnected when this code is (was) stored.	1. Power source circuit (multi–display) 2. AVC–LAN circuit (multi–display – radio receiver assy) 3. Power source circuit (radio receiver assy) 4. Replace multi–display 5. Replace radio receiver assy	05–1933 05–1971 05–1793 67–7 67–5
DC	Transmission error	The device stores the fact that transmission to the device indicated by the sub code has failed.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DD	Master reset	When the device that should be the master has been disconnected after system starts.	1. Power source circuit (multi–display) 2. AVC–LAN circuit (multi–display – radio receiver assy) 3. Replace multi–display	05–1933 05–1971 67–7
DF	Master error	When the device with a display fails and the master is switched to the audio device. Also when a communication error between sub master (audio) and master occurs, this code is stored.	1. Power source circuit (multi–display) 2. AVC–LAN circuit (multi–display – radio receiver assy) 3. Replace multi–display	05–1933 05–1971 67–7

DIAGNOSTICS – NAVIGATION SYSTEM

E0	Registration complete indication error	When "Registration complete" command from the master device cannot be received.	This code will be detected when signal receiving time is delayed.	–
E1	Voice processing device ON error	When the AMP device records that the AMP output does not function even while the source device operates.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Replace multi-display	05-1933 05-1971 67-7
E2	ON/OFF indication parameter error	When the command for ON/OFF control from the master device has a problem.	Replace multi-display	67-7
E3	Registration demand transmission	When the registration demand command from the slave device is output, or when the registration demand command is output by receiving connection confirmation command from the sub master device.	–	–
E4	Multiple frame incomplete	When the multiple frame transmission ends incomplete	–	–

(b) Logical address: 01 (Communication control)

DTC	Name	Diagnosis	Verification	See page
D5	Absence of registration unit	A device that the sub code shows is (was) disconnected from the system when turning the power switch to the ON (ACC) or ON (ON) position. The communication condition with the device that the code shows cannot be obtained when the system starts.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
D8	No response for connection check	The device indicated by the sub code is (was) disconnected from the system after system start	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
D9	Last mode error	The device (for audio visual system) that had functioned before the system stopped is (was) disconnected from the system when the power switch is (was) in the ACC or ON position.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DA	No response against ON/OFF command	No response is identified when changing mode (audio and visual mode change). Detected when sound and image do not change by switch operation.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DB	Mode status error	This code detects a dual alarm.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DC	Failure in transmission	This code indicates a transmission failure to the device indicated by the sub code. NOTE: This DTC may have no direct relationship with the malfunction.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DE	Slave reset	This code is stored when a slave device has been disconnected after system start.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6

(c) Logical address: 60 (Radio)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
10	AM tuner PLL does not lock	The PLL circuit in the AM tuner is abnormal.	1. After clearing the DTC, check the antenna wiring. 2. If the same code is detected, replace the radio receiver Assy.	– 67-5
11	FM tuner PLL does not lock	The PLL circuit in the FM tuner is abnormal.	1. After clearing the DTC, check the antenna wiring. 2. If the same code is detected, replace the radio receiver Assy.	– 67-5
40	Antenna is not connected	The antenna is disconnected.	1. After clearing the DTC, check the antenna wiring. 2. If the same code is detected, replace the radio receiver Assy.	– 67-5
41	Antenna power source error	The power source system of the antenna is abnormal.	1. After clearing the DTC, check the antenna wiring. 2. If the same code is detected, replace the radio receiver Assy.	– 67-5
42	Tuner power source error	The power source of the tuner is abnormal.	1. Power source circuit (radio receiver Assy) 2. Replace radio receiver Assy	05-1793 67-5
43	AM tuner error	The AM tuner is abnormal.	Replace radio receiver Assy	67-5
44	FM tuner error	The FM tuner is abnormal.	Replace radio receiver Assy	67-5
45	SW tuner error	The SW tuner is abnormal.	Replace radio receiver Assy	67-5

(d) Logical address: 62 (CD): 63 (CD changer)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
10	CD player mechanical error	A mechanical error in the CD player is detected while the CD is not being inserted or ejected.	Replace radio receiver Assy	67-5
11	CD insertion & eject error	CD insertion or ejection is failed.	Replace radio receiver Assy	67-5
12	CD reading abnormal	CD read problem occurs.	Replace radio receiver Assy	67-5
40	No disc	No disc is inserted.	1. Check whether the CD is inserted or not. If the CD is inserted, check whether it can be ejected or not. If it cannot be ejected, replace radio receiver Assy. 2. Inspect CD. 3. If the same code is detected, replace the radio receiver Assy	67-5 05-1836 67-5
41	Wrong disc	An unsuitable disc is inserted.	1. Inspect CD. 2. If the same code is detected, replace the radio receiver Assy	05-1836 67-5
42	Disc cannot be read	The disc cannot be read.	1. Inspect CD. 2. If the same code is detected, replace the radio receiver Assy	05-1836 67-5

DIAGNOSTICS – NAVIGATION SYSTEM

43	CD-ROM abnormal	CD-ROM operation is abnormal.	Replace radio receiver assy	67-5
44	CD abnormal	Operation error in the CD mechanism (except for code 10).	1. After clearing the DTC, check the malfunction symptom. 2. If the same code is detected, replace the radio receiver assy	– 67-5
45	EJECT error	Magazine cannot be ejected	Replace radio receiver assy	67-5
46	Disc has scratches in the reverse surface	CD has a dirt or scratches in the reverse side	1. Inspect CD. 2. If the same code is detected, replace the radio receiver assy	05-1836 67-5
47	CD temperature is high	The sensor detects that the CD unit temperature is high.	1. Park the vehicle in a cool place. Turn the system off. After checking that the temperature of the radio and navigation assy becomes sufficiently low, turn the system on in order to verify the malfunction symptom. 2. If the same code is detected, replace the radio receiver assy	– 67-5
48	Excess current	Excess current is applied to the disc player changer	Replace radio receiver assy	67-5
50	Tray insertion/ejection error	Malfunction insertion/ejection system	Replace radio receiver assy	67-5
51	Elevator error	Mechanical error occurred during elevator operation	Replace radio receiver assy	67-5
52	Clamp error	Clamp unusually generating	Replace radio receiver assy	67-5

(e) Logical address: 61 (Cassette)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
10	Belt cut	The inside belt is cut or come off.	Replace radio receiver assy	67-5
40	Mechanical error of media	A malfunction due to mechanical problem, cassette tape is cut or entangled.	1. Replace the cassette tape and recheck the symptom. 2. If the same code is detected, replace the radio receiver assy	– 67-5
41	EJECT error	A malfunction due to mechanical problem.	Replace radio receiver assy	67-5
42	Tape tangling	Cassette tape is tangled.	Replace radio receiver assy	67-5
43	Head dirt	Head is dirty.	1. Clean the head and recheck the symptom. 2. If the same code is detected, replace the radio receiver assy	– 67-5
44	Device power supply problem	A short or open in the power circuit.	1. Power source circuit (radio receiver assy) 2. Replace radio receiver assy	05-1793 67-5

4. GATEWAY ECU (Physical address: 1C6) [G/W]

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
D4	Regular Communication Error	Component in which this code is recorded has been disconnected from system with power in the ACC or ON position. Either that, or the multi-display was disconnected when this code was recorded.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – gateway ECU) 3. Replace multi-display 4. Replace gateway ECU	05-1933 05-1969 67-7 –

5. STEREO COMPONENT AMPLIFIER ASSY (Physical address: 440) [DSP AMP]

(a) Logical address: 01 (Communication control)

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

DTC	Name	Diagnosis	Verification	See page
D6	No master	When either the following condition meets. • The device that stores (stored) the code has (had) been disconnected when the power switch is in ON (ACC) or ON (ON) position. • The master device has (had) been disconnected when this code is stored.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Power source circuit (stereo component amplifier assy) 4. AVC-LAN circuit (radio receiver assy – stereo component amplifier assy) 5. Replace multi-display 6. Replace stereo component amplifier assy	05-1933 05-1971 05-1796 05-1824 67-7 67-25
D7	Connection check error	When either the following condition meets. • The device that stored this code has (had) been disconnected after the system starts (started). • The master device has (had) been disconnected when this code is (was) stored.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Power source circuit (stereo component amplifier assy) 4. AVC-LAN circuit (radio receiver assy – stereo component amplifier assy) 5. Replace multi-display 6. Replace stereo component amplifier assy	05-1933 05-1971 05-1796 05-1824 67-7 67-25
DC	Transmission error	The device stores the fact that transmission to the device indicated by the sub code has failed.	Inspection for the device indicated by the sub code. (Refer to the inspection list for the device indicated by the sub code.)	Refer to step 6
DD	Master reset	When the device that should be the master has been disconnected after system starts.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Replace multi-display	05-1933 05-1971 67-7
DF	Master error	When the device with a display fails and the master is switched to the audio device. Also when a communication error between sub master (audio) and master occurs, this code is stored.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Replace multi-display	05-1933 05-1971 67-7
E0	Registration complete indication error	When "Registration complete" command from the master device cannot be received.	This code will be detected when signal receiving time is delayed.	–
E1	Voice processing device ON error	When the AMP device records that the AMP output does not function even while the source device operates.	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Replace multi-display	05-1933 05-1971 67-7
E2	ON/OFF indication parameter error	When the command for ON/OFF control from the master device has a problem.	Replace multi-display	67-7

E3	Registration demand transmission	When the registration demand command from the slave device is output, or when the registration demand command is output by receiving connection confirmation command from the sub master device.	–	–
E4	Multiple frame incomplete	When the multiple frame transmission ends incomplete	–	–

6. THE INSPECTION LIST FOR THE DEVICE INDICATED BY THE SUB CODE

HINT:

Methods used to verify the cause of the problem are listed in order of probability in the verification column.

Sub code address (Device name)	Verification	See page
110 (Multi-display)	1. Power source circuit (multi-display) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Replace multi-display	05-1933 05-1971 67-7
178 (Navigation ECU)	1. Power source circuit (navigation ECU) 2. AVC-LAN circuit (multi-display – navigation ECU) 3. Replace navigation ECU	05-1935 05-1967 67-23
190 (Radio receiver assy)	1. Power source circuit (radio receiver assy) 2. AVC-LAN circuit (multi-display – radio receiver assy) 3. Replace radio receiver assy	05-1793 05-1971 67-5
1C6 (Gateway ECU)	1. AVC-LAN circuit (multi-display – gateway ECU) 2. Replace gateway ECU	05-1969 –
440 (Stereo Component Amplifier Assy)	1. Power source circuit (stereo component amplifier assy) 2. AVC-LAN circuit (radio receiver assy–stereo component amplifier assy) 3. Replace stereo component amplifier assy	05-1796 05-1824 67-25

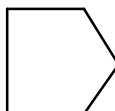
HOW TO PROCEED WITH TROUBLESHOOTING

1 Vehicle brought into a workshop

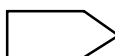


2 Diagnostic questioning and symptom confirmation (see page 05-1853)

Ask the customer about symptoms and confirm malfunctions. Fill out the Customer Problem Analysis check sheet.

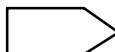


The screen displays nothing (go to step 6, proceed to "BLACK SCREEN (NO IMAGE APPEARS ON NAVIGATION/AUDIO SCREEN)")



Other symptoms (go to step 3)

3 Confirm the system normal condition (see page 05-1870)



Applicable (This is not a malfunction.)



Not applicable (go to step 4)

4 Check the diagnostic trouble codes (see page 05-1881)

HINT:

- If the system cannot enter the diagnosis mode, inspect each AVC-LAN communication signal and repair or replace problem parts (see page 05-1967 – 05-1971).
- Even if the malfunction symptom is not confirmed, check the diagnostic trouble codes. This is because the system stores past diagnostic trouble codes.
- Refer to the detailed description on the diagnostic screen, as necessary (see page 05-1863).
- Check the clear the past diagnostic trouble code. Check the diagnostic trouble code and inspect the area the code indicates.



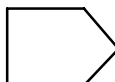
A code is output (go to step 5)



A code is not output (go to step 6)

5 Diagnostic trouble code chart (see page 05-1888)

Find the output code on the diagnostic trouble code chart.



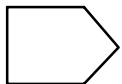
Output the diagnostic trouble code (go to step 8)

6	Problem symptoms table (see page 05-1873)
----------	--

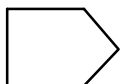
Find the applicable symptom code in the problem symptoms table.

HINT:

If the symptom does not recur and no code is output, perform the symptom reproduction method (see page [01-37](#)).



There is an applicable symptom code in the table (go to step 8)



There is no applicable symptom code in the table (go to step 7)

7	Check the ECU terminal arrangement based on the malfunction symptom (see page 05-1876)
----------	---



8	Check the circuit
----------	--------------------------

Adjust, repair or replace as necessary.



9	Recheck the diagnostic trouble code (see page 05-1886)
----------	---

HINT:

After deleting the DTC, recheck the diagnostic trouble code.

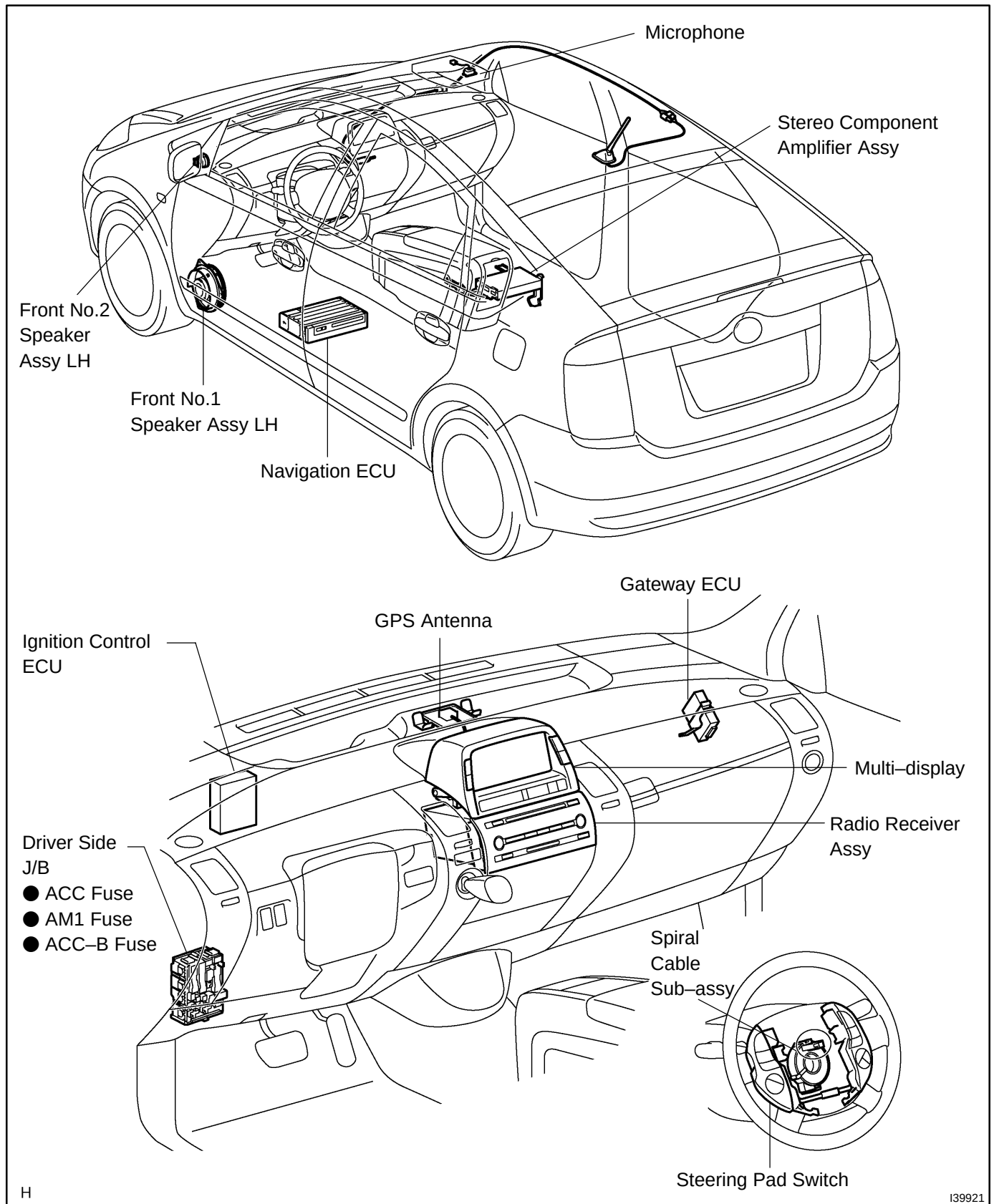


10	Perform confirmation test
-----------	----------------------------------



END

LOCATION



cardiagn.com

NAVIGATION SYSTEM

05CE1-05

PRECAUTION

NOTICE FOR INITIALIZATION:

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

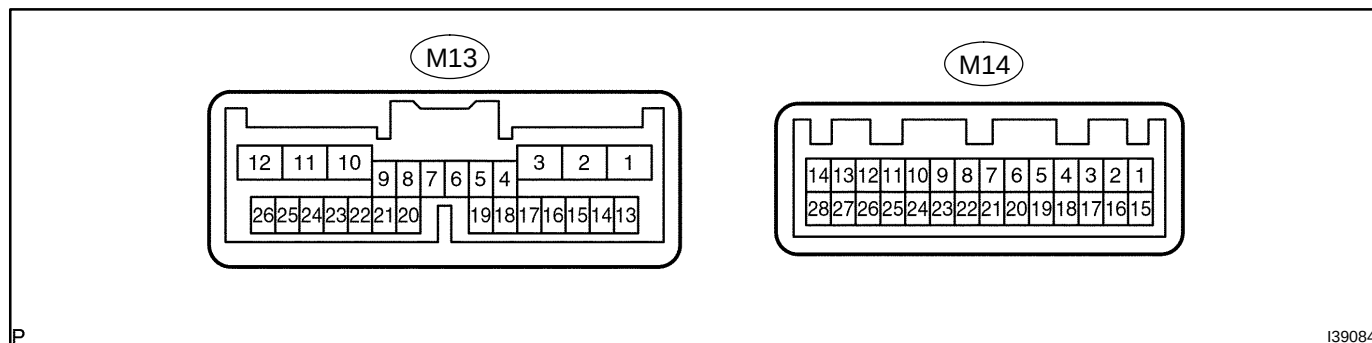
System Name	See page
Power Window Control System	01-28

NOTICES FOR HYBRID SYSTEM ACTIVATION:

- When the warning lamp is illuminated or the battery has been disconnected and reconnected, pressing the power switch may not start the system on the first try. If so, press the power switch again.
- With the power switch's power mode changed to ON (IG), disconnect the battery. If the key is not in the key slot during reconnection, DTC B2799 may be output.

TERMINALS OF ECU

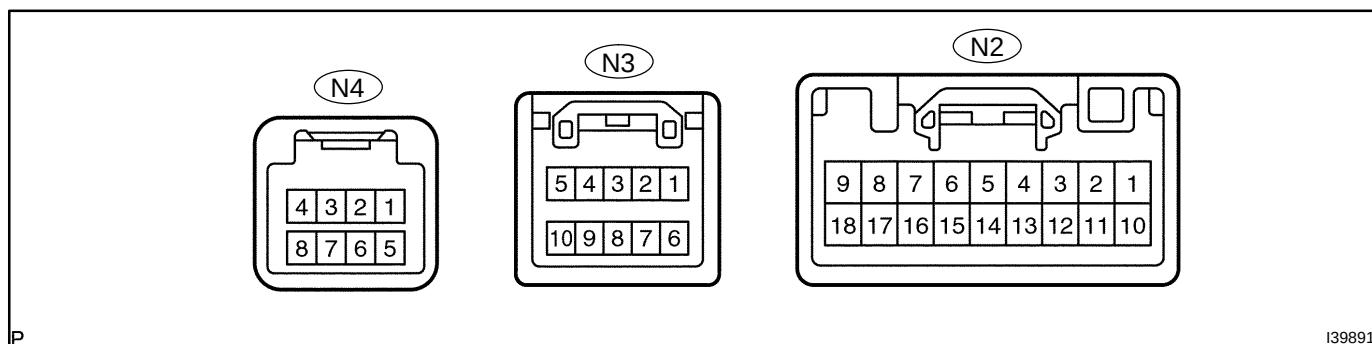
1. MULTI-DISPLAY ASSY:



Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specification
SGND (M14-3) – Body ground	BR – Body ground	Ground	Always	Below 1 V
MIN+ (M14-4) – GND1 (M13-3)	G – BR	Microphone voice signal	See "microphone check"	–
MIN– (M14-5) – Body ground	R – Body ground	Microphone voice signal	See "microphone check"	–
MACC (M14-6) – GND1 (M13-3)	BR – BR	Microphone Accessory	Power Switch OFF → ON (IG)	Below 1 V → 5 V
SLD (M14-20) – Body ground	Shielded – Body ground	Shielded ground	Always	Below 1 V
MCO+ (M14-18) – GND1 (M13-3)	R – BR	Microphone voice signal	See "microphone check"	–
MCO– (M14-19) – GND1 (M13-3)	G – BR	Microphone voice signal	See "microphone check"	–
SLD (M14-20) – Body ground	Shielded – Body ground	Shielded ground	Always	Below 1 V
IVO+ (M14-21) – GND1 (M13-3)	B – BR	Telephone voice signal (buletooth)	See "microphone check"	–
IVO– (M14-22) – GND1 (M13-3)	W – BR	Telephone voice signal (buletooth)	See "microphone check"	–
VR (M14-23) – GND1 (M13-3)	Y – BR	Video return signal	Power Switch OFF	Below 1 V
R (M14-24) – GND1 (M13-3)	B – BR	Display signal (red)	Navigation display is on	–
G (M14-25) – GND1 (M13-3)	W – BR	Display signal (green)	Navigation display is on	–
B (M14-26) – GND1 (M13-3)	R – BR	Display signal (blue)	Navigation display is on	–
SYNC (M14-27) – GND1 (M13-3)	G – BR	Display signal (synchronize)	Navigation display is on	–
VG (M14-28) – Body ground	Shielded – Body ground	Shielded ground	Always	Below 1 V
ILL+ (M13-1) – GND1 (M13-3)	G – BR	Illumination (rheostat) signal	Power Switch OFF → ON (IG)	Below 1 V → 10 to 14 V
ILL– (M13-2) – Body ground	W-B – Body ground	Illumination (rheostat) signal	Power Switch OFF → ON (IG)	Below 1 V → 10 to 14 V
GND1 (M13-3) – Body ground	BR – Body ground	Ground	Always	Below 1 V
TC (M13-7) – GND1 (M13-3)	P – BR	Diagnosis ON signal	Power Switch ON (IG)	9 to 14 V
IG (M13-10) – GND1 (M13-3)	B – BR	Ignition (ON)	Power Switch OFF → ON (IG)	Below 1 V → 10 to 14 V

ACC (M13-11) – GND1 (M13-3)	GR – BR	Accessory (ON)	Power Switch OFF → ON (ACC) or ON (IG)	Below 1 V → 10 to 14 V
+B1 (M13-12) – GND1 (M13-3)	Y – BR	Battery	Always	10 to 14 V
PKB (M13-16) – GND1 (M13-3)	R – BR	Parking brake signal	Turn parking brake switch ON → OFF	Below 1 V → 10 to 14 V
TX2+ (M13-18) – GND1 (M13-3)	P – BR	AVC-LAN communication signal	Power Switch ON (IG)	2 to 3 V
TX2- (M13-19) – GND1 (M13-3)	W – BR	AVC-LAN communication signal	Power Switch ON (IG)	2 to 3 V
SPD (M13-25) – GND1 (M13-3)	V – BR	Speed signal from combination meter	See "vehicle signal check mode"	–

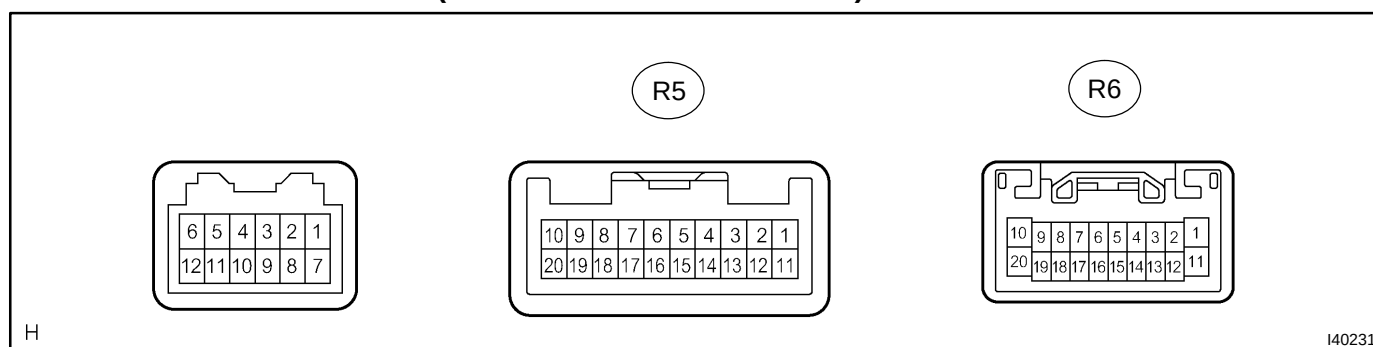
2. NAVIGATION ECU:



Symbols (Terminals No.)	Wiring Color	Terminal Description	Condition	Specification
AUI+ (N2-1) – GND1 (N2-17)	P – W-B	Sound signal (input)	Audio system is playing	–
AUO+ (N2-2) – GND1 (N2-17)	P – W-B	Sound signal (output)	Audio system is playing	–
SLD1 (N2-3) – Body ground	BR – Body ground	Shielded ground	Always	Below 1.0 V
SPD (N2-5) – GND1 (N2-17)	V – W-B	Speed signal from combination meter	See "Vehicle Signal Check Mode" (see page 05-1857)	–
+B (N2-9) – GND1 (N2-17)	SB – W-B	Battery	Always	10 to 14 V
AUI- (N2-10) – GND1 (N2-17)	V – W-B	Sound signal (input)	Audio system is playing	–
AUO- (N2-11) – GND1 (N2-17)	V – W-B	Sound signal (output)	Audio system is playing	–
VOI+ (N2-12) – SLD1 (N2-3)	B – Body ground	Telephone voice signal (buletooth)	See "microphone check"	–
VOI- (N2-13) – SLD1 (N2-3)	W – Body ground	Telephone voice signal (buletooth)	See "microphone check"	–
REV (N2-14) – GND1 (N2-17)	R – W-B	Reverse signal from combination meter	See "Vehicle Signal Check Mode" (see page 05-1857)	–
MUT2 (N2-15) – GND1 (N2-17)	W – W-B	Mute signal	Audio system is playing → Changing	Above 3.5 V → Below 1 V
GND1 (N2-17) – Body ground	W-B – Body ground	Ground	Always	Below 1 V
ACC (N2-18) – GND1 (N2-17)	GR – W-B	Accessory (ON)	Power Switch OFF → ON (ACC) or ON (IG)	Below 1 V → 10 – 14 V
VR (N3-1) – GND1 (N2-17)	Y – W-B	Video return signal	Power Switch OFF	Below 1 V
R (N3-2) – GND1 (N2-17)	B – W-B	Display signal (red)	Navigation display is on	–
B (N3-3) – GND1 (N2-17)	G – W-B	Display signal (blue)	Navigation display is on	–

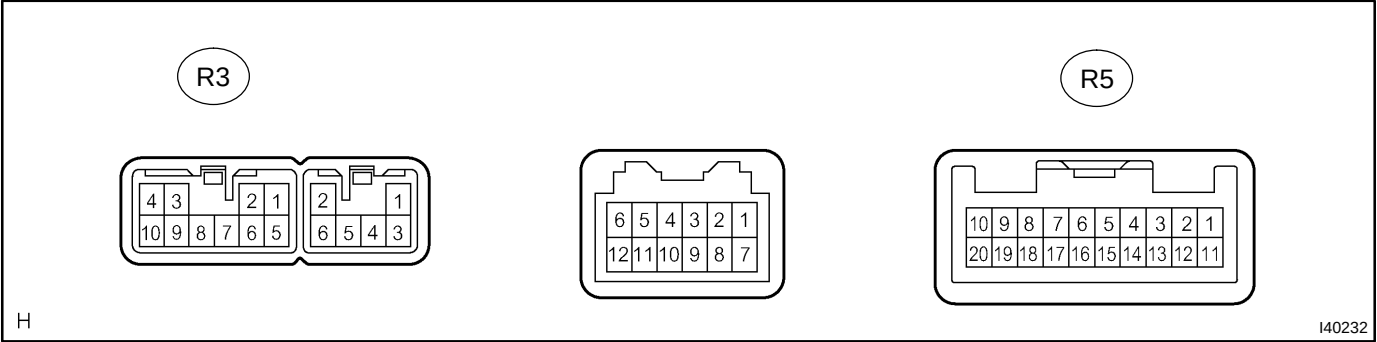
TX+ (N3-5) – GND1 (N2-17)	W – W-B	AVC-LAN communication signal	Power Switch ON (IG)	2 to 3 V
VG (N3-6) – Body ground	Shielded – Body ground	Shielded ground	Always	Below 1 V
G (N3-7) – GND1 (N2-17)	W – W-B	Display signal (green)	Navigation display is on	–
SYNC (N3-8) – GND1 (N2-17)	G – W-B	Display signal (synchronize)	Navigation display is on	–
TX- (N3-10) – GND1 (N2-17)	P – W-B	AVC-LAN communication signal	Power Switch ON (IG)	2 to 3 V
MIC+ (N4-3) – GND1 (N2-17)	R – W-B	Microphone voice signal	See "microphone check"	–
MIC- (N4-5) – GND1 (N2-17)	G – W-B	Microphone voice signal	See "microphone check"	–
SNSE (N4-7) – Body ground	W-B – Body ground	Ground	Always	Below 1 V

3. RADIO RECEIVER ASSY (SEPARATE TYPE AMPLIFIER):



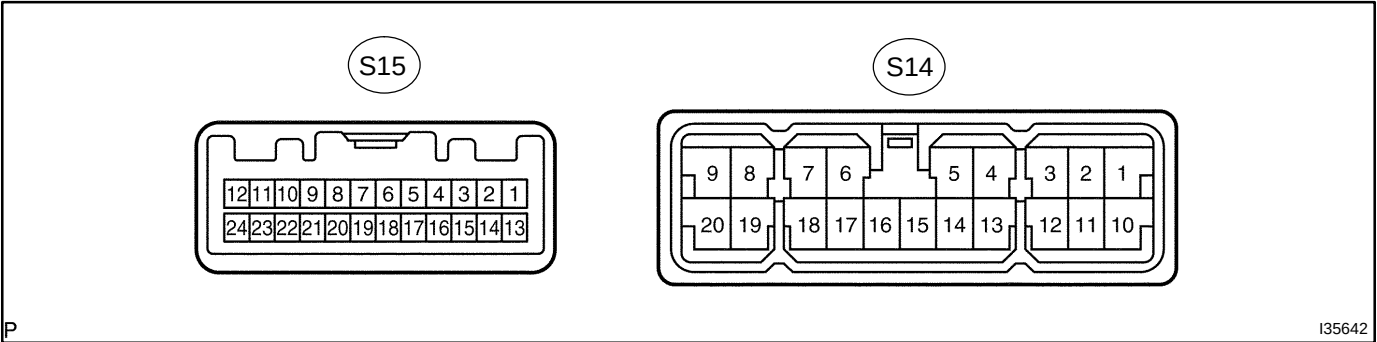
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
TX+ (R5-9) – GND (R6-20)	P – BR	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
TX- (R5-10) – GND (R6-20)	W – BR	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
TX+ (R6-5) – GND (R6-20)	P – BR	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
TX- (R6-15) – GND (R6-20)	O – BR	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
GND (R6-20) – Body ground	BR – Body ground	Ground	Always	Below 1 Ω

4. RADIO RECEIVER ASSY (BUILT-IN TYPE AMPLIFIER):



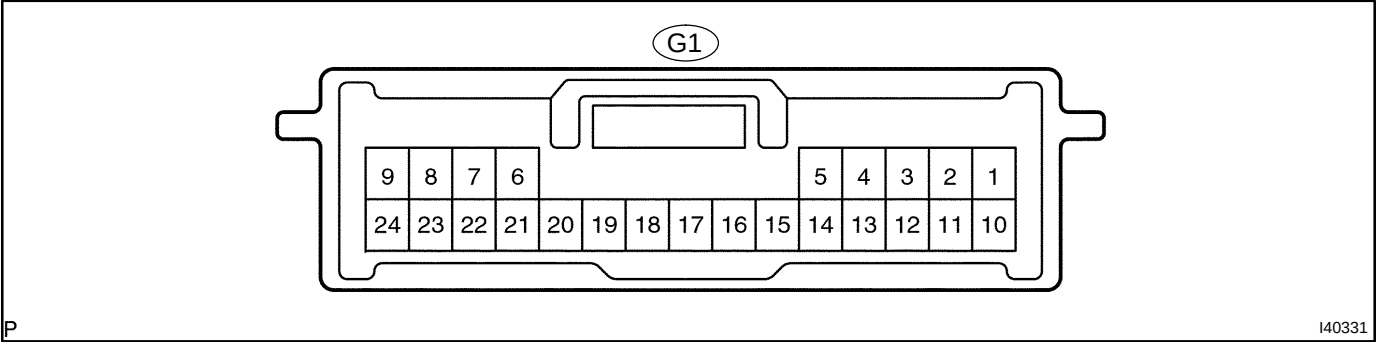
Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
TX1+ (R5-9) – GND (R3-7)	P – BR	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
TX1- (R5-10) – GND (R3-7)	W – BR	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
GND (R3-7) – Body ground	BR – Body ground	Ground	Always	Below 1 Ω

5. STEREO COMPONENT AMPLIFIER ASSY:



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
GND (S14-16) – Body ground	W-B – Body ground	Ground	Always	Below 1 Ω
TX- (S15-7) – GND (S14-16)	O – W-B	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
TX+ (S15-8) – GND (S14-16)	P – W-B	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V

6. GATEWAY ECU:



Symbols (Terminal No.)	Wiring Color	Terminal Description	Condition	Specification
GTX+ (G1-6) – GND (G1-24)	B – W-B	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
GTX- (G1-21) – GND (G1-24)	W – W-B	AVC-LAN communication signal	Power Switch ON (ACC)	2 to 3 V
GND (G1-24) – Body ground	W-B – Body ground	Ground	Always	Below 1 Ω