INSTRUCTIONS

Ribbon Pressure Microphone

Type BK-4A "STARMAKER"

MI-11005

TECHNICAL DATA

Effective Output Level at 1000 Cycles

-60 dbm
Sound pressure 10 dynes/cm^2
G_m -151 db (RMA microphone rating)

Output Impedance

250 ohms, can be connected for 30 or 150 ohms

Recommended Load Impedance

Unloaded input transformer

Directional Characteristics

Non-directional (see figure 2)

Frequency Response

70 to 15,000 cycles (see figure 3)

Hum Pickup Level

-125 dbm

Finish

TV Gray

Dimensions and Weight

Length.....12"
Diameter..... 1-1/4"
Diameter at Pickup Point... 7/8"
Length of Barrel Section... 7"
Length of Tubular Section.. 5"
Weight.....15 oz.

Cable

MI-43-A, Length 30 ft.

Mounting

1/2-inch pipe thread

DESCRIPTION

The Type BK-4A Starmaker Microphone is a high fidelity ribbon type pressure microphone especially designed for television work. Its small size and slender construction afford

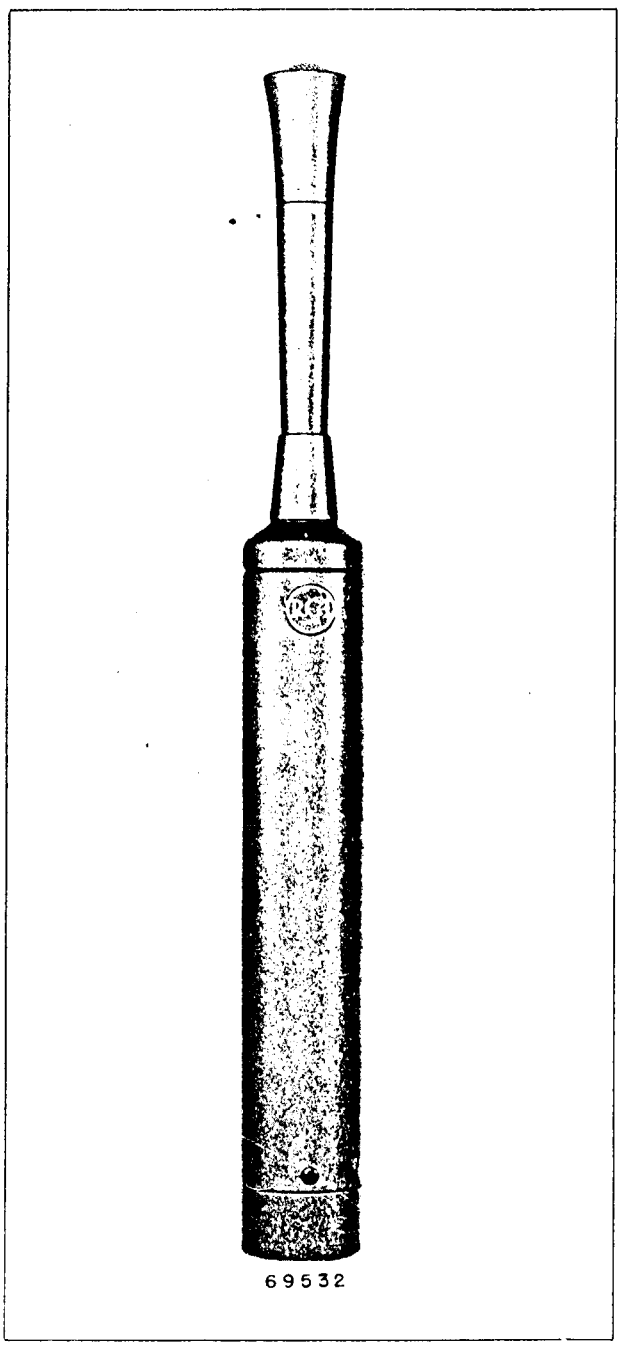


Figure 1 - Type BK-4A Microphone

easy concealment or an unobstructed view of its user in close work. Its high sensitivity and smooth response over an extremely wide frequency range make it suitable for music and voice reproduction. It is non-directional and has a response which is essentially uniform from 70 to 15,000 cycles. The microphone is remarkably insensitive to wind and mechanical shocks and its performance is unchanged by wide variations in temperature, humidity and barometric pressure.

The movable element is a thin corrugated aluminum ribbon suspended between the poles of a strong alnico magnet. Connected to the back of the ribbon is a folded acoustically damped pipe designed to form an acoustic resistance termination for the moving system. The magnet, ribbon and acoustic line are contained in the upper portion of the barrel and immediately below is a shielded transformer which provides output impedances (250, 150 or 30 ohms) suitable for use with microphone cables. The cable anchorage and terminal board are located in the removable bottom portion of the microphone.

The front of the ribbon is brought to the sound pickup point through a tubular section terminating in a short horn.

The microphone is finished in TV gray to minimize undesirable highlights.

RESPONSE CHARACTERISTIC

The axial response-frequency characteristics taken with a plane progressive sound wave are shown in figure 3. The distance to the source does not appreciably affect this characteristic, and the rise in low frequency response associated with velocity microphones is not present in the ribbon type pressure microphone.

DIRECTIONAL CHARACTERISTIC

The Type BK-4A microphone is essentially non-directional below 6000 cycles. Above that frequency there is some deviation as shown by the curves in Figure 2.

OPERATION

The Type BK-4A Microphone is particularly intended for use in television where concealment or an unobscured view of the performers at the microphone is of great importance. It is also useful for outdoor work because of its immunity to humidity and temperature variations. It may be used as a hand-held unit for interviews, etc., or may be mounted on any stand having a 1/2" pipe thread. No special power supply or cables are required; the output may be fed directly into any speech input channel in the same manner as any other broadcast microphone.

Connections

Access to the cable connections and terminal board is had by removing from the barrel assembly the small screws immediately above the stand fitting. Impedances of 250, 150 or 30 ohms may be obtained by wiring the terminal board as shown in Figure 4. The terminal board and cable may be removed by removing the screw located in the center of the threaded portion of the stand mounting.

Phasing

The Type BK-4A is phased so that when the sound pressure on the front of the microphone is in the positive half of the cycle the black cable lead is electrically positive.

When several microphones are to feed the same system, connect them so their outputs are in phase. To check the phasing of two microphones, connect one microphone to the amplifier, speak into the microphone, and adjust the volume control until the output is at the desired level. Then connect the other microphone to the amplifier, hold both microphones together and speak into them. Do not change the volume control setting. If the volume has decreased, reverse the connections of one of the microphone cables at the amplifier.

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 ribbon and connecting leads by magnetic fields from nearby power transformers or electrical machinery. The design of the Type BK-4A microphone reduces hum pickup from

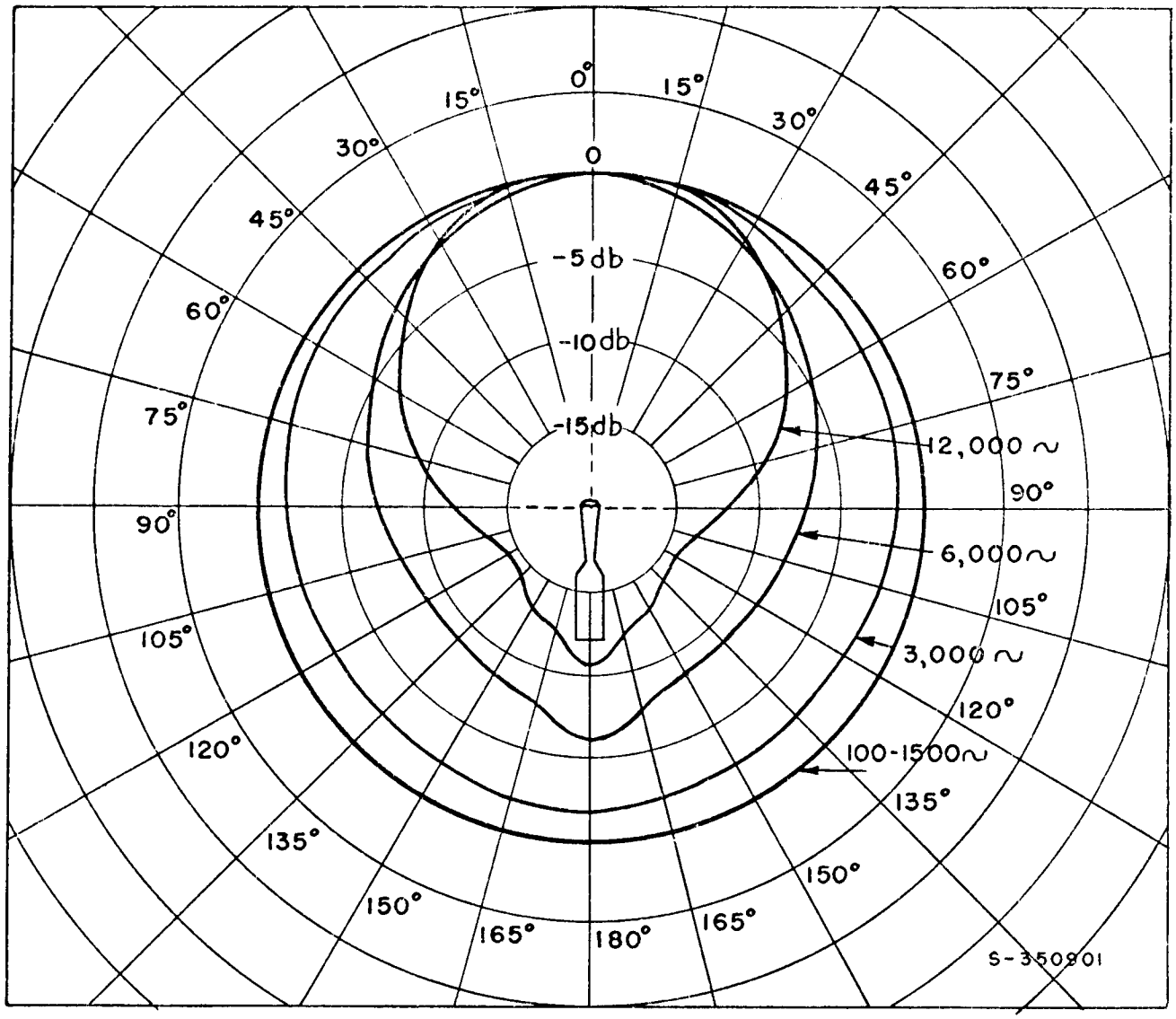


Figure 2 - Directional Pattern about Vertical Axis

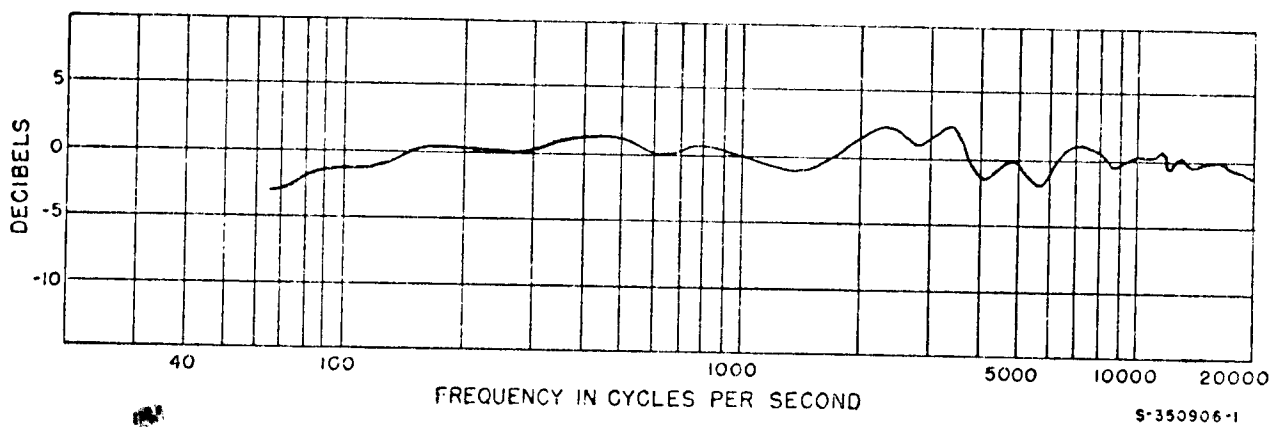


Figure 3 - Frequency Response

these sources to a minimum. 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.

CAUTION: Keep the microphone away from iron filings or magnetic dust. 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.

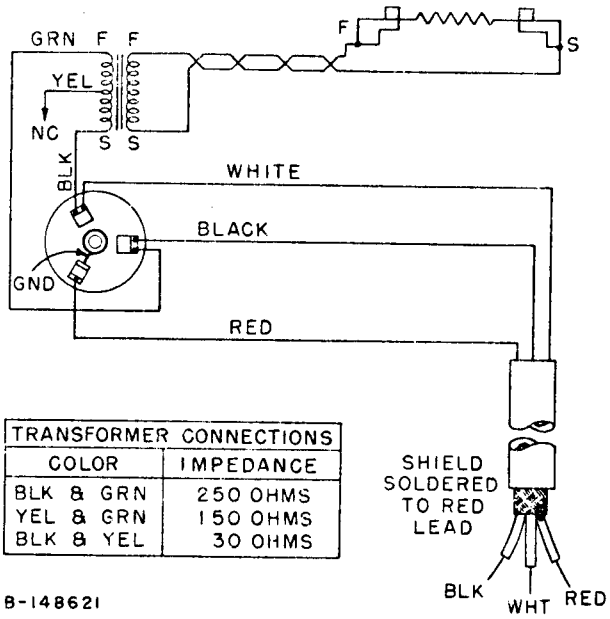
REPAIRS

It is not recommended that the customer attempt repairs other than replacement of the cable. For motor-mechanism repairs, secure a Repair Order and a Returned Apparatus Tag from your RCA dealer 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 microphone and the repair order to the manufacturer.

CAUTION: To avoid serious damage to the ribbon, do not check the continuity of the microphone with a directly connected circuit checker. A check for open circuits may be made if a 50,000 ohm resistor is connected in series with the instrument and the microphone. When checking the microphone lines be sure the microphones are disconnected or follow the above procedure.

Replacement Parts

The following parts list is included to facilitate the ordering of replacement parts. Order from RCA Replacement Parts Department, Camden, N.J. giving the stock number and description of the parts wanted. Replacement parts supplied may be slightly different in size or form from the original parts but will be completely interchangeable with them.



TRANSFORMER CONNECTIONS	
COLOR	IMPEDANCE
BLK & GRN	250 OHMS
YEL & GRN	150 OHMS
BLK & YEL	30 OHMS

Figure 4 - Connection Diagram

LIST OF PARTS

Description	*Stock No.*
Base, (stand mounting)	93594
Screw, #2-56 oval hd. 3/16 lg. phillips (for base)	93590
Tube (outside)	93595
Escutcheon (RCA monogram)	93758
Adaptor	93596
Horn	93597
Screen for horn	93759
Terminal board assembly	93593
Ring, clamping	93757
Transformer	93592
Screen, ribbon, nylon	93762
Clamp, ribbon	93756
Screw, .00-112 flat fil. hd. 3/32 lg. (for ribbon clamp)	93581
Ribbon	45385
Support, ribbon	93755
Insulating bushing	93584
Insulating washer	93585
Screw, .00-112 flat fil. hd. 1/8 lg. (for ribbon support)	93580
Screw, #4-40 flat hd. 5/8 lg. phillips (for terminal board)	93591
Screw, #2-56 round hd. 1/8 lg. phillips (for connector)	935[illegible]

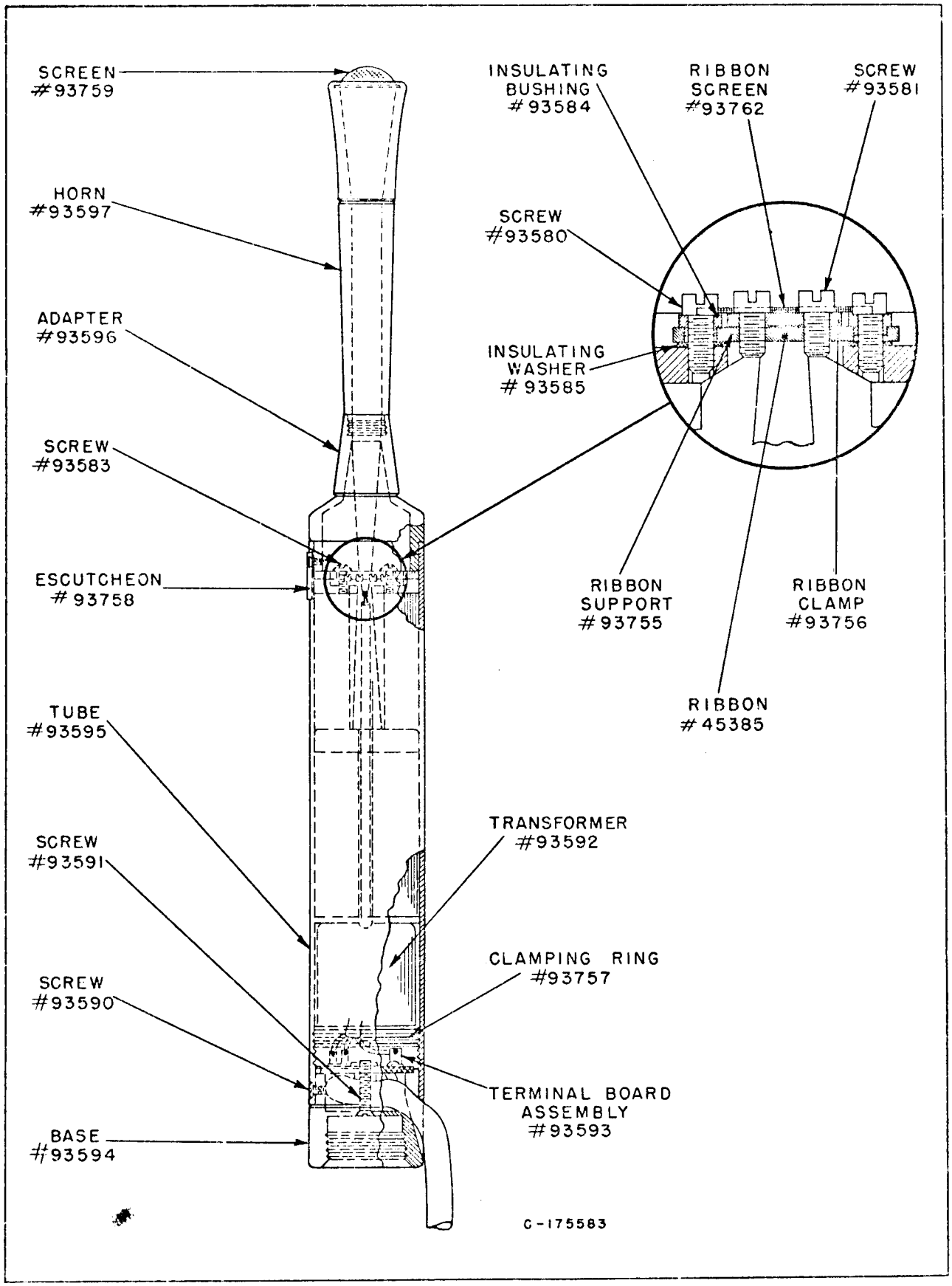


Figure 5 - Parts Location Diagram

ACCESSORIES

The following accessories are recommended for use with the Type BK-4A microphone:

Description	*MI-Number*
Boom Stand, Type KS-3B; satin stainless steel & light umber gray	MI-11056
Program Stand, Type 90-A (long) satin chrome finish	MI-11050
Desk Stand, Type 91-B; umber gray wrinkle & satin chrome finish	MI-4092-D
Program Stand, Type 90-AS (short); satin chrome finish	MI-4098
Cable, extension; three conductor shielded (specify length in feet)	MI-43-A