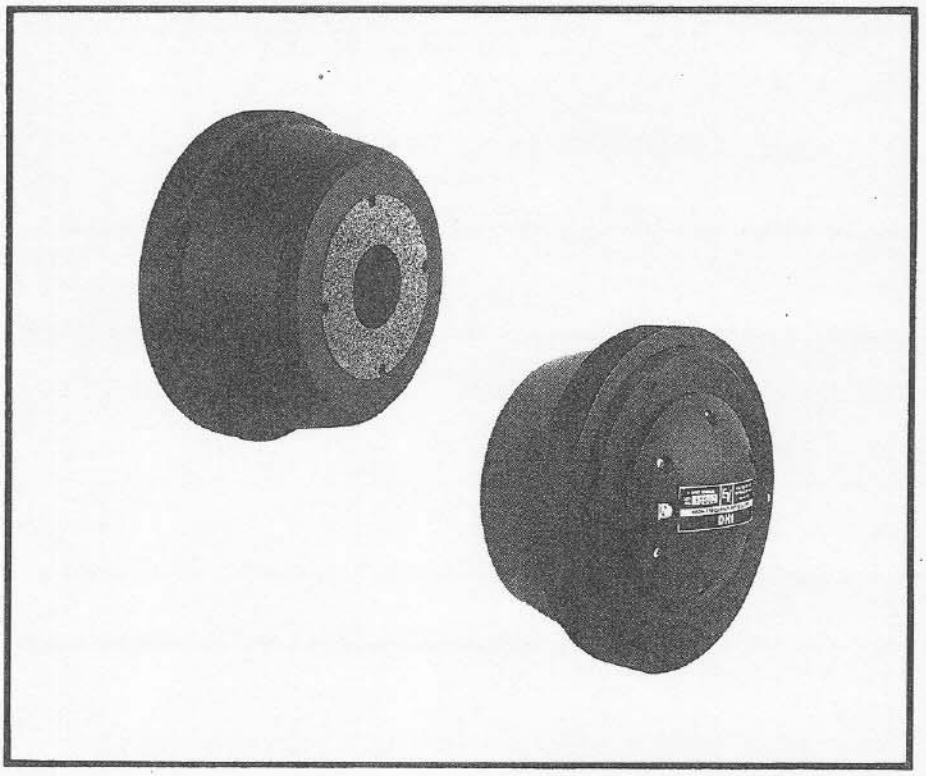

Electro-Voice®
a gulton company

FIGURE 1
Axial Frequency Response, 1 Watt/1 Meter Curved on HP9040 Horn

Model DH1
High-Frequency Reproducer

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:
500-16,000 Hz (essentially flat 500-5,000 Hz with 12-dB-per-octave rolloff to 16,000 Hz, rapid rolloff beyond)

Nominal Impedance:
8 ohms

Minimum Impedance, on HP Series Horns above 500 Hz:
6 ohms at 5,000 Hz

Nominal dc Resistance:
4.5 ohms

Long-Term Average Power Capacity on HP Horns, Indicated Bands of Pink Noise, 8-Ohm Impedance Assumed,
24 Hours, 10-dB Crest Factor:
40 watts (400-20,000 Hz)
2 Hours, 6-dB Crest Factor:
50 watts (500-5,000 Hz)
70 watts (1,000-10,000 Hz)

Nominal Efficiency, 1,000-5,000-Hz Pink Noise, 8-Ohm Impedance Assumed:
25%

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

Recommended Minimum Crossover Frequency:
500 Hz

Sound Pressure Level at 1 Meter, 1 Watt Input Averaged from 500 Hz to 5,000 Hz:[1]
115 dB, HP4020 horn
113 dB, HP6040 horn
111 dB, HP9040 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.)

Voice Coil Diameter:
7.62 cm (3.00 in.)

Voice Coil Construction:
Rectangular, edge-wound aluminum wire on an aluminum form integrally a part of the diaphragm dome

Diaphragm Construction:
Aluminum dome with geometrically optimized polyimide surround; high-temperature, long-duration-cure epoxy bonds the coil form to the diaphragm.

Electrical Connection:
Screw terminals, each of which will accept a pair of 12-gauge wires and any smaller size.

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

Mechanical Connection:
Bolt on,
4 equally spaced holes on a 10.2 cm (4.00 in.) diameter circle, ¼"-20 threads, bolts supplied with HP series horns

Dimensions (see Figure 2),
Overall Diameter:
20.7 cm (8.15 in.)
Overall Depth:
13.1 cm (5.15 in.)

Net Weight:
7.03 kg (15.5 lb)

Shipping Weight:
7.49 kg (16.5 lb)

DESCRIPTION
The Electro-Voice DH1 is a high-performance, high-frequency driver capable of unprecedentedly high acoustic power output over a wide frequency range.

This performance results from careful engineering and design, involving expert choices of material and advanced driver architecture which are ideally suited for efficient presentation of high-quality musical and communication program material. Features of the DH1 include:

1. A unique, integral diaphragm and coil form which provides a high stiffness-to-weight ratio for extended response as well as efficient heat dissipation for excellent power handling. Advanced metal forming technology developed at EV allows manufacture of this difficult geometry from high-strength aluminum alloy only 0.002-inch thick.
2. A polyimide diaphragm suspension geometrically optimized for extended fracture-free excursion and excellent control of high-frequency breakup.
3. A precision, lightweight voice coil made from pure aluminum rectangular wire, which gives the DH1 high magnetic strength and maximum efficiency. Proprietary high-temperature winding and electrical bonding technologies assure excellent coil reliability and performance.
4. A phase-plug design giving optimum upper-octave response.

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.

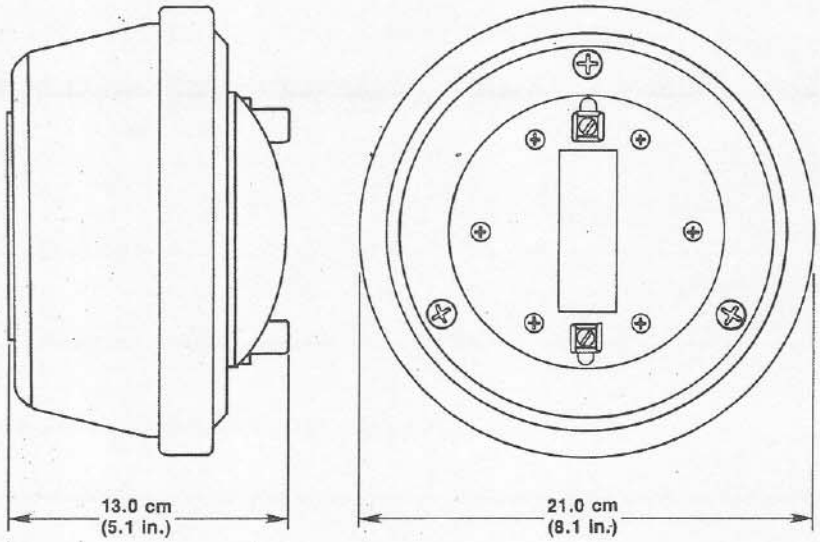

FIGURE 2
Dimensions

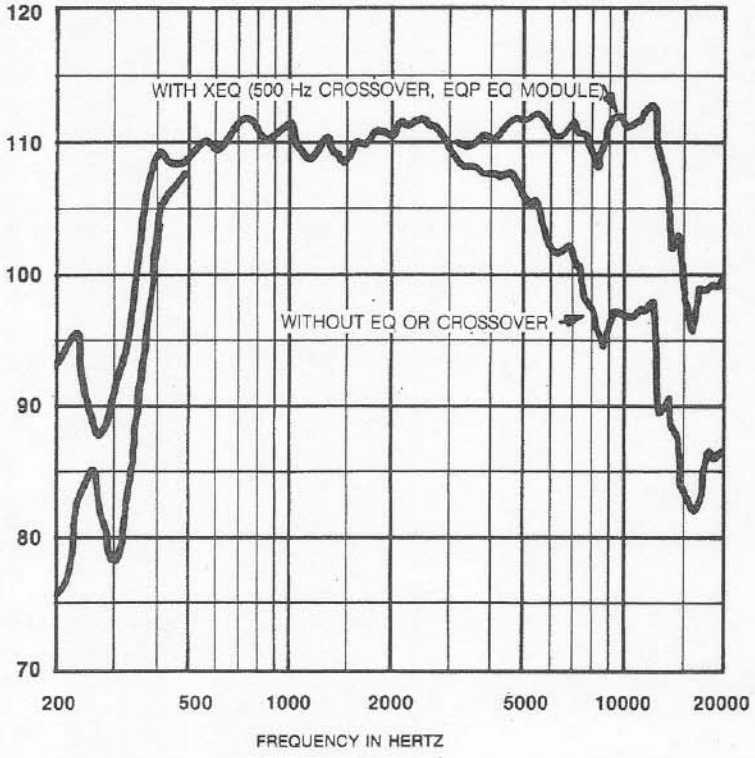

FIGURE 3
Axial Frequency Response with and without Equalization, 1 Watt/1 Meter, HP9040 Horn

5. Screw-type input terminals, which are an EV exclusive. They provide an unusually positive electrical connection. Each terminal will easily accept a pair of 12-gauge wires, and any smaller size. These special terminals were designed using the results of an extensive field survey of consultants and sound-system installers.

6. An integral diaphragm assembly and protective cap which is an EV-exclusive design. This allows for a single operation for diaphragm removal and acts as an effective out-of-driver diaphragm protection.

RECOMMENDED HORNS

The following Electro-Voice horns are recommended for use with the DH1: HP420, HP640, HP940, HP1240, HP4020, HP6040, and HP9040.

CROSSOVER AND EQUALIZATION

As with all horn/driver combinations that combine high overall efficiency with constant directivity, the DH1 and HP series horns provide "raw" or unequalized frequency response that rolls off above 3,000 Hz or so at about 6 dB per octave. Figure 3 shows the DH1 on an HP9040 horn, with and without equalization. The equalization has been provided by an Electro-Voice XEQ-2 crossover/equalizer equipped with the EQP 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-2 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 DH1:

Module	Horn(s)
EQM	HP940
EQN	HP1240
EQO	HP420; HP640
EQP	HP4020; HP9040
EQQ	HP6040

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

For passively crossed over systems, the XEQ804 and XEQ808 crossover/equalizers are available.

FIELD REPLACEMENT

In case of voice-coil or diaphragm failure, the diaphragm cover subassembly on the rear of the driver can be field replaced by the removal of six cover screws. A replacement kit with instructions may be ordered under

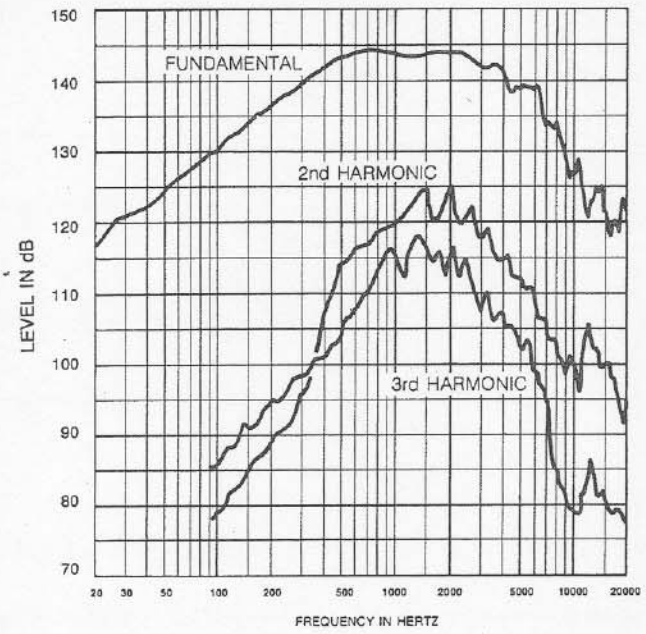

FIGURE 4
Distortion Response,
2-Inch Plane-Wave Tube, 4 Watts

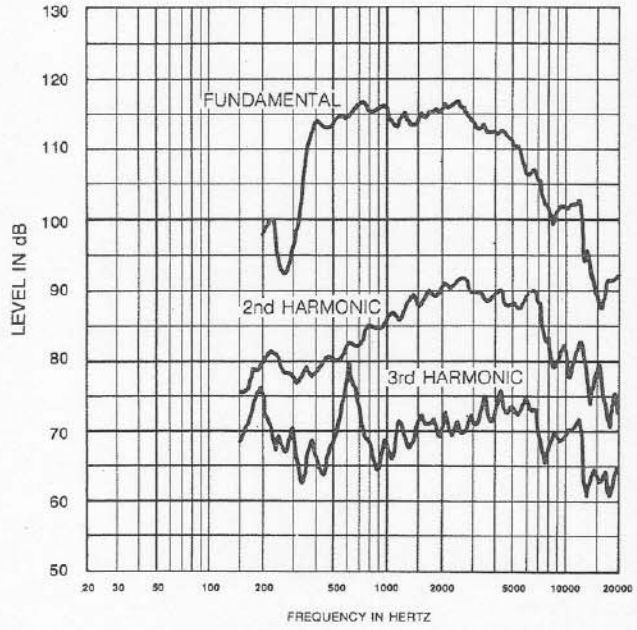

FIGURE 5
Distortion Response,
HP9040 Horn, 4 Watts/1 Meter

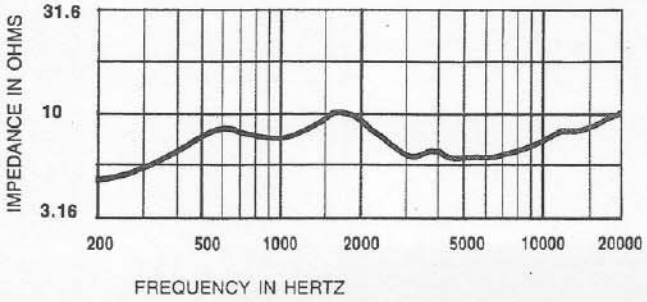

FIGURE 6
Impedance Response — 2-Inch Plane-Wave Tube

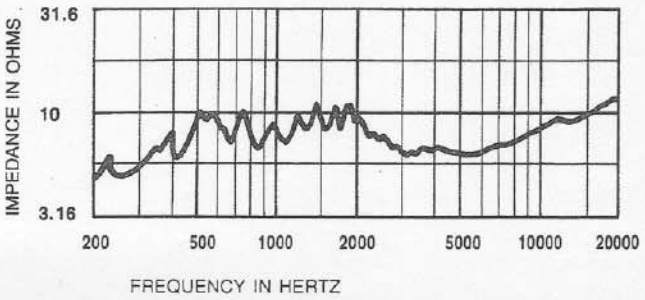

FIGURE 7
Impedance Response — HP9040 Horn

Electro-Voice Part No. 81037XX from the Electro-Voice Service Department in Buchanan, Michigan. If desired, the complete driver may be returned for service.

AES RECOMMENDED PRACTICE

The DH1's 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 shall be of the compression-driver type consisting of a 0.005 cm (0.002-in.) thick aluminum integral dome and coil form, wound with an edge-wound aluminum ribbon voice coil.

The loudspeaker shall exhibit essentially flat power response from 500 to 5,000 Hz, with a smoothly rolled-off response from 5,000 to 16,000 Hz. Its efficiency shall not be less than 25%. Its sensitivity, when mounted on an EV HP4020 horn, shall be 115 dB (1W/1m) with a 500-to-5,000-Hz pink-noise signal applied.

The loudspeaker shall be capable of handling a 40-watt, 400-to-20,000-Hz pink-noise signal with a 10-dB crest factor (400 watts peak) for a period of 24 hours. In addition, it shall be capable of handling a 50-watt, 500-to-5,000-Hz pink-noise signal and a 70-watt, 1,000-to-10,000-Hz pink-noise signal, with 6-dB crest factors for a period of two hours in both cases.

The loudspeaker shall have a diameter of 20.7 cm (8.2 in.) and a depth of 13.1 cm (5.2 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 8.9 kg (19.5 lbs).

The loudspeaker shall be the Electro-Voice model DH1 compression driver.

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 Electro-Voice or its authorized service agencies will void this guarantee.

For correct 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, P.O. Box 3297, 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.

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