

**RESIDENTIAL  
SPEAKER  
MANUAL**

**INSTALLATION**

**OPERATION**

First, congratulations are in order because you've just made a particularly wonderful decision!

By purchasing Cerwin-Vega speakers, you've become part of a family of audio fanatics that for over 30 years has enjoyed the efficiency, accuracy, durability and, yes, insanely great sound of Cerwin-Vega audio equipment.

Thank you and, of course, ENJOY!

### ***Read On. You'll Actually Find this Manual to be Interesting and Useful. And Maybe Even, Fun?***

Most people don't read installation manuals thoroughly, but here's a subtle warning: *Skimming through this booklet can be hazardous to your speakers or your stereo. Treat this as required reading.*

By the time you've finished, you'll be fairly intimate with things like ohms, watts, and Helmholtz resonators. Not to mention every important detail about your new speakers including set-up, placement, connections, care and protection, performance and service. Please Proceed.

### ***Speaker Set-Up***

To begin, carefully unpack each speaker and try to save all of the packing material; at some point you may need to transport, ship, or move your speakers, and it's just a good idea to keep the boxes and styrofoam at hand.

Before doing anything even remotely related to placement or wiring, please make sure the power on your amplifier or receiver is switched OFF.

Although Cerwin-Vega speakers perform adequately with as little as 5 watts of power, a larger power amplifier will improve sound quality; simply, higher power provides greater "headroom" (a reservoir of power for peak passages) resulting in cleaner sound. A high power amplifier will also prevent the drivers from being damaged from the high distortion inherent with an overdriven small amplifier.

If, by chance, you're using one of those Godzilla-size amps with a higher power output than the speakers are rated for, keep the average power output within the specified rating of the speakers (Note: your Cerwin-Vega speakers are a heartier breed than most, still, don't intentionally abuse them with NASA-like volume levels).

Please be aware that with this much power you are your own little master and have the ability to fry **any** speaker in one lengthy, very loud Led Zeppelin listening session.

## Loudspeaker Positioning

Our engineers have some pretty definite ideas about how to optimize the performance of your speakers through proper positioning. Please take note:

**Imaging:** For precise stereo imaging (think of this as left and right stereo symmetry) we suggest placing your speakers at equal distances from the side walls in the room, separated from one another by at least 6 feet or 2 meters (more is better; whatever your room will permit. Astro-dome residents call the factory for advice). Speaking of the Astro-dome, professional or commercial installations are forbidden with Cerwin-Vega hi-fi speakers; use your speakers for residential applications only.

In order to minimize, as our engineers put it, "strong interactions" with the walls, your speakers should be placed about 1½ feet (45 cm) away from the side walls and 1 foot (30 cm) out from the rear wall. Close wall or corner placement will increase bass output.

See Diagram.

**Height:** Strange but true, height is also a consideration in positioning loudspeakers. In fact, you ideally want the tweeter referenced at about ear level (keep in mind, that's ear level for seated humans).

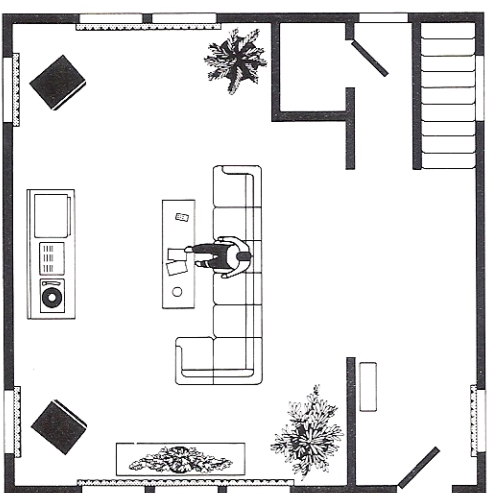
This recommended tweeter height is, by design, a feature in the larger floor-standing systems and floor placement will naturally maximize flat bass response.

Please note: raised placement of larger loudspeaker systems should be avoided because of 1) the obvious

danger in hanging large hefty boxes (floor speakers are designed for floor placement) and 2) the possibility of weakened or non-linear bass response.

Bass response is increased by placing the speakers near reflective surfaces (walls, corners, cell blocks). This effect is commonly referred to as, are you sitting, "wall coupling."

With bookshelf speakers proper tweeter height may be achieved by raising the speakers off the floor by as much as 2 feet (60 cm) or, as yet another option, slightly tilting the cabinets back.



**Room Dynamics:** Most rooms are far from acoustically ideal (except, of course, the shower), and different locations will produce very different sounds. So what follows is an outline of simple ways to optimize the sound potential of your listening room:

- 1) The "listening path" (between the speakers and the listener) should not be cluttered with furniture or bric-a-brac.
- 2) Drapes (especially those impregnated with beryllium) can be used to absorb echoes from windows or hard walls. Unfortunately, those attractive balisa and rice paper blinds won't do much here.

- 3) The noise level in your listening room should be fundamentally low. Rattles and buzzes from knick-knacks, cheap fireplace screens, and other scattered possessions should be suppressed at all reasonable costs.
- 4) Lastly, some engineering-speak. Offensive sound echoes reflecting between parallel walls can be reduced by placing sound-absorbing and sound-scattering objects in the room or on the walls. Simply, it's a good idea to have some furniture around (a sofa, a lamp or two, maybe even a cubist Picasso) for better sound diffusion.

Following these basic guidelines for loudspeaker positioning and room dynamics will result in the best stereo sound from your Cerwin-Vega loudspeakers.

If, however, you must compromise in some of the aforementioned areas (ie: no furniture, no room, or no Picasso) try to at least maintain the left-right symmetry we discussed in the imaging section.

## Connections

First, a word from the American Dental Association:

*Don't cut speaker wire with your teeth!*

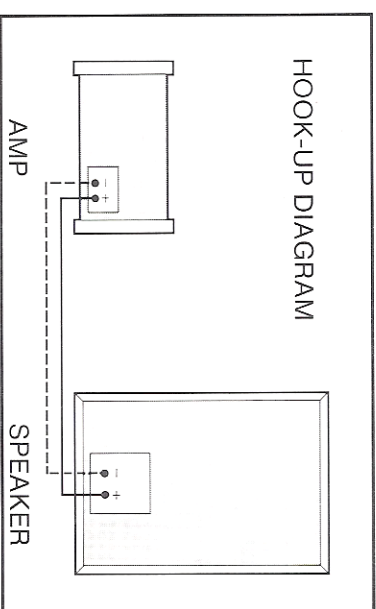
Now that we have that out of the way, connections should be made using high quality 18 gauge wire (for runs up to 25 feet, aka 7.5 meters). Of course, you may also use heavier gauge wire, or any of the specialized speaker cables available for improved signal resolution.

To keep signal losses low, heavier wire is recommended for longer runs. For runs of 25-40 (7.5-12 meters) feet use 16 gauge (or heavier) wire, and from 40-80 (12-24 meters) feet use 14 gauge (or, yes, heavier) wire. Anything longer, of course, will require assistance from the Army Corps of Engineers.

Measure the amount of wire that you'll need to run from the amplifier or receiver to each speaker position (don't skimp). Separate the twin strands at the end of each wire, and take a moment to see how the speaker leads are differentiated. This **will** be fascinating.

If your speaker wire is covered in clear plastic, one of the leads may be silver and the other copper. With dark speaker wire one strand may be ribbed, striped or color-coded and the other plain. Whatever the form of differentiation, think of the copper, ribbed, striped, or color-coded strand as "RED" (positive) and the plain strand as "BLACK" (negative).

Why? Simply because you're going to connect these leads to the red and black terminals at the rear of the amplifier, and then to the respective red and black speaker terminals on each speaker. Advanced color coding — we knew you'd be impressed.



Now, strip off  $\frac{1}{2}$ " of insulation from the ends of the wires and twist the wire ends together (remember, no teeth). Next, either press the connector terminals or unscrew the lugs on each speaker and neatly insert the wires (no frayed wires should be touching across the terminals). Lug connections should be as tight as possible. Connect the other ends of each wire to the corresponding red and black terminals located at the rear of your amp or receiver.

See diagram.

With the speaker terminals connected correctly, proper polarity is assured (meaning simply, the movement of the drivers in both left and right speakers will be coordinated).

Since you're no doubt a stickler for proper polarity, you may want to give your speakers this effective little proper polarity test:

- 1) Put on a source with good bass (something by, say, Iron Maiden).
- 2) Switch the preamp or receiver to "mono."
- 3) Turn up the bass tone control.
- 4) And finally, rotate the balance control fully to the left or right.
- 5) If the bass is louder with the control centered, then your speakers are connected with the correct polarity. If, however, the bass is more prominent with the control turned to either side, check the connections and simply reverse one pair of the wires to achieve proper polarity. Note: in larger rooms (such as a blimp hangar) you'll need to move the speakers closer together facing them at one another) to notice a polarity problem.

## Level Controls

**Function:** Many Cerwin-Vega speakers include level controls which can be used to adjust the presence of either midrange or high frequency drivers. Please refer to your model's insert sheet for individual specifications.

These tone controls will be located on the crossover panel (on the front baffle), and have a subtle effect (about 4dB each way) on presence when rotated.

**Operation:** Set the level controls at the 12 o'clock position and rotate them until you find a satisfying balance. (In some cases the control knob is slotted and you'll need to make a run to the piggy bank for a coin to turn the knob).

Level controls are basically a listener preference device — it's a matter of personal feel. By experimenting with a variety of source material (aka music) and knob positions, you'll no doubt find an overall balance which suits your listening tastes.

**Operational Hint:** A plush listening environment of thick carpets, heavy drapes or overly-upholstered furniture (the poofy Italian kind) will definitely require an increase in the high frequency response: turn the knobs to the right. For the more austere listening environment, such as a techy Bauhaus-like interior, a decrease in presence is necessary. Toy with these knobs, they're acres of fun.

## Circuit Breaker Protection

All Cerwin-Vega speakers are equipped with a circuit breaker which protects the high frequency driver (aka tweeter) from potential damage.

We use two different types of circuit protection devices:

- 1) An internal self-resetting circuit breaker (it's automatic; you don't need any special training to operate it).
- 2) The visible circuit breaker, a red post located on the crossover plate (you'll need a smidgeon of manual dexterity).

Please refer to your model's insert sheet for individual circuit breaker specifications.

If you're all confused on circuit breaker function or performance, a simple example follows (if not, go directly to the next exciting chapter, fuse protection).

If, by chance, you notice that there's absolutely no sound coming from the tweeter in one or both of your speakers or you find yourself watching more closed caption TV, merely reduce the volume and reset the breaker by pressing it in (as with example #2). This will restore sound to the driver.

If your speaker has an internal self-resetting breaker (example #1) it will take 10-15 seconds to reset automatically after the volume has been slightly reduced.

If you're still not getting sound out of the tweeter, you may find a solution by simply reducing the treble tone control on your preamp or receiver. But please take note: if the breaker repeatedly trips at lower volumes, your electronics may be at fault (possible high frequency oscillation which, of course, only your dog can hear).

If none of these proven solutions work in your case, feel free to consult a local service center or the Cerwin-Vega factory for friendly, cheerful advice.

## Fuse Protection

The larger Cerwin-Vega speakers, typically identified by woofer size and sheer mass, feature fuse protection for the entire speaker system (once again, you may refer to your model's insert sheet for individual specifications). The fuse supplied with these speakers is designed to protect them

from potentially damaging signals, transients or distortion.

In the unlikely event that the fuse blows and you just happen to notice that there's no sound coming from one or both of your speakers, you can replace the fuse with one of identical type and value (make sure it's a slow-blow fuse).

Replacement is simple:

- 1) Remove the blown fuse by pressing in, and twisting the fuse cap counterclockwise.
- 2) Insert the new fuse and replace the cap by pressing and twisting, you guessed it, clockwise.

If you continue to blow fuses ("Tommy, turn that darn thing down") you should make sure that you're operating within the safe power limits of your receiver. Small receivers may blow fuses more often since they're generally over-driven and exhibit significantly higher levels of potentially damaging distortion. If you have a low powered receiver and you enjoy listening to music at loud levels, but sadly find that at these volumes the music becomes smeared, distorted, or offensive, the speaker is not at fault; it's the electronics petering out. Consider a change to a larger amp with more headroom. Please be aware that many receivers achieve full output when the level control is slightly past halfway.

Incredibly dynamic material, the stuff of Compact Discs, may blow fuses more readily than conventional sources. But you can safely upgrade the value of your speaker fuses (by  $\frac{1}{2}$  amp value, provided your amp has enough reserve or "clean" power) if you play within reasonable limits.

### ***What? You actually want more bass?***

The DB-10B is a bass enhancement device capable of transforming your Cerwin-Vega speaker system, coupled with a moderately-powered amplifier, into an actual source of seismic activity.

In techno-speak, the DB-10B combines 30Hz narrow band equalization with a subsonic filter below 20Hz. The boosting function compensates for the limited low frequency response of most hi-fi systems, as well as the inherent low frequency losses in the production of records and

tapes. The filtering function removes unwanted subsonic distortion from warped records, turntable rumble and acoustic feedback, while providing a 5 or 10dB bass boost in the 30Hz range.

In addition, if you happen to be the enlightened owner of a compact disc player or 8mm PCM video unit, your DB-10B will take advantage of the increased low frequency capabilities of both technologies.

The DB-10B doesn't create or synthesize bass, it boosts the deep bass frequency at 30Hz (the cabinet tuning of your Cerwin-Vega speakers). If low bass wasn't present in the original recording, you still won't be able to hear it even with a DB-10B.

All of which means that the DB-10B can restore the natural bass impact of your system and more accurately reflect the dynamics of the original performance.

Of course, we do recommend consulting your local seismologist before installation.

### ***The Care, Feeding, and Holistic Approach to Speaker Maintenance.***

The loudspeakers you've purchased are, of course, among the finest in the world and are the achievement of years of research and development.

Through design, CV engineers have optimized power handling capacity and efficiency to allow absolute maximum performance. And in the manufacturing process, Cerwin-Vega uses the finest materials available for cabinets, drivers and dividing networks to ensure years of trouble-free enjoyment.

But any speaker, by nature and function, is subjected to potentially damaging conditions present in other parts of the audio chain, such as power surges and clipping (15 yards).

Thus, we offer the following guide to preventative maintenance:

- 1) **Underpowering:** A major cause of tweeter failure, and component failure in general, is under-powering.

**Cause:** The clean power rating of the amplifier is exceeded and the amp is driven into distortion. For example, speakers rated at 150 watts power handling can be fundamentally ruined by a 25 watt receiver or power amp.

**Why?** The volume control on an amplifier is not necessarily an accurate reference of true power output, so in many cases amplifiers will reach their rated maximum power at approximately mid-rotation or setting. When an amplifier of as little as 10-15 watts is driven past this setting, distortion increases; and it's this "distorted energy" that can do grave and serious damage to your speakers.

**Solution:** Simply don't increase the volume on your amp past the point of distortion. If you want to play it any louder, it's time to consider purchasing an amplifier or receiver with a greater power output.

**2) Overpowering:** Since your new Cerwin-Vega speakers are built to handle very high levels of power and are protected by fuse (depending on the model) and circuit breaker devices, chances are you won't be overpowering them in the next century or so.

However, in very rare instances, overpowering can occur; but only when the amplifier power significantly exceeds the speakers' rated power handling, and the system is operated at maximum volume.

In this situation, the speakers' voice coils would suffer fairly serious thermal damage (aka meltdown), or the woofer will move beyond normal "in and out" limitations and fracture the voice coil structure.

**3) The Dangers of Dynamic Discs:** Oddly enough, when you're playing dynamic source material (such as compact discs and digital audio tape), there's a distinct possibility of damaging your speakers.

**Cause:** The intense dynamics contained in digital recordings can destroy even the most rugged speakers, by causing the amplifier to be overdriven, creating distortion and burning voice coils.

**Solution:** You should adjust the overall volume lev-

els to allow for louder passages in the material. If you've set your volume levels for the least dynamic or softest passages your speakers could be damaged by dynamic musical peaks or the distortion produced by the resulting amplifier overload.

**4) Out-of-Control Tone Controls:** The tone controls on your amplifier or receiver (for bass, midrange and treble) affect the amount of energy delivered to the different frequency range drivers in each speaker.

**Cause:** When you increase tone control levels toward their maximum position, as much as 10-12 times the average power is sent to the individual drivers. This can wreck havoc with the beefiest of speakers and occurs even when the master gain control (the big, dominant volume knob) is in a moderate or low level position.

**Solution:** Tone controls should be used in moderation and, for most applications, a neutral or "flat" position is recommended. Randomly adjust at your own risk.

**5) Making or Breaking Connections:** Inserting or unplugging connections to an amplifier, preamplifier or receiver with the power on will certainly produce very loud buzzes or pops (the always annoying sounds of electrical frenzy).

**Cause:** When you have system power levels set very high and pull something like this you can destroy the voice coils in your speakers. Not to mention, ignite and fry yourself.

**Solution:** Make sure equipment is switched OFF before doing anything even remotely related to connections, disconnections or misconnections.

**6) If You Happen to Hear Nothing:** In the unlikely event that you hear nothing from one or both of your speakers, we sympathetically recommend the following procedural checks to solve the problem.

**No Sound from One Speaker Only.** Switch the speaker wires from one speaker to the other. If the

inactive speaker plays and the other speaker goes kaput with the wires switched, then the problem is with one of the amplifier channels.

**No Sound from One or Both Speakers:** First, check the fuses (if your system is fused) to see if they've blown. If that's the case, replace the blown fuses with the proper fuse value (see your model's insert sheet for individual specifications).

If there's no response from the high frequency driver (the tweeter), press the circuit breaker on the crossover plate to restore power. If your speakers have an internal self-resetting circuit breaker, simply turn down the power and wait the 10-15 seconds for the breaker to recycle.

**If One or More of the Speaker Components Will Not Play After Checking the Fuses and Circuit**

**Breakers:** Carefully remove the problem components from the cabinet with a Phillips screwdriver and check to make sure that both crossover wires are properly connected. If one has come loose, reconnect it to the terminal. This should correct the problem.

If none of these solutions have solved your speakers' problem, please feel free to contact your local service center or call the Cerwin-Vega customer service line (1-805-584-9332, Ext. 300) Monday-Friday from 8:30-4:30.







Cerwin-Vega 555 E. Easy Street, Simi Valley, CA 93065  
Cerwin-Vega Canada 2360 Midland Avenue, Unit 21, Scarborough, Ontario M1S 4A9  
Cerwin-Vega Europe Grynderupvej 12, P.O. Box 40, DK-9610 Nørager, Denmark