

NOISE-CANCELING TRANSISTORIZED DYNAMIC MICROPHONE



GENERAL

The Shure Model 577C Sonobar Microphone is designed for clear, crisp, natural voice reproduction combined with a highly effective noise-canceling function. The microphone is a high-quality, extremely reliable, hand-held dynamic unit, and features professional design, small size, light weight, and modular construction. The transistor amplifier of the Model 577C is designed to match carbon microphone type input circuitry.

The Model 577C noise-canceling microphone is the result of extensive research, and represents a significant improvement over most microphones having anti-noise features. Noise cancellation in the Model 577C microphones is obtained through the combination of highly directional operation, and superior discrimination against noise or unwanted sounds from a relatively distant source and over an unusually wide frequency range.

The modular construction of the 577C greatly facilitates field servicing. The cartridge, switch and cable are of modular design, which makes them replaceable in a matter of minutes if servicing is ever necessary.

The 577C microphone 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 withstand mechanical shocks and vibration. The "million-cycle" leaf-type switch is designed to withstand severe operating conditions and constant usage.

Microphone Features:

- Highly intelligible voice response
- Extremely effective noise cancellation
- Transistor amplifier bias characteristics optimized for aircraft transmitter inputs
- Highly rugged and reliable
- Modular construction for ease of field service
- "Million-cycle" leaf-type switch controls microphone and external relay or switching circuit
- Super-rugged ARMO-DUR case
- Lifetime hang-up button and mounting bracket
- Triple Flex™ cable provides three to four times the flex life of previously available coiled cords

APPLICATIONS

The Model 577C microphone is designed for use in communications and paging applications where its qualities of highly intelligible voice response, noise canceling, and ruggedness are a necessity. Such applications are two-way and industrial communications systems, including radiotelephone and amateur radio. The 577C may be used with great effectiveness in all types of mobile communications, including such difficult environments as helicopter traffic and news reports. The microphone is exceptionally suitable for outdoor and indoor public address and paging systems in noisy areas such as factories, airport terminals, lobbies and restaurants. The Model 577C is a microphone with a transistor amplifier and is recommended for use where carbon or amplified mi-

crophones are required to match transmitter input circuits. The 577C is designed for use with low- to medium-impedance amplifier inputs.

ACOUSTIC CONSIDERATIONS

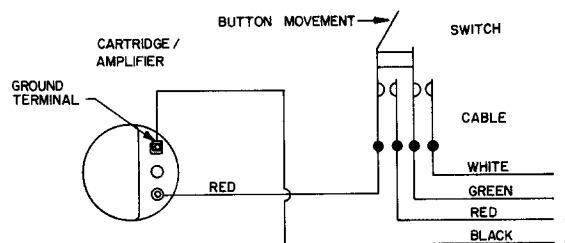
The important characteristics contributing to total noise reduction in the 577C microphone are shaped frequency response, directionality, and distance discrimination. The acoustical elements are arranged to optimize performance in the frequency range of 100 to 5,000 Hz. The result is the elimination of sounds outside the desired frequency range and proper control of those sounds within the desired range.

The 577C microphone rejects noise through its inherent directional properties and discriminates against unwanted sounds arriving from a distance in favor of sounds from a near source. The microphone operates on the pressure-gradient principle and has two sound entry ports, spaced a small distance apart.

In order to obtain the best performance with this microphone, it must be used as "close-talking." The lips should be as close to the microphone grille as possible (pressed against the rubber lip guard), with a distance of up to 25 mm (1 in.) from the grille providing the greatest discrimination between voice sounds and background noise.

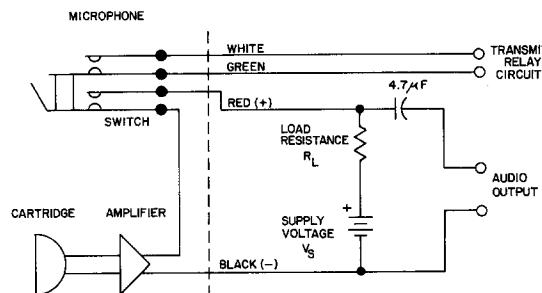
CONNECTIONS

The Model 577C is a low-impedance transistor-amplified microphone with a four-conductor coiled-cord cable and a double-pole single-throw leaf-type switch to control the microphone circuit and an external relay or switching circuit. The RED and BLACK leads are connected to the microphone circuit. The WHITE and GREEN leads control the relay or switching circuit.



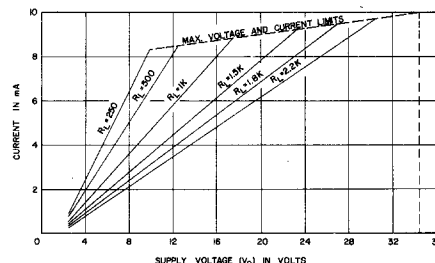
INTERNAL CONNECTIONS

FIGURE 1



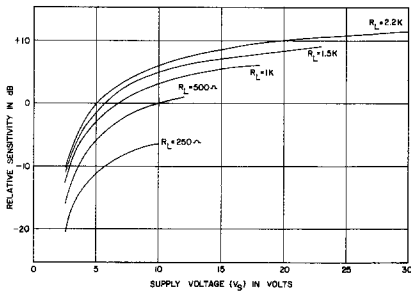
TYPICAL OPERATING CIRCUIT

FIGURE 2



MAXIMUM VOLTAGE AND CURRENT LIMITS

FIGURE 3



SENSITIVITY AS A FUNCTION OF SUPPLY VOLTAGE AND LOAD RESISTANCE
FIGURE 4

The internal switch connections of the Model 577C are shown in Figure 1 and a typical external operating circuit is shown in Figure 2. The design parameters of the operating circuit (supply voltage, load resistance, current and sensitivity) may be selected using the curves shown in Figures 3 and 4. If, for instance, the available supply voltage is 16 Vdc and a current drain of 8 mA is desired, Figure 3 shows that a load resistance (R_L) of 1K is necessary. Referring to Figure 4, it can be seen that with a supply voltage of 16 Vdc and a load resistance of 1K, the relative sensitivity is approximately +6 dB higher than the specified output level of -47 dB with 10 Vdc and a 500-ohm load (see Specifications).

CAUTION: The following should be observed to avoid damage to the Model 577C:

1. Supply voltage (V_S) must be between 2.5 and 35 Vdc. Voltages in excess of 35 Vdc may substantially reduce the life of the microphone amplifier. Voltages less than 2.5 Vdc are not sufficient for microphone amplifier operation (although no damage will result).
2. The top (dashed) line of Figure 3 determines the maximum allowable current (dissipation limit) for various combinations of supply voltages and load resistances.
3. Make certain proper polarity is followed for the red (+) and black (-) leads as shown in Figures 1 and 2. In mobile equipment installations especially, battery polarity verification is extremely important.

MOUNTING

The Model 577C is supplied with a mounting bracket to provide a snap-in hang-up for the microphone when not in use. The bracket has mounting holes with clearance for No. 8 screws (see Figure 7).

OPERATION

No special precautions beyond ordinary care are necessary in operating the 577C microphone. It will operate satisfactorily under most conditions of temperature and humidity. Dropping the microphone or other severe mechanical shocks should be avoided.

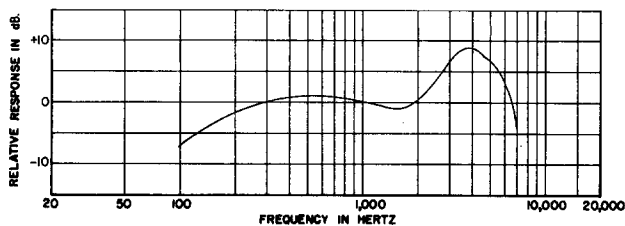
SPECIFICATIONS

Type

Dynamic, Noise-Canceling (with transistor preamplifier)

Frequency Response

100 to 5,000 Hz (see Figure 5)



TYPICAL FREQUENCY RESPONSE
FIGURE 5

Output Level (at 1,000 Hz, 5/16 in.)

-47 dB (4.5 mV) with 10 Vdc, 500-ohm load
(0 dB = 1 volt per microbar) (see Figure 4)

Recommended Load Impedance Range

250 to 2,200 ohms (see Figures 3 and 4)

Signal Handling Capability (at 1,000 Hz with 10 Vdc, 500-ohm load) 126.5 dB SPL produces +5.5 dBV (1.9V) at 10% THD

DC Supply Voltage and Current

2.5 to 35 Vdc (see Figure 3)

Hum Sensitivity

Equivalent to 27 dB SPL in 1 millioersted field

Operating Temperature Range

-54° to 85°C (-65° to 185°F)

Switch

Double-pole, single-throw, leaf-type, push-to-talk

Cable

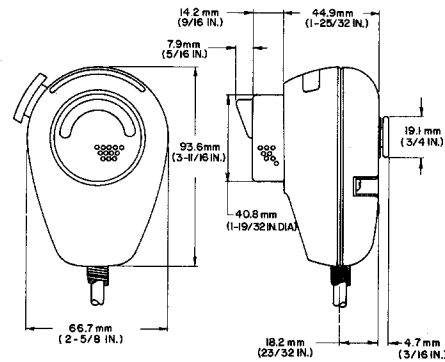
Non-detachable, 1.8m (6 ft), 4-conductor, neoprene-jacketed coil cord

Case

Two-tone gray, high-impact ARMO-DUR

Dimensions

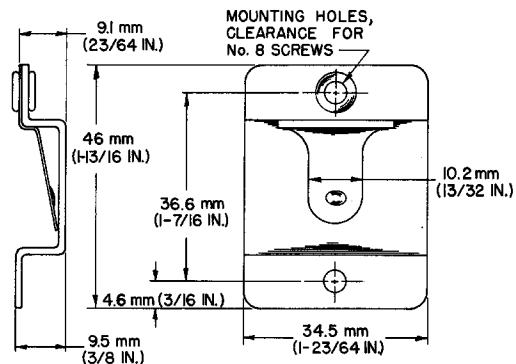
See Figure 6



OVERALL DIMENSIONS
FIGURE 6

Net Weight

330 grams (11½ oz)



MOUNTING BRACKET
FIGURE 7

FURNISHED ACCESSORY

Mounting BracketRK6MB

REPLACEMENT PARTS

Cartridge and AmplifierR98C
SwitchRK188S
CableC90
Case Front and BackRK189C

GUARANTEE

This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from the date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor.

SHIPPING INSTRUCTIONS

Carefully repack the unit and return it prepaid to the factory. If outside the United States, return the unit to your dealer or Authorized Shure Service Center for repair. The unit will be returned to you prepaid.