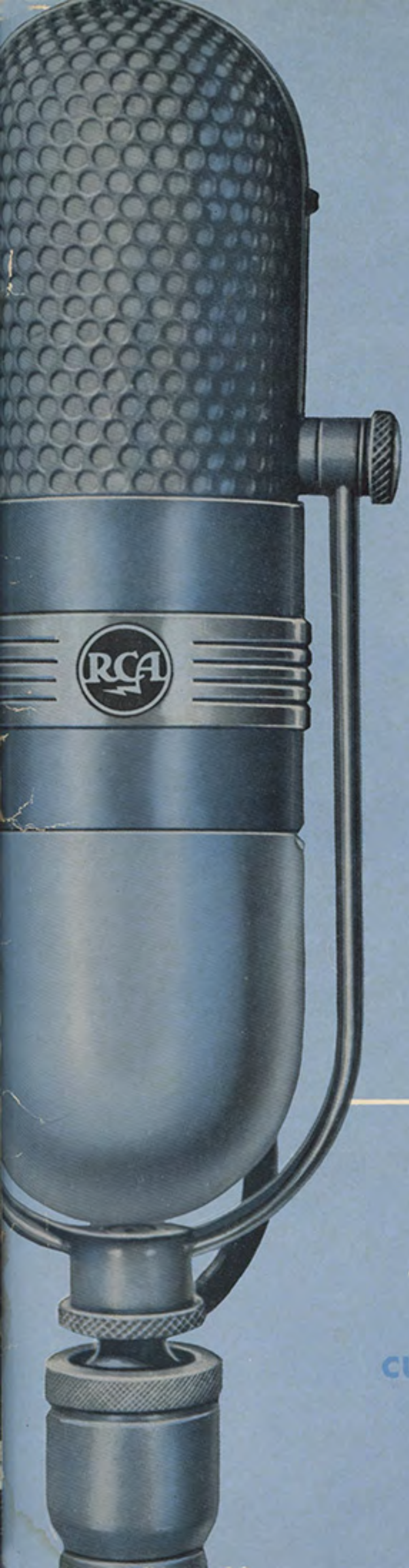


BROADCAST AUDIO EQUIPMENT

for

AM · FM · TELEVISION

MICROPHONES
CONSOLES
CUSTOM EQUIPMENT
AMPLIFIERS

RACK EQUIPMENT
TURNTABLES
RECORDERS
SPEAKERS

BROADCAST AUDIO EQUIPMENT CATALOG

BROADCAST EQUIPMENT SECTION

RADIO CORPORATION OF AMERICA

Engineering Products Department — Camden, N. J.

2J8904

ABOUT THIS CATALOG

This Catalog is devoted solely to information on RCA audio equipment designed especially for broadcast station use. Other RCA Broadcast Equipment Catalogs contain similar information on video equipment, test equipment, AM, FM and TV transmitters, antennas, transmission line equipment and accessories.

The information contained in this catalog is intended to serve as a buying guide for the users of this type of equipment. In the belief that broadcast engineers want facts, rather than generalities, the content has purposely been kept brief and factual. Readers who desire more information or individual bulletins on particular equipment items are invited to write to the RCA Broadcast Representative in the RCA Regional Office nearest them (see opposite page).

OTHER RCA TECHNICAL PRODUCTS

The RCA equipment described in this catalog is specifically designed for broadcast station use. In similar manner RCA builds electronic equipment for many other industries. These include: a complete line of equipment for theatres; optical and magnetic film recording equipment; sound systems of all types; 16mm projectors and magnetic recorders; high-fidelity components for home music systems; industrial inspection equipment; scientific equipment, such as the electron microscope; industrial television systems; intercoms; tape recorders; TV Eye; Antenaplex systems; and many types of custom-built equipment for industry and the military services. Information, and catalogs or bulletins, describing these may be obtained from RCA Regional Offices.

HOW TO ORDER

The RCA Broadcast Audio Equipment shown in this catalog is sold directly through RCA Broadcast Representatives, who are familiar with broadcast equipment and related problems. One or more of these RCA Representatives are located in each of the RCA Regional Offices listed below.

Orders for equipment shown in this catalog, or requests for additional information, should be directed to the nearest one of these offices. Complete information on the conditions under which RCA sells broadcast equipment is given on the following page.

PRICES

The prices of the various equipment units shown in this catalog are given in a separate price list. Prices are listed in the order in which they are shown in the catalog. To determine the price of any equipment first note the page on which it is shown in the catalog, then consult the price list in accordance with this page number. Equipments are identified by type and MI (Master Item) numbers which are used to identify apparatus on invoices and packing slips.

YOU CAN LOCATE YOUR NEAREST RCA REPRESENTATIVE FROM THIS LIST

REGIONAL OFFICES

36 West 49th Street
NEW YORK 20, NEW YORK
Circle 6-4030

•

1907-11 McKinney Avenue
DALLAS 1, TEXAS
Riverside 1371

•

718 Keith Building
CLEVELAND 15, OHIO
Cherry 1-3450

•

2301 John Hancock Building
200 Berkeley Street
BOSTON 16, MASSACHUSETTS
Hubbard 2-1700

522-533 Forsyth Building
Forsyth and Luckie Streets, N.W.
ATLANTA 3, GEORGIA
Lamar 7703

•

340 Dierks Building
KANSAS CITY 6, MISSOURI
Harrison 6480

•

1560 North Vine Street
HOLLYWOOD 28, CALIFORNIA
Hollywood 9-2154

1355 Market Street
SAN FRANCISCO 3, CALIFORNIA
Hemlock 1-8300

•

666 North Lake Shore Drive
CHICAGO 11, ILLINOIS
Delaware 7-0700

•

1625 K Street, N.W.
WASHINGTON 6, D. C.
District 7-1260

•

2250 1st Avenue, South
SEATTLE 4, WASHINGTON
Maine 8350

BROADCAST EQUIPMENT SALES POLICY

FOREWORD

The present statement sets forth basic conditions under which RCA sells broadcast equipment as described in our catalog, and notes certain supplemental information. This statement does not apply to the sale of tubes or sound film recording equipment, for which separate standard sales and lease policies are in effect.

RCA broadcast equipment is sold directly through RCA Regional Representatives, who are familiar with broadcast equipment and related problems.

CONTRACT PROCEDURE

All sales based on orders for transmitters, antennas and custom built or special apparatus and on orders over $5,000 are made in accordance with the conditions of the RCA Standard Proposal Form for the sale of broadcast equipment and with any agreement stipulated thereon for individual customers.

PRICES

RCA broadcast equipment domestic prices are net f.o.b. factory or warehouse, which is Camden, New Jersey, for most items. These prices do not include any federal, state or local taxes based upon use or measured by sale or use and unless otherwise noted do not include federal excise tax. Any such taxes in effect at the time of shipment will be billed separately or will be included in the prices when required and will be due and payable upon delivery.

RCA's prices do not include installation or installation supervision unless specifically mentioned in a written condition or proposal. Purchaser assumes responsibility for installation and operation of the equipment as well as for obtaining all necessary licenses, permits, etc.

NOTE: The service of factory trained personnel who are specialists in the supervision of the installation of broadcast equipment and in its maintenance and repair may be obtained through an order placed with the RCA Service Company, Inc. It is recommended that the advantages of this service be considered at the time of purchase of any major broadcast equipment.

In the case of orders under the Standard Proposal Form the billing prices are based on those prices effective at the date of the order to the extent indicated in the final contract. In the case of orders not under the Standard Proposal Form the billing prices are those prices in effect on the date of shipment.

RCA endeavors to keep its published prices current; however, all published prices are subject to change without notice.

PAYMENT

Terms of payment are subject to approval of RCA's Credit Department at Camden, New Jersey.

DELIVERY

RCA's delivery of broadcast equipment will be f.o.b. factory or warehouse, which is Camden, New Jersey for most items. The Purchaser shall be responsible for all transportation charges, and shipments will normally be forwarded with shipping charges "collect". As an accommodation, when specifically requested to do so by the Purchaser's order, RCA will prepay transportation charges and invoice them to the Purchaser as a separate item.

Delivery will be made to a carrier specified by the Purchaser, unless none is specified, in which event it will be to common carrier selected by RCA. In the absence of specific routing instructions from the purchaser, RCA's judgment with respect to the selection of a route will be final.

As a special service with respect to shipments overland, by inland waterways or by air we carry All Risk Transportation Insurance for the benefit of our Broadcast Equipment customers, and your interests will be amply protected in all shipments of equipment while in transit by the methods indicated above, at no additional expense to you, provided that you inspect all shipments upon receipt and report any shortages or damages at once, in writing, to the carrier and to RCA.

RCA will endeavor to meet delivery schedules but it assumes no liability for damages of whatever kind for delays in delivery. No delays in delivery shall relieve the purchaser of his obligation of performance.

PATENT LICENSES

RCA broadcast equipment is licensed for radio telephone or television broadcast transmission under United States patents owned by RCA or under United States patents under which RCA is licensed.

PATENT PROTECTION

RCA, at its own expense, will defend any suit which may be brought against purchaser for infringement of United States patents by the equipment furnished when sold or used for radio telephone or television broadcast transmission, and in any such suit will satisfy any final award for such infringement. This is upon the condition that purchaser gives RCA prompt notice of such suit and full right and opportunity to conduct the defense thereof, together with full information and all reasonable cooperation, and upon the further condition that the claimed infringement does not result from the combination of the equipment furnished with other equipment, apparatus, or devices not furnished by RCA. No costs or expenses shall be incurred for the account of RCA without its written consent. If purchaser's sale or use of such equipment for radio telephone or television broadcast transmission shall be prevented by permanent injunction, RCA shall substitute for the infringing equipment or parts other equally suitable equipment or parts, or at RCA's option obtain for purchaser the right to sell or continue the use of such equipment, or at RCA's option take back such equipment and refund any sums purchaser has paid RCA therefor, less a reasonable amount for use, damage and obsolescence.

WARRANTY

Except for electronic tubes, which bear their own warranty which accompanies them at the time of their sale, RCA warrants its broadcast equipment to be free from defects in material and workmanship under normal use and service for a period of one year from the date of delivery. RCA's obligations under this warranty are limited to the repair or replacement of defective parts and the shipment of such repaired or replacement parts to the purchaser f.o.b. factoy. Equipment furnished by RCA but listed as manufactured by another bears only the warranty given by such other manufacturer. No warranties other than those set forth herein are given or are to be implied with respect to broadcast equipment. In no event is RCA liable for consequential damages.

REPAIRED AND RETURNED APPARATUS

Before an apparatus is returned to RCA for repairs or adjustments shipping instructions and an identifying number should be obtained from the nearest RCA Regional Office. RCA assumes no responsibility for unauthorized returns.

EQUIPMENT MODIFICATIONS AND WITHDRAWALS

RCA reserves the right to make, without notice, modifications of the equipment described in this catalog without affecting its right to sell such equipment under orders based on the catalog description, provided, however, that the modifications shall not materially affect performance. These modifications of equipment may be made by RCA or its suppliers from time to time for reasons such as improvement in performance, simplification in design, or availability of material. RCA also reserves the right to withdraw from sale, without notice, any equipment described in our catalog.

ACCEPTANCE OF ORDER

No order shall be binding upon RCA until accepted by it in writing at Camden, New Jersey, and the banking, negotiation or other use of the down payment shall not consitute an acceptance by RCA. Orders received by Regional Offices will be forwarded promptly to RCA's Camden office.

RCA MICROPHONES

General Information

The excellence of RCA microphones is the result of continued effort on the part of Engineering and Production personnel to produce a superior product. Out of this work have come the several types of broadcast microphones listed in the catalog. There is considerable overlap in the applications of the various types, but each does possess certain attributes which make it particularly well suited to some specific applications. These have been noted for each microphone in the catalog in order to assist in the selection of the microphone best suited for the intended application.

High Quality Broadcast and Television Microphones

Broadcast-type microphones such as the Types 44-BX, 77-D and BK-1A all have certain common performance criteria which make them especially suited to this application. They have smooth response-frequency characteristics over the audio range, low distortion, high output levels, well-shielded output transformers to prevent hum pickup, and where necessary, are shock mounted to reduce the pickup of low frequency building rumble. Performance features which are unique to each particular type are listed and the applications discussed in the catalog.

Public Address Microphones for Broadcast Use

Public Address Microphones have been designed as economy microphones. In general, frequency range and sensitivity have been sacrified to some extent in order to gain ruggedness and lower cost. The response limitations should be borne in mind when these microphones are used in Broadcast applications.

Unloaded Transformer Input

RCA Broadcast Microphones are designed to work into a microphone preamplifier whose input transformer is unloaded. Under this condition of operation the voltage appearing at the grid of the first tube results in a gain in signal-to-noise ratio of between 3 and 6 db as compared with a matched resistance load. The exact value will depend on whether the major source of thermal noise is in the microphone amplifier or in the microphone.

Microphone Resistance Loading

Microphones in which the moving system is highly damped will in general have their frequency response characteristics little changed by electrical loading. The BK-1A and 77-D (in the pressure position) are examples of this.

Microphones which show output impedance variations with respect to frequency will have their response characteristics adversely affected by resistance loading. The Type 44-BX, and 77-D (in the bi-directional and uni-directional positions) are examples of this. Resistance loading of these microphones will generally result in a loss in low frequency response.

150 Ohms vs. 250 Ohms

When microphones are connected to unloaded input transformers, impedance matching is not a consideration and the effects of connecting micrcophones with an output impedance of 150 ohms to a micrcophone amplifier designed to operate from a 250 ohm source and vice versa will usually be of small consequence. The effect on the level is shown in the tabulation below.

Mic. Output Impedance ↓	Level Change db	
250	0	+2.2
150	−2.2	0
Amp. Input Designation →	250	150

In addition there will be some change in the overall response-frequency characteristic of the system below 100 cycles and above 5000 cycles, the magnitude depending on the connection and the design of both the microphone and the amplifier input transformer. Variations in response with the usual broadcast quality microphone amplifiers will in most cases not exceed ±2 db.

When microphones are connected to a resistance load the following changes in level will result when the output is referred to a matched condition.

Mic. Output Impedance ↓	Level Change db	
250	0	−2.5
150	+2.0	0
Load Impedance →	250	150

Microphones Shipped Less Plug

RCA microphones are supplied less the plug for connection to the wall outlet or amplifier system. This is done to allow the user to select any desired plug. As a convenience two types of Cannon plugs are cataloged and either may be ordered as an accessory if wanted.

Microphone Mounting

RCA has standardized on the rugged ½" pipe thread for broadcast microphone mounting. This size thread makes it easy to add microphone stand extensions, booms, etc., for they may be easily made up locally from standard ½" pipe and fittings. Most of the stands listed may also be used with microphones having a ⅝—27 thread by removing an adapter which is supplied as a part of the stand. Various adapters are available for microphones should the use of the ½" pipe thread prove inconvenient.

Effective Output Level

When a microphone is connected to an unloaded input transformer its power output cannot be expressed in dbm because no appreciable power is delivered by the microphone. The logical approach to the problem is to arrive at some level figure which, when combined with the conventionally measured amplifier gain, will give the correct output level for the combination. This figure is listed in the catalog for each microphone and is called the Effective Output Level. It differs from the RTMA standard rating G_M in the value of sound pressure and source impedance. The RTMA rating computation is based on a source impedance of 150 ohms for all microphones having output impedances between 75 and 300 ohms, and on a sound pressure of 0.0002 dynes per square centimeter.

The Effective Output Level calculation is based on the nominal microphone impedance and on a sound pressure of 10 dynes/cm^2.

The RTMA standard defines the system rating (G_M) of a microphone as the ratio in decibels relative to 0.001 watt per 0.0002 dynes per square centimeter of the maximum electric power available from the microphone to the square of the undisturbed sound field pressure in a plane progressive wave at the microphone position. Expressed mathematically:

$$G_M = (20 \log_{10} \frac{E}{P} - 10 \log_{10} R_{MR}) - 50 \text{ db.}$$

where E = the open circuit voltage of the microphone
P = the undisturbed sound field pressure
R_{MR} = the microphone rating impedance (150 ohm)
Electrical reference level = .001 watt
Sound pressure = .0002 dynes/sq. cm.

While this may look complex the application is simple. For all practical purposes the output level of the microphone is obtained by adding to G_M, the sound pressure level relative to 0.0002 dynes per square centimeter. The sound pressure level of the program material can be measured with any of the several available sound level meters.

The exact relationship between G_M and the Effective Output Level is illustrated below for the case of the type 44-BX Velocity Microphone connected for 250 ohm output impedance.

G_M =	−146 db	
+	94 db	Sound pressure level for sound pressure of 10 dynes per square centimeter
−	2 db	Correction for difference in source impedance 250/150 ohms
	Effective Output Level −54 dbm.	

Hum Pickup Level

An arbitrary standard 60 cycle a-c field of 10^{-3} gauss has been established as a reference. It is fairly representative of fields measured at typical microphone locations in broadcast studios. The hum level is referred to .001 watt and is calculated in the same fashion as the Effective Output Level, using as the output voltage the voltage produced by the standard field.

Type No.	*Use*[3]	*Directional Characteristic*	*Effective Output Level*[1] *and* G_M[4]	*Output Impedance Ohms*	*Frequency Response cps*	*Hum Pick-up Level*[2]	*Finish*	*Stand*
44-BX	Broadcast & TV Program & Announce	Bi-directional	−54 dbm G_M −146 db	30/150 250	50-15,000	−120 dbm	Satin Chrome and TV Gray	90-A Floor
77-D	Broadcast & TV Studio & Remote Program Announce Booms	Poly-directional	U. Pos. −57 dbm G_M −149 db	30/150 250	50-15,000	−125 dbm	Satin Chrome and TV Gray[5]	91-B Desk 90-A Floor
BK-1A	Broadcast & TV Studio & Remote Program Announce	Non-directional	−53 dbm G_M −145 db	30/150 250	60-10,000	−109 dbm	Satin Chrome and TV Gray	KS-11A Desk 90-A Floor
BK-4A	Broadcast & Television	Non-directional	−61 dbm G_M −153 db	30/150 250	70-15,000	−125 dbm	TV Gray	90-AS Floor
SK-45	Broadcast & TV Intercom & Talkback	Non-directional	−56 dbm G_M −149 db	200/15000	80-8000	−109 dbm	TV Gray	KS-11A Desk 90-A Floor

[1] Reference level 0.001 watt, sound pressure 10 dynes per square centimeter. This corresponds to a rating by the proposed RMA system at a sound pressure level of 94 db.

[2] Level referred to a hum field of 10^{-3} gauss.

[3] For details refer to description of each particular type.

[4] G_M = (RTMA rating).

[5] Also available in TV Gray as MI-11006-A.

VELOCITY MICROPHONE

TYPE 44-BX

FEATURES

- Excellent reproduction of the entire audio frequency range
- No loss in quality with off axis pickup
- Artists may be placed on both sides of the microphone
- Pickup of reflected sound reduced
- Absence of pressure doubling, cavity and diaphragm resonance
- Response may be adjusted to provide best possible frequency characteristics for either vocal or musical pickup
- Unaffected by temperature humidity or air pressure

USES

The 44-BX is intended primarily for AM, FM and TV studio use where a microphone of the highest quality of reproduction is desired. It has the following general uses.

A. BROADCAST STUDIO—
(1) General Program and Announce. (2) Plays where the players may be grouped around the microphone. (3) Conference Pickup where the participants are seated on opposite sides of a table. (4) Programs where studio acoustics are more live than optimum. (5) Programs where the microphones may be suspended overhead and angled to reduce audience noise. (6) Programs where the direction pattern permits orientation to eliminate undesirable reflections from walls.

B. BROADCAST REMOTE—
(1) General Program and Announce. (2) Plays and other stage presentations where the microphone may be suspended overhead and angled to reduce audience noise. (3) Programs where the directional properties reduce the effect of an overly reverberant location. The 44-BX microphone is not recommended for outdoor use because of the relative sensitivity of the microphone to wind.

DESCRIPTION

The Type 44-BX Velocity Microphone is a Bi-directional microphone in which the moving element is a thin, corrugated metallic ribbon supported at the ends and placed between the pole pieces of a magnetic circuit. Because of its light weight, the motion of the ribbon corresponds very closely to the velocity of the air particles and the voltage generated in it is, therefore, a reproduction of the sound waves which traverse it. An impedance matching transformer and compensating reactor are located in the base of the microphone and the upper perforated portion provides a windscreen of distinctive shape.

The 44-BX is attractively finished in satin chrome and a TV gray to harmonize with modern studio interiors. The yoke mounting permits a wide range of tilting angles and the shock mounting reduces undesirable pickup from floor vibrations.

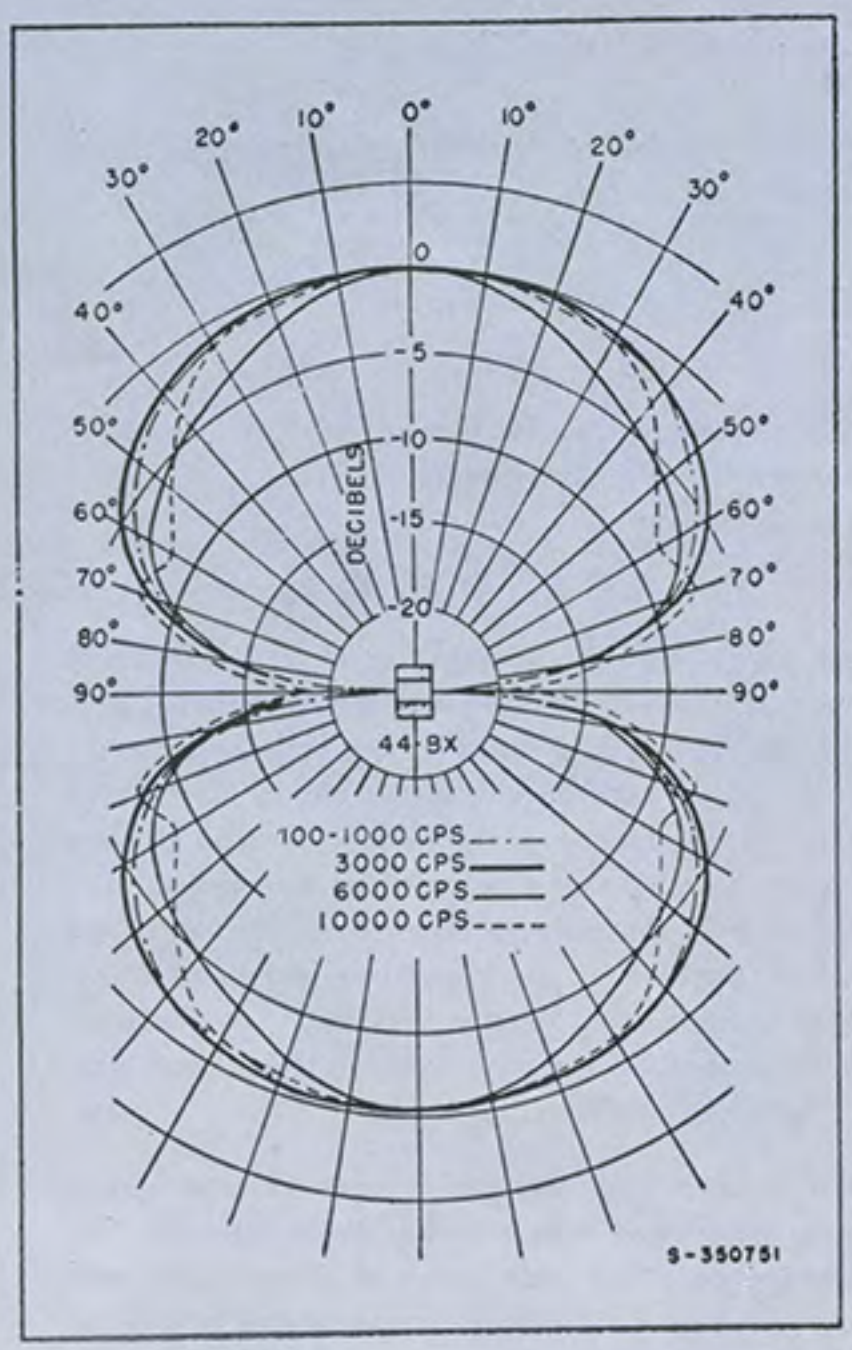
SPECIFICATIONS

Directional Characteristics	Bi-directional
Output Impedances	30/150/250 ohms
Effective Output Level	—54 dbm*
RTMA Microphone Rating G_M (Sensitivity):	
30 Ohm Output Impedance	—150 db***
150 Ohm Output Impedance	—149 db***
250 Ohm Output Impedance	—146 db***
Hum Pickup Level	—120 dbm**
Frequency Response	50-15,000 cycles
Finish	TV gray and satin chrome
Mounting	½" pipe thread
Dimensions, overall:	
Height (including cushion mounting)	12"
Width	4¾"
Depth	3⅜"
Weight (unpacked, including mountings)	8¼ lbs.
Cable (MI-43B) 3 conductor shielded	30 feet (no plug)
Stock Identification	MI-4027-J

* Referred to 0.001 watt and a sound pressure of 10 dynes/cm^2 (94 db level).

** Referred to 0.001 watt and a 60 cycle hum field of 0.001 gauss.

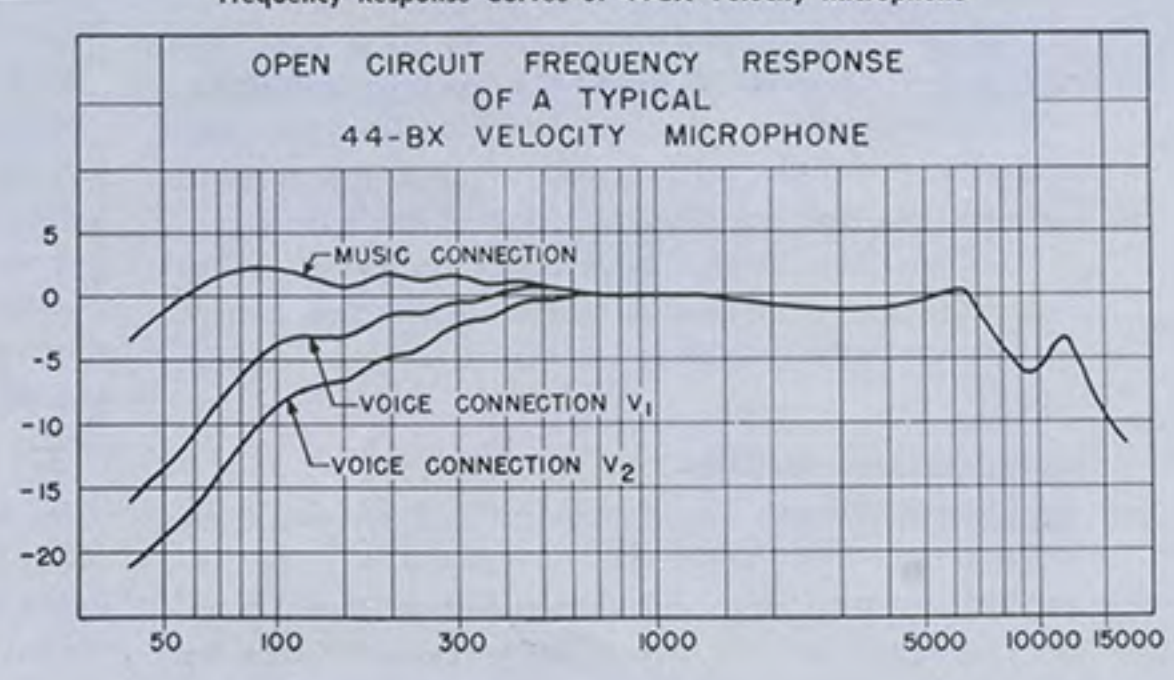
*** RTMA Standard SE-105.



CHARACTERISTIC CURVES, 44-BX

◀ Directional Characteristics of 44-BX Velocity Microphone

Frequency Response Curves of 44-BX Velocity Microphone



POLYDIRECTIONAL MICROPHONE

TYPE 77-D

FEATURES

- High quality reproduction over the entire audio frequency range
- Selection of directional pattern to control ratio of direct-to-reverberant sound pickup
- Wide pickup angle on front as a uni-directional microphone
- Three position voice-music switch allows selection of best operating characteristic for voice or music
- Selection of directional pattern to eliminate unwanted sound
- Satisfactory operation in high hum fields because of exceptionally good shielding
- Efficient shock mounting
- Small size—lightweight for TV boom operation
- Attractive appearance

USES

The RCA 77-D high-fidelity microphone provides a choice of directional pattern in its use in AM, FM and TV broadcast studios. As a bi-directional microphone, the 77-D can be used in place of the 44-BX with some loss in high frequency response. As a *uni-direction microphone,* the 77-D may be used to advantage in the following applications:

(1) General Programs and Announce in Studios.

(2) Television Booms—The required amount of microphone movement is reduced. The pickup of unwanted sound back of the microphone is reduced. The working distance to the microphone is increased.

(3) Programs where it is desirable to cover a large area with a single microphone.

(4) Programs where studio acoustics are more live than optimum.

(5) Programs where it is desirable to eliminate audience noise originating behind the microphone.

(6) Programs where the directional pattern permits orientation to eliminate undesirable reflections.

(7) Programs where the announcer must work close to the microphone.

(8) General Programs and Announce in Remote Locations.

(9) Plays, stage presentations, banquets, news events where it is desirable to reduce the pickup of sound behind the microphone.

(10) Programs where the directional properties will help to reduce the effects of an overly reverberant location.

As a NON-DIRECTIONAL MICROPHONE the following applications are suggested:

(1) Announce in studios and remotes where the announcer must work very close to the microphone.

(2) Out-of-door programs and announce where the microphone need only be protected against rain.

The 77-D is extremely versatile and experience has shown that its characteristics may be adjusted to cover almost any pickup condition.

DESCRIPTION

The moving element of the 77-D is a thin corrugated metallic ribbon clamped at the ends and suspended in the air gap of a magnetic circuit consisting of a permanent magnet and pole pieces. One side of the ribbon is open and the other is connected by means of a tube to a folded acoustically damped pipe contained in the center section of the microphone. Directly behind the ribbon there is an aperture in the connecting tube, the size of which may be varied by means of a rotating shutter. The position of the shutter determines the directional properties of the microphone. When the aperture is completely open, the microphone has a bi-directional pattern; when the aperture is completely closed, the microphone is non-directional; and with a critical size of opening the microphone becomes uni-directional. Other positions of the shutter results in patterns intermediate between the above three.

The position of the shutter may be selected by turning a slotted shaft which is brought out flush with the rear of the windscreen. The directional pattern corresponding to the shutter position is indicated on a plate mounted on the screen and marked "U", "N" and "B". If desired, the microphone may be locked in the uni-directional position by means of a cover plate marked "U" which fastens over the indexed plate. The bottom portion of the microphone contains an impedance matching transformer and switch for selecting response characteristics for Voice or Music. The switch shaft is slotted and accessible through a hole in the bottom of the lower shell. The transformer is exceptionally well shielded against stray magnetic fields.

A protective cloth bag, MI-4087, is shipped with each microphone.

SPECIFICATIONS

Directional Characteristics (adjustable, see curves)
(Bi-directional, Uni-directional, Non-directional)

Output Impedance ..... 30/150/250 ohms

Sensitivity of 77-D (250 ohm tap):
- Uni-directional ..... —57 dbm
- Bi-directional ..... —54 dbm
- Non-directional ..... —59 dbm

RTMA System ..... G_M

	250 Ohm Tap	*150 Ohm*	*30 Ohm*
Uni-directional	—149	—152	—152
Bi-directional	—146	—149	—149
Non-directional	—151	—154	—154

Effective Output Level (Uni-directional) ..... —57 dbm*

RMA Rating (G_M):

Hum Pickup Level ..... —125 dbm**

Frequency Response ..... 50-15,000 cycles

Finish ..... Satin chrome and TV umber gray

Mounting ..... ½" pipe thread

Dimensions, overall:
- Height ..... 11½'
- Width ..... 3¾"
- Depth ..... 2½"

Weight (unpacked, including mountings) ..... 3 lbs.

Cable (MI-43-B, 3 conductor shielded) ..... 30' (no plug)

Stock Identification:
- Satin Chrome MI-4045-E
- TV Gray MI-11006-A

Accessories

Protective Cloth Bag MI-4087

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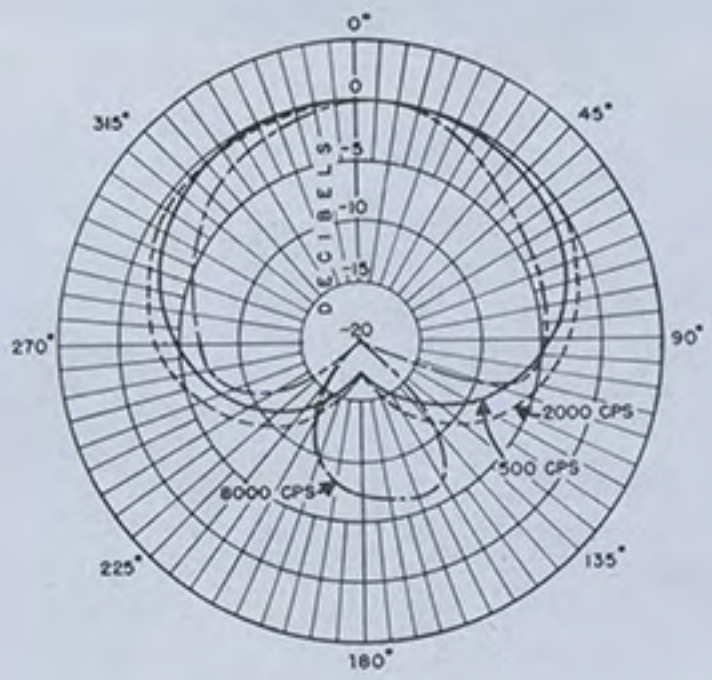
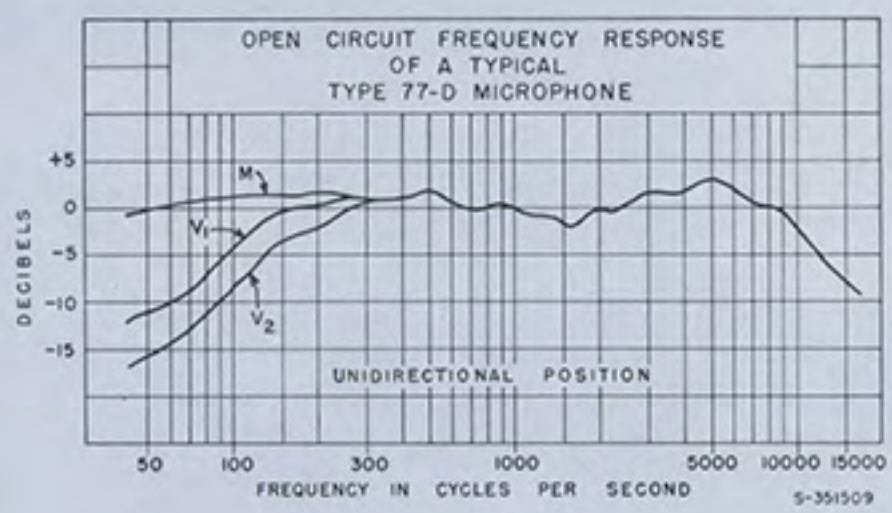
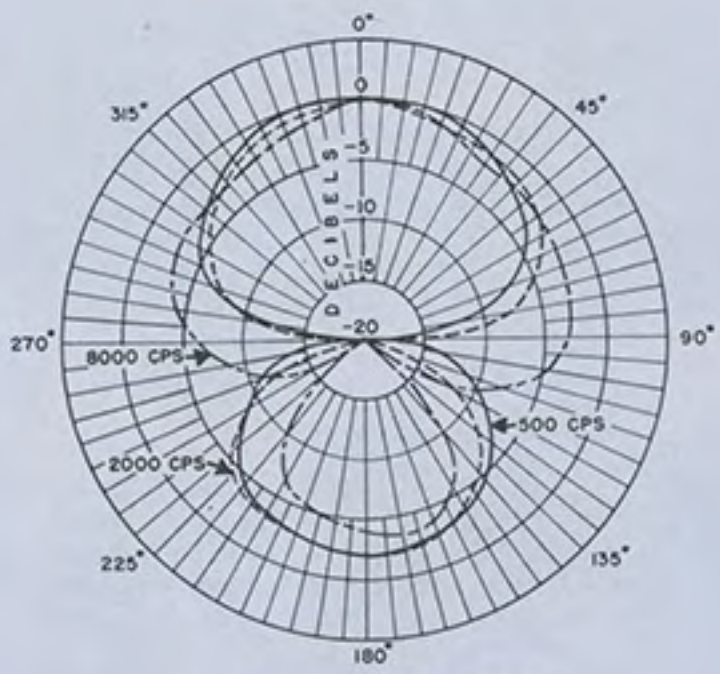
* Referred to 0.001 watt and a sound pressure of 10 dynes/1cm². This is equivalent to the proposed RMA rating at a sound pressure level of 94 db.

** Level referred to a hum field of 0.001 gauss.

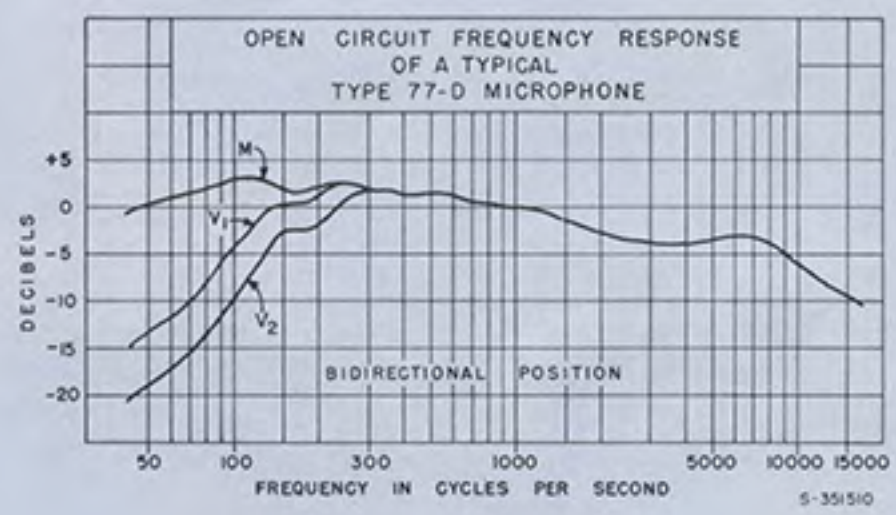


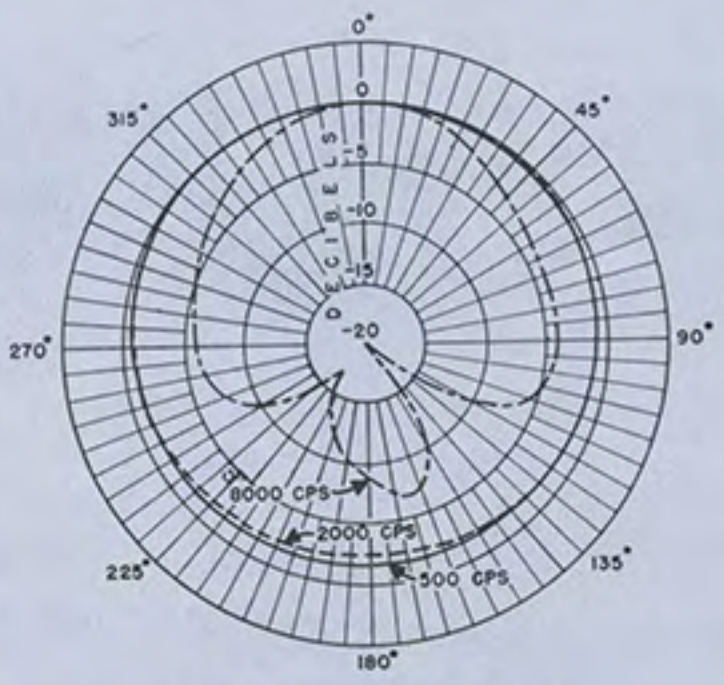
UNI-DIRECTIONAL POSITION



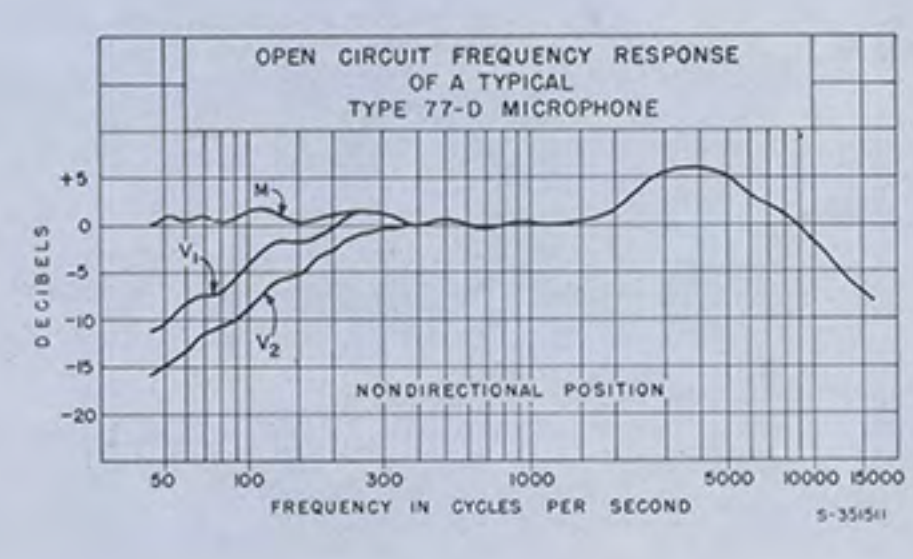


BI-DIRECTIONAL POSITION





NON-DIRECTIONAL POSITION



The RCA 77-D also finds considerable use as a desk-stand-mounted microphone.

In Radio Broadcast as well as in Television the RCA 77-D Microphone is used frequently on a floor stand.

The RCA 77-D has an enviable record for Television use.

PRESSURE MICROPHONE

TYPE BK-1A

FEATURES

- Smooth response over the essential audio frequency range
- Modern styling blends pleasingly with the television scene
- Removable from base for use as hand microphone or for mounting on floor stand
- Adjustable ball and socket swivel allows any desired direction
- Ideal for remote pickups—insensitive to wind and mechanical vibrations
- Non-reflective TV gray finish
- Frequency characteristic independent of source distance
- Light weight—small and portable

USES

The high-fidelity BK-1A "Commentator" pressure microphone is designed for broadcast use in AM, FM and TV stations. Its construction makes it particularly well suited for remote pickups where, if used in the open air, the modern design practically eliminates the effect of air currents. The BK-1A features a smooth response and frequency range which make it suitable for reproducing both music and speech.

Rugged, insensitive to wind and mechanical vibration, the BK-1A is the ideal microphone for outdoor use where constant handling by the announcer is necessary. Highly styled, it effectively serves TV announce desk or conference programs where each participant has a microphone in the scene.

DESCRIPTION

The BK-1A is a pressure actuated type microphone. The sound pressure actuates a lightweight molded diaphragm attached to an annular coil assembly which is placed within a magnetic field. An acoustic circuit, coupled to the diaphragm, is proportioned so that the diaphragm velocity remains essentially constant for a constant sound pressure from 60 to 10,000 cycles. The coil is connected to an impedance matching transformer providing output impedances of 30, 150, and 250 ohms.

Non-directional when mounted vertically, a semi-directional characteristic is obtained when horizontally mounted, in which case the BK-1A is essentially non-directional for frequencies below 2000 cycles—the higher frequencies attenuated more as the angle with the perpendicular to the diaphragm increases.

Versatility is assured by design which allows the BK-1A to be stand mounted on desk or floor or to be easily removed from the stand mountings for use as a hand microphone. A durable ball and socket joint located at the base of the stem makes selection of the best speaking angle easy, when used as a stand mounted microphone.

DESIGNED FOR VERSATILITY

Characteristics of design and styling make the BK-1A desirable for:

Broadcasts where the microphone should blend with the scene.

Programs where the performer must work close to the microphone.

Audience participation shows where an attractive, yet lightweight hand-held microphone is desired.

Sports, remotes outdoors where the microphone needs to be sturdy, easy to handle, and able to withstand all kinds of weather.

Public address system use.

SPECIFICATIONS

Mechanical

Length.....7¾" (including mounting)
Diameter .....1⅞"
Weight.....18 oz. (less cable)
Cable (MI-43-B, three conductor shielded).....30' (no plug)
Stand Fitting.....½" pipe thread
Finish.....TV gray and chrome
Weight of Base.....19 oz.
Diameter of Base.....4⅜"

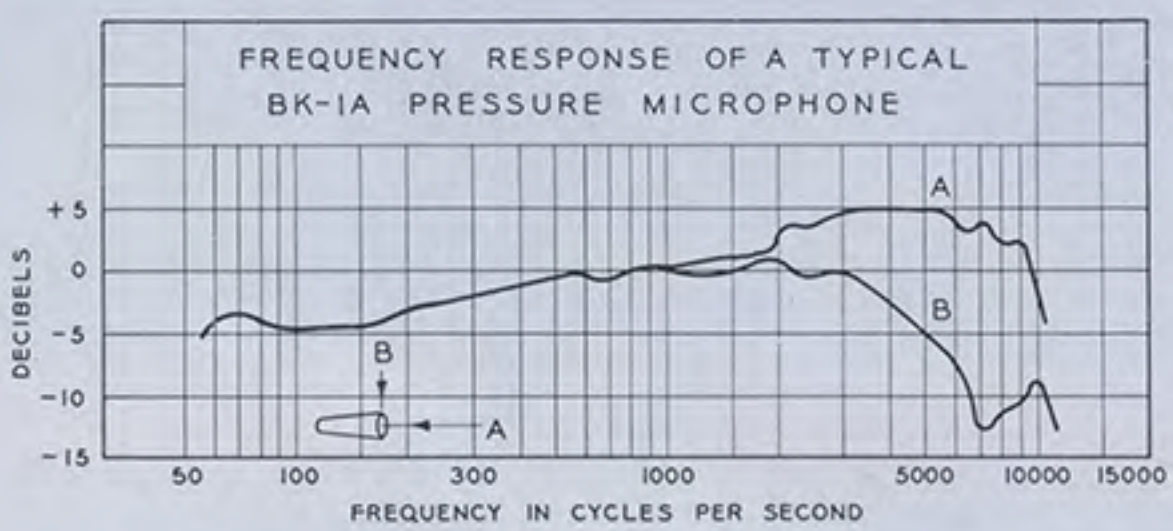
Electrical and Acoustical

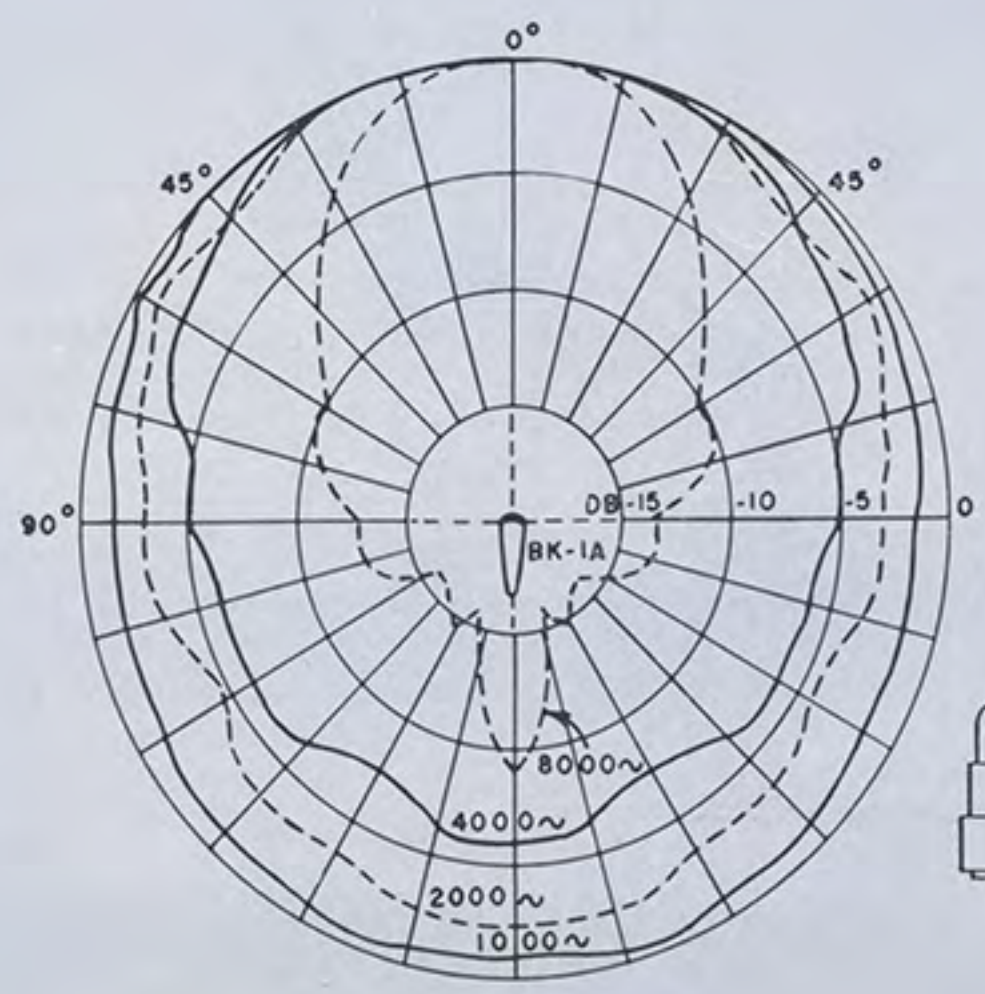
Effective Output Level.....—52 dbm*
Frequency Response .....60-10,000 cycles
Output Impedance.....30/150/250 ohms (connected for 250 ohms when shipped)
RTMA Rating (G_M):
250 Ohms .....—144 db
150 Ohms .....—147 db
30 Ohms .....—148 db
Directional Characteristic:
Semi-directional.....When mounted horizontally
Non-directional.....When mounted vertically
Recommended Load Impedance.....Unloaded input transformer
Hum Pickup Level.....—102 dbm (.001 gauss)
Stock Identification MI-11007

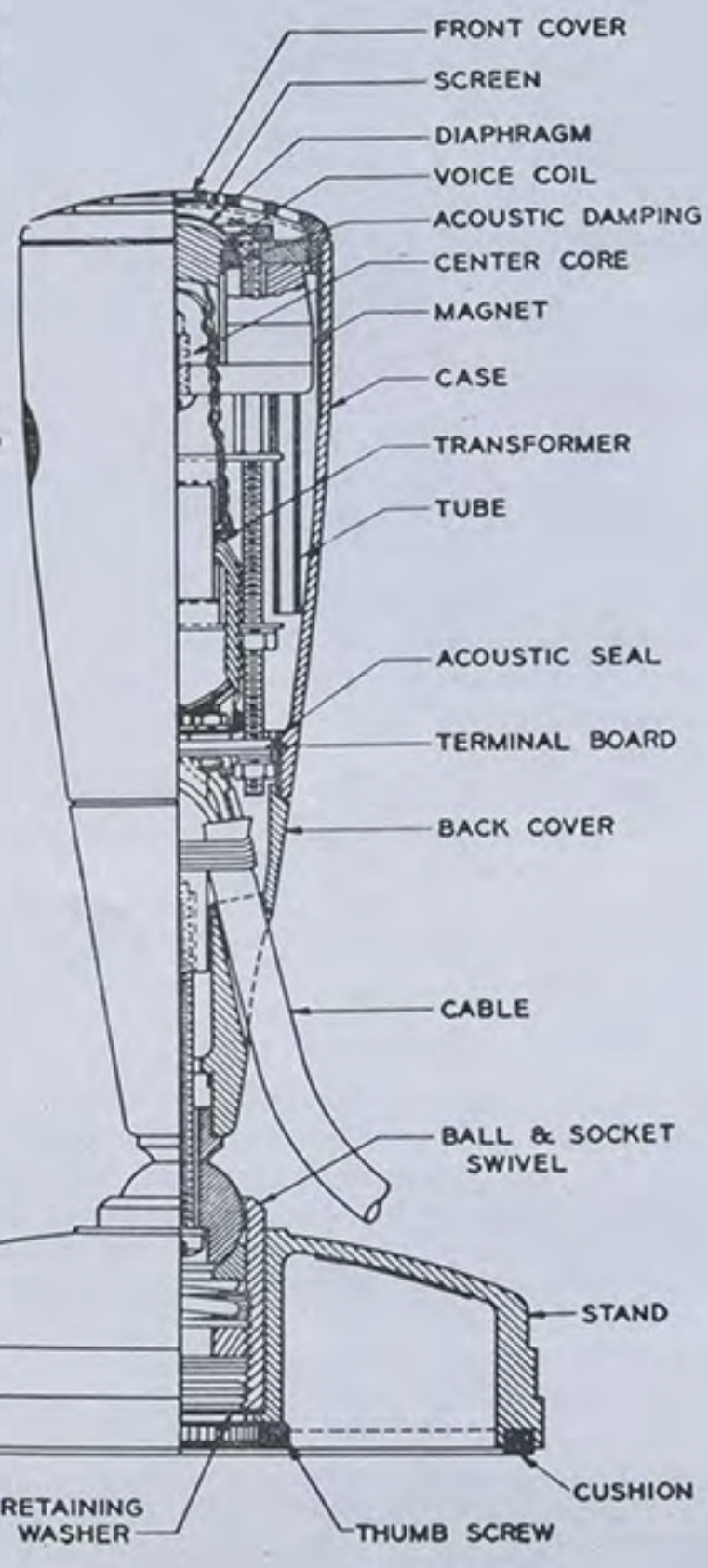
Accessories

Base for BK-1A, Type KS-11A.....MI-11008
Floor Stand, Type 90-AS.....MI-4098
Microphone Cable Plug, Male, Cannon Type.....MI-4630-B

* Referred to one milliwatt and a sound pressure 10 dynes/cm².

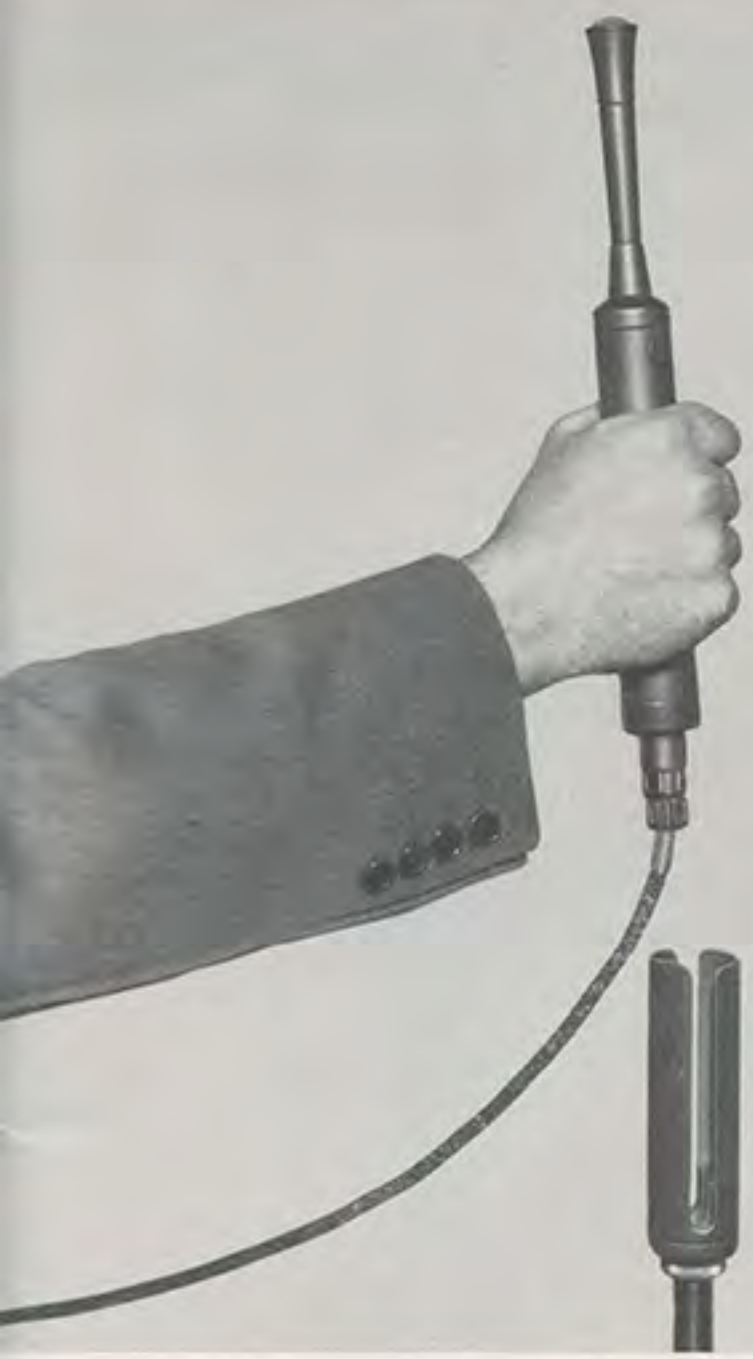






RIBBON-PRESSURE MICROPHONE

TYPE BK-4B



FEATURES

- Permits artist's or performer's face to be in full view
- Special low-gloss "TV gray" finish blends into studio scenes and practically eliminates reflections
- Unobtrusiveness, small size and slim construction are features ideal for television, banquet, night club, and convention uses
- Suitable for "mike-stand" or "carry-around" applications
- Light in weight (less than 1 lb.)—easy and comfortable to handle
- Ribbon-pressure type—contains no tubes, condensers, high-impedance circuits or special power supplies.
- Built to same high-quality standards of other RCA professional, broadcast microphones
- Rugged construction — insensitive to mechanical shock

USES

This ribbon-pressure microphone is ideal for use in television studio programs, conventions, banquets, night club scenes, or remotes where it is essential that the artists' features be in full view. In addition, the BK-4B will provide excellent service in AM and FM broadcast studios for general-purpose use.

The BK-4B is relatively insensitive to wind blasts and may be used for "carry-around" or "mike-stand" purposes. This microphone has the inherent characteristic for producing "naturalness" in its translation of voice and music.

DESCRIPTION

The BK-4B is a miniature ribbon-pressure type microphone especially designed with a slim contour and styled to be unobtrusive. Sectional viewing discloses a small pickup horn connected to a short pipe which is in turn coupled to the front of the ribbon by means of a connector. The back of the ribbon is coupled to the damped, folded pipe or labyrinth by a second connector section. The ribbon impedance is practically a pure resistance of ¼ ohm and is stepped up to a standard line impedance by means of a transformer.

The BK-4B ribbon-type construction provides the broadcaster a small, high-quality microphone having smooth response and with freedom from non-linear distortion. Its low electrical impedance makes the BK-4B immune to wide variations in temperature and humidity. The straight-forward ribbon-pressure type design eliminates the need for tubes, condensers, high-impedance circuits, special amplifiers and power supplies.

The BK-4B is furnished with 30 feet of three-conductor shielded microphone cable and is equipped at the bottom with a standard ½ inch pipe thread for microphone stand mounting.

A holder, as shown in the above photo, is available as an accessory item to provide convenient floor-stand mounting and facilitate easy removal of the microphone from the holder for hand-held use. A plug adapter at the base of the microphone which permits quick disconnection of the cord from the microphone is available as an accessory item.

SPECIFICATIONS

Mechanical

Length	12″
Diameter	1¼″
Diameter at Pickup Point	⅞″
Length of Barrel Section	7″
Length of Tubular Section	5″
Weight	15 oz.
Cable (MI-43-B, three-conductor shielded)	30′ (no plug)
Mounting	½″ pipe thread
Finish	TV gray (low gloss)

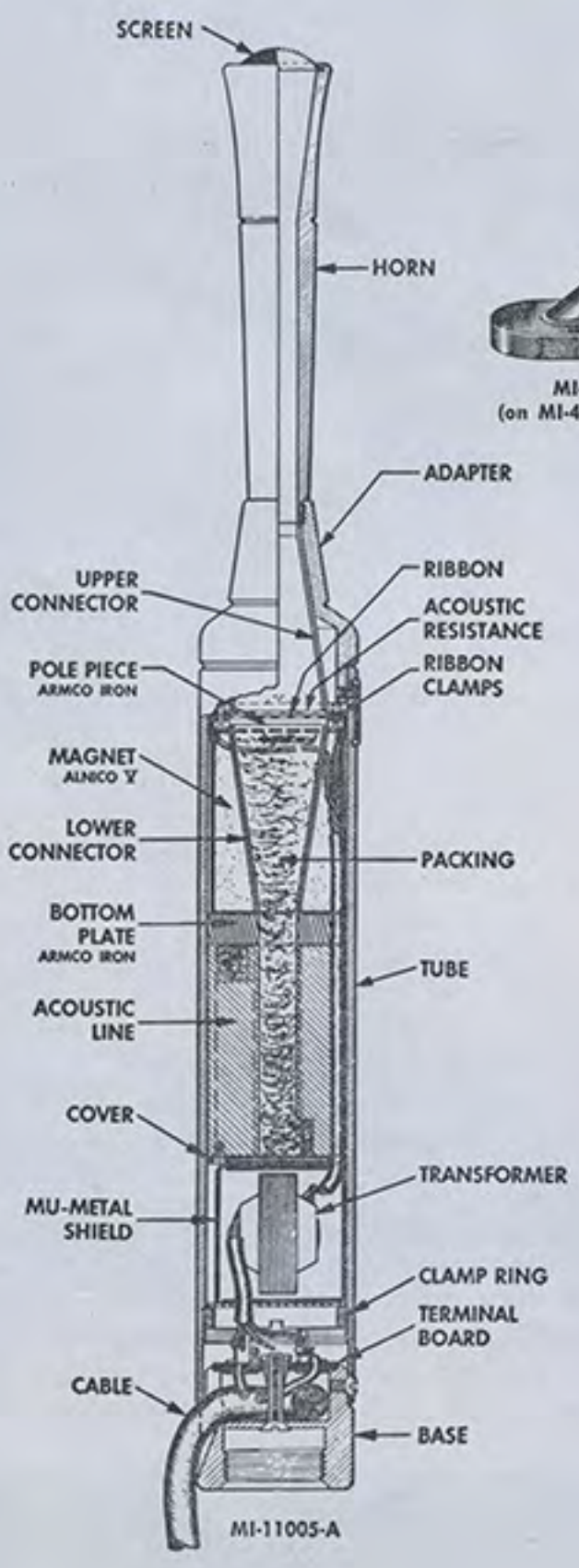
Electrical and Acoustical

Effective Output Level at 1000 Cycles	—61 dbm*
G_M—	
250 Ohms	—153 db
30/150 Ohms	—156 db
Frequency Range	70-15,000 cycles
Output Impedance	30/150/250 (connected for 250 ohms when shipped)
Recommended Load Impedance	Unloaded input transformer
Magnets	Alnico V
Moving System	Ribbon
Directional Characteristic	Non-directional
Hum Pickup Level	—125 dbm ,.001 gauss)
Stock Identification (with 30′ of microphone cable, less plug)	MI-11005-A

Accessories

Floor Stand, Type 90-AS	MI-4098
Swivel Mount (used with MI-4092-D Base)	MI-11009
Microphone Holder	MI-11068
Adaptor for Plug Connector	MI-11069
Female Connector (for MI-11069 Adaptor)	MI-12058
Male Plug	MI-4630-B

* Referred to one milliwatt and a sound pressure of 10 dynes/cm².



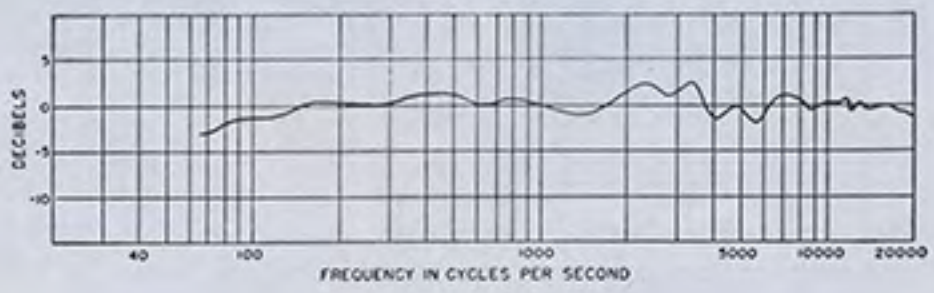
MI-11005-A

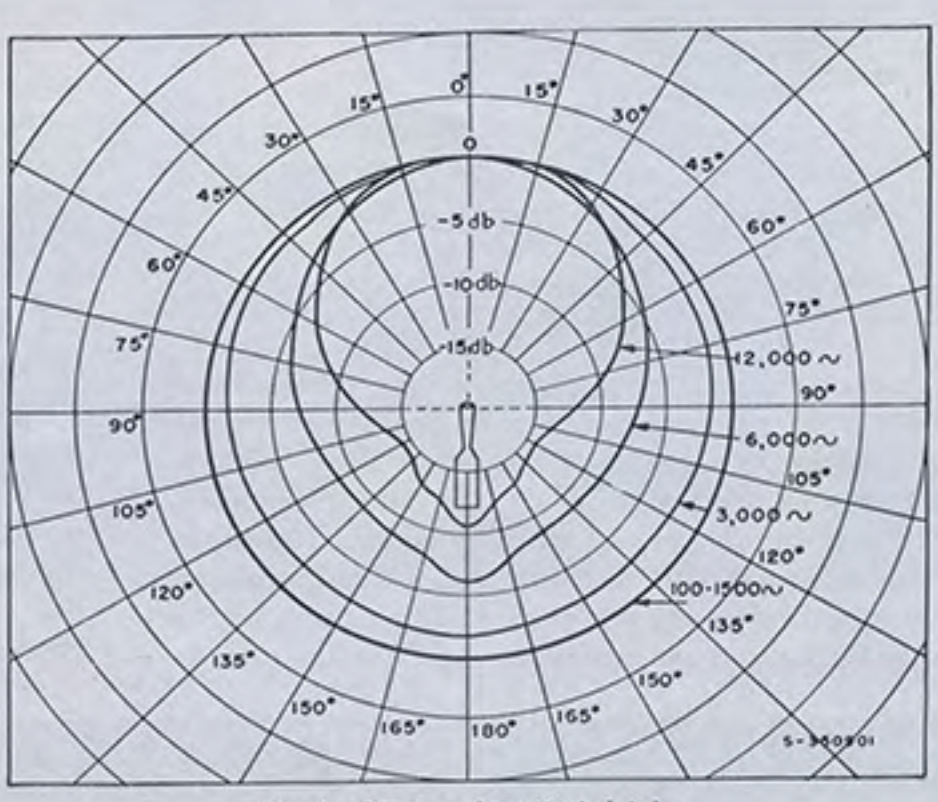

MI-11009
(on MI-4092-D Base)


MI-11068


MI-11069


MI-12058





Directional Pattern about Vertical Axis

PRESSURE MICROPHONE

TYPE SK45

FEATURES

- Rugged construction
- Economical, light weight, small in size
- Attractive appearance
- High or low impedance
- Dynamic type
- Excellent for announce work
- Swivel mounting

USES

The MI-12045 Announce Microphone is suitable for talk-back or cue purposes. It may be used indoors or outdoors where a rugged, light weight microphone with good response to voice is required. It is a "close-talk" microphone.

DESCRIPTION

This microphone is a pressure operated microphone employing the dynamic principle. The moving element is a thin molded diaphragm in which a single straight wire is embedded. This wire which is held in the airgap of a strong permanent magnet generates a small voltage of the same wave form as the sound acting on the diaphragm. The wire is connected to the primary of a small, but efficient transformer, in order to provide an output voltage sufficiently high to allow the output to be fed directly to the grid of the first input tube. The two conductor shielded cable is connected permanently to the microphone.

The change from high to low impedance (or low to high) is easily accomplished by changing one soldered connection in the head of the microphone.

A swivel arrangement allows tilting of the head forward or back through an arc of approximately 45 degrees each side of the vertical position. New streamlined design, rugged construction and attractive baked TV gray enamel finish makes this microphone a welcome addition to any installation.

SPECIFICATIONS

Directional Characteristics:
(Below 3000 cycles/sec.).....Non-directional
(Above 3000 cycles/sec.).....Semi-directional

Output Impedance.....200 ohms balanced or 15,000 ohms†

Output Level at 1000 Cycles/sec.:
Low Impedance .....—56 dbm
G_M .....—149 db
High Impedance .....—59 db*

Hum Pickup Level:
High Impedance .....—94 db**
Low Impedance .....—109 dbm

Frequency Range.....75 to 10,000 cycles/sec.

Mounting.....⅝—27 fixture thread

Dimensions:
Height (including shank) .....5⅜"
Width .....1⅝"
Depth .....2"

Finish.....TV gray enamel

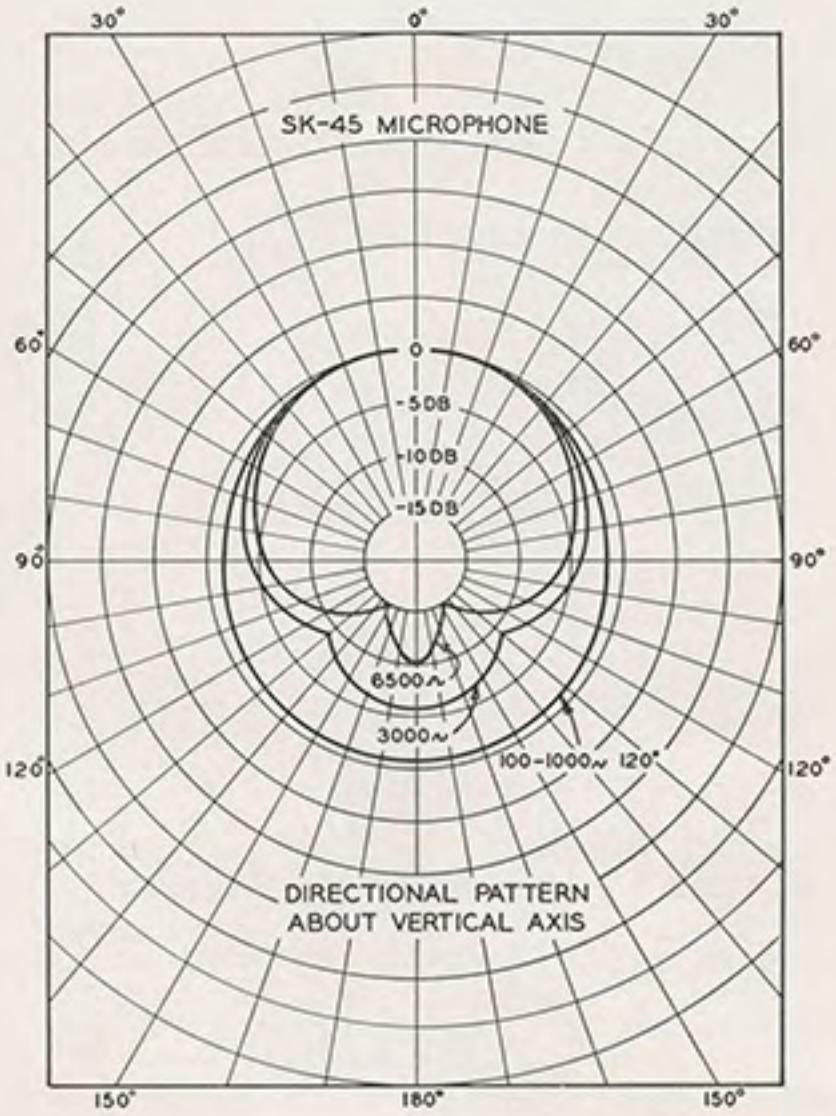
Weight, with Cable.....1¼ lbs.

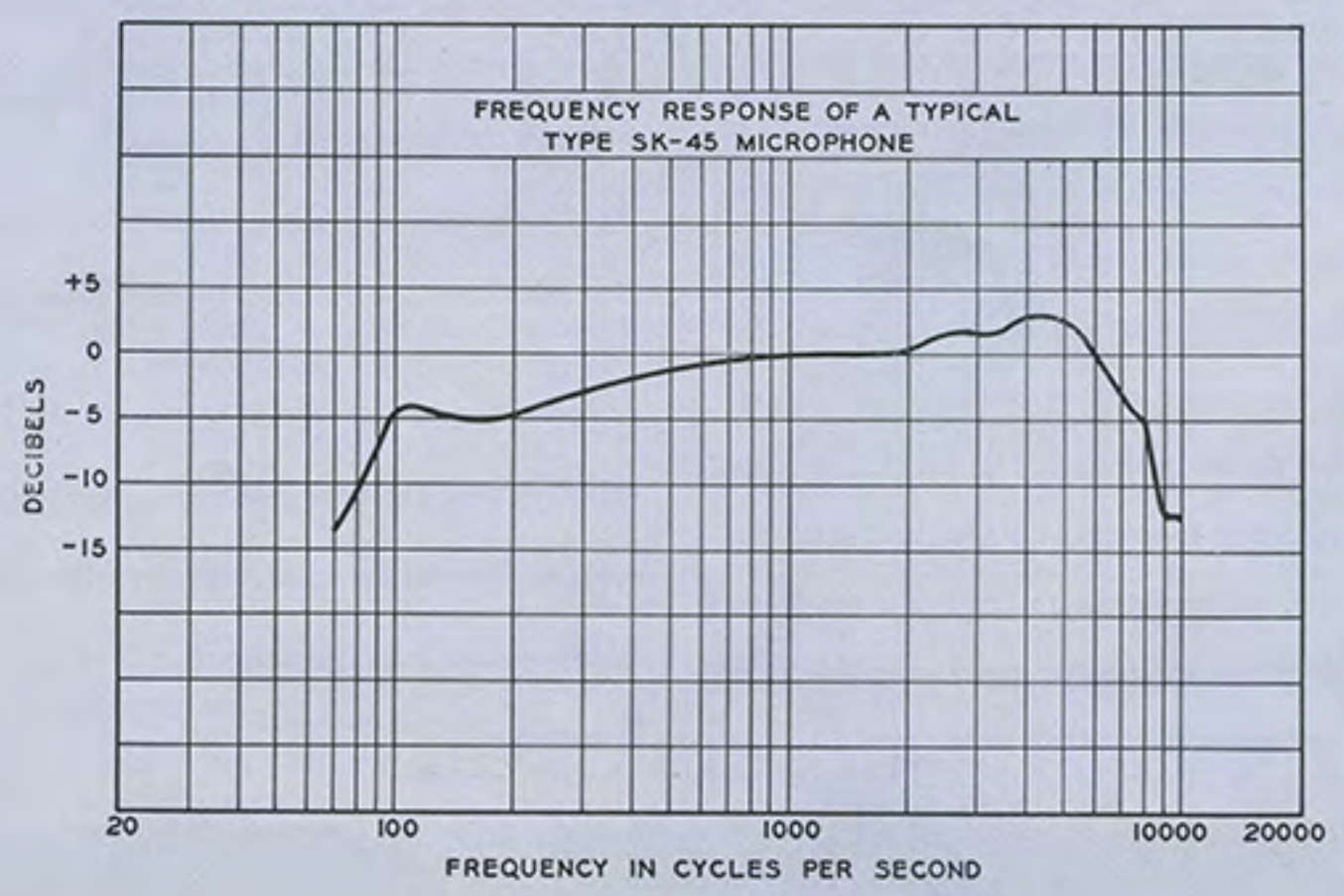
Stock Identification:

Microphone and Cable (7 feet).....MI-12045

———

† Stocked with soldered connection to the 200 ohm tap.
* Referred to 1 volt/dyne/cm^2.
** Hum field 1 x 10^{-3} gauss.
0 db = 1 volt.





MICROPHONE DESK STANDS

MI-4095-A

MI-13240

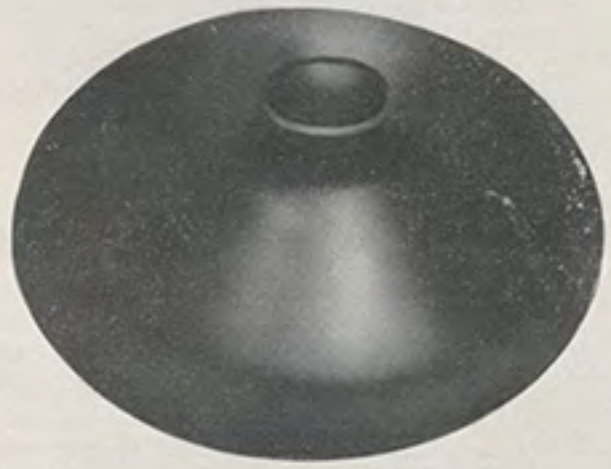
MI-6427

MI-4096-A

MI-11008

MI-4092-D

MI-4058-C



FEATURES

- A variety of Announce Stands to accommodate a variety of microphones
- Rugged construction
- Attractive appearance
- Easy to assemble or take apart
- Optimum design features built into each stand for its particular application
- Compact and convenient for portability
- Microphone Boom and Perambulator for TV applications

BANQUET STAND
MI-4095-A

FEATURES

- Compact and convenient for portable use
- Rugged construction
- Easy to assemble or take apart
- Adjustable height
- Attractive appearance

USES

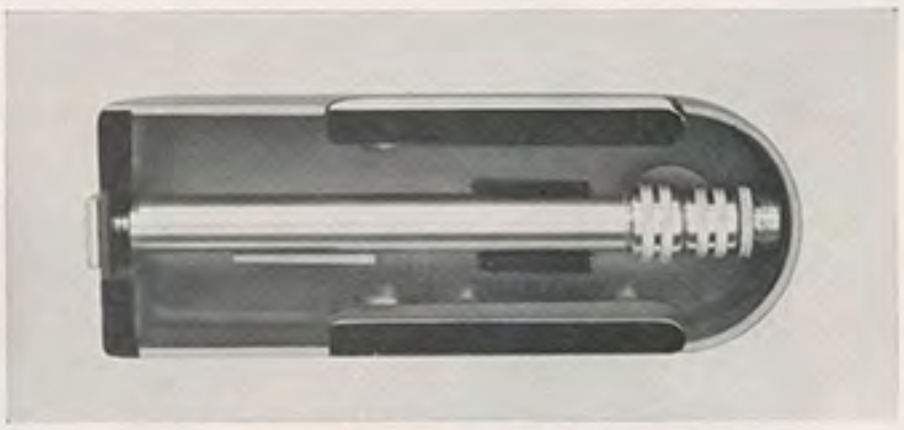
This microphone stand is the ideal for banquets or other occasions where a sturdy, attractive and truly portable design is required. It can accommodate Type 77-D, BK-1A, and SK-45 Microphones.

DESCRIPTION

The MI-4095-A is of novel construction in that its base forms a compact carrying case for the entire stand. The hollow under side of the base casting accommodates the stand's three telescoping tubular sections and two fin type legs fold into the base sides. When unfolded the legs extend 5¼" from center of the vertical rod. The bottom of the base is covered with felt.

SPECIFICATIONS

Height	Adjustable 10¾" to 24¾"
Base Dimensions	3⅝" x 10½" x 1⅝"
Microphone Mounting	½" pipe thread or ⅝"—27 fixture thread with adaptor removed
Weight	5 lbs.
Finish	Umber gray wrinkle and satin chrome
Stock Identification	MI-4095-A



Three telescoping sections and 2 fin-type legs "tuck away" in bottom of base.

ANNOUNCE STAND
TYPE 91-A

(Specifically Designed for the Type 44-BX Microphone)

The 91-A is a simple but attractive desk stand for 44-BX Microphones. It is finished in TV gray and its base rests on three felt buttons. Height of the 44-BX center above desk is 8⅜". Base diameter, 7". Use only with Type 44-BX Microphone.

SPECIFICATIONS

Weight (unpacked)	3½ lbs.
Stock Identification	MI-4058-C

DESK STAND, TYPE 91-B

FEATURES

- Small size
- Heavy base with felt covered bottom
- Adjustable height
- Attractive appearance

USES

The 91-B is a heavy-based desk stand designed especially for studio or announce use. It is attractive in appearance and easily mounts the heaviest of studio microphones. It can accommodate Type 77-D, BK-1A, and BK-4A Microphones.

DESCRIPTION

The 91-B is finished in umber gray with satin chrome trim. The base is felt covered to prevent marring the surface on which it is placed. The stand is provided with alternate mounting extensions—one ¾" and one 1¾", the choice depending on the type microphone to be mounted.

SPECIFICATIONS

Microphone Mounting	½" pipe thread
Base Dimensions	4½" x 6⅝" x ¾"
Finish	Umber gray wrinkle with satin chromium trim
Weight	4 lbs.
Stock Identification	MI-4092-D

ANNOUNCE STAND, MI-4096-A

This attractively-designed announce stand is adjustable from 8 to 10½", making it ideal for use on a desk or table. It is finished in chromium and black and features a 7½" base. The microphone mounting is a ⅝"—27 fixture thread. This stand can accommodate Type SK-45 and BK-1A Microphones.

Weight (unpacked)	4 lbs.
Stock Number	4096-A

DESK STAND, MI-13240

This sturdily constructed desk stand is ideal for use with the lighter microphones where a low cost stand is needed. The stand is 6" high and the 4¾"-diameter base is equipped with four rubber feet. The stand is attractively finished in umber gray with polished chrome trim. As supplied the stand mounting is ⅛" pipe thread; with the adaptor removed the mounting is a ⅝"—27 fixture thread. For use with Type SK-45 Microphone.

Weight (unpacked)	14 ozs.
Weight (packed)	1½ lbs.
Stock Identification	MI-13240

PUSHMIKE STAND, MI-6427

This smartly designed table stand features a built-in microphone switch and is suitable for use with Type SK-45 and BK-1A Microphones. The switch is of the D.P.D.T. long leaf anti-capacity type and permits turning the microphone on and off right at the microphone stand. It may also be used for "push-to-talk" operation or lock-in "Talk" position.

The stand is 4¾" high with 5¾" base and is attractively finished in chromium. The microphone mounting is for a ⅝"—27 male or female thread. Stock MI-12055 Adaptor is available on separate order for microphone with ½" pipe thread.

Weight (unpacked) ..... 1⅛ lbs.
Stock Identification MI-6427
(Includes MI-6425 Pushmike Adaptor and MI-6426 Base)

PUSHMIKE ADAPTOR, MI-6425

An adaptor with a built-in microphone switch of the D.P.D.T. long leaf anti-capacity type. The switch permits "push-to-talk" operation or locked-in "talk" position and may be used with any floor or table stand having ⅝"—27 fixture threads. The adaptor is an extremely light compact unit finished in chromium. It is 4¾" long, 1 3/16" in diameter and weight is ¾ lbs. unpacked.

Fitting ..... Bottom ⅝"—27 fixture thread (female)
Top ..... ⅝"—27 fixture thread (female) with added ⅝"—27 thread, male nipple
Weight (unpacked) ..... ¾ lb.
Stock Identification MI-6425

DESK STAND, MI-11008

The MI-11008 desk stand was specifically designed for use with the type BK-1A "Commentator" Microphone. Its construction is simple, rugged and it is styled in dark umber gray finish. The BK-1A Microphone fits into the center hole and is secured by a knurled thumb screw and a retaining washer. A rubber cushion around its perimeter prevents marring of any surface.

Weight, packed ..... 1½ lbs.
Finish ..... Dark umber gray
Stock Identification MI-11008

MICROPHONE FLOOR STANDS

TYPE 90-A, 90-AS, MI-4068-D, MI-6208, MI-4093C

FEATURES

- Hundreds giving excellent performance in leading broadcast studios
- Suitable for use with all RCA Microphones
- Large heavy base with equalizing projections assure sturdy support of microphone
- Simple non-slide, trouble-free clamping device
- Attractively finished in satin chrome

USES

The Type 90-A Program Stand is used in broadcast studios where a stand is required which will be attractive in appearance and give stable support even to the heavier type of microphones. Use with Microphone Types 44-BX, 77-D, and BK-1A.

The shorter 90-AS Stand is recommended for use with BK-4A Starmaker.

DESCRIPTION

The 90-A Floor Stand is a sturdily constructed stand which will give stability to the heaviest microphones. The base is weighted and has equalizing projections which assure a firm position on an uneven floor. The column is equipped with a simple clamping device which permits height adjustments to be made easily and quietly without operating any release mechanism. The up and down operation is smooth and the locking operation positive. The patented clamp is mechanically simple and is ruggedly constructed to give years of service.

The stand as supplied may be used with any microphone having a ½" pipe thread and by simply removing an adaptor fitting with any microphone having a ⅝"—27 fixture thread.

The 90-A is finished in satin chrome to harmonize with RCA Microphones. Cable guides are included to hold the microphone cord close to the stand at the base.

The Type 90-AS Stand is 12" shorter than the Type 90-A and is recommended for the MI-11005-A Starmaker.

SPECIFICATIONS

Height of Stand	Adjustable from 3'8" to 6'2"
Microphone Mounting	Standard ½" pipe thread or ⅝"—27 fixture thread
Diameter of Base	12¼"
Weight (unpacked)	33 lbs.
Finish	Satin Chrome
Stock Identification Type 90-A	MI-4090-A
Stock Identification Type 90-AS	MI-4098
Accessory Item—Cable Hook	MI-11099

MICROPHONE STAND, MI-4068-D

USES

The MI-4068-D Floor Stand is used in Broadcast studios where some stability of support may be sacrificed for ease in moving from one spot to another. For use with the BK-1A, SK-45 and the 77-D.

DESCRIPTION

The column and telescoping tube are finished in polished chrome and the base in dark umber gray wrinkle to harmonize with RCA microphones. It has a smooth-operating clamping and release device.

The stand as supplied may be used with any microphone having a 5/8"—2 fixture thread. It is equipped with a heavy 12" base and is sturdily constructed.

SPECIFICATIONS

Height of Stand	Adjustable from 34" to 62"
Microphone Mounting	5/8"—27 fixture thread
Diameter of Lower Tube	1"
Diameter of Base	12"
Weight (unpacked)	14 lbs.
Finish:	
Base	Dark umber gray
Stand	Satin chrome
Stock Identification	MI-4068-D

CABLE HOOK, MI-11099

USES

Can be quickly attached to or removed from the 90-A or any other 1¼" round tube stand. It provides a convenient method of holding the cable. It saves wear on the cable when it is not in use.

DESCRIPTION

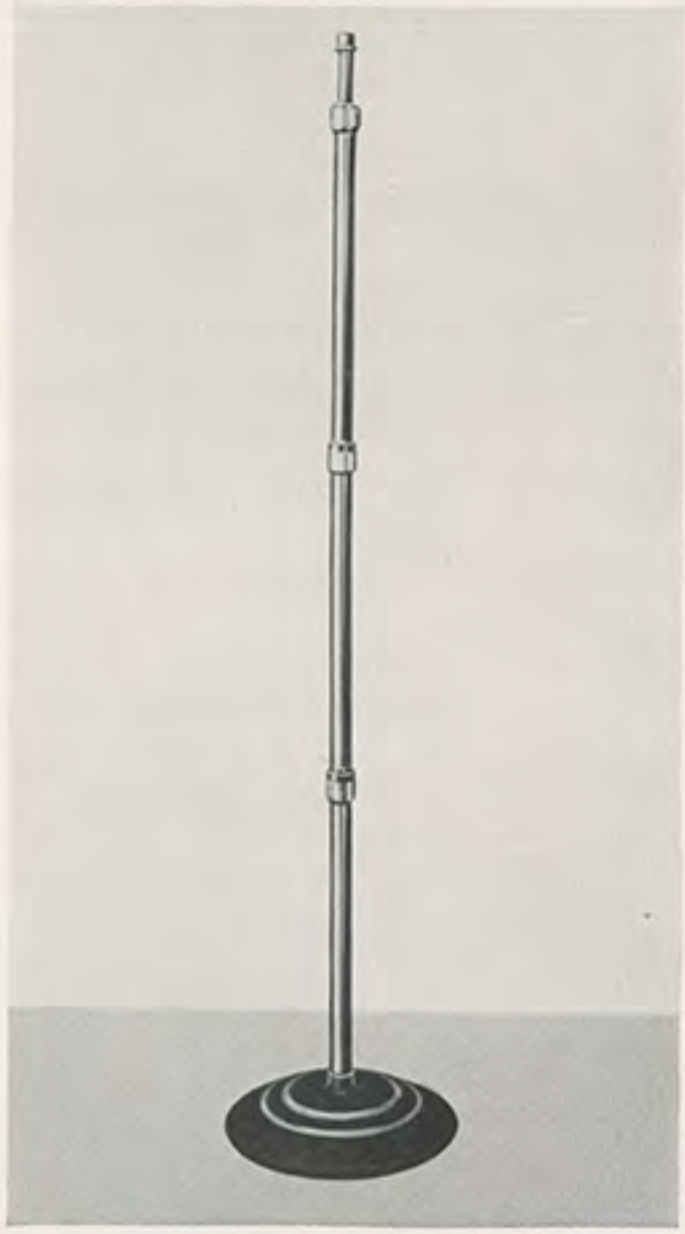
The Cable Hook is simple to install, and may be easily adjusted to the proper height. Merely tightening a smooth locking nut holds it in position.

SPECIFICATIONS

Weight	15 oz.
Finish	Satin chrome
Hole Diameter	1¼"
Stock Identification	MI-11099

Bop Hope shown using the BK-4A "Starmaker" Microphone which is mounted on the Type 90-AS Floor Stand.

THREE-SECTION MICROPHONE STAND, MI-6208



FEATURES

- Utility stand for floor or banquet use
- Three sections for easy packaging or carrying
- Heavy ten-inch base
- Attractive appearance

DESCRIPTION

The MI-6208 is a convenient and attractive stand for floor or banquet use. It is especially suitable for portable use since it may be taken apart into three sections for easy packing or carrying. The stand, which is in chrome, has a heavy 10" gray crackle base trimmed with satin-silver stripes. Use this stand with 77-D, 44-BX and BK-1A Microphones.

SPECIFICATIONS

Height (for floor use—3 sections)	Adjustable from 3' 11" to 5'
Height (for banquet use—2 sections)	Adjustable from 1' 6" to 2' 7"
Microphone Mounting	5/8"—27 fixture thread
Finish:	
Stand	Polished chromium
Base	Umber gray wrinkle with satin-silver stripes
Weight (unpacked)	11 lbs.
Stock Identification	MI-6208

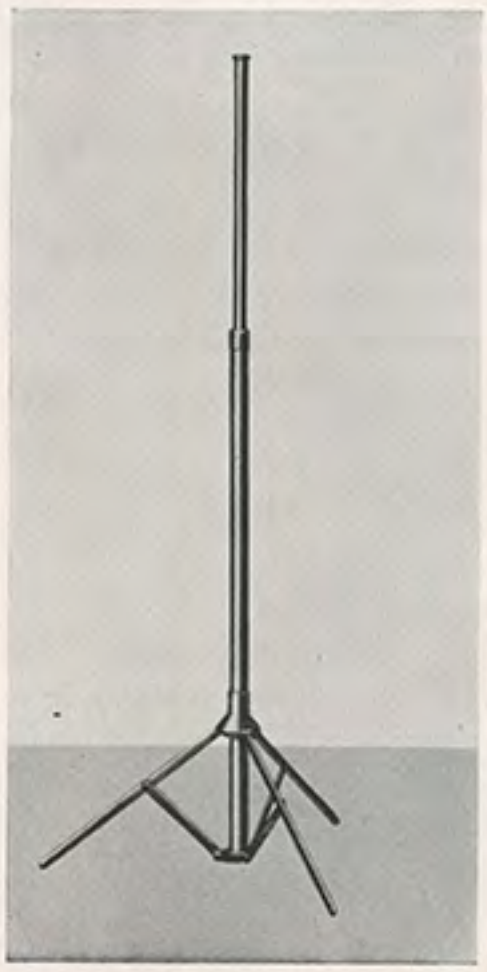
PORTABLE MICROPHONE STAND, MI-4093-C

DESCRIPTION

The 59-B is a folding, lightweight and rugged stand which is unexcelled for field use with the 77-D and BK-1A Microphones. It features a tripod base and a patented clutch arrangement which permits height adjustments to be quickly made without the operation of a mechanical release.

SPECIFICATIONS

Height	Adjustable from 3' to 5'
Weight (unpacked)	3½ lbs.
Finish	Satin chrome
Microphone Mounting	½" pipe thread or 5/8"—27 fixture thread with adaptor removed
Stock Identification	MI-4093-C



MICROPHONE BOOM AND STAND

TYPE KS-3B

The Type KS-3B Boom Stand may be conveniently folded for storage or transportation as shown in inset.

FEATURES

- Sturdy construction, strong tubing and castings
- Large base with rubber-tired casters
- Easily adjusted over wide range of heights and boom lengths
- Positive locking adjustments
- Air cushion lowering brake, releases for easy lift
- Lightweight

USES

For broadcast AM and FM studios and Television applications: (1) Programs where the best microphone position cannot be reached with a conventional floor stand; (2) Piano pickup; (3) Orchestral pickup where the stand may be substituted for microphones suspended overhead; (4) Television programs where movement of the microphone is not required. This stand is recommended for use with the 77-D.

DESCRIPTION

The KS-3B boom length and the counter balance overhang are easily adjustable, and the position selected is securely locked by wing-type handwheels. The microphone fitting is swivel mounted, thus eliminating the need of rotating the microphone when attaching it to the stand. Movement of the stand is quiet and easy because of the smooth-rolling rubber-tired casters with which it is equipped. Once the stand is properly placed the casters can be locked by means of foot-operated locks. Cable supports are provided along the boom for the microphone cable.

For storage or for convenient transport the legs and the boom may be folded against the center column to make a relatively small package.

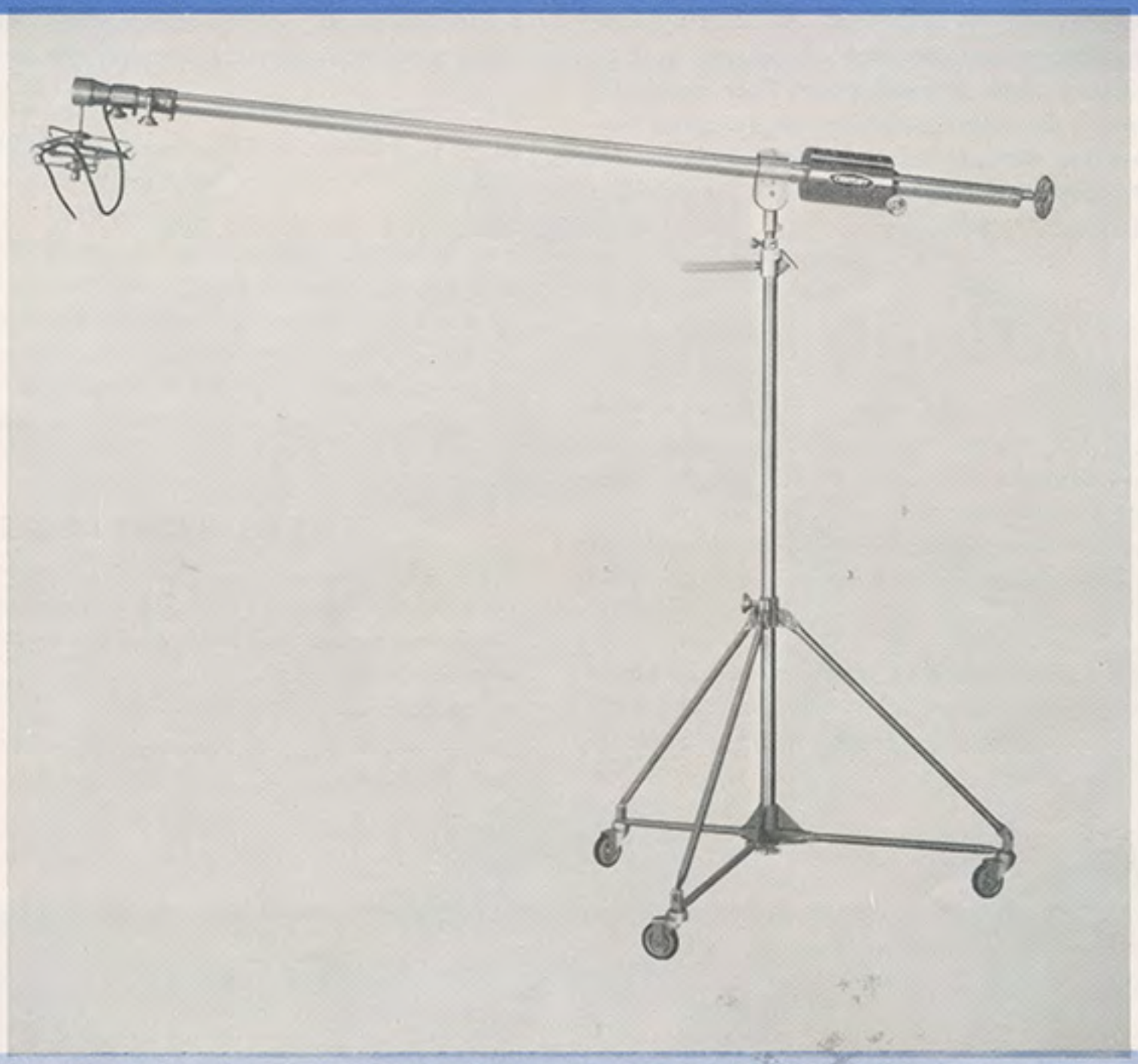
The KS-3B boom stand is finished in satin chrome and gray to harmonize with RCA microphones.

SPECIFICATIONS

Height of Stand	Adjustable from 5′ 2″ to 8′ 8″
Horizontal Arm Adjustment (with overhang to rear)	3′ to 6′
Microphone Mounting	Standard ½″ pipe thread ⅝″—27 fixture thread with adaptor removed
Weight (unpacked)	64 lbs.
Finish	Satin stainless steel and gray
Stock Identification	MI-11056

MICROPHONE BOOM AND STAND

MI-11070



FEATURES

- Suitable for both TV and AM—rotates "Mike" through 360° by convenient wheel
- Permits the operator to "spot" directional pattern of mike for best pickup
- Three sturdy telescopic aluminum sections provide "length" adjustments from 6 to 18 feet
- A shockproof rubber mount for microphone
- Mike cable enclosed in boom
- Vertical adjustment 4 to 8 feet
- Base mounted on rubber-tired casters

USES

For broadcast AM and FM studio and Television applications (1) Programs where the best microphone position cannot be reached with a conventional floor stand; (2) Piano pickup; (3) Orchestral pickup where the stand may be substituted for microphones suspended overhead; (4) Television Programs of virtually all types. Recommended for use with Type 77-D Microphone.

DESCRIPTION

The Microphone Boom Stand, MI-11070, telescopes from 6' 10" to 18' with remote control of microphone made possible at all positions by a rear handwheel which rotates 360 degrees. It is equipped with a self leveling, vibration damping mount. The microphone cable runs through the boom to avoid "snarls" and interference with the television scenes.

Perfect balance is maintained by an adjustable, 25 pound steel counterweight which slides on the boom and locks securely at any position. The counterweight is made of steel, plated satin chrome and the boom swivel is cast aluminum with a bronze stand swivel. The stand swivel has a tension spring to keep the boom in position when balanced. The stand is a two-section telescoping super strut which combines rigidity and strength with minimum weight.

The vertical portion of the stand is constructed of telescopic steel tubing, and is adjustable in height from 4 feet to 8 feet. A Numo check and safety clamp are provided for the height adjustment. A spring shock absorber on the inner telescopic tube protects against shock if the height adjustment is carelessly loosened. The base is mounted on 4-inch rubber tired casters, and may be folded compactly for convenience in transportation or storage. A horizontal handle is provided at the top of the vertical section for convenience in dollying the stand.

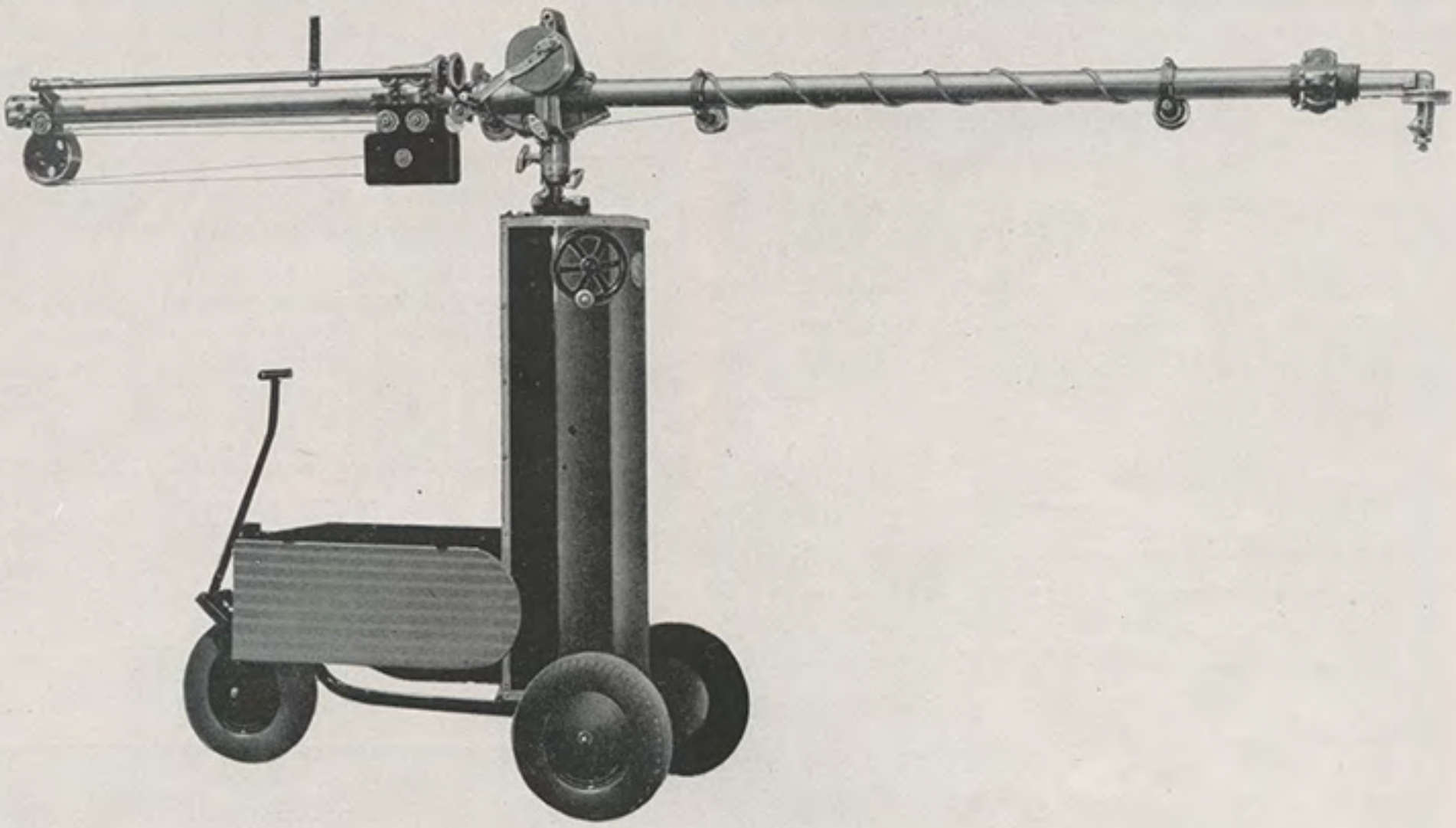
SPECIFICATIONS

Height of Stand	Adjustable from 4' to 8'
Horizontal Arm Adjustment	Telescopes 6' 10" to 18'
Microphone Mounting	Shockproof rubber mount with ½" pipe thread
Microphone Adjustment	Rear handwheel
Weight (approx.)	70 lbs.
Finish	Satin, stainless steel and gray
Stock Identification	MI-11070

In good TV Audio practice, the microphone must usually be kept out of sight. This requires the use of an extension type of Boom and Stand such as the MI-11070 illustrated here.

MICROPHONE BOOM AND PERAMBULATOR

MI-26574



FEATURES

- Boom and perambulator can be passed through narrow doorways
- Duraluminum tubing for boom assures rigidity and light weight
- "Gunning" device revolves directional microphones through 280°
- Radius of boom can be extended to 17 feet —retracted to 7 feet, 4 inches
- Boom fitted with adjustable counterbalance for different microphones
- Quiet in operation

USE

The MI-26574 Microphone Boom and Perambulator is designed for use in broadcast or television studios. It enables the operator to quickly place the microphone with respect to the sound source. He can closely follow the sound, or move from one source of sound to another easily and quietly. Recommended for use with Type 77-D Microphone.

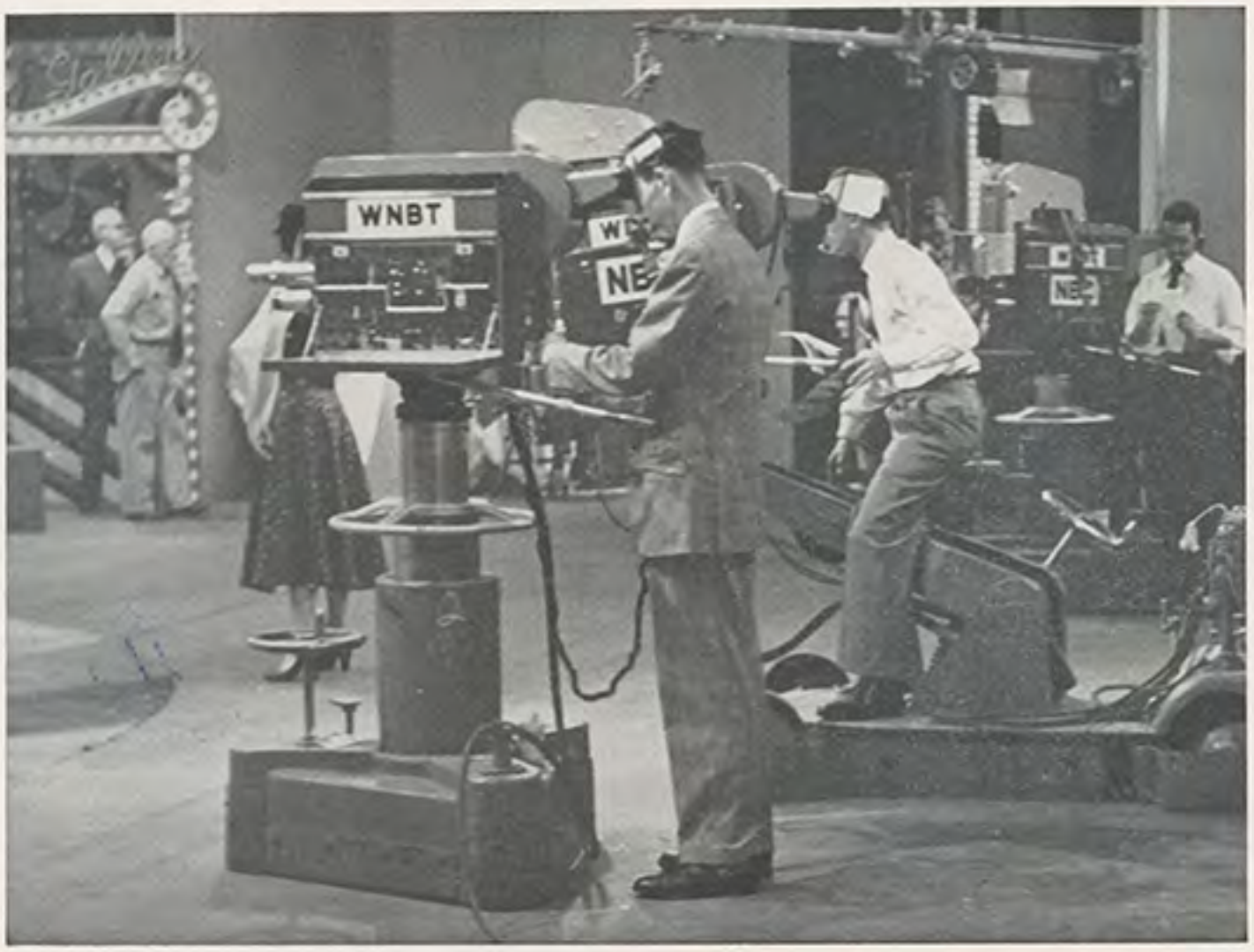
DESCRIPTION

The perambulator is constructed of steel tubing with drop-rim type wheels and pneumatic tires. The steering wheel swivels 180° and can be clamped to hold a given radius. The tiller when pushed back operates a toggle brake on the steering wheel. It is also provided with steps which aid the operator in mounting the platform when it is elevated. Operated by a hand wheel, the elevating column raises the boom from a height of 6 feet, 5 inches to 9 feet, 5 inches. The operating platform raises with the boom. The wheel tread of the perambulator can be narrowed to 27 inches and the leaf portions of the table can be lowered to permit passing the perambulator through a 30-inch door.

A hand crank governs extension and retraction of the boom, and a hand rail controls elevation and horizontal traversal. As the boom is retracted, the microphone cable is received on take-up sheaves. The movement of the telescoping member is counterbalanced by weights which can be adjusted to properly balance different microphones. Since many microphones are directional, the boom is fitted with a "microphone gunning" device which revolves the microphone through 280°.

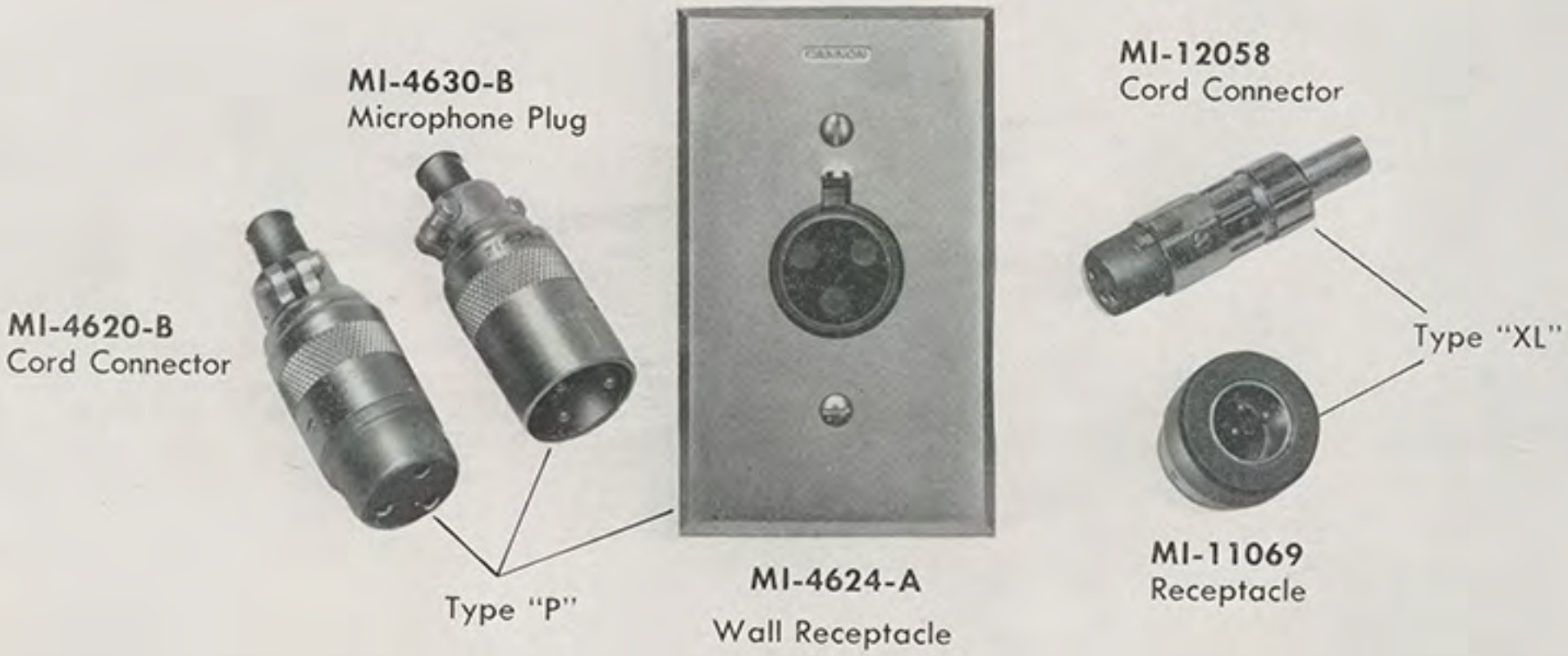
SPECIFICATIONS

Dimensions:	
Maximum Height (with boom pedestal elevated)	9′ 5″
Maximum Height (with pedestal lowered)	6′ 5″
Length of Boom:	
Extended	17′
Retracted	7′ 4½″
Weight:	
Boom (with gunning device and counterweights)	102 lbs.
Perambulator	421 lbs.
Stock Identification	MI-26574
Boom Only	MI-26574-1
Perambulator Only	MI-26574-2



The Microphone Boom and Perambulator (MI-26574) is particularly useful for large studios where greater mobility and manipulation is required.

MICROPHONE ACCESSORIES



MICROPHONE PLUGS AND RECEPTACLES

RCA Microphones are sold without plugs in order that the purchaser may use any type desired. The Cannon Type "P" Plugs are recommended for their reliability and ruggedness. This series of Cannon Plugs is used in all RCA remote amplifiers. The Cannon Type "P" Plugs and Receptacles stocked by RCA have steel jackets, which are preferred to the die cast type, for their increased ruggedness. All fittings are finished in satin chrome.

A Cannon XL type plug, MI-12058, is available for use with the Starmaker Microphone, MI-11005-A, when it is desirable to have a quick means of disconnecting the microphone. For this application, it is necessary to mount a receptacle, MI-11069, in the base of the Starmaker Microphone (Type BK-4A).

XL plugs have positive latch locks which prevent accidental disconnecting. Plugs are disengaged by pressing release buttons and pulling connectors apart. Rubber bushings prevent wear on the cable covering and provide a grip on the cable.

Cannon "P" Series of Plugs

Description	*Cannon Stock No.*	*RCA Stock Identification*
Male Plug for Microphone Cords.....	P3-CG-12S	MI-4630-B
Wall Receptacle for Above Plug.....	P3-35	MI-4624-A
Note: The MI-4624-A Receptacle will fit in a standard a-c outlet box.		
Extension Cord—Female Connector.....	P3-CG-11S	MI-4620-B

Cannon "XL" Series of Plugs

Description	*Cannon Stock No.*	*RCA Stock Identification*
Female Connectors—Extension Cord.....	XL-3-11	MI-12058

½" Pipe Thread	Used to adapt MI-4092-D Base as desk stand mounting for BK4-A "Starmaker" Microphone

MICROPHONE ADAPTORS

Here is a comprehensive stock of microphone adaptors suitable for microphones and stands used by broadcasters. The ½" standard pipe thread avails broadcasters of adaptors to suit any application.

Stand Thread	*Microphone Thread*	*Stock Identification*
½" pipe thread	⅝"—27	MI-12053
½" pipe thread	⅝"—24 (W.E.)	MI-11066-2
⅝"—24 (W.E.)	½" pipe thread	MI-11066-3
⅝"—27	½" pipe thread	MI-12055
		MI-11009

The "Starmaker" Microphone, BK-4A, can readily be adapted as a desk microphone by using the MI-11009 Adaptor and the MI-4092-D Base to form the combination shown in the photo (right).

Holder for Type BK-4A "Starmaker" Microphone. Stock Identification.....MI-11608.

Microphone Holder, MI-11068, mounted on Type 90-AS Floor Stand. Note how "Starmaker" Microphone may be easily removed for carry-around or interview use.

MI-11069 Adaptor and MI-12058 XL Type Connector used with "Starmaker" Microphone to provide quick-disconnect feature.

MICROPHONE CABLES

RCA microphone cables are of rugged construction and are jacketed with a neoprene compound to insure long life. They are especially designed for broadcast service either studio or remote.

Cable MI-43-B

Use.....Cable for low impedance microphone circuits

Type.....Three conductor, twisted

Conductors.....Stranded, equivalent to #20 AWG

Insulation.....Special rubber compound

Shield.....Tinned copper. Complete coverage without loss in flexibility

Outer covering.....Brown neoprene compound

Overall Diameter.....0.300 maximum

Stock Identification (specify length in feet).....MI-43-B

Cable MI-13307

Type.....Two conductor, twisted

Conductors.....Stranded, equivalent to #16 AWG

Insulation.....Special rubber compound

Shield.....Tinned copper. Complete coverage without loss in flexibility

Outer Covering.....Black neoprene compound

Overall Diameter.....0.300 maximum

Stock Identification (specify length in feet).....MI-13307

INTERCONNECTING CABLES

The majority of cables required to interconnect the various components of a broadcast audio assembly are of a special type and cannot be readily purchased from the local electrical dealer. In order to avoid unnecessary installation delays, RCA carries in stock four of the generally used special type cables.

Solid Conductor Cable, MI-33

Use.....General purpose Audio Transmission Line

Type.....Shielded twisted pair, each conductor solid #20 tinned copper wire, with Vinyle resin insulation covered with lacquered rayon braid.

Shield.....Tinned copper braid

Overall Diameter .....Approximately .170"

Color Code.....Red and black

Rating .....300 volts

Stock Identification.....Stocked in 1000 ft. rolls as MI-33

Stranded Conductor Cable, MI-34

Use.....Recommended for audio circuits where extra flexibility is required

Type.....Shielded, twisted pair, stranded, composed of 7—.010 tinned copper conductors equivalent to #22 AWG

Insulation.....Cinyl resin insulated with lacquered rayon braid

Shield.....Tinned copper braid

Overall Diameter .....Approximately .166"

Color Code.....Red and black

Rating .....300 volts

Stock Identification (stocked in 1000 ft. rolls).....MI-34

Stranded Conductor Cable, MI-35

Use.....Especially recommended for 110 volt supply and filament circuits

Type.....Shielded, twisted pair, stranded, composed of 16—.010 tinned copper conductors equivalent to #18 AWG

Insulation.....Vinyl resin insulated with lacquered rayon braid

Shield.....Tinned copper braid

Overall Diameter .....Approximately .236"

Color Code.....Red and black

Rating .....300 volts

Stock Identification (stocked in 1000 ft. rolls).....MI-35

Stranded Conductor Cable, MI-13306

Use.....General purpose Audio Transmission Line

Type.....Black Glazed Cotton covered shielded twisted pair, each conductor #22 AWG Stranded 71010, with Vinyl resin insulation covered with lacquered rayon braid.

Shield.....Tinned copper braid

Overall Diameter .....Approximately .200"

Color Code.....Red and black

Rating .....300 volts

Stock Identification.....Stocked in 1000 ft. rolls as MI-11306

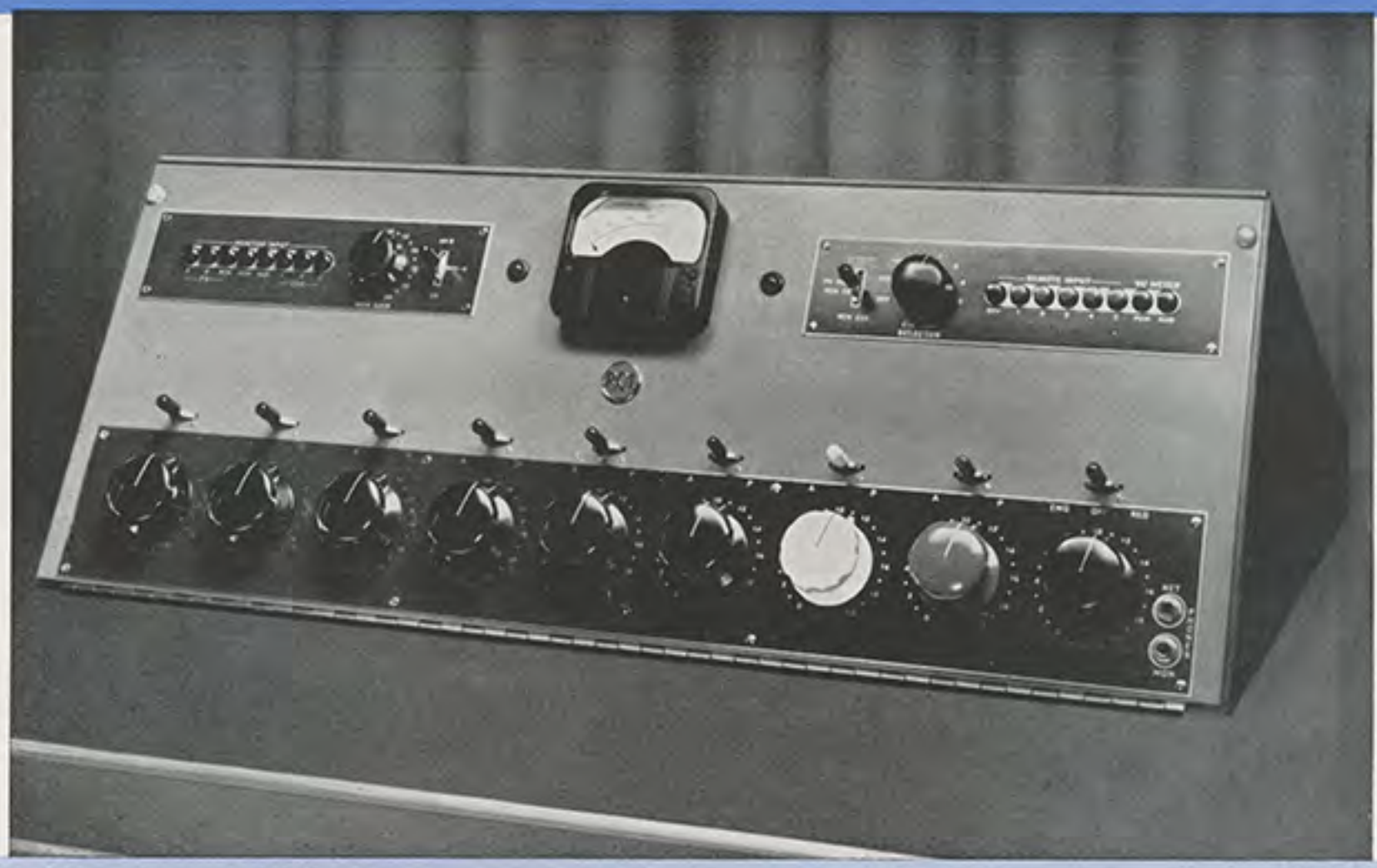
CABLE LACING CORD

Lacing cord is available for general cable lacing and dressing uses. Cord is of strong material such as linen and hemp and thoroughly impregnated with a beeswax and paraffin mixture. Supplied in one pound spools as shown below.

Stock Identification	*Type*	*Plys*	*Yds/lb*	*Average Break Strength*
MI-11719-A	No. 6 med.	4	580 ±35	30 lbs.

STUDIO CONSOLETTE

TYPE BC-2B



FEATURES

- Complete high-fidelity speech input system for two studios, announce booth, two turntables, five remotes, and network
- Eight mixer positions—four preamps, two more can be added
- "Color-coded" controls quickly identify and tie related functions together
- Reliable leaf-type, cam-operated, interlocking pushbutton switches assure long life and positive action
- Compact amplifiers use low-noise, long-life, miniature tubes
- Turntable mixers with "built-in" cuing switches

USES

Possessing great flexibility and featuring simplified operation, the BC-2B Consolette provides a high-fidelity speech input system for AM, FM and TV broadcast stations. This design incorporates eight mixer positions and provides all the amplifying control and monitoring facilities needed to accommodate two studios, announce booth microphone, control room microphone, two transcription turntables, five remote lines and three cue circuits.

Designed for operating convenience and ease of servicing, the BC-2B offers deluxe, operation-proved features usually found in custom-built equipment, but at a standard "package" price. A new concept of accessibility is built into the BC-2B Consolette, making it easy to get at amplifiers, components, and every inch of wiring—without disturbing the installation. The front panel tilts forward for easy access to all contacts, switches and gain controls while a removable top panel allows the amplifier chassis to be tilted back for proper maintenance. In addition, each amplifier may be individually removed from the chassis.

The eight mixer positions which are provided are assigned so as to offer the greatest flexibility and operating ease. The first four are high level microphone channels with provisions for switching two additional microphones into the fourth channel. Positions five and six are assigned to turntables. The seventh mixer is used for network, and the eighth for remotes. Five line inputs to the remote mixer are selected by pushbutton switches. "Color-coded" knobs are used to quickly identify and tie related functions together, thus reducing operating errors and adding to the pleasing appearance. Space and wiring are included for an additional twin preamplifier in the turntable circuits.

"ERROR PROOF" CONTROLS FOR EVERY FUNCTION

Six Microphone Inputs
Include three studio mikes connected directly to the preamplifiers. The input to the fourth preamplifier may be selected by means of a switch from the control room, the announce booth, or the fourth studio mike. *All* mikes may be used in *one studio.*

Two Turntable Inputs
Connect directly to the mixers.

Network Input
Reserved for a network line.

Remote Input
Accommodating remote program sources.

Remote Input Pushbuttons
Allow selection of one of five remote lines.

Key Switches
Connect the output of each mixer to either program or audition bus.

Monitor Amplifier Input Pushbuttons
Include three talk-back buttons which connect the control room microphone to the monitor input and permit the operator to talk to Studio A, Studio B and the remote lines.

Another button is used for monitoring the outgoing program, while the four remaining buttons are used to connect the input of the monitor amplifier to the audition bus or cue lines.

The Override Switch
Connects all remote lines to the input of the monitor amplifier and permits incoming calls to override the monitor speaker signal. The monitor amplifier may also be used to send cues over a remote line—precautions included to prevent cues from being sent over a line which is "in use".

The Monitor Phone Jack
Can be used to carry on a two-way conversation between the control room and a remote location.

The VU Meter
Can be switched to indicate the output level of either the program line or monitoring amplifier. Brightness of the illuminating lamp is adjustable.

DESCRIPTION

The BC-2B is designed for operating convenience and ease of servicing, and offers a new concept of accessibility. The front panel tilts forward for easy access to all contacts, switches and gain controls. A removable top panel makes it possible to tilt the amplifier chassis back for amplifier maintenance. In addition, each amplifier is individually removable from the chassis.

Eight mixer positions are provided: The first four are high level microphone channels with provisions for switching two additional microphones into the fourth channel. Positions five and six are assigned to turntables. Space and wiring are included in the consolette for an additional twin preamplifier in the turntable circuits. The seventh mixer is used for network, and the eighth for remotes. Pushbutton switches select five line inputs to the remote mixer. Colored knobs and switches tie related functions together.

High quality components are used throughout the BC-2B. Interlocked pushbutton switches are cam operated leaf type, assuring years of trouble-free operation. Improved fast relay circuits for speakers reduce the possibility of key clicks and audio feedback.

The amplifiers are of a new, compact design which utilize low noise miniature tubes. The amplifier chassis are supported by rubber cushions to prevent transmission of vibration from the mounting frame to the amplifier tubes. The mounting frame is pivoted to provide easy access to the wiring for service.

The preamplifiers have a gain of 40 db, two identical amplifiers are combined on a chassis. The program amplifier has a gain of 92 db and a maximum output level of 22 dbm to 600-ohm line after a 6 db pad. The monitor amplifier has a gain of 104 db which is sufficient to drive the monitor speakers directly from a microphone. The monitor amplifier may also be used in emergencies as a line amplifier if the program amplifier should fail.

The frequency response from any input to the line output is within ±1.5 db from 30 to 15,000 cps. The total rms harmonic distortion is less than .5% from 100 to 15,000 cps at a line output level of 18 dbm. Pin jacks are provided in the cathode circuit of each amplifier stage for checking tube current.

A standardized illuminated volume indicator meter is calibrated in VU's and is equipped with a light dimmer for use in TV control rooms. Monitoring and network headset jacks are supplied and headphones may be connected to the output of the program channel, remote line push-keys, or the incoming network by means of a three position lever switch. Talkback facilities are included and permit talking back to either of the two studios or remote lines. An "Over-ride-Remote" cue switch is provided which permits the remote operator to call in on any of the remote lines and over-ride the program on the control room speaker.

The power supply is a separate unit contained in a cabinet which may be wall or rack mounted (by means of MI-11650 Rack Mounting Kit). It consists of two independent circuits; one to supply power to the amplifiers, the other to the relays. The components, such as transformer, rectifier and filters, are mounted on a hinged chassis to provide access for installation and service. The total power input required is only 150 watts, 50 to 60 cps a-c at 100 to 130 volts. One MI-11313 Power Supply is required for the operation of the BC-2B Consolette. A second Power Supply may be used as an alternate power source, if the MI-11724 Transfer Switch Panel is installed.

SPECIFICATIONS

Source Impedance:
- Microphones ..... 30 or 150 ohms
- Remote Lines ..... 150 or 600 ohms
- Turntables ..... 150 ohms
- Monitor Cue ..... 20,000 ohms

Load Impedance:
- Line ..... 600 ohms
- Speaker (total of four speakers) ..... Each 15 ohms
- Headphone Output ..... 600 ohms

Output Level:
- Line (distortion less than 0.5% 50 to 15,000 cycles) ..... +18 dbm after a 6 db pad
- Speaker (distortion less than 2%, 50 to 15,000 cycles) ..... 8 watts
- Gain (maximum microphone to line output) ..... 108 db
- Frequency Response ..... ±1.5 db 30 to 15,000 kc

Signal to Noise Ratio, Microphone to Program Line (68 db gain, +18 dbm output) ..... 68 db

Power Input (105/125 volts, 50/60 cycles) ..... 150 watts

Dimensions:
- Consolette ..... Length 33", Height 11¼" Depth 21¼"
- Power Supply ..... Length 14½", Height 10⅜", Depth 8⅛"

Net Weight.....Consolette 114 lbs., Power Supply 32 lbs.

Finish.....Consolette, Two-tone U/G; Power Supply, Dark U/G

Tube Complement:

Complete Tube Complement for Consolette (Kit MI-11297):
3—6V6GT, 1—12AX7, 6—12AY7, 1—5879

Power Supply (Tube Kit MI-11294).....1—5R4GY

Dual Preamplifier (Tube Kit MI-11475).....2—12AY7 (selected)

Equipment Supplied

BC-2B Consolette complete with 2 dual preamplifiers less tubes MI-11632

Power Supply MI-11313

Accessories

Tube Kit for BC-2B Consolette.....MI-11297

Tube Kit for MI-11241 Dual Preamplifier.....MI-11475

Tube Kit for MI-11313 Power Supply.....MI-11294

Dual Preamplifiers* MI-11241

Speaker Relay Kit (for announce booth speakers).....MI-11722

Studio Light Relay.....MI-11702-A

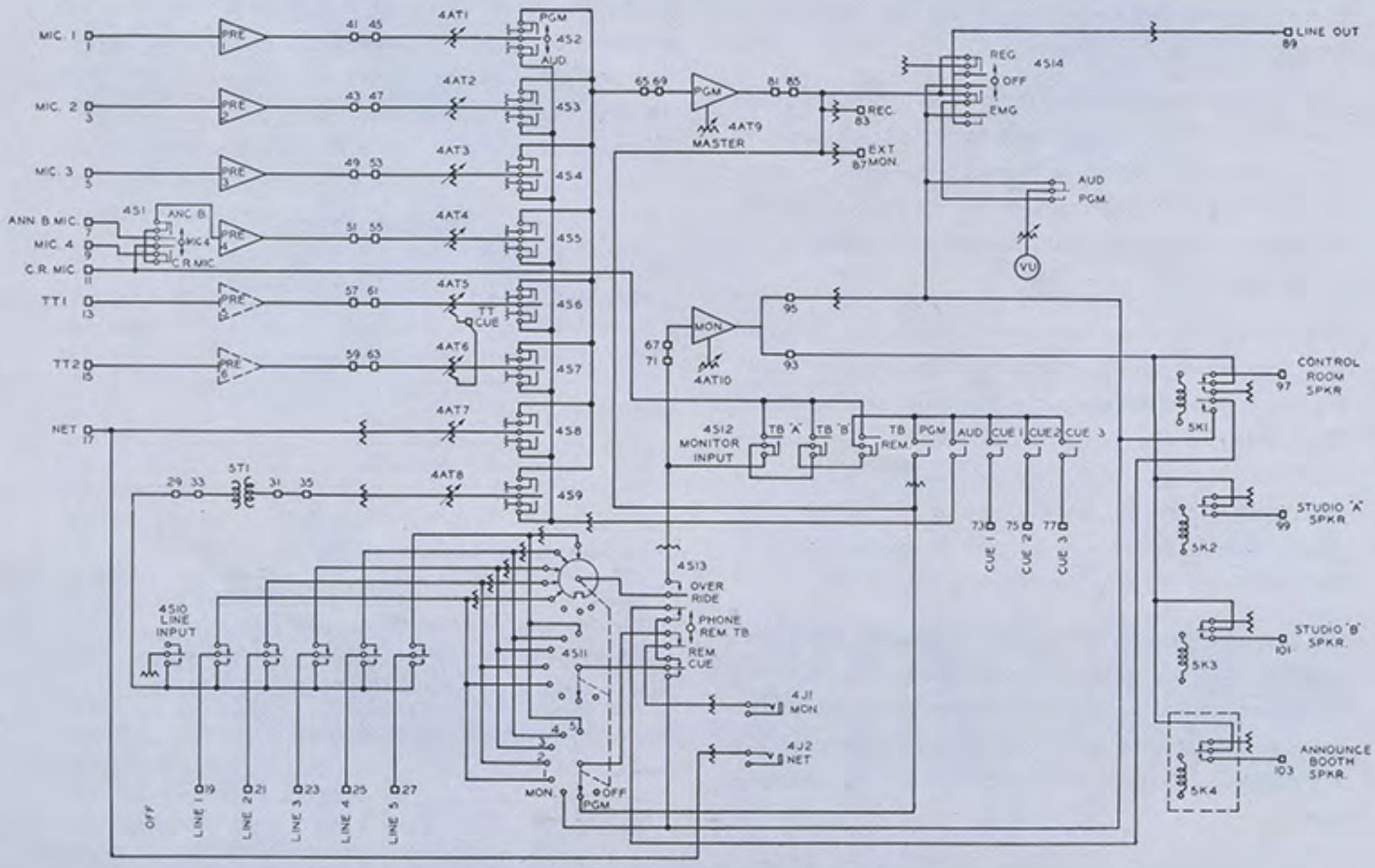
Studio Warning Lights ("On-Air" and "Audition").....MI-11706-1, 3

Consolette Signal Light Kit.....MI-11714-A

Transfer Switch Panel for Spare Power Supply.....MI-11724

Rack Mounting Kit for Power Supply.....MI-11650

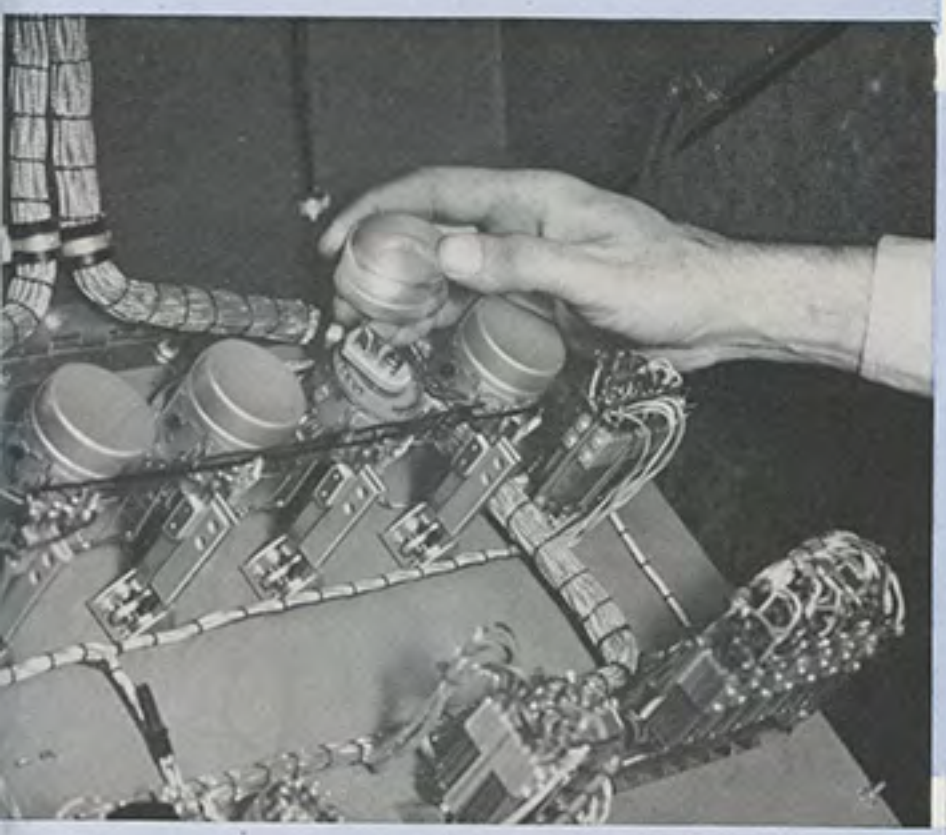
* Space is provided in the consolette for a third dual preamplifier.



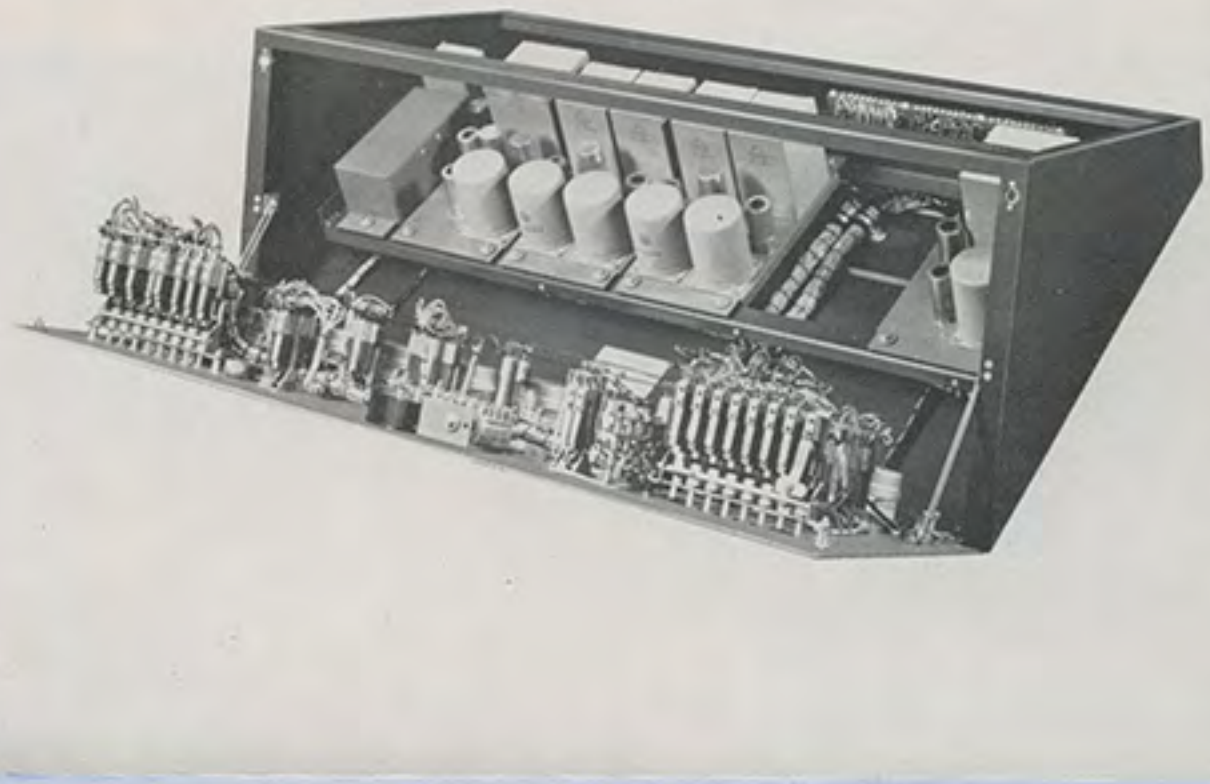
Simplified Block Diagram of BC-2B Consolette

ACCESSIBILITY

Cleaning, replacement, adjustment and inspection of every electrical component is made easy. The hinged front panel swings forward and "swing-up" amplifier frames make the underside components easily reached. All external connections are made to two terminal blocks which are accessible by lifting the top cover.

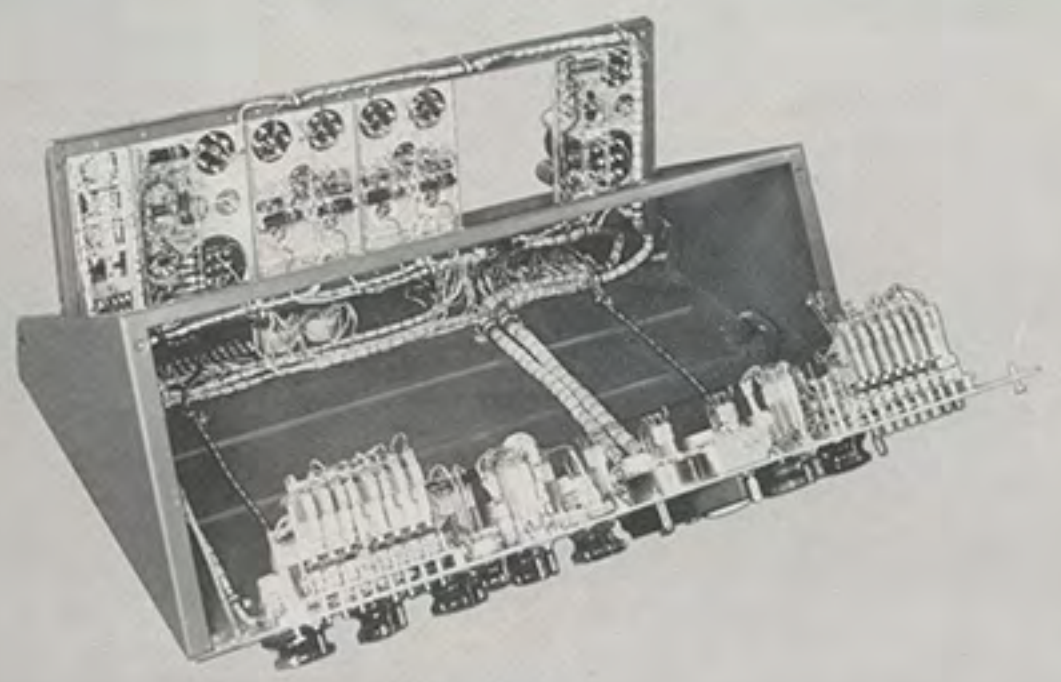


Amplifier Chassis Frame swings up for servicing.

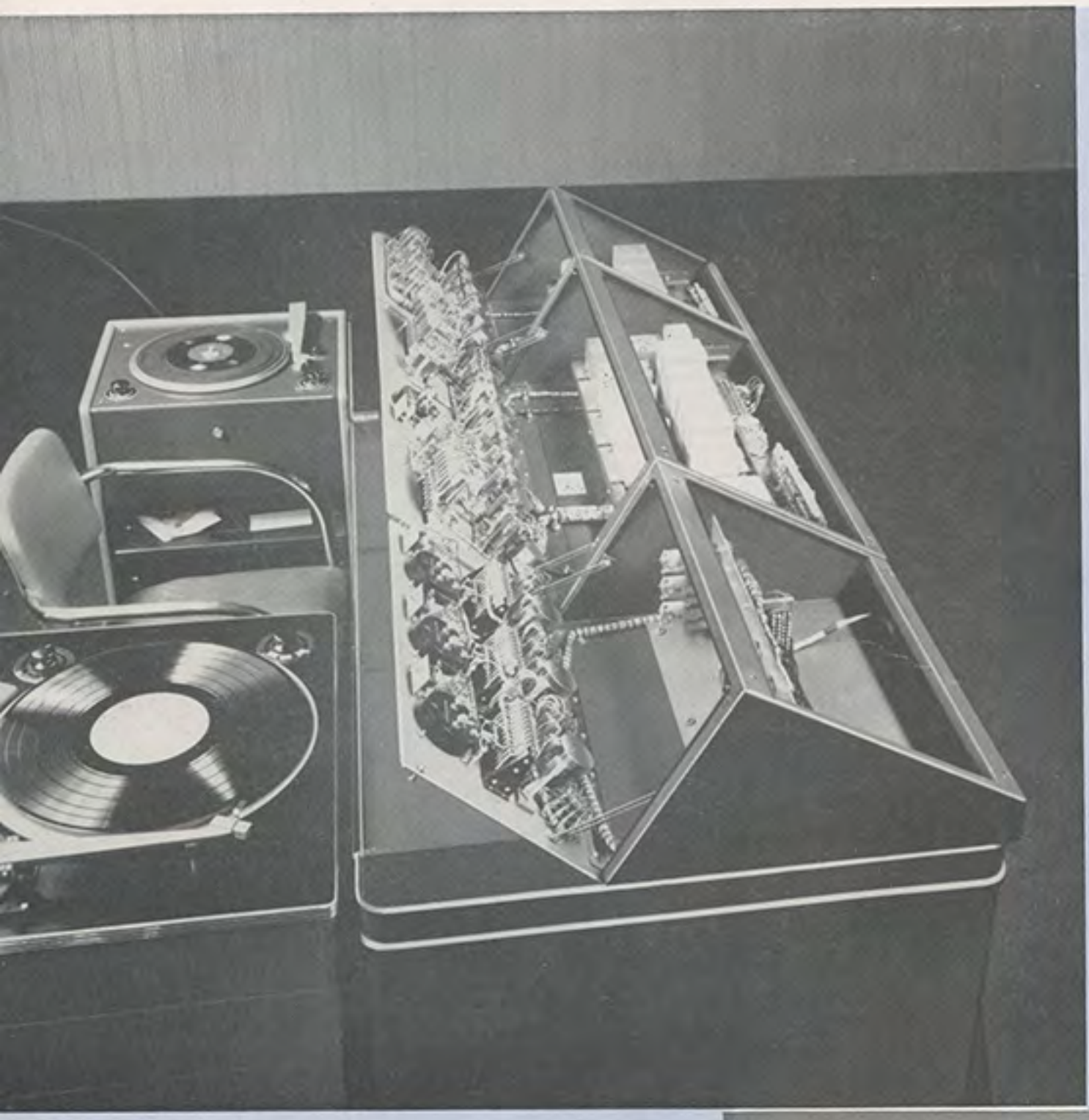


Hinged Front Panel swings forward.
Top Panel is easily removed.

Easy access to every component for inspection and maintenance.



ITS EASY TO EXPAND FACILITIES



Installation of the BC-2B Consolette with companion audio equipment offers many advantages of operating efficiency to broadcast stations. Mounted side-by-side with the BCS-11A Master Switching Consolette, the studio control operator is able to handle the output switching of as many as 10 studios, thus making possible a convenient central master studio control.

Operation with the BCM-1A Auxiliary Mixer Console triples the mike inputs of the BC-2B Consolette, allowing simultaneous use of eight microphones while the combined switching systems of these two units permit selection from eighteen microphones in different studio staging areas. The styling characteristics of these three units permit matching, harmonious, side-by-side installations which greatly expand audio control facilities.

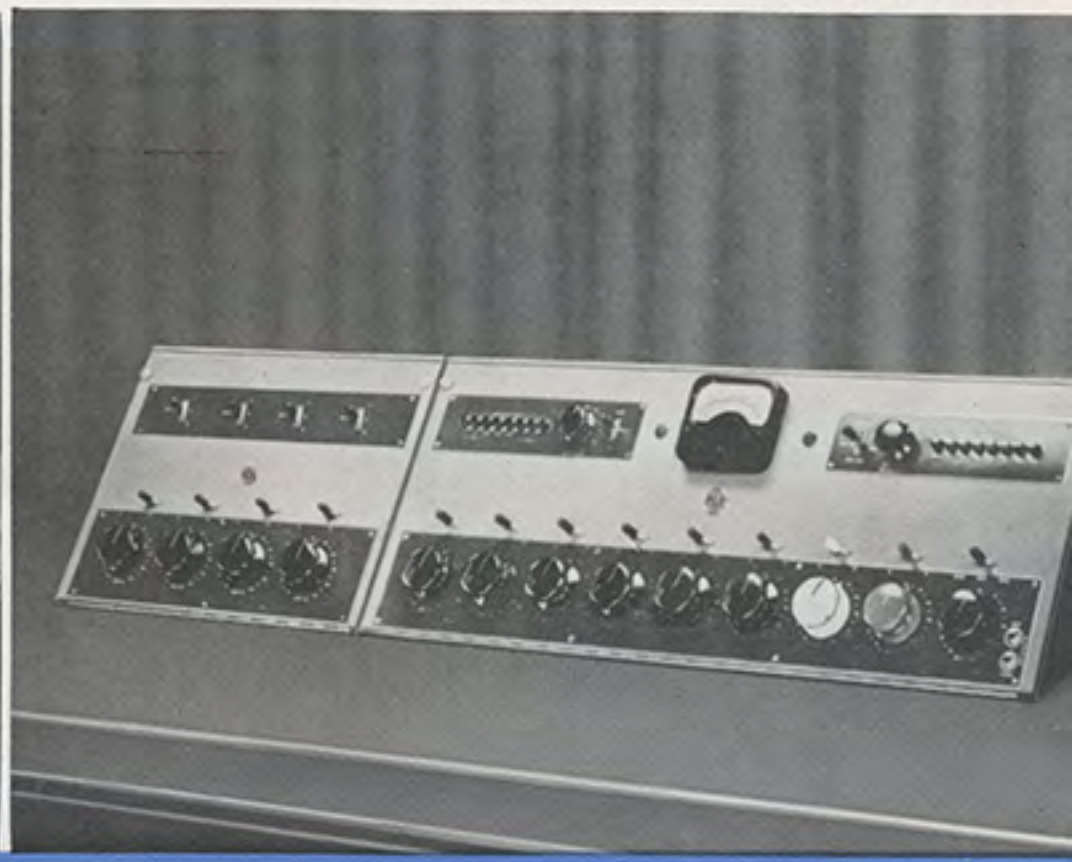
▲ **One-man master control through side-by-side installation with Type BCS-11A Master Switching Consolette and Type BCM-1A Auxiliary Mixing Console.**

▶ **The BC-2B Consolette is styled to match video console equipment.**

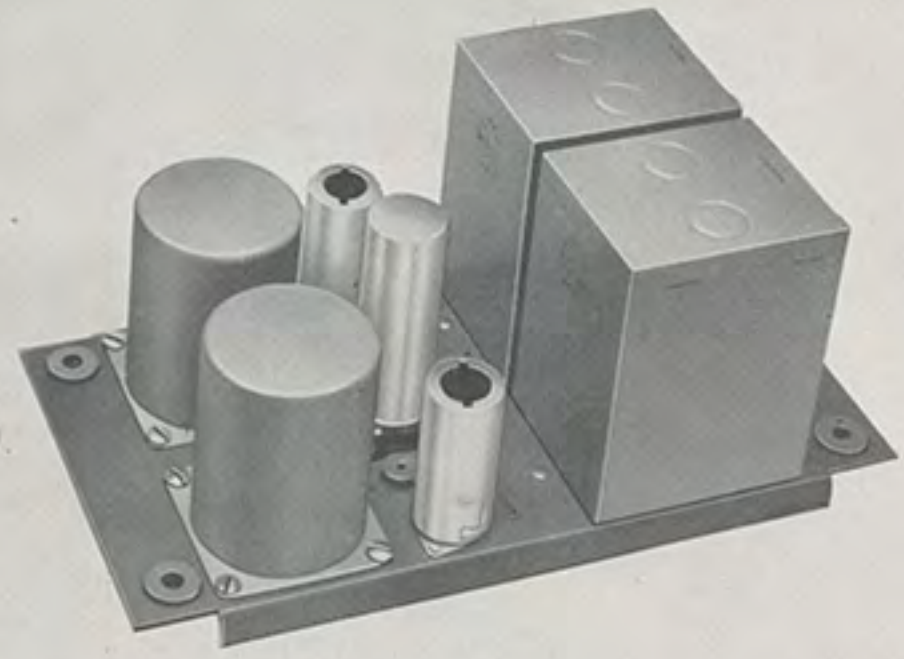
Type BCM-1A Auxiliary Mixing Console, Type BC-2B Consolette and Type BCS-11A Master Switching Consolette.

BC-2B Consolette and BCS-11A Master Switching Consolette.

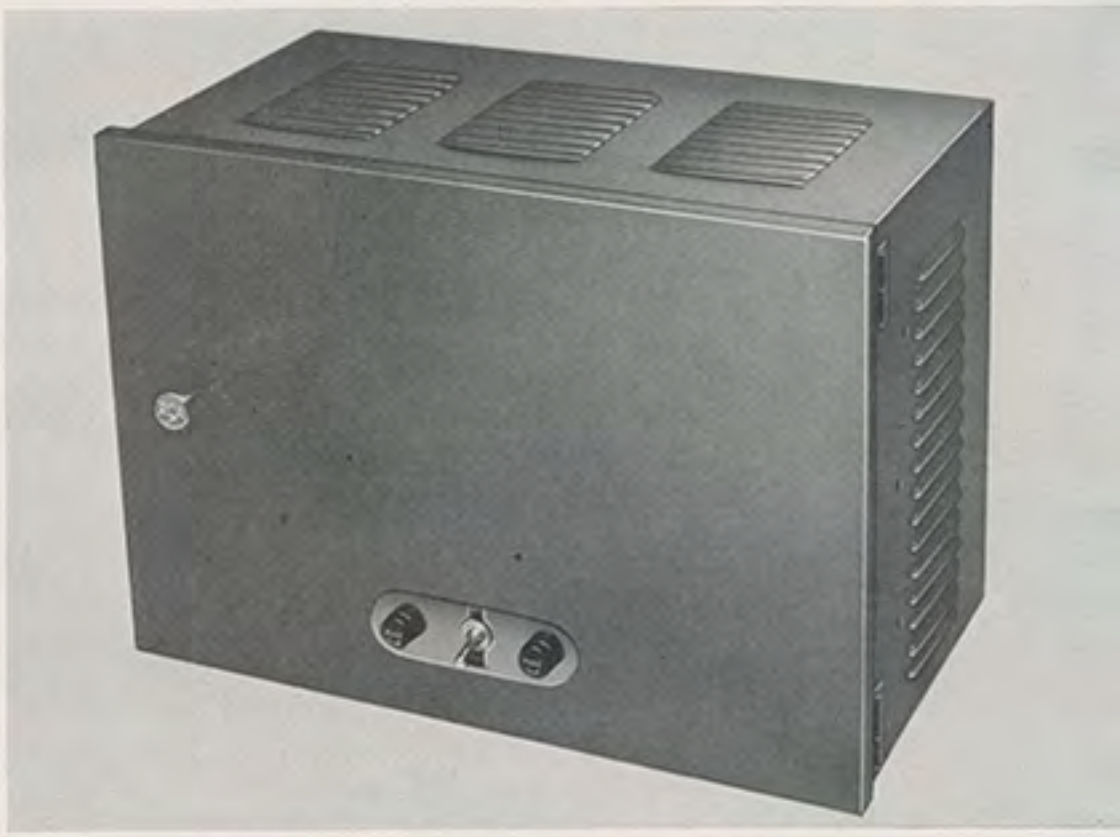
BC-2B Consolette and BCM-11A Auxiliary Mixing Consolette.



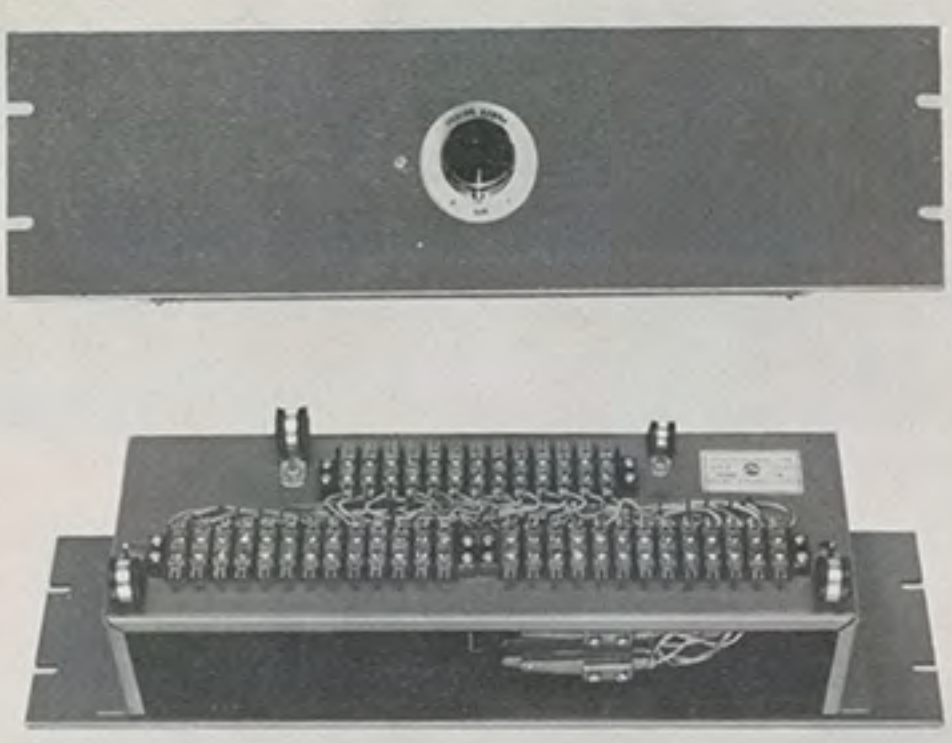
BC-2B CONSOLETTE ACCESSORIES



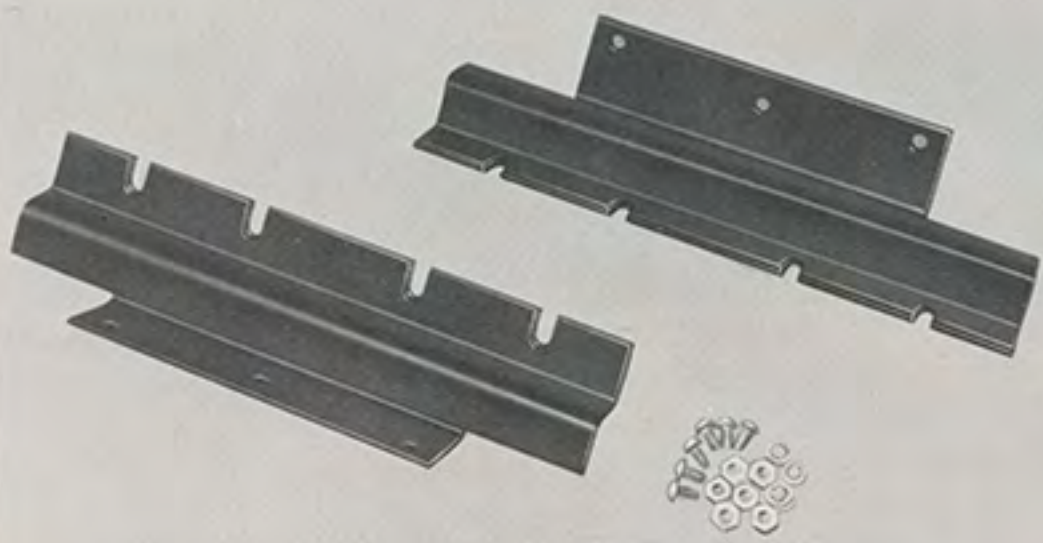
MI-11241 Dual Pre-amplifier. Can be added to BC-2B Consolette for Turntable Pre-amplifier.



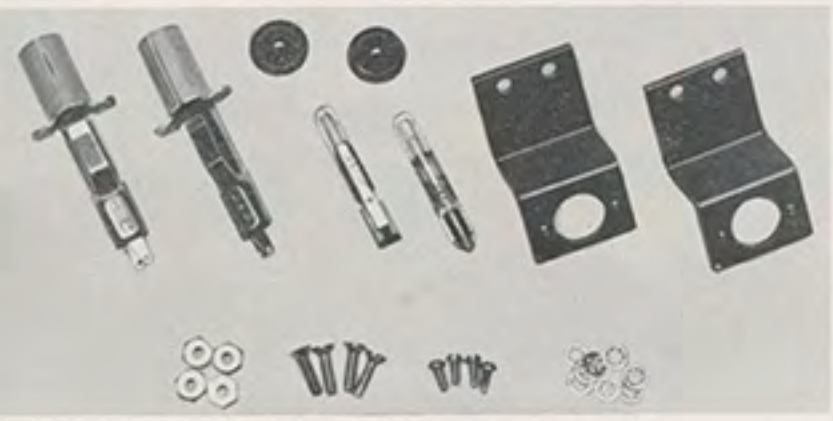
MI-11313 Power Supply. Required with BC-2B Consolette.



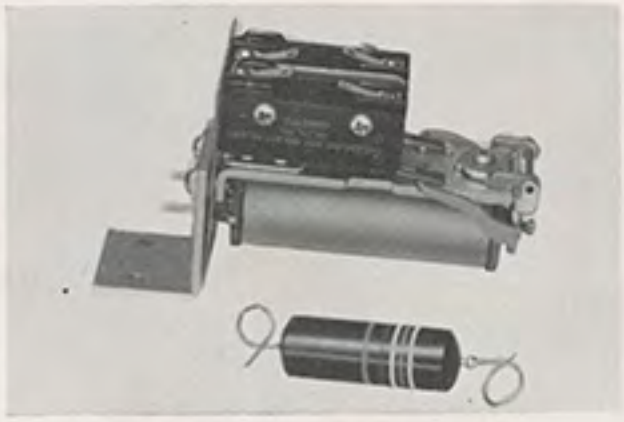
MI-11724 Power Changeover Switch Panel. For use when two MI-11313 Power Supplies are used (one emergency).



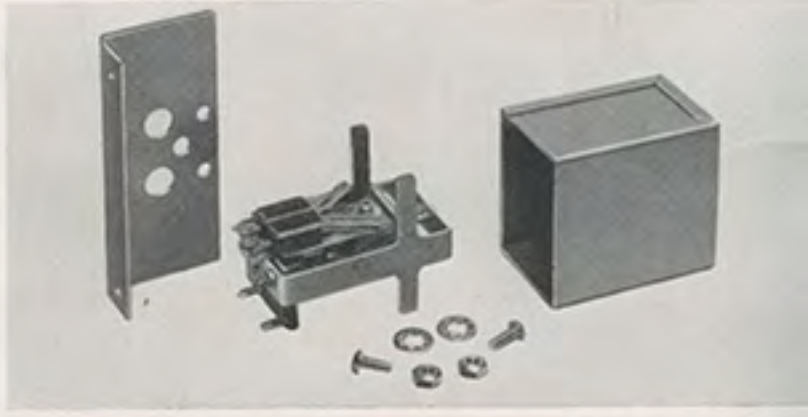
MI-11650 Rack-mounting Kit. For mounting MI-11313 Power Supply in cabinet rack.



MI-11714-A Signal Light Kit (on-air and preset).



MI-11702-A Studio Light Relay (operates warning signs).



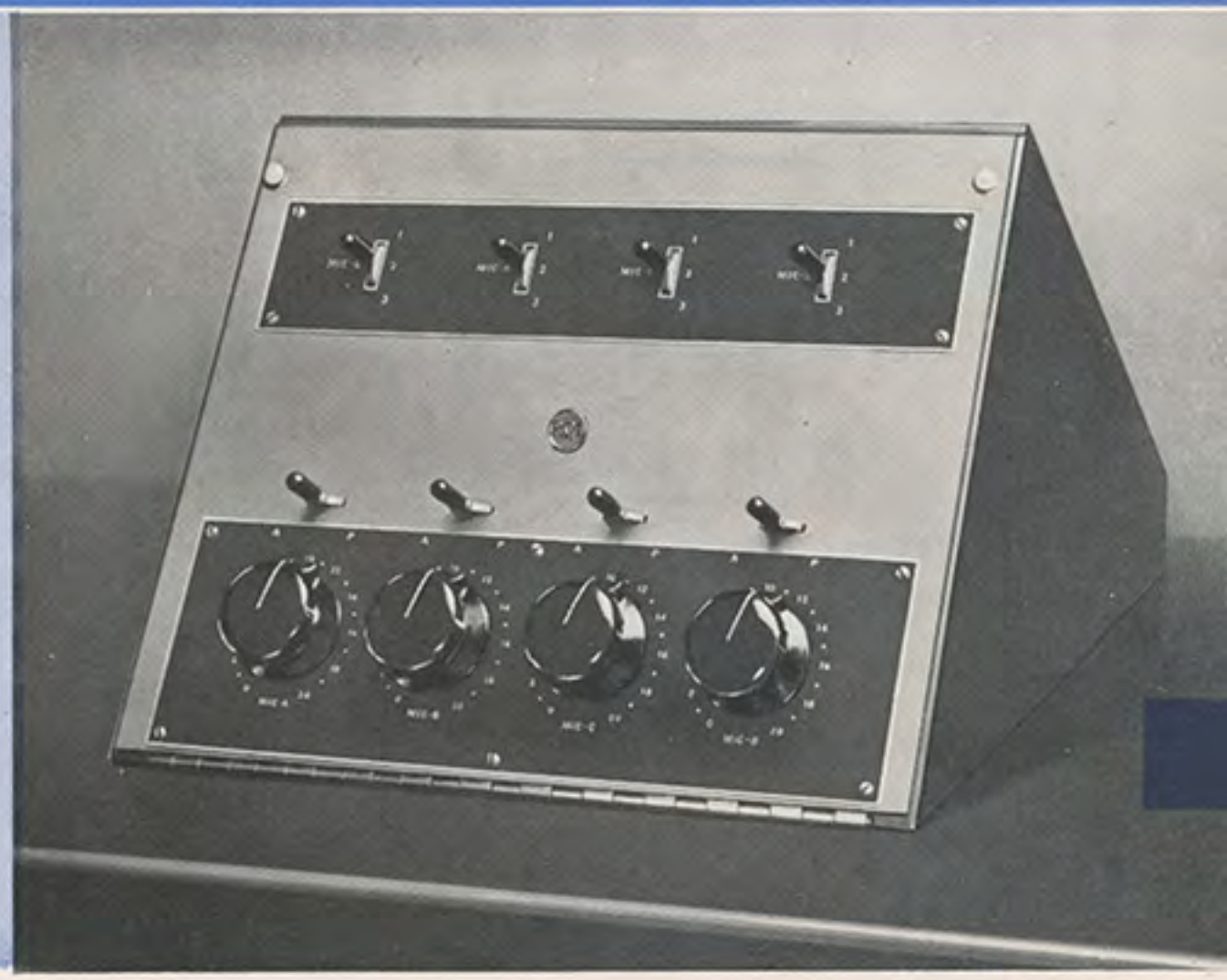
MI-11722 Speaker Relay Kit. Used for announce booth speaker cutoff.

AUXILIARY MIXER CONSOLE

TYPE BCM-1A

FEATURES

- Triples mike inputs of BC-2B Consolette
- Matches BC-2B in styling and shape
- Uses same high quality amplifiers as BC-2B
- Allows "block-building" as required for added inputs



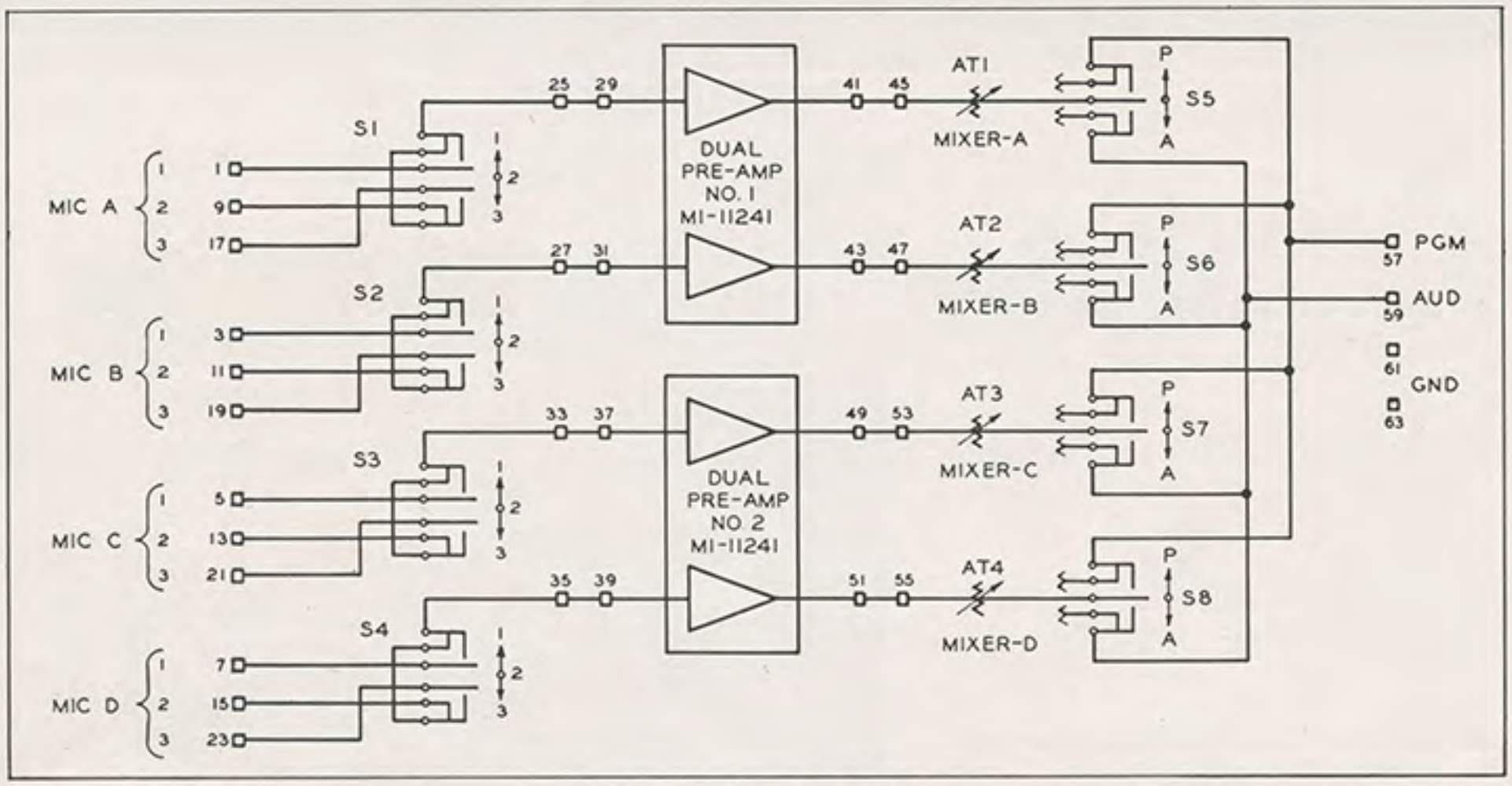
USES

The BCM-1A Auxiliary Mixer was designed to fulfill the needs of Television and large AM studios which employ a larger number of microphones than the standard studio consolette can handle. The shape and styling of the BCM-1A match that of the BC-2B Studio Consolette and permit "side-by-side" desk-top operation with the BC-2B. The total overall length of the two units mounted in this fashion is only 49¾ inches.

DESCRIPTION

The BCM-1A has four high level microphone mixers which together with the four microphone mixers of the BC-2B Consolette permit simultaneous use of eight microphones. Four 3-position switches in the preamplifier input circuits permit a selection from twelve microphones which may be located in three different staging areas of the studio. The program and audition mixer buses may be connected directly to the program and audition mixer buses of the consolette. The mixer switches are interlocked with the speaker and warning light relay circuits of the consolette.

Two MI-11241 Dual Preamplifiers, the same as are used in the consolette, are mounted on a pivoted frame within the mixer turret. The same features of convenient access to all components for service are found in the BCM-1A or in the BC-2B Consolette. Power for the BCM-1A Auxiliary Mixer is furnished by one BX-1E Preamplifier Power Supply.



Block Diagram of Mixer Type BCM-1A

SPECIFICATIONS

Tube Complement.....4 selected 12AY7, not included

Amplifiers.....Two MI-11241 Dual Preamplifiers

Audio Inputs.....Twelve microphone inputs (four may be used simultaneously)

Source Impedance.....150/30 ohms

Audio Outputs.....Program mixer bus (balanced) and audition mixer bus (balanced)

Mechanical

Height, 11½"—depth, 21½"—length, 16¾"

Slope of front panel 60°, top 30°

Net Weight.....56 lbs. approximately

Mounting.....Flat top desk

Finish.....Turret and cover, dark umber gray, panel light umber gray

Stock Identification—complete with two MI-11241 Dual Preamplifiers wired in place.....MI-11634

Electrical Performance

When the BCM-1A Auxiliary Mixer is directly connected to BC-2B Consolette Mixer Bus the performance is same as that shown for the BC-2B.

Power Requirements:

Plate.....280 v., 16 ma, d-c

Heater.....6.3 v., 1.2 amp, a-c

Control Circuits.....Eight connections to BC-2B Consolette required for interlock with speaker and signal light relay circuit. No power is required.

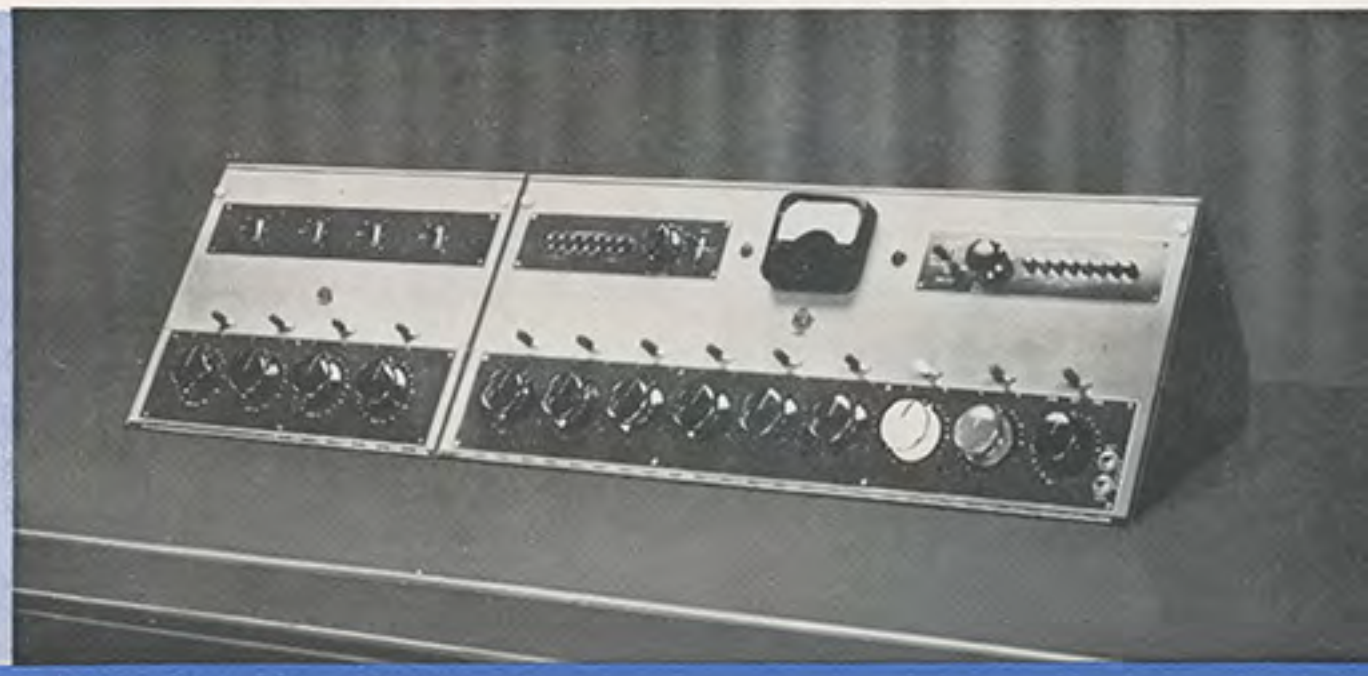
Accessories

Tube Kit.....MI-11476

Power Supply Required.....One Preamplifier Power Supply, MI-11305-D

Power Supply Tube Kit.....MI-11262

View of the BCM-1A Auxiliary Mixer Console mounted alongside the BC-2B Studio Consolette. Additional microphone inputs and mixers are thus provided. Note that panel slope and styling are matched for best appearance.



AUDIO CENTRAL

TYPE BC-4A

FEATURES

- Easily expanded for dual-channel Broadcast use
- Single BC-4A controls nine inputs —four simultaneously
- Paired BC-4A's double facilities—provide dual-channel operation
- Entirely self-contained, completely wired unit—no separate desk required
- Program and audition facilities
- Talkback or program cue to remote lines
- Three preamplifiers—all amplifiers RCA Broadcast "plug-in" type
- High degree of accessibility

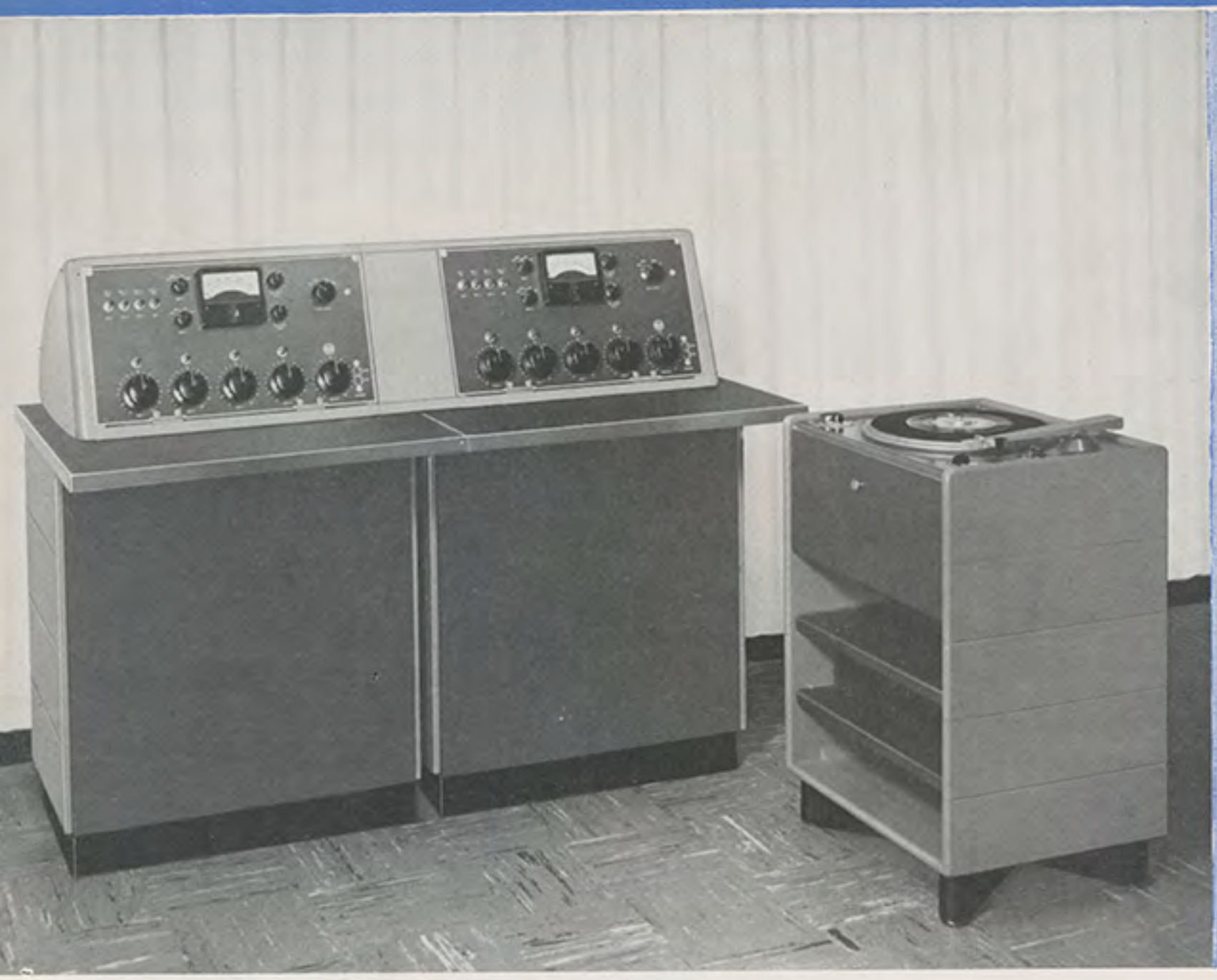
USES

The exclusive feature of "add-a-unit" audio control incorporated in the BC-4A console permits "block building" as desired, without obsolescence to existing control equipment. The BC-4A is suitable for use either in combined studio/transmitter, or remote studio installations.

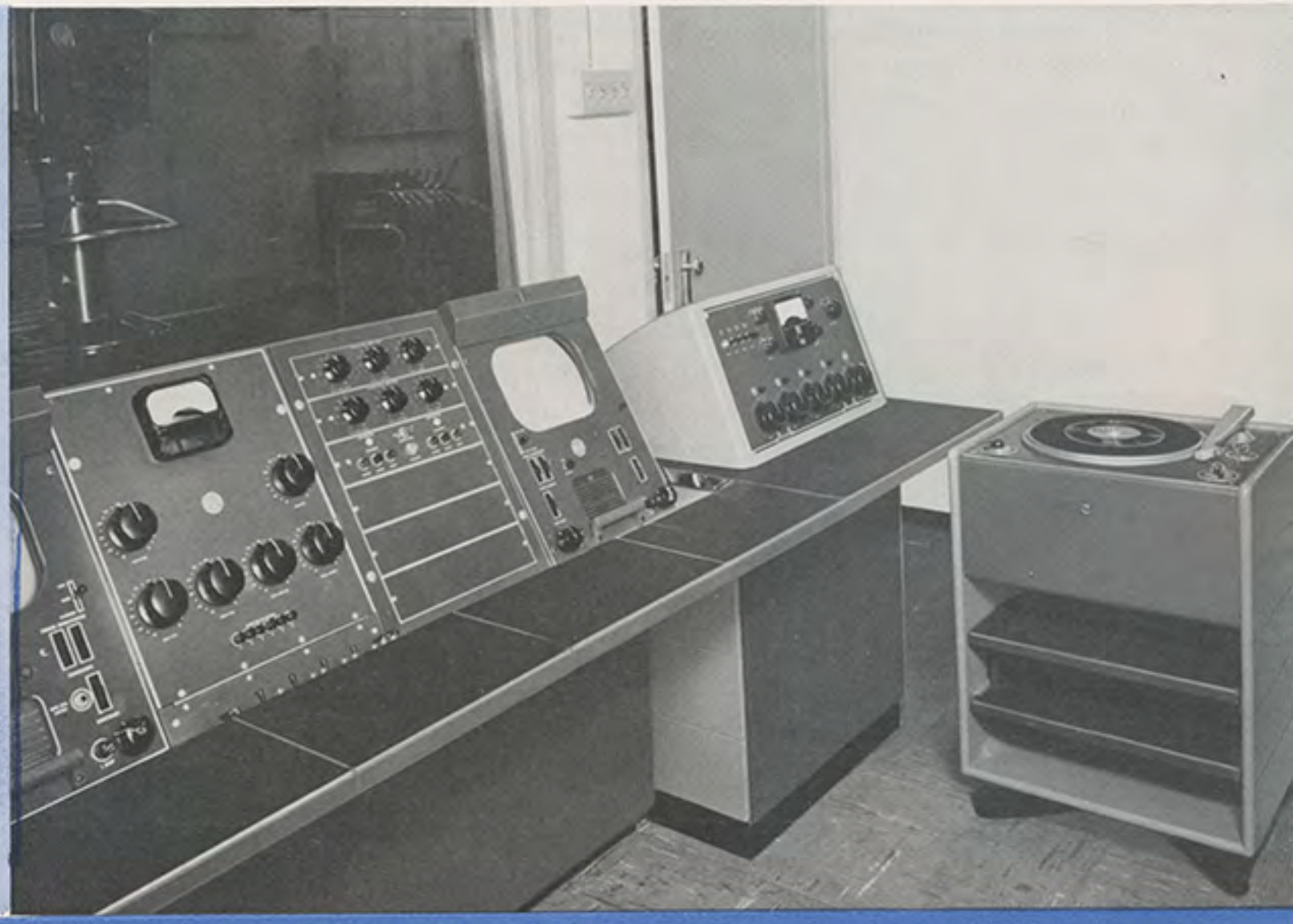
A single BC-4A provides adequate control and switching facilities for accommodating one studio, control booth, two turntables, network, remotes and tape recorder. Addition of a second BC-4A doubles facilities and permits complete dual-channel operation. The BC-4A Audio Central, which combines a complete control console and an operating desk into a single unit, is ideally suited for "twin" or side-by-side installations. For such applications, use of cover assembly and center turret filler panel (ES-11980) presents a neat, business-like appearance, and provides the necessary front panel space for mounting auxiliary monitoring, metering or switching controls. The BC-4A may also be used by Television Stations to provide audio subcontrol, or to permit expansion of existing facilities.

DESCRIPTION

The BC-4A Audio Central is a low-cost, high quality Broadcast Audio Control Console combined with a smartly styled operating desk. The entire console and desk type housing are of all-metal construction finished in two-tone umber gray, except for the convenient desk top which is supplied in a black, hard-surface composition.



A highlight of the BC-4A design is the simplicity and ease of expansion to dual channel operation. In this photo the Cover Assembly and center turret panel (ES-11980) provides a unified setup. The extra panel space is available for auxiliary uses such as (1) telephone dial, (2) switches for remote control of tape recorder, (3) auxiliary monitoring controls, (4) talkback speaker or (5) tube check metering. At right of the console is an RCA, BQ-1A turntable for 45 and 33⅓ RPM.



The BC-4A Audio Central may also be used, again as a complete unit, adjacent to Television Consoles. Here, it provides a second and separate audio output channel to serve the addition of one studio and a control booth. Four more microphone inputs and three faders are obtained. Talkback facilities for the TV studio are incorporated in the design.

DESCRIPTION (Cont'd)

A hinged front panel and removable cover provide complete access to turret-top components, such as the key-selector switches, controls, mixers, terminal blocks and wiring.

The "VU" meter and all switches and mixer controls essential to everyday programming are front-panel mounted. Extremely flexible in operation, the BC-4A handles nine separate inputs, with provisions for simultaneous mixing of four inputs. There is provision for feeding program cue or talkback to the remote lines. Headphone jacks are provided for network and remote line monitoring. Separate volume controls are provided for control room and studio speakers. Cue positions are incorporated on turntable mixers, and terminals are available for connecting a separate cueing amplifier. Separate audition and program channels are provided for maximum flexibility, and the monitoring amplifier may be switched from the turntable cue position, program line, or audition bus. All inputs are terminated when the switches are in the "off" position.

The BC-4A, which is a completely wired unit, has its amplifiers and power supplies mounted in the console pedestal underneath the switching unit. Snap-on panels (front, rear and sides) provide access to this area of the BC-4A. Six RCA plug-in Broadcast amplifiers and their associated power supplies are mounted on a convenient shelf assembly in the lower unit. Three preamplifiers are utilized in the basic design and provision is made for the addition of external line equalizers. The preamplifiers plus a booster amplifier and an output amplifier utilize an

The BC-4A hinged front panel and removable back cover provide complete access to all components and wiring.

RCA BX-1E plug-in unit as a common power supply. In addition, a monitor amplifier and its own power supply are mounted in the lower section.

Since the BC-4A Audio Central is designed, built and wired to operate specifically as a complete unit, the Console Pedestal and Switching Units are not available as separate stock items. Amplifiers and power supplies are shipped separately—less tubes. A complete kit of tubes should be ordered separately as MI-11478.

A Cover Assembly and center turret filler panel are available (ES-11980) for twin BC-4A operation (see photo). It permits a unified installation and provides additional front panel space for auxiliary controls, as desired.

Closeup of the front panel of the BC-4A Audio Central. Mixers, VU meter, switches and all controls required during regular operation are front-panel mounted.

SPECIFICATIONS

Source Impedance:
- Microphones ..... 150 ohms
- Turntables ..... 150 ohms
- Remote Lines ..... 150/600 ohms

Load Impedance..... 600 ohms, output

Output Level..... +12 dbm (after 6 db pad)*

Frequency Response..... ±1.5 db, 30-15,000 cycles

Distortion to Line..... 30 to 15,000 cycles, less than 1.5%
50 to 15,000 cycles, less than 1.0%

Noise Level..... —65 db

Power Input..... 105/115/125 volts, 50/60 cycles, 150 watts
(BC-4A Performance fulfills all FCC and RETMA Specifications)

Dimensions, approximate:
- Height ..... 39"
- Top..... 25" x 25" x 1"
- Pedestal..... 27" high, x 24" wide x 16" deep

Finish ..... Two-tone umber gray

Approximate Shipping Weights:
- BC-4A Switching and Control Turret plus Wired Pedestal..... 160 lbs.
- Six Amplifiers and Power Supplies..... 65 lbs.

Stock Identification ES-11635
Consists of BC-4A complete with Switching and Control Turret, Console Pedestal, three preamplifiers, booster amplifier, output amplifier, monitor amplifier and associated power supplies. Furnished wired complete. Amplifiers and power supplies shipped separately (less tubes).

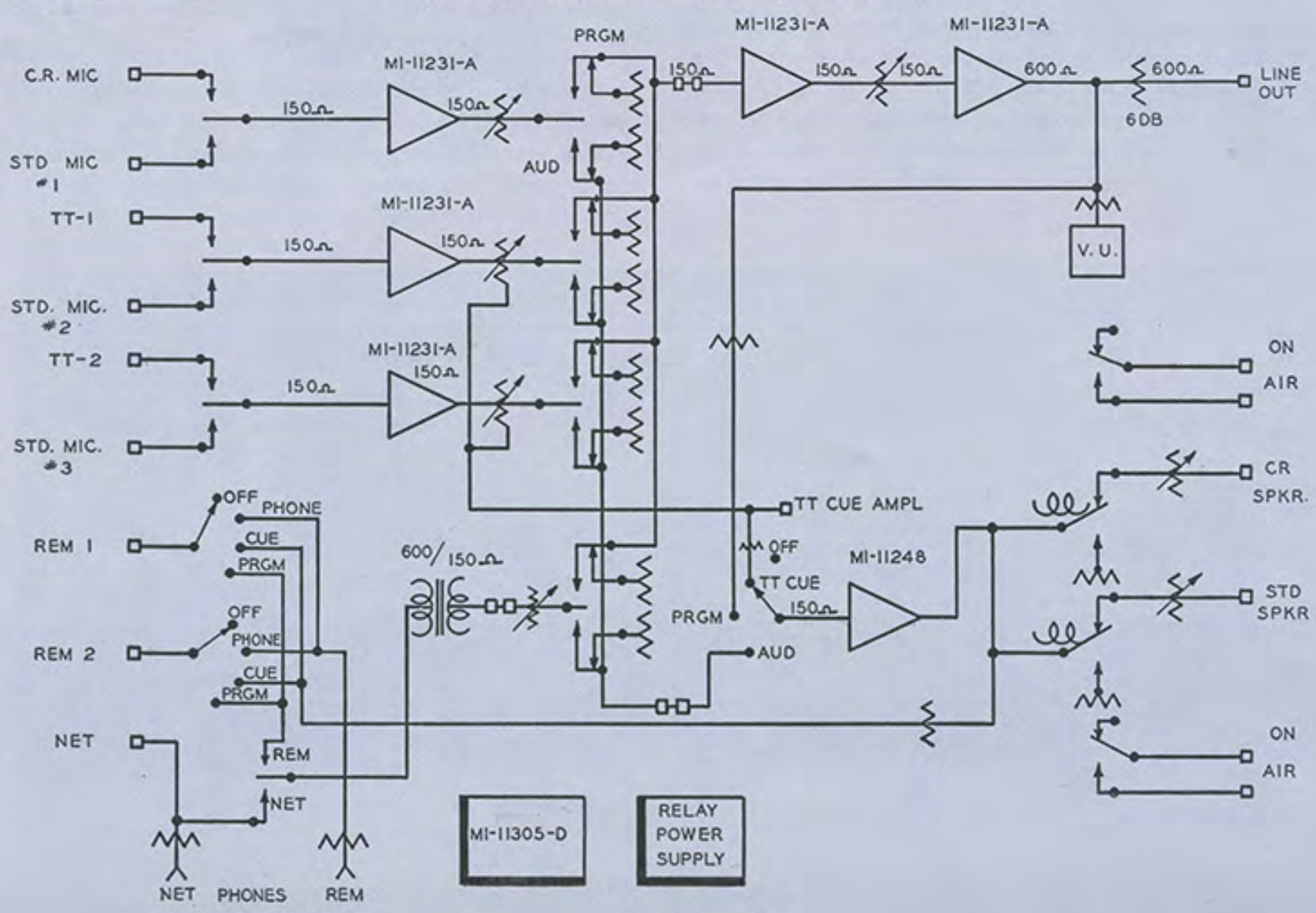
Accessories

Tube Kit for BC-4A consisting of 5—1620's, 7—6J7's, 1—6V6, and 2—5Y3's..... MI-11478

Cover Assembly and Center Turret Panel with necessary hardware—for twin BC-4A operation..... ES-11980

* For those applications where output levels up to 30 dbm are required, an MI-11233A amplifier may be used to replace the MI-11231A line amplifier supplied with the basic equipment.

SIMPLIFIED BLOCK DIAGRAM — BC-4A



MASTER SWITCHING CONSOLETTE

TYPE BCS-11A

FEATURES

- Preset Selectors—to select one of ten possible inputs or program sources to each of three outgoing lines. Pre-set program sources include 10 inputs from studios, network, recording rooms, consolette outputs and remotes
- Indicator Lamps show the preset and "on-air" input channels for each output channel
- VU Meters—are provided for each of the three channels and also serve as "active channel" indicators
- Combines many basic functions found in custom master control equipment
- Matches BC-2B Consolette in shape and styling
- Ideal for "side-by-side" operation with BC-2B Studio Consolette
- Power Switches—one for each channel to control relay power without disturbing the switching arrangement
- Operate Buttons—one assigned to each outgoing channel to activate channels separately
- Master Operate Key—activates all outgoing channels simultaneously
- Local Master Switches—one for each outgoing channel permit individual or collective switching of all channels
- Master Attenuators—three are provided—one for each outgoing channel
- Enables economical desk-top installation and utilizes existing studio equipment
- Provides complete pre-set master control of ten program sources to three outgoing lines
- Single, compact unit with removable top panel and hinged front panel for easy access to all components

USES

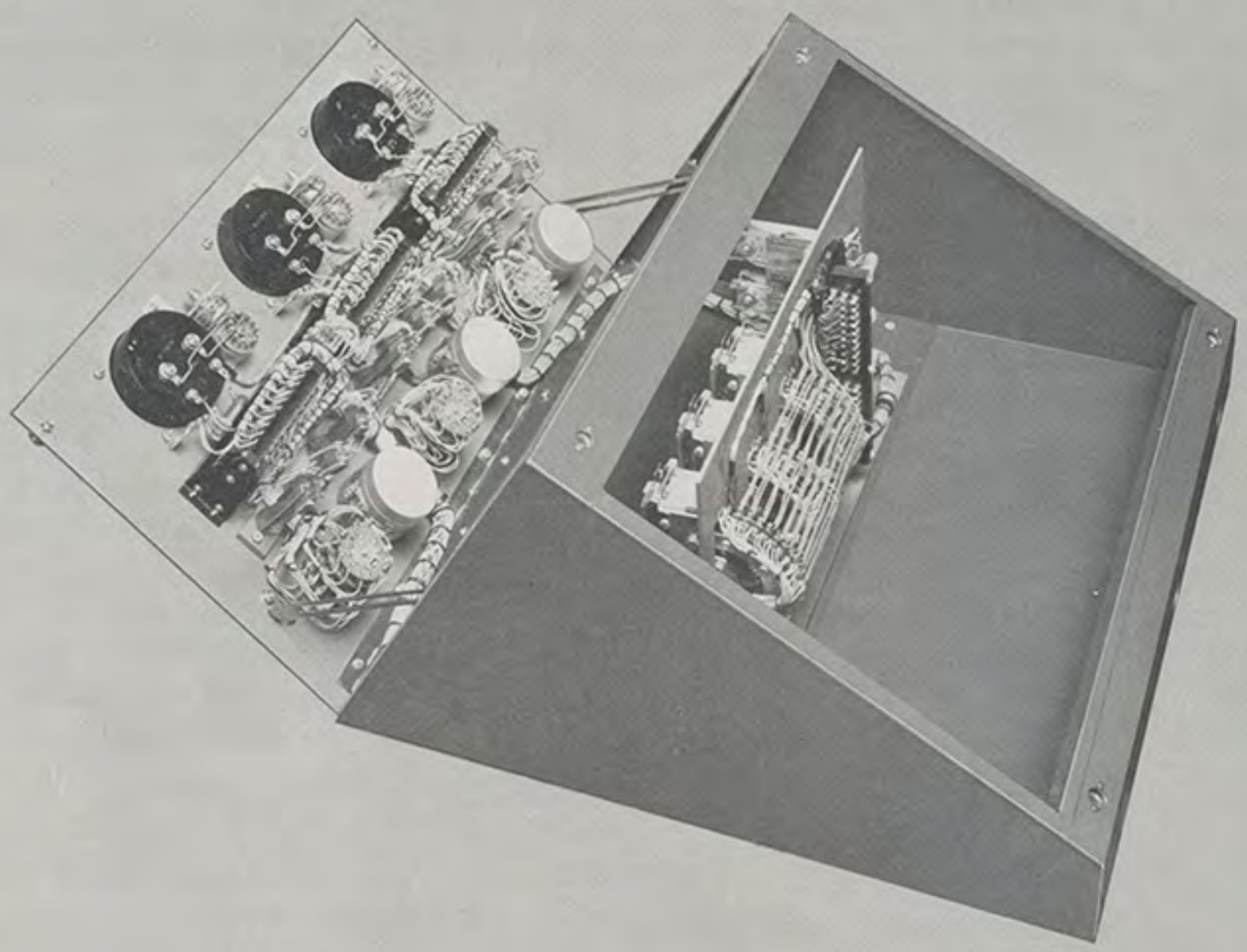
The BCS-11A Master Switching Consolette has been developed to meet the demands of many broadcast stations requiring master switching facilities for more than one channel. It may be used for the pre-set master switching of as many as ten program sources (inputs from studios, network(recording rooms, consolette outputs, remotes, etc.) to three outgoing lines.

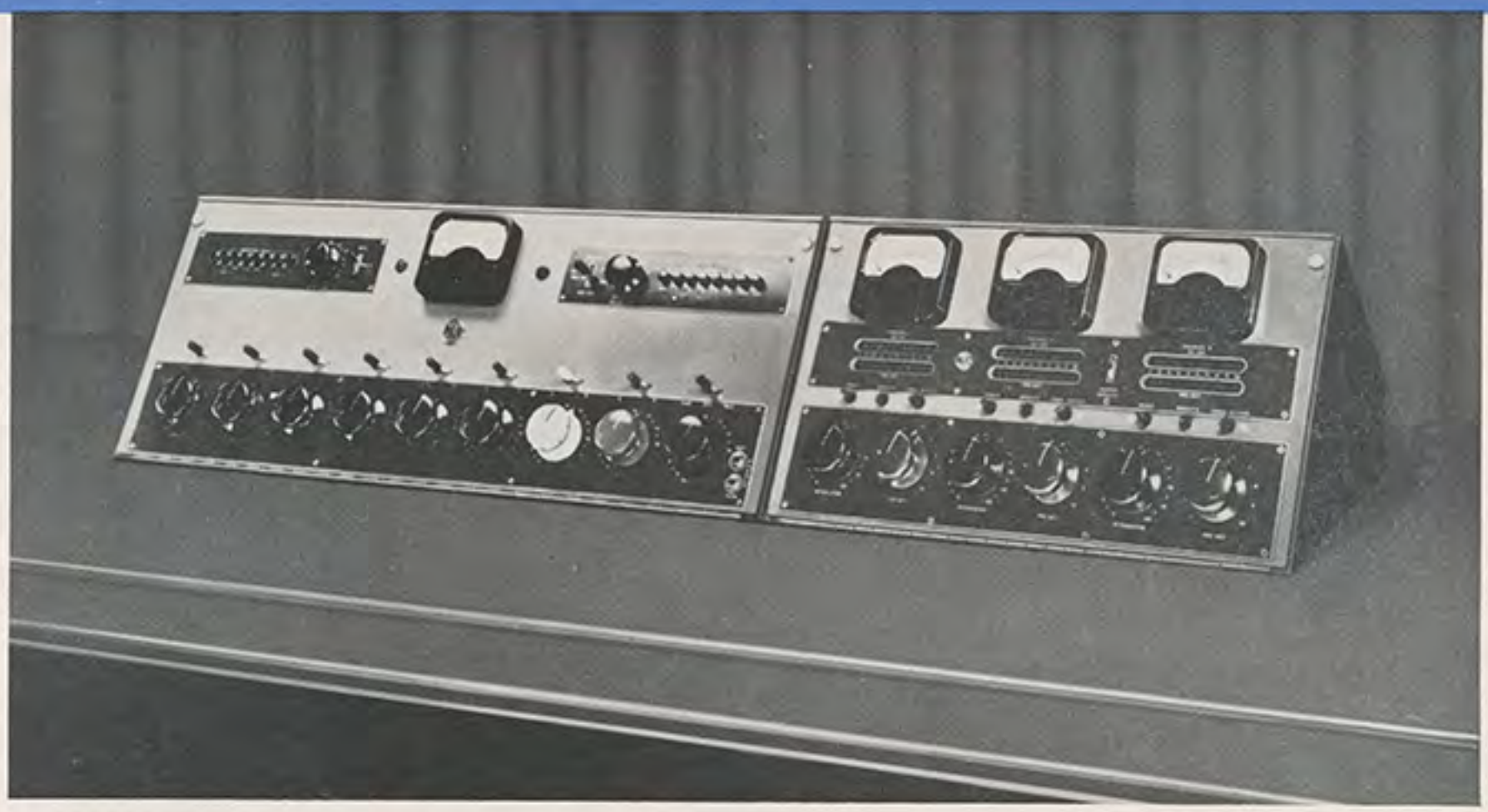
The BCS-11A is styled to match the BC-2B Studio Consolette in shape and appearance, and may be installed for "side-by-side" operation. As used in these combinations, the BCS-11A makes possible a convenient, central master studio control, utilizes existing studio consolettes, and permits economical desk-top installation.

Three groups of indicator pilots, (one group for each channel) show the "pre-set" studio and the "on-air" program source for the particular channel in use. Switching facilities for each outgoing channel provide for "pre-set" and "on-air" indicator lamps at the remote program source location to show its switching status. Provision is made for using the "line-key" at the program source to interlock the "on-air" indicator lamps at both the switching location and the program source.

Line selector switching is accomplished with special telephone type stepping relays. Solid silver contacts are used

Hinged front panel on BCS-11A Master Switching Consolette provides complete accessibility of components for easy maintenance.





Side by side operation of BC-2B and BCS-11A combining program mixing and fading with output distribution.

for all audio circuits to provide optimum wear for a long period of service. The complete switching facilities of the BCS-11A are enclosed within a single, compact unit except for an external relay power supply. Space is provided in the BCS-11A housing for line transformers or fixed attenuators. Easy access to relays, terminal blocks and other components is permitted by a removable top panel and hinged front panel.

DESCRIPTION

The BCS-11A Master Switching Consolette, from a design and operating standpoint, can be described best as a "semi-custom" equipment—since it combines many basic functions normally found in custom master control units. Because of this design similarity, the BCS-11A provides greatly increased flexibility for use with broadcast studio consolettes.

The new switching consolette incorporates facilities for the master switching of ten program sources to three outgoing lines. It is designed with stepping relays and provides preset program source selection for all outgoing channels. All three outgoing channels may be used on any one program source.

A local-master selector switch for each outgoing channel permits either individual or collective switching of all channels. An "operate" button for each outgoing channel and a "master operate" key are provided to activate all outgoing channels either separately or simultaneously. Bridging type input permits operation from any audio line of 600 ohms or lower. A separate master attenuator is provided for each outgoing channel.

A power switch associated with each channel is provided to turn off all relay power to that channel without disturbing the switching arrangement. A relay power failure does not remove the program from the air, and return of power after a failure does not affect or alter the program switching. Separate illuminated VU meters are provided for each of three outgoing channels. VU meter lamps are activated by the channel power switch and serve as pilots to indicate an active channel.

SPECIFICATIONS

Input Channel Impedance.....600 ohms or less

Load Impedance (output channel).....600 ohms

Bridging Loss (for 600 ohm input).....—32 db

Input Level (for values below).....+14 dbm

Cross Talk between Inputs and Channels.....Better than 70 db below program level

Noise Level.....Better than 70 db below program level

Switching Transients.....Better than 70 db below program level

Power Input (switching unit only).....1.35 amp. 24 v. d-c

Power Input (switching unit and studio indicator lamps).....1.6 amp. 24 v. d-c

Maximum Switching Time.....Approximately ⅓ second

Dimensions:

Length .....22½"

Height .....11¼"

Depth .....21½"

Weight .....70 lbs.

Finish.....Two-tone umber gray

Stock Identification MI-11633

Accessories

Relay Power Supply.....MI-11316

BA-11A Amplifier MI-11231-A

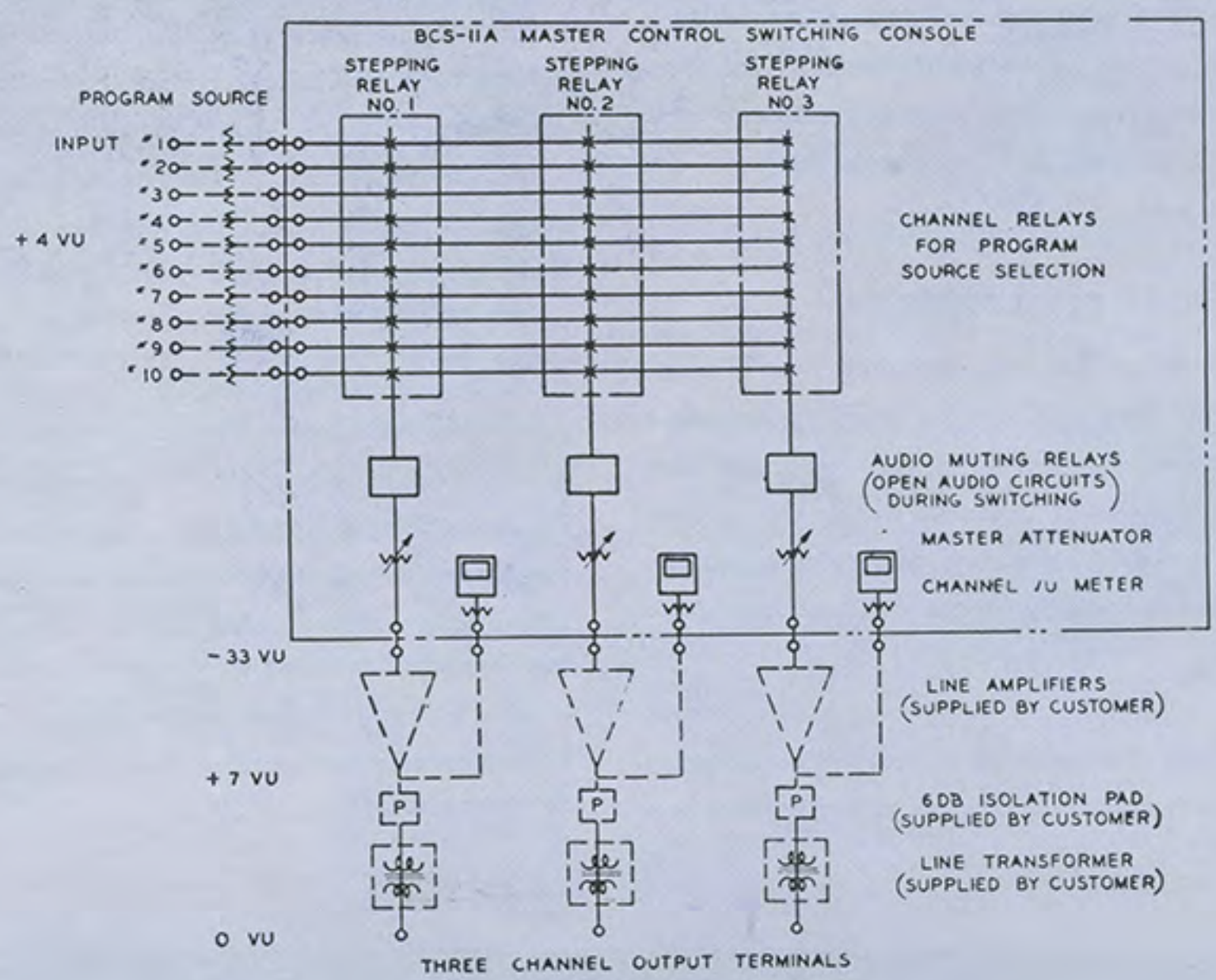
BA-12A Amplifier MI-11232

BA-13A Amplifier MI-11233

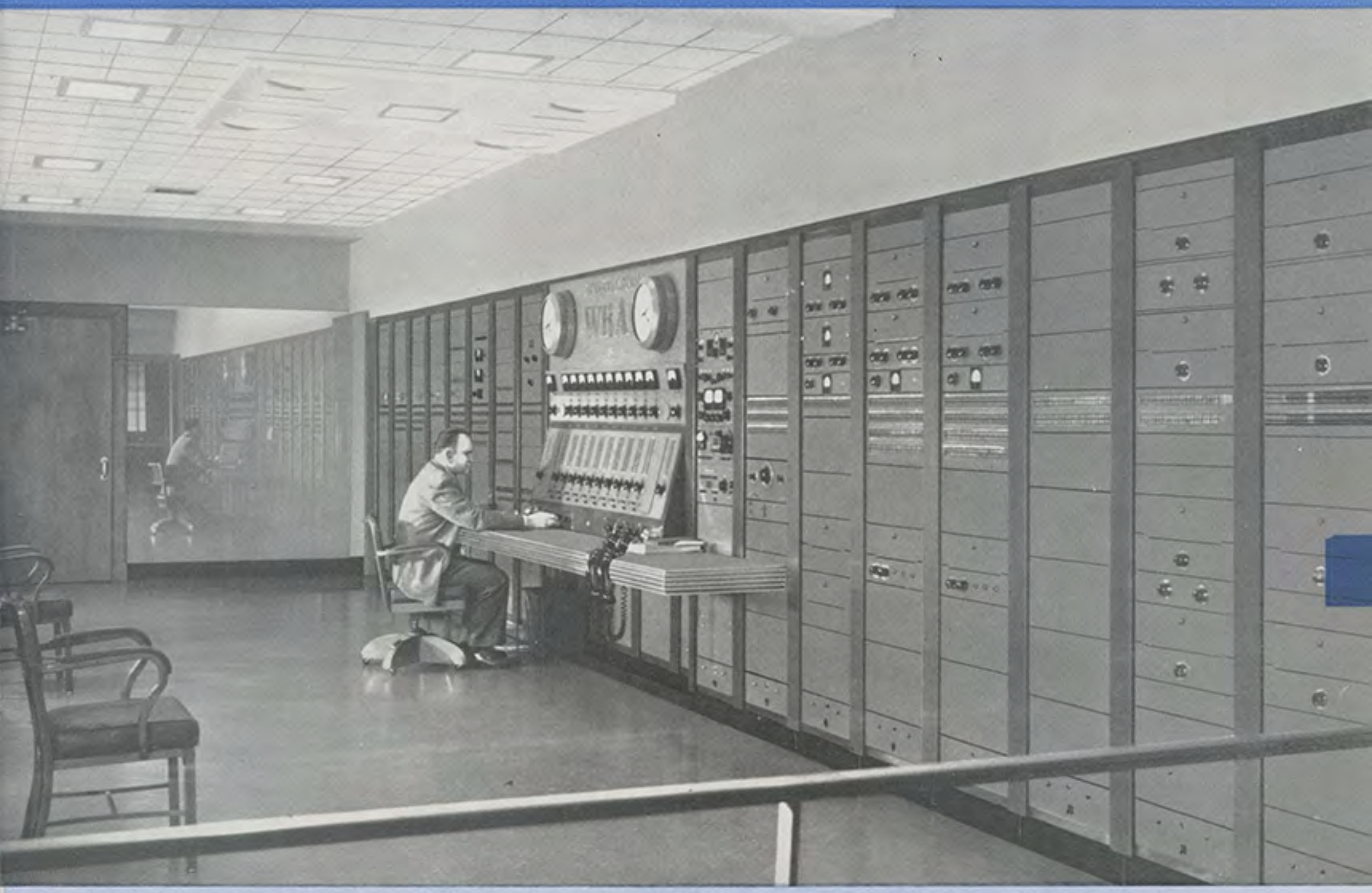
Line Transformer MI-11713

Pad, 6 db 600/600 Ohms.....MI-4171-29

Block diagram of BCS-11A Master Switching Consolette.



CUSTOM AUDIO EQUIPMENT

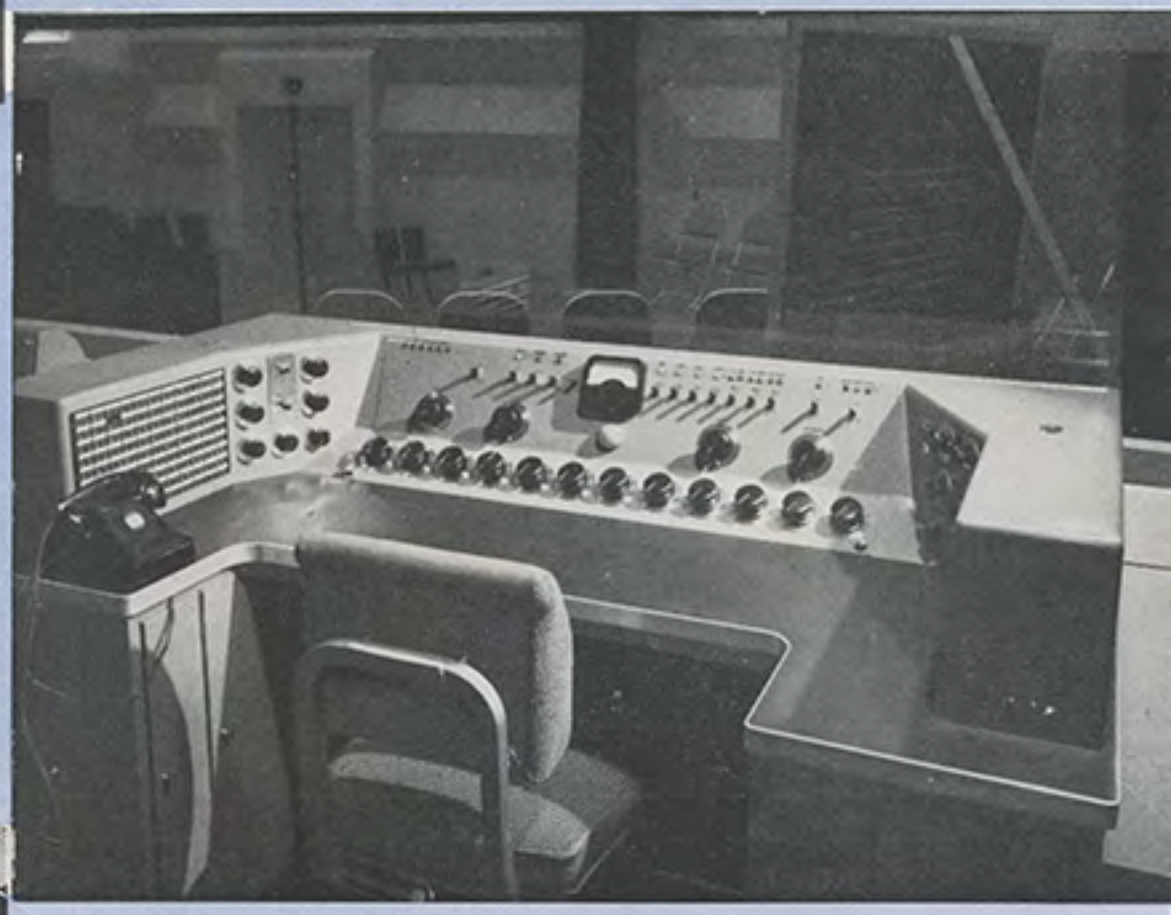


WBAP, Fort Worth. The master control installation pictured here includes 16 deluxe audio equipment racks. These are just part of WBAP's modern six-studio layout. The master control installation features an "In-Line" design for handling 16 inputs and 10 outgoing channels.

FEATURES

- Reduced operating expense
- Increased operating efficiency
- Instant "fool-proof" switching
- "Tailor-made" to satisfy your particular programming requirements
- Smoother operation (without jumps or breaks) . . . Sounds better to listeners
- Possibilities for new business . . . More programs handled
- Increased station prestige with clients
- RCA Custom Engineering Service available to all stations, large and small

WNEW, New York. This master control installation—in WNEW's seven-studio lineup—is flanked on each side by five deluxe audio equipment racks. It has complete facilities for control and preset switching of seven studios to ten outgoing lines . . . and for feeding cues from any channel to any studio.

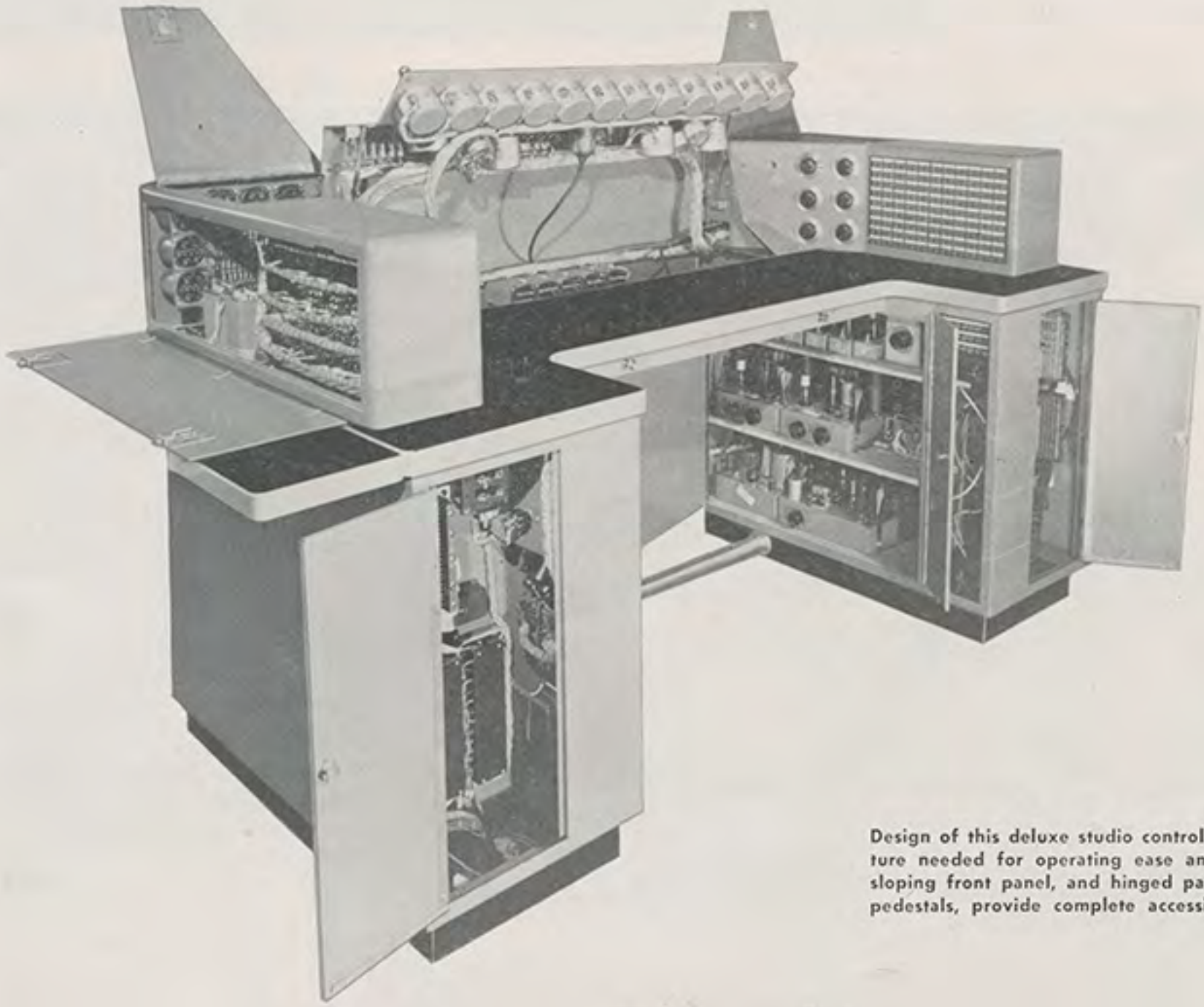


WMGM, New York. A deluxe custom-built studio console provides complete facilities for the control of WMGM's Studio "A" auditorium. The station's six modern studios and master control facilities feature deluxe custom-built audio.

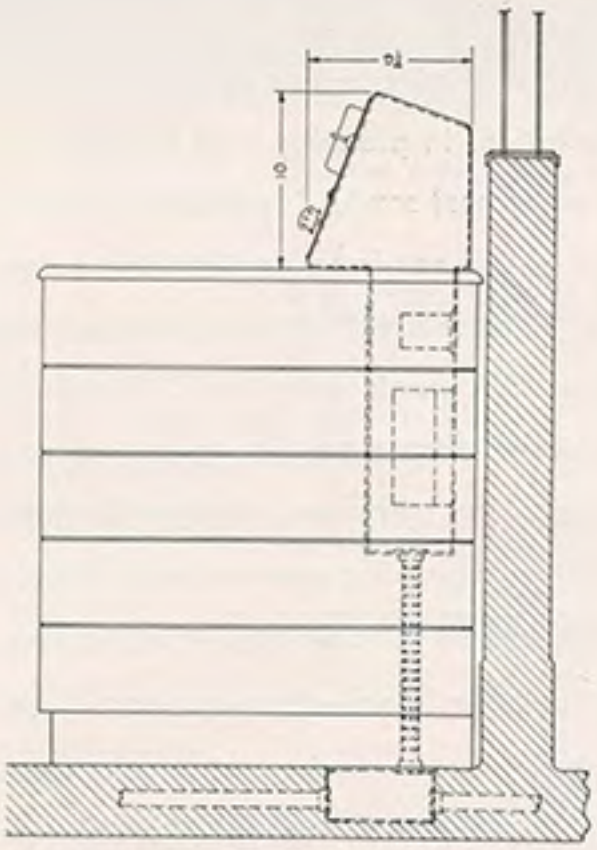
WJAC, Johnstown, Pennsylvania. In this speech input layout, custom-built matching-end consoles contain auxiliary switches and controls. They are used in conjunction with a standard 76-series consolette to provide increased flexibility and convenience.

In addition to a comprehensive line of standard studio control equipment, RCA specializes in custom designing and building complete speech-input systems to meet individual needs of stations and networks. RCA engineers have worked closely with the nation's leading broadcast engineers in the design, production and installation of many custom equipments, a few of which are pictured on these pages. Studio-control systems such as these are tailor-made, combining just the right facilities for the control of program operations and the reproduction of high-fidelity sound.

Since no two broadcast stations have the same operating requirements, equipment needs will differ for each installation, ranging from special equipment for small and medium-size stations to more complex systems for the largest network installation. In planning new installations, RCA "Custom-built" equipment service is available to every AM, FM, or Television station on almost any working agreement desired. RCA "Custom-built" service includes the services of an entire RCA engineering staff. Broadcast station engineers, in some cases, may wish to lay out and design the system themselves, complete with specifications. In these instances, RCA will provide specifically built units or modify standard equipment to meet these specifications in every detail. On the other hand, where stations desire, RCA engineers will study station requirements, make overall and detailed layouts, and draw up specifications for equipment needed.



Design of this deluxe studio control console includes every feature needed for operating ease and convenience. The hinged sloping front panel, and hinged panel doors to all turrets and pedestals, provide complete accessibility to every component.



This cross-section view shows how the console at right was designed to permit some components to be mounted below the desk top. This results in small turret size and provides maximum visibility into the studio.

The studio console design shown above employs varied colored knobs and switch handles for easy and quick identification of individual controls. All escutcheons and dial plates are of attractive, long-wearing nickel silver.

Custom-built equipment can be designed for Television station requirements for audio, video and master control functions. Equipment for Television needs is discussed thoroughly under the heading "Custom Equipment for Television".

Pictured here is WOR-TV, New York. All programs are channelled through this master control room switching console. Eight master monitor housings accommodate facilities for six inputs and four outputs. Refinements include master or individual channel switching from "on-air" to "preset" circuits on each channel as well as simultaneous or independent video/audio switching on each channel.

TELEVISION AUDIO EQUIPMENT

BC-2B Consolette (center) is shown mounted on a desk with the BCS-13A Auxiliary Control Console (right) and the BCM-1A Auxiliary Mixer Console (left).

FEATURES

- Eight microphone preamplifiers and faders
- Dual projector sound channel
- Transcription playback to studio for sound effects and cue
- Intercom system provided
- Ringdown panel for six private line telephones
- Styled to match associated TV equipment

USES

RCA TV audio equipment items are employed by television stations to provide complete audio control facilities for control rooms and studios. The block diagram (page opposite) and photo above illustrate how RCA audio equipment may be combined to accommodate a TV station employing a single studio, announce booth, a projection room and a control room. Other arrangements of equipment may be employed depending upon the size, number of studios and other requirements of the TV station. Custom-built TV consoles and associated equipment can be furnished to satisfy large or elaborate station requirements.

DESCRIPTION

In addition to standard TV audio equipment such as RCA microphones, turntables, mike booms, stands, amplifiers, jacks, power supplies and other rack equipment—the BCS-13A TV switching console and RCA consolettes are available to the TV broadcaster. For example, the BCS-13A television auxiliary switching console (at right in picture above) is designed for use with the BC-2B consolette in expanding TV audio control facilities. A spare volume control is provided which may be patched into a circuit as required. With the BCS-13A, it is possible to feed turntables to a loudspeaker for background purposes—or for accompanying a vocalist. A roving VU meter provides for presetting audio levels of remote programs. Private line telephone ringdown circuits provide means for contacting offices and remote points.

Basic audio and talkback requirements fulfilled by the particular layout illustrated are as follows:

Studio

(1) Up to sixteen microphones.

(2) Studio loudspeaker for turntable feed and talkback.

(3) On-Air and Audition signals.

(4) Talkback from director to camera operators (order wire circuit).

(5) Talkback from audio engineer to microphone boom operator.

Film Projection Room

(1) Control for sound outputs of two film projectors.

(2) Talkback from director to film projection room.

Control Room

(1) Mixer Facilities

a. Mixing up to eight microphones. Switching facilities for eight additional microphones.

b. Mixer for film sound channel and remotes.

c. Two mixers, with cueing facilities, for turntables.

d. Network mixer.

(2) Feed turntables to studio loudspeaker for background purposes, or for accompaniment of vocalist and other similar purposes. (Possibility for the output of the turntable at the same time to be mixed as a part of the consolette program.)

(3) Feed loudspeakers in studio control room, studio, announce booth, and projection room. Studio control room equipment able to feed one regular and one spare program line.

(4) Program line feed to house monitor circuit through an isolation amplifier.

(5) Termination for 24 remote broadcast and private lines. Ringdown equipment provided for magneto telephones.

(6) Consolette switching facilities for feeding cue programs or "on-air" monitor circuit into studio when not in use.

(7) Program cue to camera and boom operators.

(8) Talkback enabling audio operator to talk to microphone boom operator.

(9) Talkback enabling program director to talk to camera operator and to film projection room, announce booth and studio.

EQUIPMENT REQUIRED FOR TYPICAL AUDIO LAYOUT CORRESPONDING TO LAYOUT DIAGRAM (DWG. 133467)

Control Room Equipment

1	Special Rack of Audio Equipment	
1	BCS-13A Auxiliary Control Console	
1	Type BC-2B Consolette and Power Supply	MI-11632/11313
1	Dual Preamplifier for BC-2B	MI-11241
1	Type BCM-1A Mixer Console	MI-11634
2	Type BQ-70E Turntables	MI-11816/11870
1	Type BK-1A Talkback Microphone	MI-11007
1	Type KS-11A Desk Stand for BK-1A	MI-11008
1	Type LC-1A Speaker with Ceiling Baffle	MI-11406/11411
1	Turntable Cue Amplifier	MI-12238-C
1	Turntable Cue Speaker Mechanism and Housing	MI-12460-A/13276
1	Relay Power Supply	MI-11316
3	Warning Light Relays	MI-11702-A
3	Wall Receptacles for Microphone and Turntables	MI-4624-A
3	Cable Plugs for Microphone and Turntables	MI-4630-B
2	Cord Connectors for Turntables	MI-4620-B
4	Two Foot Patch Cord	MI-4652-2A
1	Announce Booth Speaker Relay Kit	MI-11722
150 ft.	Cable for Turntables, and Microphone Extension Cords	MI-43-B
2000 ft.	Cable, Shielded Pair, Cotton Braided Outer Cover	MI-13306
200 ft.	Cable, Shielded Pair, #18	MI-35
1	Lacing Cord #6	MI-11719-A
1	Tube Kit for BC-2B Consolette and Power Supply	MI-11294/11297
3	Tube Kit for BCM-1A Mixer Console, and Dual Preamplifier	MI-11475
2	Tube Kits for BA-14A Amplifier	MI-11267
1	Tube Kit for Cue Amplifier	MI-12251
1	Tube Kit for BA-11A Amplifier	MI-11288
1	Tube Kit for BX-1E Supply	MI-11262
3	Tube Kits for BA-13A Amplifier	MI-11266

Studio Equipment

3	Type 77-D Microphones	MI-11006-A
1	Type BK-4A Starmaker Microphone	MI-11005-A
1	Type 90-AS Program Stand	MI-4098
1	Type KS-3B Boom Stand	MI-11056
1	Boom Stand	MI-11070
2	Cable Hooks	MI-11099
16	Wall Receptacles for Microphones	MI-4624-A
5	Cable Plugs for Microphones and Extension Cords	MI-4630-B
1	"On Air" Sign	MI-11706-1
1	"Audition" Sign	MI-11706-3
1	Speaker Mechanism with Wall Baffle	MI-12460-A/13276

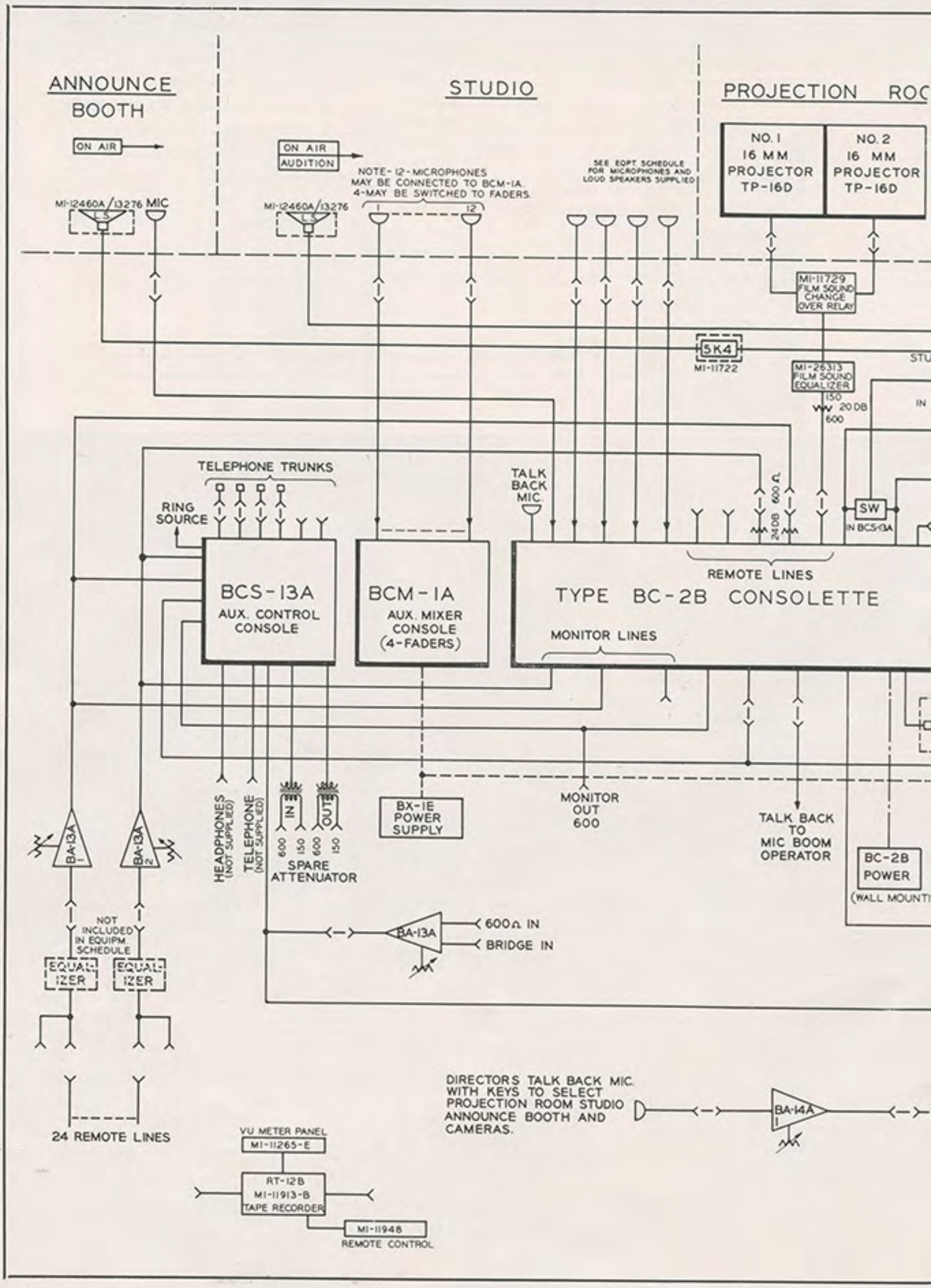
Announce Booth Equipment

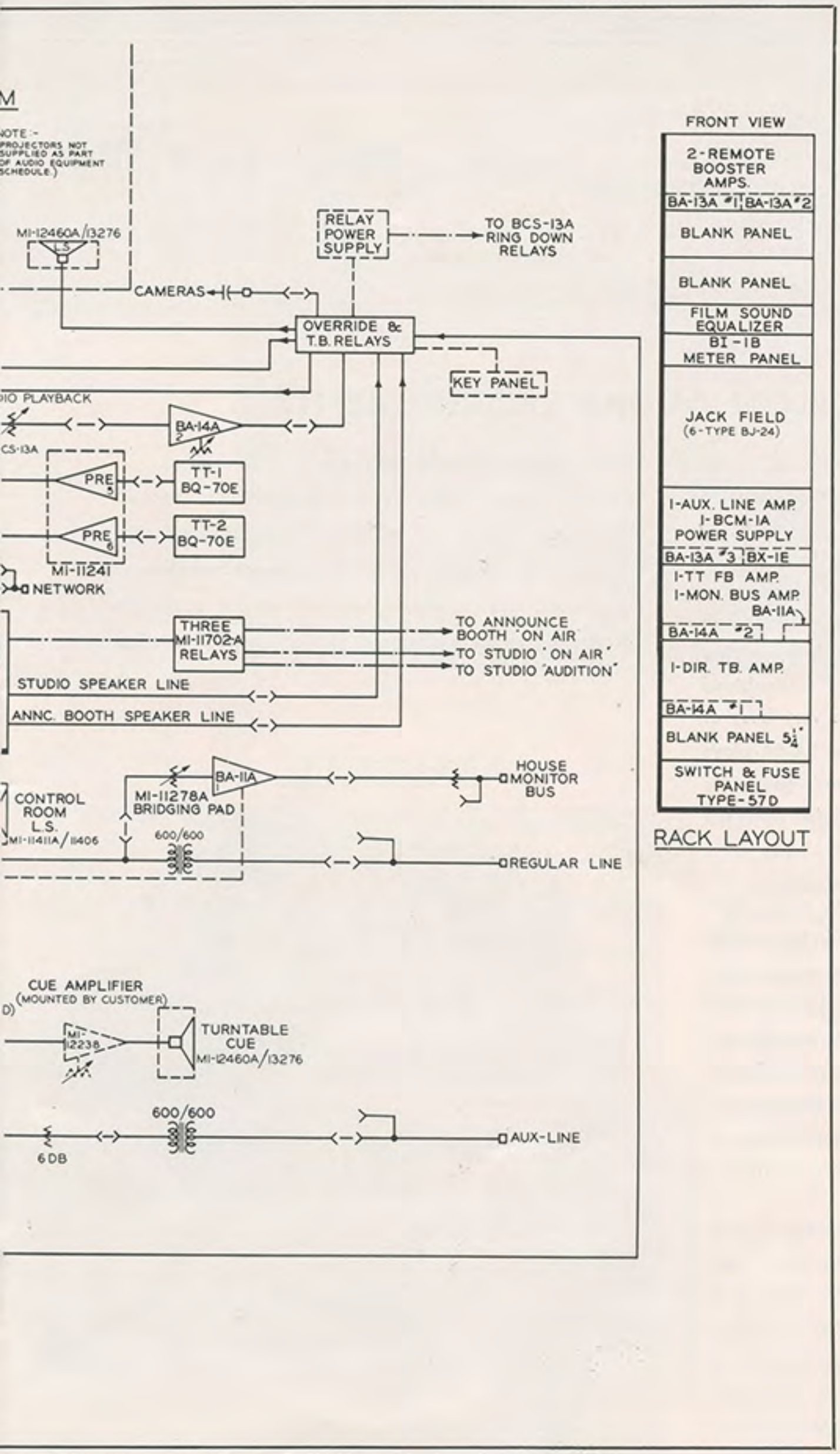
1	Type BK-1A Microphone	MI-11007
1	Type KS-11A Desk Stand for BK-1A	MI-11008
1	Speaker Mechanism with Wall Baffle	MI-12460-A/13276/12368
1	Wall Receptacle for Microphone	MI-4624-A
1	Cable Plug for Microphone	MI-4630-B
1	"On Air" Sign	MI-11706-1

Film Room

1	Intercom Speaker	MI-12460-A
1	Wall Speaker Cabinet	MI-13276

Use of Television audio equipment is illustrated in this typical large studio setup. Audio control is shown to the right of the program director's console.


ANNOUNCE BOOTH
ON AIR
MI-12460A/13276 MIC
L.S.
STUDIO
ON AIR
AUDITION
MI-12460A/13276
L.S.
NOTE- 12-MICROPHONES MAY BE CONNECTED TO BCM-1A. 4-MAY BE SWITCHED TO FADERS.
1
12
SEE EQPT SCHEDULE FOR MICROPHONES AND LOUD SPEAKERS SUPPLIED
PROJECTION ROC
NO. 1 16 MM PROJECTOR TP-16D
NO. 2 16 MM PROJECTOR TP-16D
MI-11729 FILM SOUND CHANGE OVER RELAY
5K4
MI-11722
MI-26313 FILM SOUND EQUALIZER
150
20 DB
600
STU
IN
TELEPHONE TRUNKS
RING SOURCE
TALK BACK MIC.
24 DB
600 Ω
SW
IN BCS-13A
REMOTE LINES
BCS-13A AUX. CONTROL CONSOLE
BCM-1A AUX. MIXER CONSOLE (4-FADERS)
TYPE BC-2B CONSOLETTE
MONITOR LINES
BA-13A 1
BA-13A 2
HEADPHONES (NOT SUPPLIED)
TELEPHONE (NOT SUPPLIED)
IN
OUT
600
150
600
150
SPARE ATTENUATOR
BX-1E POWER SUPPLY
MONITOR OUT 600
TALK BACK TO MIC BOOM OPERATOR
BC-2B POWER
(WALL MOUNTI
NOT INCLUDED IN EQUIPM SCHEDULE
EQUAL-IZER
EQUAL-IZER
24 REMOTE LINES
BA-13A
600Ω IN
BRIDGE IN
DIRECTORS TALK BACK MIC. WITH KEYS TO SELECT PROJECTION ROOM STUDIO ANNOUNCE BOOTH AND CAMERAS.
BA-14A
VU METER PANEL
MI-11265-E
RT-12B
MI-11913-B
TAPE RECORDER
MI-11948
REMOTE CONTROL

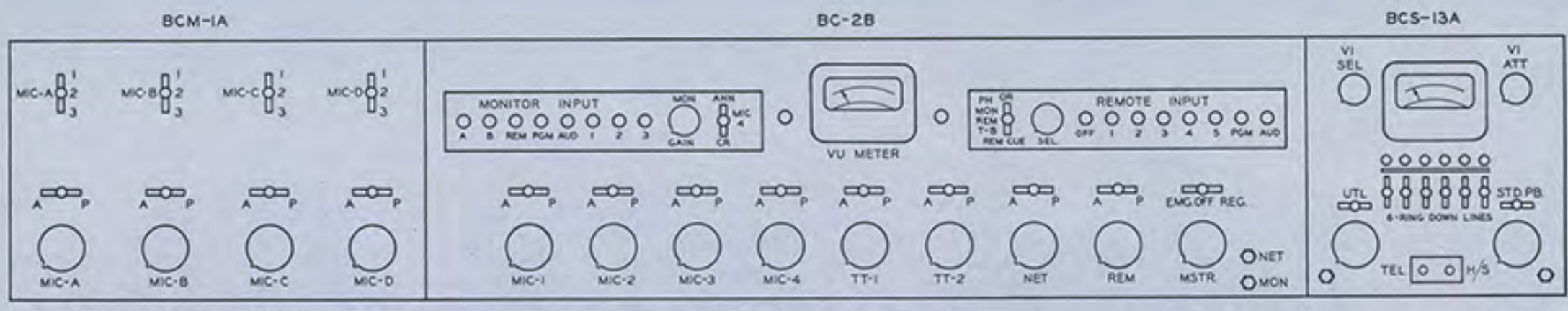


FRONT VIEW

2-REMOTE BOOSTER AMPS.
BA-13A #1 BA-13A #2
BLANK PANEL
BLANK PANEL
FILM SOUND EQUALIZER
BI-1B METER PANEL
JACK FIELD (6-TYPE BJ-24)
1-AUX. LINE AMP. 1-BCM-1A POWER SUPPLY
BA-13A #3 BX-1E
1-TT FB AMP. 1-MON. BUS AMP. BA-11A
BA-14A #2
1-DIR. TB. AMP.
BA-14A #1
BLANK PANEL 5¼"
SWITCH & FUSE PANEL TYPE-57D

RACK LAYOUT

Block diagram showing a complete audio system for Television. Use of the facilities of the BC-2B Consolette, BCM-1A Auxiliary Mixer Console and BCS-13A are shown along with associated audio equipment required for a complete system. To the right of the block diagram the audio rack layout is pictured.



Outline drawing of audio control panels.

BASIC TELEVISION AUDIO REQUIREMENTS

In a very simple system, there are three sources of audio; the film, net, and a local microphone. These can be turned on with switches and mixed or used individually as desired. Since the mixers are normally used for that purpose, a master gain control is also required. A program amplifier, up to the point where a Volume Indicator can be read, and a limiting amplifier is inserted between that point and the transmitter. The operator of a combined audio/video control position is going to be very busy at times, and a limiting amplifier like the Type BA-6A plays an important part since it acts as an automatic gain rider and will avoid high distortion or over-modulation when the gain is accidentally turned too high.

It will be necessary to monitor the broadcast, and a Type BA-14A Amplifier and Type LC-1A Speaker can be used for that purpose. If the microphone is used in the control room, there must be a relay to cut the speaker whenever the microphone is turned on. A switch is shown to provide several inputs for the monitor. There must be provision for an audio monitor of the transmitter output. A transmitter input and net or film are also recommended. Other positions can be added.

In the past, Television stations have gone on the air with their audio system reduced to about that described. However, they have found themselves inflexible. They have found it desirable to use recorded music, either as a background mixed with other sounds or as the only source of sound. They have also found it desirable to tie certain audio switching functions in with video switching.

TC-4A Audio/Video Console

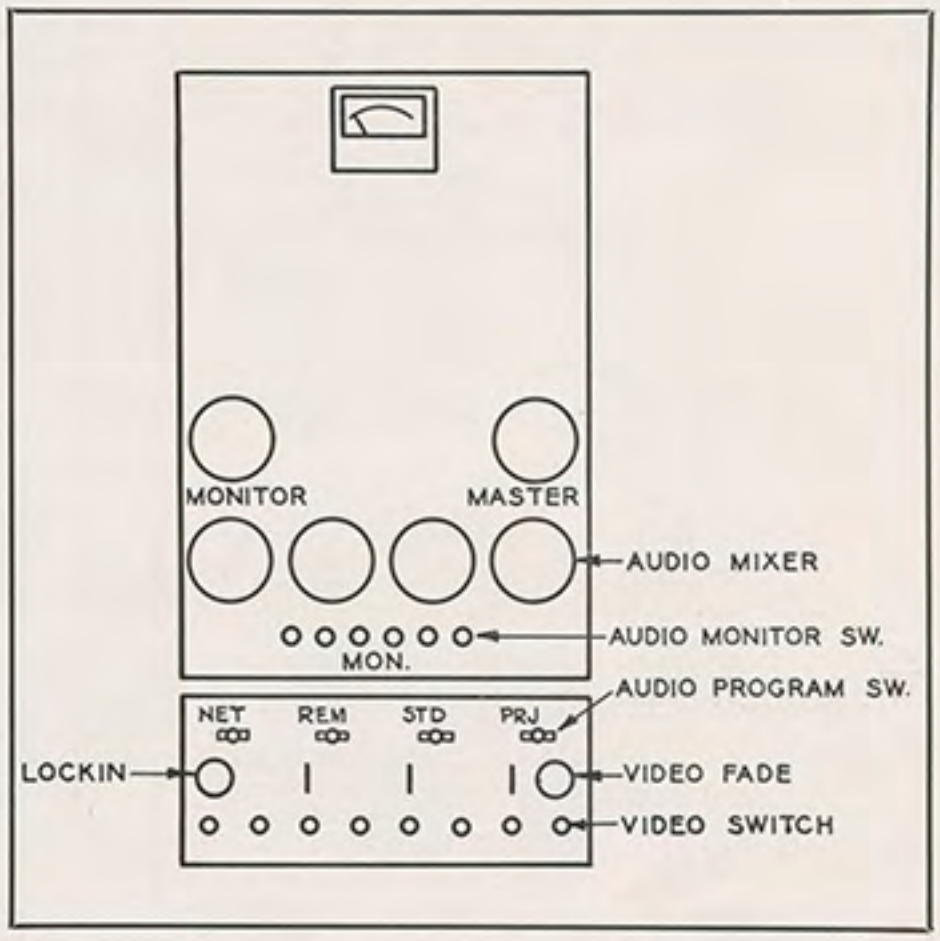
Television stations throughout the country have taken advantage of the increased flexibility of the TC-4A Audio/Video Console. An audio rack of equipment complements the console. This console incorporates all the basic considerations previously discussed plus a four-position mixer

TC-4A Audio/Video Console.

system and relay switching for tying audio circuits to the video switches, when desired. Provision is made for switching up to eight video and audio inputs.

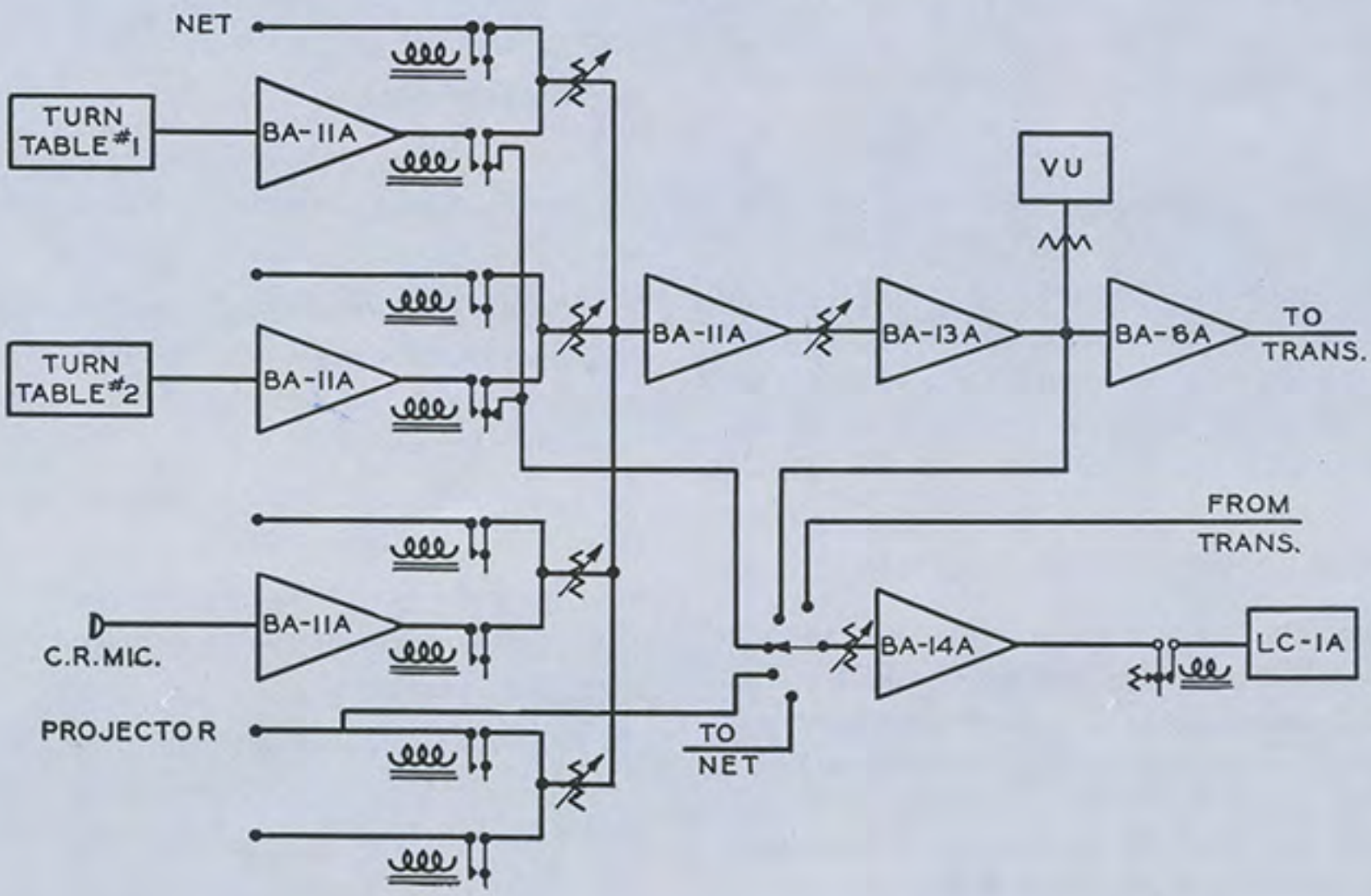
In the block diagram on this page, a single film chain is set up with a control room microphone, network source, and two turntables. An outline drawing of the control panels shows how audio and video switching are integrated so they are all at the fingertips of the operator.

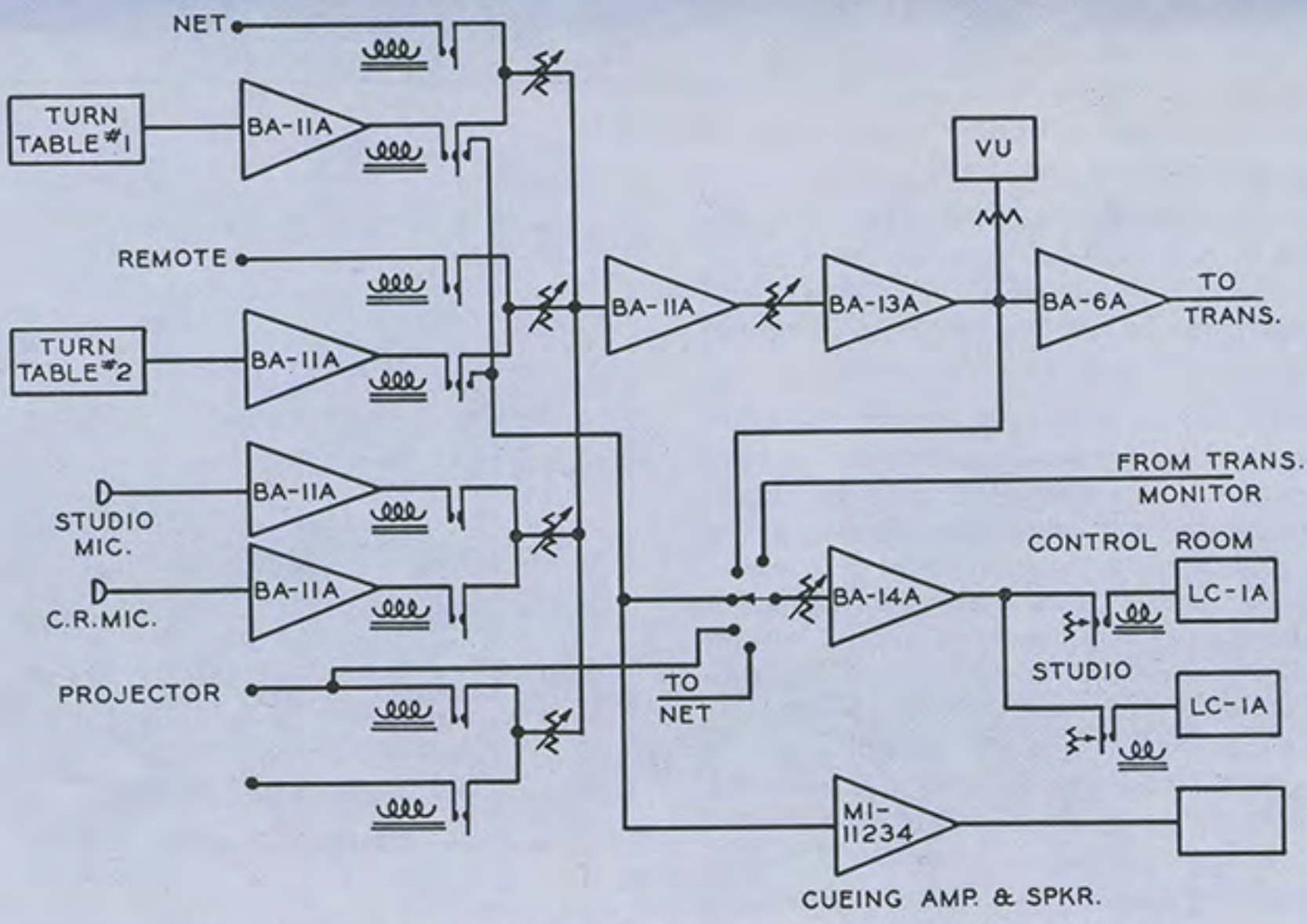
Relays are incorporated in the audio circuits to provide the flxibility required for simultaneous video/audio switching or independent video and audio switching. For independent audio switching, the "lock" switch on the left of the control panel is turned to the "out" position. Under this condition, the relays are operated by the lever key audio program switches, thereby providing the desired audio signal. The relay circuit arrangement permits only one incoming audio source to connect to an audio mixer control. For example, either "Net" or "Turntable 1" can be selected by the first lever key switch for the first audio mixer, but not both simultaneously. By turning the "Lock Switch" to the "in"



Panel layout of the audio section of the TC-4A Console.

Schematic diagram of the TC-4A audio circuit in its simplest form.





Schematic diagram of an expanded TC-4A arrangement for a more complex audio circuit.

position and with the lever key audio program switches in their neutral position, simultaneous video/audio switching is accomplished when one of the push buttons of the video switch is depressed. For instance, depressing the "Net" selector button on the video switch will operate the net audio relay, thereby providing "Net" audio to the first mixer. In the same manner, the program can be switched from net to projector (both audio and video) by depressing the "Projector" selector button on the video switch.

In addition to the simultaneous or independent switching of audio and video, "mixing" facilities are also provided. This feature permits background music or an announcement during intervals where there may be a program break.

Another combination might be slides shown through the film camera chain while mixing the announcer's commentary from the control room microphone and background music from a turntable.

The "Mixing" feature may be used with either simultaneous or independent video/audio switching by proper selection of the lever key audio program switches and their respective audio mixer controls.

This system makes it possible for a single operator to handle fairly complex programming easily. He may even make the announcements and play the records. A fairly complex program structure may be maintained with a very small control room force.

The equipment can be as simple or as complex as desired (up to the point in the block diagram above), and has the advantage that the customer can start with a few pieces and add from time to time.

RCA BROADCAST AMPLIFIERS

The RCA line of high fidelity Speech Input Amplifiers has been designed to provide stations with studio, recording and portable remote amplifiers which will offer the maximum in fidelity, flexibility, convenience and reliability. All amplifiers are suitable for FM having a uniform response to 15,000 cycles. Distortion and noise levels have been reduced to a very low value through careful engineering design and construction.

While the apparatus is unexcelled in performance and appearance, it is very economical considering the many features which are offered. The amplifiers have been designed to give unsurpassed service and nothing has been omitted which would contribute to their usefulness and reliability.

Attention is invited to gain and level references in this catalog.

db—refers to gain.

dbm—sine wave power measurement referred to one milliwatt.

VU—refers to average program level as read on a standard VU meter. This value is subject to considerable variation from dbm but is generally considered 10 db below peaks.

Allowance must be made for program peaks to avoid amplifier overloading, for example, a pre-amplifier rated at +10 dbm should not be operated at more than 0 VU.

Summary of RCA Broadcast Amplifier Characteristics

Type	*Usage*	*Max. Gain db*	*Max. Input dbm**	*Max. Output dbm**	*Source Impedance Ohms*	*Load Impedance in Ohms*	*Type Mounting*
BA-11A	Preamplifier	Matching 40	Matching −10	+18	30/150/600	150/600	Chassis or Rack
	Isolation Amp. with MI-11278-D or F Bridging Gain Control	Bridging 4	Bridging +40	+18	10,000	150/600	Chassis or Rack
BA-12A	Mic. Preamp. or Turntable Preamplifier	40	−22	+18	30/150/600	150/600	Chassis or Rack
BA-13A	Program Amp. Line Amp. Isolation Amp. Monitor Amp.	Matching 65 Bridging 28	Matching +10 Bridging +30	+33 2 Watts	150/600	5/7.5/15/150/600	Chassis or Rack
BA-14A	Monitoring or Recording Amplifier	105 73 with rem. v.c.	−27	+40.8 12 Watts	150/600 (10,000 Ohms Amp. Input rem. v.c.)	5/7.5/15/150/600	Chassis or Rack
MI-12238-C	Monitoring Amplifier	114	−25	5 Watts	150	4/8/16	Chassis
BA-6A	Limiting Amplifier	54	Minimum at Verge of Limiting −24	+30	150/600	600	Chassis or Rack
BC-2B	Studio Consolette	108	−30	+24	30/150	600 Pgm. 15 Monitor	Console
BCM-1A	Auxiliary Mixer	Depends on Application	−30	Depends on Application	30/150	Depends on Application	Console
BN-2A	Portable Remote Amplifier		−30	+18	30/150	600	Portable Carrying Case

* Reference level one milliwatt.

PREAMPLIFIER POWER SUPPLY

TYPE BX-1E

FEATURES

- Exceptionally low hum level
- Plugs into BR-2A Shelf Assembly
- High capacity filter
- Filament supply hum balancing poten tiometer
- Voltage variable 200 to 300 volts
- Supplies up up to 7 BA-11A Preamplifiers

USES

The Type BX-1E Preamplifier Power Supply is designed to provide d-c plate and a-c heater power for preamplifiers in which the hum level must be kept to a minimum. It is intended especially for use as a power supply for pre-amplifiers and isolation amplifiers such as the BA-11A.

DESCRIPTION

The BX-1E is a plug-in unit designed primarily for mounting in the RCA Shelf Assembly Type BR-2A. Two of these power supplies can be installed as plug-in units in the BR-2A Shelf Assembly. Connection to the terminals is made through a quickly removable, multi-contact connector which fastens to the plug at the rear of the chassis.

The power supply circuit is a full-wave, high-vacuum tube rectifier with a choke-input filter. With a total of 320 microfarads of filter capacitance, the d-c output is exceptionally free from hum. The voltage is variable, by means of a screw driver adjustment, between 200 and 300 volts. The voltage output is very stable with any load up to fifty milliamperes. A hum balancing potentiometer, likewise a screw driver adjustment, is connected across the filament supply circuit.

The BX-1E is designed for operation on any a-c line voltage between 100 and 130 volts, 50 to 60 cycles. A one ampere, glass-enclosed, time-delay fuse is mounted on the front of the chassis. This fuse is unaffected by high transient currents.

SPECIFICATIONS

Power Supply Required.....100 to 130 volts, 50 to 60 cycles, 65 watts
Fuse.....1 ampere, Type MDL

Power Output:
- D-c.....180 to 285 volts, up to 50 ma
- A-c.....6.3 volts, up to 4.2 amperes

Output Hum Level.....Approximately —134 db (below 50 ma d-c load at 250 volts d-c)

Dimensions and Weight:
- Length.....12⅝"; Width.....8⅛"; Height.....7"
- Weight .....15½ lbs.

Equipment Supplied

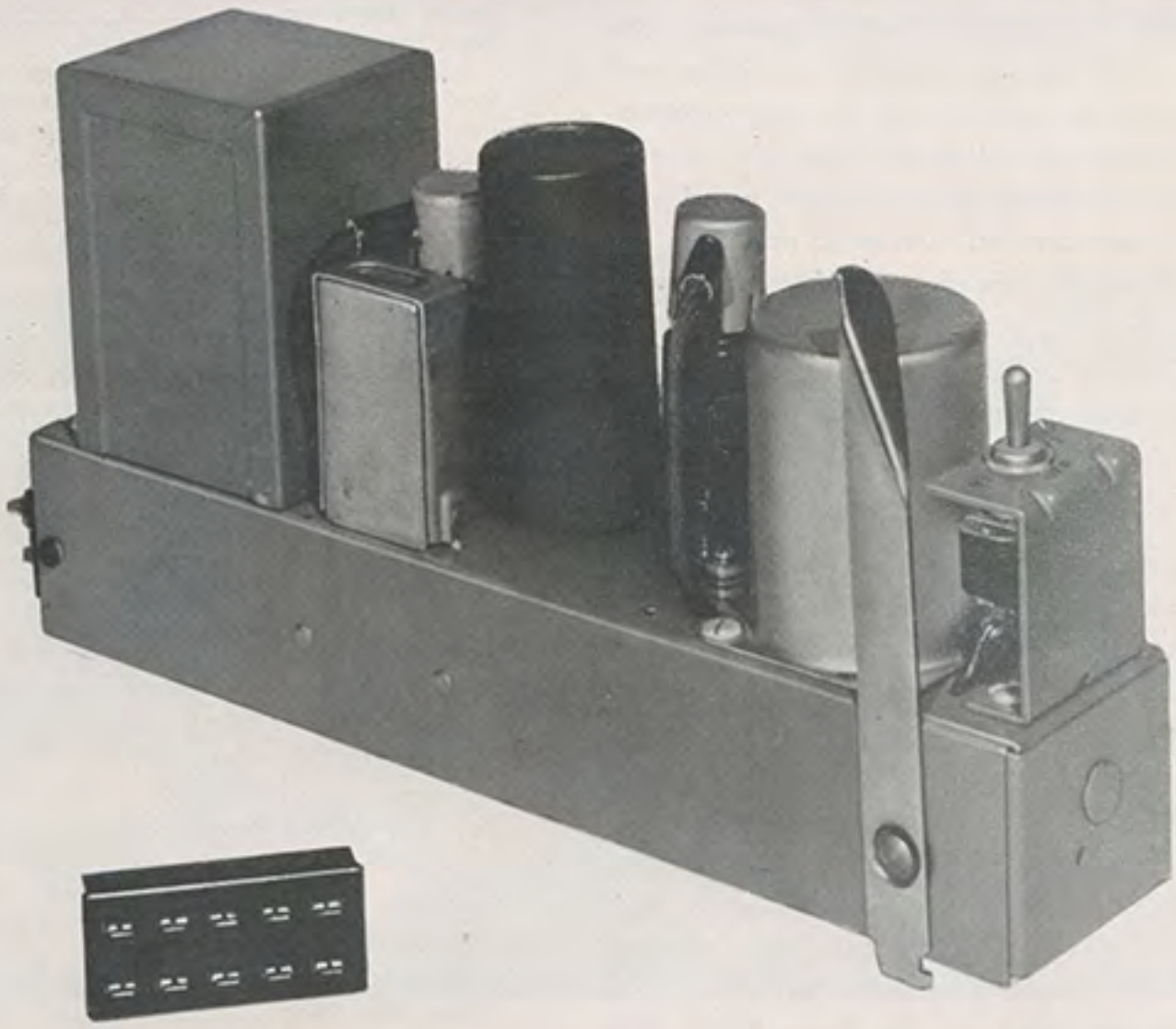
BX-1E Amplifier complete with Jones Plug and less tubes.
Stock Identification (less tube).....MI-11305-D

Accessories

Tube Complement, 1 RCA-5Y3GT/G.....MI-11262
Panel and Shelf Type BR2A:
- Umber Grav MI-11598-B/11599

PREAMPLIFIER & ISOLATION AMPLIFIER

TYPE BA-11A



FEATURES

- **Excellent frequency response ±1 db 30 to 15,000 cycles**
- **Two stages. Ample gain for any preamplifier application**
- **May be used as an isolation amplifier providing 80 db isolation**
- **Low distortion and hum level**
- **High output capability makes it useful as a booster or line amplifier**
- **Compact. Six units may be mounted in a single BR-2A Panel and Shelf Assembly**
- **Hermetically sealed output transformer and oil-filled paper capacitor**
- **Plug-in electrolytic capacitor**

USES

The BA-11A is a compact, two stage high fidelity preamplifier. Its high gain (40 db), extremely low noise level and low distortion make it an ideal unit for use as a microphone preamplifier, turntable preamplifier or booster amplifier. Its high output level makes it applicable as a line amplifier. It may also be used as an isolation amplifier operating from a zero to +40 vu feeder bus by the addition of an MI-11278-D bridging volume control. The BA-11A has a plug-in type chassis using multi-conductor plugs. The small size of the BA-11A gives it a great deal of mounting flexibility. It may be placed directly in a control console, control desk or transcription turntable cabinet. Where cabinet rack mounting is desired, one to six of these units may be installed in a single BR-2A Panel and Shelf Assembly.

DESCRIPTION

The BA-11A has been designed to obtain high gain from two RCA 1620 tubes; one operated as a pentode, the other as a triode. The tubes are mounted vertically and the first stage is shock mounted to prevent microphonics. The circuit is conventional with unloaded input transformer, resistance-capacitance coupling between stages and transformer output. The distortion and hum level has been reduced to a very low value through proper circuit design and through the use of stabilized feedback. Cross talk between units is —75 db, 50 to 15,000 cycles when mounted side by side and operated from the BX-1E Power Supply.

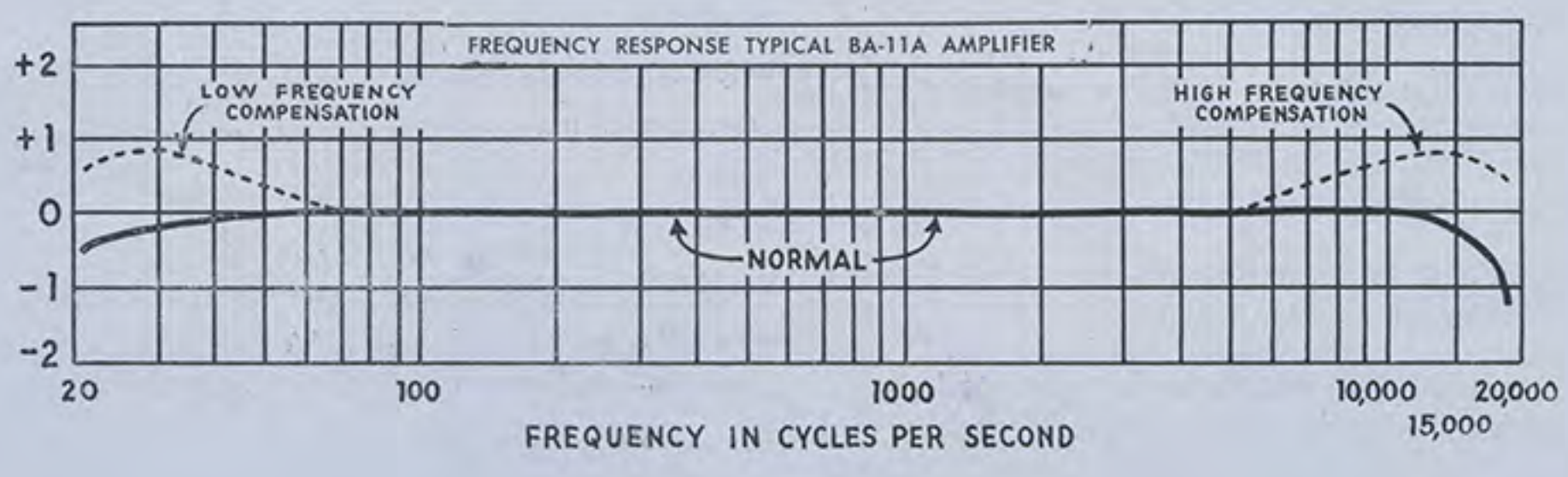
With the addition of the MI-11278-D volume control kit to provide a 10,000 ohm input, the BA-11A may also be used as a bridging or isolation amplifier. The MI-11278-D kit can be mounted on the BA-11A chassis and be adjusted by screw driver. The MI-11278-C is intended for panel mounting remote from the amplifier. As a bridging amplifier, the BA-11A has a maximum of 4 db of gain with the volume control at minimum loss position and bridging a 600-ohm line. Approximately 80 db of isolation between output and input is obtained with the amplifier in this arrangement. A switch is provided for metering a portion of the cathode voltage of each tube when connected to a high resistance voltmeter such as the Type BI-1B. The switch is "off" in the center position. The unit is designed to operate from the BX-1E Power Supply or its equivalent. The power requirements are 6.3 volts a-c or d-c at 0.6 amperes and 285 volts d-c at 7 ma. Up to seven BA-11A preamplifiers can be operated from one BX-1E Power Supply.

SPECIFICATIONS

BA-11A as Preamplifier:	
Source Impedance	30/150/600 ohms
Input Impedance (unloaded input transformer)	Substantially above source impedance
Load Impedance (balanced or unbalanced)	150/600 ohms
Maximum Input Level (less than 0.5 rms dist. 50-7500 cps)	—22 dbm
Maximum Output Level	+18 dbm
Maximum Gain (150 ohm source to 150 ohm load)	40 db
BA-11A as Isolation Amplifier (with MI-11278 Series Volume Control):	
Source Impedance	30 to 600 ohms
Input Impedance (through Volume Control)	10,000 ohms
Load Impedance (balanced or unbalanced)	150/600 ohms
Maximum Input Level, Volume Control at max.:	
Bridging 600 Ohms	+14 dbm
Bridging 150 Ohms	+20 dbm
Maximum Output Level	+18 dbm
Maximum Gain	+4 db
BA-11A as either Preamplifier or Isolation Amplifier	
Frequency Response	±1 db 30-15,000 cps
Noise Level (Input and Output Terminated):	
Output	—83 dbm
Referred to Input	—123 dbm
Plate Power Supply	285 volts d-c at 7 ma
Filament Supply	6.3 volts a-c or d-c at 0.6 amps
Dimensions, overall	Length 12¾", width 2$^{9}/_{16}$", height 5$^{13}/_{16}$"
Finish	Umber gray
Weight (unpacked)	5¾ lbs.
Stock Identification (amplifier supplied less tubes)	MI-11231-A

Accessories

Tube Kit #1 (complete tube complement) Two RCA 1620	MI-11288
Volume Control Kit	
(Bridging Chassis Mounting)	MI-11278-D
(Bridging Remote Panel Mounting)	MI-11278-C
BX-1E Preamplifier Power Supply (furnishes filament and plate power for 1 to 7 BA-11A Preamplifiers)	MI-11305-D
Type BI-1B Meter Panel (umber gray)	MI-11388
BR-2A Panel and Shelf Assembly (required when cabinet rack mounting is desired):	
Umber Gray	MI-11598-B/11599

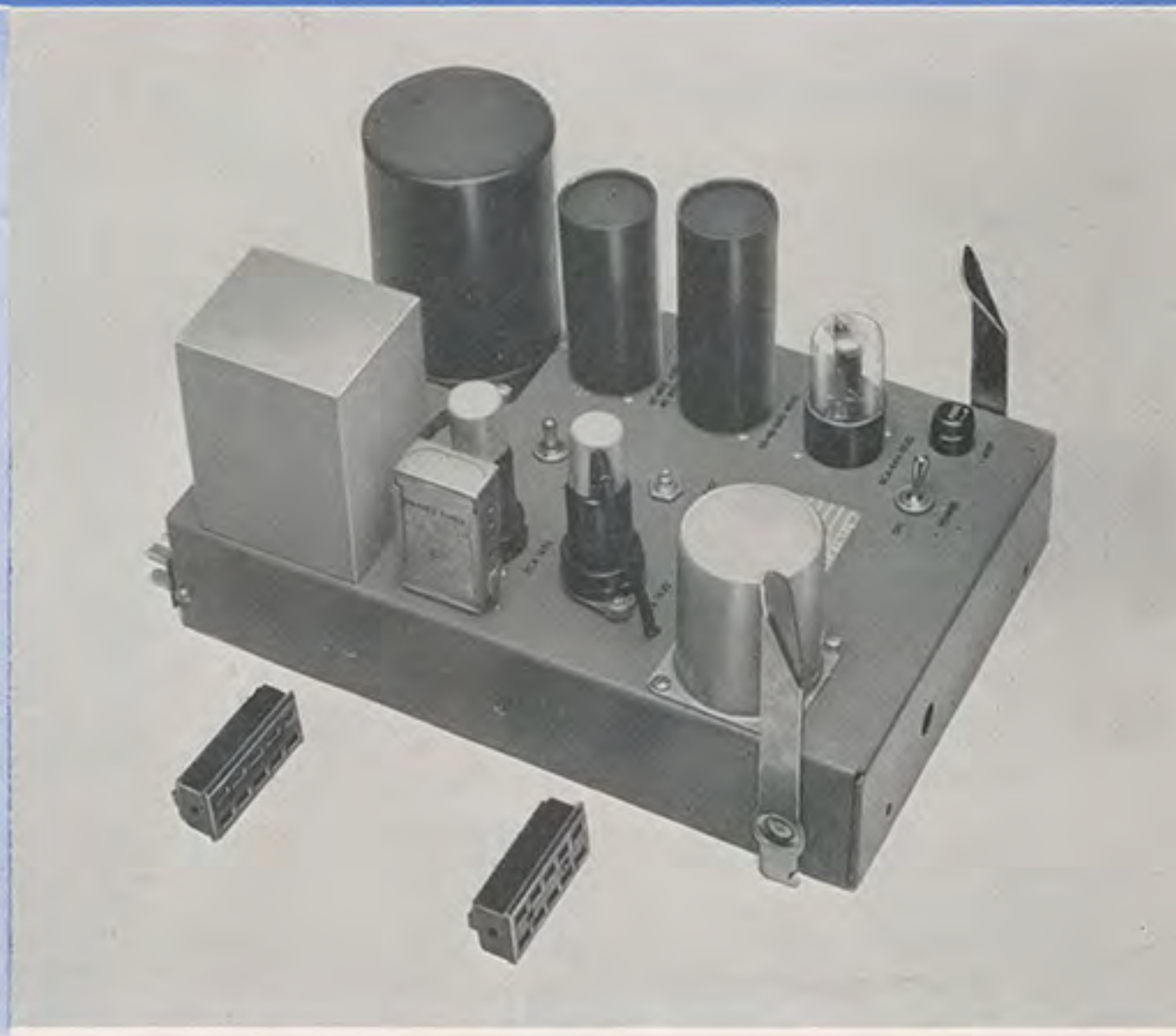


UTILITY AMPLIFIER

TYPE BA-12A

FEATURES

- High output signal level allows use as line amplifier, turntable booster, microphone preamplifier or isolation amplifier (including line to line)
- Excellent frequency response—±1 db 30 to 15,000 cycles
- Low distortion and hum level
- Self-contained power supply
- Compact — two BA-12A's may be mounted on one BR-2A shelf
- May be mounted inside turntable cabinet
- Plug-in electrolytic capacitors
- Plug-in chassis assures simplified servicing



USES

RCA's BA-12A is a versatile, two stage high fidelity utility amplifier designed to serve as a microphone preamplifier, turntable booster amplifier, line amplifier or isolation amplifier—including line-to-line. Its high gain (40 db), extremely low noise level and low distortion make it an ideal unit for use as a microphone preamplifier, or turntable or booster amplifier. Its high output level makes it applicable for use as a line amplifier. It may also be used as an isolation amplifier operating from a zero to +40 vu feeder bus by the addition of an MI-11278-C or MI-11278-D bridging volume control. Where cabinet rack mounting is desired, two of these units may be installed in a single BR-2A Panel and Shelf Assembly. When used as a turntable booster amplifier, the BA-12A may be mounted inside the turntable cabinet.

DESCRIPTION

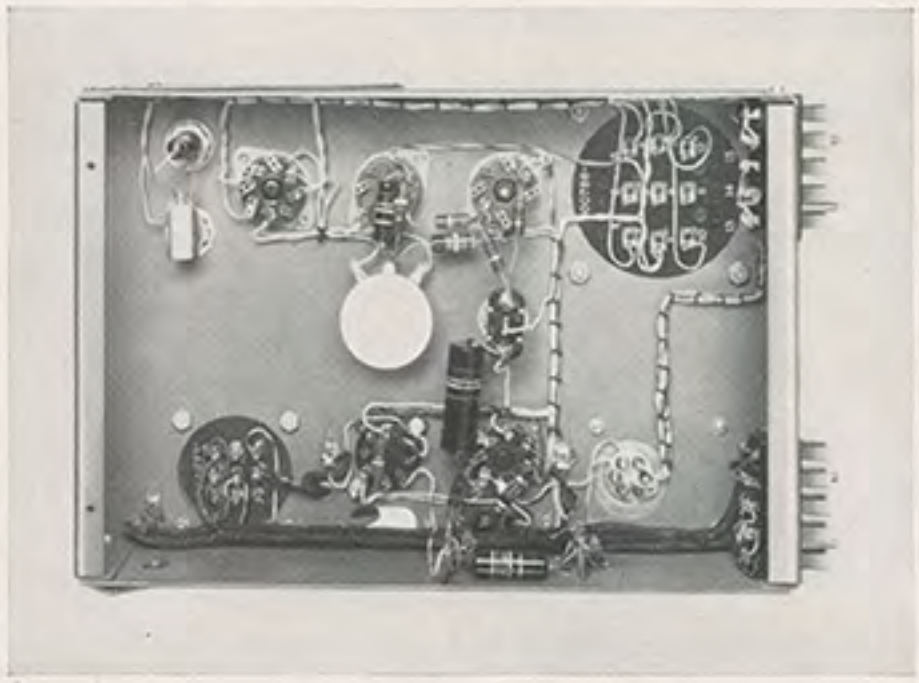
The BA-12A has been designed to obtain high gain from two RCA 1620 tubes; one operated as a pentode, the other as a triode. The tubes are mounted vertically and the first stage is shock mounted to prevent microphonics. The circuit is conventional with unloaded transformer input, resistance-capacitance coupling between stages and transformer output. The distortion and hum level has been reduced to a very low value through proper circuit design and through the use of stabilized feedback.

The amplifier is complete with built in a-c power supply which eliminates the need for external rectifiers. The hum and noise level has been kept to a very low value through the use of specially shielded power and audio transformers. A switch is provided for metering a portion of

DESCRIPTION (Cont'd)

the cathode voltage of each tube when connected to a high resistance voltmeter such as the Type BI-1B.

With the addition of the MI-11278-C or MI-11278-D volume control kit to provide a 10,000 ohm input, the BA-12A may also be used as a bridging or isolation amplifier. The MI-11278-D kit can be mounted on the BA-12A chassis and be adjusted by screw driver through one of access holes in the front panel of a BR-2A Shelf and Panel Assembly. The MI-11278-C is intended for panel mounting remote from the amplifier. With matching input, the BA-12A Amplifier has a maximum gain of 40 db. As a bridging amplifier, the BA-12A has a maximum gain of 4 db with the volume control at minimum loss position and bridging a 600-ohm line.



View of BA-12A Utility Amplifier Chassis showing component wiring

SPECIFICATIONS

BA-12A AS PREAMPLIFIER, BOOSTER, OR LINE AMPLIFIER:

Source Impedance.....30/150/600 ohms

Input Impedance (unloaded input transformer)
Substantially above source impedance

Load Impedance (balanced or unbalanced).....150/600 ohms

Maximum Input Level.....—22 dbm

Maximum Output Level (less than 0.5 rms dist. 50-15,000 cps).....+18 dbm

Insertion Gain.....40 db

BA-12A AS ISOLATION AMPLIFIER (WITH MI-11278-C or -D VOLUME CONTROL):

Source Impedance.....30 to 600 ohms

Input Impedance (through Volume Control).....10,000 ohms

Load Impedance (balanced or unbalanced).....150/600 ohms

Maximum Input Level, Volume Control at max.:
Bridging 600 Ohms.....+14 dbm
Bridging 150 Ohms.....+20 dbm

Maximum Output Level.....+18 dbm

Maximum Gain, 600 Ohm Source.....4 db

BA-12A AS PREAMPLIFIER, BOOSTER AMPLIFIER OR ISOLATION AMPLIFIER:

Frequency Response.....±1 db 30-15,000 cps

Noise Level (input and output terminated).....—80 dbm

Equivalent Input Noise.....—120 dbm

A-c Power Input.....105/125 volts, 50/60 cycles (15 watts)

Dimensions, Overall.....Length 14", Width 8", Height 6½"

Finish.....Umber gray

Weight (unpacked).....11 lbs.

Stock Identification (less tubes).....MI-11232

Accessories

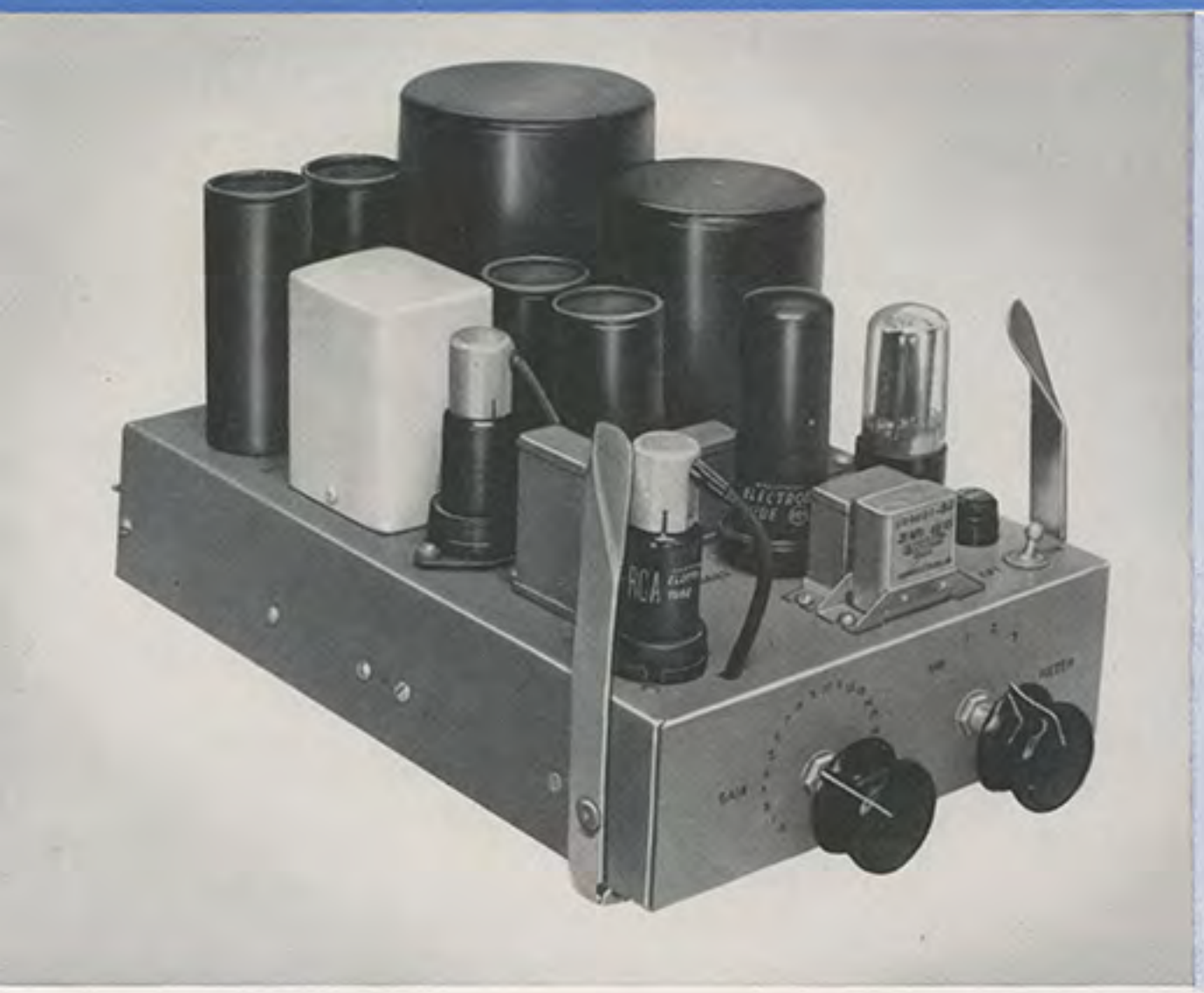
Tube Kit (2 RCA 1620, 1 RCA 6X5GT/G).....MI-11287

Volume Control Kit:
Bridging (Chassis Mounting).....MI-11278-D
Bridging (Panel Mounting).....MI-11278-C

BR-2A Panel and Shelf Assembly
(holds 2 BA-12A's).....MI-11598-B/11599

PROGRAM AMPLIFIER,

TYPE BA-13A



FEATURES

- Plug-in type—may be mounted in cabinet or panel and shelf
- Employs oil-filled capacitors, plug-in electrolytics and terminal board connections throughout
- Maximum of accessibility and uninterrupted service is assured
- Excellent frequency response
- High gain—low distortion—low noise level
- Provision for cathode metering
- Economical in price

USES

The new BA-13A amplifier is one of the most versatile high-fidelity amplifiers yet designed for broadcast service. It incorporates special, high-quality, long-life components throughout and provides a maximum of accessibility to all circuit components. Its high gain and low distortion makes it ideal for use as: (1) Program or Line Amplifier, (2) Bridging Amplifier, (3) Isolation Amplifier, (4) Cueing Amplifier or Monitoring Amplifier with approximately 2 watts output.

The BA-13A is a plug-in type amplifier which has been designed for use with the BR-2A Panel and Shelf. This shelf permits quick and easy removal for servicing or interchanging units. The Type BR2A shelf assembly provides mounting space for the two Type BA-13A amplifiers.

DESCRIPTION

The BA-13A employs the latest in mechanical layout and design, uses only oil-filled capacitors, resistors with plenty of wattage rating in reserve, and "plug-in" type electrolytics. Thus, long-life, trouble-free operation and extreme accessibility of parts is assured. All resistors are brought

"Plug-in" type electrolytics provide long-life operation and maximum accessibility.

DESCRIPTION (Cont'd)

out to terminal boards for maximum convenience. The new BA-13A retains many of the electrical design features of its popular predecessor, the BA-3C. It is a three stage amplifier employing one RCA 1620 pentode first stage, one RCA 1622 beam power output tube. Excellent frequency response, high gain and low distortion have been provided in the design of this amplifier by use of resistance-capacitance interstage coupling and stabilized feedback. The noise level has been kept extremely low by the use of a dual volume control which simultaneously controls the gain of the first and second stages. When a step type control is required an MI-11233 amplifier should be ordered.

A special design feature of the BA-13A permits a boost of the low, the high or the low and high frequencies as shown in the accompanying frequency response curve. This feature aids in obtaining an overall system flat response since compensation may be added to overcome high frequency losses in the inter-connecting lines or inadequate low frequency response of associated equipment. High frequency compensation is easily made by changing one resistor and one capacitor. Low frequency compensation is effected by changing two resistors and adding two capacitors.

All external connections to the BA-13A are made through the ten-prong male plugs, which engage with two mating sockets supplied with the amplifier. Connections are provided from each cathode circuit through a selector switch to terminals on the plug in the back of the amplifier. These connections permit metering of tube conditions by means of a high resistance voltmeter such as the RCA Type BI-1B and Type BI-2B.

The amplifier is complete with built-in a-c power supply. The rectifier used is 1 RCA 5Y3GT.

SPECIFICATIONS

Source Impedance.....150/600 ohms

Input Impedance (balanced—center tap grounded:
- a. Matching (50-15,000 cps).....150/600 ohms
- b. Bridging (50-15,000 cps).....20,000 ohms (approx.)

Maximum Input Level:
- a. Bridging (less than .5% rms distortion 30 to 15,000 cycles).....+30 dbm*
- b. Matching (with less than .5% rms distortion 30 to 15,000 cycles).....+10 dbm

Load Impedance (tapped transformer).....5/7.5/18/150/600 ohms

Output Level:
- Less than .5% rms Distortion 30-15,000 Cycles.....+18 dbm
- Less than 1% rms Distortion 30-15,000 Cycles.....+30 dbm
- Less than 1% rms Distortion 50-15,000 Cycles (2 watts).....+33 dbm

Gain Maximum:
- a. Matching Input (600 ohm line to 600 ohm load).....65 db
- b. Bridging Input (600 ohm terminated line to 600 ohm load)....28 db

Frequency Response (30 to 15,000 cps).....±1 db

Noise Level (for +30 dbm output, max. gain).....—82 db

A-c Power Input, 100 to 130 volts, 50/60 cycles.....55 watts

Dimensions, Overall.....Length, 13¾"; Width, 8"; Height, 7⅛"

Finish.....Light umber gray

Weight (unpacked).....17½ lbs.

Stock Identification (less tubes):
- With Carbon Volume Control.....MI-11233-A
- With Step-by-Step Control.....MI-11233

Accessories

Tube Kit (complete tube complement):
2 RCA-1620, 1 RCA-1622, 1 RCA-5Y3GT/G.....MI-11266

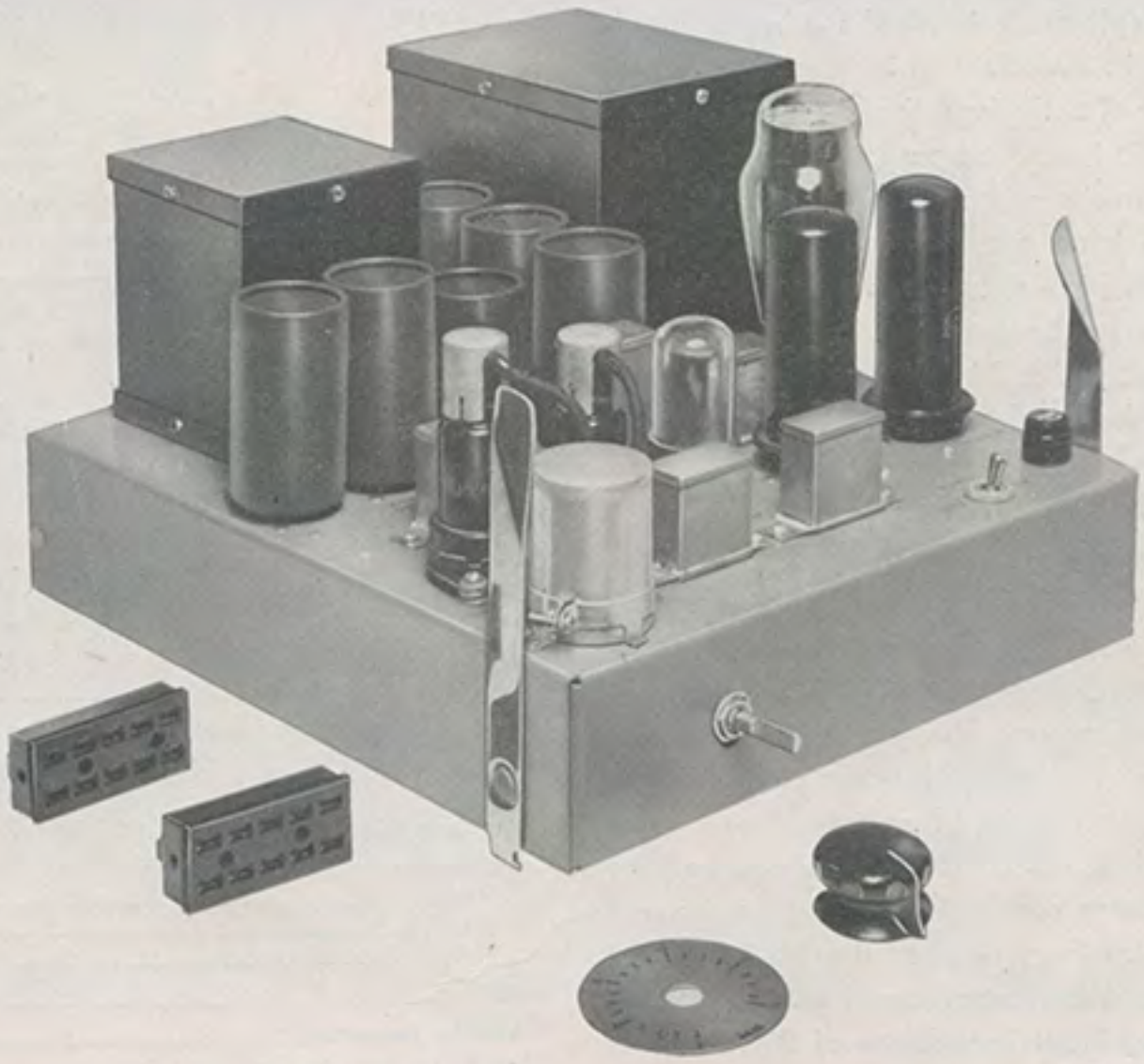
BR-2A Panel and Shelf Assembly U/G.....MI-11598-B/11599

Type BI-1B Meter Panel U/G.....MI-11388

* dbm = db referred to one milliwatt when single frequency tone modulation is used.

MONITORING AMPLIFIER

TYPE BA-14A



FEATURES

- Excellent frequency response to 15,000 cycles
- Heavy-duty components. Will operate continuous duty with ambients up to 120° F.
- Suitable for emergency use as program amplifier
- Use oil filled paper capacitors and plug-in electrolytic capacitors
- Sufficient gain for direct operation of a speaker from turntable output
- High gain—used directly in talk-back circuits, without preamplifier
- 12 watts output with low distortion—uses feedback
- Suitable for cabinet or panel mounting
- Compensator Kit supplied for boosting response at 60 and 15,000 cycles
- Ideal for recording and playback applications
- Economical in price

USES

The BA-14A is a high fidelity, high gain flexible 12 watt amplifier suitable for monitoring, audition, recording, and talk-back applications or it may be used in emergencies as a program or line amplifier. It is ideal for transcription playback booths since its 105 db gain is sufficient to operate an LC-1A Speaker directly from the output of a 70-D Turntable. The high gain feature also allows its use directly in studio talk-back circuits without an intervening preamplifier. The BA-14A is an excellent recording amplifier being suitable for both high quality recording and playback applications. It may be mounted in a type BR-2A Panel and Shelf Assembly. The BA-14A has a plug-in type chassis using multi-conductor plugs.

DESCRIPTION

Employing metal tubes in the audio circuits, this amplifier has four stages consisting of: (1) RCA-1620 single stage, (2) RCA-1620 single stage, (3) single stage with RCA-6SN7-GT phase inverter, and (4) 2 RCA-1622's in push-pull. Feedback is used around the phase inverter and output tubes to reduce noise and distortion. Gain adjustment is provided through the use of an interstage control in the grid circuit of the second RCA-1620 tube. An MI-11278-B remote volume control is a potentiometer and resistance network which is used when the BA-14A input is to be bridged across a low impedance line. This control provides for a bridging input impedance of 20,000 ohms and may be placed on the side of a speaker cabinet, on a console panel, or at any other point within two or three hundred feet of the amplifier. Where the normal flat frequency response is not desired by the customer, a boost of the low and high frequencies may be made by connecting additional resistors and capacitors which are supplied with the amplifier. A +5.0 db boost at 60 cycles is accomplished by adding a resistance capacity network into the plate circuit of the second stage. A +6.0 db boost at 15,000 cycles is accomplished by adding a resistance capacity network into the cathode circuit of the third stage.

The amplifier is complete with a heavy-duty built-in power supply. The hum level has been kept to a low value through the use of a multiple-case shielded input transformer. The amplifier is designed to supply a low-distortion output of 12 watts.

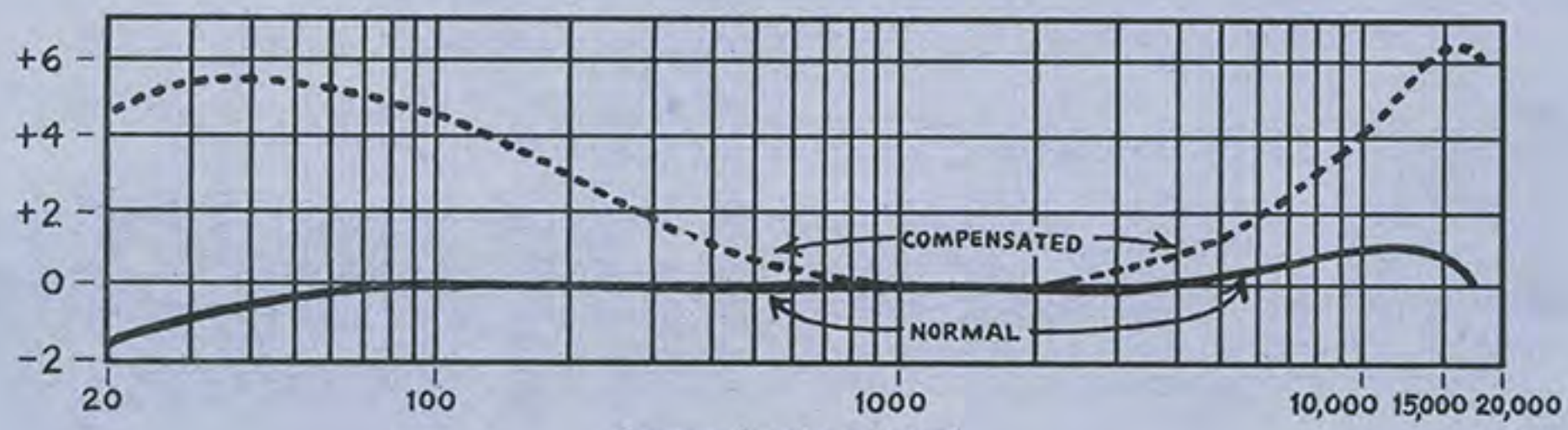
SPECIFICATIONS

Source Impedance (unloaded transformer input)	150/600 ohms
Bridging Impedance (when used with remote volume control)	10,000 ohms
Load Impedance	600/150/15/7.5/5 ohms
Audio Power Output (rated output with less than 3% total rms distortion 50-7500 cycles)	12 watts +40.8 dbm*
Maximum Input Level:	
(a) Matching (less than 1% rms distortion)	−27 dbm
(b) Bridging (less than 1% rms distortion)	+40 dbm
Maximum Gain:	
(a) Overall from 150 or 600 ohm source to a 15 ohm load	105 ±2 db
(b) With bridging volume control, 600 ohm terminated line to 15 ohm or 600 ohm load	73 db
Frequency Response (see curve) 150 or 600 ohm source to 15 ohm load	±2 db, 30-15,000 cycles
Noise Level (with gain control in maximum position and input and output terminated with 600 ohms)	Less than −17 dbm at output Less than −122 dbm referred to input
A-c Power Input (105-125 volts, 50-60 cycles)	105 watts
Dimensions, overall:	
Width	10¾"
Depth	11¾"
Height	7½"
Finish	Light umber gray
Weight (unpacked)	21¼ lbs.
Stock Identification (less tubes)	MI-11234-A

Accessories

BR-2A Panel and Shelf, U/G	MI-11598-B/MI-11599
Tube Kit (complete tube complement) 2 RCA-1620, 1 RCA-6SN7-GT, 2 RCA-1622, 1 RCA-5R4GY	MI-11267
Alternate Tube Kit (complete tube complement) 2 RCA-6J7, 1 RCA-6SN7-GT, 2 RCA-6L6/G, 1 RCA-5R4GY	MI-11267-A
Note: 6J7's may be substituted for RCA-1620's and 6L6's for RCA-1622's when maximum uniformity of characteristics and minimum of microphonics, hum and distortion are not required.	
Remote Volume Control	MI-11278-B

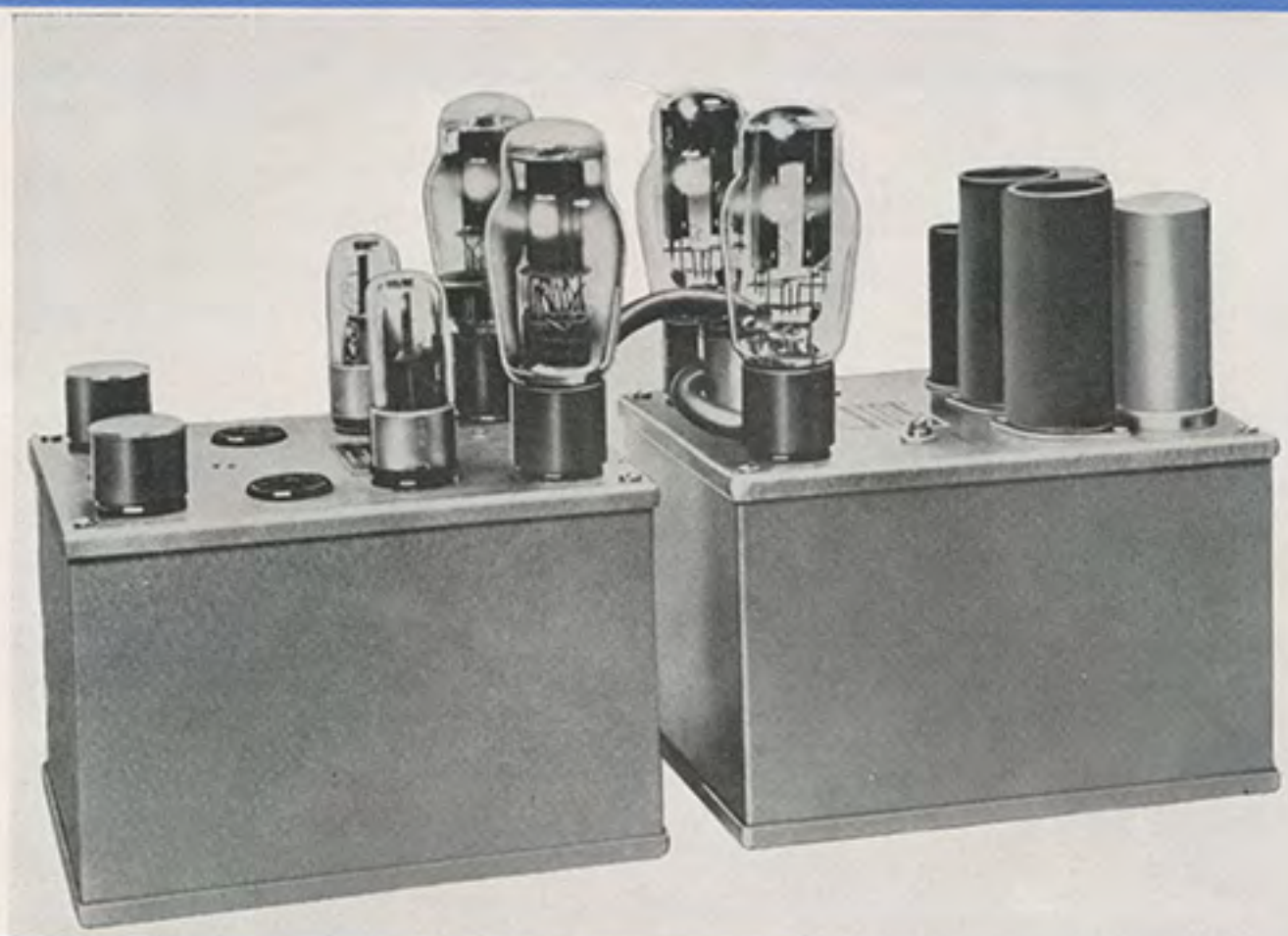
* Reference level one milliwatt.



Frequency in cycles per second.

MONITORING AMPLIFIERS

MI-11236A (50 WATT) AND MI-11229 (30 WATT)



50 Watt Amplifier MI-11236-A.

FEATURES

- Low distortion—less than 1%
- Compact, lightweight units
- High quality components
- Low noise level
- Low phase shift distortion
- Simplified servicing

USES

These McIntosh amplifiers, Model A-116 (30 Watt) and Type 50W-2 (50 Watt) find particular application where higher power amplifiers are desired. These amplifiers provide high efficiency and low distortion features for use as Broadcast monitoring or recording amplifiers or as general purpose amplifiers.

30 Watt Amplifier MI-11229.

SPECIFICATIONS

Model A-116 (30 Watt)

Power Supply.....117/125 volts, 60 cycles

Power Consumption.....135 watts at 30 watts output
105 watts at zero signal output

Power Output.....30 watts continuous

Frequency Response.....20 to 30,000 cycle ±1 db at 30 watts output
10 to 50,000 cycles ±.5 db at 30 watts output
10 to 100,000 cycles ±1 db at 15 watts output

Input Level:
Input #1.....5 volts to 30 volts with gain control
Input #2.....2.5 volts

Harmonic Distortion.....Less than 0.5% at 30 watts output or less, 20 to 20,000 cycles

Intermodulation Distortion.....Less than 1% if instantaneous peak power is below 60 watts for any combination of frequencies 20 to 20,000 cycles.

Noise Level.....85 db or more below rated output

Input Impedance.....0.5 meg. for 2.5 volt input and 0.25 meg. for 0.5 volt input from 20 cycles to 40 Kc

Output Impedance.....4, 8, 16 and 600 ohms (600 ohm is balanced to ground)

Phase Shift.....2.5 volt input 20 cycles 8.5°, 20,000 cycles 4.5°

Tube Complement:
Rectifier.....5U4-G
Pre-Amp.....12AX7
Phase Inverter.....12AU7 or 12BH7
Driver.....12BH7
Output.....2—6BG6-G

Dimensions.....Length 12", Width 8", Height 8¼"

Net Weight.....33 lbs.

Finish.....Gray hammertone

Stock Identification, with Tubes.....MI-11229

Model 50 W-2 (50 Watt)

Power Supply.....117 volts, 60 cycles

Power Consumption.....185 watts at 50 watts output
120 watts at zero signal output

Power Output.....50 watts continuous

Gain.....Basic amplifier, 40 db, 70 db with pre-amp, 90 db maximum with transformer

Frequency Response.....20 to 20,000 cycles ±.1 db
10 to 100,000 cycles ±3 db

Distortion.....Less than 1% at 50 watts output, 20 to 20,000 cycles

Intermodulation Distortion.....Less than 1% for instantaneous peak power of 100 watts, 20 to 20,000 cycles

Noise Level.....90 db below full output, 70 db when pre-amp is used

Input Impedance.....100,000 ohms—without transformer
50, 250, 600 or 20,000 ohms—with transformer

Output Impedance.....4, 8, 16, 32 ohms balanced or unbalanced and 600 ohms balanced with connections to octal plug

Tube Complement:
Rectifier.....2—5U4G
Amplifier.....1—12AX7, 2—6J5, 2—6L6G or 5881

Dimensions....2 units, power supply and amplifier, each 8⅛"x6¾"x5¼"

Net Weight (amplifier and power supply).....55 lbs.

Finish.....Gray hammertone

Stock Identification, with Tubes.....MI-11236-A

Accessories

Transformer (input) (M-107).....MI-11739

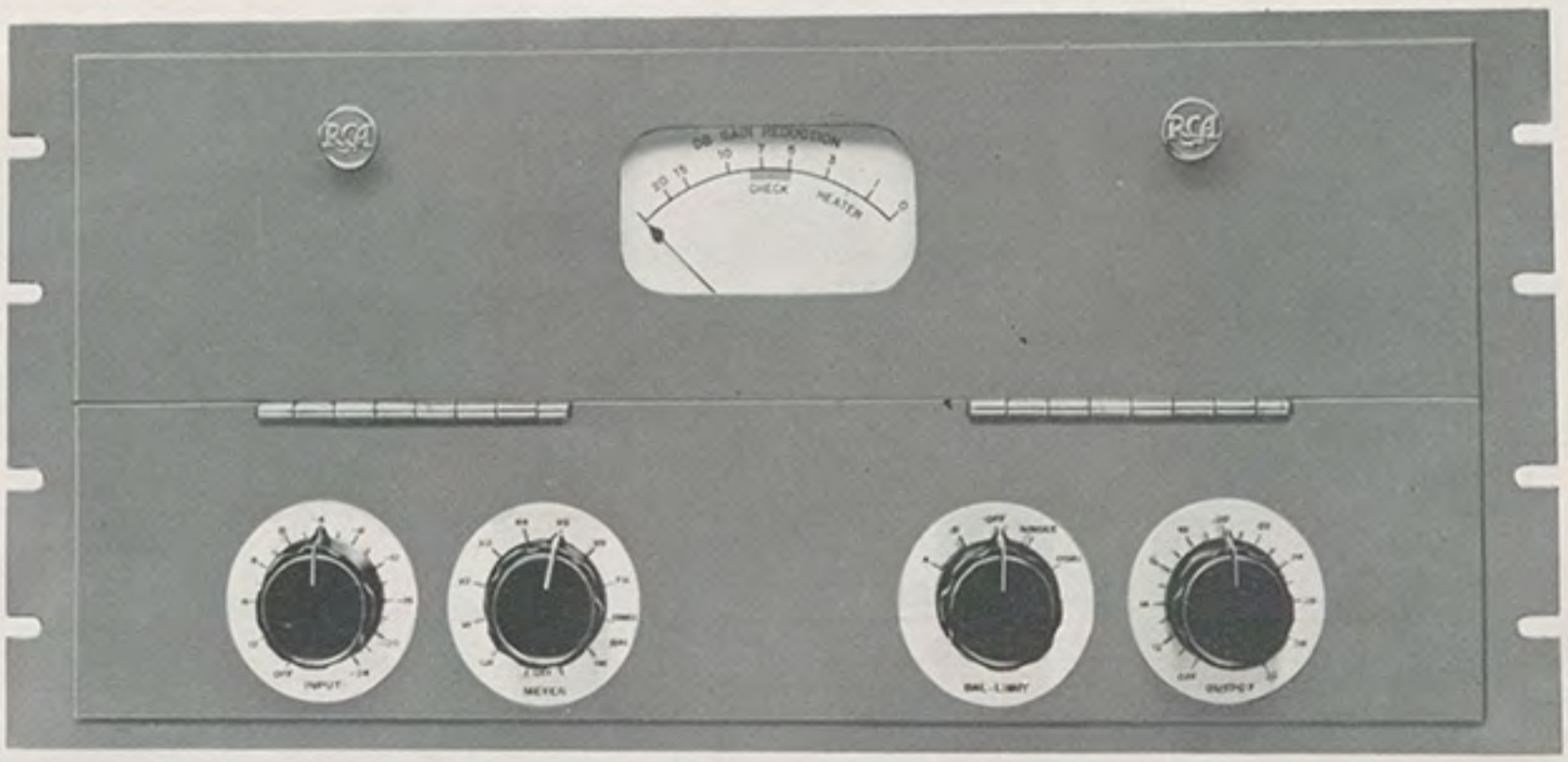
Pre-amplifier (B-100A).....MI-11240

The Type B-100A preamplifier, MI-11240, permits an additional gain of 30 db. It is installed by merely plugging it into the "Preamp" position on the amplifier chassis.

The addition of Type M-107 Plug-In Input Transformer, MI-11739, provides input impedances of 600/250/50. It also provides additional gain of 12 db through the 600 ohm winding, 17 db through the 250 ohm winding and 26 db through the 50 ohm winding.

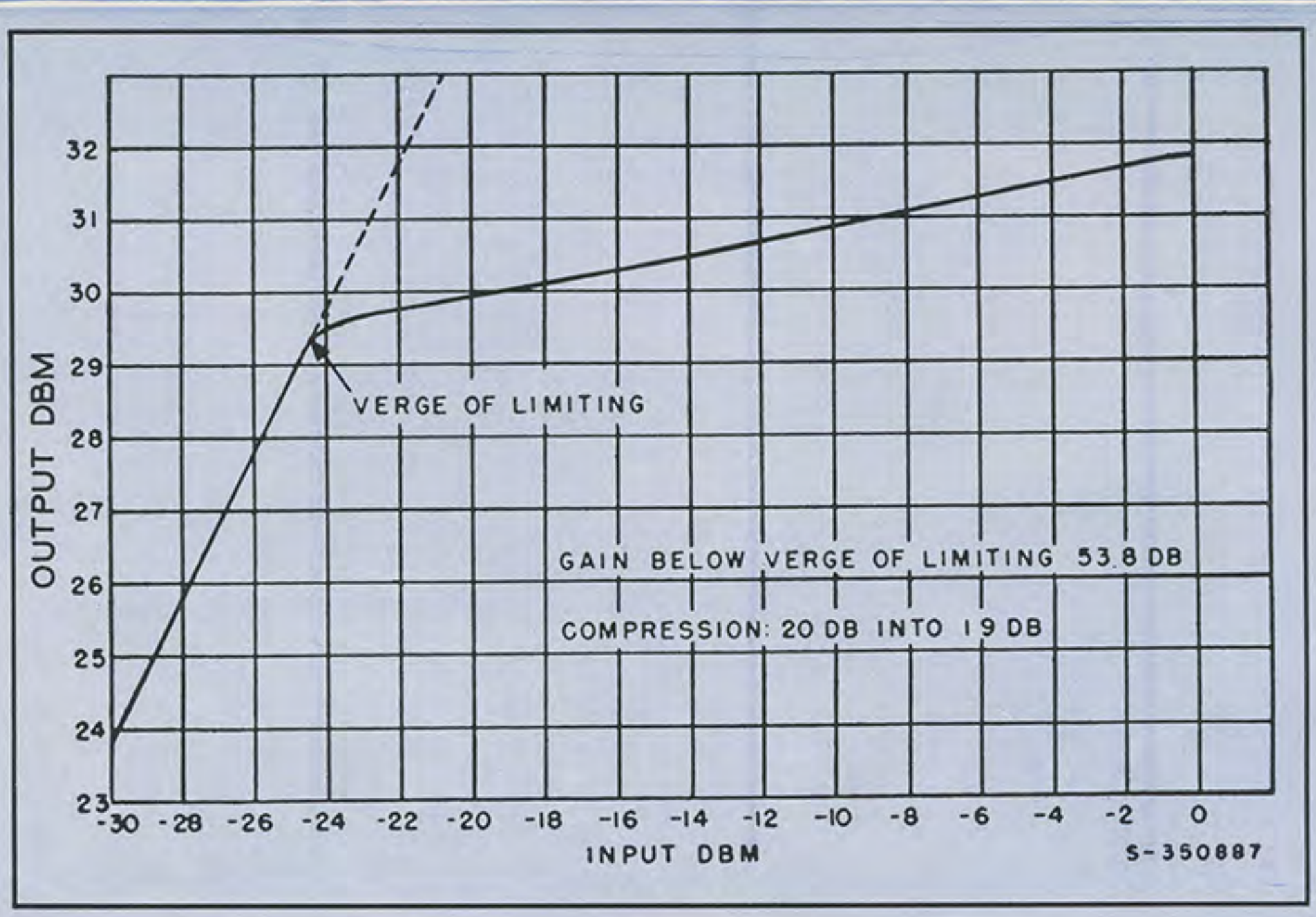
LIMITING AMPLIFIER

TYPE BA-6A



FEATURES

- No matched tubes required
- Economical in price—high-quality performance
- Low power input requirement
- High maximum output level, 30 dbm
- Good overall frequency response (±1 db, 30-15,000)
- Low noise level—low distortion
- Compact, plug-in unit—requires little rack space
- Adjustable output pad provided
- Choice of single or dual time constant
- Prevents distortion and adjacent channel interference
- Provides for a more effective use of transmitter power
- Complete rotary switch selection of metering of all key functions provided



USES

The BA-6A Limiting Amplifier has been designed to provide economical, yet high-quality operation in the speech input channels of FM and AM broadcast and TV sound transmitters. It serves as an automatic means of limiting the audio signal peaks to a certain pre-determined level thereby preventing overmodulation or overloading with its consequent distortion and adjacent channel interference. This amplifier also provides for a more effective use of transmitter power by allowing the system to be operated as near maximum output as possible. It raises the average percentage modulation level several db without appreciably increasing the harmonic distortion.

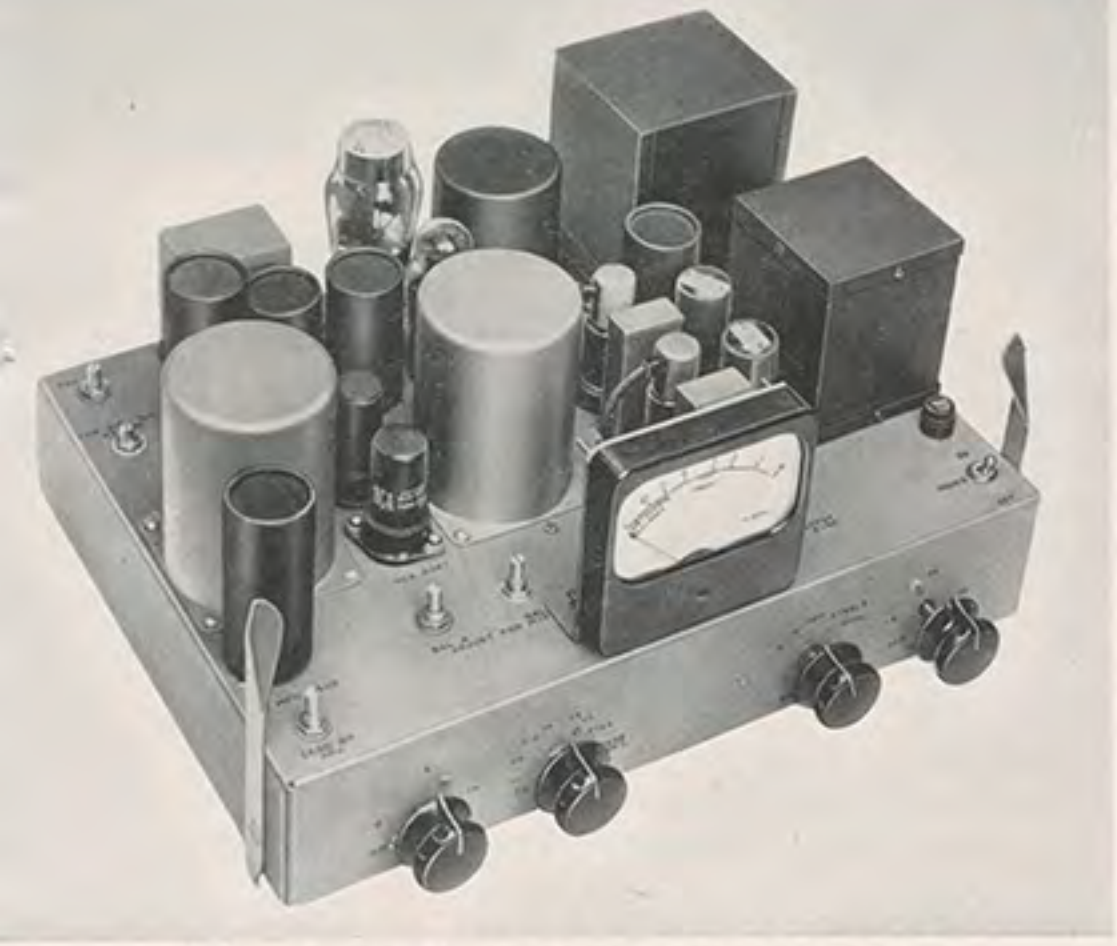
The limiting characteristics of the BA-6A also readily adapt it for use in recording applications. For this use, it prevents over-cutting of the recording disc on heavy passages of music or speech and permits a marked improvement in the signal to noise ratio. Thus, the BA-6A Limiting Amplifier is an essential item for the successful operation of every broadcasting station and recording studio.

DESCRIPTION

The BA-6A is a balanced, three-stage amplifier which uses commonly available tube types that do not require special selection or matching. The use of high-quality components and the straightforwardness of design, employing only 9 tubes including rectifier and voltage regulator, insure a maximum degree of reliability. Fewer tubes, fewer types (only 6) and fewer stages of simplified design result in lower tube costs, low initial cost and reduced power input requirements.

The BA-6A Limiting Amplifier also incorporates those features which are found in other RCA high-quality broadcast audio amplifiers. The amplifier with its self-contained power supply is constructed on a plug-in chassis for shelf mounting and is therefore readily removable for inspection and service. All controls, tubes, and plug-in capacitors are accessible from the front.

A rotary selector switch permits use of the four-inch illuminated meter for measuring gain reduction, the cathode



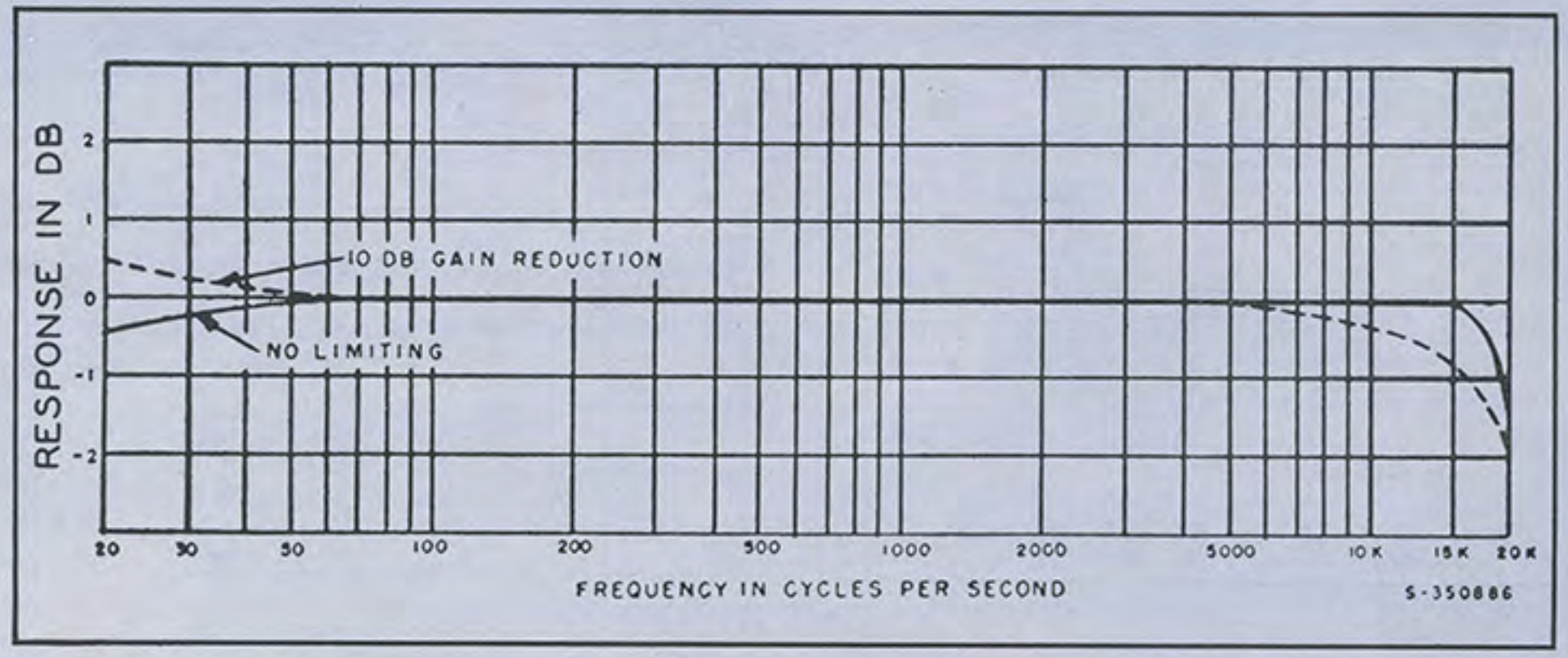
Limiting Amplifier chassis showing position of components

current of all amplifier tubes, tube balance and d-c filament voltage. Plate and heater power are available for operating a pre-amplifier in applications where additional gain is required. The rotary switch (BAL-LIM) provided on the front panel also permits selection of a filter with either a single or dual time constant. In the "single" position the attack time is 0.0006 seconds. In the "dual" position the recovery time is lengthened to two seconds on sustained peaks.

The input transformer matches a 600 and 150-ohm line. A dual attenuator controls the input signal which is applied to the control grids of two 6SK7 remote cut-off pentodes of the variable gain stage. To minimize "thump" over a wide range of gain reduction, both the screen and cathode voltages of these tubes are adjustable and thus any pair of tubes may be balanced over the entire operating range. Switches on the front panel permit making the balancing adjustments quickly and without external equipment by applying an internal 60-cycle signal to the 6SK7 grids and using the front-panel meter to indicate balance.

As an additional means of maintaining balance, the first stage is transformer coupled to the second stage. The output stage is capable of delivering 10 watts to an adjustable 600-ohm output attenuator pad which is calibrated in 1 db steps. A continuous fine output adjustment is also provided to set the output level exactly. This is an important feature since a fraction of a db change in output level might result in a large increase of distortion in certain types of transmitting equipment.

A full wave rectifier, connected to the output stage through coupling capacitors and isolating resistors, provides the gain control voltage. The rectifier tube will not conduct



until the output signal exceeds the limiting level. A rectified voltage is applied to the control grids of the tubes and the higher the output level tends to become, the more the gain is reduced. The compression ratio thus obtained is 10 to 1.

Step-by-step input and output volume controls are provided. These controls are equipped with "dbm" scales to indicate input and output levels at the verge of compression. Auxiliary adjustable controls are: (1) hum balance, (2) zero adjustment of gain reduction meter scale, (3) vernier control for output level, and (4) balance, (5) heater voltage. It also provides two positions for balancing of tubes in the first stage. A power switch and fuse are provided. For rack mounting the MI-11599 Shelf should be used. A special umber gray door panel with meter cut-out is supplied with the BA-6A amplifier.

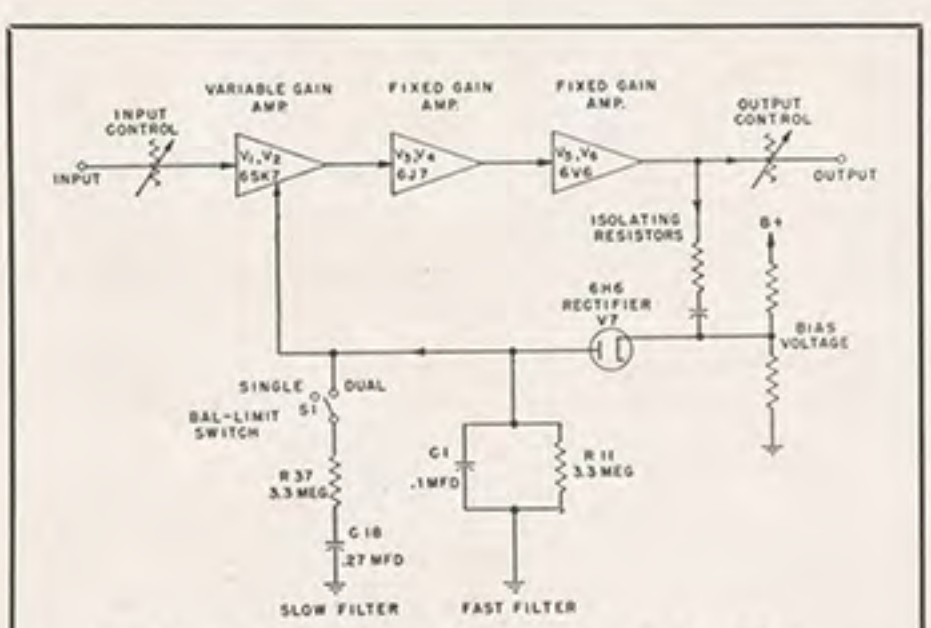
SPECIFICATIONS

Source Impedance.....600/150 ohms

Input Impedance.....600/150 ohms, balanced or unbalanced

Frequency Response:
(30 to 15,000 cps, 1000 cps reference)
Below verge of limiting.....±1 db
Up to 20 db gain reduction.....+1 to −2 db

Input Level:
Minimum (at limiting verge).....−24 dbm
Maximum .....+14 dbm



Simplified block diagram of BA-6A Limiting Amplifier.

Output Level:
Maximum (limiting off) at 1000 cps.....38.5 dbm
At verge of limiting with output controls in minimum attenuation position.....29.5 dbm ±1 db

Gain.....54 db ±1 db at 1000 cps, 600-ohm source to 600-ohm load

Gain Controls:
Input.....20 steps, 2 db per step
Output.....20 steps, 1 db per step and fine adjustment

Signal-to-Noise Ratio.....83 db at verge of limiting

Harmonic Distortion (Total RMS) 12 db gain reduction (100-15,000 cycles).....Less than 1%
No gain reduction, 30 dbm output.....Less than 0.6% 50-15,000 cps
Less than 1.2% 30 cps

Limiting Characteristic:
Output at verge of limiting.....29.5 dbm ±0.5 dbm, output control in maximum gain position
Compression ratio above verge of limiting.....20 db into 2 db

Time Constants:

	Attack	*Release*
Single	600 microsec.	0.33 sec.
Dual, Fast Action	600 microsec.	0.33 sec.
Dual, Slow Action	0.9 sec.	2 sec.

Tube Complement (not included with amplifier).....MI-11289
2 RCA 6SK7, 2 RCA 6J7, 2 RCA 6V6GT,
1 RCA 6H6, 1 RCA OD3/VR150, 1 RCA 5R4GY

Power Required (Transformer taps provided for 105, 115, and 125 v.) (100 to 130 v., 50-60 cy.).....105 watts

Dimensions:
Chassis.....16 3/16" long, 11 3/4" wide, 3" high
Overall.....16 3/16" long, 14" wide, 7 5/8" high

Weight .....37 lbs.

Finish.....Dark umber gray

Mounting.....Plug-in mounting on MI-11599 Shelf

Stock Identification (including front panel less tubes).....MI-11225

Accessories

Tube Kit (complete tube complement).....MI-11289

Shelf MI-11599

REMOTE AMPLIFIER

TYPE BN-2A

FEATURES

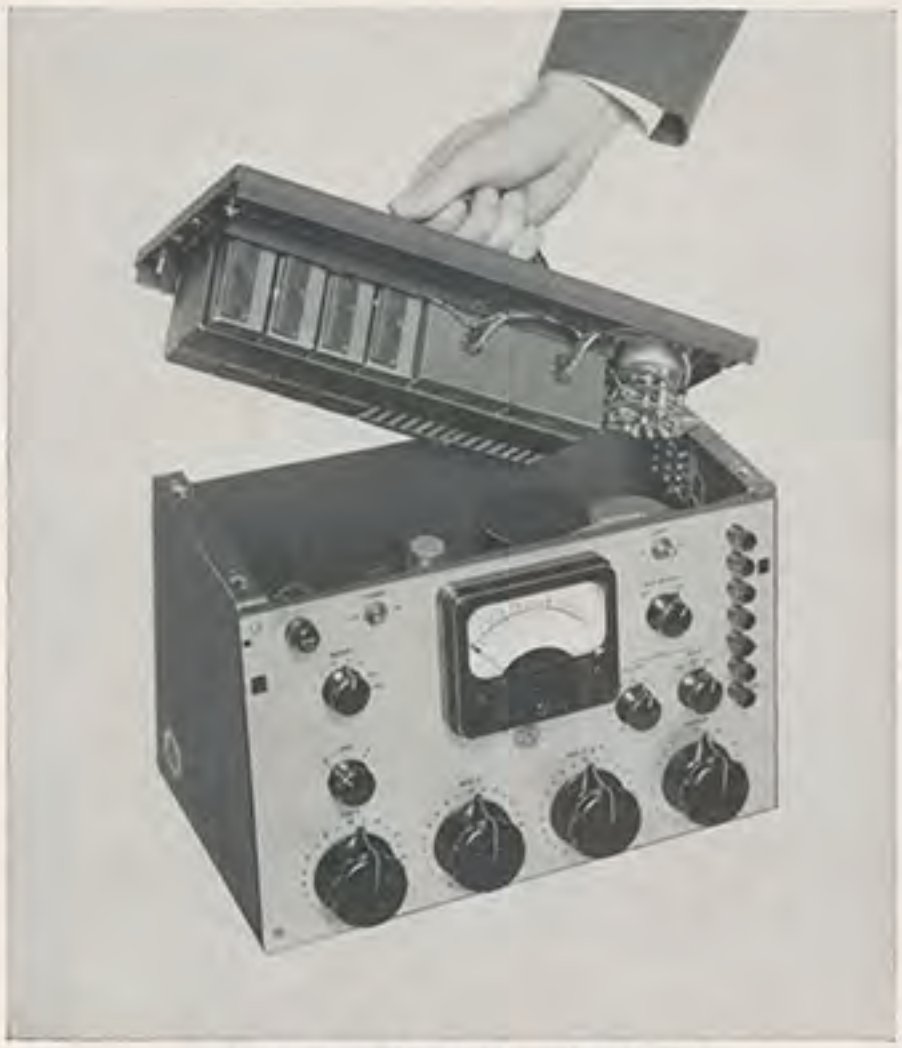
- High level mixing—15 to 20 db reduction in noise level
- Portable, compact and completely self-contained for a-c or battery operation
- Excellent frequency response ±1 db 30 to 15,000 cycles
- Low distortion—less than 1% for complete range
- Complete range facilities for feeding the PA amplifier and the program channel simultaneously
- Battery Cover Pack MI-11279 available

USES

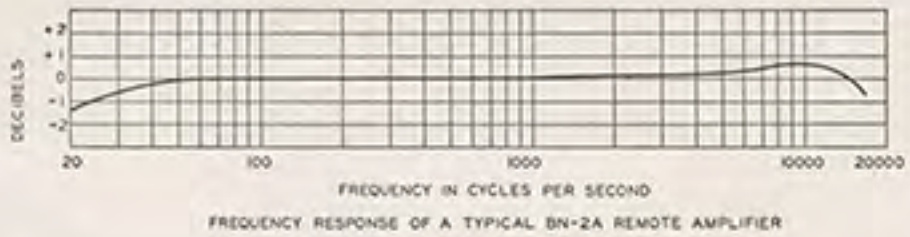
The BN-2A is a lightweight, three channel amplifier designed especially for remote broadcast use. It has capacity for four microphone inputs, the third and fourth switchable to Channel 3. Program may be fed to the output channel and to a PA amplifier simultaneously. Also the cue circuit may be switched to isolate the remote amplifier and feed the PA direct. Monitoring facilities in both circuits are provided.

The input circuits are isolated in the same manner as a consolette, so that no special precautions are necessary in the grounding of microphones. Microphones with input impedances from 30 to 250 ohms can be accommodated by the same amplifier.

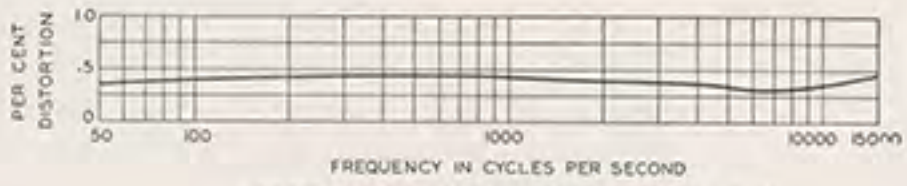
The unit is completely self-contained for a-c operations. By adding Battery Cover Kit, MI-11279, the unit can be operated on a-c or battery by the flip of a switch, the batteries being carried inside the unit.



Batteries may be neatly self-contained using Battery Cover Pack, MI-11279



FREQUENCY RESPONSE OF A TYPICAL BN-2A REMOTE AMPLIFIER



DISTORTION CHARACTERISTICS OF A TYPICAL TYPE BN-2A REMOTE AMPLIFIER WITH OUTPUT OF 18DBM.

DESCRIPTION

The BN-2A consists of a three stage, resistance-capacitance coupled amplifier combined with three individual input channels for each mixing stage. Each input channel uses a high quality balanced transformer with electrostatic shielding, operating into a non-microphonic RCA 1620 tube. These tubes are connected with each mixer in parallel to feed the first stage of the main amplifier. This stage employs another RCA 1620 pentode connected with feedback from the master gain control, which is a high grade step-by-step attenuator. The second and third stages each utilize a 6J7 pentode connected to the output transformer. Further feedback is taken from the plate of the last stage to the second stage cathode, resulting in an excellent frequency response with exceptionally low distortion. Each channel offers an overall gain of 92.5 db; more than adequate for any application. The high level mixing reduces microphonics and general noise level by at least 15 to 20 db. High level mixing also means unloaded input circuits, so that microphone response is better.

A line switch allows the operator to turn off the feed from the amplifier to the program line. Another switch connects the PA feed to the amplifier, or to the cue line with a third position for "Off". The volume to the PA feed is on a separate control.

The front panel is attractively styled and arranged to give centralized control of all circuits. The standard size VU meter is provided for measuring tube voltages in the cathode circuit and output level. A switch position for feeding +8 VU to line when the meter is reading 0 is also provided.

The steel case is ruggedly constructed with the front cover easily removed for quick operation. Accommodation for carrying spare tubes and fuses is provided within the case.

External connections located in the rear of the chassis include four, Cannon 3-connector microphone receptacles and the 12-conductor plug for either a-c or battery operation. The power supply is built into the amplifier and employs one RCA 6X5GT full-wave rectifier tube.

If an emergency battery supply is desired, the top of the case can be removed by loosening four quick-disconnect screws and the MI-11279 kit added in its place. The battery unit plugs into the amplifier in the usual place and a standard extension cord can be used for the a-c. A switch allows quick switching to batteries if the a-c fails.

SPECIFICATIONS

Source Impedance	30/150 ohms
Load Impedance	500/600 ohms
Normal Output Level	+8 VU
Distortion (+18 db output 50 to 15,000 cycles)	Less than 1% rms
Maximum Output Level (less than 1% rms distortion)	+18 dbm
Maximum Gain (150 ohm source to 600 ohm load)	92.5 db
Frequency Response	±1 db 30 to 15,000 cycles
Signal to Noise Ratio (18 db output, 68 db gain)	70 db
A-c Power Input	105-125 volts, 50/60 cycles, 25 watts
Battery Operation:	
"A" Supply	6.3 volts (nominal) 2.1 amps. (incl. VU lamp)
"B" Supply	270 volts (nominal) 10 MA
Dimensions:	
Length	15"
Depth (with cover)	9½"
Height	10"
Weight	29 lbs. (complete with a-c cable and spare tubes)
Finish	Umber gray wrinkle
Stock Identification (less tubes)	MI-11230

Accessories

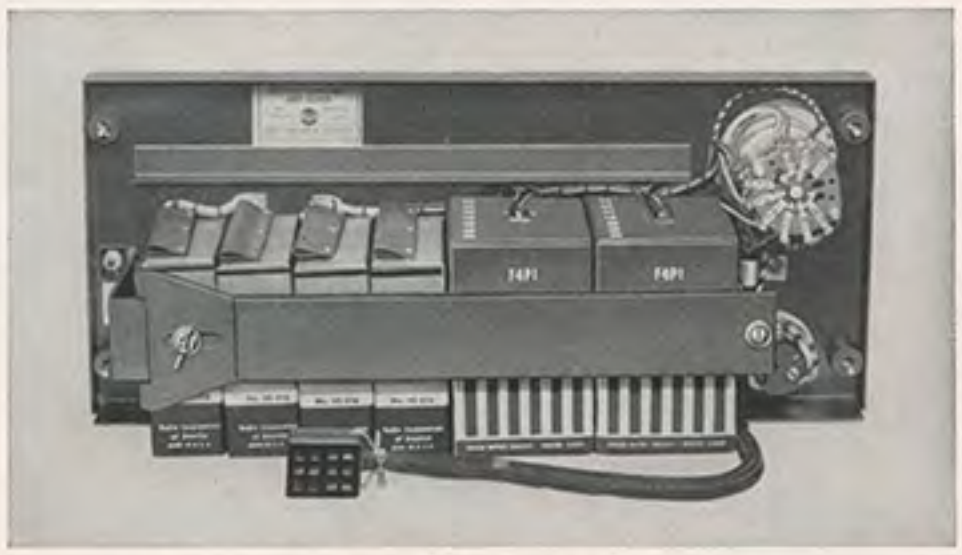
Tube Kit (complete tube complement 4 RCA-1620, 2 RCA-6J7, 1 RCA-6X5GT	MI-11269
Waterproof Cover for BN-2A	MI-11277
BN-2A Battery Cover	MI-11279

BATTERY CONTAINER & COVER

MI-11279

FEATURES

- **Provides complete battery operation for BN-2A Portable Amplifier (1½ to 2 hours)**
- **Easily attached to BN-2A without alterations**
- **Employs standard "A" and "B" batteries**
- **Built-in switch selects a-c or battery operation**



Rear view of Battery Cover showing batteries mounted in place

DESCRIPTION

The Battery Cover, MI-11279, is designed for mounting on the BN-2A Portable Amplifier in place of the usual top cover supplied. The cover unit contains an a-c receptacle, a switch to select a-c or battery operation, and a clamp for holding two 6 volt "A" batteries (RCA #VS009, Eveready #744 or Burgess #F4P1 and four 67½ volt "B" batteries (RCA #VS016, Eveready #467 or Burgess #XX45). The battery pack will supply power to the BN-2A Portable Amplifier (requiring 6 volts at 2.1 amp. and 270 volts at 10 ma) for 1½ to 2 hours of continuous operation. With interval operation of 15 min. on, 15 min. off, the batteries will provide approximately 2 to 2½ hours service.

SPECIFICATIONS

Weight (Battery Cover)	6½ lbs.
Weight (Batteries)	5 lbs.
Size, overall (adds only ⅝" to overal height of BN-2A)	14¾" x 6½" x 3½"
Stock Identification:	
Battery Cover (less batteries, with twist-lock connector)	MI-11279

6-WATT AMPLIFIER

MI-12238-C

FEATURES

- Master volume control
- Effective, useful tone control
- Excellent frequency response
- High gain—low distortion
- High impedance phono input
- Low impedance microphone input

USES

This compact, universal amplifier is extremely useful for turntable and film cueing and numerous other low powered applications. It is also excellent for intercommunication installation.

DESCRIPTION

This 6 watt amplifier has been designed for use in small sound systems. It is a three stage audio amplifier with inverse feedback. It has a built in power supply which operates from a 105-125 volt, 50-60 cycle supply. A high gain low impedance microphone input is provided through the use of a double mu-metal shielded input transformer. A high impedance phono input of nominal gain is accessible at terminal board connections on the front of the chassis. The microphone input has a level control. A master volume control and separate tone control with a-c power switch are provided. A seven foot power cord and plug is attached to the rear of the chassis near the output terminal board.

SPECIFICATIONS

Power Output	6 watts at 5% distortion
Gain	114 db
Frequency Response	30-15,000 cycles ±3 db
Signal to Noise Ratio	41 db
Impedances:	
Source Impedance (Microphone)	125-600 ohms
Load Impedance	4, 8, 16 ohms
Power Supply:	
Voltage	105-125 volts
Frequency	50-60 cycles
Power Consumption	62 watts
Tube Complement:	
2—RCA 6J7	1—RCA 5L6 — 1—RCA 5Y3GT
Dimensions	Length 10¼", Depth 7½", Height 7"
Net Weight (without cover)	11½ lbs.
Finish	Cadmium plated and clear lacquer
Stock Identification (less tubes)	MI-12238-C

Equipment Supplied

MI-12238-C 6-Watt Amplifier less cover and tubes.

Accessories

Tube Kit	MI-12251
Cover	MI-13270

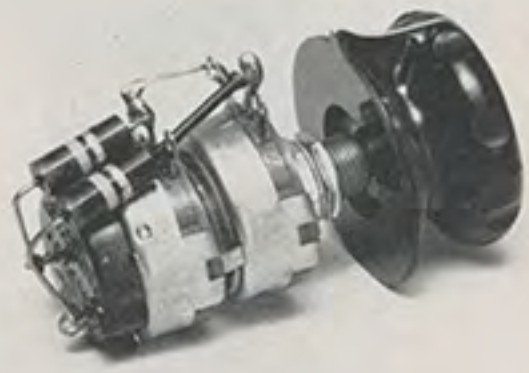
AMPLIFIER ACCESSORIES

BRIDGING CONTROLS

DESCRIPTION

The MI-11278-B, -C and -D Bridging Volume Controls are designed to provide a high resistance bridging input circuit for connections between any low impedance source and the 150/600 ohm input terminals of an amplifier. The use of one of these units makes it possible to pick up program material conveniently from a program buss or any low impedance terminated line without disturbing the operation characteristics of the buss or the line. Any line of +40 dbm or below may be bridged. The MI-11278-D Volume Control is designed to be mounted on the chassis of an amplifier (i.e., BA-11A preamplifier). The center shaft of this control is notched for screwdriver adjustment. The MI-11278-B and -C Volume Controls are designed for rear panel mounting. They are supplied with dial knobs which mount on shafts extending through the panel.

MI-11278-D



MI-11278-B/C

SPECIFICATIONS

Input Impedance (approx.): (MI-11278-B, 20,000 ohms), (MI-11278-C, 10,000 ohms), (MI-11278-D, 10,000 ohms).

Output Impedances: (MI-11278-B, 600 ohms), (MI-11278-C, 150 ohms), (MI-11278-D, 250 ohms).

Insertion Loss, bridging a 600-ohm line and operating into a 150-ohm amplifier output (MI-11278-B, 31 db), (MI-11278-C, 36 db), (MI-11278-D, 36 db).

Maximum Input Level ..... +40 dbm

Overall Dimensions (including shaft):
- Height ..... 2⅝"
- Width ..... 1½"
- Depth ..... 1½"

Weight ..... 4½ ozs.

VU METER AND ATTENUATOR KIT, MI-11251-B

DESCRIPTION

The VU Meter and Attenuator Kit, MI-11251-B, is available as amplifier accessory equipment for indicating audio volume levels. The complete kit consists of:

1 Simpson VU Meter

1 Multiple Pad for calibrating the VU Meter to the desired reference level

1 Zero Adjustment Pad.

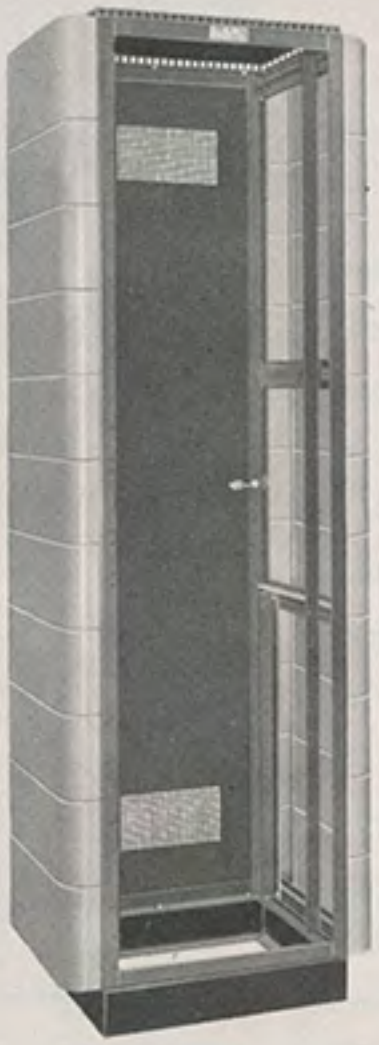
The complete kit is pictured at the left.

Stock Identification MI-11251-B

STANDARD CABINET RACKS

BR-84 SERIES

BR-84A



BR-84B

BR-84C

FEATURES

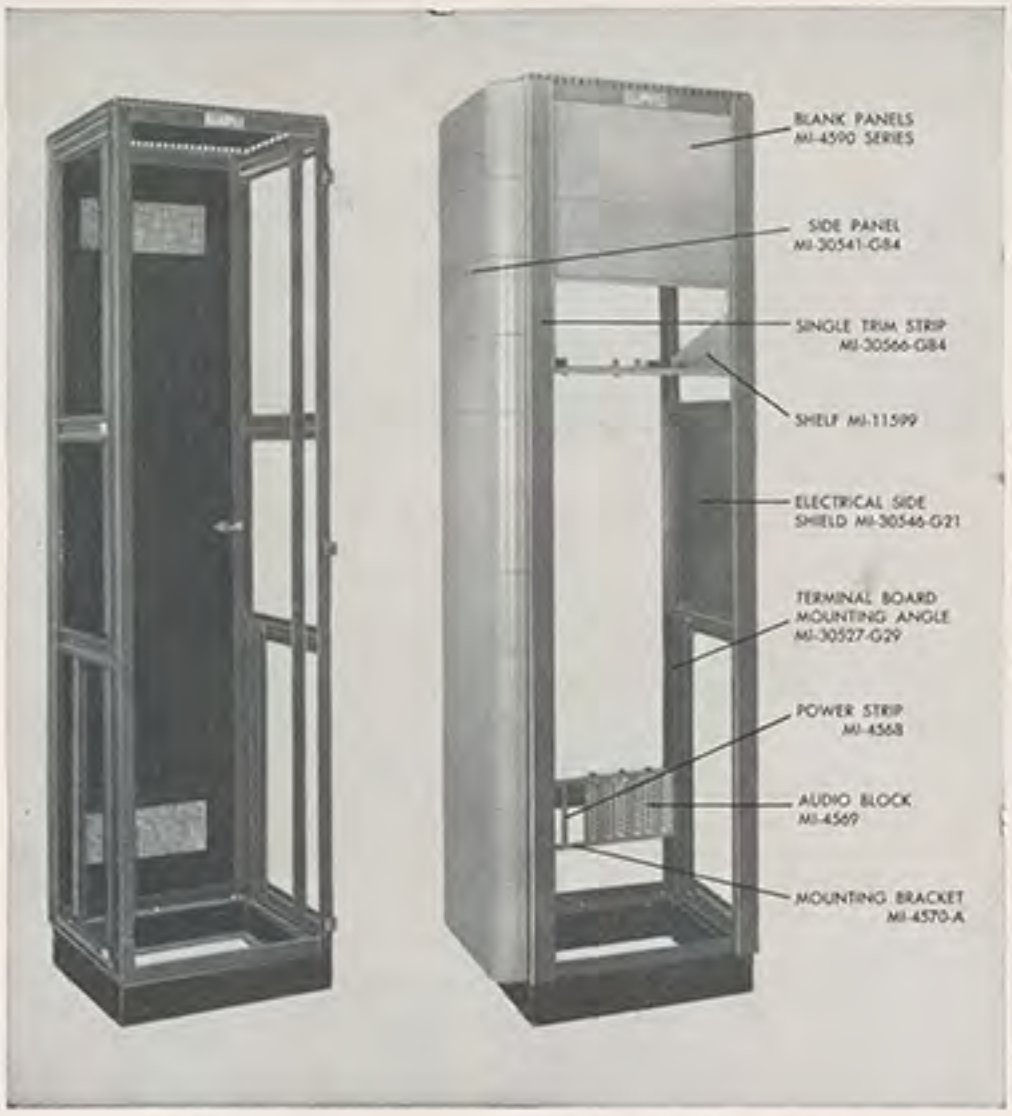
- Cabinets are same height as RCA transmitters
- Total panel space 77"
- Available in many combinations to suit all studio applications
- Drilled and tapped for standard 19" panels
- Attractively styled to blend with all control room installations
- Suitable for fitting in a flush position to a side or rear wall
- Accommodates the heaviest equipment encountered in studio use
- Provides flexibility for future expansion

USES

The BR-84 series cabinet rack program is another of the new feature lines of RCA. The cabinet program is presented after years of practical experience in finally developing a flexible scheme for accommodating broadcast equipment.

DESCRIPTION

The five combinations of cabinets and accessories offer a versatile system for accommodating the user's immediate requirements with maximum accessibility for any future growth of the installation. Each rack may be mounted singly or, where desired, tandem together to facilitate the



BR-84D **BR-84E with Accessories**

grouping of any number of cabinets. The cabinet is of sturdy metal construction, welded and bolted in one standard height and width. The ventilated top with slotted edges provides complete ventilation but protects the equipment from falling articles and dust. Vertical panel mounting angles have tapped holes at RMA standard locations to provide 77" of standard 19" panel mounting space. These angles may be installed to mount equipment within the cabinet, where doors are used, or flush with the front. When the latter method is desired, trim strips of neat design for panel mounting and clip fitting provide the finished appearance. The front and rear doors are of the universal type and may be hinged on the right or left side, to rotate in an arc of 180°. Electrical side shields are available in two sizes—21" for the center section, and 28" for the top and bottom sections. If found necessary after assembly, they may be fitted between racks of equipment. Terminal board mounting angles facilitate the mounting of power and audio blocks in a vertical or horizontal position. Additional terminal board mounting angles (MI-30527-G29) are available as accessories.

Units placed adjacently may be rigidly bolted together to produce a secure assembly. The cabinets are finished in a two-tone umber gray, with dimensional characteristics artistically blending with all RCA FM transmitters.

SPECIFICATIONS

Panel Width ..... 19"
Panel Mounting Space (height) ..... 77"
Clearance for Door Swing ..... 23"
Weight (BR-84A) ..... 225 lbs.
Finish.....Two-tone umber gray enamel except for the base which is black
Dimensions:
- Height ..... 84"
- Width—BR-84-A, -B (with side panels) ..... 28"
- BR-84-C, -D, -E ..... 22"
- Width of Frame ..... 22"
- Depth of Frame ..... 18"
- Depth (including doors and handles) ..... 24¼"

Stock Identification:

Type BR-84A consisting of one frame, one base, one top cover, one front door (non-ventilated), one rear door (ventilated), one pair of side panels, one set of terminal board mounting angles and one set of panel mounting angles and instruction book MI-30951-A84

Type BR-84B, same as BR-84A, less front door only MI-30951-B84

Type BR-84C, same as BR-84A, less side panels only MI-30951-C84

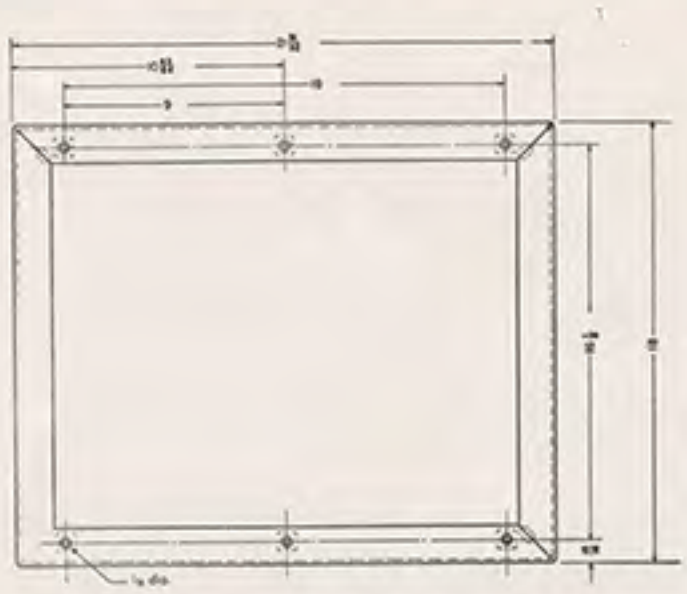
Type BR-84D, same as BR-84A, less side panels and front door MI-30951-D84

Type BR-84E, same as BR-84A, less side panels, front and rear doors MI-30951-E84

Accessories

One Door (non-ventilated) MI-30530-G84
One Side Panel MI-30541-G84
One Door (ventilated) MI-30535-G84
One Electrical Shield (for mid-section of rack) One Per Side MI-30546-G21
One Electrical Shield (for top and bottom sections) Two Per Side MI-30546-G28
*One Single Trim Strip MI-30566-G84
*One Double Trim Strip Used where Two Cabinets Are Placed Together MI-30568-G84
Terminal Board Mounting Bracket MI-4570-A
Blank Panels ..... MI-4590 to 4599 Series
Audio Terminal Block MI-4569
Power Terminal Strip MI-4568
Set Terminal Board Mounting Angles MI-30527-G29
Set Panel Mounting Angles MI-30526-G84
Panel and Shelf Assembly MI-11598B/11599
Ground Bus Kit MI-11728

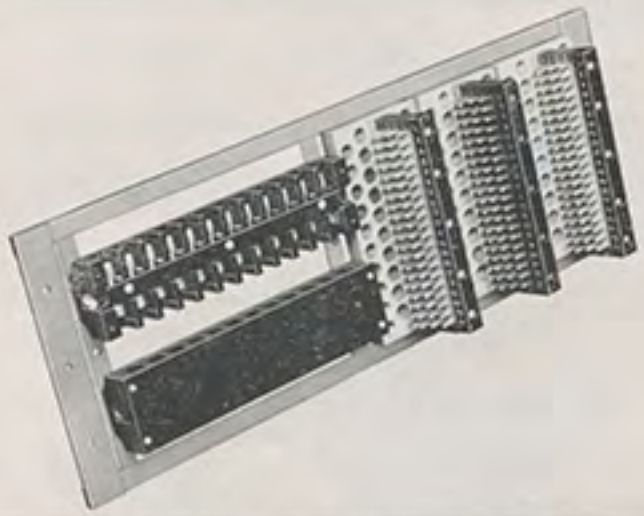
* Trim strips not required if front doors are used.



Layout and dimensions of cabinet base

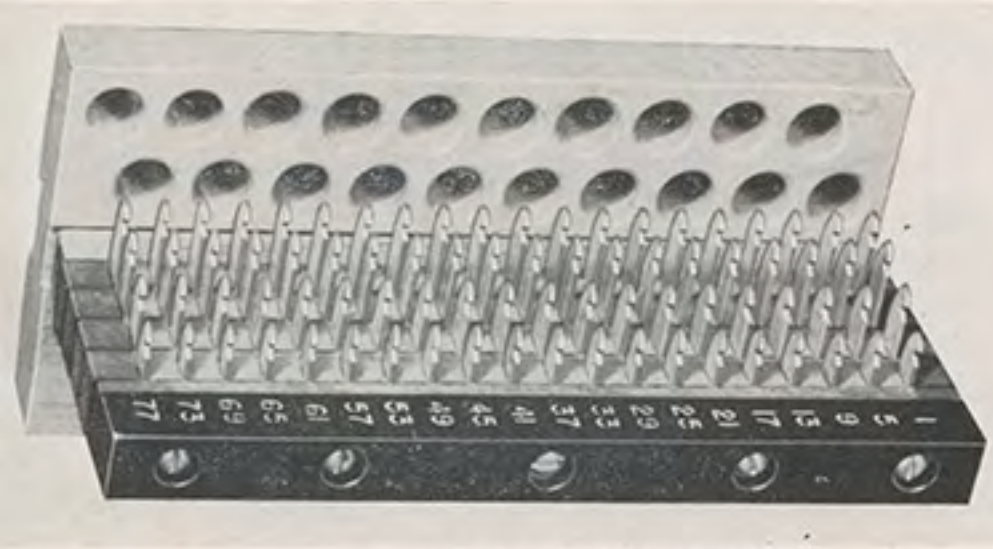
RACK ACCESSORIES

Terminal Block Mounting Bracket MI-4570-A.

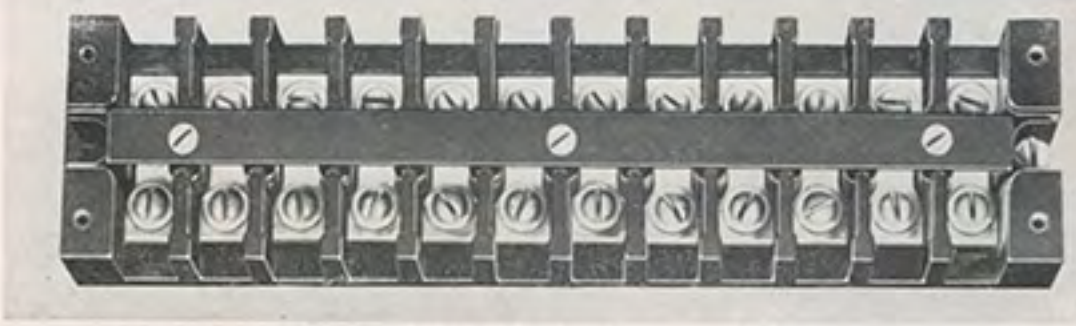


Terminal Block Mounting Bracket MI-4570-A with Terminal Blocks in position.

Power Terminal Block MI-4568.



Audio Terminal Block MI-4569.



Power Terminal Block MI-4568 with cover removed.

Ground Bus Kit, MI-11728.

BLANK PANELS

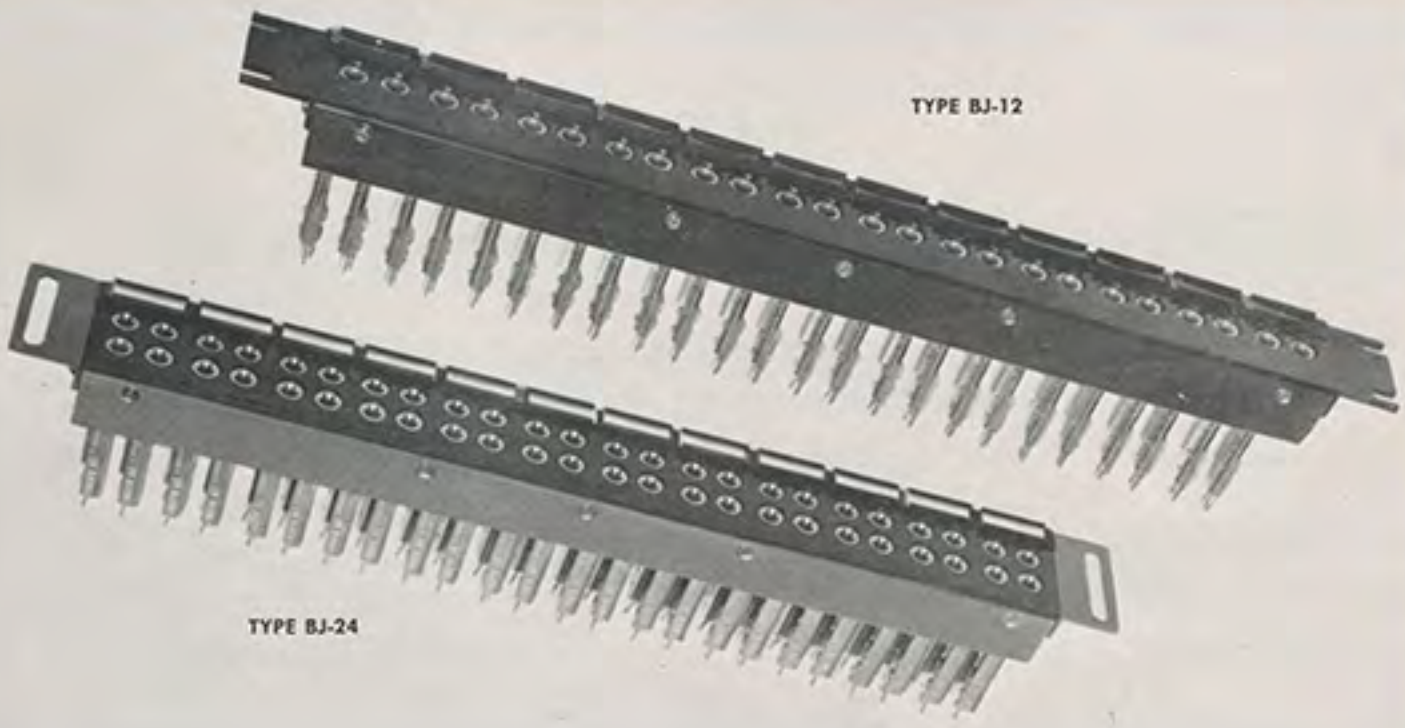
A complete line of 19" blank panels is carried in stock for filling spaces on racks and cabinets not occupied by equipment panels. These blanks are also suitable for applications where equalizers, transformers, switches or other items must be panel mounted by the user. The stock of panels includes all standard widths from 1¾" to 13 31/32". They are 3/16" sheet steel and are finished and notched to match standard racks—the BJ-24 and BJ-12.

Panel Width

1 23/32"	Blank	Panel,	Umber Grey	MI-4590-A
2 1/8"	"	"	Umber Grey	MI-4598-A
3 15/32"	"	"	Umber Grey	MI-4591-B
5 7/32"	"	"	Umber Grey	MI-4592-B
6 31/32"	"	"	Umber Grey	MI-4593-A
8 23/32"	"	"	Umber Grey	MI-4594-B
10 15/32"	"	"	Umber Grey	MI-4595-B
12 7/32"	"	"	Umber Grey	MI-4596-A
13 31/32"	"	"	Umber Grey	MI-4597-A

JACK PANELS

TYPES BJ-12 AND BJ-24



FEATURES

- Offset ground lugs—easy to wire
- Spacing of jack pairs prevents cross-circuit patching
- Bakelite strip reinforced to prevent warping or breakage

USES

Jack Panels, with their associated patch cords, are used with broadcast speech input systems to improve the overall operating flexibility. In addition to providing a convenient termination for program and order wire telephone circuits, closed-circuit jacks may be connected to provide "patch cord" access to the input and output circuits of individual units of the speech assembly. When connected for this purpose, the regular circuits are continuous through the jacks until a patch cord is inserted to make an external connection. With properly connected jacks, patch cords may be freely used in emergencies or for test purposes to interchange or transfer telephone lines, amplifiers, mixers, microphones, or other equipment items.

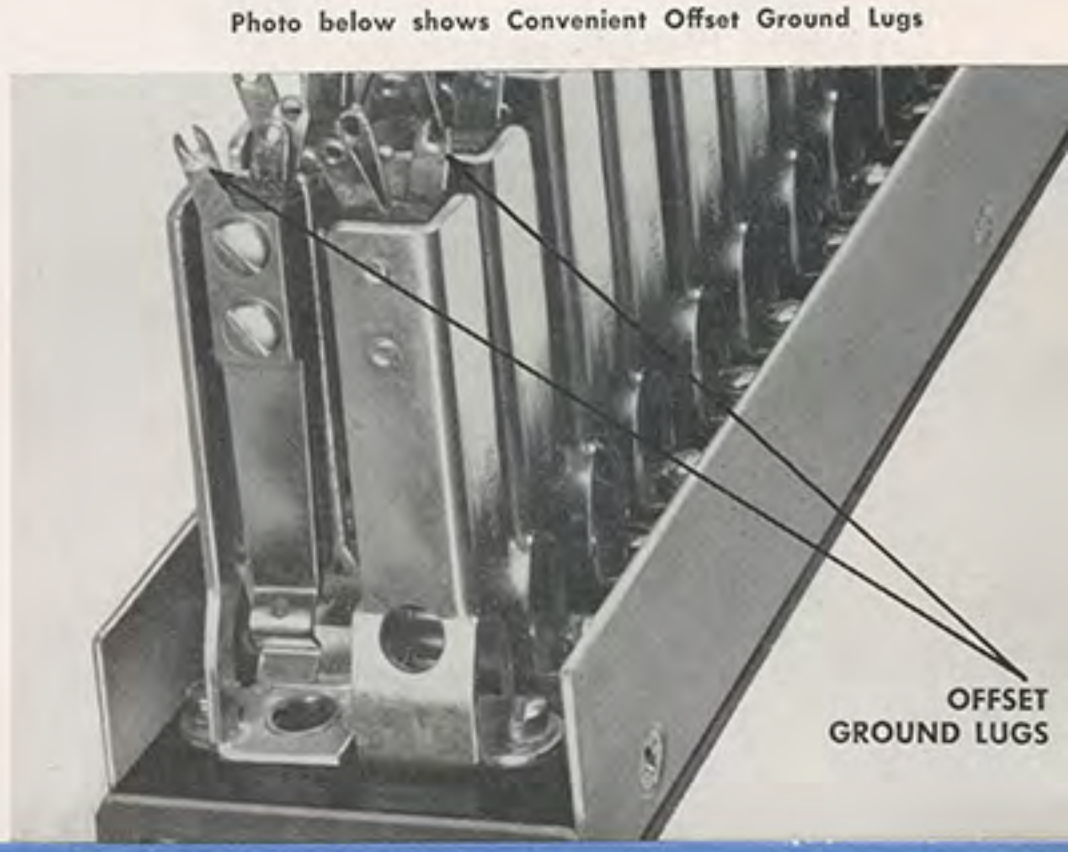
DESCRIPTION

The BJ-24 consists of two rows of twelve double jacks mounted on thick black bakelite and furnished with designation card holders. The BJ-12 is similar to the BJ-24 but has only one row of twelve double jacks. The jack sleeves of the BJ-24 and BJ-12 are chromium plated.

SPECIFICATIONS

Number of Jack Pairs			
BJ-24	24		
BJ-12	12		
Type of Jacks	Double jacks of standard closed circuit type		
Dimensions			
BJ-24	2⅛" x 19"	BJ-12	1¾" x 19"
Weight (unpacked)			
BJ-24	5½ lbs.	BJ-12	3 lbs.
Stock Identification			
BJ-24 (RCA Standard)	MI-11645		
BJ-12 (RCA Standard)	MI-11646		

Photo below shows Convenient Offset Ground Lugs



JACK MATS AND PATCH CORDS

JACK MATS

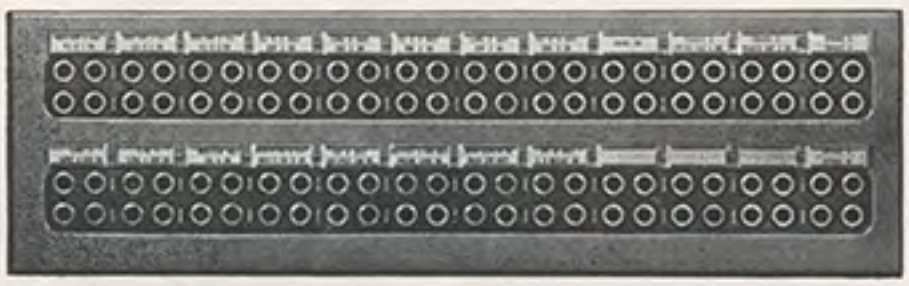
Jack Mats are available for covering 1, 2, 3, or 4 type BJ-24 Double Jack Strips.

SPECIFICATIONS

Single BJ-24 Jack Strip Mat, overall size.....19" x 3 15/32"
Umber Gray MI-11647-1

Double BJ-24 Jack Strip Mat, overall size.....19" x 5 7/32"
Umber Gray MI-11647-2

Triple BJ-24 Jack Strip Mat, overall size.....19" x 6 31/32"
Umber Gray MI-11647-3



MI-11647-2 Double Jack Mat shown with two double jack strips

MI-11647-2 Double Jack Mat

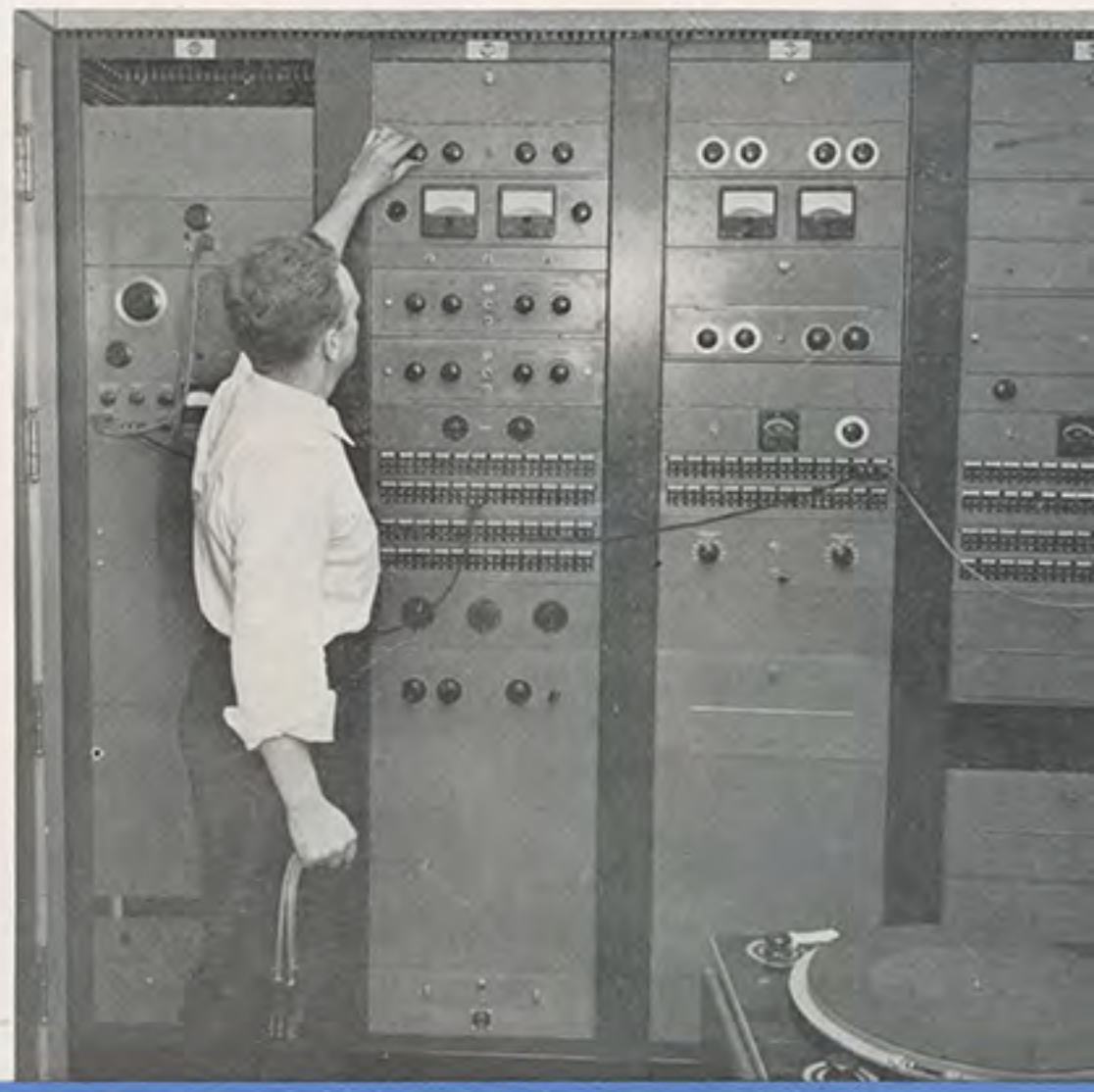
PATCH CORDS

RCA maintains a stock of patch cords for the convenience of broadcasting stations. The W.E. Cord is the standard telephone type using two W.E. 241-A Double Plugs. The Audio Development Co. Cord is shielded and uses two of their Type PJ-1 Plugs which are interchangeable with the W.E. Type 241-A Plug. Three sizes of patch cords are available as listed below:

	Western Electric Co.	Audio Development Co.
Two Foot Cord Length	MI-4652-2A	MI-4652-2B
Four Foot Cord Length	MI-4652-4A	MI-4652-4B
Six Foot Cord Length	MI-4652-6A	MI-4652-6B

Western Electric Telephone Type Patch Cord

Audio Development Co. Shielded Type Patch Cord



View of RCA BR-84 Standard Racks as used at Radio Station WHBQ, Memphis, Tenn. RCA BJ-24 Jack Mats are used in these racks.

PANEL AND SHELF

TYPE BR-2A

FEATURES

- High quality panel mounting for chassis type units
- Quick access to tubes
- Easy insertion and removal of units
- Provision for control shafts on front panel
- Conveniently installed from front of rack

USES

The BR-2A Panel and Shelf is capable of mounting the following quantities of specific equipments:

6—BA-11A Pre-amplifiers.
2—BA-13A Program Amplifiers.
2—BA-12A Booster Amplifiers.
2—BX-1E Power Supplies.
1—BA-14A Monitor Amplifier plus
2—BA-11A Pre-amplifiers.

DESCRIPTION

This shelf will mount in either the 9-AX or the BR-84 series of racks, or in any other standard 19" rack. It occupies 8¾" of panel space. Since the RCA plug-in amplifiers have a standard dimension in depth, they all fit perfectly in this shelf. They are slid into the shelf from the front and the connection plugs pushed into the receptacles at the rear. Guide bars fitting between the amplifiers assist in guiding them into position. All the plug-in amplifiers are equipped with levers which serve either to force them into position or to eject the plugs when dismounting them. The receptacles are mounted on individual U-shaped brackets, secured to the chassis of the shelf. They fit in such a manner that a small amount of free movement is permitted in all directions. This eases the alignment of the plugs and receptacles when the amplifiers are pushed into position. The brackets are constructed with a small protruding stop on the lower front edge, preventing the amplifier from being forced to the point where it would exert undue pressure on the receptacle. Provision is made for holding six of these receptacles. The holes in the chassis which are provided for fastening the brackets are slightly oversize to permit perfect alignment during initial installation. The wiring in back of the receptacles is protected by a steel cover which is fastened in place by two machine screws.

The opening in the front of the shelf is covered by a matching panel. This panel is hinged across the center so that the top half may be opened to gain access to the vacuum tubes of the amplifiers. The bottom half has five shaft holes to provide for any controls which the amplifiers may have. When not in use, these holes are covered by small removable buttons. The bottom of the shelf has several round holes for ventilation and also a number of square holes into which fit the amplifier insertion levers.

The shelf may be obtained separately, if desired, or the shelf and panel together, as appropriate. It is supplied complete with mounting brackets, guide bars, and receptacle cover. The receptacles themselves are supplied with the amplifiers, and therefore need not accompany the shelf.

Panel removed showing guide bars and receptacles.

SPECIFICATIONS

Dimensions, overall:	
Width	19"
Height	8¾"
Depth	12¾"
Inside Width	16⅞"
Weight, unpacked:	
Shelf	12 lbs.
Panel	3 lbs.
Stock Identification:	
Shelf (Umber Gray)	MI-11599
Panel (Umber Gray)	MI-11598-B

METER PANEL

TYPE BI-1B

FEATURES

- Provides meter and switch for measuring cathode voltage of amplifier tubes
- Gives plate current indication of operating condition of tubes and circuits
- Up to 17 circuits may be metered by rotary selector switch
- Designed for cabinet rack mounting

USES

The BI-1B Meter Panel provides a convenient means for checking the cathode bias voltages of amplifier tubes and thereby furnishes an indication of the operating conditions of amplifier tubes and circuits. Metering terminals are provided on the BA-11A, BA-12A and BA-13A Series Amplifiers for use with this panel. The mounting is for a BR84 Series Standard cabinet rack.

DESCRIPTION

The BI-1B consists essentially of a meter and switch mounted on a standard 3½", 3/16" thick steel panel. The meter is a 3.0 volt d-c voltmeter having a resistance of 20,000 ohms per volt. The double section switch has eighteen positions including the "off" position with the switch arms connected to the meter terminals. All connections to the panel are made to the switch contacts.

SPECIFICATIONS

D-c Voltmeter	0-3.0 volts, 20,000 ohm per volt
Metering Switch	17 position and "off," double pole
Dimensions (overall):	
Height	3 15/32"
Width	19"
Depth	2¼"
Weight (unpacked)	4½ lbs.
Stock Identification:	
Light Umber Gray	MI-11388

SWITCH AND FUSE PANEL, Type 57-D

FEATURES

- Provides master switch and fuses for rack-mounted equipment
- Pilot lamp glows when equipment is on
- Removable door permits front panel access to fuses and pilot lamp

57-D Panel, (cont'd)

USES

The Type 57-D Switch and Fuse Panel is designed for use as a master input control of the a-c power supply. Ordinarily one such panel is used with each rack or channel of speech input units. The mounting is for a BR84 Series Standard cabinet rack.

DESCRIPTION

On this panel are mounted and wired an indicator lamp with red cap, two single fuse blocks of the screw-plug type and a double-pole single-throw power switch. A removable door permits front panel access to fuses and pilot lamp.

SPECIFICATIONS

Switch	D.P.S.T., 250 volts, 30 amperes
Fuses (not furnished)	Screw-plug type (rating depends upon equipment to be protected)
Dimensions, overall (panel thickness 3/16"):	
Height	5 7/32"
Width	19"
Depth	3½"
Weight (unpacked)	8½ lbs.
Stock Identification:	
Light Umber Gray	MI-4395-G

VU METER PANEL, Type BI-5A

FEATURES

- Measures audio volume levels from +4 to +40 vu
- Ten point selector connects up to 10 circuits
- Calibration curve supplied for loads other than 600 ohms
- Large illuminated vu meter

USES

The BI-5A employs the industry standardized Weston Type 30 VU Meter which embodies closely controlled electrical and dynamic characteristics combined with deliberate pointer action, moderate pointer speed, and small pointer overswing. It is intended as an audio level indicator for broadcasting, recording or wherever it is desired to read the level of one or more audio circuits with a rack mounting type of instrument.

DESCRIPTION

The volume indicator panel assembly includes the vu meter, a two circuit ten point selector switch, a variable step-by-step attenuator (4 to 40 db attenuation), and a vernier control for making a fine adjustment of the level reading over a range of ±0.5 db. The attenuator has a 1 milliwatt reference position which enables a level reading of zero vu.

The vu meter scale is arranged with percent volts in black figures from "0" to "100" as the principal scale above the arc, and "vu" levels from "–20" to "0" to "+3" as supplementary figures in red below the arc.

The meter and attenuator are calibrated for use with a 600 ohm line, however, a calibration correction curve furnished with the instrument permits its use with loads other than 600 ohms. The ten point selector switch may be connected to any ten lines (or circuits). If one or more switch positions are connected to a jack strip, the number of circuits that may be monitored is unlimited. The meter is provided with the 6.3 volt lamp for illuminating the meter scale.

SPECIFICATIONS

Input Impedance (except on 1 milliwatt step)	7500 ohms
Attenuator Steps	1 milliwatt position, +4 to +40 db in 2 db steps and off position
No. of lines that may be measured	1 to 10 inclusive
Mounting	Standard Cabinet Rack
Dimensions:	
Height	5¼"
Width	19"
Depth	3¾"
Finish	Light umber gray
Weight (unpacked)	7½ lbs.
Stock Identification:	
Umber Gray	MI-11265-E

VARIABLE SOUND EFFECTS FILTER

TYPE BE-21B

FEATURES

- Permits control of audio bandwidth to produce a variety of sound effects
- Two front panel selector switches permit easy and quick change to desired sound effect

USES

The BE-21B furnishes a desirable means for producing a variety of special or unusual sound effects through control of the audio bandwidth of the transmitted program. It is especially useful in the production of dramatic plays for making programs sound "bassy" or "tinny" or for simulating the sound of telephone conversations, short wave radio communications or midget radios.

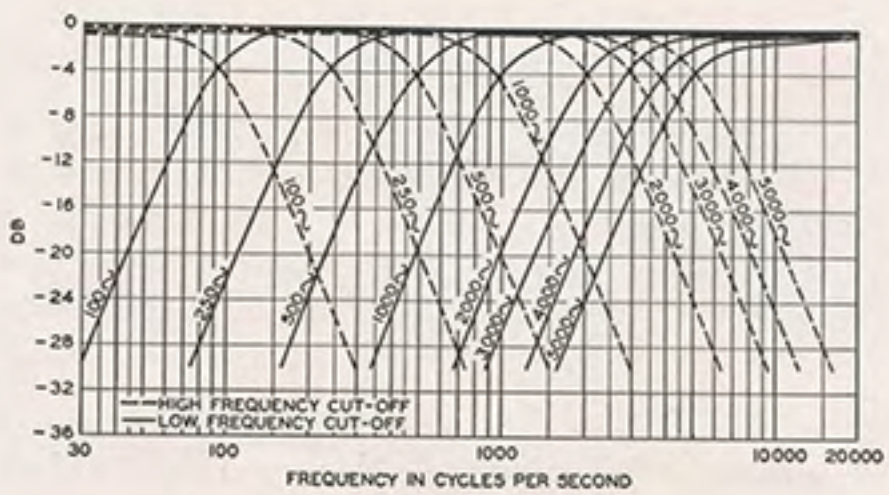
DESCRIPTION

The BE-21B consists of high and low pass filters assembled on a panel with two selector panel switches. The switches have nine positions each and are calibrated for high and low cut-off frequencies of 100, 250, 500, 1000, 2000, 3000, 4000, and 5000 cycles. There is also an "off" position on each switch. A key switch is provided for removing the filter from the circuit thus making it possible to preset the filter for the desired characteristics and insert it in the circuit instantly when required.

The 600 ohm input and output impedances of the filter enables it to be connected in any 600 ohm circuit or it may be used in a 250 ohm circuit with only a slight change in response characteristics.

SPECIFICATIONS

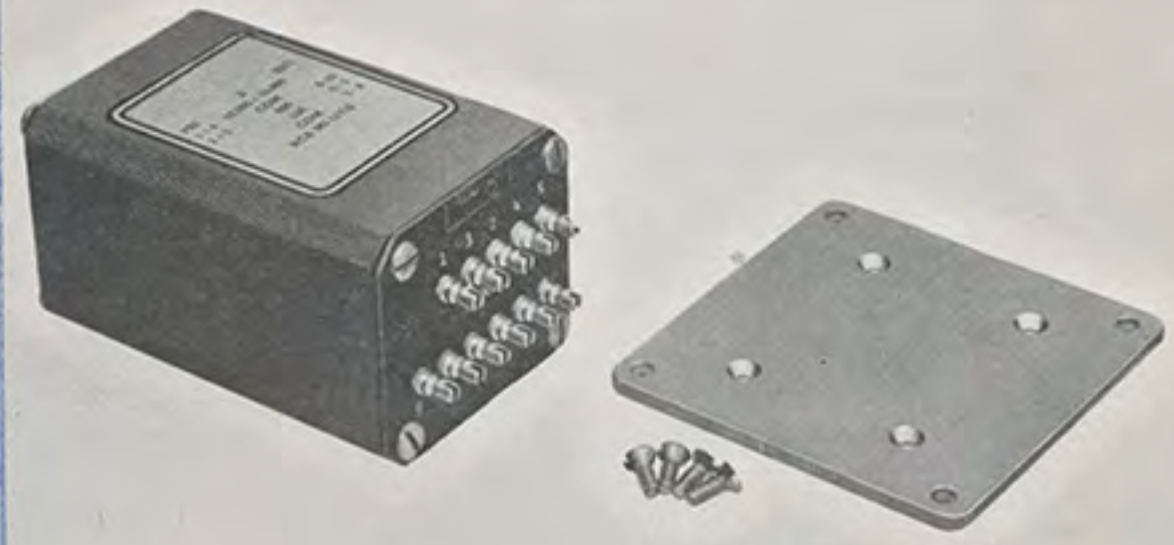
Source Impedance (unbalanced)	600 ohms
Load Impedance	600 ohms
Input Level	—60 to +23 db*
Output Level (maximum)	+23 db*
Frequency Response	See curves
Insertion Loss	1 db or less at frequencies remote from cut-off
Dimensions, overall	
Height	5¼"
Width	19"
Depth	5"
Weight (unpacked)	15 lbs.
Stock Identification—Light Umber Gray	MI-11723



LINE AND BRIDGING TRANSFORMERS

DESCRIPTION

The following standard RCA transformers are stocked as a convenience to broadcasting stations. These transformers are of the highest quality design having excellent frequency response. They are provided with electrostatic shields between primary and secondary and are furnished with heavily shielded cases. Cores are of special high permeability steel. Terminals are at one end and diagrams of the connections are stenciled on the side of the case. Broadcasting stations may employ the RCA transformers between units with assurance that the overall fidelity of the system will be maintained.



LINE TRANSFORMER, MI-11713

The core structure, frequency characteristics and shielding of this transformer makes it an ideal unit for isolating line circuits. Its taps provide several combinations of available impedances. One to two of these transformers are very useful items to have around any broadcast station.

Specifications (MI-11713)

Frequency Response.....±½ db 20 to 20,000 cps

Primary Impedances Ohms	Secondary Impedances Ohms
150	150
600	600

Stock Identification MI-11713

BRIDGING TRANSFORMER, MI-11712

This transformer may be used as an input transformer for a bridging line amplifier or a monitoring amplifier. It may also be satisfactorily used where it is desired to bridge a program line to feed programs to other mixing or outgoing circuits such as normally employed in a master control room line distribution system.

Specifications (MI-11712)

Frequency Response.....±½ db 20 to 20,000 cps.

Primary Impedances Ohms	Secondary Impedances Ohms
20,000	150
	600

Stock Identification MI-11712

GENERAL SPECIFICATIONS for MI-11713 and MI-11712

Dimensions, overall:

Transformer.....4" x 2 11/32" x 1⅞"

Baseplate.....3¼" x 3¼"

Mounting.....Four holes with center lines 2¾" x 2¾"

Weight.....2 lbs. 14 ozs.

Finish .....Aluminum gray

PADS AND NETWORKS

DESCRIPTION

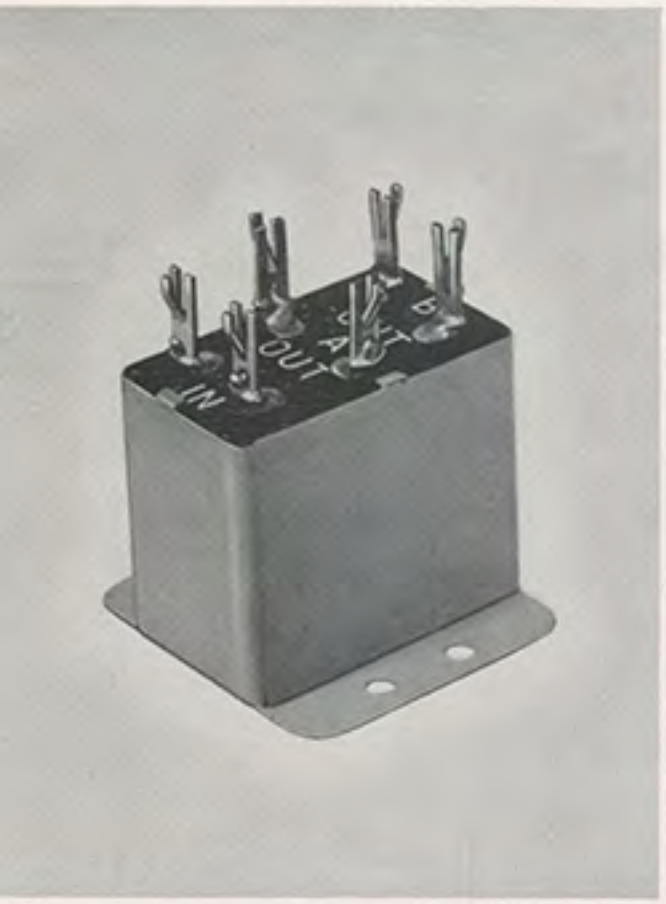
RCA offers a comprehensive selection of attenuator pads, bridging pads and dividing networks. The pads and networks are well constructed and insulated with precision wound resistors, assuring no internal reflection. The terminals are accessible and securely mounted with the connections stenciled in an appropriate place. The fixed balanced "H" type is available in two types, one introducing a loss of 6 db, the other 10 db. The dividing networks are also available in two types, unbalanced and balanced "H" type, as tabulated below.

Fixed Pads—Balanced "H" Type

Input Impedance.....600 ohms
Output Impedance.....600 ohms
Insertion Loss.....6 db
Stock Identification.....MI-4171-29

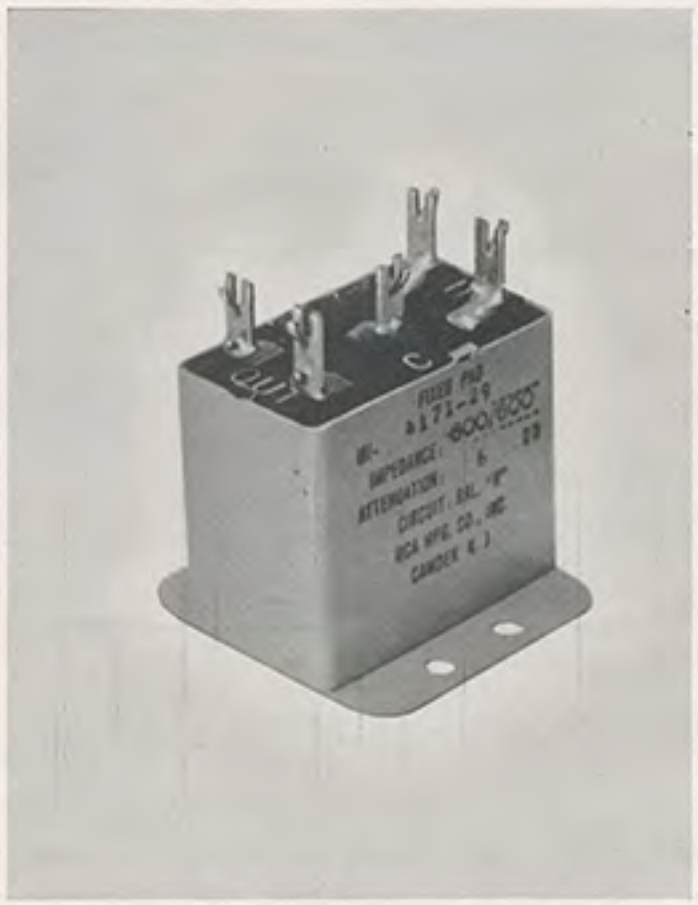
Fixed Pads—Balanced "H" Type

Input Impedance.....600 ohms
Output Impedance.....600 ohms
Insertion Loss.....10 db
Stock Identification.....MI-4171-30



MI-4171-29 ▶

◀ MI-11705



Dividing Networks

Balanced Two-way, 600 ohms

Insertion Loss.....6 db
Stock Identification.....MI-11704

Balanced Three-way, 600 ohms

Insertion Loss.....9.5 db
Stock Identification.....MI-11704-A

Balanced Four-way, 600 ohms

Insertion Loss.....12 db
Stock Identification.....MI-11704-B

Balanced Six-way, 600 ohms

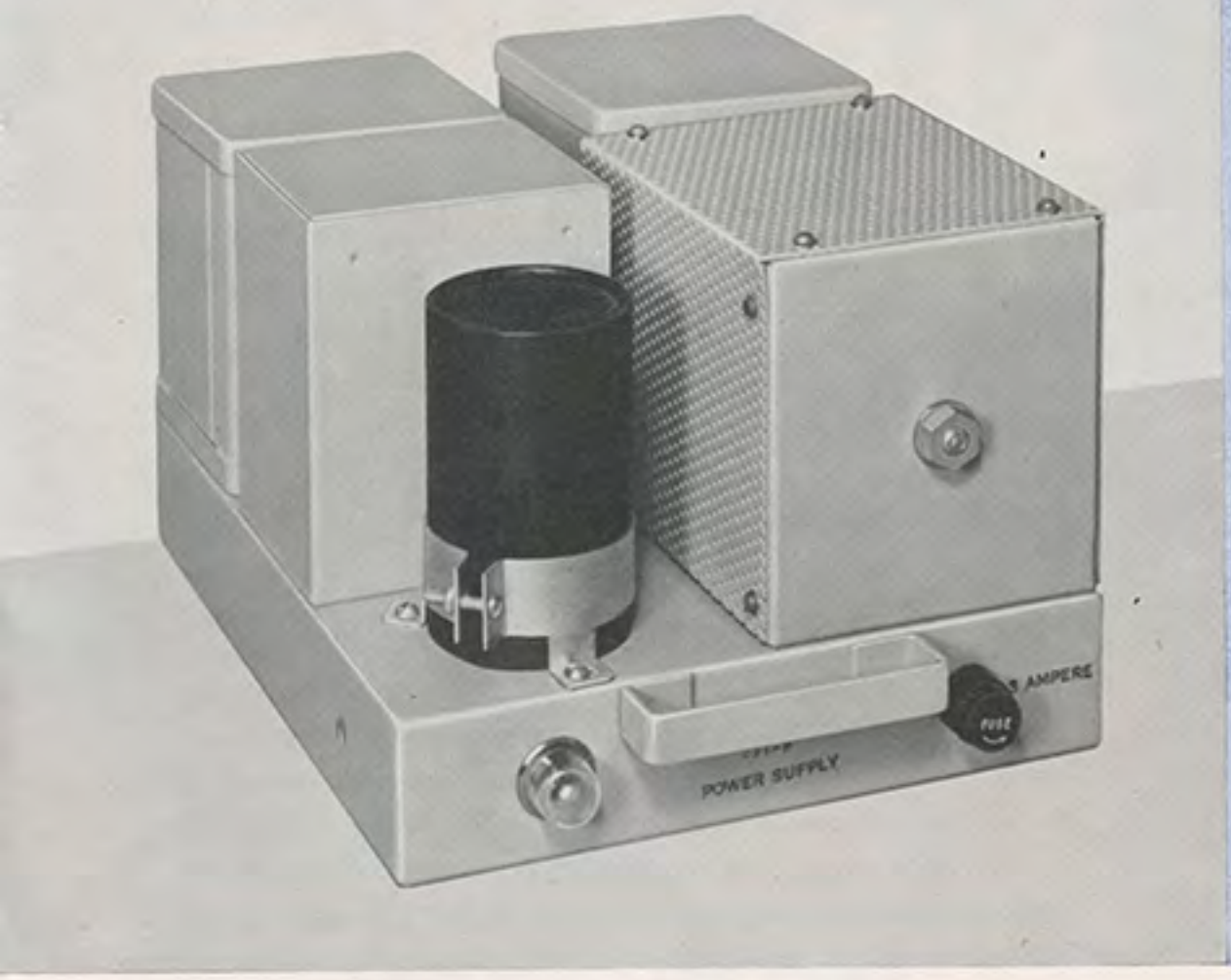
Insertion Loss.....15.6 db
Stock Identification.....MI-11704-D

Bridge Pad (Balanced)

Input Impedance.....600 ohms to two 600 ohm lines—isolation between lines about 45 db
Insertion Loss.....10 db
Stock Identification.....MI-11705

REGULATED POWER SUPPLY

MI-11316



DESCRIPTION

The MI-11316 is a selenium rectifier type power supply. It provides 3 amperes maximum 24 volts d-c, operating from a nominal 117 volts 50/60 cps source. This power supply is recommended for use with the TC-4A Basic Buy TV relay switching equipment. It is also required to operate the BCS-11A Master Switching Console.

This power supply may be mounted on a standard RCA Panel and Shelf, BR-2A.

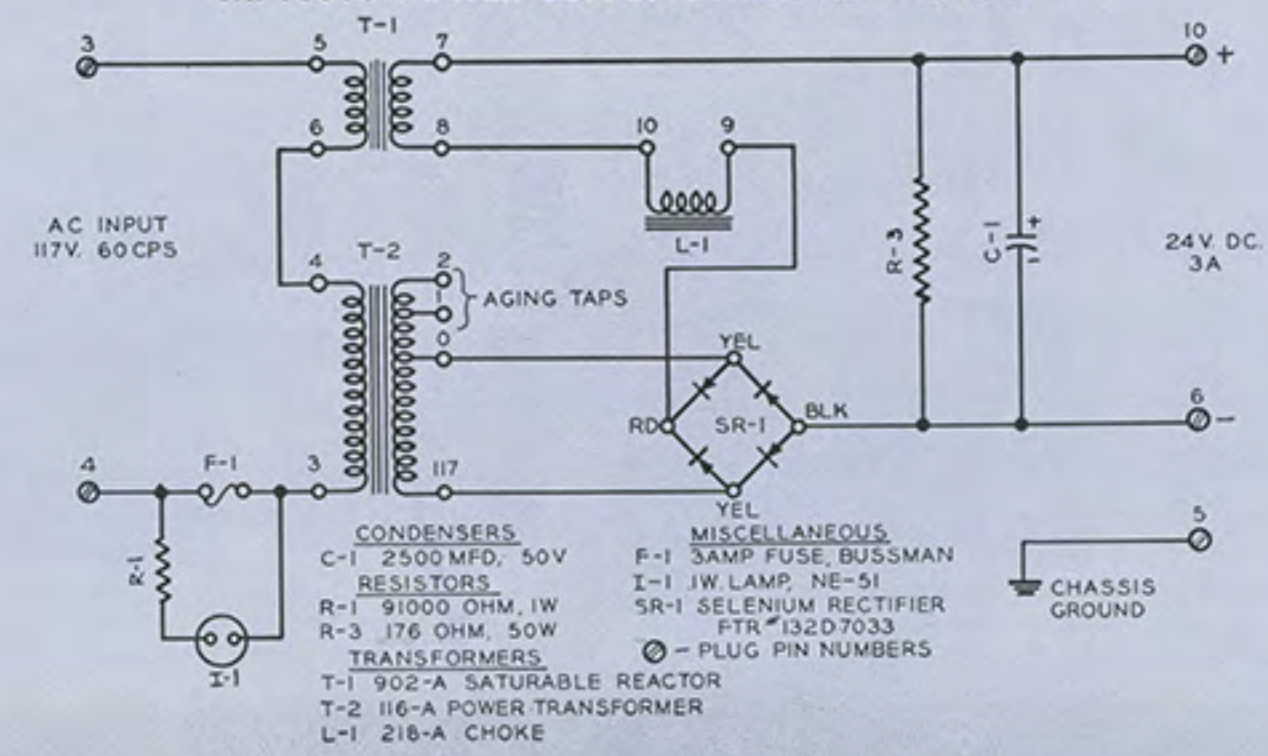
ELECTRICAL SPECIFICATIONS

Input	110-125 volts 50/60 cps 200 V.A. or 125 watts
Output	3 amperes, 24 volts d-c
Regulation	Better than 5% voltage regulation, no load to full load
Ripple	60 and 120 cycle components, less than 3% at full load

MECHANICAL SPECIFICATIONS

Size	Length 9", Width 7¾", Height 5¾"
Weight	25 lbs.
Shipping Weight	Approximately 30 lbs.
Finish	Light gray baked enamel over zinc chromate primer on 16 gauge steel

MI-11316 POWER SUPPLY SCHEMATIC DIAGRAM



STUDIO WARNING LIGHTS

MI-11706 SERIES

FEATURES

- Modern styling
- Satin chrome finish
- Available in five types
- Uniform illumination
- Easily mounted

USES

The MI-11706 series of warning lights is another new product to supplement the RCA line of modernistically designed studio equipment. These lights have been developed after many requests from broadcasters to furnish a studio warning light that has bold and uniformly illuminated lettering with an external design that would enhance the appearance of any studio.

DESCRIPTION

The lights are constructed of satin finish cast aluminum with trimmed etchings and tastefully styled for all studio furnishings. The sign is an opaque black glass with frosted translucent 2" letters, using a 40 watt 12" lumiline lamp for a light source.

The interior or mounting base, containing the lamp, sockets and terminal strip for the a-c supply, is of separate metal construction and insures adequate protection from wires short-circuiting. The complete interior is a wall mounting fixture and allows a new lamp to be replaced quickly by simply removing the outer case by two screws. The warning light is available with five signs as indicated below.

SPECIFICATIONS

Dimensions: (overall of case)	
Length	14"
Width	3½"
Depth	2 11/16"
(Glass Sign Aperture)	
Length	9¾"
Width	2¾"
Weight (unpacked)	3½ lbs.
Stock Identification:	
"ON-AIR"	MI-11706-1
"REHEARSAL"	MI-11706-2
"AUDITION"	MI-11706-3
"STANDBY"	MI-11706-4
"SILENCE"	MI-11706-5
Glass Only	MI-11718-1 to 5

Back view showing simplicity of construction and outer case mounting screws

Outer case removed showing Lumiline illuminating lamp

TRANSCRIPTION TURNTABLES

TYPES BQ-70E AND BQ-70F

FEATURES

- Provides a high-quality driving mechanism for both standard and fine groove records
- Heavy-duty constant-speed synchronous motor with ample driving power
- Direct-coupled drive provides reliable timing
- Simple control knob permits easy selection of speed shown on dial plate
- Quiet operation. Cushion-mounted motor with silent on-off switch
- Ruggedly built to give years of satisfactory service

USES

The Types BQ-70E and BQ-70F Transcription Turntables meet the continued demand for highest quality in the reproduction of broadcast transcriptions. They are the latest edition of the popular 70 Series transcription equipment. The BQ-70E and 70F Turntables provide highest quality reproduction of all vertical or lateral cut records. The BQ-70E is a two-speed turntable for 78 and 33⅓ rpm records.

The BQ-70F Turntable is the same as the BQ-70E except for the inclusion of facilities for providing 45 rpm speed.

DESCRIPTION

The equipment is housed in a wood cabinet of modern design. The cabinet is finished in two tones of umber gray and aluminum trim. A large hinged door is located on the front of the cabinet to permit ready access to the interior. When desired, this door may be completely removed from its hinges. A heat resistant, "Micarta" top is used. Ample interior space is provided for mounting reproduction filters or amplifiers such as the RCA BA-12A when additional output level is required.

Above is a BQ-70E Turntable shown with reproducing equipment installed. Terminal boards are provided for a-c and audio connections and are accessible from the front of the cabinet.

The motor is a high torque synchronous type, cushion-mounted on the bottom shelf of the equipment, thus isolating motor noise from the cabinet. In order to insure the faithful reproduction of high quality records, the turntable platter has associated with it a separate specially designed flywheel 12" in diameter. The turntable platter and flywheel assembly is completely isolated from the motor through a series of mechanical filters and a spring clutch arrangement.

Both the BQ-70E and BQ-70F Turntables are supplied less tone arms, filter and filter selector switch. A hand rest is supplied.

SPECIFICATIONS

Turntable Diameter ..... 16"

Turntable Speed:
- BQ-70E ..... 33⅓—78.26 ±0.3% rpm
- BQ-70F ..... 33⅓—45—78.26 ±0.3% rpm

Wow or Flutter at 78.26 rpm ..... 0.2% half of peak-to-peak

Wow or Flutter at 45 rpm ..... 0.25% half of peak-to-peak

Wow or Flutter at 33⅓ rpm ..... 0.3% half of peak-to-peak

Finish ..... Two-tone umber gray with aluminum trim

Weight (unpacked) ..... 140 lbs.

Power Supply ..... 170 volts, 50 or 60 cycles

Power Consumption ..... 35 watts

Dimensions, Overall:
- Height ..... 29½"
- Width ..... 23½"
- Depth ..... 24¾"

Stock Identification:
- BQ-70E (60 cycle) (33⅓—78.26) MI-11816
- BQ-70E (50 cycle) (33⅓—78.26) MI-11817
- BQ-70F (60 cycle) (33⅓—45—78.26) MI-11818
- BQ-70F (50 cycle) (33⅓—45—78.26) MI-11819

Accessory Equipment

Universal Tone Arm—Pickup Filter MI-11870

Lightweight Tone Arm MI-11885

1 Mil Pickup Fine Groove MI-11874-4

2.5 Mil Pickup Standard Groove MI-11874-5

Reproducing Filter Kit MI-4975

Adjustable Spanner Wrench (for removing spanner nut which holds speed-reducing bearing) MI-11726

▲

Photo above shows the method of mounting both the Lightweight Tone Arm and Universal Tone Arm. This arrangement provides a completely versatile unit. The BQ-70F Turntable shown here is essentially the same as the 70E, except that 45 rpm facilities have been added.

View below shows how Reproducing Filter, MI-4975 is mounted. Also apparent is the room available for mounting a pre-amplifier. Note that door may be removed from hinges.

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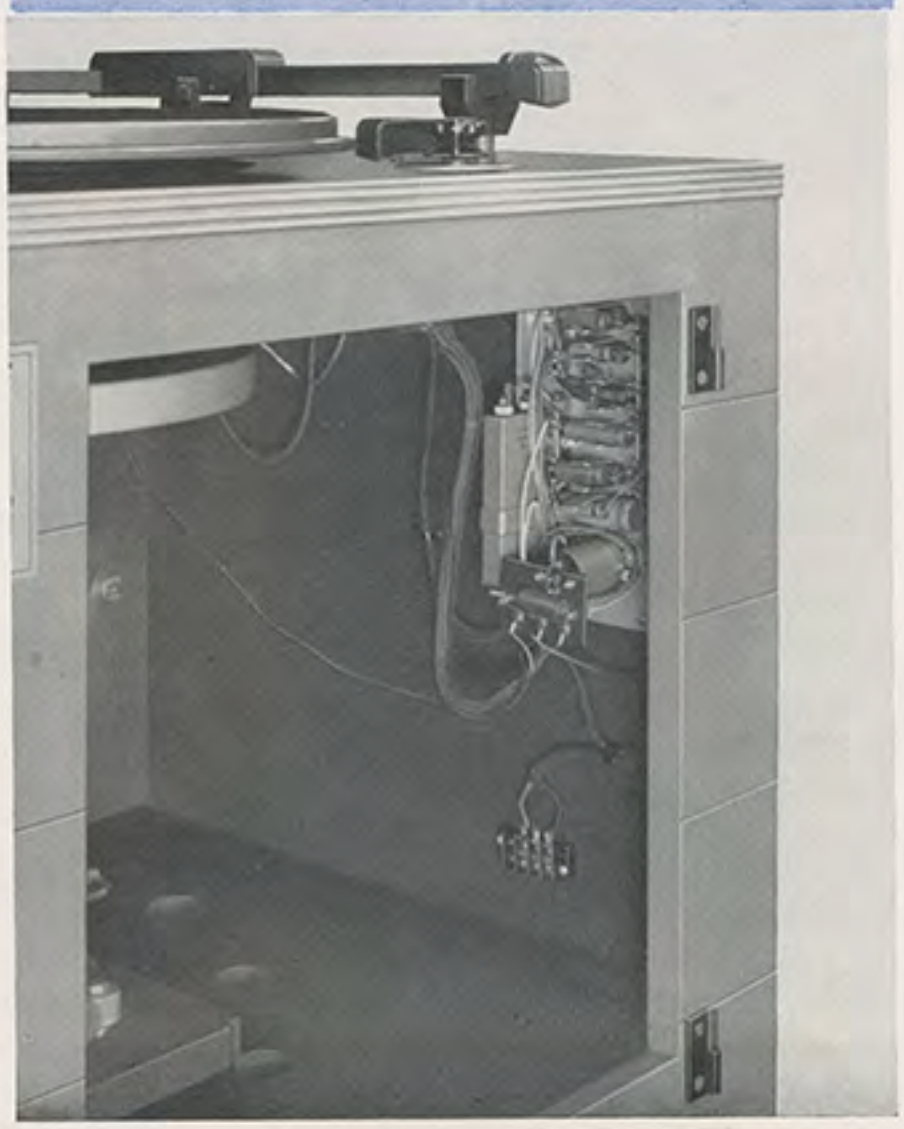
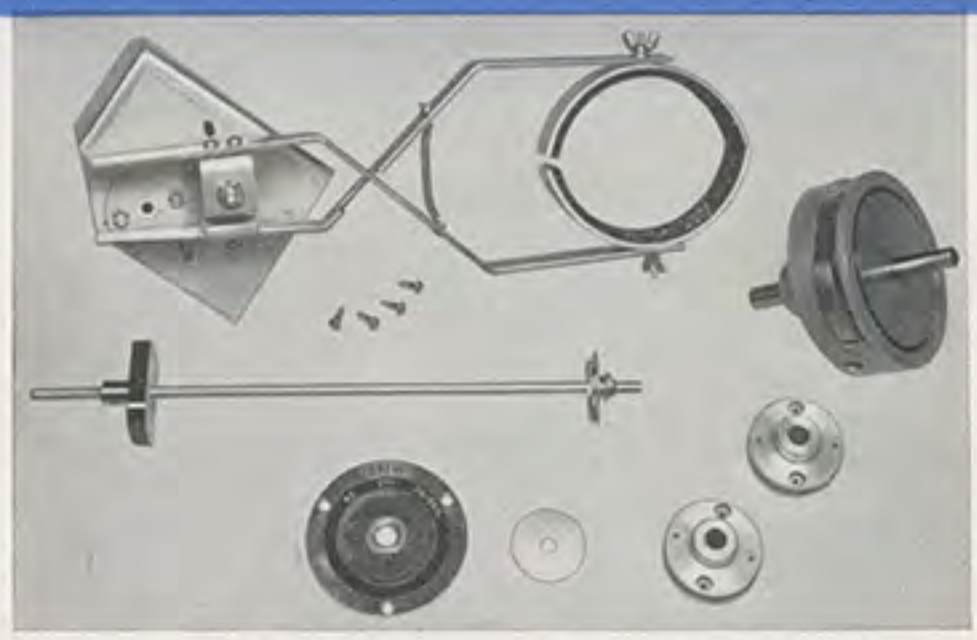


45 RPM CONVERSION KIT

MI-11883

FEATURES

- Simple to add to present RCA turntables
- Quick speed changes
- Rugged construction for long service
- Quiet operation
- Accessory fine groove pickup and tone arm available



DESCRIPTION

The 45 R.P.M. Conversion Kit is made available to broadcasters for playing the new RCA 45 R.P.M. records on any type 70-C or 70-D Transcription Turntable. The modification kit is easy to add to existing turntable and requires minimum investment by eliminating the expense of additional turntables. The kit consists of a ball-type speed reducer which is installed between the two flexible couplings in the main drive shaft of the 70-D turntable. In one position, the ball reducer is inoperative and the shaft is driven straight through at 78 R.P.M. In the other position, the ball reducer drives the shaft and flywheel at 45 R.P.M. The over-riding spring clutch is built into the new mechanism and is operative in both positions.

Speed change is accomplished by turning the motor control knob on the turntable deck. It may be shifted in either direction while the turntable is running. Three positions are provided: (1) an "Off" position which completely shuts down turntable by turning off motor, (2) a "78—33⅓" R.P.M. position which permits either speed by use of speed-change lever on turntable and (3) "45" R.P.M. position which permits this speed with speed-change lever set at "78".

Also required but not included in this kit, is a second tone arm for fine groove playback (MI-11884).

SPECIFICATIONS

Approximate Weight, Unpacked.....6½ lbs.
Stock Identification MI-11883
(Kit includes clutch assembly (speed changer), arm assembly (brake), switch and cam shaft assembly, dial plate, 2 couplings and adapter hub.)

Accessories

Lightweight Tone Arm.....MI-11885
1 Mil Pickup for Fine Grooves.....MI-11874-4
2.5 Mil Pickup for Standard Transcription.....MI-11874-5

45 R.P.M. RECORD ADAPTOR, MI-11886

Arrow above points to the MI-11886, 45 RPM Adaptor, mounted on the 70-D Turntable

The MI-11886 Adaptor Plate is designed for use in playing 45 rpm records on standard transcription turntables. It adapts the turntable to accommodate 45 rpm records, but does not convert driving speed.

Constructed in a single, one-piece unit, the Adaptor Plate consists of an aluminum disc, 9 inches in diameter, with a center hub which adapts the turnable spindle to the 45 rpm record hole size. The disc surface is lined with felt from the outer edge to an inner diameter of 3⅞ inches.

Record slippage due to pickup drag is eliminated by the felt covering on the disc surface. Records with as much as ½ inch of warp may be played without difficulty.

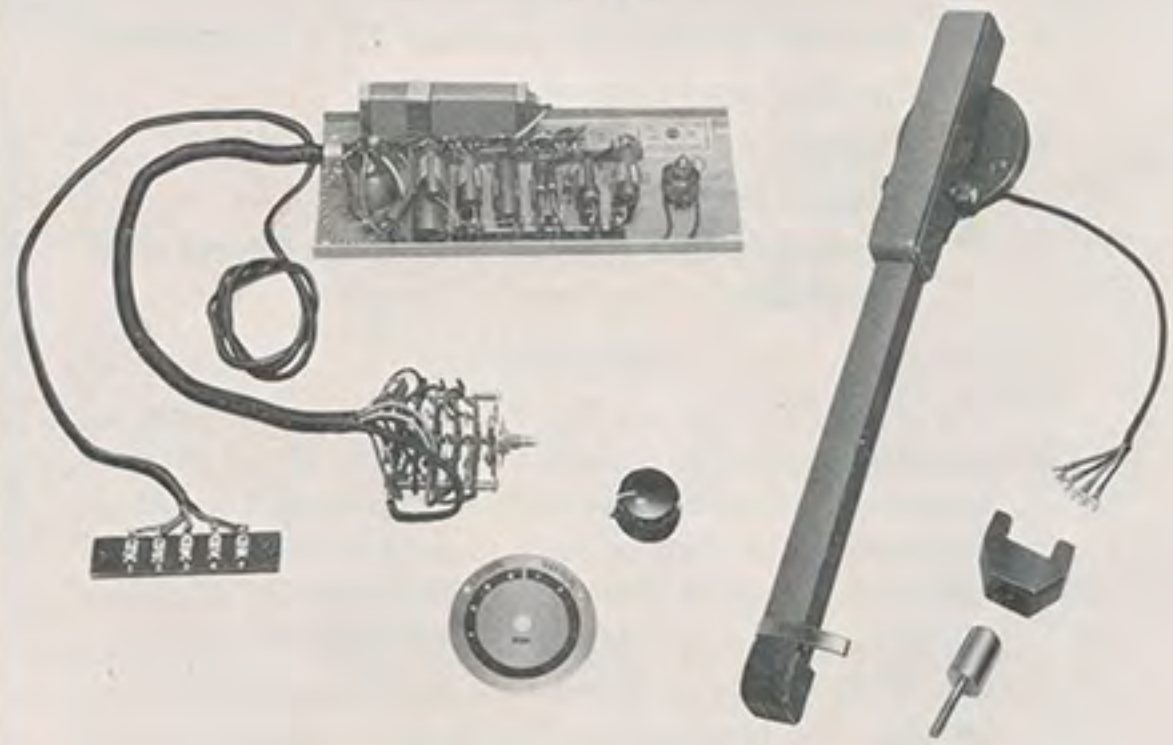
Stock Identification MI-11886

UNIVERSAL TONE ARM AND FILTER KIT

MI-11870

FEATURES

- High quality reproduction of vertical and lateral recordings, 33⅓ and 78 rpm
- Adjustable weight pickup head
- Low moving mass
- Adjustable vertical and lateral stops
- Uses a Diamond Stylus



USES

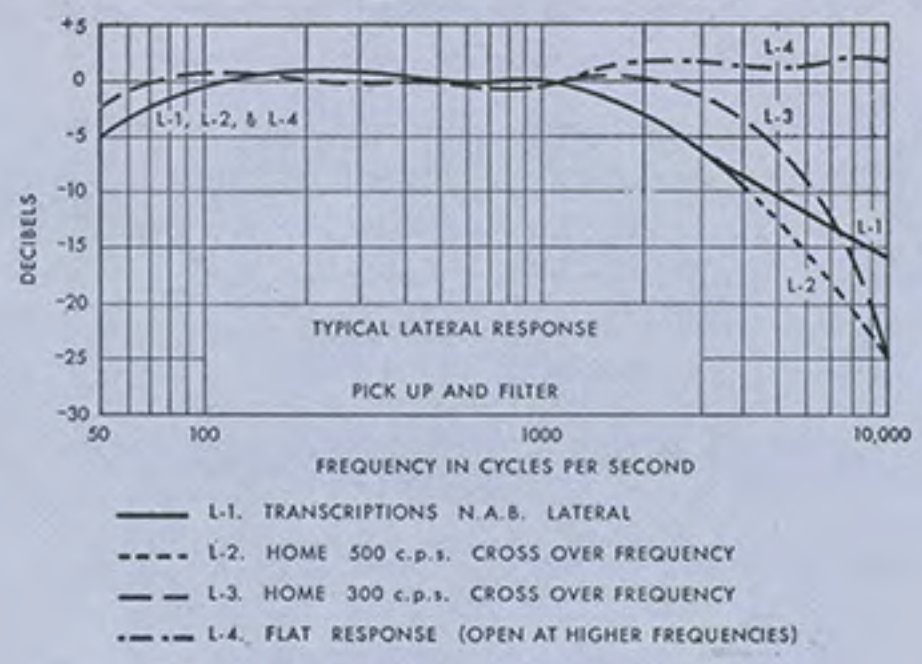
The Universal Pickup Kit has been designed to give an ideal playback response for all 33⅓ and 78 rpm vertical and lateral recordings. This unit has a versatile mounting attachment and may be fitted to most turntables.

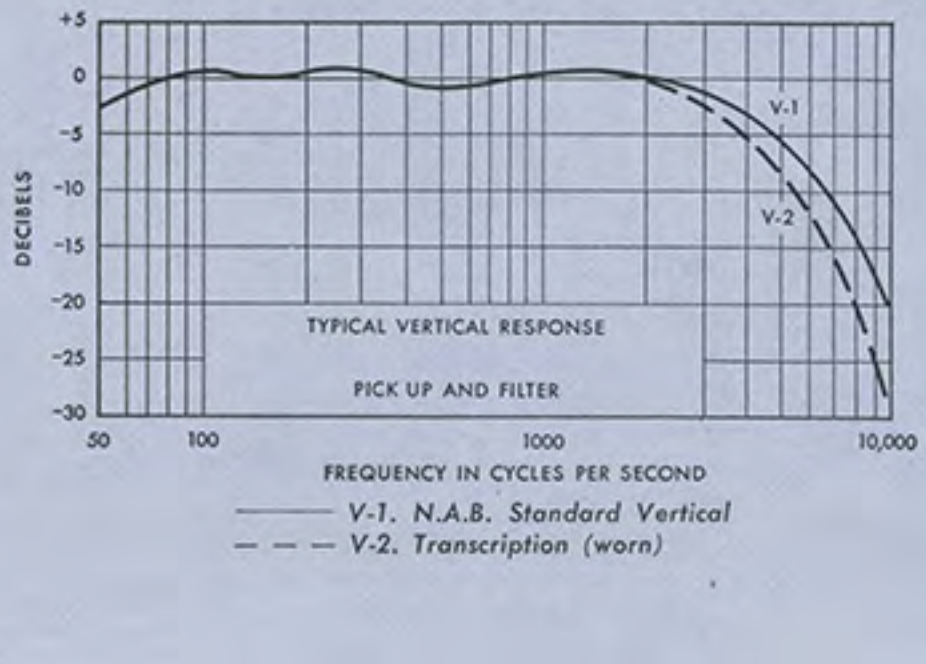
DESCRIPTION

The pickup head is a high quality moving conductor type, in which two ribbons are free to move in a vertical and lateral field. The head used in conjunction with a carefully designed compensator, produces ideal curves for all the various types of records. The compensator uses a series resonant circuit, variably tuned and shunted by merely turning a switch to one of six positions. Each kit consists of a Universal Pickup Head with an attractively styled tone-arm complete with finger lift, tone-arm rest, MI-4975 reproducing filter, dial plate knob and mounting hardware.

The pickup compensator will operate satisfactorily into an RCA BA-11A, BA-12A and BA-14A amplifier or any amplifier designed with an unloaded input transformer for operation from a 150 or 250 ohm source impedance.

Weight (unpacked)	12 lbs.
Stock Identification	MI-11870





REPRODUCING FILTER

MI-4975

The MI-4975 Reproducing Filter is used with both the RCA Universal Pickup and the RCA Lightweight Tone Arm equipment. It provides proper compensation for the various recording characteristics in use on records and transcriptions. Its uses in combination with the RCA reproducing equipment are explained in the chart below.

The MI-4975 Kit consists of a filter, 6-position switch, terminal board and interconnecting cables.

Weight, unpacked.....3¼ lbs.
Stock Identification.....MI-4975

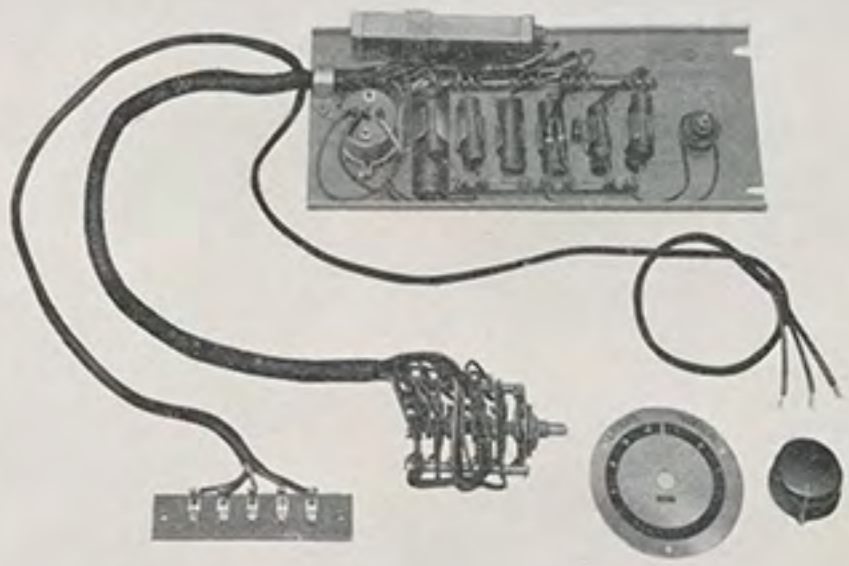


TABLE FOR USE IN DETERMINING REPRODUCING EQUIPMENT REQUIRED TO PLAY DESIRED TYPES OF RECORDINGS

TYPE OF RECORDS TO BE PLAYED	*REPRODUCING EQUIPMENT REQUIRED*
Lcteral transcriptions, 78 rpm records and fine groove records	MI-11885 Lightweight Tone Arm MI-11874-4 1 Mil Lightweight Pickup Head MI-11874-5 2.5 Mil Lightweight Pickup Head *MI-4975
Lateral transcriptions and 78 rpm records	MI-11885 Lightweight Tone Arm MI-11874-5 2.5 Mil Lightweight Pickup Head MI-4975 Reproducing Filter
Fine groove records only	MI-11885 Lightweight Tone Arm MI-11874-4 1 Mil Lightweight Pickup Head *MI-4975
Lateral and Vertical transcriptions, 78 rpm records and fine groove records	MI-11870 Universal Pickup Kit (includes MI-4975 Filter) MI-11885 Lightweight Tone Arm MI-11874-4 1 Mil Lightweight Pickup Head
Lateral and Vertical transcriptions, and 78 rpm records	MI-11870 Universal Pickup Kit (includes MI-4975 Filter)

* MI-4975 Filter available from existing equipment may be used.

LIGHTWEIGHT TONE ARM

MI-11885

FEATURES

- Used with RCA plug-in heads, provides high quality reproduction of 45 rpm and 33⅓ rpm fine groove records, standard transcriptions and commercial records
- May be applied to existing turntables.
- Less than 4 degrees tracking error on any standard record
- Low mass and anti-friction pivots permit tracking on warped and eccentric records.

USES

The new lightweight pickups and tone arm (MI-11874 series and 11885 respectively) have been designed to fulfill the need for a high-quality broadcast pickup combination for playing fine groove records and standard transcriptions. A popular application of this new design is in combination with present Universal Pickups and RCA 70-D Turntables. In such installations, the new unit provides the broadcaster with pickup and tone arm facilities for groove sizes associated with all three speeds. 70-D Turntables are easily modified for the 45 rpm speed by means of MI-11883 Kit. Filters in these turntables may be utilized by addition of components supplied with the MI-11885 Tone Arm.

DESCRIPTION

The lightweight tone arm is designed to function with two diamond stylus sizes (1 mil stylus for fine groove and 2½ mil stylus for standard transcription and 78 rpm records). These are readily interchangeable as "plug-in" units.

Tone arm resonances have been carefully placed so that they are outside of the operating frequency range of the systems, thus assuring smooth response characteristics. Distortion due to tracking error in the arm and pickup has been reduced to a minimum by careful design. The anti-friction vertical and lateral pivots and low mass allow the tone arm to track warped and eccentric records.

The required stylus forces are only a fraction of what was formerly considered necessary, thus assuring longer life for both the stylus and the record. Design of the pickup system permits interchange of the magnetic heads without necessitating any adjustment for correct stylus pressure. The stylus is readily visible, providing means for accurately spotting the pickup on the record.

LIGHTWEIGHT TONE ARM (Cont'd)

SPECIFICATIONS

Tracking Error, 16-inch Record (C. D. 12")....4° max.

Pivot Bearings....Anti-resonant bearings in vertical and horizontal planes

Tone Arm Head Receptacle....Quick-lock, plug-in type

Construction of Arm....Aluminum casting

Length of Arm....15"

Width of Arm....Tapered 1½" to ⅝"

Height of Arm....Tapered ⅝" to 9/32"

Approx. Shipping Weight (arm, assembly, plate, etc.)....3 lbs.

Mounting....Approx. 12" from spindle center

Stock Identification:
(Tone Arm (less pickup heads) includes assembly complete with mounting plate, tone arm rest, mounting hardware and modification kit complete with new dial plate) MI-11885

70-F Turntable with Pickup and Tone Arm installed at rear

LIGHTWEIGHT PICKUP HEADS

MI-11874-4 AND MI-11874-5

SPECIFICATIONS

Lightweight Lateral Magnetic Pickups

Output Pickup Impedance....135 ohms @ 1000 cycles

Load Impedance....Filter Output should be connected to unloaded input transformer of amplifier designed to operate from 250 ohm source (BA-11A or BA-12A).

Compensation Required....MI-4975 (modified) Filter

Frequency Response....(See curve)

Voltage Output....Open circuit voltage at terminals of pickup head, reproducing 1000 cycle band of 6.1 cm/sec. test record is 11 millivolts.

Output Level at MI-4975 (modified) Filter Output: −64 dbm on 100 cycle band of 6.1 cm/sec. Test Record 460625-6

Hum Level.... −139 dbm with a magnetic flux density of 1 milligauss

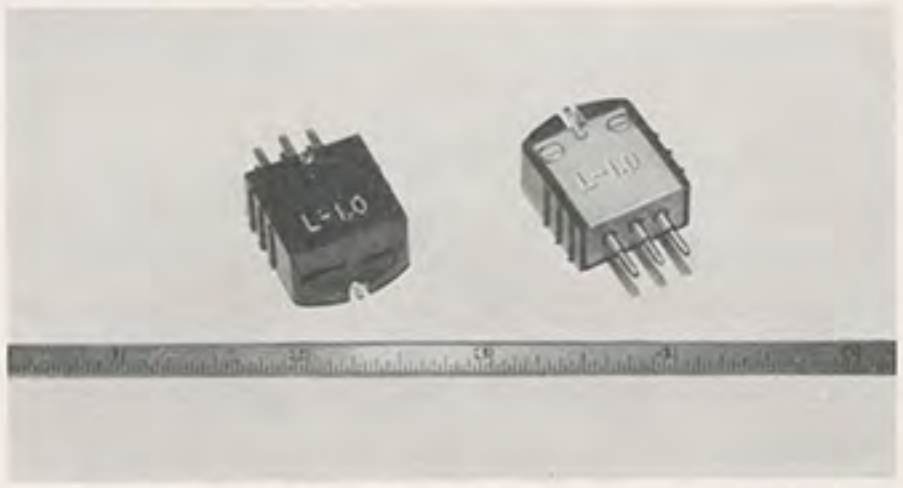
Pickup Weight....MI-11874-4 (0.37 oz.); MI-11874-5 (0.51 oz.)

Stylus Force in combination with Tone Arm, MI-11885:
MI-11874-4....8 grams MI-11874-5....12 grams

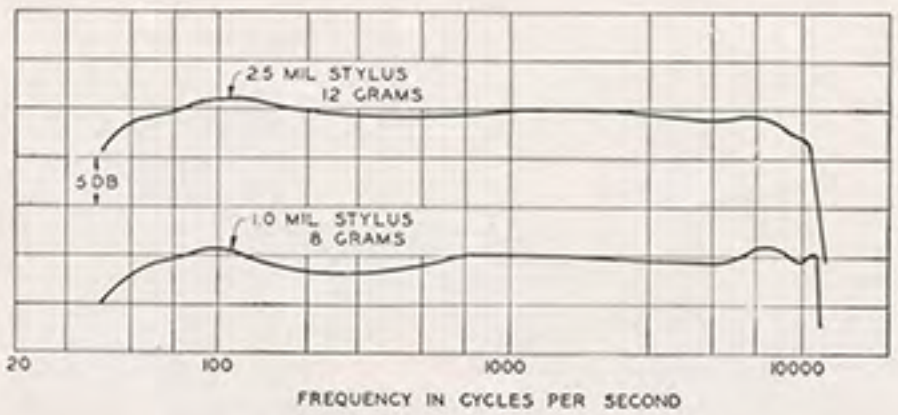
Stylus Tip Radius (Polished Diamond Stylus):
MI-11874-4 (for fine groove)....1.0 mil
MI-11874-5 (standard transcriptions)....2.5 mils

Overall Dimensions (plug-in pickup heads):
Excluding contact pins....Width ¾", Depth ¾", Thickness 7/16"

Stock Identification:
1 mil, Pickup, Fine Groove (color, Red)....MI-11874-4
2.5 mil, Pickup, St'd Transcription (color, Green)....MI-11874-5



Plug-in Type Pickup Head, MI-11874-4



Typical response of Pickup, Tone Arm and Filter

See chart on page 103 for Equipment Combinations required for various records and transcriptions.

FINE GROOVE TRANSCRIPTION TURNTABLE

TYPE BQ-1A

FEATURES

- Compact turntable provides speeds at 45 and 33⅓ rpm for fine groove recordings
- Spindle hub which changes diameter simultaneously with speed change
- "Off-On" mercury switch which disengages driving idlers in "Off" position
- Lightweight tone arm with plug-in heads
- Plays records with approximately ⅛ inch warp
- Four position reproduction filter
- Quick starts. Full speeds in ¼ revolution
- Easy cueing made possible by quick start and disengaging of drive idlers
- Convenient record pick-up. Recess grooves in platter provide finger space for removing records

USES

The BQ-1A fine groove turntable provides means for reproducing with broadcast quality all commercial types of fine groove recordings (33⅓ and 45 rpm). It can be conveniently mounted in an existing console, table or bench, or installed in the cabinet designed for this turntable.

The cabinet assembly (MI-11808) not only provides for housing the turntable but provides for mounting a booster or monitoring amplifier. There is also shelf space for storing records that would be used during a program.

Bottom view of the turntable platter and spindle assembly

DESCRIPTION

The BQ-1A turntable design consists of a single reluctance torque synchronous drive motor with a two-step-diameter shaft and two rubber idlers which engage with either diameter of the motor shaft and the turntable platter rim. A knob located on the front left-hand corner of the motor board when turned to extreme clockwise position engages the rubber idler which produces the 45 rpm speed and at the same time moves into position the large hub diameter for the 45 rpm record. The 33⅓ rpm speed with the small spindle diameter in position is accomplished by turning the same knob counterclockwise. The speed control knob moves a cam which places either one or the other rubber idler in position against the desired diameter of the motor shaft and platter rim. The rim drive is internal.

The mechanism which operates the spindle hub-changing device consists of a two-position detented "pop-up." This "pop-up" is raised or lowered by a set of pads mounted on an arm assembly which ties in with the speed-change knob. The travel of the arm assembly and pads is so controlled that after the "pop-up" is detented into position they do not drag on the turntable platter assembly.

On the right hand corner of the motor board is located an "Off-On" knob which operates a mercury switch. Tied to the knob assembly is an additional linkage which disengages the rubber idlers and relieves the pressure on them when the machine is idle.

Directly to the rear of the "Off-On" position is located the reproduction filter. A four position switch selects the proper filtering. The filter assembly is enclosed in a compact and easily accessible chassis with cover. A terminal board mounted on the outside of the chassis provides for easy connection of external amplifiers.

The turntable platter and spindle assembly is mounted in the main support casting in oilite bushings. The thrust is supported by a single ball at the bottom end of the spindle. The drive motor is mounted on a separate plate and supported by vibration mounts to eliminate rumble. All posts which provide pivot shafts for the arms and links are assembled on a common plate to insure their proper location.

The tone arm is similar in design to the MI-11885 but is shorter in over-all length. The horizontal pivots as well as the vertical pivots for the tone arm are under the arm and present a trim and compact appearance. The performance of the tone arm is comparable with the lightweight tone arm MI-11885.

The cabinet assembly is designed to support the motor board assembly on four mushroom type vibration mounts. A hinged door which drops down directly under and in front of the motor board provides access to the underside of the turntable for service and maintenance. A shelf assembly which slides in and out of the lower portion of the cabinet has provision in the rear for mounting a booster or monitoring amplifier. The shelves themselves provide quickly accessible record storage.

SPECIFICATIONS

Reproduction Filter.....4-position switch permits selection of proper compensation over a frequency range of 50-10,000 cycles

Performance Data:
- Output Impedance.....150 ohm nominal
- Load Impedance.....Unloaded input transformer
- Output Level.....—69 dbm at 1000 cycles band of test record 12-5-31
- Noise Level.....—120 dbm

Tone Arm:
- Overall Length .....12"
- Height Above Motorboard.....1½"
- Distance Below Motorboard.....3"
- Weight Including Plate and Collar.....1¾ lbs.
- Length (pivot to stylus).....8½"

Platter Assembly (aluminum casting, steel spindle):
- Overall Diameter .....12¾"
- Lift Grooves Accommodate 7, 10 and 12" Records
- Spindle Diameter.....5/16" for "L.P.", 1½" for 45 rpm
- Weight .....5½ lbs.

Mechanical Specifications

Turntable Assembly:		Cabinet Assembly:	
Length	18½"	Width	20"
Width	14¾"	Depth	16½"
Height	10"	Height	28"
Weight	31 lbs.	Weight	45 lbs.

Stock Identification

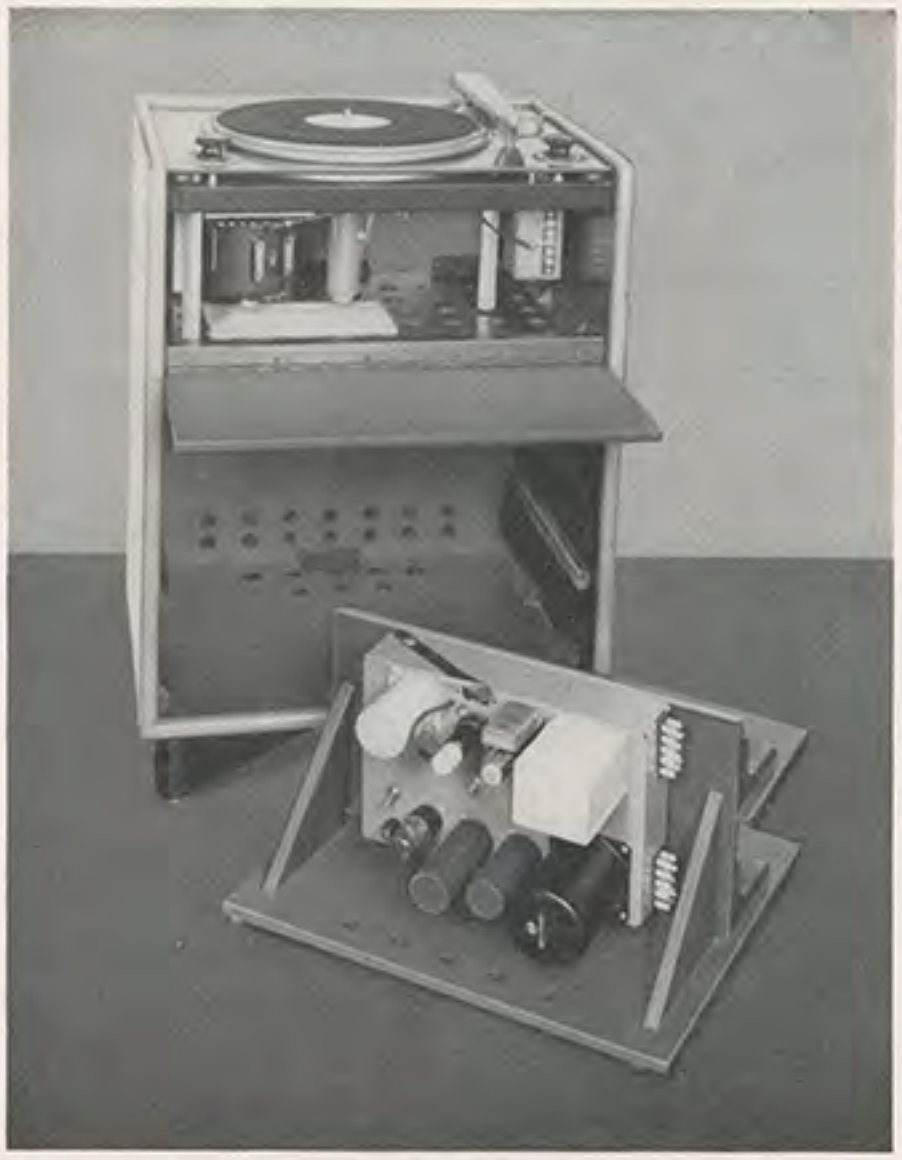
(Turntable complete with platter, filter, tone arm, 1 mil pickup, but less cabinet, less amplifier).

Fine Groove Turntable, BQ-1A
60 cycles, 117 volts.....MI-11806/11874-4

Cabinet Assembly (for fine groove Turntable).....MI-11808

BA-12A Utility Amplifier.....MI-11232

Tube Kit for BA-12A Amplifier.....MI-11287



Cabinet assembly showing hinged door providing access to underside of turntable, and sliding shelf assembly for mounting a booster or monitoring amplifier

TRANSCRIPTION TURNTABLE

TYPE 530

FEATURES

- Three-speed operation—33⅓, 45 and 78.26 rpm
- Constant speed, synchronous drive at all speeds
- Quick start—less than ½ revolution at 33⅓ rpm
- Timing at all speeds within limits of power line frequency
- Cueing by slipping record practical at any speed
- Speed may be changed while the turntable is in motion

DESCRIPTION

The complete equipment is housed in an attractively styled cabinet, finished in light umber gray. A removable door is located at the front of the cabinet to provide convenient access to the motor and drive mechanism. A gray linoleum top is used. Sufficient space is provided within the cabinet to mount a booster amplifier, if desired. The cabinet is 26½ inches high. Overall height of the turntable is 28 inches.

Selection of turntable speed is provided by a rotary selector switch located near the front edge of the cabinet top. The turntable operating speed may be changed while the turntable is in motion as well as at rest. A separate mercury switch located on the turntable surface serves as a power switch to the motor. The drive mechanism insures quick start from motor switch—less than ½ revolution at 33⅓ rpm. All three speeds are synchronous.

SPECIFICATIONS

Turntable Speeds.....33⅓, 45, and 78.26 rpm, synchronous

Speed Regulation:
- (a) Instantaneous speed variation lower than National Association of Radio and Television Broadcasters Specifications at all three speeds.
- (b) Timing accuracy at all speeds within limits of power line frequency.

Mechanical Noise Level:
At 78 rpm better than minus 40 db as measured in accordance with National Association of Radio and Television Broadcasters Specifications. Correspondingly better at 45 and 33⅓ rpm.

Cueing Time:
- (a) Stable speed attained from motor switch start in
  - ½ revolution at 33⅓ speed
  - ⅔ revolution at 45 speed
  - 1 revolution at 78 speed
- (b) Technique of cueing by slipping the record practical at any speed.

Turntable Size.....16" diameter—undercut at top for easy removal of 16" records

Motor.....1/20 hp, hysteresis, synchronous

Dimensions:
- Cabinet.....24" x 24" x 26½" high
- Overall Turntable Height.....28" (NARTB recommended)

Weight .....123 lbs.

Finish .....Light umber gray

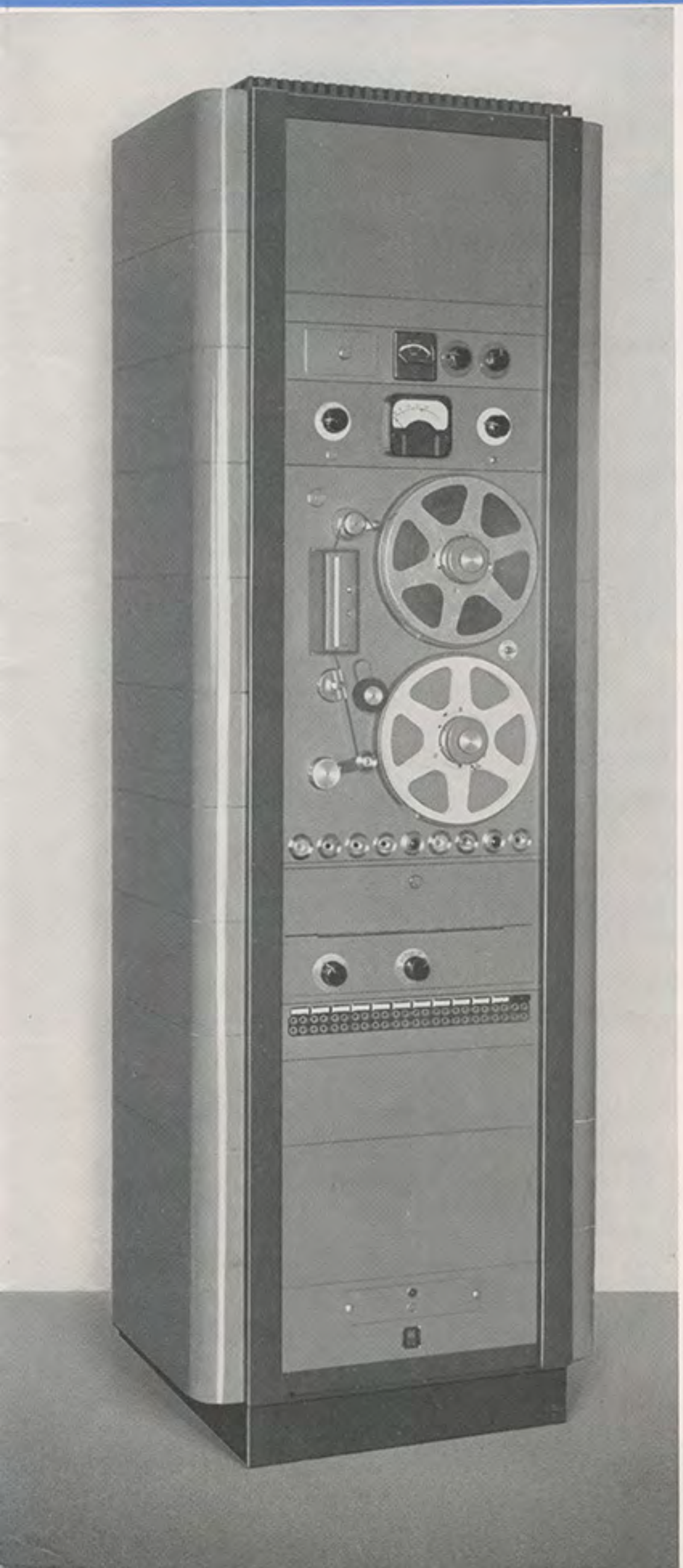
Power Requirements.....110-120 volts, 60 cycles standard

Power Consumption.....120 watts

RCA Stock Identification (Less pickup or filter).....MI-11823

PROFESSIONAL TAPE RECORDER

TYPES RT-11B AND RT-12B

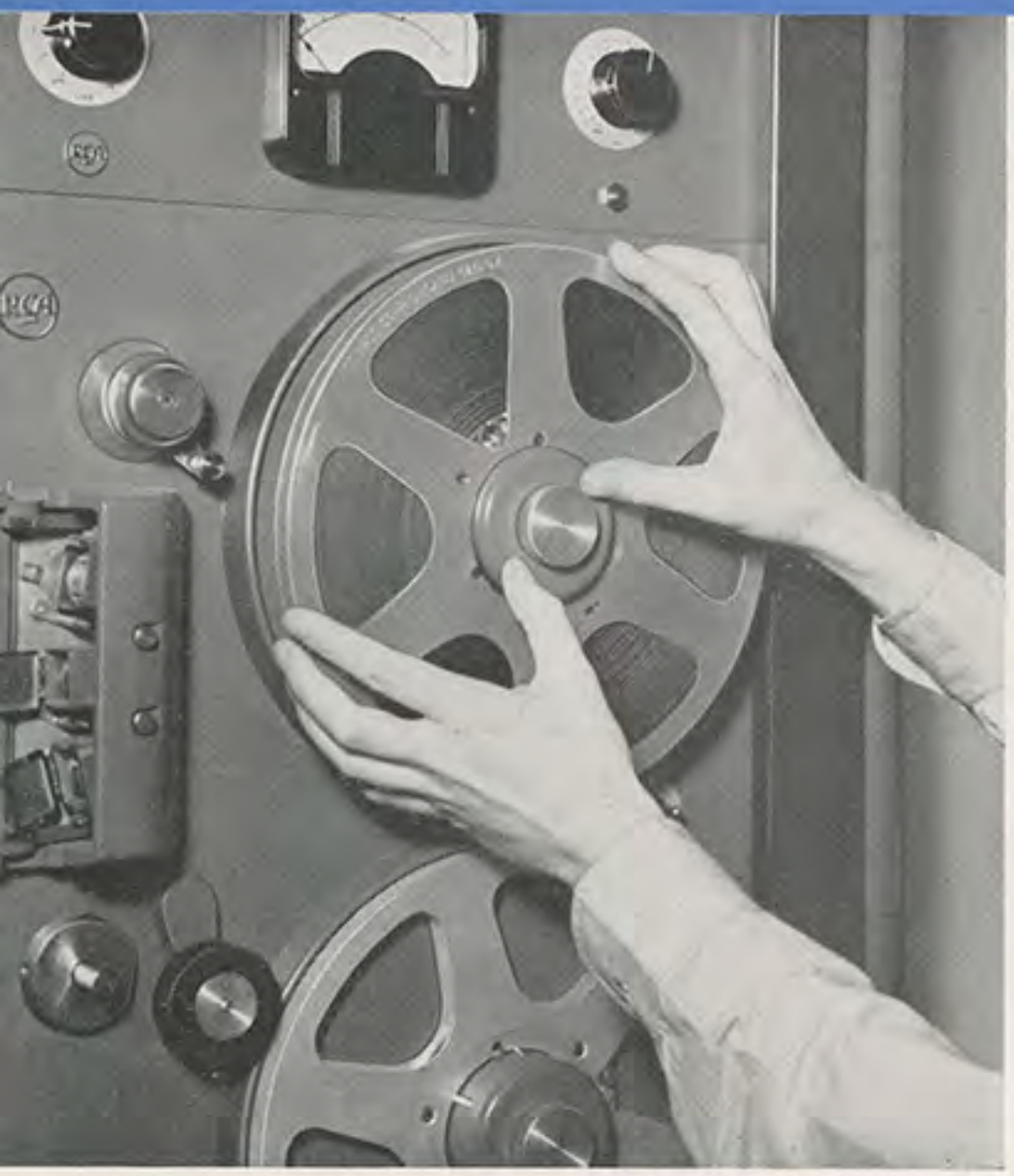


FEATURES

- Rugged mechanical construction — heavy duty relays and solenoids
- Extremely accurate timing with synchronous capstan
- Automatic tape lifters reduce head wear during "fast forward" and "rewind"
- Split-second start and stop
- Frequency response flat to 15 kc at 7½ in./sec. or 15 in./sec.
- Push-button operation provided on the Recorder and on Remote Control Unit, MI-11948
- Smooth tape runs via sapphire guides
- Self-centering "snap-on" hub adaptors assure perfect reel alignment with NARTB or RETMA reels

◀TYPE RT-11B

TYPE RT-12B▼



For ease and speed in changing reels, the RT-11B is equipped with self-centering, "snap-on" reel adaptor knobs.

USES

The RT-11B Magnetic Tape Recorder is a professional unit designed to meet rigid specifications and requirements set forth by broadcast engineers from all sizes of stations and recording studios. Such features as "quick-start," push-button control, and accurate timing make the RT-11B ideal for applications where time and reliability are prime factors. AM, FM and Television stations will find the RT-11B unsurpassed for (1) recording any type studio program, (2) recording programs for delayed broadcasts, (3) commercial accounts, (4) rehearsals, (5) auditions, and (6) for reference recording.

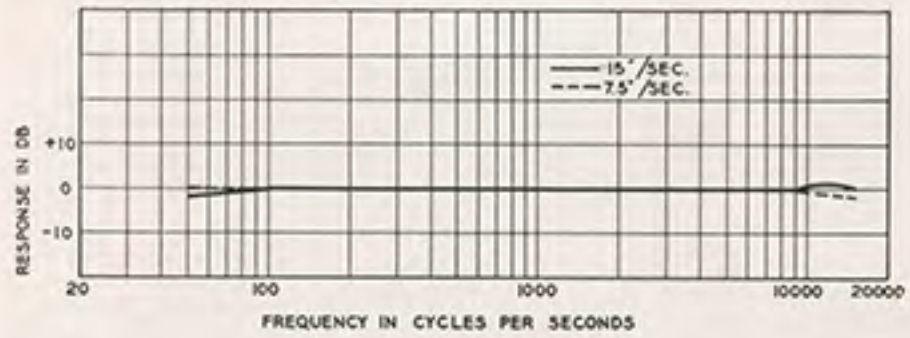
DESCRIPTION

The overall design of the RT-11B incorporates in one recorder—accurate timing, push-button operation, remote control, quick starting plus low wow and flutter. Tape can be started or stopped within 1/10 second and tape may be jockeyed back and forth for cueing during operation. Recording time can be held to ±2½ seconds in a 30-minute run . . . and with synchronizing equipment (for which provision is made) timing can be held to 3/10 second on any length program.

The RT-11B Magnetic Tape Recorder consists basically of four major parts: the tape handling mechanism, power supply, recording amplifier and reproducing amplifier. The three magnetic heads ("erase," "record" and "reproduce") are a part of the tape handling mechanism.

The tape handling mechanism is designed to mount in a standard 19-inch cabinet rack. Its design is such that it may also be used in a horizontal console type machine, if desired. Careful mechanical layout provides the utmost convenience in threading and handling of tape.

All controls are recessed to avoid interference with tape during threading. Relay and solenoid operation enables interlocking of all functions and makes possible full remote control of the machine. A solenoid automatically lifts the tape on sapphire "lifters" during "fast-forward" or "reverse", eliminating the necessity for opening the head cover or rethreading. Tape alignment over the heads is held precisely by a floating casting. Thus smooth tape runs are assured. Automatic control stops the machine if tape is severed and applies reel brakes instantaneously. The



Typical response curve of RT-11B Tape Recorder.

complete system of control interlocking virtually eliminates the possibility of accidentally erasing a program and makes it impossible to snarl or spill the tape.

Control circuits consist of "ON-OFF," "Speed—7.5 or 15 in./sec.," "Start," "Record," "Fast Reverse," "Fast Forward," and "Stop." The major functions may also be extended to remote positions by use of Remote Control Unit, MI-11948.

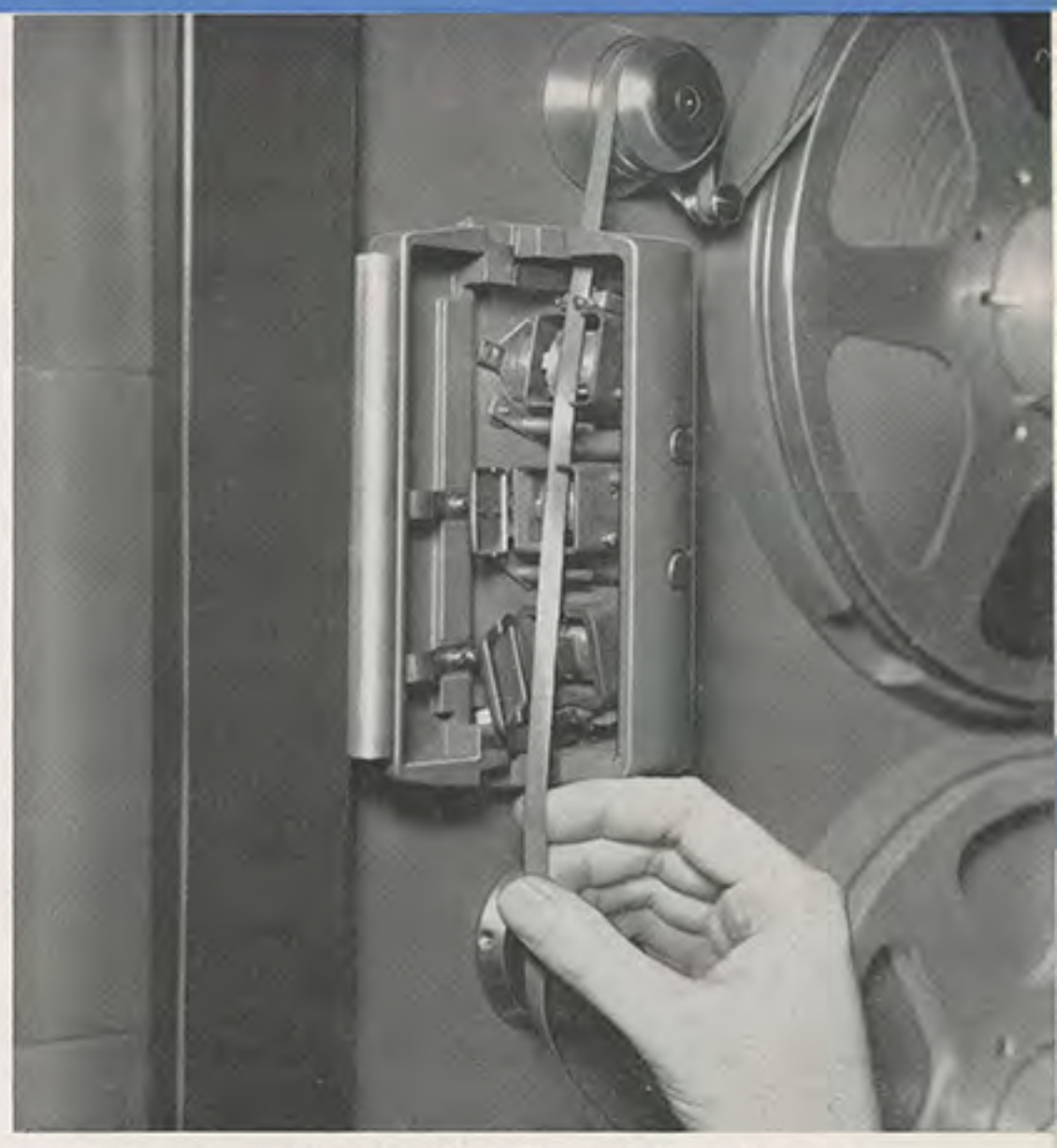
Standard "NAB" reels are simply placed on the hub or removed without disturbing the hub itself. (No locating pins are needed.) Smaller RETMA reels may also be used.

Smooth tape motion is an outstanding design feature which is obtained with synchronous capstan operation and speed reduction drive through a toothed rubber belt and stabilized with a high-inertia, coupled-flywheel system. The system exhibits very low wow and flutter in starting and in operation.

The stabilizer, motor, capstan, pressure roller and heads are all mounted on a rigid casting which is in turn mounted in heavy rubber grommets in a three point suspension system.

The three heads (Erase, Record and Reproduce) employ the finest materials obtainable and are machined to tolerances comparable to those called for in optical work. Azimuth adjustment of the "Reproduce" and "Record" head is available by removing the front cover.

Pushbutton Remote Control Unit, MI-11948.

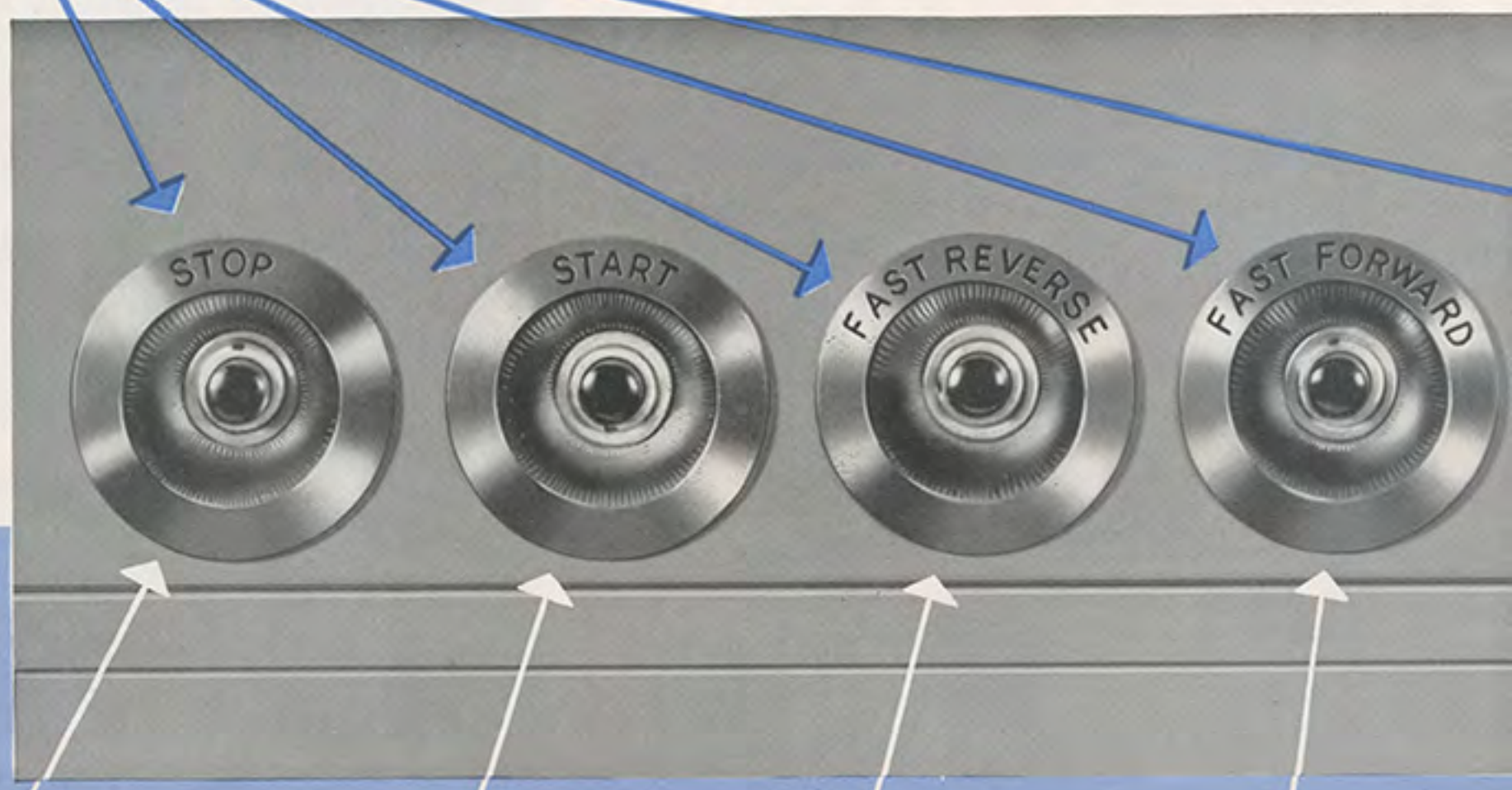


Two standout features of the RT-11B are illustrated above. First, tape threading is reduced to a simple and easy procedure that can be done in a few seconds. Secondly, automatic tape lifting during both "Fast-Forward" and "Fast-Reverse" eliminates unnecessary head wear. Complete cover can easily be removed for adjustment and cleaning of heads.

The amplifier portion of the RT-11B is divided into three parts, each occupying one-third of a standard BR-2A shelf. The three units (power supply, recording amplifier and oscillator, and reproducing amplifier) are all standard RCA "plug-in" construction. A complete wiring harness is supplied with the recorders to facilitate installation. The same harness accommodates rack and shelf or console arrangements. Tube metering and "VU" meter connections are provided to allow the easy addition of accessory panels.

INSTANT PUSH BUTTON CONTROL FOR

Only 5 convenient, clearly marked push-button controls provide effortless operation of all recording functions.



STOP—This push button stops the tape quickly. It de-energizes all the above circuits, applies the brakes to the reels, leaves the pressure roller and tape free from the capstan with the tape lifters down. The bias oscillator plate voltage is removed and the recording head shorted. Tape comes to complete stop in 1/10 second.

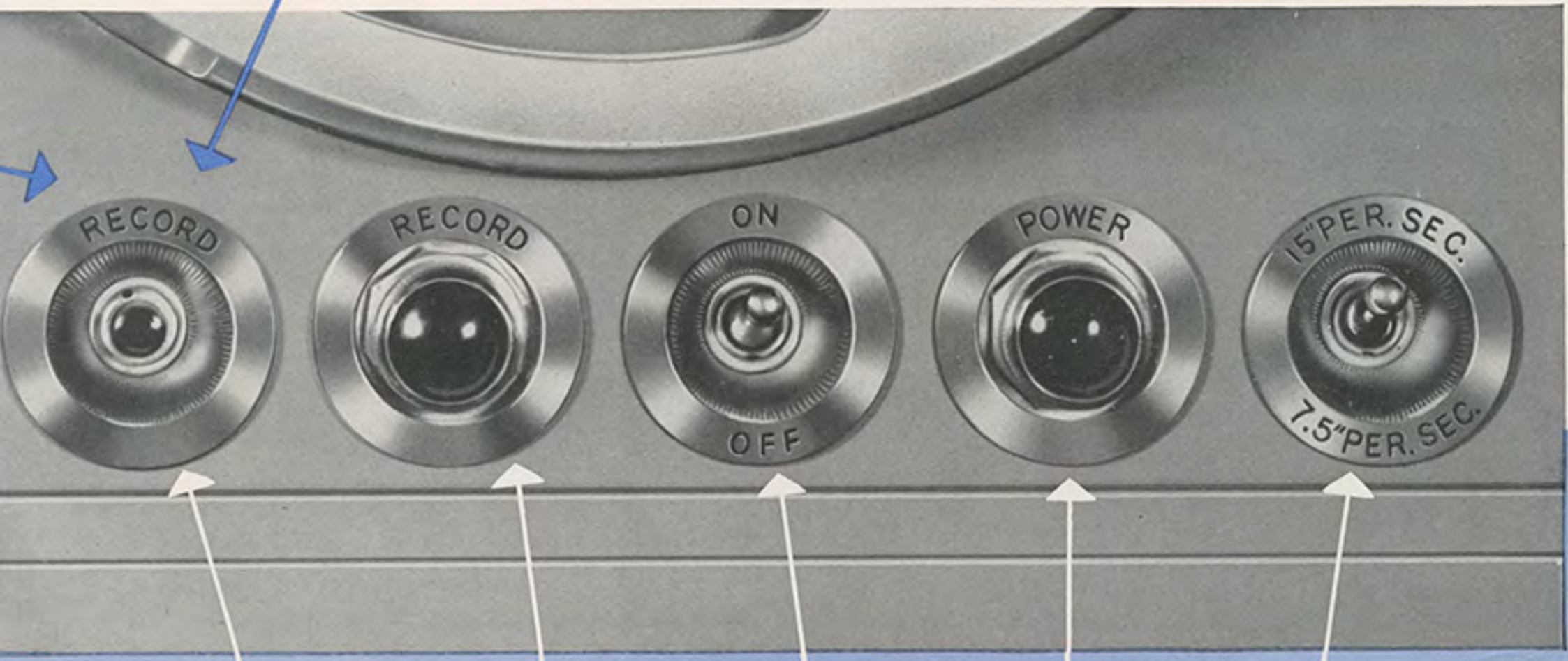
START—This push button starts the tape moving across the heads at normal speed. The actual functions accomplished are: removes brake load from reel motors; energizes reel motors at reduced power and pushes the pressure roller against the tape and capstan (moving the tape at capstan speed). Tape comes up to full speed in 1/10 second.

FAST REVERSE—This effects rapid rewind of the tape. Functions performed are: releases brakes; releases "Record" functions if they were energized; releases the capstan pressure roller if it was energized; energizes the tape lifter mechanism; applies full power to the supply reel motor so the tape rewinds. The circuit overrides all other circuits and can be operated without first pressing the "Start" button.

FAST FORWARD—This effects rapid forward winding of the tape. Its functions are the same as "Rewind" except for the direction of the tape. "Fast Reverse" overrides "Fast Forward" if both buttons are pressed at once. The two may be pushed alternately to obtain exact placement of the tape.

FASTER OPERATIONAL SWITCHING

All push buttons are recessed to avoid interference with tape handling.



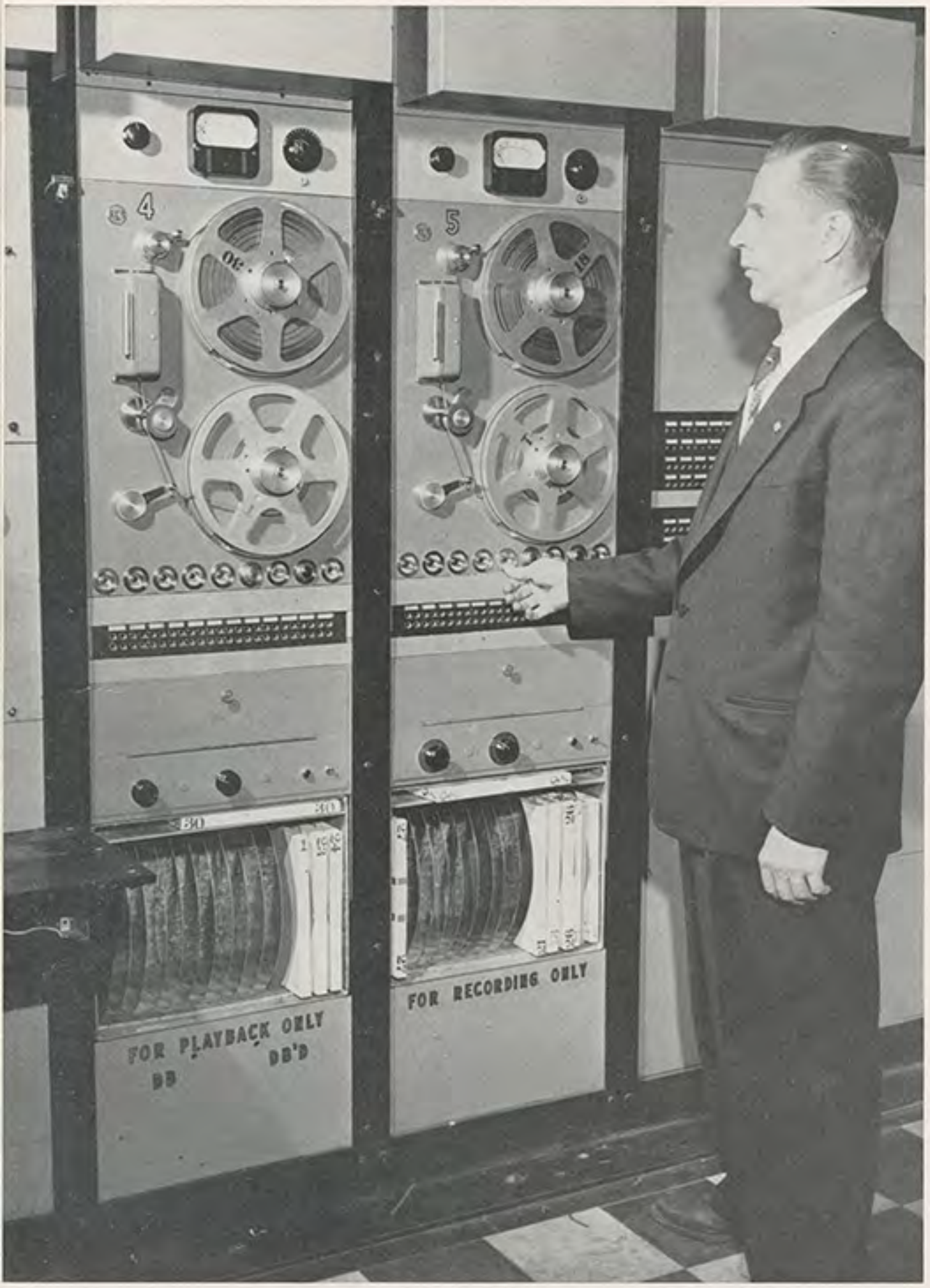
RECORD—The "Record" push-button switch starts the recording function. Functions performed are: removes short circuit from recording head; applies plate potential to the oscillator circuit and lights the "Record" lamp. Electrical interlocking prevents operation until "Start" button has been pressed. Both "Record" and "Start" may be pressed at same time to start recording immediately.

RECORD INDICATOR—The "Record" lamp indicates that the machine is recording (and simultaneously erasing what had been on the tape).

POWER SWITCH—A toggle switch turns on the a-c power. The capstan motor is started by this switch and requires about as much time to reach full speed as the tube filaments require for warm up. Control circuits are not energized until this switch is on.

OFF-ON—Power indicator pilot.

SPEED SELECTION—This toggle switch selects the capstan motor speed for either 7.5 or 15 inch/sec. tape speed. It operates a small relay in each of the amplifiers to automatically adjust compensation for each speed.



Recognizing the growing demand for recorded messages of all kinds, whether for radio broadcasting or for personal records, Westinghouse Radio Station KDKA, Pittsburgh, has instituted KDKA Recordings, the largest recording studio between New York and Chicago. For this operation they have selected RCA Professional Tape Recorders.

RCA Professional Tape Recorders have proved so dependable that remote control operation has become general practice. The engineer handling the program to be recorded can control the tape recorders "Start", "Stop", "Fast Forward", "Fast Reverse", and "Record". This speeds up operation by improving coordination so that a single engineer can easily handle the whole job, even when two machines are used to get special effects.

Taking advantage of the easy editing, dubbing and redubbing without loss of quality afforded by these machines, all recording can be done first on tape, even though the order is for acetate. This saves time and avoids spoiled discs, since several cuts can be made until a satisfactory one is arrived at from a production standpoint before dubbing to discs.

Broadcast Station Operators have become very adept at handling unusual assignments on this versatile equipment.

The equipment can be used for delayed broadcasts, taped interviews or round table discussions. It offers a wide variety of service for auditions and air checks for clients and agencies. This equipment also provides an opportunity to build and recheck air shows for future use.

CONSOLE MODEL RT-12B

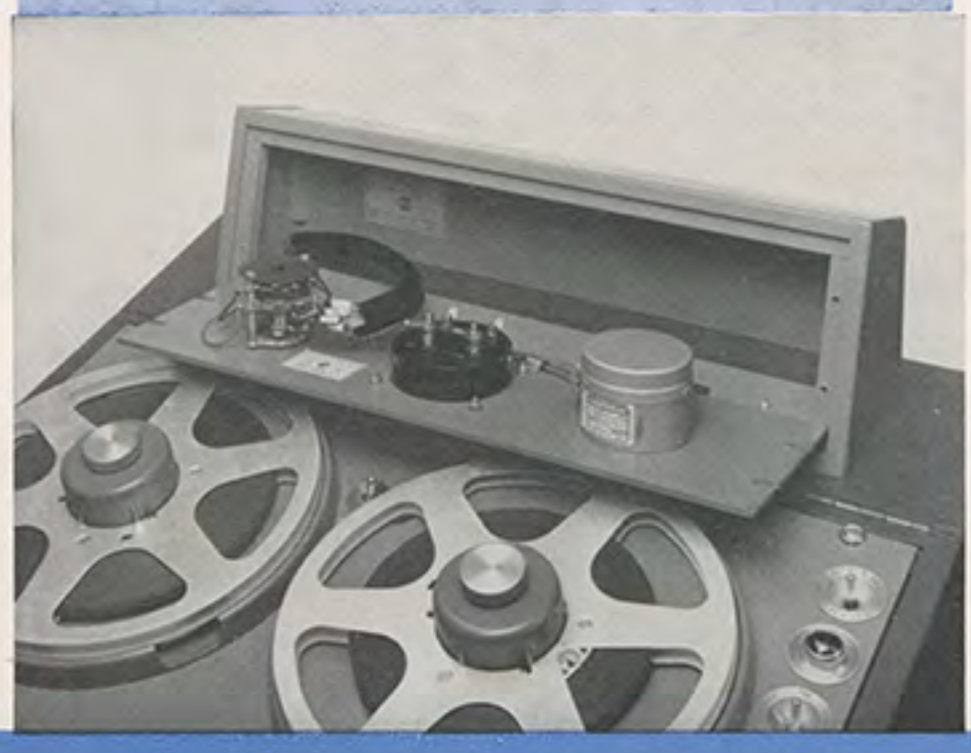
CONSOLE MODEL, RT-12B—The basic RCA Tape Recorder is also available in a console version (at right below) for studio use which retains all design features of the RT-11B rack-mounted unit. It is suitable for installing in the control room adjacent to studio consolette or turntables as desired.

The Tape Drive unit and other components of the RT-12B Console are the same as those of the RT-11B Rack Model, except for the console housing. The recording amplifier, reproducing amplifier and power supply are mounted inside the Console housing. Easy access to these units is provided by a removable front panel. A console meter turret (MI-11972) is available as an accessory for mounting a VU meter panel.

For convenience, a base (MI-11971) may be added to provide 10 inches of additional height to facilitate operation from a standing position.

Above, view of Type RT-12B Professional Tape Recorder with top raised and bottom panel removed, showing full access to all components.

View below shows turret MI-11972 mounted on the console and open VU meter panel MI-11265-E. Connections for checking recording and reproducing levels and tube metering for recording and reproducing amplifiers are shown.



SPECIFICATIONS

Power Source.....110-220 volts, a-c, 60 cycles

Power Consumption (Tape Drive Unit).....250 watts

Power Consumption (Amplifiers).....110 watts

Frequency Response:
- 15 in./sec.....±2 db from 50 to 15,000 cps
- 7.5 in./sec.....±2 db from 50 to 10,000 cps
  ±4 db from 10,000 to 15,000 cps

Distortion:
- Reference Recording Level.....3% total RMS harmonic distortion at 400 cps
- Less than 2% distortion at 3 db below Reference Recording Level
- Less than 1% distortion at 7 db below Reference Recording Level

Input for Reference Recording Level:
- 20,000 ohm Bridging.....—16 dbm minimum
- 150/600 ohm....—53 dbm minimum. Gain control continuously variable

Output from Reference Recording Level.....+24 dbm ±2 db
- Distortion of reproduce amplier at +24 dbm less than 1%. Gain control continuously variable.

Signal-to-Noise Ratio:
- 15 in./sec.....60 db
- 7.5 in./sec. .....55 db
- Unweighted output with zero signal input as referred to that output obtained from a tape recorded at Reference Recording Level. Erasure of 1000 cps signal recorded at Reference Recording Level greater than 70 db.

Tape Speed:
- Start (for playing).....0.1 second
- Stop (for playing).....0.1 second
- Rewind (standard 10½" reel).....1 minute
- Play Speed.....15 and 7.5 in./sec.
- Playing Time (10½" reel).....32 min. at 15 in./sec.
  64 min. at 7.5 in./sec.
  (Using standard NAB reel with 2400 feet of tape)

Wow and Flutter (combined).....1% RMS at 15 in./sec.
.2% RMS at 7.5 in./sec.

Timing:
- ±5 sec. in 30 min. at 15 in./sec. (machine to machine).
- ±2½ sec. in 30 min. when played back on same machine at same temperature and humidity. Capstan is synchronous.

Dimensions:
- Tape Drive Unit.....Length 24½"; Width, standard 19" rack mtg.
- Amp. Panel and Shelf....Height 8¾"; Width, standard 19" rack mtg.
- Reproducing Amplifier.....Height, 13¾" (overall); Width, 5 3/16"; Height, 7"
- Recording Amplifier.....Length, 3¾" (overall); Width, 5 3/16"; Height, 6¼"
- Power Supply.....Length, 12 3/16" (overall); Width, 5 3/16"; Height, 7⅛"

Weight: (Approximate)
- Tape Drive Unit.....86 lbs.
- Reproducing Amplifier .....10 lbs.
- Recording Amplifier .....7 lbs.
- Power Supply .....14 lbs.
- Total Approximate Weight.....117 lbs.

Reels.....10½" NAB; 7" RMA

Tube Complement:
- Recording Amplifier, MI-11293.....2 RCA 1620, 1 RCA 6SN7, 1 RCA 6V6GT
- Reproducing Amplifier, MI-11296.....1 RCA 1620, 2 RCA 6J7, 1 RCA 6SN7GT
- Power Supply, MI-11294.....1 RCA 5R4GY

Equipment Supplied

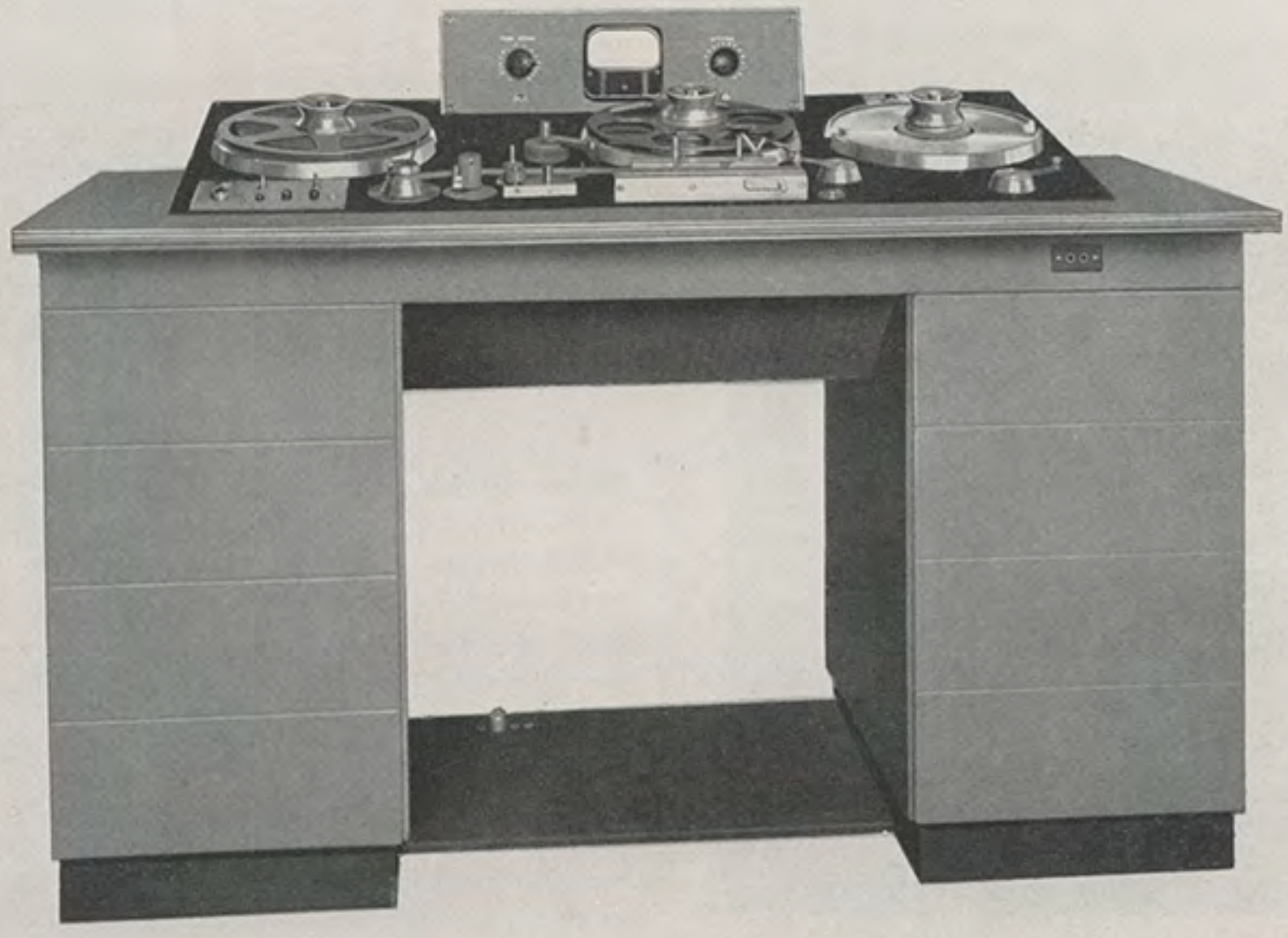
RT-11B Professional Tape Recorder.....MI-11911-B
Includes tape drive unit, separate erase, record and playback heads, amplifiers, power supply, two standard 10½" NARTB reels, two reel knobs, interconnection cable and one BR-2A panel and shelf assembly.

Accessories

Tube Kit for Recording Amplifier.....MI-11293
Tube Kit for Power Supply.....MI-11294
Tube Kit for Reproducing Amplifier.....MI-11296
Colsole (included with RT-12B).....MI-11970
Console Base Extension.....MI-11971
Console Turret for Meter Panel.....MI-11972
VU Meter Panel MI-11265-E
Remote Control Unit MI-11948
Tube Meter Panel MI-11388
Cabinet Rack .....BR-84 Series
Switch and Fuse Panel (57-D).....MI-4395G
Step Type Gain Control, Record Amplifier.....Stock No. 93784
Step Type Gain Control, Reproduce Amplifier .....Stock No. 93786
Tape Splicer MI-11937

Tape Splicer MI-11937.

CUSTOM TAPE EDITING EQUIPMENT



FEATURES

- **Rapid starting and stopping—fast rewind—accurate editing**
- **Individual torque motor provides fast-acting solenoid-operated breaking mechanism on each reel drive**
- **Completely rewinds 2400 feet of tape in one minute from dead stop**
- **Accommodates standard NARTB 10½ inch reels**

DESCRIPTION

RCA Custom-built Recording and Editing Equipment is available in either rack or console combinations. It may be designed to meet the particular requirements and specifications of individual applications. Such arrangements may be varied from those using a single tape recorder to installations involving many recorders. One very special arrangement of parts resulted in the editing machine shown above. This console tape equipment facilitates the editing and playback of magnetic tape recordings. It provides a rapid, yet simple means of spotting, marking, cutting and splicing the tape and incorporates all features found in the Professional Tape Recorder. Vacuum equipment can be supplied for holding the tape in place during cutting and splicing.

End view of the Editing Machine illustrating how removable end panels make the amplifier easily accessible.

Three reel drive mechanisms are shown on the top panel. The left hand reel is used to supply program material to be edited, while the other two reels are used to take up the edited tape. The control circuits are so arranged that edited or discarded tape may be either run into a basket or wound on either reel as required, providing a flexible arrangement for editing operations. Normally, the center reel is used for the edited program while the right hand reel is used to hold the unwanted tape.

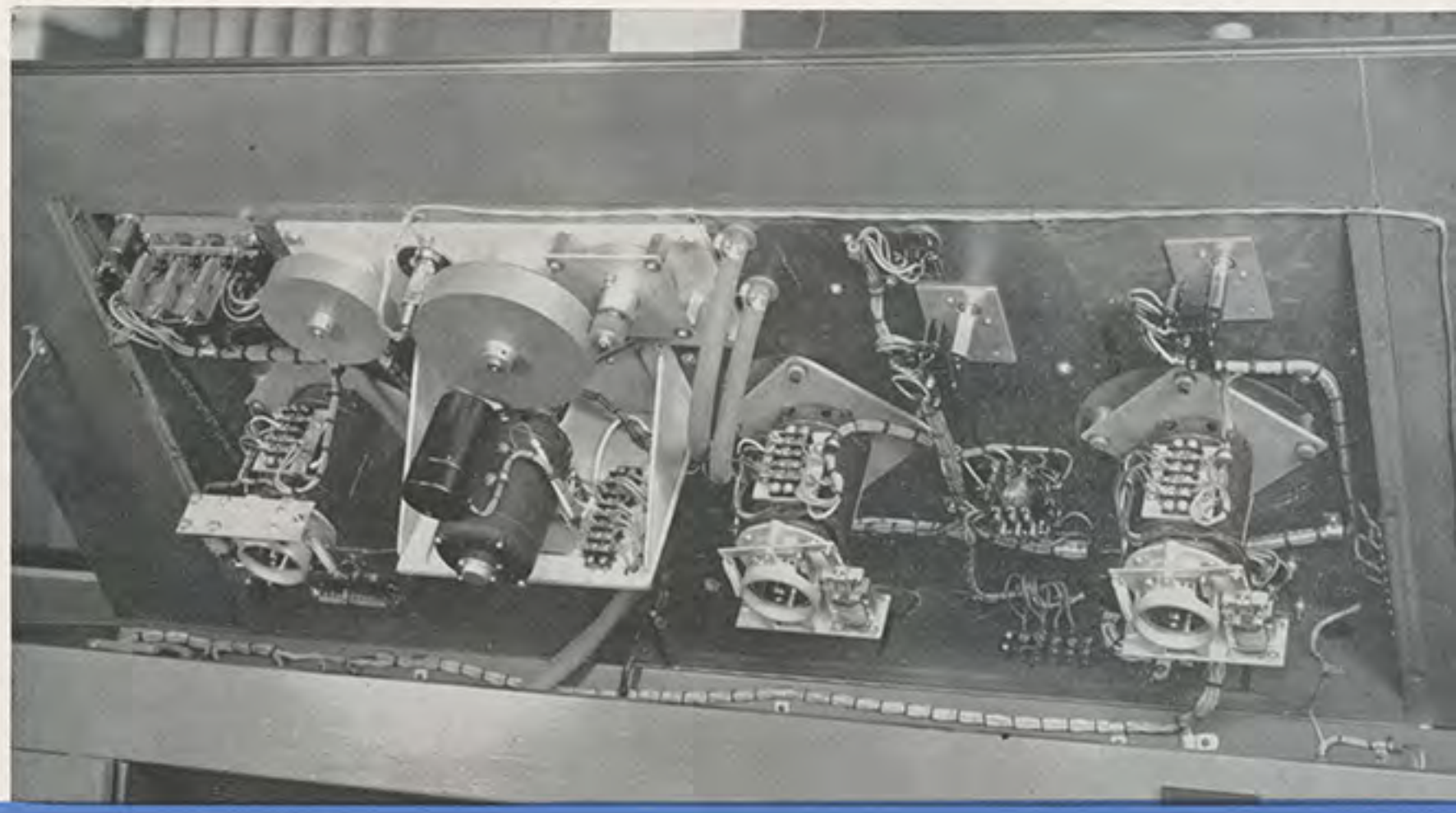
Using an NARTB standard 10½-inch reel as a basis for measurement, the editor will completely rewind 2400 feet of tape in one minute if started from a dead stop. Equally fast stopping and starting is available so that a complete stop from playing speed is made in approximately .1 of a second and a stopped tape can be started to wow-free speed in approximately .5 second.

CONTROL SYSTEM

The control system is located in the lower left hand corner of the motor board and is built around a three position push-button switch, that the operator uses to select the required mode of operation.

The tape is started in Fast Forward or Rewind by pushing the designated button and stopped by the Play button. Switching from Rewind to Fast Forward or vice versa, is accomplished by pushing the button for the desired operation.

The tape is played back by pushing the Play button and manually lowering the capstan pressure roller. Raising the roller stops the tape.



The entire motor board may be raised by means of a hinged panel to make control mechanism and wiring accessible.

RCA LOUDSPEAKERS

RCA offers to broadcasters a complete line of studio and station monitoring loudspeakers for use in monitoring and auditioning booths, hallway installations, talk-back applications, elevators and executives' offices. All RCA loudspeakers are designed to handle adequate power for the particular application for which they are designed. The LC-1A, representing the greatest advance in loudspeaker design, is obtainable for use in a choice of cabinet styles and finishes, thereby making it possible to conform to any of several interior decorating schemes. In addition, the LC-1A speaker mechanism may be obtained for those applications where it is desirable to use a special type, or custom-made, mounting.

In order to serve the wide variety of needs for loudspeakers around broadcasting stations, there is also included in this line a choice of three permanent-magnet loudspeaker mechanisms. These mechanisms are intended to be mounted in one of the wall-mounting speaker housings, MI-11407, MI-13276 or MI-13253. The three loudspeaker impedance matching transformers, MI-12368, MI-12369 and MI-11731 are designed for coupling any of a wide variety of outputs to these and many other types of loudspeakers. The quick-selection chart below provides a convenient reference for selecting the proper RCA loudspeaker combination.

CHART SHOWING SPEAKER APPLICATIONS, RECOMMENDED HOUSINGS, AND SPECIFICATIONS

MI Number	*Diameter (Inches)*	*Uses*	*Power Handling Capacity (Watts)*	*Frequency Range*	*Voice Coil Impedance (Ohms)*	*Floor Cabinet*	*Wall Housing*
MI-11411-A LC-1A	15	Master program monitor, executive offices, clients' rooms, reception rooms, any application requiring maximum quality of sound reproduction	20	50-16,000 cps	15	MI-12464-B (Blonde) MI-12464-M (Mahogany)	MI-11406
MI-12458	12	Program monitoring, executive offices, clients' rooms, reception rooms	10	50-16,000 cps	8	MI-12463-B (Blonde) MI-12463-M (Mahogany)	
MI-12418-A	12	Utility monitoring, spare program monitor, studio and announce booth cue, offices	15	50-8500 cps	8		MI-13253
MI-11408	10	Utility monitoring, spare program monitor, studio and announce booth, cue, offices	10	80-7000 cps	4		MI-11407
MI-12460-A	7	Turntable cueing, dressing rooms, intercom, paging systems	8	80-8500 cps	4		MI-13276

10-INCH SPEAKER MECHANISM

MI-11408

FEATURES

- Ideal for use in station control rooms, clients' booths and studios in conjunction with MI-11407 Wall Housing
- Employs high-quality Alnico V permanent magnet
- Capable of handling 10 watts of undistorted output
- Excellent frequency response
- In combination with MI-11407 Wall Housing, provides "Broadcast Quality" monitoring

USES

The MI-11408 Speaker Mechanism with its associated Wall Housing (MI-11407) is designed specifically to provide economical Broadcast Monitoring. Such applications include AM/FM and TV control rooms, clients' booths, offices and studios.

DESCRIPTION

The MI-11408 Speaker employs a high-quality Alnico V permanent magnet and is capable of producing an undistorted output of 10 watts. The frequency response characteristic is such that the mechanism will give well balanced sound when used with its companion baffle. Speaker matching transformer MI-11731 is available for connecting to an 8-ohm or 15-ohm source. (Speaker voice coil impedance is 4 ohms).

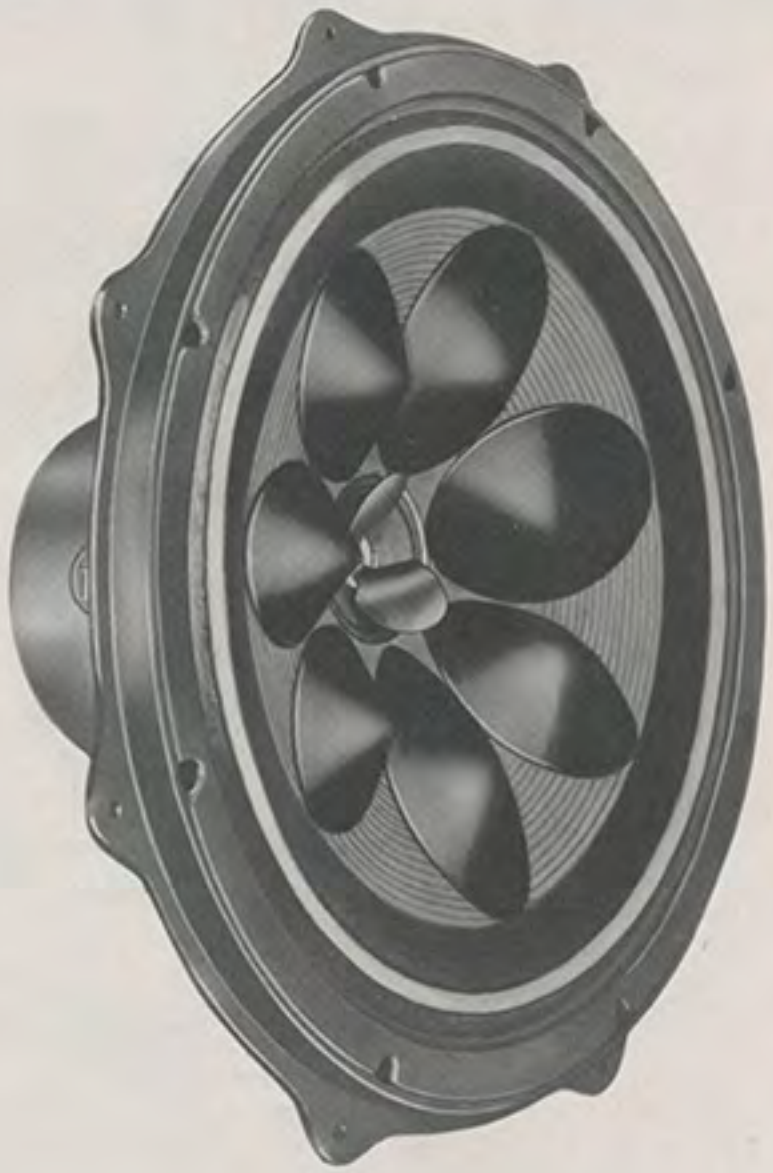
SPECIFICATIONS

Frequency Range	80-70,000 cycles
Power Handling Capacity	10 watts
Voice Coil Impedance	4 ohms
Overall Diameter	10⅛"
Overall Depth	4¼"
Weight (unpacked)	2⅛ lbs.
Stock Identification	MI-11408

MI-11407 Wall Housing used to house the MI-11408 Speaker Mechanism

15-INCH SPEAKER MECHANISM

TYPE LC-1A



FEATURES

- Excellent frequency response, uniform 50-15,000 cycles
- Wide angle sound radiation of all frequencies
- Low non-linear distortion
- Ideal for monitoring AM-FM television programs
- Alnico V magnets

USES

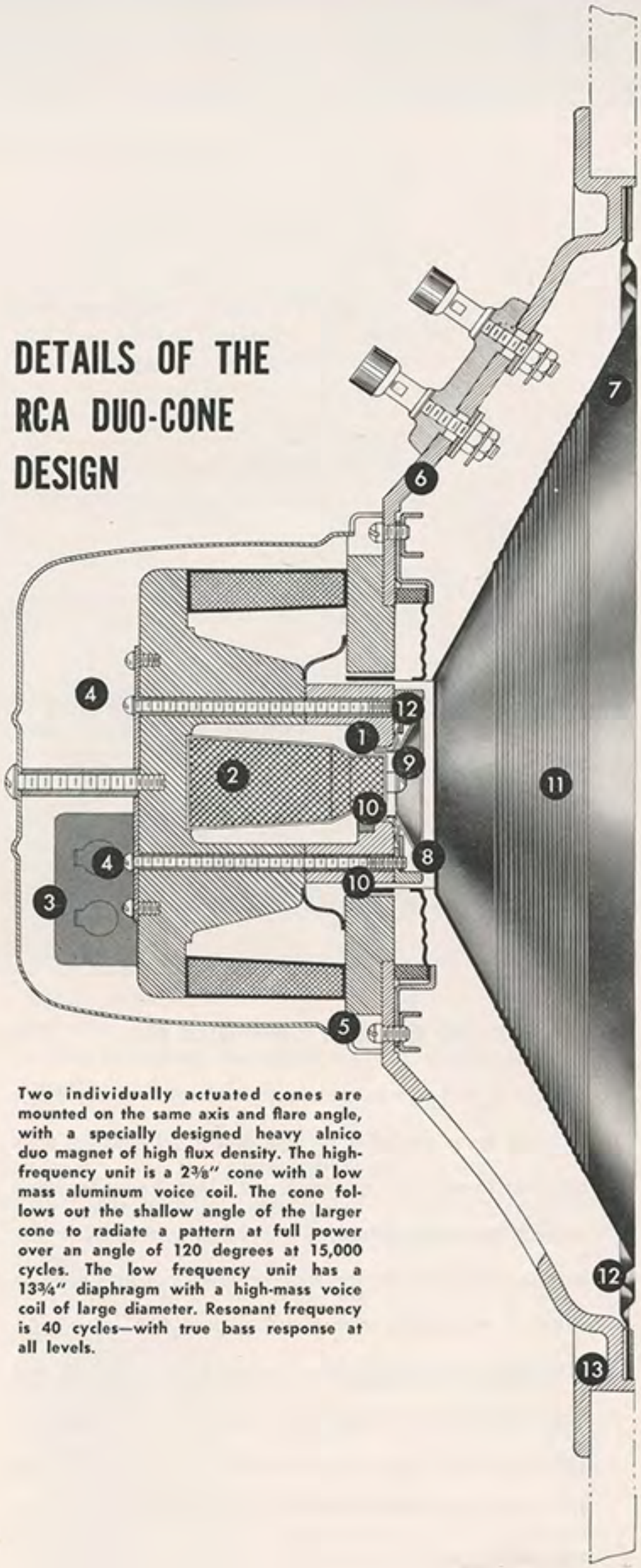
The LC-1A is a "Broadcast Quality" loudspeaker with a low distortion, wide angle distribution, of extended frequency range, and specifically designed for use in recording studios, executive offices, reception rooms, sponsors' booths or any location that warrants a pleasant setting and tasteful styling.

For applications where it is desired to mount the mechanism on a wall baffle, ceiling, etc., the speaker mechanism may be used with assurance that the entire frequency range will be realized. The speaker's outstanding performance makes it ideal for wide frequency range wide angle radiation.

DESCRIPTION

The LC-1A is a duo-cone speaker mechanism of the direct radiated type, consisting of high and low frequency units mounted co-axially together. The 2" high frequency cone and the aluminum wound voice coil has a low mass utilizing the wide angle of the shallow, low frequency cone to effect its remarkable directional pattern (see curve). An equilibrium has been reached between the electrical and mechanical design to impart a high frequency radiation of 120° arc with a loss of approximately 6 db at 15,000 cps. This eliminates the conventional "beam effect" usually experienced at this frequency.

DETAILS OF THE RCA DUO-CONE DESIGN



Two individually actuated cones are mounted on the same axis and flare angle, with a specially designed heavy alnico duo magnet of high flux density. The high-frequency unit is a 2⅜" cone with a low mass aluminum voice coil. The cone follows out the shallow angle of the larger cone to radiate a pattern at full power over an angle of 120 degrees at 15,000 cycles. The low frequency unit has a 13¾" diaphragm with a high-mass voice coil of large diameter. Resonant frequency is 40 cycles—with true bass response at all levels.

1 H-f voice coil, aluminum wire-wound, to deliver full h-f range.

2 Heavy Alnico V magnet.

3 Cross-over condenser.

4 Centering adjustment for h-f cone.

5 Centering adjustment for l-f cone.

6 Sturdy die-cast aluminum frame.

7 Shallow cone for smooth response and greater angle of distribution.

8 H-f and l-f cones coaxially-mounted, mechanically independent.

9 H-f cone. Diaphragm diameter only 2⅜". Wide-angle distribution to 15,000 cycles.

10 Ample gap clearances.

11 Massive 15" l-f cone. Bass response 35 to 2000 cycles at all volume levels.

12 Cone rim treated to minimize edge reflections for smoother response.

13 Offset mount eliminates front cavity—insures smooth response.

DESCRIPTION (Cont'd)

The low frequency system employs a large diaphragm with a high mass voice coil and produces the most desirable directional pattern with a handling capacity of 20 watts. Low distortion has been accomplished by a carefully designed balance of many contributing factors. Distortion usually experienced when handling large power in the 100-1,000 cycles range is eliminated by using a high mass coil and a massive rigid cone, coupled with a low fundamental frequency peak of 40 to 50 cycles. Above this frequency the stiffness of the suspension system of the cone does not appreciably affect the velocity and, therefore, minimizes distortion.

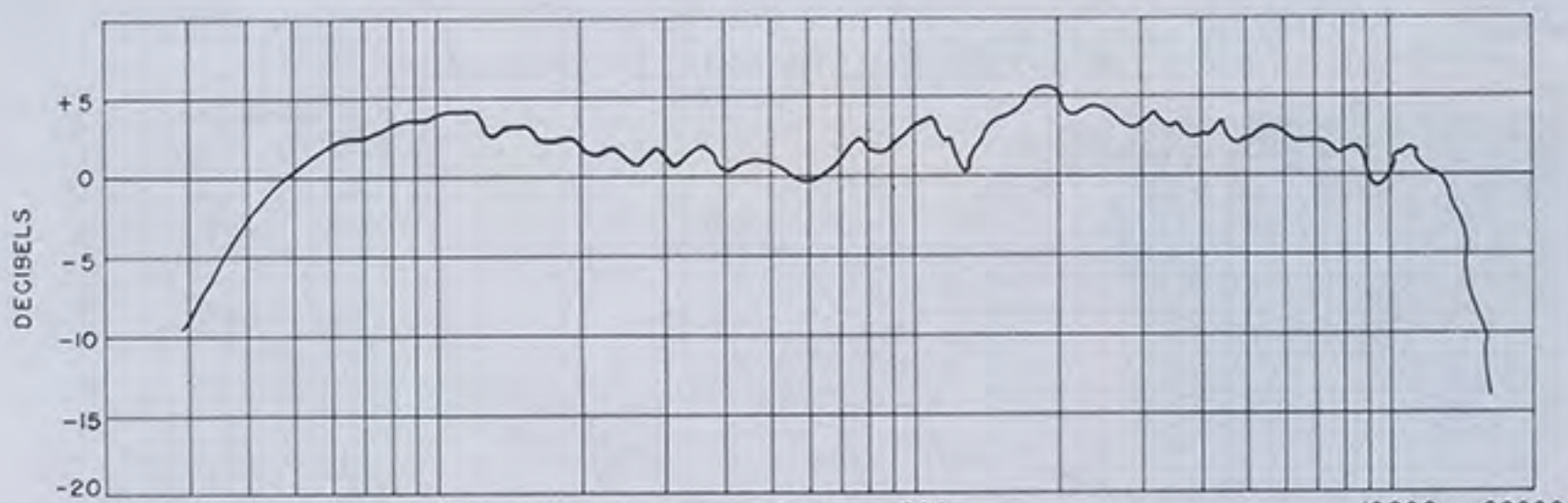
A feature of construction is the use of acoustical domes—largely responsible for smooth response. The series of domes placed on the speaker's large cone breaks up the unit's symmetry and eliminates the interference normally characteristic of the symmetrical shape without sacrifice of either highs or lows.

The cross-over network utilizes the physical characteristics of the cones to mutually vibrate in unison over the cross-over frequency region and merely employs one capacitor in the high frequency unit to limit its current at low frequencies.

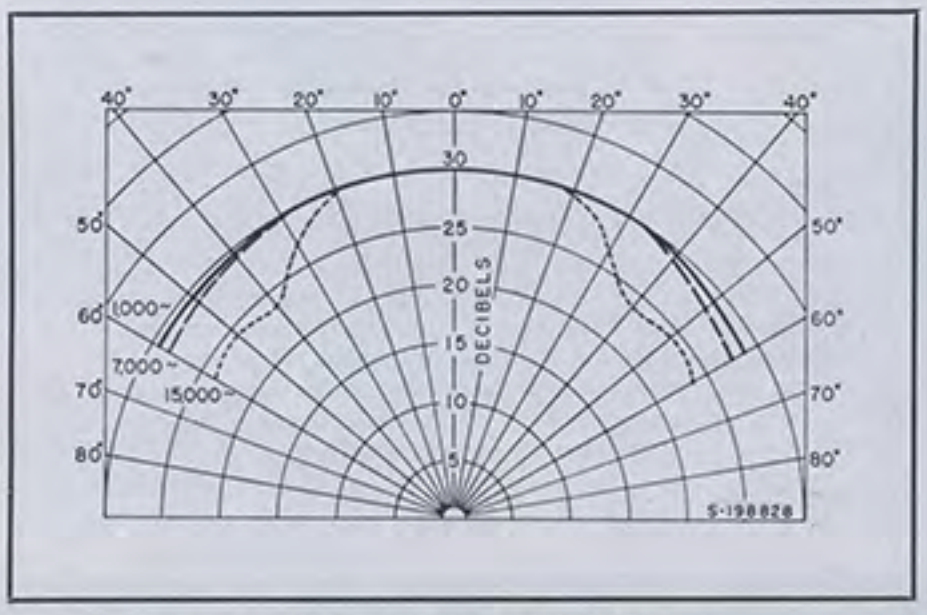
SPECIFICATIONS

LC-1A Speaker Mechanism

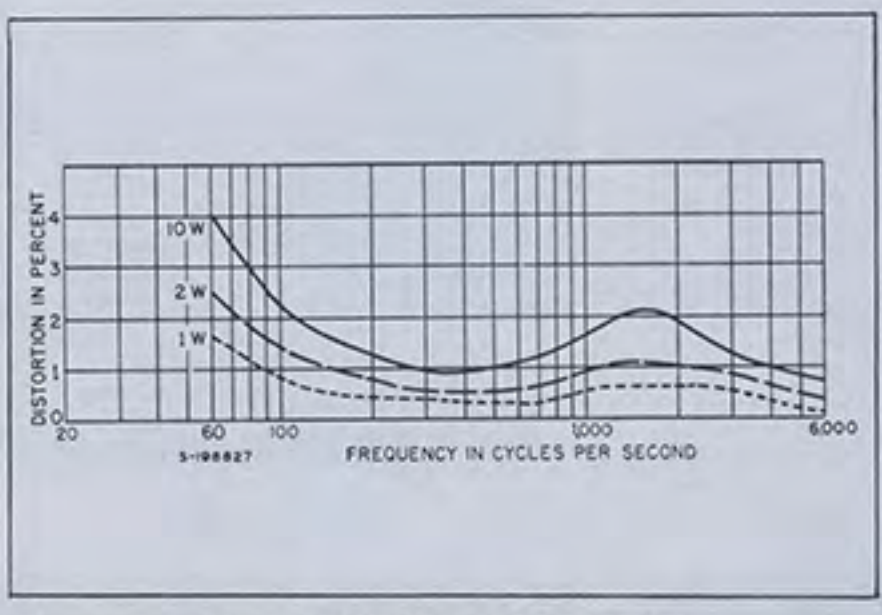
Impedance (nominal)	15 ohms
Frequency Response (see curve)	40-15,000 cps
Directional Characteristic	See curve
Power Handling Capacity	20 watts
Non-linear Distortion (for 10 watt output, 50-15,000 cycles)	Less than 4% at 60 cycles
Weight (unpacked)	21 lbs.
Dimensions:	
Diameter (cone)	15 5/16"
Diameter (bolt fixing circle)	16¼"
Diameter (overall frame)	17"
Stock Identification (Mechanism only)	MI-11411-A



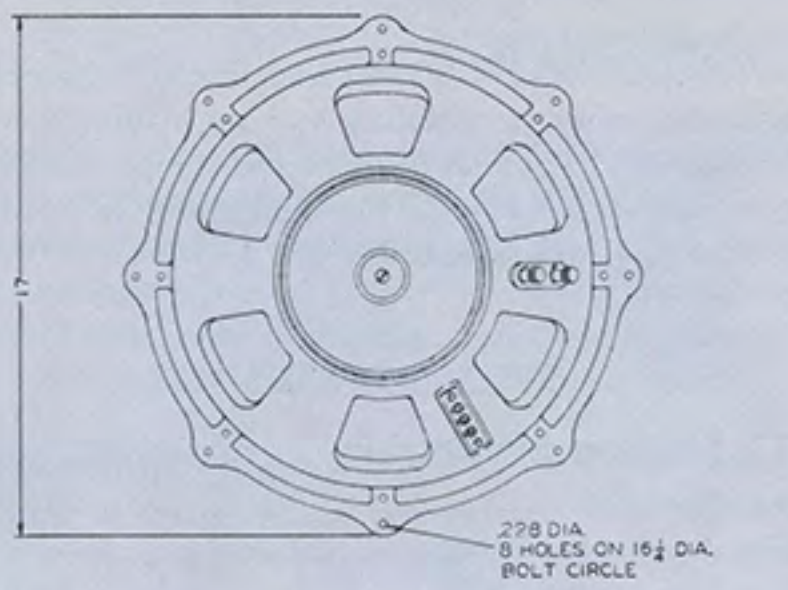
Frequency Response Curve of LC-1A Speaker.



Directional Characteristics of LC-1A Speaker.



Harmonic Distortion of LC-1A Speaker.



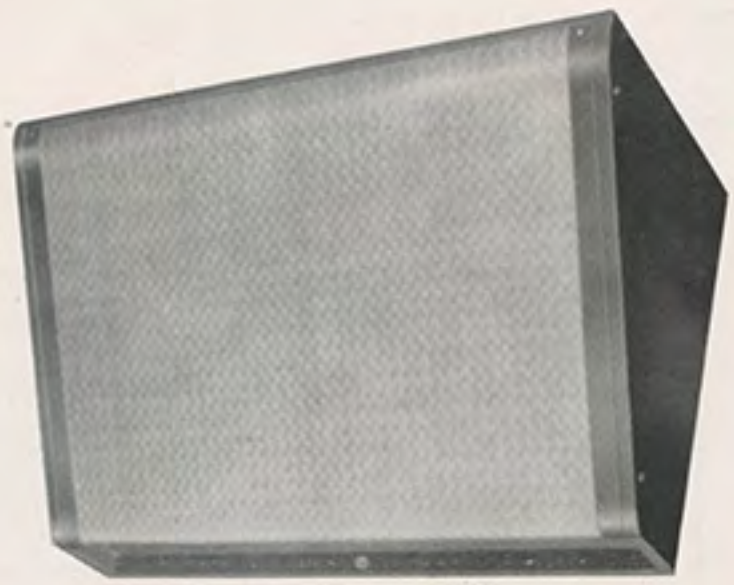
Dimensions of LC-1A Speaker

Rear View of LC-1A Speaker

ENCLOSURES FOR LC-1A SPEAKER MECHANISM

The MI-12464-B and MI-12464-M cabinets may be mounted in a horizontal position as shown at left. Regardless of decor arrangement the LC-1A Speaker mounted in these cabinets performs at its best

The LC-1A Speaker Floor Cabinet, MI-12464-B, is constructed of blonde birch wood. It is ideal for obtaining maximum performance with the LC-1A. This cabinet is also available in mahogany finish as MI-12464-M



The MI-11406 Wall Mount Speaker Housing accommodates the LC-1A Speaker Mechanism. This housing has been popular with broadcasters for many years as a space-saving unit which maintains the LC-1A Speaker "Broadcast Quality"

7- AND 12-INCH SPEAKER MECHANISMS

MI-12460-A AND 12418-A

MI-12460-A

MI-12418-A

FEATURES

- Good sensitivity
- Compact, light construction
- Alnico V permanent magnet
- Excellent frequency response
- Accordion edge cone

FEATURES

- High sensitivity
- Smooth frequency response
- Balanced listening characteristic
- Provision for mounting transformer
- Alnico V permanent magnet
- Excellent power handling capability

USES

The MI-12460-A 7-inch Accordion Edge Speaker Mechanism and the MI-12418-A 12-inch Speak Mechanism when used with their respective wall housings, are suitable for use in many locations such as: reception rooms, corridors, offices, dressing rooms, workshops, etc. It may be used as a talk back and cue speaker in studios.

7-INCH SPEAKER

DESCRIPTION

The MI-12460-A is a 7-inch accordion edge cone, permanent magnet type speaker mechanism. The magnet is Alnico V metal, the best commercially available material, which permits high flux density and permanence of the field characteristics in a relatively small, light weight unit. The accordion edge cone, by introducing additional carefully controlled cone compliance, allows a lower resonant frequency than can ordinarily be obtained with conventional design. The frequency response of the MI-12460-A is thus comparable to that of much larger mechanisms.

The speaker has excellent frequency response and power handling capability.

The exterior metal parts are protected against rust or corrosion by heavy plating.

SPECIFICATIONS

Voice Coil Impedances	4 ohms
Frequency Response	80-8500 cycles
Power Handling Capacity	8 watts
Overall Diameter	7"
Overall Depth	3½"
Mounting Data	4 equally-spaced 0.187" holes on 6⅛" circle
Weight	33 ozs.
Stock Identification	MI-12460-A

Wall Housing
for use with
7-inch Speaker
MI-12460-A.

MI-13276

12-INCH SPEAKER

DESCRIPTION

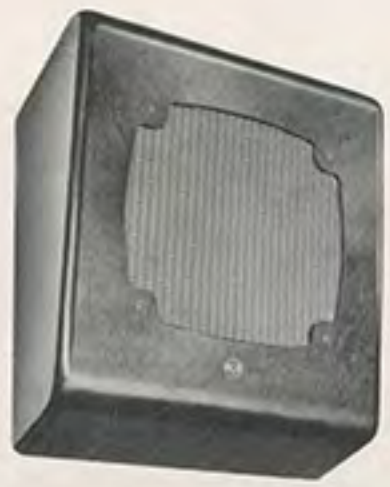
This is a straight edge cone permanent magnet type speaker mechanism of good sensitivity. The permanent magnet uses the new Alnico V metal, which is the best available material for the purpose. It permits high flux density in a smaller and lighter magnet, which contributes to the high efficiency of the speaker. The MI-12418-A also has the corrugated cone feature, which, by introducing just enough additional compliances, smooths and improves the frequency response characteristic. External metal parts of the MI-12418-A speaker are finished in umber gray metalustre.

SPECIFICATIONS

Voice Coil Impedance	6-8 ohms
Frequency Response	50 to 8500 cycles
Power Capability	15 watts maximum
Magnet Material	Alnico V
Diameter	12⅛"
Depth	5⅝"
Mounting Data	8 equally-spaced holes on 11⁹⁄₁₆" circle
Net Weight	3 lbs., 14 ozs.
Stock Identification	MI-12418-A

Accessory

Line Matching Transformer	MI-12368



Wall Housing
for use with
12-inch Speaker
MI-12418-A.

MI-13253

12-INCH SPEAKER MECHANISM

TYPE SL-12

FEATURES

- Excellent frequency response—50 to 16,000 cycles
- Low non-linear distortion
- Ideal for monitoring AM, FM and television programs
- Alnico V magnets
- Fits space-saving floor cabinets MI-12463-B or MI-12463-M

USES

The Type SL-12 Speaker Mechanism provides "Broadcast Quality" reproduction when used with its companion floor housings MI-12463-B or MI-12463-M. This combination may be used in executive offices, reception rooms, sponsors' booths or any location requiring a pleasant setting and tasteful styling.

DESCRIPTION

The SL-12 Speaker Mechanism is an extended-range single cone speaker. Its design provides uniform response from 50 to 16,000 cycles—avoiding frequency discrimination. The smooth response of the SL-12 is obtained by employing a curve-linear-shape cone of special pulp material. An outer suspension damping ring provides a matched terminating acoustical impedance. A distribution angle of more than 40° is obtained with the SL-12 Speaker Mechanism.

SPECIFICATIONS

Voice Coil Impedance	8 ohms
Frequency Response	50 to 16,000 cycles
Power Handling Capacity	10 watts
Overall Diameter	12 7/32"
Overall Depth	6⅛"
Weight	00 lbs.
Stock Identification	MI-12458

WALL HOUSING FOR 10" SPEAKER

MI-11407

FEATURES

- Ideal for Station Control rooms, clients' booths, offices and studios
- In combination with MI-11408 Speaker, the Housing provides "Broadcast Quality" monitoring
- Styled to match companion RCA Broadcast Audio Equipment
- May be mounted for either 30° or 60° "throw" for long or short control rooms

USES

The MI-11407 Wall Housing with its associated Speaker Mechanism is designed specifically to provide economical Broadcast Monitoring. Such applications include AM/FM and TV control rooms, clients' booths, offices and studios.

DESCRIPTION

The MI-11407 Housing is designed to house the MI-11408 Speaker Mechanism and projects sound downward at an angle of 30° or 60°. This permits mounting of the unit to provide either a long or short "throw". The housing is solidly constructed of ½-inch plywood with dark umber gray finish. The grille is of plastic woven cloth and covers the entire front panel. The housing presents a neat, compact appearance and is of the smallest practical size commensurate with good performance.

SPECIFICATIONS

Dimensions (exterior):	
Overall Height	15¾"
Overall Width	25"
Overall Depth (front to back)	11½"
Volume	2700 cu. in.
Approximate Weight (unpacked)	12 lbs.
Finish	Dark umber gray
Stock Identification	MI-11407

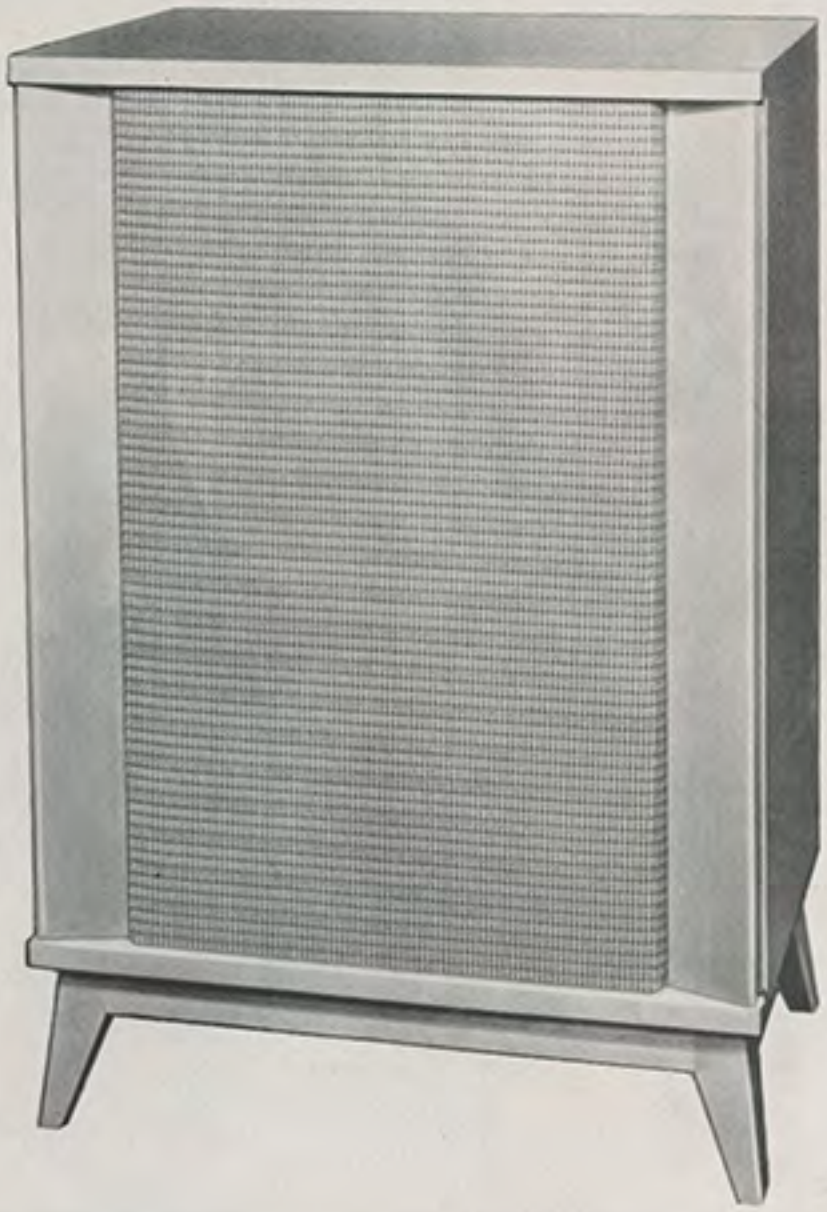
MI-11408 Speaker Mechanism used in the above MI-11407 Wall Housing.

Accessory

Matching Transformer (4-8-15 ohms)	MI-11731

CABINET FOR LC-1A SPEAKER

MI-12464-B AND MI-12464-M



FEATURES

- Maximum response at low frequencies
- Finishes and styling to blend with any surroundings
- Versatile cabinet design permits mounting cabinet either vertically or horizontally
- Designed specifically to compliment LC-1A Speaker Mechanism
- Diagonally placed damping material absorbs cabinet resonance

These views show that cabinets can be used vertically or horizontally. Cabinets are furnished in either a Blonde (MI-12464-B) or Mahogany (MI-12464-M) finish.

USES

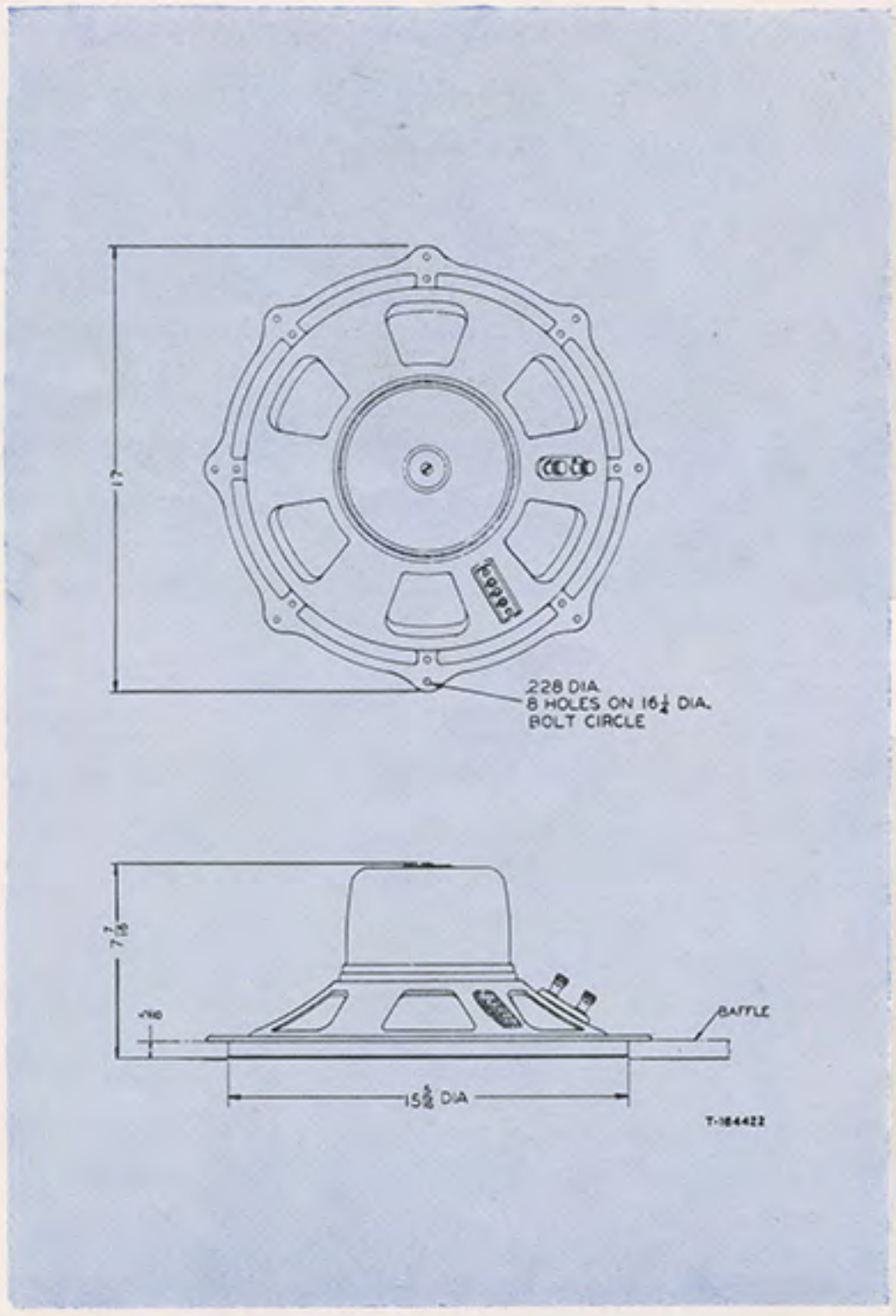
The styling of these cabinets make them ideal for use in executive offices, reception rooms, sponsors' booths or any location that warrants a pleasing setting.

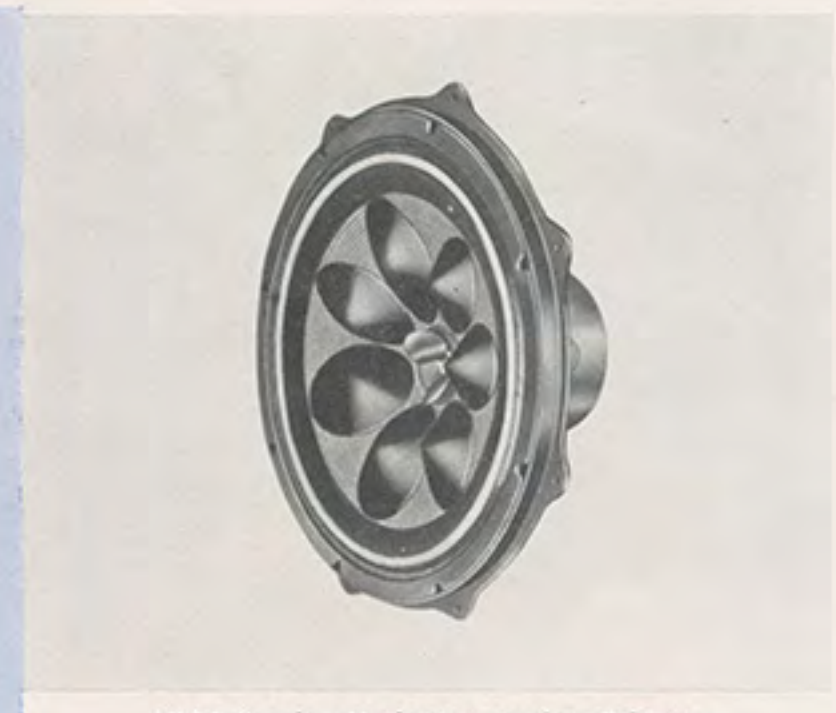
DESCRIPTION

The MI-12464-B Speaker Cabinet was designed by RCA acoustic engineers, in collaboration with one of the country's leading stylists, to house the LC-1A Duo-cone Speaker Mechanism. The cabinet is a bass reflex or phase inverter type. MI-12464-B is a high luster, hand-rubbed birch finish cabinet with 6" matching legs. A mahogany version of the same cabinet—MI-12464-M—is available. Either cabinet may be mounted on its legs in a horizontal position.

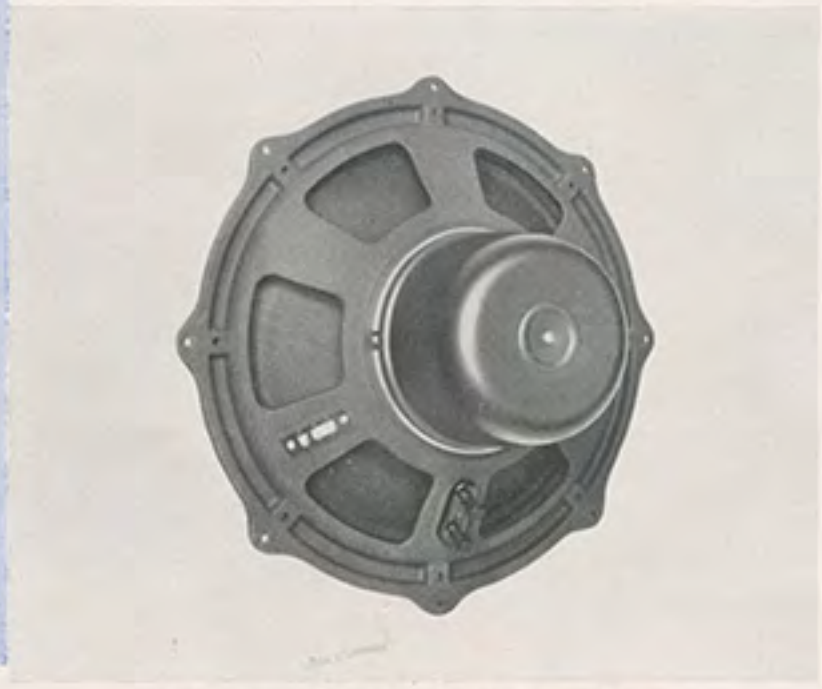
SPECIFICATIONS

Dimensions:	
Height (exclusive of legs)	32"
Width	25"
Depth	16"
Matching Legs	6"
Weight	Approx. 50 lbs.
Stock Identification (Blonde)	MI-12464-B
Stock Identification (Mahogany)	MI-12464-M





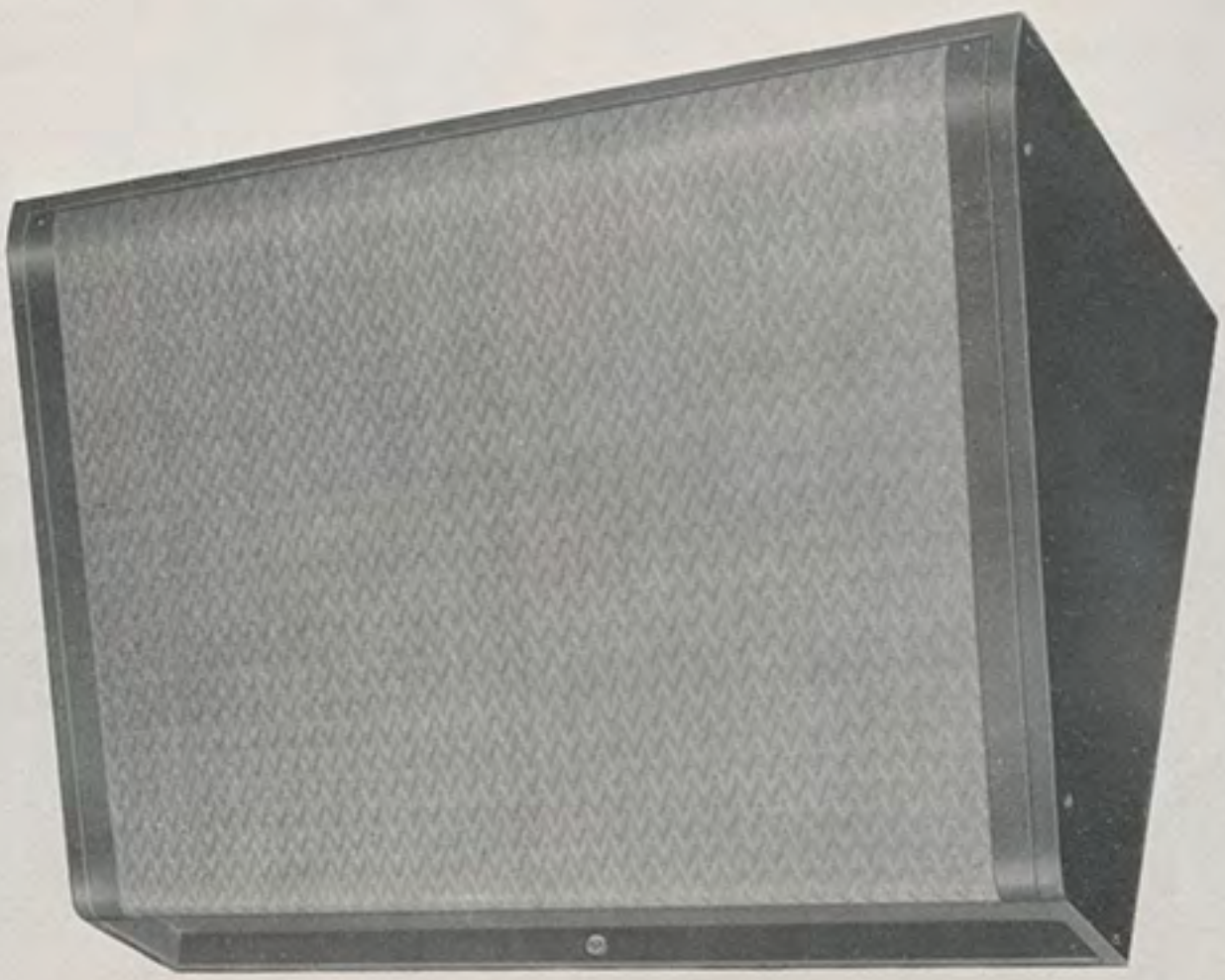
LC-1A Speaker Mechanism used in Cabinets MI-12464-B and MI-12464-M



Rear view of LC-1A Speaker Mechanism

WALL SPEAKER HOUSING

MI-11406



FEATURES

- Designed to accommodate LC-1A Duo-Cone Speaker mechanism
- Ideal for broadcast control room use
- Umber gray finish to harmonize with companion equipment
- Can be mounted for long or short "throw" as desired
- Bass port is provided

USES

The MI-11406 Speaker Housing is designed for broadcast studion and station monitoring applications and is ideal for wall or ceiling installations. Designed specifically for housing the LC-1A, Duo-Cone Speaker mechanism, the cabinet may also be used in auditioning booths, hallways, and executive offices.

DESCRIPTION

This housing is constructed of heavy plywood, provides good acoustical properties, and is designed for high-quality performance without any sacrifice of the "Olson" duo-cone speaker performance.

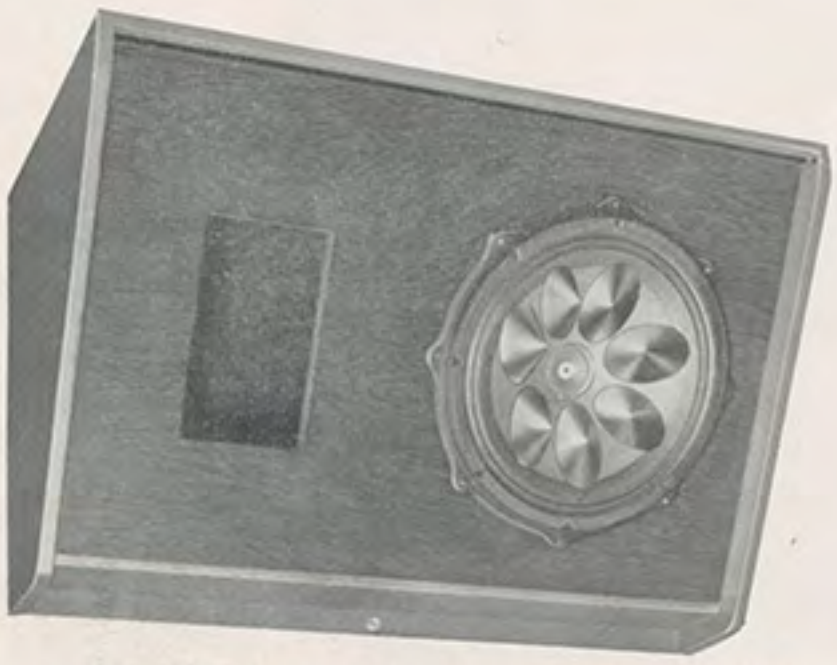
The size and shape of the speaker housing (at end view, a 30, 60, 90 degrees modified triangle) is particularly

desirable for control room installations. It may be easily mounted to provide either a long or short "throw", as desired.

For best response, the housing is mounted so that both wall and ceiling form a part of the acoustical system. Thus, reinforcement from the ceiling may be utilized to raise the bass output and response at the low frequency end. A port is provided for increasing bass response and may be closed or opened, as required.

The overall speaker housing is approximately 17⅛ x 21¾ x 37½ inches with a sloping front which provides good sound radiation characteristics. The speaker mechanism and wiring are accessible through a removable grille which permits installation or servicing, without removing the cabinet from the wall.

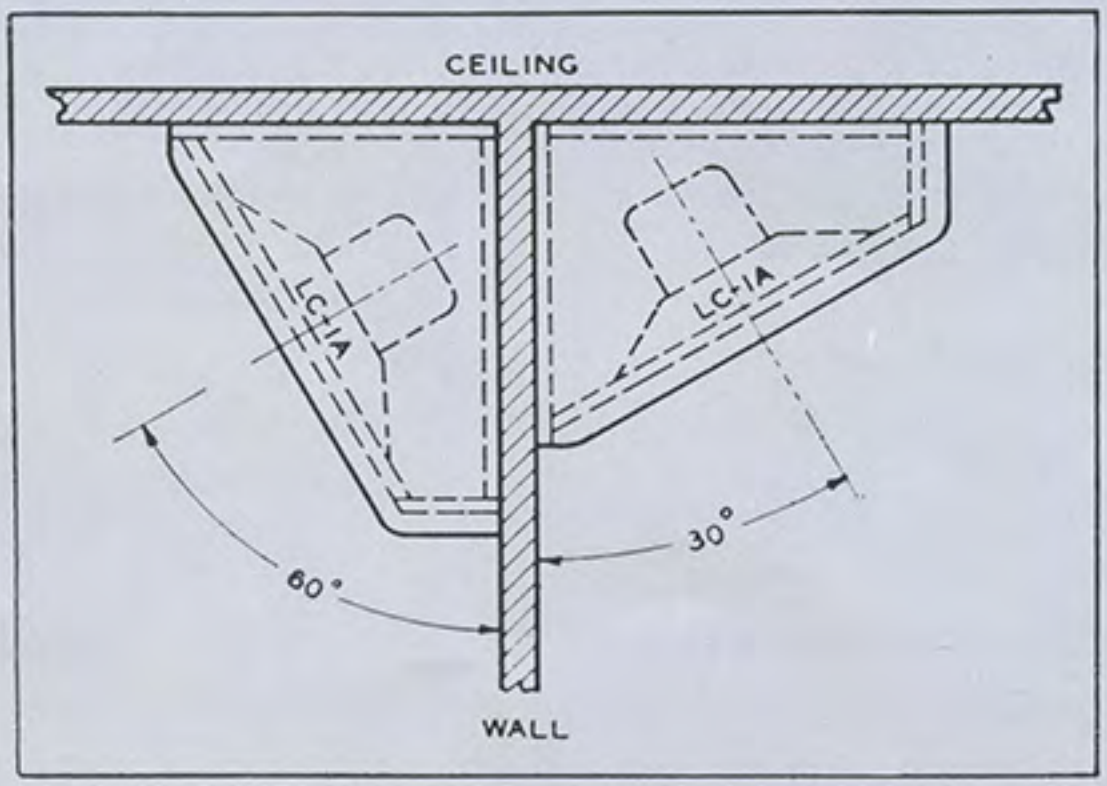
The housing is finished in umber gray and has an attractive woven plastic grille. Its appearance matches the tone and styling of other studio equipment.



Front view of housing with grille cover removed to show LC-1A speaker mounting and bass port.

SPECIFICATIONS

Dimensions (exterior):	
Length	37½"
Height	21¾"
Depth	17⅛"
Finish	Umber gray with woven plastic grille cloth
Stock Identification	MI-11406
Weight	45 lbs.

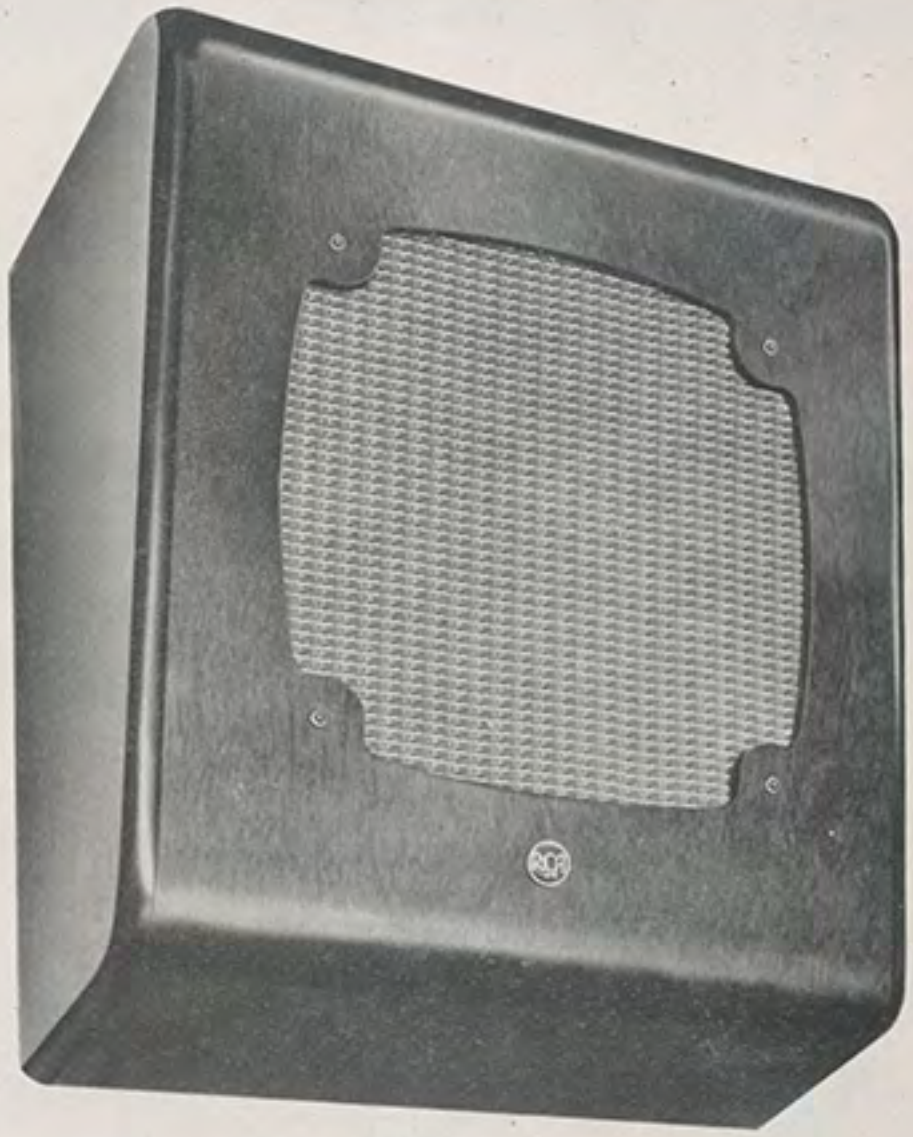


Speakers and housings may be mounted at a 30 or 60 degree angle to obtain either a long or short "throw".

WALL HOUSINGS FOR 7- AND 12-INCH SPEAKERS

MI-13276 AND 13253

MI-13276



MI-13253

FEATURES

- Acoustically treated interior
- Completely enclosed cabinet
- Attractive woven plastic grille cloth
- Handsome sloping front design
- Solid ½-inch wood sides
- Heavy vibration-free construction

USES

The MI-13253 Wall Housing with a 12-inch speaker mechanism (MI-12418-A) and the MI-13276 Wall Housing with a 7-inch speaker mechanism (MI-12460-A) is suitable for use in many locations such as reception rooms, corridors, offices, dressing rooms, etc. It may also be used in a Talk-back and cue system in studios.

WALL HOUSING FOR 7-INCH SPEAKER
MI-13276

DESCRIPTION

This handsome, sloping front, speaker housing is made with ½-inch solid wood sides and a one-piece, walnut finish, wood veneer front, top and bottom panel. The heavy wood sides and curved edge construction minimize the loss of low frequency sound energy in side vibrations, normally inherent in enclosed housings.

When used with the MI-12460-A Accordion Edge Speaker, this speaker housing provides exceptional tone quality with full low frequency response ordinarily lacking in reproducers of a comparably small size.

The speaker housing is supplied with an attractive two-tone woven plastic grille cloth. A rugged, perforated metal grille, embossed to fit the speaker opening, is also available as an accessory (MI-13273).

SPECIFICATIONS

Dimensions (exterior):

Height	17⅛"
Width	12¾"
Depth	6⅞"
Weight	4¾ lbs.

Stock Identification:

Wall Housing	MI-13276
Metal Grille	MI-13273

7-inch Accordion Edge Speaker MI-12460-A. Used in MI-13276 Wall Housing.

WALL HOUSING FOR 12-INCH SPEAKER
MI-13253

DESCRIPTION

The top, front and bottom of the Wall Speaker Housing, MI-13253, is one-piece walnut finish veneer. The sides are ½-inch solid wood. To insure extra strength, it is constructed with curved edges. The speaker opening is covered with two-tone grille cloth of woven plastic in a finish that matches the wood. The back of the unit is open and mounting brackets are furnished.

An auxiliary baffle, MI-13245-A, may be obtained which will adapt the MI-13253 housing to accommodate a 10-inch speaker mechanism such as the RCA MI-11408.

SPECIFICATIONS

Dimensions (exterior):

Height	16½"
Width	14"
Depth	8½" maximum
Weight	3 lbs., 10 oz.

Stock Identification:

Auxiliary 10" Adaptor	MI-13245-A
Wall Housing	MI-13253

12-inch Speaker MI-12418-A. Used in MI-13253 Wall Housing.

LINE MATCHING SPEAKER TRANSFORMERS

MI-12368, MI-12369 AND MI-11731

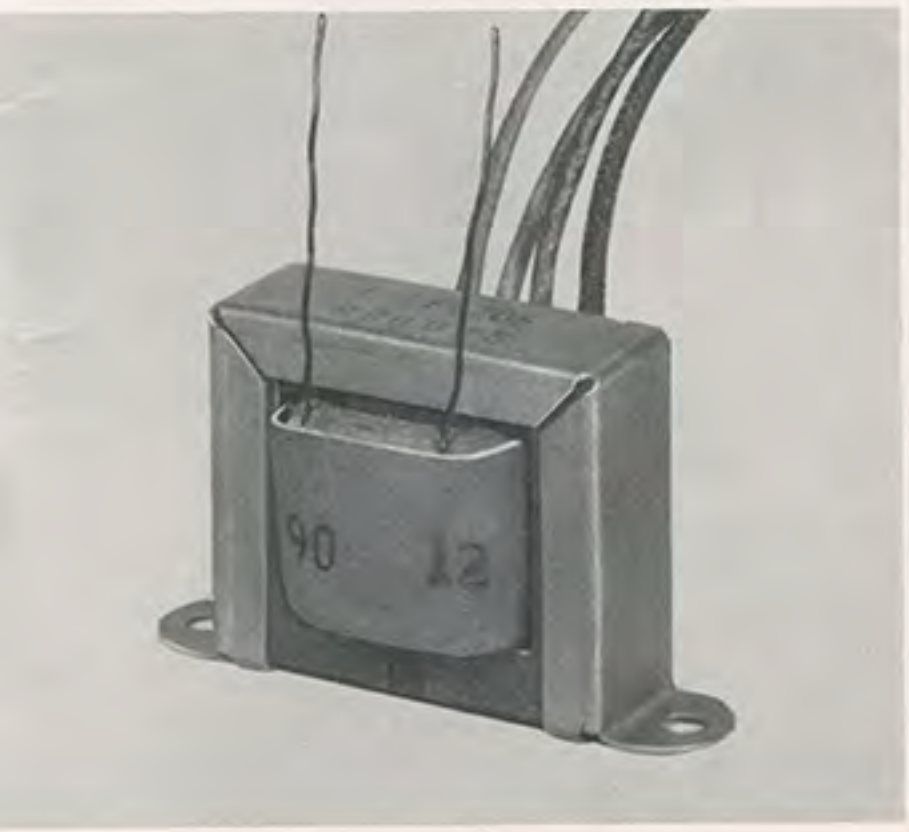
MI-12368

DESCRIPTION

This transformer has separate primary and secondary windings on a 7/8" x 3/4" core. The primary is tapped with 10" color coded leads to permit matching to a number of different speaker line impedances. The secondary is tapped with 10" color coded leads to match voice coil impedances of 4, 8, or 16 ohms.

SPECIFICATIONS

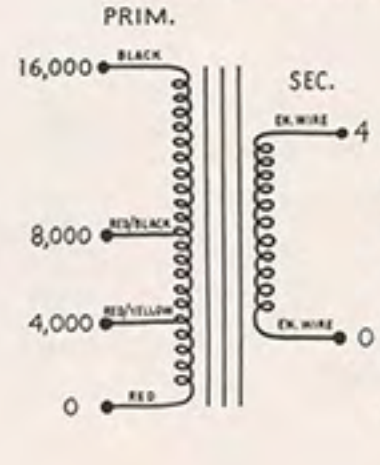
Frequency Response.....±½ db from 60 to 10,000
Distortion.....2% max. from 100 to 10,000 @ 8 watts
Power Handling....Max. 16 watts of program material
Mounting Centers .....3⅛"
Dimensions.....Height 2¼", Length 3¾", Width 2"
Net Weight.....1 lb. 6 oz.
Stock Identification MI-12368



MI-12369

DESCRIPTION

This transformer has separate primary and secondary windings on a 5/8" x 5/8" core. The primary winding is tapped with 10" color coded leads to match several different line impedances used in multiple speaker installations. The secondary matches any 3.2 to 4 ohm speaker



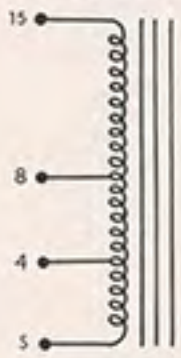
SPECIFICATIONS

Frequency Response....1 db from 100 to 12,000 cycles
Distortion.....2% max. from 100 to 8,000 @ 5 watts
Power Handling.....Max. 8 watts program material
Mounting Centers .....2⅜"
Dimensions.....Height 1⅝", Length 2 13/16", Width 1 9/16"
Net Weight .....10 oz.
Stock Identification MI-12369

MI-11731

DESCRIPTION

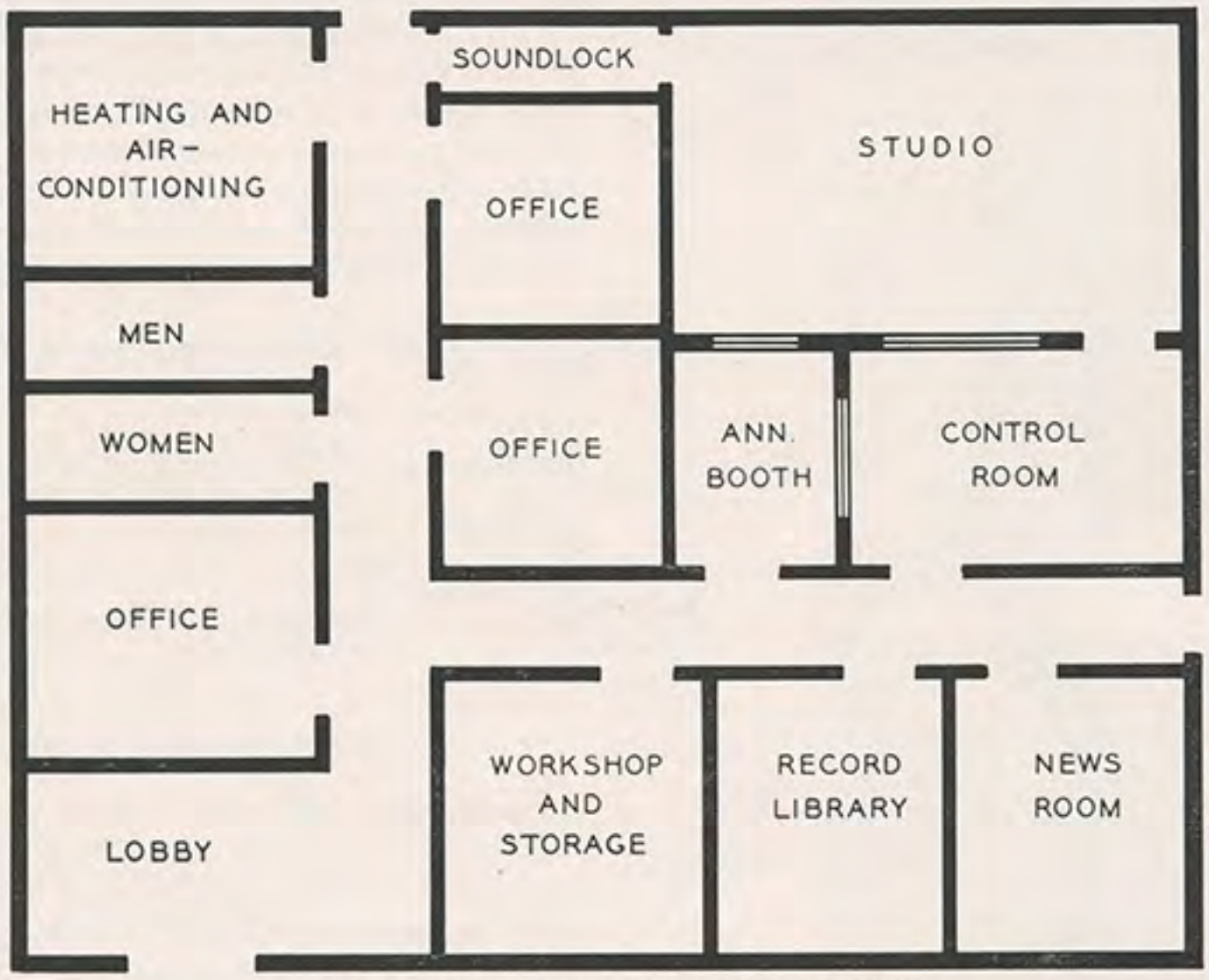
MI-11731 is a single-winding transformer used to match any combination of 4, 8 and 15 ohm speaker impedances. Soldering lugs are provided for making connections.



SPECIFICATIONS

Frequency Response.....±1.0 db from 60 to 10,000
Distortion.....2% max. from 100 to 10,000
Power Handling.....8 watts
Mounting Centers .....2⅜"
Dimensions....Height 1 21/32", Length, 2", Width ¾"
Net Weight .....10 oz.
Stock Identification MI-11731

RECOMMENDED EQUIPMENT LISTS AND TYPICAL AM STUDIO PLANS



TYPICAL PLAN FOR SINGLE STUDIO AM OPERATION

A complete and diversified line of high-quality Broadcast Audio Equipment is made available by RCA to meet practically any conceivable set of operating or programming requirements. It is recognized by RCA that these requirements will vary widely in their scope—and will of necessity be somewhat different to satisfy each particular AM station's needs.

However, in an effort to assist the Broadcaster in making a proper selection of equipment, several typical or "average" equipment lists and studio floor plans are included. These lists and plans range from "basic minimum equipment" to that required for a multi-studio setup. This information should be used only as a guide since individual requirements must be considered carefully before a final selection can be made. The "minimum" equipment shown for a single AM or FM studio will successfully accommodate a small-station installation of one studio and a control room utilizing three microphones, two turntables, network and two remote lines.

For two studios or more, consideration should be given to more extensive equipment requirements such as individual studio control and master control switching. RCA Broadcast Audio Engineers will gladly assist in planning master control installations, including custom switching when required.

Typical lists for "Remote" Equipment, Tape Recording, and Transmitter Monitoring are included. One transmitter monitoring list covers the equipment needed for combined studio/transmitter operation—the other is for use when the transmitter is at a separate location. Typical equipment lists are also available for "TV Audio" installations (see Catalog description under that title).

Four typical studio floor plans, and the following equipment lists are shown:

1. AM or FM—Single-Studio Minimum Equipment Requirements
2. AM or FM—Two-Studio Equipment Requirements
3. Multi-Studio Equipment Requirements
4. AM or FM Remote Equipment
5. Tape Recording Equipment
6. AM or FM Transmitter Audio and Monitoring Equipment

I. AM or FM Minimum Studio Equipment Requirements

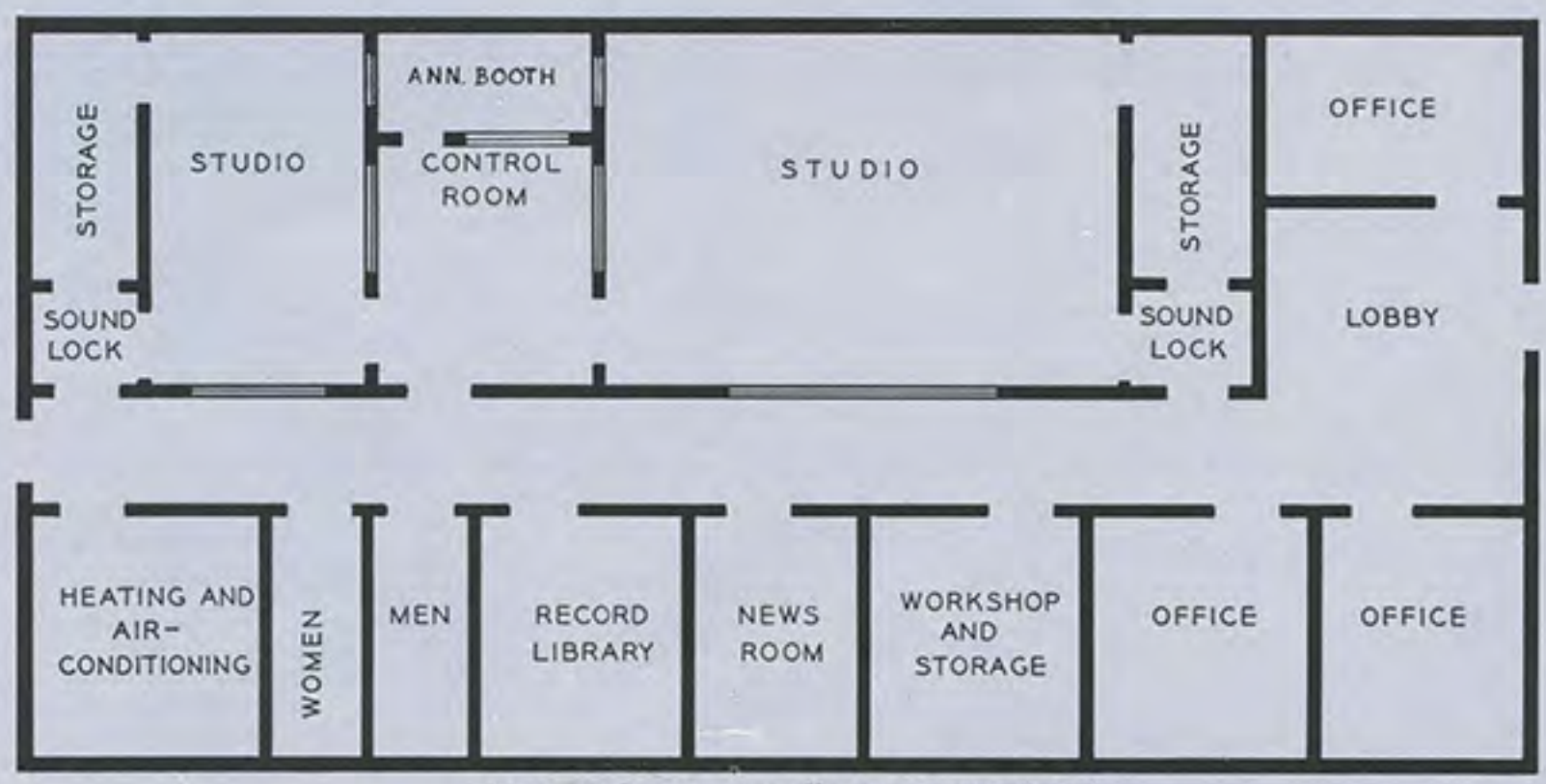
(Suggested minimum equipment to handle one studio, announce booth, control room microphone, two turntables, network and remote lines)

Item No.	Quan.	MI Number	Description
1.	1	11635	BC-4A Audio Central
2.	1	11478	Tube Kit for BC-4A
3.	2	11816	BQ-70E Turntable
4.	2	11885	Lightweight Tone Arm
5.	2	11874-4	1 mil Lightweight Pickup
6.	2	11874-5	2.5 mil Lightweight Pickup
7.	2	11887	Transcription Filter
8.	1	4027-H	44-BX Velocity Microphone
9.	1	4045-D	77-D Polydirectional Microphone
10.	2	11007	BK-1A Pressure Microphone (for control room and announce booth)
11.	1	4090-A	90-A Floor Stand
12.	1	4058-C	Desk Stand for 44-BX
13.	1	4092-D	Desk Stand for 77-D
14.	2	11008	Desk Stand for BK-1A
15.	4	4630-B	Cable Plug (male)
16.	4	4624-A	Wall Receptacle (female)
17.	2	11408	10-inch Speaker Mechanism
18.	2	11407	Wall Cabinet for MI-11408
19.	3	11731	Speaker Matching Transformer
20.	1000′	13306	Cotton-covered shielded Cable for audio wiring

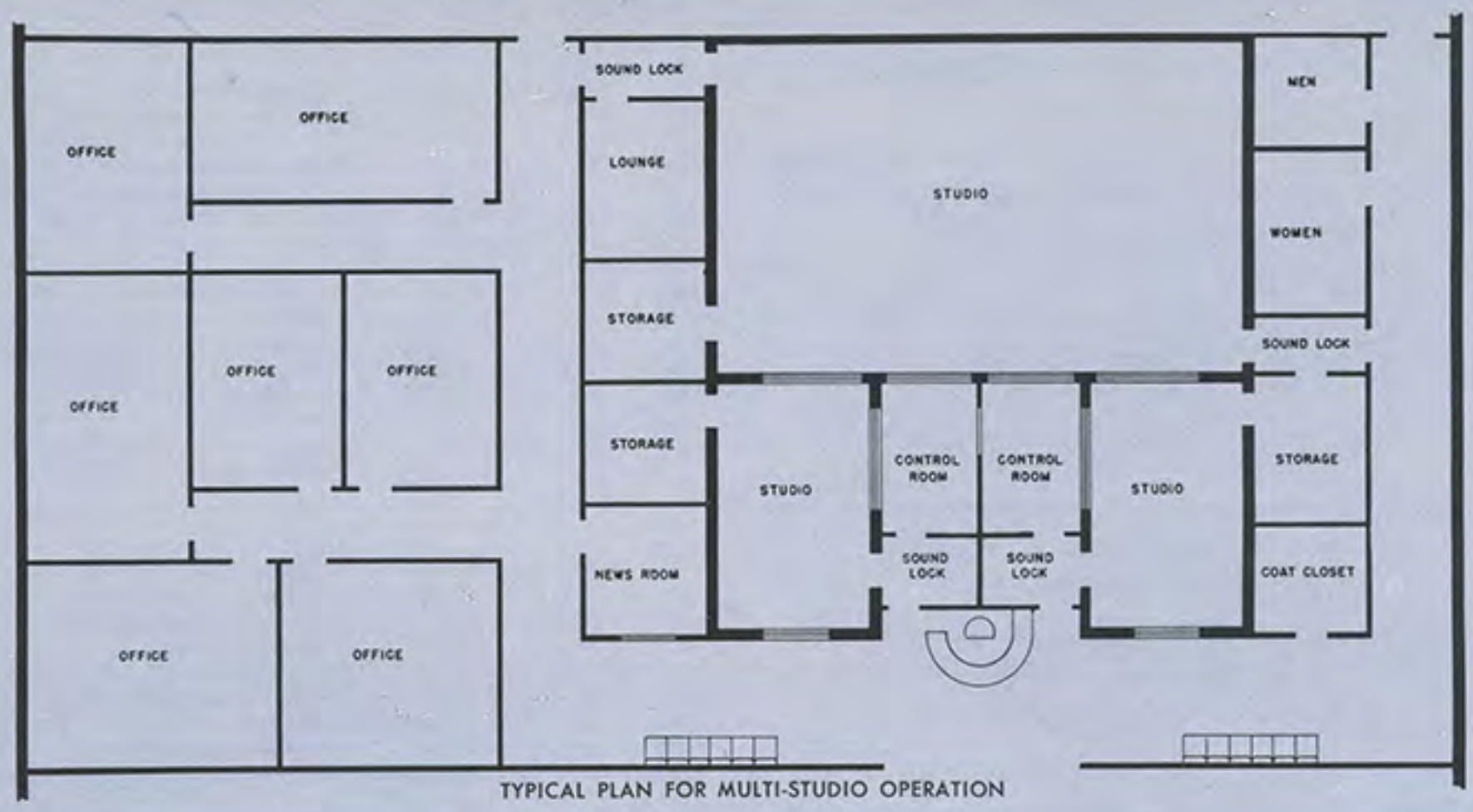
II. AM or FM Two-Studio Equipment Requirements

(Suggested equipment list to handle two studios, announce booth, control room microphone, two turntables, network and remote lines)

Item No.	Quan.	MI Number	Description
1.	1	11632/11313	BC-2B Audio Consolette and Power Supply
2.	1	11294/11297	Tube Kit for BC-2B
3.	3	11706-1	"On-Air" Light
4.	3	11702-A	Signal Light Relay
5.	1	11722	Speaker Relay for Announce Booth
6.	2	11816	BQ-70E Turntables
7.	2	11885	Lightweight Tone Arm
8.	2	11874-4	1 mil Lightweight Tone Arm
9.	2	11874-5	2.5 mil Lightweight Pickup Head
10.	2	11887	Transcription Filter
11.	1	11241	Dual Preamplifier for Turntable Inputs to BC-2B
12.	1	11475	Tube Kit for Dual Preamplifier
13.	2	4027-H	44-BX Velocity Microphone
14.	2	4045-D	77-D Polydirectional Microphone
15.	3	11007	BK-1A Pressure Microphone (for control room and announce booth)
16.	2	4090-A	90-A Floor Stand
17.	2	4058-C	91-A Desk Stand for 44-BX
18.	2	4092-D	91-B Stand for 77-D
19.	3	11008	KS-11A Desk Stand for BK-1A
20.	7	4630-B	Cable Plug (male)
21.	5	4624-A	Wall Receptacle (female)
22.	1	30951-B84	BR-84B Cabinet Rack
23.	2	30566-G84	Single Trim Strip
24.	1	4570-A	Terminal Board Bracket
25.	1	4568	Power Terminal Strip
26.	1	4569	Audio Terminal Block
27.	1	11645-A	Double Jack Panel
28.	1	11647-1	Jack Panel Mat
29.	4	4652-2B	Two-Foot Patch Cord
30.	1	11234-A	BA-14A Monitor Amplifier (for house monitor)
31.	1	11267	Tube Kit for BA-14A
32.	1	11598-B/11599	BR-2A Panel and Shelf Assembly
33.	2	11411-A	LC-1A Duo-Cone Speaker Mechanism (for control room and reception room)
34.	1	11406	Wall Housing for LC-1A
35.	1	12464-M	Mahogany Floor Cabinet for LC-1A
36.	3	11408	10-inch Speaker Mechanism (for studios and announce booth)
37.	3	11407	Wall Cabinet for MI-11408
38.	3	11731	Speaker Matching Transformers
39.	2000′	13306	Cotton-Covered Shielded Cable for audio wiring
40.	200′	35	Shielded Cable for filament wiring



TYPICAL PLAN FOR TWO STUDIO AM OPERATION



TYPICAL PLAN FOR MULTI-STUDIO OPERATION

III. Multi-Studio Equipment Requirements

(Suggested equipment list to handle three studios and two control rooms, with master program switching facilities provided in one control room)

Item No.	*Quan.*	*MI Number*	*Description*
1.	2	11632/11313	BC-2B Audio Consolette
2.	2	11294/11297	Tube Kit for BC-2B
3.	3	11706-1	"On-Air" Light
4.	3	11702-A	Signal Light Relay
5.	4	11816	BQ-70E Turntable
6.	4	11885	Lightweight Tone Arm
7.	4	11874-4	1 mil Lightweight Pickup
8.	4	11874-5	2.5 mil Lightweight Pickup
9.	4	11887	Transcription Filter
10.	2	11241	Dual Preamplifier for Turntable
11.	2	11475	Tube Kit for Dual Preamplifier
12.	2	4027-H	44-BX Velocity Microphone
13.	3	4045-D	77-D Polydirectional Microphone
14.	3	11007	BK-1A Pressure Microphone
15.	3	4090-A	90-A Floor Stand
16.	2	4058-C	91-A Desk Stand for 44-BX
17.	3	4092-D	91-B Desk Stand for 77-D
18.	3	11008	KS-11A Desk Stand for BK-1A
19.	1	11056	KS-3B Boom Stand
20.	8	4630-B	Cable Plug (Male)
21.	10	4624-A	Wall Receptable (Female)
22.	1	30951-B84	BR-84B Cabinet Rack (for sub-control room)
23.	2	30951-D84	BR-84D Cabinet Rack (for master control room)
24.	2	30541-G84	Side Panel for BR-84D
25.	4	30566-G84	Single Trim Strip
26.	1	20568-G84	Double Trim Strip
27.	3	4570-A	Terminal Board Bracket
28.	3	4568	Power Terminal Strip
29.	3	4569	Audio Terminal Block
30.	3	11645-A	Double Jack Panel
31.	3	11647-1	Jack Panel Mat
32.	12	4652-2B	Two-Foot Patch Cord
33.	4	4652-4B	Four-Foot Patch Cord
34.	2	11234-A	BA-14A Monitoring Amplifier
35.	2	11267	Tube Kit for BA-14A
36.	2	11598B/11599	BR-2A Panel and Shelf Assembly
37.	3	11411-A	LC-1A Duo-Cone Loudspeaker Mechanism
38.	2	11406	Wall Housing for LC-1A
39.	1	12464-M	Mahogany Floor Cabinet for LC-1A
40.	3	11408	10-inch Speaker Mechanism
41.	3	11407	Wall Housing for MI-11408
42.	3	11731	Speaker Matching Transformers
43.	1	11633	BCS-11A Master Switching Console
44.	1	11316	24-V 3 ampere d-c Power Supply
45.	3	11233	BA-13A Program Amplifier
46.	3	11266	Tube Kit for BA-13A
47.	2	11598-B/11599	Shelf and Panel Assembly
48.	3	11713	Line Transformer
49.	4000′	13306	Cotton-Covered Shielded Cable for audio wiring
50.	400′	35	Shielded Cable for filament wiring

IV. Remote Equipment

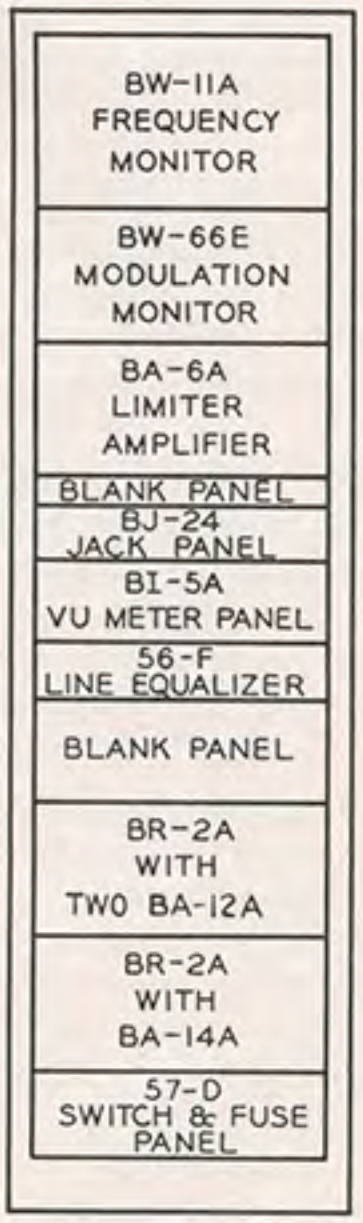
Item No.	*Quan.*	*MI Number*	*Description*
1.	1	11230	Type BN-2A Remote Amplifier
2.	1	11269	Tube Kit for BN-2A
3.	1	11279	Battery Cover for BN-2A
4.	1	11281	Battery Kit for M1-11279
5.	1	11277	Weatherproof Cover for BN-2A
6.	4	11007	Type BK-1A Pressure Microphone
7.	2	11008	Type KS-11A Desk Stand for BK-1A
8.	2	4093-C	Type KS-2A Portable Stand for BK-1A
9.	6	4630-B	Microphone Cable Plug
10.	2	4620-B	Extension Cable Plugs
11.	200′	43-B	Microphone Extension Cable

V. (A) Professional Tape Equipment
(Rack-Mounted)

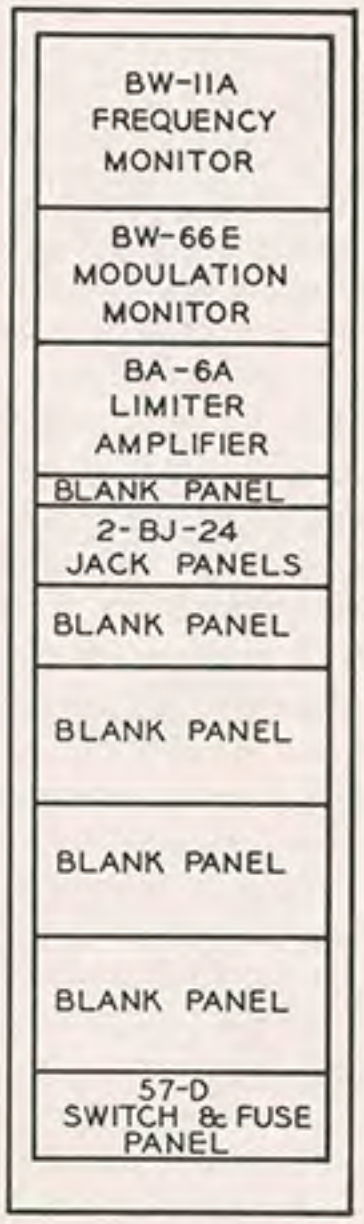
Item No.	Quan.	MI Number	Description
1.	1	11911-B	Type RT-11B Professional Tape Recorder
2.	1	11293/11294/11296	Tube Kit for RT-11B
3.	1	11948	Remote Control Unit for RT-11B
4.	1	30951-B84	Type BR-84B Cabinet less front door
5.	10	11924-3	Recording Tape ¼" x 1200' on plastic reel
6.	10	11924-4	Recording Tape ¼" x 2400' on NAB hub
7.	4	11932-2	Reel, NAB hub
8.	1	11937	Editall Tape Splicer

V. (B) Professional Tape Equipment
(Console-Mounted)

Item No.	Quan.	MI Number	Description
1.	1	11913-B	Type RT-12B Professional Tape Recorder (console mounted)
2.	1	11293/112941/11296	Tube Kit for RT-12B
3.	1	11972/11265E	Turret and VU Meter Panels for RT-12B
4.	1	11971	Base for RT-12B Recorder Console
5.	1	11948	Remote Control Unit for RT-12B Recorder Console
6.	10	11924-3	Recording Tape ¼" x 1200' on plastic reel
7.	10	11924-4	Recording Tape ¼" x 2400' on NAB hub
8.	4	11932-2	Reel, NAB hub
9.	1	11937	Editall Tape Splicer



XMTR AT LOCATION REMOTE FROM STUDIO



XMTR AND STUDIO AT SAME LOCATION

VI. (A) Transmitter Audio and Monitoring Equipment
(Transmitter and Studio at Same Location)

Item No.	Quan.	MI Number	Description
1.	1	30951-B84	Type BR-84B Cabinet Rack
2.	2	30566-G84	Single Trim Strips for BR-84B
*3.	1	30011-A	Type BW-11A AM Frequency Monitor with crystal and one set of tubes
*4.	1	30066-A	Type BW-66E Modulation Monitar with one set of tubes
5.	2	11645-A	Type BJ-24 Double Jack Panel
6.	1	11647-2	Double Jack Panel Mat
7.	1	11225	Type BA-6A Limiting Amplifier
8.	1	11289	Tube Kit for BA-6A
9.	1	11599	Shelf for BA-6A
10.	3	4594-B	Blank Panel, 8¾"
11.	1	4592-B	Blank Panel, 5¼"
12.	1	4590-B	Blank Panel, 1¾"
13.	1	4395-G	Type 57-D Switch and Fuse Panel
14.	1	4570-A	Terminal Board Mounting Bracket
15.	1	4568	Terminal Power Strip
16.	1	4569	Terminal Audio Block
17.	1000'	33	Interconnecting Cable (rack wiring)
18.	1000'	35	Interconnecting Cable (a-c and filament circuits)

VI. (B) Transmitter Audio and Monitoring Equipment
(Transmitter at Location Remote from Studio)

Item No.	Quan.	MI Number	Description
1.	1	30951-B84	Type BR-84B Cabinet Rack
2.	2	30566-G84	Single Trim Strip for BR-84B
*3.	1	30011-A	Type BW-11 AM Frequency Monitor with crystal and one set of tubes
*4.	1	30066-A	Type BW-66E Modulation Monitor with one set of tubes
5.	1	11225	Type BA-6A Limiting Amplifier
6.	1	11289	Tube Kit for BA-6A
7.	1	11599	Shelf for BA-6A
8.	1	11234-A	Type BA-1A Monitoring Amplifier
9.	1	11267	Tube Kit for BA-14A
10.	2	11232	Type BA-12A Booster Amplifiers (for microphone and turntable)
11.	2	11282	Tube Kit for BA-12A
12.	2	11598-B/11599	Type BR-2A Panel and Shelf (Monitor and Booster Amplifiers)
13.	1	11645	Type BJ-24 Double Jack Panel
14.	1	11647-1	Single Jack Panel Mat
15.	1	4196	Type 56F Variable Line Equalizer
16.	1	11265-E	Type BI-5A VU Meter Panel
17.	1	4593-A	Blank Panel, 7"
18.	1	4570-A	Terminal Board Mounting Bracket
19.	1	4568	Terminal Power Strip
20.	1	4569	Terminal Audio Block
21.	1	4395-G	Type 57-D Switch and Fuse Panel
22.	3	4652-2B	2' Patch Cord
23.	1	11007	Type BK-1A Pressure Microphone
24.	1	11008	Type KS-11A Desk Stand for BK-1A
25.	1	4630-B	Microphone Cable Plug
26.	1	4624-A	Microphone Wall Receptacle
27.	1	11816	Type BQ-70E Transcription Turntable
28.	1	11885	Lightweight Tone Arm
29.	1	11874-4	1 mil Lightweight Pickup
30.	1	11874-5	2.5 mil Lightweight Pickup
31.	1	11887	Transcription Filter
32.	1	11401/11411	Type LC-1A Monitoring Speaker
33.	1000'	33	Interconnecting Cable (rack wiring)
34.	1000'	35	Interconnecting Cable (a-c and filament circuits)

* When used for FM, space occupied will be utilized for FM frequency and modulation monitor, Type GR-1170-A or HP-335B.

RECOMMENDED AUDIO WIRING PRACTICES

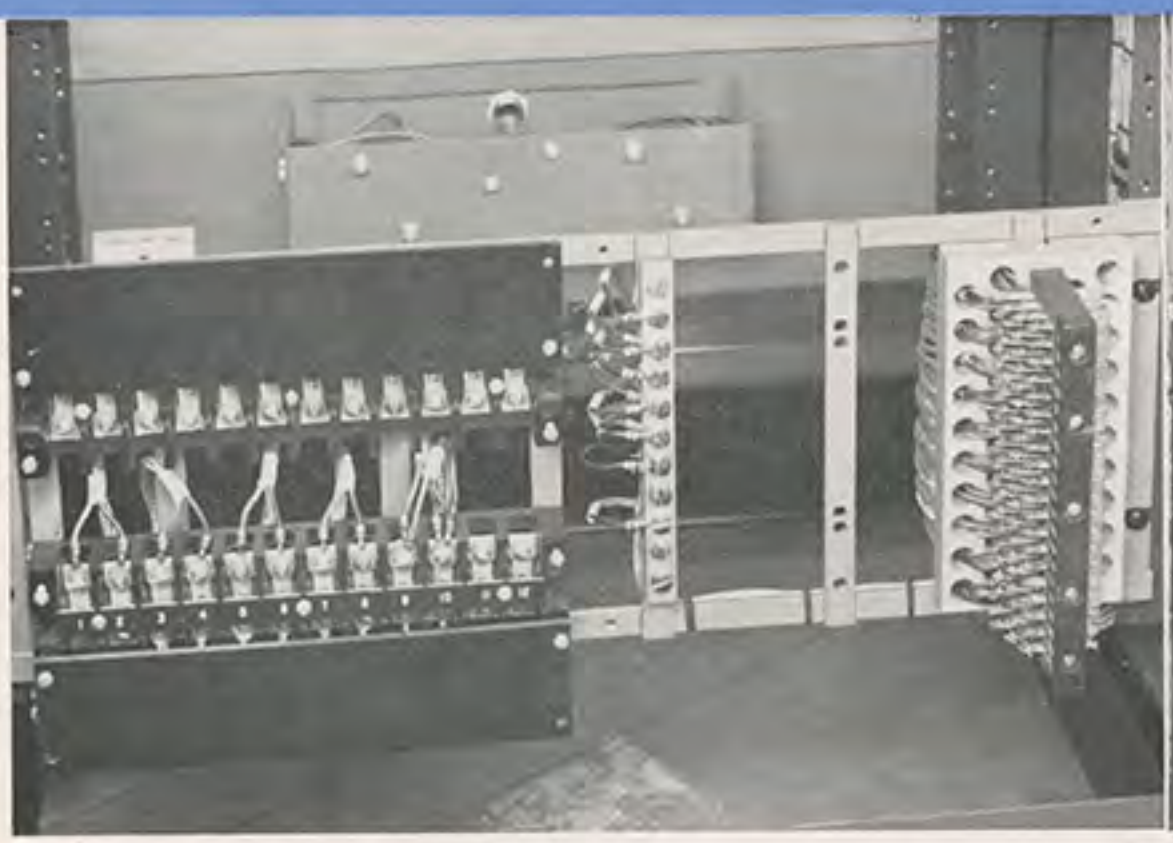


Fig. 1. Photo of terminals at bottom of rack. Power terminals are at left, ground buss in center and audio terminals at right.

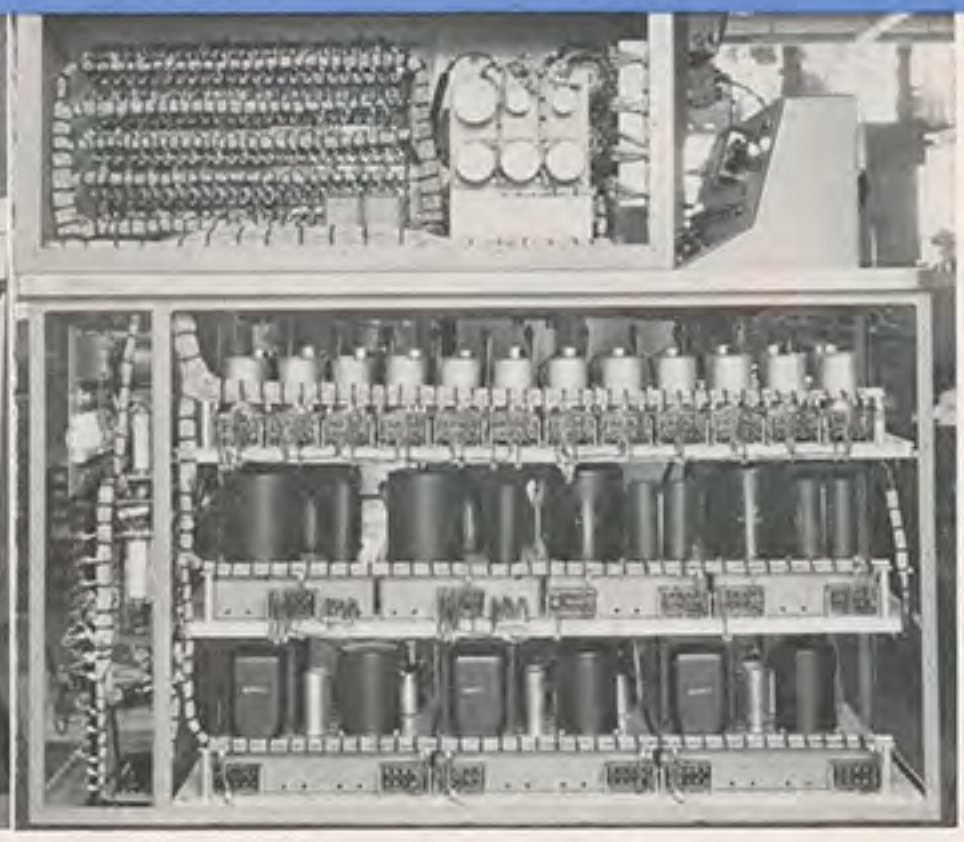


Fig. 2. View of wiring in a control desk. A-c circuits are below the shelves, and audio above.

Almost every studio undergoes minor modifications from time to time, and the subject of proper wiring practice is raised. Modern standards require careful elimination of noise and crosstalk from the program circuits. It is not uncommon to spend many hours wiring in new components, only to find their performance reduced by the wiring itself. A tested and proven standard practice can avoid much wasted time.

There are two basic philosophies employed in practical approaches to the noise problem. In one system every circuit shield is carefully isolated from its neighbors and grounded at one point only. In the other, all the shields of one unit (such as a rack) are put in such close contact that a brute-force ground is provided for any stray currents that might be present. This latter approach is taken in RCA equipment with modifications as follows:

Every rack, cabinet or desk is wired as a unit to terminal boards. The terminal boards are placed as near as possible, consistent with accessibility, to the point where the external circuits enter the unit. See Figs. 1 and 2 for examples.

In a rack, as viewed from the back, all audio cables are run on the right side of the rack; and all signal, a-c and d-c power cables are run on the left side. All audio circuits are twisted pair conductors shielded with a tinned copper braid. Separate cables are formed for:

(a) Microphone outputs, preamplifier outputs and other audio circuits with levels below −20 VU.

(b) Mixer, line and channel circuits up to +30 VU.

(c) Loudspeaker and other lines above +30 VU.

(d) At times further subdivisions are made for convenience in bulk or because levels are widely separated.

Each cable is bound with lacing cord so the shields are in tight contact for their entire length. Where two audio cables cross or join, they should either be definitely insulated or bound together. It is better to have tight contact than to risk an intermittent noise source made by casual contact.

The ends of the individual shields are terminated either with "wedge-on" collars or with plastic tape. The shields are grounded to a main ground bus near the terminal block. A shielded ground lead is run from each amplifier chassis to the ground bus.

The a-c and d-c power circuits are handled similarly. All a-c circuits should be in twisted pair, shielded cable. The a-c current should be balanced in each pair. That is, one pair should not be used for one side of a circuit and a second pair for the other side. If more than one pair is needed for the load, two or more pairs should be used with part of the load on each. Plus and minus plate potentials should be carried in single conductor shielded cable. Shields are tied off and grounded the same as the audio circuits.

Signal circuits do not require shielded wire.

The frames of jacks should be tied together and grounded with a shielded wire the same as amplifier chassis.

In installing the equipment in a studio or control room the following rules have been found useful:

The pairs run in conduits should be grouped in the same general way as the cables in the racks. The audio conduits should be kept free from grounds to power conduits or power circuits. Low level audio circuits (less than −30 VU) should have the shields insulated from the conduits and from each other.

Splices should be avoided. Low level conduits should be well spaced from power conduits.

Signal and telephone circuits should not be run in the same conduit with program or power circuits. Telephone leads should be twisted pair. Power and audio grounds should consist of separate, heavy shielded leads to the main station ground.

TV circuits in general should be considered high level circuits and should therefore be kept away from low level audio circuits. In particular, pulsed lamp circuits should be routed as far away from projector photocell and preamplifier circuits as possible. Shields should be insulated from ground and the audio circuit and shield grounded only at the point of lowest level.

Typical good practice for microphones is shown in Fig No. 3a. In this case two conductor shielded wire, with insulation over the shield, is used for the conduit run and the microphone cord. Fig. No. 3b shows somewhat better practice in which 3-conductor shielded, insulated cable is used for the conduit run and microphone cord. This latter practice removes any ground current from the shield.

Turntable pickup circuits should be handled like microphones with particular care being taken to keep the motor power circuits and their shields away from the audio circuits.

The input to mixer circuits is usually at comparatively high level, but the output is frequently very close to

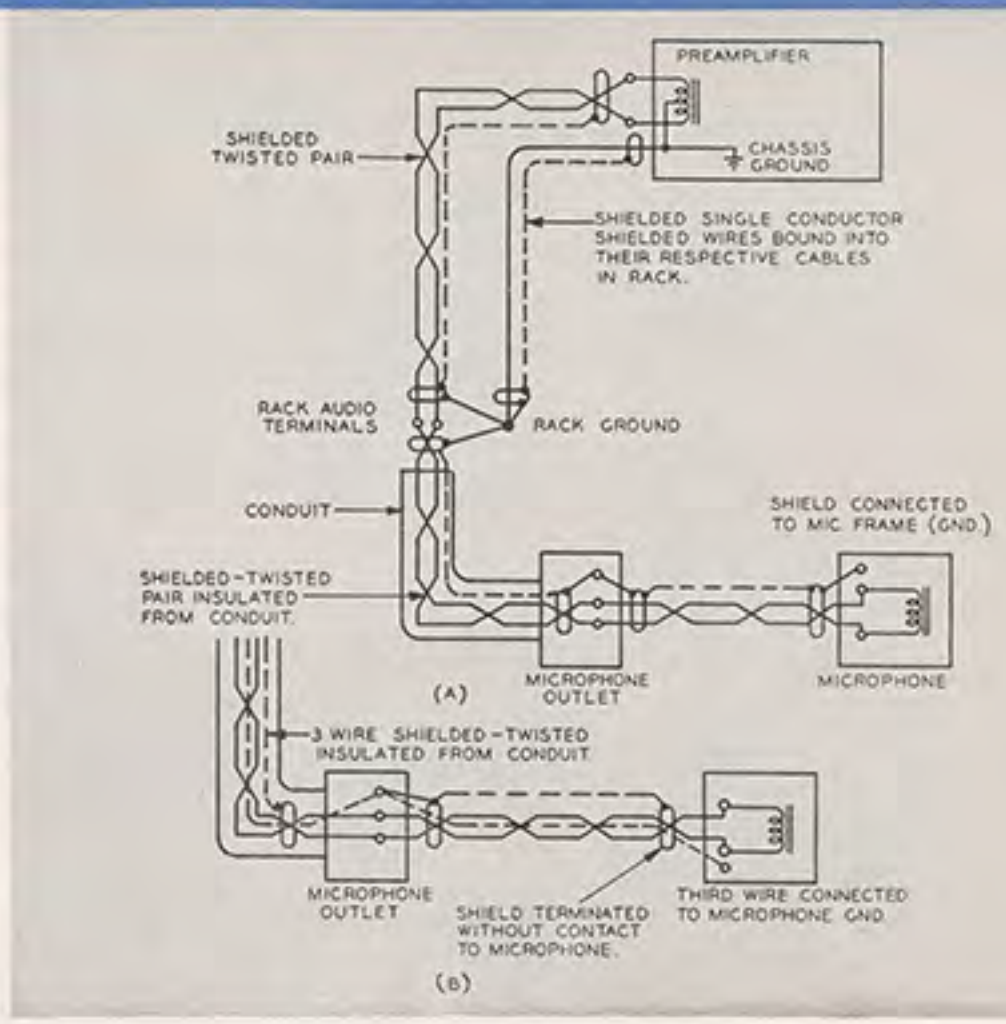


Fig. 3.

microphone level and the circuits should be treated in the same way. Fig. No. 4 shows typical good grounding practice in this respect. Unbalanced circuits may be used but are usually more difficult to handle if there is noise present. It will be noted that the only ground to this part of the system is at the point of lowest level and that all the circuits are balanced to ground. The center taps of the mixer attenuators are only tied to ground if special noise difficulty is encountered and tests indicate improvement. This occasionally happens on circuits which connect to remote lines or studio equipment with separate ground systems.

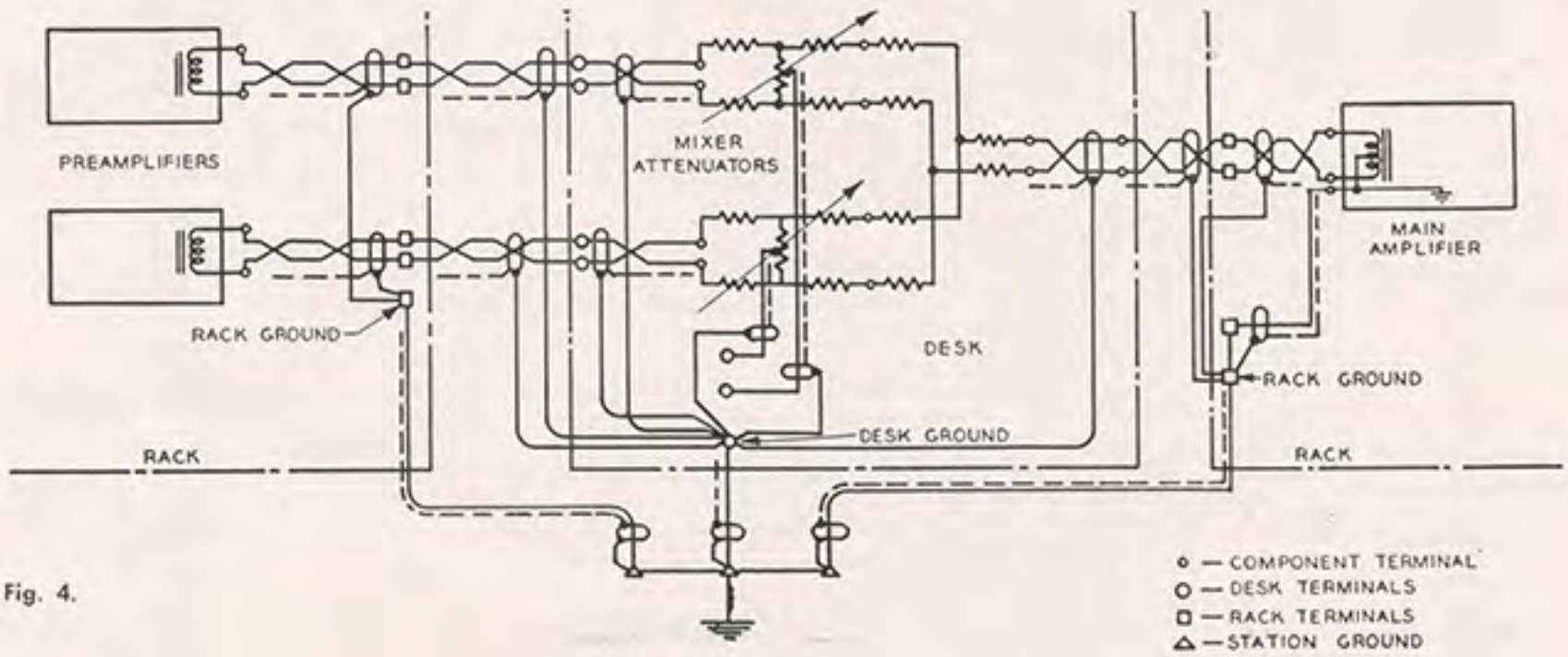


Fig. 4.

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