

DATE: August 1937

SUBJECT: Models 3B and 10B  
Carbon Microphones

**MODELS 3B and 10B CARBON MICROPHONES**

**GENERAL:** Model 3B Carbon Microphone is an inexpensive two-button microphone for general-purpose use in medium fidelity systems where low cost is the important factor. Model 3B is designed for spring-suspension in microphone rings.

Model 10B Convertible Hand Microphone is equivalent to Model 3B in performance. Removable "Quickway" Hooks are furnished for converting from hand type to conventional type for spring suspension in microphone rings. Model 10B is fully assembled and wired, and is furnished with 3-conductor cordage 6 feet long.

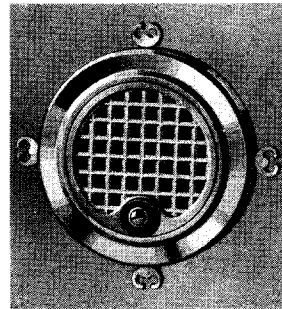
**APPLICATIONS:** Typical applications of Models 3B and 10B are found in low cost portable and mobile public address equipment, announcing and paging systems, amateur radiophone transmitters, etc. The convertible feature of Model 10B makes it especially convenient where limited equipment must be used under a wide variety of service conditions.

**INSTALLATION:** Model 3B is designed for spring suspension mounting in carbon microphone rings in the usual manner. Model 10B is a hand microphone which can be quickly converted for stand mounting in a carbon ring. Loosen the three binder head terminal screws and disconnect the cable. Remove the three screws that hold the microphone head in the close-fitting ring and slip the head out of the ring. Screw "Quickway" hooks into the tapped holes in the frame. Mount in carbon ring with springs (Shure A30A or A31A) in the usual manner. Simply reverse the procedure to convert back to hand-type microphone.

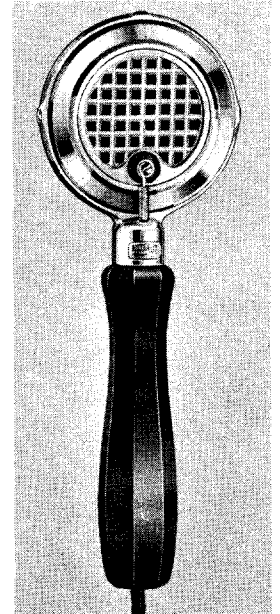
**CONNECTIONS:** Suggested wiring diagrams are shown in Fig. A. The button current may be controlled by either the rheostat or potentiometer method as indicated. The potentiometer method is preferred by some engineers because it allows the current to be gradually reduced to zero before the microphone is disconnected, thus reducing the possibility of "packing".

To use Models 3B and 10B as single-button microphones, terminals A and C (front button and frame as indicated in the "end-view" sketch) are connected to the microphone transformer primary, in series with the button current source. The recommended and maximum button currents (see OPERATION below) are the same as for two-button operation.

Suitable microphone transformers are available from most radio parts distributors.



Model 3B  
Carbon Microphone  
(Above)



Model 10B  
Convertible Hand  
Microphone  
(At right)

**OPERATION:** The following button-current ratings apply to Models 3B and 10B: Recommended Current: 4 to 7 ma. per button. Maximum Current: 12 ma. per button.

Under no circumstances should the maximum current rating be exceeded. Low button current results in better quality of reproduction, lower hiss level, and long life. Excessive current will cause burning of the carbon and diaphragm. Do not leave button current on microphone for extended periods when not in use.

**"Packing".** A difference between the two button currents exceeding 7 ma. indicates "packing". The possibility of "packing" can be reduced to a minimum by: (a) careful handling to reduce shocks and jars; (b) gradually reducing button current to a minimum before disconnecting the microphone or batteries; (c) turning off the button current before moving the microphone.

Should "packing" occur, the microphone can usually be restored to normal condition by tapping lightly on the frame with a rubber-tipped pencil while rotating the instrument. If this procedure fails, the diaphragm or carbon has probably been burned and the microphone should be returned to the factory for reconditioning.

**Dampness.** Excessive dampness may cause cohering of the carbon granules, and it is therefore important to keep the microphone in a dry place.

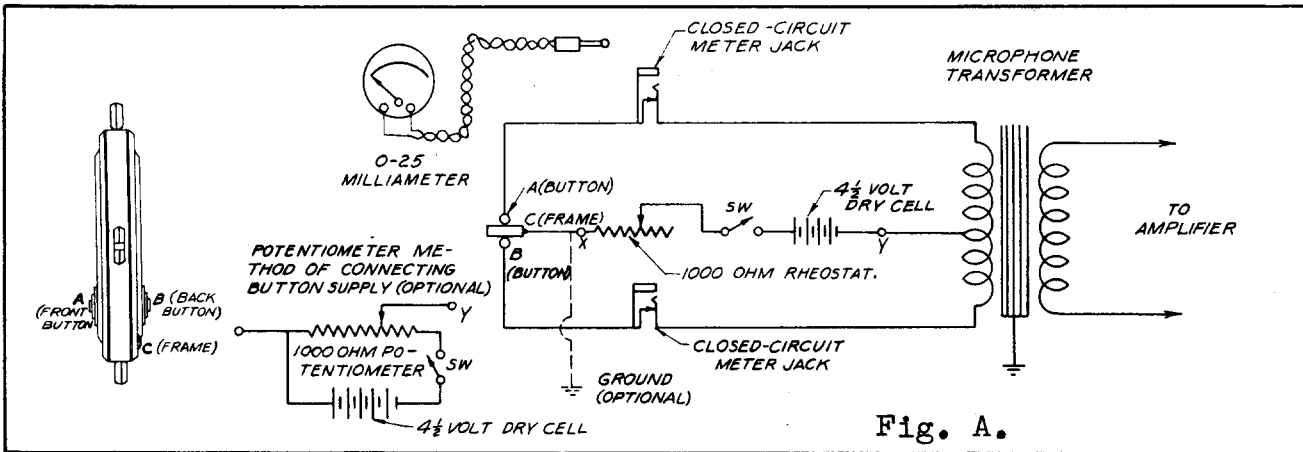


Fig. A.

**SPECIFICATIONS**

- Voltage Sensitivity:** 4 millivolts R. M. S. per bar across 200 ohms at 400 cycles.
- Output Power Level:** Minus 29 db in 200 ohms at 400 cycles. (0 db = 6 mw. Sound Pressure, 10 bars.)
- Recommended Load Impedance:** 200-ohm input transformer.
- Button Current:** Recommended: 4 to 7 ma. per button.  
Maximum: 12 ma. per button.

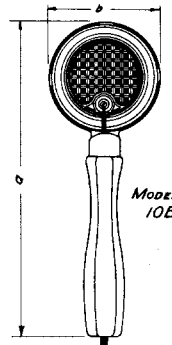
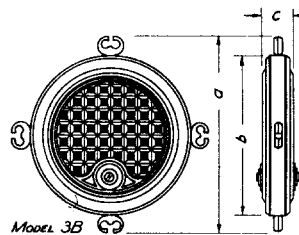


Fig. B.

	Model 3B*	Model 10B*
<b>Thickness</b> (c)*	1/4"	1/2"
<b>Diameter Overall</b> (a)*	3-11/16"	--
<b>Frame</b> (b)*	3"	3"
<b>Height</b> (a)*	--	8-7/8"
<b>Finish: Head</b>	Nickel	Nickel
<b>Handle</b>	--	Black Enamel
<b>Net Wt.</b>	1/2 lb.	3/4 lb.
<b>Ship. Wt.</b>	3/4 lb.	1 lb.
<b>Code Word</b>	RUCIV	RUCOR
<b>List Price</b>	\$5.50	\$10.00

\* See Fig. B.

**Guarantee:** Each microphone is guaranteed to be free from electrical and mechanical defects for a period of one year from date of shipment from the factory, provided all instructions are complied with fully.

**FREQUENCY CHARACTERISTIC OF MODELS 3B AND 10B**

Fig. C.

