

DATE: January 1942

SUBJECT: Model 750B Crystal
 Military-Type Hand Microphone

MODEL 750B MILITARY-TYPE HAND MICROPHONE



GENERAL : Model 750B "Military-Type" Hand Microphone is a pressure-actuated diaphragm-type crystal microphone designed especially for efficient reproduction of speech. The crystal used is a grafoil (high capacity) bimorph unit, triple moisture-sealed to withstand adverse climatic conditions. The Microphone fits naturally and comfortably in the palm of the hand. It is light, compact and takes minimum space in portable equipment. It has a specially designed "On-Off" switch which locks in the "On" position when pushed up, operating "On-Off" in the down position. The sturdy die cast case is attractive Iridescent Gray with Satin chrome finish grille. The Microphone is complete with removable suspension hook, 7 foot shielded rubber-covered cable and spring cable protector.

APPLICATIONS: Model 750B is suitable for efficient transmission of speech, and it is ideally suited to portable transmitters, Announcing Systems, and for all other uses where a hand microphone is required. The frequency response characteristic is designed for high intelligibility. The pick-up characteristic is of the conventional semi-directional type. (See "Acoustic Considerations").

INSTALLATION: Model 750B may be conveniently installed by using the attached hook to hang the Microphone in a convenient position. For permanent placement in portable or mobile equipment, Mounting Bracket Assembly No. 99-160, including Mounting Button No. 31-204, will be supplied on special order.

CONNECTIONS: The inner conductor or "hot" lead should be connected to the grid of the first tube in the amplifier across a load resistance of 1/2 to 5 megohms. Input resistance as low as 1/2 megohm may be used if necessary but higher values are recommended if good low-frequency response is desired. The shield lead should be connected to the chassis. See Fig. A.

Added lengths of connecting cable will be accompanied by a decrease in output level as given in the table below. There is no frequency discrimination introduced by the cable, regardless of length.

<u>Total Cable Length</u>	<u>Output Level* at Cable Terminals</u>
7 Ft.	-52.5 db
25 Ft. (Standard)	-55.0 db
50 Ft.	-58.0 db
75 Ft.	-60.0 db
100 Ft.	-61.5 db

* (Expressed in db below 1 volt per bar.)

Most modern high-gain amplifiers have a sufficient margin of gain to make up for the decrease in output levels shown in the table. If the amplifier does not have the necessary gain a preamplifier at the microphone or near the main amplifier, is suggested. Preamplifiers with low impedance output are recommended if the main amplifier system has low Impedance transformer or mixed input.

Cable should be of high quality and low capacity. The inner leads should be soldered and insulated with a good grade of rubber tape. Metal braid sleeve or a serve of fine wire should be soldered between the shields of the cable to complete the shielding.

On special order, the Microphone can be furnished with switches to control relay or other circuits.

OPERATION: No polarizing voltage is required for crystal microphones.

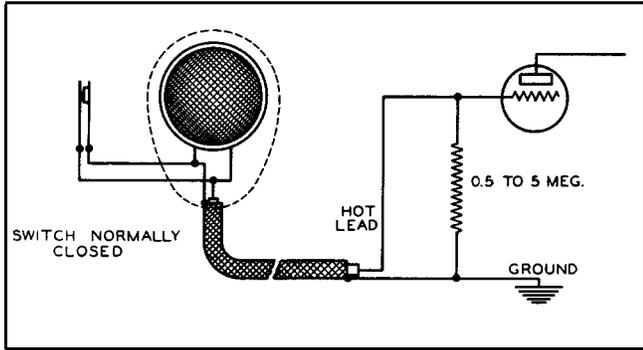
Crystal microphones may be seriously damaged if accidentally connected to loud speaker or power supply outlets carrying high. voltage. Check your connections carefully.

Crystal microphones should not be used or kept in places where the temperature exceeds 125°F. They should not be exposed to the rays of the sun in very hot weather for any considerable length of time - or left in closed automobiles parked in the sun during hot weather, as the temperature inside the automobile may easily be built up to over 125° and permanently damage the crystal.

When used near a radio transmitter, use the minimum length of cable consistent with requirements. Careful grounding of the cable shield is advisable.

ACOUSTIC CONSIDERATION: Model 750B is a semi-directional microphone. It has a frequency response adapted especially to the transmission of speech, with a rise at approximately 3000 c.p.s. The low frequency response may be easily attenuated through the choice of sufficiently low terminating resistance (See Fig. B). This permits more efficient

transmission of high frequency sounds, contributing greatly toward improved intelligibility without overloading the power stage of the amplifier.



SPECIFICATIONS

Voltage sensitivity: 2.36 millivolts r.m.s. per bar at the end of a 25-foot cable across 1 to 5 megohms at 400 cycles. This is equivalent to 32.5 db below 1 volt for a 10 bar signal at the end of a 7 foot cable.

Internal Output Impedance: Equivalent to a 1,500 micro-microfarad condenser.

Recommended Load Impedance: 1/2 to 5 megohms.

Model	750B
Height, Overall (a)*. .	4-7/16"
Height, Case (h)*. .	3-13/16"
Width (b)*. .	2-3/4"
Thickness (c)*. .	1-7/8"
Finish	Iridescent Gray
Net Weight.	14 ounces
Shipping Weight.. . . .	1 lb. 3 ounces
Code Word	RUSEL

* See Fig. C.

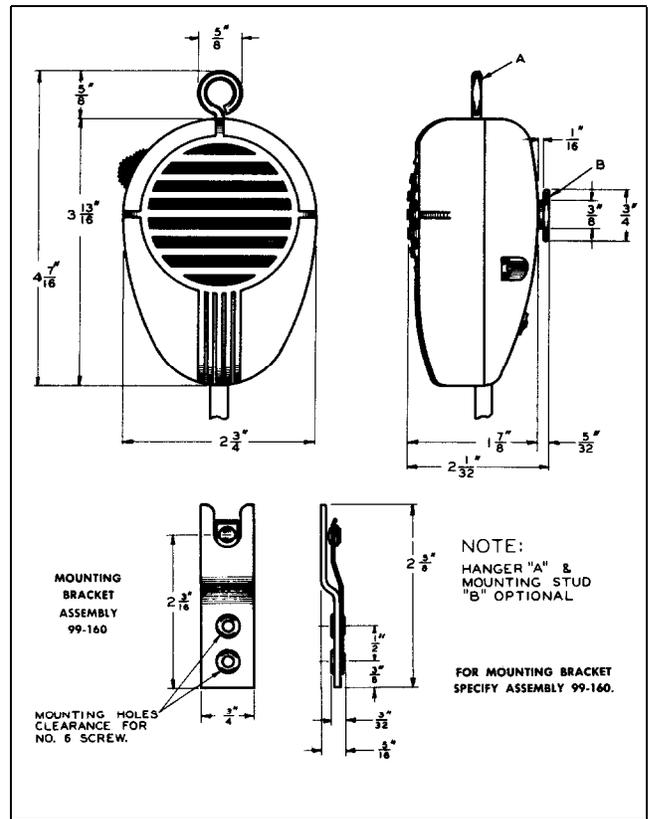
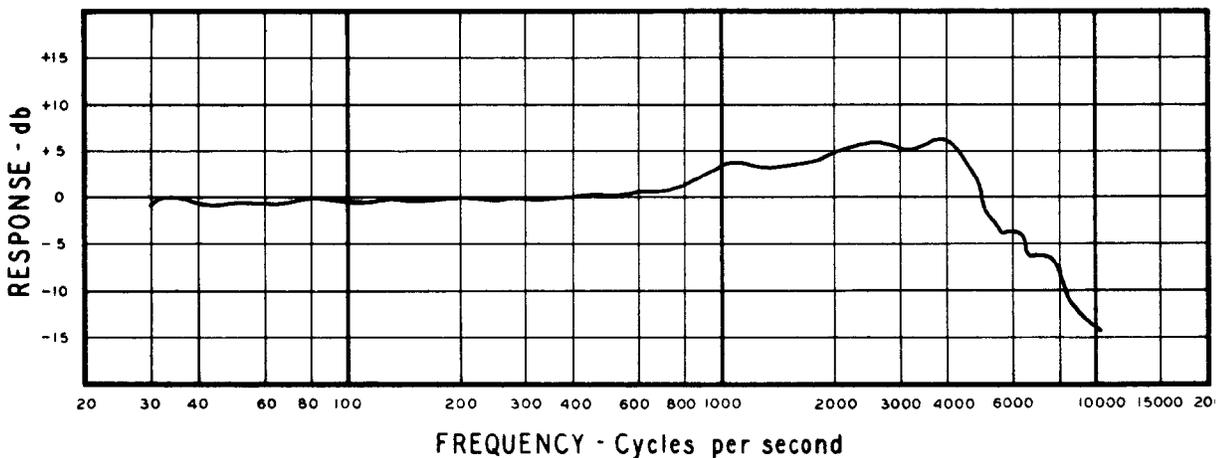


Fig. C. Overall Dimensions 750B microphone, and Mounting Bracket (Hanger A Included as Standard Equipment, Stud B, on special order).

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. In case of damage, return the microphone to the factory for repairs. Our guarantee is voided if the microphone case is opened

LICENSE NOTICE: Shure patents pending. Licensed under patents of the Brush Development Company.



400 CYCLE LEVEL, DECIBELS = 52.5 db. BELOW ONE VOLT PER DYNE PER SQ. CM.
 TERMINATION — 5 MEG.

Fig. B: Frequency Response 750B