

DATE: April, 1941

SUBJECT: Models 508A, B, C
 "Stratoliner" Dynamic Microphones

508 Series "Stratoliner" Dynamic Microphones

GENERAL : Models 508A, B, C are pressure dynamic microphones with wide-range frequency response and typical semi-directional pickup characteristics. The three models differ only in output impedance as described under "Connections" below.

The microphones operate on the principle of a moving-conductor in a magnetic field. A high flux magnet is used in the magnetic circuit, which together with a specially designed moving system and associated acoustic network, provides high efficiency and smooth peak free response.

The case is attractively streamlined for improved acoustical performance and for modern appearance. Each microphone is provided with a built-in receptacle and shielded rubber jacketed cable with microphone plug attached.

APPLICATIONS: Models 508A, B, C are suitable for public address recording call systems, communications radio telephone equipment, and similar applications. Extreme ruggedness and immunity to severe temperature and humidity conditions are inherent in the design. The frequency response characteristic is wide range (see Fig. B) providing high quality reproduction of sound from 70 to 7,000 cycles. The pickup characteristic is of the conventional semi-directional type. (See "Acoustic Considerations"). A swivel is provided which permits pointing the microphone toward the source of sound. When turned to the vertical position the microphone becomes non-directional in the horizontal plane and artists may be placed all around it without frequency discrimination.

INSTALLATION : All microphones have the standard 5/8"-27 thread and may be mounted on any Shure desk, banquet, or floor stand. Shure floor stands are especially recommended because of the effective isolation against floor vibration which they provide. For overhead suspension, an A35B Suspension Adapter may be used.

CONNECTIONS : Due to the very low impedance of the moving conductor, all models include an internal high-quality vacuum-impregnated transformer with high permeability core. The output impedances and cables furnished with the three models are listed below:

| Model | Impedance | Cable |
|-------|----------------|-------------------------|
| 508A | 35-50 ohms | 25 ft. two-conductor |
| 508B | 200-250 ohms | 25 ft. two-conductor |
| 508C | high impedance | 25 ft. single-conductor |

Low impedance models 508A and 508B are recommended where long cable lengths are required. The permissible line length is practically unlimited since neither the level nor the frequency response is appreciably affected by reasonable lengths of line. As shown in the table below the cable loss is very small. When long lines are used care should be taken that the cable does not parallel A.C. power lines for long distances to avoid A.C. hum induction.

| Cable Length | Loss in Level* Model 508A | Loss In Level* Model 508B |
|--------------|------------------------------|------------------------------|
| 25 ft. | 0 db | 0 db |
| 250 ft. | 0.4 db | 0 db |
| 500 ft. | 0.8 db | 0.2 db |
| 1000 ft. | 1.6 db | 0.4 db |
| 2000 ft. | 2.9 db | 0.7 db |

(* Based on 2-conductor #20 equivalent, twisted and shielded)



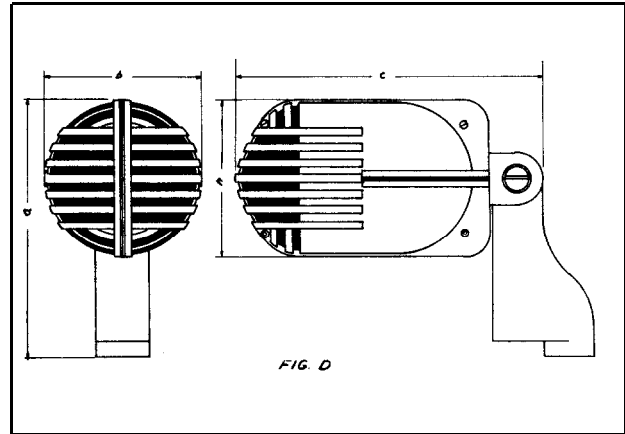
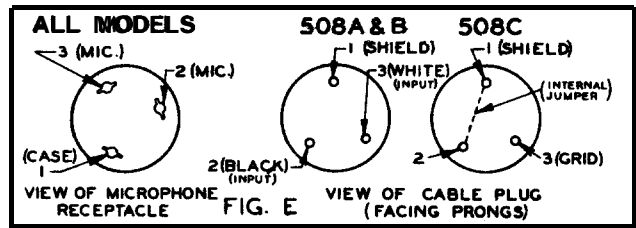
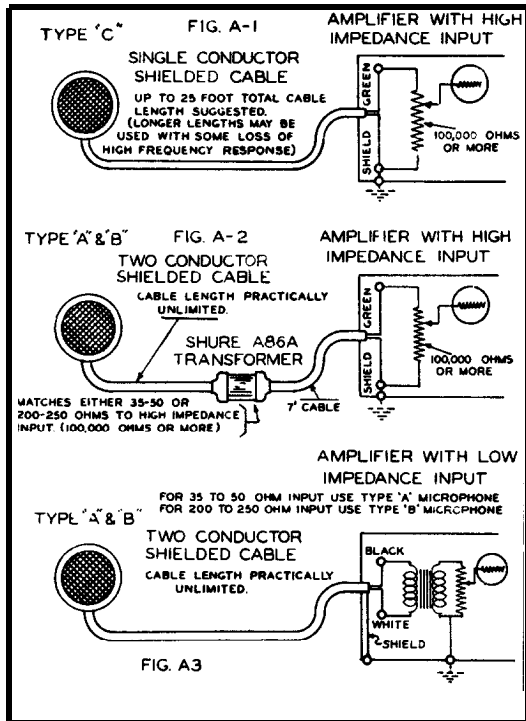
Low impedance models 508A and 508B may be fed into a standard low impedance input amplifier (as shown in Fig. A-3) or into an amplifier with high impedance input (Fig. A-2). In the latter case Shure Model A86A Cable-Type Transformer is available for coupling the low impedance line to amplifier. The double-winding primary permits coupling a 35-50 ohm line or 200-250 ohm line to the high impedance input of the amplifier.

High impedance model 508C may be used with any crystal microphone amplifier or other amplifier with an input impedance of 100,000 ohms or more (see Fig. A-1). For best high frequency response the total cable length should not exceed 25 feet; longer cable lengths may be used with some loss of high frequency response. The additional loss at 5,000 cycles is of the order of 2.5 db for an additional 25 ft. length of cable (50 ft. total) and 6 db for an additional 50 foot length (75 ft. total).

OPERATION : No special precautions beyond ordinary care are necessary in the operation of 508 Series Dynamic microphones. They will operate efficiently and dependably under all ordinary conditions in hot and cold climates. To retain the full strength of the highly efficient permanent magnet and to maintain alignment of structure, dropping or other severe mechanical shocks should be avoided.

ACOUSTIC CHARACTERISTICS: A frequency response curve typical of all models is shown in Fig. B. The smooth wide-range characteristic is excellent for high-quality reproduction of music and speech. 508 Series microphones may be termed semi-directional with polar characteristic as shown in Fig. C. Note the smooth contours at all frequencies, due to acoustic streamlining. The pickup angle is unusually wide; it is permissible to include the sources of sound within an angle of approximately 140° at the front of the microphone without introducing appreciable frequency discrimination.

When turned to the vertical position the microphone is substantially non-directional in the horizontal plane.



SPECIFICATIONS

Voltage Sensitivity:

Model 508A 71.8 db below 6 milliwatts for 10 bar signal when loaded with 35 to 50 ohms.

Model 508B 71.8 db below 6 milliwatts for 10 bar signal when loaded with 200 to 250 ohms.

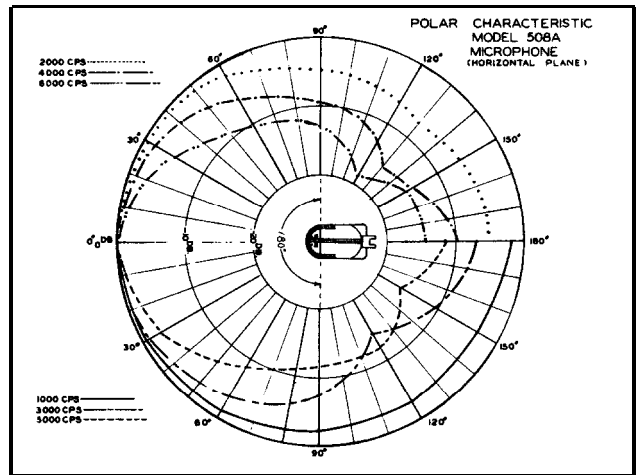
Model 508C 63 db below 1 volt per bar when loaded with 100,000 ohms or more. This is equivalent to 0.7 millivolts per bar across 100,000 ohms or more.

Recommended Load Impedance:

Model 508A 35 to 50 ohms.
Model 508B 200 to 250 ohms.
Model 508C 100,000 ohms or more.

| | 508A, B, C |
|----------------------------------|---------------------|
| Height, Overall (a)* | 4" |
| Height, Case (h)* | 2-1/2" |
| Width (b)* | 2-1/2" |
| Thickness (c)* | 4-7/8" |
| Finish | Irides. Gray Chrome |
| Net Weight (with Cable). | 2-1/4 Lb. |
| Shipping Weight. | 2-3/4 Lb. |
| Code Word, Model 508A. | RUDOC |
| Code Word, Model 508B. | RUDOD |
| Code Word, Model 508C. | RUDOB |
| List Price | \$27.50 |

* 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.

