



Electro-Voice®
a gulton company

Model 1776A

Cardioid Electret Condenser Microphone

SPECIFICATIONS

Generating Element:

Electret condenser

Frequency Response (see Figure 3):

50 – 20,000 Hz

Polar Pattern (see Figure 4):

Cardioid

Impedance:

150 ohms balanced

Output Level:

–50 dB with
phantom power or 4.5-volt battery

–54 dB with

1.5-volt battery

(0 dB = 1 mW/10 dynes/cm²)

EIA Sensitivity:

–144 dB with

phantom power or 4.5-volt battery

–148 dB with

1.5-volt battery

Dynamic Range:

100 dB with

phantom power or 4.5-volt battery

94 dB with

1.5-volt battery

Equivalent Noise Level:

Less than 30 dB

(0 dB = .0002 dynes/cm²)

A weighted

Power Supply:

4.5- or 1.5-volt internal battery

(not included)

or 24-to-48-volt phantom supply

with 506A phantom power adapter

(not included)

Battery Selection Guide,

4.5-Volt Battery,

Carbon Zinc:

Eveready No. 333

Battery Selection Guide (Continued)

Alkaline:

Mallory PX-21

Eveready 523

Burgess AL-523

Panasonic PX-21

*Mercury:

Mallory TR-133

Eveready E-133

Burgess H-133

Panasonic H3P

1.5-Volt Battery:

Any AA size cell

Current Drain:

1 mA from 1.5-volt battery

3-5 mA from 4.5-volt battery or

phantom power

Battery Life,

4.5-Volt Battery,

Carbon Zinc:

150 hours

Alkaline:

175 hours

Mercury:

350 hours

1.5-Volt Battery:

In excess of 1000 hours for any

type AA size cell

Switch:

On-off (battery and audio)

Pop Filter:

Built-in Acoustifoam™ filter

Cable,

1776A:

4.6 m (15 feet),

two-conductor, shielded brown

rubber-jacketed, with

Switchcraft A3F connector

Cable (Continued)

1776AP:

7.6 m (25 feet),

two-conductor, shielded brown

rubber-jacketed cable, with

Switchcraft A3F connector at

the microphone end and ¼" "

phone plug at equipment end

Case Material:

Diecast zinc & aluminum

Dimensions:

191 mm long (7.5")

25.4 mm (1.0") shank diameter

50.8 mm (2.0") maximum diameter

Weight:

343 grams (12 oz)

(with battery but not

including cable)

Finish:

Non-reflecting gray

Accessory Furnished:

301 stand adapter

Optional Accessories:

376 windscreen

380 10 dB attenuator

456 carrying case

502C matching transformer,

Lo to Hi-Z inline

502CP matching transformer,

Lo to Hi-Z w/plug

506A phantom power adapter

520 15' professional cable with

switch connector at mike end and

¼" phone plug at equipment end

521 25' professional cable with A3F

and A3M type connectors

AC24M power supply

*Do not use below 4.5° C (40° F)

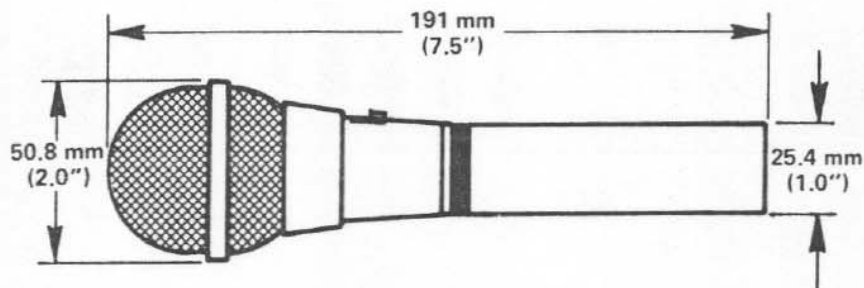


FIGURE 1 – Dimensions

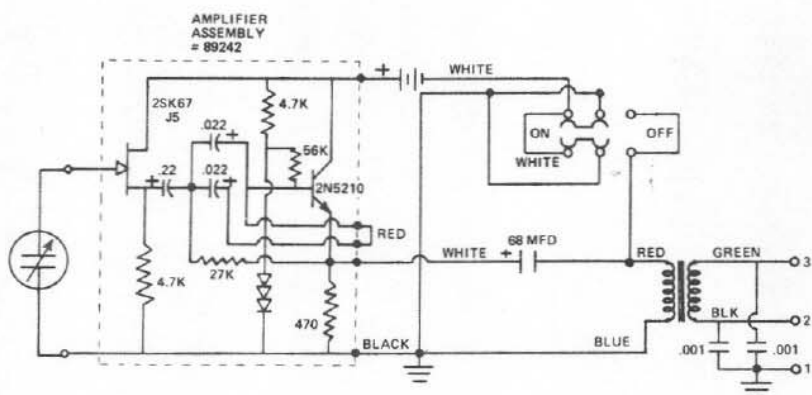


FIGURE 2 – Wiring Diagram

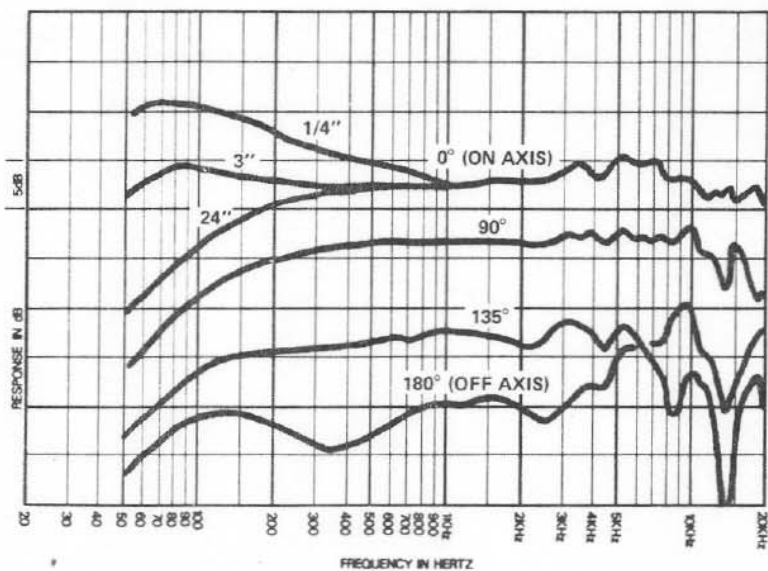


FIGURE 3 – Frequency Response

DESCRIPTION & APPLICATIONS

The Electro-Voice 1776A is a Single-D electret condenser cardioid microphone designed for the professional vocalist. The unusually extended, shaped high-frequency response provides a natural, transparent sound quality not available in the usual vocal microphones (see Figure 3). The Single-D design provides the up-close bass boost (proximity effect) preferred by many entertainers. In addition, the 1776A features a two-position bass response switch which effectively tailors the sound to fit the voice. Unusually uniform directional characteristics over the entire frequency range (see Figures 3 and 4) provide high feedback resistance when working close to sound reinforcement speakers and monitors. A built-in Acoustifoam™ blast filter enables close talking or singing without worry of "P-popping" or other excessive breath and sibilant noise. The very low mass of the generating element acts as an effective shock mount which keeps handling noise to a minimum. The rugged construction of the 1776A makes it unique among other condenser microphones. The case is constructed of rugged diecast zinc and the battery compartment sleeve is made of aluminum. The Memraflex grille screen resists deformation. The 1776A is battery powered but may be adapted for phantom powering (see powering the 1776A).

POWERING THE 1776A

Unlike normal condenser microphones, the electret condenser does not need a polarizing voltage because a permanent charge is captured in the diaphragm material. However, a small voltage with low current drain is necessary to power the FET impedance converter which must be used to lower the extremely high impedance of the electret head.

Battery Powering

The 1776A is powered by an internal battery. To prolong battery life, the 1776A's on/off switch should be in the "off" position when the microphone is not in use. Usually, as a battery approaches the end of its service life, a gradual but noticeable reduction in microphone output level occurs, allowing replacement of the battery without a program interruption.

Access to the battery compartment is gained by unscrewing and pulling away the sleeve shown in Figure 5, exposing the battery clips. A 4.5- or 1.5-volt battery may be inserted, being sure to follow the polarization (plus and minus)

label. Note that the battery lies on top of the black ribbon, which then serves as an aid in the later removal of the discharged battery. A 4.5-volt battery should be used for maximum output level and dynamic range. The more easily obtainable 1.5-volt AA-size battery will produce a slightly lower dynamic range and output level (see "Specifications" section). Specific batteries and battery life figures are also shown in the "Specifications" section. In general, alkaline and mercury batteries are recommended because of much greater shelf life and less likelihood of leakage. However, with regular usage, a fresh carbon-zinc battery will give nearly as long a service life due to the low current drain of the 1776A.

Adapting For Phantom Power

The optional 506A phantom power adapter may be used to replace the battery and permit operation of the 1776A from remote, phantom-type power supplies (such as the EV-AC24M) delivering 24-to-48-volts DC. Current drain is approximately 4 mA per microphone. Note that battery operation will no longer be possible after the 506A has been installed.

INPUT REQUIREMENTS AND CONNECTIONS

The 1776A's 150-ohm balanced output is appropriate for the typical balanced input designed for low-impedance microphones. Usually, such inputs require a Switchcraft A3M-type three-pin audio connector, as shown in Figure 6.

The 1776A's output level is 5 to 10 dB higher than the typical low-impedance dynamic microphone. This higher-than-usual output level may overload some low-impedance inputs when the microphone is driven with very high sound pressure levels. Evidence of such overload is a rough, raspy sound quality — caused by clipping in the first gain stage — that is not affected by the mixer's volume control. The optional 380 10 dB inline attenuator reduces microphone output just ahead of the mixer input, thus removing the cause of the input overload.

The higher-than-usual output level of the 1776A also makes it appropriate for most medium-impedance and some high-impedance inputs, without the use of a matching transformer. Most medium- and high-impedance inputs are

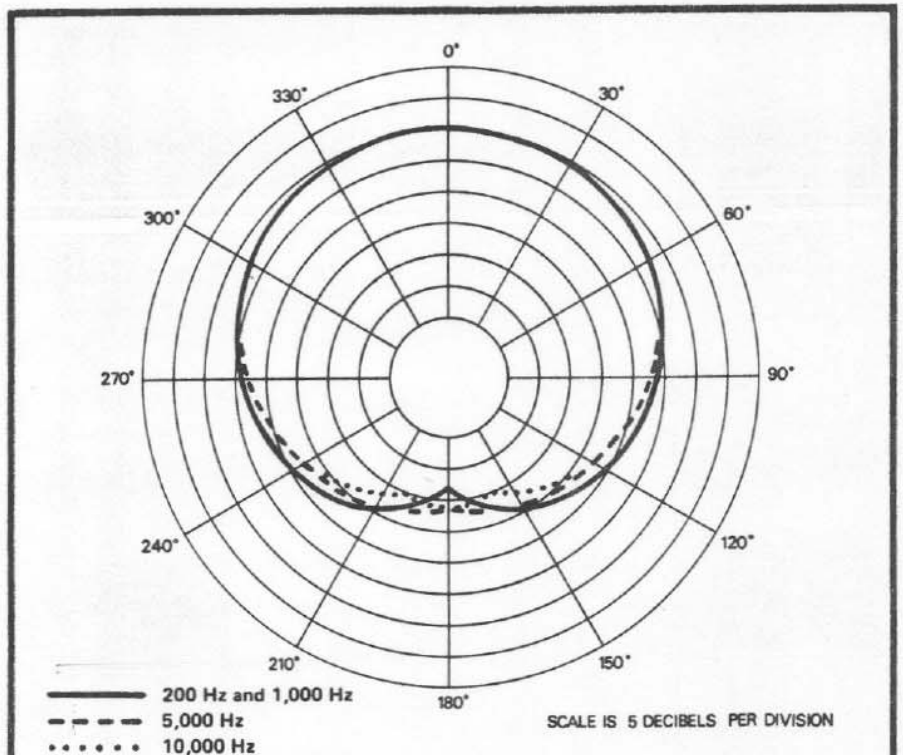


FIGURE 4 — Polar Response

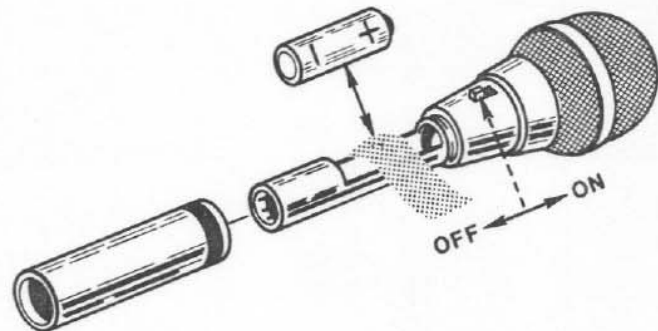


FIGURE 5 — Battery Replacement

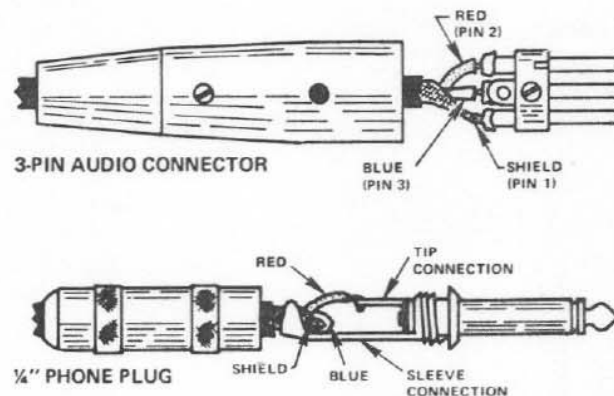


FIGURE 6 — 3-Pin Connector & 1/4" Phone Plug Wiring Connections

unbalanced, requiring the 1/4" phone plug connector shown in Figure 6.

USING THE VARIABLE LOW-FREQUENCY RESPONSE (PROXIMITY EFFECT)

The 1776A's low-frequency response varies with the distance from the sound source to the microphone as shown in Figure 3. Maximum bass response is produced in close-up use with the microphone 1/4-inch from the sound source. Minimum bass response is experienced at distances greater than 24 inches.

Useful special effects can be created by an imaginative application of the 1776A's proximity effect:

1. By working closer to the microphone, the human voice will sound more robust, although intelligibility may be adversely affected.
2. Working close to the 1776A provides a reduced tendency to PA system feedback, over and above that provided by the cardioid directional characteristic and close working-distance alone. When close-talked, the substantial bass boost provides an increase in overall microphone output level. The mixer gain may be proportionately reduced, resulting in a reduction of the system's

sensitivity to feedback caused by sound entering the microphone from the distant loudspeakers.

3. For musical instrument pickup, the variable bass response can be utilized to achieve a "clean" bass pickup at a distance of 24 inches or more. By moving the 1776A to a few inches from the instrument, bass will be increased.

Caution note: with the sound source (lips) closer than 2 inches, bass response is increased dramatically (as shown in Figure 3). If too much signal is generated at the microphone, overloading in the amplifier input circuits may occur, causing severe distortion.

MAINTENANCE INSTRUCTIONS

You have purchased one of the finest electret condenser microphones available. A little care will allow you continued use of this precision instrument for many years. Your electret condenser microphone should not be left in the open sun or other hot environments where temperatures may approach or exceed 54.4° C (130° F) for any period of time. Following this suggestion will prolong the life of the generating element.

If you feel your unit is malfunctioning, have it examined and repaired only by an Electro-Voice authorized repair service station.

WARRANTY (Limited) —

Electro-Voice General Purpose Microphones are guaranteed without time limit against malfunction in the acoustic system due to defects in workmanship and materials. (Any active electronics incorporated in a microphone is guaranteed for three years from date of original purchase against such malfunction.) If such malfunction occurs, microphone 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, appearance items, cables, cable connectors, or switches and does not cover 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 repair information and service locations, please write: Service Dept., Electro-Voice, Inc., 600 Cecil Street, Buchanan, Michigan 49107 (Phone: 616/695-6831) or Electro-Voice West, 8234 Doe Avenue, Visalia, California, 93277 (Phone: 209/625-1330,-1).

Electro-Voice also maintains complete facilities for non-warranty service of E-V products.

Specifications subject to change without notice.

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