Vandersteen Audio

Please Note

Thank-you for your purchase of the Vandersteen Audio Model 2C. With proper care your new speakers will provide many years of trouble free, high quality musical enjoyment.
We recommend that you read this entire manual prior to connecting or using your Vandersteen Audio Model 2C loudspeaker system.

Vandersteen Audio

Introduction

The Vandersteen Audio Model 2C is a medium sized floor standing speaker developed and refined by more than ten years of advanced research into dynamic loudspeaker design. Engineering, construction and materials far exceeding industry standards have resulted in a level of musical performance unmatched by larger and more costly designs.

The Model 2C is a worthy addition to any high quality music system. The innovative first order crossover supports mono-wire, bi-wire, mono-amp and vertical bi-amp configurations. Superb dynamic and transient response guarantees superior performance from records, tapes and CDs. Custom engineered drivers, built exclusively for Vandersteen Audio, are mounted in special baffles designed to maximize their accuracy and musicality. An aesthetically pleasing appearance, incorporating an acoustically transparent grill and an audibly vented top, allows the Model 2C to compliment the decor of your home.

The Vandersteen Audio Model 2C is designed and built in the United States of America.

Operation Manual

Model 2Ci Loudspeaker System

Connections

CAUTION - Do not allow bare wires to contact the aluminum dress plate.

Overview

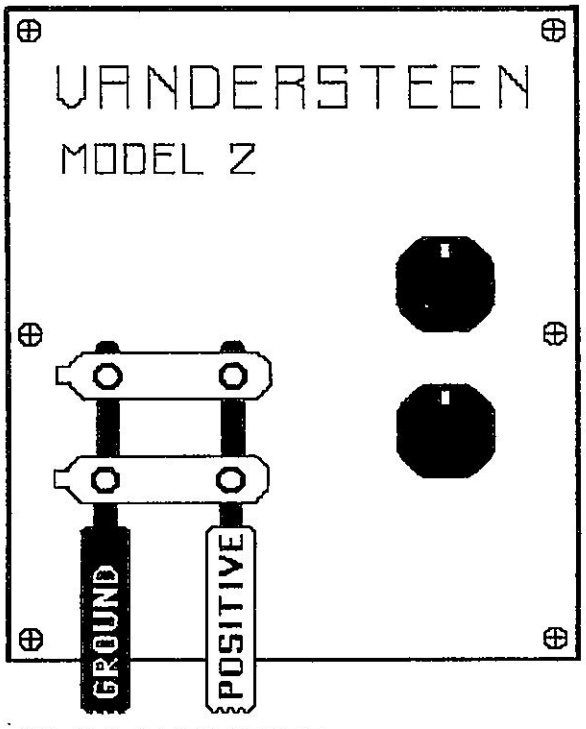
The Vandersteen Audio Model 2C has been engineered to allow either mono-wire or bi-wire connection when used with a receiver, integrated amplifier, or single power amplifier, or vertical bi-amping when used with two identical power amplifiers. Separate banana plug inputs for the tweeter/midrange and bass portions of the crossover are located on the aluminum dress plate at the rear of the Model 2C.

The following sections contain information on the different methods of wiring your speakers. Please review them to determine which is most applicable to your system.

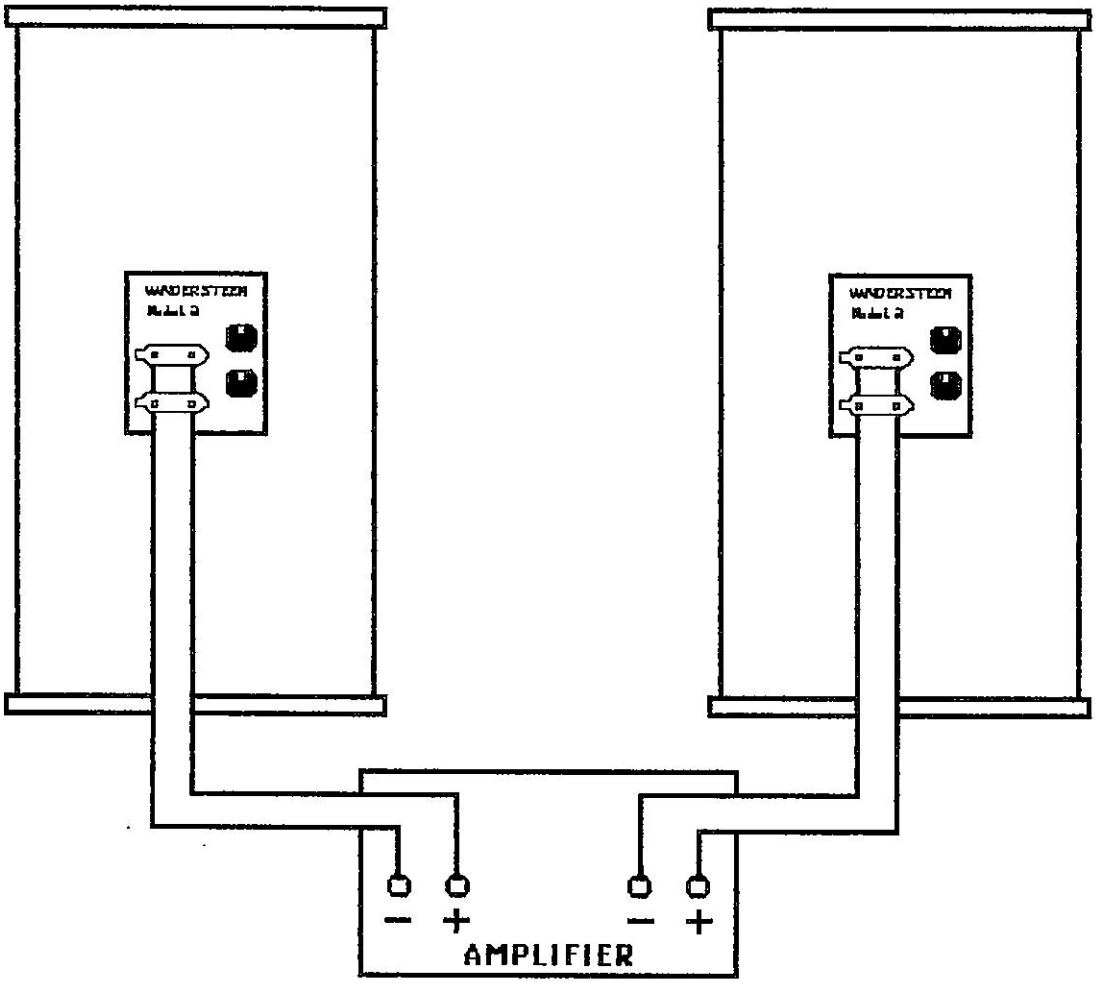
Mono-wire (Diagrams 1&2)

The Model 2C will perform very well when connected in this manner, however the performance will not be up to the level of bi-wiring or vertical bi-amping.

1. Place both banana plugs horizontally into their respective jacks with the ground ridge toward the left (black) terminal and loosen the set screws.
2. Strip approximately 1.5 inches of insulation from the speaker ends of the speaker cable.
3. Verify cable polarity, then from the bottom carefully push the exposed ground side of the speaker cable through the hole in the ground side of the lower banana plug.
4. Continue pushing the wire through the lower banana plug until it passes through the corresponding hole on the upper banana plug.
5. Repeat steps 3 & 4 for the positive (red) terminal and tighten set screws.
6. Connect cables to amplifier in the normal manner. Verify polarity at the amplifier connection.



Mono-wire Connection Diagram #1



Mono-wire System Connection
Diagram #2

Mono Wire Notes

a. All cables should be high quality and no longer than necessary.

b. All connections should be kept clean and free of corrosion.

c. Bare wires should not touch the aluminum dress plate.

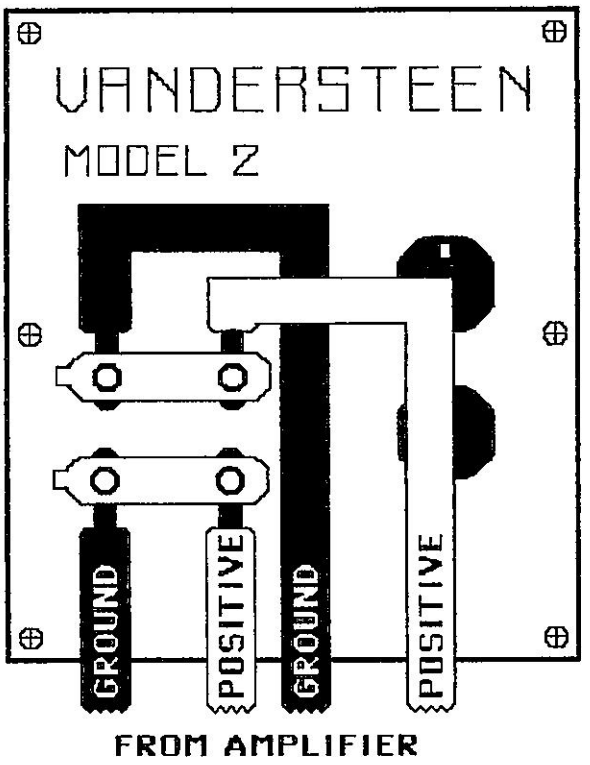
CAUTION - Verify cable polarity at both speaker and amplifier before using this connection method.

Bi-wire (Diagrams 3,4 &5)

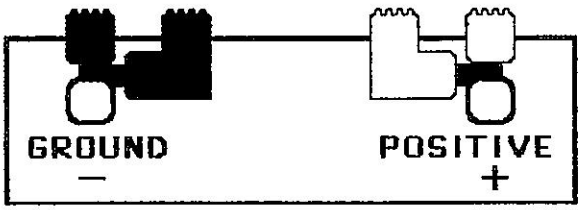
The goal of bi-wiring is to separate the middle/high frequencies from the low frequencies and give each its own pair of speaker cables. Bi-wiring provides many of the benefits of conventional bi-amping such as improved imaging and dynamic response, but without the expense and complexity of two amplifiers. Bi-wiring is recommended for all systems using a receiver, integrated amplifier or single power amplifier.

The cables used for the midrange-tweeter section and the bass section of each speaker must be identical length and type.

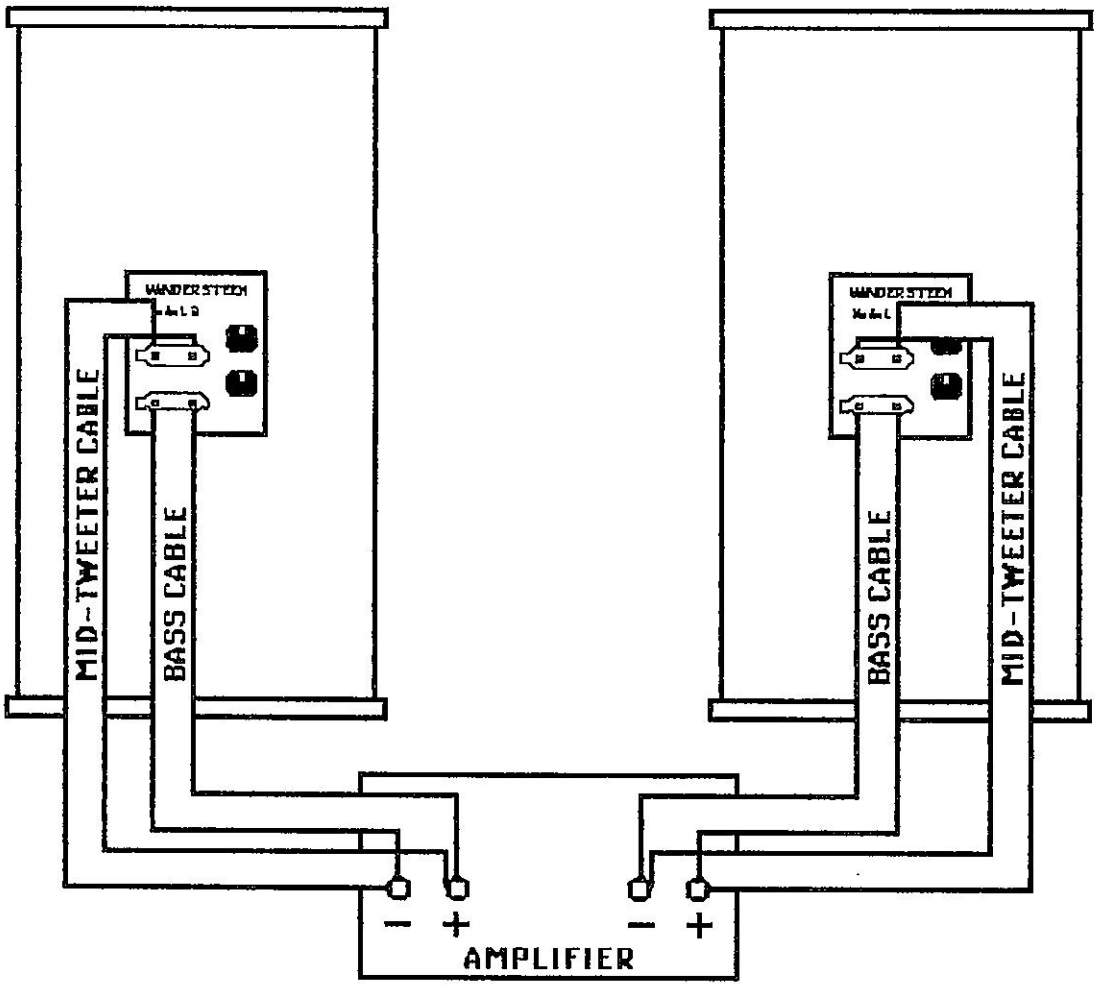
1. Place both banana plugs horizontally into their respective jacks with the ground ridge toward the left (black) terminal and loosen the set screws.
2. Strip approximately 0.3 inches of insulation from the speaker ends of the speaker cables.
3. Verify cable polarity, then from the bottom carefully push the exposed ground side of the bass speaker cable through the hole in the ground side of the lower banana plug and tighten the set screw.
4. Repeat step 3 for the positive side of the bass speaker cable and the positive side of the lower banana plug.
5. Repeat steps 3 & 4 for the tweeter-midrange speaker cable, however insert the wires into the top of the upper banana plug.
6. Verify polarity and connect both speaker cables to your amplifier as if you planned to use two sets of speakers. Use only one spade lug to connect both wires to each terminal.



Bi-wire Connection Diagram #3



Bi-wire Amp. Connection
(one channel shown)
Diagram #4



Bi-wire System Connection
Diagram #5

Bi-wire Notes

a. Carefully verify polarity on all cables prior to turning on amplifier.

b. All speaker cables must be the same type, and equal length.

c. The two cables for a speaker should not lay close together.

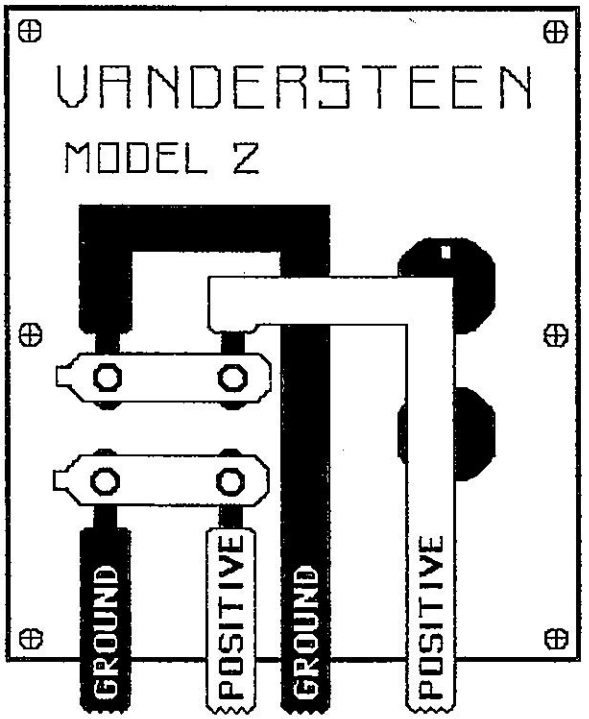
CAUTION - This connection method can only be used in a system configured with two identical tube or transistor amplifiers.

Vertical Bi-amp (Diagrams 6&7)

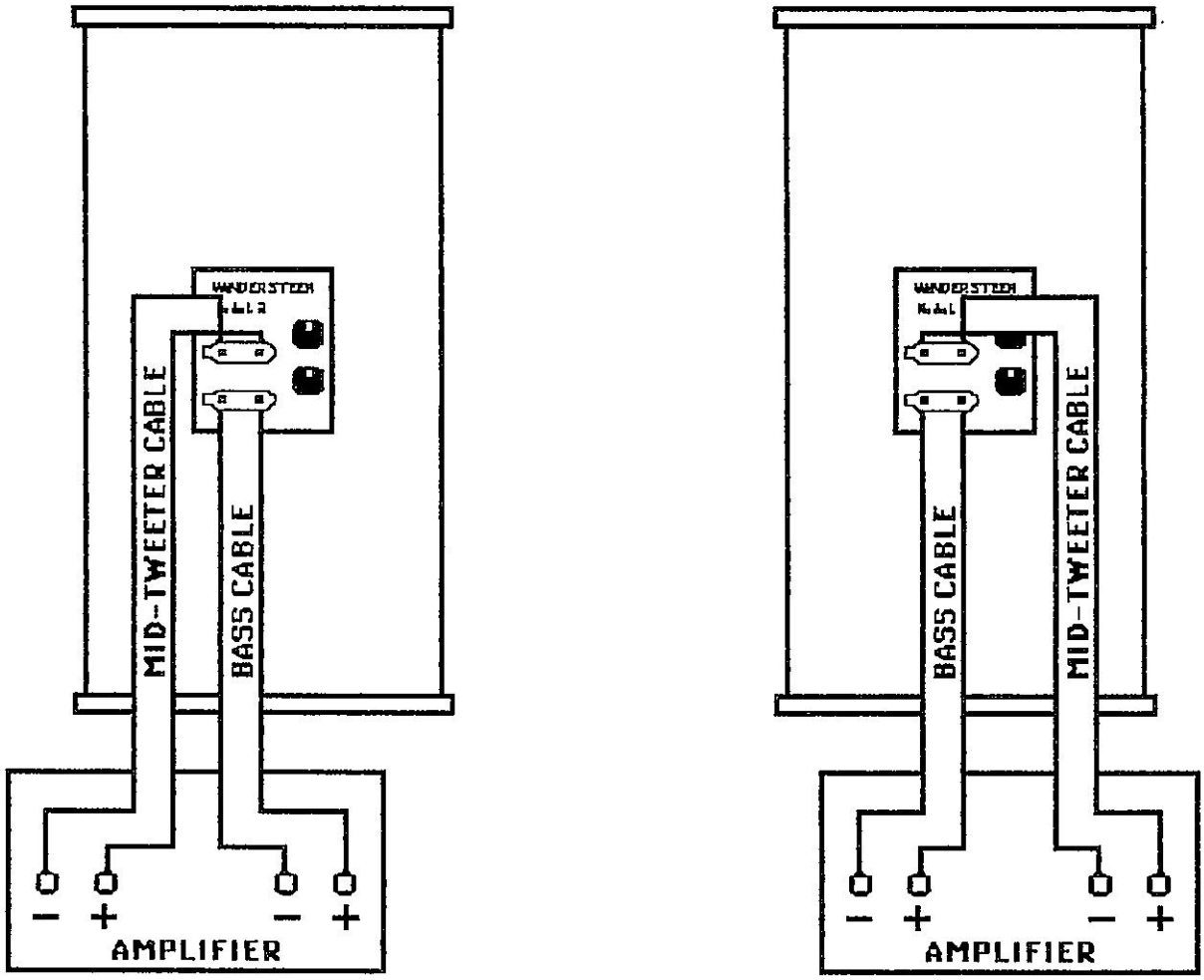
Conventional horizontal bi-amping involves the use of one amplifier to drive the midrange and tweeter sections of a pair of speakers and a second amplifier to drive the bass sections. Vertical bi-amping uses two identical make and model amplifiers. A separate amplifier is used for each speaker with one output channel driving the midrange and tweeter and the other output channel driving the bass.

Vandersteen Audio has determined that vertical bi-amping is the only recommended dual amplifier method for driving the Model 2C due to the separation of grounds and the reduction of current demand on each amplifier's power supply.

1. Connect the banana plugs and cables to the Model 2C as described in steps 1-5 in the bi-wire section.
2. Designate one amplifier as the left channel amplifier and the other identical amplifier as the right channel amplifier.
3. If your preamplifier has two sets of outputs, connect the two left outputs to the two inputs of the left amplifier and the two right outputs to the two inputs of the right amplifier. If your preamplifier has only one set of outputs, high quality 'Y' connectors should be used to connect the left output to both inputs of the left amplifier and the right output to both inputs of the right amplifier.
4. Verify polarity and connect the left bass cable to one channel of the left amplifier and the left midrange-tweeter cable to the remaining channel of the same amplifier. Both cables must be the same length and type.
5. Verify polarity and connect the right bass cable to one channel of the right amplifier and the right midrange-tweeter cable to the remaining channel of the same amplifier.



Bi-amp Connection Diagram #6



Vertical Bi-amp System Connection
Diagram #7

Vertical Bi-amp Notes

a. Both amplifiers must be the identical make and model.

b. All speaker cables must be the same type and length.

c. Correct polarity must be carefully observed.

Positioning

Overview

As speakers have become more accurate, with increased dispersion and imaging capabilities, their positioning in the listening room has become more critical. Most manufacturers now recommend that their speakers be placed away from the rear and side walls and elevated with the use of stands.

Because speakers are used in a room they must work with that room to present an accurate sound stage recreation with proper placement and depth of instruments. Each room is different and requires slightly different positioning to obtain optimal response and imaging, however the basic needs of the speakers will remain fairly consistent.

The following sections detail both the basics and particulars in positioning your Model 2C's to obtain optimum performance in most types of listening environments.

Basics

Wide dispersion contributes to the excellent imaging of the Model 2C but also requires that the speakers be placed away from the walls. The Model 2C should be placed at least two feet away from the side walls and one foot away from the rear wall. The speakers can be different distances from the side walls, however both speakers should be equal distance from the rear wall.

The Model 2C is designed to be placed on speaker stands that will raise it six to eight inches off the floor. Care should be taken when the Model 2C is used on carpet that they remain vertical and do not lean forward or backward.

No furniture, plants or other objects should be placed in front of the Model 2C where they could possibly interfere with the sound quality.

Side Walls

The most critical element of room placement affecting sound quality is the distance of the speakers from the side walls. As with most modern speaker designs, the Model 2C performs best when placed away from the side wall at least two feet. The speakers will generally sound better as they are moved even more than two feet from the side walls, and it is recommended that you place them as far away as room size and aesthetic considerations will allow.

While it is not required that both speakers be the same distance from their respective side walls, symmetrical placement may improve the imaging. If possible, the speakers should be tried in symmetrical and asymmetrical placements to determine which is superior.

When conducting your listening tests on speaker positions, listen for the most overall musical sound and the proper placement of musical images within the sound stage recreation.

Rear Wall

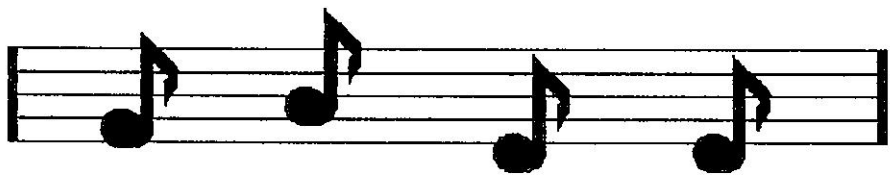
The Model 2C is designed to be placed at least one foot away from the rear wall for optimum performance. This distance should not be considered an absolute as the speakers will often sound better with additional space behind them. If possible, the speakers should initially be placed at least one foot from the rear wall then slowly moved forward, away from the wall, in small steps while listening for the effects on the sound quality.

The Model 2C should normally be positioned parallel to the rear wall with no tilt-in toward the listening position. The distance from each rear corner of the speaker to the rear wall should be carefully measured and the speaker should be twisted until the two measurements are identical. The pair of speakers should then be adjusted so that both are the same distance from the rear wall.

Height

The Model 2C should be elevated six to eight inches above the floor with the use of a speaker stand. This will allow an optimum listening window with your ears 35 to 39 inches above the floor. The stand must be of such a design as to keep the speaker vertical with no lean either forward or backward. Provisions in each speaker's base allow the stands to be firmly attached to the speaker for better coupling and stability.

Vandersteen Audio has two types of stands for use with the Model 2C. Instructions for mounting and use of the stands are packaged with each pair of Vandersteen speaker stands.

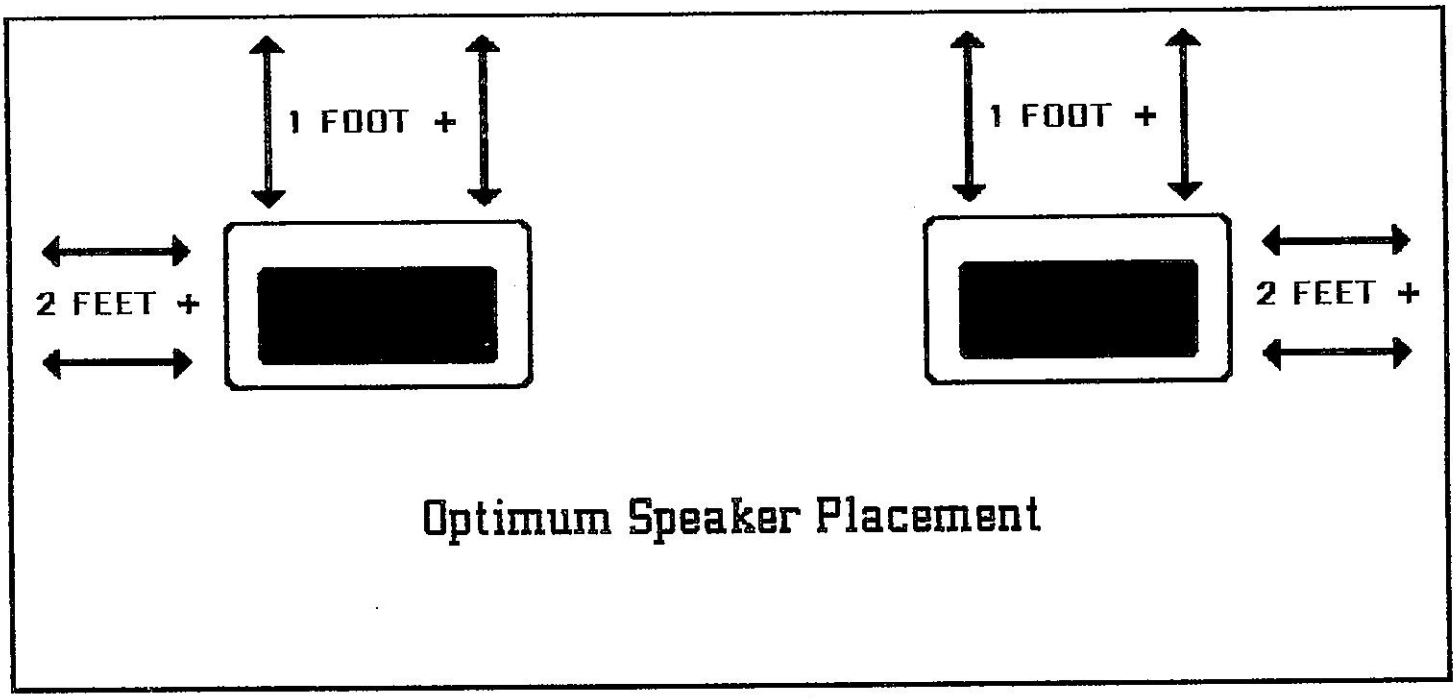


Optimum Placement Distances

Side Walls - Two feet or more. Speakers may be either symmetrical or asymmetrical.

Rear Wall - One foot or more and parallel to each other.

Height - Attached to six to eight inch high speaker stands.



Optimum Speaker Placement

Speaker Placement Notes

The Vandersteen Audio Model 2C requires a break-in period of fifty hours of use at a medium loudness level. All fine tuning should be repeated after this break-in period has elapsed.

a. Make sure the speakers are parallel by sighting across the front of the top of each speaker and twisting the speaker until it aims exactly at the front inside corner of the other speaker.

b. If your ears are more than 1 meter high at your listening

position, set the front spikes on the stands slightly longer than the rear spikes to tilt both speakers slightly back.

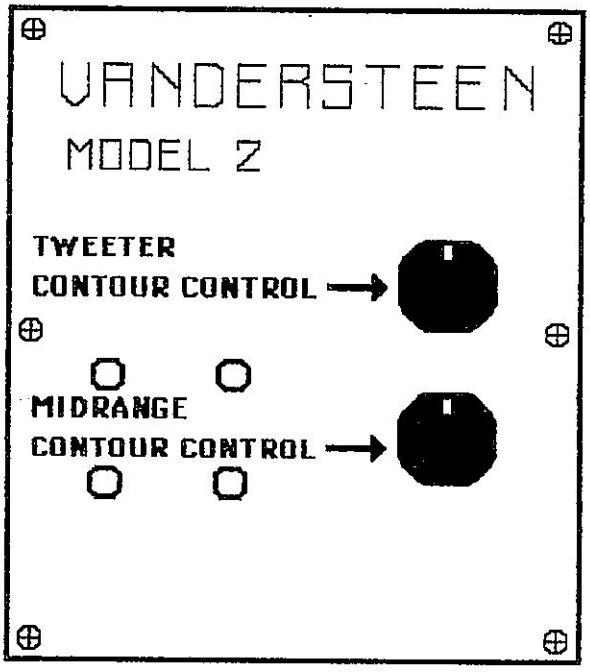
c. If the imaging is poor, move the speakers farther away from the side walls or mount sound absorbing material on the walls just ahead of the speakers to deaden the reflections.

Because all rooms and situations differ, these placement directions and tips should be considered only as starting points. Some experimentation may be necessary to determine optimum positioning in your room as changes as small as one inch can be audible. Modifications to the suggested placement, such as twisting-in the speakers, may improve the sound in your room.

The Contour Controls

Two contour controls are located on the aluminum dress plate at the rear of the Model 2C. The upper control adjusts the tweeter level and the lower control adjusts the midrange level. Both contour controls should be left in their center position until the break-in period is completed. After the break-in period, these controls may be used to compensate for a bright or dull room that could not be corrected with speaker placement or other non-active means.

For best results, do not change both the tweeter and midrange controls at the same time. After adjusting either the tweeter or midrange control, carefully listen for the sonic differences the adjustment has made before changing the other control.



Powering

Overview

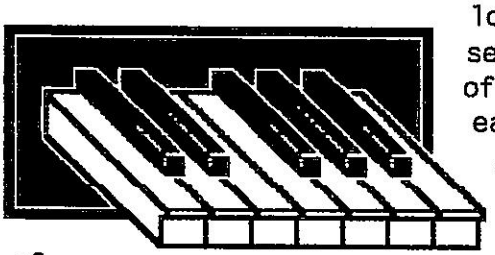
The Model 2C is should be used with amplifiers in the 40 to 160 watt range. This range covers the best sounding amplifiers available at this time and provides ample power for realistic listening levels. Amplifiers with less than 40 watts may not be able to recreate actual music levels while amplifiers with more than 160 watts must be used with caution to prevent speaker damage.

The Model 2C will perform well with a tube or transistor amplifier, revealing either's musical potential. The stable impedance of the Model 2C prevents load induced amplifier problems, opening up the power choices to include high quality receivers and integrated amplifiers.

The following sections contain information concerning amplifier interface with the Model 2C. Please review them to maximize your systems musicality and protect your speakers.

Basics

Any amplifier can damage any speaker regardless of the amplifier's power rating or the speaker's power handling capability. Damage occurs when the amplifier attempts to deliver more power than it is able to, and is forced into a dangerous form of distortion known as clipping.



Some amplifiers will also emit DC, or near DC pulses when overdriven. These low frequency pulses can be several times the rated power of the amplifier and can easily damage woofers and crossovers.

Obviously, not only should an amplifier within the power range of the Model 2C be used, care must be taken to learn the limits of that amplifier.

Amplifier Choices

To drive the Model 2C, a tube or transistor amplifier rated at 40 to 160 watts per channel into an 8 ohm load should be used. The amplifier can be a quality receiver, integrated amplifier or separate amplifier.

The Model 2C is a very revealing speaker, easily capable of showing the subtle differences between amplifiers that are used with it. The stability of the amplifier to be used should be considered, as it will affect the current capability and therefore, the dynamics and realism of the music. A stable transistor amplifier will be able to deliver twice the wattage into a 4 ohm load as it does into an 8 ohm load, and amplifiers with this ability should perform well with the Model 2C

Fuses or other protection between the amplifier and the Model 2C will degrade the musical performance of the entire system. Thus, no form of protection is used in the Model 2C and preference should be given to the use of an amplifier with no output fuses.

Caution - Most receivers, integrated amplifiers, and preamplifier-amplifier combinations will reach their maximum power output with the volume control turned about 180 degrees (one half revolution).

Recognizing Amplifier Clipping

Clipping occurs when an amplifier is driven past its power capability and begins to square off and distort the musical waveforms. This type of distortion sends an abnormally high percentage of the amplifier's power to the tweeters of the speakers connected to it. Tweeters use very fine wire in their voice coils and are unable to dissipate the extreme heat generated by this sudden surge of power. Some amplifiers will also produce DC or very low frequency pulses when overdriven. These pulses can damage woofers and crossovers..

Most receivers, integrated amplifiers, and preamplifier-amplifier combinations will clip when the volume control is turned approximately 180 degrees (one half revolution). Additional gain potential is designed into electronics to permit the use of low output sources and this accounts for the remaining one half revolution or so of control movement. With normal level sources this second 180 degrees of control movement is not needed.

Some of the warning signs of amplifier clipping are a strained sound with loss of detail, a bright midrange and high-end, and a lack of definition and control in the bass. If these are heard, the volume level should be immediately reduced to bring the power output within the amplifier's capabilities.

Power Versus Time

As current from the amplifier passes through the voice coils of a speaker, the wire that makes up those voice coils is heated much like the wire in a toaster. Modern day speakers, such as the Model 2C, use voice coils designed to dissipate a considerable amount of heat with the use of ferrofluid cooling and other techniques, but still there is a limit to the current and resultant heat they can handle. Because the voice coils get hotter the longer the power is passing through them, a volume level that is safe for ten minutes may cause damage if continued for half an hour.

To prevent damage to the Model 2C, care should be taken when listening to your system at a high volume level for a extended period of time. There is normally no problem with classical or jazz music due to the many level changes, however rock, and especially electronic music are often high intensity throughout with no substantial breaks to allow the speakers to cool.

If you are using an amplifier capable of 75 watts or more per channel and listen to high intensity music at high volume levels, you should give your speakers a rest every 20 minutes or so by reducing the volume to allow the voice coils time to cool.

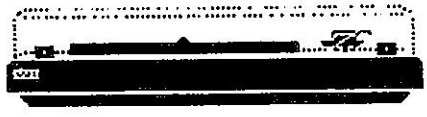
Associated Equipment

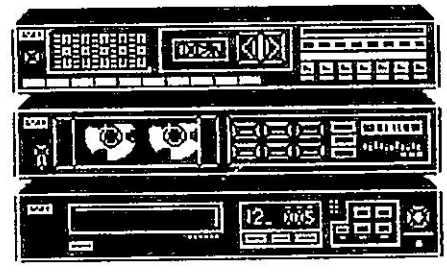
System Precautions

a. Always reduce the volume level before cuing a record, changing the input source, or cleaning the stylus.

b. Do not turn the preamplifier on or off while the amplifier is on.

c. Do not unplug the input cables from the amplifier with the amplifier on and connected to the speakers.





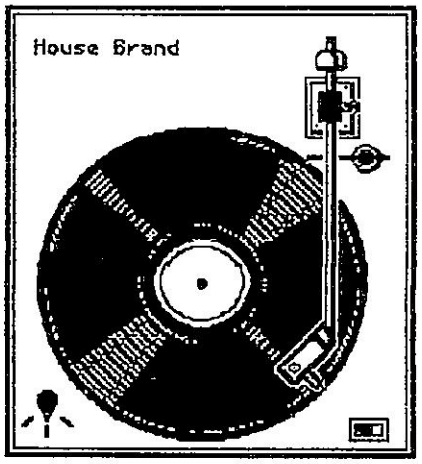
Overview

The Vandersteen Audio Model 2C is designed to produce excellent results with modest associated equipment, yet reveal the full musical capabilities of state of the art sources and electronics. The Model 2C should be used with high quality music sources, such as records and compact discs, which are able to recreate the dynamics and emotion of the original musical performance.

The following sections address the system components including sources, amplification systems and connecting cables, that will normally be used with the Model 2C and offers some suggestions for improving performance.

Turntable

The turntable is considered by many listeners to be the most musical and natural sounding music source for stereo systems. The availability and diversity of records ensures that turntables will continue to be the preferred music choice for some time.



The extended bass response of the Model 2C can create problems for some turntables that will negatively affect the sound quality. The vibrations produced by the speakers cause the record or tonearm to vibrate, resulting in at least a loss of information, and at worst, a howling feedback that can overload the amplifier and damage the speakers.

The turntable must be able to cope with both the air borne and surface borne vibrations produced by the stereo system. Most modern turntables are excellent at resisting these vibrations, but some precautions should be observed to maximize their resistance. These precautions will allow your turntable to retrieve more information off the record and result in more musical and more detailed sound.

Turntable Notes

a. Follow the turntable manufacturer's instructions.

b. Set the turntable on a stable platform and consider the use of an isolation base.

c. Keep cartridge to arm, and arm to turntable connections tight.

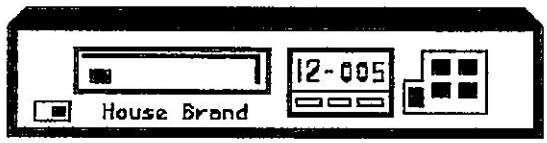
d. Verify that any suspension on the turntable can move freely and without binding.

e. Remove the dust cover to determine if the sound is improved or worsened.

f. Move the turntable to a new location if feedback is still suspected and the preceding suggestions have not improved the situation.

Compact Disc

The compact disc (CD) has grown in popularity during the past few years with those who appreciate its detailed and dynamic sound presentation.

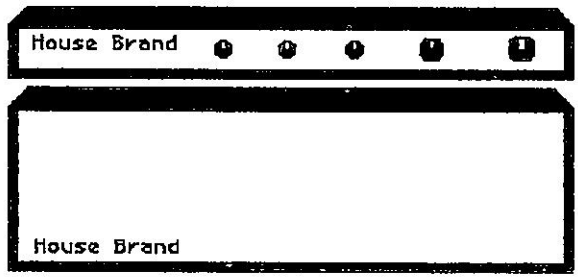


The disc is read with a laser, thus the CD is less affected by vibration than a turntable, however some problems may still be encountered. If you feel that information is being lost or that the sound from your compact disc is below its potential, verify that the CD is on a stable platform and/or set on an isolation base.

The wide dynamic range available from a CD necessitates that some extra care be taken with the volume control setting.

Control and Amplification

Whether you choose to use a receiver, integrated amplifier, or separate preamplifier and power amplifier, the equipment you select should be high quality, stable, and versatile enough to cover your current and future needs. The amplifier section should meet the criteria covered in "Powering Your Speakers", and the control, or preamplifier, section should be as sonicly neutral as possible.



If allowed by the manufacturer, the preamplifier in a separates type of system should be left on constantly. This will allow its circuitry to fully stabilize and reach optimum performance. The amplifier should not be left on unless some precautions are taken to prevent the damage to the speakers that could occur should the amplifier experience a catastrophic type of failure.

Electronics Notes

a. Do not use tone controls to modify the sound except as an absolute last resort.

b. Most electronics sound better when set on a stable platform or isolation base.

c. Always allow room around the amplifier for needed air circulation.

Connecting and Speaker Cables

The cables used to connect the electronics to each other and the speakers to the amplifier should be considered an integral part of the music system. Each make and model of cable has a different sound, thus system problems are often blamed on components when a cable is actually responsible.

The Vandersteen Audio Model 2C is easily able to pass the amount of information necessary to hear an audible difference between cables. These differences exist in both interconnect and speaker cables and can manifest themselves as :

- A gain or loss of detail.
- A shift or change in the perceived frequency response.
- A harshness or softness to the high-end.
- A change in the control or extension of the bass. response.
- A veiling of the midrange or high-end.
- A change in the dynamic impact of the system.
- A gain or loss of overall musicality.

Before making judgement on any cable, use it in your system for at least two weeks straight to allow the dielectric to fully form and optimize the cable.

Cable Notes

a. When using bi-wire or bi-amp connection, both cables to a speaker must be identical.

b. Keep all connections clean and tight.

c. Allow two weeks for the dielectric to form before judging a cable's performance.

d. Do not use longer speaker cables than are necessary.

Maintenance

The appearance and performance of the Model 2C can be enhanced by observing a few precautions and performing some simple maintenance.

The input jacks on the Model 2C and the banana plugs should be cleaned periodically with alcohol or a solution made specifically for cleaning electrical contacts. A cotton swab with a small amount of cleaning solution on it can be used to clean inside the input jacks. Other connection points in the system should be cleaned as per the equipment manufacturer's recommendations.

The grill cloth on the Model 2C can be vacuumed using a brush attachment that will not snag the cloth.

The top should be treated as a piece of fine furniture. The wood veneers are oiled at the factory and can be maintained with a light application of Watco oil or similar product.

Care must be taken that glasses or other objects that could mar the finish are not placed on top of the speaker. The speakers should not be exposed to excessive direct sunlight which can damage the fit and finish of the veneer.

In Closing

This manual has delt with the capabilities and limitations of the Model 2C. As with any piece of precision equipment, these capabilities and limitations must be considered when using your speakers to ensure their optimum performance and reliability. You should review this manual with anyone who will be allowed to use your stereo system to insure that they will exercise proper care and judgement.

Should you have questions regarding the interface or performance of the Model 2C you should first consult your dealer. He has been selected to be a Vandersteen Audio Dealer due to his expertise regarding stereo equipment and its use. If your dealer is unable to answer your questions, write to Vandersteen Audio and we will attempt to address your concerns. When writing, please include a list of your associated equipment. Vandersteen Audio can also be contacted by phone during normal business hours.

Vandersteen Audio

116 West 4th St
Hanford, CA 93230

(209) 582-0324

Service & Packing

Service

Should your Vandersteen Audio Model 2Cs require service, please follow these procedures.

- Contact your dealer and make arrangements to validate the problem.
- Determine if the speaker can be repaired by the dealer or requires return to the factory.
- Should the speaker require return; contact Vandersteen Audio, describe the problem and request a return authorization form with shipping instructions.
- With authorization, return the speaker to Vandersteen Audio packed in the original box.

Packing the Model 2C

To prevent physical or cosmetic damage, the Model 2C should always be packed in its original box prior to any transportation or shipment. Please follow these instructions when packing the Model 2C.

1. Turn the speaker upside-down on a carpeted surface and remove the stands.

2. Pull the plastic bag down over the speaker.

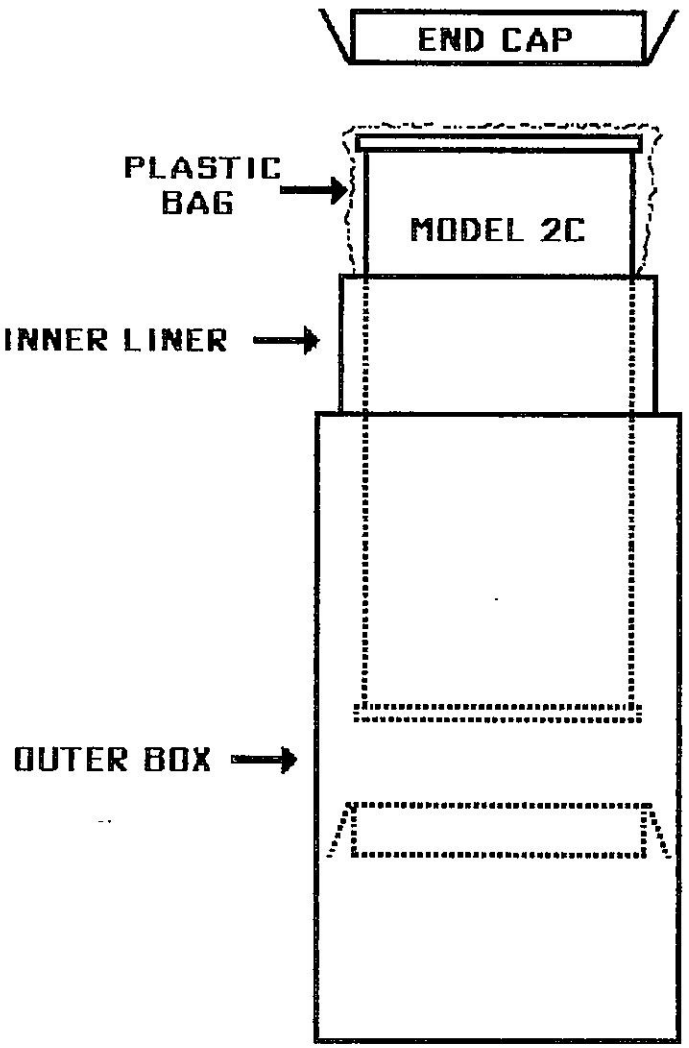
3. Slide the inner liner over the speaker and fit one of the end caps into the end with the open area facing away from the speaker.

4. Holding the flaps out, slide the outer box over the inner liner all the way to the floor.

5. Carefully turn the box right side up.

6. Close the plastic bag, then place the remaining end cap into the inner liner as was done in step 3.

7. Close the flaps on the outer box and seal the box with strong tape.



Limited One Year Warranty

VANDERSTEEN AUDIO loudspeakers are warranted to be free from defects in materials or workmanship, SUBJECT TO THE FOLLOWING CONDITIONS, for one (1) year from the date of purchase by the original purchaser,

THIS WARRANTY IS SUBJECT TO THE FOLLOWING CONDITIONS AND LIMITATIONS

This warranty is void and inapplicable if the loudspeakers have:

a. not been used in accordance with the instructions contained in the operation manual.
b. been subject to misuse or abuse, one example of which would be burned voice coils.
c. been modified, repaired, or tampered with by anyone not specifically authorized to do so by Vandersteen Audio
d. been subject to inputs in excess of the maximum rating, or inputs from an unstable or clipped amplifier.
e. been damaged by accident, neglect, or transportation.

The speakers must be packed in the original packing and returned to VANDERSTEEN AUDIO via insured freight by the customer at his or her own expense. A returned product must be accompanied by a return authorization form, (available from VANDERSTEEN AUDIO or an authorized dealer upon request) which includes a written description of the defect and proof of the date of purchase.

VANDERSTEEN AUDIO reserves the right to modify the design of any product without any obligation to previous purchasers and to change the prices or specifications without notice or obligation to anyone

IF A VANDERSTEEN AUDIO LOUDSPEAKER FAILS TO MEET THE ABOVE WARRANTY AND THE ABOVE CONDITIONS HAVE BEEN MET, THEN THE PURCHASER'S SOLE REMEDY SHALL BE TO RETURN THE PRODUCT TO VANDERSTEEN AUDIO WHERE THE DEFECT WILL BE REPAIRED WITHOUT CHARGE FOR PARTS OR LABOR.

ANY IMPLIED WARRANTIES RELATING TO THE ABOVE PRODUCT SHALL BE LIMITED TO THE DURATION OF THE ABOVE WARRANTY. THIS WARRANTY DOES NOT EXTEND TO ANY INCIDENTAL OR CONSEQUENTIAL COSTS OR DAMAGES TO PURCHASER.
Some states do not allow limitations on how long an implied warranty lasts, or an exclusion or limitation of incidental of consequential damages, so the above limitations or exclusions may not apply. This warranty gives you specific legal rights, you may also have other rights in your state.

A Personal Note

I have been doing volunteer work for several years with elderly people with severe hearing losses, and I have seen the frustration and anger that are brought on by these losses. We now know that many of these people developed their hearing problems because of exposure to high noise levels when younger.

Many home and portable stereo systems are capable of volume levels potentially damaging to your hearing. Please use common sense, and listen to your music at safe volume levels now so you will still have the ability to hear and enjoy your music in the future.