

# PINPOINT TEST B: SATELLITE RADIO/SIRIUS™ STREAMING CONTENT/TRAFFIC ANNOUNCEMENT CONCERN

## - Introduction

Refer to Wiring Diagrams Cell [131](#) for schematic and connector information.

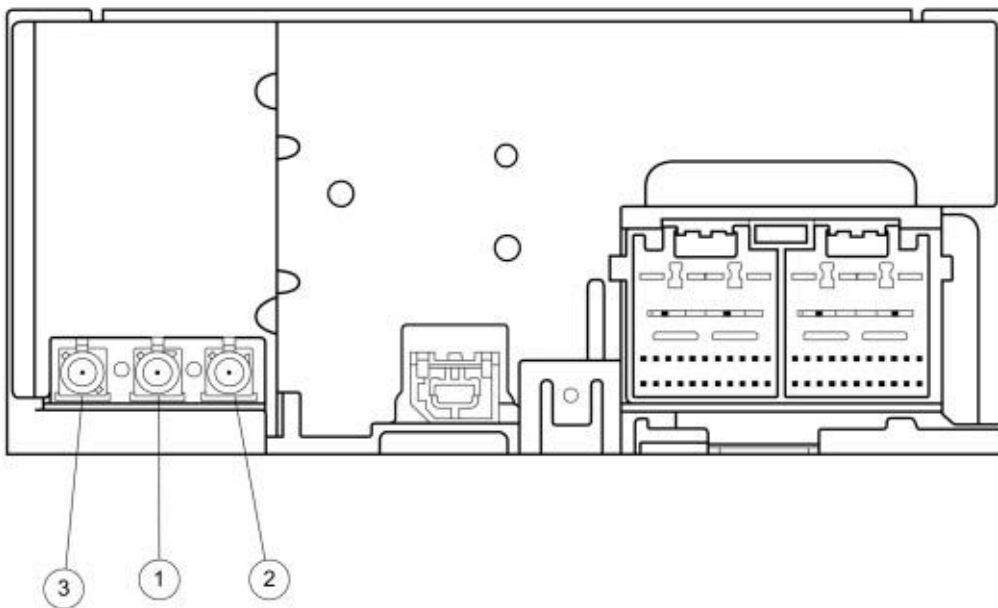
## Normal Operation and Fault Conditions

REFER to: Information and Entertainment System - Component Location (415-00 Information and Entertainment System - General Information, Description and Operation).

REFER to: Information and Entertainment System - System Operation and Component Description (415-00 Information and Entertainment System - General Information, Description and Operation).

When a satellite radio subscription is active, the ESN of the satellite radio receiver built into the ACM associates with the VIN.

## ACM Coaxial Cable Connections



E309749

| Item | Part Number | Description                      |
|------|-------------|----------------------------------|
| 1    | —           | Audio unit antenna connection    |
| 2    | —           | FM2 diversity antenna connection |
| 3    | —           | Satellite radio connection       |

## DTC Fault Trigger Conditions

| DTC              | Description                                    | Fault Trigger Condition  |
|------------------|--|--|
| ACM<br>B1A89:11  | Satellite Antenna: Circuit Short To Ground     | Sets in continuous memory or during the on-demand self-test when the ACM detects a short to ground from the satellite radio cable. |
| ACM<br>B1A89:13  | Satellite Antenna: Circuit Open                | Sets in continuous memory or during the on-demand self-test when the ACM detects an open from the satellite radio cable.           |
| APIM<br>U1A00:87 | Private Communication Network: Missing Message | Sets during the on-demand self-test when the APIM does not receive a valid response from the ACM over the serial data circuits.    |

## Possible Causes

- Expired subscription
- Vehicle Connectivity or the SiriusXM™ with 360L setting disabled
- Compass concern
- Ethernet cable concern
- Cellular data input concern
- Obstructions in the antenna line of sight
- Incorrectly matched ESN
- Wiring, terminals, or connectors
- Lower satellite radio antenna cable (includes GPS splitter)
- GPS /satellite radio antenna
- ACM
- APIM

**NOTE:** Prior to carrying out diagnostics, it may be beneficial to determine the cause using the Antenna Tool Kit (refer to the Rotunda catalog for the latest part number) or equivalent tool.

**NOTE:** Carrying out a Master Reset of the SYNC system prior to diagnostics may resolve some satellite radio/traffic announcement concerns.

### **B1 CHECK FOR DTC (DIAGNOSTIC TROUBLE CODE) U1A00:87**

- Ignition ON.
- Using a diagnostic scan tool, carry out the APIM self-test.

**Is DTC U1A00:87 present?**

|            |   |
|------------|---|
| <b>Yes</b> | GO to <a href="#">B16</a>   |
| <b>No</b>  | For vehicles equipped with a satellite radio, GO to <a href="#">B2</a><br>For vehicles not equipped with a satellite radio, GO to <a href="#">B14</a> |

### **B2 CHECK FOR PROMOTIONAL CHANNEL 1**

- Select channel 1.

**Does the satellite radio system receive channel 1 with normal sound quality?**

|            |                           |
|------------|---------------------------|
| <b>Yes</b> | GO to <a href="#">B3</a>  |
| <b>No</b>  | GO to <a href="#">B10</a> |

### **B3 VERIFY AN ACTIVE SUBSCRIPTION**

- For a Sirius Radio concern, operate the audio system in satellite radio mode and observe the display.

**Does the display indicate the subscription has expired?**

|            |   |
|------------|---|
| <b>Yes</b> | GO to <a href="#">B4</a>  |
| <b>No</b>  | For a SIRIUS on-demand streaming data concern, GO to <a href="#">B6</a><br>For all other satellite radio concerns, GO to <a href="#">B9</a> |

### **B4 CHECK THE VEHICLE SERVICE HISTORY FOR ACM (AUDIO FRONT CONTROL MODULE) REPLACEMENT**

- Check the vehicle service history and determine if the **ACM** was replaced.

**Does the vehicle service history indicate the **ACM** was recently replaced?**

|            |  |
|------------|--|
| <b>Yes</b> | GO to <a href="#">B5</a>   |
| <b>No</b>  | The subscription has expired. INSTRUCT the vehicle owner to contact SIRIUS to reactivate the subscription. |

**B5 VERIFY THE VIN (VEHICLE IDENTIFICATION NUMBER) AND THE ESN (ELECTRONIC SERIAL NUMBER) ON FILE MATCHES THE VIN (VEHICLE IDENTIFICATION NUMBER) AND THE ESN (ELECTRONIC SERIAL NUMBER) FROM THE VEHICLE**

- Retrieve the satellite radio **ESN** by tuning to channel 0.
- Contact the SIRIUS Dealer Support.
- Make sure the **VIN** and the **ESN** SIRIUS has on the customer file match the **VIN** and the **ESN** retrieved from the vehicle.

**Does the **VIN** and the **ESN** on the SIRIUS customer file match the **ESN** and **VIN** retrieved from the vehicle?**

|            |  |
|------------|--|
| <b>Yes</b> | The subscription has expired. INSTRUCT the vehicle owner to contact SIRIUS to reactivate the subscription.           |
| <b>No</b>  | INSTRUCT the vehicle owner to contact SIRIUS to update the <b>VIN</b> and the <b>ESN</b> retrieved from the vehicle. |

**B6 CHECK THE CONNECTIVITY SETTINGS USING THE TOUCHSCREEN DISPLAY UNIT**

- Access the settings menu on the display unit. Make sure the Vehicle Connectivity and the SiriusXM with 360L settings are enabled.

**Are the Vehicle Connectivity and the SiriusXM with 360L settings enabled?**

|            |  |
|------------|--|
| <b>Yes</b> | GO to <a href="#">B7</a>   |
| <b>No</b>  | ENABLE the Vehicle Connectivity and the SiriusXM with 360L settings. |

**B7 CHECK FOR GWM (GATEWAY MODULE A) DIAGNOSTIC TROUBLE CODES (DTCs)**

- Using a diagnostic scan tool, carry out the **GWM** self-test.

**Are any **GWM** Diagnostic Trouble Codes (DTCs) present?**

|            |                                |
|------------|--------------------------------|
| <b>Yes</b> | REFER to the Master DTC Chart. |
| <b>No</b>  | GO to <a href="#">B8</a>       |

**B8 CHECK THE CELLULAR SIGNAL STRENGTH**

- Drive the vehicle to an outdoor location that is free from obstacles such as tall buildings.

- Observe the cellular signal strength on the display unit.

**Does the display indicate a good cellular strength signal of at least 2 bars?**

|            |                                       |
|------------|---------------------------------------|
| <b>Yes</b> | GO to <a href="#">B9</a>              |
| <b>No</b>  | <a href="#">GO to Pinpoint Test Y</a> |

**B9 VERIFY THE VIN (VEHICLE IDENTIFICATION NUMBER) AND THE ESN (ELECTRONIC SERIAL NUMBER) ON FILE MATCHES THE VIN (VEHICLE IDENTIFICATION NUMBER) AND THE ESN (ELECTRONIC SERIAL NUMBER) FROM THE VEHICLE**

- Retrieve the satellite radio ESN by tuning to channel 0.
- Contact the SIRIUS Dealer Support.
- Make sure the VIN and the ESN SIRIUS has on the file match the VIN and the ESN retrieved from the vehicle.
- Drive the vehicle to an open location free from obstacles such as tall buildings or large trees.
- Operate the audio system in satellite radio mode.
- **NOTE:** *It may take up to 30 minutes for the activation signal to be received and satellite radio functions to operate.*

Request for SIRIUS to send the activation signal to the vehicle 2-3 times.

- Operate multiple channels with the audio system in satellite radio mode.

**Does the satellite radio system receive multiple channels with normal sound quality?**

|            |  |
|------------|--|
| <b>Yes</b> | The system is operating correctly. The concern may have been caused by the SIRIUS file information not matching the vehicle or a result of the activation signal needing to be resent. |
| <b>No</b>  | GO to <a href="#">B12</a>  |

**B10 CHECK FOR CORRECT ACM (AUDIO FRONT CONTROL MODULE) OUTPUT VOLTAGE TO THE SATELLITE RADIO ANTENNA CABLE**

- Ignition OFF.
- Disconnect the satellite radio antenna cable at the ACM .
- Ignition ON.
- Using the female Flex Probe 300-08058 (0.5 mm x 0.5 mm) or equivalent, measure:

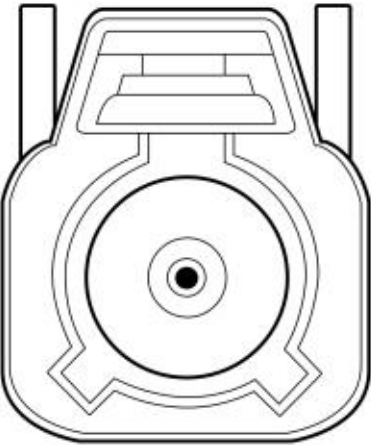
| Positive Lead  | Measurement / Action | Negative Lead |
|--|----------------------|---------------|
| Satellite radio antenna cable core at the ACM (component side) | $\bar{V}$            | Ground        |

**Is the voltage between 4.7 and 5.8 volts?**

|            |                           |
|------------|---------------------------|
| <b>Yes</b> | GO to <a href="#">B11</a> |
| <b>No</b>  | GO to <a href="#">B20</a> |

### B11 CHECK FOR VOLTAGE TO THE GPS (GLOBAL POSITIONING SYSTEM) /SATELLITE RADIO ANTENNA

- Ignition OFF.
- Connect the satellite radio antenna cable at the ACM .
- Disconnect the satellite radio antenna cable at the GPS /satellite antenna.
- Ignition ON.
- Using the female Flex Probe 300-08058 (0.5 mm x 0.5 mm) or equivalent, measure:

| Positive Lead   | Measurement / Action | Negative Lead |
|---|----------------------|---------------|
|  <p>E258796</p> <p>GPS /satellite radio antenna cable core at the antenna</p> | $\overline{V}$       | Ground        |

Is the voltage between 4.7 and 5.8 volts?

|            |  |
|------------|--|
| <b>Yes</b> | GO to <a href="#">B12</a>  |
| <b>No</b>  | <p>IDENTIFY the cable with the open or short. INSTALL a new GPS /satellite radio cable for the one in question.</p> <p>REFER to: Satellite Radio / Global Positioning System (GPS) Antenna Cable - Vehicles With: 8 Inch Center Display Screen/12 Inch Center Display Screen (415-00 Information and Entertainment System - General Information, Removal and Installation).</p> <p>REFER to: Satellite Radio / Global Positioning System (GPS) Splitter / Cable (415-00 Information and Entertainment System - General Information, Removal and Installation).</p> |

### B12 ISOLATE THE GPS (GLOBAL POSITIONING SYSTEM) /SATELLITE RADIO ANTENNA SPLITTER CABLE

- INSTALL a new GPS /satellite radio antenna splitter cable.
- REFER to: Satellite Radio / Global Positioning System (GPS) Splitter / Cable (415-00 Information and Entertainment System - General Information, Removal and Installation).

- For a satellite radio concern, check the operation of the satellite radio function.
- For a Sirius on-demand streaming concern, check the operation of this feature.

**Does the system in question operate correctly?**

|            |  |
|------------|--|
| <b>Yes</b> | The repair is complete. The concern was caused by the original <u>GPS</u> /satellite radio antenna splitter cable. |
| <b>No</b>  | GO to <a href="#">B13</a>  |

### **B13 CHECK THE ANTENNA BASE AND MOUNTING SURFACE**

- Remove the GPS /satellite radio antenna.
- Inspect for corrosion on the audio unit antenna base and the vehicle mounting surface.

**Is antenna base and mounting free of corrosion?**

|            |   |
|------------|---|
| <b>Yes</b> | GO to <a href="#">B15</a>   |
| <b>No</b>  | REPAIR any corrosion on the antenna unit base and/or vehicle mounting surface. INSTALL the antenna and make sure the correct torque value is used when tightening the fastener. |

### **B14 VERIFY THE COMPASS OPERATES CORRECTLY**

- Ignition ON.
- Check the operation of the compass and make sure it operates correctly.

**Does the compass operate correctly?**

|            |                                       |
|------------|---------------------------------------|
| <b>Yes</b> | GO to <a href="#">B15</a>             |
| <b>No</b>  | <a href="#">GO to Pinpoint Test X</a> |

### **B15 ISOLATE THE GPS (GLOBAL POSITIONING SYSTEM) /SATELLITE RADIO ANTENNA**

- INSTALL a new GPS /satellite radio antenna.
- For a satellite radio concern, check the operation of the satellite radio function.
- For a Sirius on-demand streaming concern, check the operation of this feature.
- For a traffic announcement (vehicles with a DAB radio) concern, check the operation of the traffic announcement feature.

**Does the system in question operate correctly?**

|            |   |
|------------|---|
| <b>Yes</b> | The repair is complete. The concern was caused by the original <u>GPS</u> /satellite radio antenna. |
| <b>No</b>  | GO to <a href="#">B16</a>   |

**B16 CHECK THE SERIAL DATA CIRCUITS FOR A SHORT TO GROUND**

- Ignition OFF.
- Disconnect ACM [C240A](#) and [C240B](#).
- Disconnect APIM [C2383A](#).
- Measure:

[Click to display connectors](#)

| Positive Lead                 | Measurement / Action | Negative Lead |
|-------------------------------|----------------------|---------------|
| <a href="#">C2383A</a> Pin 27 | $\Omega$             | Ground        |
| <a href="#">C2383A</a> Pin 28 | $\Omega$             | Ground        |
| <a href="#">C2383A</a> Pin 51 | $\Omega$             | Ground        |
| <a href="#">C2383A</a> Pin 52 | $\Omega$             | Ground        |

Are the resistances greater than 10,000 ohms?

|     |                                 |
|-----|---------------------------------|
| Yes | GO to <a href="#">B17</a>       |
| No  | REPAIR the circuit in question. |

**B17 CHECK THE SERIAL DATA CIRCUITS FOR A SHORT TO VOLTAGE**

- Ignition ON.
- Measure:

[Click to display connectors](#)

| Positive Lead                 | Measurement / Action | Negative Lead |
|-------------------------------|----------------------|---------------|
| <a href="#">C2383A</a> Pin 27 | $\bar{V}$            | Ground        |
| <a href="#">C2383A</a> Pin 28 | $\bar{V}$            | Ground        |
| <a href="#">C2383A</a> Pin 51 | $\bar{V}$            | Ground        |
| <a href="#">C2383A</a> Pin 52 | $\bar{V}$            | Ground        |

Is any voltage present?

|     |                                 |
|-----|---------------------------------|
| Yes | REPAIR the circuit in question. |
| No  | GO to <a href="#">B18</a>       |

**B18 CHECK THE SERIAL DATA CIRCUITS FOR A SHORT TOGETHER**

- Ignition OFF.
- Measure:

[Click to display connectors](#)

| Positive Lead                 | Measurement / Action | Negative Lead                 |
|-------------------------------|----------------------|-------------------------------|
| <a href="#">C2383A</a> Pin 27 | $\Omega$             | <a href="#">C2383A</a> Pin 28 |
| <a href="#">C2383A</a> Pin 51 | $\Omega$             | <a href="#">C2383A</a> Pin 52 |

Is the resistance greater than 10,000 ohms?

|     |                           |
|-----|---------------------------|
| Yes | GO to <a href="#">B19</a> |
| No  | REPAIR the circuits.      |

## B19 CHECK THE SERIAL DATA CIRCUITS FOR AN OPEN

- Measure:

[Click to display connectors](#)

### ACM C240A

| Positive Lead                 | Measurement / Action | Negative Lead                |
|-------------------------------|----------------------|------------------------------|
| <a href="#">C2383A</a> Pin 27 | $\Omega$             | <a href="#">C240A</a> Pin 14 |
| <a href="#">C2383A</a> Pin 28 | $\Omega$             | <a href="#">C240A</a> Pin 25 |

[Click to display connectors](#)

### ACM C240B

| Positive Lead                 | Measurement / Action | Negative Lead                |
|-------------------------------|----------------------|------------------------------|
| <a href="#">C2383A</a> Pin 51 | $\Omega$             | <a href="#">C240B</a> Pin 18 |
| <a href="#">C2383A</a> Pin 52 | $\Omega$             | <a href="#">C240B</a> Pin 29 |

Are the resistances less than 3 ohms?

|     |                                 |
|-----|---------------------------------|
| Yes | GO to <a href="#">B20</a>       |
| No  | REPAIR the circuit in question. |

## B20 CHECK FOR CORRECT ACM (AUDIO FRONT CONTROL MODULE) OPERATION

- Ignition ON.
- Disconnect and inspect all 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)
- Reconnect the **ACM** connectors. Make sure they seat and latch correctly.
- Operate the system and determine if the concern is still present.

**Is the concern still present?**

|            |  |
|------------|--|
| <b>Yes</b> | <p>CHECK for any applicable service articles: <b>TSB</b> , <b>GSB</b> , <b>SSM</b> or <b>FSA</b> . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern, INSTALL a new <b>ACM</b> .</p> <p>REFER to: Audio Front Control Module (ACM) - Vehicles With: 8 Inch Center Display Screen/12 Inch Center Display Screen (415-00 Information and Entertainment System - General Information, Removal and Installation).</p> <p>TEST the system for normal operation. If the concern is still present, GO to <a href="#">B21</a></p> |
| <b>No</b>  | <p>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.</p>  |

**B21 CHECK FOR CORRECT APIM (ACCESSORY PROTOCOL INTERFACE MODULE) OPERATION**

- Ignition OFF.
- 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.
- Operate the system and determine if the concern is still present.

**Is the concern still present?**

|            |  |
|------------|--|
| <b>Yes</b> | <p>CHECK for any applicable service articles: <b>TSB</b> , <b>GSB</b> , <b>SSM</b> or <b>FSA</b> . If a service article exists for this concern, DISCONTINUE this test and FOLLOW the service article instructions. If no service articles address this concern,</p> <p>INSTALL a new Accessory Protocol Interface Module (APIM).</p> <p><input type="button" value="Generate RVC"/></p> <p><b>To Request an RVC for this component, please contact technical assistance.</b></p> <p>REFER to: Accessory Protocol Interface Module (APIM) - Vehicles With: 8 Inch Center Display Screen/12 Inch Center Display Screen (415-00 Information and Entertainment System - General Information, Removal and Installation).</p> <p>REFER to: Accessory Protocol Interface Module (APIM) - Vehicles With: 15.5 Inch Center Display Screen (415-00 Information and Entertainment System - General Information, Removal and Installation).</p> |
| <b>No</b>  | <p>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.</p>  |

