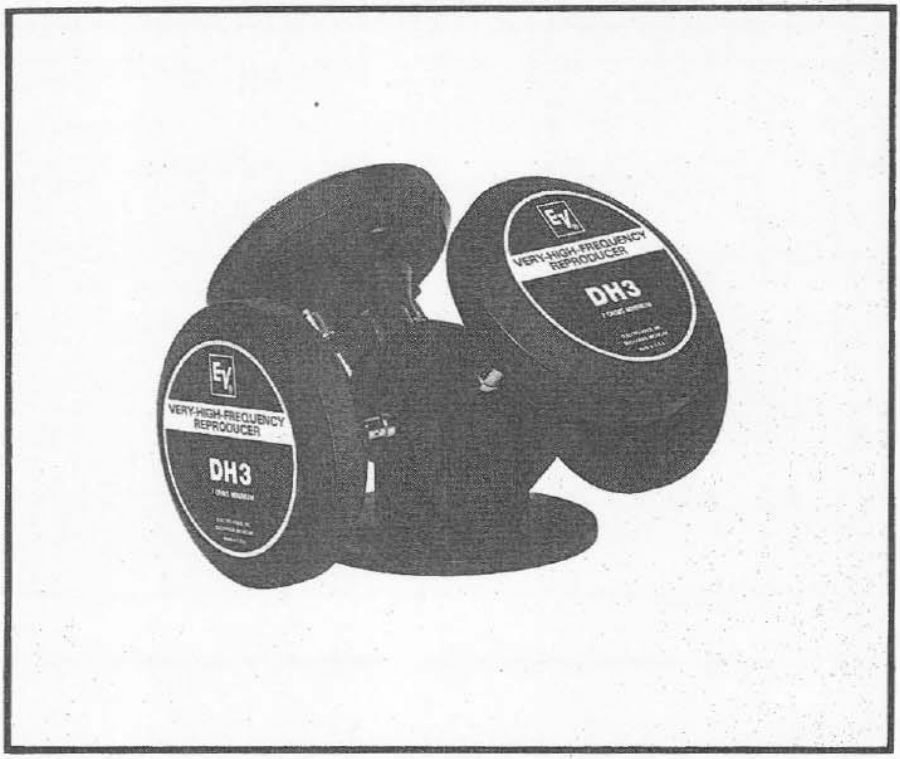

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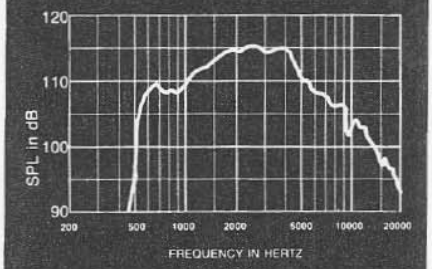

FIGURE 1
Axial Frequency Response, 1 Watt/1 Meter Curved on HP64 Horn

Model DH3/4MT
Very-High-Frequency Acoustic Summation System

SPECIFICATIONS

The following specifications are in accordance with or exceed the AES Recommended Practice for Specification of Loudspeaker Components Used in Professional Audio and Sound Reinforcement (AES2-1984; ANSI S4.26-1984). See AES Recommended Practice section.

Power Frequency Response:
1.5 kHz-20 kHz (essentially flat
1.5 kHz-5 kHz with 6-dB-per-octave rolloff to 20,000 Hz, rapid rolloff beyond)

Nominal Impedance, on HP Series Horns above 3 kHz:
8 ohms (single driver)

Minimum Impedance:
7 ohms at 10 kHz (single driver)

DC Resistance:
5 ohms (single driver)

Long-Term Average Power Capacity on HP Horns, Indicated Bands of Pink Noise, 8-Ohm Impedance Assumed,
24 Hours, 10-dB Crest Factor:
80 watts (5 kHz-20 kHz)
2 Hours, 6-dB Crest Factor:
120 watts (5 kHz-20 kHz)

Nominal Efficiency, 1.5 kHz to 5 kHz Pink Noise, 8-Ohm Impedance Assumed:
25%

Maximum Long-Term Acoustic Power Output (24 hours):
20 watts

Recommended Minimum Crossover Frequency:
5 kHz, 12 dB octave minimum

Sound Pressure Level at 1 Meter, 1 Watt Input Averaged from 500 Hz to 5,000 Hz:[1]
112 dB, HP64 horn
110 dB, HP94 horn
114 dB, HP420 horn
112 dB, HP640 horn
110 dB, HP940 horn
108 dB, HP1240 horn

Throat Diameter:
4.92 cm (1.94 in.)

Weight:
9.8 kg (21.5 lbs)

Shipping Weight:
11.1 kg (24.5 lbs)

DH3

Voice Coil Diameter:
3.17 cm (1.25 in.)

Voice-Coil Construction:
Polyimide insulated aluminum wire wound on high-temperature polyimide coil form

Diaphragm Construction:
Integral all-titanium construction consisting of spherical diaphragm dome and geometrically optimized suspension; high-temperature, long-duration-cure adhesive bonds the coil form to the diaphragm.

Electrical Connection:
Push terminals

Polarity:
A positive voltage applied to the positive (red) terminal produces a positive acoustic pressure in the throat.

MTA-42

Physical Connections, Entrances (4):
1⅜"-18 mounting threads

Exit:
Bolt-on, standard 2"-diameter throat, 5"-diameter mounting flange and four clearance holes for ¼" bolts on a 4"-diameter bolt circle. Bolt heads are captured by molded-in detail.

Mounting Hardware Included:
4 driver-entrance gaskets
4 ¼"-20 mounting bolts
4 ¼" washers
4 ¼"-20 nuts

DESCRIPTION

The Electro-Voice DH3/4MT is a high-performance, high-frequency acoustic summation system capable of unprecedentedly high acoustic power output over a wide frequency range.

The DH3/4MT combines four DH3 high-frequency drivers on an MTA-42 Manifold Technology™ adapter.

High sound-pressure-level applications often require the use of multiple horn-and-driver combinations. This results in physically cumbersome arrays and, when two or more horns cover the same area, it results in destructive interference, often referred to as comb-filtering. This results in a familiar "swishing" sound when moving through or "walking" a system with music being played. By combining the outputs of four drivers into a single horn, the DH3/4MT allows extremely high sound pressure levels to be generated by compact, cost-effective arrays and without destructive interference.

The combination of extremely close driver packing, complementary positioning and a specially designed reflective insert results in phase-coherent summation.

MECHANICAL CONNECTION:

Bolts, washers, and nuts are provided for connecting the DH3/4MT to a standard 2-inch-throat horn. The flange of the DH3/4MT is molded to capture the bolt head, so installation is possible with a single wrench. Four driver-entrance gaskets are also provided. These should be inserted into the driver entrances before installing the drivers.

1. Measured on axis in the far field with 1 watt input of band-limited pink noise from 500-5,000 Hz and calculated to 1 meter equivalent by inverse square law.

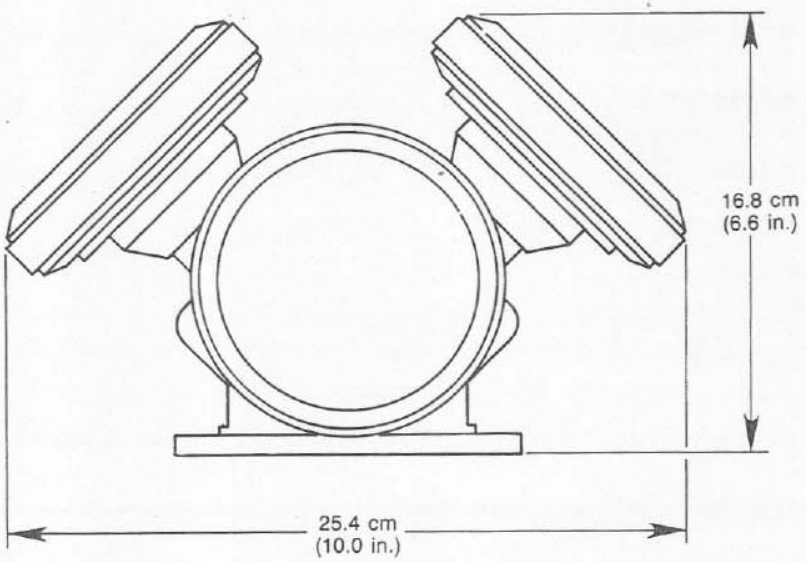

FIGURE 2
Dimensions

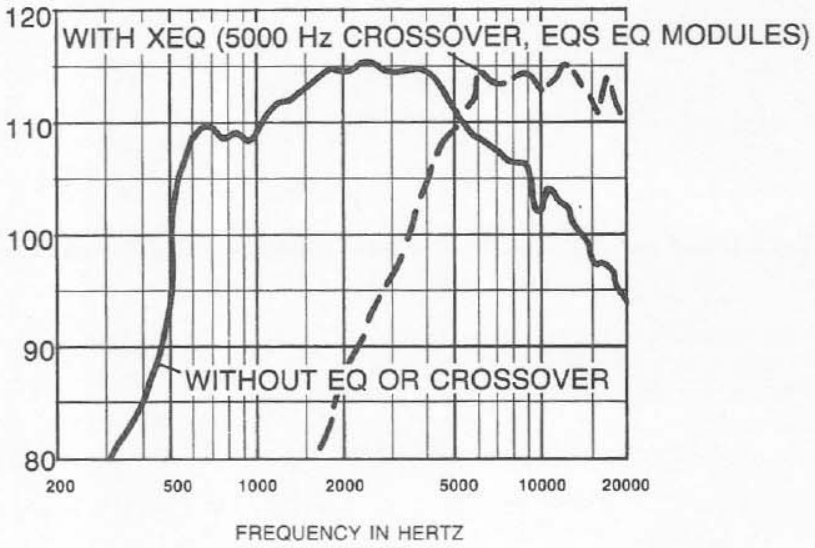

FIGURE 3
Axial Frequency Response with and without Equalization, 1 Watt/1 Meter, HP64 Horn

ELECTRICAL CONNECTION:
With four 8-ohm drivers and one amplifier 2-ohm, 8-ohm and 32-ohm systems are possible. The recommended electrical connections for these three systems are shown in Figure 8.

With more amplifiers, other wiring arrangements are possible. When using multiple amplifiers, care should be taken to ensure equal drive voltage across each driver.

RECOMMENDED HORNS
The following Electro-Voice horns are recommended for use with the DH3/4MT: HP64, HP94, HP420, HP640, HP940, and HP1240.

CROSSOVER AND EQUALIZATION
As with all horn/driver cmbinations that combine high overall efficiency with constant-directivity, the DH3/4MT and HP series horns provide "raw" or unequalized frequency response that rolls off above 5,000 Hz or so at about 6 dB per octave. Figure 3 shows the DH3/4MT-HP64 horn, with and without equalization. The equalization has been provided by an Electro-Voice XEQ-3 crossover/equalizer equipped with the EQS equalization module. While the equalization of a constant-directivity horn/driver combination can be achieved with a conventional one-third-octave equalizer, the use of the XEQ-3 crossover/equalizer with the appropriate accessory EQ module is recommended. This way, the broad-band equalization required by the horn/driver combination is supplied by the crossover/equalizer network, and the one-third-octave equalizer can be devoted to correcting the more subtle room- and array-related response anomalies. The following EQ modules are available for the DH3/4MT:

Module	Horn(s)
EQR	HP940, HP94
EQS	HP1240; HP640; HP64
EQV	HP420

Refer to the XEQ-2 and XEQ-3 engineering data sheets for more information on XEQ-2 and XEQ-3 performance and application.

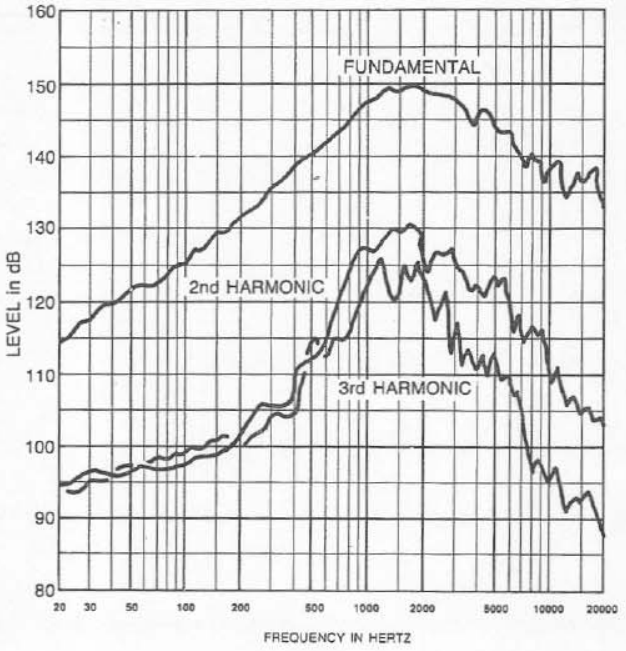

FIGURE 4
Distortion Response — 2-Inch Plane-Wave Tube, 8 Watts Input

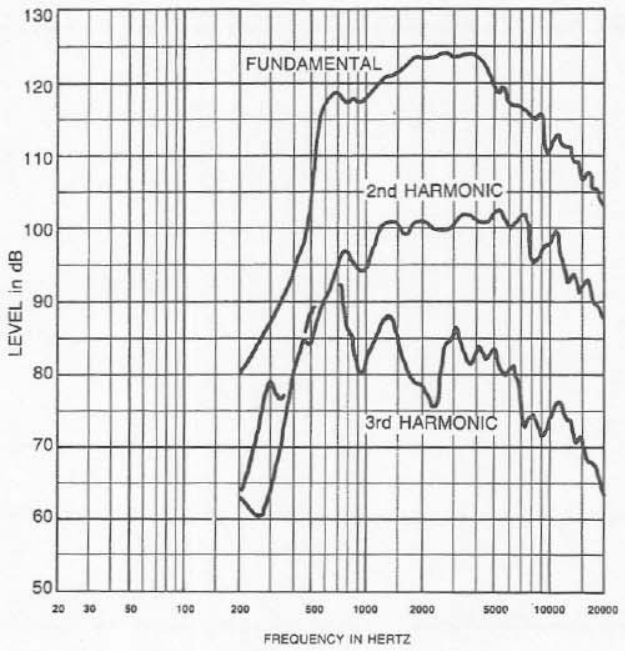

FIGURE 5
Distortion Response — HP64 Horn 8 Watts/1 Meter

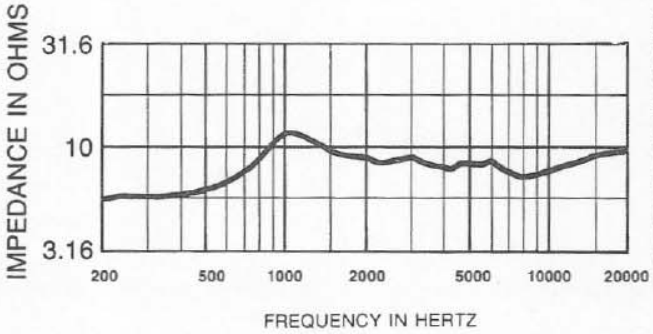

FIGURE 6
Impedance Response — 2-Inch Plane-Wave Tube

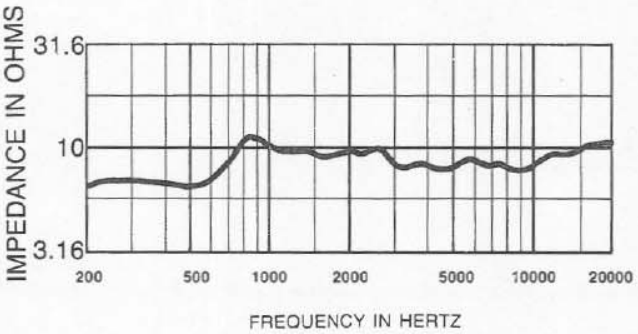

FIGURE 7
Impedance Response — HP64 Horn

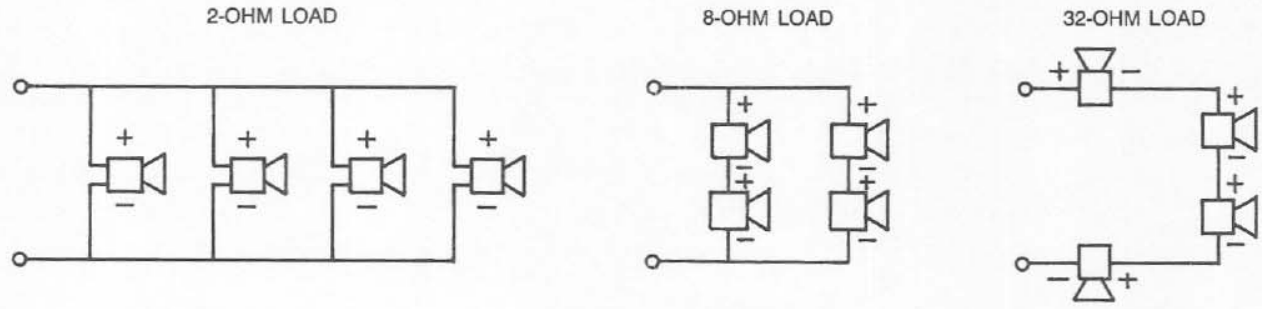

FIGURE 8
Electrical Connections

FIELD REPLACEMENT

In case of voice-coil or diaphragm failure, the diaphragm cover subassembly can be replaced by just removing the driver from the Manifold Technology™ adapter then replacing the cover subassembly itself by the removal of four cover screws. A replacement kit with instructions may be ordered under Electro-Voice Part No. 81498XX from the Electro-Voice Service Department in Buchanan, Michigan. Spare driver assemblies may be ordered as the DH3. If desired, the complete driver may be returned for service.

AES RECOMMENDED PRACTICE

The DH3/4MT specifications conform to the AES Recommended Practice for Specification of Components Used in Professional Audio and Sound Reinforcement (AES2-1984, ANSI S4.26-1984). This recommended practice was developed over a number of years by consultants, manufacturers and government agencies from around the world, so that the detailed performance information required in professional applications could be provided in a unified format. The recommended practice has been published in the October, 1984 issue of the *Journal of the Audio Engineering Society* (vol. 26, pp. 771-780). Individual copies of the recommended practice are available from the Audio Engineering Society, 60 East 42nd Street, New York, New York 10165, USA. Also appearing in this issue is an article which comments on the recommended practice from an engineering point of view (C.A. Henricksen, "Engineering Justifications for Selected Portions of the AES Recommended Practice for Specification of Loudspeaker Components," pp.763-769). The comments in this article will be particularly of interest to those not involved in the day-to-day design and testing of loudspeakers.

ARCHITECTS' AND ENGINEERS' SPECIFICATIONS

The loudspeaker assembly shall include four compression-type drivers coupled by an acoustic-summation device free of phase-cancellation interference. Each of the drivers uses a 0.0025 cm (0.001 in.) thick titanium diaphragm joined to an aluminum voice coil on a polyimide form.

The system shall exhibit essentially flat power response from 1.5 kHz to 5 kHz, with a smoothly rolled-off response from 5 kHz to 20 kHz. Its efficiency shall not be less than 25%. Its sensitivity, when mounted on an EV HP420 horn, shall be 114 dB (1W/1m) with a 1.5 kHz-to-5-kHz pink-noise signal applied.

The system shall be capable of handling an 80-watt, 5 kHz-to-20-kHz pink-noise signal with a 10-dB crest factor (800 watts peak) for a period of 24 hours. In addition, it shall be capable of handling a 120-watt, 1.5-kHz-to-5-kHz pink-noise signal with 6-dB crest factor for a period of two hours.

The loudspeaker system shall have a diameter of 25.4 cm (10.0 in.) and a depth of 16.8 cm (6.6 in.). It shall have a 1.94-inch throat opening, with four ¼-20 threaded bolt holes on a 4-inch-diameter circle for mounting.

The unit shall weigh no more than 9.8 kg (21.5 lbs).

The loudspeaker system shall be the Electro-Voice model DH3/4MT.

WARRANTY (Limited)

Electro-Voice Speakers and Speaker Systems (excluding active electronics) 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 extend to finish, appearance items, burned coils, or malfunction due to abuse or operation under other than specified conditions, including cone and/or coil damage resulting from improperly designed enclosures, nor does it extend to incidental or consequential damages. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion may not apply to you. Repair by other than Electro-Voice or its authorized service agencies will void this guarantee. A list of authorized warranty service agencies is available from Electro-Voice, Inc., 600 Cecil Street, Buchanan, MI 49107 (AC/616-695-6831); or Electro-Voice West, 8234 Doe Avenue, Visalia, CA 93291 (AC/209-651-7777). This warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

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 ■ OKLAHOMA CITY, OK ■ GANANOQUE, ONT.

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