

Wired Troubleshooting Manual

Congratulations on your choice of this product. Its superior sound reproduction will provide enjoyment and entertainment. We appreciate your patronage and take pride in the quality components our company builds. We suggest that you familiarize yourself with the information in this guide before attempting repairs to your Cardio Theater system.

Contents

Before you begin	Troubleshooting Basics	Troubleshooting, Where to Look Main Amplifier Troubleshooting Coax Cabling Troubleshooting Monitor Box Troubleshooting
----------------------------------	--	---

BEFORE YOU *Begin*

[return to top](#)

Components referred to in this guide:



A model 800 or 1600 Amplifier & upper Monitor



Floor Monitor



"T" Connector



Coax Cable



Coiled Cable



Terminator



Wire Ties



Power Cord



BNC Bullet Connector

TROUBLESHOOTING *Basics*

[return to top](#)

Preventive Maintenance:

- **Protect the Floor Monitors and Coax Cabling**

If the Floor Monitors and Coax Cabling are not installed under the floor, insure that the Floor Monitors are at least secured to the floor either with screws or a cloth double sided tape.
DO NOT ATTACH THE FLOOR MONITORS TO THE CARDIO EQUIPMENT.

If the Coax Cable is not installed under the floor or in a conduit system, the cable must be covered with Wiremold. Should you need assistance locating Wiremold, please contact Cardio Theater Sales at 1-(800) Cardio-1 or (404) 848-0233.
DO NOT LEAVE THE COAX CABLE UNCOVERED.

- **Draw A Layout**

After completing the installation, draw a layout of the installation showing the order in which the Cardio pieces are connected to each line from the Amplifier. It is a good idea to keep the layout with this Guide.

- **Assign a specific person to maintain the Cardio Theater system**

This will reduce confusion when working with the system and speed repairs should they be needed.

- **Perform regular walk-through inspections**

Perform weekly maintenance including a visual inspection of "T" Connectors, Coiled Cables, and Audio

Connections to the Main Amplifier, a check of the audio levels set at the Main Amplifier, and a random check of the Cardio Monitors. A simple check of this type can generally reveal any small area requiring correction.

• **Retain This Guide**

Keep this Guide in a designated location for easy reference.

Further Assistance:

Service Center:

1-(800) 776-6695 or (503) 645-8881

The Service Center can be reached Monday through Friday, 7:00 am to 4:00 pm Pacific Time. Our shipping address is:

Cardio Theater Service Center
21420-D NW Nicholas Ct. #13
Hillsboro, OR 97124

Repair Service:

In the event any portion of the product must be returned for service:

- Pack the Unit in a well-padded heavy corrugated box.
- Enclose a brief description of the problem, the return name and address.
- Ship to the address above. Units received for repair will be shipped Federal Express 2nd Day Delivery within 5 working days of receipt.

TROUBLESHOOTING *Where to Look* [return to top](#)

The Cardio Theater system has three major areas: The Main Amplifier, The Coax Cabling and the Monitor Boxes. Determine where to look by observing the quantity of Monitor Boxes affected.

All Monitor Boxes on All Output Lines Affected See Main Amplifier Troubleshooting	All or Most Monitor Boxes on a Single Output Line Affected See Coax Cable Troubleshooting	A Single Monitor Box Affected See Monitor Box Troubleshooting
---	---	---

MAIN *Amplifier* [return to top](#)

Helpful Hints:

- **Ventilation:**

If the Main Amplifier is in a cabinet or stereo rack, provide for proper ventilation. The Main Amplifier requires a minimum one inch (1") clearance on each side for proper ventilation.

• **TV Audio Inputs:**

When using TV's with variable audio outputs, turn the volume all the way up before adjusting the volume settings at the Main Amplifier. This will send the strongest possible signal to the Main Amplifier and should anyone else adjust the volume on the TV's at a later date, they would only be reducing the volume.

Common Problems:

• **Volume Settings:**

If there is no sound, or volume is low for a specific channel on all Monitor Boxes, check the volume setting for that channel at the Main Amplifier and at the audiovisual component.

• **Audio Cables to the Main Amplifier:**

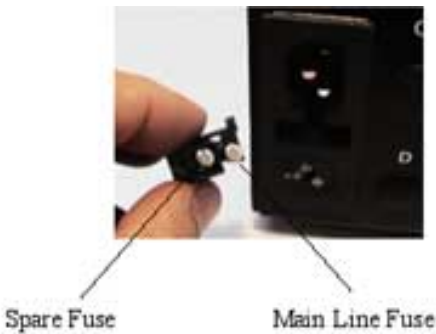
No sound, or sound only on one side, generally can be traced to the audio cables between the audio visual components and the Main Amplifier. Check the audio cables for broken or loose connections at the Main Amplifier and at the audio visual components.

No Power at Main Amplifier	Poor Sound Quality at Main Amplifier
Power LED Lights but no Bar Graph or Display	No Sound on either side of headphones
No Bar Graph or Sound at Amplifier	No P.A. Sound

No Power At Main Amplifier:

Cause	Remedy	Return to Main Amplifier	Return to Top
Power Cord not connected	Plug the power cord into a good outlet. Be sure the power cord is connected into the back of the amplifier.		



Power Cord cut or damaged	WARNING: Do not attempt to repair damaged power cords. Call the Service Center for a replacement.
Main Line Fuse Blown	<p>Replace the Main Line fuse with a 5mm x 20mm 2 Amp Slo-Blo fuse Spare Fuse Main Line Fuse</p> 


Power LED Lights but no Bar Graph or Display:

Before proceeding: Turn the main power switch off for 30 seconds and then back on. This will clear most power related problems.

Cause	Remedy	Return to Main Amplifier	Return to Top
Amplifier has been hit by a Power Spike	The Cardio Theater Amplifier like any electronic device is susceptible to poor or "dirty" power. If the problem is recurring after having cycled the power, install a surge protector.		
Internal Power Supply Failure	Should the Internal Power Supply fail, the unit must be returned to the Service Center for repair.		

No Bar Graph or Sound at Amplifier:

Cause	Remedy	Return to Main Amplifier	Return to Top
No audio from source	<p>Confirm that there is sound coming from the source by plugging headphones into the source, if possible. If the source is a TV, ensure that the external speakers are off and the volume is turned all the way up.</p> <p>If the source is a tuner, confirm that it is tuned properly. If the source is a tape or CD player, confirm that it is in the "play" mode with a music selection inserted in the unit.</p>		


Audio Cable not connected	<p>Check the audio cable connecting the component to the Cardio Theater Amplifier. Ensure that the cable is connected at both ends. When connecting to a TV, tape or CD player, ensure the cable is connected to "Line Out" or "Audio Out." When connecting to a tuner or receiver, ensure that the cable is connected to "Line Out" or "Tape Out."</p>  <p>NOTE: Often the audio cable will be mistakenly connected to "video in" or "audio in" on the back of the TV. Double-check this connection.</p>
Amplifier not set-up	After checking and adjusting the component and checking the audio cable, set-up the Amplifier according to the procedure on Page 12 of the Instruction Manual.

Poor Quality Sound at Main Amplifier:

Cause	Remedy	Return to Main Amplifier	Return to Top
Poor reception on component	<p>While listening to the audio at the component (TV, Tuner, Tape, etc.), tune in the signal.</p> <p>NOTE: If the external speakers on TV's were turned ON to check tuning, remember to turn them OFF and set the volume level to the highest setting when finished.</p>		
Amplifier not set-up	<p>If the Amplifier volume is set too high, the sound will be distorted.</p> <p>NOTE: If the red LED's on the input signal bar graph are lighting, set the input volume according to the input signal set-up on Page 12 of the Instruction Manual.</p>		

No Sound on either side of headphones:

Cause	Remedy	Return to Main Amplifier	Return to Top
No input signal	Check for sound at the component (TV, Tuner, Tape, etc.).		

<p>Audio Cable not connected</p>	<p>Check the audio cable from the component to the Cardio Theater Amplifier. Ensure that the cable is connected at both ends. When connecting to a TV, tape or CD player, ensure the cable is connected to "Line Out" or "Audio Out." When connecting to a tuner or receiver, ensure that the cable is connected to "Line Out" or "Tape Out."</p>  <p>NOTE: Often the audio cable will be mistakenly connected to "video in" or "audio in" on the back of the TV. Double check this connection.</p>
<p>Defective Audio Cable</p>	<p>To verify the condition of the audio cable, re-attach it to a known good input on the back of the Amplifier. If the condition now exists on the new input, and you verified the sound at the component, the audio cable is defective.</p>
<p>Defective Headphones</p>	<p>Use a pair of good headphones.</p>

No PA Sound:

Before you begin: The Cardio Theater system requires a switched input to pins 1 and 2 of the PA input at the back of the Main Amplifier and a "line level" input to pins 3 and 4.

Cause	Remedy	Return to Main Amplifier Return to Top
<p>Impedance mismatch</p>	<p>An impedance matching device must be installed between the paging system and the Cardio Theater system by a qualified technician.</p>	
<p>Input signal not setup</p>	<p>While engaging the PA system (i.e. shorting pins 1 and 2 on the PA input to the Cardio Theater system), adjust the input signal according to the input signal set-up on Page 12 of the Instruction Manual.</p> <p>NOTE: The channel number on the display blanks out.</p>	



[return to top](#)

Helpful Hints:

- Visual Inspection:

Most cabling issues can be resolved by a simple visual inspection of the Coax Cables.

- Proper Installation:

To ensure proper installation, connect the Monitor Boxes in a Daisy-Chain fashion using premade Cardio Theater Coax Cabling.

- **Cover Cabling:**

Ensure that the Coax Cabling is covered either in a sub-floor or in an above floor conduit system such as Wiremold.

Common Problems:

- **Output Line with a short:**

If all Monitor Boxes on an output line have blank displays, visually inspect the line for damage then check the fuse or circuit breaker for that output line at the back of the Amplifier.

- **Terminator:**

If all but the last few (2 or 3) Monitor Boxes on a line display "999 or 1999." check that the Terminator is installed on the last Monitor Box.

No Display on any Monitor Box on an Output Line	Only the last few Monitor Boxes on an Output Line work
Display on only the first portion of a Coax Line	All Monitor Boxes have a Display of "999 or 1999"
Several Monitor Boxes in the middle of an Output Line do not work	

No Display on any Monitor Box on a Coax Line:

Cause	Remedy	Return to Coax Cabling	Return to Top
No power at Amplifier	Ensure that the power is on at the Main Amplifier. The "power" LED should be on.		

Blown Fuse or Circuit Breaker

Check the fuse or circuit breaker for the Coax Line affected. The fuse or breaker is located approximately 1 1/2" above the output on the Amplifier.



Fuse



Breaker

If the fuse is blown (or circuit breaker is tripped), FIRST, visually inspect the Coax Line for damage (i.e. pinched or crushed Coax Cable, broken BNC Connectors, loose "T" Connectors, crushed Monitor Boxes, etc.). After repairing the Coax Cable, reset the circuit breaker or replace the fuse with a 5mm x 20mm 2 Amp Slo-Blo Fuse.

NOTE: Circuit breakers must be allowed to cool at least 2 minutes before resetting.

Coax Cable not connected

Ensure that the "Home Run" (the Coax Cable connecting the first Monitor Box on a line to the Amplifier) is connected securely at both the Amplifier and the first Monitor Box.



Display on only the first portion of a Coax Line:


Cause	Remedy	Return to Coax Cabling Return to Top
<p>Open Connection</p>	<p>Inspect the Coax Cable, look for a loose or disconnected BNC Connector. It will most likely be found at or just prior to the first Monitor Box with a blank display.</p>	



Defective "T" Connector	Inspect the "T" Connectors at the first Monitor Box with a blank display and the one prior to it. Replace these "T" Connectors with known good ones.
Defective Coax Cable	If you have checked the connections and the "T" Connectors between the first Monitor Box with a blank display and the one prior to it, replace the Coax Cable between these two Monitor Boxes..

Several Monitor Boxes in the middle of a line do not work:


NOTE: This is typically not caused by the Coax Cabling, however; it appears so. It is in fact caused by a single defective Monitor Box.

Cause	Remedy	Return to Coax Cabling	Return to Top
Defective Monitor Box	<p>In some cases, a single defective Floor Monitor on the line will cause several intermittent Monitor Boxes to display "999" or "1999" and not function.</p> <p>NOTE: The defective Floor Monitor may appear to be functioning properly.</p> <div style="display: flex; align-items: flex-start;">  <div style="margin-left: 10px;"> <p>To locate the defective Floor Monitor, disconnect the first Floor Monitor on the line at the "T" Connector. Check the Monitor Boxes that were displaying "999" or "1999." If they are still displaying "999" or "1999," reconnect that Floor Monitor and disconnect the next Floor Monitor on line. Continue doing so by removing, checking and replacing each Floor Monitor in sequence, until by removing one of the Floor Monitors, those Monitor Boxes displaying "999" or "1999" work. The Floor Monitor you removed to cause the others to work is the defective Floor Monitor. Send this Floor Monitor into the Service Center for repair, according to instructions listed here.</p> </div> </div>		


Only the last few Monitor Boxes on an Output Line work:

NOTE: The last Floor Monitor on each Output Line MUST have a Terminator on it for the system to operate.

Cause	Remedy	Return to Coax Cabling	Return to Top

<p>Loose or missing Terminator</p>	<p>Ensure that the Terminator is installed on the last Floor Monitor on each Coax Line (as shown here).</p> 
<p>Defective Terminator</p>	<p>Replace the Terminator with a known good one.</p>

All Monitor Boxes have a display of "999 or 1999:"

Cause	Remedy	Return to Coax Cabling Return to Top
<p>Branch in Coax Cabling</p>	<p>If the Coax Cabling is installed or has been modified to include a branch, the branch must be removed. The Cardio Theater system was designed to work with all Monitor Boxes connected in a Daisy-Chain fashion.</p> 	
<p>Malfunctioning Amplifier Output</p>	<p>If the fuse has been blown, or the circuit breaker has been tripped numerous times for a single output, cumulative damage may occur to that output at the Amplifier. If an output is suspected to be malfunctioning, connect the Coax Cable to an alternate output at the back of the Amplifier.</p>	
	<p>If all Monitor Boxes still display "999 or 1999," a problem remains in the Coax Cabling.</p>	
	<p>If Monitor Boxes on the Coax Line now work, the output of the Amplifier has been damaged and the Amplifier must be sent into the Service Center for repair according to the instructions on Page 3.</p>	

Before you begin, know your Monitor Box style:



1601 Upper Monitor



1801 Upper Monitor
Headphone Jack on the right side



2001 Upper Monitor
Headphone Jack on the bottom.



1601 Floor Monitor



1801 Floor Monitor



2001 Floor Monitor

Helpful Hints:

- **Connection Sequence:**

When connecting new or replacement Monitor Box sets, connect the Upper Monitor to the Floor Monitor with the Coiled Cable prior to connecting the "T" Connector.

- **Proper Installation:**

If the Floor Monitors can't be installed under the floor, they must be attached to the floor rather than attaching them to the cardio vascular equipment.

Common Problems:

- **Display shows "999" or "1999:"**


In most cases this is caused by the Connection Sequence as discussed. To reset the Monitor Box, simply disconnect the "T" Connector for approximately 30 seconds and then reconnect it.

- **No sound or sound on one side only:**

If a Monitor Box has no sound or sound on one side only, it is most likely that the Headphone Jack is wearing out. To check the Headphone Jack, connect headphones and while listening "wiggle" the Headphone Jack Connector, if the sound is intermittent, the Upper Monitor needs to be sent in for repair.

No Display	Channel numbers cycle improperly
"999" or "1999" on the Display	Intermittently changes to Channel Number 1
No sound or sound only on one side	Members receive a sting in the ear while exercising



No Display:

Cause	Remedy	Return to Monitor Box	Return to Top
"T" Connector not connected	Reconnect the "T" Connector to the Floor Monitor. 		
Defective "T" Connector	Replace the "T" Connector and discard the old one.		
Defective Coiled Cable	Disconnect the "T" Connector at the Floor Monitor, then disconnect and inspect both ends of the Coiled Cable for damaged pins or corrosion. Replace if necessary.		
Defective Floor Monitor	Replace the Floor Monitor by disconnecting the "T" Connector and then the Coiled Cable in sequence. Replace the defective Floor Monitor with a working unit. Connect the Coiled Cable prior to reconnecting the "T" Connector, then check for proper operation.		
Defective Upper Monitor	Replace the Upper Monitor by disconnecting the "T" Connector at the Floor Monitor and Coiled Cable at the Upper Monitor. Replace the defective Upper Monitor with a working unit. Connect the Coiled Cable to the Upper Monitor prior to reconnecting the "T" Connector to the Floor Monitor, then check for proper operation.		

"999" or "1999" on the Display:

Note: "999 or 1999" are error codes indicating that the Monitor Box is connected and receiving power but can't tune to the signal from the Amplifier.

Cause	Remedy	Return to Monitor Box	Return to Top

Connection Sequence	In most cases a "999" or "1999" is caused by connecting the Upper and Floor Monitor out of sequence. To correct this, check that the Coiled Cable is connected to both the Upper and Floor Monitors, then reset the Monitor Box by disconnecting the "T" Connector at the Floor Monitor for approximately 30 seconds and then reconnecting it.
Tuning	<p>Only if you have 1601 Floor Monitors:</p> <p>1601 Floor Monitors are equipped with a tuning circuit.</p> <p>To tune a 1601 Floor Monitor, insert a small flat blade screw driver into the hole just off center on the side of the Floor Monitor, engaging the rotary adjustment. While listening, turn the adjustment fully clockwise, you will not have sound. Slowly turn the adjustment counter-clockwise until sound locks in. Note the position where sound first came in and continue adjusting counter-clockwise until the sound drops out. Note where the sound dropped out. Now center the adjustment between the points where sound came in and where it dropped out.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="446 814 669 1031" style="text-align: center;">  <p data-bbox="456 1003 618 1031">Adjustment Hole</p> </div> <div data-bbox="735 743 932 1014" style="text-align: center;">  <p data-bbox="753 1024 902 1052">Adjustment</p> </div> </div>
Defective Coiled Cable	Disconnect the "T" Connector at the Floor Monitor, then disconnect and inspect both ends of the Coiled Cable for damaged pins or corrosion. Replace if necessary.
Defective Upper or Floor Monitor	See "No Display" for instructions.

No sound or sound only on one side:

Cause	Remedy	Return to Monitor Box	Return to Top
Defective Coiled Cable	Disconnect the "T" Connector at the Floor Monitor, then disconnect and inspect both ends of the Coiled Cable for damaged pins or corrosion. Replace if necessary.		

Defective Upper Monitor

Check the Upper Monitor Box by gently "wiggling" the Headphone Jack Connector while listening. If the sound is intermittent, the Upper Monitor Box is in need of service.



Channel numbers cycles improperly:

Cause	Remedy	Return to Monitor Box	Return to Top
<p>Amplifier not set</p>	<p>If the channels displayed on an Upper Monitor Box displays 1-8 on a 16 Channel Amplifier or vice versa, either the Amplifier has not been set properly or the Monitor Box must be reset.</p> <p>To set the Amplifier, turn the main power switch off for approximately 30 seconds. Turn power back on while depressing the channel up button to set the Amplifier to 16 channel mode or depressing the channel down button to set the Amplifier to 8 channel mode.</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div data-bbox="401 1045 761 1318" style="text-align: center;"> <p>Setting a 16 Chanel Amp</p> </div> <div data-bbox="899 1045 1260 1318" style="text-align: center;"> <p>Setting an 8 Chanel Amp</p> </div> </div> <p>To reset the Upper Monitor Box, disconnect the "T" Connector for approximately 30 seconds and then reconnect it.</p>		

Intermittent change to Channel Number 1:

Cause	Remedy	Return to Monitor Box	Return to Top

Loose or defective "T" Connector	<p>Check the "T" Connector on the Floor Monitor. If the connector is loose, tighten it. If it is not loose, replace the "T" Connector.</p> <p>NOTE: This will occur most often when the Floor Monitor is attached to the cardio vascular equipment. Therefore, we recommend attaching the Floor Monitors to the floor.</p>
Defective Floor Monitor	<p>If the channel number continues to change intermittently after the Floor Monitor is attached to or under the floor and the "T" Connector has been replaced, the unit must be sent in for repair according to the instructions listed here.</p>

Members receive a sting in the ear while exercising:

Cause	Remedy	Return to Monitor Box	Return to Top
Static Electricity	<p>The Cardio Theater system is a low voltage digital system that is incapable of delivering a shock. What is happening is that the member is actually experiencing a static charge similar to walking across the carpet and feeling a pop when you reach for a light switch on the wall.</p> <p>This situation occurs most often on treadmills when the member is exercising without holding on to the hand rails. Static builds in the member as a result of the exercise, eventually discharging to the nearest ground (i.e. the headphone in the ear).</p> <p>Treadmills by nature produce static electricity, however, you can reduce the possibility of shock by:</p> <p style="padding-left: 40px;">A. Check the anti-static device on the treadmill. Most treadmills already incorporate an anti-static device. Contact the manufacturer for information about their anti-static device and how to check it.</p> <p style="padding-left: 40px;">B. Adjust the humidity, since static electricity is caused by dry conditions, it is advisable to slightly raise the humidity in the room by atmospheric control (if available) or by temperature.</p>		