

## Carbon Microphones

**General:** Model "104" series Communications type Microphones are pressure-actuated diaphragm type carbon microphones designed especially for efficient reproduction of speech.

The microphones fit naturally and comfortably in the palm of the hand—retaining a natural feel when the weather varies from hot to cold. The sturdy high impact "armo-dur" case is light and compact and takes minimum space in portable equipment. It is both lighter and stronger than die-cast metal cases—proved through critical laboratory and severe field tests.

The Model "104" series microphones are equipped with a heavy-duty, push-to-talk switch and are available in a variety of switching circuits. (See Figure A). The microphones are supplied with a stranded copper conductor "Coiled-Cord" cable.

**Application:** Model "104" series microphones are especially recommended for outdoor public address, all types of mobile communications, hams, audience participation shows, and all other applications where a rugged hand microphone is needed. The frequency response is designed to produce clear, crisp, voice response.

The Model "104" series microphones will replace Shure 100 series carbon microphones. Listed below are carbon communications microphone and recommended replacement.

MODEL No.	SHURE REPLACEMENT
102C, 102E	104A
101C, 101E 103	104B

**Installation:** The microphone is provided with a bracket for permanent placement with the associated equipment. The bracket has mounting holes with clearance for No. 8 screws. (See Figure C).

**Connection:** Internal switch connection and cable connections of Model "104" series microphones are shown in Figure A. Model 104A has a double pole normally open switch to control both the cartridge circuit and the relay circuit. Model 104B has a single pole normally open switch in the relay circuit.

**Operation:** A typical operating circuit is shown in Figure D. Also shown in Figure D is a table of voltages and corresponding resistances to limit the operating current through the carbon button to 50 milliamperes. The resistance value shown in the table includes the D.C.



resistance of the transformer primary and other wiring components. The microphone will operate satisfactorily with currents up to 50 milliamperes. However, no damage will result if currents rise to 100 milliamperes. The resistance of the carbon button is 70 to 100 ohms with 50 milliamperes flowing through button.

The Model "104" series microphone will operate satisfactorily in all ordinary conditions of temperature and humidity.

**Specification:** Voltage sensitivity 5 db. below 1 volt for 100 microbar signal at microphone grill. Voltage measured across 100 ohm load.

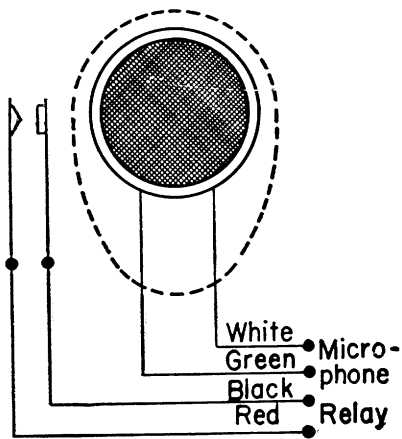
MODELS 104A AND 104B	
Dimensions . . . . .	See Fig. B.
Net Weight . . . . .	1 1/8 lb. (510.3g)
Shipping Weight . . . . .	1 3/8 lb. (623.7g)

**Recommended Load Impedance:**  
50 to 100 ohms.

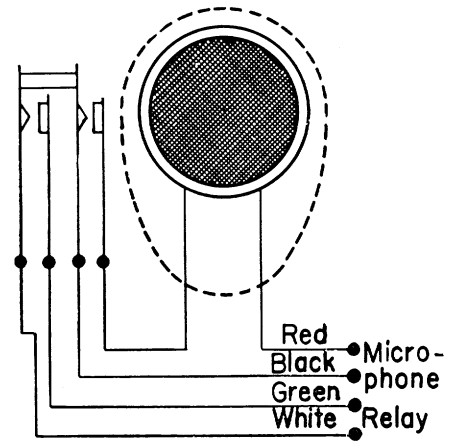
**Guarantee:** This Shure product is guaranteed in normal use to be free from electrical and mechanical defects for a period of one year from the date of purchase. Please retain proof of purchase date. This guarantee includes all parts and labor.

**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.

## FIG. A. INTERNAL CONNECTIONS

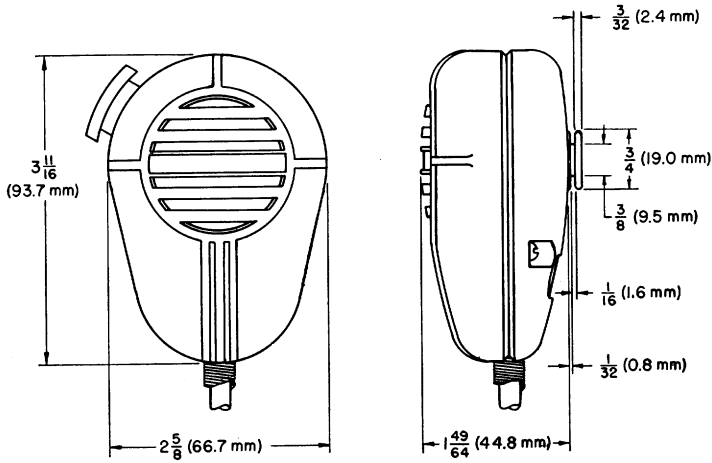


MODEL 104B

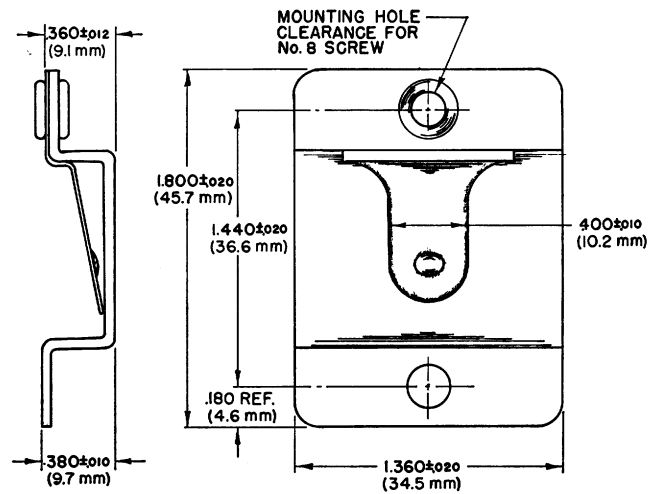


MODEL 104A

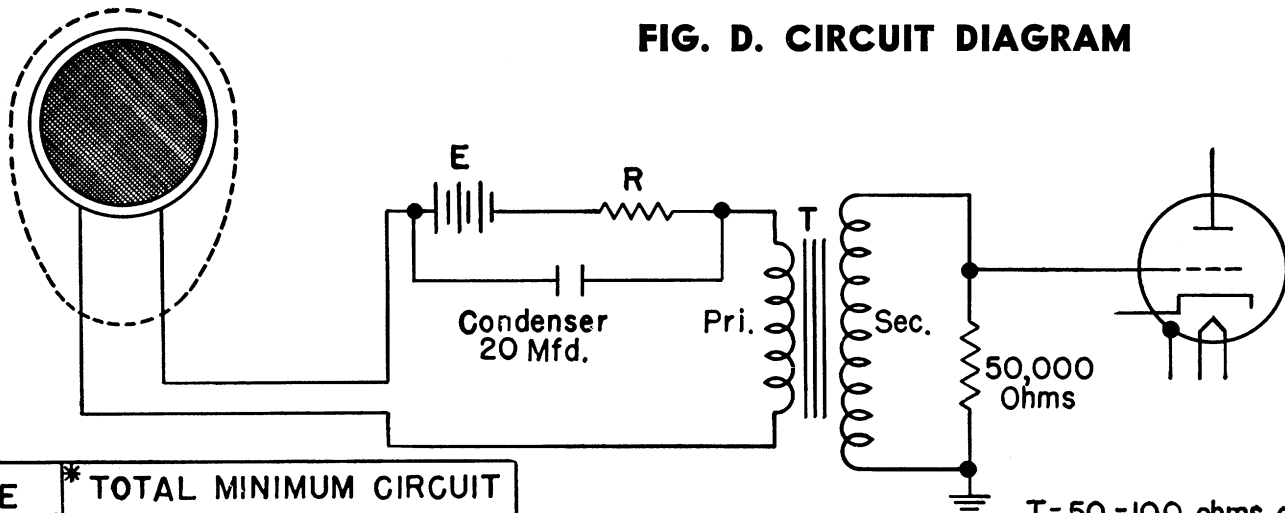
## FIG. B.



## FIG. C. MOUNTING BRACKET



## FIG. D. CIRCUIT DIAGRAM



T = 50 - 100 ohms carbon microphone to grid transformer.

E (VOLTS)	* TOTAL MINIMUM CIRCUIT RESISTANCE (OHMS)
4 1/2	10
6	40
12	160
24	400

\* Resistance R plus other circuit d.c. resistance.