UNI-DIRECTIONAL MICROPHONE
MI-3043-B with Three Prong Plug
MI-3043-C with Six Prong Plug
(KU-2A)

TECHNICAL DATA

OUTPUT LEVEL
At 1000 cycles when terminated into a matched load.
-60 db (0 db = .001 watts)
-68 db (0 db = .006 watts)
(Also see text)

OPEN CIRCUIT VOLTAGES
1460 x 10^-4 volts (500 ohm tap)
1060 x 10^-5 volts (250 ohm tap)
640 x 10^-6 volts (50 ohm tap)
20 x 10^-7 volts (25 ohm tap)

OUTPUT IMPEDANCE
Connected for 250 ohms as shipped, may be changed
in 25, 50, or 500 ohms.

DESCRIPTION
The MI-3043-B (and -C) Uni-Directional microphone
consists of two ribbon type microphone units suspended in
a common air gap. One of the units is open to sound waves
both in front and back and operates on the pressure
gradient principle. It is known as a velocity microphone. The
other unit has a tube connecting with a damped acoustical
labyrinth, sealed to the back side of the air gap, and
responds to pressure variations in the sound wave. It is
known as a pressure microphone. The outputs of the two
microphones are connected in series and the vector addi-
tion of the voltages generated by the two microphones pro-
duces a directional characteristic as shown in Figure 1.
The MI-3043-B and MI-3043-C are identical except for the
difference in the connector plugs as stated in the title.
The ribbon and magnet assembly is enclosed in a per-
forated housing. This housing provides protection against
dust and mechanical injury, and, to a certain extent, re-
duces wind noises. The acoustical labyrinth (or folded
tube) associated with the pressure microphone section is
contained in the cylindrical center part of the microphone.
The impedance matching transformer and a compensating
network is mounted in the hemispherical shell at the end
of the microphone.

SENSITIVITY—The sensitivity of these microphones is
at the same order as that of other high quality micro-
phones used in sound film recording. By connecting the
microphone output for twice the impedance for which
the amplifier input was designed, the microphone output
level may be raised by 4 db.

RESPONSE—The Uni-Directional Microphone has prac-
tically uniform response within its operating range. (See
Figure 1.) When the microphone is located less than two
feet from the source of sound, the low frequency response

* Input Sound Pressure of 40 dynes per square centimeter.

Figure 1. - MI-3043-B, -C Microphone
is increased somewhat although not to the same extent as with a velocity microphone. For sound sources more than three feet from the microphone this effect is negligible. The frequency response is not appreciably affected by changes in the angle of incident sound over an angle of 75 degrees each side of the axis of maximum response on the front of the microphone. An increase in high frequency response may be obtained by disconnecting the high frequency equalizer. (See Figure 4.)

**DIRECTIONAL CHARACTERISTIC**—These microphones have a very uniform response on the front side with the sensitivity decreasing slowly as the angle of the sound source with the maximum response axis increases. (See Figure 3.) Minimum response is at the rear of the microphone where the attenuation relative to sounds along the maximum response axis is 14-20 db. The axis of maximum response is on a line passing through the center of the ribbon and perpendicular to the plane of the ribbon.

**PHASING**—When more than one microphone is connected into a mixing circuit, it is necessary that the outputs of the microphones be in phase, otherwise the output of one microphone will oppose the output of another, resulting in a reduced overall output.

To check the phasing of two or more microphones, select one microphone as a reference unit and place it and the unit to be checked close together near a sound source and facing in the same direction. Connect the microphones, one at a time, to the mixing system and adjust the gain settings of the respective channels so that the indicated output reading is the same for either microphone. Then connect both microphones and note the combined output. If the combined output is less than the output of the individual microphones, one of the microphones is out of phase.

If several microphones are being phased, check the entire group before making any changes in wiring, then reverse the connections of the smaller group at the microphone plugs.

Any microphone that has been repaired or replaced should be checked for phasing before being placed in service. Microphones returned to the factory for repair are always connected in the same phase relation when returned as when received from the customer.

**INSTALLATION**—These microphones are designed for suspension mounting by means of a hanger and may be suspended overhead on a set or may be positioned above the pick up area by means of a handboom or a mechanical boom. The MI-3010 Hanger (See Figure 6) is available to facilitate mounting of this microphone. Figure 7 illustrates the MI-3060 handboom and the MI-3061 handboom bag. The MI-3066 and MI-3067 Handbooms are similar except the sections are made of duralumin, the former consisting of three four foot sections and the latter of two six foot sections.

**CONNECTIONS**—The MI-3043-C Microphone is provided with a six contact connector plug using two contacts in multiple for each of three connections. (Refer to the schematic diagram, Figure 8.) The MI-3043-B is provided with a three contact connector plug. Connections are shown in Figure 8.
OPERATION

Suspend the microphone so that the ribbon makes an angle of approximately 45 degrees with the floor and so that the axis of maximum response is directed toward the source of desired sound.

For close shots, do not position the microphone nearer than three feet to the source of sound to avoid an increase in low frequency response as outlined under "RESPONSE."

Avoid unnecessary movement or "facing" of the microphone since the response of the microphone varies less than 1.5 db when rotated through an angle of 45 degrees to each side of the axis of maximum response.

A windscreen such as the MI-3059 should be fitted to these microphones for outdoor use. This screen is effective in reducing the undesirable noise caused by wind, and as a result, more intelligible sound can be recorded on an outdoor set than is possible without a windscreen.

For further information on the use of microphones the reader is referred to the booklet entitled "Microphone Technique in Sound Film Recording" (RCA Instructions HM-24116).

should be attempted in the field. If it is found that serious trouble exists in the microphone (and not elsewhere in the circuit) a "Returned Goods Tag" and "Report Blank" should be obtained from the RADIO CORPORATION OF AMERICA, RCA VICTOR DIVISION, Camden, N. J., before returning the microphone for repairs.

Figure 7.—MI-3060 Handboom and MI-3061 Handboom Bag

REPLACEMENT PARTS LIST

The following parts list is included to provide proper identification when ordering replacement parts. When ordering, specify the item by stock number and description.

<table>
<thead>
<tr>
<th>STOCK NO.</th>
<th>DESCRIPTION</th>
<th>DRAWING NO.</th>
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<tbody>
<tr>
<td>28728</td>
<td>Cable Assembly</td>
<td>857966-501</td>
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<tr>
<td>34208</td>
<td>Capacitor—0.1 Mfd.</td>
<td>72050-568</td>
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<tr>
<td>48045</td>
<td>Cover and Bushing Assembly</td>
<td>187202-501</td>
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<tr>
<td>23597</td>
<td>Plug (Male) (For MI-3043-B)</td>
<td>99003-1</td>
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<td>21878</td>
<td>Plug (Male) (For MI-3043-C)</td>
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<td>5164</td>
<td>Resistor—560 Ohm</td>
<td>78727-59</td>
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<td>28737</td>
<td>Screen Assembly</td>
<td>41735-502</td>
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<tr>
<td>28192</td>
<td>Transformer</td>
<td>900785-501</td>
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<td>48044</td>
<td>Tube Assembly</td>
<td>845657-501</td>
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LIST OF ACCESSORIES

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<th>STOCK NO.</th>
<th>DESCRIPTION</th>
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<tr>
<td>MI-3066</td>
<td>Duralumin Handboom (3 section 12 ft.)</td>
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<tr>
<td>MI-3067</td>
<td>Duralumin Handboom (2 section 12 ft.)</td>
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<tr>
<td>MI-3059</td>
<td>Windscreen</td>
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<tr>
<td>MI-3040</td>
<td>Hanger</td>
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<td>MI-3060</td>
<td>Handboom</td>
</tr>
<tr>
<td>MI-3061</td>
<td>Handboom Bag</td>
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<tr>
<td>MI-62</td>
<td>Cable—2 conductor shielded, rubber covered extension cable.</td>
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OTHER RCA RECORDING MICROPHONES

<table>
<thead>
<tr>
<th>RCA TYPE NO.</th>
<th>DESCRIPTION</th>
<th>USE</th>
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<tr>
<td>MI-3027-E</td>
<td>Velocity Microphone Music and indoor recording.</td>
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<tr>
<td>MI-3051-B-D-E</td>
<td>Pressure Microphone Speech and outdoor recordings.</td>
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Figure 8—Schematic and Connection Diagram of MI-3043-R, C. Microphone

RADIO CORPORATION OF AMERICA
RCA VICTOR DIVISION
CAMDEN, N.J., U.S.A.