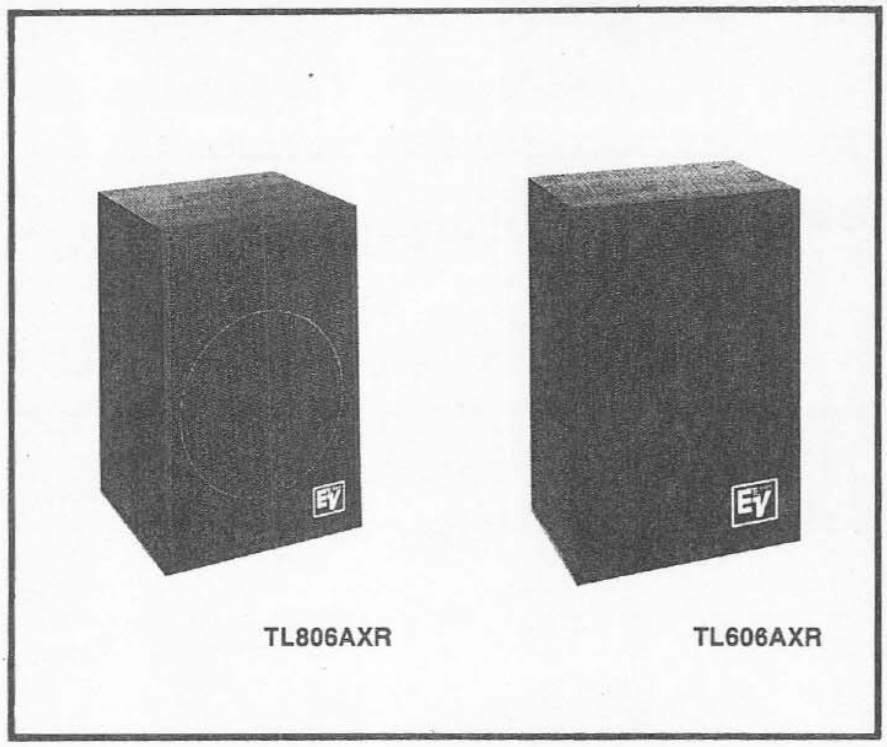

TL806AXR TL606AXR

Electro-Voice®
a gulton company

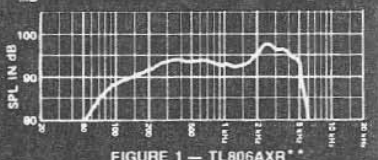

FIGURE 1 — TL806AXR**

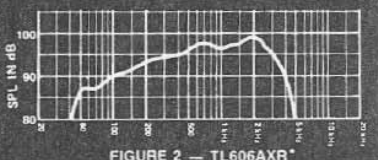

FIGURE 2 — TL606AXR*

Model TL806AXR/606AXR Weather-Resistant Low-Frequency Speaker Systems

SPECIFICATIONS:
Frequency Response, 10 Feet on Axis, Swept One-Third-Octave Pink Noise, Half-Space Anechoic Environment (see Figures 1 and 2):
- TL806AXR — 72-5,200 Hz
- TL606AXR — 54-3,200 Hz

Low-Frequency 3-dB-Down Point:
- TL806AXR — 72 Hz
- TL606AXR — 54 Hz

Usable Low-Frequency Limit (10-dB-down point):
- TL806AXR — 56 Hz
- TL606AXR — 40 Hz

Half-Space Reference Efficiency:
- TL806AXR — 4.5%
- TL606AXR — 5.0%

Long-Term Average Power Handling Capacity per EIA Standard RS-426A (see Power Handling Capacity section):
- TL806AXR — 300 watts
- TL606AXR — 400 watts

Maximum Acoustic Output:
- TL806AXR — 13.5 watts
- TL606AXR — 20.0 watts

Sound Pressure Level at 1 Meter, 1 Watt Input, Anechoic Environment, Band-Limited Pink-Noise Signal, 100-800 Hz:
- TL806AXR — 98 dB
- TL606AXR — 100 dB

Dispersion Angle Included by 6-dB-Down Points on Polar Responses, Indicated One-Third-Octave Bands of Pink Noise,
- 400-800 Hz Horizontal (see Figures 5 and 6):
  - TL806AXR — 148° ± 35°
  - TL606AXR — 115° ± 15°
- 400-800 Hz Vertical (see Figures 5 and 6):
  - TL806AXR — 123° ± 12°
  - TL606AXR — 111° ± 7°

Directivity Factor R_θ (Q), 400-800 Hz Median (see Figures 7 and 8):
- TL806AXR — 4.3
- TL606AXR — 5.7

Directivity Index D, 400-800 Hz Median (see Figures 7 and 8):
- TL806AXR — 6.3 dB
- TL606AXR — 7.5 dB

Distortion, 0.1 Full Power Input (see Figures 9 and 10),
- Second Harmonic,
  - 100 Hz:
    - TL806AXR — 1.0%
    - TL606AXR — 1.4%
  - 1000 Hz:
    - TL806AXR — 1.8%
    - TL606AXR — 1.0%
- Third Harmonic,
  - 100 Hz:
    - TL806AXR — 1.0%
    - TL606AXR — 0.7%
  - 1000 Hz:
    - TL806AXR — 1.8%
    - TL606AXR — 1.0%

Distortion, 0.01 Full Power Input (see Figures 11 and 12)
- Second Harmonic,
  - 100 Hz:
    - TL806AXR — 0.5%
    - TL606AXR — 0.5%
  - 1000 Hz:
    - TL806AXR — 0.6%
    - TL606AXR — 0.4%
- Third Harmonic,
  - 100 Hz:
    - TL806AXR — 0.5%
    - TL606AXR — 0.2%
  - 1000 Hz:
    - TL806AXR — 1.0%
    - TL606AXR — 0.6%

Low-Frequency Transducer,
- TL806AXR — (1) DL12X
- TL606AXR — (1) DL15X

Box Tuning Frequency,
- Normal:
  - TL806AXR — 80 Hz
  - TL606AXR — 54 Hz
- Step-Down:
  - TL806AXR — 60 Hz
  - TL606AXR — 39 Hz

Impedance,
- Nominal:
  - TL806AXR — 8 ohms
  - TL606AXR — 8 ohms
- Minimum:
  - TL806AXR — 8 ohms
  - TL606AXR — 8 ohms

Input Connections:
- Screw Terminals (#8-32) on barrier strip

Enclosure Materials and Finish:
- Black vinyl clad Road-Wood™

Mounting:
- Hanging via six ¼-20 T-nuts

Dimensions,
- Height:
  - TL806AXR — 54.6 cm (21.5″)
  - TL606AXR — 68.6 cm (27.0″)
- Width:
  - TL806AXR — 35.9 cm (14.1″)
  - TL606AXR — 45.7 cm (18.0″)
- Depth:
  - TL806AXR — 25.9 cm (10.2″)
  - TL606AXR — 41.4 cm (16.3″)

Net Weight:
- TL806AXR — 19.5 kg (43 lb)
- TL606AXR — 28.1 kg (62 lb)

Shipping Weight:
- TL806AXR — 21.8 kg (48 lb)
- TL606AXR — 30.8 kg (68 lb)

*TL806AXR Axial Frequency Response 4 Volts/10 Feet

**TL606AXR Axial Frequency Response

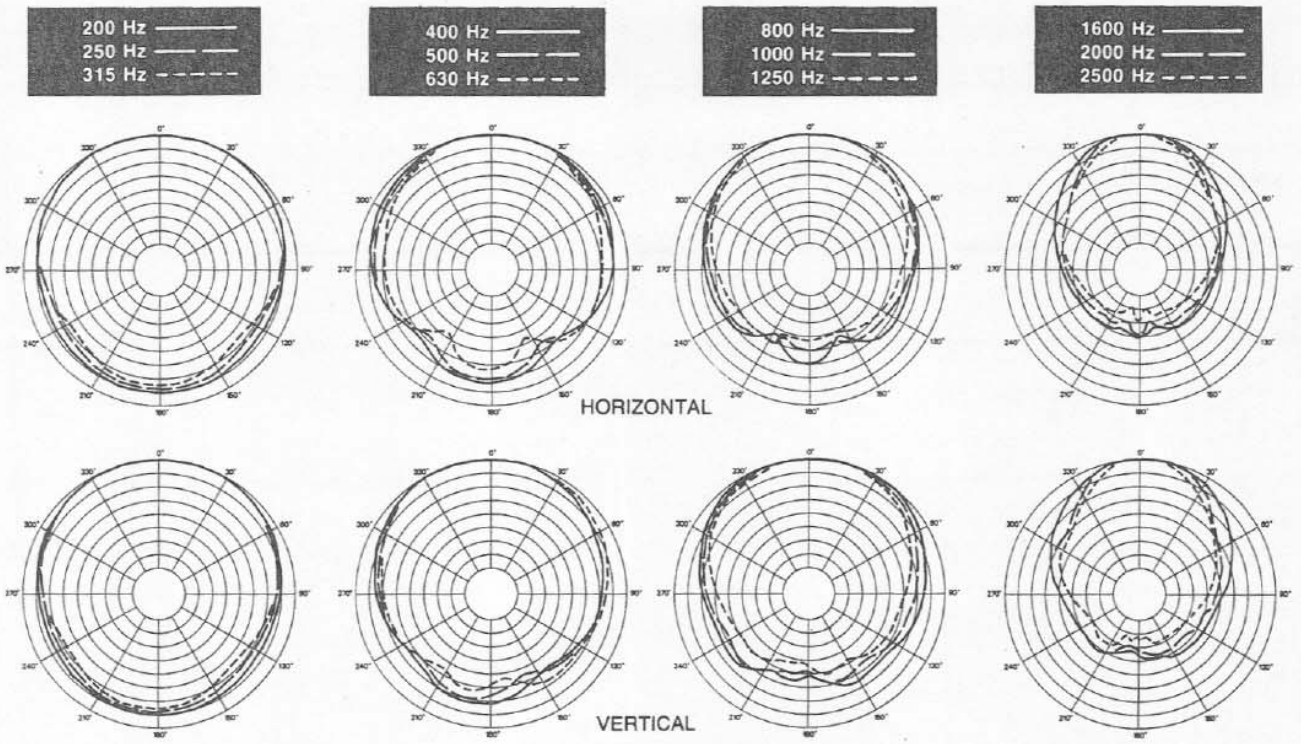

FIGURE 3
TL806AXR Polar Response (⅓ Octave Pink Noise, 4 Volts/10 Feet)

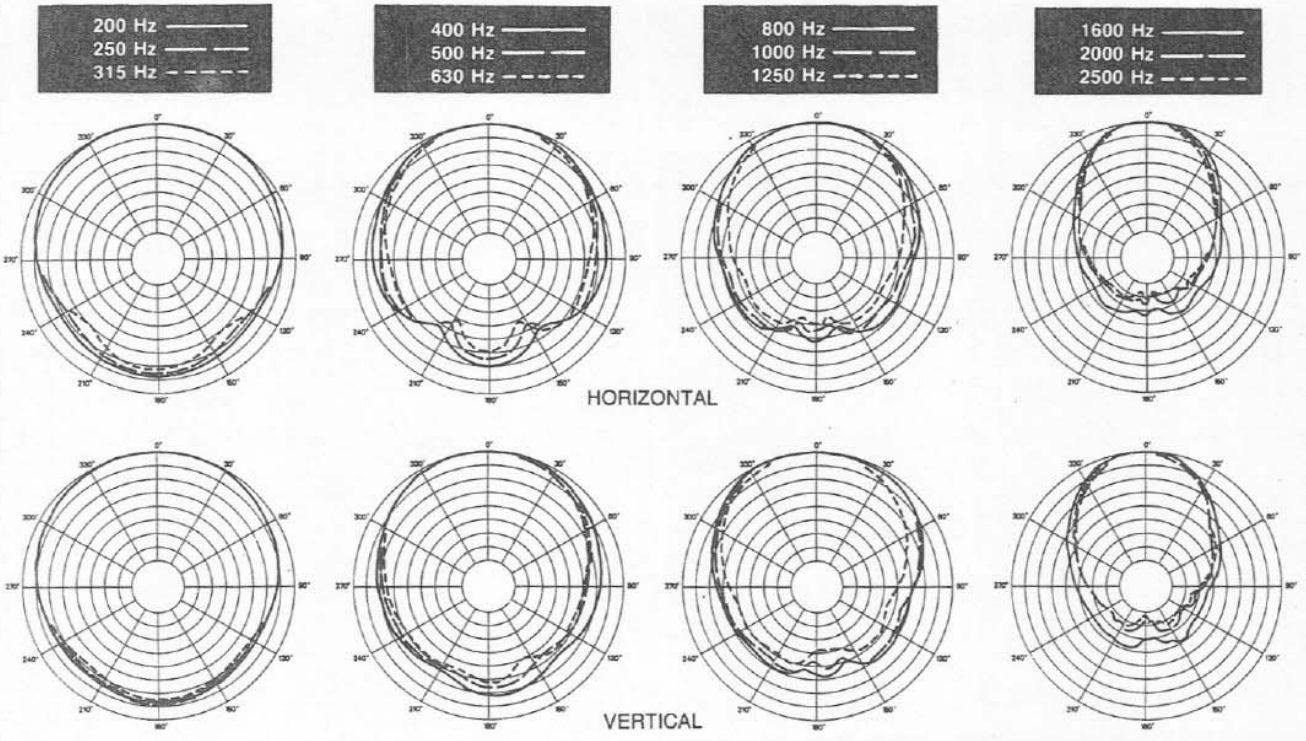

FIGURE 4
TL606AXR Polar Response (⅓ Octave, 4 Volts/10 Feet)

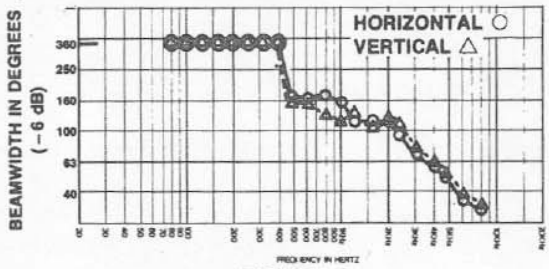

FIGURE 5
TL806AXR Beamwidth vs Frequency
Whole Space (Anechoic)

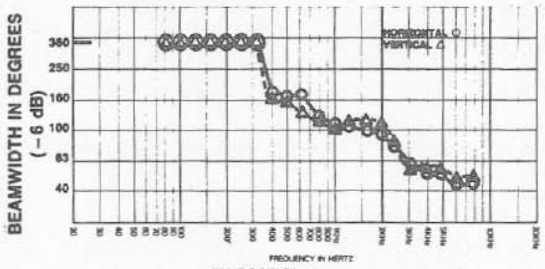

FIGURE 6
TL606AXR Beamwidth vs Frequency
Whole Space (Anechoic)

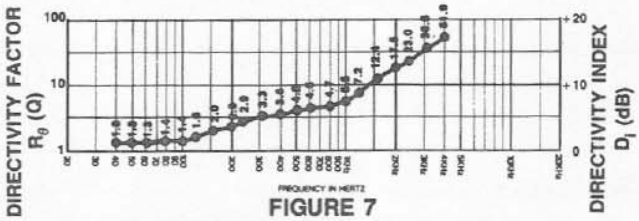

FIGURE 7
TL806AXR Directivity vs Frequency
Whole Space (Anechoic)

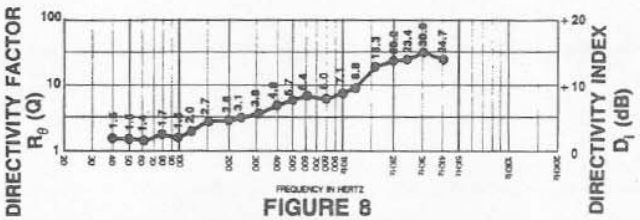

FIGURE 8
TL606AXR Directivity vs Frequency
Whole Space (Anechoic)

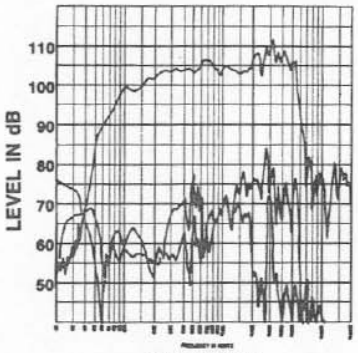

FIGURE 9
TL806AXR Harmonic Distortion, 0.1 Rated Power
Input (30 Watts), 10 Feet on Axis

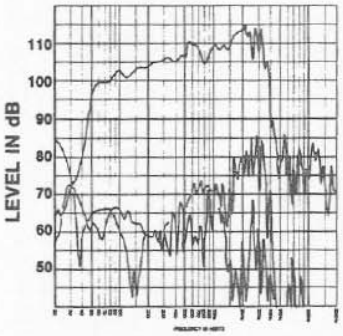

FIGURE 10
TL606AXR Harmonic Distortion, 0.1 Rated Power
Input (40 Watts), 10 Feet on Axis

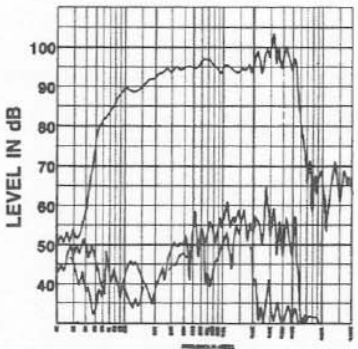

FIGURE 11
TL806AXR Harmonic Distortion, 0.01 Rated Power
Input (3 Watts), 10 Feet on Axis

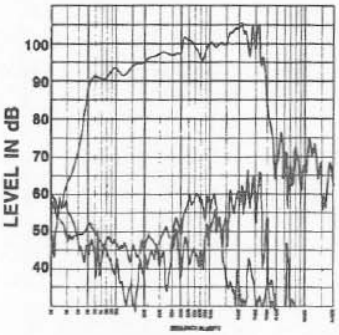

FIGURE 12
TL606AXR Harmonic Distortion, 0.01 Rated Power
Input (4 Watts), 10 Feet on Axis

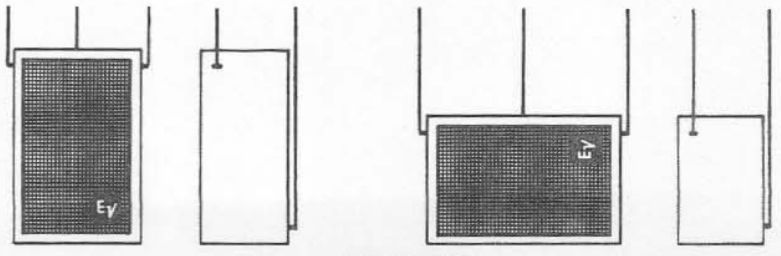

FIGURE 13
Vertical & Horizontal Mounting Methods for the
TL806AXR & TL606AXR using the T-nuts Provided

DESCRIPTION

The Electro-Voice TL806AXR and TL606AXR are improved weather-resistance versions of the popular TL806AX and TL606AX direct-radiator bass speaker systems. The systems have been designed for use under conditions of high humidity and occasional exposure to precipitation, but are not intended for permanent outdoor installation.

In addition to the features found on the AX-series systems, the AXR versions include several features which enhance their durability. The cabinets are constructed of RoadWood™, a structural material made of layered and selectively oriented hardwood strands strongly bonded together with phenolic resins. All six cabinet surfaces are protected by laminated vinyl, while construction-grade adhesives ensure strong joints. The metal grille is backed with an acoustically transparent material which acts as a water shield, and the woofer has a special silicone-enhanced cone to inhibit moisture absorption.

Designed according to the analysis of A.N. Thiele, both models provide high efficiency, low distortion, and excellent low-frequency performance in a notably small enclosure size. The low-frequency limit of each model may be extended approximately one-half octave by covering one port and applying low-frequency equalization (see Step Down section).

The TL806AXR employs a DL12X cone speaker in a 1.2-cubic-foot enclosure, while the TL606AXR uses a DL15X speaker in a 3.5-cubic-foot enclosure. T-nuts and ¼-20 bolts are provided for three-point-suspension ceiling mounting. Screw terminals are located in a recessed panel at the back of each enclosure.

APPLICATIONS

The TL series bass speaker is ideal for any large installation where professional sound is required. In music stage systems or as permanent installation systems in auditoriums, arenas and stadiums, the TL806AXR and TL606AXR work well with the Electro-Voice HR and HP series horns and DH series drivers. The Electro-Voice XEQ-2 electronic crossover/equalizer is a companion to the TL806AXR and the TL606AXR and provides the equalization necessary for extended low-frequency operation of these products (see Step Down section).

The units may be stacked for greater output capability or for a narrower beamwidth. Every time units are doubled, approximately 6 dB output is gained (3 dB for double power handling and 3 dB for resultant higher Q).

FREQUENCY RESPONSE

Frequency response data was measured in an anechoic environment at 10 feet on axis with swept one-third-octave pink noise. The frequency response curves for the TL806AXR and TL606AXR are shown in Figures 1 and 2.

DIRECTIVITY

The directional characteristics of the TL806AXR and TL606AXR were measured by running a set of polar responses in EV's large anechoic chamber, at selected one-third-octave center frequencies. The test signal was one-third-octave, pseudo-random pink noise centered at the frequencies indicated in Figures 3 and 4. The curves show horizontal (side-to-side) dispersion when the enclosure's long axis is vertical. The vertical (up-and-down) polar responses are also shown.

Additional typical information is provided in Figures 5 and 6 which show 6-dB-down beamwidth versus frequency. Figures 7 and 8 show the directivity factor and directivity index versus frequency.

DISTORTION

Following AES (Audio Engineering Society) recommended practice, plots of second- and third-order harmonic distortion for 0.1 rated input power are shown in Figures 9 and 10. Additionally, plots as shown for 0.01 rated input power in Figures 11 and 12.

POWER HANDLING CAPACITY

To our knowledge, Electro-Voice was the first U.S. manufacturer to develop and publish a power test closely related to real-life conditions. First, we use a random noise input signal because it contains many frequencies simultaneously, just like real voice or instrument program. Second, our signal contains more energy at extremely high and low frequencies than typical actual program, adding an extra measure of reliability. Third, the test signal includes not only the overall "long-term average" or "continuous" level — which our ears interpret as loudness — but also short-duration peaks which are many times higher than the average, just like actual program. The long-term average level stresses the speaker thermally (heat). The instantaneous peaks test mechanical reliability (cone and diaphragm excursion). Note that the sine-wave test signals sometimes used have a much less demanding peak value relative to their average level. In actual use, long-term average levels exist from several seconds on up, but we apply the long-term average for several hours, adding another extra measure of reliability.

Specifically, the TL806AXR and TL606AXR are designed to withstand the power test described in EIA Standard RS-426A. The EIA test spectrum is applied for eight hours. To obtain the spectrum, the output of a white-noise generator (white noise is a particular type of random noise with equal energy per bandwidth in Hz) is fed to a shaping filter with 6-dB-per-octave slopes below 40 Hz and above 318 Hz. When measured with the usual constant-percentage analyzer (one-third-octave), this shaping filter produces a spectrum whose 3-dB-down points are at 100 Hz and 1200 Hz with a 3-dB-per-octave slope above 1200 Hz. This shaped signal is sent to the power amplifier with the continuous power set at 300 watts into the 6.9 ohm EIA equivalent impedance for the TL806AXR (45.5 volts true RMS) and 400 watts into the 6.9-ohm EIA equivalent impedance for the TL606AXR (52.5 volts true RMS). Amplifier clipping sets instantaneous peaks at 6 dB above the continuous power, or 1200 watts peak for the TL806AXR (91.0 volts peak) and 1600 watts peak for the TL606AXR (105 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

STEP DOWN

The TL806AXR has a low-frequency 3-dB-down point (f3) of 72 Hz and the TL606AXR has an f3 of 54 Hz. The supplied port cover for the TL806AXR and TL606AXR may be attached to the port using the pilot holes and screws provided. This lowers the box tuning (step-down mode) from 80 Hz to 60 Hz for the TL806AXR or from 54 Hz to 39 Hz for the TL606AXR. With appropriate electronic boost provided by an underdamped second-order high-pass filter tuned to 60 Hz (TL806AXR) or 45 Hz (TL606AXR), an f3 of 52 Hz may be obtained for the TL806AXR and 40 Hz for the TL606AXR. This is a beneficial extension for many applications.

The proper electronic boost for the TL806AXR and TL606AXR is provided in the Electro-Voice XEQ-2 electronic crossover/equalizer.

MOUNTING

T-nuts and ¼-20 bolts are provided for three-point-suspension mounting of the TL806AXR and TL606AXR either in the vertical or horizontal position. The location of the T-nuts and the recommended mounting method are shown in Figure 13. For safety reasons, do not hang any TL enclosure with a direct outward pull on any surface.

WARRANTY (Limited) —

Electro-Voice Professional Sound Reinforcement 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 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) or Electro-Voice West, 8234 Doe Avenue, Visalia, California 93277 (Phone: 209/651-7777).

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

Service and repair address for this product: Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107.

Specifications subject to change without notice.

ELECTRO-VOICE, INC., 600 Cecil Street, Buchanan, Michigan 49107
MANUFACTURING PLANTS AT ■ BUCHANAN, MI ■ NEWPORT, TN ■ SEVIERVILLE, TN ■ REDMOND, WA ■ GANANOQUE, ONT.

a gulton company
Part Number 530499—451