

CONTROLLED MAGNETIC[®] NOISE-CANCELING COMMUNICATIONS MICROPHONE**GENERAL**

The Shure Model 419B RANGER 2 CONTROLLED MAGNETIC[®] noise-canceling microphone is designed especially for use where surrounding high noise levels make intelligible transmission a problem. The microphone provides clear, crisp, natural voice response in even the noisiest surroundings.

The 419B represents a significant improvement over most microphones with anti-noise features. Noise cancellation in the 419 is provided through the combination of highly directional operation and superior discrimination against noise from distant sources over an unusually wide frequency range. The 419 is equally well suited for mobile or fixed station use where wind, traffic, and engine noise or machinery, vibration, and ventilation noise may interfere with speech transmission.

With greater clarity and improved reliability and durability, the microphone is an excellent noise-canceling unit for connection to all low-impedance microphone inputs.

The 419 fits naturally and comfortably in the hand, and is not affected by heat or humidity. The exclusive ARMO-DUR[®] case is immune to oil, grease, fumes, salt spray, sun, rust, and corrosion—and is outstanding in its ability to resist mechanical shocks and vibration. The “Million-Cycle” leaf-type switch is designed to withstand rigorous operating conditions and constant use.

Microphone Features:

- Highly intelligible speech response
- Extremely effective noise cancellation
- Available as low-impedance model
- Sturdy and reliable CONTROLLED MAGNETIC cartridge
- Unparalleled ruggedness and durability
- Tough ARMO-DUR[®] case
- Mounting bracket supplied—fits hang-up button on back of microphone

NOISE CANCELLATION

The important characteristics contributing to noise cancellation and clear speech transmission in the 419 are shaped frequency response, directionality, and distance discrimination.

Shaped Frequency Response: The acoustical elements are arranged to optimize performance in the critical voice frequency range of 200 to 4,000 Hz. The result is the reduction in pickup of sounds outside the desired frequency range and proper control of those sounds within the desired range.

Directionality: Through its inherent directional properties, the 419 rejects sounds that do not originate from the front of the microphone. This reduces pickup of off-axis sounds extraneous to the user's voice.

Distant Discrimination: The 419 discriminates against sounds arriving from a distance in favor of sounds from a near source. The microphone operates on the pressure gradient principle. Two sound entry ports spaced a small distance apart produce, by means of phase cancellation, reduction of sensitivity to all distant sounds.

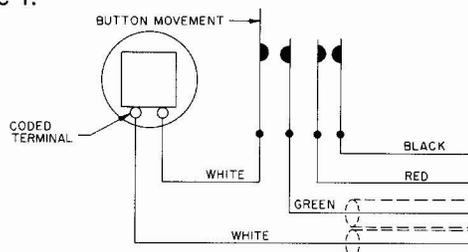
OPERATION

In order to obtain the best noise-canceling performance with the 419, “close-talking” is required. The lips must be as close as possible to the microphone grille (directly facing the grille and pressed against the rubber lip guard). For greatest discrimination between voice sounds and background noise, do not hold the microphone more than 25 mm (1 in.) from the mouth.

No special precautions beyond ordinary care are necessary in operating the 419. It will function very satisfactorily under most conditions of humidity and temperature. Dropping the microphone or other similar severe mechanical shocks should be avoided.

CONNECTIONS

The internal connections of the 419 are shown in Figure 1.

**INTERNAL CONNECTIONS**
FIGURE 1

The RED and BLACK cable leads control an external relay or switching circuit. The GREEN and WHITE leads are the “hot” conductors for connection to a balanced line audio input circuit; the shield is connected to the amplifier or chassis ground.

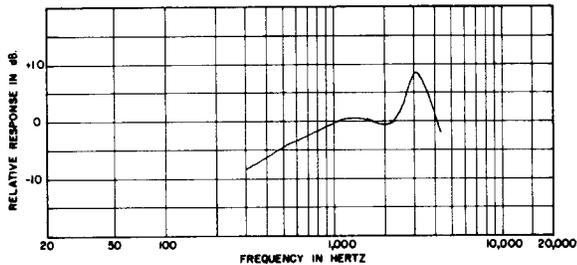
SPECIFICATIONS

Type

CONTROLLED MAGNETIC®, Noise-Canceling

Frequency Response

Optimized response in the critical 200 to 4,000 Hz range (see Figure 2)



TYPICAL FREQUENCY RESPONSE
FIGURE 2

Impedance

Microphone rating impedance is 150 ohms (200 ohms actual)

Load Impedance Range

200 ohms to 1,000 ohms

Output Level (at 1,000 Hz)

Open Circuit Voltage* -40.5 dB (9.4 mV)

Power Level** -59.5 dB

*0 dB = 1 volt per 100 microbars

**0 dB = 1 milliwatt per 10 microbars

Switch

Push-to-talk leaf-type switch actuates microphone circuit and external relay or switching circuit.

Cable

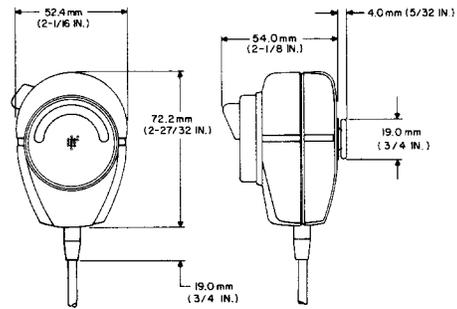
1.5m (5 ft) four-conductor, two-conductors shielded, coiled cable

Case

Matte black ARMO-DUR®

Dimensions

See Figure 3



OVERALL DIMENSIONS
FIGURE 3

Net Weight

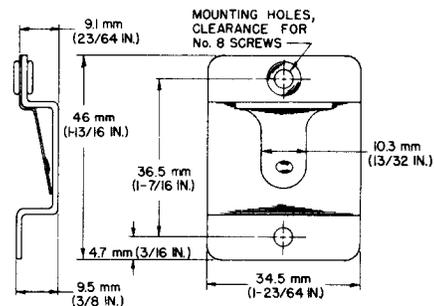
260 grams (9 oz)

Packaged Weight

401 grams (14 oz)

MOUNTING

A mounting bracket for permanent installation is supplied with each microphone (see Figure 4).



MOUNTING BRACKET
FIGURE 4

FURNISHED ACCESSORY

Mounting Bracket (3 in kit) RK6MB

REPLACEMENT PARTS

Cartridge R19B
 Cable C25C
 Case Front 90A1084
 Case Back 90A1047
 Switch Assembly 90K1008
 Switch Button 65A240A