

## XEQ-504A

### Cinema systems Crossover/Equalizer

- Passive, 500-Hz crossover for use with the TL606DW low-frequency system and the DH1A driver on either the HP9040 or HP940 constant-directivity horn.
- Built-in HF horn/driver EQ and HF/LF level matching for flat overall response
- Easy installation—replaces input panel on side of TL606DW low-frequency system
- 300-watt long-term average power capacity



### Description

The Electro-Voice XEQ-504A is a "dedicated" passive crossover/equalizer designed to be used with the TL606DW low-frequency loudspeaker system and the DH1A high-frequency reproducer, when mounted on the HP9040 and HP940 TransPlanar™ constant-directivity horns.

The XEQ-504A combines a passive high-level frequency-dividing network with a high-frequency equalization circuit. This combination provides essentially flat overall frequency response in two-way systems, utilizing the previously mentioned components. The equalization circuit is necessitated by the high-frequency response rolloff which is typical of any high-performance compression driver used with modern constant-directivity horns. The XEQ-504A has a nominal crossover frequency of 500 Hz with a 12-dB-per-octave attenuation and employs filters with Linkwitz-Riley characteristics for smoother overall frequency response in the crossover region.

Excellent performance and reliability are achieved through the use of highest-quality components. Air-core inductors are used throughout to avoid any harmonic or intermodulation distortion which otherwise

can result from core hysteresis and saturation. Components are securely fastened to a thick-trace military-grade G-10 epoxy fiberglass printed circuit board and are well ventilated for low-thermal resistance, an advantage at high power levels. The entire crossover is mounted on a sturdy steel chassis which includes a six-contact barrier strip for all necessary external connections.

High-current tap connectors make a reliable connection to the woofers inside the TL606DW cabinet.

The design concept of a "dedicated" or specialized crossover/equalizer has several advantages: Installation requires little time and avoids tedious, often-confusing adjustments using switches, knobs and taps. Crossover/equalizer characteristics are preset for intelligible, musical, well-balanced sound such as required in all professional sound reinforcement applications. Furthermore, the absence of switches and "pots" will ensure long, trouble-free life. Lastly, the simplicity of this construction provides a very cost-efficient unit by including only components which are utilized with the intended horn and driver combinations.

### Installation with TL606DW

To mount the XEQ-504A, remove the TL606DW input panel via eight #10-24 screws and withdraw the panel plus the four (two black and two red) wires, which are connected to the woofers. Place the input panel on the top surface of the woofer cabinet with components facing upward. Disconnect the wires from the tab connectors on the input panel, using a firm tug on the connectors (note: **not** on the wires). A pair of pliers will make the job easier, gripping on the rear of the connectors. Holding the XEQ-504A in one hand, take the wires that have just been disconnected from the TL606DW input panel and connect to the appropriately marked tab connectors mounted on the XEQ-504A's circuit assembly board. This is accomplished by firmly pressing the connectors until they stop. When all four woofer wires have been connected to the XEQ-504A, mount the crossover in the space previously occupied by the input panel, making sure the woofer wires are fully inside the cabinet and not caught between the XEQ-504A and the cabinet. Then connect the provided wires from the high-frequency terminals on the barrier strip to those of the DH1A driver, red for (+) and

# XEQ-504A Cinema systems Crossover/Equalizer

black for (-). Lastly, connect the amplifier to the appropriate terminals on the barrier strip. If the HP9040 horn is used, pins 4 and 5 must be shorted on the barrier strip using the jumper provided; if the HP940 is used the jumper must be placed between pins 3 and 4 on the barrier strip. This is clearly marked on the crossover-input panel.

## Installation with other Cabinets

Cut an opening in the desired mounting surface with appropriate dimensions to flush-mount the XEQ-504A crossover/equalizer. Mark the location of the mounting holes and drill pilot holes as marked. Crimp the insulated female spade lug connectors to woofer connection wires and attach to male lugs on the crossover board. NOTE: THE XEQ-504A SHOULD ONLY BE USED WITH 4-OHM BASS SYSTEMS (TWO PARALLEL 8-OHM WOOFERS). Make certain that there is sufficient crossover ventilation by not allowing fiberglass damping material to contact XEQ-504A components. Other aspects of installation are the same as those for the TL606DW cabinet. However, when using the XEQ-504A with other-than-recommended components, additional equalization will be necessary, as the response has been tailored for specific components.

## Architects' and Engineers' Specifications

The crossover shall be a high-level Linkwitz Riley type filter with a crossover frequency of 500 Hz. The low-pass and high-pass attenuation shall be 12 dB/octave. The nominal load impedance shall be 4 ohms for the low-pass section and 8 ohms for the high-pass section. High-frequency equalization shall be provided for the Electro-Voice HP9040 and HP940 horns coupled to the

Electro-Voice DH1A compression driver. Rated power handling capacity shall be at least 300 watts conforming to EIA specification RS-426-A 1980.

The crossover shall be constructed on a fiberglass-epoxy printed-circuit board mounted to a steel chassis. Overall dimensions shall be 277 mm (10.9 in.) high by 226 mm (8.9 in.) wide by 86 mm (3.4 in.) deep. The high-level passive crossover shall be the Electro-Voice XEQ-504A.

## Limited Warranty

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 purchase. 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 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 of 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). **Incidental and Consequential Damages Excluded:** Product repair or replacement and return to the customer are the only remedies provided to the customer. Electro-Voice shall not be liable for any incidental or consequential damages including, without limitation, injury to persons or property or loss of use. Some states do not allow the exclusion or limitation of incidental or consequential damages so the above limitation or exclusion may not apply to you. **Other Rights:** This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

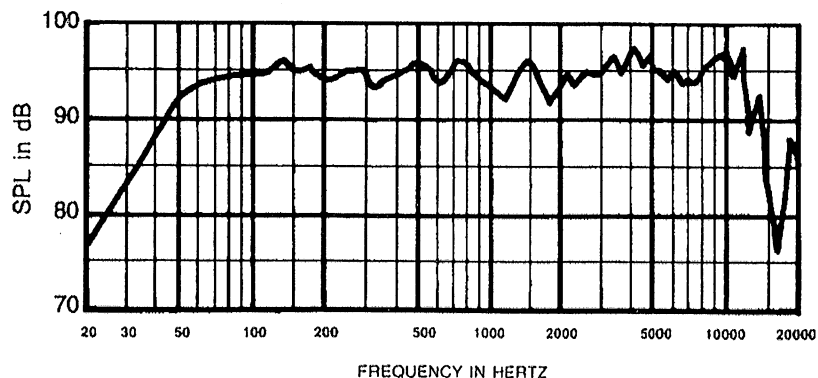
**Electro-Voice Speakers and Speaker Systems** are guaranteed against malfunction due to defects in materials or workmanship for a period of five (5) years from the date of original purchase. The Limited Warranty does not apply to burned voice coils or malfunctions such as cone and/or coil damage resulting from improperly designed enclosures. Electro-Voice active electronics associated with the speaker systems are guaranteed for three (3) years from the date of original purchase. Additional details are included in the Uniform Limited Warranty statement.

**For warranty repair** or service information, 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 Standard Time.

Specifications subject to change without notice.

Figure 1—Typical Anechoic Frequency Response of XEQ-504A, TL606DW and HP940/DH1A 4 Volts/10 Feet



# XEQ-504A Cinema systems Crossover/Equalizer

Figure 2—Typical Anechoic Frequency Response of XEQ-504A, TL606DW and HP9040/DH1A 4 Volts/10 Feet

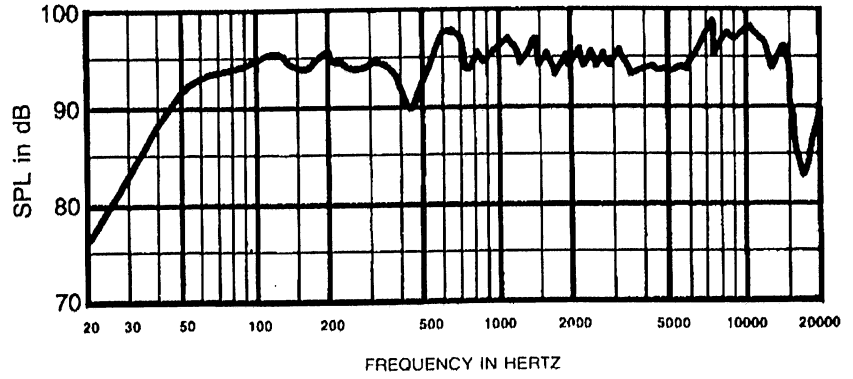


Figure 3—Crossover Schematic

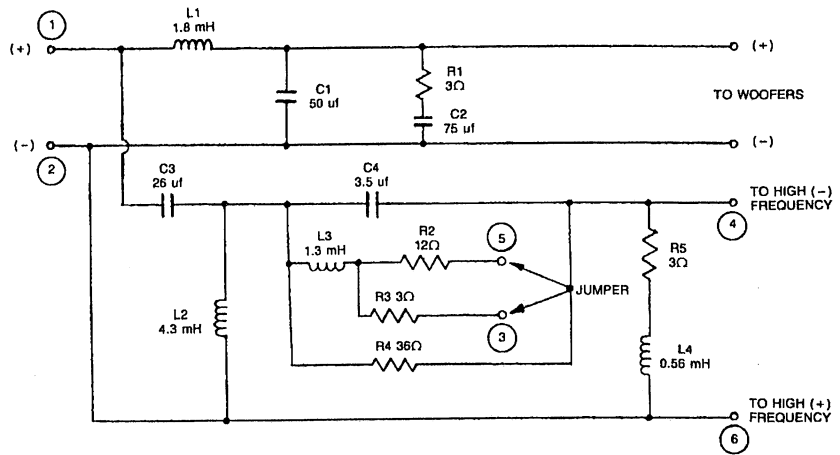
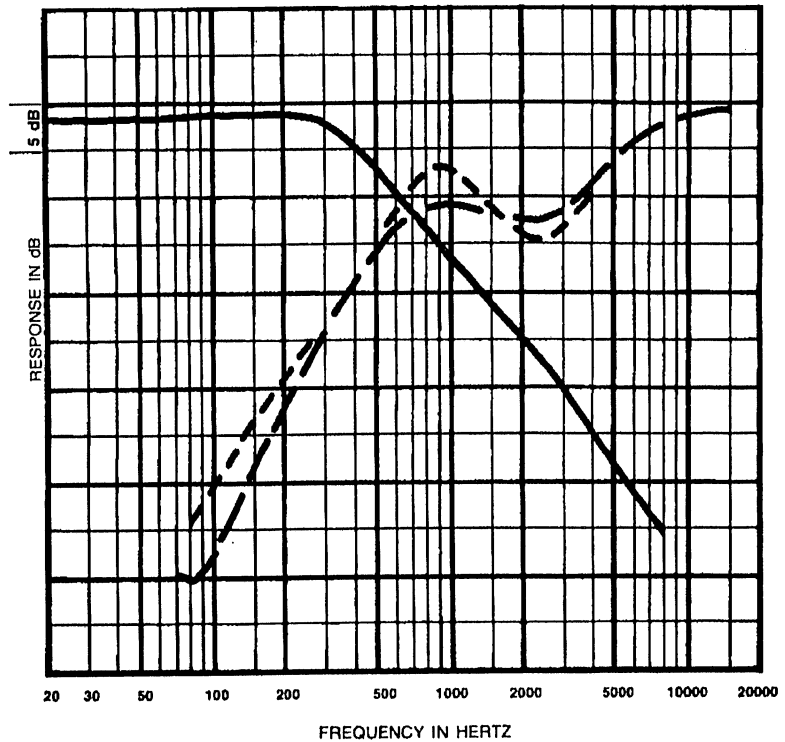
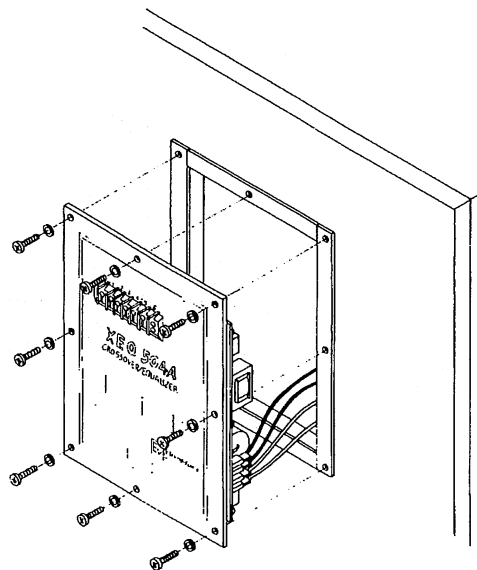


Figure 4—Voltage Transfer



# XEQ-504A Cinema systems Crossover/Equalizer

Figure 5—Installation



XEQ-504A Cinema systems Crossover/Equalizer

## Specifications

### Crossover Frequency, Nominal:

500 Hz

### Load Impedance, Nominal,

**Low Frequency:**

4 ohms

**High Frequency:**

8 ohms

### Attenuation Rate:

12 dB per octave

### Insertion Loss, Low Frequency

**Section:**

0.7 dB typical

### Maximum Long-Term Average Power

#### Handling Capabilities:

300 watts shaped pink noise per EIA  
Standard RS-426-A 1980

### Maximum Input Voltage:

200 watts peak

### Circuit Type (see Figure 3):

Second-order LC Linkwitz-Riley in  
the crossover region  
Special equalization circuit above the  
crossover region

### Connectors:

.250 tab connectors to low-frequency  
loudspeakers; screw-terminals on  
barrier strip to high-frequency  
loudspeaker and amplifier output

### Construction:

Steel chassis, G-10 fiberglass circuit  
board rigidly mounted to chassis via  
steel standoffs

### Maximum Wire Gauge, Barrier Strip Terminals:

10 AWG

### Dimensions:

#### Height

277 mm (10.9 in.)

#### Width

226 mm (8.9 in.)

#### Depth

86 mm (3.4 in.)

### Net Weight:

2.41 kg (5.2 lb)

### Shipping Weight:

3.0 kg (6.7 lb)

# Electro-Voice®

600 Cecil Street, Buchanan, MI 49107

616/695-6831, 616/695-1304 Fax

©EVI Audio 1998 • Litho in U.S.A.