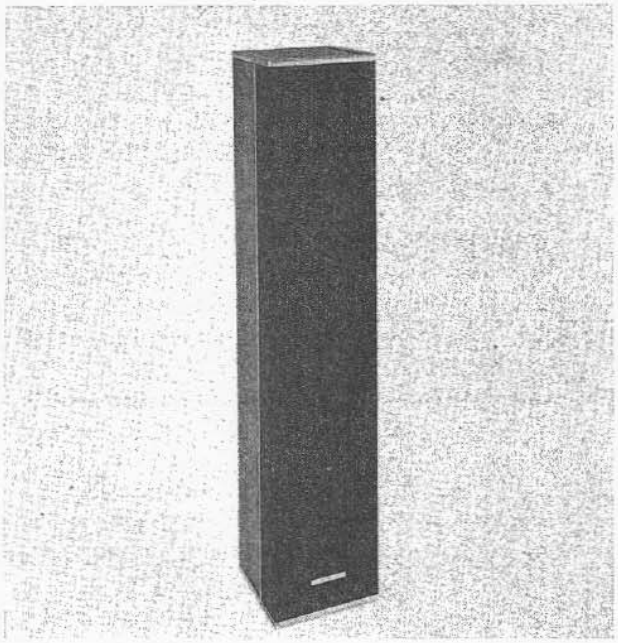
LR7B ALL-WEATHER LINE RADIATOR™



DESCRIPTION AND APPLICATIONS

The Electro-Voice Model LR7B Line Radiator™ represents an all-new concept in terms of "column speakers." A true Line Radiator, the LR7B offers unsurpassed control of both horizontal and vertical sound projection. The very uniform dispersion (similar to the LR4B but more uniform than any previous Line Radiator) has eliminated many of the problems of feedback, "spotty" coverage, and excessive size previously associated with ultra high-level projectors.

The LR7B replaces the LR7 curved Line Radiator speaker. The unique "multi-face" concept of construction of the LR7B allows a straight Line Radiator having uniform dispersion characteristics superior even to the curved Line Radiators.

Impervious to damage from temperature extremes and atmospheric conditions, the enclosure of the LR7B is adaptable to virtually any decor for indoor use yet is designed to withstand outdoor use as well.

A unique engineering concept applied to modern sound reinforcement requirements, the LR7B provides precisely controlled sound projection with 110° horizontal and 60° vertical dispersion patterns, making possible a maximum of uniformity and coverage of the area desired with minimum sound projected into unwanted areas, and, thus, minimum reverberation. Smooth and carefully tailored frequency response (70–15,000 Hz) gives true high fidelity sound reinforcement with a dramatic increase in sound pressure level attainable before feedback begins (See Figure 1). The new ST350 sectorial tweeter is used above 4000 Hz providing the advantage of smoother (no lobes) horizontal and vertical polar dispersion. These features, combined with the 90-watt power handling capacity make the LR7B an ideal solution to many otherwise difficult sound reinforcement problems – both indoors and out.

SPECIFICATIONS

Frequency Response:	70–15,000 Hz
Sound Pressure Level:	115 dB (4 feet on axis, 90 watts input, 600 to 1200 Hz band)
EIA Pressure Rating:	50.5 dB
Power Handling Capacity, Program:	90 watts
Nominal Impedance:	12 ohms
Dispersion:	60° vertical, 110° horizontal (Line Radiator mounted with long dimension vertical)
Mounting:	See bracketry diagrams
Dimensions:	12" (30.5cm) x 12" (30.5cm) x 62.2" (158cm)
Net Weight:	62 pounds (28.12Kg)

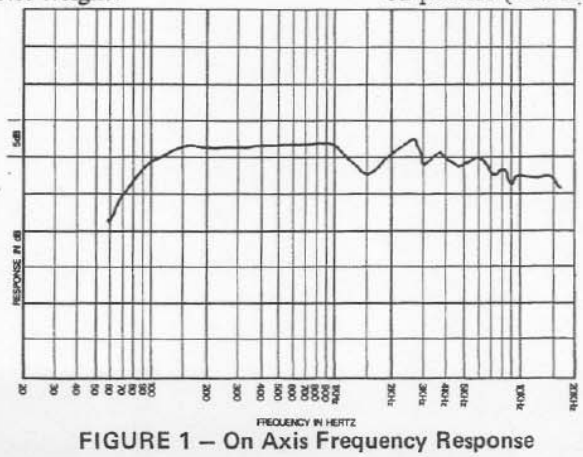


FIGURE 1 – On Axis Frequency Response

TWEETER PROTECTION

A tweeter protection device is provided (internally mounted) to allow maximum performance without tweeter damage. The device senses for maximum safe voltage to the tweeter and opens the tweeter circuit (variable speed relay) if that voltage is exceeded. When safe voltage is resumed, the tweeter is instantly brought back into the circuit.

A purely electrical system of protection would sense for a given voltage and disconnect the tweeter. However, the protection device used in the LR7B employs not only electrical sensing components, but a selected relay which is voltage/duration sensitive. Program material may have high frequency "spikes" or transient surges of very short duration which will exceed the average voltage level. The protection circuit will pass short surges (which will not damage the tweeter) while not allowing the same voltage with a longer duration to reach the tweeter. This effectively extends the dynamic range of the entire system.

Note: When the system is operating at high power threshold, the tweeter may switch in and out with a clicking sound. If this is objectionable, reduce power into the system.

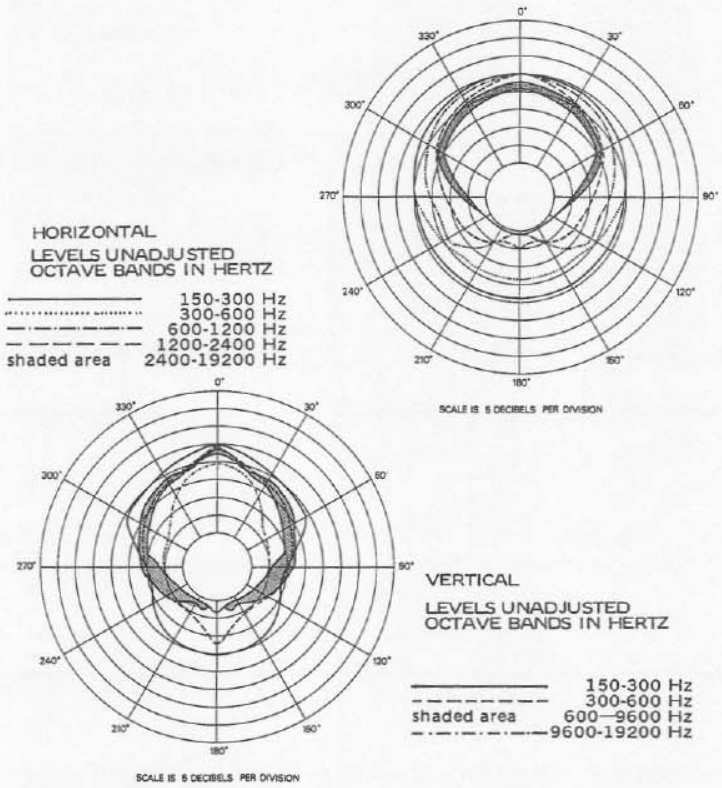


FIGURE 2 – Polar Patterns

PLACEMENT

To make best use of the unique polar characteristics of the LR7B, the unit should be mounted with its long axis vertical. The broad horizontal projection pattern thus aids in covering large audiences, while the limited vertical dispersion makes possible projection over long distances without unwanted reflections from floor or ceiling. In addition, when mounted above the sound system microphone, the LR7B is capable of outstanding coverage without the troublesome acoustic feedback which almost always accompanies less sophisticated reproducers. Since most of the LR7B's output is projected forward, and comparatively little is allowed to come from the ends, a microphone placed under the LR7B will receive much less direct sound than if similarly placed with respect to other loudspeakers, thereby greatly reducing or eliminating feedback.

INSTALLATION

The model LR7B can be installed with the 8" strap hinge and chains supplied. Figures 3A, 3B and 3C illustrate how the hinge may be used. The hinge may be attached to the base of the LR7B and to the surface on which the unit is to be mounted such as a wall, ledge, arch, or ceiling. Lag bolts are supplied which can be directly screwed into the cabinet of the LR7B. With the materials supplied and a little ingenuity and creativity the LR7B may be mounted on almost any kind of surface and in any position.

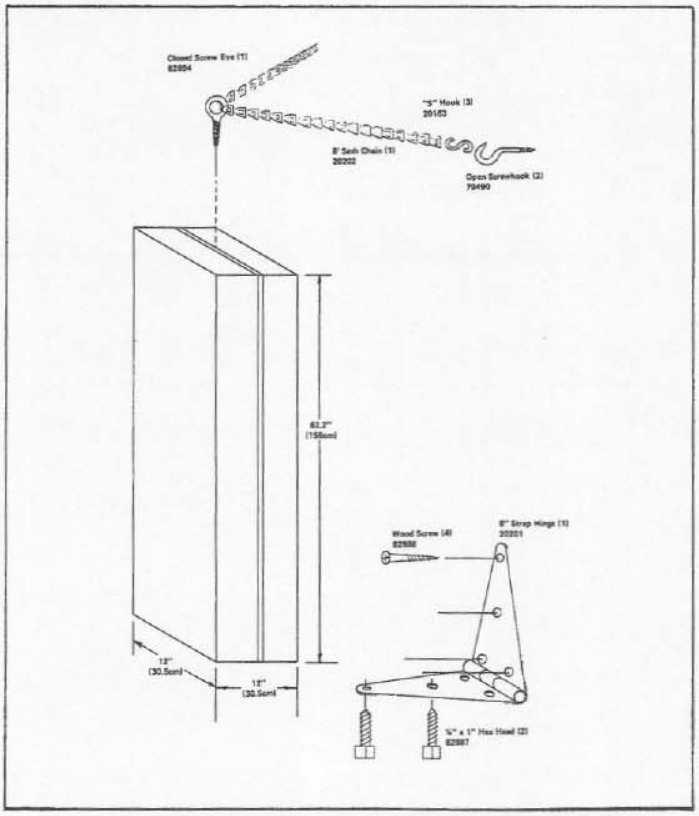


FIGURE 3A – Dimensions and Mounting

SYSTEM LAYOUT

An accurate layout with the LR7B may be made by referring to the axial frequency response in Figure 1, as well as the octave band random noise polar response of Figure 2. From these figures, the sound pressure level available at a distance of 4 feet with full power in (90 watts) may be determined for any octave band at any angle.

Level Variations with Distance: Non-Reverberant Environments: In a non-reverberant environment (such as out-of-doors), sound pressure level will drop 6 dB every time the distance from the speaker is doubled (inverse square law). The nomograph of Figure 4 shows the dB losses to be expected as distance from an LR7B is changed.

Level Variations with Distance: Reverberant Environments Indoors: Where sound is reflected from walls and other surfaces and the environment is reverberant, there is a point (the "critical distance") beyond which the "reverberant field" dominates, and sound pressure level is nearly constant. This distance is typically ten to twenty-five feet from the speaker and becomes shorter with increased reverberation. Because of the reverberant field, the sound pressure level obtainable in a room is much higher and more constant than that predicted by the inverse square law alone. However, the information in Figures 1 and 2 is still necessary in order to obtain satisfactory distribution of the direct sound from the loudspeaker ("direct field"), which still follows the inverse square law.

In installations where applicable, it is good practice to make sure that the direct field is no more than 12 dB below the reverberant field if satisfactory intelligibility is to be obtained. This condition is fulfilled if the listener is no more than four times critical distance from the loudspeaker.

Level Variation with Power

Each time the power delivered to the speaker is halved, a drop of 3 dB occurs, in any type of environment. The chart of Figure 4 shows this effect.

WHEN TWO SIGNALS DIFFER BY:	ADD TO THE LARGER READING:
0 dB	3.00 dB
1	2.50
2	2.10
3	1.70
4	1.40
5	1.10
6	.97
7	.79
8	.63
9	.51
10	.43
11	.35
12	.26

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The loudspeaker shall be a multi-face straight Line Radiator type, using 6 x 9 cone speakers. The speakers shall be housed in a weather-sealed wooden enclosure with walnut-tone vinyl and black utility painted finish. A metal grille shall be provided on the front of the Line Radiator for physical protection as well as protection from the weather. The Line Radiator assembly shall include an integral electric filter to reduce the effective length of the radiator with increasing frequency. The assembly shall be weather resistant. Overall size shall be 12" (30.5cm) x 12" (30.5cm) x 62.2" (158cm). Frequency response shall be uniform from 70 to 15,000 Hz. Horizontal dispersion shall be 140° from 70 to 4000 Hz and 110° from 4000 to 15,000 Hz. Sound pressure level at 4' on axis shall be 115 dB when full rated power of 90 watts (from 600 to 1200 Hz with 1 Hz sweep) is applied. Nominal impedance shall be 12 ohms. Net weight shall be 62 pounds (28.12Kg). Mounting bracketry and chains shall be supplied. The Electro-Voice Model LR7B is specified.

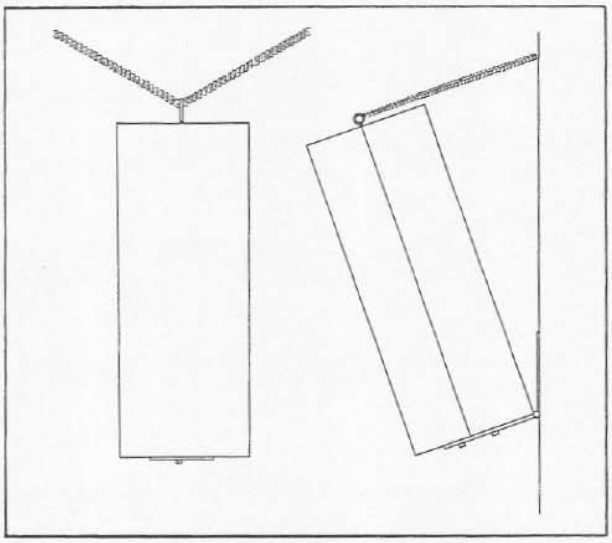


FIGURE 3B – Mounting

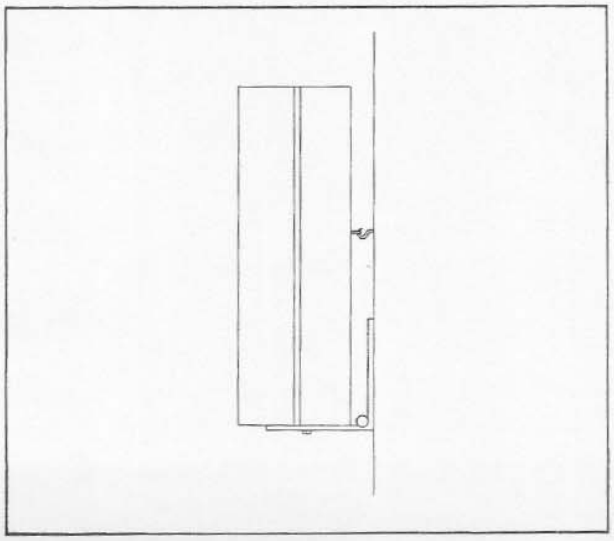


FIGURE 3C – Mounting

Electro-Voice Sound Reinforcement & Public Address Loudspeakers and accessories are guaranteed for five years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, unit will be repaired or replaced (at our option) without charge for materials or labor if delivered prepaid to the proper Electro-Voice service facility. Unit will be returned prepaid. Warranty does not cover finish or appearance items or malfunction due to abuse or operation at other than specified conditions. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee.

For correct shipping address and instructions on return of Electro-Voice products for repair and locations of authorized service agencies, please write: Service Department, Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone: 616/695-6831).

Electro-Voice also maintains complete facilities for non-warranty service.

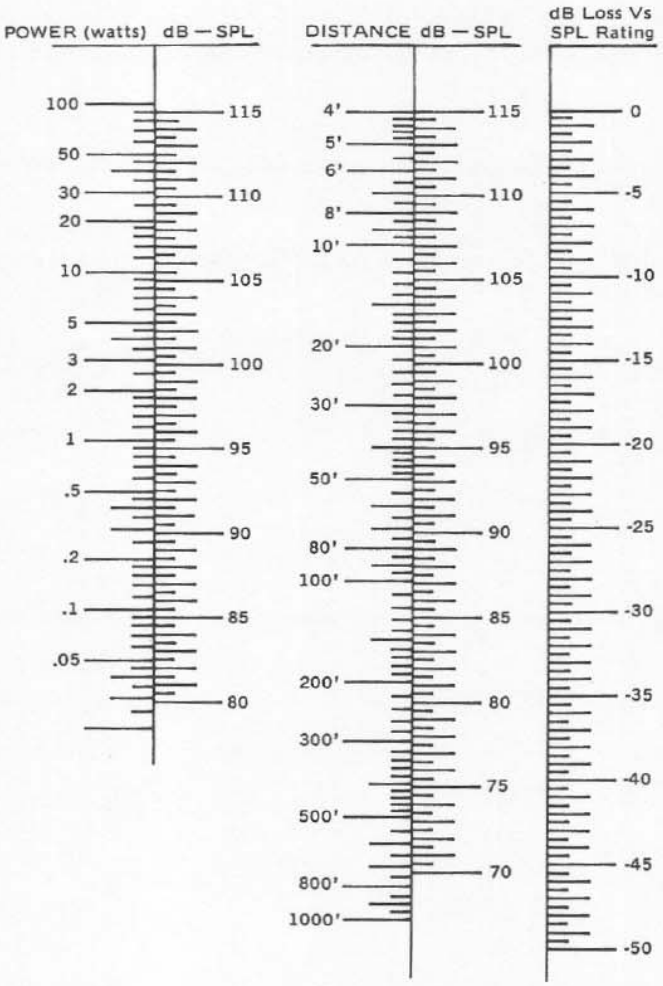


FIGURE 4 — Nomographs

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