

## Variplex™ -XL

### 3-Way Screen System

- THX® approved\*
- Patented high-frequency system
- Vari-Intense Technology for smooth, even coverage
- Compact design for use in large to small rooms
- Ring Mode Decoupling(RMD™) provides greater Intelligibility
- Digital Dynamics Capable™
- Factory pre-assembled mid/high unit

#### Description

The Electro-Voice Variplex™-XL is designed specifically for use in ultra-high-fidelity cinema applications. The system is THX® approved\* and offers Electro-Voice patented technologies. The Variplex™-XL is a full three-way configuration that addresses many performance issues not addressed in other three-way designs. The Variplex™-XL employs ElectroVoice's patented<sup>2</sup> Vari Intense- (VI) variable-intensity low distortion horn system. This design offers two fundamental advantages. The variable horn throat impedance provides uniform sound pressure levels over the entire auditorium. Conventional horn systems attempt to do the same by aiming the center of the high-frequency/mid-frequency horn toward the rear of the room. This conventional approach wastes fully one-half of the system energy and headroom, and radiates that wasted energy onto the ceiling and walls, thus producing reflections that further degrade overall intelligibility and system clarity. The patented variable-intensity approach, on the other hand, compensates for the natural phenomenon of sound reduction with distance and produces

extremely uniform coverage for the entire seating area. The same level of fidelity in the front, middle and the back of the room is achieved while substantially reducing reflected energy and consequently greatly improving tonal quality and intelligibility. The advantages are twice the headroom and greatly improved fidelity.

The Variplex™-XL is also unique in that its three-way design utilizes a bass/mid-bass/high-frequency approach rather than a conventional bass mid-range/high-frequency design. This mid-bass/high-frequency approach produces superior vocal clarity. Also incorporated into the Variplex™-XL is Electro-Voice's RMD™ technology. RMD™, or Ring Mode Decoupling, employs mechanical and acoustical equalization to resolve system resonances (or ringing modes) and frees electrical equalizers to perform the job they were originally intended to perform, that being room equalization and correction of the spectral characteristics inherent in the transducers themselves. Prior designs have frequently attempted to "resolve" loudspeaker design issues with electrical equalizers. RMD™ substantially improves system transient detail and further

refines system clarity.

The unique performance enhancements and system capabilities are ideally suited to the high dynamic-range demands of digital material. When the pre-assembled HPK-Variplex™-XL is used in conjunction with Electro-Voice's THX® approved subwoofers, the combination defines a new standard for realism and total system accuracy.

#### Low Frequency Assembly Instructions

Refer to Figures 1 and 2 for the following  
The Low Frequency Unit comes shipped as two pieces (2-TL606MXL's).

1. Turn one of the low frequency units upside down and the other is right side up, arrange as illustrated in figure 1.
2. Remove the isolation gasket strips from the low frequency accessory bag (shipped with the HPK-Variplex™-XL. Attach the strips to the up-side down speaker as shown in figure 1.
3. Remove the locking brace the low frequency accessory bag and attach it to the back of the unit right side up.

<sup>1</sup> THX is a registered trademark of Lucasfilm Ltd.

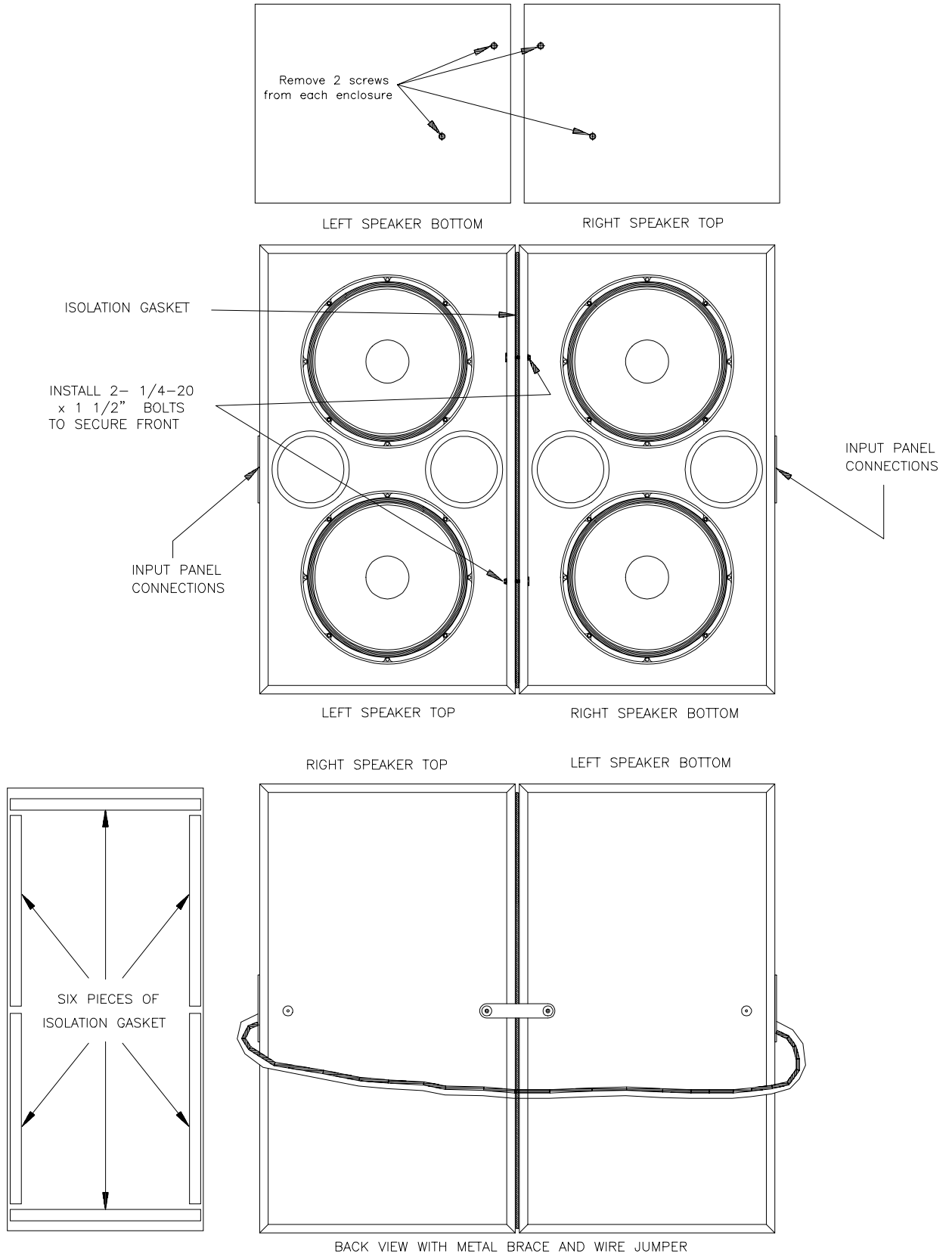
\* The Variplex-XL is THX approved for, screen to last row distances, greater than 80 feet

<sup>2</sup> U.S. Patent 5,020,630, Loudspeakers & Horn Therefor.

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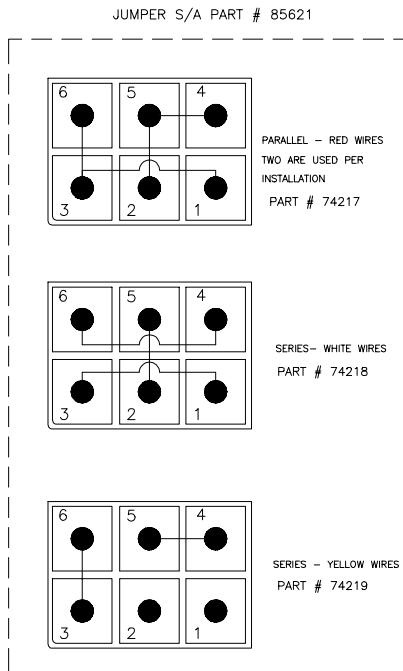
Figure 1—Low Frequency Speaker Assembly

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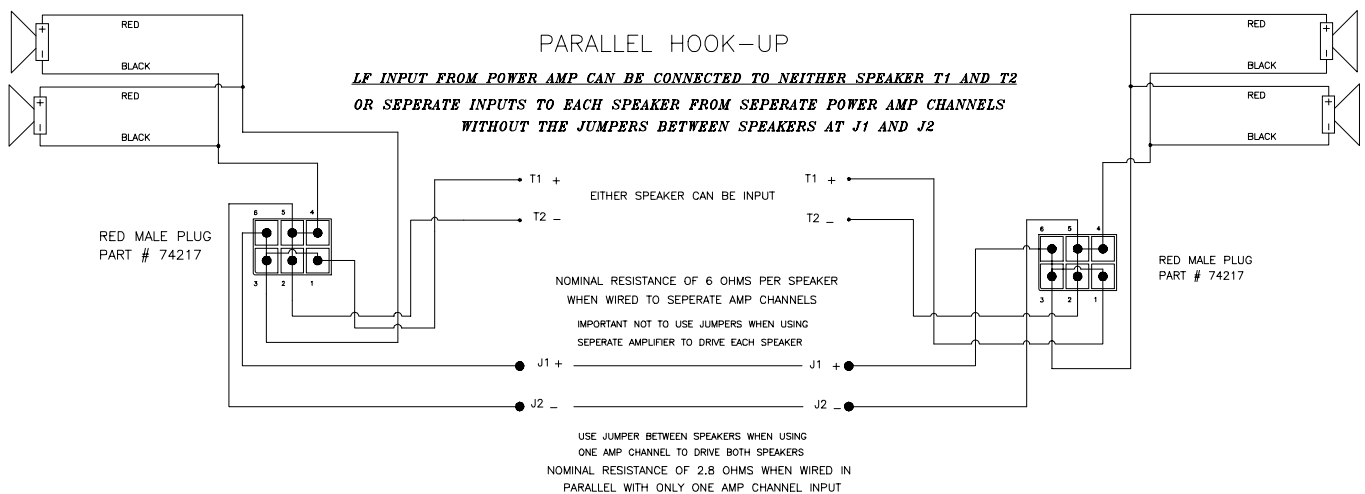
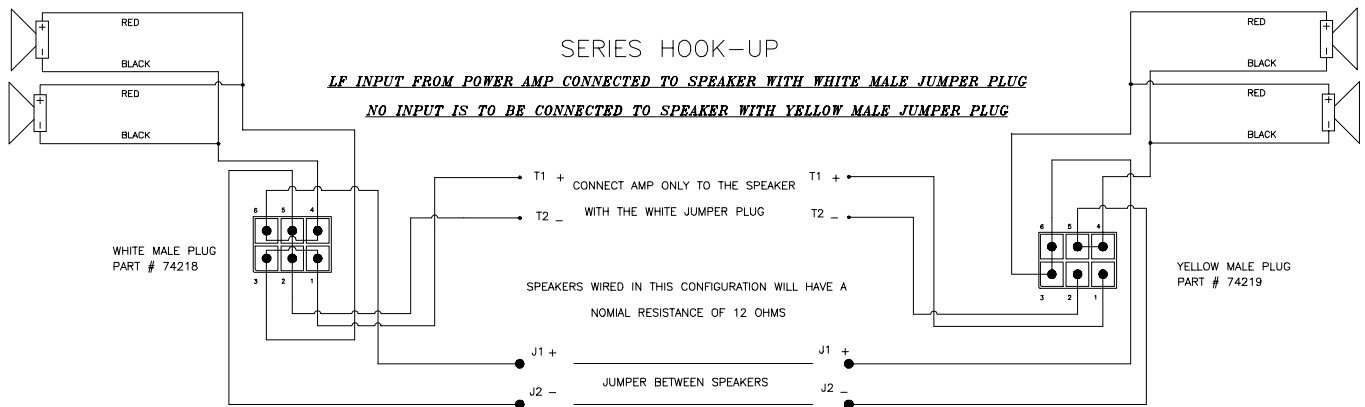


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**Figure 2—Low Frequency Wiring Configuration**



**MALE PLUG CONNECTIONS TOP VIEW**



4. Slide to two units together, with the backs almost touching and the front slightly apart. Engage the brace to the other speaker and tighten the bolt. Pull the front of the units together. Pass the 1/4-20 x 1 1/2 inch bolts through the holes opposite the T-nuts in each of the enclosures front baffle inside edge. (see figure 1) Tighten bolts until a 1/16 inch remains between the two enclosures.

5. Now that the Low frequency units are attached, the input panels can be connected. (See Figure 2 for referance) **There are three wiring configurations possible.** The speakers maybe wired in **Series** with one amp channel input or wired in **Parallel** with one amp channel input. Finally they may be wired **seperately**, each speaker on one amp channel. (**NOTE: Use red jumper plugs but, do not us wire jumpers between J1 and J2 when using this particular configuration.**)

**Series** wiring configuration: Connect J1 to J1 and J2 to J2, using supplied wire jumper.

Select the supplied white jumper plug and the yellow jumper plug. The white jumper plug is to be installed on the speaker which has T1 and T2 connected to the amplifier source. The yellow jumper is installed on the other speaker, for a nominal impedance of 12 ohms.

**Parallel** wiring configuration: Connect J1 to J1 and J2 to J2, using supplied wire jumper. Select the two supplied red jumper plugs and install one in each of the input panels.

The amplifier source may be connected to either input panel at T1 and T2, for a nominal impedance of 2.8 ohms.

**Seperate** wiring configuration: **Do not connect J1 to J1 and J2 to J2.** Select the two supplied red jumper plugs and install one in each of the input panels. The individual amplifier channels may be connected to each of the input panels at T1 and T2 for individual nominal impedances of 6 ohms.

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## Mid/HI Frequency Assembly Instructions

Refer to Figures 3 for the following steps.

1. Remove four screws on top of the Low frequency unit (see figure 3), two from each of the TL606MXL enclosures. Two of the screws are 1 3/4" and will be replaced in the same holes.
2. Set the mid/high sub-assembly on top of the two TL606MXL's align the empty holes on both TL606MXL's with the three slots of the mid/high sub-assembly mounting board. Reinstall the screws previously removed, being sure to install the longer two screws in the back slot under the adjustment bracket.
3. Adjust the horizontal position by rotating the HPK-Variplex™-XL and securely tighten all the bolts so that the mid/high sub-

assembly does not inadvertently rotate.

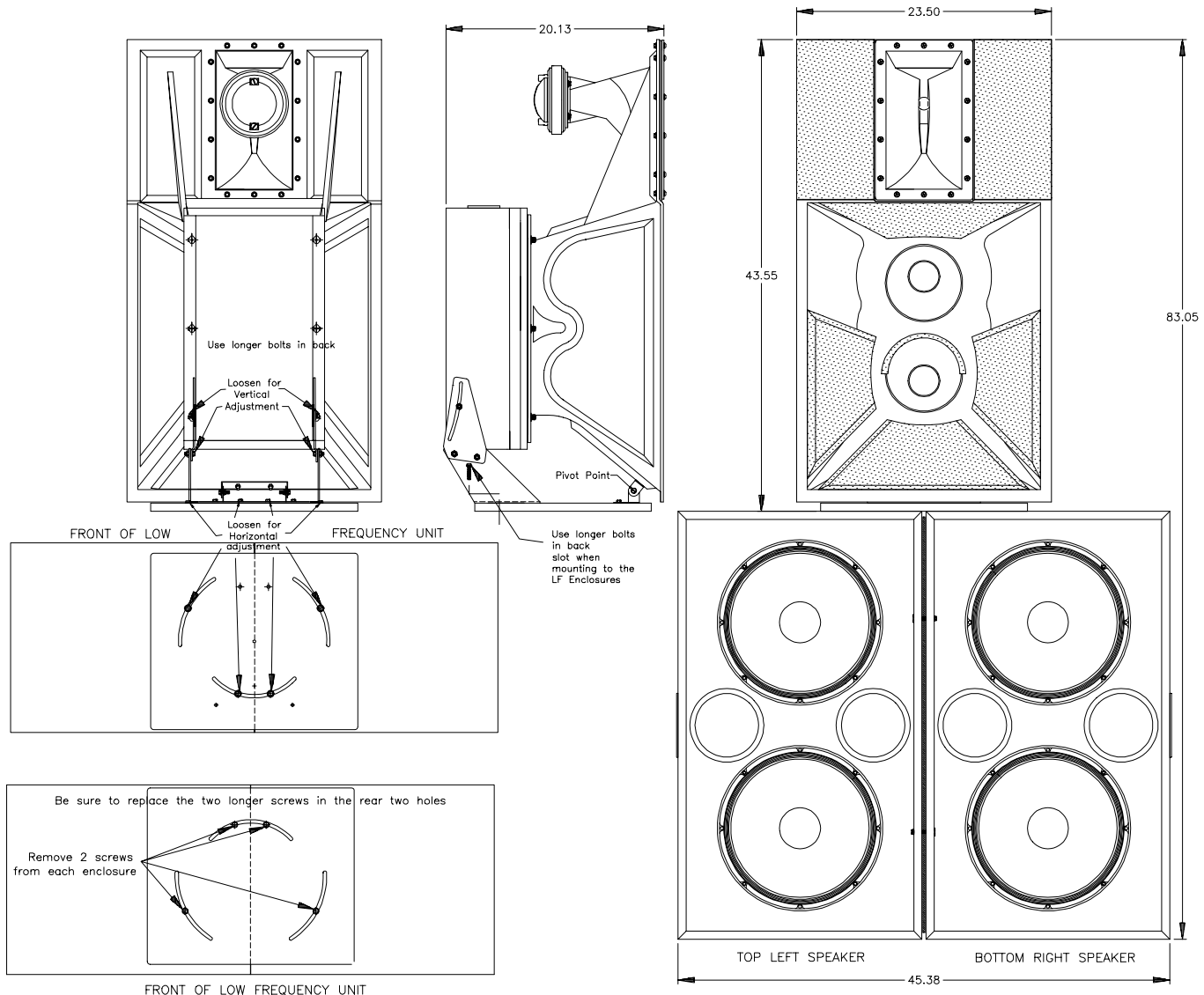
4. Now loosen the vertical adjustment bolts (see figure 3) just enough so the adjustment guides will slide within the adjustment slot and the bracket is allowed pivot. Adjust the vertical angle, by tilting the mid/high sub-assembly, which will slide the adjustment bolts along the slot as shown in figure 3.
5. The aiming point of the mid/high sub-assembly horn separates the Mid-frequency section from the Hi-frequency section, (see figure 7). The system is approximately positioned 2/3 the way up the screen (see figure 7), then tilted vertically to align the aiming point two feet above the head of the person sitting in the last seat of the theater. (See figure 7) Tighten the vertical adjustment bolts, so that the mid/high sub-assembly does not inadvertently tilt.

**Note:** Additional tilting may be necessary depending on the slope of the seating area. Do not tilt the aiming point below 2ft. above the last person sitting in the last seat of the theater. Sound pressure levels drop off drastically above zero on axis.

## Crossover Equalization

The Electro-Voice Dx38 digital electronic crossover system may be used to crossover equalize and set time delay for the Variplex™-XL. Figure 6 is a typical transfer curve based on the individual frequency responses of its components as shown in figure 4. Further data on these settings may be obtained by contacting Electro-Voice for information on specific Dx38 presets.

Figure 3—Mounting the HPK-VARIPLEX™-XL (pre-assembled mid/high unit)



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## Frequency Response

Figure 5 shows Variplex™-XL frequency response with presets of the Electro-Voice Dx38 digital electronic crossover system processor (see Crossover Equalization section). The measurement was made with a swept sine-wave signal, 4 volts at 500 Hz, in an anechoic (echoless) environment. The microphone was at a distance of 3.048m (10 ft), on an axis with the aiming point of the Mid/Hi-frequency unit. Figure 5 shows the frequency response of the individual sections

of the Variplex™-XL, measured under the same conditions but at 1 watt at 2 meters. The results of which were then normalized to 1 watt/1 meter at 500Hz.

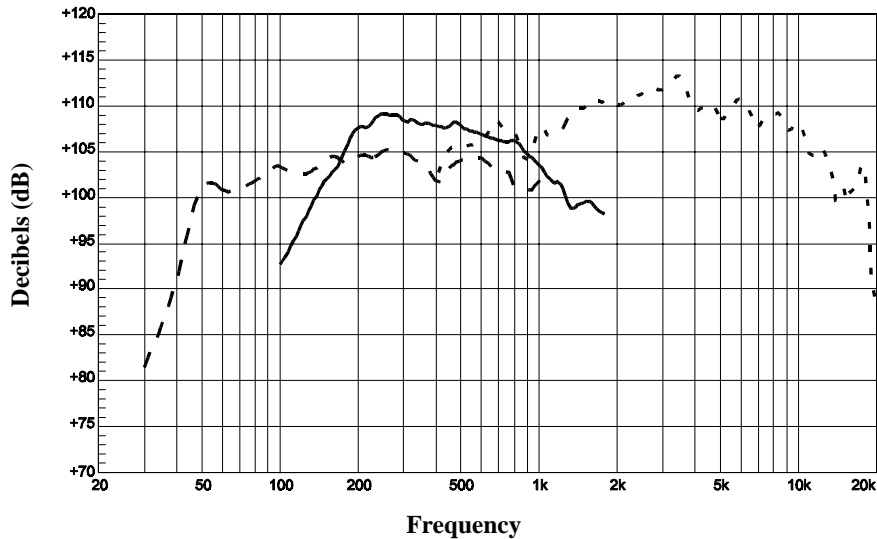
## Uniform Limited Warranty Statement

Electro-Voice products are guaranteed against malfunction due to defects in materials or workmanship for a specified period, as noted in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual, beginning with the date of original pur-

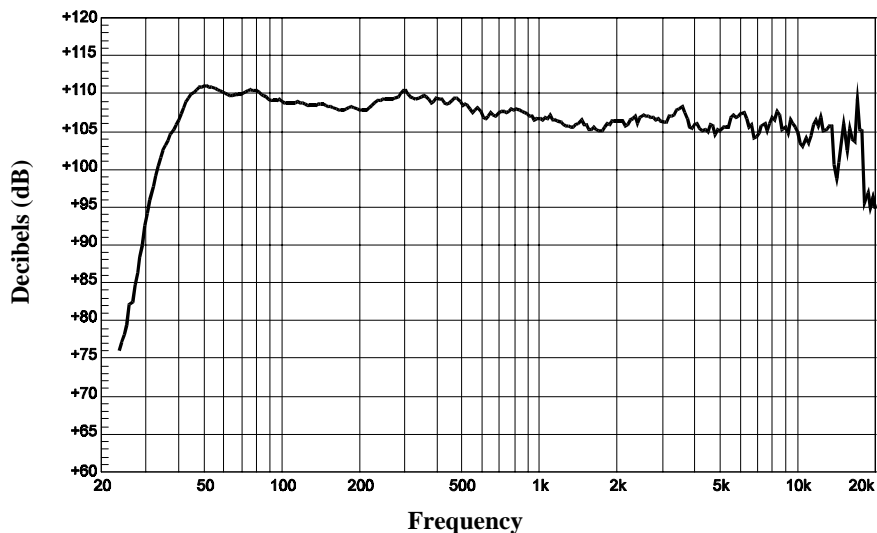
chase. If such malfunction occurs during the specified period, the product will be repaired or replaced (at our option) without charge. The product will be returned to the customer prepaid.

**Exclusions and Limitations:** The Limited Warranty does not apply to: (a) exterior finish or appearance; (b) certain specific items described in the individual product-line statement(s) below, or in the individual product data sheet or owner's manual; (c) malfunction resulting from use or operation of the product other than as specified in the product data sheet or

**Figure 4—VARIPLEX™-XL Typical Frequency Response of Low / Mid and High Frequency Sections Alone (swept sine-wave input, anechoic environment, (normalized response, from 1 watt, 2 meters from the horn baffle, at 600Hz, with the Microphone axis coincident with the aiming point. (Midway between Mid-Frequency horn and High Frequency horn)**



**Figure 5—VARIPLEX™-XL System Typical Frequency Response with DX38 (Digital Speaker System Processor) Presets: Swept sine -wave input, under anechoic environment, (normalized response, for 4 volts, 10 feet at 600hz, with the Microphone axis coincident with the aiming point. (Midway between Mid-Frequency horn and High Frequency horn)**



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owner's manual; (d) malfunction resulting from misuse or abuse of the product; or (e) malfunction occurring at any time after repairs have been made to the product by anyone other than EVI Audio Service or any of its authorized service representatives.

**Obtaining Warranty Service:** To obtain warranty service, a customer must deliver the product, prepaid, to EVI Audio Service or any of its authorized service representatives together with proof purchase of the

product in the form of a bill of sale or receipted invoice. A list of authorized service representatives is available from EVI Audio Service at 600 Cecil Street, Buchanan, MI 49107 (800/234-6831 or FAX 616/695-4743).

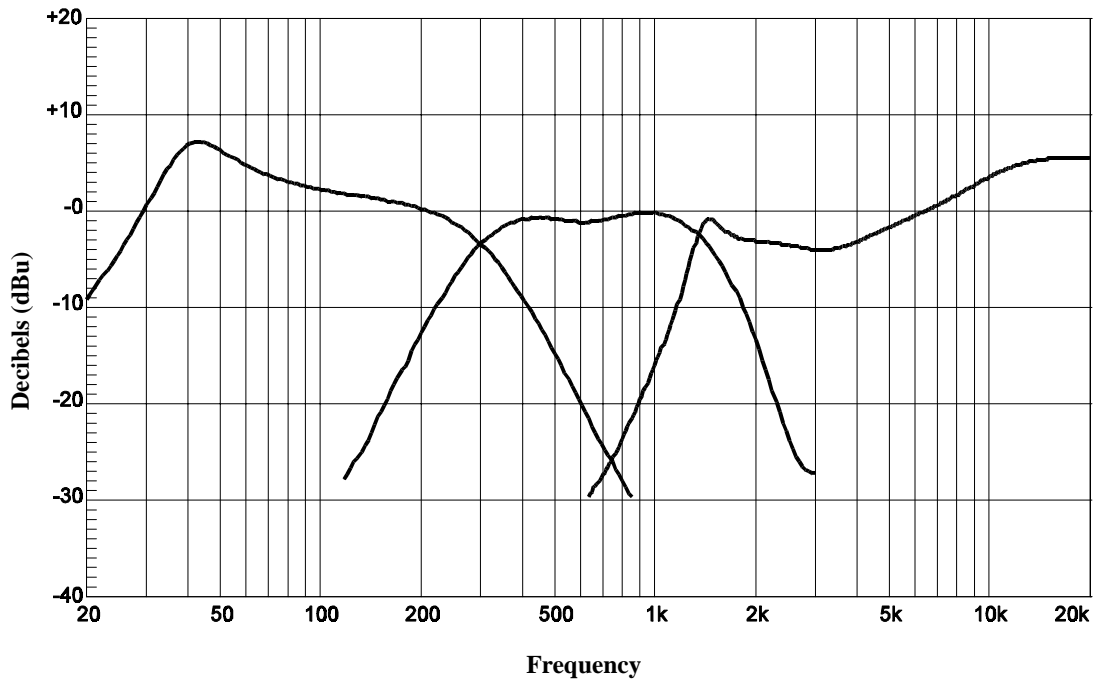
**Other Rights:** This warranty gives you specific legal rights, and you may have other rights which vary from state to state. For warranty repair, service information, or a listing of the repair facilities nearest

you, contact the service repair department at: 616/695-6831 or 800/685-2606.

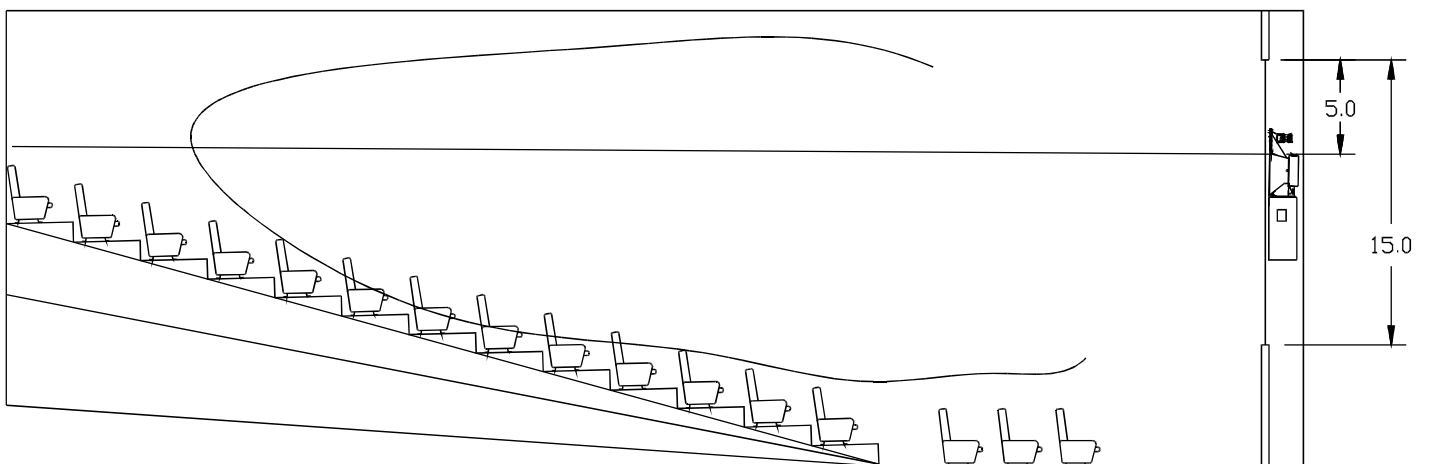
For technical assistance, contact Technical Support at 800/234-6831 or 616/695-6831, M-F, 8:00 a.m. to 5:00 p.m. Eastern time. Specifications subject to change without notice.

Variplex™ XL 3-Way Screen System

**Figure 6—Transfer function of the DX38 digital processor for the VARIPLEX™-XL**



**Figure 7—Aiming the VARIPLEX™-XL**



# Variplex™-XL 3-Way Screen System

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**Specification**

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**Frequency response: (See Figure-5)**

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40 Hz - 20,000 Hz

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**Power Handling:**

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**Low Frequency:** 1600 watts continuous  
(6400 watts peak)

**Mid Bass:** 500 watts continuous  
(2000 watts peak)

**High Frequency:** 60 watts continuous  
(240 watts peak)

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**Nominal Directivity:**

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**Horizontal:** 90° short axis/60° long axis

**Vertical (from system geometric axis):**  
5° up at 6dB 50° down at -18 dIB

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**System Impedance:**

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Bass: 2 x 6 ohms nominal

See figure 2 for minimum

Mid Bass: 4 ohms nominal

3.6 ohms minimum

High Frequency: 16 ohms nominal

10.3 ohms minimum

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**Sound Pressure at 1Watt, 1Meter Input:  
(See Figure -4)**

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LF 40Hz to 300Hz (average)  
104 dB

MF 300 to 1,200Hz (average)  
109 dB

HF (1,500Hz to 7,000Hz (average):  
112 dB

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**Crossover Frequencies: (See Figure -6)**

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**LF/MF**

300 Hz (24-dIB-per-octave Linkwitz-Riley)

**MF/HF**

1,560 Hz (24-dIB-per-octave Linkwitz-Riley)

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**High-Pack Mounting Holes:**

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Five, 1/4-20 bolts, Allowing for smooth horizontal adjustment and secure attachment of the pre-assembled high-pack.

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**Material:**

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**Low frequency enclosure** is 9-ply plywood, Black textured painted enclosure.

**Mid/Hi frequency Horn** is black gelcoated fiber glass, with a MFD black painted dual 10" speaker enclosure

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**Input Connectors:**

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#10 screw terminals for bass, mid bass and high frequency

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**Dimensions Low Frequency:**

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System uses two TL606MLX speakers

Single Unit Dimensions:

Height: (100 cm) 39.5 in

Width: (57.2 cm) 22.5 in.

Depth: (44.8 cm) 17.62 in.

Weight: (49.0 kg) 108 lb

Shipping Weight: (54.4 kg) 120 lb

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**Mid Bass/High Frequency:**

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Height: (cm) 43.55 in.

Width: (59.7 cm) 23.5 in.

Depth: (51.13cm) 20.13 in.

Weight: (39.46 kg) 87.0 lb

Shipping Weight: (66.9 kg) 147.5 lb

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**Total System Assembled Dimensions:**

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Height: (209 cm) 82.3 in.

Width: (115 cm) 45.3 in.

Depth: (51.13cm) 20.13 in.

Weight: (138.35 kg) 305 lb

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**Electro-Voice®**

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CINEMA—Speaker Systems

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