DATA SHEET

No. 186

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 to-

gether with a specially designed moving system and

associated acoustic network, provides high efficiency

and smooth peak free response.

The case is attractively streamlined for im-

proved acoustical performance and for modern appear-

ance. 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 sys-

tems, communications radio telephone

equipment, and similar applications. Extreme rug-

gedness and immunity to severe temperature and

humidity conditions are inherent in the design. The

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 posi-

tion 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 recommend-

ed because of the effective Isolation against floor

vibration which they provide. For overhead suspen-

sion, 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-im-

pregnated transformer with high permeability core. The output impedances and cables furnished with the

three models are listed below:

<table>
<thead>
<tr>
<th>Model</th>
<th>Impedance</th>
<th>Cable</th>
</tr>
</thead>
<tbody>
<tr>
<td>508A</td>
<td>35-50 ohms</td>
<td>25 ft. two-conductor</td>
</tr>
<tr>
<td>508B</td>
<td>200-250 ohms</td>
<td>25 ft. two-conductor</td>
</tr>
<tr>
<td>508C</td>
<td>High impedance</td>
<td>25 ft. single-conductor</td>
</tr>
</tbody>
</table>

Low impedance models 508A and 508B are recom-

mended 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.

<table>
<thead>
<tr>
<th>Cable Length</th>
<th>Loss in Level*</th>
<th>Model 508A</th>
<th>Loss in Level*</th>
<th>Model 508B</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 ft.</td>
<td>0 db</td>
<td>0 db</td>
<td>0 db</td>
<td>0 db</td>
</tr>
<tr>
<td>250 ft.</td>
<td>0.4 db</td>
<td>0 db</td>
<td>0.2 db</td>
<td>0.2 db</td>
</tr>
<tr>
<td>500 ft.</td>
<td>0.8 db</td>
<td>0.2 db</td>
<td>0.4 db</td>
<td>0.4 db</td>
</tr>
<tr>
<td>1000 ft.</td>
<td>1.6 db</td>
<td>0.4 db</td>
<td>0.7 db</td>
<td>0.7 db</td>
</tr>
<tr>
<td>2000 ft.</td>
<td>2.9 db</td>
<td>0.7 db</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(* 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 ordi-

nary care are necessary in the opera-

tion of 508 Series Dynamic micro-

phones. They will operate efficiently and depend-

ably 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 A frequency response curve typical of

CONSIDERATION: 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 intro-

ducing appreciable frequency discrimination.

When turned to the vertical position the

microphone is substantially non-directional in the

horizontal plane.

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**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**

<table>
<thead>
<tr>
<th></th>
<th>508A</th>
<th>508B</th>
<th>508C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height, Overall (a)*</td>
<td>4&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Height, Case (h)*</td>
<td>2-1/2&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Width (b)*</td>
<td>2-1/2&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Thickness (c)*</td>
<td>4-7/8&quot;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Finish</td>
<td>Iridesc. Gray Chrome</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Net Weight (with Cable)</td>
<td>2-1/4 Lb.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Shipping Weight</td>
<td>2-3/4 Lb.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code Word, Model 508A</td>
<td>RUDOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code Word, Model 508B</td>
<td>RUDOD</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Code Word, Model 508C</td>
<td>RUDOB</td>
<td></td>
<td></td>
</tr>
<tr>
<td>List Price</td>
<td>$27.50</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 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.