

Studio Monitore

Sentry 100 A/Sentry 100 EL

Die Monitore Sentry 100 A/Sentry 100 EL wurden speziell für den professionellen Einsatz in Studios, Rundfunkanstalten, Filmstudios, Mobile Recording und Homerecording konzipiert. Dabei wurde höchster Wert auf eine verfärbungsfreie und natürliche Wiedergabe gelegt. Dieses Ziel wurde erreicht durch spezifische Anforderungen wie: hoher Wirkungsgrad, nach unten erweiterter Baßbereich, hohe Belastbarkeit über den gesamten Frequenzbereich sowie gleichmäßigen Frequenzgang und Abstrahlverhalten und einen integrierten Verstärker bei der Sentry 100 EL.

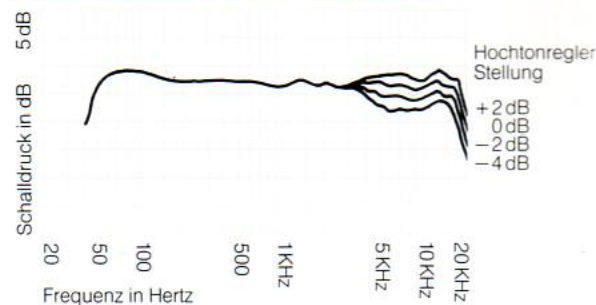
Der aktive Monitor Sentry 100 EL bietet die Vorteile der Sentry 100 A in Kombination mit einem integrierten Verstärker. Dadurch ist er besonders für den Einsatz geeignet, bei dem eine externe Endstufe aus Platz-, Transport- oder Gewichtsgründen nicht möglich ist.

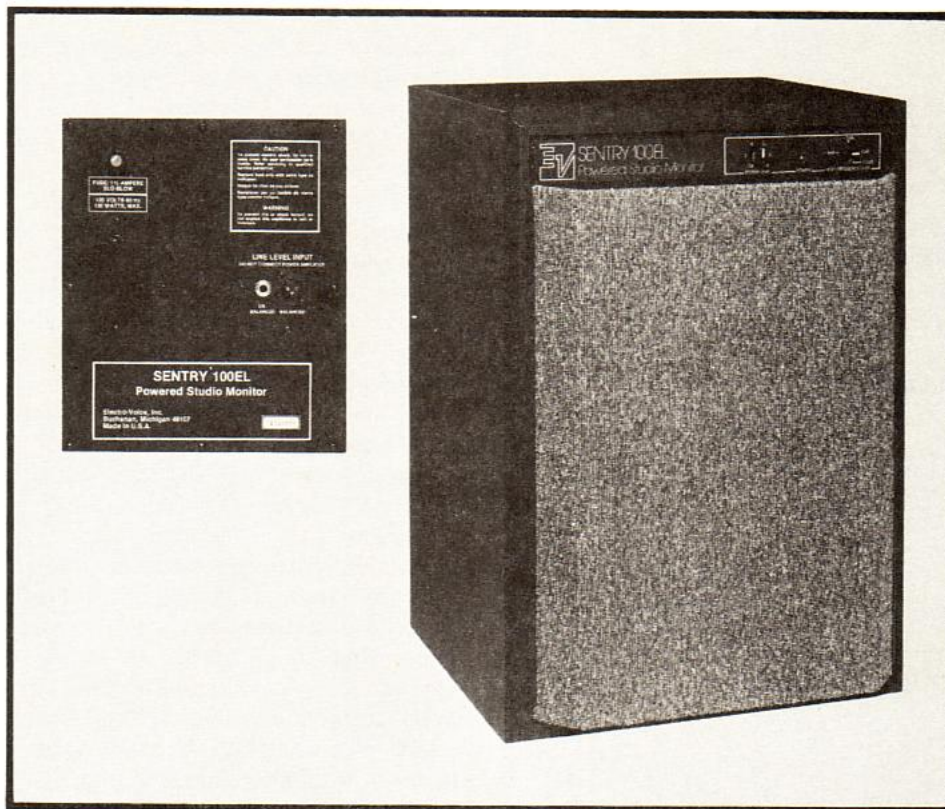


Technische Daten:

	Sentry 100 A	Sentry 100 EL
Frequenzgang (- 3 dB):	45 Hz - 18 kHz	45 Hz - 18 kHz
Nennbelastbarkeit:	30 W	50 W
Impulsbelastbarkeit:	300 W	über eingebauten Verstärker
Nenn-Impedanz:	6 Ohm	30 kOhm symmetrischer Leitungseingang
Schalldruck 1 W/1 m:	92 dB	92 dB
Schalldruck bei Nennbelastbarkeit:	109 dB	109 dB
Nenn-Abstrahlwinkel (H x V):	160° x 140°	-
Übergangsfrequenz:	2 kHz	-
Abmessungen: Höhe	43,8 cm	-
Breite	30,5 cm	-
Tiefe	28,2 cm	-
Gewicht:	12,7 kg	15 kg

Axialer Frequenzgang Sentry 100 A/100 EL





Electro-Voice®
a gulton company

Sentry 100EL® Professional Powered Monitor System

SPECIFICATIONS SYSTEM

Frequency Response, 1 Meter on Axis
Anechoic Environment, Swept One-Third
Octave Pink Noise ± 3 dB:
45 to 18,000 Hz

Dispersion Angle Included by 6-dB-Down
Points, 10 Foot Microphone Distance
Anechoic Environment, One-Third-Octave
Bands of Pink Noise,

Horizontal:

250–6,300 Hz
 $158^\circ \pm 32^\circ$
8,000–20,000 Hz
 $55^\circ \pm 18^\circ$

Vertical:

250–6,300 Hz
 $140^\circ \pm 40^\circ$
8,000–20,000 Hz
 $52^\circ \pm 13^\circ$

Crossover Frequency:
2 kHz

Sound Pressure Level at 1 Meter, Maximum
Gain, 0 dBu into Balanced Input, Anechoic
Environment, 300–2,000 Hz Average:
108 dB

Optional Accessory:

SRB-7 rack-mount/wall-mount brackets

Dimensions:

43.8 cm (17.25 in.) high
30.5 cm (12.00 in.) wide
29.2 cm (11.5 in.) deep

Net Weight:

15.0 kg (33 lb)

AMPLIFIER

Continuous Sine Wave Power (6-ohm load,
120 V Line):

50 watts

Damping Factor (40 Hz–2 kHz):

300 minimum

Dynamic Range:

92 dB minimum

Residual Noise (Maximum gain, 600-ohm
source, 20 Hz–20 kHz bandwidth):

400 μ V maximum

Power Bandwidth (–1 dB):

30 Hz–20 kHz

AMPLIFIER (Continued)

Frequency Response ($\pm 1/2$ dB):

40 Hz–20 kHz

Total Harmonic Distortion (1 kHz, 50 watts):

.05% maximum

Low Frequency Filter,

Slope:

12 dB/octave

–3 dB Point:

28 Hz

Balanced Input,

Sensitivity (50 watt output):

.775 V (0 dBu)*

Impedance:

30 K ohms

Maximum Level:

8.0 V (+20 dBu)*

Common Mode Rejection:

40 dB minimum

Connector Type:

3-pin XLR-type

Polarity (for positive sound pressure):

Pin 2 positive

Unbalanced Input,

Sensitivity (50 watt output):

.39 V (–6 dBu)*

Impedance:

10 K ohms

Maximum Level:

30 V (+32 dBu)*

Connector Type:

1/4-inch phone jack

Polarity (for positive sound pressure):

Tip positive

Power Requirement,

Domestic Model:

120 watts, maximum,

105–130 V 60 Hz

Fuse:

1-1/2 A Slo-Blow, Type 3AG, MDL
or MDX

Export Model:

210–260 V 50/60 Hz

Fuse:

A slow acting, Type T or FST

*Referenced to .775 Volt, RMS.

DESCRIPTION

The Electro-Voice Sentry 100EL powered monitor speaker system combines the advantages of the Sentry 100A monitor with a self-contained, high-performance power amplifier. It is designed with the broadcast/recording studio engineer in mind, although it is well suited for a wide variety of professional applications. It offers uniform frequency response and dispersion across a wide range, extended low-frequency response and a compact, no frills package.

A Super-Dome™ tweeter is employed to faithfully reproduce program material at high levels, with response out to 18 kHz and uniform dispersion (120° at 5 kHz). The low-frequency section is an 8-inch direct radiator woofer installed in an optimally vented enclosure with fourth-order Butterworth tuning. The optimally vented design is responsible for the unusual combination of small size, extended bass response, and high efficiency. Such performance is simply not available in other enclosures of similar size.

The Sentry 100EL is housed in a utility cabinet wrapped in a special scratch-resistant, matte black vinyl. The cabinet size is intentionally designed for rack mounting. When coupled with the SRB-7 rack-mount/wall-mount kit, the Sentry 100EL can be integrated into virtually any environment that demands conservation of space such as mobile recording studio facilities. The steel-reinforced grille is covered with a custom gray cloth. This provides maximum protection, acoustic transparency, and pleasing esthetic quality.

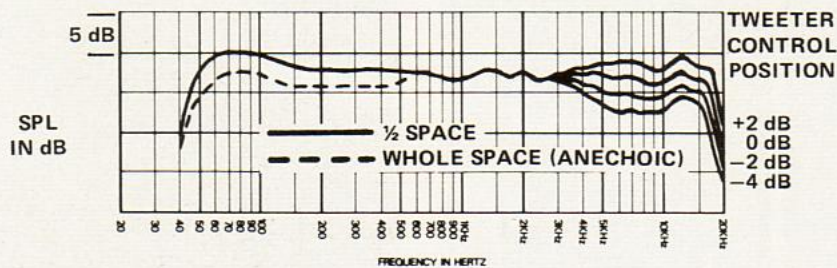


FIGURE 1 – Axial Frequency Response

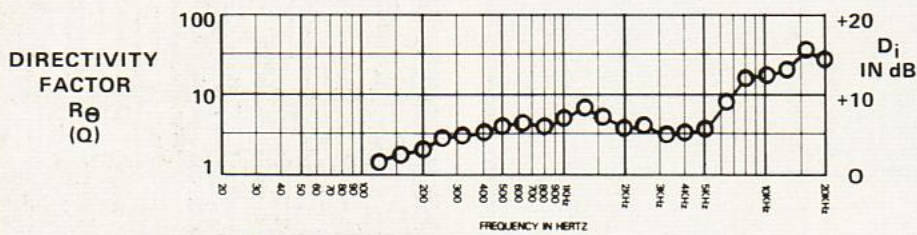


FIGURE 2– Directivity vs Frequency

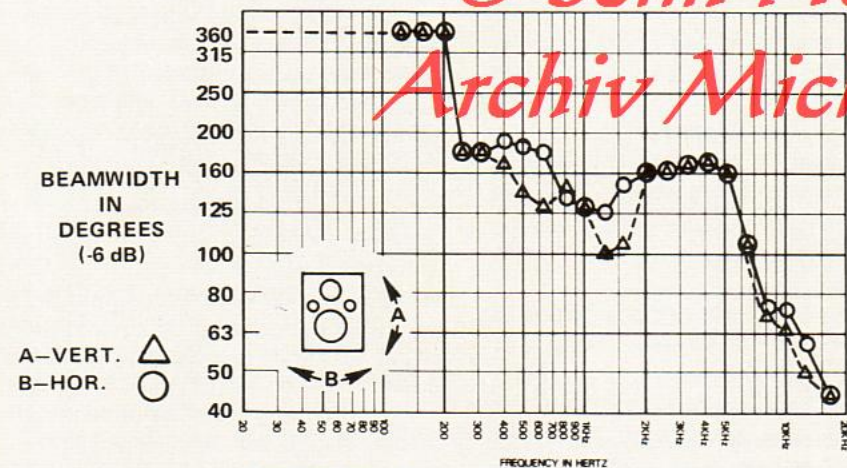


FIGURE 3– Beamwidth vs Frequency

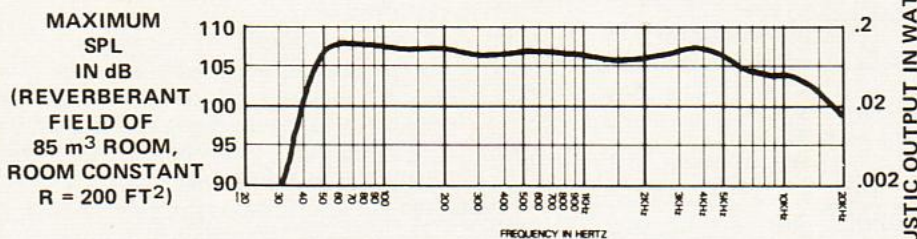


FIGURE 4 – Maximum Acoustic Output

AMPLIFIER

A number of advantages are realized by providing, within the enclosure, a power amplifier which is matched to the requirements of the speaker system. No longer must space be provided for a power amplifier mounted externally, or in a rack. By eliminating the metal enclosure from this extra component, an economy is effected. The user is assured that the amplifier is ideally mated to the speaker system in all characteristics. There is no power lost in the resistance of the connecting cable between the amplifier and speaker. Moreover, electrical damping of the system remains optimum in all installations, as it is no longer compromised by this resistance. Maximum amplifier power is chosen to optimize acoustic level capability, while minimizing the possibility of speaker damage due to inadvertent signal overload. Most importantly, a sharp cutoff, high pass filter is included which has been precisely tailored to the Sentry 100EL response. It provides a dramatic reduction of energy-wasting, sub-sonic signals in the amplifier and woofer. By controlling low-frequency cone excursion and amplifier power, program material may often be reproduced at higher levels without distortion and without any reduction in acoustic low-frequency response.

The Sentry 100EL may be driven from any line-level signal source. An XLR-type connector is provided for use with balanced sources, while a 1/4-inch phone jack accommodates unbalanced lines. Use only the appropriate connector; both should not be connected at the same time. DO NOT CONNECT EITHER INPUT TO A POWER AMPLIFIER. Although both inputs are protected against voltage peaks of up to 100 volts, connection from an external power amplifier is redundant and invariably results in increased noise and distortion.

Because the impedance of the inputs is high (bridging) a number of Sentry 100EL systems may be connected to a signal source. For example, up to sixteen may be paralleled across an unbalanced 600-ohm line, or fifty systems across a balanced 600-ohm line. Each system is designed so that a positive-going signal on pin 2 of the XLR-type connector or the tip contact of the phone jack results in an outward movement of the woofer cone.

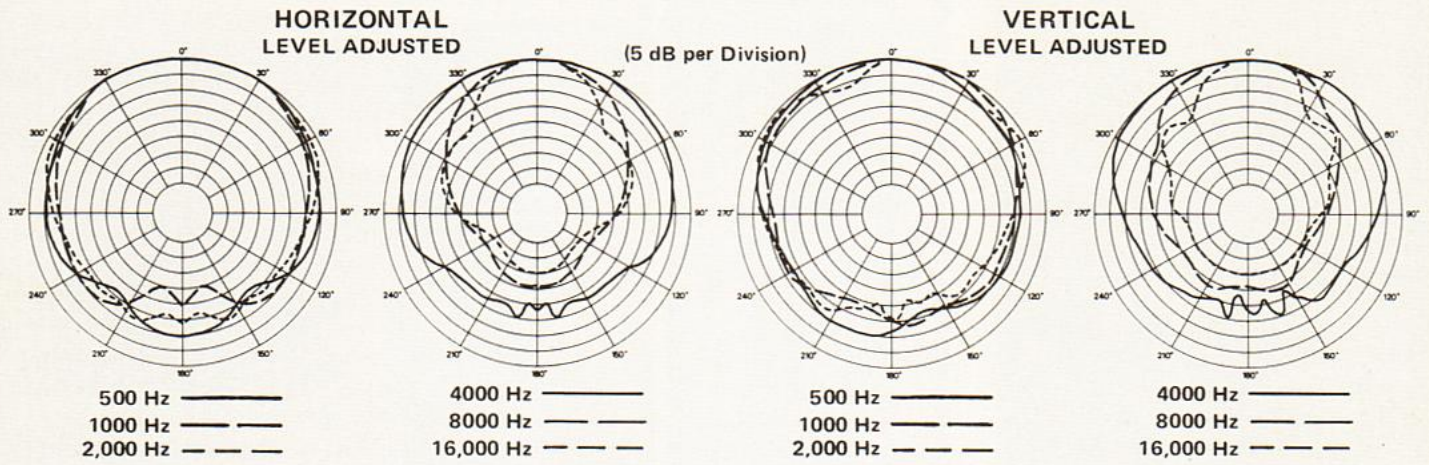
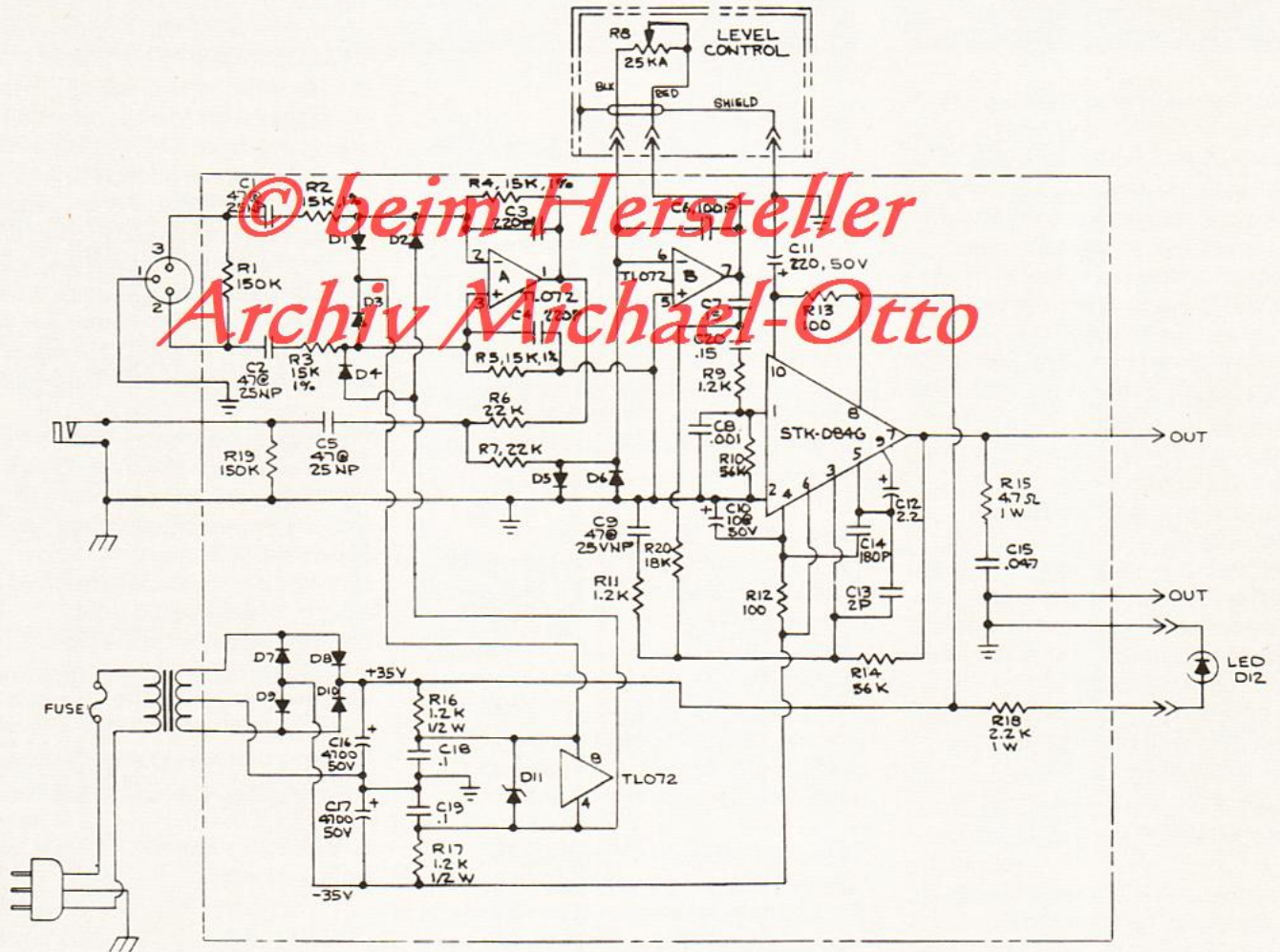


FIGURE 5 – Sentry 100EL Polar Response
(System Long Axis Vertical)



CIRCUIT
SCHEMATIC
SENTRY 100EL

NOTES:

1. ALL RESISTORS 1/4 WATT, 5% TOLERANCE UNLESS OTHERWISE DESIGNATED.
2. CAPACITOR VALUES ARE IN MFD UNLESS OTHERWISE DESIGNATED.
3. DIODES D1 THRU D6 ARE IN4447. DIODES D7 THRU D10 ARE IN5401.
4. LAST REFERENCE DESIGNATIONS USED: C20, R20.

A system level control is located on the front of the enclosure which varies the gain of the amplifier from zero over a useful range of more than 30 dB. Beside it, a red indicator lamp shows when A.C. power is applied to the Sentry 100EL. A replaceable A.C. power fuse is located on the rear panel of the system. The rating and type are identified beside the fuse holder. Under normal conditions, even with momentary overloads, the fuse will not blow. In case of repeated failure, consult a qualified service facility.

LOUDSPEAKER RESPONSE DUE TO THE ACOUSTICAL ENVIRONMENT

Several factors must be considered when determining the overall response of a speaker system in any listening environment. Physical characteristics of the room itself, and placement of speakers and listener can have considerable affect on SPL capability, perceived and/or measured frequency response, and stereo imaging.

As pointed out in several texts on room acoustics, as the source-listener distance increases, the sound pressure level (SPL) decreases in the direct field at a steady rate (inverse square law: 6 dB drop for every doubling of distance) until a certain distance is reached. This point is often called the critical distance (D_c). Beyond this point, the SPL approaches a constant value (the reverberant field). The listening position in the sound field determines the amount of acoustic power output of the speaker system needed to produce a certain sound pressure level at the engineer's ears. Generally speaking, the amount of power output needed from the speaker/amplifier system decreases as the room becomes smaller and/or more reverberant (shorter critical distance). In most cases, the audio engineer will be working well within the direct field. If indeed this is the case, the amplifier power requirement is entirely dependent on the loss in SPL due to inverse square law.

The low-frequency response of the overall system can be adversely affected by poor placement of the monitor speakers themselves. The Sentry 100EL was designed for 1/4- to 1/2-space use. This requires that the speaker system be mounted as close as possible to floor/ceiling and/or wall surfaces. Placement in loose cavities or resonant mountings can also seriously degrade the overall response.

VENTILATION

The metallic portion of the enclosure back serves as a thermal radiator to maintain the amplifier operating temperature within design limits. It is normal for this panel to become quite warm in use, particularly when the system is operated at high levels for a prolonged period of time. When installing the cabinet, use care to ensure that there is at least one inch of space behind the panel to allow free circulation of air. Worst case temperature rise is 70° F, with normal operation well below this value.

CROSSOVER NETWORK

The integral crossover network is a 12-dB/octave dual-section type, with crossover occurring at 2 kHz. In addition, the Sentry 100EL has a continuously variable, shelving-type high frequency control which allows adjustment for individual listening preferences, with both boost and cut capability (+2 dB to -4 dB from nominally flat). The high-frequency control is conveniently located on the front panel for easy access.

SRB-7 RACK MOUNT KIT

One of the fundamental design requirements for the Sentry 100EL provides for the ability to install the system in standard EIA 19 in. racks. The hardware needed for this procedure is available as an optional kit. This same kit provides for flush and angle wall mounting as well. (Refer to the SRB-7 engineering data sheet for complete details.)

A second nameplate, which can be applied over the original label, has been included for those situations where mounting the Sentry 100EL in an inverted position is preferred (woofer nearer to ceiling).

WARRANTIES (Limited)

LOUDSPEAKERS — Electro-Voice Sentry® 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.

ELECTRONICS — Electro-Voice Electronic Components are guaranteed for two years from date of original purchase against malfunction due to defects in workmanship and materials. If such malfunction occurs, the unit will be repaired or replaced (at our option) if delivered prepaid to the proper Electro-Voice service facility. There will be no charge for parts or return freight during the entire length of the warranty period; no charge for labor will be made during the first year of the warranty period. 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 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, MI 49107 (Phone: 616/695-6831), or Electro-Voice West, 8234 Doe Avenue, P. O. Box 3297 Visalia, CA 93277 (Phone: 209/651-7777).

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

Specifications subject to change without notice.

1. A. N. Thiele, "Loudspeakers in Vented Boxes: Part 1," J. AUDIO ENGINEERING SOCIETY, Vol. 19, No. 5, p.p. 386-387 (1971)