

DATE: March, 1941

SUBJECT: Model 708A

"Stratoliner" Crystal Microphone

MODEL 708A "STRATOLINER" CRYSTAL MICROPHONE



**GENERAL:** Model 708A "Stratoliner" is a pressure-actuated diaphragm-type semi-directional crystal microphone with wide range response for high quality reproduction of sound. The crystal used is a grafoil (high capacity) bimorph unit, moisture-sealed to withstand adverse climatic conditions. The case is attractively streamlined for improved acoustical performance and modern appearance. The microphone is provided with built-in receptacle and 7-foot shielded rubber-jacketed cable with microphone plug attached.

**APPLICATIONS:** The Model 708A is designed for public address, home recording, and all general purpose use. The frequency response (see Fig. B) is suitable for either voice or music, and is free from undesirable peaks. When placed horizontally, the 708A exhibits the semi-directional properties shown in Fig. C. Used vertically, (microphone point straight up), it becomes non-directional in the horizontal plane, and performers may be placed all around it without frequency discrimination. A swivel is provided to permit tilting of the microphone through an angle of 90°.

**INSTALLATION:** Model 708A is equipped with the standard 5/8"-27 thread and may be mounted on any Shure desk, banquet, or floor stand. For overhead suspension, an A35A Suspension Adapter may be used. Convenient cable changing is possible due to the built-in receptacle. A 7-foot single-conductor shielded rubber-jacketed cable is furnished with plug attached. (See catalog for bulk length and special cables with plug attached.) External flexible couplings are unnecessary since the internal elements of the microphone are substantially isolated from the outer case.

**CONNECTIONS :** The inner conductor of the cable should be connected to the grid of the first tube in the amplifier across a load resistance of 5 megohms. Input resistances as low as 1 megohm may be used if necessary but higher values are recommended because of the better low-frequency response obtained. The shield 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.

Total Cable Length	Output Level* at Cable Terminals
7 Ft. (Standard)	-53.0 db
25 Ft.	-55.0 db
50 Ft.	-58.0 db
75 Ft.	-60.0 db
100 Ft.	-61.5 db
150 Ft.	-64.0 db
200 Ft.	-66.0 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.

Added 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. Longer lengths of cables with standard plug attached may be purchased at small cost, and may be used interchangeably with shorter cables. For unusually long cable lengths or for applications where the hum conditions are bad, Shure Type C30A Super-shielded cable is recommended. (See catalog).

**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 build up to over 125° and permanently damage the crystal.

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

**ACOUSTIC CONSIDERATION:** Model 708A is a semi-directional microphone with polar characteristics as shown in Fig. C.

When turned to the vertical position, the microphone is non-directional in the horizontal plane, and is ideal for the grouping of artists around it without frequency discrimination. It is also well-suited for "large-group pickup of orchestras, etc.

(over)

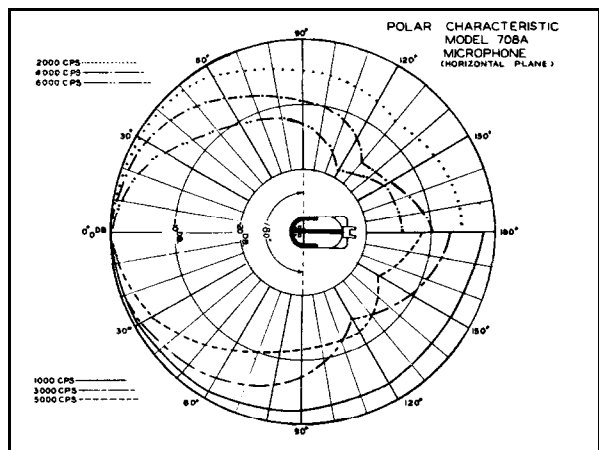
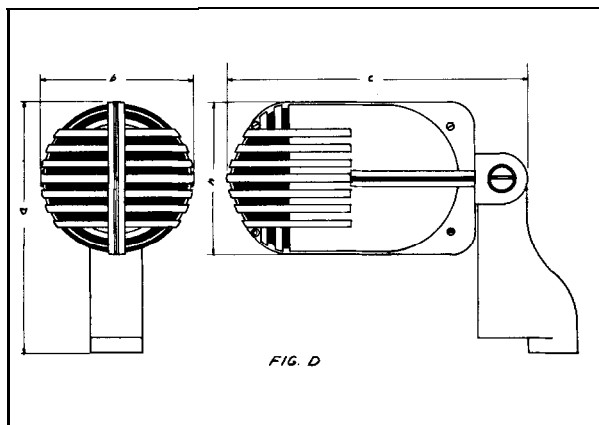
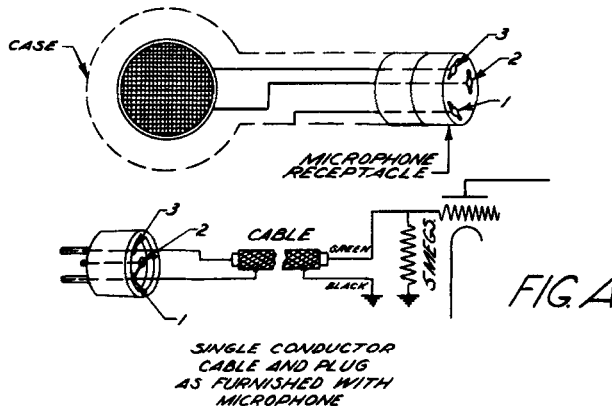
**SPECIFICATIONS**

Voltage Sensitivity: 2.2 millivolts r.m.s. per bar at the end of a 7-foot cable across 1 to 5 megohms at 400 cycles. This is equivalent to 53 db below 1 volt per bar at the terminals of the 7-foot cable.

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

Recommended Load Impedance : 1 to 5 megohms.

	708A
Height, Overall (a)*. . . . .	4"
Height, Case (h)+. . . . .	2-1/2"
Width (b)*. . . . .	2-1/2"
Thickness (c)*. . . . .	4-7/8"
Finish . . . . .	Irridesc. Gray Chrome
Net Weight . . . . .	1 Lb.
Shipping Weight . . . . .	2-1/4 Lb.
Code Word (7' Cable) . . . . .	RUDUM
List Price . . . . .	\$17.50
* See Fig. D.	



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.

## FREQUENCY CHARACTERISTIC OF MODEL 708A

