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Coding Information

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Title: Radio Diagnostics and Information

Applies To: All Vehicles

Change Log

Dealers: Please refer to the change log text box below for recent changes to this article:

05/22/2020 - Added Bluetooth Call Volume issue with software and instructions to correct the issue
12/23/2019 - No content changes
09/17/2018 - Added clarification for phone numbers listed under "Locked Radio"
04/16/2018 - Author updated for feedback purposes
08/13/2015 - Author updated for feedback purposes.
10/30/2014 - Add additional diagnostics for when radio displays "AMP FAULT"
10/15/2014 - Add Bluetooth mic part#

Verify customer complaint, once verified, click on issue from menu below:

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Locked Radio (Eclipse Radios Only)	SRT and Group/Noun Codes

Radio Model/Feature list

Model	AM/FM	WB	CD/CD MP3	Front AUX	Rear AUX	Steering Wheel Controls	USB	iPod C&C	SAT Radio	BT Phone	BT Audio	IR Remote	Amp Sense	RSA Comp
Current 200/300 family features														
Panasonic CRCM120	X	--	--	X	--	--	--	--	--	--	--	--	--	--
Delphi DEA 222	X	X	--	X	--	--	--	--	--	--	--	--	--	--
Delphi DEA 222 CD	X	X	X	X	--	--	--	--	--	--	--	--	--	--
Delphi DEA 355 L1	X	X	X	X	X	X	X	X	--	--	--	X	X	X
Delphi DEA 355 L2 Sirius	X	X	X	X	X	X	X	X	Sirius	--	--	X	X	X
Delphi DEA 355 L2 XM	X	X	X	X	X	X	X	X	XM	--	--	X	X	X
Delphi DEA 355 L3 Sirius	X	X	X	X	X	X	X	X	Sirius	X	--	X	X	X
Delphi DEA 355 L3 XM	X	X	X	X	X	X	X	X	XM	X	--	X	X	X
500 family features														

Panasonic CRCM120	X	--	--	X	--	--	--	--	--	--	--	--	--	--
Delphi DEA 500	X	X	--	X	X	X	--	--	--	--	--	--	X	X
Delphi DEA 510	X	X	X	X	X	X	--	--	--	--	--	--	X	X
Delphi DEA 505	X	X	X	X	X	X	X	X	--	X	X	--	X	X
Delphi DEA 530	X	X	X	X	X	X	X	X	--	X	X	X	X	X
Delphi DEA 540	X	X	X	X	X	X	X	X	SiriusXM	X	X	X	X	X

Radio wont power up

Description

- Customer may state the radio wont power up
- Please print the check list below and attach to warranty claim.

[Radio wont power up checklist](#)

- The radio power supply is different between a truck with a remote sleeper control and without remote sleeper control
 - Without Sleeper Control routes power from fuse F4-F directly to the radio. For a simplified schematic [Click Here](#)
 - With Sleeper Control routes power from fuse F4-F to the sleeper control. The sleeper then relays power through the sleeper control to the radio. For a simplified schematic [Click Here](#)
 - For Connector Composites 1300 and 1301 [Click Here](#)
- **In the event the radio is replaced, the radio will be called back for review, it is required to submit checklist with warranty claim, and radios which are found to be operating will be charged back to the dealer.**

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Radio turns off

Description

- Customer may state the radio turns off. Confirm with the customer when the issue is occurring. All Radios have a 1 hour timer feature. The customer may not be aware of this built in feature.
- With the ignition off, pressing the SRC/PWR button will turn on the receiver and activate the receiver's one-hour timer. The receiver will turn off after one hour or by pressing and hold the SRC/PWR button.
- If this is not the customers concern, proceed with the checklist below.
- Please print the check list below and attach to warranty claim.

[Radio Power Issue Checklist](#)

- **In the event the radio is replaced, the radio will be called back for review, it is required to submit checklist with warranty claim, and radios which are found to be operating will be charged back to the dealer.**

Additional Information

- One-Hour Timer
- With the ignition off, pressing the SRC/PWR button will turn on the receiver and activate the receiver's one-hour timer. The receiver will turn off after one hour or by pressing and hold the SRC/PWR button.

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Bluetooth issues

This section also includes information on the Bluetooth microphone

- Customer may state there is an issue with the Bluetooth function of the radio
 - A new complaint of radio turning down volume was identified in May 2020 for 500 series radios
 - New software is available to correct this issue, refer to the [Bluetooth Call Volume](#) section
- Please print the check list below and attach to warranty claim.

[Bluetooth Issues Checklist](#)

- **In the event the radio is replaced, the radio will be called back for review, it is required to submit checklist with warranty claim, and radios which are found to be operating will be charged back to the dealer.**

Additional Information:

Note: the 355 series radios did not have capability to stream music from a device where the new DEA5xx series models do have this capability. If the vehicle has a 355 series radio and the complaint is they can't stream music, this is normal operation. Popular Supported Phone models include but are not limited to:

#	Manufacturer	Model	Operating System
1	Apple	iPhone 3G	iOS 4.2.1(8C148)
2	Apple	iPhone 4	iOS 6.1.3(10B329)
3	Apple	iPhone 4S	iOS 6.1.3(10B329)
4	Blackberry	8120 Pearl	4.5 (v4.5.0.182, Platform 2.7.0.106)
5	Blackberry	9380 Curve	4.5 (v4.5.0.182, Platform 2.7.0.106)
6	Blackberry	9810 Torch	7.1 Bundle 2162(v7.1.0.771, Platform 5.1.0.563)
7	Blackberry	9670 Style	6.0 Bundle 3049 (v6.0.0.706, Platform 4.4.0560)
8	Blackberry	9790 Bold	7.1 Bundle 840(v7.1.0.247, Platform 9.16.0.88)
9	HP	P160UNA Veer	HP webOS 2.1.2
10	HTC	T9295 HD7	Windows 7.5 OS 7.10.7720.68
11	HTC	One S	Android 4.0.4 Build 2.35.531.12 CL142222
12	HTC	Status	Android 2.3.5 Build 2.14.502.2 C1291102
13	LG	Nexus 4	Android 4.2.2 Build JDQ39
14	Motorola	Droid 3	Android 2.3.4
15	Motorola	Droid Bionic	Android 4.0.4
16	Nokia	Lumia 710	Windows 7.5 OS 7.10.8773.98
17	Nokia	Lumia 810	Windows 8.0 OS 8.0.10211.204
18	Samsung	Galaxy SII	Android 4.0.4 Build IMM76D.CLK3
19	Samsung	Galaxy SIII	Android 4.1.1 Build JRO03L.T999UVDLJC
20	Samsung	Galaxy SIII Mini	Android 4.1.1 Build JRO03L.T999UVDLJC

[Bluetooth Radio Microphone](#)

On units equipped with a Bluetooth® stereo, there are some basic operational checks that can be made when there is a complaint with the system operation.

The Bluetooth® audio comes out of the Front Left speaker.

Follow these steps to make sure the radio is setup correctly.

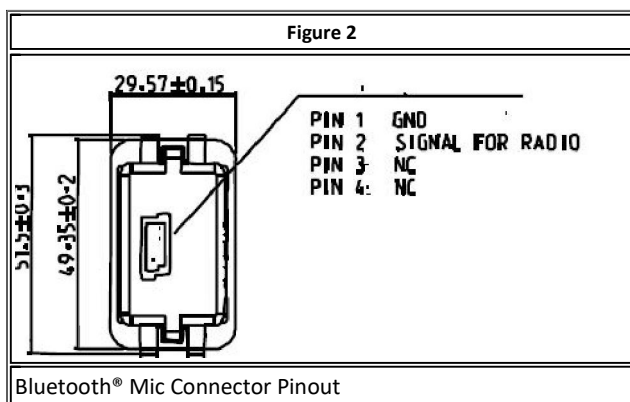
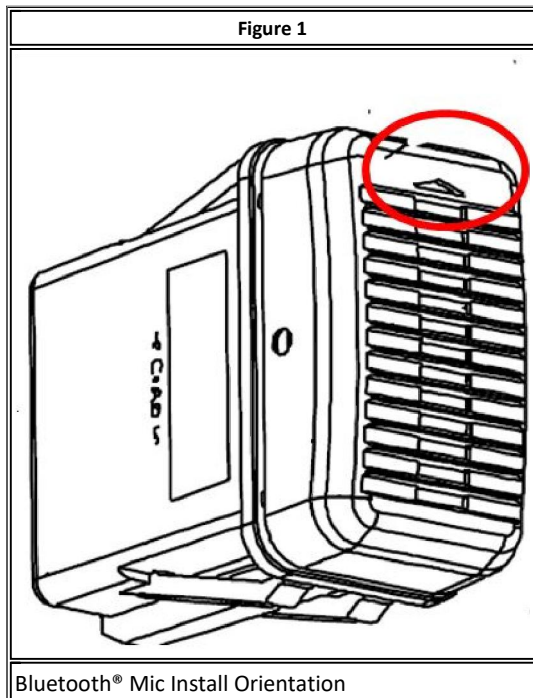
- Determine how many channels the vehicle has.
- Our vehicles stereos will have a 2 channel system, a 4 channel system, or a 4 channel premium that has 6, 8 or 10 speakers.
- You only need to know if its 2 channel or 4 channel, based on the number of speakers are in the vehicle.
- Once you determine if it's a 2 channel or 4 channel vehicle you have to make sure the radio is set to the appropriate mode (2 channel or 4 channel).
 1. Press "Title/Menu" button for 2 seconds (until you hear a beep) to enter "main menu"
 2. Press "UP" until you get to "Speakers", then press "OK"
 3. Press up to select "2CH" or "4CH" to correspond to the number of speakers in the vehicle.
 4. Press "ESC" a few times to exit out of the "main menu"
- Now you want to verify the speaker location.
 1. Press the Volume knob in for 2 seconds to bring up the audio menu
 2. Turn the Volume knob (left or right) until you see "FADE" (note if you have it on 2 channel mode then there will not be a fade option, if so skip to step 4).
 3. Press the Volume knob to select "FADE" then turn the knob to the left until the Fade is only on the front speakers, then press "OK"
 4. Turn the Volume knob until you see "Balance" and press the knob to select it.
 5. Turn the Volume knob left until the Balance is only on the left speaker.

- You have now isolated the left front speaker. If you hear audio then the radio is installed correctly, if not then there is a wiring issue.

If you determine there is a wiring issue, verify all wiring is properly connected and has continuity from the radio to the speaker or microphone.

NOTE:

The Bluetooth® Mic must be installed with the arrow on the Mic facing toward the front of the vehicle or the performance will be drastically impacted. See Figure 1.



The Microphone should have approx 7.2v - 8.8v power supply.

Attached is the wiring diagram and photos relating to the factory installed Bluetooth® system.

- [Bluetooth Wiring Schematic](#)

Bluetooth Mic Part Number: 3714837C1

Bluetooth Call Volume

The user may complain that during a phone call on the 500 series radios, such as a DEA505, the radio volume may decrease significantly. An issue with the radio software for Dynamic Distortion Limiting logic was corrected. The radio software can be updated with new software via the USB port and a flash drive using the instructions below.

You will need to use an empty USB Stick (Flash drive) - FAT32 or exFAT recommended

1. Download this .zip file by clicking [HERE](#)
2. Click on the icon at the bottom of the screen to open the file
3. Open the folder "BT Volume Issue - Software Fix"
 - There will be 5 files in this folder
4. Transfer the 5 files to an empty USB stick as shown in the video below
 - You may need to go full screen by clicking the box icon in the bottom right corner of the video



5. Eject the USB stick from your computer and follow the instructions to have the software applied to the radio

Steps to reflash the radio

1. Truck ignition on, Radio is off.
2. Plug in the USB stick to the radio
3. Radio shows "No Music" label
4. Press presets 3 and then 6 and hold both until the radio resets and back lighting flashed 4 times (Approx. 5 to 7 sec) then release buttons, radio will update software
5. Update will take approximately 5 min
6. Wait for "Remove USB" label
7. Remove the USB
8. Reflash complete

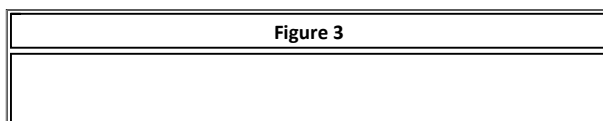
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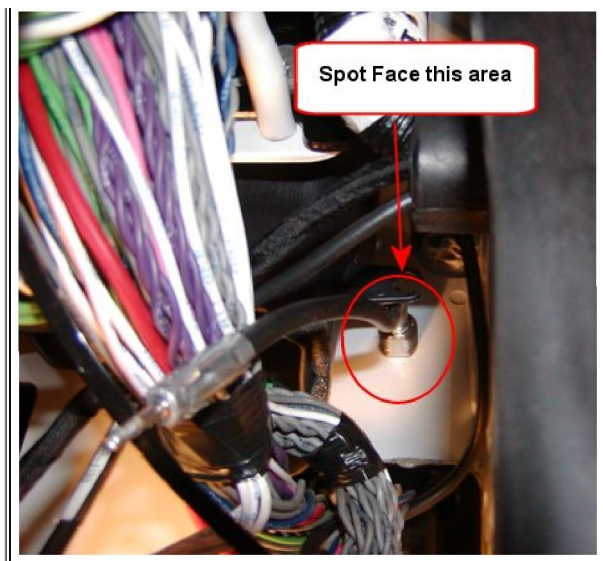
Radio Reception (Including SAT)

Customer may have one of the following concerns:

1. Cant identify XM radio ID#
 - To identify XM ID perform the procedure below:
 - Select XM as source, then tune to channel 0 , "RADIO ID" label alternates with the SXM radio eight-digit code.
 - **NOTE:** Some customers have had trouble activating the radio. This has been found to be due to misinterpretation of the radio ID. It's easy to mistake a "Q" for a "0"
 - Example: 9904248G should be 99Q4348G
2. Poor AM/FM reception
 - Resolution:
 - If poor radio reception is experienced, the mounting location needs to be spot-faced from the inside of the cab.
 - Remove the Nut and Star washer
 - Use a die grinder and remove the paint (spot face) around the antenna base. You do not need to remove the antenna.
 - Apply dielectric grease to the spot faced area.
 - Re-install the star washer and nut.

Figure 3 below shows location near the passengers kick panel under the IP. Builds after mid-December have the area spot-faced.





3. Complaint Not Listed

- If the customer has a different concern related to radio reception, proceed with the checklist
- Please print the check list below and attach to warranty claim.

[Reception Issues Checklist](#)

- **In the event the radio is replaced, the radio will be called back for review, it is required to submit checklist with warranty claim, and radios which are found to be operating will be charged back to the dealer.**

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iPod/USB flash device

This Radio supports the following iPod models:

- iPod classic® (6th generation)
- iPod nano® (6G)
- iPod touch® (4G)
- iPhone® (3G, 3GS, 4, and 4S)
- Other iPods may be played, but functionality is not guaranteed.

Radio provides up to 1A of charge, so any device connected to the USB that requires less than 1 A will be charged.

DEA5XX Mode Specific:

- The USB MP3 players and USB drives connected must comply with the USB Mass Storage specification:
 - MS-Dos partition only.
 - Class specification (USB MSC) and supports formats of FAT32, FAT16, NTFS, and HFS+.
 - Hard disk drives may be played, but they are not supported.
 - The radio will not be able to play back write-protected music.
 - MTP players are not supported.

If the above information does not resolve the issue, print and fill out the checklist below.

[iPOD Issues checklist](#)

In the event the radio is replaced, the radio will be called back for review, it is required to submit checklist with warranty claim, and radios which are found to be operating will be charged back to the dealer.

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Cd Player issue

The player can be used for CD and MP3 audio.

- With the vehicle on, insert a disc into the slot, label side up. The player pulls it in and begins playing.
- Most models are capable of playing:
 - Most audio CDs.
 - CD-R.
 - CD-RW.
 - MP3 or unprotected WMA formats.
- When playing any compatible recordable disc, the sound quality can be reduced due to disc quality, the method of recording, the quality of the music that has been recorded, or the way the disc has been handled.
- There can be increased skipping, difficulty in recording tracks, difficulty in finding tracks, and/or difficulty in loading and ejecting. Verify in operator manual of disc compatibility.
- If these problems occur, check the disc for damage or try a known good disc.

Specific Error Messages for CQ-CM140U

Error Display Messages	
-E1-	(The disc is ejected automatically.) The disc is dirty, or is upside down. The disc has scratches. ● Check the disc.
-E2-	
-E3-	No operation by some cause. ● If normal operation is not restored, consult your dealer or the nearest Servicenter to ask for repairs.
-E4-	Cannot read the file ● Check the file.

Check with customer if they experienced any of these error messages as it might help pinpoint the problem.

DEA5xx Model:

If "Disc Error" message is displayed and/or the disc comes out, it could be for one of the following reasons:

- The disc has an invalid or unknown format.
- The disc is very hot. Try the disc again when the temperature returns to normal.
- The road is very rough. Try the disc again when the road is smoother.
- The disc is bent.
- The disc is dirty, scratched, wet, or upside down.
- The air is very humid. Try the disc again later.
- There was a problem while burning the disc.
- The label is caught in the CD player.
- If the disc is not playing correctly, for any other reason, try a known good CD.
- If any error continues, contact your dealer.

Check with customer if they experienced any of these error messages as it might help pinpoint the problem.

If the above information did not solve the customer issue, proceed with filling out the checklist below.

[CD Player Issues Checklist](#)

In the event the radio is replaced, the radio will be called back for review, it is required to submit checklist with warranty claim, and radios which are found to be operating will be charged back to the dealer.

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Locked Radio

Description

Eclipse radio is locked up.

Symptoms

- Radio buttons will not function
- Applies to Eclipse radios, models AVN5494 / AVN5435 / AVN radios

Troubleshooting

1. Verify the battery power, accessory power and ground circuits for the radio are in proper working order
 - Verify the terminals are fully seated and locked in their connector
 - Pin drag test the terminals to verify they have not spread
 - Load test the power and ground circuits

Resolution

You will need to remove the radio and record the following:

NOTE:

This only applies to Eclipse radios, AVN models

1. Serial number.
2. Model number
3. Call Manufacturer hotline for assistance:
 - 1-800-233-2216 in the United States.
 - 1-888-557-8278 in Canada.
4. When screen message on the radio says "CALL 800" proceed:
 - Press and hold at the same time CONTINUE and MENU button. Both located on the left side.
 - While holding the CONTINUE and MENU button on the left side, press the MENU button five times continuously that is located on the right side.
 - Under the Code# is the 6 digit security code.
 - Enter the new code by using the touch screen.
 - After entering the new unlock code press the ENTER symbol on the screen.
5. Be sure to record the new security code in a safe place.

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Sleeper Radio Displays no Link

- Applies To: LoneStar, ProStar, PayStar, 9400, 9900

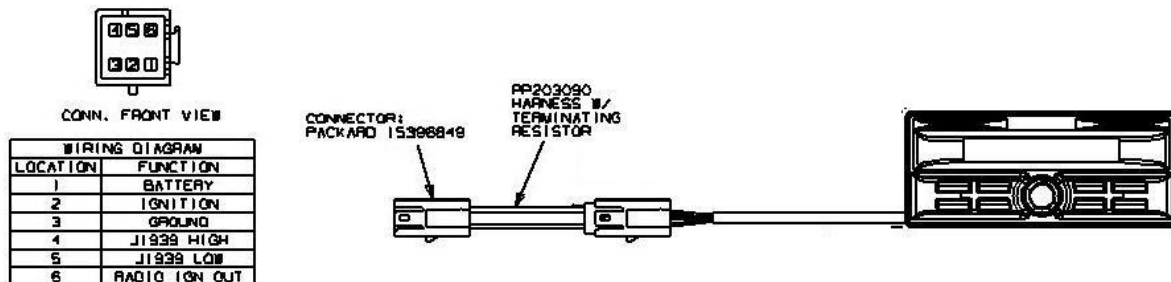
Description

- Complaint that the Sleeper Radio Control (**08RJG**) Displays "No Link"
- No radio control from sleeper

Service Procedure

1. Verify sleeper radio control is powering up.
 - If not, troubleshoot power circuits to the unit
 - If power and grounds are good and unit will not power up you may need to replace sleeper radio control.
 - Fused Accessory power is supplied to the sleeper radio terminal 2. Then terminal 6 supplies power to the radio in the dash.
2. Verify radio is powering up and can be controlled by the knobs and switches on the front of the radio. If not, troubleshoot power to radio or replace radio if necessary.
3. Verify radio can be controlled by switches in steering wheel. If not, troubleshoot steering wheel switch inputs to radio.
4. Try to force sleeper radio control to "sync" with radio.
 - Turn key to off position.
 - With radio on, pull fuse F2-E, Radio, for a few seconds, then reinstall the fuse.
 - With radio off, disconnect sleeper radio control , leave loose for a couple seconds, reconnect and turn on radio with sleeper radio control .
 - This should force the sleeper radio control to sync with the radio. If not, check integrity of data link.
5. Check the integrity of the data link circuits between the radio and the sleeper radio control . (Refer to circuit Diagram)
 - This data link is similar to the other J1939 data links on the vehicle.

- With no power applied, there should be 60 Ohms of resistance between the circuits. If this is not correct, there may be an open circuit or missing terminating resistor. The terminating resistor for the remote is in a jumper harness between the sleeper radio control and the truck harness. (See picture below)
 - With power, there should be approximately 2.5 Vdc on each data link circuit.
 - Note: The voltages should not match
 - If problems persist or reoccur, it may be necessary to relocate the terminating resistors so that one is as close to the radio as possible and the other is as close to the remote control as possible.
6. If all else fails it may be necessary to replace the remote or the radio.



Circuit Diagrams

- [ProStar/LoneStar Remote Radio](#)

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Citizens Band (CB) Radio Antenna Application/Performance

The quality and range of CB transmission is largely dependent on the "impedance match" of the antenna, cables, and connections to the CB radio. The antennas used by International are designed and matched to be used with specific truck models and should not be used in a particular installation simply because it fits the mounting hole or has the right mast color for the particular truck in question. **Use only the correct antenna by part number for the current production vehicles listed below.**

Parts Information

Models	Color/ Description	Part Number
4000, 7000, 8000 HPV	*White / 48" CB Only - Black Dot	3566222C1
5000, 9000	Black / 48" CB/AM/FM/WX	3528749C1
9000	*White / 48" CB Only	2007866C1
ProStar	*White / 48" CB Only - Red Dot	3666568C1

* Indicates the mast is white with an orange cap and International printed on the cap. The antennas with black or red dots will have the dots on the bottom of the threaded end.

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Radio Displays Amp Fault

Customer may state the radio display says "AMP Fault". If the concern is verified, check with the customer to see if any aftermarket equipment has been installed recently. Check the ground for the amp located in the sleeper. The ground stud is located on the driver side near the sleeper fuse box.

The radio will display this fault if the amp sense circuit is grounded. Check the circuit for a short to ground(Figure 1). As a last resort, the amp itself might be faulty.

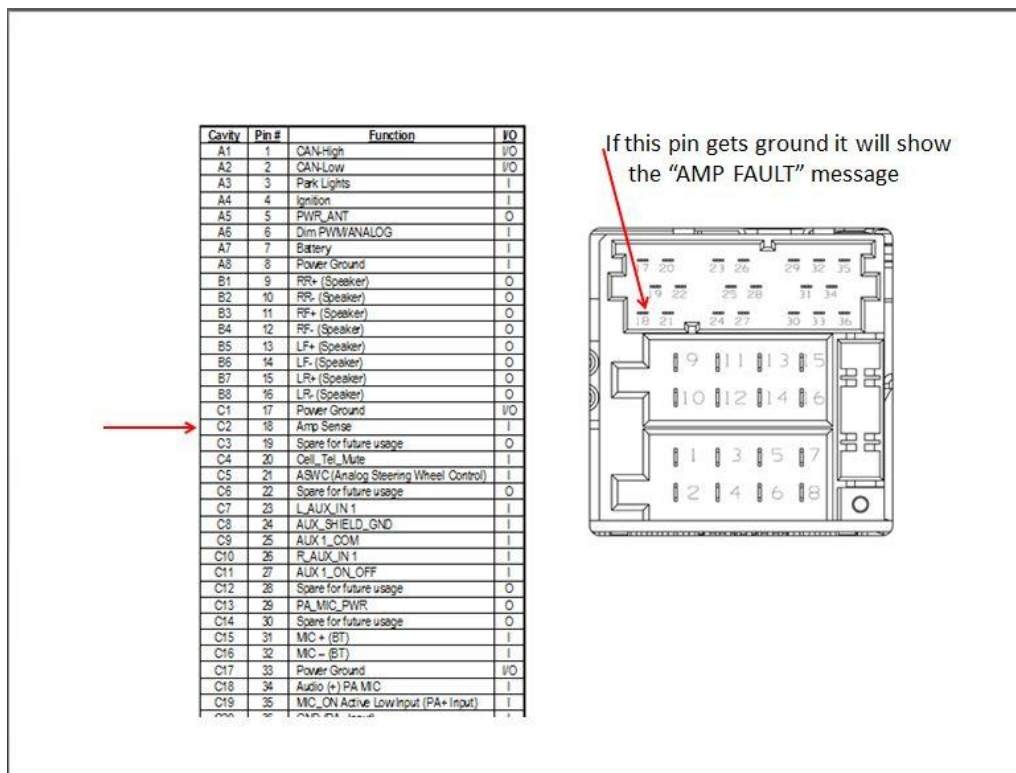


FIGURE 1

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Radio Steering wheel controls diagnostics

Triage

Customer may state the steering wheel controls, specifically volume up or down, for the radio may be inoperative or work intermittently. The radio steering wheel controls are voltage sensitive and any voltage drop between the input to the radio and the input to the radio steering wheel controls may cause the controls not to work. It is important to note from the customer when the concern is experienced.

Diagnostic Procedures

Please follow the attached procedure to check voltages to pinpoint the problem. Most of the time, the radio is not the issue, rather there is a wiring problem causing a voltage drop between the 2 inputs to the radio

- [Steering wheel switch diagnostics](#)

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Owner's Manual by radio model

- [DEA5xx Manual](#)
- [DEA355 Manual](#)
- [CRCM120 Manual](#)
- [DEA222 Manual](#)
- [CQ-CM140U Manual](#)

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Circuit Diagrams

- [ProStar/Lone Star](#)
- [DuraStar/WorkStar/TranStar](#)
- [CE Bus](#)
- [TerraStar](#)
- [RE Bus](#)
- [AE Bus](#)
- [PayStar/9900](#)

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Warranty Information

Warranty Claim Coding:

Refer to the [Warranty Coding Manual](#) for Group and Noun Codes.

Standard Repair Time(s):

Refer to the [SRT Manual](#) for Repair Times

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Feedback Information

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