



Owner's Manual For The

Broadway

Center Channel System



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Thank you for selecting a Legacy Loudspeaker System. These hand-crafted instruments will provide you with many years of listening enjoyment. Please take a few moments to read this brief manual to insure maximum benefit from your speaker system.

Limited Ten Year Warranty

Legacy Audio, Inc. extends to the original owner coverage of defects in materials and workmanship for a period of ten years from the date of purchase.

This warranty does not include a) damage in shipment, b) damage caused by accidental or intentional misuse or abuse, c) units not registered with Legacy Audio, d) damage resulting from unauthorized modifications or repairs. Liability is limited to the repair or replacement, at our option, of any defective component and shall not include property or consequential damages which may result from the failure of this product.

If this product should ever require servicing, simply call 1-800-283-4644 for immediate assistance. Every Legacy speaker system is completely modular and requires little more than a Phillips screw driver and a soldering iron to service.

Customer Record

Model No. _____

Serial No. _____

Date of Purchase ____ / ____ / ____

Owner _____

Street Address _____

City _____ State ____ Zip _____

Unpacking

Your new speaker system has been very carefully packaged to insure that it travels to you safely. Each speaker is protected by a double-wall outer carton with heavy V-board corner protectors. Molded foam end caps are used to protect the elegant cabinetry, and a plastic liner is provided as waterproofing.

Please save this packing for future transportation. If cartons become damaged or misplaced, new ones can be purchased from Legacy Audio.

Speaker Placement

The Broadway should be placed upon a substantial stand or on top of your television set for the best results. It can also hang above projector screens and plasma TV's via a wall/soffit mount. This speaker, like all Legacy speakers, is designed for broad lateral coverage.

Connections

At the rear of your Broadway you will find a terminal plate housing a single pair of five-way binding posts.

Connect the output of the center channel amplifier to the loudspeaker via the gold five-way binding posts provided. Dual banana plugs or gold spade lugs are recommended means of termination.

Be sure that you observe polarity when making the connections. The positive (+) terminal (red) of the amplifier should be connected to the positive terminal of the loudspeaker. The negative (-) terminal (black) of the amplifier should be connected to the negative terminal of the loudspeaker.

Designer's Note from Bill Dudleston

More than 70% of midrange information and virtually all speech is steered to center in film soundtracks. The center channel speaker is unquestionably the most important speaker in a multi-channel setup.

This exceptional transducer represents the state of the art in home theater performance. Designed to integrate seamlessly with the Legacy Empire speaker system, the Broadway center speaker can also upgrade other high quality systems.

How many times have you missed a critical line of film dialogue over muffled or tinny sounding TV speakers? Have you ever found yourself cranking up the volume to an aggravating level just to avoid missing the plot?

High school geometry taught us that a location in free space can be specified by the coordinates of a single point and that two such points can describe a line. Adding a third point allows us to define an entire plane, while adding fourth and fifth points opens the possibilities to multiple planes.

Likewise, the localization advantages of discrete 5.1 multichannel audio become obvious. Adding a center channel speaker to a system will result in improved clarity, stable dialogue and a natural sense of depth. Central images retain their position even with extreme listener positions.

Broadway utilizes our exclusive 5.25" KEVLITE-Ti® midrange and NEOdome tweeter to project the center channel information with sparkling clarity.

Dual 7" woofers combine to deliver midbass with solid impact. Broadway's special distribution pattern delivers sound uniformly to every seat in the house. And because it's only 4.5" thick, the magnetically-shielded Broadway center speaker can be placed on top of your existing television, or conveniently wall/soffit mounted.



The Cabinetry

Beneath the surface of Broadway's elegant exterior lies rigid MDF construction. Interlocking joinery maximizes the strength of the cabinet parts. Polyester fiberfill is selected for internal damping. A sharp rap on the enclosure will leave you with little more than bruised knuckles.

Each cabinet is impeccably finished on all exposed surfaces with select veneers. The exquisite finish is hand-rubbed several times to assure a patina at home with the most elegant decor.

Our Commitment

A great deal of forethought, love and satisfaction is instilled in each piece of Legacy workmanship. We take pride in getting to know many of our customers on a first name basis.

Your purchase of this product is backed by the renowned "Legacy Satisfaction Guarantee". We continue to stand behind it with a solid ten year warranty, more than twice the industry standard.



Specifications

System Type: 4-driver, 3 way

Tweeter: 1" NEOdome

Midrange: 5.25" KEVLITE-Ti

Woofers: (2) 7" Polypropylene

Dimensions: 10" W x 23" H x 4.5" D

Crossover Frequencies (Hz): 400, 3k

Frequency Response: 100 Hz - 22 kHz +/-2 dB

Recommended Amplification: 10-300 watts

Sensitivity: 90 dB @ 2.83V/1m

Impedance: 4 ohms

Weight: 30 lbs

Hook-up Cables

The ideal conductor would have negligible resistance, inductance and capacitance. The table below shows how a few actual speaker cables measure up.

Cable	Ω s/ft	pF/ft	μ H/ft
12 ga.	0.0033	24	0.21
14 ga.	0.0048	17	0.13
16 ga.	0.0079	16	0.18
18 ga.	0.0128	28	0.21

Capacitance is considered insignificant in each cable because its effect is well out of the audio bandwidth; inductance can be decreased (at the expense of increased capacitance) by keeping the conductor pair closely spaced.

How long would a cable have to be before inductance effects would impinge on the audio spectrum? Approximately 300 feet of 12 gauge would be required to establish a corner frequency of 20 kHz with an 8 Ohm loudspeaker. As you see, inductance is not a problem for most of us.

What about phase shift due to frequency dependent travel times down the speaker cable? Measurements show that 100 Hz waves will be delayed about 20 billionths of a second behind 10 kHz waves when traveling to the end of a 10 foot speaker cable. Since the cilia of the ear requires 25,000 times longer than this just to transmit phase information, phase shifting is obviously not the primary concern when considering speaker cables.

What about resistance? Finally we are getting somewhere. Resistance is the controlling factor of the amplifier/loudspeaker interface.

Excessive resistance can cause major shifts of speaker crossover frequencies. The lower the impedance of the loudspeaker, the greater the effects of series resistance. A run of 20 feet of 18 gauge can cause up to 10% deviations of crossover center frequencies. That same 20 feet can undamp your damping factor and reduce your systems' output by one-half decibel.

The best way to approximate the ideal would be to keep loudspeaker leads as short as is practical.

Our recommendation is the Legacy Transmission Line Cable. Transmission Line is available in ready made 10 ft. runs or custom lengths are available as well. Please call the factory at 1-800-283-4644.

The Amplifier

Ideally the loudspeaker would be among the first components selected when assembling a playback system. This would allow the user to choose an amplifier capable of delivering adequate amounts of current into the frequency dependent load presented by the loudspeaker. However, when upgrading a system, audiophiles may find themselves matching their new loudspeakers to their existing amplification. For this reason, extensive measures have been taken to ensure that each Legacy speaker system represents a smooth, non-reactive load to virtually any amplifier.

Often there is much confusion regarding amplification and loudness levels. It should be understood that the role of the amplifier goes beyond that of driving loudspeakers to a given sound pressure level. The amplifier should be able to CONTROL the loudspeakers across the entire music spectrum. This means that parameters such as damping factor (values greater than 60 are acceptable) and dynamic headroom should not be overlooked when comparing amplifiers.

How much power will your new speakers need? That ultimately depends on your listening environment and musical tastes. As little as five watts per channel should drive them to a level satisfactory for background music. A typical 45 watt per channel receiver may fill a room with the compressed mid-band energy of “heavy metal,” but seem to lack weight or control with classical recordings. Some audiophiles feel that 200 watts per channel is the bare minimum to avoid audible clipping distortion when reproducing music at “live” playback levels. Your Legacy speakers are designed to take advantage of “high-powered” amplifiers, so don’t be afraid to put them through their paces.

How much is too much power? Rarely is a drive unit damaged by large doses of music power. More often than not the villain is amplifier clipping distortion. Even through decades of refinement, loudspeakers are still notoriously inefficient transducers, requiring huge amounts of power to recreate the impact of the live performance. Typically less than 1% of electrical power is converted into acoustic output. For example, an omni-directional transducer with an anechoic sensitivity of 90 dB @ 1w/1m has a full space efficiency of only 0.63%. When an amplifier is unable to fulfill your loudspeakers demands, a damaging harmonic spike may be leaked to the high frequency drivers.

Another important point regarding loudness is that the dB scale is a logarithmic one. This means that a 150 Watt amplifier will potentially sound only twice as loud as a 15 Watt amplifier.

If all of this discussion of power and loudness seems a bit abstract, consider the example to the left.

The average acoustical power developed by a person speaking in a conversational tone corresponds to a mere 0.00001 Watts. The power that would be developed by the entire population of the city of New York speaking at once would barely illuminate a single 100 Watt light bulb.

