No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

K6 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Pinpoint Test L: The Audio System Does Not Operate Correctly From The Front Display Interface Module (FDIM) — Vehicles With Navigation

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

Normal Operation

The Front Display Interface Module (FDIM) touchscreen sends a voltage signal to the Audio Front Control Module (ACM) when a touch sector is pressed. The ACM then takes the appropriate action, which can be a change in the audio system setting or broadcasting the information to the appropriate module through the Medium Speed Controller Area Network (MS-CAN) .

- DTC U0162:00 (Lost Communication With Navigation Display Module: No Sub Type Information) — set by the ACM if it does not detect the FDIM for greater than 5 seconds with the ignition in the RUN position. When this occurs, the touchscreen controls are inoperative and the FDIM may not display correct (if any) information.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- FDIM
- ACM

PINPOINT TEST L : THE AUDIO SYSTEM DOES NOT OPERATE CORRECTLY FROM THE FDIM — VEHICLES WITH NAVIGATION

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

L1 OBSERVE THE FDIM DISPLAY

- Turn the audio system on and observe the FDIM screen.

Is the FDIM display completely inoperative?

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

L2 CHECK FOR AUDIO SYSTEM OPERATION FROM THE FCIM

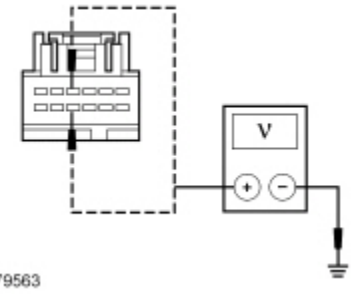
- Carry out various audio system functions using the Front Controls Interface Module (FCIM) .

Does the audio system operate correctly from the FCIM ?

Yes	GO to L3.
No	GO to Pinpoint Test I.

L3 CHECK THE TOUCHSCREEN TRANSMIT AND RECEIVE CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: FDIM C2123 .
- Disconnect: ACM C290C .
- Ignition ON.
- Measure the voltage between the FDIM C2123 Pin 4, circuit CMN26 (BU/OG), harness side and ground; and between the FDIM C2123 Pin 10, circuit CMN24 (GY/VT), harness side and ground.

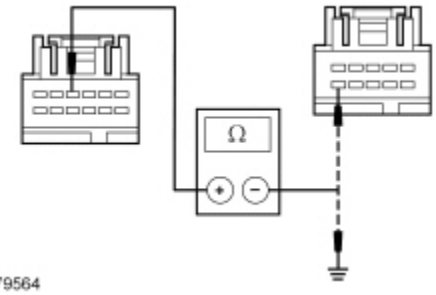


Is any voltage present?

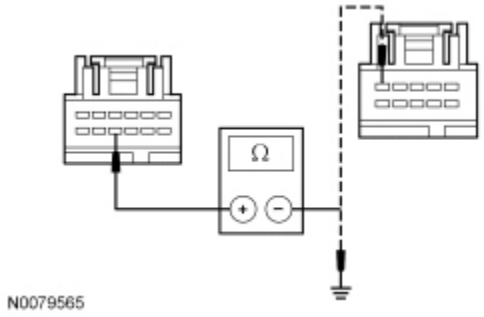
Yes	REPAIR the circuit in question. CLEAR any DTCs present. TEST the system for normal operation.
No	GO to L4.

L4 CHECK THE TOUCHSCREEN TRANSMIT AND RECEIVE CIRCUITS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the FDIM C2123 Pin 4, circuit CMN26 (BU/OG), harness side and the ACM C290C Pin 10, circuit CMN26 (BU/OG), harness side; and between the FDIM C2123 Pin 4, circuit CMN26 (BU/OG), harness side and ground.



- Measure the resistance between the FDIM C2123 Pin 10, circuit CMN24 (GY/VT), harness side and the ACM C290C Pin 5, circuit CMN24 (GY/VT), harness side; and between the FDIM C2123 Pin 10, circuit CMN24 (GY/VT), harness side and ground.



Is the resistance less than 5 ohms between the FDIM and the ACM , and greater than 10,000 ohms between the FDIM and ground?

Yes	GO to L5.
No	REPAIR the circuit in question. CLEAR any DTCs present. TEST the system for normal operation.

L5 ISOLATE THE FDIM

- Connect: ACM C290B .
- Install a new FDIM . Refer to Front Display Interface Module (FDIM) in this section.
- Ignition ON.
- Attempt various commands from the FDIM touchscreen.

Does the system operate correctly?

Yes	The cause of the concern was an inoperative FDIM . The system is now operating correctly.
No	GO to L6.

L6 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Pinpoint Test M: The Front Display Interface Module (FDIM) Is Completely Inoperative — Vehicles Without Navigation

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

Normal Operation

The Front Display Interface Module (FDIM) receives power at all times. The ignition switch position message is broadcast to the FDIM by the Smart Junction Box (SJB) via the Medium Speed Controller Area Network (MS-CAN) .

Information from the audio system, the climate control system, the SYNC system, and the compass heading are shown on the FDIM display screen. If only one of these displays has concern, GO to Pinpoint Test J.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- FDIM

PINPOINT TEST M : THE FDIM IS COMPLETELY INOPERATIVE — VEHICLES WITHOUT NAVIGATION

M1 CHECK FOR SCAN TOOL COMMUNICATION WITH THE FDIM

- Ignition ON.
- Carry out the network test using the scan tool.

Does the scan tool communicate with the FDIM ?

Yes	GO to M2.
No	REFER to Section 418-00.

M2 CHECK FOR CORRECT FDIM OPERATION

- Ignition OFF.
- Disconnect the FDIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the FDIM 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 FDIM . REFER to Front Display Interface Module (FDIM) in this section. 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.

Pinpoint Test N: The Front Display Interface Module (FDIM) Is Completely Inoperative — Vehicles With Navigation

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

Normal Operation

The Audio Front Control Module (ACM) enables the Front Display Interface Module (FDIM) by sending voltage through the enable circuit.

Video display information is sent to the FDIM from the ACM through a dedicated video cable. The video cable is only serviced by overlaying a new component.

If there is a fault in the video cable, the FDIM may illuminate very dimly and have a greyish appearance. This is because the enable circuit is still active and enables the illumination, but no video signal reaches the FDIM .

If the vehicle is equipped with a rear view camera, the video feed from the camera is hardwired to the FDIM .

For all other display information, including the climate control and SYNC system displays, messages are sent to the ACM via the Medium Speed Controller Area Network (MS-CAN) . The ACM then alters the video feed to the FDIM based on the messages it receives.

This pinpoint test is intended to diagnose the following:

- Fuse

- Wiring, terminals or connectors
- FDIM
- ACM

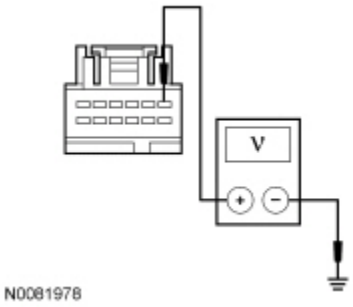
PINPOINT TEST N : THE FDIM IS COMPLETELY INOPERATIVE — VEHICLES WITH NAVIGATION

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

NOTE: *Failure to disconnect the battery when instructed will result in false resistance readings. Refer to Section 414-01.*

N1 CHECK THE FDIM VOLTAGE SUPPLY

- Ignition OFF.
- Disconnect: FDIM C2123 .
- Measure the voltage between the FDIM C2123 Pin 1, circuit SBP14 (BN/RD), harness side and ground.

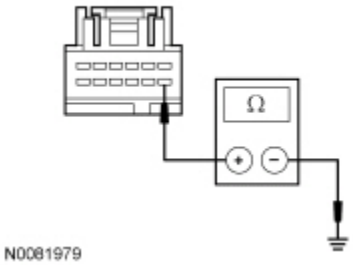


Is the voltage greater than 10 volts?

Yes	GO to N2.
No	VERIFY the Smart Junction Box (SJB) fuse 14 (10A) is OK. If OK, REPAIR the circuit. TEST the system for normal operation. If not OK, REFER to the Wiring Diagrams Manual to identify the possible causes of the circuit short.

N2 CHECK THE FDIM GROUND CIRCUIT FOR CONTINUITY

- Disconnect: Negative Battery Cable .
- Measure the resistance between the FDIM C2123 Pin 7, circuit GD115 (BK/GY), harness side and ground.

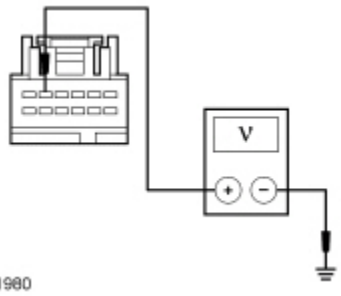


Is the resistance less than 5 ohms?

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

N3 CHECK THE FDIM ENABLE CIRCUIT FOR CORRECT VOLTAGE

- Connect: Negative Battery Cable .
- Ignition ON.
- Turn the audio system on using the power button on the Front Controls Interface Module (FCIM) .
- Measure the voltage between the FDIM C2123 Pin 5, circuit CMN23 (WH/BU), harness side and ground.

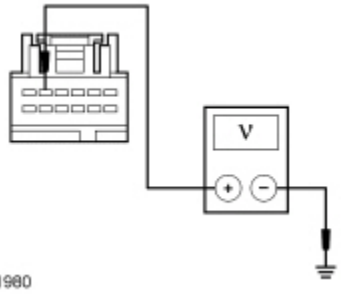


Is the voltage between 4.5 and 9.5 volts?

Yes	GO to N6.
No	GO to N4.

N4 CHECK THE FDIM ENABLE CIRCUIT FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: ACM C290C .
- Ignition ON.
- Measure the voltage between the FDIM C2123 Pin 5, circuit CMN23 (WH/BU), harness side and ground.

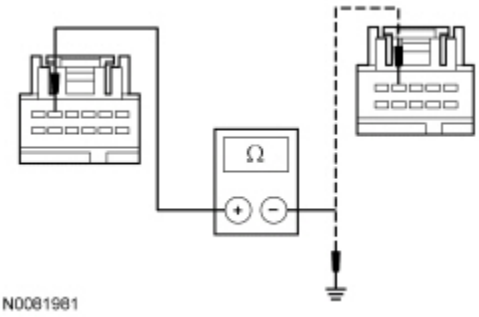


Is any voltage present?

Yes	REPAIR the circuit. TEST the system for normal operation.
No	GO to N5.

N5 CHECK THE FDIM ENABLE CIRCUIT FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the FDIM C2123 Pin 5, circuit CMN23 (WH/BU), harness side and the ACM C290C Pin 4, circuit CMN23 (WH/BU), harness side; and between the FDIM C2123 Pin 5, circuit CMN23 (WH/BU), harness side and ground.



Is the resistance less than 5 ohms between the FDIM and the ACM , and greater than 10,000 ohms between the FDIM and ground?

Yes	GO to N6.
No	REPAIR the circuit. TEST the system for normal operation.

N6 ISOLATE THE VIDEO CABLE

- Connect: ACM C290C .
- Substitute each video cable one at a time by routing a new component. Do not remove the original antenna cable at this time.
- Connect: FDIM C2123 .
- Ignition ON.
- Operate the audio system and observe the FDIM screen.

Does the system operate correctly?

Yes	INSTALL a new video cable for the inoperative cable. REFER to Video Cable in this section.
No	GO to N7.

N7 ISOLATE THE FDIM

- Install a new FDIM . Refer to Front Display Interface Module (FDIM) in this section.
- Ignition ON.
- Operate the audio system and observe the FDIM screen.

Does the system operate correctly?

Yes	The cause of the concern was an inoperative FDIM . The system is now operating correctly.
No	GO to N8.

N8 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Pinpoint Test O: The Front Display Interface Module (FDIM) Does Not Display DVD Video Played From The Audio Front Control Module (ACM) — Vehicles With Navigation

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

Normal Operation

Video from a DVD played in the Audio Front Control Module (ACM) is transmitted to the Front Display Interface Module (FDIM) through dedicated video circuits. This video feed is separate from all other video sources, so it is possible for the FDIM to operate correctly until

a DVD video is played.

DVD video playback through the ACM is only enabled when the vehicle is in PARK. In all other gears, only the DVD audio is played. This is normal operation.

This pinpoint test is intended to diagnose the following:

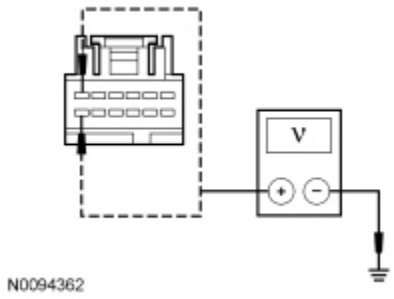
- Wiring, terminals or connectors
- FDIM
- ACM

PINPOINT TEST O : THE FDIM DOES NOT DISPLAY DVD VIDEO PLAYED FROM THE ACM — VEHICLES WITH NAVIGATION

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

O1 CHECK THE FDIM VIDEO FEED CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: ACM C240C .
- Disconnect: FDIM C2123 .
- Ignition ON.
- Measure the voltage between the FDIM C2123 Pin 6, circuit VMN20 (BN/VT), harness side and ground; and between the FDIM C2123 Pin 12, circuit RMN20 (WH/GN), harness side and ground.

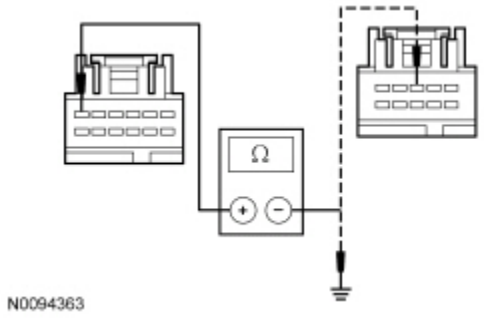


Is any voltage present?

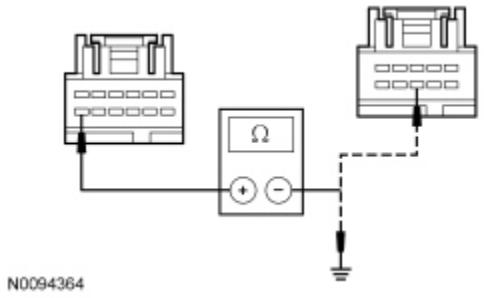
Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to O2.

O2 CHECK THE FDIM VIDEO FEED CIRCUITS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the FDIM C2123 Pin 6, circuit VMN20 (BN/VT), harness side and the ACM C290C Pin 3, circuit VMN20 (BN/VT), harness side; and between the FDIM C2123 Pin 6, circuit VMN20 (BN/VT), harness side and ground.



- Measure the resistance between the FDIM C2123 Pin 12, circuit RMN20 (WH/GN), harness side and the ACM C290C Pin 8, circuit RMN20 (WH/GN), harness side; and between the FDIM C2123 Pin 12, circuit RMN20 (WH/GN), harness side and ground.



Is the resistance less than 5 ohms between the FDIM and the ACM , and greater than 10,000 ohms between the FDIM and ground?

Yes	GO to O3.
No	REPAIR the circuit in question. TEST the system for normal operation.

O3 ISOLATE THE FDIM

- Connect: ACM C290C .
- Install a new FDIM . Refer to Front Display Interface Module (FDIM) in this section.
- Ignition ON.
- Operate the audio system and observe the FDIM screen.

Does the system operate correctly?

Yes	The cause of the concern was an inoperative FDIM . The system is now operating correctly.
No	GO to O4.

O4 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Pinpoint Test P: The SYNC® Steering Wheel Controls Are Inoperative/Do Not Operate Correctly

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

Normal Operation

There are 3 different steering wheel control configurations:

- Without SYNC®, without navigation

    - VOL-, VOL+, SEEK-, SEEK+, MEDIA
    - All switches are wired to the ACM
- With SYNC®, without navigation
    - VOL-, VOL+, SEEK-, SEEK+, MEDIA, VOICE, PHONE, OK
    - The VOL-, VOL+, SEEK-, SEEK+, and MEDIA switches are wired to the ACM . The VOICE, PHONE, and OK switches are wired to the APIM .
- With SYNC®, with navigation
    - VOL-, VOL+, SEEK-, SEEK+, MEDIA, VOICE, PHONE
    - All switches are wired to the ACM

Voltage is sent from the ACM or APIM to the steering wheel controls, and the same module grounds the return circuit. The VOL-, VOL+, SEEK-, and SEEK+ switches share signal and return circuits, while the VOICE, MEDIA, PHONE and OK switches share a separate set of signal and return circuits.

For all configurations, when a switch is pressed, the voltage is routed through a specific resistor value for each function. The ACM or APIM then uses the reference voltage to determine which control input function has been selected.

DTC Description	Fault Trigger Conditions
• B11BA:1C — Steering Wheel Audio Switch Pack: Circuit Voltage Out of Range	Set by the ACM when the reference voltage to the steering wheel controls is out-of-range. This can be caused by a number of different failures on the steering wheel controls circuit except for a stuck switch or a short to ground. This DTC applies to the VOL-, VOL+, SEEK-, SEEK+, and MEDIA switches.
• B11BA:63 — Steering Wheel Audio Switch Pack: Circuit / Component Protection Time-Out	Set by the ACM when a steering wheel control switch is detected as active for more than 120 seconds during normal operation, or for more than 3 seconds during the self-test. A short to ground does not set this DTC, as the reference voltage falls out-of-range, resulting in DTC B11BA:1C being set. This DTC applies to the VOL-, VOL+, SEEK-, SEEK+, and MEDIA switches.
• B1201:1C — Steering Wheel Audio Switch Pack 2: Circuit Voltage Out of Range (ACM)	Set by the navigation ACM when the reference voltage to the steering wheel controls is out-of-range. This can be caused by a number of different failures on the steering wheel controls circuit except for a stuck switch or a short to ground. This DTC applies to the VOICE and PHONE switches.
• B1201:63 — Steering Wheel Audio Switch Pack 2: Circuit / Component Protection Time-Out (ACM)	Set by the APIM when the reference voltage to the steering wheel controls is out-of-range. This can be caused by a number of different failures on the steering wheel controls circuit except for a stuck switch or a short to ground. This DTC applies to vehicles without navigation only.
• B1201:1C — Steering Wheel Audio Switch Pack 2: Circuit Voltage Out of Range (APIM)	Set by the navigation ACM when a steering wheel control switch is detected as active for more than 120 seconds during normal operation, or for more than 3 seconds during the self-test. A short to ground does not set this DTC, as the reference voltage falls out-of-range, resulting in DTC B1201:1C being set. This DTC applies to the VOICE and PHONE switches.
• B1201:63 — Steering Wheel Audio Switch Pack 2: Circuit / Component Protection Time-Out (APIM)	Set by the APIM when a steering wheel control switch is detected as active for more than 120 seconds during normal operation, or for more than 3 seconds during the self-test. A short to ground does not set this DTC, as the reference voltage falls out-of-range, resulting in DTC B1201:1C being set. This DTC applies to vehicles without navigation only.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Clockspring
- Steering wheel controls
- ACM
- APIM (SYNC® without navigation)

PINPOINT TEST P : THE SYNC® STEERING WHEEL CONTROLS ARE INOPERATIVE/DO NOT OPERATE CORRECTLY

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

P1 CHECK VEHICLE OPTION CONTENT

- Determine if the vehicle is equipped with SYNC®

Is the vehicle equipped with SYNC®?

Yes	GO to P2.
No	GO to P4.

P2 CHECK THE SYNC® SYSTEM OPERATION

NOTE: *Carrying out a Master Reset returns all preference settings to the factory defaults, erases all the phone book and call histories, and deletes any devices paired with the SYNC® system.*

- Connect: Multi-Media Interface Tester (105-00120) .
- Using the Multi-Media Interface Tester (105-00120), TEST the audio output for the audio input jack, USB port, and Bluetooth connection using the VOICE switch on the steering wheel controls to enter each mode.

Do all of the SYNC® inputs function correctly?

Yes	The SYNC® system is operating correctly at this time. CARRY OUT a SYNC® system Master Reset. REFER to the Owner's Literature. REVIEW the SYNC® system operation with the customer. If the customer device still does not operate correctly, the fault is with the customer device.
No	GO to P3.

P3 RESET THE APIM AND RECHECK SYNC® SYSTEM OPERATION

- Carry out an APIM power reset by disconnecting the battery for 5 minutes, then reconnecting it.
- Connect: Multi-Media Interface Tester (105-00120) .
- Using the Multi-Media Interface Tester (105-00120), TEST the audio output for the audio input jack, USB port, and Bluetooth connection using the VOICE switch on the steering wheel controls to enter each mode.

Do all of the SYNC® inputs function correctly?

Yes	The SYNC® system is operating correctly at this time. CARRY OUT a SYNC® system Master Reset. REFER to the Owner's Literature. REVIEW the SYNC® system operation with the customer. If the customer device still does not operate correctly, the fault is with the customer device.
No	GO to P4.

P4 DETERMINE THE INOPERATIVE STEERING WHEEL CONTROLS

- Determine which steering wheel controls are inoperative by pressing each steering wheel control switch individually while operating the audio system in various modes such as AM/FM or SYNC® (if equipped).

Was a concern found with the VOL-, VOL+, SEEK-, SEEK+, or MEDIA switches?

Yes	GO to P5.
No	For VOICE or PHONE switch concerns (vehicles with SYNC® and with navigation), GO to P6. For VOICE, PHONE, or OK switch concerns (vehicles with SYNC® and without navigation), GO to P7.

P5 MONITOR THE STEERING WHEEL CONTROL PIDS

- Enter the following diagnostic mode on the scan tool: ACM DataLogger .
- Monitor the steering wheel controls PIDs while pressing each steering wheel controls switch:

Steering Wheel Controls Switch	PID
VOL-	SW_VOLDOWN
VOL+	SW_VOLUP
SEEK-	SW_SEEKMINUS
SEEK+	SW_SEEKPLUS
MEDIA	SW_MODE

Do the PID values agree with the switch positions?

Yes	GO to P13.
No	If only one PID value is incorrect or the PID value always reads one particular switch position, INSTALL new steering wheel controls. REFER to Steering Wheel Controls. CLEAR any DTCs present. TEST the system for normal operation. If multiple PID values are incorrect or read incorrectly, GO to P8.

P6 MONITOR THE STEERING WHEEL CONTROL PIDS (WITH SYNC® AND NAVIGATION)

- Enter the following diagnostic mode on the scan tool: ACM DataLogger .
- Monitor the steering wheel controls PIDs while pressing each steering wheel controls switch:

Steering Wheel Controls Switch	ACM PID
VOICE	SW_VOICE
PHONE	SW_PHONE

Do the PID values agree with the switch positions?

Yes	GO to P13.
No	If only one PID value is incorrect or the PID value always reads one particular switch position, INSTALL new steering wheel controls. REFER to Steering Wheel Controls. CLEAR any DTCs present. TEST the system for normal operation. If multiple PID values are incorrect or read incorrectly, GO to P8.

P7 MONITOR THE STEERING WHEEL CONTROL PIDS (WITH SYNC® AND WITHOUT NAVIGATION)

- Enter the following diagnostic mode on the scan tool: APIM DataLogger .
- Monitor the steering wheel controls PIDs while pressing each steering wheel controls switch:

Steering Wheel Controls Switch	APIM PID
VOICE	SCS_VOICE
PHONE	SCS_PHONE
OK	SCS_OK

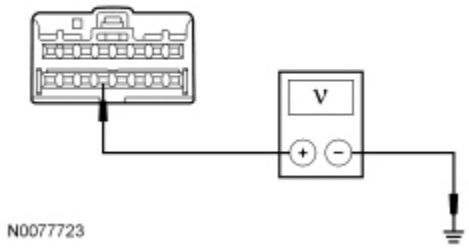
Do the PID values agree with the switch positions?

Yes	GO to P14.

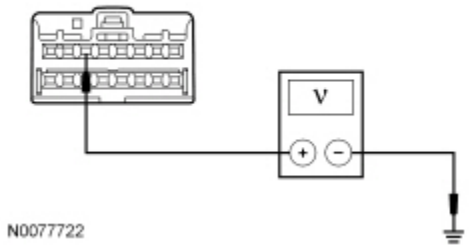
No	If only one PID value is incorrect or the PID value always reads one particular switch position, INSTALL new steering wheel controls. REFER to Steering Wheel Controls in this section. CLEAR any DTCs present. TEST the system for normal operation. If multiple PID values are incorrect or read incorrectly, GO to P8.

P8 CHECK THE REFERENCE VOLTAGE CIRCUIT TO THE CLOCKSPRING FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Clockspring C2274A .
- Disconnect: ACM C290D .
- Disconnect: APIM C2383 (With SYNC® and without Navigation) .
- Ignition ON.
- For a concern with the VOL-, VOL+, SEEK-, SEEK+, or MEDIA switches, measure the voltage between the lower clockspring C2274A Pin 13, circuit VME14 (GY/YE), harness side and ground.



- For a concern with the VOICE, PHONE, or OK switches, measure the voltage between the lower clockspring C2274A Pin 6, circuit VME54 (BU/OG), harness side and ground.



Is any voltage present?

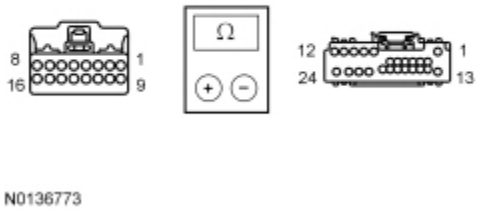
Yes	REPAIR the circuit in question. CLEAR any DTCs present. TEST the system for normal operation.
No	GO to P9.

P9 CHECK THE CIRCUITS TO THE CLOCKSPRING FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the lower clockspring, harness side and the ACM , harness side; and between the lower clockspring, harness side and ground as follows:

Suspect Switch	Positive Lead	Negative Lead	Circuit
VOL-, VOL+, SEEK-, SEEK+, or MEDIA	C2274A Pin 12	C290D Pin 19	RME14 (BN/GN)
	C2274A Pin 12	Ground	RME14 (BN/GN)
	C2274A Pin 13	C290D Pin 18	VME14 (GY/YE)
	C2274A Pin 13	Ground	VME14 (GY/YE)
VOICE or PHONE (With SYNC® and navigation)	C2274A Pin 4	C290D Pin 16	RME54 (WH/VT)
	C2274A Pin 4	Ground	RME54 (WH/VT)

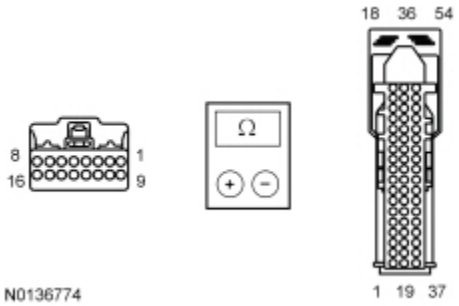
Suspect Switch	Positive Lead	Negative Lead	Circuit
	C2274A Pin 6	C290D Pin 17	VME54 (BU/OG)
	C2274A Pin 6	Ground	VME54 (BU/OG)



N0136773

- Measure the resistance between the clockspring, harness side and the APIM , harness side; and between the clockspring, harness side and ground as follows:

Suspect Switch	Positive Lead	Negative Lead	Circuit
VOICE, PHONE, or OK (With SYNC® and without navigation)	C2274A Pin 4	C2383 Pin 15	RME54 (WH/VT)
	C2274A Pin 4	Ground	RME54 (WH/VT)
	C2274A Pin 6	C2383 Pin 14	VME54 (BU/OG)
	C2274A Pin 6	Ground	VME54 (BU/OG)



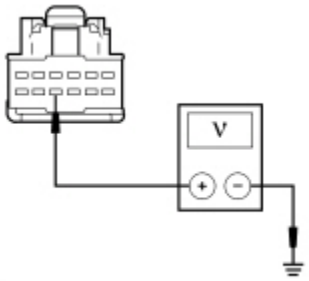
N0136774

Are the resistances less than 5 ohms between the clockspring and ACM or APIM , and greater than 10,000 ohms between the clockspring and ground?

Yes	GO to P10.
No	REPAIR the circuit in question. CLEAR any DTCs present. TEST the system for normal operation.

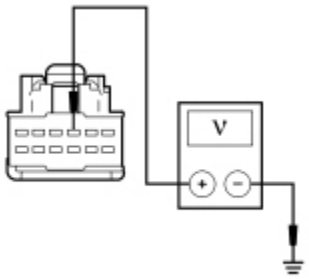
P10 CHECK THE REFERENCE VOLTAGE CIRCUIT TO THE STEERING WHEEL CONTROLS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Upper Clockspring C2274B .
- Disconnect: Steering Wheel Controls C2999 .
- Ignition ON.
- For a concern with the VOL-, VOL+, SEEK-, SEEK+, or MEDIA buttons, measure the voltage between the upper clockspring C2274B Pin 10, circuit VME14, harness side and ground.



N0094359

- For a concern with the VOICE, PHONE, or OK buttons, measure the voltage between the upper clockspring C2274B Pin 3, circuit VME54, harness side and ground.



N0094360

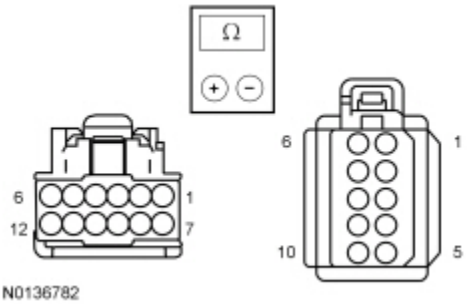
Is any voltage present?

Yes	REPAIR the circuit. CLEAR any DTCs present. TEST the system for normal operation.
No	GO to P11.

P11 CHECK THE CIRCUITS TO THE STEERING WHEEL CONTROLS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the upper clockspring connector, harness side and the steering wheel controls, harness side; and between the upper clockspring connector, harness side and ground as follows:

Inoperative Switch	Positive Lead	Negative Lead	Circuit
VOL-, VOL+, SEEK-, SEEK+, or MEDIA	C2274B Pin 10	C2999 Pin 7	VME14
	C2274B Pin 10	Ground	VME14
	C2274B Pin 11	C2999 Pin 1	RMC27
	C2274B Pin 11	Ground	RMC27
VOICE, PHONE, or OK	C2274B Pin 3	C2999 Pin 3	VME54
	C2274B Pin 3	Ground	VME54
	C2274B Pin 5	C2999 Pin 2	RH111
	C2274B Pin 5	Ground	RH111



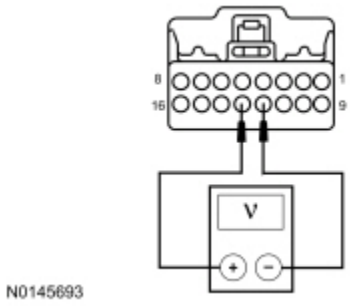
N0136782

Is the resistance less than 5 ohms between the upper clockspring connector and the steering wheel controls, and greater than 10,000 ohms between the upper clockspring connector and ground?

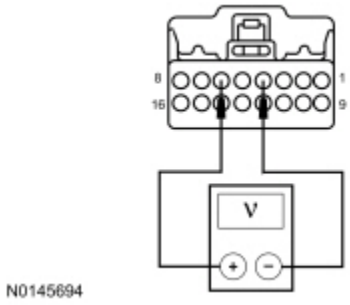
Yes	GO to P12.
No	INSTALL a new steering wheel. REFER to Section 211-04. CLEAR any DTCs present. TEST the system for normal operation.

P12 CHECK THE REFERENCE VOLTAGE CIRCUITS TO THE CLOCKSPRING

- Ignition OFF.
- Connect: ACM C290D .
- Connect: APIM C2283 (if equipped) .
- Ignition ON.
- For a concern with the VOL-, VOL+, SEEK-, SEEK+, or MEDIA buttons, measure the voltage between the lower clockspring C2274A Pin 13, circuit VME14 (GY/YE) and C2274A Pin 12, circuit RME14 (BN/GN).



- For a concern with the VOICE, PHONE, or OK buttons, measure the voltage between the lower clockspring C2274A Pin 6, circuit VME54 (BU/OG) and C2274A Pin 4, circuit RME54 (WH/VT).



Is the voltage approximately 5 volts?

Yes	INSTALL a new clockspring. REFER to Section 501-20B. CLEAR any DTCs present. TEST the system for normal operation.
No	For vehicles with SYNC® and without navigation, GO to P14. For all other vehicles, GO to P13.

P13 CHECK FOR CORRECT ACM OPERATION

- Ignition OFF.
- Connect: All Disconnected Connectors .
- Disconnect all the ACM connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the ACM connectors and make sure they seat correctly.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM). 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 any DTCs present.

P14 CHECK FOR CORRECT APIM OPERATION

- Connect: All Disconnected Connectors .
- Disconnect the APIM connector
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initialize.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	 **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR any DTCs present.

Pinpoint Test Q: The Audio Input Jack Is Inoperative/Does Not Operate Correctly

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

Normal Operation — Vehicles Without the SYNC System

Audio signals are sent from the audio input jack to the Audio Front Control Module (ACM) . There are no external power or ground circuits to the audio input jack.

Vehicles With the SYNC System

Audio signals are sent from the audio input jack to the Accessory Protocol Interface Module (APIM) . The signals are then sent to the ACM . There are no external power or ground circuits to the audio input jack.

- DTC B1D78:13 (Auxiliary Input: Circuit Open) — sets in continuous memory by the ACM (vehicles without the SYNC system only) when an open is detected in the audio input jack circuitry for greater than 250 milliseconds.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Audio input jack
- APIM (vehicles with the SYNC system)
- ACM (vehicles without the SYNC system)

PINPOINT TEST Q : THE AUDIO INPUT JACK IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

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

NOTE: *Before carrying out this pinpoint test, make sure the MP3 device is operating correctly.*

Q1 CHECK THE AUDIO INPUT JACK AUDIO

- Connect: Multi-Media Interface Tester .
- Using the Multi-Media Interface Tester, attempt to play an audio file using the audio input jack.

Does the file play correctly?

Yes	The system is operating correctly at this time. The concern may be with the customer device.
No	GO to Q2.

Q2 DETERMINE THE VEHICLE CONTENT

- Determine if the vehicle is equipped with the SYNC system.

Is the vehicle equipped with the SYNC system?

Yes	GO to Q3.
No	GO to Q4.

Q3 CHECK THE APIM AUDIO OUTPUT

- Using the Multi-Media Interface Tester, attempt to play an audio file using either the Universal Serial Bus (USB) port or Bluetooth.

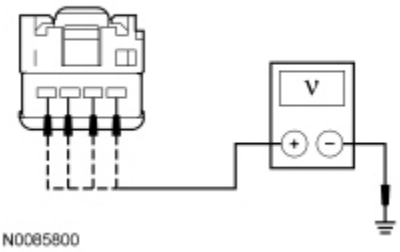
Is the audio output OK for the USB port or Bluetooth?

Yes	GO to Q4.
No	GO to Pinpoint Test G.

Q4 CHECK THE AUDIO INPUT JACK CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: Audio Input Jack C2362 .
- Disconnect: ACM C290A (Vehicles Without the SYNC System) or APIM C2383 (Vehicles With the SYNC System) .
- Ignition ON.
- Measure the voltage between the audio input jack, harness side and ground as follows:

Positive Meter Lead	Negative Meter Lead
C2362 Pin 1 VME46 (BU/GN)	Ground
C2362 Pin 2 RME46 (WH/GN)	Ground
C2362 Pin 3 RME45 (YE/GN)	Ground
C2362 Pin 4 VME45 (BU)	Ground



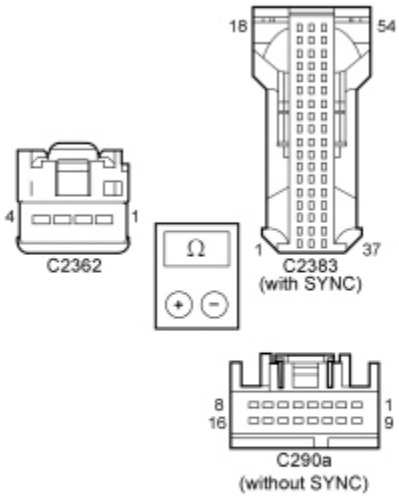
Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to Q5.

Q5 CHECK THE AUDIO INPUT JACK CIRCUITS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the audio input jack, harness side and the ACM (or APIM , if equipped with the SYNC system), harness side; and between the audio input jack, harness side and ground as follows:

Positive Meter Lead	Negative Meter Lead	Circuit
C2362 Pin 1	C290A Pin 6 or C2383 Pin 47, then ground	VME46 (BU/GN)
C2362 Pin 2	C290A Pin 14 or C2383 Pin 48, then ground	RME46 (WH/GN)
C2362 Pin 3	C290A Pin 8 or C2383 Pin 46, then ground	RME45 (YE/GN)
C2362 Pin 4	C290A Pin 7 or C2383 Pin 45, then ground	VME45 (BU)



Is the resistance less than 5 ohms between the audio input jack and the ACM (or APIM , if equipped with the SYNC system), and greater than 10,000 ohms between the audio input jack and ground?

Yes	GO to Q6.
No	REPAIR the circuit in question. TEST the system for normal operation.

Q6 ISOLATE THE AUDIO INPUT JACK

- Connect: ACM C290A (Vehicles Without the SYNC System) or APIM C2383 (Vehicles With the SYNC System) .
- Install a known good audio input jack. Refer to Audio Input Jack in this section.
- Connect: Multi-Media Interface Tester .
- Using the Multi-Media Interface Tester, attempt to play an audio file using the audio input jack.

Does the file play correctly?

Yes	The concern was caused by an inoperative audio input jack. The system is operating correctly at this time.
No	For vehicles without the SYNC system, GO to Q7. For vehicles with the SYNC system, GO to Q8.

Q7 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Q8 CHECK FOR CORRECT APIM OPERATION

- Ignition OFF.
- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initialize.
- Operate the system and determine if the concern is still present.

Is the concern still present?

Yes	  **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test R: 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 sent through the start input circuit to the Audio Front Control Module (ACM) with the ignition in the START position. Upon receiving this signal, the ACM mutes all speaker outputs to eliminate the possibility of voltage spikes producing a popping noise through the speakers.

The ACM disables the audio amplifier and subwoofer amplifier while the ignition is in the START position by keeping the enable circuit voltages below 0.4 volt.

If there is a short to voltage on any of the enable circuits, distortion is heard in the speakers whenever the ACM is powered up, and that should be the primary concern addressed. If the speakers have distorted sound, GO to Symptom Chart — Sound Quality.

This pinpoint test is intended to diagnose the following:

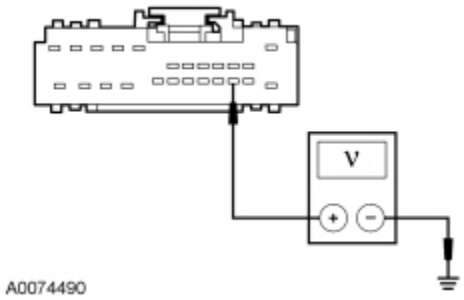
- Fuse
- Wiring, terminals or connectors
- ACM

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

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

R1 CHECK THE START INPUT CIRCUIT VOLTAGE

- Ignition OFF.
- Disconnect: ACM C290D .
- Disconnect: Starter Relay .
- Hold the key in the START position.
- Measure the voltage between the ACM C290D Pin 15, circuit CBP28 (GY/VT), harness side and ground.



Is the voltage greater than 10 volts?

Yes	GO to R2.
No	VERIFY the Smart Junction Box (SJB) fuse 28 (5A) is OK. If OK, REPAIR the circuit. TEST the system for normal operation. If not OK, REFER to the Wiring Diagrams Manual to identify the possible causes of the circuit short.

R2 ISOLATE THE FRONT/REAR SUBWOOFERS

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

- Ignition OFF.
- Connect: ACM 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 R3.

R3 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

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

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

Normal Operation

The speed sensitive volume function adjusts the volume based on the Vehicle Speed Sensor (VSS) signal from the Instrument Panel Cluster (IPC) . The IPC does not generate the VSS signal; it gateways the signal from the PCM. The Smart Junction Box (SJB) also receives this signal and should exhibit symptoms if the signal is lost.

This pinpoint test is intended to diagnose the following:

- Speed sensitive volume setting
- VSS signal concern
- Communication network concern
- ACM

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

S1 CHECK THE SPEEDOMETER OPERATION

- Drive the vehicle and observe the speedometer.

Does the speedometer operate correctly?

Yes	GO to S2.
No	REFER to Section 413-01.

S2 CHECK THE SPEED SENSITIVE VOLUME SETTING

- Turn the speed sensitive volume off. Refer to the Owner's Literature.
- Operate the audio system 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 system 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. INSTRUCT the customer in the correct usage of the speed sensitive volume feature.
No	GO to S3.

S3 CHECK FOR DTC U0155 OR DTC U0155:00

- Using the scan tool, retrieve all continuous DTCs.

Is DTC U0155 or DTC U0155:00 retrieved in any module?

Yes	GO to Pinpoint Test AC.
No	GO to S4.

S4 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Pinpoint Test T: Voice Recognition Is Inoperative/Does Not Operate Correctly

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

Normal Operation — Vehicles Without Navigation

When the VOICE switch is pressed, it changes a reference voltage signal, and the audio system enters voice recognition mode. The VOICE switch is wired to the Accessory Protocol Interface Module (APIM) . A microphone located in the auto-dimming interior mirror receives the voice command and sends a signal to the APIM . The microphone is also used to detect outgoing audio during a phone call.

Vehicles With Navigation

When the VOICE switch is pressed, it changes a reference voltage signal, and the audio system enters voice recognition mode. The VOICE switch is wired to the Audio Front Control Module (ACM) . A microphone located in the auto-dimming interior mirror receives the voice command and sends a signal to the APIM . The APIM receives the microphone input and also broadcasts it to the ACM . The first voice commands spoken determine which system handles the voice commands.

The microphone test is available through the scan tool or through the ACM self-diagnostic mode. Running this test causes the ACM to produce a test tone. If the system is operating correctly, the microphone detects the tone and produces a signal to the ACM indicating the tone was heard.

- DTC B1A16:01 (Microphone Input Circuit: General Electronic Failure) — set by the APIM during the on-demand self-test if it does not detect the microphone.
- DTC B1D79:01 (Microphone Input Circuit: General Electrical Failure) — set by the ACM during the microphone test when it does not receive an adequate signal from the microphone when the test tone is sounded.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- Microphone (part of the auto-dimming interior mirror)
- Steering wheel controls
- ACM (if equipped with navigation)
- APIM (if equipped)

PINPOINT TEST T : VOICE RECOGNITION IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

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

NOTE: *Failure to disconnect the battery when instructed will result in false resistance readings. Refer to Section 414-01.*

T1 CHECK THE OPERATION OF THE STEERING WHEEL CONTROLS

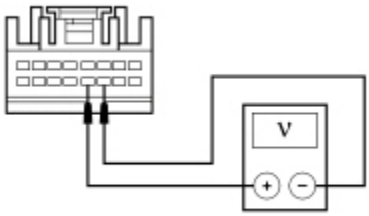
- Operate the audio system in radio tuner (AM/FM) mode.
- Press the VOICE button on the steering wheel controls.

Does the audio system enter voice recognition mode?

Yes	For vehicles with navigation, GO to T2. For vehicles without navigation, GO to T5.
No	GO to Pinpoint Test P to diagnose the steering wheel controls system.

T2 CHECK THE MICROPHONE SIGNAL TO THE ACM

- Operate the audio system in radio tuner (AM/FM) mode.
- Disconnect: ACM C290A . **NOTE:** *ACM C290A must be disconnected after the ACM is powered on or the ACM will not receive the RUN message over the network.*
- Press the VOICE button on the steering wheel controls.
- While speaking a command, measure the AC voltage between the ACM C290A Pin 11, circuit VMM23 (BN/VT), harness side and the ACM C290A Pin 12, circuit RMM23 (WH/GN), harness side.



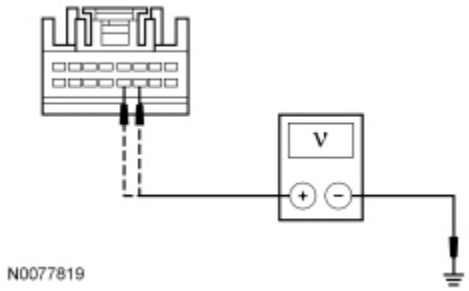
N0077818

Is a fluctuating AC voltage present?

Yes	GO to T12.
No	GO to T3.

T3 CHECK THE MICROPHONE CIRCUITS TO THE ACM FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: APIM C2383 .
- Ignition ON.
- Measure the voltage between the ACM C290A Pin 11, circuit VMM23 (BN/VT), harness side and ground; and between the ACM C290A Pin 12, circuit RMM23 (WH/GN), harness side and ground.

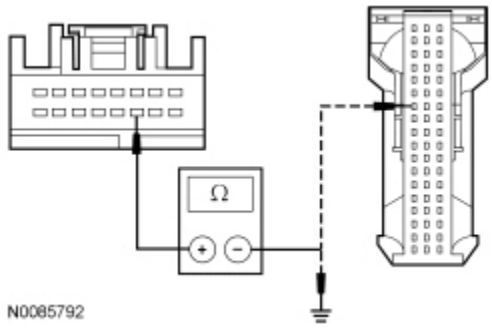


Is any voltage present?

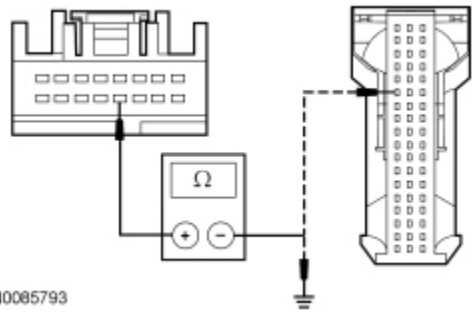
Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to T4.

T4 CHECK THE MICROPHONE CIRCUITS TO THE ACM FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the ACM C290A Pin 11, circuit VMM23 (BN/VT), harness side and the APIM C2383 Pin 12, circuit VMM23 (BN/VT), harness side; and between the ACM C290A Pin 11, circuit VMM23 (BN/VT), harness side and ground.



- Measure the resistance between the ACM C290A Pin 12, circuit RMM23 (WH/GN), harness side and the APIM C2383 Pin 13, circuit RMM23 (WH/GN), harness side; and between the ACM C290A Pin 12, circuit RMM23 (WH/GN), harness side and ground.

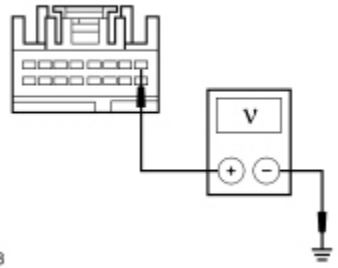


Is the resistance less than 5 ohms between the ACM and the APIM , and greater than 10,000 ohms between the ACM and ground?

Yes	GO to T5.
No	REPAIR the circuit in question. TEST the system for normal operation.

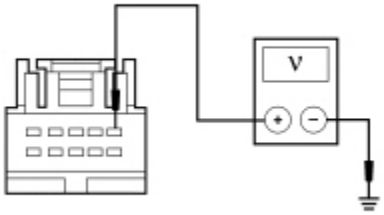
T5 CHECK THE MICROPHONE VOLTAGE SUPPLY

- Ignition OFF.
- Disconnect: Auto-Dimming Interior Mirror C9012 (Without Video Mirror) Or C9039 (With Video Mirror) .
- Ignition ON.
- For vehicles with video mirror, measure the voltage between the auto-dimming interior mirror C9039 Pin 1, circuit CBP41 (BU), harness side and ground.



N0075638

- For vehicles without video mirror, measure the voltage between the auto-dimming interior mirror C9012 Pin 1, circuit CBP41 (BU), harness side and ground.



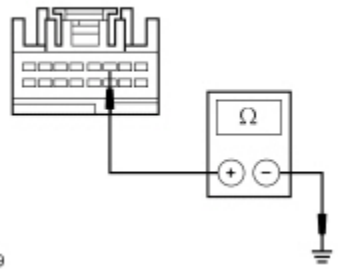
N0057331

Is the voltage greater than 10 volts?

Yes	GO to T6.
No	REPAIR the circuit. TEST the system for normal operation.

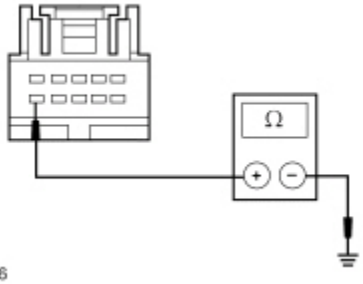
T6 CHECK THE MICROPHONE GROUND CIRCUIT FOR CONTINUITY

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- For vehicles with video mirror, measure the resistance between the auto-dimming interior mirror C9039 Pin 3, circuit GD139 (BK/YE), harness side and ground.



N0075639

- For vehicles without video mirror, measure the resistance between the auto-dimming interior mirror C9012 Pin 10, circuit GD139 (BK/YE), harness side and ground.



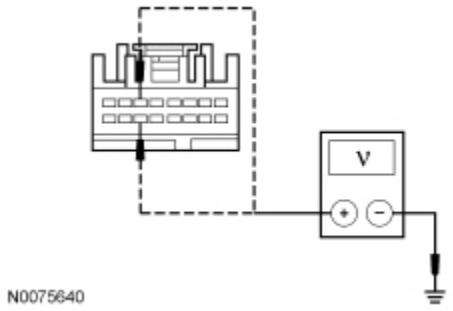
N0057336

Is the resistance less than 5 ohms?

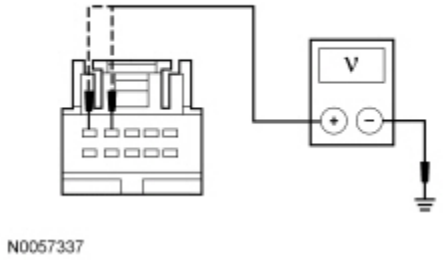
Yes	GO to T7.
No	REPAIR the circuit. TEST the system for normal operation.

T7 CHECK THE MICROPHONE CIRCUITS FOR A SHORT TO VOLTAGE

- Connect: Negative Battery Cable .
- Disconnect: APIM C2383 .
- Ignition ON.
- For vehicles with video mirror, measure the voltage between the auto-dimming interior mirror C9039 Pin 6, circuit VMM13 (YE/GN), harness side and ground; and between the auto-dimming interior mirror C9039 Pin 14, circuit RMM13 (BU), harness side and ground.



- For vehicles without video mirror, measure the voltage between the auto-dimming interior mirror C9012 Pin 4, circuit VMM13 (YE/GN), harness side and ground; and between the auto-dimming interior mirror C9012 Pin 5, circuit RMM13 (BU), harness side and ground.



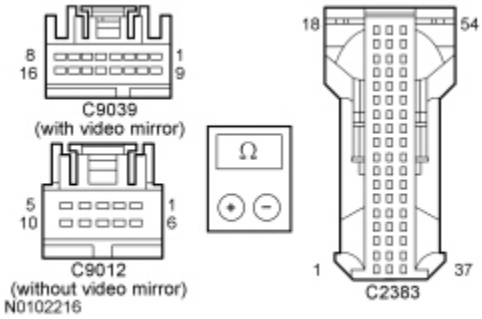
Is any voltage present?

Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to T8.

T8 CHECK THE MICROPHONE CIRCUITS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the auto-dimming interior mirror, harness side and the APIM , harness side; and between the auto-dimming interior mirror, harness side and ground as follows:

Vehicle Content	Positive Meter Lead	Negative Meter Lead	Circuit
With video mirror	C9039 Pin 6	C2383 Pin 5, then ground	VMM13 (YE/GN)
	C9039 Pin 14	C2383 Pin 6, then ground	RMM13 (BU)
Without video mirror	C9012 Pin 4	C2383 Pin 5, then ground	VMM13 (YE/GN)
	C9012 Pin 5	C2383 Pin 6, then ground	RMM13 (BU)



Are the resistances less than 5 ohms between the auto-dimming interior mirror and the APIM , and greater than 10,000 ohms between the auto-dimming interior mirror and ground?

Yes	GO to T9.
No	REPAIR the circuit in question. TEST the system for normal operation.

T9 CHECK THE SERVICE HISTORY

- Check vehicle service history for recent actions related to the ACM .

Has the Navigation software been updated recently?

Yes	GO to T10.
No	Software update disc set may be available. To obtain the disc set, access the 1878 form from the PTS website and select the Navigation Maps Update order form link. Perform software update by following instructions provided in the disc set. Recheck system for normal operation. If concern still exists, GO to T10.

T10 ISOLATE THE AUTO-DIMMING INTERIOR MIRROR

- Connect: APIM C2383 .
- Install a new auto-dimming interior mirror. Refer to Section 501-09.
- Operate the audio system in radio tuner (AM/FM) mode.
- Press the VOICE button on the steering wheel controls, and attempt several voice commands.

Does the voice recognition operate correctly?

Yes	The fault was caused by an inoperative auto-dimming interior mirror. The system is now operating correctly.
No	GO to T11.

T11 CHECK FOR CORRECT APIM OPERATION

- Connect: All Disconnected Connectors .
- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initalize.

Is the concern still present?

Yes	**VIN required to access Guided Routine (APIM)**

No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

T12 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

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

Normal Operation

A splitter is used in the front satellite radio antenna cable to split the signals between the satellite radio and the navigation system. The navigation system uses the same antenna as the satelite radio system. This information is used to calculate position and direction of travel. It is possible that a concern in the GPS signal line after the splitter may cause a navigation system concern without affecting the satellite radio.

- DTC B119F:01 (GPS Antenna: General Electrical Failure) — sets when any failure is detected in the GPS antenna circuit.
- DTC B119F:13 (GPS Antenna: Circuit Open) — sets when an open is detected in the GPS antenna circuit.

This pinpoint test is intended to diagnose the following:

- Satellite radio antenna cable
- ACM

PINPOINT TEST U : NO GPS ANTENNA SIGNAL

U1 CHECK THE SATELLITE SIGNAL PID (SAT_SIG_STR)

- Enter the following diagnostic mode on the scan tool: ACM DataLogger .
- Monitor the ACM PID (SAT_SIG_STR).

Does the PID indicate "No Signal" or "Undefined"?

Yes	GO to Pinpoint Test B.
No	GO to U2.

U2 CHECK FOR GPS SIGNAL-RELATED DTCS

- Clear the ACM DTCs.
- Carry out the ACM self-test.

Is DTC B119F:01 or DTC B119F:13 retrieved?

Yes	INSTALL a new front satellite radio antenna cable. REFER to Antenna Cable — Satellite Radio in this section. CLEAR the DTCs. TEST the system for normal operation.
No	GO to U3.

U3 SUBSTITUTE A KNOWN GOOD ANTENNA

- Ignition OFF.
- Install a known good SDARS/NAV antenna. Antenna — Satellite Radio.

Is the concern still present?

Yes	GO to U4.
No	INSTALL a new SDARS/NAV radio antenna. REFER to Antenna — Satellite Radio in this section. TEST the system for normal operation.

U4 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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 any DTCs present.

Pinpoint Test V: The Position Cursor Is Inaccurate

Normal Operation

The primary source of vehicle location for the navigation system is the Audio Front Control Module (ACM) receiving the position signal through the Global Positioning System (GPS) antenna (integral to the satellite radio antenna).

In addition, the ACM receives the navigation rolling wheel count signal from the Instrument Panel Cluster (IPC) (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 ACM , whereby the ACM can compensate for long-term differences between the GPS signal location and the actual distance traveled by the vehicle.

If DTC B119F:01 or DTC B119F:13 is present, GO to Pinpoint Test U to diagnose a concern with the GPS antenna.

- DTC U2014:09 (Control Module Hardware: Component Failure) — sets when the ACM detects a fault in the internal gyroscope. The gyroscope is not serviceable.

This pinpoint test is intended to diagnose the following:

- GPS antenna concern
- Network message concern
- ACM

PINPOINT TEST V : THE POSITION CURSOR IS INACCURATE

V1 CHECK THE ACM FOR GPS SIGNAL-RELATED DTCS

- Retrieve the ACM continuous DTCs.

Is DTC B119F:01 or DTC B119F:13 present?

Yes	GO to Pinpoint Test U.
No	GO to V2.

V2 CHECK FOR DTC U0155:00

- Review the ACM continuous DTCs.

Is DTC U0155:00 present?

Yes	GO to Pinpoint Test AC.
No	GO to V3.

V3 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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 any DTCs present.

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

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

Normal Operation

The voice-assisted route guidance is broadcast through the front speakers. The voice guidance volume can be adjusted using the settings on the Audio Front Control Module (ACM) .

This pinpoint test is intended to diagnose the following:

- Incorrect voice guidance setting
- ACM

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

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

W1 CHECK THE VOICE GUIDANCE SETTING

- Adjust the voice volume to approximately 50%. Refer to the Owner's Literature.
- Set a destination and start the route using the navigation controls. Refer to the Owner's Literature.
- Observe the voice guidance.

Does the voice guidance operate correctly?

Yes	The concern was caused by an incorrect customer setting. INSTRUCT the customer in the correct use of

	the voice guidance feature.
No	GO to W2.

W2 CHECK THE SPEAKER OUTPUT

- Carry out the speaker walk test. Refer to Audio Control Module (ACM) Self-Diagnostic Mode in this section.

Do the front speakers operate correctly?

Yes	GO to W3.
No	GO to Pinpoint Test C.

W3 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) 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 X: The SYNC System Is Inoperative (No Response Is Received From Phone, Voice, And Media Inputs)

Normal Operation

When a button on the Front Controls Interface Module (FCIM) is pressed, a network message is broadcast to the APIM via the Medium Speed Controller Area Network (MS-CAN). The APIM takes the appropriate action and sends a status message to the Front Display Interface Module (FDIM) (vehicles without navigation) or the Audio Control Module (ACM) (vehicles with navigation) in order to update the display screen.

- DTC U3000:04 (Control Module: System Internal Failure) — sets when the APIM detects a fault due to a device conflict or an internal failure.

This pinpoint test is intended to diagnose the following:

- Audio system concern
- Communication network concern
- Customer error
- Customer device
- APIM

PINPOINT TEST X : THE SYNC SYSTEM IS INOPERATIVE (NO RESPONSE IS RECEIVED FROM PHONE, VOICE, AND MEDIA INPUTS)

X1 CHECK FOR SCAN TOOL COMMUNICATION WITH THE APIM

- Carry out the network test using the scan tool.

Does the APIM pass the network test?

Yes	GO to X2.

No	REFER to Section 418-00.

X2 CHECK THE SYNC SYSTEM OPERATION

NOTE: *Carrying out a Master Reset returns all preference settings to the factory defaults, erases all the phone book and call histories, and deletes any devices paired with the SYNC system.*

- Connect: Multi-Media Interface Tester .
- Using the Multi-Media Interface Tester, test the audio output for the audio input jack, USB port, and Bluetooth connection using the VOICE switch on the steering wheel controls to enter each mode.

Do all of the SYNC inputs function correctly?

Yes	The SYNC system is operating correctly at this time. CARRY OUT a SYNC system Master Reset. REFER to the Owner's Literature. REVIEW the SYNC system operation with the customer. If the customer device still does not operate correctly, the fault is with the customer device.
No	GO to X3.

X3 RESET THE APIM AND RECHECK SYNC SYSTEM OPERATION

- Carry out an APIM power reset by disconnecting the battery for 5 minutes, then reconnecting it.
- Connect: Multi-Media Interface Tester .
- Using the Multi-Media Interface Tester, test the audio output for the audio input jack, USB port, and Bluetooth connection using the VOICE switch on the steering wheel controls to enter each mode.

Do all of the SYNC inputs function correctly?

Yes	The SYNC system is operating correctly at this time. CARRY OUT a SYNC® system Master Reset. REFER to the Owner's Literature. REVIEW the SYNC system operation with the customer. If the customer device still does not operate correctly, the fault is with the customer device.
No	If only some (but not all) of the inputs are inoperative, GO to Symptom Chart — SYNC System to diagnose the observed symptom. If all inputs are inoperative and/or DTC U3000:04 is present,   **VIN required to access Guided Routine (APIM)**

Pinpoint Test Y: Unable To Pair Bluetooth Device

Normal Operation

When a new Bluetooth device is added, the Accessory Protocol Interface Module (APIM) and the Bluetooth device must be paired together. Most Bluetooth devices can pair with the SYNC system, although functionality may vary. To determine if a Bluetooth device is supported, retrieve the Consumer Interface Processor (CIP) software level using the Accessory Protocol Interface Module (APIM) Software Level Check in this section, and verify the customer device is on the compatibility list for the current CIP software level.

Pairing a Bluetooth device is accomplished through the "Add Device" selection of the phone menu. When pairing a device, the SYNC system generates a unique Personal Identification Number (PIN) that must be entered on the Bluetooth device in order for the pairing process to be successful. There are also some device-specific actions that must take place. For additional information on the pairing process, refer to the Owner's Literature.

This pinpoint test is intended to diagnose the following:

- Incompatible Bluetooth device
- Customer error
- Customer Bluetooth device
- APIM

PINPOINT TEST Y : UNABLE TO PAIR BLUETOOTH DEVICE

Y1 CHECK THE BLUETOOTH CONNECTION

NOTE: *Carrying out a Master Reset returns all preference settings to the factory defaults, erases all the phone book and call histories, and deletes any devices paired with the SYNC system.*

- Connect: Multi-Media Interface Tester .
- Using the Multi-Media Interface Tester, connect to the SYNC system using Bluetooth. Follow the tool instructions.
- Enter the following diagnostic mode on the scan tool: APIM DataLogger .
- Monitor the Bluetooth device paired PID (BT_PAIR) and the Bluetooth device connected PID (BT_CONN).

Do the PIDs BT_PAIR and BT_CONN both read "Yes"?

Yes	The SYNC system is operating correctly at this time. CARRY OUT a SYNC system Master Reset. REFER to the Owner's Literature. REVIEW the pairing process with the customer. If the customer device still does not pair, the fault is with the customer device.
No	GO to Y2.

Y2 CHECK FOR CORRECT APIM OPERATION

- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initalize.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	 **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test Z: The Universal Serial Bus (USB) Port Is Inoperative/Does Not Operate Correctly

Normal Operation

The Universal Serial Bus (USB) port is connected to the Accessory Protocol Interface Module (APIM) through the USB cable. The USB port can be used to play audio files or upload software from mass storage devices, or for connecting a media device.

If supported by the user device, the USB can provide charging. Because of this feature, when a USB device is plugged into the USB port, the SYNC system does not automatically switch to the device.

If a USB mass storage device is used to play an audio file, the SYNC system only plays audio files that do not have Digital Rights Management (DRM) protection.

The USB cable and port are not serviceable separately.

- DTC B1252:04 (USB Port: System Internal Failure) — sets when the APIM detects any fault in the USB circuit. This can be caused by a fault in the USB cable or port, or by the customer USB device.
- DTC B1252:11 (USB Port: Circuit Short to Ground) — sets when the APIM detects a short to ground in the USB circuit.

This pinpoint test is intended to diagnose the following:

- Customer USB device
- USB cable and port
- APIM

PINPOINT TEST Z : THE USB PORT IS INOPERATIVE/DOES NOT OPERATE CORRECTLY

Z1 CHECK THE USB CONNECTION

- Connect: Multi-Media Interface Tester . Using the Multi-Media Interface Tester, attempt to play a file using the USB port.

Does the audio file play successfully using the USB connection?

Yes	The SYNC system is operating correctly. REVIEW the operation of the USB port with the customer. If the customer device still does not operate correctly, the fault is with the customer device.
No	GO to Z2.

Z2 INSPECT THE USB CABLE

- Ignition OFF.
- Disconnect: USB Cable At APIM .
- Inspect the USB cable for damage.
- Connect: USB Cable At APIM .
- Ignition ON.
- Connect: Multi-Media Interface Tester . Using the Multi-Media Interface Tester, attempt to play a file using the USB port.

Does the audio file play successfully using the USB connection?

Yes	The concern was caused by the USB connection not being seated correctly. The system is now operating correctly.
No	GO to Z3.

Z3 RESET THE APIM AND RECHECK SYNC SYSTEM OPERATION

NOTE: *Carrying out a Master Reset returns all preference settings to the factory defaults, erases all the phone book and call histories, and deletes any devices paired with the SYNC system.*

- Carry out an APIM power reset by disconnecting the battery for 5 minutes, then reconnecting it.
- Connect: Multi-Media Interface Tester .
- Using the Multi-Media Interface Tester, test the audio output for the audio input jack, USB port, and Bluetooth connection using the VOICE switch on the steering wheel controls to enter each mode.

Do all of the SYNC inputs function correctly?

Yes	The SYNC system is operating correctly at this time. CARRY OUT a SYNC® system Master Reset. REFER to the Owner's Literature. REVIEW the SYNC system operation with the customer. If the customer device still does not operate correctly, the fault is with the customer device.
No	If only the USB port is inoperative, GO to Z4. If additional inputs are inoperative, GO to Symptom Chart — SYNC System to diagnose the observed symptom. If all inputs are inoperative,    **VIN required to access Guided Routine (APIM)**

Z4 ISOLATE THE USB CABLE AND PORT

- Install a new USB cable and port. Refer to Universal Serial Bus (USB) Cable and Port in this section.
- Connect: Multi-Media Interface Tester . Using the Multi-Media Interface Tester, attempt to play a file using the USB port.

Does the audio file play successfully using the USB connection?

Yes	The concern was caused by an inoperative USB cable. The system is now operating correctly.
No	GO to Z5.

Z5 CHECK FOR CORRECT APIM OPERATION

- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initalize.
- Operate the system and verify the concern is still present.

Is the concern still present?

Yes	  **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR any DTCs present.

Pinpoint Test AA: The SYNC® System Voice Or Tone Prompts, Text-To-Speech (TTS) Feature, Or Ringtones Are Inoperative Or Do Not Operate Correctly

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

Normal Operation

The Text-To-Speech (TTS) and voice prompt features speak certain text information and interaction requests in order to minimize driver distraction while driving. The ringtone alerts the driver to an incoming call.

Audible prompts can range from a simple tone to more elaborate spoken text, based on the customer setting. When interaction mode is set to standard, detailed guidance is provided. When interaction mode is set to advanced, most prompts are tones only and minimal audible guidance is provided. Refer to the Owner's Literature for further information on voice interaction.

The audio signals for the TTS and voice prompt features, the ringtones, and audio from the outside device during a phone call, are sent from the Accessory Protocol Interface Module (APIM) to the Audio Front Control Module (ACM) .

This pinpoint test is intended to diagnose the following:

- Customer setting
- Wiring, terminals or connectors
- ACM
- APIM

PINPOINT TEST AA : THE SYNC® SYSTEM VOICE OR TONE PROMPTS, TEXT-TO-SPEECH (TTS) FEATURE, OR RINGTONES ARE INOPERATIVE OR DO NOT OPERATE CORRECTLY

NOTICE: Use the correct probe adapter(s) when making measurements. Failure to use the correct probe adapter(s) may damage the connector.
AA1 CHECK THE AUDIBLE PROMPT SETTING

- Operate the audio system in SYNC mode.
- Verify the audible prompts are enabled. Refer to "SYNC Voice Recognition Feature" in the Owner's Literature.
- Press the VOICE switch on the steering wheel controls and observe the SYNC system audible prompt.

Does the SYNC system produce an audible prompt correctly?

Yes	The system is operating correctly at this time. The concern was caused by a customer setting. INSTRUCT the customer in the correct operation of the audible prompt feature.
No	GO to AA2.

AA2 CHECK FOR A VOLTAGE SIGNAL FROM THE APIM

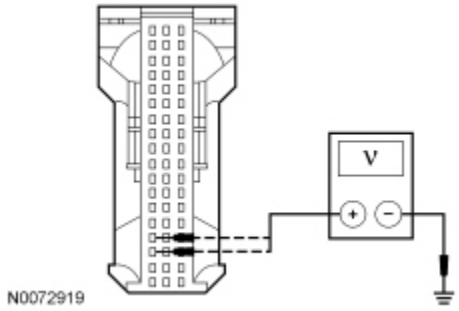
- Operate the audio system in SYNC mode.
- While pressing the VOICE switch repeatedly, measure the AC voltage by back-probing between the ACM C290A Pin 4, circuit VMN14 (WH/VT), harness side and the ACM C290A Pin 5, circuit RMN14 (GY/BN), harness side.

Is an AC voltage produced each time the VOICE switch is pressed?

Yes	GO to AA6.
No	GO to AA3.

AA3 CHECK THE AUDIBLE PROMPT CIRCUITS FOR A SHORT TO VOLTAGE

- Ignition OFF.
- Disconnect: ACM C290A .
- Disconnect: APIM C2383 .
- Ignition ON.
- Measure the voltage between the APIM C2383 Pin 3, circuit VMN14 (WH/VT), harness side and ground; and between the APIM C2383 Pin 4, circuit RMN14 (GY/BN), harness side and ground.

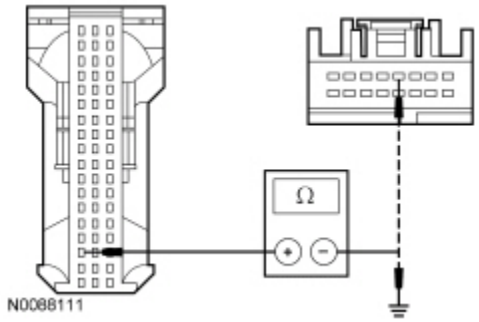


Is any voltage present?

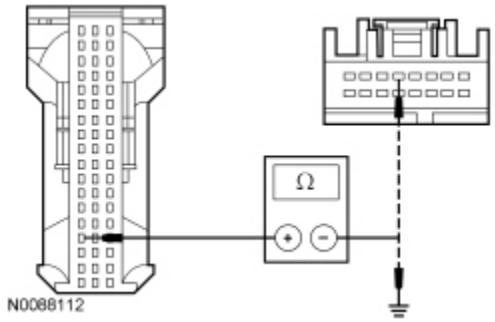
Yes	REPAIR the circuit in question. TEST the system for normal operation.
No	GO to AA4.

AA4 CHECK THE AUDIBLE PROMPT CIRCUITS FOR AN OPEN OR SHORT TO GROUND

- Ignition OFF.
- Measure the resistance between the APIM C2383 Pin 3, circuit VMN14 (WH/VT), harness side and the ACM C290A Pin 4, circuit VMN14 (WH/VT), harness side; and between the APIM C2383 Pin 3, circuit VMN14 (WH/VT), harness side and ground.



- Measure the resistance between the APIM C2383 Pin 4, circuit RMN14 (GY/BN), harness side and the ACM C290A Pin 5, circuit RMN14 (GY/BN), harness side; and between the APIM C2383 Pin 4, circuit RMN14 (GY/BN), harness side and ground.



Is the resistance less than 5 ohms between the APIM and the ACM , and greater than 10,000 ohms between the APIM and ground?

Yes	GO to AA5.
No	REPAIR the circuit in question. TEST the system for normal operation.

AA5 CHECK FOR CORRECT APIM OPERATION

- Connect: All Disconnected Connectors .
- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initalize.

Is the concern still present?

Yes	**VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

AA6 CHECK FOR CORRECT ACM OPERATION

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

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Pinpoint Test AB: DTC U0140 Or DTC U0140:00

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

Normal Operation

Several audio system modules receive network messages from the Smart Junction Box (SJB) via the Medium Speed Controller Area Network (MS-CAN) . The following information is included in the messages:

- Ignition switch position
- Illumination dimmer control
- Accessory delay status

As more than one module receives these messages, all modules receiving a particular message should exhibit a symptom if the message is missing.

- DTC U0140 (Lost Communication With Body Control Module) — set by the Front Display Interface Module (FDIM) when network messages are missing from the SJB for greater than 5 seconds with the ignition in RUN.
- DTC U0140:00 (Lost Communication With Body Control Module: No Sub Type Information) — set by the Audio Front Control Module (ACM) , the Accessory Protocol Interface Module (APIM) , the Global Positioning System Module (GPSM) , or the Front Controls Interface Module (FCIM) when network messages are missing from the SJB for greater than 5 seconds with the ignition in RUN.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- Audio system concern
- SJB

PINPOINT TEST AB : DTC U0140 OR DTC U0140:00

AB1 CHECK FOR LOST COMMUNICATION DTCS

- Ignition ON.
- Clear continuous DTCs from all modules.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Retrieve all continuous DTCs from all modules.

Is DTC U0140 or DTC U0140:00 set in any audio system module?

Yes	GO to AB2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AB2 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - ACM
  - APIM (if equipped)
  - FCIM
  - FDIM (without navigation)
  - GPSM (if equipped)
  - SJB

Is DTC B1318, U3003:16, or U3003:17 recorded in any module?

Yes	For an audio system module, REFER to DTC Charts in this section. For the SJB , REFER to Section 419-10.
No	GO to AB3.

AB3 CHECK FOR DTC U0140 OR DTC U0140:00 SET IN MULTIPLE MODULES

- Review the recorded results from the self-test.

Is DTC U0140 or DTC U0140:00 set in more than one audio system module?

Yes	GO to AB4.
No	If there is an observable symptom, GO to Symptom Chart — General Audio System to diagnose the observed symptom. If there is no observable symptom, CHECK the MS-CAN wiring between the SJB and the module in question for a fault.

AB4 CHECK FOR CORRECT SJB OPERATION

- Disconnect all the SJB connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the SJB connectors and make sure they seat correctly.

Is the concern still present?

Yes	INSTALL a new SJB . REFER to Section 419-10. CLEAR all continuous 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 all continuous DTCs. REPEAT the self-test for the module(s) that set DTC U0140 or DTC U0140:00.

Pinpoint Test AC: DTC U0155 Or DTC U0155:00

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

Normal Operation

Several audio system modules receive network messages from the Instrument Panel Cluster (IPC) via the Medium Speed Controller Area Network (MS-CAN) . The following information is included in the messages:

- English/metric units
- Vehicle Identification Number (VIN)
- Transmission gear selected
- Vehicle speed

As more than one module receives these messages, all modules receiving a particular message should exhibit a symptom if the message is missing.

- DTC U0155 (Lost Communication With Instrument Panel Cluster (Instrument Panel Cluster (IPC))) — set by the Front Display Interface Module (FDIM) when network messages are missing from the IPC for greater than 5 seconds with the ignition in RUN.
- DTC U0155:00 (Lost Communication With Instrument Panel Cluster (IPC) Control Module: No Sub Type Information) set by the Audio Front Control Module (ACM) , the Global Positioning System Module (GPSM) , or the Accessory Protocol Interface Module (APIM) when network messages are missing from the IPC for greater than 5 seconds with the ignition in RUN.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- Audio system concern
- IPC

PINPOINT TEST AC : DTC U0155 OR DTC U0155:00

AC1 CHECK FOR LOST COMMUNICATION DTCS

- Ignition ON.
- Clear continuous DTCs from all modules.

- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Retrieve all continuous DTCs from all modules.

Is DTC U0155 or DTC U0155:00 set in any audio system module?

Yes	GO to AC2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AC2 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - ACM
  - APIM (if equipped)
  - FDIM (navigation only)
  - GPSM (if equipped)
  - IPC

Is DTC B1318, U3003:16, or U3003:17 recorded in any module?

Yes	For an audio system module, REFER to DTC Charts in this section. For the IPC , REFER to Section 413-01.
No	GO to AC3.

AC3 CHECK FOR DTC U0155 OR DTC U0155:00 SET IN MULTIPLE MODULES

- Review the recorded results from the self-test.

Is DTC U0155 or DTC U0155:00 set in more than one audio system module?

Yes	GO to AC4.
No	If there is an observable symptom, GO to Symptom Chart — General Audio System to diagnose the observed symptom. If there is no observable symptom, CHECK the MS-CAN wiring between the SJB and the module in question for a fault.

AC4 CHECK FOR CORRECT IPC OPERATION

- Disconnect the IPC connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the IPC connector and make sure it seats correctly.

Is the concern still present?

Yes	INSTALL a new IPC . REFER to Section 413-01. CLEAR all continuous 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 all continuous DTCs. REPEAT the self-test for the module(s) that set DTC U0155 or DTC U0155:00.

Pinpoint Test AD: DTC U0197 Or DTC U0197:00

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

Normal Operation

Several audio system modules receive network messages from the Accessory Protocol Interface Module (APIM) via the Medium Speed Controller Area Network (MS-CAN) . These messages consist of various audio system related information.

As more than one module receives these messages, all modules receiving a particular message should exhibit a symptom if the message is missing.

- DTC U0197 (Lost Communication With Telephone Control Module) — set by Front Display Interface Module (FDIM) when network messages are missing from the APIM for greater than 5 seconds with the ignition in RUN.
- DTC U0197:00 (Lost Communication With Radio: No Sub Type Information) — set by the Audio Front Control Module (ACM) or the Global Positioning System Module (GPSM) when network messages are missing from the APIM for greater than 5 seconds with the ignition in RUN.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- Audio system concern
- APIM

PINPOINT TEST AD : DTC U0197 OR DTC U0197:00

AD1 CHECK FOR LOST COMMUNICATION DTCS

- Ignition ON.
- Clear continuous DTCs from all modules.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Retrieve all continuous DTCs from all modules.

Is DTC U0197 or DTC U0197:00 set in any audio system module?

Yes	GO to AD2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AD2 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - ACM
  - APIM (if equipped)
  - FDIM (with navigation)
  - GPSM (if equipped)

Is DTC B1318, U3003:16, or U3003:17 recorded in any module?

Yes	REFER to DTC Charts in this section.
No	GO to AD3.

AD3 CHECK FOR DTC U0197 OR DTC U0197:00 SET IN MULTIPLE MODULES

- Review the recorded results from the self-test.

Is DTC U0197 or DTC U0197:00 set in more than one audio system module?

Yes	GO to AD4.

No	If there is an observable symptom, REFER to the appropriate Symptom Chart in this section. If there is no observable symptom, CHECK the MS-CAN wiring between the APIM and the module in question for a fault.

AD4 CHECK FOR CORRECT APIM OPERATION

- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initialize.

Is the concern still present?

Yes	  **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR all continuous DTCs. REPEAT the self-test for the module(s) that set DTC U0197 or DTC U0197:00.

Pinpoint Test AE: DTC U0255:00

Normal Operation

- DTC U0255:00 (Lost Communication With Front Display Interface Module: No Sub Type Information) — set by the Audio Front Control Module (ACM) or the Accessory Protocol Interface Module (APIM) when network messages are missing from the Front Display Interface Module (FDIM) over the Medium Speed Controller Area Network (MS-CAN) for greater than 5 seconds with the ignition in the RUN position.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- ACM
- FDIM
- APIM

PINPOINT TEST AE : DTC U0255:00

NOTE: *Disregard the pinpoint test steps for the APIM if the concern is on a vehicle without the SYNC system.*

AE1 CHECK THE ACM AND FDIM DTCS

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may be incorrectly set during Programmable Module Installation (PMI) or the PMI may not have been carried out.*

- Clear the ACM and APIM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Repeat the ACM and APIM self-tests.

Is DTC U0255:00 still present?

Yes	GO to AE2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AE2 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify that there is an observable symptom present.

Is an observable symptom present?

Yes	GO to AE3.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring. CHECK the MS-CAN wiring between theFDIM and the module in question for a fault.

AE3 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Carry out the network test using the scan tool.

Does the FDIM pass the network test?

Yes	GO to AE4.
No	REFER to Section 418-00.

AE4 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - ACM
  - APIM
  - FDIM

Is DTC U3003:16 or DTC U3003:17 recorded in any module?

Yes	REFER to DTC Charts in this section.
No	INSTALL a new FDIM . REFER to Front Display Interface Module (FDIM) in this section. CLEAR the ACM and APIM DTCs. REPEAT the ACM and APIM self-tests. If DTC U0255:00 is still present in the ACM , INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. TEST the system for normal operation. If DTC U0255:00 is still present in the APIM ,   **VIN required to access Guided Routine (APIM)**

Pinpoint Test AF: DTC U0256:00

Normal Operation

- DTC U0256:00 (Lost Communication With Front Controls Interface Module: No Sub Type Information) — set by the Audio Front Control Module (ACM) or the Accessory Protocol Interface Module (APIM) when network messages are missing from the Front Controls Interface Module (FCIM) over the Medium Speed Controller Area Network (MS-CAN) for greater than 5 seconds with the ignition in the RUN position.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- ACM
- FCIM
- APIM

PINPOINT TEST AF : DTC U0256:00

NOTE: *Disregard the pinpoint test steps for the APIM if the concern is on a vehicle without the SYNC system.*

AF1 CHECK THE ACM AND FDIM DTCS

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may be incorrectly set during Programmable Module Installation (PMI) or the PMI may not have been carried out.*

- Clear the ACM and APIM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Repeat the ACM and APIM self-tests.

Is DTC U0256:00 still present?

Yes	GO to AF2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AF2 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify that there is an observable symptom present.

Is an observable symptom present?

Yes	GO to AF3.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring. CHECK the MS-CAN wiring between theFCIM and the module in question for a fault.

AF3 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Carry out the network test using the scan tool.

Does the FCIM pass the network test?

Yes	GO to AF4.
No	REFER to Section 418-00.

AF4 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - ACM
  - APIM
  - FCIM

Is DTC U3003:16 or DTC U3003:17 recorded in any module?

Yes	REFER to DTC Charts in this section.
No	INSTALL a new FCIM . REFER to Front Controls Interface Module (FCIM) in this section. CLEAR the ACM and APIM DTCs. REPEAT the ACM and APIM self-tests. If U0256:00 is still present in the ACM , INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. TEST the system for normal operation. If DTC U0256:00 is still present in the APIM ,    **VIN required to access Guided Routine (APIM)**

Pinpoint Test AG: DTC U0164 Or DTC U0164:00

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

Normal Operation

Some audio system modules receive network messages from the HVAC module via the Medium Speed Controller Area Network (MS-CAN) . The following information is included in the messages:

- HVAC indication status
- Outside temperature

As more than one module receives these messages, all modules receiving a particular message should exhibit a symptom if the message is missing.

- DTC U0164 (Lost Communication With HVAC Control Module (EATC)) — set by the Front Display Interface Module (FDIM) when network messages are missing from the HVAC module for greater than 5 seconds with the ignition in RUN.
- DTC U0164:00 (Lost Communication With HVAC Control Module: No Sub Type Information) — set by the navigation Audio Front Control Module (ACM) when network messages are missing from the HVAC module for greater than 5 seconds with the ignition in RUN.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- Audio system concern
- HVAC module

PINPOINT TEST AG : DTC U0164 OR DTC U0164:00

AG1 CHECK FOR LOST COMMUNICATION DTCS

- Ignition ON.
- Clear continuous DTCs from all modules.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Retrieve all continuous DTCs from all modules.

Is DTC U0164 or DTC U0164:00 set in any audio system module?

Yes	GO to AG2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AG2 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - ACM
  - FCIM
  - FDIM
  - HVAC module

Is DTC U3003:16 or DTC U3003:17 recorded in any module?

Yes	For an audio system module, REFER to DTC Charts in this section. For the HVAC module, REFER to Section 412-00.
No	GO to AG3.

AG3 CHECK FOR DTC U0164 OR DTC U0164:00 SET IN MULTIPLE MODULES

- Review the recorded results from the self-test.

Is DTC U0164 or DTC U0164:00 set in more than one audio system module?

Yes	GO to AG4.

No	If there is an observable symptom, GO to Symptom Chart — General Audio System to diagnose the observed symptom. If there is no observable symptom, CHECK the MS-CAN wiring between the HVAC module and the module in question for a fault.

AG4 CHECK FOR CORRECT HVAC MODULE OPERATION

- Disconnect all the HVAC module connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the HVAC module connectors and make sure they seat correctly.

Is the concern still present?

Yes	INSTALL a new HVAC module. REFER to Section 412-01. CLEAR all continuous 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 all continuous DTCs. REPEAT the self-test for the module(s) that set DTC U0164 or DTC U0164:00.

Pinpoint Test AH: DTC U0100:00

Normal Operation

The Accessory Protocol Interface Module (APIM) receives network messages from the PCM via the High Speed Controller Area Network (HS-CAN) . These messages include the odometer reading and the fuel level.

As other modules outside of the audio system also receive these messages, all modules receiving a particular message should exhibit a symptom if the message is missing.

- DTC U0100:00 (Lost Communication With ECM /PCM "A": No Sub Type Information) — set by the APIM when it is missing messages from the PCM over the HS-CAN for greater than 5 seconds with the ignition in the RUN position.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- PCM

PINPOINT TEST AH : DTC U0100:00

AH1 CHECK FOR LOST COMMUNICATION DTCS

- Ignition ON.
- Clear continuous DTCs from all modules.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Retrieve all continuous DTCs from all modules.

Is U0100:00 set in any modules?

Yes	GO to AH2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AH2 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:

- APIM
- Powertrain Control Module (PCM)
- Instrument Panel Cluster (IPC)

Is DTC U3003:16 or DTC U3003:17 recorded in any module?

Yes	For the APIM , REFER to DTC Charts in this section. For all other modules, REFER to the master list in Section 419-10.
No	GO to AH3.

AH3 CHECK FOR DTC U0100 OR DTC U0100:00 SET IN MULTIPLE MODULES

- Review the recorded results from the self-test.

Is DTC U0100 or DTC U0100:00 set in more than one module?

Yes	GO to AH4.
No	If there is an observable symptom, GO to Symptom Chart — General Audio System to diagnose the observed symptom. If there is no observable symptom, CHECK the wiring between the APIM and the PCM for a fault.

AH4 CHECK FOR CORRECT PCM OPERATION

- Disconnect all the PCM connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the PCM connectors and make sure they seat correctly.

Is the concern still present?

Yes	INSTALL a new PCM. REFER to Section 303-00. CLEAR all continuous DTCs. REPEAT the APIM self-test.
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR all continuous DTCs. REPEAT the APIM self-test.

Pinpoint Test AI: DTC U0151:00

Normal Operation

The Accessory Protocol Interface Module (APIM) receives the eCall status message from the Restraints Control Module (RCM) via the High Speed Controller Area Network (HS-CAN) . This message indicates to the APIM the status of the emergency call system.

- DTC U0151:00 (Lost Communication With Restraints Control Module: No Sub Type Information) — set by the APIM when it is missing the eCall status message from the RCM over the HS-CAN for greater than 5 seconds with the ignition in the RUN position.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- Restraints system concern

PINPOINT TEST AI : DTC U0151:00

AI1 CHECK FOR LOST COMMUNICATION DTCS

- Ignition ON.
- Clear continuous DTCs from all modules.
- Ignition OFF.
- Ignition ON.

- Wait at least 10 seconds.
- Retrieve all continuous DTCs from all modules.

Is U0151:00 set in any modules?

Yes	GO to AI2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AI2 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - APIM
  - PCM
  - RCM
  - Instrument Panel Cluster (IPC)

Is DTC U3003:16 or DTC U3003:17 recorded in any module?

Yes	For the APIM , REFER to DTC Charts in this section. For all other modules, REFER to the master list in Section 419-10.
No	GO to AI3.

AI3 CHECK FOR DTC U0151 OR DTC U0151:00 SET IN MULTIPLE MODULES

- Review the recorded results from the self-test.

Is DTC U0151:00 set in more than one module?

Yes	GO to AI4.
No	If there is an observable audio system symptom, GO to Symptom Chart — General Audio System to diagnose the observed symptom. If there is an observable restraints system symptom, REFER to Section 501-20B to diagnose the symptom. If there is no observable symptom, CHECK the wiring between the APIM and the RCM for a fault.

AI4 CHECK FOR CORRECT RCM OPERATION

- Disconnect all the RCM connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the RCM connectors and make sure they seat correctly.

Is the concern still present?

Yes	INSTALL a new RCM . REFER to Section 501-20B. CLEAR all continuous DTCs. REPEAT the APIM self-test. .
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector. CLEAR all continuous DTCs. REPEAT the APIM self-test.

Pinpoint Test AJ: DTC U016A:00

Normal Operation

- DTC U016A:00 (Lost Communication With Global Positioning System Module (GPSM) : No Sub Type Information) — set by the Accessory Protocol Interface Module (APIM) when it is missing network messages from the Global Positioning System Module (GPSM) over the Medium Speed Controller Area Network (MS-CAN) for greater than 5 seconds with the ignition in the RUN position.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- GPSM
- APIM

PINPOINT TEST AJ : DTC U016A:00

AJ1 VERIFY THE CUSTOMER CONCERN

- Ignition ON.
- Verify that there is an observable symptom present.

Is an observable symptom present?

Yes	GO to AJ2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring. CHECK the MS-CAN wiring between the APIM and the GPSM for a fault.

AJ2 CHECK THE COMMUNICATION NETWORK

- Ignition ON.
- Carry out the network test using the scan tool.

Does the GPSM pass the network test?

Yes	GO to AJ3.
No	REFER to Section 418-00.

AJ3 CHECK FOR ANY RECENT PMI CHANGES

NOTE: *If new modules were installed prior to the DTC being set, the module configuration may be incorrectly set during Programmable Module Installation (PMI) or the PMI may not have been carried out.*

- Check the vehicle service history for recent service actions related to the GPSM .

Have there been any recent service actions with either module?

Yes	CARRY out a manual PMI on the GPSM using As-Built data. REFER to the diagnostic scan tool instructions.
No	GO to AJ4.

AJ4 RETRIEVE THE RECORDED DTCS FROM THE GPSM

- Clear the GPSM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Repeat the GPSM self-test.

Is DTC U3003:16 or DTC U3003:17 recorded?

Yes	REFER to the GPSM DTC chart in this section.
No	GO to AJ5.

AJ5 RETRIEVE THE RECORDED DTCS FROM THE APIM

- Repeat the APIM self-test.

Is DTC U3003:16 or DTC U3003:17 recorded?

Yes	For DTC U3003:16, GO to Pinpoint Test AQ. For DTC U3003:17, GO to Pinpoint Test AP
No	GO to AJ6.

AJ6 RECHECK THE APIM DTCS

- Perform the APIM self-test.

Is DTC U016A:00 still present?

Yes	GO to AJ7.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AJ7 CHECK FOR DTC U016A:00 SET IN OTHER MODULES

- Clear all DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Repeat the APIM self-test.

Is DTC U016A:00 set in any other module?

Yes	GO to AJ8.
No	GO to AJ9.

AJ8 CHECK FOR CORRECT GPSM OPERATION

- Disconnect the GPSM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the GPSM connector and make sure it seats correctly.

Is the concern still present?

Yes	INSTALL a new GPSM . REFER to Global Positioning System Module (GPSM) in this section. 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.

AJ9 CHECK FOR CORRECT APIM OPERATION

- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initalize.

Is the concern still present?

Yes	  **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test AK: DTC U0184 Or DTC U0184:00

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

Normal Operation

Several audio system modules receive network messages from the Audio Front Control Module (ACM) via the Medium Speed Controller Area Network (MS-CAN) . These messages consist of various audio system related information.

As more than one module receives these messages, all modules receiving a particular message should exhibit a symptom if the message is missing.

- DTC U0184 (Lost Communication With Radio (ACM)) — set by the Front Display Interface Module (FDIM) when network messages are missing from the ACM for greater than 5 seconds with the ignition in RUN.
- DTC U0184:00 (Lost Communication With Radio: No Sub Type Information) — set by the Accessory Protocol Interface Module (APIM) , the FCIM and the Global Positioning System Module (GPSM) when network messages are missing from the ACM for greater than 5 seconds with the ignition in RUN.

This pinpoint test is intended to diagnose the following:

- Communication network concern
- Audio system concern
- ACM

PINPOINT TEST AK : DTC U0184 OR DTC U0184:00

AK1 CHECK FOR LOST COMMUNICATION DTCS

- Ignition ON.
- Clear continuous DTCs from all modules.
- Ignition OFF.
- Ignition ON.
- Wait at least 10 seconds.
- Retrieve all continuous DTCs from all modules.

Is DTC U0184 or DTC U0184:00 set in any audio system module?

Yes	GO to AK2.
No	The system is operating correctly at this time. The DTC may have been set due to an intermittent fault in the network wiring.

AK2 CHECK FOR BATTERY VOLTAGE OUT-OF-RANGE DTCS

- Carry out the self-test for the following modules:
  - ACM
  - APIM (if equipped)
  - FCIM
  - FDIM
  - GPSM

Is DTC U3003:16 or DTC U3003:17 recorded in any module?

Yes	REFER to DTC Charts in this section.
No	GO to AK3.

AK3 CHECK FOR DTC U0184 OR DTC U0184:00 SET IN MULTIPLE MODULES

- Review the recorded results from the self-test.

Is DTC U0184 or DTC U0184:00 set in more than one audio system module?

Yes	GO to AK4.
No	If there is an observable symptom, REFER to the appropriate Symptom Chart in this section. If there is no observable symptom, CHECK the MS-CAN wiring between the ACM and the module in question for a fault.

AK4 CHECK FOR CORRECT ACM OPERATION

- Disconnect all the ACM connectors.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect all the ACM connectors and make sure they seat correctly.

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. CLEAR all continuous 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 all continuous DTCs. REPEAT the self-test for the module(s) that set DTC U0184 or DTC U0184:00.

Pinpoint Test AL: DTC U3003:16 (Audio Front Control Module (ACM))

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

Normal Operation

- DTC U3003:16 (Battery Voltage: Circuit Voltage Below Threshold) — set by the Audio Front Control Module (ACM) as a continuous or on-demand DTC when the supply voltage falls below 10 volts for at least 10 seconds during normal operation, or for greater than 250 milliseconds during the self-test.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- High circuit resistance
- ACM

PINPOINT TEST AL : DTC U3003:16 (ACM)

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

NOTE: *Failure to disconnect the battery when instructed will result in false resistance readings. Refer to Section 414-01.*

AL1 RECHECK THE ACM DTCS

- Clear the ACM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait 10 seconds.

- Repeat the ACM self-test.

Is DTC U3003:16 still present?

Yes	GO to AL2.
No	The system is operating correctly at this time. The DTC may have set due to a previous low battery voltage condition.

AL2 CHECK FOR CHARGING SYSTEM DTCS IN THE PCM

- Retrieve the continuous memory DTCs from all modules.

Is DTC P0620, P0622, P0625, P0626, or P065B set in the PCM?

Yes	REFER to Section 414-00.
No	GO to AL3.

AL3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

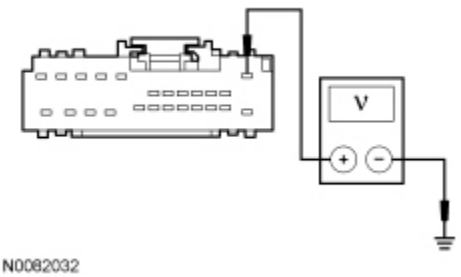
- Check the battery condition and verify that the battery is fully charged. Refer to Section 414-01.

Is the battery OK and fully charged?

Yes	GO to AL4.
No	REFER to Section 414-01.

AL4 CHECK THE ACM VOLTAGE SUPPLY

- Ignition OFF.
- Measure and record the voltage at the battery.
- Disconnect: ACM C290D .
- Ignition ON.
- Measure the voltage between the ACM C290D Pin 1, circuit SBP39 (WH/RD), harness side and ground.

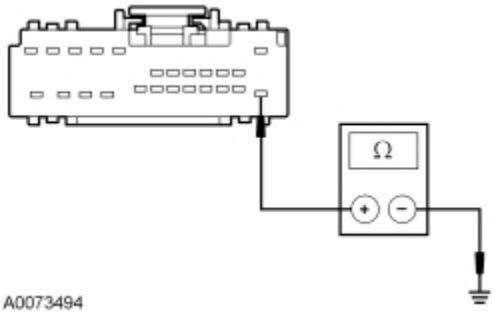


Is the voltage within 0.2 volt of the recorded battery voltage?

Yes	GO to AL5.
No	REPAIR the circuit for high resistance. CLEAR the DTCs. REPEAT the self-test.

AL5 CHECK THE ACM GROUND CIRCUIT FOR CONTINUITY

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the ACM C290D Pin 13, circuit GD115 (BK/GY), harness side and ground.



Is the resistance less than 5 ohms?

Yes	GO to AL6.
No	REPAIR the circuit for high resistance. CLEAR the DTCs. REPEAT the self-test.

AL6 CHECK FOR CORRECT ACM OPERATION

- Disconnect the ACM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the ACM connector and make sure it seats correctly.

Is the concern still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. 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.

Pinpoint Test AM: DTC U3003:17 (Audio Front Control Module (ACM))

Normal Operation

- DTC U3003:17 (Battery Voltage: Circuit Voltage Above Threshold) — set by the Audio Front Control Module (ACM) when the supply voltage is greater than 15.8 volts for more than 250 milliseconds during normal operation or the self-test.

This pinpoint test is intended to diagnose the following:

- Charging system concern
- ACM

PINPOINT TEST AM : DTC U3003:17 (ACM)

NOTE: *DTC U3003:17 may be stored in the module memory due to past battery charging or vehicle jump starting events.*

AM1 CHECK FOR HIGH VOLTAGE DTCS SET IN OTHER MODULES

- Ignition ON.
- Retrieve all continuous DTCs from all modules.

Is DTC B1317, B1676, B0563 (PCM), or U3003:17 set in more than one module?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.
No	GO to AM2.

AM2 CHECK THE BATTERY VOLTAGE

- Turn off all interior/exterior lights and accessories.
- Start and run the engine at approximately 2,000 rpm for 3 minutes while monitoring the battery voltage.

Does the battery voltage rise to 15.5 volts or higher?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.
No	GO to AM3.

AM3 RECHECK FOR DTC U3003:17

- Turn the engine off.
- Ignition ON.
- Clear the ACM DTCs.
- Repeat the ACM self-test.

Is DTC U3003:17 still present?

Yes	INSTALL a new ACM . REFER to Audio Control Module (ACM) in this section. TEST this system for normal operation.
No	The system is operating normally at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.

Pinpoint Test AN: DTC U3003:16 (Accessory Protocol Interface Module (APIM))

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

Normal Operation

- DTC U3003:16 (Battery Voltage: Circuit Voltage Below Threshold) — set by the Accessory Protocol Interface Module (APIM) when the supply voltage falls below 10 volts for at least 10 seconds during normal operation.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- High circuit resistance
- APIM

PINPOINT TEST AN : DTC U3003:16 (APIM)

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

NOTE: *Failure to disconnect the battery when instructed will result in false resistance readings. Refer to Section 414-01.*

AN1 RECHECK THE APIM DTCS

- Clear the APIM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 15 seconds.
- Repeat the APIM self-test.

Is DTC U3003:16 still present?

Yes	GO to AN2.
No	The system is operating correctly at this time. The DTC may have set due to a previous low battery voltage condition.

AN2 CHECK FOR CHARGING SYSTEM DTCS IN THE PCM

- Retrieve the continuous memory DTCs from all modules.

Is DTC P0620, P0622, P0625, or P065B set in the PCM?

Yes	REFER to Section 414-00.
No	GO to AN3.

AN3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

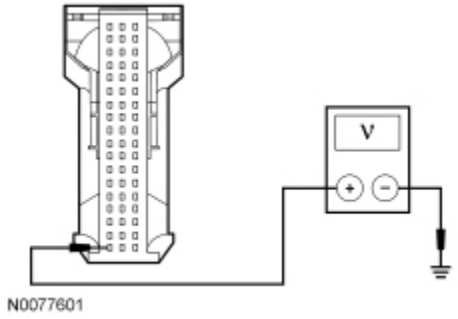
- Check the battery condition and verify that the battery is fully charged. Refer to Section 414-01.

Is the battery OK and fully charged?

Yes	GO to AN4.
No	REFER to Section 414-01.

AN4 CHECK THE APIM VOLTAGE SUPPLY

- Ignition OFF.
- Measure and record the voltage at the battery.
- Disconnect: APIM C2383 .
- Ignition ON.
- Measure the voltage between the APIM C2383 Pin 1, circuit SBP03 (BU/RD), harness side and ground.



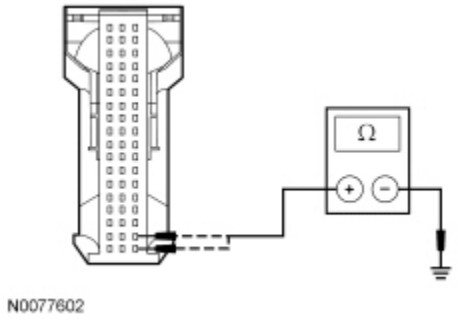
N0077601

Is the voltage within 0.2 volt of the recorded battery voltage?

Yes	GO to AN5.
No	REPAIR the circuit for high resistance. CLEAR the DTCs. REPEAT the self-test.

AN5 CHECK THE APIM GROUND CIRCUITS FOR CONTINUITY

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the APIM C2383 Pin 37, circuit GD115 (BK/GY), harness side and ground; and between the APIM C2383 Pin 38, circuit GD115 (BK/GY), harness side and ground.



N0077602

Are the resistances less than 5 ohms?

Yes	GO to AN6.
No	REPAIR the circuit in question for high resistance. CLEAR the DTCs. REPEAT the self-test.

AN6 CHECK FOR CORRECT APIM OPERATION

- Disconnect the APIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the APIM connector and make sure it seats correctly.
- Wait 2 minutes for the APIM to re-initialize.

Is the concern still present?

Yes	 **VIN required to access Guided Routine (APIM)**
No	The system is operating correctly at this time. The concern may have been caused by a loose or corroded connector.

Pinpoint Test AO: DTC U3003:17 (Accessory Protocol Interface Module (APIM))

Normal Operation

- DTC U3003:17 (Battery Voltage: Circuit Voltage Above Threshold) — set by the Accessory Protocol Interface Module (APIM) when the supply voltage is greater than 15.8 volts for more than 250 milliseconds during normal operation.

This pinpoint test is intended to diagnose the following:

- Charging system concern
- APIM

PINPOINT TEST AO : DTC U3003:17 (APIM)

NOTE: *DTC U3003:17 may be stored in the module memory due to past battery charging or vehicle jump starting events.*

AO1 CHECK FOR HIGH VOLTAGE DTCS SET IN OTHER MODULES

- Ignition ON.
- Retrieve the continuous DTCs from all modules.

Is DTC B1317, B1676, B0563 (PCM), or U3003:17 set in more than one module?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.
No	GO to AO2.

AO2 CHECK THE BATTERY VOLTAGE

- Turn off all interior/exterior lights and accessories.
- Start and run the engine at approximately 2,000 rpm for 3 minutes while monitoring the battery voltage.

Does the battery voltage rise to 15.5 volts or higher?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.

No	GO to AO3.

AO3 RECHECK FOR DTC U3003:17

- Ignition OFF.
- Ignition ON.
- Clear the APIM DTCs.
- Repeat the APIM self-test.

Is DTC U3003:17 present?

Yes	   **VIN required to access Guided Routine (APIM)**
No	The system is operating normally at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.

Pinpoint Test AP: DTC U3003:16 (Front Controls Interface Module (FCIM))

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

Normal Operation

- DTC U3003:16 (Battery Voltage: Circuit Voltage Below Threshold) — set by the Front Controls Interface Module (FCIM) when the supply voltage falls below 10 volts for greater than 10 seconds during normal operation or for greater than 250 milliseconds during the self-test.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- High circuit resistance
- FCIM

PINPOINT TEST AP : DTC U3003:16 (FCIM)

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

NOTE: *Failure to disconnect the battery when instructed will result in false resistance readings. Refer to Section 414-01.*

AP1 RECHECK THE FCIM DTCS

- Clear the FCIM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 15 seconds.
- Repeat the FCIM self-test.

Is DTC U3003:16 still present?

Yes	GO to AP2.
No	The system is operating correctly at this time. The DTC may have set due to a previous low battery voltage condition.

AP2 CHECK FOR CHARGING SYSTEM DTCS IN THE PCM

- Retrieve the continuous memory DTCs from all modules.

Is DTC P0620, P0622, P0625, or P065B set in the PCM?

Yes	REFER to Section 414-00.
No	GO to AP3.

AP3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

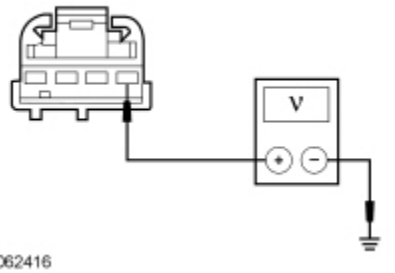
- Check the battery condition and verify that the battery is fully charged. Refer to Section 414-01.

Is the battery OK and fully charged?

Yes	GO to AP4.
No	REFER to Section 414-01.

AP4 CHECK THE FCIM VOLTAGE SUPPLY

- Ignition OFF.
- Measure and record the voltage at the battery.
- Disconnect: FCIM C2402 .
- Ignition ON.
- Measure the voltage between the FCIM module C2402 Pin 1, circuit SBP14 (BN/RD), harness side and ground.



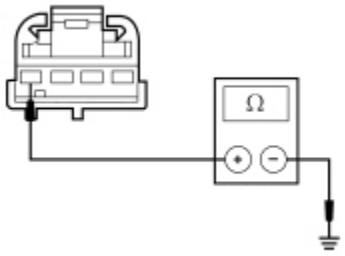
N0062416

Is the voltage within 0.2 volt of the recorded battery voltage?

Yes	GO to AP5.
No	REFER the circuit for high resistance. CLEAR the DTC. REPEAT the self-test.

AP5 CHECK THE FCIM GROUND CIRCUIT FOR CONTINUITY

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the FCIM module C2402 Pin 4, circuit GD115 (BK/GY), harness side and ground.



N0085619

Is the resistance less than 5 ohms?

Yes	GO to AP6.
No	REPAIR the circuit for high resistance. TEST the system for normal operation.

AP6 CHECK FOR CORRECT FCIM OPERATION

- Disconnect the FCIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the FCIM connector and make sure it seats correctly.

Is the concern still present?

Yes	INSTALL a new FCIM . REFER to Front Controls Interface Module (FCIM) in this section. 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.

Pinpoint Test AQ: DTC U3003:17 (Front Controls Interface Module (FCIM))

Normal Operation

- DTC U3003:17 (Battery Voltage: Circuit Voltage Above Threshold) — set by the Front Controls Interface Module (FCIM) when the supply voltage is greater than 15.8 volts for more than 250 milliseconds during normal operation or the self-test.

This pinpoint test is intended to diagnose the following:

- Charging system concern
- FCIM

PINPOINT TEST AQ : DTC U3003:17 (FCIM)

NOTE: *DTC U3003:17 may be stored in the module memory due to past battery charging or vehicle jump starting events.*

AQ1 CHECK FOR HIGH VOLTAGE DTCS SET IN OTHER MODULES

- Ignition ON.
- Retrieve all continuous DTCs from all modules.

Is DTC B1317, B1676, B0563 (PCM), or U3003:17 set in more than one module?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.
No	GO to AQ2.

AQ2 CHECK THE BATTERY VOLTAGE

- Turn off all interior/exterior lights and accessories.
- Start and run the engine at approximately 2,000 rpm for 3 minutes while monitoring the battery voltage.

Does the battery voltage rise to 15.5 volts or higher?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.
No	GO to AQ3.

AQ3 RECHECK FOR DTC U3003:17

- Turn the engine off.
- Ignition ON.
- Clear the FCIM DTCs.
- Repeat the FCIM self-test.

Is DTC U3003:17 present?

Yes	INSTALL a new FCIM . REFER to Front Controls Interface Module (FCIM) in this section. TEST this system for normal operation.
No	The system is operating normally at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.

Pinpoint Test AR: DTC B1318 (Front Display Interface Module (FDIM))

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

Normal Operation

- DTC B1318 (Battery Voltage Low) — set by the Front Display Interface Module (FDIM) when the supply voltage falls below 10 volts for greater than 10 seconds during normal operation or during the self-test.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- High circuit resistance
- FDIM

PINPOINT TEST AR : DTC B1318 (FDIM)

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

NOTE: *Failure to disconnect the battery when instructed will result in false resistance readings. Refer to Section 414-01.*

AR1 RECHECK THE FDIM DTCS

- Clear the FDIM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 15 seconds.
- Repeat the FDIM self-test.

Is DTC B1318 still present?

Yes	GO to AR2.
No	The system is operating correctly at this time. The DTC may have set due to a previous low battery voltage condition.

AR2 CHECK FOR CHARGING SYSTEM DTCS IN THE PCM

- Retrieve the continuous memory DTCs from all modules.

Is DTC P0620, P0622, P0625, or P065B set in the PCM?

Yes	REFER to Section 414-00.
No	GO to AR3.

AR3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

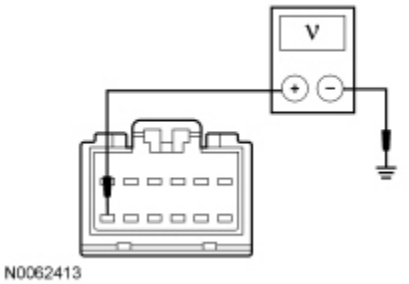
- Check the battery condition and verify that the battery is fully charged. Refer to Section 414-01.

Is the battery OK and fully charged?

Yes	GO to AR4.
No	REFER to Section 414-01.

AR4 CHECK THE FDIM VOLTAGE SUPPLY

- Ignition OFF.
- Measure and record the voltage at the battery.
- Disconnect: FDIM .
- Ignition ON.
- Measure the voltage between the FDIM C2123 Pin 12, circuit SBP14 (BN/RD), harness side and ground.



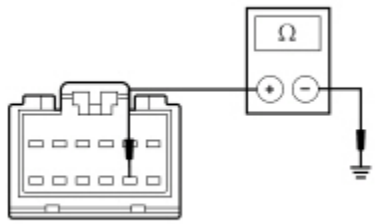
N0062413

Is the voltage within 0.2 volt of the recorded battery voltage?

Yes	GO to AR5.
No	REPAIR the circuit for high resistance. CLEAR the DTC. REPEAT the self-test.

AR5 CHECK THE FDIM GROUND CIRCUIT FOR CONTINUITY

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the FDIM C2123 Pin 8, GD116 (BK/VT) harness side and ground.



N0077731

Is the resistance less than 5 ohms?

Yes	GO to AR6.
No	REPAIR the circuit for high resistance. TEST the system for normal operation.

AR6 CHECK FOR CORRECT FDIM OPERATION

- Disconnect the FDIM connector.
- Check for:
  - corrosion
  - damaged pins
  - pushed-out pins
- Connect the FDIM connector and make sure it seats correctly.

Is the concern still present?

Yes	INSTALL a new FDIM . REFER to Front Display Interface Module (FDIM) in this section. 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.

Pinpoint Test AS: DTC U3003:16 Global Positioning System Module (GPSM)

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

Normal Operation

- DTC U3003:16 (Battery Voltage: Circuit Voltage Below Threshold) — set by the Global Positioning System Module (GPSM) when the supply voltage falls below 10 volts for at least 10 seconds during normal operation, or for greater than 250 milliseconds during the self-test.

This pinpoint test is intended to diagnose the following:

- Wiring, terminals or connectors
- High circuit resistance
- GPSM

PINPOINT TEST AS : DTC U3003:16 GLOBAL POSITIONING SYSTEM MODULE (GPSM)

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

NOTE: *Failure to disconnect the battery when instructed will result in false resistance readings. Refer to Section 414-01.*

AS1 RECHECK THE GPSM DTCS

- Clear the GPSM DTCs.
- Ignition OFF.
- Ignition ON.
- Wait at least 15 seconds.
- Repeat the GPSM self-test.

Is DTC U3003:16 still present?

Yes	GO to AS2.
No	The system is operating correctly at this time. The DTC may have set due to a previous low battery voltage condition.

AS2 CHECK FOR CHARGING SYSTEM DTCS IN THE PCM

- Retrieve the continuous memory DTCs from all modules.

Is DTC P0620, P0622, P0625, or P065B set in the PCM?

Yes	REFER to Section 414-00.
No	GO to AS3.

AS3 CHECK THE BATTERY CONDITION AND STATE OF CHARGE

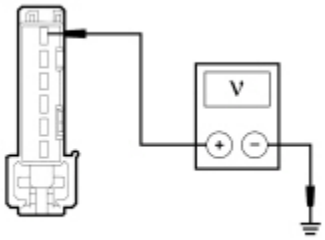
- Check the battery condition and verify that the battery is fully charged. Refer to Section 414-01.

Is the battery OK and fully charged?

Yes	GO to AS4.
No	REFER to Section 414-01.

AS4 CHECK THE GPSM VOLTAGE SUPPLY

- Ignition OFF.
- Measure and record the voltage at the battery.
- Disconnect: GPSM C2398 .
- Ignition ON.
- Measure the voltage between the GPSM C2398 Pin 1, circuit SBP14 (BN/RD), harness side and ground.



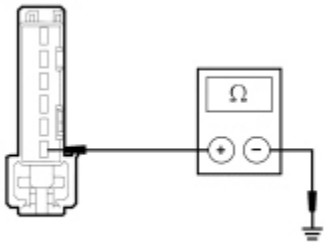
N0094349

Is the voltage within 0.2 volt of the recorded battery voltage?

Yes	GO to AS5.
No	REPAIR the circuit in question for high resistance. CLEAR the DTC. REPEAT the self-test.

AS5 CHECK THE GPSM GROUND CIRCUITS

- Ignition OFF.
- Disconnect: Negative Battery Cable .
- Measure the resistance between the GPSM C2398 Pin 6, circuit GD115 (BK/GY), harness side and ground.



N0094350

Is the resistance less than 5 ohms?

Yes	GO to AS6.
No	REPAIR the circuit in question for high resistance. TEST the system for normal operation.

AS6 CHECK FOR CORRECT GPSM OPERATION

- Disconnect the GPSM connectors.
- Check for:
  - corrosion
  - pushed-out pins
- Connect all the GPSM connectors and make sure they seat correctly.

Is the concern still present?

Yes	INSTALL a new GPSM . REFER to Global Positioning System Module (GPSM) in this section. 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.

Pinpoint Test AT: DTC U3003:17 Global Positioning System Module (GPSM)

Normal Operation

- DTC U3003:17 (Battery Voltage: Circuit Voltage Above Threshold) — set by the Global Positioning System Module (GPSM) when the supply voltage is greater than 15.8 volts for more than 250 milliseconds during normal operation or the self-test.

This pinpoint test is intended to diagnose the following:

- Charging system concern
- GPSM

PINPOINT TEST AT : DTC U3003:17 (GPSM)

NOTE: *DTC U3003:17 may be stored in the module memory due to past battery charging or vehicle jump starting events.*

AT1 CHECK FOR HIGH VOLTAGE DTCS SET IN OTHER MODULES

- Ignition ON.
- Retrieve all continuous DTCs from all modules.

Is DTC B1317, B1676, B0563 (PCM), or U3003:17 set in more than one module?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.
No	GO to AT2.

AT2 CHECK THE BATTERY VOLTAGE

- Turn off all interior/exterior lights and accessories.
- Start and run the engine at approximately 2,000 rpm for 3 minutes while monitoring the battery voltage.

Does the battery voltage rise to 15.5 volts or higher?

Yes	REFER to Section 414-00 to diagnose an overcharging condition.
No	GO to AT3.

AT3 RECHECK FOR DTC U3003:17

- Turn the engine off.
- Ignition ON.
- Clear the GPSM DTCs.
- Repeat the GPSM self-test.

Is DTC U3003:17 still present?

Yes	INSTALL a new GPSM . REFER to Global Positioning System Module (GPSM) in this section. TEST this system for normal operation.
No	The system is operating normally at this time. The DTC may have been set previously during battery charging or while jump starting the vehicle.

Pinpoint Test AU: Poor Sound Quality Or Distorted Sound From One Or More Speakers (Not All Speakers)

Normal Operation

The Audio Front Control Module (ACM) sends audio signals to the speakers in the form of AC voltage, resulting in clear audio output.

Possible Sources

- Wiring, terminals, or connectors
- Speaker(s)
- Loose trim panel fasteners
- Loose trim panels
- Loose speaker grille
- Loose harnesses
- Loose items in storage areas
- Loose harness fasteners
- Loose door and handle lock components
- Loose component fasteners
- Watershield bonding and placement
- Subwoofer enclosure

PINPOINT TEST AU : POOR SOUND QUALITY OR DISTORTED SOUND FROM ONE OR MORE SPEAKERS (NOT ALL SPEAKERS)

AU1 ISOLATE THE ZONE

- Operate the audio system using digital media (CD, MP3, etc.).
- Using the audio system fade and balance feature, adjust the audio sound to each of the four zones (LF, RF, LR and RR) of the vehicle to isolate the poor sound quality.
- Locate and apply pressure to the trim panel(s) around the poor sound quality area in question.

Does applying pressure to a trim panel reduce or eliminate the audible noise?

Yes	REPAIR or REPLACE the trim panel as needed.
No	GO to AU2.

AU2 REMOVE AND INSPECT BEHIND/UNDERNEATH THE SUSPECT TRIM PANEL(S)

- Remove the trim panel to access the suspect speaker.
- Operate the audio system using digital media (CD, MP3, etc.).
- Validate where the poor sound quality area is located.
- Check:
  - Trim panel for loose components (e.g. speaker grille) around the speaker area.
  - Trim panel joining components for missing or broken pieces.
  - Lock and handle mechanical parts for correct attachment.
  - Wire harnesses for correct routing.
  - Wire harness fasteners for correct attachment.
  - Watershield for correct placement (speaker air path not blocked).
  - Watershield for correct bonding to sheet metal.
  - Storage areas for loose items.
  - All child safety belt anchors (if equipped).
  - All safety belt retractors.
  - All speaker bracket fasteners and other fasteners are secured and tightened to specified torque.

Was the source of the noise located?

Yes	REPAIR or REPLACE any loose or broken component or fastener as needed.
No	GO to AU3.

AU3 CHECK THE SUSPECT SPEAKER FOR WATER INTRUSION

- Inspect for watermarks.
- Check the:
  - Cone.

- Magnet.
- Basket.

Are any watermarks present on the speaker?

Yes	VERIFY the water shield is in the correct location, REPAIR or REPLACE any trim, door, or speaker seal as required. DRY the speaker in question and TEST the system for normal operation.
No	GO to AU4.

AU4 ISOLATE SPEAKER TO VERIFY NOISE

- Remove the suspect speaker from its location and leave the speaker connected to the harness.
- Hold the speaker away from any trim panel(s) and ensure the speaker is isolated from contact.
- Operate the audio system using digital media (CD, MP3, etc.).

Is the noise still present in the suspect speaker?

Yes	INSTALL a new speaker for the one in question.
No	LOCATE the source of the noise and REPAIR as needed.

© Copyright 2023, Ford Motor Company.