

Controlled Magnetic Transistor Amplifier Hand Microphone

General: The Model 414C Transistor Amplifier Hand Microphone is a small size Controlled Magnetic unit designed for clear, crisp, natural voice response of high intelligibility.

The microphone features:

- A transistor amplifier within the case, powered by the current available from a carbon microphone circuit, making the 414C directly replaceable for carbon microphones in most carbon circuits.
- Frequency response from 200 to 4,000 cps, especially tailored for voice communication use.
- Extremely rugged high impact "Armo-Dur" case—both lighter and stronger than die-cast metal cases—comfortable to touch in hot or cold weather.
- Single-throw, double-pole, leaf type switch designed to stand up under severe operating conditions and constant usage.
- A small, light, and compact case taking minimum space in portable equipment that fits comfortably and firmly in the palm of the hand.
- Ruggedness and dependability under all operating conditions.
- Long life, neoprene jacketed coiled cord.

The Model 414C Microphone is especially recommended for all types of outdoor-indoor communications activities in mobile and fixed station use, as in Police, Fire, Utility, Forestry, and Transportation Services; Commercial; Industrial—including radio telephone, amateur radio and similar applications. The microphone is unusually suitable for severe outdoor and indoor public-address. The output signal, due to the transistor amplifier, is sufficient to permit the use of up to 100 feet of unshielded cable.

Furnished Accessory: The microphone is provided with a 94A242 Mounting Bracket for permanent placement with associated equipment. The bracket has mounting holes with clearance for No. 8 screws. See Figure E.

SPECIFICATIONS

Frequency Response: 200 to 4,000 Hz

Output Level: —1.5 db* or .83 volt using 6 volts dc and 500 ohm load.

* 0 db = 1 volt with 100 microbars
1 microbar = 1 dyne per square centimeter.

Load Impedance: Recommended AC load 100 to 1000 ohms.



D.C. Voltage Across Energized Microphone:

Recommended voltage from 6 to 12 volts d.c. (will work with somewhat reduced output down to 2½ volts d.c.)

Case:

High impact "Armo-Dur".

Cable:

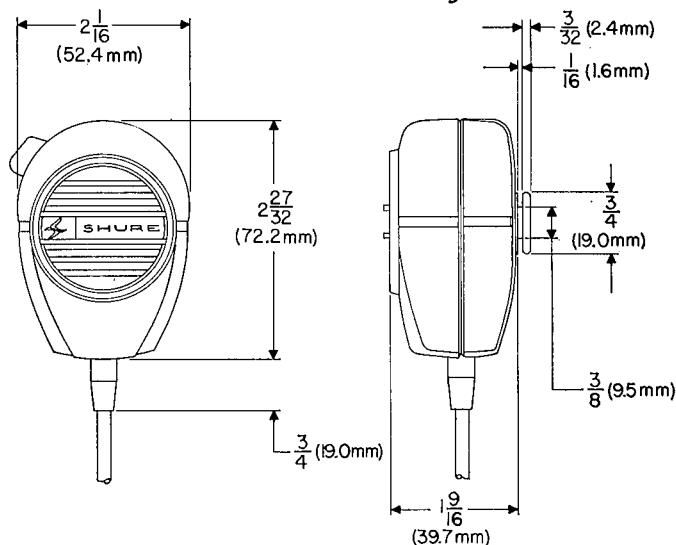
4-conductor, neoprene jacketed, coil cord.

Switch:

Single-throw, double-pole, leaf type.

Dimensions:

See Figure A.



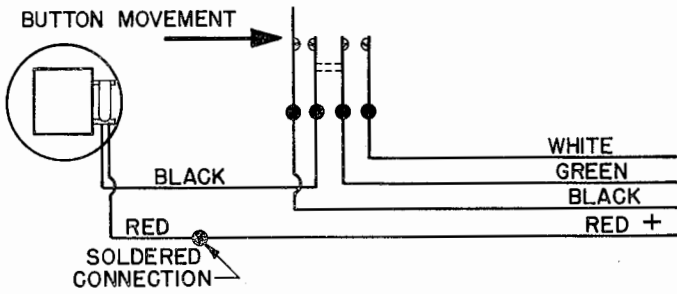
OVERALL DIMENSIONS
FIGURE A

Mounting: Bracket supplied. See Figure E.

Net Weight: 8 ounces (227 grams)

Shipping Weight: 13 ounces (368 grams)

Connections and Operation: Internal connection of the Model 414C are shown in Figure B.



INTERNAL CONNECTIONS
FIGURE B

The Model 414C can be used over a range of resistive loads from 100 to 1,000 ohms; however, the applied dc voltage "E" (See Figure C) to the transistor amplifier (across points X and Y with switch closed) **MUST NOT EXCEED 12 VOLTS. EXCESS VOLTAGES MAY SUBSTANTIALLY REDUCE THE LIFE OF THE MICROPHONE. DC voltages less than 2-1/2 volts must not be used as the transistor amplifier may become inoperative.**

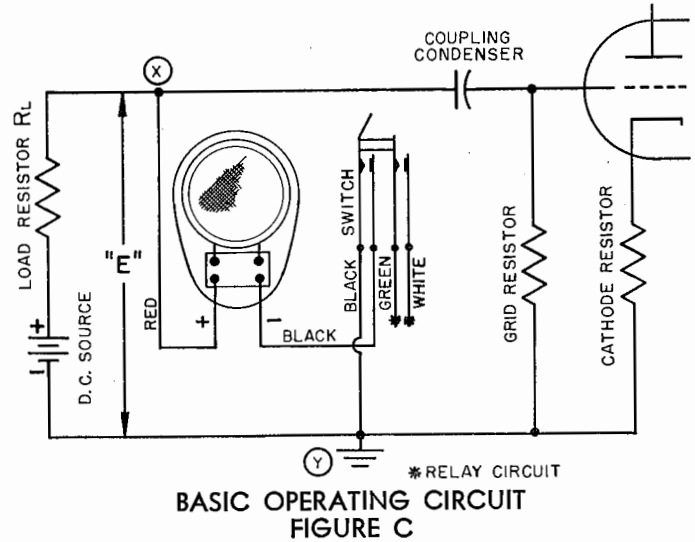
CAUTION: It is imperative that the Model 414C Microphone be in the operating circuit at the time the microphone input voltage is measured. It is also important to follow the proper schematic polarity as shown in Figure D, or the transistor amplifier will be inoperative. In mobile communication equipment installed in automobiles, verification of battery polarity is very important.

The D.C. Source Voltage can be replaced by an equivalent D.C. Power Supply Voltage Divider equipped with suitable by-pass condenser "C" as shown in Figure D.

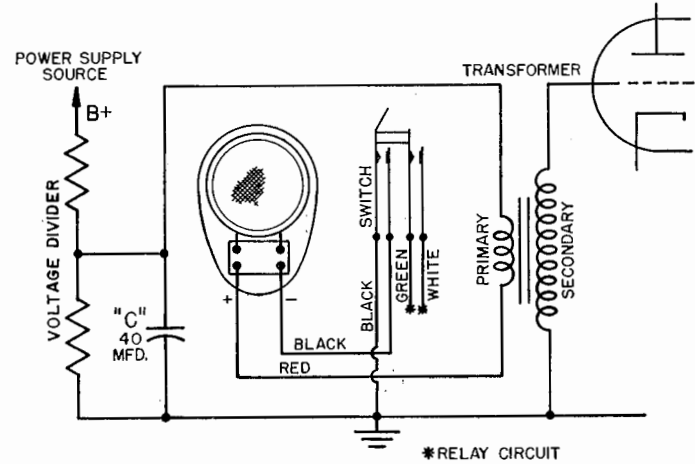
Figure D, also, shows that R has been replaced by a transformer primary—typical of a basic carbon microphone circuit.

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.

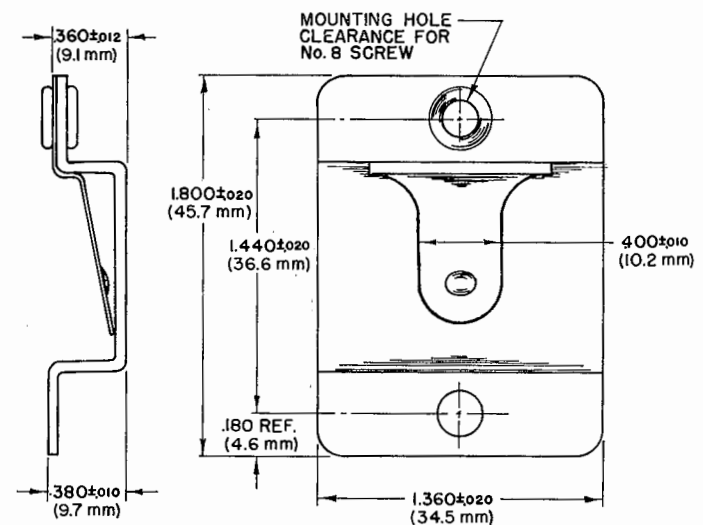
Shipping Instructions: Carefully repack the unit and return it prepaid to the factory. If outside the United States, return the unit to your dealer or Authorized Shure Service Center for repair. The unit will be returned to you prepaid.



BASIC OPERATING CIRCUIT
FIGURE C



OPERATING CIRCUIT
FIGURE D



MOUNTING BRACKET
FIGURE E