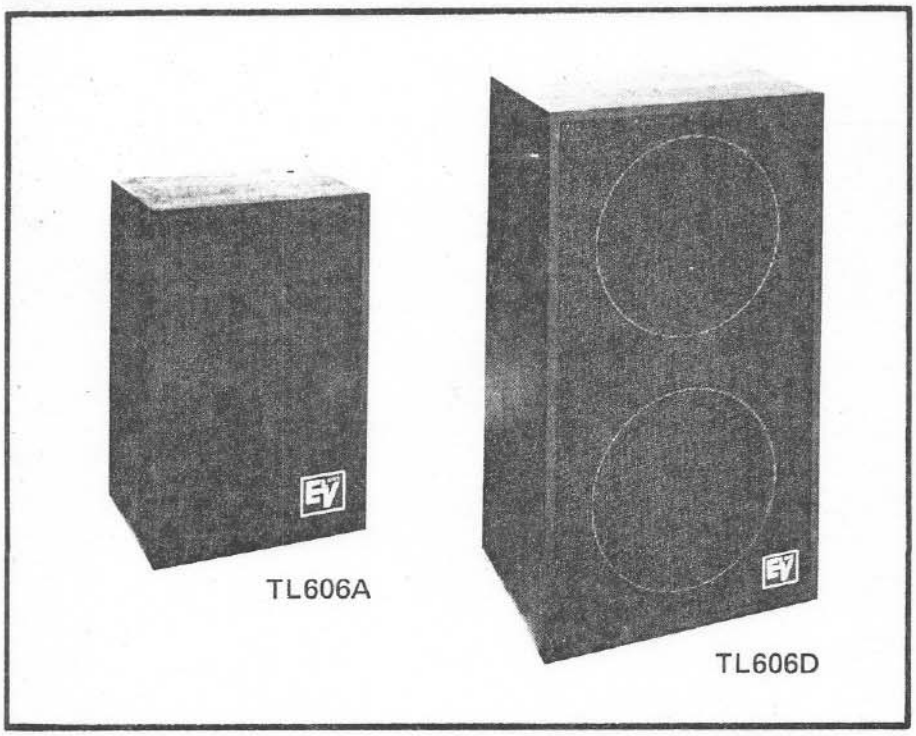


Electro-Voice®
a gulton company

Model TL606A/ TL606D Low-Frequency Speaker System

SPECIFICATIONS

Low-Frequency 3-dB-Down Point,
- Normal:
  - TL606A – 54 Hz
  - TL606D – 50 Hz
- Step-Down (with equalization):
  - TL606A – 40 Hz
  - TL606D – 39 Hz

Half-Space Reference Efficiency:
- TL606A – 6.2%
- TL606D – 12.4%

Power Handling Capacity (see Power Handling section):
- TL606A – 200 watts
- TL606D – 400 watts

Maximum Midband Acoustic Output Power:
- TL606A – 12.4 watts
- TL606D – 49.6 watts

Maximum SPL at 4 Feet, Full Power (average from 100 to 800 Hz):
- TL606A – 122 dB
- TL606D – 129 dB

SPL at 10 Feet, 1 Watt Input (average from 100 to 800 Hz):
- TL606A – 91 dB
- TL606D – 95 dB

6-dB-Down Beamwidth for Possible Crossover Frequencies, Indicated Bands of 1/3-Octave Random Noise, Long Enclosure Axis Vertical,
- 500 Hz Horizontal:
  - TL606A – 118°
  - TL606D – 113°
- 800 Hz Horizontal:
  - TL606A – 111°
  - TL606D – 112°
- 500 Hz Vertical:
  - TL606A – 101°
  - TL606D – 49°
- 800 Hz Vertical:
  - TL606A – 135°
  - TL606D – 37°

Box Tuning Frequency,
- Normal:
  - TL606A – 54 Hz
  - TL606D – 55 Hz
- Step-Down:
  - TL606A – 39 Hz
  - TL606D – 41 Hz

Driver,
- Type:
  - TL606A – EVM15L Series II
  - TL606D – EVM15L Series II
- Diameter:
  - TL606A – 15 in
  - TL606D – 15 in
- Quantity:
  - TL606A – 1
  - TL606D – 2

Impedance,
- Nominal:
  - TL606A – 8 ohms
  - TL606D – 4 ohms
- Minimum:
  - TL606A – 6.5 ohms
  - TL606D – 3.3 ohms

Box Physical Characteristics,
- Gross Internal Volume:
  - TL606A – 3.5 cu ft
  - TL606D – 7.0 cu ft
- External Height:
  - TL606A – 68.6 cm (27.0")
  - TL606D – 100.3 cm (39.5")
- External Width:
  - TL606A – 45.7 cm (18.0")
  - TL606D – 57.2 cm (22.5")
- External Depth:
  - TL606A – 41.4 cm (16.3")
  - TL606D – 44.7 cm (17.6")

Enclosure Panel Thickness:
- TL606A – 5/8 in
- TL606D – 3/4 in

Baffle Thickness:
- TL606A – 3/4 in
- TL606D – 3/4 in

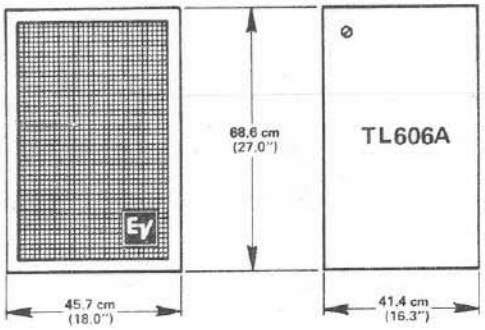
Material & Finish:
- Black vinyl clad particle board

Plus-6-dB Peak Boost Frequency for Step-Down Operation:
- TL606A – 45 Hz
- TL606D – 45 Hz

Connections:
- TL606A – screw terminal
- TL606D – screw terminal

Net Weight:
- TL606A – 28.1 kg (62 lb)
- TL606D – 49.9 kg (110 lbs)

Shipping Weight:
- TL606A – 30.8 kg (68 lb)
- TL606D – 55.3 kg (122 lb)



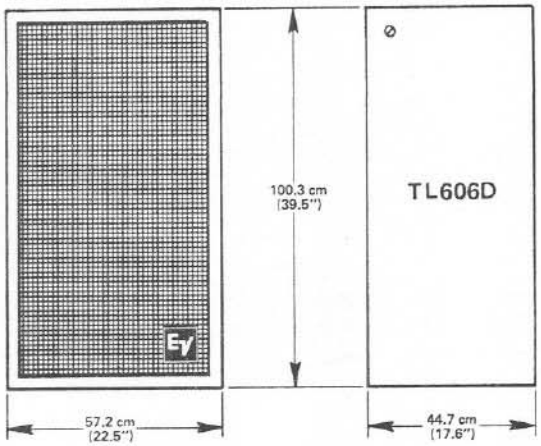


FIGURE 1 — Dimensions

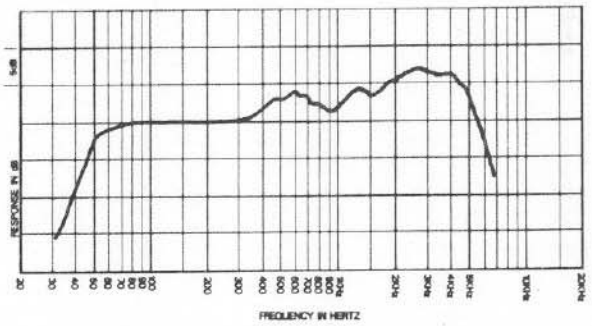


FIGURE 2
TL606A Frequency Response
(Swept 1/3-Octave-Band Pink Noise,
4 V at 10 ft on Axis, Half-Space
Environment)

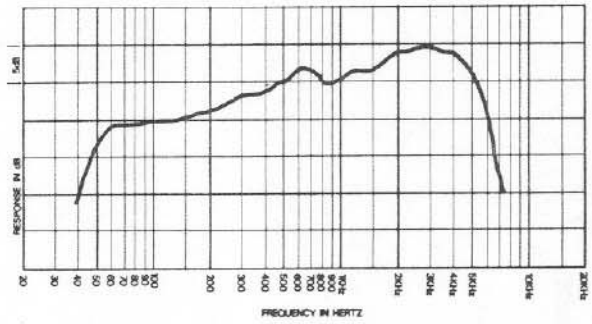


FIGURE 3
TL606D Frequency Response
(Swept 1/3-Octave-Band Pink Noise,
4 V at 10 ft on Axis, Half-Space
Environment)

FIGURE 4
TL606A Polar Response
(System Long-Axis Vertical,
4 V RMS of Octave Band Limited
Pink Noise in Anechoic Environment
10 ft on Axis)

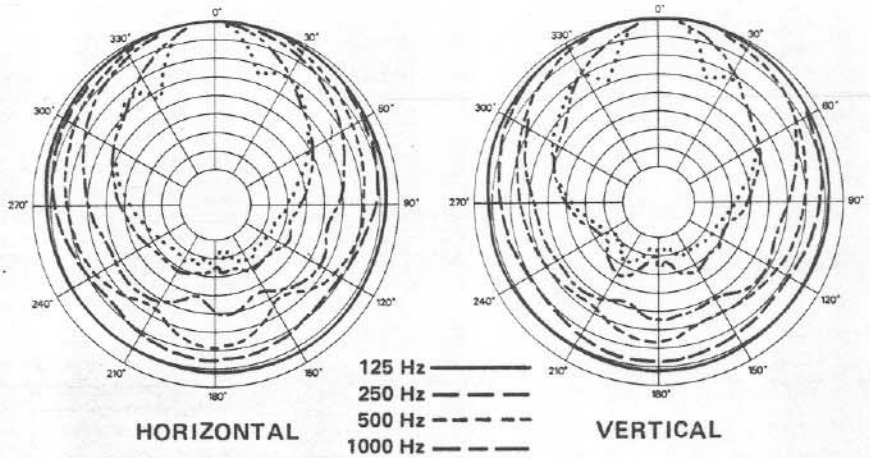
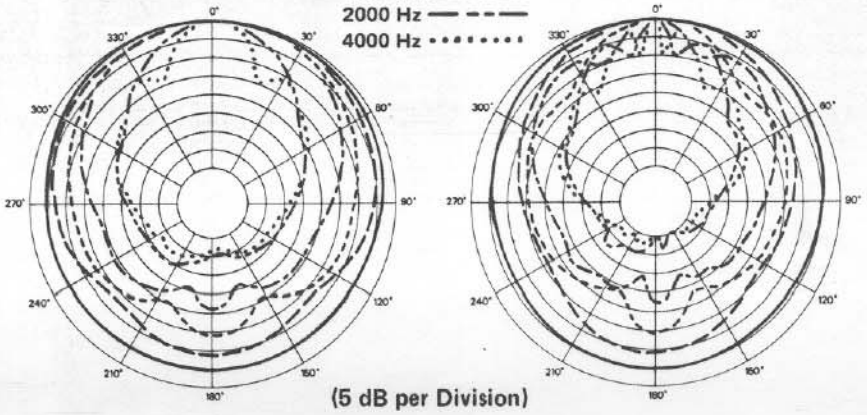


FIGURE 5
TL606D Polar Response
(System Long-Axis Vertical,
4 V RMS of Octave Band Limited
Pink Noise in Anechoic Environment
10 ft on Axis)



DESCRIPTION

The Electro-Voice TL606A and TL606D are state-of-the-art vented direct-radiator bass speaker systems. The TL series was designed according to the analysis of A. N. Thiele. Each model provides a combination of high efficiency, excellent low-frequency performance, and small enclosure size which is simply not available elsewhere. Many perceptive users find the tight, no-boom bass sound of the TL series superior to that of conventional front-loaded horn systems. The low-frequency limit of each model may be extended approximately 1/2 octave by partially covering the port with the supplied cover and applying appropriate low-frequency equalization. (See "Step-Down" section.)

The TL606A employs an EVM15L Series II cone speaker in a 3.5 cubic feet enclosure, while the TL606D uses two EVM15L Series II speakers in a 7.0 cubic feet enclosure. See Figure 1 for dimensions. Both systems are constructed of black vinyl-clad particle board with a panel thickness of 5/8-in for the TL606A and 3/4-in for the TL606D. Teenuts and 1/4-20 bolts are provided for a three-point suspension when mounting to the ceiling (see "Mounting" section). Both the TL606A and TL606D include sturdy metal grille screens. Connections are to screw terminals located in a recessed panel at the back of the enclosures.

APPLICATIONS

The TL606A and TL606D are designed to work well with the Electro-Voice HR series horns and DH series drivers for use in large music stage systems or as permanent installation systems in auditoriums, arenas, and stadiums. A TL series bass speaker is ideal for any large installation where a professional sound system is required. The Electro-Voice XEQ-1 electronic crossover is an ideal companion to these products. The XEQ-1 also provides the necessary equalization for extended low-frequency operation of the TL606A and TL606D (see "Step Down" section).

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

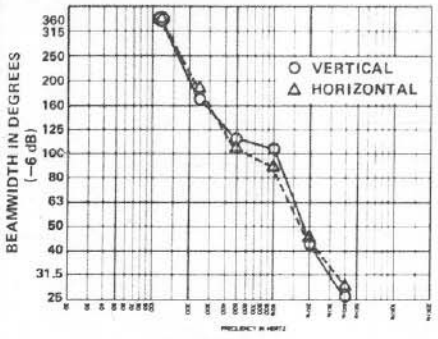


FIGURE 6
TL606A Beamwidth vs. Frequency
(System Long-Axis Vertical)

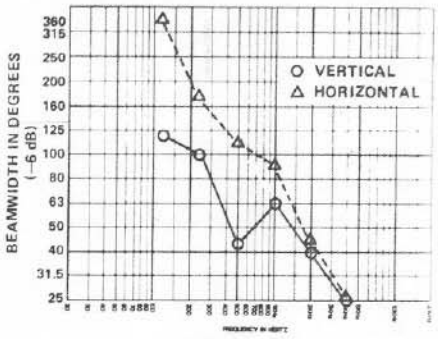


FIGURE 7
TL606D Beamwidth vs. Frequency
(System Long-Axis Vertical)

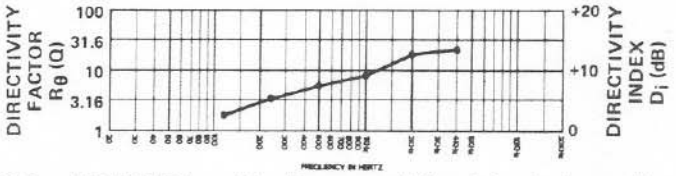


FIGURE 8 – TL606A Directivity Factor and Directivity Index vs. Frequency

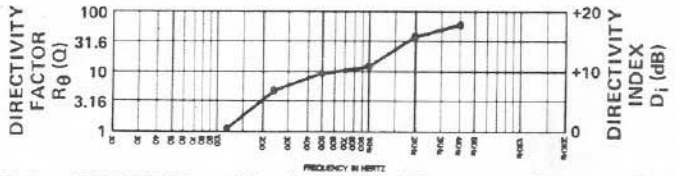


FIGURE 9 – TL606D Directivity Factor and Directivity Index vs. Frequency

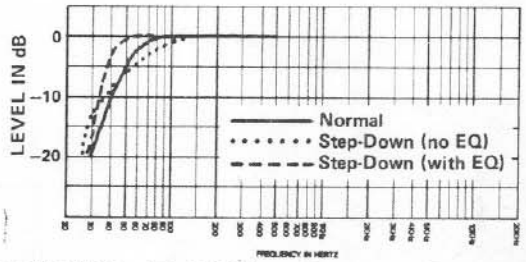


FIGURE 10 – TL606A Low-Frequency Response

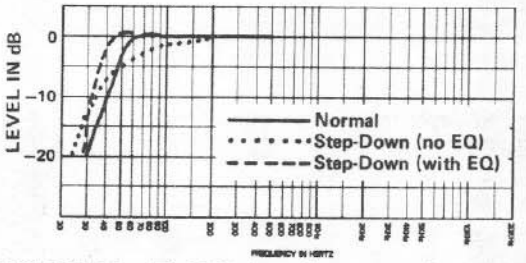


FIGURE 11 – TL606D Low-Frequency Response

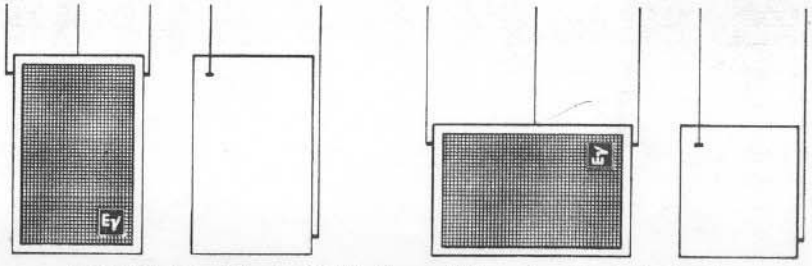


FIGURE 12 – Vertical & Horizontal Mounting Methods for the TL606A & TL606D using the Teenuts Provided

FREQUENCY RESPONSE

Frequency response data was measured in an anechoic environment at 10 feet on axis with swept one-third-octave random noise. The frequency response curves for the TL606A and TL606D are shown in Figures 2 and 3.

DISPERSION

The directional characteristics of the TL606A and TL606D were measured by running a set of polar responses in E-V's large anechoic chamber, at selected octave-band center frequencies. The test signal was octave band-width-limited pseudo-random pink noise centered at the frequencies indicated in Figures 4 and 5. 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 6 and 7 which show 6-dB-down beamwidth versus frequency. Figures 8 and 9 show the directivity factor and directivity index versus frequency.

POWER HANDLING TEST

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 TL606A and TL606D are designed to withstand the power test described in EIA Standard RS-426. 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 bandwidth 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 below 1200 Hz. This shaped signal is sent to the power amplifier with the continuous power set at 200 watts into the 6 ohms EIA equivalent impedance for the TL606A and 400 watts into the 3 ohms EIA equivalent impedance for the TL606D (34.6 volts true RMS). Amplifier clipping sets instantaneous peaks at 9 dB above the continuous power, or 1600 watts peak for the TL606A and 3200 watts peak for the TL606D (98.0 volts peak). This procedure provides a rigorous test of both thermal and mechanical failure modes.

STEP-DOWN

The TL606A has a low-frequency 3-dB-down point (f_3) of 54 Hz and the TL606D has an f_3 of 50 Hz. The supplied port cover for the TL606A and TL606D may be attached to the port with the pilot holes using the screws provided. This lowers the box tuning (step-down mode) from 54 Hz to 39 Hz. See Figures 10 and 11 for low frequency response with step down. With appropriate electronic boost provided by an underdamped second-order high pass filter tuned to 45 Hz, an f_3 of 40 Hz for both the TL606A and the TL606D may be obtained. This is a beneficial extension for many applications.

The proper electronic boost for the TL606A and TL606D is provided in the Electro-Voice XEQ-1 electronic crossover. Also, proper electronic boost may be obtained by modifying the Electro-Voice SEQ equalizer. For a description of the modification required, send for "Pro Sound Facts No. 1."

MOUNTING

Teenuts and 1/4-20 bolts are provided for a three-point suspension mounting of the TL606A and TL606D either in the vertical or horizontal position. The location of the teenuts and the recommended mounting method is shown in Figure 12. 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 7473 Avenue 304, Visalia, CA 93277 (209/625-1330,-1).

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

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

Specifications subject to change without notice.

Part Number 53659 – 922

a Gulton COMPANY **ELECTRO-VOICE, Inc., 600 CECIL ST., BUCHANAN, MICH. 49107**

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