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*

1460×10^{-6} volts (500 ohm tap)
1040×10^{-6} volts (250 ohm tap)
660×10^{-6} volts (50 ohm tap)
320×10^{-6} volts (25 ohm tap)

OUTPUT IMPEDANCE

Connected for 250 ohms as shipped, may be changed to 25, 50, or 500 ohms.

DIRECTIONAL CHARACTERISTIC

Uni-Directional
(See Figure 3)

PHYSICAL CHARACTERISTICS

Overall Dimensions

Width	4¾ inches
Depth	4¾ inches
Height	8½ inches
Weight	4¾ pounds

FREQUENCY RESPONSE

50 to 10,000 cycles
(See Figure 4)

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 addition of the voltages generated by the two microphones produces a directional characteristic as shown in Figure 3. 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 perforated housing. This housing provides protection against dust and mechanical injury, and, to a certain extent, reduces 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 of the same order as that of other high quality microphones 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 3 db.

RESPONSE—The Uni-Directional Microphone has practically uniform response within its operating range. (See Figure 4.) When the microphone is located less than two feet from the source of sound, the low frequency response

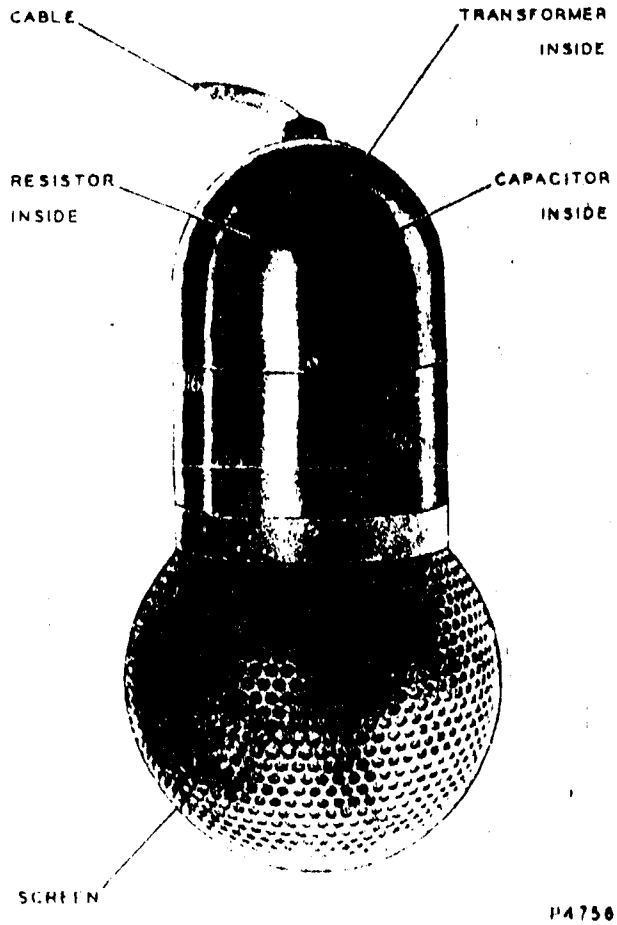

Figure 1—MI-3043-B, -C Microphone

* *Input Sound Pressure of 10 dynes per square centimeter.*

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.

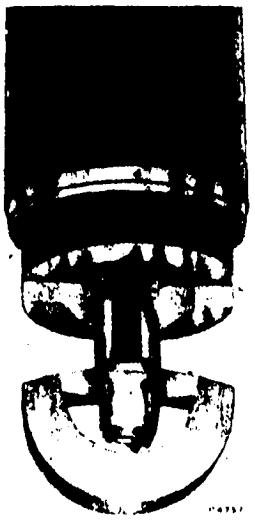

Figure 2—MI-3043-B, -C Microphone—Screen Removed Showing Motor Construction

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.

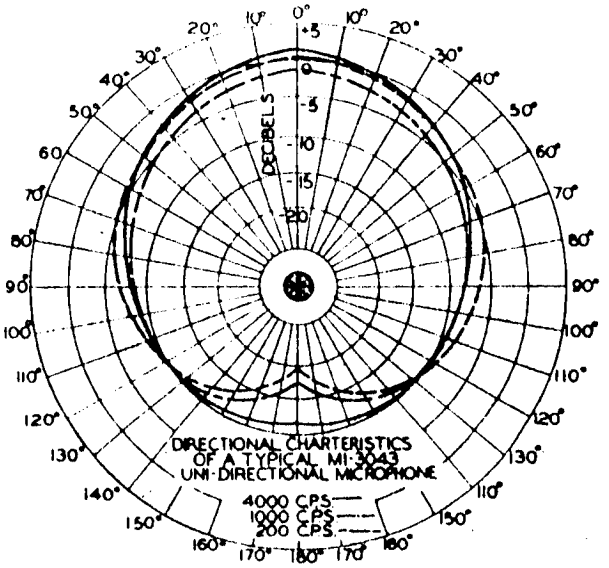

Figure 3—Directional Characteristic, MI-3043-B, -C

INSTALLATION

MOUNTING—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-3040 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.

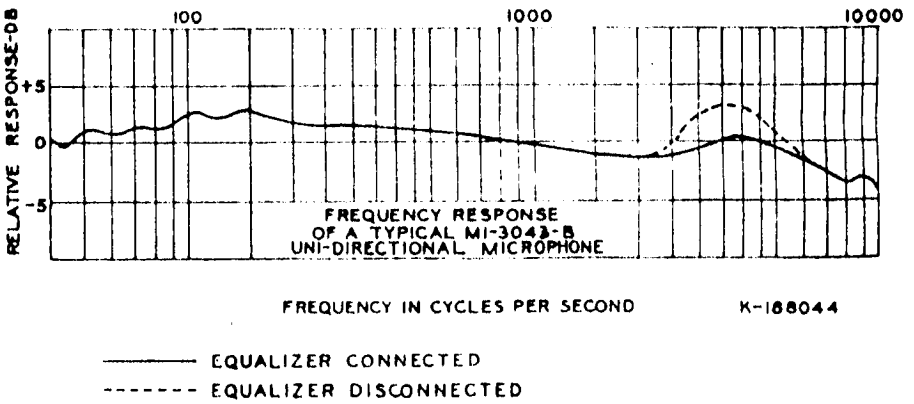

Figure 4—Frequency Response of MI-3043-B, -C

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.

Figure 5—MI-3059 Windscreen for use with MI-3043-B, -C, Microphone

For further information on the use of microphones the reader is referred to the booklet entitled "Microphone Technique in Sound Film Recording" (RCA Instructions IB-24316).

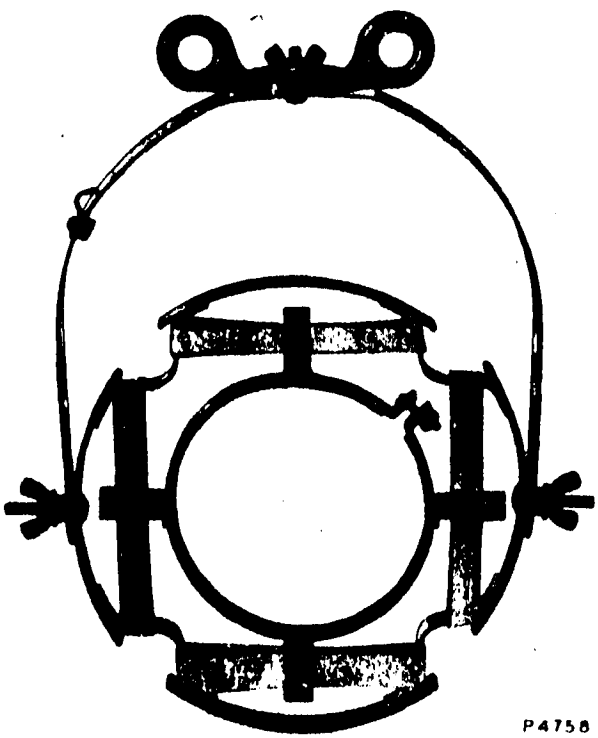

Figure 6—MI-3040 Microphone Hanger

MAINTENANCE

Only minor repairs to these microphones, such as replacement of cables, plugs, transformers, screens, etc., 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.

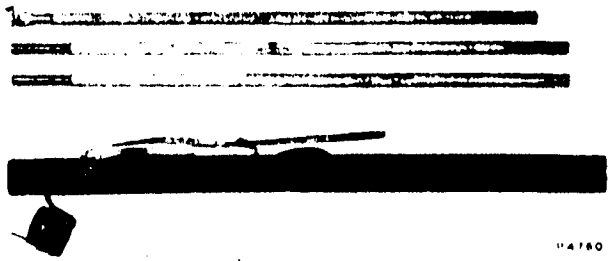

Figure 7—MI-3060 Handboom and MI-3061 Handboom Bag

REPLACEMENT PARTS LIST

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

STOCK NO.	DESCRIPTION	DRAWING NO.
28728	Cable Assembly	857964-501
34298	Capacitor—0.1 Mfd.	72050-568
48045	Cover and Bushing Assembly	187202-501
25597	Plug (Male) (For MI-3043-B)	99003-1
23878	Plug (Male) (For MI-3043-C)	99003-3
5164	Resistor—560 Ohms	78727-59
28737	Screen Assembly	417354-502
28192	Transformer	900785-501
48044	Tube Assembly	845657-501

LIST OF ACCESSORIES

STOCK NO.	DESCRIPTION
MI-3066	Duralumin Handboom (3 section 12 ft.)
MI-3067	Duralumin Handboom (2 section 12 ft.)
MI-3059	Windscreen
MI-3040	Hanger
MI-3060	Handboom
MI-3061	Handboom Bag
MI-62	Cable — 2 conductor shielded, rubber covered extension cable.

OTHER RCA RECORDING MICROPHONES

RCA TYPE NO.	DESCRIPTION	USE
MI-3027-E	Velocity Microphone	Music and indoor recording.
MI-3043-B, -D, -E	Pressure Microphone	Speech and outdoor recordings.

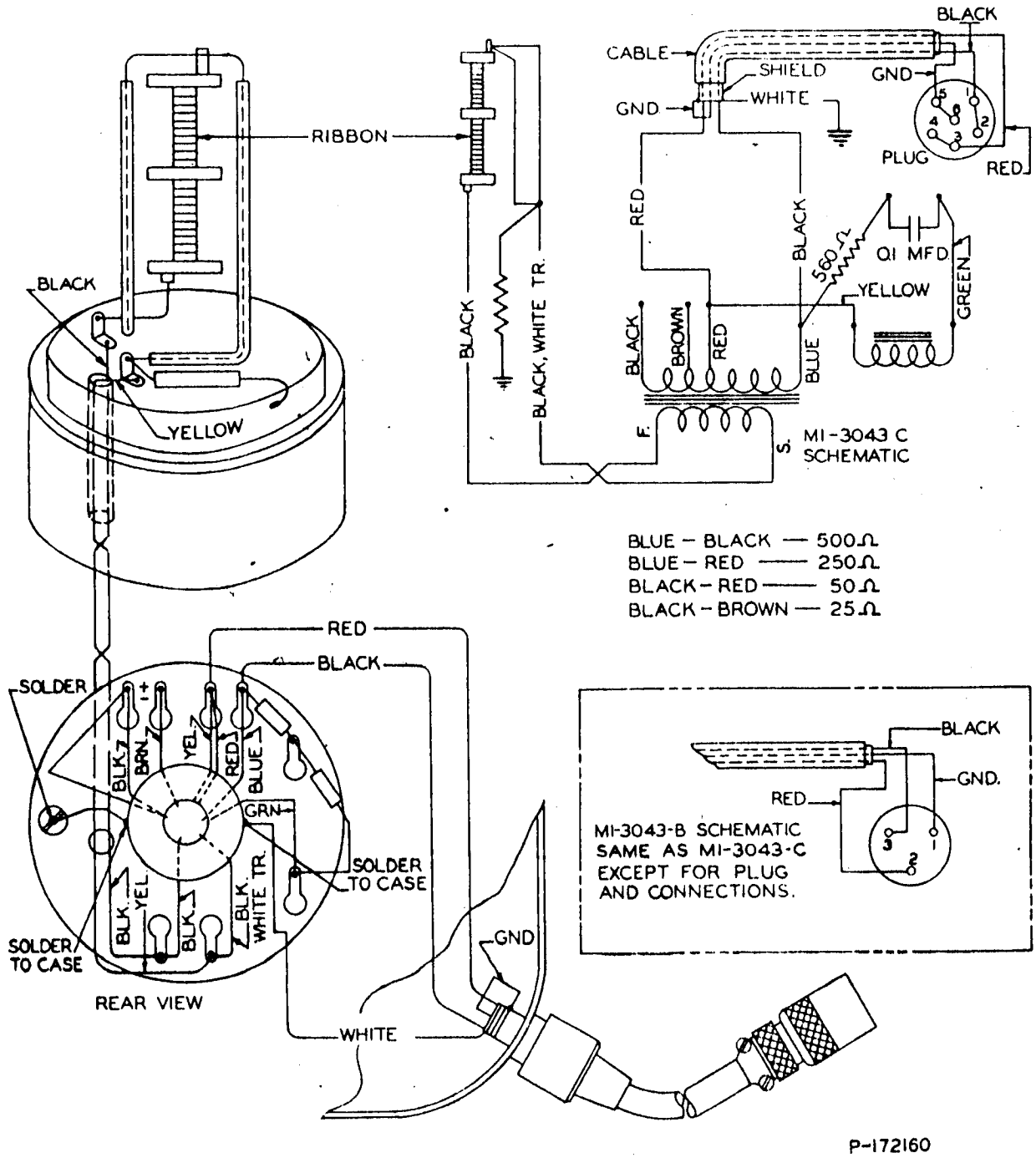

Figure 8—Schematic and Connection Diagram of MI-3043-B, -C Microphone

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