INSTRUCTIONS

Pressure Microphone

TYPE BK-1A

MI-11007

TECHNICAL DATA

Effective Output Level at 1000 Cycles

-52 dbm
Sound Pressure, 10 dynes/cm^2
Gm -144 db RTMA Rating

Frequency Response

60 to 10,000 cycles (See Fig. 2)

Stand Fitting

1/2 inch pipe thread

Recommended Load Impedance

Unloaded input transformer

Output Impedance

250 ohms, can be connected for
30 or 150 ohms, See Fig. 4.

Hum Pickup

-102 dbm, hum field .001 gauss

Dimensions and Weight

Diameter	1-7/8 inches
Length	7-3/4 inches including mounting
Weight	18 oz. less cable

Finish

TV gray and chrome

Cable

MI-43-B Length 30 ft.

Directional Characteristics

Semi-directional when mounted horizontally.
Non directional when mounted vertically.
See Fig. 3 for horizontal-directional pattern.

DESCRIPTION

The Type BK-1A pressure Microphone is a high-fidelity instrument of the pressure-actuated type, especially designed for announcing and remote pickup. Its smooth response and frequency range (60 to 10,000 cycles) make it suitable for reproducing both music and speech. It is effectively non-directional when mounted vertically and is semi-directional when mounted horizontally.

The moving element consists of a light-weight molded diaphragm attached to an annular coil assembly which is placed within a magnetic field. Coupled to the diaphragm is an acoustic circuit so proportioned that the diaphragm velocity remains essentially

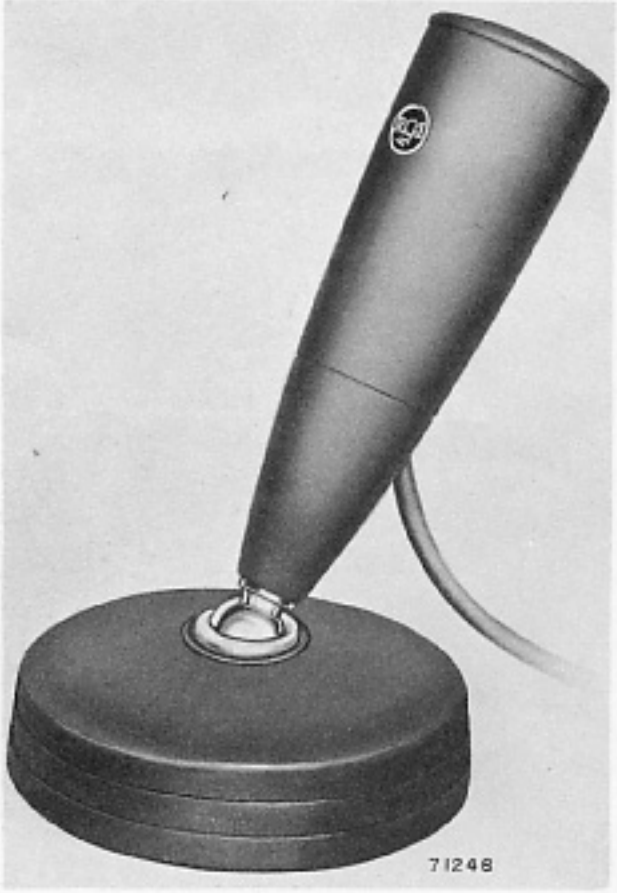

Figure 1 - Type BK-1A Microphone on Desk Stand MI-11008

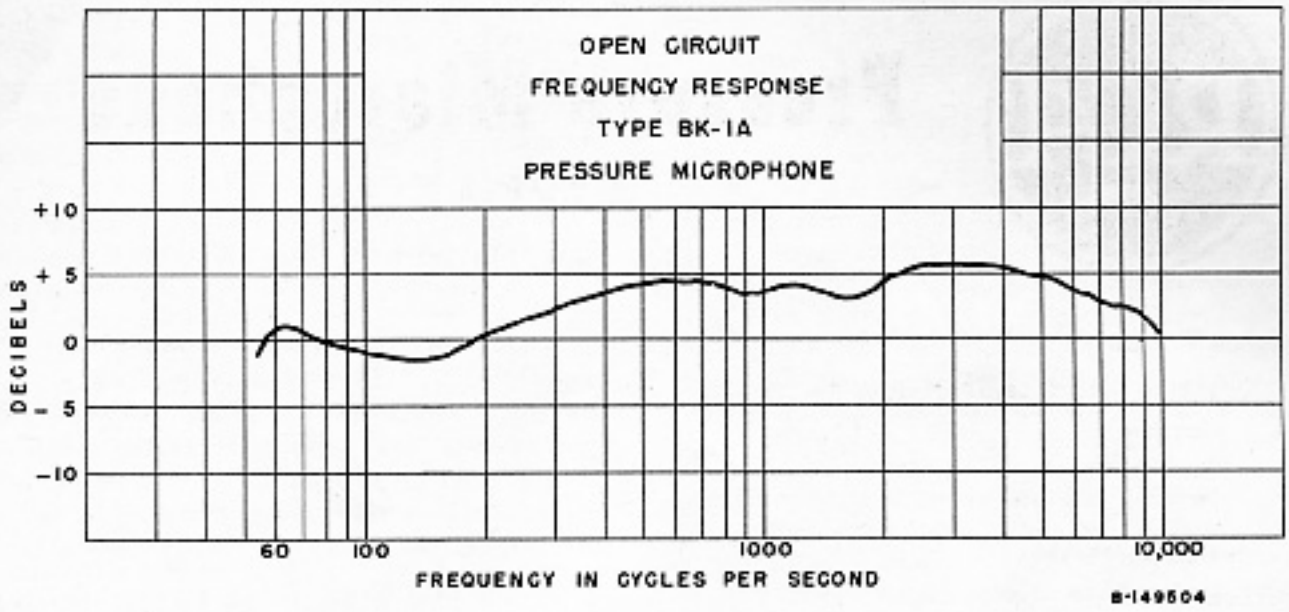

Figure 2 - Frequency Response

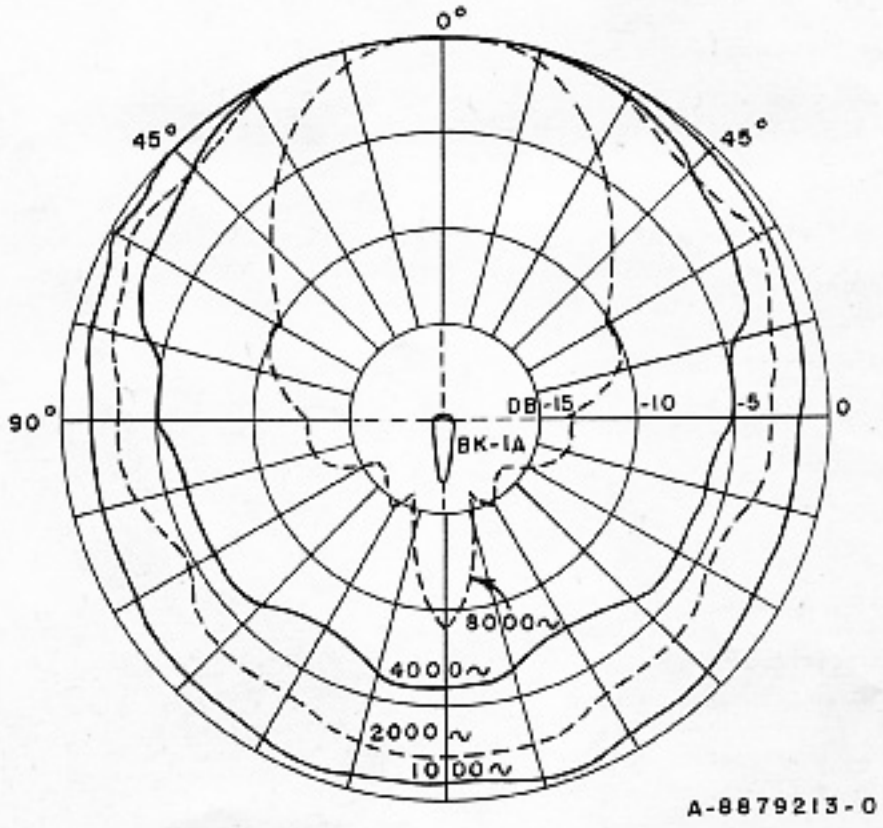

Figure 3 - Directional Patterns

constant for a constant sound pressure from 60 to 10,000 cycles. The coil is connected to a transformer which provides output impedances of 30, 150 and 250 ohms.

When mounted vertically the BK-1A Microphone is non-directional with the higher frequencies uniformly attenuated. When mounted horizontally, the microphone is essentially nondirectional for frequencies below 2000 cycles, and the higher frequencies are attenuated more as the angle with the perpendicular line to the diaphragm increases. Figure 3 shows the relative directional output or pickup with the microphone horizontally positioned.

The BK-1A Microphone is particularly recommended for broadcast announcing and remote pickup. It is a small, lightweight microphone which may be carried in the hand for interview and mobile use or used with a stand. The relatively high output level, which provides a good signal-to-noise ratio, is advantageous for remote work. When it is used in the open air, its construction makes the effect of air currents practically negligible. This microphone is also excellent for many studio applications which require a nondirectional or semi-directional microphone.

OPERATION

Connections

The microphone is shipped connected for an output impedance of 250 ohms. To change the impedance to 30 or 150 ohms, remove the #8-32 two-inch screw shown in Figure 5. Slide the foot down along the cable, thus exposing the terminal board. Change the cable connections according to Figure 4.

Phasing

When the outputs of two or more microphones are fed into a common mixing circuit their respective outputs must be in phase. Otherwise, the output of one will oppose the output of the other resulting in a reduction in output instead of a gain.

The BK-1A Microphone is phased so that the red cable lead is electrically positive when the sound pressure on the front of the microphone is in the positive half of the cycle.

To check the phasing of two or more microphones, connect one microphone to the amplifier input and set the volume control to obtain the desired output level while talking into the microphone. Then connect the second microphone in parallel with the first and, without changing the volume control setting, hold the two microphones side by side and talk into them. If a decrease in volume results, reverse the connections of one of the microphones at the amplifier input terminals. Each additional microphone should be checked in a like manner and, if necessary, the cable connections should be reversed to make the phasing agree with the microphones already connected.

Stand Fitting

The BK-1A Microphone is supplied with a ball and socket mounting designed for use with stands having a 1/2-inch pipe thread such as the MI-4092-D, MI-11050, and MI-12065 microphone stands. The Desk Stand MI-11008 is expressly designed for use with this microphone.

Placement

When the microphone is used in the studio, it should be kept in mind that correct placement in relation to artists and instruments is of extreme importance. The requirements for particular installations vary widely and results will be determined best by experience. Exact placement must be determined by the following factors:

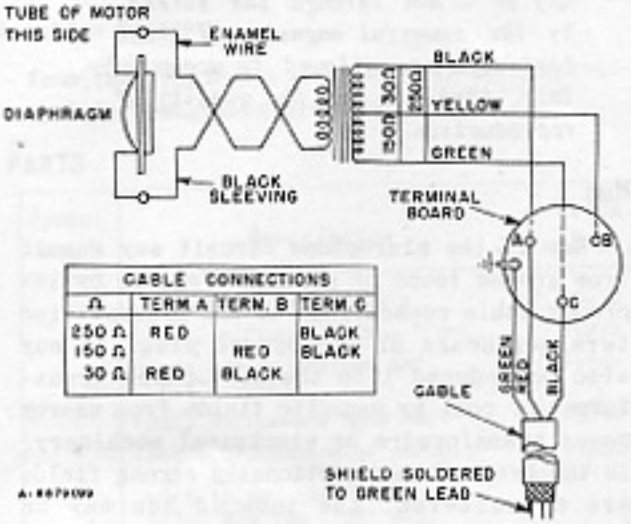

Figure 4 - Connection Diagram

a. Wishes of the orchestra leader and program producer.

b. Number and types of instruments.

c. Size and construction of studio.

d. Peak volume swings as indicated by the volume level indicator.

e. Results determined by monitoring with a loudspeaker such as the RCA Type LC-1A. Experimental placement of performers and instruments is usually necessary to obtain the best results.

In outdoor locations it may be found that, because of the higher ambient noise level, the distance between the performer and the microphone must be less than when working indoors. It is important to maintain a relatively high input level in outdoor or remote locations to keep the signal-to-noise ratio as high as possible.

Care should be taken to protect the microphone from rough handling and exposure to rain and bad weather. Although rugged and practically weatherproof, it is a precision instrument and should be handled with care. Care in handling will result in additional service received from the microphone.

CAUTION: Keep the microphone away from iron filings or magnetic dust. The screen provides excellent protection but minute iron particles commonly found on work benches and in maintenance shops may be drawn through the screen by the powerful magnet. If these particles are allowed to accumulate, they may mar the quality of reproduction.

Hum

Hum in the microphone circuit may result from ground loops or unbalance caused by improper cable connections to the preamplifier terminal board or microphone plug. It may also be induced into the microphone transformer or coil by magnetic fields from nearby power transformers or electrical machinery. In the event that exceptionally strong fields are encountered, the induced hum may be minimized by turning or tilting the microphone, or changing its location.

MAINTENANCE

It is not recommended that the customer attempt repairs other than replacement of the transformer, front case assembly or mounting parts. To replace these assemblies, proceed as follows:

1. Remove the microphone from the base.

2. Remove the #8-32 two-inch screw shown in Figure 5.

3. Slide the foot down along the cable, thus exposing the terminal board.

4. Dismantle the motor from the case by removing two #95864 nuts. Refer to Figure 5.

5. Slide the upper assembly out the top of the front case.

6. Reassemble in reverse order, making sure to align the key to engage the keyway at each joint.

DO NOT FORCE OR ROTATE THE JOINT.

CAUTION: Airtight joints above the foot (95034) of the BK-1A Microphone are essential to its proper operation. Use a silicone grease to seal the joints when reassembling after servicing.

For replacement of the diaphragm and coil assembly or magnet assembly, it is recommended that the microphone be returned to the manufacturer. Before returning a unit, make sure the trouble is in the microphone and not elsewhere in the circuit. Obtain a *Returned Apparatus Tag* and *Repair Order* from your *RCA Field Office* or write to *RCA Service Company, Returned Apparatus Control, Camden, N.J.* Attach the tag, properly filled out, to the damaged equipment and send the equipment and the repair order to the manufacturer.

REPLACEMENT PARTS

Figure 5 and the following parts list are included to provide identification when ordering replacement parts. Order from RCA Replacement Parts Department, Camden, N.J. giving the Stock Number and Description of

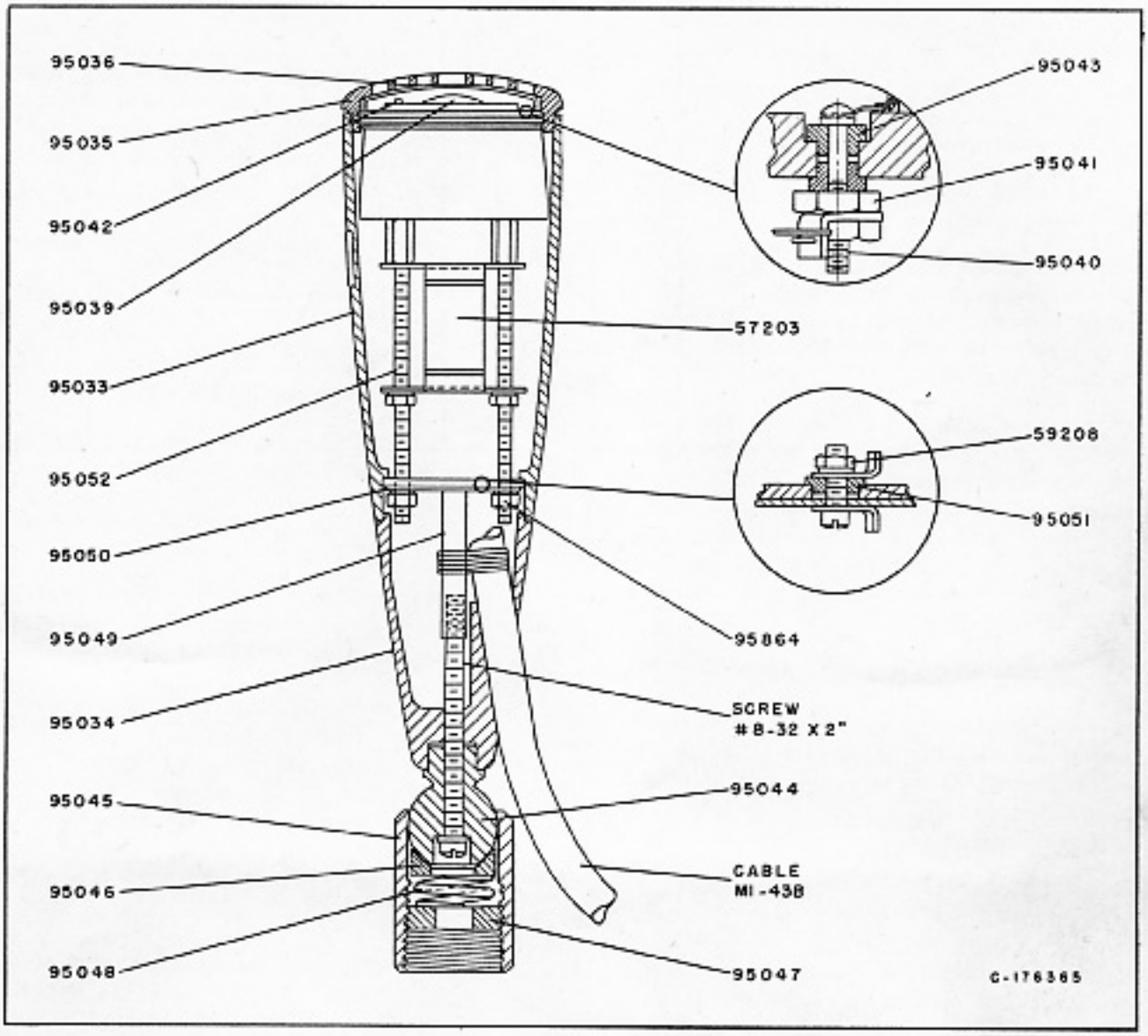

Figure 5 - Parts Location Diagram

the parts wanted. Replacement parts supplied may be slightly different in form or size from the original parts but will be completely interchangeable with them.

LIST OF PARTS

Symbol No.	Description	Stock No.
	Ball, swivel joint, .310" dia. ball with .375" lg. x .365" dia. mtg. stud	95044
	Bushing, shoulder, fibre 1/8" dia. shoulder and .078" dia. taper x 1/16 high, .048" dia. bore	95043
	Bushing, shoulder, fibre 1/4" dia. shoulder and 3/16" dia. taper x 1/16" high, .110 dia. bore	95051

Symbol No.	Description	Stock No.
	Case, microphone middle	95033
	Cover, microphone case front	95035
	Diaphragm, diaphragm and coil assembly	95039
	Foot, microphone case back	95034
	Insulator, laminated phenolic 1/32 thk. x 1.196 dia. with three .196" dia. holes and two .128" dia. holes	95050

Symbol No.	Description	Stock No.
	Nut, hex, brass, .047" thick x 5/32" dia. #00-112 tap	95041
	Nut, hex #2-56 for lower pole bridge	59208
	Nut, hex, steel #4-40, 1/4" across flats, .093 thick	95864
	Cable, 30 ft.	MI-438
	Plate, mounting plate and stud assembly	95049
	Plug, swivel joint retaining plug	95047
	Screen, microphone perforated cover	95036
	Screw, flat fillister head, #00-112 thd. .047" dia. x .312" lg.	95040

Symbol No.	Description	Stock No.
	Screw, flat fillister head, #0-90 thd. .060" dia. x .187" lg.	95042
	Seat, swivel joint retaining seat	95046
	Socket, swivel joint retaining socket	95045
	Spring, swivel joint compression spring	95048
	Stud, brass, #4-40 thd. x 3-1/2" lg. (Motor Supports)	95052
	Transformer, microphone, turns ratio, pri. to sec. #1 - 1:2.1 min., pri. to sec. #2 - 1:5 min.	57203

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