Information and Entertainment System

Special Tool(s)

 ST1137-A	73III Automotive Meter 105-R0057 or equivalent
 ST2834-A	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool
 ST2574-A	Flex Probe Kit 105-R025C or equivalent

Principles of Operation

Audio Unit

NOTE: *The audio unit is also referred to as the audio control module.*

The audio unit can be powered up when the ignition is in the ON or ACC position. When on, the audio unit directs audio signals to the speakers through separate positive and negative circuits for each of the audio channels. The audio unit provides internal circuit protection for shorts to ground, shorts to voltage, or shorts between any output circuits.

Noise Suppression Equipment

The radio interference suppression equipment reduces interference transmitted through the speakers by the engine ignition and electrical systems.

Antenna

The antenna is a fixed mast antenna mounted on the exterior of the vehicle. The antenna receives both AM and FM radio waves. The audio signals are then sent to the audio unit through the antenna cables.

Subwoofers

The subwoofer speakers on the 500-watt system are located in the front doors and are powered by individual amplifiers located on each speaker. In addition to these subwoofer speakers, the 1000-watt system includes an enclosure with 2 subwoofer speakers powered by 2 amplifiers, each. The enable/clip circuit carries out 2 functions: to turn on the subwoofer amplifier, and to monitor an overload condition to the subwoofer amplifier. In the event of an overload, the audio unit clips the audio output signal to the subwoofer amplifier (heard as distortion).

Satellite Audio

The satellite audio system consists of a satellite radio receiver, a satellite radio antenna, and antenna cable (part of the decklid harness). The satellite radio antenna receives digital audio signals and sends them to the satellite radio receiver, where the signals are converted and sent to the audio unit. The wake-up signal for the satellite radio receiver is sent from the audio unit through the medium speed controller area network (MS-CAN).

Audio Input Jack

The audio input jack allows for a portable MP3 player to be connected to the vehicle audio system. When a portable MP3 player is connected, audio from the MP3 player can be played through the vehicle speakers.

Navigation

The navigation module is integrated in the audio unit and controls the operation and the interface between the user, the vehicle subsystems, and the external components. The navigation module communicates with other vehicle systems via the MS-CAN and can be diagnosed with a scan tool. When installing a new audio unit, programmable module installation (PMI) is required.

The vehicle navigation system guides the user to a pre-entered destination. A navigation map digital versatile disc (DVD) stored in the navigation module sends route calculation data to the audio unit. The audio unit audibly and visually instructs the user of the maneuvers required to arrive at the destination entered.

In order to calculate the initial vehicle position, the global positioning system (GPS) antenna is used to track several available satellites simultaneously. The GPS antenna only receives data and does not communicate with the satellites. A gyroscope, integral to the navigation module, monitors the pitch and yaw of the vehicle created during cornering or turning. Vehicle speed and reverse signals received through the CAN are also used to detect vehicle speed and direction changes.

Inspection and Verification

1. Verify the customer concern.
2. Visually inspect the following for obvious signs of mechanical or electrical damage.

   Visual Inspection Chart

Mechanical	Electrical

• Audio unit
• Antenna or antenna cable(s)
• Global positioning system (GPS) antenna
• Navigation map DVD
• Satellite radio antenna
• Speakers, mounting/speaker cones
• Radio ignition interference capacitors, radio frequency interference suppression bond, and radio receiver hood bonding strap
	• Smart junction box (SJB) fuse(s):
	  ▪ 6 (5A) (audio unit)
	  ▪ 20 (10A) (audio unit)
	• Bussed electrical center (BEC) fuse(s):
	  ▪ 6 (30A) (luggage compartment amplifiers)
	  ▪ 9 (30A) (luggage compartment amplifiers)
	  ▪ 16 (30A) (door amplifiers)
	  ▪ 56 (20A) (audio unit, satellite radio receiver)
	• Circuitry

3. If an obvious cause for an observed or reported concern is found, correct the cause (if possible) before proceeding to the next step.
4. **NOTE:** *Make sure to use the latest scan tool software release.*

   If the cause is not visually evident, connect the scan tool to the data link connector (DLC).
5. **NOTE:** *The vehicle communication module (VCM) LED prove-out confirms power and ground from the DLC are provided to the VCM.*

   If the scan tool does not communicate with the VCM:

- Check the VCM connection to the vehicle.
- Check the scan tool connection to the VCM.
- Refer to Section 418-00, No Power To The Scan Tool, to diagnose no communication with the scan tool.

6. If the scan tool does not communicate with the vehicle:
   - Verify the ignition key is in the ON position.
   - Verify the scan tool operation with a known good vehicle.
   - Refer to Section 418-00 to diagnose no response from the powertrain control module (PCM).

7. Carry out the network test:
   - If the scan tool responds with no communication for one or more modules, refer to Section 418-00.
   - If the network test passes, retrieve and record the continuous memory diagnostic trouble codes (DTCs).

8. Clear the continuous DTCs and carry out the self-test diagnostics for the audio unit.

9. If the DTCs retrieved are related to the concern, go to the Audio Unit Diagnostic Trouble Code (DTC) Index or the Satellite Radio Receiver Diagnostic Trouble Code (DTC) Index.

10. If no DTCs related to the concern are retrieved, go to the Speaker Walk-Around Test, the Audio Unit Self-Diagnostic Mode, the Navigation Audio Unit Self Diagnostic Mode, or the Satellite Audio Bezel Diagnostic Test.

Speaker Walk-Around Test

NOTE: *To enter the speaker walk-around test or audio unit self-diagnostic mode, the audio unit must be on and in radio tuner mode (AM/FM).*

1. To enter the speaker walk-around test, simultaneously press and hold the audio unit preset buttons 3 and 6.

2. The speaker walk-around test stops at each speaker and applies sound to each speaker for about 1-2 seconds. Each speaker is tested and displayed on the audio unit in the following sequence: RF, LF, LR, RR, and SUBWOOFER.

3. To exit the speaker walk-around test, turn the key to OFF, turn the audio unit off, or press preset button 1 for diagnostics (DIA).

Audio Unit Self-Diagnostic Mode

NOTE: *To enter the audio unit self-diagnostic mode, the audio unit must be on and in radio tuner mode (AM/FM).*

1. To enter the following tests, press the desired preset button while in the speaker walk-around test.

2. To exit the audio unit self-diagnostic mode, turn the key to OFF or turn the audio unit off.

3. If the concern remains and the fault is not detected, GO to Symptom Chart.

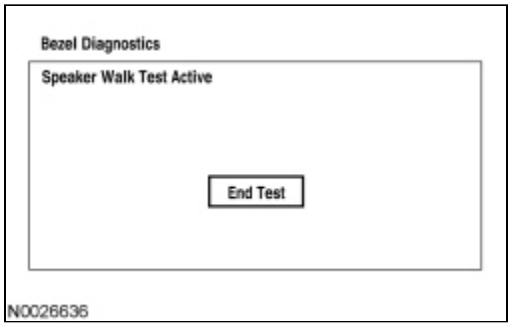
4. The self-diagnostic mode has the following functions available:
   - Preset button 1 = On-Demand Self-Test. This button runs the on-demand self-test.
     - Pressing the MENU DOWN button allows scrolling of any DTCs found during the test while in this menu.
   - Preset button 2 = Display Continuous DTCs. This button enables viewing of any continuous DTCs that have been logged.
     - Pressing the MENU UP button allows scrolling of any DTCs while in this menu.
     - While continuous DTCs are being displayed, pressing the EJECT button will clear all present DTCs. The key must be cycled OFF, then ON, to permanently clear DTCs.
   - Preset button 3 = Signal Strength Test. This button displays the signal strength.
   - Preset button 4 = Software Version Display. This button displays the audio unit software version.
     - Pressing the MENU UP button allows scrolling of all audio subsystem software versions while in this menu.

- Preset button 5 = Display Test. This test illuminates all the display segments for 5 seconds, then either turns all segments off or indicates DISPLAY TEST on the screen.
- Preset button 6 = Configuration Status. This button enables audio unit configuration status.
  - Pressing the MENU UP button displays the ACM part number while in this menu.

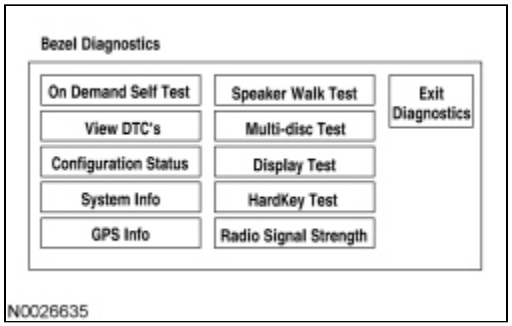
5. To exit the self-diagnostic mode, turn the key to OFF or turn the audio unit off.

6. If the concern remains and the fault is not detected, GO to Symptom Chart.

Navigation Audio Unit Self-Diagnostic Mode



1. To enter the self-diagnostic mode, press "End Test" during the speaker walk-around test.



2. The following diagnostic modes are available using the on-screen buttons:
   - "On Demand Self Test" — provides internal self-test diagnostics and displays all the DTCs resulting from the self-test.
   - "View DTC's" — provides a list of all the DTCs currently stored in memory.
   - "Configuration Status" — displays the current unit configuration.
   - "System Info" — provides the navigation module part number and software information.
   - "GPS Info" — provides satellite information and vehicle current information.
   - "Speaker Walk Test" — performs a speaker walk-around test.
   - "Multi-disc Test" — performs a test of the CD player mechanism.
   - "Display Test" — allows the screen colors to be checked, and allows individual touch sectors of the display screen to be tested.
   - "Hardkey Test" — checks the operation of any audio unit button.
   - "Radio Signal Strength" — performs a test of the AM/FM antenna signal.

3. To exit the self-diagnostic mode, turn the audio unit off, turn the key to OFF, or press "Exit Diagnostics".

4. If the concern remains and the fault is not detected, GO to Symptom Chart to continue diagnostics.

Satellite Audio Bezel Diagnostic Test

NOTE: *To enter the audio unit self-diagnostic mode, the audio unit must be on and in SAT mode.*

1. To enter the satellite audio bezel diagnostic test, simultaneously press and hold the AUX button and preset button 2.
2. Upon entering the self-test, the audio unit produces 2 continuously alternating tones of different pitch, one for the right channel, then one for the left.
3. The test continues by displaying any DTCs currently present. If no DTCs are present, NO DTCS will be displayed. If there are DTCs present, the audio unit will auto-scroll through the list of active DTCs.
4. Historical DTCs can be viewed by pressing the AUX button and preset button 2 simultaneously while in the active DTC mode.
    - If any DTCs are present, pressing the AUX button and preset button 2 will prompt CLEAR DTCS? on the audio unit.
    - To clear historical DTCs, press preset buttons 1, 2, and 3 consecutively within 4 seconds.
    - To exit historical DTCs (with or without clearing DTCs), press the AUX button and preset button 2 simultaneously.
5. If no historical DTCs are present, pressing the AUX button and preset button 2 simultaneously while in active DTC mode will display the DLP software version.
6. To exit the satellite audio bezel diagnostic test, press the AUX button and preset button 2 simultaneously while the DLP software version is displayed, or turn the audio unit off.
7. If the concern remains and the fault is not detected, GO to Symptom Chart.

Audio Unit Diagnostic Trouble Code (DTC) Index

DTC	Description	Action
B1117	Audio Steering Wheel Button Stuck	DTC is not applicable. The vehicle is not equipped with steering wheel controls. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
B1119	Audio Disc DVD Player Thermal Shutdown	ALLOW the audio unit to cool. REPEAT the self-test. If DTC B1119 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
B1136	Audio Steering Wheel Switch #2 Circuit Failure	DTC is not applicable. The vehicle is not equipped with steering wheel controls. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
B1140	Map Disk Invalid	INSERT a good known navigation map DVD. CLEAR the DTCs. REPEAT the self-test. If DTC B1140 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
B1318	Battery Voltage Low	CLEAR the DTCs. REPEAT the self-test. If DTC B1318 is retrieved again, REFER to Section 414-00 to diagnose the low battery voltage condition.
B1342	ECU is Faulted	CLEAR the DTCs. REPEAT the self-test. If DTC B1342 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
B2103	Antenna Not Connected	GO to Pinpoint Test A.
B2204	GPS Antenna Connection Open or Short	GO to Pinpoint Test H.
B2274	Phone Transceiver Active Circuit Failure	DTC is not applicable. The vehicle is not equipped with cellular phone functionality. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.

DTC	Description	Action
B2384	Audio Reverse Aid Mute Input Ckt Failure	DTC is not applicable. The vehicle is not equipped with parking aid. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
B2404	Audio Steering Wheel Switch Circuit Fault	DTC is not applicable. The vehicle is not equipped with steering wheel controls. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
B2405	Audio Disc CD Player Thermal Shutdown Fault	ALLOW the unit to cool. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
B2406	Audio Disc CD Player Internal Fault	CLEAR the DTCs. REPEAT the self-test. If DTC B2406 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
B2477	Module Configuration Failure	REFER to Section 418-01 to diagnose the module configuration.
B2633	Driver-Front Microphone Circuit Failure	DTC is not applicable. The vehicle is not equipped with voice-activated navigation. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
B2656	DVD (Digital Versatile Disc) Error	REMOVE the navigation map DVD. With a soft cloth, WIPE the DVD in an outward direction starting from the center. MAKE SURE there are no fingerprints or scratches on the DVD surface. INSERT the DVD. CLEAR the DTCs. REPEAT the self-test. If DTC B2656 is retrieved again, INSERT a good known navigation map DVD. CLEAR the DTCs. REPEAT the self-test. If DTC B2656 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
B2924	Audio Button Stuck	For the navigation audio unit, GO to Pinpoint Test K. For all others, VERIFY no audio unit buttons are stuck. CLEAR the DTCs. REPEAT the self-test. If DTC B2924 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
B2965	Audio System Speaker Circuit Fault	GO to Pinpoint Test B.
C1992	Vehicle Speed Circuit Failure	VERIFY the audio unit is configured to receive the vehicle speed signal through the medium speed controller area network (MS-CAN). REFER to Section 418-01.
P0812	Reverse Input Circuit	VERIFY the audio unit is configured to receive the reverse signal through the MS-CAN. REFER to Section 418-01.
U0140	Lost Communication With Body Control Module (GEM)	**NOTE:** *Diagnose DTC B1318 (if present) before diagnosing DTC U0140.* VERIFY the operation of the vehicle illumination and the accessory delay. ▪ If the vehicle illumination or accessory delay does not operate correctly, REFER to Section 413-00 (illumination) or Section 501-11 (accessory delay). ▪ If the vehicle illumination and accessory delay operate correctly, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
U0155	Lost Communication With Instrument Panel Cluster (IC) Control Module	**NOTE:** *If no related concern is currently present, disregard the DTC.* If the speed sensitive volume does not operate correctly, GO to Pinpoint Test M. If the navigation is inaccurate, GO to Pinpoint Test L.
U0159	Lost Communication With Parking Assist Control	DTC is not applicable. The vehicle is not equipped with parking aid. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.

DTC	Description	Action
	Module (PAM)	
U0193	Lost Communication With Digital Audio Control Module (SDARS)	GO to Pinpoint Test F.
U0196	Lost Communication With Entertainment Control Module - Rear (AUX)	DTC is not applicable. The vehicle is not equipped with rear audio controls. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
U0197	Lost Communication With Telephone Control Module	DTC is not applicable. The vehicle is not equipped with cellular phone functionality. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
U0238	Lost Communication With Digital Audio Control Module "D" (DSP)	DTC is not applicable. The vehicle is not equipped with a DSP module. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
U0249	Lost Communication With Entertainment Control Module - Rear "B" (RCU)	DTC is not applicable. The vehicle is not equipped with rear audio controls. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
U2050	No Application Present	CONFIGURE the audio unit. REFER to Section 418-01 to carry out programmable module installation (PMI). CLEAR the DTCs. REPEAT the self-test. If DTC U2050 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
U2051	One or More Calibration Files Missing/Corrupt	CONFIGURE the audio unit. REFER to Section 418-01 to carry out PMI. CLEAR the DTCs. REPEAT the self-test. If DTC U2051 is retrieved again, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
U2473	Unexpected Vehicle Speed (VSS)	GO to Pinpoint Test L.

Satellite Radio Receiver Diagnostic Trouble Code (DTC) Index

NOTE: *While running the satellite audio bezel diagnostic test, DTCs contain the characters "SAT" after the 5-digit DTC.*

DTC	Description	Action
B1031	SDARS Satellite Antenna Open	GO to Pinpoint Test G.
B1032	SDARS Satellite Antenna Short	GO to Pinpoint Test G.
B1318	Battery Voltage Low	CLEAR the DTCs. REPEAT the self-test. If DTC B1318 is retrieved again, REFER to Section 414-00 to diagnose the low battery voltage condition.
B1342	ECU is Faulted	CLEAR the DTCs. REPEAT the self-test. If DTC B1342 is retrieved again, REMOVE the satellite radio receiver and SEND it to an authorized audio system repair facility. REFER to Satellite Radio Receiver in this section. TEST the system for normal operation after the repair.
B2477	Module Configuration Failure	REFER to Section 418-01 to diagnose the module configuration.

DTC	Description	Action
U0184	Lost Communication With Radio (ACM)	DISREGARD the DTC. CLEAR the DTC. REPEAT the self-test.
U0196	Lost Communication With Entertainment Control Module - Rear (AUX)	DTC is not applicable. The vehicle is not equipped with rear audio controls. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
U0197	Lost Communication With Telephone Control Module	DTC is not applicable. The vehicle is not equipped with cellular phone functionality. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
U0249	Lost Communication With Entertainment Control Module - Rear "B" (RCU)	DTC is not applicable. The vehicle is not equipped with rear audio controls. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
U2050	No Application Present	CONFIGURE the satellite radio receiver. REFER to Section 418-01 to carry out PMI. CLEAR the DTCs. REPEAT the self-test. If DTC U2050 is retrieved again, REMOVE the satellite radio receiver and SEND it to an authorized audio system repair facility. REFER to Satellite Radio Receiver in this section. TEST the system for normal operation after the repair.

Symptom Chart

Symptom Chart — Audio System

Condition	Possible Sources	Action
• No communication with the audio unit	• Fuse • Circuitry • Audio unit	• REFER to Section 418-00.
• No communication with the satellite radio receiver	• Fuse • Circuitry • Audio unit	• REFER to Section 418-00.
• The audio unit is inoperative/does not operate correctly — satellite audio	• Circuitry • Satellite radio receiver • Audio unit	• GO to Pinpoint Test F.

• The audio unit backlighting does not operate correctly	• Module configuration
	• Circuitry
	• Audio unit
		• VERIFY the audio unit is configured for network-based illumination.
		  • If the audio unit is configured correctly, REFER to Section 413-00, to diagnose a single illumination source inoperative.
		  • If the audio unit is not configured correctly, CONFIGURE the audio unit. REFER to Section 418-01, to carry out programmable module installation (PMI). TEST the system for normal operation.

• Poor reception — AM/FM	• Antenna • Antenna cable(s) • Charging system • Ignition system • Noise suppression equipment • Audio unit	• GO to Pinpoint Test A.

• Poor reception — satellite audio	• Obstructions to the line of sight
	• Satellite antenna
	• Satellite antenna cable
	• Satellite radio receiver
		• DRIVE the vehicle to an open area and TEST the reception.
		  • If the reception is OK, INFORM the customer of the normal condition.
		  • If the reception is not OK, GO to Pinpoint Test G.
		• GO to Pinpoint Test G.

• Continuous seek/scan in AM/FM	• RDS function setting
	• Antenna cable(s)
	• Noise suppression equipment
	• Antenna
	• Audio unit
		• VERIFY the RDS is set to ALL SCAN.
		  • If a good channel is found, the cause of the concern was that no RDS channel in the selected category was found. The system is OK.
		  • If a good channel is not found, GO to Pinpoint Test A.
		• GO to Pinpoint Test A.

• Poor quality/distorted/no sound from one or more speakers (not all speakers) — except subwoofers	• Circuitry • Speaker • Audio unit	• GO to Pinpoint Test B.

• Poor quality/distorted/no sound from all speakers	• Circuitry
	• Audio unit
		• With the key in any position except START, MEASURE the voltage between the audio unit C290D Pin 15, circuit 1000 (RD/BK), harness side and ground.
		  • If any voltage is present, REPAIR the circuit. TEST the system for normal operation.
		  • If no voltage is present, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.

• The subwoofer is inoperative/does not operate correctly — front subwoofers	• Fuse • Circuitry • Subwoofer amplifier • Front subwoofer • Audio unit	• GO to Pinpoint Test C.
• The subwoofer is inoperative/does not operate correctly — rear subwoofers	• Fuse • Circuitry • Subwoofer amplifier • Rear subwoofer • Audio unit	• GO to Pinpoint Test D.
• Loud popping sound when cycling the ignition switch	• Fuse • Circuitry • Subwoofer amplifier • Audio unit	• GO to Pinpoint Test E.

• The speed sensitive volume does not operate correctly.	• Instrument cluster • Audio unit	• GO to Pinpoint Test M.
• The audio unit is inoperative/does not operate correctly — audio input jack	• Circuitry • Audio input jack • Audio unit	• GO to Pinpoint Test N.

• The CD player is inoperative/does not operate correctly	• CD
	• ACM
		• INSPECT the CD for scratches, fingerprints, a loose paper label, incorrect format, or damage. INSERT a known good CD and TEST the system.
		  • If the system operates correctly, the concern was caused by a damaged CD.
		  • If the system does not operate correctly, INSTALL a new ACM . REFER to Audio Unit in this section. TEST the system for normal operation.

Symptom Chart — Navigation

Condition	Possible Sources	Action
• No global positioning system (GPS) antenna signal	• GPS antenna • Audio unit	• GO to Pinpoint Test H.
• The position cursor is inaccurate	• Audio unit	• GO to Pinpoint Test L.
• The audible switch feedback is inoperative	• Audio unit	• GO to Pinpoint Test I.
• The voice guidance is inoperative/does not operate correctly	• Audio unit	• GO to Pinpoint Test J.
• The display screen is inoperative	• Audio unit	• REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
• Unable to insert or eject map disc	• Audio unit	• REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.

Pinpoint Tests

Pinpoint Test A: Poor Reception — AM/FM

Normal Operation

The noise suppression equipment reduces interference transmitted through the speakers by the engine ignition and electrical systems.

DTC B2103 — sets when an open is detected in the antenna circuit.

Possible Causes

- Antenna
- Antenna cable(s)
- Charging system
- Ignition system
- Noise suppression equipment
- Audio unit

PINPOINT TEST A : POOR RECEPTION — AM/FM

A1 REVIEW THE DTCS

- Review the DTCs from the audio unit self-test.

Is DTC B2103 present?

Yes	GO to A7.
No	GO to A2.

A2 CHECK THE AUDIO UNIT RECEPTION

- Check the audio unit signal reception with the engine running, and with the engine off.

Does the poor reception only occur with the engine running?

Yes	GO to A3.
No	GO to A7.

A3 CHECK THE SUPPRESSION EQUIPMENT/MOUNTING AND CONNECTING CIRCUITS

- Ignition OFF.
- Check all necessary suppression equipment and the radio frequency interference suppression bond.
- **NOTE:** *The capacitor mounting points are used to complete the electrical circuit and must be mounted securely to clean surfaces.*

  Check the mounting and connecting circuits of the radio interference capacitor for integrity, cleanliness, and metal-to-metal contact.

Are the connections clean, secure, and in metal-to-metal contact?

Yes	GO to A4.
No	CLEAN, SECURE, or INSTALL new suppression equipment as necessary. TEST the system for normal operation.

A4 CHECK THE RADIO INTERFERENCE CAPACITOR

- Check the operation of the radio interference capacitor by installing a known good component.
- Start the vehicle.
- Operate the audio unit in radio tuner mode.

Is the reception OK?

Yes	INSTALL a new radio interference capacitor. TEST the system for normal operation.
No	INSTALL the original radio interference capacitor. GO to A5 .

A5 CHECK THE GENERATOR

- Ignition OFF.
- Check the generator by disconnecting the voltage regulator.
- Start the vehicle.
- Operate the audio unit in radio tuner mode.

Is the reception OK?

Yes	INSTALL a new generator. REFER to Section 414-02. TEST the system for normal operation.
No	TURN the key to OFF. CONNECT the voltage regulator. GO to A6 .

A6 CHECK THE IGNITION CIRCUITS

- Check the ignition circuits for correct routing, ground, and integrity of connections.
- Check the spark plugs and ignition coils.

Are the ignition components OK?

Yes	GO to A10.
No	REPAIR the ignition system as necessary. TEST the system for normal operation.

A7 CHECK THE ANTENNA GROUND

- Ignition OFF.
- Measure the resistance between the antenna base and the battery ground cable.

Is the resistance less than 5 ohms?

Yes	GO to A9.
No	GO to A8.

A8 CHECK THE ANTENNA CABLE CONNECTIONS

- Check the antenna connections, including the extension cable.
- Check to make sure the antenna is securely mounted to the vehicle body at ground points.

Are the connections clean, secure, and in metal-to-metal contact?

Yes	GO to A9.
No	CLEAN and SECURE the antenna connections as necessary. CLEAR the DTCs. REPEAT the self-test.

A9 SUBSTITUTE THE ANTENNA

- Substitute a known good antenna.
- Ignition ON.
- Operate the audio unit in radio tuner mode.

Is the reception OK?

Yes	INSTALL a new antenna. CLEAR the DTCs. REPEAT the self-test.
No	TURN the key to OFF. INSTALL the original antenna. GO to A10 .

A10 SUBSTITUTE THE ANTENNA CABLE

- Substitute a known good antenna cable.
- Ignition ON.
- Operate the audio unit in radio tuner mode.

Is the reception OK?

Yes	INSTALL a new antenna cable. REFER to Antenna Lead-In Cable in this section. CLEAR the DTCs. REPEAT the self-test.
No	TURN the key to OFF. INSTALL the original antenna cable. GO to A11 .

A11 SUBSTITUTE THE AUDIO UNIT

- Substitute a known good audio unit.
- Start the vehicle.
- Operate the audio unit in radio tuner mode.

Is the reception OK?

Yes	SEND the original audio unit to an authorized audio system repair facility. TEST the system for normal operation after the repair.
No	INSTALL the original audio unit. GO to A12 .

A12 REPOSITION THE COMPONENTS

- Determine if the concern can be corrected by repositioning the antenna extension cable, speaker circuits, or audio unit power feed circuits away from other circuits and brackets.
- Start the vehicle.
- Operate the audio unit in radio tuner mode.

Is the reception OK?

Yes	Permanently REPOSITION the components as needed. TEST the system for normal operation.
No	GROUND various parts of the vehicle to the frame using a jumper cable (for example: engine, fenders, quarter panels, stone deflectors, body sheet metal). When the concern is corrected, PROVIDE a permanent ground where necessary. TEST the system for normal operation.

Pinpoint Test B: Poor Quality/Distorted/No Sound from One or More Speakers (Not All Speakers) — Except Subwoofers

Refer to Wiring Diagrams Cell 130, Audio System/Navigation for schematic and connector information.

Normal Operation

The audio unit directs the audio signals to the speakers through separate positive and negative circuits for each of the audio channels. The audio unit provides internal circuit protection for shorts to ground, shorts to voltage, or shorts between any output circuits.

For the navigation system, if the voice guidance setting is set to zero rather than to off, it may appear that the front speakers intermittently produce no sound. Make sure the voice guidance setting is not set to zero before addressing a concern with the front speakers.

DTC B2965 — sets when a short to ground is detected on any of the speaker circuits. For all audio units except single CD, DTC B2965 also sets when an open circuit or short to voltage is detected.

Possible Causes

- Circuit 1722 (LB/WH) open, short to ground or voltage
- Circuit 1723 (OG/LG) open, short to ground or voltage
- Circuit 1725 (TN/YE) open, short to ground or voltage
- Circuit 1726 (GY/LB) open, short to ground or voltage
- Circuit 1777 (DG/OG) open, short to ground or voltage
- Circuit 1778 (WH/LG) open, short to ground or voltage
- Circuit 1780 (BN/PK) open, short to ground or voltage
- Circuit 1781 (OG/RD) open, short to ground or voltage
- Speaker
- Audio unit

PINPOINT TEST B : POOR QUALITY/DISTORTED/NO SOUND FROM ONE OR MORE SPEAKERS (NOT ALL SPEAKERS) — EXCEPT SUBWOOFERS

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

B1 CHECK FOR OTHER CONCERNS

- Ignition OFF.
- Remove the trim panel for the suspect speaker. Refer to Section 501-05.
- Remove the speaker and check for:
  - connector integrity.
  - debris in the speaker cone.
- Install the speaker, but leave the trim panel off.
- Ignition ON.
- Operate the audio unit in radio tuner (AM/FM) mode.
- Observe the operation of the suspect speaker.

Is the speaker sound OK?

Yes	INSPECT the trim panel and REPAIR as necessary. TEST the system for normal operation.
No	GO to B2.

B2 CHECK THE SPEAKER CIRCUITS FOR VOLTAGE

- Ignition OFF.
- Disconnect: Suspect Speaker.
- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Measure the AC voltage between the suspect speaker pin 1 and pin 2, harness side as follows:

Suspect Speaker	Connector-Pin/ Circuit	Connector-Pin/ Circuit
LH front	C523 Pin 1 1723 (OG/LG)	C523 Pin 2 1722 (LB/WH)
RH front	C612 Pin 1 1778 (WH/LG)	C612 Pin 2 1777 (DG/OG)
LH rear	C484 Pin 1 1726 (GY/LB)	C484 Pin 2 1725 (TN/YE)
RH rear	C485 Pin 1 1781 (OG/RD)	C485 Pin 2 1780 (BN/PK)

Is an alternating AC voltage present?

Yes	INSTALL a new speaker for the suspect speaker. REFER to Door Speaker or Quarter Panel Speaker in this section. CLEAR the DTCs. REPEAT the speaker walk-around test.
No	GO to B3.

B3 CHECK THE SPEAKER CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Unit C290D .
- Ignition ON.
- Measure the voltage between the suspect speaker, harness side and ground as follows:

Suspect Speaker	Connector-Pin	Circuit
LH front	C523 Pin 1 C523 Pin 2	1723 (OG/LG) 1722 (LB/WH)
RH front	C612 Pin 1 C612 Pin 2	1778 (WH/LG) 1777 (DG/OG)
LH rear	C484 Pin 1 C484 Pin 2	1726 (GY/LB) 1725 (TN/YE)
RH rear	C485 Pin 1 C485 Pin 2	1781 (OG/RD) 1780 (BN/PK)

Is any voltage present?

Yes	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the speaker walk-around test.
No	GO to B4.

B4 CHECK THE SPEAKER CIRCUITS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the suspect speaker, harness side and the audio unit, harness side; and between the suspect speaker, harness side and ground as follows:

Suspect Speaker	Speaker Connector- Pin	Audio Unit Connector- Pin	Circuit
LH front	C523 Pin 1	C290D Pin 8	1723 (OG/LG)
LH front	C523 Pin 2	C290D Pin 21	1722 (LB/WH)
RH front	C612 Pin 1	C290D Pin 11	1778 (WH/LG)
RH front	C612 Pin 2	C290D Pin 12	1777 (DG/OG)
LH rear	C484 Pin 1	C290D Pin 9	1726 (GY/LB)
LH rear	C484 Pin 2	C290D Pin 22	1725 (TN/YE)
RH rear	C485 Pin 1	C290D Pin 10	1781 (OG/RD)
RH rear	C485 Pin 2	C290D Pin 23	1780 (BN/PK)

Is the resistance less than 5 ohms between the suspect speaker and the audio unit, and greater than 10,000 ohms between the suspect speaker and ground?

Yes	GO to B5.
No	REPAIR the circuit in question. CLEAR the DTCs. REPEAT the speaker walk-around test.

B5 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the audio unit connectors and make sure they seat correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test C: The Subwoofer is Inoperative/Does Not Operate Correctly — Front Subwoofer

Refer to Wiring Diagrams Cell 130, Audio System/Navigation for schematic and connector information.

Normal Operation

The front subwoofers are powered by a separate subwoofer amplifier for each subwoofer speaker. The enable/clip circuit 173 (DG/VT) carries out 2 functions: to turn on the subwoofer amplifiers, and monitor an overload condition to the subwoofer amplifier. In the event of an overload, the audio unit clips the audio output signal to the subwoofer amplifiers (heard as distortion). The front subwoofer amplifiers receive voltage through circuit 829 (WH/VT), and ground through circuit 1204 (BK/OG).

Possible Causes

- Fuse
- Circuit 167 (BN/OG) open, short to ground or voltage
- Circuit 168 (RD/BK) open, short to ground or voltage
- Circuit 173 (DG/VT) open or short to ground
- Circuit 804 (OG/LG) open, short to ground or voltage
- Circuit 805 (WH/LG) open, short to ground or voltage
- Circuit 811 (DG/OG) open, short to ground or voltage
- Circuit 813 (LB/WH) open, short to ground or voltage
- Circuit 815 (LG/OG) open, short to ground or voltage
- Circuit 816 (LG/VT) open, short to ground or voltage
- Circuit 819 (LG/WH) open, short to ground or voltage
- Circuit 820 (DB/YE) open, short to ground or voltage

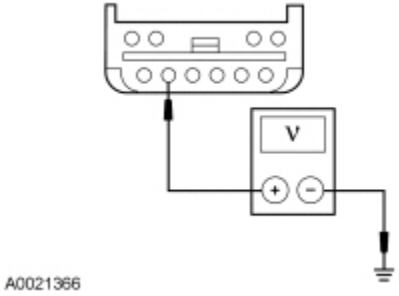
- Circuit 829 (WH/VT) open
- Circuit 1204 (BK/OG) open
- Subwoofer amplifier
- Subwoofer
- Audio unit

PINPOINT TEST C : THE SUBWOOFER IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — FRONT SUBWOOFER

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

C1 CHECK CIRCUIT 829 (WH/VT) FOR VOLTAGE

- Ignition OFF.
- Disconnect: Left Front Subwoofer Amplifier C2993A and Right Front Subwoofer Amplifier C2994A .
- Measure the voltage between the left front subwoofer amplifier C2993A Pin 5, circuit 829 (WH/VT), harness side and ground; and between the right front subwoofer amplifier C2994A Pin 5, circuit 829 (WH/VT), harness side and ground.

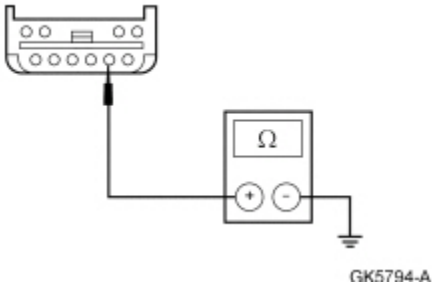


Are the voltages greater than 10 volts?

Yes	GO to C2.
No	VERIFY the bussed electrical center (BEC) fuse 16 (30A) is OK. If OK, REPAIR the circuit in question. TEST the system for normal operation.

C2 CHECK CIRCUIT 1204 (BK/OG) FOR AN OPEN

- Measure the resistance between the left front subwoofer amplifier C2993A Pin 2, circuit 1204 (BK/OG), harness side and ground; and between the right front subwoofer amplifier C2994A Pin 2, circuit 1204 (BK/OG), harness side and ground.

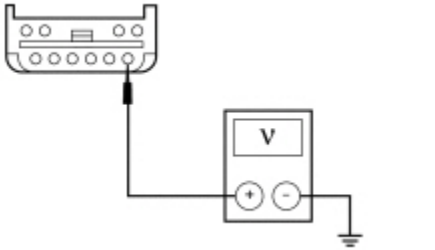


Are the resistances less than 5 ohms?

Yes	GO to C3.
No	REPAIR the circuit in question. TEST the system for normal operation.

C3 CHECK CIRCUIT 173 (DG/VT) FOR VOLTAGE

- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Measure the voltage between the left front subwoofer amplifier C2993A Pin 1, circuit 173 (DG/VT), harness side and ground; and between the right front subwoofer amplifier C2994A Pin 1, circuit 173 (DG/VT), harness side and ground.

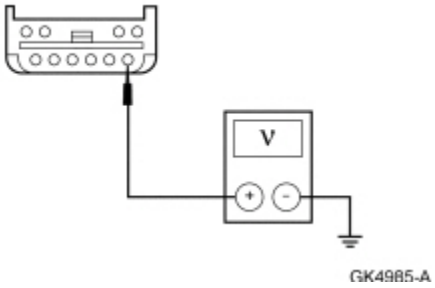


Is the voltage between 3.8 and 6.7 volts at both amplifiers?

Yes	GO to C6.
No	If the voltage is incorrect at one amplifier only, REPAIR the circuit in question. TEST the system for normal operation. If the voltage is incorrect at both amplifiers, GO to C4 .

C4 CHECK CIRCUIT 173 (DG/VT) FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Unit C290B .
- Ignition ON.
- Measure the voltage between the left front subwoofer amplifier C2993A Pin 1, circuit 173 (DG/VT), harness side and ground.



Is any voltage present?

Yes	REPAIR the circuit. TEST the system for normal operation.
No	GO to C5.

C5 CHECK CIRCUIT 173 (DG/VT) FOR AN OPEN OR SHORT TO GROUND

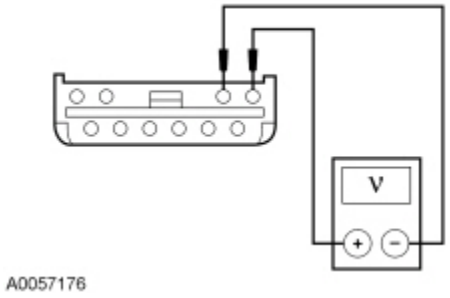
- Ignition OFF.
- Measure the resistance between the left front subwoofer amplifier C2993A Pin 1, circuit 173 (DG/VT), harness side and the audio unit C290B Pin 4, circuit 173 (DG/VT); and between the left front subwoofer amplifier C2993A Pin 1, circuit 173 (DG/VT), harness side and ground.

Is the resistance less than 5 ohms between the left front subwoofer amplifier and the audio unit, and greater than 10,000 ohms between the left front subwoofer amplifier and ground?

Yes	GO to C13.
No	REPAIR the circuit. TEST the system for normal operation.

C6 CHECK THE AUDIO SIGNALS TO THE FRONT SUBWOOFER AMPLIFIER

- Operate the audio unit in radio tuner mode.
- Measure the AC voltage between the left front subwoofer amplifier C2993A Pin 7, circuit 167 (BN/OG), harness side and the left front subwoofer amplifier C2993A Pin 8, circuit 168 (RD/BK), harness side; and between the right front subwoofer amplifier C2994A Pin 7, circuit 167 (BN/OG), harness side and the right front subwoofer amplifier C2994A Pin 8, circuit 168 (RD/BK), harness side.



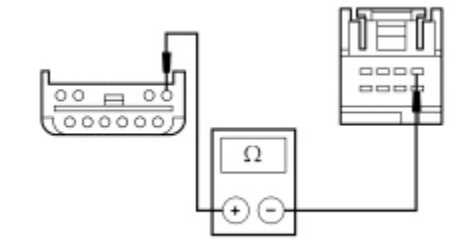
Is a fluctuating AC voltage present at both amplifiers?

Yes	GO to C10.
No	If the voltage is incorrect at one amplifier only, GO to C7 . If the voltage is incorrect at both amplifiers, GO to C8 .

C7 CHECK CIRCUIT 167 (BN/OG)) FOR AN OPEN

NOTE: *Carry out this step only for the inoperative subwoofer.*

- Ignition OFF.
- Disconnect: Audio Unit C290B .
- Measure the resistance between the left front subwoofer amplifier C2993A Pin 7, circuit 167 (BN/OG), harness side and the audio unit C290B Pin 1, circuit 167 (BN/OG), harness side; or between the right front subwoofer amplifier C2993A Pin 7, circuit 167 (BN/OG), harness side and the audio unit C290B Pin 1, circuit 167 (BN/OG), harness side.



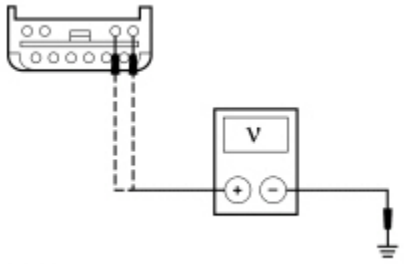
N0056195

Is the resistance less than 5 ohms?

Yes	REPAIR circuit 168 (RD/BK). TEST the system for normal operation.
No	REPAIR circuit 167 (BN/OG). TEST the system for normal operation.

C8 CHECK CIRCUITS 167 (BN/OG) AND 168 (RD/BK) FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Unit C290B .
- Ignition ON.
- Measure the voltage between the left front subwoofer amplifier C2993A Pin 7, circuit 167 (BN/OG), harness side and ground; and between the left front subwoofer amplifier C2993A Pin 8, circuit 168 (RD/BK), harness side and ground.



N0035293

Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.

No	GO to C9.

C9 CHECK CIRCUITS 167 (BN/OG) AND 168 (RD/BK) FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the left front subwoofer amplifier, harness side and the audio unit, harness side; and between the left front subwoofer amplifier, harness side and ground as follows:

Subwoofer Amplifier Connector-Pin	Audio Unit Connector-Pin	Circuit
C2993A Pin 7	C290B Pin 1	167 (BN/OG)
C2993A Pin 8	C290B Pin 2	168 (RD/BK)

Is the resistance less than 5 ohms between the left front subwoofer amplifier and the audio unit, and greater than 10,000 ohms between the left front subwoofer amplifier and ground?

Yes	GO to C13.
No	REPAIR the circuit in question. TEST the system for normal operation.

C10 CHECK THE AUDIO CIRCUITS TO THE SUSPECT FRONT SUBWOOFER

- Ignition OFF.
- Connect: Left Front Subwoofer Amplifier C2993A and Right Front Subwoofer Amplifier C2994A .
- Disconnect: Left Front Subwoofer C536 or Right Front Subwoofer C628 .
- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Measure the AC voltage between the suspect front subwoofer circuits, harness side as follows:

Suspect Subwoofer	Subwoofer Connector-Pin/ Circuit	Subwoofer Connector-Pin/ Circuit
Left front	C536 Pin 1 804 (OG/LG)	C536 Pin 2 813 (LB/WH)
Left front	C536 Pin 3 820 (DB/YE)	C536 Pin 4 819 (LG/WH)
Right front	C628 Pin 1 805 (WH/LG)	C628 Pin 2 811 (DG/OG)
Right front	C628 Pin 3 816 (LG/VT)	C628 Pin 4 815 (LG/OG)

Is a fluctuating AC voltage present?

Yes	INSTALL a new subwoofer for the suspect subwoofer. REFER to Subwoofer Speaker in this section. TEST the system for normal operation.
No	GO to C11.

C11 CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Left Front Subwoofer Amplifier C2993A and Right Front Subwoofer Amplifier C2994A .
- Ignition ON.
- Measure the voltage between the suspect front subwoofer, harness side and ground as follows:

Suspect Subwoofer	Subwoofer Connector-Pin	Circuit
Left front	C536 Pin 1	804 (OG/LG)
	C536 Pin 2	813 (LB/WH)
	C536 Pin 3	820 (DB/YE)
	C536 Pin 4	819 (LG/WH)
Right front	C628 Pin 1	805 (WH/LG)
	C628 Pin 2	811 (DG/OG)
	C628 Pin 3	816 (LG/VT)
	C628 Pin 4	815 (LG/OG)

Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to C12.

C12 CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the suspect front subwoofer, harness side and the front amplifier, harness side; and between the suspect front subwoofer, harness side and ground as follows:

Suspect Subwoofer	Subwoofer Connector- Pin	Audio Unit Connector- Pin	Circuit
Left front	C536 Pin 1	C2993B Pin 1	804 (OG/LG)
	C536 Pin 2	C2993B Pin 2	813 (LB/WH)
	C536 Pin 3	C2993B Pin 3	820 (DB/YE)
	C536 Pin 4	C2993B Pin 4	819 (LG/WH)
Right front	C628 Pin 1	C2994B Pin 1	805 (WH/LG)
	C628 Pin 2	C2994B Pin 2	811 (DG/OG)
	C628 Pin 3	C2994B Pin 3	816 (LG/VT)
	C628 Pin 4	C2994B Pin 4	815 (LG/OG)

Is the resistance less than 5 ohms between the suspect front subwoofer and the front subwoofer amplifier, and greater than 10,000 ohms between the suspect front subwoofer and ground?

Yes	INSTALL a new front subwoofer amplifier for the suspect amplifier. REFER to Subwoofer Amplifier — Door in this section. TEST the system for normal operation.
No	REPAIR the circuit in question. TEST the system for normal operation.

C13 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the audio unit connectors and make sure they seat correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test D: The Subwoofer is Inoperative/Does Not Operate Correctly — Rear Subwoofer

Refer to Wiring Diagrams Cell 130, Audio System/Navigation for schematic and connector information.

Normal Operation

The rear subwoofers are powered by a separate subwoofer amplifier for each subwoofer speaker. The enable/clip circuit 174 (GY/BK) carries out 2 functions: to turn on the subwoofer amplifiers, and monitor an overload condition to the subwoofer amplifiers. In the event of an overload, the audio unit clips the audio output signal to the subwoofer amplifiers (heard as distortion). The rear subwoofer amplifiers receive voltage through circuit 828 (VT/LB) (right subwoofers) or circuit 830 (PK/YE) (left subwoofers), and ground through circuit 1204 (BK/OG).

Possible Causes

- Fuse
- Circuit 174 (GY/BK) open or short to ground
- Circuit 176 (PK/LG) open or short to ground
- Circuit 179 (OG/RD) open or short to ground
- Circuit 800 (GY/LB) open or short to ground
- Circuit 801 (TN/YE) open or short to ground
- Circuit 802 (OG/RD) open or short to ground
- Circuit 803 (BN/PK) open or short to ground
- Circuit 806 (PK/LB) open or short to ground
- Circuit 807 (PK/LG) open or short to ground
- Circuit 825 (TN/LG) open or short to ground
- Circuit 827 (TN/WH) open or short to ground
- Circuit 828 (VT/LB) open
- Circuit 830 (PK/YE) open
- Circuit 1204 (BK/OG) open
- Subwoofer amplifier
- Subwoofer
- Audio unit

PINPOINT TEST D : THE SUBWOOFER IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — REAR SUBWOOFER

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

D1 CHECK CIRCUIT 828 (VT/LB) OR 830 (PK/YE) FOR VOLTAGE

- Ignition OFF.
- Disconnect: Suspect Subwoofer Amplifier(s).
- Measure the voltage between the suspect subwoofer amplifier, harness side and ground as follows:

Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit
Left outboard	C4157A Pin 5	830 (PK/YE)
Left inboard	C4158A Pin 5	828 (VT/LB)
Right inboard	C4159A Pin 5	830 (PK/YE)
Right outboard	C4160A Pin 5	828 (VT/LB)

Is the voltage greater than 10 volts?

Yes	GO to D2.

No	VERIFY the bussed electrical center (BEC) fuse 6 (30A) or fuse 9 (30A) is OK. If OK, REPAIR the circuit in question. TEST the system for normal operation.

D2 CHECK CIRCUIT 1204 (BK/OG) FOR AN OPEN

- Measure the resistance between the suspect subwoofer amplifier, harness side and ground as follows:

Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit
Left outboard	C4157A Pin 2	1204 (BK/OG)
Left inboard	C4158A Pin 2	1204 (BK/OG)
Right inboard	C4159A Pin 2	1204 (BK/OG)
Right outboard	C4160A Pin 2	1204 (BK/OG)

Is the resistance less than 5 ohms?

Yes	GO to D3.
No	REPAIR the circuit in question. TEST the system for normal operation.

D3 CHECK CIRCUIT 174 (GY/BK) FOR VOLTAGE

- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Measure the voltage between the suspect subwoofer speaker, harness side and ground as follows:

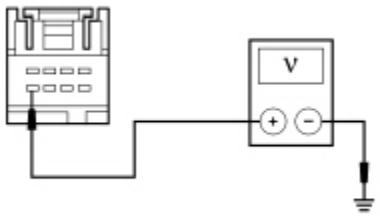
Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit
Left outboard	C4157A Pin 1	174 (GY/BK)
Left inboard	C4158A Pin 1	174 (GY/BK)
Right inboard	C4159A Pin 1	174 (GY/BK)
Right outboard	C4160A Pin 1	174 (GY/BK)

Is the voltage between 3.8 and 6.7 volts?

Yes	GO to D6.
No	GO to D4.

D4 CHECK CIRCUIT 174 (GY/BK) FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Unit C290B .
- Ignition ON.
- Measure the voltage between the audio unit C290B Pin 8, circuit 174 (GY/BK), harness side and ground.



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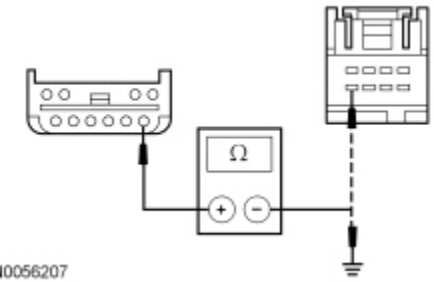
Is any voltage present?

Yes	REPAIR the circuit. TEST the system for normal operation.
No	GO to D5.

D5 CHECK CIRCUIT 174 (GY/BK) FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the suspect subwoofer amplifier pin 8, circuit 174 (GY/BK), harness side and the audio unit C290B Pin 8, circuit 174 (GY/BK), harness side; and between the suspect subwoofer speaker pin 8, circuit 174 (GY/BK), harness side and ground.



N0056207

Is the resistance less than 5 ohms between the suspect subwoofer amplifier and the audio unit, and greater than 10,000 ohms between the suspect subwoofer amplifier and ground?

Yes	GO to D12.

No	REPAIR the circuit. TEST the system for normal operation.

D6 CHECK THE AUDIO SIGNALS TO THE SUSPECT SUBWOOFER AMPLIFIER

- Operate the audio unit in radio tuner mode.
- Measure the AC voltage at the suspect subwoofer amplifier, harness side as follows:

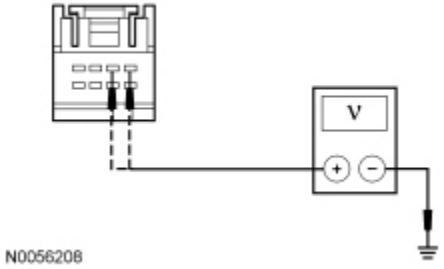
Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin/ Circuit	Subwoofer Amplifier Connector-Pin/ Circuit
Left outboard	C4157A Pin 7 179 (OG/RD)	C4157A Pin 8 176 (PK/LG)
Left inboard	C4158A Pin 7 179 (OG/RD)	C4158A Pin 8 176 (PK/LG)
Right inboard	C4159A Pin 7 179 (OG/RD)	C4159A Pin 8 176 (PK/LG)
Right outboard	C4160A Pin 7 179 (OG/RD)	C4160A Pin 8 176 (PK/LG)

Is a fluctuating AC voltage present?

Yes	GO to D9.
No	GO to D7.

D7 CHECK CIRCUITS 176 (PK/LG) AND 179 (OG/RD) FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Unit C290B .
- Ignition ON.
- Measure the voltage between the audio unit C290B Pin 5, circuit 176 (PK/LG), harness side and ground; and between the audio unit C290B Pin 6, circuit 179 (OG/RD), harness side and ground.



Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to D8.

D8 CHECK CIRCUITS 176 (PK/LG) AND 179 (OG/RD) FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the suspect subwoofer amplifier, harness side and the audio unit, harness side; and between the suspect subwoofer amplifier, harness side and ground as follows:

Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector- Pin	Audio Unit Connector- Pin	Circuit
Left outboard	C4157A Pin 8	C290B Pin 6	179 (OG/RD)
	C4157A Pin 8	C290B Pin 5	176 (PK/LG)
Left inboard	C4158A Pin 8	C290B Pin 6	179 (OG/RD)
	C4158A Pin 8	C290B Pin 5	176 (PK/LG)
Right inboard	C4159A Pin 8	C290B Pin 6	179 (OG/RD)
	C4159A Pin 8	C290B Pin 5	176 (PK/LG)
Right outboard	C4160A Pin 8	C290B Pin 6	179 (OG/RD)
	C4160A Pin 8	C290B Pin 5	176 (PK/LG)

Is the resistance less than 5 ohms between the suspect subwoofer amplifier and the audio unit, and greater than 10,000 ohms between the suspect subwoofer amplifier and ground?

Yes	GO to D12.
No	REPAIR the circuit in question. TEST the system for normal operation.

D9 CHECK THE AUDIO CIRCUITS TO THE SUSPECT REAR SUBWOOFER

- Ignition OFF.
- Connect: Suspect Subwoofer Amplifier.
- Disconnect: Suspect Rear Subwoofer.
- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Measure the AC voltage between the suspect rear subwoofer circuits, harness side as follows:

Suspect Subwoofer	Subwoofer Connector-Pin/ Circuit	Subwoofer Connector-Pin/ Circuit
Left outboard	C4161 Pin 1 800 (GY/LB)	C4161 Pin 2 801 (TN/YE)
Left inboard	C4161 Pin 3 806 (PK/LB)	C4161 Pin 4 807 (PK/LG)
Right inboard	C4162 Pin 1 802 (OG/RD)	C4162 Pin 2 803 (BN/PK)
Right outboard	C4162 Pin 3 825 (TN/LG)	C4162 Pin 4 827 (TN/WH)

Is a fluctuating AC voltage present?

Yes	INSTALL a new subwoofer for the suspect subwoofer. REFER to Subwoofer Speaker in this section. TEST the system for normal operation.
No	GO to D10.

D10 CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Suspect Subwoofer Amplifier C4157B, C4158B, C4159B, or C4160B .
- Ignition ON.
- Measure the voltage between the suspect rear subwoofer, harness side and ground as follows:

Suspect Subwoofer	Subwoofer Connector-Pin	Circuit
Left outboard	C4161 Pin 1	800 (GY/LB)
	C4161 Pin 2	801 (TN/YE)
Left inboard	C4161 Pin 3	806 (PK/LB)

Suspect Subwoofer	Subwoofer Connector-Pin	Circuit
	C4161 Pin 4	807 (PK/LG)
Right inboard	C4162 Pin 1	802 (OG/RD)
	C4162 Pin 2	803 (BN/PK)
Right outboard	C4162 Pin 3	825 (TN/LG)
	C4162 Pin 4	827 (TN/WH)

Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to D11.

D11 CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the suspect rear subwoofer, harness side and the rear amplifier, harness side; and between the suspect rear subwoofer, harness side and ground as follows:

Suspect Subwoofer	Subwoofer Connector-Pin	Rear Amplifier Connector-Pin	Circuit
Left outboard	C4161 Pin 1	C4157B Pin 4	800 (GY/LB)
	C4161 Pin 2	C4157B Pin 3	801 (TN/YE)
Left inboard	C4161 Pin 3	C4158B Pin 4	806 (PK/LB)
	C4161 Pin 4	C4158B Pin 3	807 (PK/LG)
Right inboard	C4162 Pin 1	C4159B Pin 4	802 (OG/RD)
	C4162 Pin 2	C4159B Pin 3	803 (BN/PK)
Right outboard	C4162 Pin 3	C4160B Pin 4	825 (TN/LG)
	C4162 Pin 4	C4160B Pin 3	827 (TN/WH)

Is the resistance less than 5 ohms between the suspect rear subwoofer and the rear subwoofer amplifier, and greater than 10,000 ohms between the suspect rear subwoofer and ground?

Yes	INSTALL a new rear subwoofer amplifier for the suspect amplifier. REFER to Subwoofer Amplifier — Luggage Compartment in this section. TEST the system for normal operation.
No	REPAIR the circuit in question. TEST the system for normal operation.

D12 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the audio unit connectors and make sure they seat correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test E: Loud Popping Sound When Cycling The Ignition Switch

Refer to Wiring Diagrams Cell 130, Audio System/Navigation for schematic and connector information.

Normal Operation

Voltage is supplied to the audio unit through circuit 1000 (RD/BK) when the ignition switch is turned to the START position. When the audio unit receives this voltage, it mutes all speaker outputs and subwoofer amplifier enable circuits to eliminate the possibility of speaker pops during engine cranking.

Possible Causes

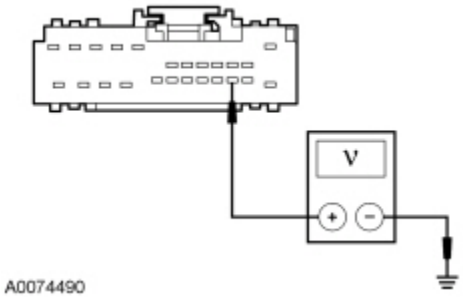
- Fuse
- Circuit 1000 (RD/BK) open
- Circuit 173 (DG/VT) short to voltage
- Circuit 174 (GY/BK) short to voltage
- Subwoofer amplifier
- Audio unit

PINPOINT TEST E : LOUD POPPING SOUND WHEN CYCLING THE IGNITION SWITCH

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

E1 CHECK CIRCUIT 1000 (RD/BK) FOR VOLTAGE

- Ignition OFF.
- Disconnect: Audio Unit C290D .
- Disconnect: Starter Relay.
- Hold the key in the START position.
- Measure the voltage between the audio unit C290D Pin 15 circuit 1000 (RD/BK), harness side and ground.



Is the voltage greater than 10 volts?

Yes	GO to E2.
No	VERIFY the smart junction box (SJB) fuse 20 (10A) is OK. If OK, REPAIR the circuit. TEST the system for normal operation.

E2 ISOLATE THE FRONT/REAR SUBWOOFERS

NOTE: *Repeat this step for each subwoofer amplifier.*

- Ignition OFF.
- Connect: Audio Unit C290D .
- Disconnect: Suspect Subwoofer Amplifier.
- Cycle the key through all of the ignition switch positions.

Is a loud popping sound present for only one subwoofer amplifier?

Yes	INSTALL a new subwoofer amplifier for the suspect subwoofer amplifier. REFER to Subwoofer Amplifier — Door or Subwoofer Amplifier — Luggage Compartment in this section. TEST the system for normal operation.
No	GO to E3.

E3 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Connect: Starter Relay.
- Disconnect the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the audio unit connectors and make sure they seat correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test F: The Audio Unit is Inoperative/Does Not Operate Correctly — Satellite Audio

Refer to Wiring Diagrams Cell 130, Audio System/Navigation for schematic and connector information.

Normal Operation

The satellite radio receiver receives voltage through circuit 729 (RD/WH), and ground through circuit 1204 (BK/OG). Digital signals are received by the satellite antenna and sent to the satellite radio receiver, which then provides audio signals to the audio unit. The satellite radio receiver and the audio unit communicate using the controller area network (CAN) through circuits 1847 (WH/OG) and 1848 (PK/OG).

Possible Causes

- Circuit 1594 (WH) open, short to ground or voltage
- Circuit 1595 (RD) open, short to ground or voltage
- Circuit 1596 (PK) open, short to ground or voltage
- Circuit 1597 (OG) open, short to ground or voltage
- Satellite radio receiver
- Audio unit

PINPOINT TEST F : THE AUDIO UNIT IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — SATELLITE AUDIO

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

F1 VERIFY AN ACTIVE SUBSCRIPTION

- Enter satellite mode on the audio unit and observe the display.

Does the display read CALL SIRIUS?

Yes	The subscription has expired. INFORM the customer to contact Sirius to re-activate the subscription.
No	GO to F2.

F2 CHECK SATELLITE RADIO RECEIVER OPERATION

- Perform the satellite bezel diagnostic self-test.

Are alternating LH/RH tones audible?

Yes	GO to F6.
No	GO to F3.

F3 CHECK THE RECORDED DTCS

- Perform the satellite audio bezel diagnostic test.

Are any satellite audio system DTCs present?

Yes	If DTC B1031 SAT or DTC B1032 SAT is present, GO to Pinpoint Test G. For all other DTCs, REFER to the Satellite Radio Receiver Diagnostic Trouble Code (DTC) Index in this section.
No	GO to F4.

F4 CHECK THE AUDIO CIRCUITS FROM THE SATELLITE RADIO RECEIVER FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Unit C290A .
- Disconnect: Satellite Radio Receiver C3290 .
- Ignition ON.
- Measure the voltage between the satellite radio receiver, harness side and ground as follows:

Satellite Radio Receiver Connector-Pin	Circuit
C3290 Pin 5	1595 (RD)
C3290 Pin 6	1597 (OG)
C3290 Pin 11	1594 (WH)
C3290 Pin 12	1596 (PK)

Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to F5.

F5 CHECK THE AUDIO CIRCUITS FROM THE SATELLITE RADIO RECEIVER FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the satellite radio receiver, harness side and the audio unit, harness side; and between the satellite radio receiver, harness side and ground as follows:

Satellite Radio Receiver Connector-Pin	Audio Unit Connector-Pin	Circuit
C3290 Pin 5	C290A Pin 1	1595 (RD)
C3290 Pin 6	C290A Pin 9	1597 (OG)
C3290 Pin 11	C290A Pin 2	1594 (WH)
C3290 Pin 12	C290A Pin 10	1596 (PK)

Is the resistance less than 5 ohms between the satellite radio receiver and the audio unit, and greater than 10,000 ohms between the satellite radio receiver and ground?

Yes	GO to F6.
No	REPAIR the circuit in question. TEST the system for normal operation.

F6 ISOLATE THE SATELLITE RADIO RECEIVER

- Ignition OFF.
- Substitute a known good satellite radio receiver.
- Ignition ON.
- Operate the audio unit in satellite audio mode.

Does the system operate correctly?

Yes	SEND the original satellite radio receiver to an authorized audio system repair facility. TEST the system for normal operation.
No	INSTALL the original satellite radio receiver. REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.

Pinpoint Test G: Poor Reception — Satellite Audio

Normal Operation

Digital signals are received by the satellite antenna and sent to the satellite radio receiver, which then converts the signals and provides audio signals to the audio unit.

DTC B1031 — sets when an open or high resistance is detected in the satellite antenna circuit.

DTC B1032 — sets when a short to ground is detected in the satellite antenna circuit.

Possible Causes

- Satellite antenna cable
- Satellite antenna
- Satellite radio receiver

PINPOINT TEST G : POOR RECEPTION — SATELLITE AUDIO

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

G1 REVIEW THE DTCS

- Review the DTCs from the satellite radio receiver self-test.

Is DTC B1031 or B1032 present?

Yes	GO to G3.
No	GO to G2.

G2 CHECK THE OPERATION OF THE SATELLITE AUDIO

- Drive the vehicle to an open location, free of obstacles.
- Operate the audio unit in satellite audio mode.

Is the reception OK?

Yes	The system is OK at this time. ADVISE the customer of the condition.
No	GO to G3.

G3 CHECK THE SATELLITE ANTENNA CABLE

- Ignition OFF.
- Disconnect: Satellite Antenna Connection (at satellite radio receiver).
- Disconnect: Satellite Antenna Connection (at satellite antenna).
- Measure the resistance of the satellite radio antenna cable between the satellite radio receiver and the satellite antenna connection.

Is the resistance less than 1 ohm?

Yes	GO to G4.
No	INSTALL a new satellite antenna cable. CLEAR the DTCs. REPEAT the self-test.

G4 SUBSTITUTE THE SATELLITE ANTENNA

- Install a known good satellite antenna.
- Operate the audio unit in satellite audio mode.

Is the reception OK?

Yes	INSTALL a new satellite antenna. REFER to Antenna — Satellite Radio in this section. CLEAR the DTCs. REPEAT the self-test.
No	REMOVE the satellite radio receiver and SEND it to an authorized audio system repair facility. REFER to Satellite Radio Receiver in this

	section. TEST the system for normal operation after the repair.

Pinpoint Test H: No Global Positioning System (GPS) Antenna Signal

Normal Operation

The GPS antenna provides information from the GPS satellite system to the GPS receiver in the navigation module. This information is used to calculate vehicle position and direction of travel.

DTC B2204 — sets when an open or short to ground is detected in the GPS antenna circuit.

Possible Causes

- GPS antenna
- Audio unit

PINPOINT TEST H : NO GLOBAL POSITIONING SYSTEM (GPS) ANTENNA SIGNAL

NOTE: *The vehicle must be driven outside of any enclosed structure to an area that is unobstructed by trees, tall buildings, and bridges.*

H1 CHECK THE OPERATION OF THE GPS ICON

- Move the vehicle outside of any enclosed structure to an area that is unobstructed by trees, tall buildings, and bridges.
- Operate the audio unit in radio tuner mode.
- Press the MAP button.

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Does the GPS icon disappear?

Yes	The system is operating correctly at this time.
No	GO to H2.

H2 CHECK THE RECORDED DTCS FROM THE NAVIGATION MODULE

- Check the recorded results from the navigation module self-test.

Are any DTCs recorded?

Yes	If DTC B2204 is present, GO to H4 . For all other DTCs, REFER to the Audio Unit Diagnostic Trouble Code (DTC) Index in this section.
No	GO to H3.

H3 CHECK THE GPS ANTENNA MOUNTING

- Verify the GPS antenna is installed properly and no aftermarket equipment is obstructing it.

Is the GPS antenna mounted properly?

Yes	GO to H4.
No	Correctly INSTALL the GPS antenna. REFER to Global Positioning System (GPS) Antenna in this section. TEST the system for normal operation.

H4 SUBSTITUTE THE GPS ANTENNA

- Install a good known GPS antenna. Refer to Global Positioning System (GPS) Antenna in this section.
- Move the vehicle outside of any enclosed structure to an area that is unobstructed by trees, tall buildings, and bridges.
- Operate the audio unit in radio tuner mode.
- Press the MAP button.

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Does the GPS icon disappear?

Yes	INSTALL a new GPS antenna. REFER to Global Positioning System (GPS) Antenna in this section. CLEAR the DTCs. REPEAT the self-test.
No	INSTALL the original GPS antenna. GO to H5 .

H5 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect all the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins

- pushed-out pins
- Connect all the audio unit connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test I: The Audible Switch Feedback Is Inoperative

Normal Operation

The audible switch feedback settings are controlled by the audio unit. The audible switch feedback can be set to ALL, TOUCH SCREEN, or NONE, depending on user preference.

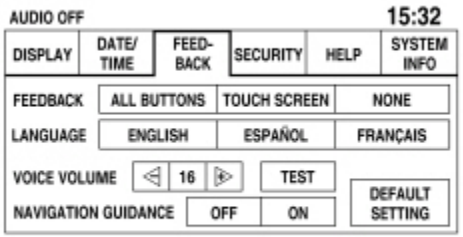
Possible Causes

- Audio unit

PINPOINT TEST I : THE AUDIBLE SWITCH FEEDBACK IS INOPERATIVE

I1 CHECK THE SWITCH DISPLAY

- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Press the MENU button.
- Select the FEEDBACK tab.



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Is NONE highlighted on the audible feedback settings?

Yes	SELECT ALL BUTTONS. TEST the system for normal operation.
No	GO to I2.

I2 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect all the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the audio unit connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test J: The Voice Guidance Is Inoperative/Does Not Operate Correctly

Normal Operation

The voice guidance settings are controlled by the audio unit. The voice guidance volume can be adjusted or turned off depending on user preference.

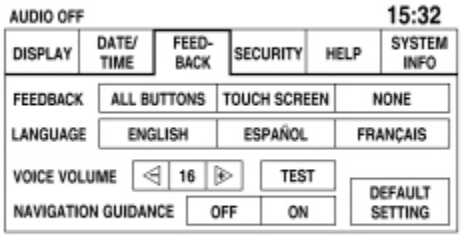
Possible Causes

- Audio unit

PINPOINT TEST J : THE VOICE GUIDANCE IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

J1 CHECK THE VOICE GUIDANCE SETTINGS

- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Press the MENU button.
- Select the FEEDBACK tab.



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- Select DEFAULT SETTING.
- Verify the voice guidance operation.

Does the voice guidance operate correctly?

Yes	The system is operating correctly at this time.
No	GO to J2.

J2 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect all the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the audio unit connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test K: DTC B2924 — Audio Button Stuck

Normal Operation

DTC B2924 — sets as a continuous DTC when an audio unit button is detected as active for greater than 120 seconds, or sets if a button is detected as active for greater than 3 seconds during the self-test.

Possible Causes

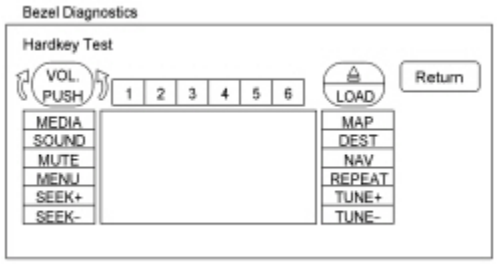
- Audio unit

PINPOINT TEST K : DTC B2924 — AUDIO BUTTON STUCK

K1 CHECK FOR STUCK AUDIO UNIT BUTTONS

- Ignition ON.
- Operate the audio unit in radio tuner mode.
- Enter the self-diagnostic menu and select the HARDKEY TEST function.
- **NOTE:** *If any button is pushed, the corresponding button on the screen appears highlighted.*

  Observe the buttons on the screen.



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Does the hardkey test indicate a stuck button?

Yes	GO to K2.
No	The system is operating correctly at this time.

K2 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect all the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the audio unit connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test L: The Position Cursor Is Inaccurate

Normal Operation

The primary source of vehicle location for the navigation system is the audio unit receiving the position signal through the global positioning system (GPS) antenna.

In addition, the audio unit receives the wheel pulse signal from the instrument cluster (which gateways the signal from the ABS module). This secondary signal is used to calculate vehicle position when the GPS signal is lost. It also supports the adaptive learning function of the audio unit, whereby the audio unit can compensate for long-term differences between the GPS signal location, and the actual distance traveled by the vehicle.

DTC B2204 (GPS Antenna Connection Open or Short) — sets when an open, short to ground, or short to voltage is detected in the GPS antenna circuit. If DTC B2204 is present, GO to Pinpoint Test H.

DTC U2473 (Unexpected Vehicle Speed) — sets when the calculated vehicle distance traveled based on the wheel pulse signal does not agree with the GPS antenna location. To do this, the audio unit compares the wheel pulse signal during a 4-second range, and compares it with the change in GPS antenna location. If the audio unit finds that the variation is greater than 0.5% after performing this check 4 times, it sets DTC U2473.

This pinpoint test is intended to diagnose the following:

- VSS signal concern
- Audio unit

PINPOINT TEST L : THE POSITION CURSOR IS INACCURATE

L1 CHECK THE AUDIO UNIT DTCS

- Review the DTCs from the audio unit self-test.

Is DTC U2473 present?

Yes	GO to L2.
No	GO to Pinpoint Test H.

L2 CHECK THE INSTRUMENT CLUSTER AND ABS MODULE DTCS

- Carry out the self-test for the instrument cluster and the ABS module.

Are any DTCs recorded?

Yes	REFER to Section 413-01 (instrument cluster) or Section 206-09 (ABS module) to diagnose a fault in the wheel pulse signal.
No	GO to L3.

L3 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect all the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the audio unit connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.

No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test M: The Speed Sensitive Volume Does Not Operate Correctly

Normal Operation

The speed sensitive volume function adjusts the volume based on the vehicle speed sensor (VSS) signal from the instrument cluster. The instrument cluster does not generate the VSS signal: it gateways the signal from the PCM.

DTC U0155 (Lost Communication With Instrument Panel Cluster Control Module) — sets when the VSS signal is lost for greater than 5 seconds. When the signal is lost, the audio unit turns the speed sensitive volume feature off. The smart junction box (SJB) also receives this signal, and should demonstrate symptoms if the VSS signal is lost. If no symptoms are present, this DTC can be ignored, as it may have been set by a low battery voltage condition.

This pinpoint test is intended to diagnose the following:

- Speed sensitive volume setting
- VSS signal concern
- Audio unit

PINPOINT TEST M : THE SPEED SENSITIVE VOLUME DOES NOT OPERATE CORRECTLY

M1 CHECK THE SPEEDOMETER OPERATION

- Drive the vehicle and observe the speedometer.

Does the speedometer operate correctly?

Yes	GO to M2.
No	REFER to Section 413-01.

M2 CHECK THE SPEED SENSITIVE VOLUME SETTING

- Turn the speed sensitive volume off. Refer to the Owner's Literature.
- Operate the audio unit in radio tuner (AM/FM) mode.
- Drive the vehicle at various speeds and observe the speaker volume.
- Set the speed sensitive volume to maximum compensation. Refer to the Owner's Literature.
- Operate the audio unit in radio tuner (AM/FM) mode.
- Drive the vehicle at various speeds and observe the speaker volume.

Does the volume remain constant with the speed sensitive volume turned off, and increase and decrease with vehicle speed with the speed sensitive volume set to maximum?

Yes	The system is operating correctly at this time. INFORM the customer of proper operation.
No	GO to M3.

M3 CHECK FOR DTC U0155

- Ignition OFF.
- Clear any audio unit DTCs.
- Ignition ON.
- Wait 10 seconds, and re-run the audio unit self-test.
- Run the SJB self-test.

Is DTC U0155 present in both the audio unit and the SJB?

Yes	GO to M5.
No	GO to M4.

M4 CHECK FOR CORRECT AUDIO UNIT OPERATION

- Disconnect all the audio unit connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the audio unit connectors and make sure they seat correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

M5 CHECK FOR CORRECT INSTRUMENT CLUSTER OPERATION

- Disconnect the instrument cluster connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the instrument cluster connector and make sure it seats correctly.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	INSTALL a new instrument cluster. REFER to Section 413-01. CLEAR the audio unit DTCs. TEST the system for normal operation.

No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR the DTCs. REPEAT the self-test.

Pinpoint Test N: The Audio Unit is Inoperative/Does Not Operate Correctly — Audio Input Jack

Refer to Wiring Diagrams Cell 130, Audio System/Navigation for schematic and connector information.

Normal Operation

Audio signals are sent from the audio input jack to the audio unit. There are no external power or ground circuits to the audio input jack.

Possible Causes

- Circuit 2047 (RD/WH) open, short to ground or voltage
- Circuit 2048 (RD/BK) open, short to ground or voltage
- Circuit 2049 (LG/WH) open, short to ground or voltage
- Circuit 2050 (LG/BK) open, short to ground or voltage
- Audio input jack
- Audio unit

PINPOINT TEST N : THE AUDIO UNIT IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — AUDIO INPUT JACK

NOTICE: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

NOTE: *Before performing this pinpoint test, be sure the MP3 device is operating correctly.*

N1 CHECK THE AUDIO INPUT JACK CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Input Jack C3312 .
- Ignition ON.
- Measure the voltage between the audio input jack, harness side and ground as follows:

Audio Input Jack Connector-Pin	Circuit
C3312 Pin 1	2048 (RD/BK)
C3312 Pin 2	2047 (RD/WH)
C3312 Pin 3	2049 (LG/WH)
C3312 Pin 4	2050 (LG/BK)

Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.

No	GO to N2.

N2 CHECK THE AUDIO INPUT JACK CIRCUITS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Disconnect: Audio Unit C290A .
- Measure the resistance between the audio input jack, harness side and the audio unit, harness side; and between the audio input jack, harness side and ground as follows:

Audio Input Jack Connector-Pin	Audio Unit Connector-Pin	Circuit
C3312 Pin 1	C290A Pin 6	2048 (RD/BK)
C3312 Pin 2	C290A Pin 14	2047 (RD/WH)
C3312 Pin 3	C290A Pin 8	2049 (LG/WH)
C3312 Pin 4	C290A Pin 7	2050 (LG/BK)

Is the resistance less than 5 ohms between the audio input jack and the audio unit, and greater than 10,000 ohms between the audio input jack and ground?

Yes	GO to N3.
No	REPAIR the circuit in question. TEST the system for normal operation.

N3 SUBSTITUTE THE AUDIO INPUT JACK

- Install a known good audio input jack.
- Operate the audio unit in auxiliary audio mode.

Does the system operate correctly?

Yes	INSTALL a new audio input jack. TEST the system for normal operation.
No	INSTALL the original audio input jack. REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Audio Unit in this section. TEST the system for normal operation after the repair.