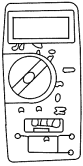
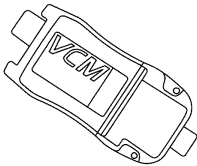
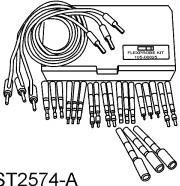


DIAGNOSIS AND TESTING

Audio System

Special Tool(s)

 <p>ST1137-A</p>	73III Automotive Meter 105-R0057 or equivalent
 <p>ST2834-A</p>	Vehicle Communication Module (VCM) and Integrated Diagnostic System (IDS) software with appropriate hardware, or equivalent scan tool
 <p>ST2574-A</p>	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 controller area network (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.

Inspection and Verification

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

DIAGNOSIS AND TESTING (Continued)**Visual Inspection Chart**

Mechanical	Electrical
<ul style="list-style-type: none"> • Audio unit • Antenna or antenna cable(s) • Satellite radio antenna • Speakers, mounting/speaker cones • Radio ignition interference capacitors, radio frequency interference suppression bond, and radio receiver hood bonding strap 	<ul style="list-style-type: none"> • Smart junction box (SJB) fuse(s): <ul style="list-style-type: none"> — 6 (5A) (audio unit) — 20 (10A) (audio unit) • Bussed electrical center (BEC) fuse(s): <ul style="list-style-type: none"> — 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, 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](#).

DIAGNOSIS AND TESTING (Continued)

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](#).

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](#).

DIAGNOSIS AND TESTING (Continued)**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.
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 Section 415-01. TEST the system for normal operation after the repair.
B2103	Antenna Not Connected	GO to Pinpoint Test A.
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.
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 Section 415-01. TEST the system for normal operation after the repair.
B2477	Module Configuration Failure	REFER to Section 418-01 to diagnose the module configuration.
B2924	Audio Button Stuck	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 Section 415-01. 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.

DIAGNOSIS AND TESTING (Continued)**Audio Unit Diagnostic Trouble Code (DTC) Index (Continued)**

DTC	Description	Action
U0140	Lost Communication With Body Control Module (GEM)	<p>NOTE: Diagnose DTC B1318 (if present) before diagnosing DTC U0140.</p> <p>VERIFY the operation of the vehicle illumination and the accessory delay.</p> <ul style="list-style-type: none"> — 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 Section 415-01. TEST the system for normal operation after the repair.
U0155	Lost Communication With Instrument Panel Cluster (IC) Control Module	<p>NOTE: Diagnose DTC B1318 (if present) before diagnosing DTC U0155.</p> <p>VERIFY the operation of the speedometer.</p> <ul style="list-style-type: none"> — If the speedometer operates correctly, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Section 415-01. TEST the system for normal operation after the repair. — If the speedometer does not operate correctly, REFER to Section 413-01.
U0159	Lost Communication With Parking Assist Control Module (PAM)	DTC is not applicable. The vehicle is not equipped with parking aid. DISREGARD the DTC. CLEAR the DTCs. REPEAT the self-test.
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 Section 415-01. TEST the system for normal operation after the repair.

DIAGNOSIS AND TESTING (Continued)**Audio Unit Diagnostic Trouble Code (DTC) Index (Continued)**

DTC	Description	Action
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 Section 415-01. TEST the system for normal operation after the repair.
All other DTCs	—	REFER to Section 419-07.

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 Section 415-01. TEST the system for normal operation after the repair.
B2477	Module Configuration Failure	REFER to Section 418-01 to diagnose the module configuration.
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 Section 415-01. TEST the system for normal operation after the repair.

DIAGNOSIS AND TESTING (Continued)**Symptom Chart****Symptom Chart**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> No communication with the audio unit 	<ul style="list-style-type: none"> Fuse Circuitry Audio unit 	<ul style="list-style-type: none"> REFER to Section 418-00.
<ul style="list-style-type: none"> No communication with the satellite radio receiver 	<ul style="list-style-type: none"> Fuse Circuitry Audio unit 	<ul style="list-style-type: none"> REFER to Section 418-00.
<ul style="list-style-type: none"> The audio unit is inoperative/does not operate correctly — satellite audio 	<ul style="list-style-type: none"> Circuitry Satellite radio receiver Audio unit 	<ul style="list-style-type: none"> GO to Pinpoint Test F.
<ul style="list-style-type: none"> The audio unit is inoperative/does not operate correctly — navigation 	<ul style="list-style-type: none"> Circuitry Audio unit 	<ul style="list-style-type: none"> REFER to Section 419-07.
<ul style="list-style-type: none"> The audio unit backlighting does not operate correctly 	<ul style="list-style-type: none"> Module configuration Circuitry Audio unit 	<ul style="list-style-type: none"> VERIFY the audio unit is configured for network-based illumination. <ul style="list-style-type: none"> 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.
<ul style="list-style-type: none"> Poor reception — AM/FM 	<ul style="list-style-type: none"> Antenna Antenna cable(s) Charging system Ignition system Noise suppression equipment Audio unit 	<ul style="list-style-type: none"> GO to Pinpoint Test A.
<ul style="list-style-type: none"> Poor reception — satellite audio 	<ul style="list-style-type: none"> Obstructions to the line of sight <ul style="list-style-type: none"> Satellite antenna Satellite antenna cable Satellite radio receiver 	<ul style="list-style-type: none"> DRIVE the vehicle to an open area and TEST the reception. <ul style="list-style-type: none"> 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.

DIAGNOSIS AND TESTING (Continued)**Symptom Chart (Continued)**

Condition	Possible Sources	Action
<ul style="list-style-type: none"> Continuous seek/scan in AM/FM 	<ul style="list-style-type: none"> RDS function setting Antenna cable(s) Noise suppression equipment Antenna Audio unit 	<ul style="list-style-type: none"> VERIFY the RDS is set to ALL SCAN. <ul style="list-style-type: none"> 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.
<ul style="list-style-type: none"> Poor quality/distorted/no sound from one or more speakers (not all speakers) — except subwoofers 	<ul style="list-style-type: none"> Circuitry Speaker Audio unit 	<ul style="list-style-type: none"> GO to Pinpoint Test B.
<ul style="list-style-type: none"> Poor quality/distorted/no sound from all speakers 	<ul style="list-style-type: none"> Circuitry Audio unit 	<ul style="list-style-type: none"> With the key in any position except START, MEASURE the voltage between the audio unit C290d-15, circuit 1000 (RD/BK), harness side and ground. <ul style="list-style-type: none"> 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 Section 415-01. TEST the system for normal operation after the repair.
<ul style="list-style-type: none"> The subwoofer is inoperative/does not operate correctly — front subwoofers 	<ul style="list-style-type: none"> Fuse Circuitry Subwoofer amplifier Front subwoofer Audio unit 	<ul style="list-style-type: none"> GO to Pinpoint Test C.
<ul style="list-style-type: none"> The subwoofer is inoperative/does not operate correctly — rear subwoofers 	<ul style="list-style-type: none"> Fuse Circuitry Subwoofer amplifier Rear subwoofer Audio unit 	<ul style="list-style-type: none"> GO to Pinpoint Test D.
<ul style="list-style-type: none"> Loud popping sound when cycling the ignition switch 	<ul style="list-style-type: none"> Fuse Circuitry Subwoofer amplifier Audio unit 	<ul style="list-style-type: none"> GO to Pinpoint Test E.

DIAGNOSIS AND TESTING (Continued)

Symptom Chart (Continued)

Condition	Possible Sources	Action
<ul style="list-style-type: none"> The speed sensitive volume does not operate correctly. 	<ul style="list-style-type: none"> Instrument cluster Audio unit 	<ul style="list-style-type: none"> CHECK for audio unit DTCs. <ul style="list-style-type: none"> If DTC U0155 is present, REFER to the Audio Unit Diagnostic Trouble Code (DTC) Chart. If no DTCs related to the concern are present, REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Section 415-01. TEST the system for normal operation after the repair.
<ul style="list-style-type: none"> The audio unit is inoperative/does not operate correctly — audio input jack 	<ul style="list-style-type: none"> Circuitry Audio input jack Audio unit 	<ul style="list-style-type: none"> GO to Pinpoint Test H.

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

Test Step		Result / Action to Take
A1	REVIEW THE DTCs	Yes GO to A7 . No GO to A2 .
	<ul style="list-style-type: none"> Review the DTCs from the audio unit self-test. Is DTC B2103 present? 	
A2	CHECK THE AUDIO UNIT RECEPTION	Yes GO to A3 . No GO to A7 .
	<ul style="list-style-type: none"> 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? 	
A3	CHECK THE SUPPRESSION EQUIPMENT/MOUNTING AND CONNECTING CIRCUITS	Yes GO to A4 . No CLEAN, SECURE, or INSTALL new suppression equipment as necessary. TEST the system for normal operation.
	<ul style="list-style-type: none"> Key in OFF position. 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? 	

(Continued)

DIAGNOSIS AND TESTING (Continued)**PINPOINT TEST A: POOR RECEPTION — AM/FM (Continued)**

Test Step		Result / Action to Take
A4	CHECK THE RADIO INTERFERENCE CAPACITOR	<p>Yes INSTALL a new radio interference capacitor. TEST the system for normal operation.</p> <p>No INSTALL the original radio interference capacitor. GO to A5.</p>
	<ul style="list-style-type: none"> • 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? 	
A5	CHECK THE GENERATOR	<p>Yes INSTALL a new generator. REFER to Section 414-02. TEST the system for normal operation.</p> <p>No TURN the key to OFF. CONNECT the voltage regulator. GO to A6.</p>
	<ul style="list-style-type: none"> • Key in OFF position. • Check the generator by disconnecting the voltage regulator. • Start the vehicle. • Operate the audio unit in radio tuner mode. • Is the reception OK? 	
A6	CHECK THE IGNITION CIRCUITS	<p>Yes GO to A10.</p> <p>No REPAIR the ignition system as necessary. TEST the system for normal operation.</p>
	<ul style="list-style-type: none"> • Check the ignition circuits for correct routing, ground, and integrity of connections. • Check the spark plugs and ignition coils. • Are the ignition components OK? 	
A7	CHECK THE ANTENNA GROUND	<p>Yes GO to A9.</p> <p>No GO to A8.</p>
	<ul style="list-style-type: none"> • Key in OFF position. • Measure the resistance between the antenna base and the battery ground cable. • Is the resistance less than 5 ohms? 	
A8	CHECK THE ANTENNA CABLE CONNECTIONS	<p>Yes GO to A9.</p> <p>No CLEAN and SECURE the antenna connections as necessary. CLEAR the DTCs. REPEAT the self-test.</p>
	<ul style="list-style-type: none"> • 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? 	
A9	SUBSTITUTE THE ANTENNA	<p>Yes INSTALL a new antenna. CLEAR the DTCs. REPEAT the self-test.</p> <p>No TURN the key to OFF. INSTALL the original antenna. GO to A10.</p>
	<ul style="list-style-type: none"> • Substitute a known good antenna. • Key in ON position. • Operate the audio unit in radio tuner mode. • Is the reception OK? 	
A10	SUBSTITUTE THE ANTENNA CABLE	<p>Yes INSTALL a new antenna cable. REFER to Section 415-02. CLEAR the DTCs. REPEAT the self-test.</p> <p>No TURN the key to OFF. INSTALL the original antenna cable. GO to A11.</p>
	<ul style="list-style-type: none"> • Substitute a known good antenna cable. • Key in ON position. • Operate the audio unit in radio tuner mode. • Is the reception OK? 	
A11	SUBSTITUTE THE AUDIO UNIT	<p>Yes SEND the original audio unit to an authorized audio system repair facility. TEST the system for normal operation after the repair.</p> <p>No INSTALL the original audio unit. GO to A12.</p>
	<ul style="list-style-type: none"> • Substitute a known good audio unit. • Start the vehicle. • Operate the audio unit in radio tuner mode. • Is the reception OK? 	

(Continued)

DIAGNOSIS AND TESTING (Continued)

PINPOINT TEST A: POOR RECEPTION — AM/FM (Continued)

Test Step		Result / Action to Take
A12	REPOSITION THE COMPONENTS	<p>Yes Permanently REPOSITION the components as needed. TEST the system for normal operation.</p> <p>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.</p>
	<ul style="list-style-type: none"> 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? 	

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.

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

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

Test Step		Result / Action to Take
B1	CHECK THE SPEAKER CIRCUITS FOR VOLTAGE	
	<ul style="list-style-type: none"> Key in OFF position. Disconnect: Suspect Speaker. Key in ON position. 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: 	

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step			Result / Action to Take
B1	CHECK THE SPEAKER CIRCUITS FOR VOLTAGE (Continued)		<p>Yes INSTALL a new speaker for the suspect speaker. REFER to Section 415-03. CLEAR the DTCs. REPEAT the speaker walk-around test.</p> <p>No GO to B2.</p>
Suspect Speaker	Connector-Pin/ Circuit	Connector-Pin/ Circuit	
LH front	C523-1 1723 (OG/LG)	C523-2 1722 (LB/WH)	
RH front	C612-1 1778 (WH/LG)	C612-2 1777 (DG/OG)	
LH rear	C484-1 1726 (GY/LB)	C484-2 1725 (TN/YE)	
RH rear	C485-1 1781 (OG/RD)	C485-2 1780 (BN/PK)	
<ul style="list-style-type: none"> • Is an alternating AC voltage present? 			
B2	CHECK THE SPEAKER CIRCUITS FOR A SHORT TO VOLTAGE		<p>Yes REPAIR the circuit in question. CLEAR the DTCs. REPEAT the speaker walk-around test.</p> <p>No GO to B3.</p>
<ul style="list-style-type: none"> • Key in OFF position. • Disconnect: Audio Unit C290d. • Key in ON position. • Measure the voltage between the suspect speaker, harness side and ground as follows: 			
Suspect Speaker	Connector-Pin	Circuit	
LH front	C523-1 C523-2	1723 (OG/LG) 1722 (LB/WH)	
RH front	C612-1 C612-2	1778 (WH/LG) 1777 (DG/OG)	
LH rear	C484-1 C484-2	1726 (GY/LB) 1725 (TN/YE)	
RH rear	C485-1 C485-2	1781 (OG/RD) 1780 (BN/PK)	
<ul style="list-style-type: none"> • Is any voltage present? 			
B3	CHECK THE SPEAKER CIRCUITS FOR AN OPEN OR SHORT TO GROUND		
<ul style="list-style-type: none"> • Key in OFF position. • 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: 			

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step				Result / Action to Take	
B3	CHECK THE SPEAKER CIRCUITS FOR AN OPEN OR SHORT TO GROUND (Continued)			<p>Yes GO to B4.</p> <p>No REPAIR the circuit in question. CLEAR the DTCs. REPEAT the speaker walk-around test.</p>	
	Suspect Speaker	Speaker Connector-Pin	Audio Unit Connector-Pin		Circuit
	LH front	C523-1	C290d-8		1723 (OG/LG)
	LH front	C523-2	C290d-21		1722 (LB/WH)
	RH front	C612-1	C290d-11		1778 (WH/LG)
	RH front	C612-2	C290d-12		1777 (DG/OG)
	LH rear	C484-1	C290d-9		1726 (GY/LB)
	LH rear	C484-2	C290d-22		1725 (TN/YE)
	RH rear	C485-1	C290d-10		1781 (OG/RD)
	RH rear	C485-2	C290d-23		1780 (BN/PK)
	<ul style="list-style-type: none"> 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? 				
B4	CHECK FOR CORRECT AUDIO UNIT OPERATION			<p>Yes REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Section 415-01. TEST the system for normal operation after the repair.</p> <p>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.</p>	
	<ul style="list-style-type: none"> Disconnect the audio unit connectors. Check for: <ul style="list-style-type: none"> 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? 				

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

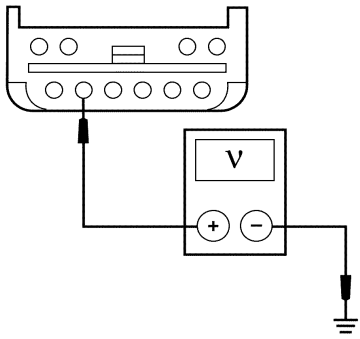
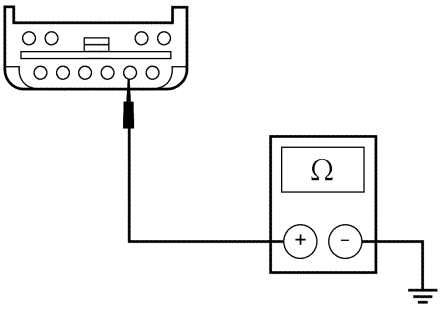
- Fuse
- Circuit 167 (BN/OG) open, short to ground or voltage
- Circuit 168 (RD/BK) open, short to ground or voltage
- Circuit 173 (DG/VT) open or short to ground
- Circuit 804 (OG/LG) open, short to ground or voltage
- Circuit 805 (WH/LG) open, short to ground or voltage
- Circuit 811 (DG/OG) open, 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

DIAGNOSIS AND TESTING (Continued)

- 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

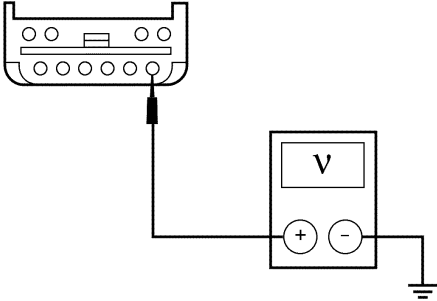
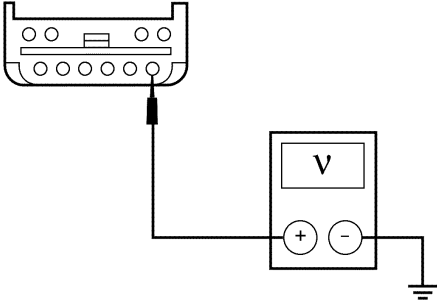
⚠ CAUTION: Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

	Test Step	Result / Action to Take
C1	<p>CHECK CIRCUIT 829 (WH/VT) FOR VOLTAGE</p> <ul style="list-style-type: none"> • Key in OFF position. • Disconnect: Left Front Subwoofer Amplifier C2993a and Right Front Subwoofer Amplifier C2994a. • Measure the voltage between the left front subwoofer amplifier C2993a-5, circuit 829 (WH/VT), harness side and ground; and between the right front subwoofer amplifier C2994a-5, circuit 829 (WH/VT), harness side and ground.  <p>A0021366</p> <ul style="list-style-type: none"> • Are the voltages greater than 10 volts? 	<p>Yes GO to C2.</p> <p>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.</p>
C2	<p>CHECK CIRCUIT 1204 (BK/OG) FOR AN OPEN</p> <ul style="list-style-type: none"> • Measure the resistance between the left front subwoofer amplifier C2993a-2, circuit 1204 (BK/OG), harness side and ground; and between the right front subwoofer amplifier C2994a-2, circuit 1204 (BK/OG), harness side and ground.  <p>GK5794-A</p> <ul style="list-style-type: none"> • Are the resistances less than 5 ohms? 	<p>Yes GO to C3.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>
C3	<p>CHECK CIRCUIT 173 (DG/VT) FOR VOLTAGE</p> <ul style="list-style-type: none"> • Key in ON position. • Operate the audio unit in radio tuner mode. 	

(Continued)

DIAGNOSIS AND TESTING (Continued)

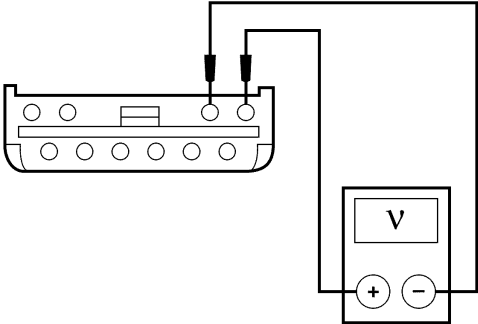
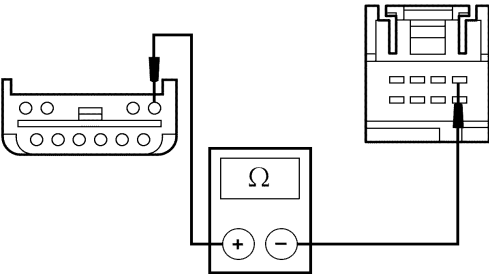
PINPOINT TEST C: THE SUBWOOFER IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — FRONT SUBWOOFER (Continued)

Test Step		Result / Action to Take
C3	CHECK CIRCUIT 173 (DG/VT) FOR VOLTAGE (Continued)	
<ul style="list-style-type: none"> Measure the voltage between the left front subwoofer amplifier C2993a-1, circuit 173 (DG/VT), harness side and ground; and between the right front subwoofer amplifier C2994a-1, circuit 173 (DG/VT), harness side and ground.  <p style="text-align: center;">GK4985-A</p> <ul style="list-style-type: none"> Is the voltage between 3.8 and 6.7 volts at both amplifiers? 		<p>Yes GO to C6.</p> <p>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.</p>
C4	CHECK CIRCUIT 173 (DG/VT) FOR A SHORT TO VOLTAGE	
<ul style="list-style-type: none"> Key in OFF position. Disconnect: Audio Unit C290b. Key in ON position. Measure the voltage between the left front subwoofer amplifier C2993a-1, circuit 173 (DG/VT), harness side and ground.  <p style="text-align: center;">GK4985-A</p> <ul style="list-style-type: none"> Is any voltage present? 		<p>Yes REPAIR the circuit. TEST the system for normal operation.</p> <p>No GO to C5.</p>
C5	CHECK CIRCUIT 173 (DG/VT) FOR AN OPEN OR SHORT TO GROUND	
<ul style="list-style-type: none"> Key in OFF position. Measure the resistance between the left front subwoofer amplifier C2993a-1, circuit 173 (DG/VT), harness side and the audio unit C290b-4, circuit 173 (DG/VT); and between the left front subwoofer amplifier C2993a-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? 		<p>Yes GO to C13.</p> <p>No REPAIR the circuit. TEST the system for normal operation.</p>
C6	CHECK THE AUDIO SIGNALS TO THE FRONT SUBWOOFER AMPLIFIER	
<ul style="list-style-type: none"> Operate the audio unit in radio tuner mode. 		

(Continued)

DIAGNOSIS AND TESTING (Continued)

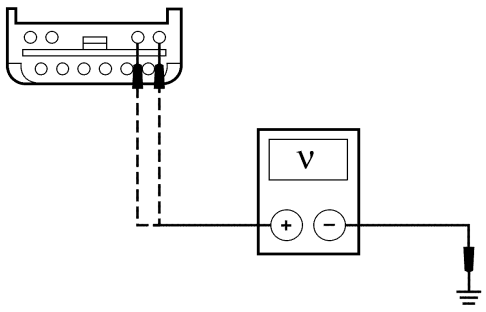
PINPOINT TEST C: THE SUBWOOFER IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — FRONT SUBWOOFER (Continued)

Test Step		Result / Action to Take
C6	<p>CHECK THE AUDIO SIGNALS TO THE FRONT SUBWOOFER AMPLIFIER (Continued)</p> <ul style="list-style-type: none"> Measure the AC voltage between the left front subwoofer amplifier C2993a-7, circuit 167 (BN/OG), harness side and the left front subwoofer amplifier C2993a-8, circuit 168 (RD/BK), harness side; and between the right front subwoofer amplifier C2994a-7, circuit 167 (BN/OG), harness side and the right front subwoofer amplifier C2994a-8, circuit 168 (RD/BK), harness side.  <p>A0057176</p> <ul style="list-style-type: none"> Is a fluctuating AC voltage present at both amplifiers? 	<p>Yes GO to C10.</p> <p>No If the voltage is incorrect at one amplifier only, GO to C7. If the voltage is incorrect at both amplifiers, GO to C8.</p>
C7	<p>CHECK CIRCUIT 167 (BN/OG) FOR AN OPEN</p> <p>NOTE: Carry out this step only for the inoperative subwoofer.</p> <ul style="list-style-type: none"> Key in OFF position. Disconnect: Audio Unit C290b. Measure the resistance between the left front subwoofer amplifier C2993a-7, circuit 167 (BN/OG), harness side and the audio unit C290b-1, circuit 167 (BN/OG), harness side; or between the right front subwoofer amplifier C2993a-7, circuit 167 (BN/OG), harness side and the audio unit C290b-1, circuit 167 (BN/OG), harness side.  <p>N0056195</p> <ul style="list-style-type: none"> Is the resistance less than 5 ohms? 	<p>Yes REPAIR circuit 168 (RD/BK). TEST the system for normal operation.</p> <p>No REPAIR circuit 167 (BN/OG). TEST the system for normal operation.</p>
C8	<p>CHECK CIRCUITS 167 (BN/OG) AND 168 (RD/BK) FOR A SHORT TO VOLTAGE</p> <ul style="list-style-type: none"> Key in OFF position. Disconnect: Audio Unit C290b. Key in ON position. 	

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step		Result / Action to Take									
C8	CHECK CIRCUITS 167 (BN/OG) AND 168 (RD/BK) FOR A SHORT TO VOLTAGE (Continued)										
<ul style="list-style-type: none"> Measure the voltage between the left front subwoofer amplifier C2993a-7, circuit 167 (BN/OG), harness side and ground; and between the left front subwoofer amplifier C2993a-8, circuit 168 (RD/BK), harness side and ground.  <p>N0035293</p> <ul style="list-style-type: none"> Is any voltage present? 		<p>Yes REPAIR the circuit in question. TEST the system for normal operation.</p> <p>No GO to C9.</p>									
C9	CHECK CIRCUITS 167 (BN/OG) AND 168 (RD/BK) FOR AN OPEN OR SHORT TO GROUND										
<ul style="list-style-type: none"> Key in OFF position. 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: <table border="1" data-bbox="142 1123 971 1312"> <thead> <tr> <th>Subwoofer Amplifier Connector-Pin</th> <th>Audio Unit Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>C2993a-7</td> <td>C290b-1</td> <td>167 (BN/OG)</td> </tr> <tr> <td>C2993a-8</td> <td>C290b-2</td> <td>168 (RD/BK)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> 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? 		Subwoofer Amplifier Connector-Pin	Audio Unit Connector-Pin	Circuit	C2993a-7	C290b-1	167 (BN/OG)	C2993a-8	C290b-2	168 (RD/BK)	<p>Yes GO to C13.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>
Subwoofer Amplifier Connector-Pin	Audio Unit Connector-Pin	Circuit									
C2993a-7	C290b-1	167 (BN/OG)									
C2993a-8	C290b-2	168 (RD/BK)									
C10	CHECK THE AUDIO CIRCUITS TO THE SUSPECT FRONT SUBWOOFER										
<ul style="list-style-type: none"> Key in OFF position. Connect: Left Front Subwoofer Amplifier C2993a and Right Front Subwoofer Amplifier C2994a. Disconnect: Left Front Subwoofer C536 or Right Front Subwoofer C628. Key in ON position. Operate the audio unit in radio tuner mode. Measure the AC voltage between the suspect front subwoofer circuits, harness side as follows: 											

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step			Result / Action to Take
C10	CHECK THE AUDIO CIRCUITS TO THE SUSPECT FRONT SUBWOOFER (Continued)		<p>Yes INSTALL a new subwoofer for the suspect subwoofer. REFER to Section 415-03. TEST the system for normal operation.</p> <p>No GO to C11.</p>
	Suspect Subwoofer	Subwoofer Connector-Pin/Circuit	
	Left front	C536-1 804 (OG/LG)	
	Left front	C536-2 813 (LB/WH)	
	Left front	C536-3 820 (DB/YE)	
	Right front	C536-4 819 (LG/WH)	
	Right front	C628-1 805 (WH/LG)	
	Right front	C628-2 811 (DG/OG)	
	Right front	C628-3 816 (LG/VT)	
	Right front	C628-4 815 (LG/OG)	
	<ul style="list-style-type: none"> Is a fluctuating AC voltage present? 		
C11	CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR A SHORT TO VOLTAGE		<p>Yes REPAIR the circuit in question. TEST the system for normal operation.</p> <p>No GO to C12.</p>
	<ul style="list-style-type: none"> Key in OFF position. Disconnect: Left Front Subwoofer Amplifier C2993a and Right Front Subwoofer Amplifier C2994a. Key in ON position. Measure the voltage between the suspect front subwoofer, harness side and ground as follows: 		
	Suspect Subwoofer	Subwoofer Connector-Pin	
	Left front	C536-1 804 (OG/LG)	
		C536-2 813 (LB/WH)	
		C536-3 820 (DB/YE)	
		C536-4 819 (LG/WH)	
	Right front	C628-1 805 (WH/LG)	
		C628-2 811 (DG/OG)	
		C628-3 816 (LG/VT)	
		C628-4 815 (LG/OG)	
	<ul style="list-style-type: none"> Is any voltage present? 		
C12	CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR AN OPEN OR SHORT TO GROUND		
	<ul style="list-style-type: none"> Key in OFF position. 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: 		

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step				Result / Action to Take
C12	CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR AN OPEN OR SHORT TO GROUND (Continued)			
	Suspect Subwoofer	Subwoofer Connector-Pin	Audio Unit Connector-Pin	
	Left front	C536-1	C2993b-1	804 (OG/LG)
		C536-2	C2993b-2	813 (LB/WH)
		C536-3	C2993b-3	820 (DB/YE)
		C536-4	C2993b-4	819 (LG/WH)
	Right front	C628-1	C2994b-1	805 (WH/LG)
		C628-2	C2994b-2	811 (DG/OG)
		C628-3	C2994b-3	816 (LG/VT)
		C628-4	C2994b-4	815 (LG/OG)
	<ul style="list-style-type: none"> 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? 			<p>Yes INSTALL a new front subwoofer amplifier for the suspect amplifier. REFER to Section 415-01. TEST the system for normal operation.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>
C13	CHECK FOR CORRECT AUDIO UNIT OPERATION			
	<ul style="list-style-type: none"> Disconnect the audio unit connectors. Check for: <ul style="list-style-type: none"> 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? 			

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

DIAGNOSIS AND TESTING (Continued)

- Subwoofer amplifier
- Subwoofer
- Audio unit

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

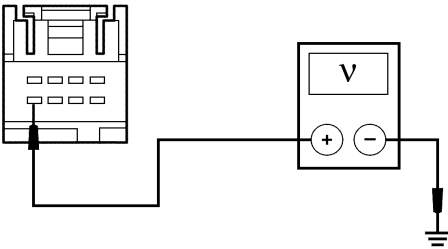
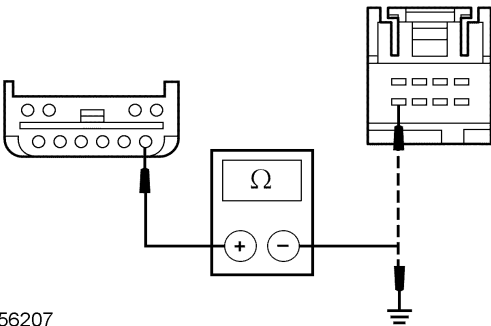
 **CAUTION:** Use the correct probe adaptor(s) when making measurements. Failure to use the correct probe adaptor(s) may damage the connector.

Test Step		Result / Action to Take															
D1	CHECK CIRCUIT 828 (VT/LB) OR 830 (PK/YE) FOR VOLTAGE																
<ul style="list-style-type: none"> • Key in OFF position. • Disconnect: Suspect Subwoofer Amplifier(s). • Measure the voltage between the suspect subwoofer amplifier, harness side and ground as follows: 																	
<table border="1"> <thead> <tr> <th>Suspect Subwoofer Amplifier</th> <th>Subwoofer Amplifier Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>Left outboard</td> <td>C4157a-5</td> <td>830 (PK/YE)</td> </tr> <tr> <td>Left inboard</td> <td>C4158a-5</td> <td>828 (VT/LB)</td> </tr> <tr> <td>Right inboard</td> <td>C4159a-5</td> <td>830 (PK/YE)</td> </tr> <tr> <td>Right outboard</td> <td>C4160a-5</td> <td>828 (VT/LB)</td> </tr> </tbody> </table>		Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit	Left outboard	C4157a-5	830 (PK/YE)	Left inboard	C4158a-5	828 (VT/LB)	Right inboard	C4159a-5	830 (PK/YE)	Right outboard	C4160a-5	828 (VT/LB)	
Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit															
Left outboard	C4157a-5	830 (PK/YE)															
Left inboard	C4158a-5	828 (VT/LB)															
Right inboard	C4159a-5	830 (PK/YE)															
Right outboard	C4160a-5	828 (VT/LB)															
<ul style="list-style-type: none"> • Is the voltage greater than 10 volts? 		<p>Yes GO to D2.</p> <p>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.</p>															
D2	CHECK CIRCUIT 1204 (BK/OG) FOR AN OPEN																
<ul style="list-style-type: none"> • Measure the resistance between the suspect subwoofer amplifier, harness side and ground as follows: 																	
<table border="1"> <thead> <tr> <th>Suspect Subwoofer Amplifier</th> <th>Subwoofer Amplifier Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>Left outboard</td> <td>C4157a-2</td> <td>1204 (BK/OG)</td> </tr> <tr> <td>Left inboard</td> <td>C4158a-2</td> <td>1204 (BK/OG)</td> </tr> <tr> <td>Right inboard</td> <td>C4159a-2</td> <td>1204 (BK/OG)</td> </tr> <tr> <td>Right outboard</td> <td>C4160a-2</td> <td>1204 (BK/OG)</td> </tr> </tbody> </table>		Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit	Left outboard	C4157a-2	1204 (BK/OG)	Left inboard	C4158a-2	1204 (BK/OG)	Right inboard	C4159a-2	1204 (BK/OG)	Right outboard	C4160a-2	1204 (BK/OG)	
Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit															
Left outboard	C4157a-2	1204 (BK/OG)															
Left inboard	C4158a-2	1204 (BK/OG)															
Right inboard	C4159a-2	1204 (BK/OG)															
Right outboard	C4160a-2	1204 (BK/OG)															
<ul style="list-style-type: none"> • Is the resistance less than 5 ohms? 		<p>Yes GO to D3.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>															
D3	CHECK CIRCUIT 174 (GY/BK) FOR VOLTAGE																
<ul style="list-style-type: none"> • Key in ON position. • Operate the audio unit in radio tuner mode. • Measure the voltage between the suspect subwoofer speaker, harness side and ground as follows: 																	
<table border="1"> <thead> <tr> <th>Suspect Subwoofer Amplifier</th> <th>Subwoofer Amplifier Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>Left outboard</td> <td>C4157a-1</td> <td>174 (GY/BK)</td> </tr> <tr> <td>Left inboard</td> <td>C4158a-1</td> <td>174 (GY/BK)</td> </tr> <tr> <td>Right inboard</td> <td>C4159a-1</td> <td>174 (GY/BK)</td> </tr> <tr> <td>Right outboard</td> <td>C4160a-1</td> <td>174 (GY/BK)</td> </tr> </tbody> </table>		Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit	Left outboard	C4157a-1	174 (GY/BK)	Left inboard	C4158a-1	174 (GY/BK)	Right inboard	C4159a-1	174 (GY/BK)	Right outboard	C4160a-1	174 (GY/BK)	
Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Circuit															
Left outboard	C4157a-1	174 (GY/BK)															
Left inboard	C4158a-1	174 (GY/BK)															
Right inboard	C4159a-1	174 (GY/BK)															
Right outboard	C4160a-1	174 (GY/BK)															
<ul style="list-style-type: none"> • Is the voltage between 3.8 and 6.7 volts? 		<p>Yes GO to D6.</p> <p>No GO to D4.</p>															

(Continued)

DIAGNOSIS AND TESTING (Continued)

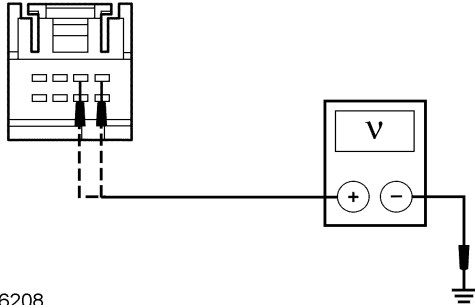
PINPOINT TEST D: THE SUBWOOFER IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — REAR SUBWOOFER (Continued)

Test Step		Result / Action to Take
D4	<p>CHECK CIRCUIT 174 (GY/BK) FOR A SHORT TO VOLTAGE</p> <ul style="list-style-type: none"> Key in OFF position. Disconnect: Audio Unit C290b. Key in ON position. Measure the voltage between the audio unit C290b-8, circuit 174 (GY/BK), harness side and ground.  <p>N0056196</p> <ul style="list-style-type: none"> Is any voltage present? 	<p>Yes REPAIR the circuit. TEST the system for normal operation.</p> <p>No GO to D5.</p>
D5	<p>CHECK CIRCUIT 174 (GY/BK) FOR AN OPEN OR SHORT TO GROUND</p> <ul style="list-style-type: none"> Key in OFF position. Measure the resistance between the suspect subwoofer amplifier pin 8, circuit 174 (GY/BK), harness side and the audio unit C290b-8, circuit 174 (GY/BK), harness side; and between the suspect subwoofer speaker pin 8, circuit 174 (GY/BK), harness side and ground.  <p>N0056207</p> <ul style="list-style-type: none"> 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? 	<p>Yes GO to D12.</p> <p>No REPAIR the circuit. TEST the system for normal operation.</p>
D6	<p>CHECK THE AUDIO SIGNALS TO THE SUSPECT SUBWOOFER AMPLIFIER</p> <ul style="list-style-type: none"> Operate the audio unit in radio tuner mode. Measure the AC voltage at the suspect subwoofer amplifier, harness side as follows: 	

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step		Result / Action to Take															
D6	CHECK THE AUDIO SIGNALS TO THE SUSPECT SUBWOOFER AMPLIFIER (Continued)																
	<table border="1"> <thead> <tr> <th>Suspect Subwoofer Amplifier</th> <th>Subwoofer Amplifier Connector-Pin/ Circuit</th> <th>Subwoofer Amplifier Connector-Pin/ Circuit</th> </tr> </thead> <tbody> <tr> <td>Left outboard</td> <td>C4157a-7 179 (OG/RD)</td> <td>C4157a-8 176 (PK/LG)</td> </tr> <tr> <td>Left inboard</td> <td>C4158a-7 179 (OG/RD)</td> <td>C4158a-8 176 (PK/LG)</td> </tr> <tr> <td>Right inboard</td> <td>C4159a-7 179 (OG/RD)</td> <td>C4159a-8 176 (PK/LG)</td> </tr> <tr> <td>Right outboard</td> <td>C4160a-7 179 (OG/RD)</td> <td>C4160a-8 176 (PK/LG)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Is a fluctuating AC voltage present? 	Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin/ Circuit	Subwoofer Amplifier Connector-Pin/ Circuit	Left outboard	C4157a-7 179 (OG/RD)	C4157a-8 176 (PK/LG)	Left inboard	C4158a-7 179 (OG/RD)	C4158a-8 176 (PK/LG)	Right inboard	C4159a-7 179 (OG/RD)	C4159a-8 176 (PK/LG)	Right outboard	C4160a-7 179 (OG/RD)	C4160a-8 176 (PK/LG)	<p>Yes GO to D9.</p> <p>No GO to D7.</p>
Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin/ Circuit	Subwoofer Amplifier Connector-Pin/ Circuit															
Left outboard	C4157a-7 179 (OG/RD)	C4157a-8 176 (PK/LG)															
Left inboard	C4158a-7 179 (OG/RD)	C4158a-8 176 (PK/LG)															
Right inboard	C4159a-7 179 (OG/RD)	C4159a-8 176 (PK/LG)															
Right outboard	C4160a-7 179 (OG/RD)	C4160a-8 176 (PK/LG)															
D7	CHECK CIRCUITS 176 (PK/LG) AND 179 (OG/RD) FOR A SHORT TO VOLTAGE																
	<ul style="list-style-type: none"> Key in OFF position. Disconnect: Audio Unit C290b. Key in ON position. Measure the voltage between the audio unit C290b-5, circuit 176 (PK/LG), harness side and ground; and between the audio unit C290b-6, circuit 179 (OG/RD), harness side and ground.  <p>N0056208</p> <ul style="list-style-type: none"> Is any voltage present? 	<p>Yes REPAIR the circuit in question. TEST the system for normal operation.</p> <p>No GO to D8.</p>															
D8	CHECK CIRCUITS 176 (PK/LG) AND 179 (OG/RD) FOR AN OPEN OR SHORT TO GROUND																
	<ul style="list-style-type: none"> Key in OFF position. 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: 																

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step				Result / Action to Take
D8	CHECK CIRCUITS 176 (PK/LG) AND 179 (OG/RD) FOR AN OPEN OR SHORT TO GROUND (Continued)			<p>Yes GO to D12.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>
	Suspect Subwoofer Amplifier	Subwoofer Amplifier Connector-Pin	Audio Unit Connector-Pin Circuit	
	Left outboard	C4157a-8 C4157a-8	C290b-6 C290b-5 179 (OG/RD) 176 (PK/LG)	
	Left inboard	C4158a-8 C4158a-8	C290b-6 C290b-5 179 (OG/RD) 176 (PK/LG)	
	Right inboard	C4159a-8 C4159a-8	C290b-6 C290b-5 179 (OG/RD) 176 (PK/LG)	
	Right outboard	C4160a-8 C4160a-8	C290b-6 C290b-5 179 (OG/RD) 176 (PK/LG)	
	<ul style="list-style-type: none"> 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? 			
D9	CHECK THE AUDIO CIRCUITS TO THE SUSPECT REAR SUBWOOFER			<p>Yes INSTALL a new subwoofer for the suspect subwoofer. REFER to Section 415-03. TEST the system for normal operation.</p> <p>No GO to D10.</p>
	<ul style="list-style-type: none"> Key in OFF position. Connect: Suspect Subwoofer Amplifier. Disconnect: Suspect Rear Subwoofer. Key in ON position. 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	C4161-1 800 (GY/LB)	C4161-2 801 (TN/YE)	
	Left inboard	C4161-3 806 (PK/LB)	C4161-4 807 (PK/LG)	
	Right inboard	C4162-1 802 (OG/RD)	C4162-2 803 (BN/PK)	
	Right outboard	C4162-3 825 (TN/LG)	C4162-4 827 (TN/WH)	
	<ul style="list-style-type: none"> Is a fluctuating AC voltage present? 			
D10	CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR A SHORT TO VOLTAGE			
	<ul style="list-style-type: none"> Key in OFF position. Disconnect: Suspect Subwoofer Amplifier C4157b, C4158b, C4159b, or C4160b. Key in ON position. Measure the voltage between the suspect rear subwoofer, harness side and ground as follows: 			

(Continued)

DIAGNOSIS AND TESTING (Continued)**PINPOINT TEST D: THE SUBWOOFER IS INOPERATIVE/DOES NOT OPERATE CORRECTLY — REAR SUBWOOFER (Continued)**

Test Step			Result / Action to Take		
D10	CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR A SHORT TO VOLTAGE (Continued)		<p>Yes REPAIR the circuit in question. TEST the system for normal operation.</p> <p>No GO to D11.</p>		
	Suspect Subwoofer	Subwoofer Connector-Pin		Circuit	
	Left outboard	C4161-1		800 (GY/LB)	
		C4161-2		801 (TN/YE)	
	Left inboard	C4161-3		806 (PK/LB)	
		C4161-4		807 (PK/LG)	
	Right inboard	C4162-1		802 (OG/RD)	
		C4162-2		803 (BN/PK)	
	Right outboard	C4162-3		825 (TN/LG)	
		C4162-4		827 (TN/WH)	
	<ul style="list-style-type: none"> • Is any voltage present? 				
D11	CHECK THE AUDIO CIRCUITS TO THE SUSPECT SUBWOOFER FOR AN OPEN OR SHORT TO GROUND		<p>Yes INSTALL a new rear subwoofer amplifier for the suspect amplifier. REFER to Section 415-01. TEST the system for normal operation.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>		
	<ul style="list-style-type: none"> • Key in OFF position. • 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	C4161-1		C4157b-4	800 (GY/LB)
		C4161-2		C4157b-3	801 (TN/YE)
	Left inboard	C4161-3		C4158b-4	806 (PK/LB)
		C4161-4		C4158b-3	807 (PK/LG)
	Right inboard	C4162-1		C4159b-4	802 (OG/RD)
		C4162-2		C4159b-3	803 (BN/PK)
	Right outboard	C4162-3		C4160b-4	825 (TN/LG)
		C4162-4	C4160b-3	827 (TN/WH)	
	<ul style="list-style-type: none"> • 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? 				
D12	CHECK FOR CORRECT AUDIO UNIT OPERATION		<p>Yes REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Section 415-01. TEST the system for normal operation after the repair.</p> <p>No The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.</p>		
	<ul style="list-style-type: none"> • Disconnect the audio unit connectors. • Check for: <ul style="list-style-type: none"> — 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? 				

DIAGNOSIS AND TESTING (Continued)

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

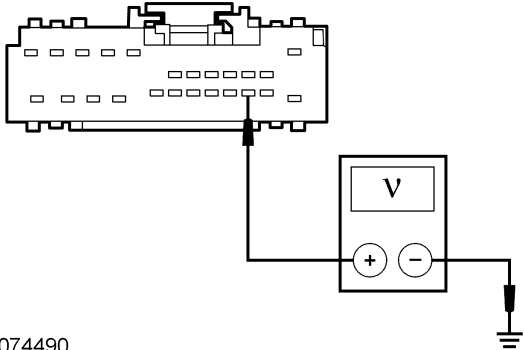
Voltage is supplied to the audio unit through circuit 1000 (RD/BK) when the ignition switch is turned to the START position. When the audio unit receives this voltage, it mutes all speaker outputs and subwoofer amplifier enable circuits to eliminate the possibility of speaker pops during engine cranking.

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

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

Test Step		Result / Action to Take
E1	<p>CHECK CIRCUIT 1000 (RD/BK) FOR VOLTAGE</p> <ul style="list-style-type: none"> • Key in OFF position. • Disconnect: Audio Unit C290d. • Disconnect: Starter Relay. • Key in START position. • Measure the voltage between the audio unit C290d-15 circuit 1000 (RD/BK), harness side and ground.  <p>A0074490</p> <ul style="list-style-type: none"> • Is the voltage greater than 10 volts? 	<p>Yes GO to E2.</p> <p>No VERIFY the smart junction box (SJB) fuse 20 (10A) is OK. If OK, REPAIR the circuit. TEST the system for normal operation.</p>
E2	<p>ISOLATE THE FRONT/REAR SUBWOOFERS</p> <p>NOTE: Repeat this step for each subwoofer amplifier.</p> <ul style="list-style-type: none"> • Key in OFF position. • 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? 	<p>Yes INSTALL a new subwoofer amplifier for the suspect subwoofer amplifier. REFER to Section 415-01 or Section 415-03. TEST the system for normal operation.</p> <p>No GO to E3.</p>
E3	<p>CHECK FOR CORRECT AUDIO UNIT OPERATION</p> <ul style="list-style-type: none"> • Connect: Starter Relay. • Disconnect the audio unit connectors. • Check for: <ul style="list-style-type: none"> — 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? 	<p>Yes REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Section 415-01. TEST the system for normal operation after the repair.</p> <p>No The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.</p>

DIAGNOSIS AND TESTING (Continued)

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

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

Test Step		Result / Action to Take
F1	VERIFY AN ACTIVE SUBSCRIPTION	<p>Yes The subscription has expired. INFORM the customer to contact Sirius to re-activate the subscription.</p> <p>No GO to F2.</p>
	<ul style="list-style-type: none"> • Enter satellite mode on the audio unit and observe the display. • Does the display read CALL SIRIUS? 	
F2	CHECK SATELLITE RADIO RECEIVER OPERATION	<p>Yes GO to F6.</p> <p>No GO to F3.</p>
	<ul style="list-style-type: none"> • Perform the satellite bezel diagnostic self-test. • Are alternating LH/RH tones audible? 	
F3	CHECK THE RECORDED DTCs	<p>Yes If DTC B1031 SAT or DTC B1032 SAT is present, GO to Pinpoint Test G.</p> <p>For all other DTCs, REFER to the Satellite Radio Receiver Diagnostic Trouble Code (DTC) Index in this section.</p> <p>No GO to F4.</p>
	<ul style="list-style-type: none"> • Perform the satellite audio bezel diagnostic test. • Are any satellite audio system DTCs present? 	
F4	CHECK THE AUDIO CIRCUITS FROM THE SATELLITE RADIO RECEIVER FOR A SHORT TO VOLTAGE	
	<ul style="list-style-type: none"> • Key in OFF position. • Disconnect: Audio Unit C290a. • Disconnect: Satellite Radio Receiver C3290. • Key in ON position. • Measure the voltage between the satellite radio receiver, harness side and ground as follows: 	

(Continued)

DIAGNOSIS AND TESTING (Continued)

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

Test Step		Result / Action to Take															
F4	CHECK THE AUDIO CIRCUITS FROM THE SATELLITE RADIO RECEIVER FOR A SHORT TO VOLTAGE (Continued)	<p>Yes REPAIR the circuit in question. TEST the system for normal operation.</p> <p>No GO to F5.</p>															
	<table border="1"> <thead> <tr> <th>Satellite Radio Receiver Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>C3290-5</td> <td>1595 (RD)</td> </tr> <tr> <td>C3290-6</td> <td>1597 (OG)</td> </tr> <tr> <td>C3290-11</td> <td>1594 (WH)</td> </tr> <tr> <td>C3290-12</td> <td>1596 (PK)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • Is any voltage present? 		Satellite Radio Receiver Connector-Pin	Circuit	C3290-5	1595 (RD)	C3290-6	1597 (OG)	C3290-11	1594 (WH)	C3290-12	1596 (PK)					
Satellite Radio Receiver Connector-Pin	Circuit																
C3290-5	1595 (RD)																
C3290-6	1597 (OG)																
C3290-11	1594 (WH)																
C3290-12	1596 (PK)																
F5	CHECK THE AUDIO CIRCUITS FROM THE SATELLITE RADIO RECEIVER FOR AN OPEN OR SHORT TO GROUND	<p>Yes GO to F6.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>															
	<ul style="list-style-type: none"> • Key in OFF position. • 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: <table border="1"> <thead> <tr> <th>Satellite Radio Receiver Connector-Pin</th> <th>Audio Unit Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>C3290-5</td> <td>C290a-1</td> <td>1595 (RD)</td> </tr> <tr> <td>C3290-6</td> <td>C290a-9</td> <td>1597 (OG)</td> </tr> <tr> <td>C3290-11</td> <td>C290a-2</td> <td>1594 (WH)</td> </tr> <tr> <td>C3290-12</td> <td>C290a-10</td> <td>1596 (PK)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> • 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? 		Satellite Radio Receiver Connector-Pin	Audio Unit Connector-Pin	Circuit	C3290-5	C290a-1	1595 (RD)	C3290-6	C290a-9	1597 (OG)	C3290-11	C290a-2	1594 (WH)	C3290-12	C290a-10	1596 (PK)
Satellite Radio Receiver Connector-Pin	Audio Unit Connector-Pin		Circuit														
C3290-5	C290a-1	1595 (RD)															
C3290-6	C290a-9	1597 (OG)															
C3290-11	C290a-2	1594 (WH)															
C3290-12	C290a-10	1596 (PK)															
F6	ISOLATE THE SATELLITE RADIO RECEIVER	<p>Yes SEND the original satellite radio receiver to an authorized audio system repair facility. TEST the system for normal operation.</p> <p>No INSTALL the original satellite radio receiver. REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Section 415-01. TEST the system for normal operation after the repair.</p>															
	<ul style="list-style-type: none"> • Key in OFF position. • Substitute a known good satellite radio receiver. • Key in ON position. • Operate the audio unit in satellite audio mode. • Does the system operate correctly? 																

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

DIAGNOSIS AND TESTING (Continued)**PINPOINT TEST G: POOR RECEPTION — SATELLITE AUDIO**

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

Test Step		Result / Action to Take
G1	REVIEW THE DTCs	Yes GO to G3 . No GO to G2 .
	<ul style="list-style-type: none"> Review the DTCs from the satellite radio receiver self-test. Is DTC B1031 or B1032 present? 	
G2	CHECK THE OPERATION OF THE SATELLITE AUDIO	Yes The system is OK at this time. ADVISE the customer of the condition. No GO to G3 .
	<ul style="list-style-type: none"> Drive the vehicle to an open location, free of obstacles. Operate the audio unit in satellite audio mode. Is the reception OK? 	
G3	CHECK THE SATELLITE ANTENNA CABLE	Yes GO to G4 . No INSTALL a new satellite antenna cable. CLEAR the DTCs. REPEAT the self-test.
	<ul style="list-style-type: none"> Key in OFF position. 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? 	
G4	SUBSTITUTE THE SATELLITE ANTENNA	Yes INSTALL a new satellite antenna. REFER to Section 415-02. 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 Section 415-01. TEST the system for normal operation after the repair.
	<ul style="list-style-type: none"> Install a known good satellite antenna. Operate the audio unit in satellite audio mode. Is the reception OK? 	

Pinpoint Test H: 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

DIAGNOSIS AND TESTING (Continued)

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

⚠ CAUTION: 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.

Test Step		Result / Action to Take															
H1	<p>CHECK THE AUDIO INPUT JACK CIRCUITS FOR A SHORT TO VOLTAGE</p> <ul style="list-style-type: none"> Key in OFF position. Disconnect: Audio Input Jack C3312. Key in ON position. Measure the voltage between the audio input jack, harness side and ground as follows: <table border="1"> <thead> <tr> <th>Audio Input Jack Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>C3312-1</td> <td>2048 (RD/BK)</td> </tr> <tr> <td>C3312-2</td> <td>2047 (RD/WH)</td> </tr> <tr> <td>C3312-3</td> <td>2049 (LG/WH)</td> </tr> <tr> <td>C3312-4</td> <td>2050 (LG/BK)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> Is any voltage present? 	Audio Input Jack Connector-Pin	Circuit	C3312-1	2048 (RD/BK)	C3312-2	2047 (RD/WH)	C3312-3	2049 (LG/WH)	C3312-4	2050 (LG/BK)	<p>Yes REPAIR the circuit in question. TEST the system for normal operation.</p> <p>No GO to H2.</p>					
Audio Input Jack Connector-Pin	Circuit																
C3312-1	2048 (RD/BK)																
C3312-2	2047 (RD/WH)																
C3312-3	2049 (LG/WH)																
C3312-4	2050 (LG/BK)																
H2	<p>CHECK THE AUDIO INPUT JACK CIRCUITS FOR AN OPEN OR SHORT TO GROUND</p> <ul style="list-style-type: none"> Key in OFF position. 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: <table border="1"> <thead> <tr> <th>Audio Input Jack Connector-Pin</th> <th>Audio Unit Connector-Pin</th> <th>Circuit</th> </tr> </thead> <tbody> <tr> <td>C3312-1</td> <td>C290a-6</td> <td>2048 (RD/BK)</td> </tr> <tr> <td>C3312-2</td> <td>C290a-14</td> <td>2047 (RD/WH)</td> </tr> <tr> <td>C3312-3</td> <td>C290a-8</td> <td>2049 (LG/WH)</td> </tr> <tr> <td>C3312-4</td> <td>C290a-7</td> <td>2050 (LG/BK)</td> </tr> </tbody> </table> <ul style="list-style-type: none"> 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? 	Audio Input Jack Connector-Pin	Audio Unit Connector-Pin	Circuit	C3312-1	C290a-6	2048 (RD/BK)	C3312-2	C290a-14	2047 (RD/WH)	C3312-3	C290a-8	2049 (LG/WH)	C3312-4	C290a-7	2050 (LG/BK)	<p>Yes GO to H3.</p> <p>No REPAIR the circuit in question. TEST the system for normal operation.</p>
Audio Input Jack Connector-Pin	Audio Unit Connector-Pin	Circuit															
C3312-1	C290a-6	2048 (RD/BK)															
C3312-2	C290a-14	2047 (RD/WH)															
C3312-3	C290a-8	2049 (LG/WH)															
C3312-4	C290a-7	2050 (LG/BK)															
H3	<p>SUBSTITUTE THE AUDIO INPUT JACK</p> <ul style="list-style-type: none"> Install a known good audio input jack. Operate the audio unit in auxiliary audio mode. Does the system operate correctly? 	<p>Yes INSTALL a new audio input jack. TEST the system for normal operation.</p> <p>No INSTALL the original audio input jack. REMOVE the audio unit and SEND it to an authorized audio system repair facility. REFER to Section 415-01. TEST the system for normal operation after the repair.</p>															