

Refer to Audio System/Navigation - With SYNC Without Touchscreen for schematic and connector information.

Normal Operation and Fault Conditions

REFER to: Information and Entertainment System - System Operation and Component Description . See SYNC ® System, Voice Recognition, ACM, and APIM.

Possible Sources

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

DIAGNOSIS AND TESTING > INFORMATION AND ENTERTAINMENT SYSTEM > PINPOINT TESTS > PINPOINT TEST Q : ALL APIM (SYNC MODULE) MONO OUTPUTS ARE INOPERATIVE OR DO NOT OPERATE CORRECTLY > PINPOINT TEST Q : ALL APIM (SYNC MODULE) MONO OUTPUTS ARE INOPERATIVE OR DO NOT OPERATE CORRECTLY

Q1 CHECK THE AUDIBLE PROMPT FUNCTIONALITY

- Operate the audio system in AM/ FM mode.
- Operate the VOICE steering wheel switch and listen for the SYNC ® audible prompt.

Does the SYNC ® system produce an audible prompt correctly; indicating voice recognition mode has been entered?

Yes	The system is operating correctly at this time. INSTRUCT the customer in the correct operation of the audible prompt feature. REFER to "SYNC ® Voice Recognition Feature" in the Owner's Literature.
No	GO to Q2

Q2 CHECK THE OPERATION OF THE RH (RIGHT-HAND) STEERING WHEEL SWITCHES

- Operate the audio system in AM/ FM mode.
- Operate the VOLUME +/-, SEEK +/-, AUDIO MODE, MUTE, VOICE, SEND/RECEIVE CALL, and END CALL steering wheel switches.

Do the VOLUME +/-, SEEK +/-, AUDIO MODE, MUTE, VOICE, SEND/RECEIVE CALL, and END CALL steering wheel switches operate correctly?

Yes	GO to Q3
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No	GO to Pinpoint Test V
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Q3 CHECK FOR AN AC (ALTERNATING CURRENT) VOLTAGE SIGNAL ON THE APIM (SYNC MODULE) MONO OUTPUT CIRCUITS TO THE ACM (AUDIO FRONT CONTROL MODULE)

 **NOTE:** This pinpoint test step directs testing circuits using a back-probe method. Use the special back-probe tool POM6411. Do not force test leads or other probes into connectors. Adequate care must be exercised to avoid connector terminal damage, while ensuring that good electrical contact is made with the circuit or terminal. Failure to follow these instructions may cause damage to wiring, terminals, or connectors, and may cause subsequent electrical faults.

Operate the audio system in AM/ FM mode.

While back-probing ACM C240B , measure the AC voltage while repeatedly operating the VOICE steering wheel switch.

Positive Lead	Measurement / Action	Negative Lead
C240B-8		C240B-21

Is a fluctuating AC voltage present each time the VOICE steering wheel switch is operated?

Yes	GO to Q9
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No	GO to Q4
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Q4 CHECK THE APIM (SYNC MODULE) MONO OUTPUT CIRCUITS TO THE ACM (AUDIO FRONT CONTROL MODULE) FOR A SHORT TO VOLTAGE

Ignition OFF.

Disconnect: ACM C240B .

Disconnect: APIM C2383 .

Ignition ON.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C240B-8		Ground

C240B-21		Ground
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Is any voltage present?

Yes	REPAIR the circuit in question.
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No	GO to Q5
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Q5 CHECK THE APIM (SYNC MODULE) MONO OUTPUT CIRCUITS TO THE ACM (AUDIO FRONT CONTROL MODULE) FOR A SHORT TO GROUND

Ignition OFF.

Measure:

Positive Lead	Measurement / Action	Negative Lead
C240B-8	Ω	Ground
C240B-21	Ω	Ground

Are the resistances greater than 10, 000 ohms?

Yes	GO to Q6
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No	REPAIR the circuit in question.
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Q6 CHECK THE APIM (SYNC MODULE) MONO OUTPUT CIRCUITS TO THE ACM (AUDIO FRONT CONTROL MODULE) FOR AN OPEN

Measure:

Positive Lead	Measurement / Action	Negative Lead
C240B-8	Ω	C2383-3
C240B-21	Ω	C2383-4

Are the resistances less than 3 ohms?

Yes	GO to Q7
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No	REPAIR the circuit in question.
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Q7 CHECK THE APIM (SYNC MODULE) MONO OUTPUT CIRCUITS TO THE ACM (AUDIO FRONT CONTROL MODULE) FOR A SHORT TOGETHER

Measure:

Positive Lead	Measurement / Action	Negative Lead
C240B-8		C240B-21

Is the resistance greater than 10, 000 ohms?

Yes	GO to Q8
No	REPAIR the circuit in question.

Q8 CHECK FOR CORRECT APIM (SYNC MODULE) OPERATION

Disconnect and inspect the APIM connector.

Repair:

Corrosion (clean module pins or install new connectors or terminals)

Damaged or bent pins (install new terminals or pins)

Pushed-out pins (install new pins as necessary)

Reconnect the APIM connector. Make sure it seats and latches correctly.

Wait at least 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	CHECK OASIS for any applicable Technical Service Bulletins (TSBs). If a TSB exists for this concern, DISCONTINUE this test and FOLLOW the TSB instructions. If no Technical Service Bulletins (TSBs) address this concern, PERFORM the APIM Hardware Test. Refer to APIM HARDWARE TESTING .
No	The system is operating correctly at this time. The concern may have been caused by module connections. ADDRESS the root cause of any connector or pin issues.

Q9 CHECK FOR CORRECT ACM (AUDIO FRONT CONTROL MODULE) OPERATION

Ignition OFF.

Disconnect and inspect all the ACM connectors.

Repair:

Corrosion (clean module pins or install new connectors or terminals)

Damaged or bent pins (install new terminals or pins)

Pushed-out pins (install new pins as necessary)