

# **AUDIO EQUIPMENT AM - FM - TV**

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# Recommended Equipment Lists

The following equipment lists have been prepared as an aid to the selection of broadcast audio equipment required for an average studio installation and for audio and monitoring equipment required for use with a transmitter at the transmitter location. These lists should be used only as a guide in the selection of equipment since the individual requirements of each station must be considered carefully before the proper equipment selection can be made.

Equipment listed for the studio will successfully handle an average installation where not more than two studios are required. For more than two studios consideration should be given to the more extensive equipment requirements such as master control switching with individual studio control. RCA broadcast audio engineers will gladly assist in planning master control installations when these are required.

Transmitter monitoring equipment lists suggest typical equipment for use when the transmitter is located at a point remote from the studio and for use when the transmitter and studio are at the same location. An equipment list is given also for use where MI-11623 transmitter control rack is to be used with control desks which are supplied as standard equipment with RCA BTA-5F, BTA-10F, BTA-50F and BTF-50A Transmitters.

The equipment lists include:

1. AM or FM Studio Equipment
2. AM and FM Studio Equipment
3. AM and FM Remote Equipment
4. Professional Type Recording Equipment
5. Standard Type Recording Equipment
6. AM or FM Transmitter Audio and Monitoring Equipment
  - A Transmitter and Studio at Same Location
  - B Transmitter at Location Remote from Studio
  - C Transmitter at Location Remote from Studio, where MI-11623 Rack is desired to be used with transmitter control desk.

## 1. AM or FM Studio Equipment

Suggested apparatus list for handling two studios, an announce booth, control room microphone, two turntables and equalization for remote lines.

Item No.	Qty.	Description	MI No.
1	1	76-B5 consolette and power supply	11613-D/ 11301-B
2	1	Set of tubes for consolette and power supply	11252

Item No.	Qty.	Description	MI No.
3	4	Relays for studio lights	11702
4	2	"On Air" lights	11706-1
5	2	"Audition" lights	11706-3
6	1	Speaker relay for announce booth	11703-A
7	2	Type 70-D turntables U/G	11801
8	2	Type BA-2C booster amplifiers	11226-B
9	2	Tube kits for BA-2C	11287
10	2	Type 44-BX velocity microphones (one for each studio)	4027-G
11	2	Type 77-D polydirectional microphones (one for each studio)	4045-C
12	1	Type 88-A pressure microphone (one for announce booth)	4048-E
13	1	Type KB-2C "Bantam" velocity microphone (for control room)	11001
14	2	Type 90-A deluxe program stands	4090-A
15	1	Type KS-1A floor stand	12065
16	1	Type KS-3B boom stand	11056
17	1	Type 91-B desk stand	4092-C
18	1	Desk stand for KB-2C	12066
19	6	Microphone connectors	4630-B
20	6	Wall receptacles	4624-A
21	1	Type BR-84B cabinet rack	30951-B84
22	2	Single trim strip	30566-G84
23	1	Terminal board mounting bracket	4570-A
24	1	Power terminal strip	4568
25	1	Audio terminal block	4569
26	2	Type 33-A jack strip	4645-A
27	1	Double jack mat	11502-A
28	4	2' patch cord	4652-2B
29	1	Type BE-1B variable line equalizer	4196-B
30	1	Type BA-14A monitor amplifier (for house speakers)	11234
31	2	Tube kits for BA-14A	11267
32	2	Type LC-1A loudspeaker	11411/11401
33	1	Type BR-2A panel and shelf	11598/11599
34	3	Studio accordion edge speaker (for talk-back in studios)	12435/13225
35	1000'	Interconnecting cable (Rack wiring)	63-A
36	500'	Interconnecting cable (speaker circuits)	64
37	500'	Interconnecting cable (filament circuits)	65

## 2. AM and FM Studio Equipment

Suggested apparatus for separate programming of AM and FM channels. The suggested equipment list assumes four studios, two announce booths, four turntables and equalization for remote lines.

Item No.	Qty.	Description	MI No.
1	2	Type 76-D studio consolette and power supply	11631 11301-B
2	2	Sets of tubes for 76-D consolette and power supply	11628-B
3	*1	BCS-2A switching system	11622
4	2	Console supervisory kits (one for each consolette)	11714
5	6	"On Air" light	11706-1
6	4	"Audition" light	11706-3
7	10	Relay for studio light	11702
8	2	Speaker relays (for announce booth)	11703-A
9	4	Turntables 70-D	11801
10	4	Type 44-BX velocity microphone (one for each studio)	4027-G
11	4	Type 77-D polydirectional microphones (one for each studio)	4045-C
12	2	Type 88-A pressure microphone (for announce booth)	4048-E
13	2	Type KB-2C "Bantam" velocity microphone (for control rooms)	11001
14	4	Type 90-A deluxe program floor stand	4090-A
15	2	Type KS-1A floor stands	12065
16	1	Type KS-3B boom stand	11056
17	1	Type KS-4A Magic Lock Boom Stand	11052
18	2	91-B desk stand	4092-C
19	2	Stands for KB-2C "Bantam" velocity microphone	12066
20	12	Microphone connector	4630-B
21	12	Microphone wall receptacles	4624-A
22	1	Type BR-84-B cabinet rack	30951-B84
23	2	Single trim strip	30566-G84
24	1	Terminal board mounting bracket	4570-A
25	1	Power terminal strip	4568
26	1	Audio terminal block	4569
27	2	Type 33-A jack strip	4645-A
28	1	Double jack mat (for 33-A)	11502-A
29	8	2' patch cord	4652-2B
30	2	Type BE-1B variable line equalizer	4196-B
31	2	Type BA-14A monitoring amplifiers (for house speakers)	11234
32	2	Tube kits for BA-14A	11267
33	2	Type BR-2A panel and shelf	11598/11599

\* If more than two consolettes are needed, substitute the BCS-1A switching system.

Item No.	Qty.	Description	MI No.
34	2	Type LC-1A loudspeaker (for control rooms)	11411/11401
35	6	Accordion edge speakers for talk-back in studios, etc.	12435/13225
36	2000'	Interconnecting cable (rack wiring)	63-A
37	1000'	Interconnecting cable (speaker circuits)	64
38	500'	Interconnecting cable (filament circuits)	65

## 3. AM and FM Remote Equipment

Suggested equipment for handling average remote requirements.

Item No.	Qty.	Description	MI No.
1	2	Type OP-6 remote amplifiers	11202-A
2	2	Tube kits for OP-6 (one each)	11253
3	2	VU meter kits for OP-6 (one each)	11251
4	2	Cover for OP-6	11256
5	1	OP-7 portable mixer-preamplifier	11213
6	1	Tube kit for OP-7	11254
7	1	Cover for OP-7	11257
8	1	Battery box for OP-6 and/or OP-7	11214
9	1	Cover for battery box	11258
10	3	Type 88-A microphones	4048-E
11	5	Microphone cable plug	4630-B
12	2	59-B portable microphone stand	4093-B
13	1	Collapsible banquet stand	4095-A
14	2	Microphone carrying case	4085
15	100'	Microphone extension cable	42
16	2	Extension cable plugs	4620-B

## 4. Professional Type Recording Equipment

Suggested apparatus for producing high quality recordings using Type 73-B professional recording equipment.

Item No.	Qty.	Description	MI No.
1	2	Type 73-B professional recorders	11825/11850-C
2	3	Sapphire styli	4842
3	1	Orthacoustic recording filter	4916-A
4	1	Type BA-14A Monitoring amplifier	11234
5	1	Set of tubes for BA-14A	11267
6	1	Type BR-2A panel and shelf (for amplifier if used)	11598/11599
7	1	Limiting amplifier Type 86-B (complete with tubes)	11216-E

<i>Item No.</i>	<i>Qty.</i>	<i>Description</i>	<i>MI No.</i>	<i>Item No.</i>	<i>Qty.</i>	<i>Description</i>	<i>MI No.</i>
8	1	Type 33-A jack strip	4645-A	8	1	Type 33-A jack strip	4645-A
9	1	Double jack mat (for 33-A)	11502-A	9	1	Double jack mat (for 33-A)	11502-A
10	4	2' patch cord	4652-2B	10	4	2' patch cord	4652-2B
11	1	VU meter panel	11265	11	1	VU meter panel	11265
12	1	Filament transformer, 6.3 V for VU meter panel lamp	11606	12	1	Filament transformer, 6.3 V for VU meter panel lamp	11606
13	1	Type BR-84-B cabinet rack	30951-B84	13	1	Type BR-84-B cabinet rack	30951-B84
14	2	Single trim strip	30566-G84	14	2	Single trim strip	30566-G84
15	1	Terminal board mounting bracket	4570-A	15	1	Terminal board mounting bracket	4570-A
16	1	Terminal power strip	4568	16	1	Terminal power strip	4568
17	1	Terminal audio block	4569	17	1	Terminal audio block	4569
18	1	Type 57-E switch and fuse panel	4395-E	18	1	Type 57-E switch and fuse panel	4395-E
19	3	Blank panels 8¾"	4594-B	19	1	Type RS-1A suction equipment	11857
20	1	Blank panel 7"	4593-A	20	1	Chip collector and hose assembly	11858
21	1	Blank panel 3½"	4591-B	21	2	Automatic equalizers for 72-D recorder	11101-A
22	1	Type RS-1A suction equipment	11857	22	3	Blank panel 8¾"	4594-B
23	1	Chip collector and hose assembly	11858	23	1	Blank panel 7"	4593-A
24	*2	Automatic equalizer for 73-B recorder	11100-A	24	1	Blank panel 3½"	4591-B

## 5. Standard Type Recording Equipment

Suggested apparatus for making high quality recordings by using recording attachments for the 70-D transcription turntables.

<i>Item No.</i>	<i>Qty.</i>	<i>Description</i>	<i>MI No.</i>
1	2	Type 72-D recording attachments with standard recording head	11901
2	3	Sapphire cutting styli	4842
3	1	*Orthacoustic recording filter	4916-A
4	1	Type BA-14A Monitoring amplifier	11223-B
5	1	Set of tubes for BA-14A	11267
6	1	Type BR-2A panel and shelf for amplifier (if used)	11598/11599
7	1	Type 86-B limiting amplifier (complete with tubes, panel and shelf)	11216-D

## 6. AM or FM Transmitter Audio and Monitoring Equipment

TRANSMITTER AND STUDIO AT SAME LOCATION

<i>Item No.</i>	<i>Qty.</i>	<i>Description</i>	<i>MI No.</i>
1	1	BR-84 cabinet rack	30951-B84
2	2	Single trim strips (cabinet rack)	30566-G84
**3	1	Type WF-48A frequency monitor (AM)	
**4	1	Type WM-43A modulation monitor (AM)	
5	1	Type 86-B limiting amplifier (complete with tubes, panel and shelf)	11216-D
6	2	Type 33-A jack strip	4645-A
7	1	Double jack mat (for 33-A)	11502-A
8	2	Blank panel 8¾"	4594-B
9	2	Blank panel 5¼"	4592-B

Item No.	Qty.	Description	MI No.
10	1	Blank panel 3½"	4591-B
11	1	Blank panel 1¾"	4590-B
12	1	Type 57-E switch and fuse panel	4395-E
13	1	Terminal block mounting bracket	4570-A
14	1	Terminal power strip	4568
15	1	Terminal audio block	4569
16	1000'	Interconnecting cable (rack wiring)	63-A
17	1000'	Interconnecting cable (filament circuits)	65

**TRANSMITTER AT LOCATION REMOTE FROM STUDIO**

1	1	BR-84 cabinet rack	30951-B84
2	2	Single trim strip (cabinet rack)	30566-G84
**3	1	Type WF-48A frequency monitor (AM)	
**4	1	Type WM-43A modulation monitor (AM)	
5	1	Type 86-B limiting amplifier (complete with tubes, panel and shelf)	11216-D
6	1	Type BA-14A monitoring amplifier	11234
7	1	Set of tubes for BA-14A	11267
8	2	BA-2C booster amplifiers (for microphone and turntable)	11226-B
9	2	Sets of tubes for BA-2C	11287
10	2	BR-2A panel and shelf (for monitor and booster amplifiers)	11598/11599
11	1	Type 33-A jack strip	4645-A
12	1	Double jack mat (for 33-A)	11502-A
13	1	Type BE-1B variable line equalizer	4196-B
14	1	VU meter panel	11265
15	1	Filament transformer, 6.3 V for VU meter panel lamp	11606
16	1	Blank panel 7"	4593-A
17	1	Terminal board mounting bracket	4570-A
18	1	Terminal power strip	4658
19	1	Terminal audio block	4569
20	1	Type 57-E switch and fuse panel	4395-E
21	3	2' patch cord	4652-2B
22	1	Type 88-A pressure microphone	4048-E
23	1	Type 91-B desk stand for microphone	4092-B
24	1	Microphone cable plug	4630-B
25	1	Microphone wall receptacle	4624-A
26	1	Type 70-D turntable	11801-A
27	1	Type LC-1A monitoring speaker	11411/11401
28	1000'	Interconnecting cable (rack wiring)	63-A
29	1000'	Interconnecting cable (filament circuits)	65

\*\* When used for FM, space occupied will be utilized for FM frequency and modulation monitor Type WF-5A.

**Transmitter Location Remote From Studio Where MI-11623 Transmitter Control rack Is Desired to Be Used With Control Desk Supplied With RCA Transmitters BTA-5F, 10-F, 50-F, and BTF-50A**

The MI-11623 Transmitter Monitor and Amplifier Cabinet Rack has been designed to operate with the Control Desks supplied with the BTA-5F, 10-F, 50-F and BTF-50A Transmitters to provide a complete and flexible system of controls and monitors.

Item No.	Qty.	Description	MI No.
1	1	Transmitter monitor and amplifier cabinet rack	11623

This cabinet rack is supplied with the following equipment:

2	Type 33-A jack strip complete with mat
1	Type BA-14A monitoring amplifier and tubes
1	Type 86-A1 limiting amplifier and tubes
1	Type 36-B panel and shelf for limiting amplifier
1	Type 57-C switch and fuse panel
2	*Type BR-2A panel and shelf

**MOUNTINGS AND WIRING ARE ALSO PROVIDED FOR THE FOLLOWING ACCESSORY EQUIPMENT:**

2	Type 56-C fixed line equalizers	
2	Type 15-KC high frequency compensators (to be used in the 56-C)	
1	FM pre-emphasis equalizer	4926-A
1	Power reduction panel	4309-B
1	Hum equalizer	7264-E
3	Type BA-11A amplifiers	11218-A
1	Type BX-1E pre-amplifier power supply	11305-B
1	Blank panel drilled and tapped for mounting 3 MI-11713 line transformers	
1	VU meter panel	11265
1	Filament transformer (for VU meter)	11606
1	Sola voltage regulator	11280

**Notes:**

1. Space and wiring are available at the top of all MI-11623 racks for mounting the Frequency Monitor WF-48A and Modulation Monitor WM-43A, or combination FM Frequency and Modulation Monitor Type WF-5A.

2. Side panels and trim strips for cabinets are available at the customer's specific requirements.

\* One shelf contains the BA-11A amplifier and the other is wired to accommodate 3 BA-11A pre-amplifiers and 1 BX-1E power supply for the pre-amplifiers.

# RCA Microphones

## Microphones General Information

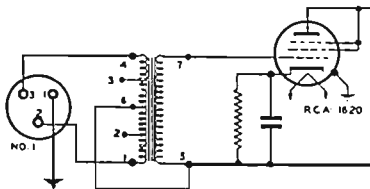
The excellence of RCA microphones is the result of continued effort on the part of Research, Development and Production personnel to produce a superior product. Out of this work have come the several types of broadcast microphones listed in the catalog. There is considerable overlap in the applications 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 88-A 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 input 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 such as the MI-6206 and the KN-1A have been designed as economy microphones. In general, frequency range and sensitivity have been sacrificed 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.



No. 1 Input Channel of OP-7 Portable Preamplifier showing unloaded transformer input

## 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 full generated voltage of the microphone appears at the grid of the first tube resulting 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 noise is in the microphone amplifier or in the output resistance of the microphone.

## Microphone Resistance Loading

Microphones which are relatively inefficient or in which there is a great deal of damping associated with the moving system will in general have their frequency response characteristics little changed by electrical loading. The 88-A and 77-D (in the pressure position) are examples of this.

Highly efficient microphones, particularly those in which the moving system is mass controlled usually show impedance variations for a constant generated voltage. Such microphones will have their response characteristics adversely affected by resistance loading because the mechanical constants of the moving system will be disturbed by the reflected resistance load. The Type 44-BX, and 77-D (in the bi-directional and uni-directional positions) are examples of this. Resistance loading on these will generally result in a loss in low frequency response.

## 150 Ohms vs. 250 Ohms

Where microphones are connected to unloaded input transformers, impedance matching is not a consideration and the effects of connecting microphones with an output impedance of 150 ohms to a microphone 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	150
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  $\pm 2$  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	150
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  $\frac{1}{2}$ " pipe thread for 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  $\frac{1}{2}$ " pipe and fittings. Most of the stands listed may also be used with microphones having a  $\frac{5}{8}$ "-27 thread by removing an adapter which is supplied as a part of the stand. Various adapters are also supplied for microphones should the use of the  $\frac{1}{2}$ " 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 figure which when combined with the conventionally measured ampli-

# RCA Microphones

fier gain will give the correct value of output level. This figure is listed in the catalog for each microphone and is called the Effective Output Level and differs from a proposed RMA standard rating only in the value of sound pressure. The Effective Output Level is based on a sound pressure of 10 dynes per square centimeter and the RMA rating on .0002 dynes per square centimeter.

The RMA 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
- Electrical reference level = .001 watt
- Sound pressure = .0002 dynes/sq. cm.

While this may look complex, the application is simple. In order to find the equivalent of the figure given as Effective Output Level, it is only necessary to add to the value of  $G_M$  the sound pressure level in db relative to 0.0002 dynes per square centimeter. As an example the value of  $G_M$  for the Type 44-BX Velocity Microphone is -149 db, and the usual sound pressure of 10 dynes per square centimeter corresponds to a level of +94 db. The value of  $G_M$  for a sound pressure level of 94 db is therefore -55 dbm, which is identical with the Effective Output Level. When the RMA rating is used, the output level of the microphone can be obtained by simply adding to the value of  $G_M$  the sound pressure level of the program material as measured in any of the readily available sound level meters.

### 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***	Directional Characteristic	Effective Output Level dbm*	Output Impedance Ohms	Frequency Response cps	Hum Pick-up Level db**	Finish	Fitting
44-BX	Broadcast & TV Program & Announce	Bi-directional	-55	30/150 250	50-15,000	-112	Satin Chrome and Umber Gray	1/2" Pipe Thread
77-D	Broadcast & Tv Studio & Remote Program Announce Booms	Poly-directional	-57	30/150 250	50-15,000	-125	Satin Chrome and Umber Gray	1/2" Pipe Thread
88-A	Broadcast & TV Studio & Remote Program Announce	Non-directional	-55	30/150 250	60-10,000	-109	Satin Chrome and Umber Gray	1/2" Pipe Thread
KB-2C	Broadcast & TV Studio & Remote Program Announce	Bi-directional	-55	30/150 250	60-10,000	-108	Satin Chrome and Umber Gray	5/8"-27 Thread
MI-6206-G	Broadcast & Television (a) Talkback	Non-directional	-56	250	80-8,000	-109	Umber Gray	5/8"-27 Thread
KN-1A	Broadcast & Television (a) Talkback	Non-directional	-57	250	100-8,000	-109	Satin Chrome and Umber Gray	5/8"-27 Thread

\* 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.  
 \*\* Level referred to a hum field of  $10^{-3}$  gauss.  
 \*\*\* For details refer to description of each particular type.

# 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-directional 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
Effective Output Level (Uni-directional)	-57 dbm*
Hum Pickup Level	-125 dbm**
Frequency Response	50-15,000 cycles
Finish	Satin chrome and umber gray
Mounting	1/2" pipe thread
<b>Dimensions, Overall:</b>	
Height	11 1/2"
Width	3 3/4"
Depth	2 1/2"
Weight (unpacked, including mountings)	3 lbs.
Cable (MI-43-A, 3 conductor shielded)	30' (no plug)
Stock Identification	MI-4045-B

**Accessories**

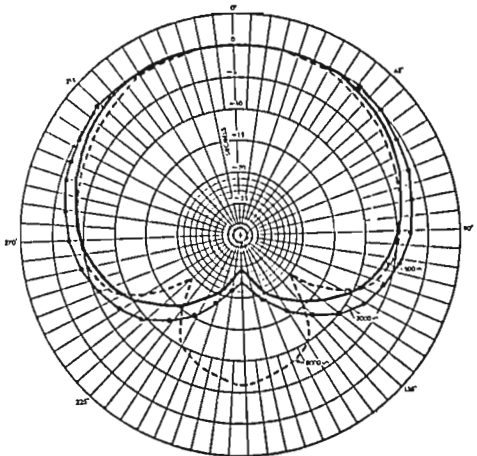
Protective Cloth Bag \_\_\_\_\_ MI-4087

\* Referred to 0.001 watt and a sound pressure of 10 dynes/cm<sup>2</sup>. This is equivalent to the proposed RMA rating at a sound pressure level of 94 db.

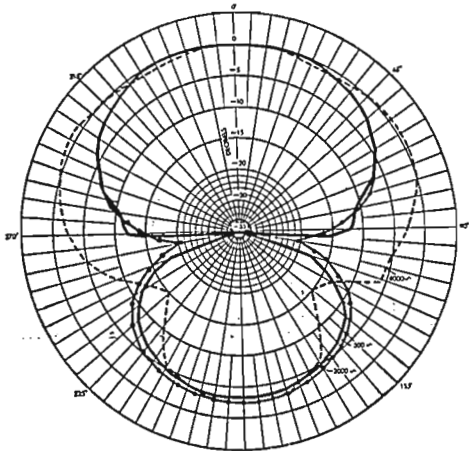
\*\* Level referred to a hum field of 0.001 gauss.



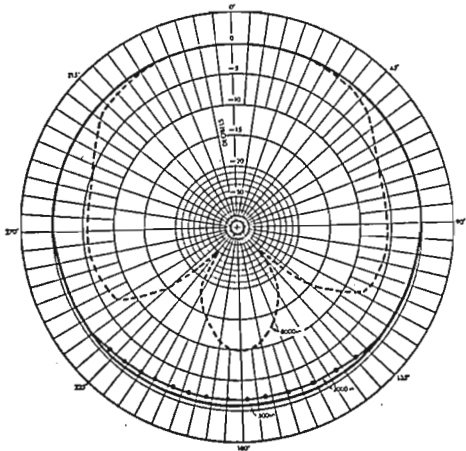
**Directional Response Patterns**



*Uni-Directional Position*

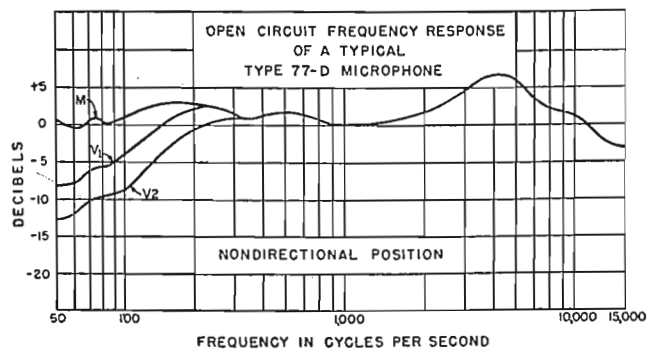
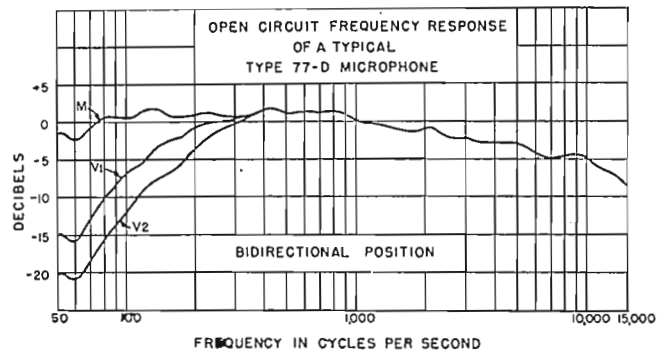
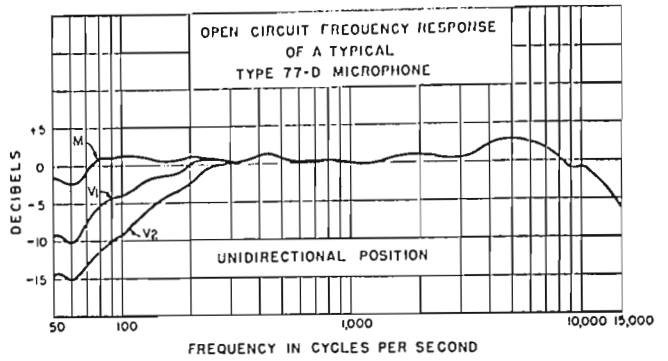


*Bi-Directional Position*



*Non-Directional Position*

**Frequency Response Curves**





**RCA Velocity  
Microphone  
Type 44-BX**  
Effective Output Level, -55 dbm  
Hum Pick-up Level, -112 dbm



**RCA Polydirectional  
Microphone  
Type 77-D**  
Effective Output Level, -57 dbm  
Hum Pick-up Level, -126 dbm

# Broadcasting's Best...

These are the network favorites.

Year after year they serve more broadcast and television audiences than any other microphone. Yet, despite their overwhelming popularity, RCA's engineering continues to make both even better than before.

The 44-BX is the bi-directional type—designed for AM, FM, and TV studios where highest quality reproduction is desired. It provides high-fidelity output over the entire audio range—and is free from cavity or diaphragm resonance and pressure doubling.

The 77-D is the polydirectional type . . . quickly adjustable to *any* pick-up pattern you want. A 3-position voice-music switch enables you to select the best operating characteristic for voice and music. *Hum pick-up level, -126 dbm!*

RCA 44-BX and 77-D microphones are yours for immediate delivery. Simply call your RCA Broadcast Sales Engineer. Or write Dept. 19 JB, RCA Engineering Products, Camden, New Jersey.

# 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.
- Quality smooth as a result of the 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.
- Shock mounted.
- Attractive appearance.

## 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, rather narrow, corrugated metallic ribbon supported at the ends and placed between the pole pieces of a magnetic circuit. Because of its lightweight, 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.

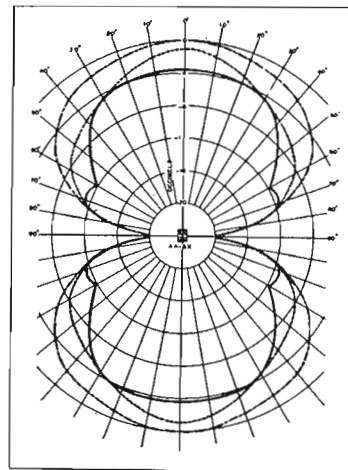
The 44-BX is attractively finished in satin chrome and a neutral umber gray to harmonize with modern studio interiors. The yoke mounting permits a wide range of tilting angles and the shock mounting reduces undesirable pickup from floor vibrations.

## Specifications

Directional Characteristics	Bi-directional
Output Impedances	30/150/250 ohms
Effective Output Level	-55 dbm*
Hum Pickup Level	112 dbm**
Frequency Response	50-15,000 cycles
Finish	Umber gray and satin chrome
Mounting	1/2" pipe thread
Dimensions, overall	
Height (including cushion mounting)	12"
Width	4 3/4"
Depth	3 3/8"
Weight (unpacked, including mountings)	8 1/2 lbs.
Cable (MI-43A) 3 conductor shielded	(30 feet (no plug))
Stock Identification	MI-4027-G

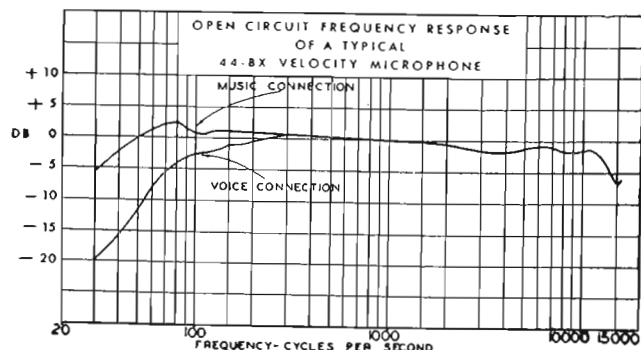
\* Referred to 0.001 watt and a sound pressure of 10 dynes/cm<sup>2</sup> (94 db level).

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



Directional characteristic of a typical 44-BX Velocity Microphone

———— 10,000 cps  
 - - - - - 6,000 cps  
 - · - · - 1,000 cps



# "Bantam" Velocity Microphone, Type KB-2C

## Features

- Miniature size—ideal for concealment.
- Cable disconnect at microphone makes handling easy.
- Excellent response over the essential audio range.
- Directional pattern allows orientation to reduce pickup of unwanted reflections.
- Shock mounted.
- Insensitive to stray magnetic fields.
- Low cost.
- Adjustable low frequency response.
- Voice or music pickup.

## Uses

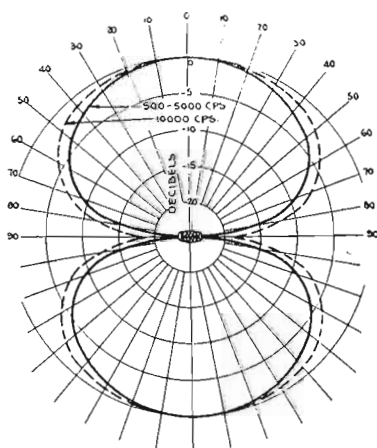
The "Bantam" Velocity Microphone, Type KB-2C, is used in AM and FM broadcast studios, in remotes and in television programs where it is essential that the artist's face must be in full view. The microphone is small enough to permit complete concealment if desired.

In addition, the KB-2C will give excellent service in any of the applications suggested for the 44-BX Velocity Microphone with no sacrifice in output level and an imperceptible change in quality. Cognizance must, however, be taken of the fact that the windscreening in the KB-2C is not as effective as on the 44-BX. It is, therefore, best not to attempt to work as close to the KB-2C if excitation due to breath puffs are to be avoided.

## Description

The KB-2C is a miniature Velocity Microphone whose principle of operation is no different than that of the 44-BX. The small size (without sacrifice in output level) is obtained through the use of highly efficient magnetic materials which are placed in the most advantageous places. The ribbon and pole piece assembly is contained in the upper screened portion and the transformer and compensating reactor in the housing immediately below. Output impedances of 30/150/250 ohms are provided. The screened portion is pivoted and may be tilted forward or backward through an angle of approximately 30 degrees. On one side below the pivot is a screwdriver-type switch for selecting the bass response for voice or music. The cable can be disconnected by opening the back portion of the shank and disengaging the concealed plug. An "XL" type male insert is supplied as a part of the microphone.

For desk positions, the KS-5A low-height stand is recommended for use with the KB-2C. Any standard floor stand or collapsible stand may be used for other applications.



*Directional Characteristics of a Typical KB-2C  
Velocity Microphone*



## Specifications

Directional Characteristics	Bi-directional
Output Impedances	30/150/250 ohms
Effective Output Level	-56 dbm*
Hum Pick-up Level	-108 dbm**
Frequency Response (see curve)	60-10,000 cycles
Finish	Satin chrome and umber gray
Dimensions (overall including stand fitting):	
Length	8 7/8"
Width	1 7/8"
Depth	1"
Weight Less Cable (unpacked)	12 oz.
Mounting	5/8"—27 fixture thread
Stock Identification	MI-11001
(Includes 30 feet MI-43 3 conductor shielded cable)	

## Accessories

Adaptor (5/8"—27 microphone thread to 1/2" pipe thread on stand)	MI-12053
Cable Only (three conductor shielded)	MI-43-A
Desk Stand (umber gray metalustre)	MI-12066
Desk Stand (black)	MI-12066-A
Cannon Microphone Plug—Type P (male)	MI-4630-B
Cannon Microphone Plug—Type XL (male)	MI-12059

\* Referred to one milliwatt and a sound pressure of 10 dynes/cm<sup>2</sup>.  
 \*\* Level referred to a hum field of 1 x 10<sup>-3</sup> gauss.

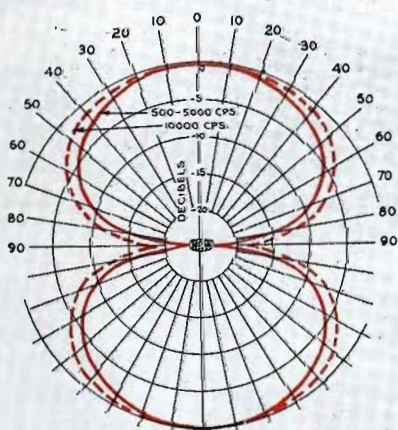


RCA TYPE KB-2C

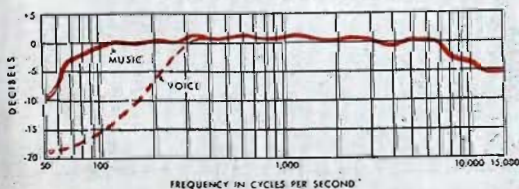
The KB-2C shown here is actual size.

# New VELOCITY MICROPHONE

*Bantam Size!*



Directional characteristics of a typical KB-2C microphone.



Open Circuit Frequency Response of a typical KB-2C microphone.

**B**ECAUSE this man is talking into the new miniature KB-2C, his audiences hear him . . . and see him! Hear him—because the KB-2C has “big mike” quality. See him—because the KB-2C is one of the *smallest* high-quality microphones yet designed. It’s ideal for conventions and night clubs. And it’s ideal for general station and other indoor uses.

Using highly efficient magnetic material . . . and a magnet structure *that’s a part of the microphone case itself*, here’s a microphone that’s as “light as a feather”—and so small it fits into your pocket. Its directional characteristics provide a symmetrical figure eight . . . with surprisingly uniform frequency response between 60 and 10,000 cps. Hum level, —108 dbm. Effective

output level, —56 dbm. Three output impedances provided; 30, 150, and 250 ohms, in accordance with RMA standards.

Plenty of operating conveniences, too. You can tilt the KB-2C backward and forward on its swivel through an angle of about 30 degrees. You can select your bass response by means of a screwdriver-type switch located under the swivel pivot. You can disconnect the cable right at the microphone. For desk positions, use RCA’s type KS-2A low-height stand. For other services, use any standard floor stand or collapsible stand.

More about the 12-ounce KB-2C from your RCA Broadcast Sales Engineer. Or write Dept.

# Pressure Microphone, Type 88-A

## Features

- Uniform response over the essential audio frequency range.
- Not sensitive to wind and mechanical vibration.
- Lightweight.
- Small size.
- Rugged construction.
- Low cost.
- Attractive appearance.
- Frequency characteristic independent of source distance.

## Uses

The 88-A microphone is suitable for use in broadcast AM, FM and Television studios for the following applications: (1) Programs where concealment of the microphone is desirable; (2) Programs where the artist must work extremely close to the microphone; (3) Programs where audience participation requires the use of a microphone which is rugged and may be readily handled; (4) Announce where the announcer must work very close to the microphone; (5) Newscasting and conference programs where each participant has a microphone; (6) Broadcast and Television Remotes; (7) Programs and Announce on remotes where a rugged microphone is required which will not be excessively boomy when worked close; (8) Sportscasting where a light rugged microphone is required; (9) Out-of-door remotes of all kinds where the microphone will be subjected to weather; (10) News events where small size microphone will not hide speaker; (11) Interview programs where the light weight of the microphone facilitates quick and easy handling.

## Description

In the 88-A Microphone the sound pressure actuates a thin but rugged molded diaphragm to which an annular coil is attached. The coil is in the air gap of a magnetic structure and connected to an impedance matching transformer which provides output impedances of 30/150 and 250 ohms. The voltage response of the microphone is made approximately independent of frequency over the audio range by coupling acoustic circuits to the diaphragm. For frequencies below 2000 cycles the microphone is non-directional.

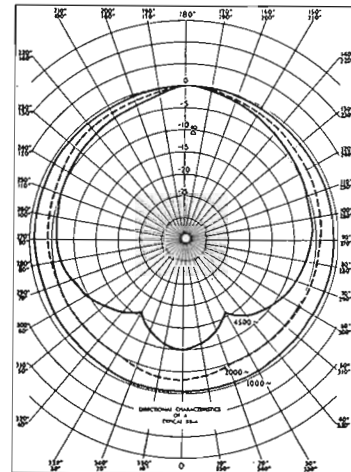
The microphone angle may be adjusted by means of a ball and socket joint and locked in position with a thumbscrew.

## Specifications

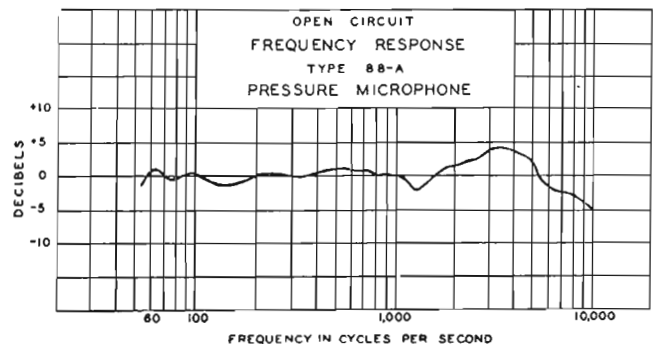
Directional Characteristics \_\_\_\_\_ Semi-directional  
 Output Impedances \_\_\_\_\_ 30/150/250 ohms  
 Effective Output Level \_\_\_\_\_ -55 dbm\*  
 Hum Pickup Level \_\_\_\_\_ -109 dbm\*\*  
 Frequency Response \_\_\_\_\_ 60-10,000 cycles  
 Finish \_\_\_\_\_ Satin chrome and umber gray  
 Mounting \_\_\_\_\_ 1/2" pipe thread  
 Dimensions, Overall:  
 Height (including Mounting) \_\_\_\_\_ 4 1/2"  
 Diameter \_\_\_\_\_ 2 1/8"  
 Weight (unpacked) \_\_\_\_\_ 1 lb.  
 Cable (MI-43, three conductor shielded) \_\_\_\_\_ 30' (no plug)  
 Stock Identification \_\_\_\_\_ MI-4048-E

\* Referred to 0.001 watt and a sound pressure of 10 dynes/2. This corresponds to the proposed RMA rating at a sound pressure level of 94 db.

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



*Directional characteristic of a typical 88-A Pressure Microphone*



# Microphones, MI-6206-E and KN-1A

## Aeropressure MI-6206-E

### Features

- Low cost.
- Good frequency response.
- High output level.
- Baffle for adjusting directivity.

### Uses

The MI-6206-G is suitable for use in: (1) public address systems where a quality pressure microphone is required; (2) broadcast studio talk-back circuits; (3) broadcast announce emergency applications.

### Description

The MI-6206-G is a moving coil microphone similar in operating principle to the 88-A Pressure Microphone but having a more limited frequency range. The MI-6206-G is relatively non-directional below 1000 cycles and increasingly directional above that frequency. The directional pattern may be either sharpened or broadened depending upon the position of the paracoustic baffle supplied. With the concave side toward the front of the microphone the directional pattern is narrowed and with the convex side forward the pattern is broadened.

The microphone is supplied with either a short length of cable and a Type "XL" Plug (MI-6206-G) or a 30-foot length of cable without plug (MI-6206-E). The angular position of the microphone may be adjusted to suit the user.



### Specifications

Directional Characteristics	Semi-directional
Output Impedance	250 ohms
Effective Output Level	-56 dbm*
Hum Pick-up Level	109 dbm**
Frequency Response	80-8,000 cycles
Finish	Two tone umber gray
Mounting	$\frac{3}{8}$ "-27 fixture thread (MI-12051 Adaptor required for $\frac{1}{2}$ " pipe thread.)
Dimensions, overall	
Length	5"
Diameter	$2\frac{1}{8}$ "
Weight (unpacked)	$2\frac{1}{4}$ lbs.
Stock Identification:	
With 30 ft. Cable (MI-42, No Plug)	MI-6206-E

## Announce Microphone, Type KN-1A

### Features

- Low cost.
- Lightweight and small size.
- Concealed plug connection.
- Good frequency response.
- Shank may serve as handle.
- High output level.

### Uses

The Announce Microphone, Type KN-1A has the following applications: (1) public address systems where a quality pressure microphone is required; (2) broadcast studio talk-back systems; (3) broadcast announce emergency applications; (4) interview-type programs where frequency range may be adequate.

### Description

The KN-1A Microphone is a moving conductor type of an entirely new design with modernistic lines. The microphone unit and shank are mechanically connected through a swivel which allows the microphone to be moved through an angle of 80 degrees. In addition to serving as a stand or handle, the shank conceals the usual unsightly plug connection. Access to the type "XL" plug used is obtained by lifting the cover which forms the back portion of the shank. The microphone mounting is a  $\frac{5}{8}$ "-27 fixture thread, and



an MI-12053 adaptor is necessary where the microphone is to be used with stands having a  $\frac{1}{2}$ " pipe thread.

### Specifications

Directional Characteristic	Semi-directional
Effective Output Level	-57 dbm*
Hum Pick-up Level	109 dbm**
Frequency Response	100-8,000 cycles
Output Impedance	250 ohms
Finish	Two tone umber gray
Dimensions:	
Length	$9\frac{3}{4}$ "
Width	$1\frac{1}{2}$ "
Depth	2"
Weight Less Cable (unpacked)	$1\frac{1}{4}$ lbs.
Mounting	$\frac{5}{8}$ "-27 fixture thread
Stock Identification:	
With 30' Cable	MI-12081-C

### Accessories

Desk Stand (gray metalustre) MI-12066

\* Referred to one milliwatt and a sound pressure 10 dynes/cm<sup>2</sup>.  
 \*\* Level referred to a hum field of  $1 \times 10^{-3}$  gauss.

# Microphone Stands

## 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.



### 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 5 1/4" from center of the vertical rod. The bottom of the base is covered with felt.

### Specifications

Height—Adjustable 10 3/4" to 24 3/4"  
 Base Dimensions 3 5/8" x 10 1/2" x 1 5/8"  
 Microphone Mounting 1/2" pipe thread or 5/8"—27 fixture thread with adaptor removed  
 Weight \_\_\_\_\_ 5 lbs.  
 Finish—Umber gray and satin chrome  
 Stock Identification MI-4095-A

## Desk Stand, Type KS-5A

The desk stand, Type KS-5A, is a neatly designed stand primarily for use with the KB-2C and KN-1A microphones. It is of cast metal and attractively finished in gray metalustre. The microphone is held rigidly in position by 5/8"—27 thread bolt. The bottom is cushioned by a strip of rubber, giving adequate protection to any finely finished surface.

### Specifications

Dimensions:  
 Length \_\_\_\_\_ 4 1/8"  
 Width \_\_\_\_\_ 5 3/8"  
 Height \_\_\_\_\_ 3 3/4"  
 Weight \_\_\_\_\_ 1 1/4 lbs.  
 Fitting Size (of mike extension) \_\_\_\_\_ 5/8"—27 thread  
 Stock Identification:  
 Gray Metalustre \_\_\_\_\_ MI-12066



## 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.

### 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 3/4" and one 1 3/4", the choice depending on the type microphone to be mounted.



### Specifications

Microphone Mounting \_\_\_\_\_ 1/2" pipe thread  
 Base Dimensions \_\_\_\_\_ 4 1/2" x 6 5/8" x 3/4"  
 Finish—Umber gray with polished chromium trim  
 Weight \_\_\_\_\_ 4 lbs.  
 Stock Identification \_\_\_\_\_ MI-4092-C

## Announce Stand, Type 91-A (Specially 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 dark umber gray metalustre and its base rests on three felt buttons. Height of the 44-BX Center above desk is 8 3/8". Base diameter, 7". Use only with Type 44-BX Microphone.

### Specifications

Weight (unpacked) \_\_\_\_\_ 3 1/2 lbs.  
 Stock Identification \_\_\_\_\_ MI-4058-C





# Microphone Stands

## 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 $\frac{3}{4}$ " high and the 4 $\frac{3}{4}$ "-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  $\frac{1}{8}$ " pipe thread; with the adaptor removed the mounting is a  $\frac{5}{8}$ "-27 fixture thread.

Weight (unpacked) \_\_\_\_\_ 14 ozs.  
Weight (packed) \_\_\_\_\_ 1 $\frac{1}{2}$  lbs.



## Announce Stand, MI-4096

This attractively-designed announce stand is adjustable from 8 to 10 $\frac{1}{2}$ ", making it ideal for use on a desk or table. It is finished in chromium and black and features a 7 $\frac{1}{2}$ " base. The microphone mounting is a  $\frac{1}{2}$ " pipe thread, and with the adaptor removed, may be used with microphone having a  $\frac{5}{8}$ "-27 fixture thread.

Weight (unpacked) \_\_\_\_\_ 4 lbs.



## Pushmike Stand, MI-6427



This smartly designed table stand features a built-in microphone switch and is suitable for use with all RCA pressure type 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 4 $\frac{3}{4}$ " high with 5 $\frac{3}{4}$ " base and is attractively finished in chromium. The microphone mounting is for a  $\frac{5}{8}$ "-27 male or female thread. Stock #33543 Adaptor is available on separate order for microphone with  $\frac{1}{2}$ " pipe thread.

Weight (unpacked) \_\_\_\_\_ 1 $\frac{1}{8}$ " lbs.  
Stock Identification \_\_\_\_\_ MI-6427  
(Includes MI-6425 Stand 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  $\frac{5}{8}$ "-27 fixture threads. The adaptor is an extremely light compact unit finished in chromium. It is 4 $\frac{3}{4}$ " long, 1 $\frac{3}{8}$ " in diameter and weight is  $\frac{3}{4}$  lbs. unpacked.



Fitting \_\_\_\_\_ Bottom  $\frac{5}{8}$ "-27 fixture thread (female)  
Top \_\_\_\_\_  $\frac{5}{8}$ "-27 fixture thread (female) with added  
 $\frac{5}{8}$ "-27 thread, male nipple  
Weight (unpacked) \_\_\_\_\_  $\frac{3}{4}$  lb.  
Stock Identification \_\_\_\_\_ MI-6425

## Microphone Adaptors

RCA offers a comprehensive stock of microphone adaptors suitable for microphones and stands, etc., used in the broadcast field. A recent questionnaire confirmed that for its simplicity in procurement and availability, the  $\frac{1}{2}$ " standard pipe

thread was infinitely more popular than any other pipe size. For this reason, RCA has standardized on the  $\frac{1}{2}$ " standard pipe thread, and avails broadcasters of adaptors to suit any application.

Stand Thread	Microphone Thread	Stock Identification
$\frac{1}{2}$ " pipe thread	$\frac{1}{8}$ " pipe thread	MI-12051
$\frac{1}{2}$ " pipe thread	$\frac{5}{8}$ "-27	MI-12053
$\frac{1}{2}$ " pipe thread	$\frac{5}{8}$ "-24 (W.E.)	MI-12057
$\frac{3}{8}$ "-24 (W.E.)	$\frac{1}{2}$ " pipe thread	MI-12057-A
$\frac{5}{8}$ "-27	$\frac{1}{8}$ " pipe thread	MI-6229
$\frac{3}{4}$ "-27	$\frac{1}{2}$ " pipe thread	MI-12055



MI-12055



MI-12051



MI-6229

# Microphone Stands

## Program Stand, Type 90-A

### 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 types of microphones.

### 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  $\frac{1}{2}$ " pipe thread and by simply removing an adapter fitting with any microphone having a  $\frac{5}{8}$ "-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.

### 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.



### Specifications

Height of Stand \_\_\_\_\_ Adjustable from 3'8" to 6'2"  
 Microphone Mounting \_\_\_\_\_ Standard  $\frac{1}{2}$ " pipe thread or  $\frac{5}{8}$ "-27 fixture thread  
 Diameter of Base \_\_\_\_\_  $12\frac{1}{4}$ "  
 Weight (unpacked) \_\_\_\_\_ 33 lbs.  
 Finish \_\_\_\_\_ Satin Chrome  
 Stock Identification \_\_\_\_\_ MI-11050  
 Accessory Item—Cable Hook \_\_\_\_\_ MI-11099

## Floor Stand, Type KS-1A

### Uses

The Type KS-1A Floor Stand is used in Broadcast studios where some stability of support may be sacrificed for ease of placement changes. Especially recommended for use with the lighter microphones.

### Description

The KS-1A microphone stand features the same patented smooth height adjustment of the 90-A in a stand of much lighter weight. The column and telescoping tube are finished in satin chrome and the base in dark umber gray wrinkle to harmonize with RCA microphones. Cable guides are included to hold the microphone cord close to the stand at the base.

The stand as supplied may be used with any microphones having a  $\frac{1}{2}$ " pipe thread and by removing an adapter fitting with any microphone having a  $\frac{5}{8}$ "-27 fixture thread.

### Features

- Suitable for use with all RCA Microphones.
- Low price.
- Smooth operation with automatic clamping and release device.
- Light weight.
- Heavy ten inch base.
- Sturdy construction.
- Attractively finished.



### Specifications

Height of Stand \_\_\_\_\_ Adjustable from 3' 2" to 5' 5 $\frac{1}{2}$ "  
 Microphone Mounting \_\_\_\_\_  $\frac{1}{2}$ " pipe thread or  $\frac{5}{8}$ "-27 fixture thread  
 Diameter of Lower Tube \_\_\_\_\_ 1"  
 Diameter of Base \_\_\_\_\_ 10"  
 Weight (unpacked) \_\_\_\_\_ 14 lbs.  
 Finish \_\_\_\_\_  
 Base \_\_\_\_\_ Dark umber gray  
 Stand \_\_\_\_\_ Satin chrome  
 Stock Identification \_\_\_\_\_ MI-12065

## Cable Hook, MI-11099

### Uses

Attached to the 90-A or any other  $1\frac{1}{4}$ " round tube stand the MI-11099 provides a convenient method of holding 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.



### Features

- Can be attached or removed in a few seconds.
- Saves wear on the cable.
- Keeps cable out of the way when not in use.

### Specifications

Weight \_\_\_\_\_ 15 oz.  
 Finish \_\_\_\_\_ Satin chromium  
 Hole Diameter \_\_\_\_\_  $1\frac{1}{4}$ "

# Microphone Stands

## Boom Stand, Type KS-3B



### Features

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

### Uses

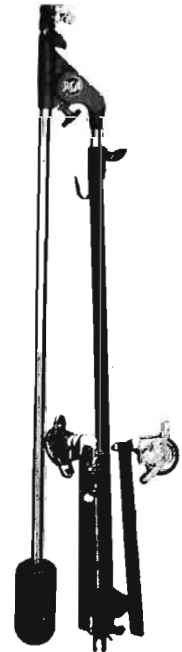
For broadcast AM and FM studios and Television applications: (1) Programs where the best microphone position cannot be reached with a conventional floor stand; (2) Piano pickup; (3) Orchestral pickup where the stand may be substituted for microphones suspended overhead; (4) Television Programs where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

### 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.



KS-3B shown collapsed

## 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 has a heavy ten-inch gray crackle base which is trimmed with satin-silver stripes. The stand finish is chrome.

### 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 \_\_\_\_\_ 1/2" pipe thread  
Finish \_\_\_\_\_  
Stand \_\_\_\_\_ Polished chromium  
Base \_\_\_\_\_ Gun metal crackle with  
satin-silver stripes  
Weight (unpacked) \_\_\_\_\_ 11 lbs.  
Stock Identification \_\_\_\_\_ MI-6208



### Specifications

Height of Stand \_\_\_\_\_ Adjustable from  
5' 2" to 8' 8"  
Horizontal Arm Adjustment (With  
overhang to rear) \_\_\_\_\_ 3' to 6'  
Microphone Mounting \_\_\_\_\_ Standard 1/2"  
pipe thread  
Weight (unpacked) \_\_\_\_\_ 64 lbs.  
Finish \_\_\_\_\_ Satin stainless steel and gray  
Stock Identification \_\_\_\_\_ MI-11056

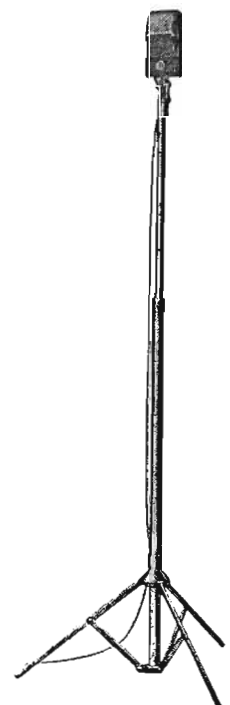
## Portable Stand, Type 59-B

### Description

The 59-B is a folding, lightweight and rugged stand which is unexcelled for field use. 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) \_\_\_\_\_ 3 1/2 lbs.  
Finish \_\_\_\_\_ Satin chrome  
Microphone Mounting \_\_\_\_\_ 1/2" pipe  
thread or 5/8"—27 fixture thread  
with adaptor removed.  
Stock Identification \_\_\_\_\_ MI-4093-B





## RCA *Audio Accessories*

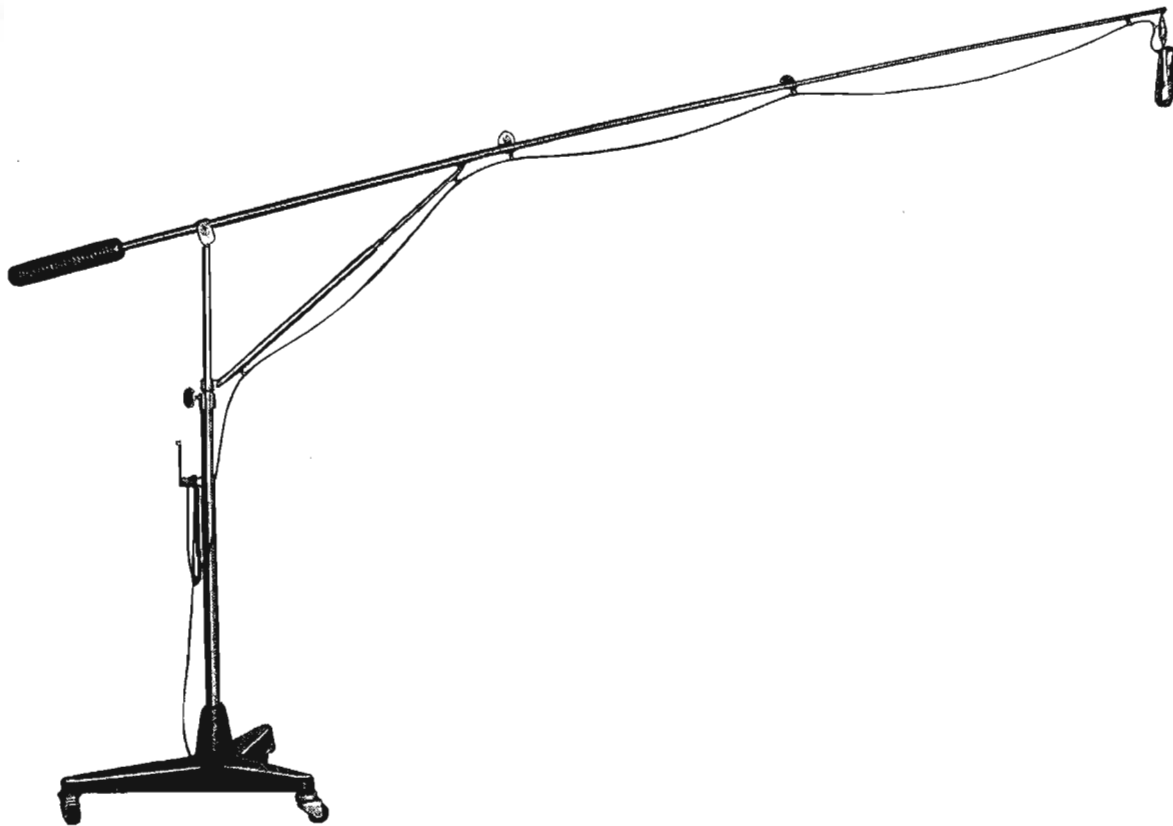
**FOR EVERY STATION NEED—AM·FM·TV**

REPRESENTED HERE are items from broadcasting's most complete line of fine audio accessories. Microphone stands . . . studio warning lights . . . cabinet racks . . . panel-mounted auxiliary units . . . transformers of many kinds. In all, more than 100 different items—with every type of unit you need from large size cabinet racks down to patch cords.

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For information on RCA's complete line of audio accessories . . . immediately available from stock . . . call your RCA Broadcast Sales Engineer, or Dept. 7-G, Engineering Products, RCA, Camden, New Jersey.

# "Magic Lock" Boom Stand, Type KS-4A



## Features

- Remarkable dimensional flexibility—a 13' arc extending to 21' high.
- One arm universal action.
- "Magic Lock", insuring positive and instantaneous action.
- Microphonic noises reduced to a minimum.
- Mobility—base will pass through any door.
- All steel construction—satin chrome finish.
- Low operating expense—no maintenance required.
- Suitable for catwalks, etc., with mounting bracket.

## Uses

The "Magic Lock" Boom Stand, Type KS-4A is used in Broadcast and Television studios where it is necessary to elevate a microphone to a considerable height or distance from the point of support.

## Description

The "Magic Lock" Boom Stand is another addition to the series of microphone stands employing the "magic lock" principle. The ingenuity of this patented device is unexcelled by any other type of mechanism produced. It allows a one hand movement of the boom without operation of screws or release mechanisms and will retain a positive position without any possibility of slipping.

The KS-4A is of all steel construction with a satin chrome finish throughout except for the low gravity cast iron base, which is dark umber gray. The main shaft of the stand utilizes

one main "magic lock" which constitutes an instantaneous and positive action in the vertical plane. The securing screw brake controls and locks the boom movement in azimuth.

The boom, with two telescoping 4' sections, has a controllable arc of approximately 180° by virtue of another "magic lock". The microphone may be elevated and rotated in azimuth to any point by a one arm operation of counter balance. The base has a radius of 26", giving it great mobility, and allowing it to pass through any standard door. The stand and base are supported by three large, heavy-duty ball bearing casters, rubber covered to insure a smooth and silent operation. The microphone cable is guided at six locations and thus eliminates any possibility of fouling apparatus or instruments. If desired, the boom's vertical shaft may be removed from the housing and used on a catwalk or a wall fitting bracket.

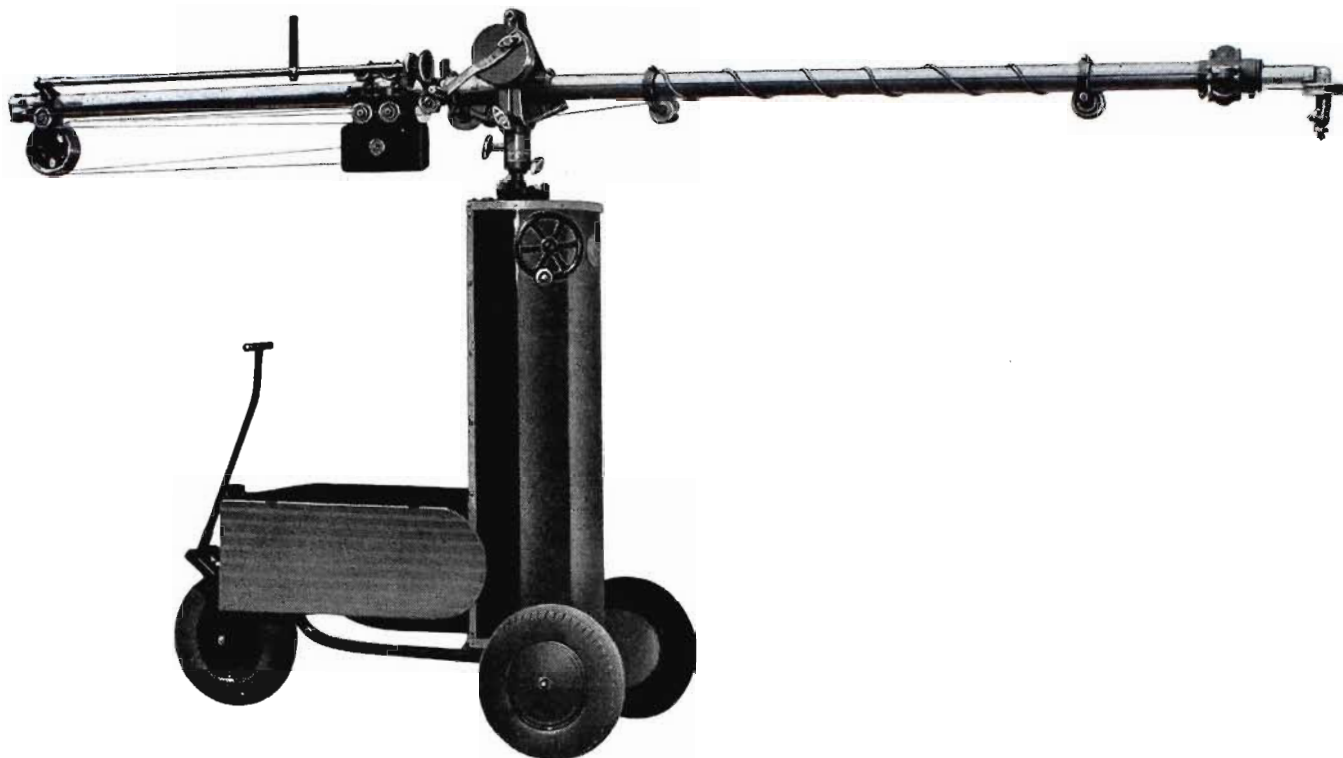
## Specifications

### Dimensions:

Weight of Microphone	Radius of Arc	Height
1 lb.	13'	21'
4 lbs.	9'	17'
8 lbs.	6'	14'

Counter Balance \_\_\_\_\_ 2' from center yoke  
 Boom When Closed \_\_\_\_\_ 5' radius  
 Adjustable Height Above Floor \_\_\_\_\_ 6' to 9'  
 Finish \_\_\_\_\_ Satin chrome  
 Weight \_\_\_\_\_ Approx 200 lbs.  
 Microphone Thread \_\_\_\_\_ Standard 5/8"—27 with adaptor to 1/2"  
 Stock Identification \_\_\_\_\_ MI-11052

# Microphone Boom & 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.

## 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)	66¾ lbs.
Counterweights for Boom	35¼ lbs.
Perambulator	421 lbs.
Stock Identification	MI-26574

# 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 miniature size plug was developed to obtain a cable connection that could be housed in the stem of the KB-2C Microphone. These microphone plugs are identified as the Cannon XL-3 Series. A split gland type of cable clamp will accommodate cable diameters up to .290 inch. All of the "XL" Cable Connectors have zinc alloy die cast shells and are supplied with a bright nickel finish. Positive latch locks prevent accidental disconnecting. Connectors 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

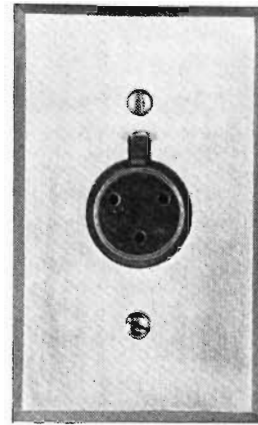
Description	Cannon Stock No.	RCA Stock Identification
Male Plug for Microphone Cords	P3-CG-12S	MI-4630-B
Wall Receptacle for Above Plug	P3-35	MI-4624-A

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
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## CANNON "XL" SERIES OF PLUGS

Description	Cannon Stock No.	RCA Stock Identification
Male Plug for Microphone Cords	XL-3-12	MI-12059
Female Connectors—Extension Cord	XL-3-11	MI-12058



MI-4624-A Wall Receptacle



MI-12059



MI-12058



MI-4620-B Cord Connector



MI-4630-B Microphone Plug

# 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-A

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 \_\_\_\_\_ Black neoprene compound

Overall Diameter \_\_\_\_\_ .0312 maximum  
 Stock Identification (specify length in feet) \_\_\_\_\_ MI-43-A

## Cable MI-62

Type \_\_\_\_\_ Two conductor twisted  
 Conductors \_\_\_\_\_ Stranded, equivalent to #18 AWG  
 Insulation \_\_\_\_\_ Special rubber compound  
 Shield \_\_\_\_\_ Tinned copper. Complete coverage without loss in flexibility  
 Outer Covering \_\_\_\_\_ Black neoprene compound  
 Overall Diameter \_\_\_\_\_ .0312 maximum  
 Stock Identification (specify length in feet) \_\_\_\_\_ MI-62

# 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.

## 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 \_\_\_\_\_ Vinyl 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-49

Use \_\_\_\_\_ Especially recommended for audio circuits and general rack wiring  
 Type \_\_\_\_\_ Shielded, twisted pair, stranded, composed of 10  $.010$  tinned copper conductors equivalent to #16 AWG  
 Outside covering of cotton braid.  
 Insulation \_\_\_\_\_ Varnished cambric covered with a serving of cotton  
 Shield \_\_\_\_\_ Tinned copper braid  
 Overall Diameter \_\_\_\_\_ Approx.  $.025$ "  
 Color Code \_\_\_\_\_ Red and black  
 Rating \_\_\_\_\_ 600 volts  
 Stock Identification (stocked in 1000' rolls) \_\_\_\_\_ MI-49

## Solid Conductor Cable, MI-63-A

Use \_\_\_\_\_ General purpose audio transmission line  
 Type \_\_\_\_\_ Twisted two-conductor, solid copper, shielded, tinned #19 AWG  
 Insulation \_\_\_\_\_ Varnished cambric covered with a serving of cotton  
 Shield \_\_\_\_\_ Tinned copper braid  
 Overall Diameter \_\_\_\_\_ Approx.  $.025$ "  
 Color Code \_\_\_\_\_ Red and black  
 Rating \_\_\_\_\_ 600 volts  
 Stock Identification (stocked in 1000' rolls) \_\_\_\_\_ MI-63-A

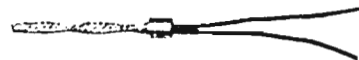
# Cable Accessories

## Grounding Sheath Connectors, MI-11270

Consisting of companion inner and outer sleeves and available in two sizes, the MI-11270-A small connectors are for use with MI-34 shielded twisted pair, and MI-11270-B (larger size) for MI-35, MI-49 or MI-63-A. Connectors serve as convenient terminations for the shields of twisted-pair cables, avoid shifting of shields, and provide a suitable connection or ground point. (Ground wire may be crimped between inner and outer connector.)



MI-11270-A Connectors



MI-11270B Connectors

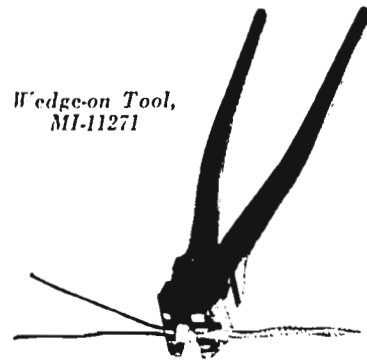
Connectors for MI-34 Cable (boxes of 1000) \_\_\_\_\_ MI-11270-A

Connector for MI-35, MI-49, or MI-63-A Cable (boxes of 1000) \_\_\_\_\_ MI-11270-B

## Wedge-on Tool, MI-11271

This tool is necessary for quick and easy "pressing-on" of ground sheath connectors, MI-11270. The Wedge-On tool firmly grips both connector pieces and presses (in one operation) the cable shield between inner and outer connector sleeves.

Wedge-on Tool, MI-11271



All frayed edges are cleanly cut away and a perfect electrical and mechanical connection results.

Approximate Length \_\_\_\_\_ 10"  
 Approximate Weight \_\_\_\_\_  $1\frac{1}{2}$  lbs.  
 Stock Identification \_\_\_\_\_ MI-11271

## Cable Lacing Cord

Two sizes of cords are available for general cable lacing and dressing uses. Cords are of strong materials such as linen and hemp and thoroughly impregnated with a beeswax and paraffin mixture. Cords are 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 $\pm$ 35	30 lbs.
MI-11719-B	No. 12 lvy.	8	290 $\pm$ 18	60 lbs.

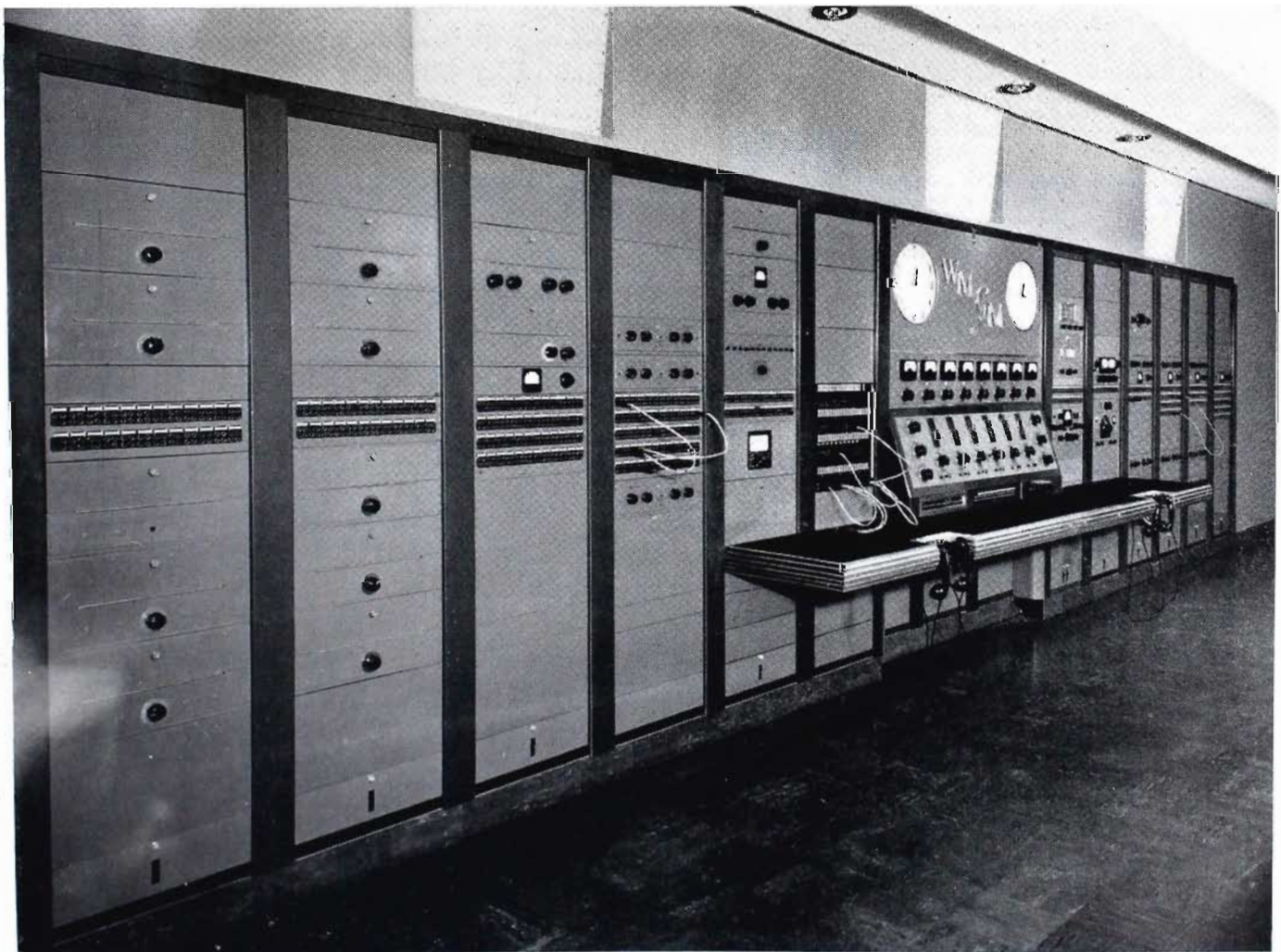


## CUSTOM-BUILT EQUIPMENT

In addition to the comprehensive line of standard studio-control equipment so familiar to the industry, RCA specializes in custom designing and building complete speech-input systems to meet the individual needs of stations and networks. For more than 15 years, RCA engineers have worked closely with the nation's leading broadcast engineers in the design, production and installation of many such equipments, a few of which are pictured on these pages. Studio-control systems of this type are tailor-made . . . with just the right facilities for controlling program operations and reproducing high-fidelity sound.

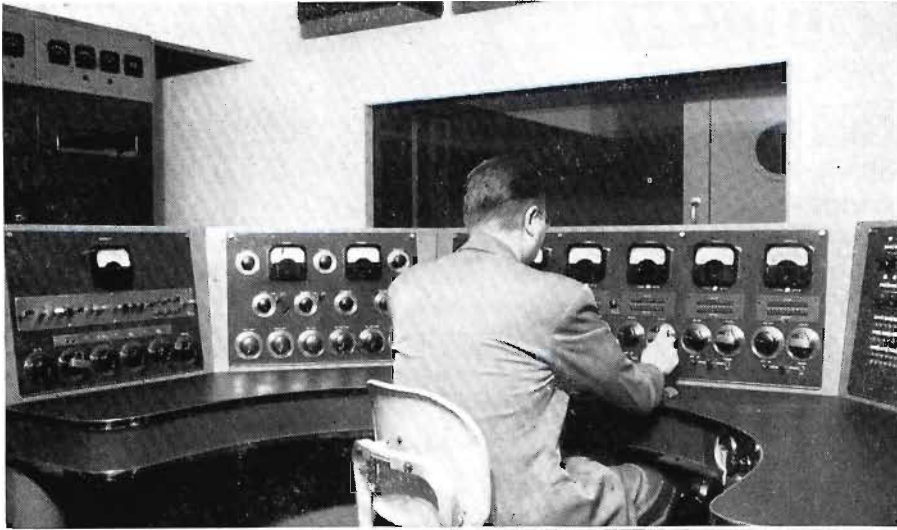
Since no two broadcast stations have the same operating requirements, the corresponding equipment needs naturally differ for each installation, ranging from special equipment for small

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 and Television station whether small or large—and on almost any working arrangement desired. RCA "Custom-built" service means more than just so many racks or pieces of equipment,—it includes, in fact, the services of the entire RCA engineering staff. In some cases, broadcast station engineers may wish to lay out and design the system themselves, complete with specifications. In such instances, RCA will provide specially-built units or modify standard equipment to meet these specifications in every detail. On the other hand, where stations so desire, RCA engineers will study the requirements of the station, make overall and detailed layouts, and draw up specifications for the needed equipment.



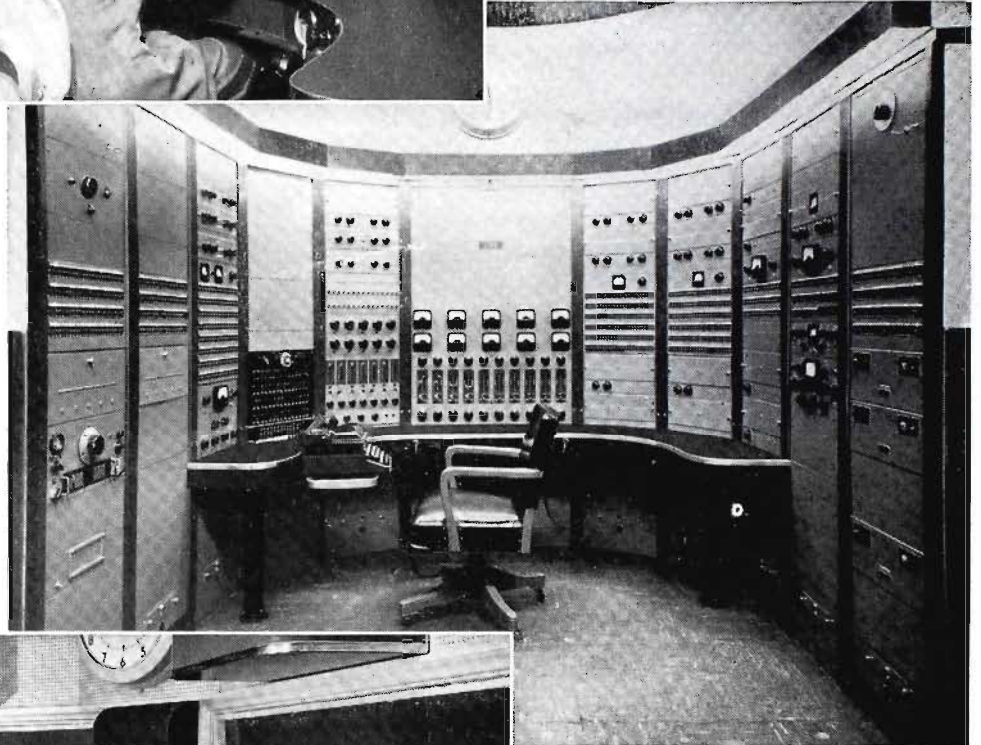
*WJMG, New York. This master control installation, including 12 deluxe audio equipment racks, is just one part of WJMG's modern 6-studio layout. Designed for AM, FM and TV operation, this console handles 10 studio inputs and feeds 6 channels simultaneously, or individually by a preset relay system.*

**CUSTOM BUILT**



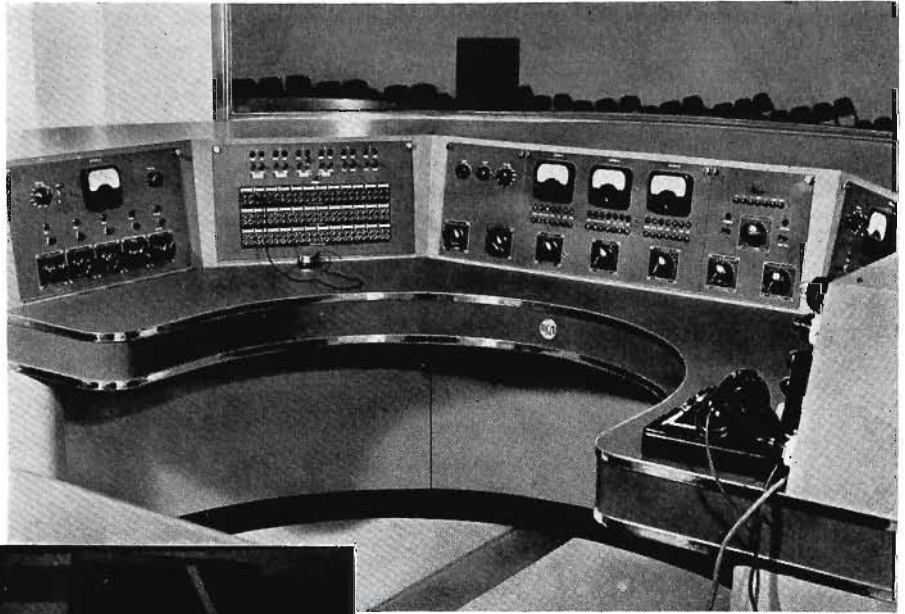
*KOMO, Seattle. This master control console—with 9 deluxe audio equipment racks (at rear, not visible)—is one unit of KOMO's completely new and modern 7-studio system. It incorporates complete center panel switching for 10 studios and 6 outgoing channels (KOMO-AM, KOMO-FM, network plus 3 emergency).*

*WNEW, New York. This master control installation—in WNEW's 7-studio lineup is flanked on each side by 5 deluxe audio equipment racks. It has complete facilities for control and preset switching of 7 studios to 10 outgoing lines . . . and for feeding cue from any channel to any studio.*



*WJPG-FM, Green Bay. One of the specially-built studio-control consoles in WJPG-FM's 4-studio arrangement. Complete two-channel operation (AM and FM), simultaneous audition and broadcast from any combination of studios, remote lines, cueing and talkback are provided.*

*WJBP, Baton Rouge. Here is a specially-built console which combines master and studio control operations at one location. Master control incorporates mechanically interlocked push-button switches to avoid the possibility of program overlap.*

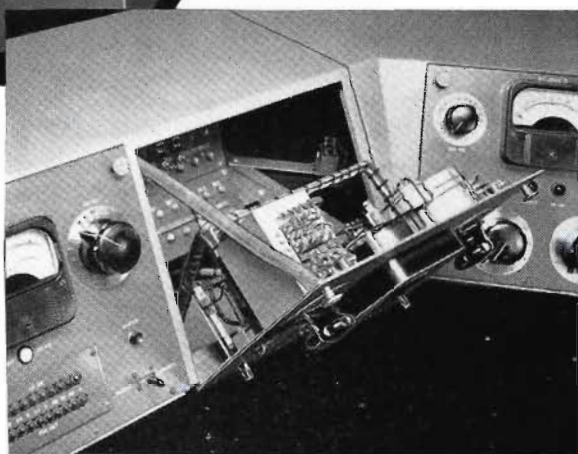


*WMGM, New York. This deluxe custom-built studio console provides complete facilities for the control of auditorium-type studio "A", largest of WMGM's 6 studios.*

*WJAC, Johnstown, Pa. 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 console to provide increased flexibility and convenience.*



## CUSTOM BUILT

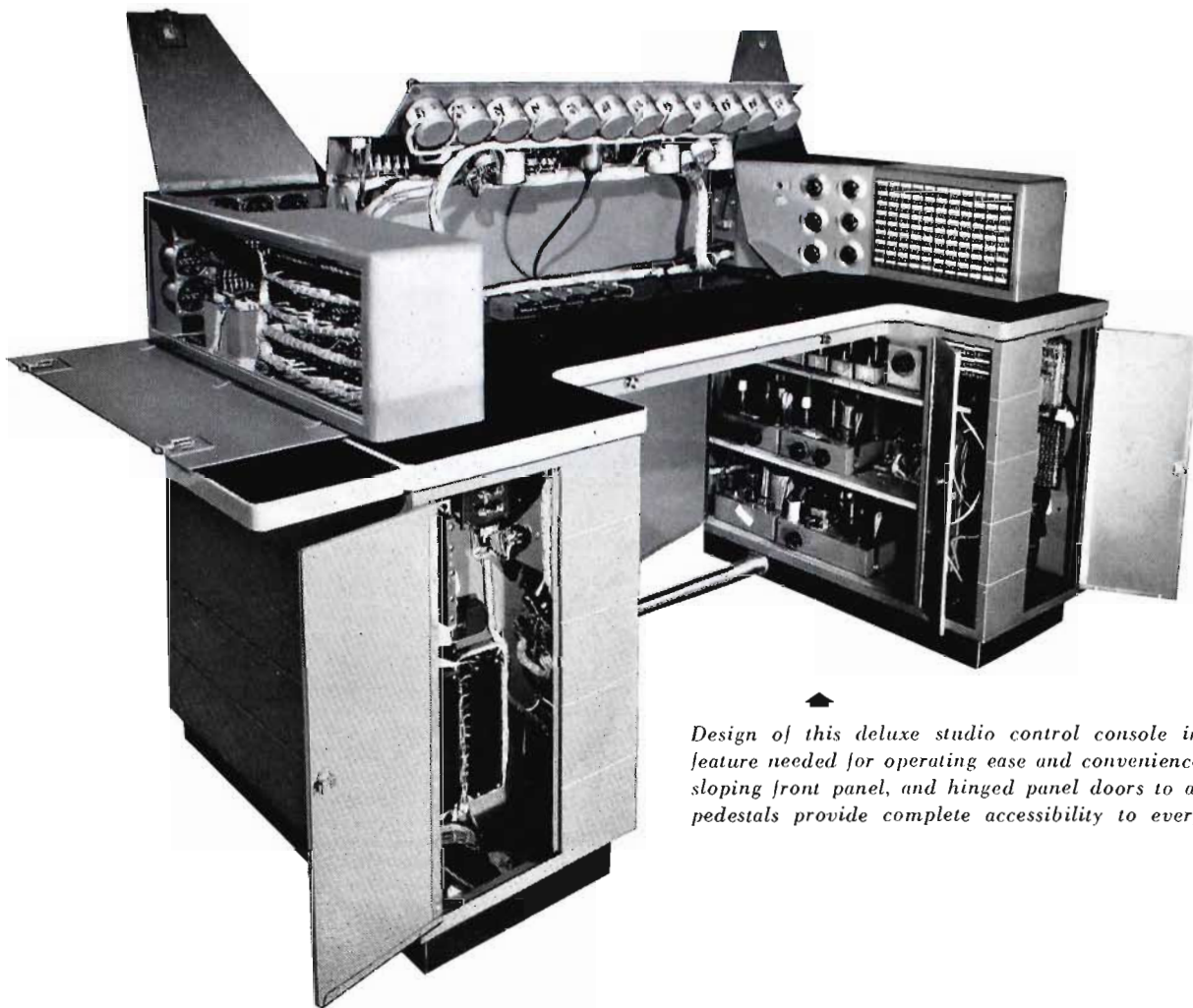


Combining master and studio control facilities, this all-metal console includes eight individual panel sections which are: l. to r. (Studio "B", Remote Line, MCR (4 panels), Studio "C", Announce and Studio "D".) Front cover panels in lower desk sections are removable to provide access to relays, terminal boards and coils. Desk design and panel spacing permits four video monitors to be mounted directly on top of the center section.

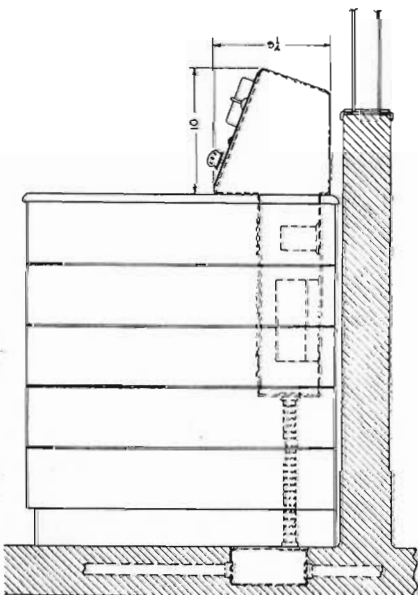
Here, one of hinged console panels is tilted forward to show how easily components and wiring may be reached.



The arrangement above shows how special matching consoles are designed for desk-top use with any standard 76-series console. Such consoles may contain special talkback facilities, order wire ringdown circuits, monitor controls and signal lights. Jack panels may be included, if desired, for use with the 76 console. In addition to the special end cabinets shown here, "straight" type cabinets to match 76-series console are also available.



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 below employs varied colored knobs and switch handles for easy and quick identification of certain controls. All escutcheons and dial plates are of nickel silver for attractiveness and long wear.



# Studio Consolette, Type 76-B5



## Features

- Complete high fidelity speech input system for two studios, announce booth, turntables and remotes.
- Excellent frequency response—low distortion for FM or AM.
- No broadcast time lost from amplifier or power supply failures. Duplicate equipment may be quickly connected by means of switches.
- 8-watt monitoring and audition amplifier with interlocked relay circuits for three loudspeakers.
- Full facilities for simultaneous audition and broadcast.
- Push button selector switches—six channel mixer.
- Large vu meter connected to rotary selector switch permits accurate program monitoring and checks plate currents of all tubes in program channel.
- Talk-back system independent of program channel—interlocked switching prevents feed-back.
- Easy access for maintenance.
- Heavy duty power supply for external mounting allows space for full-sized components in small sized console.

## Uses

The 76-B5 provides a completely flexible and high quality speech input system for FM as well as standard broadcasting. The new design supersedes the type 76-B2 and is advantageous by its increased flexibility in the switching of the 4th mixer position from Studio B to the Announce Booth or control room. This model also uses push button switches of an improved design.

The 76-B5 provides all the amplifying control and monitoring equipment required to handle successfully two studios, an announce booth microphone, a control-room announce microphone, two transcription turntables and six remote lines. Full facilities are provided for simultaneously auditioning and broadcasting from any combination of the studios, turntables or remote lines.

## Description

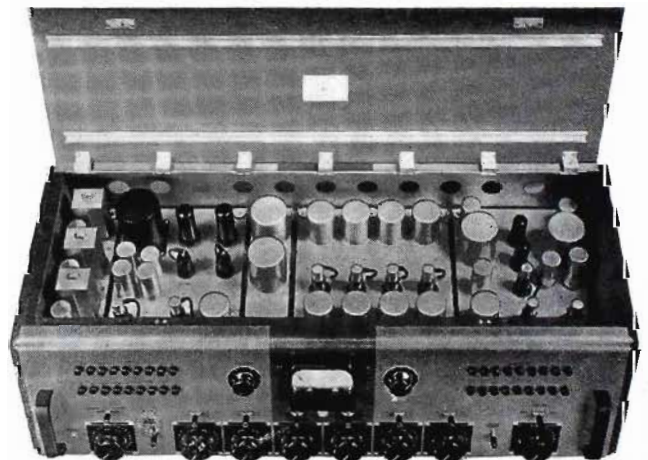
All the amplifying and control equipment is mounted in a single metal console and the power supplies are located in a metal box designed for wall mounting.

The standardized, illuminated volume indicator meter is furnished calibrated in "vu's." This meter is also used to measure the plate current of all the tubes in the program channel. The meter is switched to the various tubes by means of the rotary switch which is mounted to the left of the meter. An adjustable attenuator at the right of the meter allows the 100% mark on the scale to be calibrated for +4, +8, +12, and +16 vu.

The console contains four pre-amplifiers, one high-gain program amplifier and one high-gain 8-watt monitoring amplifier. A six position mixer is utilized with the pre-amplifiers connected to four of the mixers and banks of mechanically inter-

locked push-keys connected to the remaining two. The output of each mixer connects to lever keys so it may be switched to the input of the program amplifier for broadcasting or to the monitor amplifier for auditioning. These key switches are interlocked to disconnect the studio loudspeakers and operate "On Air" light relays. A three position key switch in the input of the fourth pre-amplifier permits it to operate from a microphone in the studio, announce booth, or local control room. The push-keys on the fifth and sixth mixer positions allow any one of six remote lines and two turntables to be instantly connected to the input of either of the two mixers. Additional push-key sets provide circuits for feeding cue to remote lines and for bringing in monitoring circuits such as transmitter or master control outputs. A monitoring headset jack is supplied and the headphones may be connected to the output of the program channel, the remote line push-keys, or the incoming network by means of a three-position lever switch. Lever-keys permit using monitoring amplifier for program amplifier in emergencies. Talkback facilities are included and separate push-keys permit talking back to either of the two studios or to the remote lines. The talk-back circuits are interlocked to prevent feed-back or program interruption.

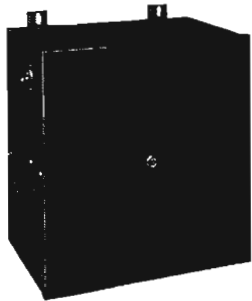
An "Over-ride-Record" switch is provided which permits the remote operator to call in on any of the six remote lines and over-ride the program on the control room speaker. The "Record" position of the switch furnishes a signal source for



76-B5 with top raised

an external recording amplifier. Two remote line repeating coils and attenuator pads are provided.

The console is constructed of metal with wooden style plates on each end. A lid is provided for access to tubes, etc. from the top and is equipped with sturdy concealed hinges. The entire console chassis is hinged across the back to permit quick and easy access to every component and all the wiring. Handles on the front panel facilitate opening the chassis for inspection. When the chassis is opened, all the mixers are made accessible for servicing.



Wall Mounting  
Power Supply

The metal power supply box is equipped with a hinged front door and a hinged chassis. Two separate rectifier and filter units provide power for the program amplifier—preamplifiers, monitoring amplifier, three speaker interlocking relays and up to 4 external 12 volt relays for studio signal lights. A switch permits feeding the preamplifiers from the monitor supply in emergencies.

### Specifications

Source Impedance	
Microphones	30/50 or 250 ohms
Remote Lines	150, 300 or 600 ohms
Turntables	250 ohms
Monitor Cue	20,000 ohms
Load Impedance	
Line	500/600 ohms
Speaker (total of four speakers)	each 15 ohms

### OUTPUT LEVEL

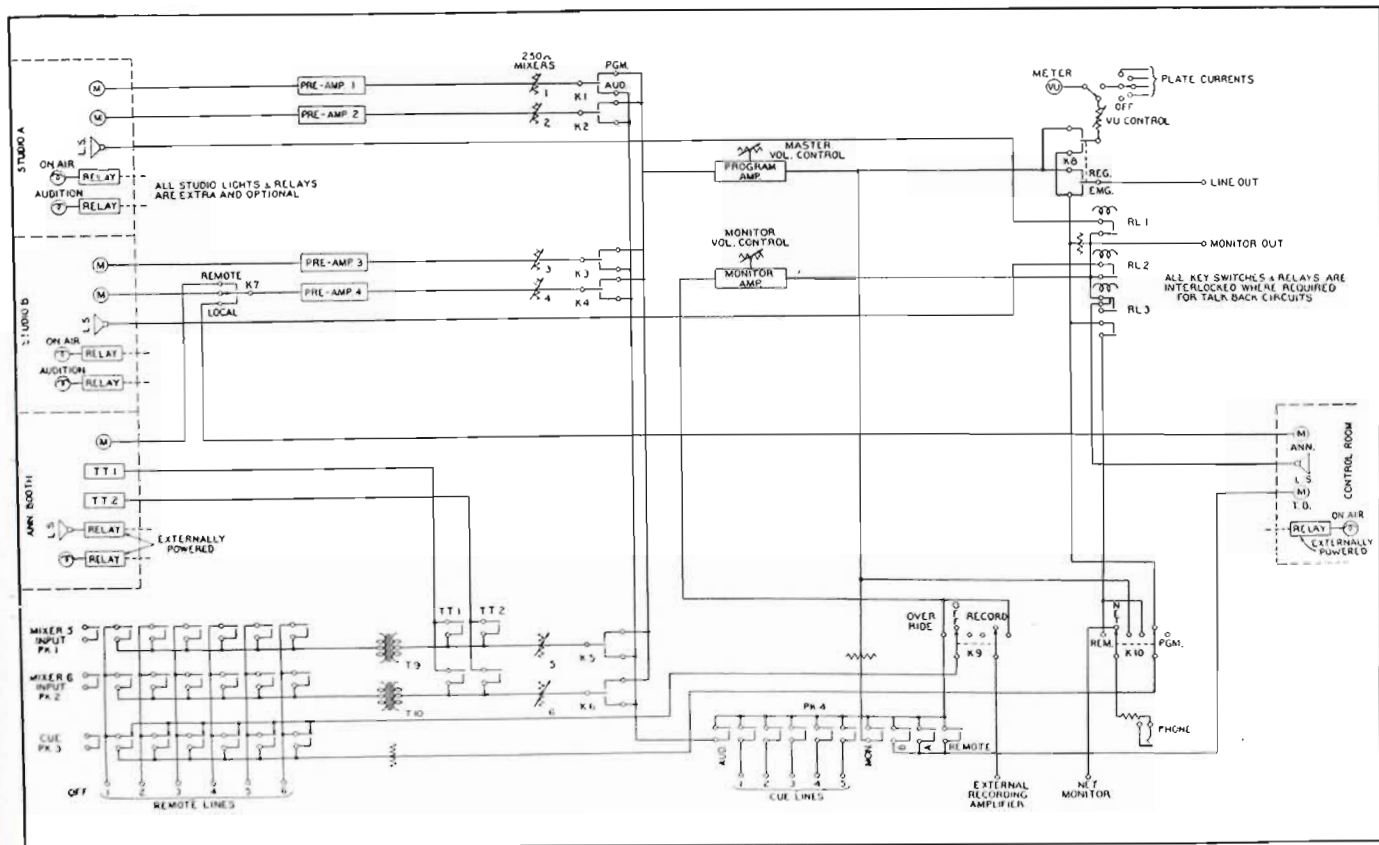
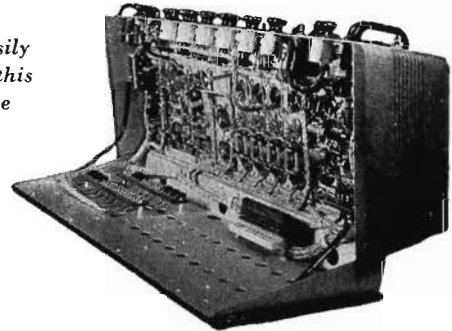
Line (distortion less than 0.5% 50-7500 cycles)	+18 dbm
Maximum Line Output Level	+26 dbm
(With 1.0% rms distortion at frequencies 50-7,000 cycles)	
Speaker (distortion less than 3% 50-7500 cycles)	8 watts
Gain (maximum microphone to line)	112 db

Transcription Input to Line	81 db
Frequency Response (to line or speaker)	$\pm 2$ db 30-15,000 cycles
Noise Level (below +18 db output, 68 db gain)	-68 db
Power Input: 105/125 volts, 50/60 cycles	225 watts
Dimensions	Console      Power Supply
Length	39"      15"
Height	10 1/2"      15"
Depth	17"      8"
Finish	Two-tone umber gray      Dark umber gray
Weight, unpacked (less tubes)	135 lbs.      60 lbs.
Stock Identification	MI-11613-D      MI-11301-B

### Accessories

- BA-2C Booster Amplifier (one required for each 70-D turntable) MI-11226-B
- Tube Kit (complete tube complement for 76-B5) MI-11252
  - 11 RCA-1620      1 RCA-5U4G
  - 2 RCA-1621      2 RCA-1622      1 RCA-5Y3GT/G
- Alternate Tube Kit (complete tube complement) MI-11252-D
  - 11 RCA-6J7      1 RCA-5R4GY
  - 2 RCA-6F6      2 RCA-6L6      1 RCA-5Y3GT
- On-Air Light Relay (one required for each studio on air or audition light) MI-11702
- Speaker Relay (not required unless an interlocked speaker is desired in Announce Booth) MI-11703-A

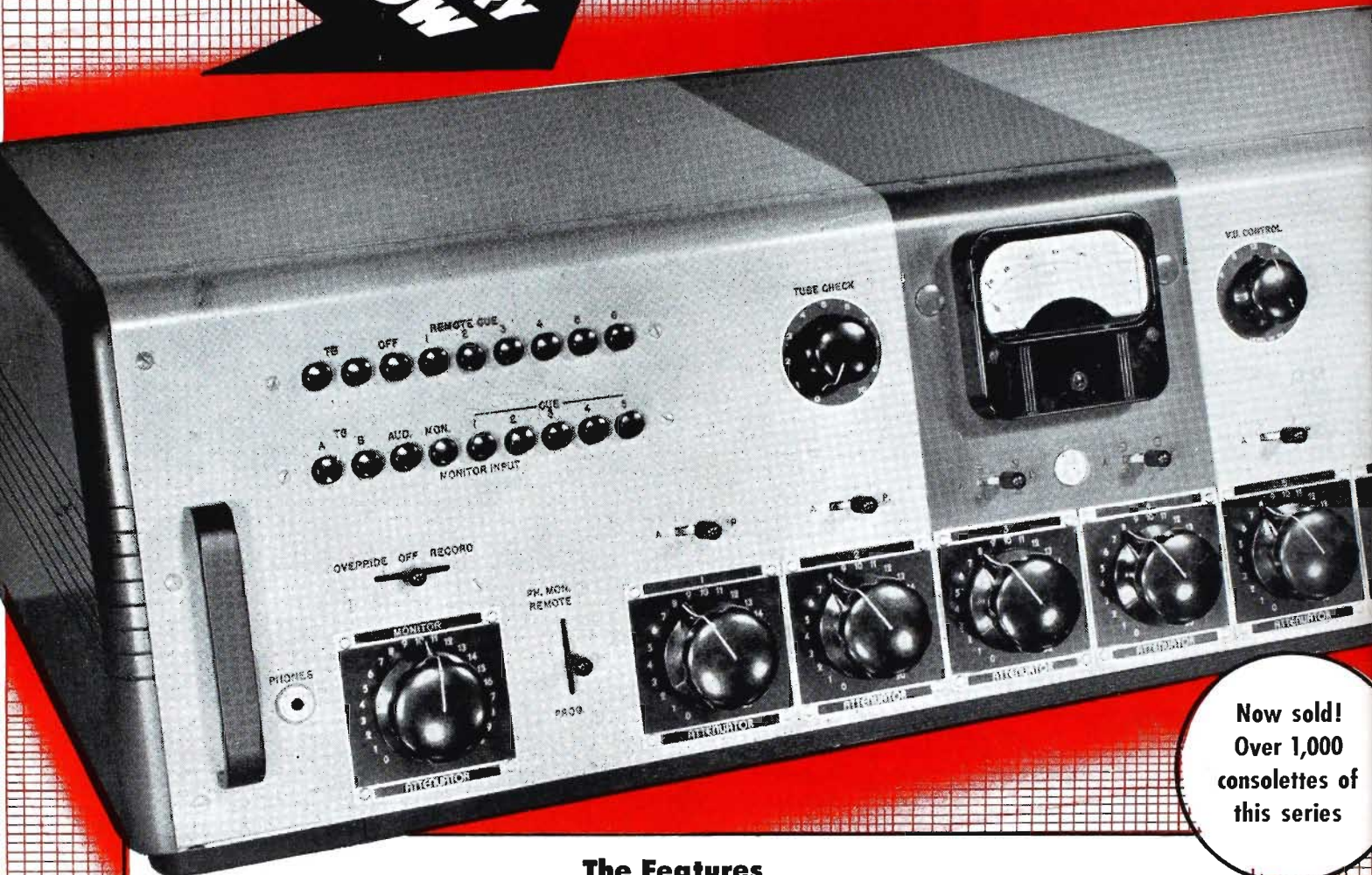
Components Easily  
Accessible with this  
Hinged Feature



Simplified block diagram of 76-B5 Console

# Broadcasting's favorite

**DELIVERY  
NOW**



**Now sold!  
Over 1,000  
consoles of  
this series**

## The Features

- Four pre-amplifiers.
- Over-ride facilities for all remote lines. Permits engineer or announcer on remote broadcast to "call-in" by over-ride on control room speaker.
- Six-channel mixer.
- Direct talk-back system to any studio and any remote line. Studio speakers and remote lines are interlocked to prevent feedback.
- Cue feed to remote lines.
- Five spare monitor inputs for monitoring externally produced programs, such as networks, other studios, outgoing channels, etc.
- Large VU meter connected to rotary selector

switch permits accurate program monitoring. Plate current checking system for all tubes and program channel.

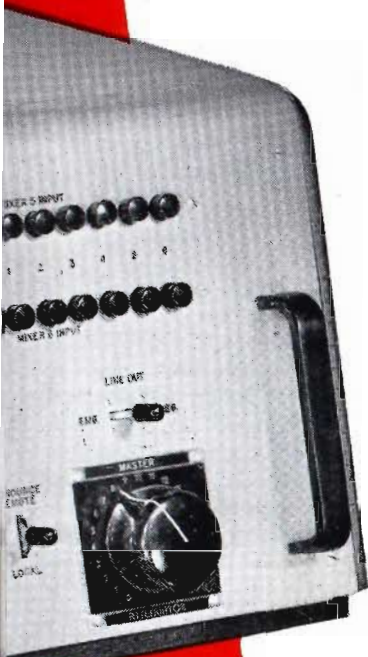
- No lost time due to possible failures of amplifiers or power supplies. Emergency operation may be obtained quickly by means of switches.
- Headphone monitoring across output line, monitor and external source, such as network.
- Recorder feed.
- Low-noise, low-microphonic type-1620 tubes.
- Built-in isolation coils for remote lines and turntable booster amplifiers.



# Consolette . . .

## for AM, FM and TV

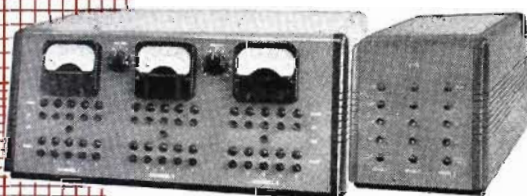
**N**OTHING like the 76-B5 Consolette to keep studio programs and rehearsals in motion. Because there's nothing like it for flexibility and easy operation. It provides program quality that meets FM requirements. It has full facilities for simultaneous auditioning and broadcasting . . . for practically any combination of studios, turntables, or remote lines. It performs all the amplifying, monitoring, and control functions of most large and small stations—AM, FM, and TV sound.



### Here's where you use it

- For two-studio operation, using two microphones in each—one announce booth microphone, and one control-room microphone.
- For single-studio operation . . . using four microphones, one announce booth microphone, and one control-room microphone.
- For two transcription turntables using external booster amplifiers.
- For remote lines—up to six! With independent control of each.

### NOW . . . Switching Systems for RCA Consolettes

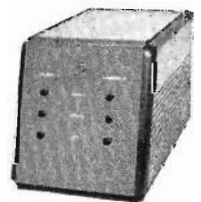


Master Control

Sub-Control

**Type BCS-1A**—Handles the output of as many as five control consolettes. Feeds three outgoing lines. Enables you to monitor studio, network, recording room, remote inputs. Switches these inputs into transmitter or network lines.

**Type BCS-2A**—For the smaller station requiring only two RCA consolettes. Handles up to four studios and two announce booths. Routes your program to two outgoing lines (AM, FM, or either transmitter and a network lines).



Sub-Control

For complete technical information on the 76-B5, the consolette that's backed by more than 20 years of broadcast engineering experience *in the field*—call your RCA Broadcast Sales Engineer. Or write Dept. 19GB.

# Studio Consolette, Type 76-D



## Features

- Two large VU meters connected to rotary selector switches permit accurate program monitoring and plate current checks of all tubes in program channels.
- Complete AM or FM studio system for large and small stations.
- Six microphone inputs, six mixers, six pre-amplifiers, eight watt monitoring and auditioning facilities.
- Complete high fidelity speech input system for two studios, announce booth, turntables and remotes.
- Excellent frequency response—low distortion for FM or AM.
- Minimum time lost from amplifier or power supply failures. Emergency switching facilities available.
- Talk-back system independent of program channel—interlocked switching prevents feed-back.
- Easy access for maintenance.
- Heavy duty power supply for external mounting allows space for full-sized components in small sized console.

## Uses

The new 76-D Studio Consolette incorporates two VU meters to permit additional flexibility in auditioning and presetting program signal levels in advance, without any interruption of the program "on-the-air." Moreover, the 76-D design consolette possesses six pre-amplifiers and additional flexibility on the fifth and sixth mixer positions. Offering complete versatility and flexibility of operation, the 76-D is admirably suited for AM, FM or TV sound studio control. It provides complete, high-fidelity control for two studios, or for single studio use in large stations.

## Description

The 76-D provides all the amplifying control and monitoring equipment required to operate efficiently a control room, two studios and announce booth, two transcription turntables, four remote lines and five cue circuits. The consolette contains six pre-amplifiers, six mixer positions, a high-gain program ampli-

fier and an eight watt monitoring amplifier which may be utilized to feed an external recording amplifier. All amplifier inputs and outputs are terminated in terminal strips, thereby allowing intermediate jack facilities for patching, etc. The fifth and sixth mixer positions are flexible and may be used as microphone inputs (giving each channel a 112 db gain) or switched to serve four remote lines and two turntables. Turntables 1 and 2 have their respective cueing keys which allow cueing signals to be fed to an external amplifier. The 76-D is attractively finished and in all respects similar to the 76-C series consolettes.

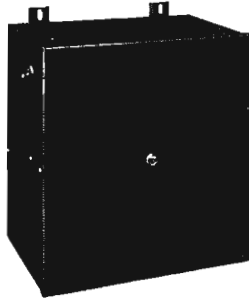
The two standardized, illuminated volume indicator meters (Program and Monitor) are furnished calibrated in "vu's." The "PGM" meter is used to measure the plate current of all the tubes in the program channel. The meter is switched to the various tubes by means of a rotary switch. Each meter has a companion attenuator which allows the 100% mark on each meter scale to be calibrated for +4, +8, +12 and +16 VU.

A monitoring headset jack is supplied and the headphones may be connected to the output of the program channel, the remote line push-keys, or the incoming network by means of a three-position lever switch. Lever-keys permit using monitoring amplifier for program amplifier in emergencies. Talkback facilities are included and separate push-keys permit talking back to either of the two studios or to the remote lines. The talk-back circuits are interlocked to prevent feed-back or program interruption.

An "Over-ride-Record" switch is provided which permits the remote operator to call in on any of the four remote lines and over-ride the program on the control room speaker. The "Record" position of the switch furnishes a signal source for an external recording amplifier.

The console is constructed of metal with wooden style plates on each end. A lid is provided for access to tubes, etc., from the top and is equipped with sturdy concealed hinges. The entire console chassis is hinged across the back to permit quick and easy access to every component and all the wiring. Handles on the front panel facilitate opening the chassis for inspection. When the chassis is opened, all the mixers are made accessible for servicing.

The metal wall cabinet power supply (MI-11301-B) is equipped with a hinged front door and a hinged chassis. Two separate rectifier and filter units provide power for the program amplifier — pre-amplifiers, monitoring amplifier, three speaker interlocking relays and up to 4 external 12 volt relays for studio signal lights. A switch permits feeding the pre-amplifiers from the monitor supply in emergencies.



Wall Mounting Power Supply

### Specifications

#### Source Impedance:

Microphones \_\_\_\_\_ 30/50 or 250 ohms  
 Remote Lines \_\_\_\_\_ 150, 300 or 600 ohms  
 Turntables \_\_\_\_\_ 250 ohms  
 Monitor Cue \_\_\_\_\_ 20,000 ohms

#### Load Impedance:

Line \_\_\_\_\_ 500/600 ohms  
 Speaker (total of three speakers) \_\_\_\_\_ Each 15 ohms  
 Headphone Output \_\_\_\_\_ 5000 ohms

#### Output Level:

Line (distortion less than 0.5% 50 to 7500 cycles) \_\_\_\_\_ +18 db  
 Maximum Line Output Level  
 (distortion less than 1% at 50 to 7500 cycles) \_\_\_\_\_ +26 dbm  
 Speaker (distortion less than 3%, 50 to 7500 cycles) \_\_\_\_\_ 8 watts  
 Gain (maximum microphone to line output) \_\_\_\_\_ 112 db  
 Frequency Response  
 (to line or speaker) \_\_\_\_\_ ±2 db 30 to 15,000 kc  
 Noise Level (68 db gain, +18 dbm output) \_\_\_\_\_ -68 db  
 Power Input (105/125 volts, 50/60 cycles) \_\_\_\_\_ 225 watts

#### Dimensions:

	Console	Power Supply
Length _____	39"	15"
Height _____	10½"	15"
Depth _____	17"	8"
Weight _____	140 lbs.	60 lbs.
Finish _____	Two-tone U/G	Dark U/G
Stock Identification _____	MI-11631	MI-11301-B

#### Accessories

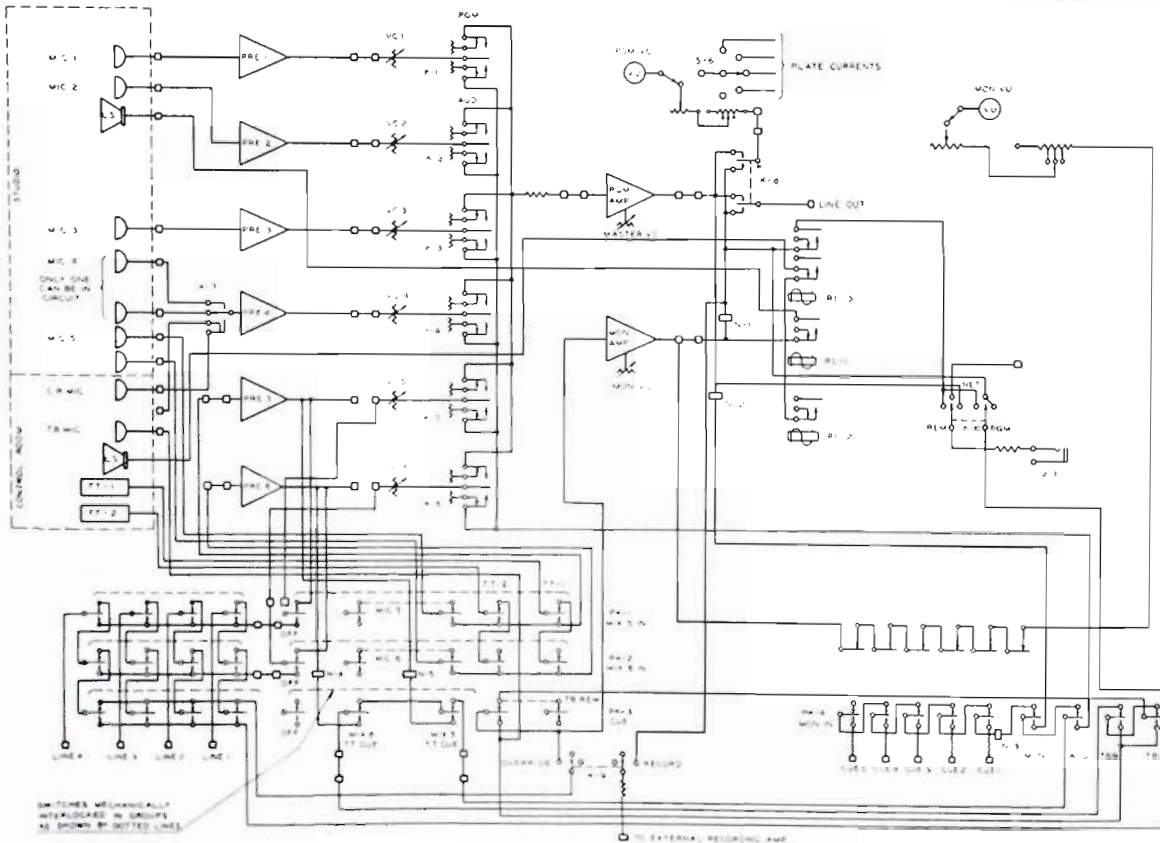
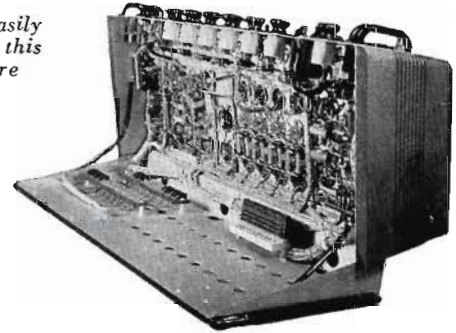
Tube Kit (complete tube complement for 76-D) \_\_\_\_\_ MI-11268  
 13 RCA-1620 \_\_\_\_\_ 1 RCA-5R4GY  
 2 RCA-1621 \_\_\_\_\_ 1 RCA-5Y3-GT/G  
 2 RCA-1622 \_\_\_\_\_

Alternate Tube Kit (complete tube complement) \_\_\_\_\_ MI-11268-A  
 13 RCA-6J7 \_\_\_\_\_ 2 RCA-6L6  
 2 RCA-6F6 \_\_\_\_\_ 1 RCA-5R4GY  
 1 RCA-5Y3GT \_\_\_\_\_

On-Air Light Relay (one required for each  
 studio on air or audition light) \_\_\_\_\_ MI-11702

Speaker Relay (not required unless an interlocked  
 speaker is desired in Announce Booth) \_\_\_\_\_ MI-11703-A

Components Easily Accessible with this Hinged Feature



Simplified block diagram of 76-D Console

# Television Audio Equipment



## Features

- Provides facilities for handling sound channel of TV film projectors.
- Provides means for feeding transcription sound to TV studio for sound effects.
- Accommodates talkback and cue requirements of studio, projection room and order wire circuit.
- Custom-built console arrangements can be supplied to meet more elaborate TV requirements.

## 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 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-3A TV switching console and RCA consolettes are available to the TV broadcaster. For example, the BCS-3A television auxiliary switching console (at left in photo above) is designed for use with the 76 series 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-3A, 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) Four studio microphones with four additional microphone lines that can be patched to consolette input circuits.
- (2) Studio loudspeaker for turntable feed and talkback.
- (3) On-Air Signals.
- (4) Talkback from audio engineer to microphone boom operator.
- (5) Talkback from director to camera operators (order wire circuit).

### FILM PROJECTION ROOM:

- (1) Control for sound outputs of two film projectors.
- (2) Talkback from director to film projection room.

### CONTROL ROOM:

#### A. Mixer Facilities

- (1) Mix and switch four microphone lines.
- (2) Patching facilities for four additional microphones.
- (3) Mix audio outputs of two film projectors.
- (4) Mix and switch remote and network lines.
- (5) Mix and switch outputs of two turntables.

#### B. Talkback enabling audio operator to talk to microphone boom operator.

#### C. Talkback enabling program director to talk to camera operator and to film projection room, announce booth and studio.

#### D. 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.)

**CONTROL ROOM: (Continued)**

- E. 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.
- F. Program line feed to house monitor circuit through an isolation amplifier.
- G. Program cue to camera and boom operators.
- H. Termination and equalization facilities provided for 24 remote broadcast and private lines. Ringdown equipment provided for magneto telephones. Equalization of telephone lines to 15 kc.
- I. Consolette switching facilities for feeding cue programs or "on-air" monitor circuit into studio when not in use.

**ANNOUNCE BOOTH:**

Announce booth containing these audio items:

- (1) a microphone
- (2) a monitor loudspeaker,
- (3) "On-Air" light.

**Equipment Required**

(For Typical Audio Layout Corresponding to Layout Diagram)

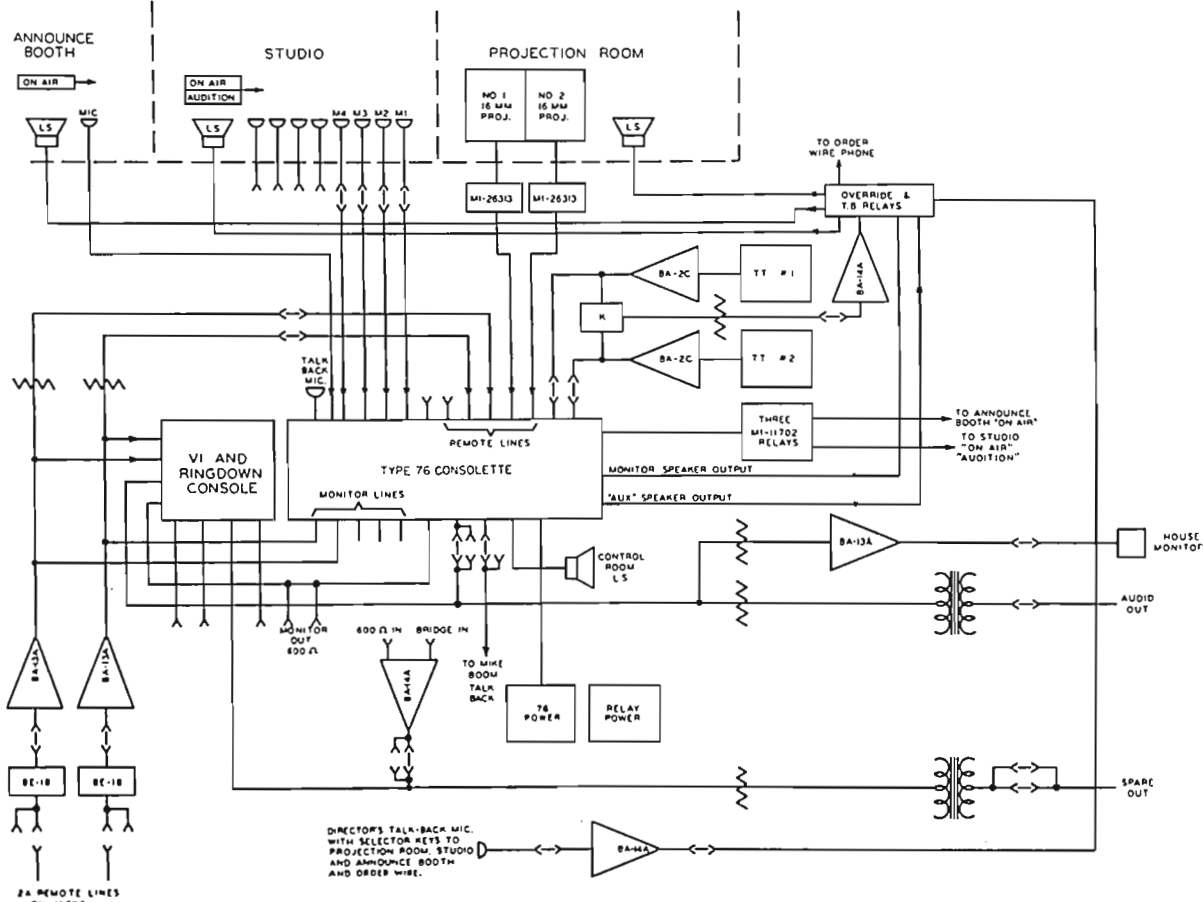
For additional description and technical data on equipment items below as well as other audio items—refer to Audio Section of catalog.

- 1 Special Audio Rack of Equipment
- 1 BCS-3A Auxiliary Switching System
- 1 Type 76 Series Consolette and Power Supply MI-11613-D and MI-11301-B
- 1 Tube Kit for Consolette MI-11252
- 2 Studio Light Relay MI-11702
- 1 "On Air" Sign MI-11706-1
- 1 "Audition" Sign MI-11706-3
- 2 Type 70-D Turntables MI-11801

- 2 Type BA-2C Booster Amplifier MI-11226-B
- 2 Tube Kit for Booster Amplifier MI-11287
- 1 Type KB-2C Talkback Microphone MI-11001
- 1 Desk Stand for KB-2C MI-12066
- 2 Type LC-1A Speaker MI-11401/11411
- 2 Talkback Speakers MI-12435
- 2 Masonite Wall Speaker Cabinet MI-13225
- 2 Type 88-A Microphone MI-4048-D
- 2 Type 91-B Desk Stand MI-4092-C
- 2 Type 44-BX Velocity Microphones MI-4027-E
- 4 Type 77-D Microphone MI-4045-B
- 4 Type 90-A Program Stand MI-11050
- 1 Type KS-3B Boom Stand MI-11056
- 1 Type KS-4A Boom Stand MI-11052
- 4 Cable Hook MI-11099
- 10 Wall Receptacle (for Microphones and 70-D) MI-4624-A
- 11 Cable Plug (for Microphones and 70-D) MI-4630-B
- 3 Cord Connector MI-4620-B
- 50' Cable MI-43
- 1 Fixed Pad 6 db MI-4171-29
- 4 Patch Cord—2 feet MI-4652-2A
- 1 Relay Power Supply, 12 v., 1A MI-11303
- 2 16mm Equalizer MI-26313

**Announce Booth**

- 1 Type KB-2C Microphone MI-11001
- 1 Desk Stand for KB-2C MI-12066
- 1 Cable Plug MI-4630-B
- 1 Wall Receptacle MI-4624-A
- 1 "On Air" Sign MI-11706-1
- 1 Talk-back Speaker MI-12435
- 1 Wall Speaker Cabinet MI-13225
- 1 Studio Light Relay MI-11702
- 1 Speaker Relay Kit MI-11703-A



# Switching System, Type BCS-1A

## Features

- Facilities comparable with custom-built equipment.
- Control of 5 consolettes to 3 outgoing lines.
- Attractive styling blends with all RCA consolettes and equipment.
- Eliminates any possibility of 2 programs feeding one outgoing line.
- AM, FM and utility, or any desired combination.
- Monitoring facilities for all channels, networks, etc.

## Uses

The BCS-1A switching system has evolved after numerous requests from broadcasters to develop a "fool-proof" system of flexible switching for stations operating several studios to more than one outgoing channel. With the addition of FM to many stations, it has become apparent that a separate system for AM and FM transmitter channels is desirable. This feature decreases the possibility of inadvertent switching and also enables the operator to satisfactorily adhere to switching functions as assigned.

## Description

The BCS-1A is a relay operated system consisting of a master switching console, usually installed in the main control room, and a studio console for each control room. The complete system provides the master switching console with handling capacity for one to five studio consoles, with each studio console handling two studios and one announce booth. This system will switch the output of five consoles to three outgoing lines. The unique design of the relay interlocking feature prevents the feeding of more than one program to an outgoing line, or lines, although supporting program material may be handled as remotes by the originating studio.

The Master Switching Console (see photograph) has three groups of lights and switches and an associated VU meter for each of the three outgoing channels. In each group the top row of lights indicates which of the five studio switching consoles is feeding the outgoing channel. The associated switches for each studio are immediately below the lights. A studio release switch for each outgoing channel is on the next row. "Studio Controls" are on the lower two rows. A moni-



Master Switching Console

toring amplifier input selector switch is placed on the left of the center VU meter to provide a cue check on monitoring of programs on any of the three outgoing lines, anyone of the five originating consolettes and two spare positions for user's choice, such as networks, remotes and recording, etc. A step-by-step bridging type volume control on the right hand side controls the level of the monitoring amplifiers.

The Studio Switching Console (see photograph) has three vertical rows of lights and switches, each vertical being associated with an outgoing channel. Reading from top to bottom, the horizontal rows are the "On-Air" lights which light only in the program originating control room and indicate which outgoing channel or channels the originating control room is feeding. The next row is "In Use". These are operated when the originating studio, or any other studio, is feeding program to the channel. The "On" switch which controls each channel is on the next row. The "Off" switch and the "Studio Control" lights are the bottom two rows.

Some operating features are as follows:

- The master control switching unit can put any studio on or off the air at any time. It is the only unit which has unqualified control.
- The master switching control can extend control to any studio control and any outgoing bus or buses that are desired. This is accomplished by the operation of the studio control switch on the master switching console, the status of this control is indicated by the lower signal light row on each control box.
- The studio control feature prevents unauthorized switching from occurring in control rooms not in use.
- A studio control set up for the next program as indicated by the studio control light cannot interrupt the originating studio using the channel. Only the studio feeding or the master control can release the channel. This is a very important feature. The new originating studio is advised of the channel availability by the extinguishing of the "In Use" signal light for that channel. When the "On" button is depressed the studio is placed on the air and the "In Use" and "On Air" lights are lighted to indicate that the studio is feeding the channel.
- The system can be operated as a "roving" control if an operator is not stationed at the master control. The studio control switches for all studios and channels that will be used can be turned on and control can be handled at the studio controls without benefit of the master control operator.

All relays and main terminal blocks are located in the base of the master switching unit and readily accessible by raising the top and front portion of the case which are hinged at the rear. With the minimum of channel switching, the minimum power required for the operation of the complete system (master and studio consoles) exceeds 1 amp. The MI-11304



Studio Switching Console

Relay Power Supply (maximum output 5 amps.) is therefore recommended.

The master switching console is the common point for all control wire connections. 19 conductors are required from this console to each studio console if all three outgoing channels are used. No jumpers are required at any terminal blocks in case the maximum number of control boxes are not used. MI-61 shielded, 15-pair (twisted) cable is available for wiring between the Master Switching Console and the Studio Switching Consoles.

**Specifications**

**Dimensions:**

**Master Switching Console**

- Length \_\_\_\_\_ 24"
- Height \_\_\_\_\_ 10 1/2"
- Depth \_\_\_\_\_ 17"
- Weight \_\_\_\_\_ (approx.) 80 lbs.

**Studio Switching Console**

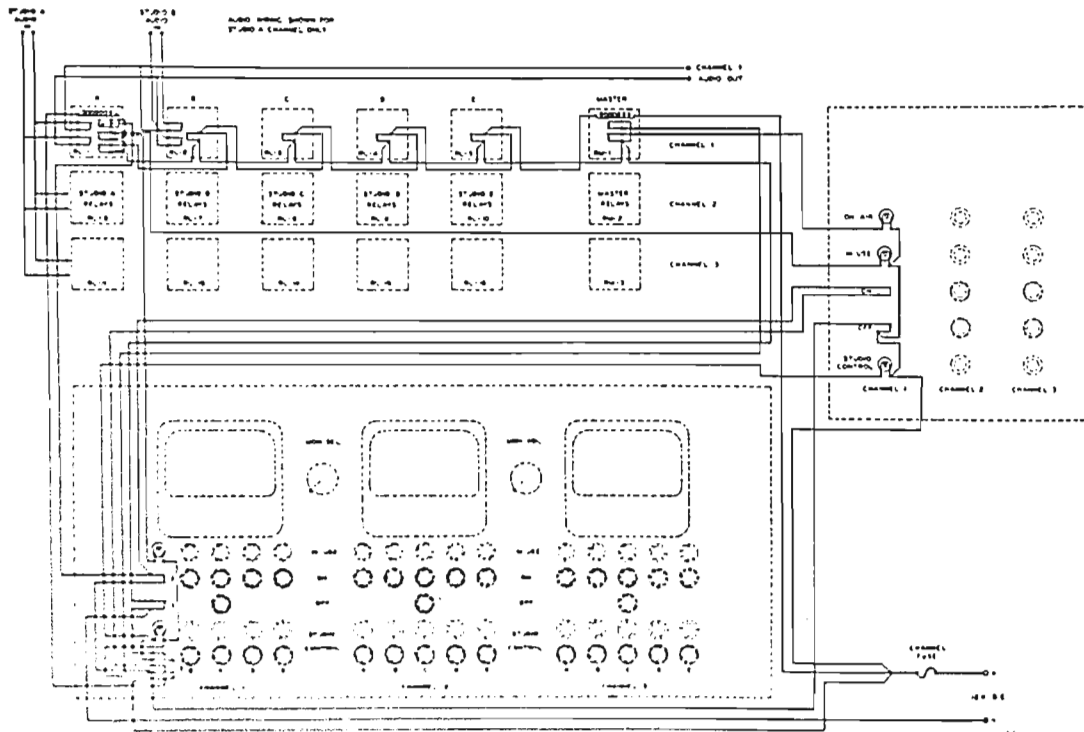
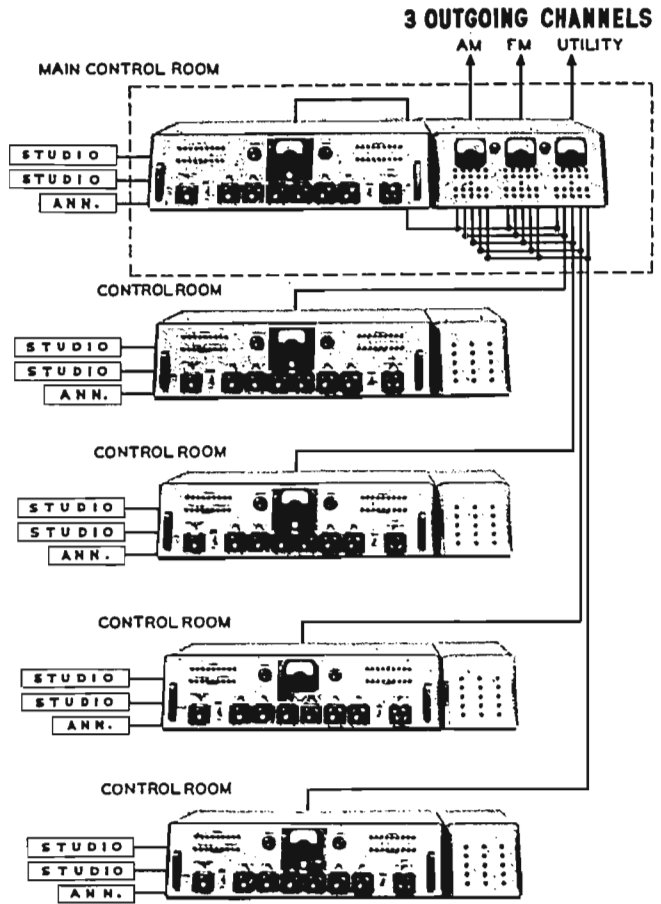
- Length \_\_\_\_\_ 10 1/2"
- Height \_\_\_\_\_ 10 1/2"
- Depth \_\_\_\_\_ 17"
- Weight \_\_\_\_\_ (approx.) 30 lbs.

**Stock Identification:**

- BCS-1A Master Switching Console \_\_\_\_\_ MI-11625
- BCS-1A Studio Switching Console (each unit) \_\_\_\_\_ MI-11625-A

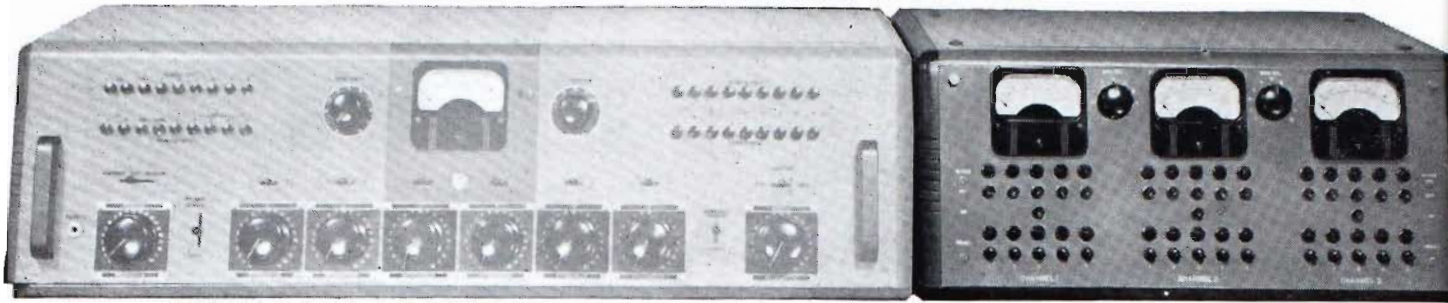
**Accessories**

- Relay Power Supply \_\_\_\_\_ MI-11304
- BA-13A Program Amplifier (Carbon Control) \_\_\_\_\_ MI-11233-A
- BA-13A Program Amplifier (Step-by-step Control, Daven) \_\_\_\_\_ MI-11233-F
- BA-14A Monitoring Amplifier \_\_\_\_\_ MI-11223-B
- BR-2A Panel and Shelf \_\_\_\_\_ MI-11598/11599
- LC-1A Loudspeaker (Umber Gray) \_\_\_\_\_ MI-11401/11411
- LC-1A Loudspeaker (Walnut) \_\_\_\_\_ MI-11401A/11411
- Line Transformers, 250-600/250-600 ohms \_\_\_\_\_ MI-11713
- Pads, 6 db, 600/600 ohms \_\_\_\_\_ MI-4171-29
- 16 Pair Twisted Cable (per foot) \_\_\_\_\_ MI-61



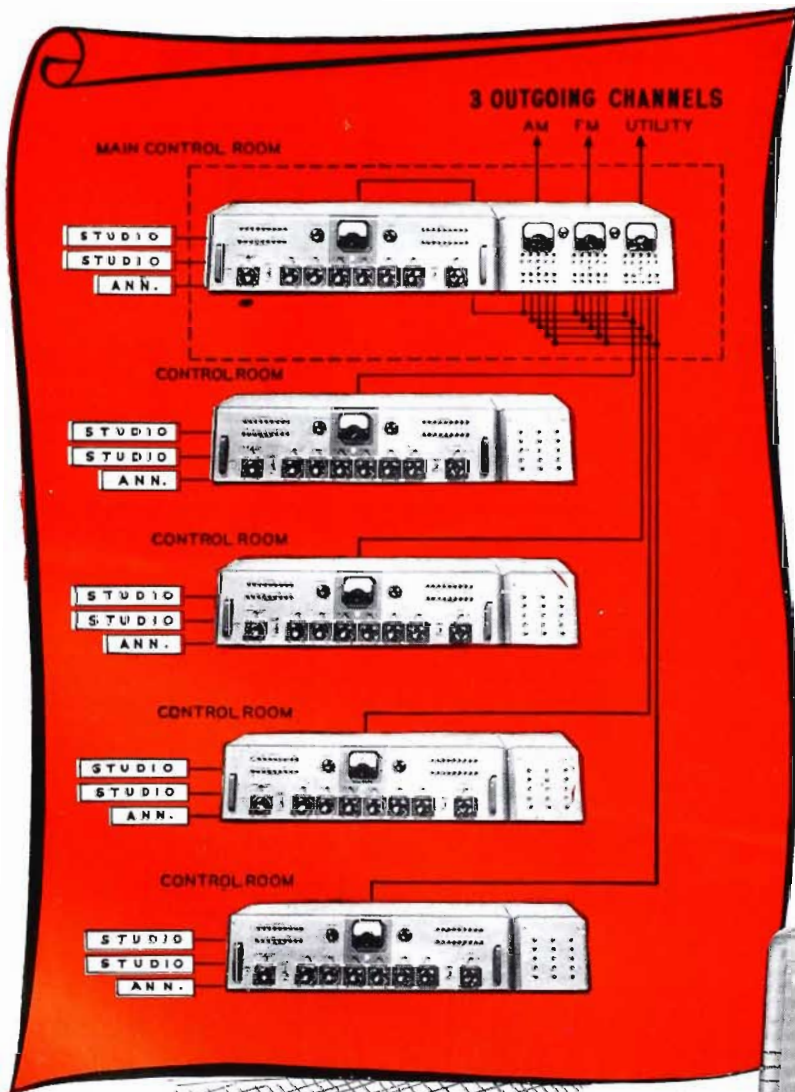
*Schematic diagram of BCS-1A Switching System*

# Simple switching for you



**RCA 76-B5 Consolette**

**Type BCS-1A  
Master Switching Unit**



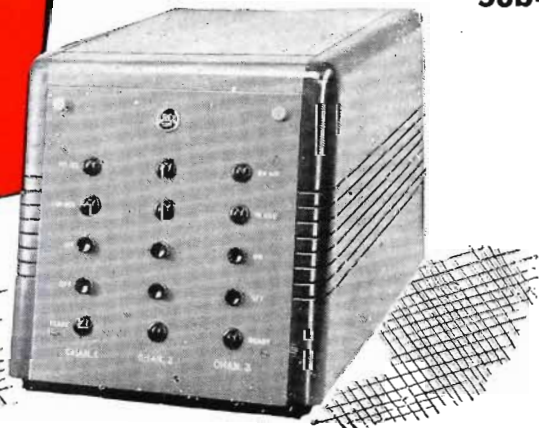
## Type BCS-1A Master Switching System

This system consists of one Master Switching Console (above, right—shown with an RCA 76-B5 Consolette), and one or more sub-control units (below). It contains all the relays needed for any combination of switching functions.

Up to five sub-control rooms can be used with the master console, each of which can handle from one to three studios.

Status lights give accurate picture of "On Air," "In Use," "Ready," and "On-Off" conditions in all control rooms for each outgoing line. Unique design features prevent feeding more than one program to any one line, although supporting program material can be handled as remotes from the originating studio. Sub-control units act as relay control stations between studios and master control unit.

**Type BCS-1A Studio  
Sub-Control**





# AM-FM Programming

## RCA consolette switching systems co-ordinate all studio-station functions

Here's another example of RCA's program of providing "packaged" broadcast equipments having the flexibility and performance of custom-built jobs.

The two Switching Consoles shown, in connection with standard RCA Consolettes of identical styling, give you efficient latitude to perform intricate AM, FM and network programming operations—easily, precisely and quickly. Choice of model depends upon the complexity of your station's operating requirements.

The BCS-1A Console is designed for

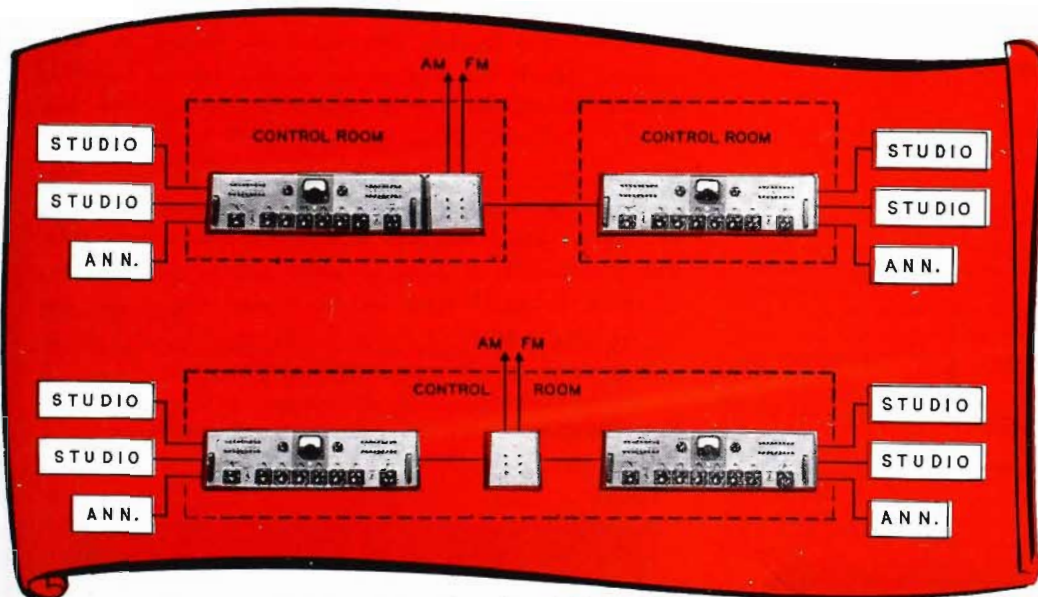
the more elaborate station . . . switching the outputs of as many as five control consolettes to three outgoing lines. Many combinations are practicable. Inputs from studios, network, recording rooms or frequent remotes can be monitored and switched to transmitters or network lines. Electrically interlocking controls have reduced the possibility of switching error to the vanishing point.

Managers of stations requiring only two consolettes will find the RCA Type BCS-2A Console the ideal switching system. Used with two RCA 76-B5

Consolettes, program material from as many as four studios and two announce booths is routed to desired outgoing lines (AM and FM, or either transmitter and a network line).

• • •

Both types of RCA Switching Systems are designed for long-range station planning. They have sufficient flexibility to take care of future expansion. Complete details may be obtained from Engineering Products Dept., Section 19-EB, Radio Corporation of America, Camden, N. J.



**Type BCS-2A Switching System**

Two studio inputs may be switched independently to either of two outgoing lines. Mechanical interlocking prevents feeding two inputs to the

same line. This system handles up to four studios and two announce booths. Two examples of the layouts possible are shown above.

**Studio Switching Console for Small Studios**



# Switching System, Type BCS-2A

## Features

- Economically priced.
- Control of two consolettes for two outgoing lines.
- Independent or simultaneous switching of inputs to outgoing channels.
- Attractive styling blends with all RCA consolettes and equipments.
- AM, FM, or other desired outgoing channel combinations.
- Nine possible combinations of switching.
- Mechanically interlocked.

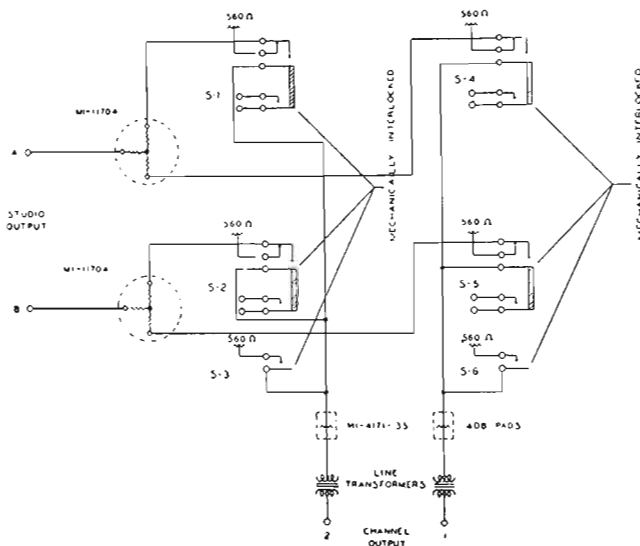
## Uses

The BCS-2A switching console has been developed to meet the demands of many stations now operating both AM and FM transmitters, or one transmitter and a utility channel for feeding network, recording studio, etc. The addition of this extra channel adds many complications to programming, unless a switching system is evolved providing adequate flexibility and protection from erroneous switching. This is accomplished in the design of the BCS-2A.

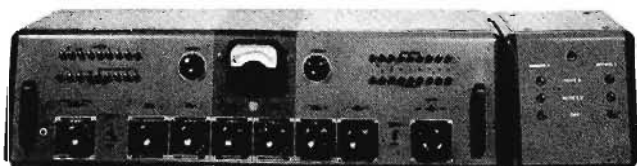


## Description

The BCS-2A switching console is used in conjunction with the 76 series or any general consolette, and enables two console outputs to be switched independently to either of the two outgoing lines such as AM and FM or other combinations including recording, audition, and network feed. If desired, either of the two consolettes will feed both outgoing lines simultaneously, however, push button switches are mechanically interlocked and prevent both consolettes feeding the same outgoing line. If the program necessitates material from two different studios, this may be accomplished through the originating consolette's remote facilities. Switch contacts are provided to operate signal lights that may be located on or near the input consolettes to indicate if outgoing channel A or B or both are being fed. The 76 series consolettes have holes with plug buttons in place on either side of the VU meter in which the signal lights may be located. Signal light kits are available as MI-11714. Power for the signal lights is obtainable from 6.3 volt filament supply.



Simplified schematic diagram of BCS-2A



BCS-2A with 76-B5 Consolette

## Specifications

### Dimensions:

- Length \_\_\_\_\_ 10½"  
 Height \_\_\_\_\_ 10½"  
 Depth \_\_\_\_\_ 17"  
 Weight \_\_\_\_\_ Approx. 30 lbs.  
 Finish \_\_\_\_\_ Two tone umber gray  
 Stock Identification \_\_\_\_\_ MI-11622

## Accessories

- Console Signal Light Kit \_\_\_\_\_ MI-11714

# Studio Warning Lights, MI-11706 Series



## Features

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

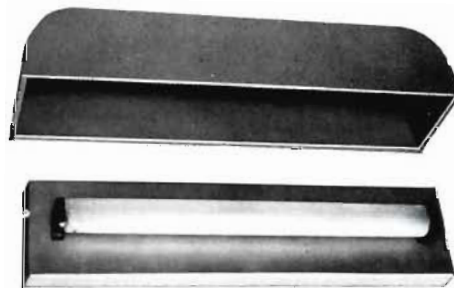
## Uses

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 turn-ins. The sign is an opaque black glass with frosted translucent 2" letters, using a 40 watt 12" lumiline lamp for a light source.

Outer case removed showing Lumiline illuminating lamp



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	3 1/2"
Depth	2 1/8"
(Glass Sign Aperture)	
Length	9 3/4"
Width	2 3/4"

Weight (unpacked) 3 1/2 lbs.

Stock Identification:

"ON-AIR"	MI-11706-1
"REHEARSAL"	MI-11706-2
"AUDITION"	MI-11706-3
"STANDBY"	MI-11706-4
"SILENCE"	MI-11706-5



Back view showing simplicity of construction and outer case mounting screws

# 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	150/600	Chassis or Rack
	Isolation Amp.	Bridging 4	Bridging +40	+18	10,000	150/600	Chassis or Rack
BA-2C	Mic. Preamp. or Turntable Preamplifier	50	-25	-2	30/250	250/600	Chassis or Rack
BA-13A	Program Amp. Line Amp. Isolation Amp. Monitor. Amp.	Matching 65 Bridging 28	Matching +10 Bridging +30	+33 2 Watts	600/150	600/150/15/7.5 and 5	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.)	600/150/15 7.5 and 5	Chassis or Rack
MI-12238	Monitoring Amplifier	85	-25	6 Watts	250	15	Chassis
86-B	Limiting Amplifier	60	At verge of Limiting +10	+30	600/250	600/250	Chassis or Rack
76-B5	Studio Console	110	-30	+26	30/50/250 300/600	600 Pgm. 15 Monitor	Console
76-D	Studio Console	112	-30	+26	30/50/150 250/300/600	600 Pgm. 15 Monitor	Console
BN-2A	Portable Remote Amplifier	92.5	-30	+18	30/150/250	150/600	Portable Carrying Case
OP-7	Portable Pre-amp. Mixer	8	-27	-24	30/250	30/250	Portable Carrying Case
OP-6	Portable Amplifier	90	-24	+19	30/250	600/150	Portable Carrying Case

\* Reference level one milliwatt.

# Two Stage Preamplifier and Isolation Amplifier, Type BA-11A

## Features

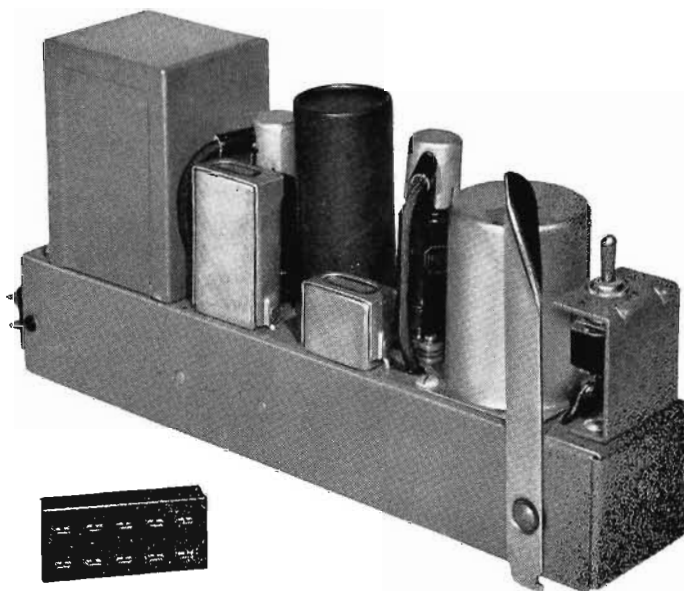
- Excellent frequency response  $\pm 1$  db 30 to 15,000 cycles.
- Two stages. Ample gain for any preamplifier application.
- May be used as an isolation amplifier providing 80 db isolation.
- Low distortion and hum level.
- High output capability makes it useful as a booster or line amplifier.
- Compact. 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 capacitors.

## 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 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. Cross talk between units is  $-75$  dbm, 50 to 15,000 cycles when mounted side by side and operated from the BX-1D 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-1A chassis and be adjusted by screw driver through one of access holes in the front panel of BA-2A shelf. 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-1D Power Supply or its equivalent. The power requirements are 6.3 volts a-c or d-c at 0.6 amperes and 250 volts d-c at 7 ma. Up to seven BA-11A preamplifiers can be operated from one BX-1E Power Supply.



Rear view of BA-11A showing multi-contact, plug-in connection

# Two Stage Preamplifier and Isolation Amplifier, BA-11A (Continued)

**Specifications**

BA-11A as Preamplifier:

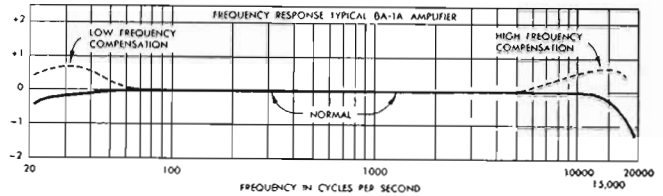
- Source Impedance \_\_\_\_\_ 30/150 ohms
- Input Impedance (unloaded input transformer) \_\_\_\_\_  
Substantially above source impedance
- Load Impedance (balanced or unbalanced) \_\_\_\_\_ 150/600 ohms
- Maximum Input Level (less than 0.5 rms dist. 50-7500 cps) \_\_\_\_\_  
-22 dbm
- Maximum Output Level \_\_\_\_\_ +18 dbm
- Maximum Gain (150 ohm source to 150 ohm load) \_\_\_\_\_ 40 db

BA-11A as Isolation Amplifier (with MI-11278 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 Output (input and output terminated) \_\_\_\_\_ -83 dbm
- Equivalent Input Noise \_\_\_\_\_ -123 dbm
- Plate Power Supply \_\_\_\_\_ 250 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 2⅞", height 5⅛"
- Finish \_\_\_\_\_ Umber gray
- Weight (unpacked) \_\_\_\_\_ 5¾ lbs.
- Stock Identification (less tubes) \_\_\_\_\_ MI-11231



Frequency Response, BA-11A Amplifier

**Accessories**

- Tube Kit #1 (complete tube complement)  
Two RCA 1620 \_\_\_\_\_ MI-11288
- 1 Alternate Tube Complement  
Two RCA 6J7 \_\_\_\_\_ MI-11288-A
- Volume Control Kit  
(Bridging Chassis Mounting) \_\_\_\_\_ MI-11278-D  
(Bridging Remote Panel Mounting) \_\_\_\_\_ MI-11278-C
- Filament Transformer \_\_\_\_\_ MI-11606
- BX-1D 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-4388-C
- BR-2A Panel and Shelf Assembly  
(required when cabinet rack mounting is desired)  
Umber Gray \_\_\_\_\_ MI-11598/11599

## Remote Bridging Controls, MI-11278-B, MI-11278-C & 11278-D

**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 250 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 MI-11278-B and -C Volume Controls are designed for rear panel mounting with shafts extending through the panel to accommodate dial knobs.



MI-11278-D

**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 250-ohm amplifier output (MI-11278-B, 31 db), (MI-11278-C, 36 db), (MI-11278-D, 36 db)
- Maximum Input Level \_\_\_\_\_ +40 dbm
- Overall Dimension (including shaft):

- Height \_\_\_\_\_ 2⅝"
- Width \_\_\_\_\_ 1½"
- Depth \_\_\_\_\_ 1½"
- Weight \_\_\_\_\_ 4½ ozs.



MI-11278-B and C with dial knob

# Booster Amplifier, Type BA-2C



BA-2C Amplifier—Front View

**Features**

- High gain — Two stages — Self contained power supply.
- Excellent frequency response — Low distortion.
- Low noise level. Specially shielded transformers.
- Plug-in chassis—Simplified servicing.
- Compact—two BA-2C's may be mounted on one BR-2A Shelf.
- May be mounted inside turntable cabinet.
- Provision for tube plate current check.
- Economically priced.

**Uses**

The RCA BA-2C Amplifier is a high fidelity two stage unit for use as a microphone preamplifier, a booster amplifier for transcription turntables or as an isolation amplifier when used with suitable bridging resistors. It is also useful at transmitter installations where a high gain amplifier is required between the announce microphone and the limiting amplifier. When used as a transcription pickup amplifier, the BA-2C may be mounted inside the turntable cabinet. For rack mounting, two BA-2C Amplifiers may be mounted on one BR-2A Panel and Shelf Assembly.

**Description**

The BA-2C circuit is conventional and utilizes two RCA 1620 tubes operated as triodes. The first stage tube is shock mounted to reduce microphonic noises. An interstage gain control, which is a continuously variable potentiometer with a logarithmic taper, is provided for adjusting the output level. The amplifier is designed to work into a balanced load of 600/250 ohms.

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. Connections are provided from each cathode circuit to terminals on the male plug at the rear of the chassis. Corresponding terminals on the receptacle permit metering of tube condition when connected to a high resistance voltmeter such as the Type BI-1A. Input, output and a-c connections are also brought out to the male plug. The unit is equipped with a power switch and fuse and is provided with a base cover plate for shielding when used in turntable installations. A mating receptacle is supplied for the male chassis plug.

**Specifications**

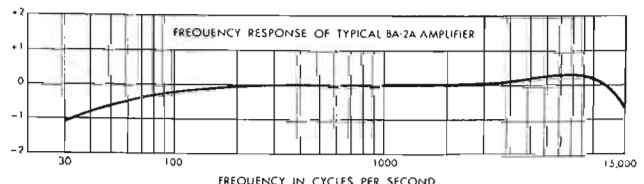
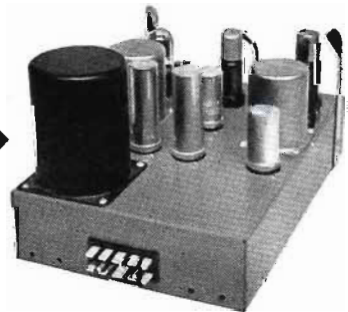
Source Impedance	30/250 ohms	
Load Impedance (tapped transformer)	250/600 ohms	
Input Impedance	Substantially above source impedance	
Distortion (at normal output level of -15 dbm measured at any frequency between 40 and 15,000 cycles)	less than 0.75% rms	
Maximum Input Level (less than 1% distortion)	40-15,000 cycles) —25 dbm	
Maximum Output Level (less than 1% distortion)	40-15,000 cycles) —2 dbm	
Frequency Response (see curve)	±1.5 db 30 to 15,000 cycles	
Gain (250 or 30 ohm source to 600 or 250 ohm load)	50 db	
Noise Level (below -2 db* output, maximum gain)	-70 db	
A-c Power Input 105/125 volts, 50/60 cycles	13 watts	
Dimension	Overall	Chassis
Height	6½"	2½"
Width	8"	8"
Length	14"	11¾"
Weight (unpacked)		11 lbs.
Finish		Umber gray
Stock Identification (less tubes)		MI-11226-B

**Accessories**

- Tube Kit (complete tube complement)  
2 RCA 1620, 1 RCA 6X5GT/G — MI-11287
- Alternate Tube Kit (complete tube complement)  
2 RCA 6J7, 1 RCA 6X5GT/G — MI-11287-A
- Note: 6J7's may be used when maximum uniformity of characteristics and minimum of microphonics, hum and distortion are not required.
- BR-2A Shelf and Panel — MI-11598/11599

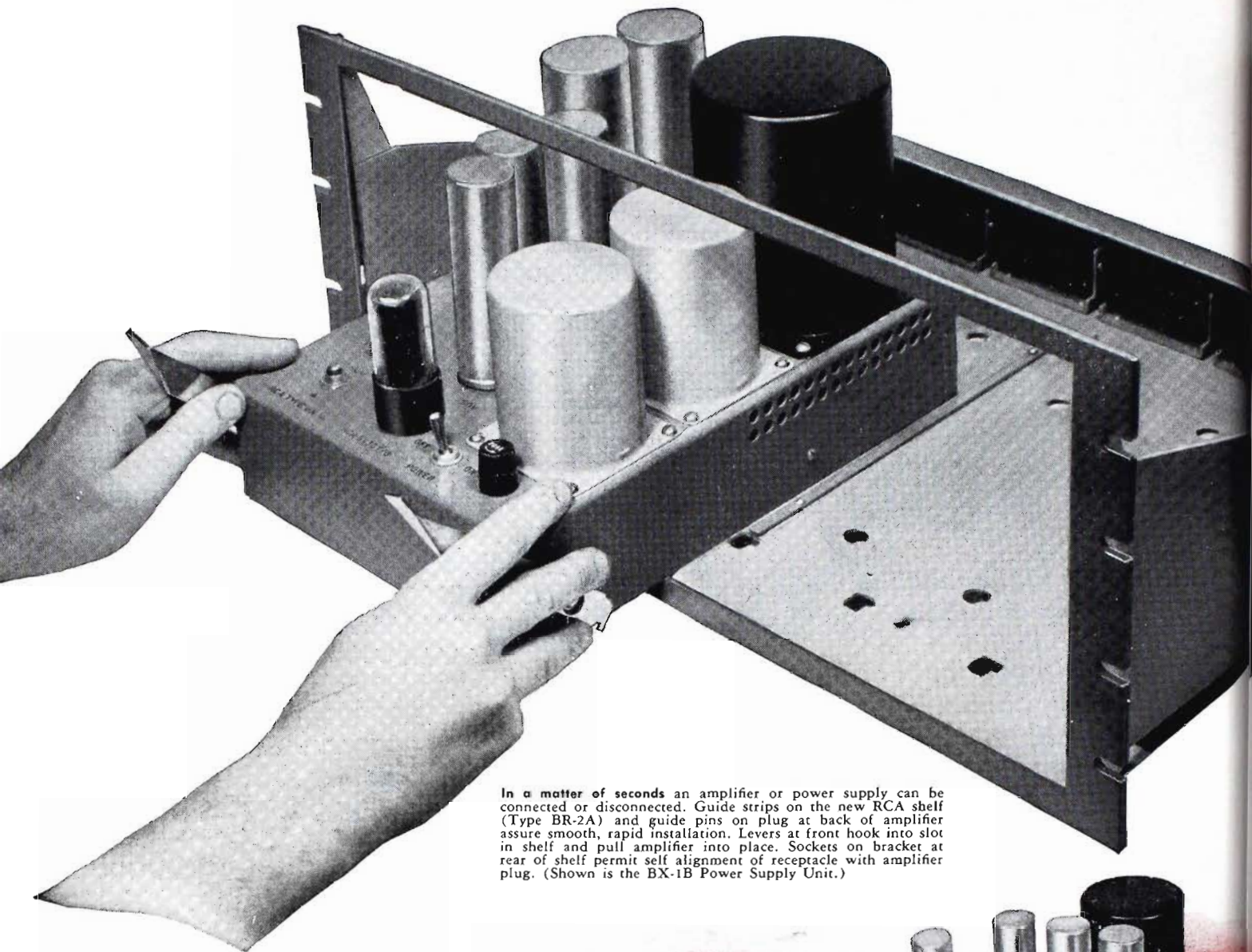
\* Reference level one milliwatt.

BA-2C Amplifier—Rear view. Plug-in chassis permits easy removal of amplifier for servicing

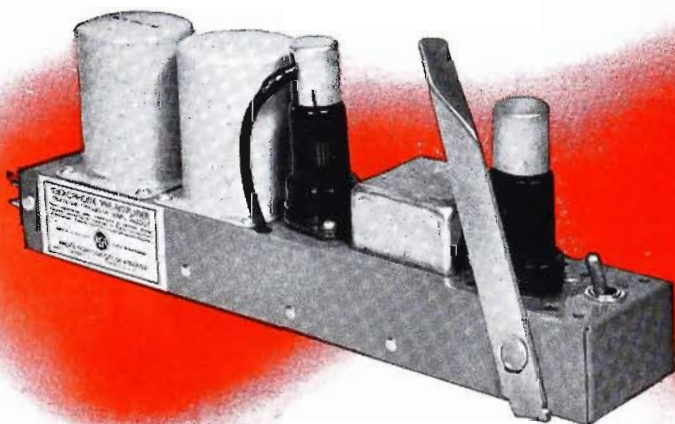


Frequency Response of a Typical BA-2C Amplifier

# RCA "PLUG-IN" amplifiers



In a matter of seconds an amplifier or power supply can be connected or disconnected. Guide strips on the new RCA shelf (Type BR-2A) and guide pins on plug at back of amplifier assure smooth, rapid installation. Levers at front hook into slot in shelf and pull amplifier into place. Sockets on bracket at rear of shelf permit self alignment of receptacle with amplifier plug. (Shown is the BX-1B Power Supply Unit.)



**Two-stage Preamplifier (Type BA-11A)**—Ideal for use as a microphone preamplifier, turntable preamplifier, booster amplifier, or low-level isolation amplifier. *High gain:* 40 db. *High output:* +10 db. *Low noise level:* -80 db. *Low distortion:* 0.5% rms, 50 to 7500 cycles. *Isolation factor:* approx. 90 db; over 100 db with special Volume Control Kit. *Frequency response:*  $\pm 1$  db, 30 to 15,000 cycles. *Small size:* six units will fit on a 36-B or new BR-2A shelf!



**Booster Amplifier (Type BA-2C)**—A two-stage unit having applications similar to those for the BA-1A; also valuable where a high-gain amplifier between announce microphone and limiting amplifier is required. *High gain:* 50 db. *Low noise level:* -68 db. *Low distortion:* 0.75% rms, 40 to 15,000 cycles. *Frequency response:*  $\pm 1.5$  db, 30 to 15,000 cycles. *Compact:* two units can be mounted on one 36-B or BR-2A shelf. Features plug-in capacitors and built-in power supply.



# for quick interchanges—and easy maintenance

## All units available for immediate delivery

AS easy to install or remove as an electronic tube! Pull a lever near the front of the amplifier and the plug on the rear of the unit is smoothly withdrawn from its socket—automatically disconnected from the supply voltage. No longer is it necessary to crawl around to the back of hard-to-get-at racks and unsolder or unscrew countless connections. System changes can be made quickly; minutes can be slashed from inspection, servicing, and testing time.

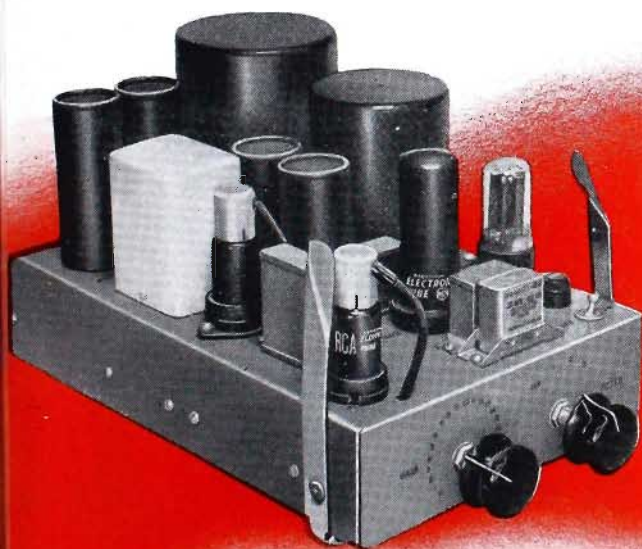
This new RCA line now includes the four amplifiers and one power-supply unit shown. Others will be added in the near future. New, carefully selected characteristics make these units ideal for a large number of studio jobs.

All units use the same standard plug. To assure maximum convenience, a new shelf (Type BR-2A) has been designed. With a few easy changes, however, the conventional RCA Type 36-B panel and shelf can be used, if desired. The necessary accessories are available for this purpose.

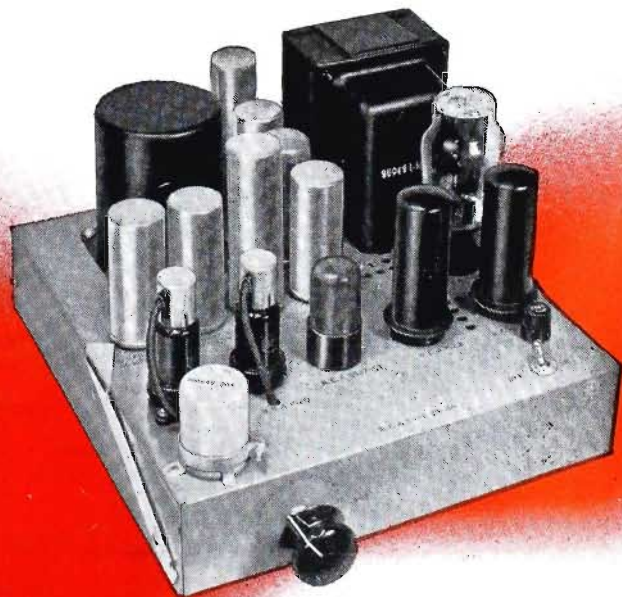
Here, we believe, is a real opportunity to modernize your amplifier system—a quick, convenient way to get better performance at low cost. Descriptive leaflets are yours for the asking. Write: Dept. 7L Audio Equipment Section, Radio Corporation of America, Camden, N. J.



The RCA Type BR-2A Shelf fits any standard rack; takes 8¾ inches of panel space. If desired, however, RCA Type 36-B panels and shelves now in use can be easily adapted for plug-in amplifier service.



**New Program Amplifier (Type BA-13A)**—The most versatile high-fidelity amplifier ever designed for broadcasting. Ideal as a program or line amplifier, bridging amplifier, isolator amplifier, cueing or monitoring amplifier. Improved layout for greater accessibility; "plug-in" electrolytics for ease in servicing. Output: 2 watts (approx.). Higher gain: 65 db for matching input; 28 db for bridging input. Lower noise level: -82 db (with max. gain). Lower distortion: less than 0.5 to 1% rms, depending on output level. Frequency response: ±1 db, 30 to 15,000 cps.



**Monitoring Amplifier (Type BA-14A)**—Designed for operation at microphone levels. High output of 12 watts is sufficient to drive several speakers or, in some applications, a recording head. Other uses include application as line amplifier for portable and mobile transmitters. High gain: 105 db. Low noise level: -20 db (with maximum gain); -40 db (with minimum gain). Low distortion: less than 3% at 12 watts. Frequency response: ±2 db, 30 to 15,000 cycles.

# Program Amplifier, Type BA-13A



BA-13A Program Amplifier, front view

## Features

- Excellent frequency response for FM and television.
- High gain, low distortion, low noise level.
- Provisions for cathode metering.
- Improved step type volume control which permits volume adjustment in 2 db steps.
- Uses oil filled paper capacitors and plug-in electrolytic capacitors.
- Economical in price.

## Uses

The BA-13A is one of the most versatile high fidelity broadcast amplifiers available. Its high gain and low distortion makes it ideal for use as:

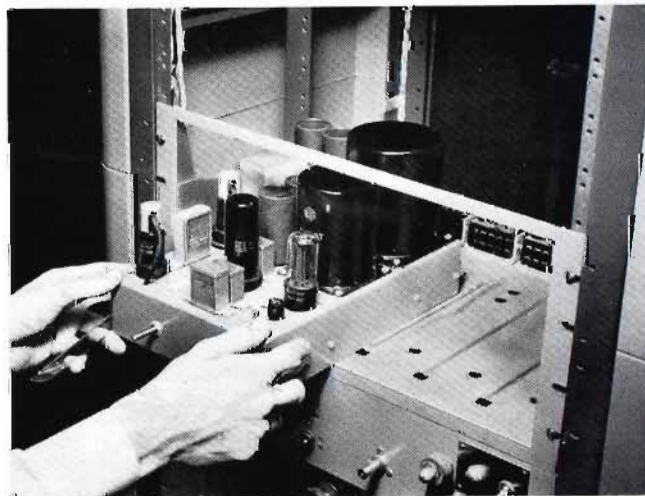
1. Program or line amplifier.
2. Bridging amplifier.
3. Isolation amplifier.
4. Cueing or monitoring amplifier with approximately 2 watts output.

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 easy removal for servicing or interchanging units. Two BA-13A amplifiers can be mounted in a BR-2A panel and shelf.

## Description

The BA-13A is a three stage amplifier employing one RCA 1620 pentode first stage, one RCA 1620 pentode second stage, and 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; an MI-11233-A if a continuous control is required.

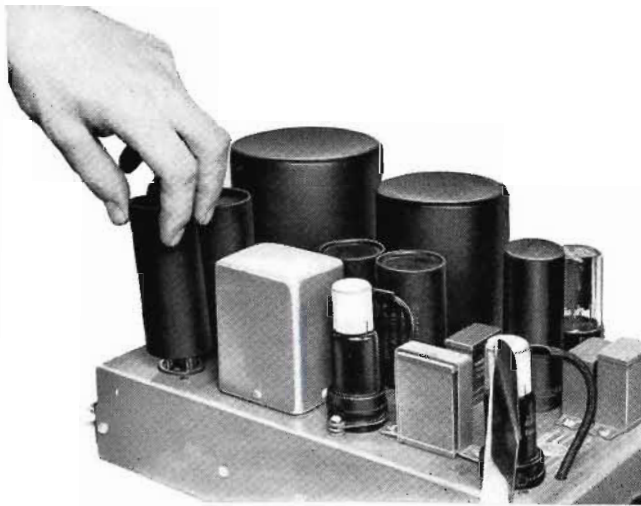


Plug-in amplifier permits quick and easy removal or interchange of units

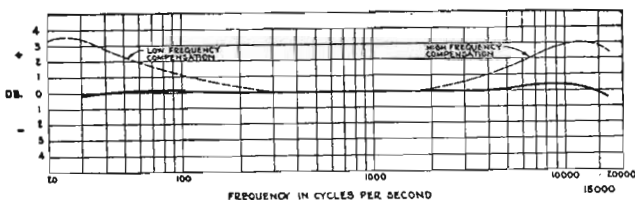
A special design feature of the BA-13A permits a boost of the low, the high or the low and high frequencies as shown in the accompanying frequency response curve. This feature aids in obtaining an overall system flat response since compensation may be added to overcome high frequency losses in the interconnecting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

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-2A.

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



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



*Frequency response of a typical BA-13A amplifier*

## 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 .1% rms distortion  
30 to 15,000 cycles) \_\_\_\_\_ +40 dbm\*
- b. Matching (with less than .1% rms distortion  
30 to 15,000 cycles) \_\_\_\_\_ +11 dbm

Load Impedance (tapped transformer) \_\_\_\_\_ 5/7.5/15/150/600 ohms

Output Level:

- Less than .5% rms Distortion 30-15,000 Cycles \_\_\_\_\_ +25 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 (with gain control in maximum position and input and output circuits terminated with 600 ohms):

- Output \_\_\_\_\_ Less than -52 dbm
- Referred to Input \_\_\_\_\_ Less than -117 dbm

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

Dimensions, Overall \_\_\_\_\_ Length, 14"; Width, 8"; Height, 7¼"

Finish \_\_\_\_\_ Light umber gray

Weight (unpacked) \_\_\_\_\_ 17½ lbs.

Stock Identification:

- (with continuous type gain control) \_\_\_\_\_ MI-11233-A
- (with step type attenuator gain control) \_\_\_\_\_ MI-11233

## Accessories

Tube Kit (complete tube complement):

2 RCA-1620, 1 RCA-1622, 1 RCA-5Y3GT/G \_\_\_\_\_ MI-11266

1 Alternate Tube Kit:

2 RCA-6J7, 1 RCA-6L6, 1 RCA-5Y3GT \_\_\_\_\_ MI-11266-A

BR-2A Panel and Shelf Assembly:

(Black MI-11598A/11599A) U/G \_\_\_\_\_ MI-11598/11599

Type BI-1B Meter Panel (Umer gray) \_\_\_\_\_

MI-4338-C

\* 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.
- 12 watts output with low distortion—uses feedback.
- Suitable for emergency use as program amplifier.
- Ideal for recording and playback applications.
- Sufficient gain for direct operation of a speaker from turntable output.
- High gain—Used directly in talk-back circuits, without preamplifier.
- Heavy-duty components. Will operate continuous duty with ambients up to 120°F.
- Suitable for cabinet or panel mounting.
- Compensator Kit supplied for boosting response at 60 and 15,000 cycles.
- Use oil filled paper capacitors and plug-in electrolytic capacitors.
- 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 and through an additional remote volume control. The 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 10,000 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 nominal 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 with 600 ohms)

Less than -20 db at output  
 Less than -120 dbm referred to input  
 A-c Power Input (105-125 volts, 50-60 cycles) 105 watts

### Dimensions, overall

Width 10 3/4"  
 Depth 11 3/4"  
 Height 7 1/2"  
 Finish Light lumber gray  
 Weight (unpacked) 21 1/4 lbs.  
 Stock Identification MI-11234

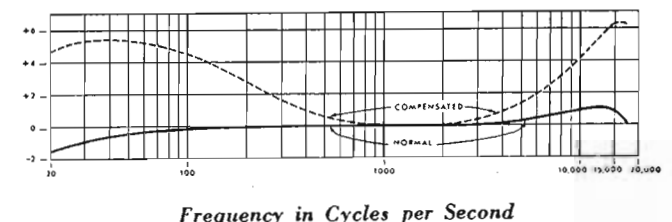
## Accessories

BR-2A Panel and Shelf, U/G MI-11598/MI-11599  
 Tube Kit (complete tube complement) 2 RCA-1620.  
 1 RCA-6SN7-GT, 2 RCA-1622, 1 RCA-5U4G MI-11267

Alternate Tube Kit (complete tube complement) 2 RCA-6J7.  
 1 RCA-6SN7-GT, 2 RCA-6L6/G, 1 RCA-5U4G 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.

\* Reference level one milliwatt.



# Monitoring Amplifier, MI-12239



**Features**

- Excellent frequency response.
- Provision for mixing microphone and turntable inputs.
- Microphone volume control, master control and tone control.
- Variable load impedance—4 to 30 ohms.
- 250 ohm input.

**Uses**

The MI-12238 amplifier is an ideal medium output unit, admirably suited for use as a cueing amplifier with transcription turntables.

**Description**

The amplifier is supplied with or without a cover and may be fitted within a 70-C or 70-D series turntable. The circuit employs two RCA 6J7's and one RCA 6L6 beam power tube in the output stage. The potentiometer is connected in the input with a master gain control in the second stage. 14 db of inverse feedback insures a flat response with a low distortion factor. The low impedance input allows a low impedance microphone or pick up to be used with excellent results.

**Specifications**

Frequency Response \_\_\_\_\_  $\pm 3$  db 40-10,000 cps

Inputs:

(General Microphones) \_\_\_\_\_ High Impedance Microphone

(Turntables) \_\_\_\_\_ Low Impedance Turntable

(Crystal Pickups) \_\_\_\_\_ High Impedance Pickup

Gain—Low Impedance:

250 ohm Source to 15 ohm load \_\_\_\_\_ 85 db

Power Output (with 7½% distortion) \_\_\_\_\_ 6 watts

Output Impedance \_\_\_\_\_ 4, 7½ and 15 ohms

Dimensions:

Length \_\_\_\_\_ 11½"

Width \_\_\_\_\_ 7"

Height \_\_\_\_\_ 7½"

Weight (unpacked) \_\_\_\_\_ 11½ lbs.

Power Supply \_\_\_\_\_ 115 volts, 50 to 60 cycles, 75 watts

Stock Identification:

(With Cover) \_\_\_\_\_ MI-12239



*MI-12239 with cover removed*

## Limiting Amplifier - Type 86-B



86-B Mounted on 36-B Shelf

### Features

- Excellent frequency response—suitable for FM.
- High compression with low distortion.
- Low noise level.
- Prevents distortion and adjacent channel interference caused by overmodulation of transmitters.
- Provides for a more effective use of transmitter power by raising the average modulation percentage.
- Meter with rotary selector switch shows gain reduction, checks plate current of all tubes, and checks overall voltage supply.
- Economical in price.
- Improved tube balance.

### Uses

The 86-B Limiting Amplifier has been designed for use in the speech input channels of FM and AM broadcast transmitters. It serves to limit the audio signal peaks to a certain pre-determined level thereby preventing over modulation with its consequent distortion and adjacent channel interference. This amplifier also provides for a more effective use of transmitter power by raising the average percentage modulation level several db without appreciably increasing the harmonic distortion. The limiting characteristics of the 86-B 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.

### Description

The 86-B Limiting Amplifier uses push-pull vacuum tubes (RCA 6K7) in the variable-gain stage. The design is such that a uniform frequency response and a remarkably low distortion is maintained with large compression ratios as much as 18 db. Moreover, low distortion is maintained at all modulating frequencies in the normal audio band.

An improved tube balancing circuit has been included in this amplifier which allows any pair of standard RCA 6K7 tubes to be used in the limiter circuit. Balance can be easily maintained through the normal life of the tube.

There are no audible "thumps" even though a large compression is suddenly applied. Compression timing constants have been chosen which have proved most desirable in actual broadcast service. The fast pick-up time of one millisecond restricts over-modulation surges which might cause transmitter outages. The return time is slow enough to prevent distorting low frequency times, but fast enough to prevent noticeable level reduction after loud volume peaks.

The circuit of the 86-B is straight forward and push-pull stages are used throughout. The a-c power supply is self contained and utilizes one RCA 5T4 rectifier tube. New plug-in type electrolytic capacitors are used to simplify servicing the equipment. The hum and noise level is maintained to a low value through special transformer shielding. When used in conjunction with a two stage pre-amplifier, the 86-B has sufficient maximum gain (60 db) for making local announcements. The push-pull output stage and efficient circuit design provide a maximum power output of 1 watt (+30 VU) with less than 0.75% total rms distortion measured at 400 cycles with a compression of 18 db. The distortion is less than 1.8% rms when measured at any frequency between 50 and 7500 cycles.

All the components are mounted on a single metal chassis. A meter is provided for (1) indicating gain reduction directly in

db, (2) dynamic match indicator for input tubes, (3) measurement of all tube plate currents, and (4) measurement of plate voltage. A switch on the front of the chassis selects the desired meter function.

Step-by-step input and output volume controls are provided. These controls are equipped with "vu" 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 close adjustment of level at which limiting action takes place, and (4) switch (on front) which makes limiter function inoperative. A power switch and fuse are provided. For rack mounting the Type 36-B Shelf should be used. A special umber-grey 36-B door panel with meter cut-out is supplied with the 86-B Amplifier.

### Specifications

Input Source Impedance \_\_\_\_\_ 600 or 250 ohms

Output Load Impedance \_\_\_\_\_ 600 or 250 ohms

Frequency Response \_\_\_\_\_  $\pm 2$ db 30-15,000 cycles  
(At any setting of gain controls—with or without compression)

#### Input Level

Maximum (at limiting verge) \_\_\_\_\_ +10 dbm

Maximum (with 18 db gain reduction) \_\_\_\_\_ +30 dbm

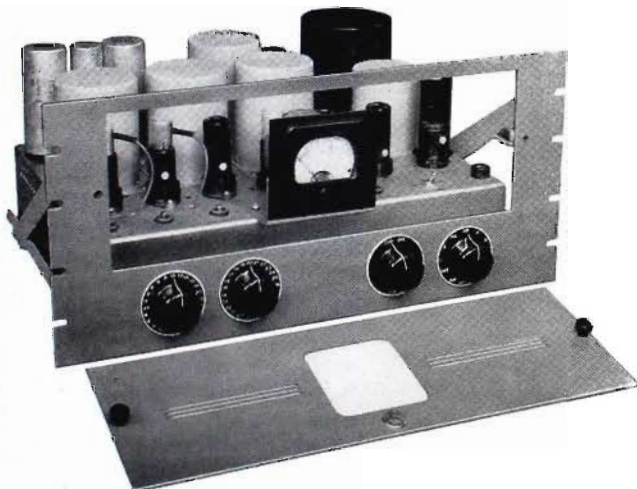
Minimum (at limiting verge) \_\_\_\_\_ -30 dbm

#### Output Level:

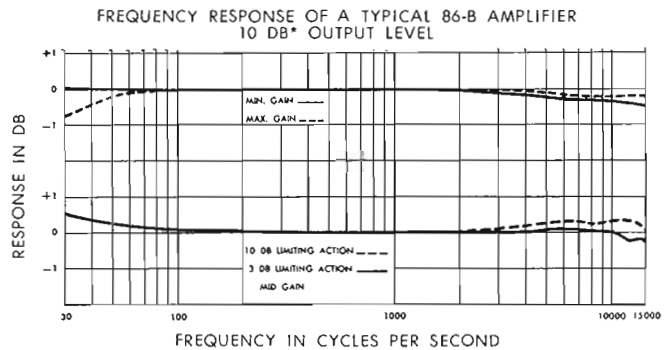
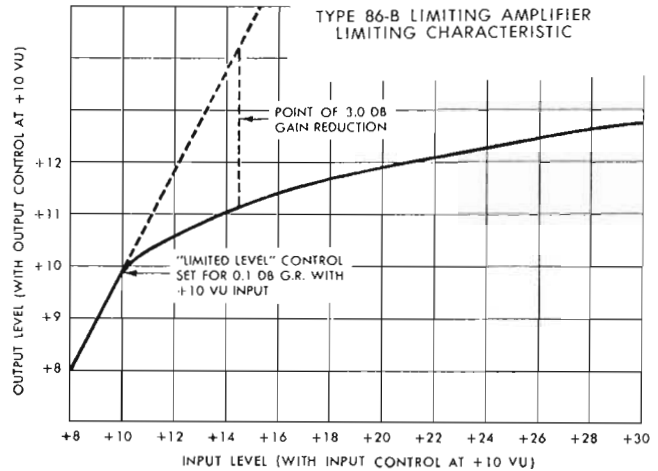
Less than 1.8% rms distortion with 18 db compression at any frequency between 50 and 7500 cycles \_\_\_\_\_ +30 dbm

Less than 0.75% rms distortion at 400 cycles with 18 db gain reduction \_\_\_\_\_ +30 dbm

Less than 0.4% rms distortion at 400 cycles with no gain reduction \_\_\_\_\_ +10 dbm



The 86-B, as shipped, includes the special door panel shown above



Gain (with maximum volume control setting and signal below limiting level) \_\_\_\_\_ 60 db

Noise Level: below +30 dbm output \_\_\_\_\_ -85 db  
below +10 dbm output \_\_\_\_\_ -77 db

Output Range (at verge of limiting) \_\_\_\_\_ +10 dbm to +30 dbm

#### Time Constants

Seconds for complete action of gain reduction \_\_\_\_\_ 0.001

Seconds for 90% recovery of gain after signal drops below limiting level (when connected as furnished) \_\_\_\_\_ 2.0

Note: may be varied from .26 sec. to 5.2 sec. by changing one resistor.

Power Input (105-125 volts, 50-60 cycles) \_\_\_\_\_ 70 watts

Dimensions \_\_\_\_\_ Width 16", depth 13", height 7½"

Weight (unpacked) \_\_\_\_\_ 30 lbs.

Stock Identification: UMBER GRAY \_\_\_\_\_ MI-11216-D

Complete with one set of tubes and panel and shelf

#### Accessories

Tube Kit (complete tube complement) \_\_\_\_\_ MI-11286-B

2 RCA-6K7, 1 RCA-6N7, 2 RCA-1621, 1 RCA-6R7,

1 RCA-5R4GY

\* Reference level one milliwatt.

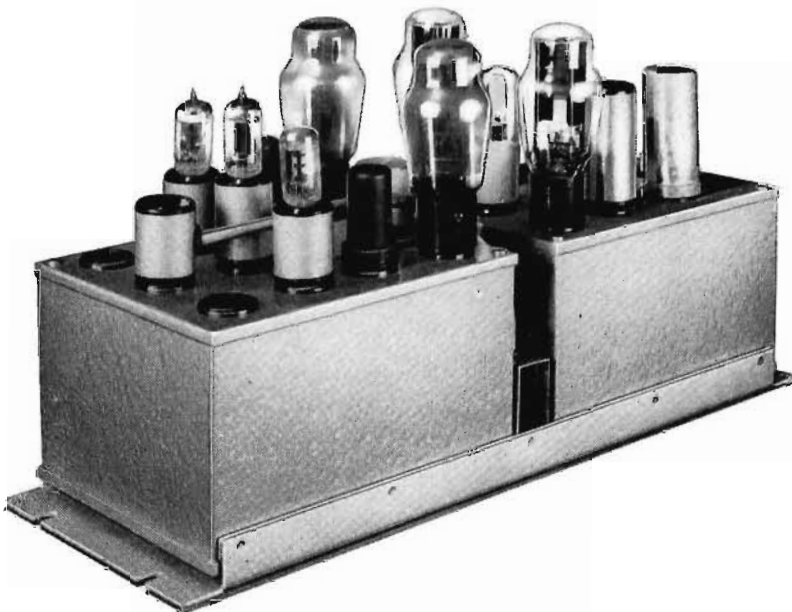




# 50-Watt Monitoring Amplifier, Type 50W-1

## Features

- Low distortion—less than 1%.
- Continuous single frequency rating of 50 watts RMS, 100 watts peak.
- Small size and weight.
- Low noise level.
- Low phase shift distortion.
- High-quality components and simplified servicing.



## Uses

The McIntosh 50-watt amplifier is designed for broadcast applications where frequencies of 20 to 20,000 cycles are useful, and where high efficiency and low distortion features are required. The type 50W-1 is useful as a broadcast monitoring or recording amplifier, or as a general purpose amplifier.

## Description

The Type 15W-1 McIntosh Amplifier is divided into logical, small, "plug-in" units which facilitate maintenance and circuit checking. The amplifier circuit operates "Class B" with relatively small current flowing in the final tubes (without input signal). Wide frequency range, low distortion and low generator impedance are features provided. The Type 50W-1 amplifier consists of one power supply unit and one amplifier unit plus power connector cord. The amplifier includes output, driver, rectifier, inverter amplifier and preamplifier stages. One

50W-1 amplifier and one power supply will mount in a standard rack panel 7" x 19". Units may also be arranged as a single unit for portable use by means of an assembly kit available.

## Specifications

- Distortion \_\_\_\_\_ 1% or less 20-20,000 cycles
- Intermodulation Distortion \_\_\_\_\_ 1% RMS or less (if peak power does not exceed 100 watts)
- Efficiency \_\_\_\_\_ 60% @ 50 watts, 67% @ 60 watts
- Gain \_\_\_\_\_ 40 db min.; 100 db max.; (with 1 preamp. and input transformer)
- Input Impedance \_\_\_\_\_ 200,000 ohms without input transformer  
With Universal Input Transformer 30 to 250 ohms  
600 ohms and bridging input with series resistors
- Output Impedance \_\_\_\_\_ 600 ohms balanced; 4, 8, 16, or 32 ohms, balanced or unbalanced
- Noise and Inverter Input \_\_\_\_\_ 90 db below rated output—80 db below rated output with preamp. input
- Tubes:
- 2 6L6-G Output
  - 2 6J5 Driver
  - 1 5U4 Rectifier
  - 1 12AX7 Inverter Amplifier
  - 1 12AX7 Preamplifier
- Size (Amplifier and Power Supply Unit) \_\_\_\_\_ Each 8 $\frac{3}{16}$ " x 6 $\frac{3}{4}$ " x 4 $\frac{3}{4}$ " high (plug-in units extend 3" above amplifier)
- Weight (approx.) (each unit) \_\_\_\_\_ 25 lbs.
- Finish \_\_\_\_\_ Umber gray
- Stock Identification \_\_\_\_\_ MI-11236

GAIN-FREQUENCY CHARACTERISTICS (8 OHM OUTPUT WINDING)



PHASE SHIFT V/S FREQUENCY CHARACTERISTICS

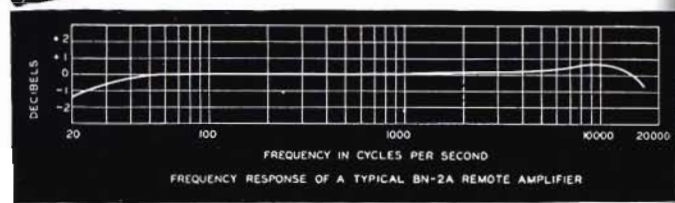


SINGLE FREQUENCY HARMONIC DISTORTION





**RCA**  
**Remote Amplifier**  
**Type BN2A**



# High-Fidelity Remotes

**-30 to 15,000 cps!**



HERE IS ONE of the finest high-quality amplifiers yet designed for remote services. Distortion is less than 1 per cent over the complete frequency range of the instrument. High-level mixing reduces general noise level by at least 15 to 20 db. Stabilized feedback holds program quality steady over a wide range of operating conditions. Each of the three amplifier channels provides an over-all gain of 92.5 db—enough to help high-quality microphones through nearly any situation.

The BN2A is plenty flexible, too. You can feed the program to the output channel and the public address system *simultaneously*. You can isolate the remote amplifier and feed the cue circuit into the PA *direct*. You can monitor both circuits. You can switch in as many as four microphones—through the four microphone inputs provided

(inputs 3 and 4 are switchable to mixer 3). And you can run the BN2A from a battery simply by removing the power line connector—and plugging in the battery cord.

Weighing only 29 pounds, and completely self-contained for a-c operation, this sturdy remote amplifier carries as lightly as a brief case. More about the BN2A from your RCA Broadcast Sales Engineer. Or drop us a card. Dept. 19 HA.

SPECIFICATIONS	
Mixing Channels.....	Three
Microphone Input Combinations.....	Four
Freq. Response (±1.0 db).....	30-15000 cycles
Noise Level.....	-70 db below +18 dbm
Distortion.....	Less than 1% rms
Rated Output Level.....	+18 dbm
Power Source	105-125 v. a. c. (or battery)
Size.....	14½"L., 9½"D., 10"H.
Weight.....	29 lbs. (complete with a-c cable and spare tubes)
Cabine...	Deep umber-gray metalustre wrinkle. Removable aluminum front cover.

# 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 operation.
- Excellent frequency response  $\pm 1$  db 30 to 15,000 cycles.
- Low distortion—less than 1% for complete range.
- Complete range facilities for feeding PA amplifier and program channel simultaneously.
- Battery Cover Pack MI-11279 available.
- Can also be operated with the MI-11214 battery box.

## 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. An OP-7 can be used with this unit to provide 6 channels. 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 console, 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. The amplifier can also be operated on external batteries by using the battery box MI-11214.

## 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 potentiometer. The unique design of this arrangement produces maximum feedback with minimum gain, a feature which reduces any inadvertent overloading of the first stage by announcers "blasting" the microphone or by excessive background noise. 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-connector 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. For long operation on batteries the battery box, MI-11214, can be used.

## Specifications

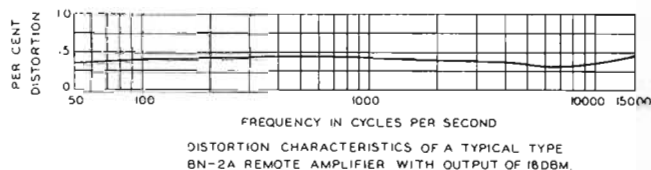
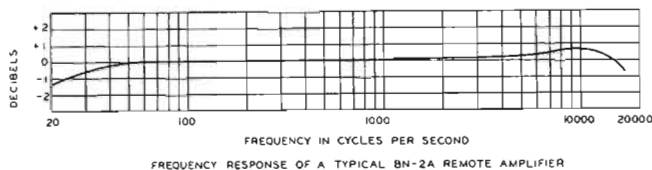
Source Impedance	30/150/250 ohms*
Load Impedance	150/600 ohms
Normal Output Level	+8 VU
Distortion (+18 db output 50 to 15,000 cycles)	Less than 1% rms
Maximum Output Level (less than 1% rms distortion)	+18 dbm
Maximum Gain (150 ohm source to 600 ohm load)	92.5 db
Frequency Response	$\pm 1$ db 30 to 15,000 cycles
Noise Level (for +18 dbm output max. 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)	9 1/2"
Height	10"
Weight	29 lbs. (complete with a-c cable and spare tubes)
Finish	Umber gray wrinkle
Stock Identification (less tubes)	MI-11230

## Remote Amplifier, Type BN-2A (continued)

### Accessories

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

Kit of Batteries (for above) \_\_\_\_\_ MI-11281  
 Battery Box Complete with Cord Connectors \_\_\_\_\_ MI-11214  
 Kit of Batteries (for above) \_\_\_\_\_ MI-11255



## Battery Container and Cover for BN-2A

### 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.



### 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 #V5009, Eveready #A-509 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.



Rear view of Battery Cover showing batteries mounted in place

### Specifications

Weight (Battery Cover) \_\_\_\_\_ 6½ lbs.

Weight (Batteries) \_\_\_\_\_ 5 lbs.

Size, overall (adds only 5/8" to overall height of BN-2A)  
 14¾" x 6½" x 3½"

### Stock Identification:

Battery Cover (less batteries, with twist-lock connector) \_\_\_\_\_ MI-11279

Kit of Batteries (two 6 v. "A" and four 67½ v. "B") \_\_\_\_\_ MI-11255

# Remote Pickup Amplifier, Type OP-6

## Features

- Excellent frequency response.
- High maximum output level with low distortion.
- Low noise and hum level.
- High overall gain permits use with high quality microphones under adverse conditions.
- Small size and light weight.
- A-c power supply built in. No external supply required.
- Two input positions and transfer key.
- Tapped input transformer accommodates any type of microphone.
- Ruggedly built with high quality components.

## Description

The OP-6 is a three stage resistance coupled amplifier using RCA 1620 low noise, non microphonic tubes. The three stages afford a gain of 88 db which is more than ample for any required application. One RCA 6X5GT/G is used in the rectifier. Since only two tube types are used, the stocking of spares is simplified. The amplifier circuit is unique in that it utilizes two feedback loops. One loop is around the first stage and is varied with the main gain control thus maintaining a maximum feedback consistent with required gain. This arrangement prevents overloading the first tube by high output microphones. The gain control is located between the first and second stage and is a high quality step by step device equipped with a large knob. The second feedback loop is fixed and is connected around the second and third stages. Two inputs are provided and either may be selected by means of a turn key switch. One input is brought to shielded screw terminals and the other to a standard Cannon microphone receptacle. The output terminates on insulated binding posts which are located on the front panel for greater accessibility. The power input receptacle has a number of contacts which are used for altering the circuit for a-c or battery operation. An a-c power cord is furnished with the amplifier and the d-c battery cord is supplied with the MI-11214 Battery Box. Located on the front panel are the power switch, fuse and monitoring headset jack.

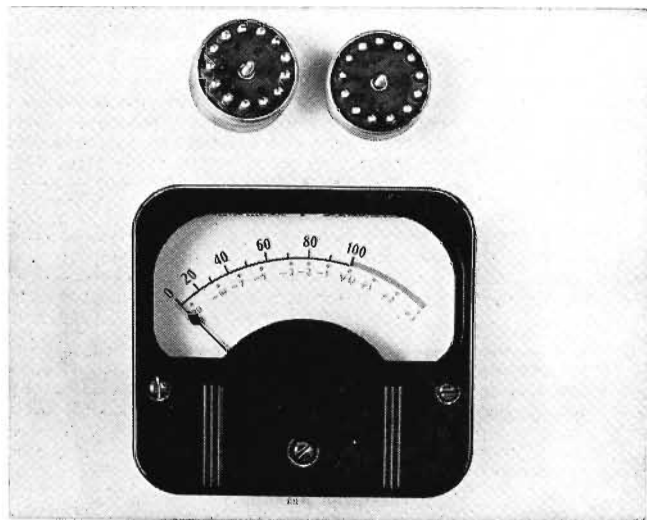
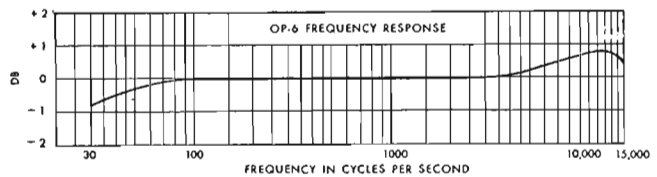
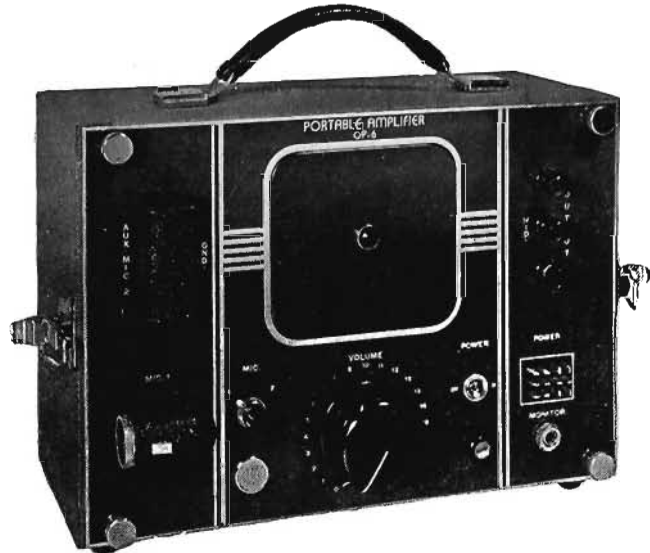
The complete amplifier and power supply is enclosed in a steel case which has removable cover, rubber feet, and steel reinforced handle. The handle lies flat when not in use. A leather shoulder strap facilitates transporting the unit and leaves the hands free to carry microphones, etc. The chassis and front panel may be easily slipped from the case by removing four thumb-screws. The unit is furnished less meter, thereby avoiding additional expense for those applications where a meter is unnecessary.

## Specifications

Source Impedance	30/250 ohms
Load Impedance	150/600 ohms
Normal Output Level	+8 dbm
Distortion (+8 db* output, 50-7500 cycles)	Less than 0.5% rms
Maximum Output Level (less than 1% rms distortion between 50 and 7500 cycles)	+18 db
Frequency Response	+2 db 30 to 15,000 cycles +1 db 40 to 10,000 cycles
Overall Gain	88 db
Noise Level (+18 dbm output, 68 db gain)	-70 db
Dimensions, overall	
Height	9 1/2"
Width	12 3/8"
Depth	7 1/4"
Finish	Grey wrinkle
Weight (unpacked but including 8' power cord)	20 1/2 lbs.
A-c Power Input, 105-125 volts, 50 to 60 cycles	18 watts
Stock Identification (shipped less tubes)	MI-11202-A

## Accessories

Tube Kit (complete tube complement)	
Three RCA 1620 and one RCA 6X5GT/G	MI-11253
Emergency Tube Kit (complete tube complement)	
Three RCA 6J7 and one RCA 6X5GT/G	MI-11253-A



VU Meter and Attenuator Kit MI-11251

VU Meter and Attenuator Kit (MI-11251 above) is available as accessory equipment for indicating audio volume levels when installed in the OP-6 Portable Amplifier. VU meter scale reads in percent voltage and in "vu's."

VU Meter and Attenuator Kit	MI-11251
Weatherproof Fabric Cover	MI-11256
Battery Box	MI-11214
Kit of Batteries	MI-11255
Cannon Microphone Plug	MI-4630-B
Mixer Amplifier, Type OP-7	MI-11213

# Mixer Preamplifier, Type OP-7

## Features

- Excellent frequency response to 15,000 cycles.
- High level mixing reduces noise to a minimum.
- Provides unloaded transformer input and high level mixing for one to four microphones.
- Self contained a-c power supply or may be battery operated.
- May be used with any program amplifier having a gain of 80 db.

## Description

The OP-7 is a high fidelity, compact and lightweight portable unit. It provides unloaded transformer input and high level mixing for as many as four microphones. It may be used with the OP-6 Portable Amplifier or with any other program amplifier which has a gain of at least 80 db.

The front panel contains the power receptacle, "on-off" power switch, a-c fuse, four mixer knobs and shielded output terminals. A front panel cover held by two snap type clasps protects the equipment and provides space for carrying cables. Four Cannon Type "P" Microphone Receptacles are assembled on the rear of the amplifier chassis. A fifth receptacle, with male contacts, provides a cable output connection. This type of receptacle safeguards the battery from short-circuits that might occur using a male plug.

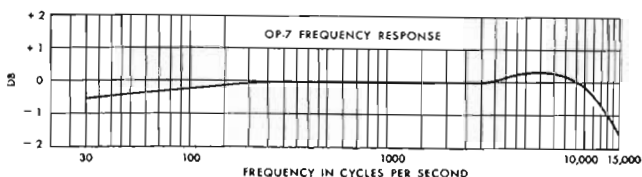
The OP-7 is equipped with long life carbon type mixing controls. In addition, the MI-11276 Modification Kit containing four Daven step-by-step attenuators with the necessary accessory equipment for modification, is available for modifying the MI-11213. The OP-7 is complete with built-in power supply or it may be operated from the MI-11214 Battery Box without circuit changes. A suitable OP-6 interconnection cable, equipped with Cannon Plugs, is furnished with the OP-7.

## Specifications

Source Impedance	30/250 ohms
Load Impedance	30/250 ohms
Normal Output Level	-55 dbm
Distortion (-55 dbm output, 50-7500 cycles)	less than 0.5% rms
Maximum Output Level (less than 1% rms distortion measured at any frequency between 50 and 7500 cycles)	-24 dbm
Gain (maximum, 250 ohm source to 250 ohm load)	8 db
Frequency Response	$\pm 2$ db 30 to 15,000 cycles $\pm 1$ db 40 to 10,000 cycles
Noise Level (-24 dbm output for 8 db gain)	-88 db
Dimensions	
Height	9 1/2"
Width	12 3/4"
Depth	9"
Finish	Gray wrinkle
Weight (unpacked but with cables)	23 lbs.
A-c Power Input, 105-125 volts, 50 to 60 cycles	20 watts
Stock Identification	MI-11213

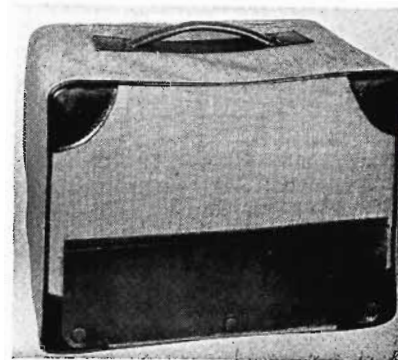
## Accessories

Tube Kit (complete tube complement)	
4 RCA 1620, 1 RCA 6X5GT/G	MI-11254
Alternate Tube Kit (complete complement)	
4 RCA 6J7, 1 RCA 6X5GT/G	MI-11254-A
Weatherproof Fabric Cover"	MI-11257
Battery Box	MI-11214
Kit of Batteries	MI-11255
Cannon Microphone Plugs	MI-4630-B
OP-6 Amplifier (shipped less tubes)	MI-11202-A



OP-7 with front panel cover removed. Covers of OP-7 and OP-6 provide space for carrying interconnecting cables.

MI-11257 Fabric Cover for OP-7. Similar covers, listed as accessories, are available for OP-6 and for the MI-11214 Battery Box.



OP-7 chassis, rear view. Four microphone receptacles and output receptacle are provided.



# Remote Pickup Equipment, OP-6/OP-7



## Uses

The OP-6/OP-7 is a high quality, light weight portable pickup equipment providing four microphone inputs with high level mixing and separate preamplifiers, built in a-c power supply and full sized vu meter. Small sized cases furnished with shoulder straps provide a maximum of convenience in carrying these units. Battery operation may be used at any time by plugging in the cord of the MI-11214 Battery Box. No circuit changes are required. The mixer and amplifier units may be used side by side or the amplifier may be mounted on top of the mixer. An outstanding value at an economical price, the OP-6/OP-7 combination provides the broadcaster with a field pickup equipment having studio quality performance.

## Description

The OP-7 Mixer Preamplifier comprises four unloaded transformer input circuits each working into an RCA-1620 triode connected tube. Its source impedance is for 30 or 250 ohm microphones and the load impedance is 250 ohms. While primarily designed for use with the OP-6 Amplifier, the OP-7 may be operated with any amplifier having a 250 ohm source impedance and a gain of 30 db or more. A more complete de-

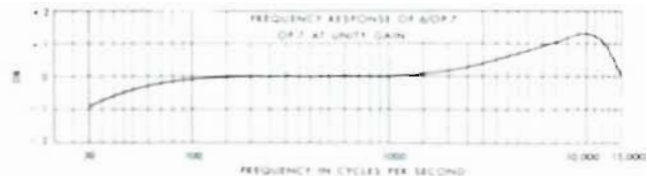
scription as well as features and specifications will be found on the OP-7 Mixer Preamplifier catalogue sheet.

The OP-6, companion unit to the OP-7, is a high quality, high gain, three stage resistance coupled amplifier using three RCA 1620 Pentode-Connected tubes. A more complete description as well as features and specifications will be found on the catalogue sheet for the OP-6 Amplifier.

Stock Identification OP-6 and OP-7:

With Carbon Controls: MI-11202-A / 11213

Complete as shown in photograph but less tubes, vu meter and microphone plug. Complete listing for accessories will be found under the catalogue listing for the individual OP-6/OP-7 units.



# Battery Box, MI-11214

The MI-11214 Battery Box has been designed especially for use with the OP-6 and OP-7 Remote Amplifiers. It is equipped with two interconnection cords so that it may be used with both amplifiers simultaneously. The box is constructed of steel with durable gray wrinkle finish and is equipped with a large steel reinforced handle and rubber feet. The cables are stored in the cover when not in use.

Approximate Battery Life in hours for average amplifier operation of six hours per day.

RCA Type No.	Quantity	Burgess Type No.	OP-6		OP-7 and OP-7	
			1 RCA 1620	2 RCA 6BF7G	1 RCA 1620	2 RCA 6BF7G
YS 004	(15)	4F "A"	34	50	26	7.5
YS 004	(10)	4F "A"	16	24	12	3.5
YS 012	(6)	B-30 "B"	270	270	240	95

## Specifications

- Finish (matches OP-6/OP-7) \_\_\_\_\_
- Dimensions:
  - Height \_\_\_\_\_ 12 1/2"
  - Width \_\_\_\_\_ 13 1/2"
  - Depth \_\_\_\_\_ 8 3/4"
- Weight (unpacked) \_\_\_\_\_ 15 1/2 lbs.
- Weight (including batteries) \_\_\_\_\_ 44 lbs.
- Stock Identification \_\_\_\_\_ MI-11214

## Accessories

- Weather Proof Cover, MI-11258

Grey wrinkle





RCA Radiomike  
Type BTP-1A

*At both National political conventions, the BTP-1A broke all records for getting first-news FIRST!*

# THE RCA RADIOMIKE . . .

## *ideal as a Roving Microphone*

### SPECIFICATIONS

Power output . . . . .	0.2 watt, approx.
Frequency range . . . . .	25 to 28 Mc
Frequency stability . . . . .	$\pm 0.01\%$
Modulation capability . . . . .	85%
A-F response (overall)	$\pm 4$ db 80-6000 cps
A-F distortion (90% mod) . . . . .	Less than 8%
Battery life . . . . .	8 hours, intermittent service
Weight (total) . . . . .	.6 lbs.
Overall size . . . . .	11" H x 4½" W x 3½" D

**NOTE:** License application for the BTP-1A can be made simply by informal letter to the FCC.

**T**HIS IS IT, the perfect portable microphone for remotes—fires, accidents, sporting events, conventions, trick broadcasts—any occasion and any place where microphone cable connections are difficult or impractical to install.

Combining a 0.2-watt AM transmitter (25-28 Mc), a crystal microphone, a 20" antenna, and batteries—all in one compact unit, here is a complete announcer's unit weighing only 6 pounds that can transmit up to several hundred yards under ideal conditions. Any communications receiver cover-

ing the 25-28 Mc band can be used for reception.

In the BTP-1A, the radio transmitter is crystal-controlled for high frequency stability. Automatic a-f gain control eliminates overloading and distortion. The crystal microphone . . . using three crystal units in series . . . provides extra gain with excellent quality.

Your BTP-1A is ready for delivery—complete with one set of tubes, one crystal, and a battery. Specify your frequency and order it from your RCA Broadcast Sales Engineer, or from Department 191A.



# Radio-Microphone, Type BTP-1A

## Features

- Light, compact and completely self contained.
- Excellent frequency response—low distortion.
- Crystal controlled transmitter for stability.
- Automatic gain control to prevent overloading and distortion.
- Permits broadcasting from locations otherwise inaccessible.

## Uses

The BTP-1A Radio-Microphone is a crystal controlled portable UHF transmitter and microphone. It is especially adapted to broadcasts by announcers mingling with crowds on the street, at conventions, large stores, golf matches or other locations, where wire connections are difficult or impractical.

The maximum satisfactory range of the BTP-1A is determined largely by the interference level at the receiver location. Under ideal conditions, several hundred yards may be covered; however, building structures or other media possessing a high signal attenuation will limit the working range. Overall transmitted quality is comparable to a network line.

## Description

The BTP-1A Radio-Microphone with its battery power pack is housed in an attractively styled aluminum case measuring 11 x 4½ x 3½ inches. Total weight of the unit with batteries is 6 pounds. A 20 inch removable whip antenna projects from the top of the case during operation.

The transmitter portion of the Radio-Microphone is crystal controlled and is designed to operate at any specified frequency between 25 and 28 mc. Maximum power output from the r-f amplifier is approximately 0.2 watt. The carrier is Amplitude Modulated by a Class A audio stage to ensure low distortion.

Automatic gain control is incorporated in the audio amplifier modulation and prevent overloading over a wide range of sound intensity.

The microphone consists of three crystal units operated in series to effect a high output with excellent quality.

Power for operating the transmitter is supplied by a battery pack which will provide 8 hours of service under normal operating conditions. A "high-low" battery switch is provided to insure uniform quality and power output throughout the life of the battery.

The BTP-1A is shipped complete with antenna, battery, crystal and one set of tubes.

Application for a channel allocation may be made by informal application to F.C.C.

## Specifications

Frequency Range \_\_\_\_\_ 25 to 28 mc.  
 Power Output \_\_\_\_\_ Approx. 0.2 watt  
 Carrier Frequency Stability \_\_\_\_\_ ±.01% deviation  
 Modulation Capability \_\_\_\_\_ 85%  
 Audio Frequency Response (including microphone)  
 \_\_\_\_\_ ±4 db 80 to 6000 cycles  
 Audio Distortion (90% modulation) \_\_\_\_\_ Less than 8%  
 Crystal Frequency (specify operating frequency  
 when ordering) \_\_\_\_\_ 1/3 transmitter output frequency



## Battery life (approx.):

Continuous Service \_\_\_\_\_ 4 hours  
 Intermittent Service \_\_\_\_\_ 8 hours

Dimensions \_\_\_\_\_ Height 11"; Width 4½"; Depth 3½"  
 (Not including handles or antenna)

## Tube Complement:

AF \_\_\_\_\_ 1 RCA-1L4 Voltage Amplifier  
 AF \_\_\_\_\_ 1 RCA-3A4 Modulator  
 RF \_\_\_\_\_ 1 RCA-3A5 Oscillator and Tripler  
 RF \_\_\_\_\_ 1 RCA-3A4 RF Amplifier

Weight (total) \_\_\_\_\_ 6 lbs.

Stock Identification \_\_\_\_\_ MI-28923

## Accessories

Spare Crystals Type RC-2A (specify ½ operating frequency) \_\_\_\_\_ MI-28293

Replacement Battery \_\_\_\_\_ MI-28291

Spare Set Tubes \_\_\_\_\_ MI-28292

## Standard Cabinet Racks, BR-84 Series



BR-84A



BR-84B



BR-84C

### Features

- Cabinets with same styling and height as RCA FM 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.

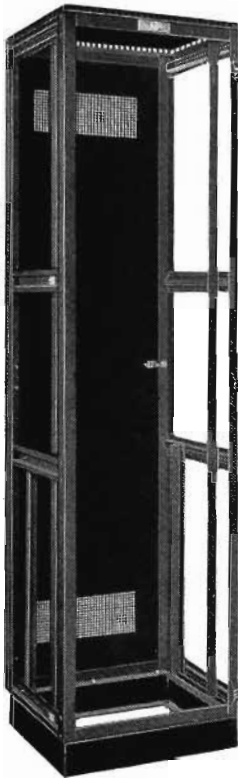
### Uses

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.

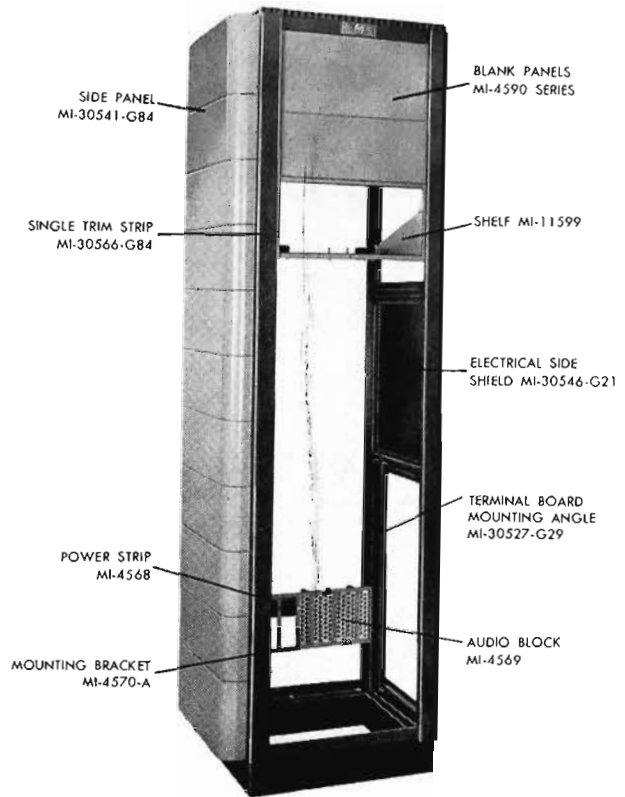
### Description

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 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. Locks may be fitted later by virtue of the "knock outs" provided. The cabinets are finished in a two-tone umber gray, with dimensional characteristics artistically blending with all RCA FM transmitters.



**BR-84D**



**BR-84E with Accessories**

**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-84A, -B (with side panels)	28"
BR-84C, -D, -E	22"
Width of Frame	22"
Depth of Frame	18"
Depth (including doors and handles)	24 1/4"

**Stock Identification:**

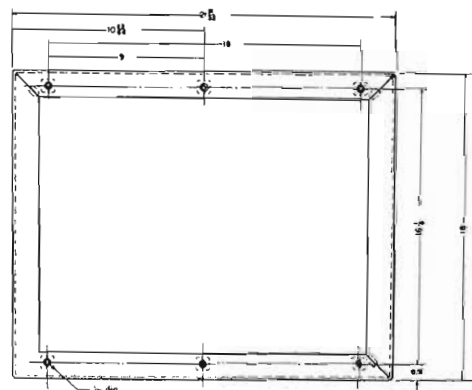
- Type BR-84A consisting of one frame, one base, one top cover, one front door (non-ventilated), one rear door (ventilated), one pair of side panels, one set of terminal board mounting angles and one set of panel mounting angles and instruction book MI-30951-A84
- Type BR-84B, same as BR-84A, less front 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 front door (non-ventilated) MI-30531-G84
- One side panel MI-30541-G84
- One electrical shield (for top and bottom sections) two per side MI-30546-G28

- One electrical shield (for mid-section of rack) one per side MI-30546-G21
- One only single trim strip for one cabinet where panels are fitted without door MI-30566-G84
- One only double trim strip used where two or more cabinets are placed together MI-30568-G84
- One terminal board mounting bracket MI-4570-A
- Blank panels MI-4590 Series
- One audio terminal block MI-4569
- One power terminal strip MI-4568
- One panel and shelf assembly MI-11598/11599\*

\* When ordering for cabinet with door, order MI-11599 shelf only.



*Layout and dimensions of cabinet base.*

# Cabinet Rack, Type 9-AX

## Uses

The Type 9-AX is a heavy-duty Broadcast Audio Cabinet Rack which is widely used in control room and transmitter installations. It provides 77" of panel space for mounting amplifiers, jack panels, switch panels, oscillators, measuring equipment or other panel-mounted equipment of standard 19" width. The 9-AX completely shields and protects all the equipment on the rack, while at the same time, largely dispensing with individual shield covers.

## Description

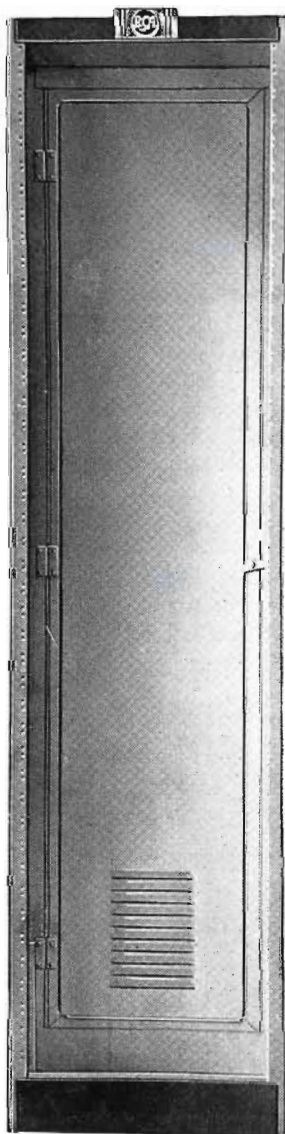
This rack is of sheet metal construction with an open front and a hinged ventilated door on the rear. A metal plate placed approximately one inch below a rectangular opening in the cabinet top provides complete ventilation, but protects equipment from falling articles and dust. The plate may be removed completely, if desired. The rack is drilled and tapped, as shown on the Dimension Drawing, for standard 19" panels and has an overall height of 6' 10<sup>3</sup>/<sub>8</sub>". It is shipped with supporting rods to insure accurate alignment.

Accessories for the Type 9-AX Rack include "J" Strips, "U" Strips, Terminal Block Mounting Brackets, A-C Terminal Blocks, Audio Terminal Blocks and Cable Supports. "J" Strips

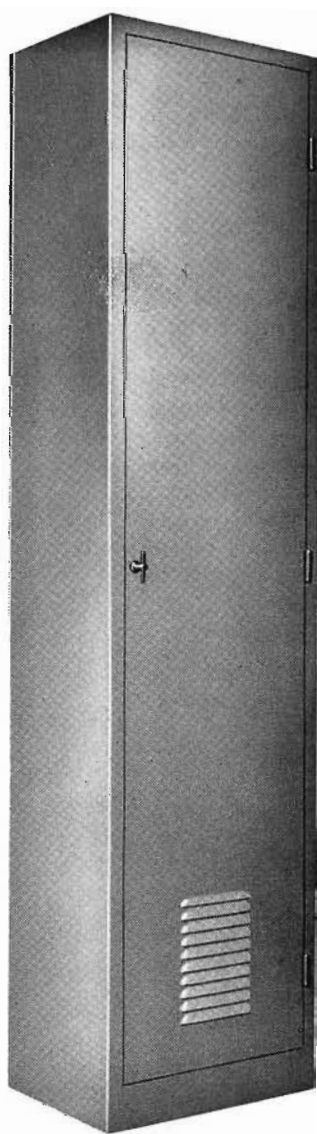
are used with the 9-AX Cabinet Racks to give them a finished appearance when the equipment is assembled on the racks. These strips, which mount along the side of the cabinet and cover the panel slots and mounting screws, are easily installed by means of clips and screws which are supplied with the strips. "U" Strips are used to dress up an assembly of cabinet racks when they are mounted side by side. Angle strips 8" long are mounted inside cabinet (see dimension drawing) as a support for the terminal block mounting bracket.

The bracket will accommodate as many as three Audio Terminal Blocks (RCA Stock Identification, MI-4569) and two A-C Terminal Strips (RCA Stock Identification, MI-4568). The cable supports provide a convenient means for holding the cabling in place. They are mounted by means of the same screws which hold the front panels.

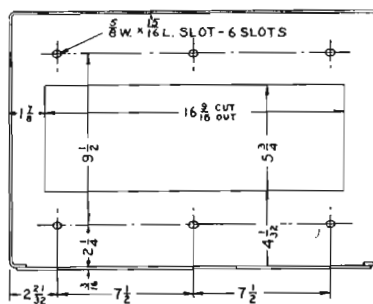
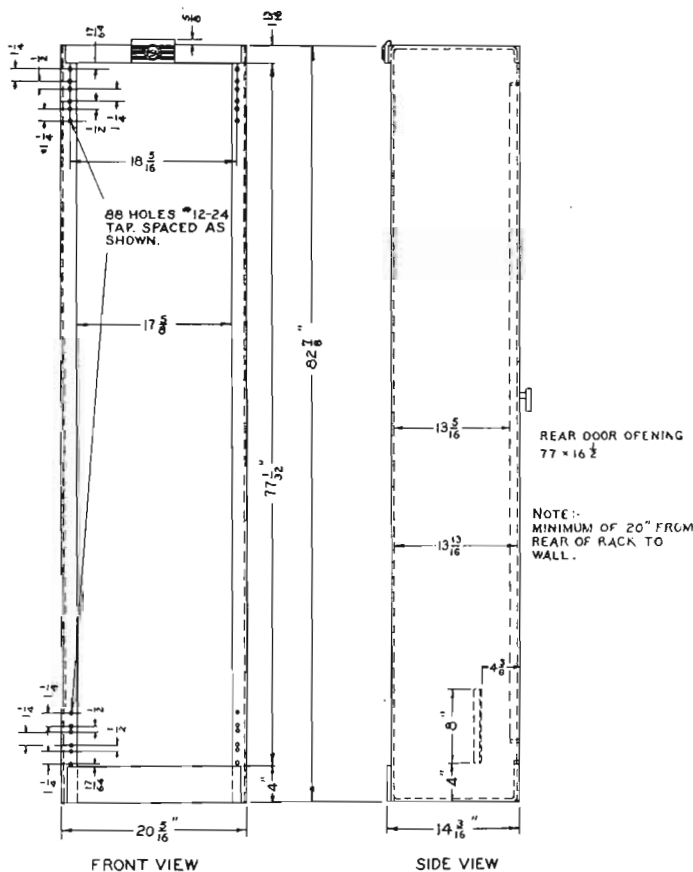
Included with each 9-AX Cabinet Rack is a quantity of 90 12-24 x 1/2" round head machine screws for mounting the panels.



Front View Type 9-AX Cabinet Rack



Rear View Type 9-AX Cabinet Rack



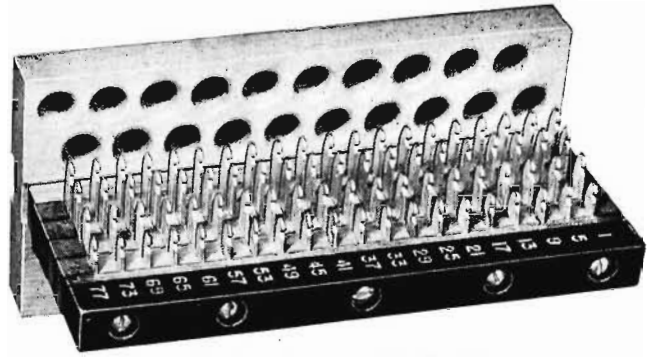
Outline Dimensions of 9-AX Cabinet Rack

**Specifications**

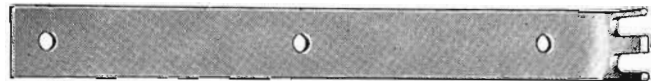
<b>Dimensions, overall</b>	
Height	82 $\frac{7}{8}$ "
Width	20 $\frac{1}{8}$ "
Depth	14 $\frac{3}{8}$ "
Panel Size	19"
Mounting Space	77"
Weight (unpacked)	190 lbs.
<b>Stock Identification</b>	
Black	MI-4519-C
Light Umber Grey	MI-4519-E

**Accessories**

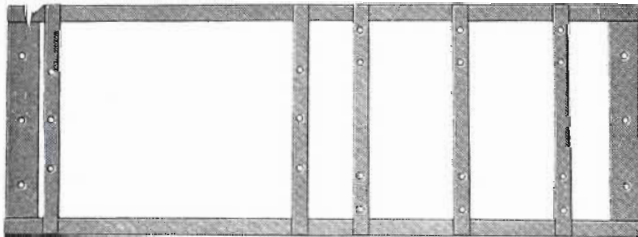
<b>"J" Strip</b>	
Black	MI-4537-A
Dark Umber Grey	MI-4537-D
<b>"U" Strip</b>	
Black	MI-4524-A
Dark Umber Grey	MI-4524-D
Terminal Block Mounting Bracket	MI-4570
Terminal Block (4 rows of 20 each)	MI-4569
A-C Terminal Strip (12 terminals)	MI-4568
Cable Support	MI-4571



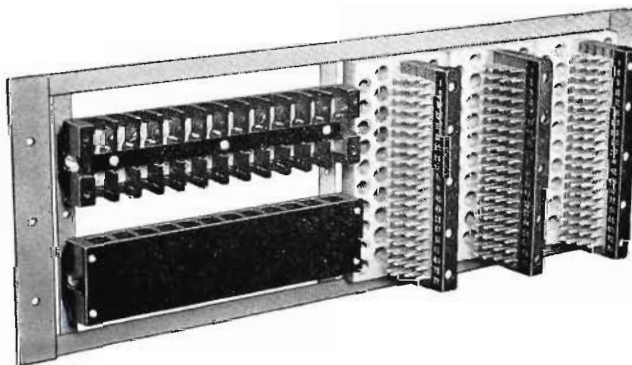
*Audio Terminal Block MI-4569*



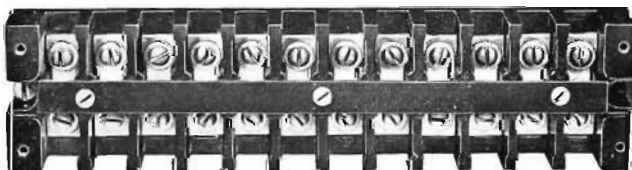
*Cable Support MI-4571*



*Terminal Block Mounting Bracket MI-4570*



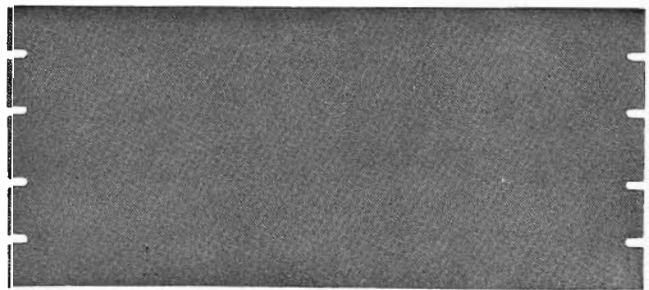
*Terminal Block Mounting Bracket with Terminal Blocks in Position*



*Power Terminal Block MI-4568*

**Blank Panels**

A complete line of 19" blank panels are 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 1 $\frac{3}{4}$ " to 13  $\frac{31}{32}$ ". They are  $\frac{20}{100}$ " sheet steel and are finished and drilled to match the standard equipment panels. The 33-A and 33-B Jack Panel heights are not standard multiples of 1 $\frac{3}{4}$ ". Therefore when these jack panels are mounted in the Type BR-84 series Cabinet Racks or the Type 9-AX Rack it is often necessary to use either a 2 $\frac{1}{8}$ " or 2 $\frac{3}{8}$ " blank panel so that the summation of all panel heights will equal 77".



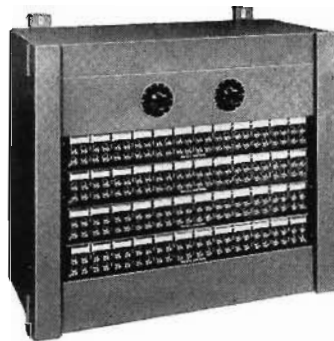
**Panel Width**

1 $\frac{23}{32}$ "	Blank Panel, Umber Grey	MI-4590-A
2 $\frac{1}{8}$ "	" " Umber Grey	MI-4598-A
2 $\frac{3}{8}$ "	" " Umber Grey	MI-4599-A
3 $\frac{3}{32}$ "	" " Umber Grey	MI-4589-A
3 $\frac{15}{32}$ "	" " Umber Grey	MI-4591-B
5 $\frac{7}{32}$ "	" " Umber Grey	MI-4592-B
6 $\frac{31}{32}$ "	" " Umber Grey	MI-4593-A
8 $\frac{23}{32}$ "	" " Umber Grey	MI-4594-B
10 $\frac{15}{32}$ "	" " Umber Grey	MI-4595-B
12 $\frac{7}{32}$ "	" " Umber Grey	MI-4596-A
13 $\frac{31}{32}$ "	" " Umber Grey	MI-4597-A

# Wall Mounting Cabinet, MI-11500

## Features

- Provides mounting space for equalizer and jack panels.
- May be mounted at any convenient wall location.
- Sturdy steel construction.
- Hinged door permits easy access for servicing.
- Drilled and tapped for standard 19" panels.
- Attractive appearance.



*Wall Mounting Cabinet, MI-11500, shown with equalizer and jack panels mounted in place*



## Uses

The MI-11500 Cabinet has been designed especially to mount a combination of line equalizers (Type 56-D or 56-E) and jack panels (Type 33-A or 33-B). It will be found particularly useful for terminating remote lines in installations using the 76 Series Consolettes. Sample combinations for this cabinet are given below:

- 1—56-E Equalizer and 4—33-A Jack Strips.
- 1—56-E Equalizer, 3—33-A Jack Strips, 1—MI-4590 (1 $\frac{3}{4}$ " blank panel and 1—MI-11503 (7" Jack Mat.
- 1—56-E Equalizer, 2—33-A Jack Strips, 1—MI-4591 (3 $\frac{1}{2}$ " blank panel and 1 MI-11502 (5 $\frac{1}{4}$ " Jack Mat.
- 1—56-E Equalizer, 1—33-A Jack Strips, 2—MI-4598 (2 $\frac{1}{8}$ " blank panels and 1—MI-4599 (2 $\frac{3}{8}$ " blank panel.
- 1—56-E Equalizer, 1—33-A Jack Strip, 1—MI-11501 (3 $\frac{1}{2}$ " Jack Mat and 1—MI-4592 (5 $\frac{1}{4}$ " blank panel.
- 2—56-E Equalizers, 2—33-A Jack Strips and 1—MI-11502 (5 $\frac{1}{4}$ " Jack Mat.
- 1—56-D Equalizer, 1—33-A Jack Strip and 1—MI-11501 (3 $\frac{1}{2}$ " Jack Mat.

## Description

The cabinet is constructed of steel and is equipped with a hinged door on which the panels may be mounted. Drilling and tapping has been provided for standard 19" panels which are attached by means of the machine screws supplied. A left-hand and a right-hand "J" strip are furnished to cover the mounting screws. Five knockouts are provided in the bottom of the cabinet, and five in the top, for conduit connections. Five terminal blocks may be mounted inside the cabinet on the brackets provided. Mats are available for improving the appearance of the jack strips.

## Specifications

Dimensions Overall \_\_\_\_\_ 21" wide, 19 $\frac{1}{4}$ " high, 10 $\frac{3}{8}$ " deep

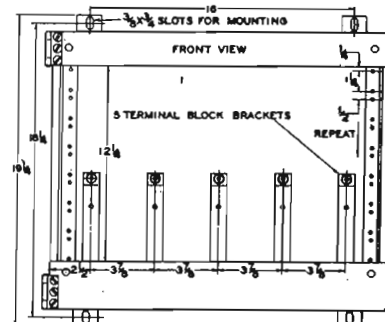
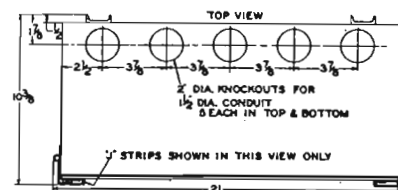
Weight (unpacked, less panels) \_\_\_\_\_ 36 lbs.

Finish \_\_\_\_\_ Dark Umber-Grey

Panel Mounting Space \_\_\_\_\_ 19" wide, 12 $\frac{1}{4}$ " high

Terminal Mounting Space \_\_\_\_\_ Maximum-five Standard W.E. Cat. No. 100-B, 80 terminal (4 rows of 20 each) blocks which are 2 $\frac{1}{8}$ " wide by 6 $\frac{1}{8}$ " long

Stock Identification \_\_\_\_\_ MI-11500



# 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.
- Units installed from front of rack.

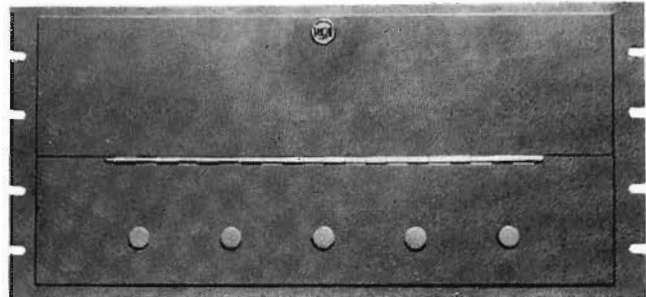
## Uses

The BR-2A Panel and Shelf was designed for use in a broadcasting station audio system primarily to hold the new RCA plug-in units. It may also be used, however, for amplifiers with terminal board connections. The shelf is capable of mounting the following quantities of specific equipments.

- 6—BA-11 Series Pre-amplifiers.
- 2—BA-13 Series Program amplifiers.
- 2—BA-2 Series Booster amplifiers.
- 2—BX-1 Series Power supplies.
- 1—BA-14 Series Monitor amplifier plus  
2—BA-11A Pre-amplifiers.

## Description

This shelf will mount in either the 9AX or the BR-84 series of racks, or in any other standard nineteen-inch rack. It occupies eight and three-quarters inches 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 dismantling 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.

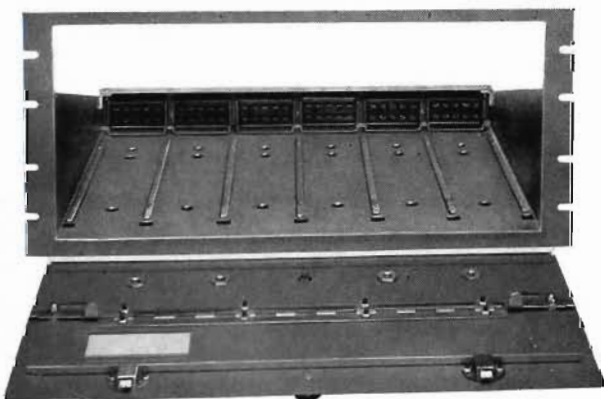


The opening in the front of the shelf is covered by a matching panel. This panel is hinged across the center so that the top half may be opened to gain access to the vacuum tubes of the amplifiers. The bottom half has five shaft holes to provide for any controls which the amplifiers may have. When not 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.

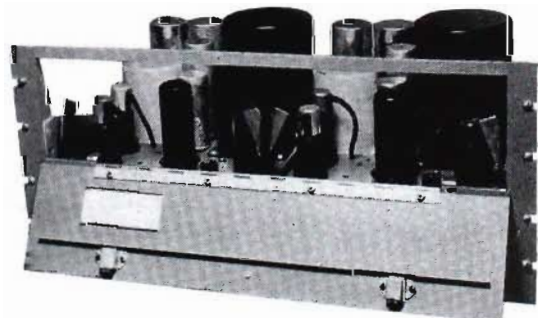
The shelf may be obtained separately, if desired, or the shelf and panel together, as appropriate. It is supplied complete with mounting brackets, guide bars, and receptacle cover. The receptacles themselves are supplied with the amplifiers, and therefore need not accompany the shelf.

## Specifications

Dimensions, overall:	
Width	19"
Height	8 <sup>3</sup> / <sub>4</sub> "
Depth	12 <sup>3</sup> / <sub>4</sub> "
Inside Width	16 <sup>7</sup> / <sub>8</sub> "
Weight, unpacked:	
Shelf	12 lbs.
Panel	3 lbs.
Stock Identification:	
Shelf:	
Umber Gray	MI-11599
Panel:	
Umber Gray	MI-11598



Panel removed showing guide bars and receptacles

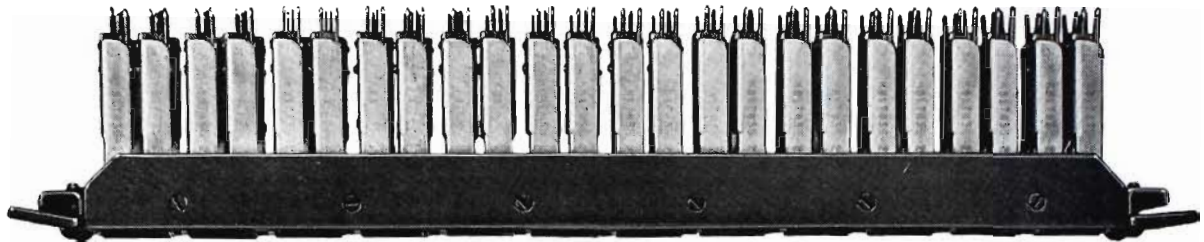


Panel open showing two BA-13A amplifiers

# Jack Panels, Types 33-A and 33-B



33-A Jack Panel



A Rear View of the 33-A Jack Panel

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.

The 33-A consists of two rows of twelve double jacks mounted on thick black bakelite and furnished with designation card holders. The 33-B is similar to the 33-A but has only one row of twelve double jacks. The jack sleeves of the 33-A and 33-B are chromium plated.

## Specifications

Number of Jack Pairs		
33-A	_____	24
33-B	_____	12
Type of Jacks	Double jacks of standard closed circuit type	
Dimensions		
33-A	2 1/8" x 19"	33-B 1 1/4" x 19"
Weight (unpacked)		
33-A	5 1/2 lbs.	33-B 3 lbs.
Stock Identification		
33-A (RCA Standard)	_____	MI-4645-A
33-B (RCA Standard)	_____	MI-4646-A



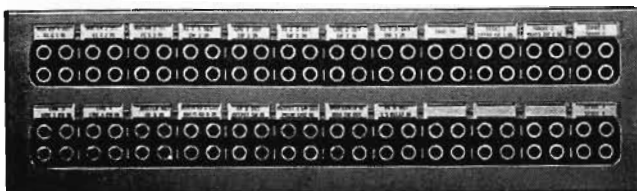
33-B Jack Panel

## Jack Mats

Jack Mats are available for covering 1, 2, 3, or 4 type 33-A Double Jack Strips.

### Specifications

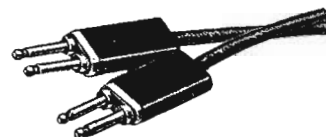
Single 33-A Jack Strip Mat, overall size	_____ 19" x 3 15/32"
Umber Gray	_____ MI-11501-A
Double 33-A Jack Strip Mat, overall size	_____ 19" x 5 7/32"
Umber Gray	_____ MI-11502-A
Triple 33-A Jack Strip Mat, overall size	_____ 19" x 6 31/32"
Umber Gray	_____ MI-11503
Quadruple 33-A Jack Strip Mat, overall size	_____ 19" x 10 15/32"
Umber Gray	_____ MI-11504



## 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



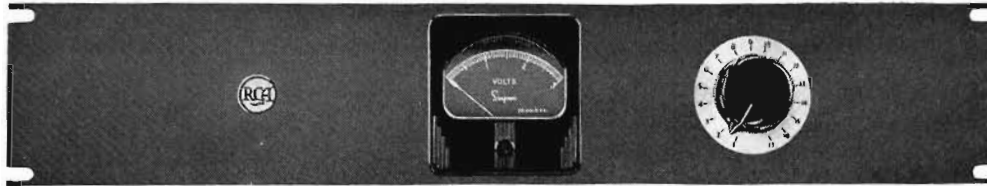
Western Electric Telephone  
Type Patch Cord



Audio Development Co.  
Shielded Type Patch Cord



# 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 10 circuits may be metered by rotary selector switch.
- Designed for cabinet rack mounting.

### Uses

The BI-1A 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-1, BA-2 and BA-3 Series Amplifiers for use with this panel. The mounting is for a BR84 Series Standard cabinet rack or a 9AX Rack.

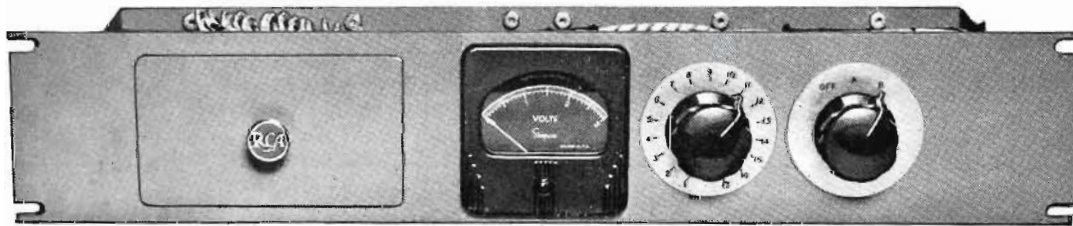
### Description

The BI-1A consists essentially of a meter and switch mounted on a standard 3½", ⅜" 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 eleven 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 \_\_\_\_\_ 10 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

# Meter Panel, Type BI-2A



### Features

- Provides metering for 34 circuits by operation of rotary switches.
- Precision 0-3 volt voltmeter—20,000 ohms per volt.
- May be mounted in any standard 19" rack.
- Card index to log maintenance routine checks.
- High grade rotary switches.

### Uses

The BI-2A Meter Panel has been developed after numerous requests from broadcasters to supply a larger version of the BI-1A Meter Panel. The switching system provides for an instantaneous check of tubes and circuit conditions for 34 circuits and is ideal for use where a large number of circuits are required to be metered from a central point. The meter is suitable for use with all RCA standard equipment.

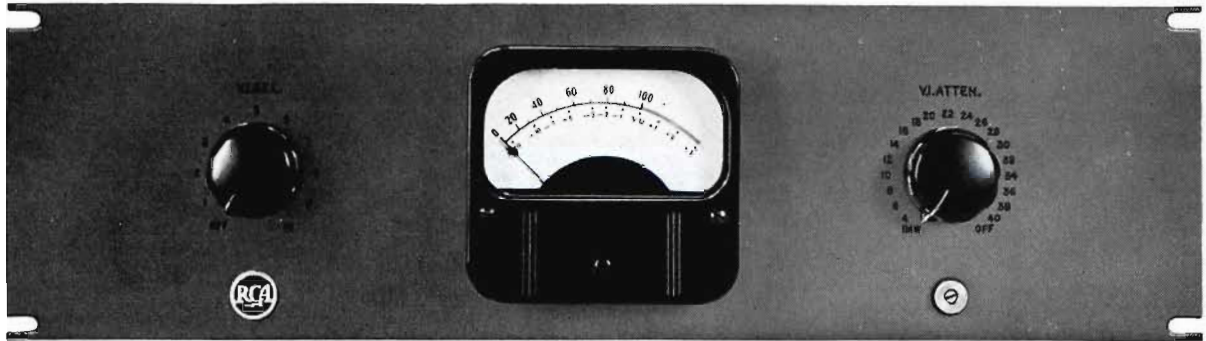
### Description

A high grade rotary switch with 17 positions and four banks of contacts is used in conjunction with a three position switch to effect the metering of 34 circuits. The precision built 0 to 3 volt meter possessing an internal resistance of 20,000 ohms per volt is mounted on a 3½" steel panel of standard 19" width. The hinged portion of the meter panel encloses a card index providing a convenient means of logging maintenance routine tests. The mounting is for a BR-84 Series Standard Cabinet Rack or a 9-AX Rack.

### Specifications

D-C Voltmeter \_\_\_\_\_ 0-3 volts, 20,000 ohms per volt  
 Metering Switches \_\_\_\_\_ One 17 position, one 3 position, giving a total of 34 positions  
 Dimensions (overall):  
 Height \_\_\_\_\_ 3½"  
 Width \_\_\_\_\_ 19"  
 Depth (behind panel) \_\_\_\_\_ 3⅝"  
 Weight (unpacked) \_\_\_\_\_ 6 lbs.  
 Stock Identification:  
 Umber Gray \_\_\_\_\_ MI-11275

## V. U. Meter Panel, Type BI-5A



### Features

- Measures audio volume levels from +4 to +40 db.
- Ten point selector switch permits rapid connection to any number of circuits up to ten.
- Calibration curve supplied for loads other than 600 ohms.
- Large vu meter lessens eye strain and fatigue.

### 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  $\pm 0.5$  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. If the 6.3 volt source is not available, MI-11606 filament transformer will be necessary.

### Specifications

Input Impedance (except on 1 milliwatt step) \_\_\_\_\_ 7500 ohms  
 Attenuator steps \_\_\_\_\_ 1 milliwatt position, +4 to +40 db in 2db steps and off position  
 No. of lines that may be measured \_\_\_\_\_ 1 to 10 inclusive  
 Mounting \_\_\_\_\_ Standard Cabinet Rack  
 Dimensions  
     Height \_\_\_\_\_ 5 1/4"  
     Width \_\_\_\_\_ 19"  
     Depth \_\_\_\_\_ 3 3/4"  
 Finish \_\_\_\_\_ Light Umber Gray  
 Weight (unpacked) \_\_\_\_\_ 7 1/2 lbs.  
 Stock Identification  
     Umber Gray \_\_\_\_\_ MI-11265-B

## 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.

### Uses

The Type 57-C 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 or a 9AX 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.

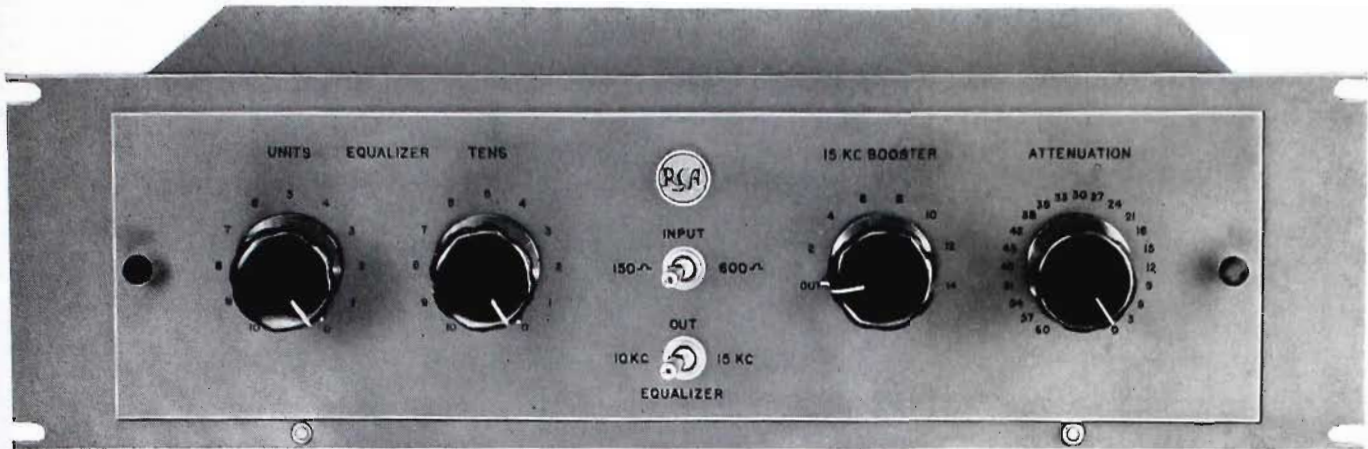
### Specifications

Switch \_\_\_\_\_ D.P.S.T., 250 volts, 30 amperes  
 Fuses \_\_\_\_\_ Screw-plug type (rating depends upon equipment to be protected)  
 Dimensions, overall (panel thickness  $\frac{3}{16}$ " )  
     Height \_\_\_\_\_ 5 7/32"  
     Width \_\_\_\_\_ 19"  
     Depth \_\_\_\_\_ 3 1/2"  
 Weight (unpacked) \_\_\_\_\_ 8 1/2 lbs.  
 Stock Identification  
     Light Umber Gray \_\_\_\_\_ MI-4395-E



*Front View*

# Variable Line Equalizer, Type BE-1B



## Features

- Provides a line response  $\pm 1$  db 30 to 15,000 cycles for FM.
- Frequency boost circuit permits up to 14 db boost at 15,000 cycles.
- Toggle switch permits 10 kc or 15 kc cut-off.
- 20 step attenuator affords variable output control.
- Line and Isolation transformers built in.
- Rack mounting panel—easy installation.

## Uses

The BE-1B is an ideal unit for equalizing unloaded telephone lines up to ten miles in length to a frequency response within  $\pm 1$  db, 30 to 15,000 cycles. In addition to the conventional parallel resonant circuits this equalizer has additional tuned networks providing a variable frequency boost of 2 to 14 decibels (2 db steps) at 15,000 cycles. This feature aids materially in obtaining an overall flat frequency response to 15,000 cycles. More than 1,000 different attenuation vs frequency curves are available through adjustment of the front panel controls.

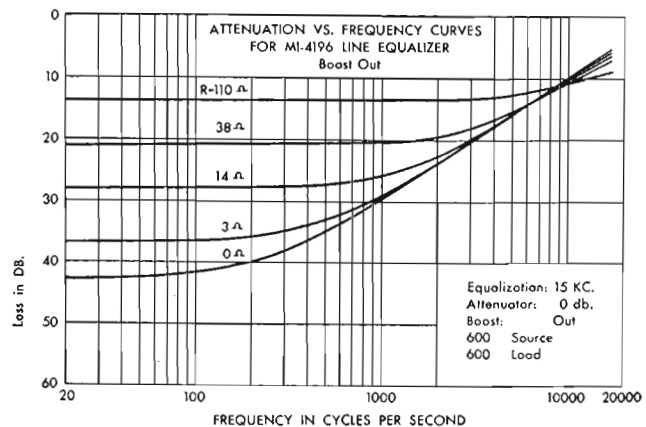
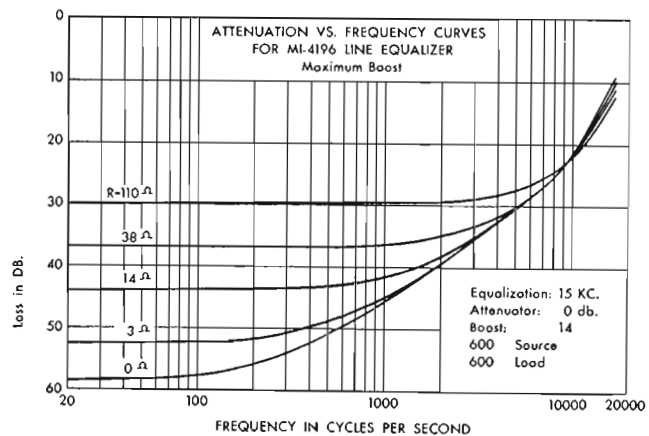
## Description

The BE-1B consists of a tuned equalizing circuit, isolating transformer, attenuating pad, 15,000 cycle booster circuit and another isolating transformer in the output. A two-position input switch selects an impedance of 150 or 600 ohms for terminating lines offering 150 or 600 ohms impedance. A three-position switch prepares the circuit for equalization up to 10,000 cycles or 15,000 cycles. The center position of the toggle switch removes the attenuator from the circuit, leaving lines connected with a loss of 1.5 db at 1,000 cycles. A 20 step (3 db per step, last step infinity) attenuator is inserted in the circuit to permit control of the output level. The 15,000 cycle booster circuit is controlled by an 8 position switch which will vary the boost from 0 to 14 db in 2 db steps. Attenuation vs Frequency curves are shown for extreme boost control settings of "Boost out" and "14 db boost." Intermediate attenuation values will be obtained for intermediate settings of the boost control. The output transformer has variable taps for a load impedance of 150, 250 and 600 ohms. The BE-1B is built on a standard 19" panel and is supplied with a dust cover. A hinged door on the front panel permits easy access for cleaning or servicing the equipment. A terminal strip, mounted on the rear of the unit, has five screw-type terminals for input, output and ground connections.

## Specifications

Source Impedance (balanced or unbalanced) 150/600 ohms  
 Load Impedance 150/250/600 ohms  
 Equalization Frequency Limit 15,000 cycles  
 Insertion Loss (attenuator at zero)  
 For 15 kc equalization Min. 6.5 db; Max. 59 db  
 For 10 kc equalization Min. 3.5 db; Max. 42.5 db  
 Note: With equalization and boost out the minimum loss at 1000 cycles is 1.5 db.

Equalization Range (See attenuation characteristic curves)  
 Mounting BR-84 series and 9AX racks  
 Dimensions  
 Height 5  $\frac{3}{16}$ "  
 Width 19"  
 Depth behind panel 8"  
 Overall including knobs 9  $\frac{1}{4}$ "  
 Weight (unpacked) 7 lbs.  
 Stock Identification MI-4196-B  
 Light Umber Grey



## Dual Line Equalizer, Type 56-E



### Features

- Provides line equalization to 10,000 cycles or to 15,000 cycles when used with MI-4925-A Compensator.
- Equalization variable in steps of 3 db.
- Facilities for equalizing two lines.
- Rack mounting panel—easy installation.

### Uses

The 56-E has been designed to equalize the non-linear frequency characteristics of either one or two non-loaded telephone lines up to ten miles in length. It consists of two separate and complete variable equalizers mounted on a single panel. The 56-E is suitable for 15,000 cycle FM applications when used with the RCA MI-4925-A High Frequency Compensator. Without this compensator the cut-off frequency is 10,000 cycles.

### Description

Parallel resonant circuits are used in the two equalizers. Each unit consists of a capacitor, a reactor, a series of resistors and a rotary selector switch for selecting different resistance values. Varying amounts of equalization may be obtained in steps of 3 db by rotation of the selector switch to the proper position. The 56-E does not include line transformers or master attenuators.

### Specifications

Source Impedance	600 ohms
Equalization Frequency Limit	10,000 cycles
with MI-4925-A Compensator	15,000 cycles
Insertion Loss (minimum at 1000 cycles)	7 db
Equalization Range (see attenuation characteristic curve)	1.5 to 40 db
Mounting	Standard 19" panel
Dimensions	
Width	19"
Height	3 1/2"
Depth	4 3/4"
Weight (unpacked)	7 lbs.
Stock Identification	
Black	MI-4162
Umber Gray	MI-4162-A
Accessory	

### Accessories

High Frequency Compensator (2 units required if 56-E is to be converted for 15,000 cycle use)	MI-4925-A
Line Transformer	MI-11713

## Equalizer, Type 56-C

The 56-C Equalizer is a semi-fixed unit which is particularly useful in connection with permanent lines. Its applications are similar to those of the Type 56-E described elsewhere on this page. It is a single unit with reactor, capacitor and all necessary resistors mounted in a metal case to reduce space requirements. The resistance terminals are brought out to soldering lugs on the top of the case where connections may be made for obtaining any resistance value between 1 and 111 ohms in 1 ohm steps.

### Specifications

Source Impedance	600 ohms
Equalization Frequency Limit	10,000 cycles
with MI-4925-A Compensator	15,000 cycles
Insertion Loss (minimum at 1000 cycles)	11.5 db

### Equalization

Range (see attenuation characteristic curves)  
1.5 to 40 db

### Dimensions

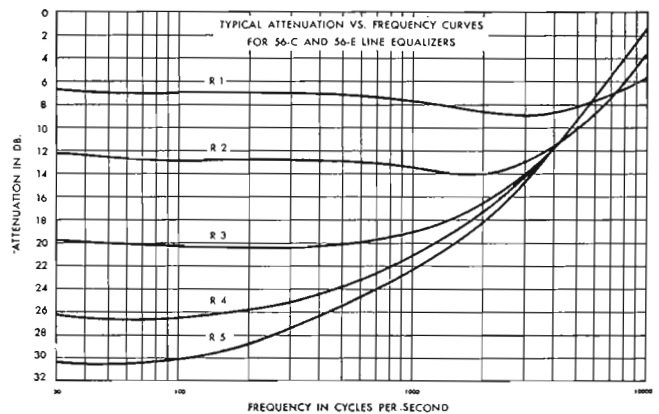
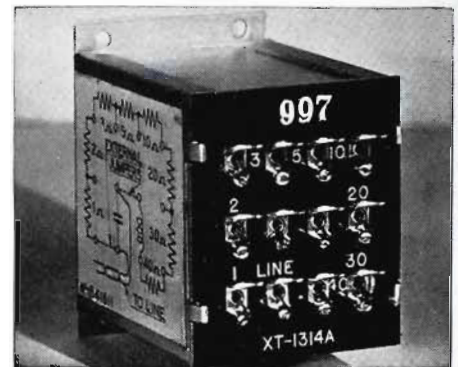
Width 3 5/8"  
Height 3 3/4"  
Depth 2 1/2"

Weight (unpacked) 7 lbs.

Stock Identification MI-4168

Accessory High Frequency Compensator

(one only required if 56-C is to be converted for 15,000 cycle use) MI-4925-A

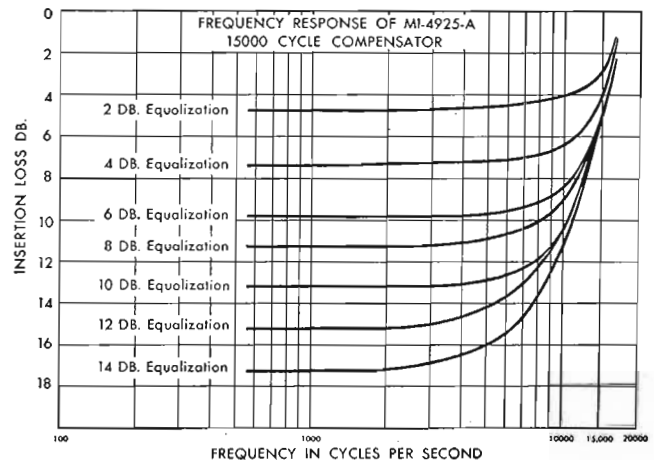


## High Frequency Compensator, MI-4925-A

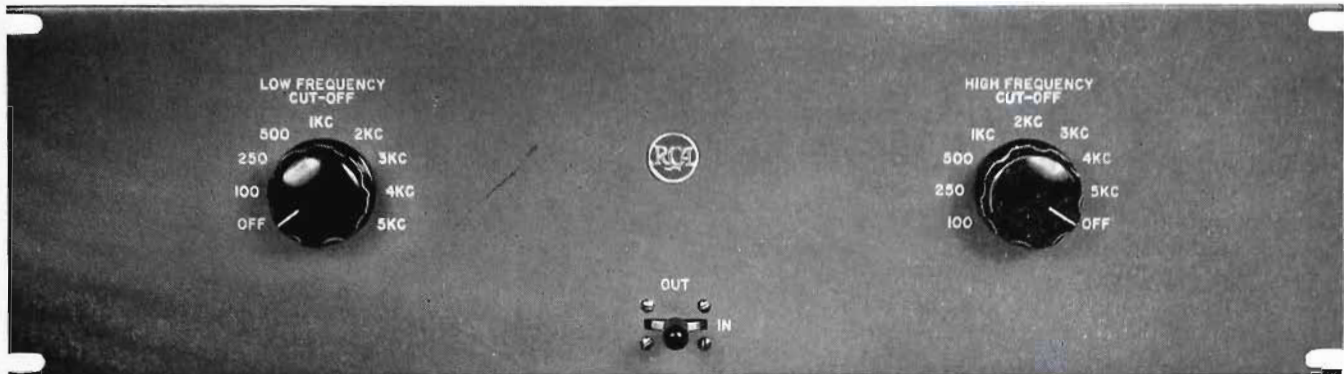
The MI-4925-A is a constant impedance bridged "T" type compensator network to extend the range of the 56-C or 56-E Equalizers to 15,000 cycles. The necessary reactors and condensers are mounted inside a round metal can, on the side of which is mounted a terminal board and two groups of resistors. Compensation can be varied by shifting the resistor connections which are connected by means of solder type terminals.

### Specifications

Source Impedance	600 ohms
Equalization Frequency Limit	15,000 cycles
Insertion Loss (minimum at 1000 cycles)	4.8 db
Equalization Range (see curves)	1.7 to 17.4 db
Mounting	Four-hole flange mounting
Dimensions	
Width	4 3/8"
Height	4 3/4"
Depth	3 3/4"
Weight (unpacked)	2 3/4 lbs.
Stock Identification	MI-4925-A



# Variable Sound Effects Filter, Type BE-21A



### Features

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

### Uses

The BE-21A 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 midjet radios.

### Description

The BE-21A 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, 1,000, 2,000, 3,000, 4,000, and 5,000 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.

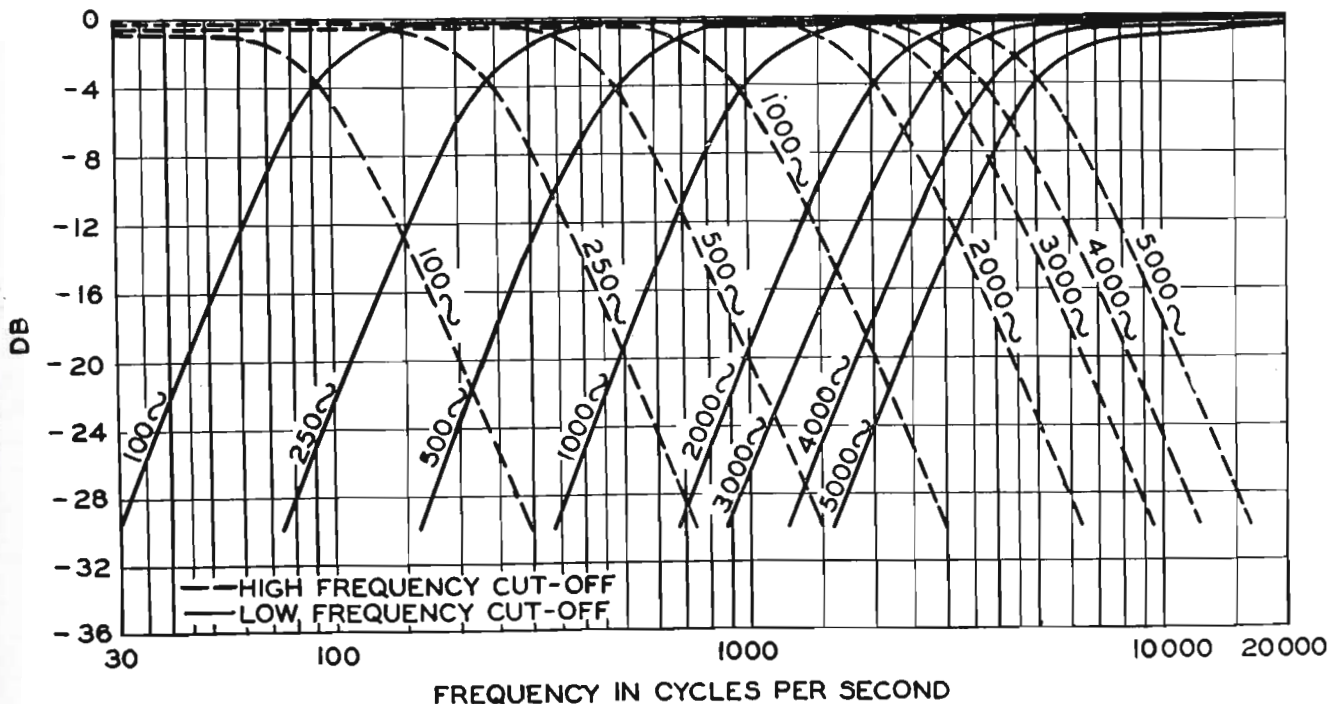
The 600 ohm input and output impedances of the filter enables it to be connected in any 600 ohm circuit or it may be used in a 250 ohm circuit with only a slight change in response characteristics.

### 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	_____	5 1/4"
Width	_____	19"
Depth	_____	5"
Weight (unpacked)	_____	15 lbs.
Stock Identification—Light Umber Gray	_____	MI-4917-A

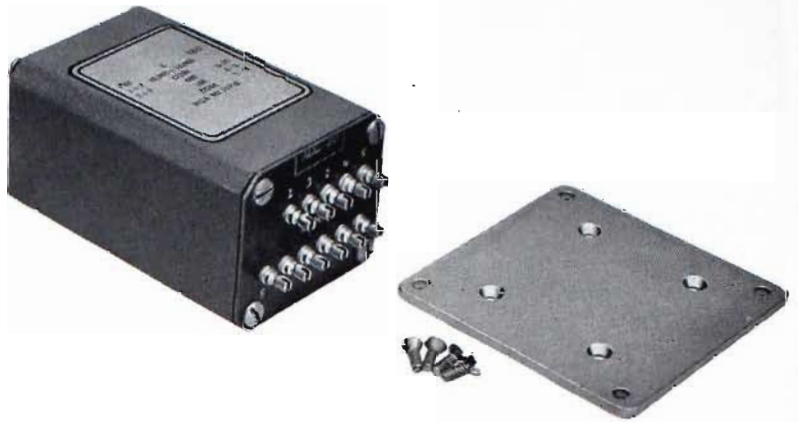
\* Reference level one milliwatt.

**BE-21A VARIABLE SOUND EFFECTS FILTER (600 OHMS)**



# Line, Mixing and Bridging Transformers

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. The impedance combinations are:

Frequency Response \_\_\_\_\_  $\pm 1/2$  db 20 to 20,000 cps.

Primary Impedances <i>ohms</i>
150
600

Secondary Impedances <i>ohms</i>
150
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. The impedance combinations are:

Frequency Response \_\_\_\_\_  $\pm 1/2$  db 20 to 20,000 cps.

Primary Impedances <i>ohms</i>
20,000

Secondary Impedances <i>ohms</i>
150
600

Stock Identification \_\_\_\_\_ MI-11712

## Mixing Transformer, MI-4902

Those contemplating the design of their own, or special microphone mixing circuits, will find this transformer ideal for a large number of mixer combinations. The impedance combinations are:

Frequency Response \_\_\_\_\_  $\pm 1$  db 30 to 15,000 cps.

Primary Impedances <i>ohms</i>	
76.5	153
90	187
109	237
134	320

Secondary Impedances <i>ohms</i>
250
600

Stock Identification \_\_\_\_\_ MI-4902

## General Specifications for MI-11713, MI-11712 and MI-4902

Dimensions, overall for cases:

Height \_\_\_\_\_  $4\frac{3}{8}$ "  
 Diameter \_\_\_\_\_ 3"  
 Baseplate \_\_\_\_\_  $3\frac{1}{4}$ " x  $3\frac{1}{4}$ "

Mounting \_\_\_\_\_ Four holes with center lines  $2\frac{3}{4}$ " x  $2\frac{3}{4}$ "

Weight \_\_\_\_\_ 2 lbs. 14 ozs.

Finish \_\_\_\_\_ Aluminum gray

# Pads - Fixed, Bridging, Network

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-11704-A

## DIVIDING NETWORKS

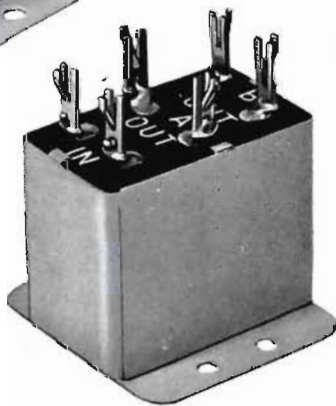
Balanced Two-way, 600 ohms	
Insertion Loss_____	6 db
Stock Identification _____	MI-11704
Balanced Three-way, 600 ohms	
Insertion Loss_____	9.5 db
Stock Identification _____	MI-11704-A
Balanced Four-way, 600 ohms	
Insertion Loss_____	12 db
Stock Identification _____	MI-11704-B
Balanced Six-way, 600 ohms	
Insertion Loss_____	15.6 db
Stock Identification _____	MI-11704-D
Balanced Eight-way, 600 ohms	
Insertion Loss_____	18.1 db
Stock Identification _____	MI-11704-E
Unbalanced Two-way, 600 ohms	
Unbalanced Three-way, 600 ohms	
Unbalanced Four-way, 600 ohms	
Insertion Loss_____	12 db
Stock Identification _____	MI-11704-J
Unbalanced Six-way, 600 ohms	
Insertion Loss_____	15.6 db
Stock Identification _____	MI-11704-L
Unbalanced Eight-way, 600 ohms	
Insertion Loss_____	18.1 db
Stock Identification _____	MI-11704-M

## BRIDGING PAD

Input Impedance_____	600 ohms to two 600 ohm lines—	isolation between lines about 45 db
Insertion Loss_____		10 db
Stock Identification _____		MI-11705



MI-4171-29



MI-4171-30

## Filament Transformer, MI-11606

The MI-11606 Filament Transformer furnishes filament voltage to a maximum of three BA-1A Pre-amplifiers. It has primary taps for 110 and 120 volts a-c 50/60 cycles. A variable potentiometer is connected across the secondary and is screw driver operated for obtaining minimum hum. This transformer is also used to provide voltage for the MI-11265 VU Meter Panel.

### Specifications

Output_____	6.3 volts, a-c, 1.8 amperes max.
Dimensions, overall	
Height_____	4"
Base_____	2 1/8" x 2 3/8"



Mounting_____	Four .199" mounting holes are located on 2 5/8" x 1 1/4" center line
Weight (unpacked)_____	2 lbs.
Stock Identification _____	MI-11606

# Preamplifier Power Supply, Type BX-1E

## Features

- Exceptionally low hum level.
- Plugs into BR-2A Shelf Assembly.
- High capacity filter.
- Filament supply hum balancing potentiometer.
- Voltage variable 180 to 250 volts.

## 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 preamplifiers 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 260 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 180 and 250 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 \_\_\_\_\_ 12 $\frac{5}{8}$ " ; Width \_\_\_\_\_ 8 $\frac{1}{16}$ " ; Height \_\_\_\_\_ 7"  
Weight \_\_\_\_\_ 15 $\frac{1}{2}$  lbs.  
Stock Identification (less tube) \_\_\_\_\_ MI-11305-D

## Accessories

Tube Complement, 1 RCA-5Y3GT/G \_\_\_\_\_ MI-11262  
Panel and Shelf Type BR-2A:  
Umber Gray \_\_\_\_\_ MI-11598 /11599

# Relay Power Supply, Type BX-4A

## Features

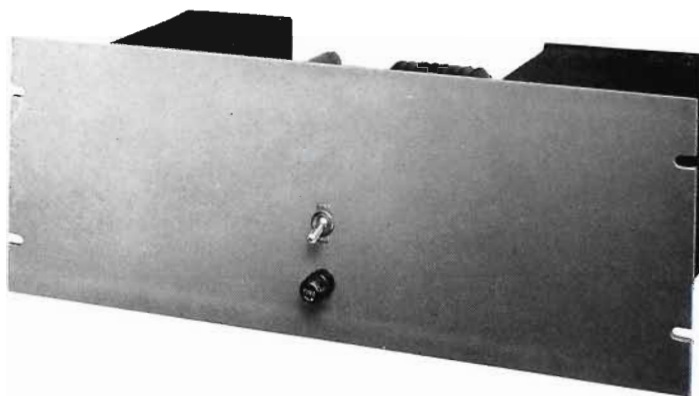
- Supplies two amperes filtered d-c at 24 volts.
- Transformer tap for increasing output voltage.
- Full wave selenium rectifier.
- Rack mounting—easy installation.
- Plug-in capacitors.

## Uses

The MI-11309 Relay Power Supply is capable of supplying up to 2 amperes filtered d-c at 24 volts to relay and pilot light circuits.

## Description

The power supply is constructed on a panel suitable for mounting on the BR-84 series (19") cabinet racks. The electrical circuit consists of a power transformer, selenium rectifier, plug-in electrolytic capacitors, choke, bleeder resistor, fuse and power switch. The primary of the transformer is tapped for line voltage adjustments and the secondary is tapped for increasing the output voltage to compensate for changes in the internal resistance of the selenium rectifier. All electrical connections are made to a barrier type terminal board.



## Specifications

Output, Maximum \_\_\_\_\_ 2 amperes at 24 volts, d-c  
Ripple Voltage at Full Load \_\_\_\_\_ 0.35 volt  
A-c Power Input \_\_\_\_\_ 124 watts, 110-125 v., 50-60 cps.  
Transformer Tapped at \_\_\_\_\_ 110, 115, 120 and 125 volts  
Dimensions:  
Length \_\_\_\_\_ 19"  
Height \_\_\_\_\_ 6 31/32"  
Depth \_\_\_\_\_ 7 $\frac{1}{4}$ "  
Weight \_\_\_\_\_ 41 lbs. (unpacked)  
Mounting \_\_\_\_\_ BR-84 series (19") rack  
Finish \_\_\_\_\_ Light umber gray  
Stock Identification \_\_\_\_\_ MI-11309



# Relay Power Supply, MI-11303

## Features

- Supplies 12 volts filtered d-c at 1 ampere.
- Rotary switch permits varying output voltage in 1/2 volt steps.
- Long life full wave copper sulphide magnesium rectifier.
- Housed in an attractive wall mounting cabinet with hinged door

## Uses

The MI-11303 Relay Power Supply is a complete unit capable of supplying filtered d-c power to a number of relays and pilot lights if the total load current at 12 volts does not exceed one ampere.

## Description

The power supply is built in an attractive wall-mounting box. The electrical circuit consists of a power transformer, copper-sulfide magnesium full wave rectifier, and a resistance-capacity filter system with three 1000 mfd. electrolytic plug-in capacitors. The power transformer primary is tapped at 105, 115, and 125 volts to provide line voltage adjustment. The secondary of the power transformer is tapped and connected to a six position rotary switch which permits a variation in output voltage of approximately 1/2 volt per step.

The chassis is bolted in the enclosure with a snap-off cover. The chassis, inside of the mounting box and the terminal board cover are finished in silver grey. The outside of the box is finished in light umber grey with a 4 inch dark umber grey stripe through the middle of the cover.

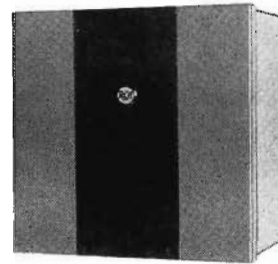
## Specifications

Output (adjustable for loads from 0.2 to 1.0 ampere) \_\_\_\_\_ maximum 12 volts 1 amp.  
 Ripple Voltage (at maximum output of 1 amp.) \_\_\_\_\_ 0.4 volts rms  
 Ac Power Input, 105 to 125 volts, 60 cycles \_\_\_\_\_  
 (maximum at rated output) 34 watts  
 Rectifier \_\_\_\_\_ Copper-Sulphide magnesium full wave type

## Dimensions

Height \_\_\_\_\_ 9"  
 Width \_\_\_\_\_ 9 1/8"  
 Depth \_\_\_\_\_ 6"

Mounting \_\_\_\_\_ Wall mounted by four mounting slots  
 Finish \_\_\_\_\_ Two tone umber grey  
 Weight (unpacked) \_\_\_\_\_ 14.5 lbs.  
 Stock Identification \_\_\_\_\_ MI-11303



# Heavy Duty Relay Power Supply, MI-11304

## Features

- Supplies 12 volts filtered d-c at 5 amperes.
- Output voltage substantially constant from no-load to full-load output.
- Full wave Selenium Type Rectifier.
- Housed in an attractive wall-mounting box.

## Uses

The MI-11304 Relay Power Supply is a complete unit capable of supplying filtered d-c power to a number of relays and pilot lights if the total load current at 12 volts does not exceed 5 amperes.

## Description

The power supply is built into an attractive cabinet for wall mounting. The electrical circuit consists of a power transformer, line and load voltage regulating and shunt reactors, full wave selenium rectifier, filter reactors and capacitors, variable resistors, and terminal board and fuses. Regulation of the d-c output voltage is accomplished by use of a saturable reactor which maintains the output voltage substantially constant from no-load to full-load output.

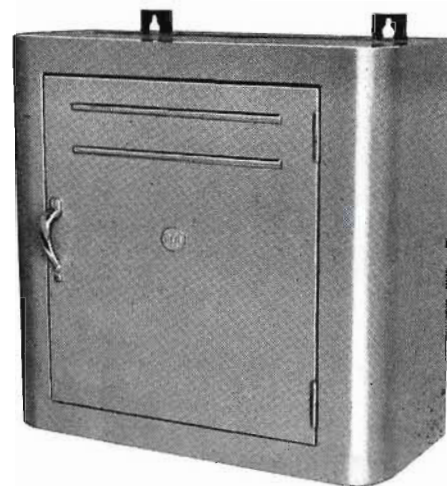
## Specifications

Output (substantially constant from no-load to full-load output) \_\_\_\_\_ maximum, 12 volts 5 amps.  
 Ripple Voltage (at full load) \_\_\_\_\_ 0.1 volt rms  
 Ac Power Input, 105 to 125 volts, 60 cycles \_\_\_\_\_  
 (maximum at rated output) 165 watts  
 Rectifier \_\_\_\_\_ full wave Selenium type

## Dimensions

Height \_\_\_\_\_ 16 3/8"  
 Width \_\_\_\_\_ 15 1/4"  
 Depth \_\_\_\_\_ 8 1/2"

Mounting \_\_\_\_\_ Wall mounted by four mounting slots  
 Finish \_\_\_\_\_ light umber grey  
 Weight (unpacked) \_\_\_\_\_ 80 lbs.  
 Stock Identification \_\_\_\_\_ MI-11304



# Transcription Turntable, Type 70-D

## Features

- High fidelity reproduction of vertical and lateral recordings.
- Universal lightweight pickup with long wear diamond point stylus.
- Heavy duty constant speed synchronous motor with ample driving power for recording or reproducing.
- Provision for RCA Recording Attachment.
- Quiet operation. Cushion-mounted motor with silent on-off switch.
- Speed change lever in rim of turntable permits change without removing record.
- Ruggedly built to give years of satisfactory service.

## Uses

The Type 70-D Transcription Turntable has been developed to meet the continued demand for higher and higher quality in the reproduction of broadcast transcriptions. It is the latest edition to the popular 70 SERIES of transcription equipments, of which more than 3000 are now in use. The 70-D provides high fidelity reproduction of *all* vertical or lateral cut records.

## Description

The complete equipment is housed in a metal cabinet of modern design. The cabinet is finished in two tones of umber grey and trimmed in chromium. A large hinged door is located on the front of the cabinet so as to permit ready access to the motor and filter circuits. A heat resistant, "Micarta" top is used. All filters are securely mounted within the cabinet and arranged for minimum hum pickup. There is also sufficient space within the cabinet for a booster amplifier (such as the RCA BA-2 Series) where additional output level is required. If the user desires to raise the height of the cabinet from 28 to 30 inches, the MI-11803 mounting base complete with hardware is available for the purpose.

Terminal boards are provided for a-c and the audio connections and are accessible from the front of the cabinet. Mounted on top of the 70-D cabinet are the tone arm, tone arm rest and filter selector switch. The tone arm is of the counter weight balance type and provisions are made for accurately setting the stylus for one ounce weight on a record. The pickup head is unexcelled and designed to impart high fidelity characteristics for both vertical and lateral recordings. It is of a moving conductor type in which two ribbons are free to move in a vertical or lateral magnetic field.

The pickup and filter reproduce the various types of records, Orthacoustic, RCA-Victor, Columbia, World and others, with a response characteristic that produces an ideal playback response. The filter unit is designed so that this may be accomplished by merely turning a switch to one of the following six positions:

**LATERAL:** 1. Transcriptions—NAB Lateral. 2. Home records with 500 cycle crossover frequency (Victor). 3. Home records with 300 cycle crossover frequency. 4. Test records and special recordings (wide open at high frequencies).

**VERTICAL:** 1. Transcriptions—NAB Standard Vertical. 2. Transcriptions (worn).



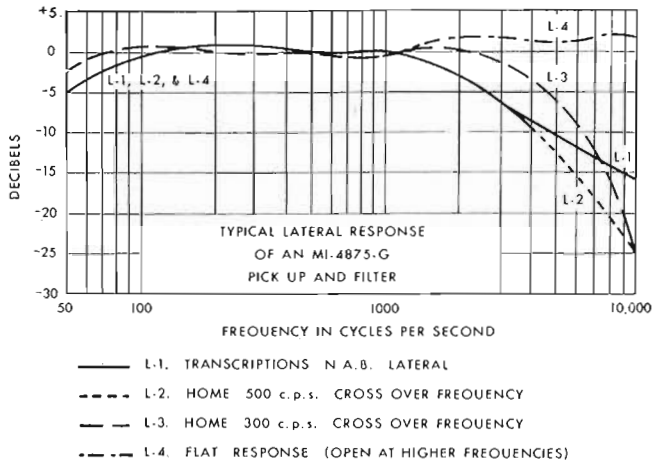
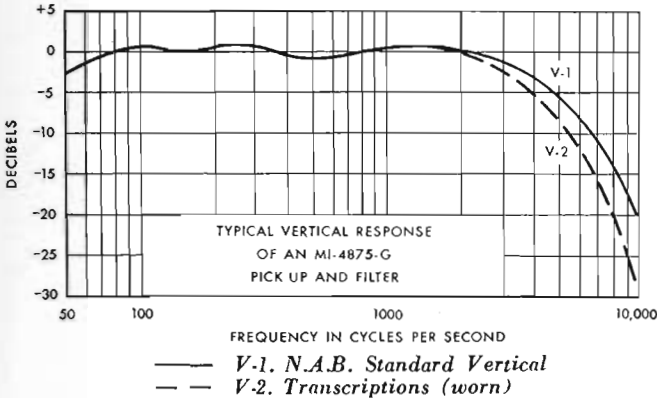
Two vacant positions are available on the switch to permit additional filters or compensators to be added if required.

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 fidelity records, the turntable platter has associated with it a separate specially designed flywheel. This flywheel is approximately 12" in diameter and is located within the cabinet itself. The turntable platter and flywheel assembly is completely isolated from the motor through a series of mechanical filters and a spring clutch arrangement.

## Specifications

Pickup Impedance	_____	250 ohms
Load Impedance	_____	Output of compensator should be connected to the unloaded input transformer of an amplifier designed to operate from a 250 ohm source such as BA-11A or BA-2C.
Output Level	_____	-63 dbm LI position at 1,000 cycles T-2485 test record
	_____	-68 dbm (.001 watt reference) VI position at 1,000 cycles—TRV-104 test record
Noise Level (below 1 milliwatt reference level)	_____	-120 dbm
Frequency Response (see curves)	_____	50-10,000 cycles
Transmission Loss of Filter	_____	24 db at 1,000 cycles at each of the 6 switch positions
Stylus	_____	Polished diamond
Turntable Diameter	_____	16"
		(Will handle records up to 18" in diameter)
Turntable Speed	_____	33 1/3-78 rpm
Speed Regulation (wows)	_____	0.2% rms at 33 1/3 rpm
		0.09% rms at 78 rpm

**Dimensions, overall**  
 Height (overall) \_\_\_\_\_ 28 3/8"  
 Height (overall with MI-11803) \_\_\_\_\_ 30 3/8"  
 Width \_\_\_\_\_ 25 1/4"  
 Depth \_\_\_\_\_ 24 1/4"  
**Finish** \_\_\_\_\_ Two tone umber grey with chromium trim  
**Weight (unpacked)** \_\_\_\_\_ 155 lbs.  
**Power Supply** \_\_\_\_\_ 105-125 volts, 50 or 60 cycles  
**Power Consumption** \_\_\_\_\_ 35 watts  
**Stock Identification**  
 UMBER GREY, 60 CYCLES \_\_\_\_\_ MI-11801



UMBER GREY, 50 CYCLES \_\_\_\_\_ MI-11802  
 BLACK, 60 CYCLES \_\_\_\_\_ MI-11802-A

**Accessories**

BA-2C Booster Amplifier \_\_\_\_\_ MI-11226-B  
 72-D/72-DX Recording Attachment \_\_\_\_\_ MI-11901 or MI-11900  
 Mounting Base \_\_\_\_\_ MI-11803  
 45 rpm Conversion Kit \_\_\_\_\_ MI-11883

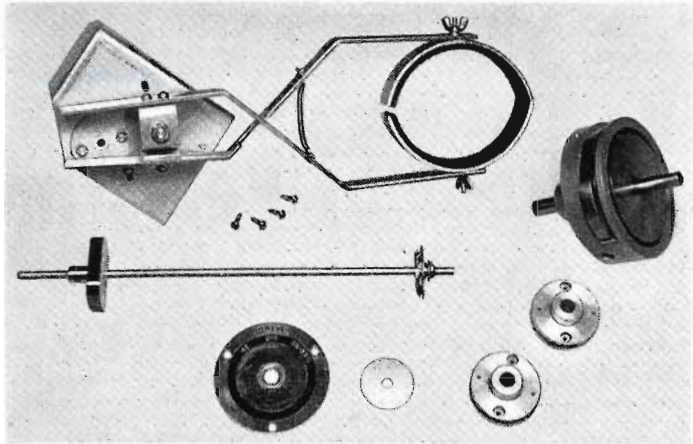
**45 R.P.M. Conversion Kit, MI-11883**

**Features**

- Simple to add to present 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



Interior view of the 70-D Turntable with 45 R.P.M. Kit installed

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 "78-33 1/2" 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".

Mechanical installation is simple and the only electrical work necessary is the transfer of motor switch leads to the micro-switch incorporated in the kit. Sturdy construction and careful mechanical alignment assures the same long, trouble-free operation that thousands of 70-series turntables are now giving in the field. Also required but not included in this kit, is a second tone arm for fine groove playback (MI-11884).

**Specifications**

Approximate Weight, Unpacked \_\_\_\_\_ 6 1/2 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.)

**Accessory**

Fine Groove Pickup and Tone Arm \_\_\_\_\_ MI-11884



TYPE 70-D  
RCA HIGH-FIDELITY  
TRANSCRIPTION TURNTABLE

# The Proof of Performance—*is in its acceptance*

Over 4,500 RCA "70-type" Turntables shipped to date

THIS moderately priced transcription turntable has no superior—either in mechanical simplicity or in high-fidelity reproduction.

One heavy-duty synchronous motor provides the drive required for playback *and* recording. Mechanical filters and spring-clutch assembly completely isolate the platter and the fly-wheel from the motor—and assure even running and smooth starts and stops. A high-quality universal lightweight

pick-up, with a diamond-point stylus, provides true reproduction—for either vertical or lateral recordings.

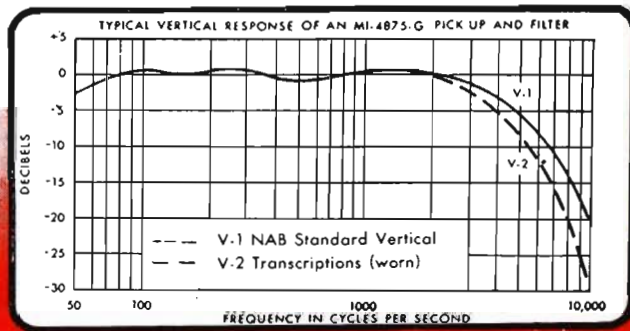
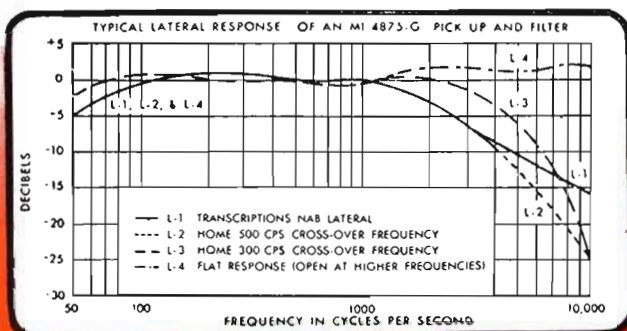
A hinged door on the metal cabinet makes everything easy to get at. There is ample space inside to house booster amplifiers and record-cueing amplifiers. There is also accommodation on top for an RCA 72-D (or 72-DX) Recording Attachment.

*And you can handle the new records designed to play at 45 rpm—by means of a simple*

*modification kit now available.*

For the finest response from your recording . . . for dependable timing to the very last second . . . for even running and smooth starts and stops, this studio turntable has it! Available in two cabinet-top heights . . . 28 inches and 30 inches. Equipped with convenience-plug outlets for a-c and audio circuits.

Ask your RCA Broadcast Sales Engineer for complete data.



# Universal Pickup Kit, MI-4875-G

**Features**

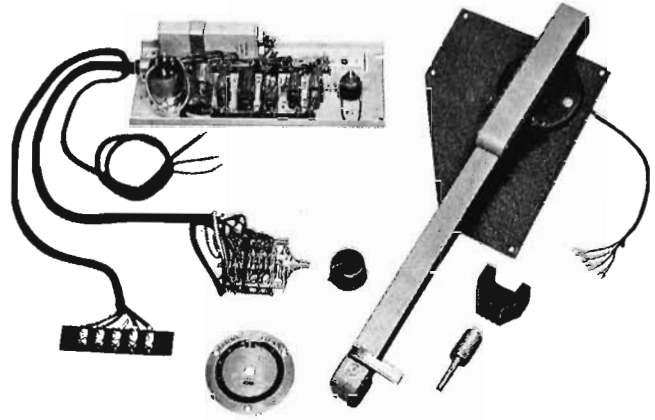
- High fidelity reproduction of vertical and lateral recordings.
- Adjustable weight pickup head.
- Low moving mass.
- Adjustable vertical and lateral stops.
- No stylus breakages.

**Uses**

The Universal Pickup Kit has been designed to give an ideal playback response for all 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 position, six position compensator switch with



dial plate and filter kit with cable and terminal board. All the necessary accessories are provided for use on the 70-C series transcription turntables. For a more complete description and response curves, refer to the catalog page which features the 70-D turntable. The pickup compensator will operate satisfactorily into a BA-1A pre-amplifier, BA-3C program amplifier or any amplifier designed with an unloading input transformer for operation from a 250 ohm source impedance.

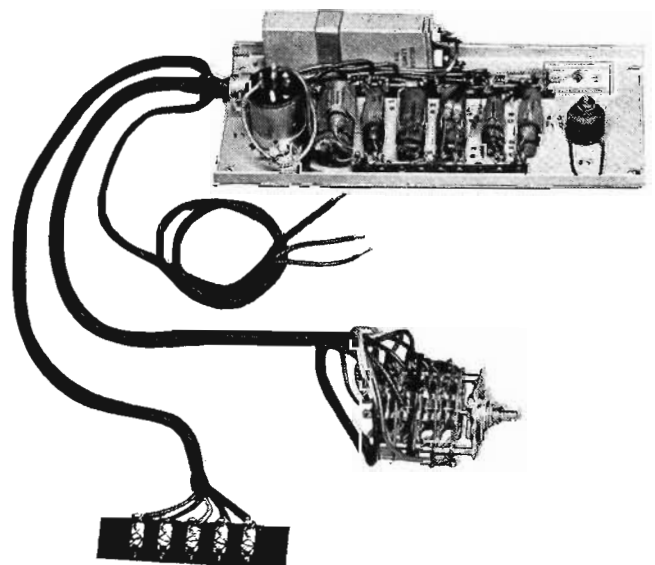
Weight (unpacked) \_\_\_\_\_ 12 lbs.  
 Stock Identification \_\_\_\_\_ MI-4875-G

# Reproducing Filter, MI-4975

The MI-4975 Filter is a newly designed unit and is an integral part of the 70-C2 and 70-D Turntables and the MI-4875-G Universal Pickup Kit. This kit is made available for the user who wishes to convert the superseded 70-C and 70-C1 Turntables and the MI-4875-C Pickup and take advantage of the considerable improvement in this filter design. The high frequency response for the Associated records is very much improved and the overall response characteristics for lateral records now conform to an ideal curve. The kit consists of compensator complete with cable, terminal board and a six-position compensator switch.

The changes are effected by merely transferring five wires on the terminal board. For the new response characteristics produced, reference is made to the 70-D Turntable catalog page, where these curves are shown.

Weight \_\_\_\_\_ 5 lbs.  
 Stock Identification \_\_\_\_\_ MI-4975

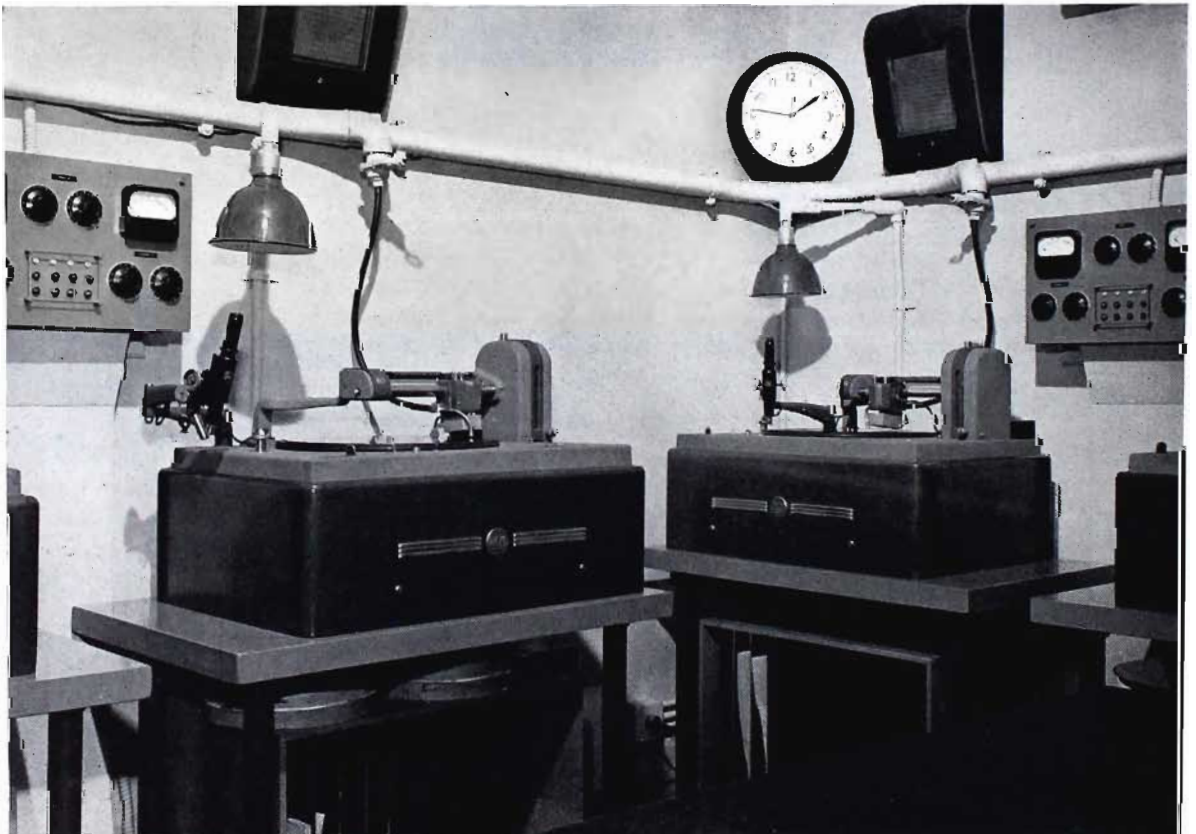


# RECORDING INSTALLATIONS



◀ Studio recording installation at KUTA, Salt Lake Cty, Utah, showing two bench-mounted RCA 73-B Professional Recorders.

An ideal recording installation at KECA, Los Angeles, Calif., showing two of the four RCA 73-B Professional Recorders. Note the conveniently located overhead lighting, the large size suction duct, and relatively short length of hose for chip removal.



# Recording Equipment

RCA offers a complete line of high fidelity recording equipment featuring outstanding performance characteristics, simplicity of operation and many other exclusive features which are described on the following pages. For professional recording studios, broadcasting stations, educational institutions or wherever high quality discs are to be cut, these recorders are unexcelled.

Type	Usage	Recording Speed rpm	Recording Pitch Lines per Inch— Inside out or Outside in	Max. Dia. Blank	Frequency Response cps	Required Audio Power
73-B	Professional AM-FM Broadcast Studios Educational	33 1/3 or 78	Con. Var. 96 to 152	18 1/4"	±2 db 50-10,000	Approx. 10 Watt*
72-DX	AM-FM Broadcast Studios Educational	With 70 Ser. Turntables 33 1/3 or 78	96,112,136	18 1/4"	±2 db 50-10,000	Approx. 10 Watt*
72-D	AM-FM Broadcast Studios Educational	With 70 Ser. Turntables 33 1/3 or 78	96,112,136	18 1/4"	±3 db 50-7,500	Approx. 10 Watt**

\* For 6.3 cm/sec stylus velocity at 1000 cps.

\*\* For 6.1 cm/sec stylus velocity at 1000 cps.

The following diagrams have been designed to assist the user in determining the equipment required for a recording channel. Since there is considerable difference in recording technique, these illustrations must only be regarded as suggested installa-

tions. For example, some engineers prefer to introduce compensation prior to the limiting amplifier, while others prefer to record "flat" with automatic equalization to compensate for the changes in cutting diameter.

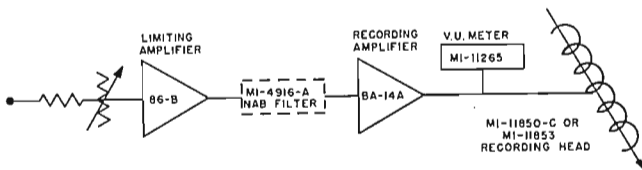


Fig. 1. This diagram illustrates a recording technique using the orthacoustic filter only.

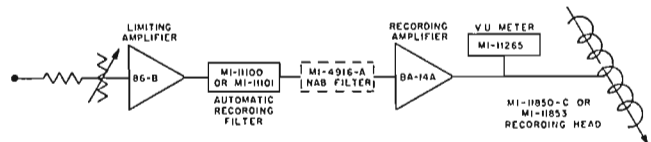


Fig. 3. This arrangement is included for recordists who choose to use both "automatic" and NAB orthacoustic compensation.

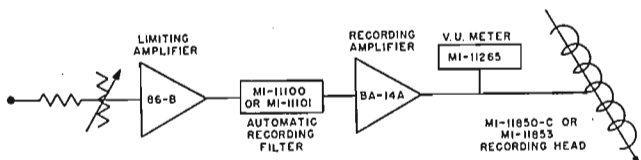
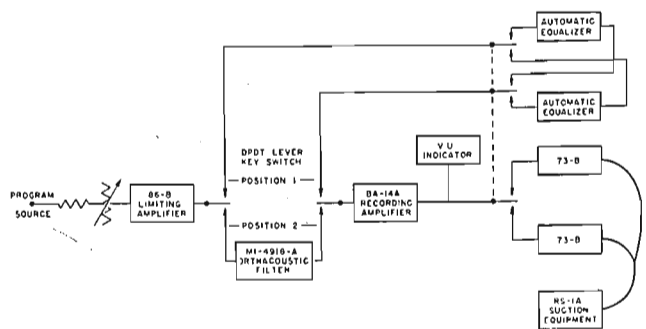


Fig. 2. This diagram illustrates a recording technique using the automatic recording filter only (or "flat").



This diagram illustrates a recording installation which will handle recording techniques shown in Figures 1 and 2.

# Recording Attachment, Type 72-D/72-DX

## Features

- Produces high quality recordings on any 70-Series Turntable.
- Records at 33 $\frac{1}{3}$  or 78 rpm at 96, 112 and 136 lines per inch. *Outside-in or inside-out* recording is accomplished without changing feedscrews or gears.
- Timing scales indicate remaining recording time.
- Improved lowering device avoids stylus or record damage.
- Convenient adjustment of stylus angle and depth of cut.
- Hand crank for spiralling grooves.
- Convenient adjustment for horizontal alignment.
- Lead screw protected by cylindrical tube housing.
- Provision made for installing automatic equalizer.

## Uses

The 72-D Recording Attachment may be easily and quickly installed on any of the RCA 70-Series Turntables to provide an unusually high quality instantaneous recording equipment at an economical price. It is a newly designed and much improved version of the widely used Type 72-C. Broadcast stations will find many uses for this item such as recording rehearsals and controversial broadcasts, making records for use by the time salesmen and recording programs for delayed broadcasts. It may also be satisfactorily used for making masters for processing.

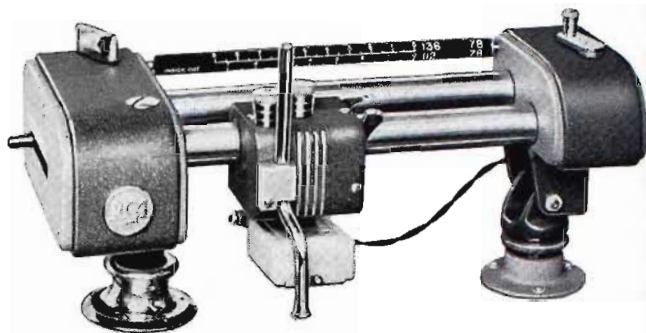
## Description

The 72-D is equipped with a sturdy frame containing a screw mechanism for driving the cutter carriage across a record blank. Power coupling is made to the center of the turntable by means of a vertical shaft spiral gear and loosely coupled three pin driving flange which eliminates slippage and "knocks." Precision leveling adjustments are made by a swivel support with an accurate vertical adjustment. The mechanism is made so that it will swing clear when not in use or it may be easily removed from the transcription turntable if desired.

An improved lowering device permits the operator to gently lower the cutter on to the record, thus avoiding stylus breakage or deep cuts from sudden dropping. The angle of the stylus and the depth of cut may be conveniently adjusted even during operation. A spiralling hand crank permits spacing between musical selections without breaking the continuity of the groove. It is useful also for cutting starting and finishing spirals. The 72-D will record at either 33 $\frac{1}{3}$  or 78 rpm outside-in or inside-out at 96, 112 and 136 lines per inch. Selection of direction and pitch is made easily and quickly without changing lead screws or gears. Two interchangeable spring released hexagon timing scales are provided for giving an accurate indication of the remaining recording time. The scales are calibrated to cover all combinations of turntable speed and groove spacing. The cutter carriage does not ride on the feedscrew, but is supported on a metal tube in which the feedscrew is enclosed and is guided on another tube which is designed to house an automatic equalizer. This feature eliminates "grouping" of grooves, increases the life of the feedscrew and protects the feedscrew from dust. A lip has been turned on the driving spindle to catch the threads and prevent their climbing into the gears or bearings.



Type 72-D Recorder Mounted on a Type 70-D Turntable



Type 72-D Recording Attachment

The 72-D is furnished complete with Standard recorder head, MI-11853-A mounting base and rest post. However, if a high fidelity response is required, the type 72-DX with the MI-11850-C recorder head is available. This high quality head is maintained at a constant temperature while operating by self-contained heater and thermostat. The power for the heater operation is obtained from an MI-11855-A heater and compensator kit as an accessory item. The MI-11854 base attachment is available for mounting the 72-D/72-DX on all 70 series turntables. Additional base attachment kits are available if the recorder is to be used on more than one turntable.

An MI-4910-A conversion kit, which consists of a replacement turntable felt, cement, support assembly and template, may be ordered when the 72-D attachment is to be used with a 70-A or 70-B turntable.

A suction nozzle is provided to facilitate the use of RCA suction equipment, MI-11857/MI-11858.

## Specifications

Input Impedance to Cutter	_____	15 ohms nominal
Frequency Response:		
Type 72-D	_____	$\pm 3$ db, 50-7500 cps
Type 72-DX	_____	$\pm 2$ db, 30-10,000 cps
Sensitivity:		
Type 72-D [groove velocity 6.1 cm/sec., .00079" (peak to peak) at 1000 cps]	_____	+ 28 dbm
Type 72-DX [groove velocity 6.3 cm/sec., .00079" (peak to peak) at 1000 cps]	_____	+ 30 dbm
Recording Direction (adjustable)	_____	Inside-out and outside-in
Recording Pitch (adjustable)	_____	96, 112, and 136 lines per inch
Drive	_____	Platter of an RCA 70-C series or OR-1A Turntable
Dimensions, overall		
Height	_____	5 $\frac{3}{4}$ "
Length	_____	15 $\frac{1}{2}$ "
Depth	_____	6 $\frac{1}{2}$ "
Weight (unpacked)	_____	8 $\frac{1}{2}$ lbs.
Finish	_____	Two tone umber-grey, wrinkle
Stock Identification (as normally shipped)	_____	MI-11901
		(Includes MI-11852 Attachment, MI-11853 Recorder Head, and MI-11854 Mounting Base)
Stock Identification (Type 72-DX)	_____	MI-11900
		(Includes MI-11852 Attachment, MI-11850-C High Fidelity Recorder Head, MI-11854 Mounting Base, and MI-11855-A Heater and Compensator Kit)

## Accessories

Automatic Equalizer	_____	MI-11101-A
Fixed Orthacoustic Equalizer	_____	MI-4916-A
Heater and Compensator Accessory Kit	_____	MI-11855-A
Recording Suction Equipment (less hose)	_____	MI-11857
Chip Remover and Hose Assembly (for suction equipment)	_____	MI-11858
BA-14A Recording Amplifier	_____	MI-11234
Sapphire Stylus	_____	90° MI-4878-BC
		70° MI-4842
Additional Mounting Base Kit	_____	MI-11854



# The HIGH-FIDELITY RECORDER...

...for  
The Studio  
Professionalist



## RCA Type 73-B

DESIGNED with almost every known device for cutting your high-fidelity reproductions, this professional recorder has everything you need for versatile control of cutting to meet any recording situation.

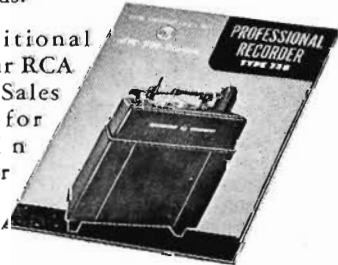
For instance, a new improved cam-operated lowering device prevents stylus damage and overcutting... because it enables you to lower the flutter-proof cutting head gently with decreasing speed as the head approaches the spinning record.

For instance, start and finish spiralling is controlled by a separate motor... push-button operated. Spiralling pitch: approximately 6 lines per inch at 78 rpm and 2.5 lines per inch at 33 1/3 rpm.

For instance, you can change cutting from inside out to outside in by the simple turn of a dial... without adjusting the lead screw or driving gears. The pitch is continuously variable, while recording, from 96 to 152 lines per inch to handle program overruns. During actual running, too, you can adjust the

stylus cutting angle and cutting depth. Groove grouping is eliminated because the head rides smoothly along a tubular enclosure that protects the feed screw. An automatic equalizer... available on special order... compensates for recording-level variations due to changes in surface speeds.

For additional facts ask your RCA Broadcast Sales Engineer for Bulletin 2J4784... or write Dept. 30-L.



RCA 73-B RECORDER, with its optional cabinet type MI-11827

**CHECK THESE SPECIFICATIONS**

Frequency response... 30 to 10,000 cycles,  $\pm 2$  db

Head sensitivity (groove velocity 6.3 cm/sec., 0.00079" peak to peak at 1000 cps).....  $\pm 30$  dbm (1.0 watt)

Turntable accuracy.....  $\pm 1/2\%$  33 1/3 or 78 rpm

Speed regulation (wows)... 0.14% rms at 33 1/3 rpm  
0.07% rms at 78 rpm

Turntable drive... 2 hysteresis type synchronous motors, using rim drive through rubber idler rollers

Type of stylus..... Sapphire or Steel

Microscope..... 36 power Spencer

## Professional Recorder, Type 73-B



### Features

- Complete shock mounting and special motors reduce vibration and rumble to a minimum.
- High fidelity recording head handles full power with low distortion.
- Two motor drive. Each motor has its own rubber idler wheel providing high torque and excellent regulation.
- Can be adjusted, while recording, for 96 to 152 lines per inch *inside-out* or *outside-in* cut without changing lead screw or gears.
- Large platter with rubber mat takes blanks up to 18¼ inches.
- One driving pin enables any type blank to be used. Pin is held up by spring and sinks into platter if record without driving holes is used.
- Cutter angle and depth of cut can be easily adjusted while recording.
- Dropping mechanism can be operated with one hand; lowers cutter on record slowly to prevent stylus damage.
- Lathe type construction ensures accurate alignment and permits rapid record changing.
- Equipped with high grade microscope and illuminating lamp for accurately checking grooves on any portion of record.

### Uses

The 73-B Recorder is an outstanding professional type unit which has been designed to include almost every known device for making high quality recordings. Recording studios will acclaim the 73-B as the ideal recorder for making masters from which any number of pressings may be made. Broadcasting stations will find it unsurpassed for recording programs for use on delayed broadcasts, commercial accounts, rehearsals, auditions or the reference file.

### Description

The 73-B Recording Equipment consists of a high fidelity MI-11850-C Recording Head with its associated carriage and lead screw mechanism, a turntable assembly which includes a dual motor with rim drive mechanism, a turntable platter with rubber mat, a microscope and microscope lamp and a suction nozzle (less the suction generating and hose connecting equipment) for removing acetate shavings from the record.

The MI-11850-C Recording Head is a high quality, precision built, magnetic type unit with a frequency response which does not depart from an ideal response curve by more than two decibels between 30 and 10,000 cycles per second. Any discrepancies created by temperature variation are eliminated by the self-contained heater and thermostat. A visual indicator controlled by a switch on the base indicates when the heater is in circuit. Its flat type mechanical construction eliminates flutter without the use of special damping mechanisms. The recorder head rides on a smooth metal tube which encloses the feed screw and is guided on another tube which is designed to house an MI-11100 automatic equalizer. This arrangement eliminates "grouping" of grooves, increases the life of the feed screw and protects the feed screw from dust and dirt particles.

An improved cam-operated lowering device permits the head to be lowered gently with decreasing acceleration as the head approaches the record. This feature prevents stylus breakage or deep cuts from sudden dropping of the recorder head. The angle of the stylus, the depth of the cut and the number of lines per inch may be conveniently adjusted even while recording.

The turntable is rim driven through rubber idler rollers from two hysteresis type synchronous motors. These motors were chosen because of their quiet operation and accurate speed. The two motors and turntable drive wheels are both controlled by one "on-off" switch and both mechanisms are controlled by one "speed-change" switch. When the motor switch

is turned "off", the driving rollers are disengaged and a brake is applied to the rim of the turntable, bringing it quickly to a stop. The motors are doubly rubber shock-mounted from the motor board to avoid motor rumble in the recordings.

The feed screw is driven by a planetary-drive mechanism using a rubber-tired roller on a vertical shaft and a flat driving-disc on the end of the horizontally mounted feed screw. The driving roller may be adjusted to various vertical positions across the driving disc, the speed and direction of rotation of the feed screw being determined by the roller's position with respect to the center of the drive disc. The roller is automatically disengaged from the driving disc whenever the cutter head carriage is raised to the rest position. The number of cutting lines per inch is indicated by an illuminated scale in the drive housing. Four spring-released interchangeable time scales are provided to cover all combinations of turntable speed and groove spacings.

A separate motor, controlled by a push button on the recorder base, is used for motor driven spiralling, overdriving the lead screw to provide start and finishing spirals. The spiralling pitch is 6 lines per inch when the recorder is set for 96 lines per inch and the turntable speed is 78 rpm. For a turntable speed of 33½ rpm, the spiralling pitch will be reduced in proportion to the speed change.

A high quality, 36 power, Spencer microscope is furnished for observing the grooves. The microscope has a calibrated eyepiece having 50 divisions of .001 inch and is mounted on an adjustable arm which permits it to be moved to any part of the record. On the same arm is mounted a small shielded lamp which is independently adjustable so as to illuminate the grooves under observation.

Playback provisions are made by a removable plate on the recorder base for mounting an MI-11871 Universal pickup and arm. A receptacle in the base is already connected to the terminal board. The entire recording mechanism is isolated from room vibration by rubber mounts. A removable plate, placed over the pulleys on the left side of the machine, permits ready access to the driver pulleys and driver motors for servicing. Terminal boards are provided on the front and on the rear of the recorder base for a-c and audio connections respectively. The entire mechanism is furnished with an attractive and substantial wooden apron.

The 73-B is supplied with adjustable suction nozzle attached to the carriage mechanism. The newly designed suction pump (MI-11857) and accompanying chip collector and hose (MI-11858) are available as accessories. For a complete and detailed description, refer to the catalog page for this equip-

ment. Also available is the advance ball kit (MI-11851) for use with the MI-11850-C Recording Head when making wax recordings.

Provision has been made for convenient installation of the MI-11100 Automatic Equalizer. This was designed to compensate for the variations in recording level, resulting from changes in the surface speed of the record.

The MI-11827 Recorder Base Cabinet has been specifically designed to offer an attractive and practical base cabinet to accommodate the 73-B Recorder. The recording cabinet is substantially constructed with a robust adjustable interior shelf for accommodating transcriptions, recordings, etc. The top is composed of 1" solid wood with no possibility of introducing rumble. The door and top are finished in dark umber gray with the sides in light umber gray to blend with all other RCA broadcast equipment.

## Specifications

Recorder Head Impedance (MI-11850-C High Fidelity Head)	15 ohms nominal	
Frequency Response	±2 db, 30-10,000 cps	
Sensitivity: (Groove velocity 6.3 cm/sec., .00079"		
(peak to peak) at 1000 cps)	+30 dbm (1.0 watt)	
Stylus	Sapphire or steel	
Turntable Diameter (handles blanks up to 18¼" dia. and up to ⅜" thick)	17½"	
Turntable Drive	Rim driven through rubber idler rollers from two hysteresis synchronous motors	
Turntable Speed (accuracy ± ½%)	33½ or 78 rpm	
Speed Regulation (wows)	0.14% rms at 33½ rpm 0.07% rms at 78 rpm	
Recording Direction (adjustable)	Inside-out and Outside-in	
Recording Pitch	Continuously variable 96 to 152 lines per inch with detents provided in steps of 8 lines per inch	
Dimensions, overall	<i>With Cabinet</i>	<i>Less Apron</i>
Height	20"	20"
Width	31¾"	30"
Depth	22¼"	20½"
Height to Top of Base	10½"	10½"
Weight (unpacked)	289 lbs.	
Finish	Light umber grey wrinkle with dark umber grey trim. Apron finished with smooth dark umber grey. All control knobs and levers are polished nickel.	
A-c Power Supply, 115 volts 50-60 cycles—		
Turntable drive motors	80 watts	
Pilot Light	5 watts	
Spiralling Motor (when operating)	145 watts	
Stock Identification	60 cycles, MI-11825/11850-C 50 cycles, MI-11826/11850-C	

## SPECIFICATIONS FOR MI-11827 BASE CABINET

Dimensions:	
Height (overall)	2' 8½"
Width	2' 9"
Depth	1' 11½"
Thickness of Top	1"
Weight	85 lbs.
Stock Identification	MI-11827

## Accessories

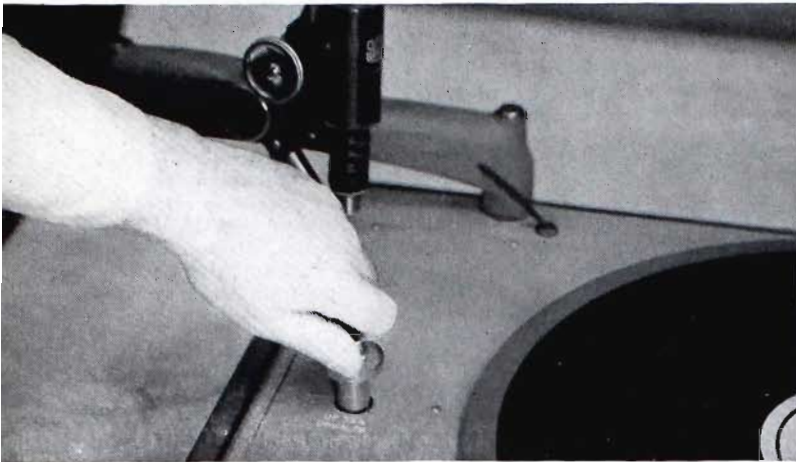
Automatic Equalizer	MI-11100-A
Othacoustic Equalizer	MI-4916-A
Suction Equipment	MI-11857
Spare Chip Collector and Hose Assembly	MI-11858
Sapphire Stylus	90° MI-4878-BC 70° MI-4842
Amplifier (BA-14A)	MI-11234
Additional High Fidelity Recording Head	MI-11850-C
Standard Cutter Head	MI-11853
Advance Ball Kit for MI-11850-C Recording Head	MI-11851



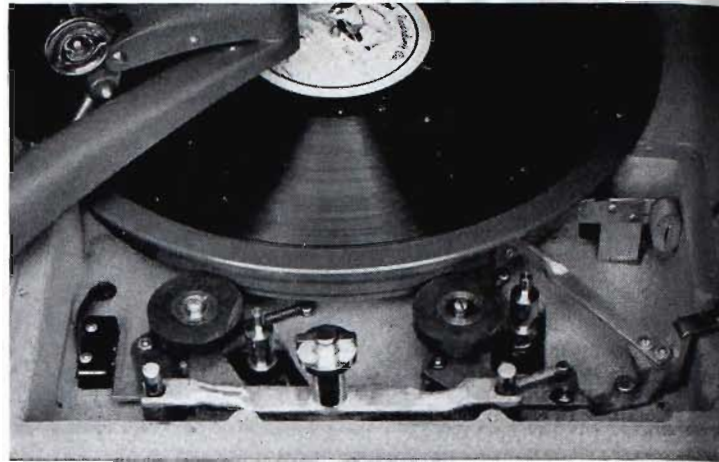
MI-11827 Recorder Base Cabinet with 73-B Recorder

# SMOOTH, VERSATILE CONTROL

73-B, DUAL-MOTOR RIM-DRIVE PROVIDES HIGH TORQUE, EXCELLENT REGULATION



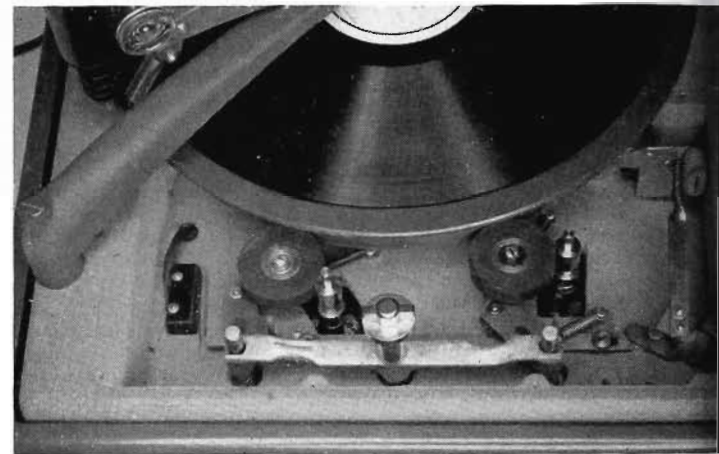
**SPEED-CHANGE** is simply accomplished by operating the control knob shown here. "UP" is  $33\frac{1}{3}$  RPM—"DOWN" is 78 RPM.



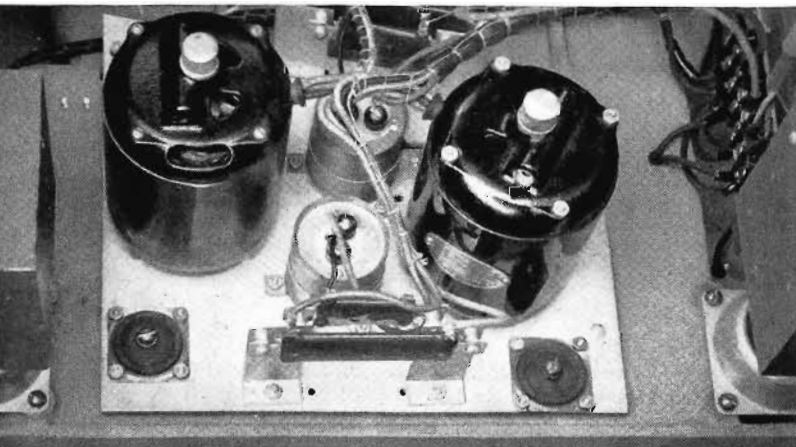
**OFF-78 RPM**—In the "OFF" position a brake shoe is applied to the turntable rim, and rubber idlers are moved away from both the drive wheel and turntable rim.



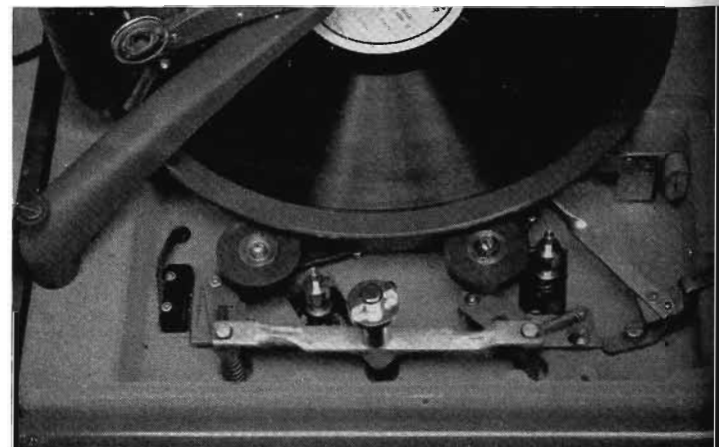
**A SINGLE "OFF-ON"** lever controls both synchronous turntable drive motors. In "OFF" position, a brake brings turntable to quick stop.



**ON-78 RPM**—In "ON" position, the brake shoe moves away from turntable rim and rim and rubber idlers are now in active contact with drive wheel and turntable rim.



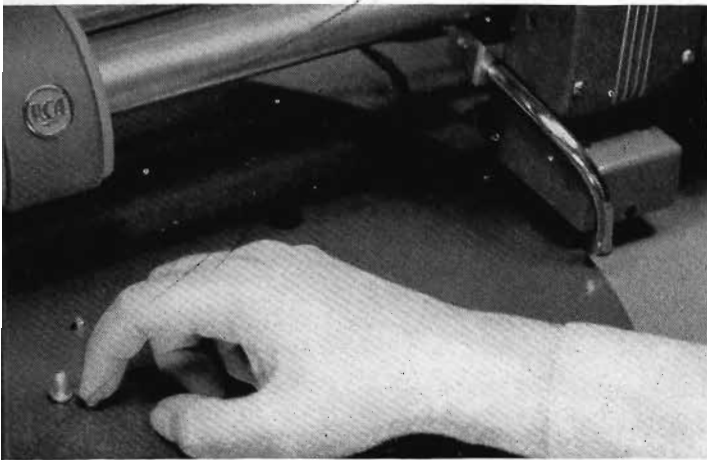
**TWO SYNCHRONOUS MOTORS** hysteresis type, are coupled to wheels which rim-drive the turntable through sturdy, rubber-idler rollers.



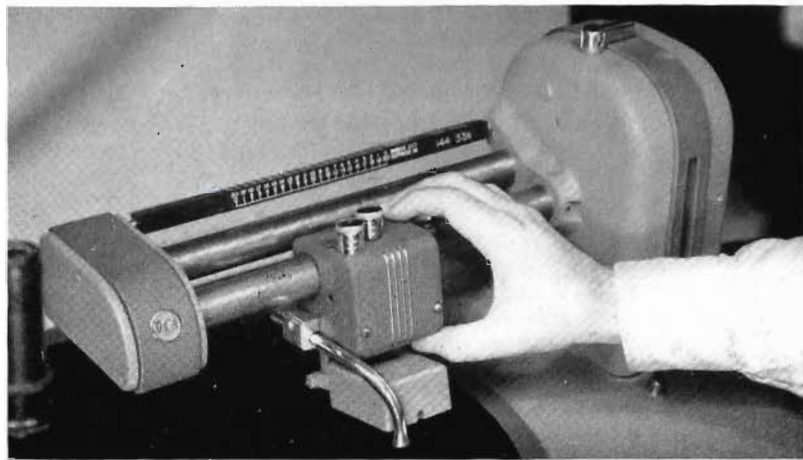
**AT- $33\frac{1}{3}$  RPM**—With speed change knob "UP," rubber idlers are moved vertically to low-speed position of drive wheel (note drive wheel has "lo- and hi-speed" shoulders of different diameters).

# HIGH-QUALITY RECORDINGS

RECORDING PROCEDURE IS SIMPLE AND EASY TO PERFORM



**RECORD-DRIVE PIN** comes up into position when this trigger-release button is pressed. Pin sinks into platter for records without driving holes.



**CARRIAGE LEVER** is being pressed to allow movement of recorder-head horizontally over the record to desired "cutting" position.



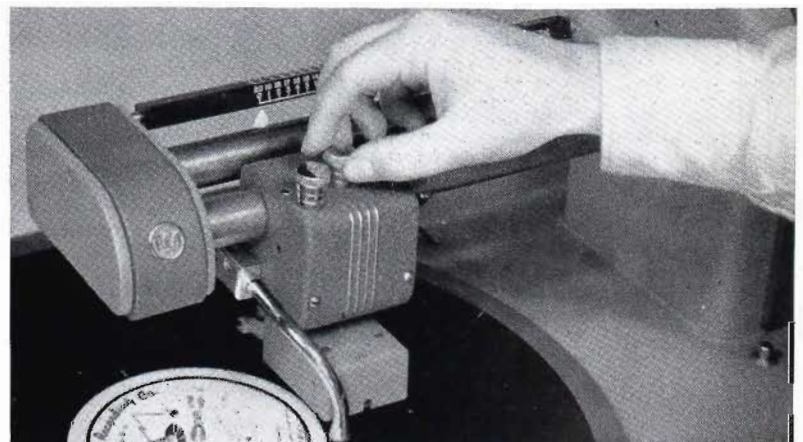
**ANY TYPE BLANK** may be used with the single driving pin provided. Here, recording blank is placed in position.



**RAISING AND LOWERING** the cutter head is easily done by this lever which permits raising the "to rest" position or a gentle lowering to the recording position.



**CALIBRATED TIME SCALES** for 96, 104, 112, 120, 128, 136, 144 and 152 ("inside-out," "outside-in," at  $33\frac{1}{3}$  or 78 rpm are provided. Here, proper scale to agree with "pitch" setting is inserted.



**ANGLE AND DEPTH OF CUT** are conveniently and precisely controlled by the two knobs atop the carriage. (In above, angle of cut is being adjusted.)

# RS-1A Recording Suction Equipment

## Features

- ¼ h.p. motor—insuring adequate suction for two recorders.
- Reduces fire risk to a minimum.
- Motor maintains constant temperature.
- Chip collector eliminating pump failure.
- Motor may be isolated from recording room.

## Description

This equipment is a new development by RCA and has been designed to use the most efficient method of removing acetate shavings from the record surface during the cutting of recordings. The suction apparatus is a high grade, rotary vane type pump, driven by a ¼ HP. Repulsion Start, Single Phase Motor. The unit is ruggedly constructed and mounted on shock dampening rubber cushions. A 10 foot length of tubing with a "Y" connector provides the suction outlet for one or two recorders. The chip filter and water jar insure that all chips removed are absorbed in the water and cannot foul the suction pump. This equipment is a combination of the following:

### MI-11857

- One Suction Equipment
- One 10' Length of Black Rubber Tubing 1" ID
- One "Y" Branch Connector
- Two Couplings and Caps
- One Reducer Bushing

### MI-11858

- One Chip Collector and Hose Assembly
- Two 6' Lengths of Black Rubber Tubing ¾" ID

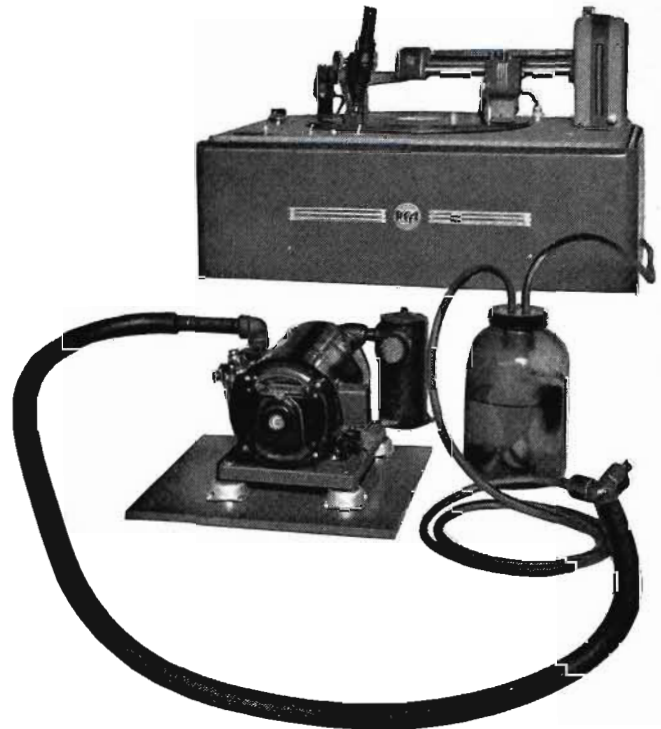
If the user desires to place the suction apparatus remote from the recorder, 1" tubing which introduces a negligible loss of suction is recommended. As the majority of loss occurs in the ¾" diameter house, the length of this link should be kept to a minimum. When the apparatus is used with two recorders, an additional MI-11858 chip collector and hose assembly is necessary.

## Specifications

Power Supply \_\_\_\_\_ 115 volts, 50/60 cycles, approx. 450 watts

Dimensions (overall of suction equipment):

Length _____	15"
Width _____	16"
Height _____	10¾"
Weight _____	75 lbs.



Normal operating temperature \_\_\_\_\_ 130-160°F.  
 Maximum vacuum for continuous operation \_\_\_\_\_ 8" mercury  
 Stock Identification:

RS-1A Equipment (complete for use with one recorder) \_\_\_\_\_  
 MI-11857/11858

## Accessory

Extra Chip Collector and Hose Assembly \_\_\_\_\_ MI-11858  
 (For use with two recorders)

# Microscope, Type MI-4928

The MI-4928 is a high quality, 36 power Spencer Microscope and Arm Attachment for recorders. It permits close examination of the cutting needle to determine its condition and allows inspection of individual recording grooves for determining the noise level, quality and depth of cut.

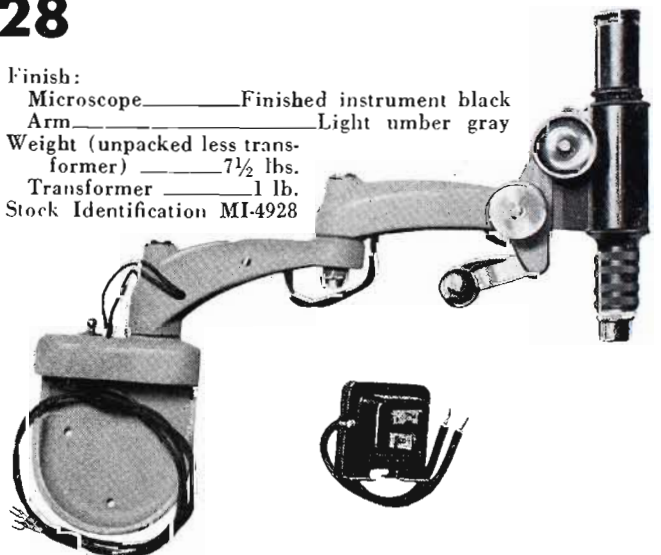
The microscope has a calibrated eyepiece having 50 divisions of .001 inch and is mounted on an adjustable arm which permits it to be moved to any part of the record. On the same arm is mounted a small shielded lamp which is independently adjustable so as to illuminate the grooves under observation. The microscope is shipped complete with lens tube assembly, transformer for the microscope lamp, necessary mounting screws and installation instructions.

## Specifications

Dimensions:

	Microscope Unmounted	Overall with Microscope Mounted on Arm	Microscope Light Transformer
Height _____	7¾"	9"	2 7/16"
Width _____	3"	3"	2 5/16"
Depth _____	2⅝"	2⅝"	2 7/32"

Finish:  
 Microscope \_\_\_\_\_ Finished instrument black  
 Arm \_\_\_\_\_ Light umber gray  
 Weight (unpacked less trans-  
 former) \_\_\_\_\_ 7½ lbs.  
 Transformer \_\_\_\_\_ 1 lb.  
 Stock Identification MI-4928



# High Fidelity Recording Head, MI-11850-C

## Features

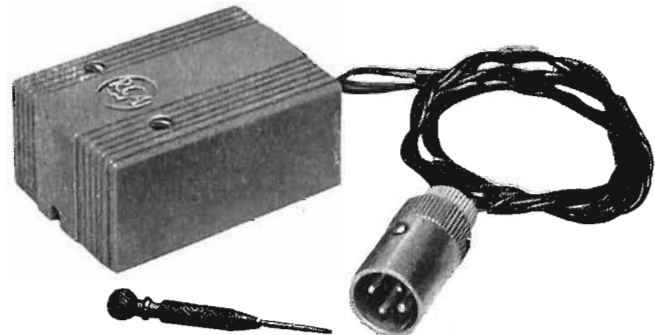
- Meets all high fidelity requirements.
- Does not depart from an "ideal response" by more than  $\pm 2$  db 50-10,000 cps.
- Response independent of ambient temperatures.
- Precision built.
- Self-contained heater.

## Uses

The MI-11850-C High Fidelity Recording Head has been specially designed for the user who demands high fidelity recordings. It was primarily produced for use with the 72-DX Recording Attachment, 73-B Professional Recorder and the OR-1A Portable Recorder.

## Description

The High Fidelity Head is a high quality professionally built and accurately adjusted unit of the magnetic type. Physically, the head consists of a cobalt-alloy permanent magnetic, laminated pole pieces, a driving coil, an armature, and dampening material assembled in an attractive case. The armature is supported on knife-edge bearings and held in position by a steel centering spring. Its flat type construction allows the head to



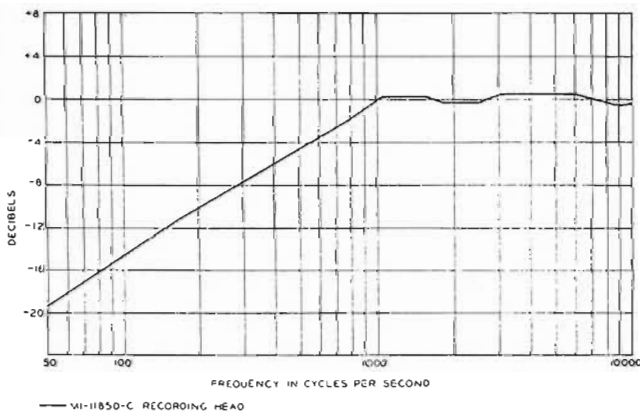
lie in a lateral plane, thus eliminating flutter without the need for special dampening mechanism. Connections are made through a four-pin plug. Any discrepancies that might be created by temperature variations are eliminated by a self-contained heater and thermostat. The power for the heater operation is obtained from an MI-11855-A Heater and Compensator Kit. A small screwdriver is provided to fit the stylus setscrew.

## Specifications

Input Impedance (with compensator)	15 ohms
Frequency Response	$\pm 2$ db 50 to 10,000 cps
Sensitivity (groove velocity 6.3 cm/sec., .00079" (peak to peak) at 1000 cps)	+30 dbm (1.0 watt)
Stylus	Sapphire or steel
Dimensions:	
Height	1 3/4"
Width	2"
Length	3 3/4"
Weight	10 1/2 oz.
Finish	Light amber gray
Stock Identification	MI-11850-C

## Accessories

Heater and Compensator Kit	MI-11855-A
Stylus Sapphire 90°	MI-4878-BC
Stylus Sapphire 70°	MI-4842

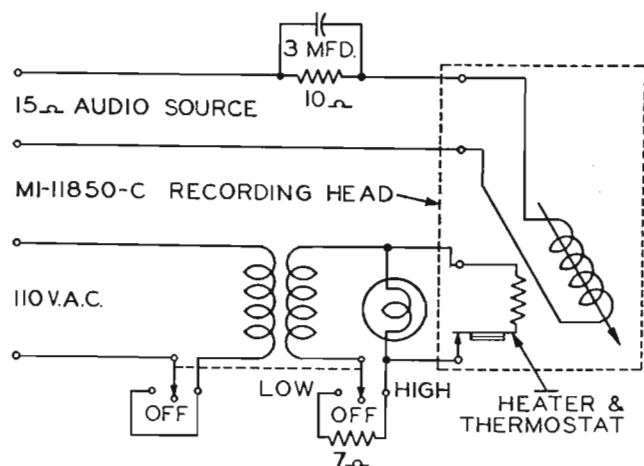


# Heater and Compensator Kit, MI-11855-A

This kit was specifically design for use with an MI-11850-C High Fidelity Recording Head. This maintains the operating temperature at a constant value, rendering the response of the recorder head independent of ambient temperature. The temperature is held at approximately 95° F. by means of a thermostatically controlled heater mounted in the recorder head. The kit consists of the following components: heater transformer, pilot light assembly complete with bulb, 3 position switch, a 7 ohm 5 watt resistor, a dial plate reading "High", "Low" and "Off", and a Cannon X-4-13 Receptacle. Connections are made through this receptacle.

Mounting facilities are provided for 70-C and 70-D series of turntables and OR-1A portable recording equipment.

This kit is an integral part of the MI-11850-C Recording Head and should be ordered as an accessory except when used with Type 73-B Recorders, where this kit is self-contained.



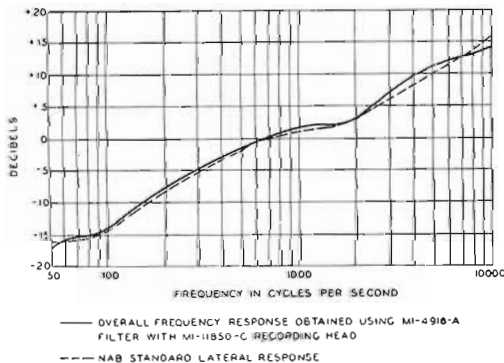
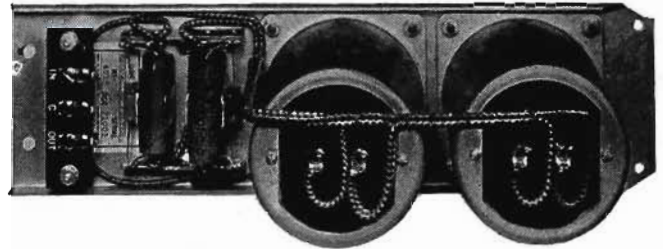
MI-11855-A HEATER & COMPENSATOR

# Recording Filter, MI-4916-A

## (Orthacoustic)

The MI-4916-A recording filter was designed to provide the most desirable reproduction characteristic for turntables as set forth by NAB standards for lateral transcriptions. This filter was primarily designed for use with an MI-11850-C and MI-4887 high fidelity recording head to give this orthacoustic response characteristic.

The filter may also be employed with the MI-11853 standard recording heads with an excellent frequency response. However, with the MI-11853 recording head, the frequency response about 7500 cps will be slightly lower due to the lower frequency response of this head. This unit may be mounted on a BR-2A or 36-B panel and shelf assembly.



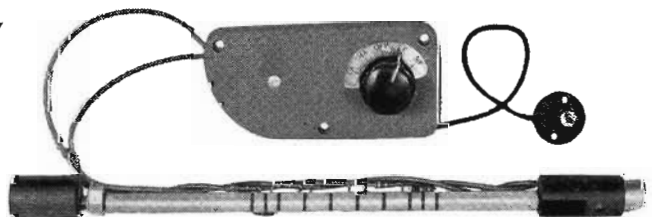
### Specifications

Input Impedance (unbalanced)	_____	250/600 ohms
Output Impedance (unbalanced)	_____	250/600 ohms
Insertion Loss		
(Operating from a 600 ohm source into a 250 ohm load at 400 cps)	_____	16 db
(Operating from a 600 ohm source into a 600 ohm load at 400 cps)	_____	10.5 db
Maximum Input Level	_____	+20 dbm
Hum Pickup Level (when placed 6" or more from a power transformer)	_____	Less than -120 dbm
Dimensions:		
Height	_____	4 $\frac{3}{4}$ "
Width	_____	3 $\frac{9}{16}$ "
Length	_____	12 $\frac{5}{8}$ "
Weight (unpacked)	_____	6 $\frac{1}{2}$ lbs.
Stock Identification	_____	MI-4916-A

# Automatic Recording Equalizer, MI-11100-A, MI-11101-A

### Description

The automatic recording equalizer is another addition to RCA equipment developed to contribute toward raising the standards of producing records and transcriptions. The equalizer is designed to compensate for the variation in recording level due to changes in surface speed of the recorder blank relative to the stylus. Without this compensation, the recording level due to the speed change would be of a lower level at the higher frequencies near the center of the record than they would near the periphery. The MI-11100-A is for use with type 73-B professional recorders and the MI-11101-A is for use with the 72D/72DX recording attachments. Fundamentally the two equalizers have the same equalization characteristics and differ only in the mounting facilities and the external connections. The equalizer consists of fixed capacitors, introduced by a switch, and a series of ten resistors, varied by a spring-tipped contact pin, riding with the recorder head carriage. The equalizers both contain a five-position switch to select the desired degree of equalization. Suitable hardware is included.



### Specifications

Impedances:		
Source	_____	600 ohms
Input	_____	Approx. 600 ohms
		(depending on compensation and frequency)
Load	_____	Unloaded transformer
Output	_____	Approx. 600 ohms
		(depending on compensation and frequency)
Insertion Loss (at low frequencies)	_____	22 db
Operating Level	_____	-40 db to +20 db
Weight (unpacked, less cords and plugs)	_____	12 ozs.



# Standard Recording Head, MI-11853-A

The MI-11853-A Recording Head is available to broadcasters who demand a good quality, low priced recording head for applications where the high fidelity response of the MI-11850-C is not required.

The physical construction of this head is similar to the MI-11850-C, possessing the feature of eliminating flutter without using special dampening material. The MI-11853-A is standard equipment with the 72-D Recording Attachment, the OR-1A Portable Recorder and may also be used with the 73-B professional recorder. The case is composed of durable, molded "Urea" with screws for mounting on all RCA type recording attachments. A 28" two wire, "Vinylite" insulated cable is provided for external connections.

## Specifications

Frequency Response \_\_\_\_\_  $\pm 3$  db, 50 to 7500 cycles  
 Input Impedance (recording head and compensating resistor) \_\_\_\_\_ 15 ohms nominal  
 Sensitivity [Groove velocity of 6.1 cm/sec. for a stylus excursion of .00077" (peak to peak) at 1000 cps] \_\_\_\_\_  $+ 28$  dbm



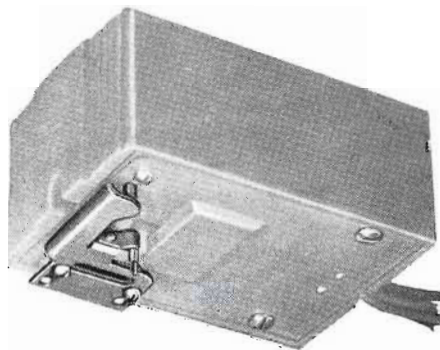
Stylus \_\_\_\_\_ Sapphire or steel  
 Method of External Connection \_\_\_\_\_  
 Two-wire "Vinylite" insulated 28" long

Dimensions  
 Height \_\_\_\_\_ 1 1/8"  
 Width \_\_\_\_\_ 2"  
 Length \_\_\_\_\_ 2 7/8"  
 Finish \_\_\_\_\_ Dark umber gray  
 Weight \_\_\_\_\_ 7 3/4 ozs.  
 Stock Identification \_\_\_\_\_ MI-11853-A

# Advance Ball Kit, MI-11851

The MI-11851 Advance Ball Kit has been designed for use in conjunction with the MI-11850-C Recorder Head. It serves to control accurately the depth of groove when the cutter head is used with soft recording materials. The Advance Ball Kit is essential when recording on wax and some operators find it convenient for use with lacquer recordings when mechanical vibration is present.

The Advance Ball is a sapphire cylinder with a tip that has been highly polished to a spherical shape and mounted in a Duralumin shank. The Ball rests on the unrecorded portion of the record surface, supporting the head at a constant height above the record, so that the depth and width of the groove will remain constant. An adjusting knob on top of the head adjusts the vertical position of the Advance Ball to regulate the depth of cut. Provision is made for moving the Advance Ball to either side of the stylus to accommodate outside-in or inside-out cuts as desired.



## Specifications

Dimensions, overall, approximate  
 Height \_\_\_\_\_ 1/4"  
 Width \_\_\_\_\_ 1 1/2"  
 Depth \_\_\_\_\_ 1"  
 Weight, approximate \_\_\_\_\_ 10 grams  
 Finish \_\_\_\_\_ White nickel  
 Stock Identification \_\_\_\_\_ MI-11851

# Cutting Styli

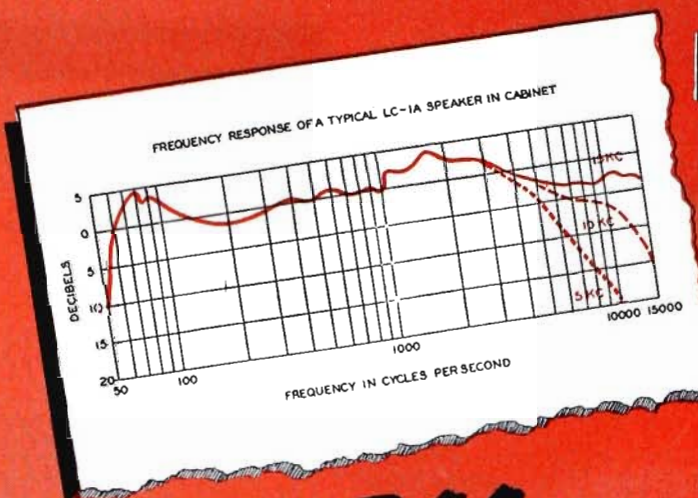
The MI-4842 Sapphire Stylus with 70° angle and short shank is recommended for use with RCA recorders when cutting lacquer blanks for immediate playback and cutting masters for processing. The 90° stylus is recommended only for use in cutting masters from which 10" and 12" commercial pressings are to be made. Long shank styli are no longer stocked by RCA since their use impairs the recorder frequency response beyond 8000 c.p.s. and a rather severe peak may develop in this region.

The use of a sapphire stylus is recommended for all recordings except unimportant tests. Initial cost is reasonable and the moderate charge for sharpening brings the cost per minute

of recording equal to or below that for steel cutting points. Steel cutting points may be used with RCA recorders for unimportant tests or for cuttings being made by inexperienced personnel. In general, steel cutters are not recommended for high fidelity work because they may produce a higher noise level, a reduced frequency range and their life is relatively short.

## Stock Identification

70° Sapphire Stylus (short shank) \_\_\_\_\_ MI-4842  
 90° Sapphire Stylus (short shank) \_\_\_\_\_ MI-4878-BC



# True FM Response

FOR CONTROL ROOMS... OFFICES...  
AND HOME MONITORING

## ...with the new RCA LC-1A Duo-Cone Speaker



The RCA LC-1A speaker is expressly designed for monitoring FM programs and high-fidelity recordings in broadcast stations. Its response is exceptionally free from distortion—over the full FM range. Read these highlights:

**Uniform response, 50 to 15,000 cycles.** Audio measurements prove RCA's new speaker free from resonant peaks, harmonic and transient distortion... at all usable volume levels.

**120 degrees radiation at 15,000 cycles!** The LC-1A is unique in its ability to project a wide cone of radiation through a constant angle of 120 degrees. And frequency response is uniform throughout! Advantages: It eliminates the familiar sharp peak of high-frequency response usually present in other systems. And exact location of the LC-1A in control or listening rooms is not critical.

**Remarkably smooth crossover-response.** Both cones are mounted on the

same axis and have the same flare angle to place their surfaces in line. Thus the possibility of undesirable interference between H-F and L-F units over the crossover range is eliminated.

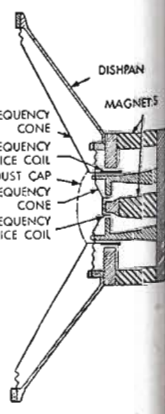
**Controlled "roll-off" at 5 and 10 kc.** Because of the LC-1A's exceptional high-frequency response, the surface noise and high-frequency distortion present in many recordings is accentuated. Therefore, a panel-mounted switch is provided to control and restrict the LC-1A's high-frequency range for this type of program material (see response curve).

Two fine LC-1A bass-reflex cabinets (optional) are designed to match the Duo-Cone speaker. One is finished in the familiar RCA two-tone gray. The other is finished in dark walnut.

For data and further details on Duo-Cone speakers... now in production... write Dept. 23-C.

**DETAILS OF RCA DUO-CONE DESIGN**

Two individually actuated cones are mounted on the same axis and flare angle, with a specially designed heavy Alnico magnet of high flux density. The high-frequency unit is a 2 3/8" cone with an exceptionally low-mass aluminum voice coil. This cone follows out the shallow angle of the larger cone to radiate a pattern at full power over an area of 120 degrees at 15,000 cycles! The low-frequency unit has a massive 15" diaphragm with a high-mass voice coil of large diameter. Its resonant frequency, only 35 cycles... with true bass response at all volume levels.



# 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 fidelity, is obtainable 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 by itself for those applications where it is desirable to use a special type, or custom-made, mounting.

In order to serve the vast multitude of miscellaneous 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-13225 or MI-6106. The three loudspeaker impedance matching transformers, MI-12370, MI-12371, and MI-12373 are designed for these and many other types of loudspeakers. The quick-or for coupling any of a wide variety of outputs to these and many other types of loudspeakers. The quick-selection chart given below provides for design engineers a quick, convenient reference by means of which they can select the RCA loudspeakers best suited to their particular requirement.

## LOUDSPEAKER DATA

<i>Identification</i>	<i>Voice Coil Impedance (ohms)</i>	<i>Power Handling Capacity (watts)</i>	<i>Weight (lbs.)</i>	<i>Cone Dia. (inches)</i>	<i>Bolt Circle Dia. (inches)</i>	<i>Freq. Range (CPS)</i>
LC-1A	15	20	21 (mechanism only)	15 $\frac{1}{4}$	16 $\frac{1}{4}$	50-15000
MI-12421	2	10	4 $\frac{1}{2}$	11	11 $\frac{7}{8}$	50-8500
MI-6234-B	6	5	2 $\frac{1}{4}$	5 $\frac{3}{4}$	6 $\frac{1}{8}$	70-7000
MI-6333-C	6	25	6 $\frac{3}{4}$	10 $\frac{8}{32}$	9 $\frac{5}{8}$	60-7000

# Monitoring Speaker, Type LC-1A

## Features

- Excellent frequency response, uniform 50-15,000 cps.
- Wide angle sound radiation of all frequencies.
- Tastefully styled cabinet.
- Low non-linear distortion.
- Ideal for monitoring AM-FM television programs.
- High grade Alnico V magnets.

## Uses

The LC-1A is a high fidelity loudspeaker with a low distortion, wide angle distribution, of extended frequency range, and specifically designed for the broadcaster and recording studios.

The fundamental principles are based upon extensive loudspeaker research and development performed by Dr. Olson at RCA Laboratories (Princeton).

For applications where it is desired to mount the mechanism on a wall baffle, ceiling, etc., the speaker may be used with assurance that the entire frequency range will be realized. The speaker's outstanding performance makes it ideal for the full frequency range of FM. The LC-1A is also being used with RCA's new "Festival" series of high quality custom-built home receivers.

## 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.

The low frequency cone employs a 15" 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 compromise 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 35 cycles. Above this frequency, the reluctance due to the suspension system of the cone does not appreciably affect the velocity and, therefore, minimizes distortion.

The cross-over network utilizes the physical disposition 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 the current flowing at the low frequencies. When program material containing a large distortion factor is prevalent, such as worn records, etc., an MI-11707 high frequency compensator producing curves with a "roll-off" at 5, 10 and 15 kc, is available to restrict the high frequency range. The LC-1A is supplied with or without cabinet and is ideally suited for mounting in the wall or ceiling of the control room, giving a uniform response of 50 to 15,000 cycles. The cabinet was specifically designed for this speaker and is attractively styled in two finishes—two-tone umber gray with a satin chrome trim to blend with all RCA studio equipment, and a rich walnut veneer for use in finely finished listening booths. This cabinet is particularly designed for high fidelity loudspeakers and is constructed with a fixed port to give maximum response in the low frequencies. Accommodation for the BA-4 series of monitoring amplifiers is provided. A brushed-chrome panel on the side of the cabinet will accommodate a volume control, 5/10/15 kc high frequency compensator, 10 channel selector switch, an "off-on" amplifier switch with a visual indicator.

With an MI-11708, 15 ohm attenuator, the speaker will operate from a speaker buss, or with an internal amplifier and selector switch, will function as an independent unit and will bridge any of ten speaker channels. The desired ordering arrangement is obtained by consulting the stock identification accessories.



*LC-1A Speaker Mechanism*

**Specifications**

**LC-1A SPEAKER MECHANISM**

Impedance (nominal) \_\_\_\_\_ 15 ohms  
 Frequency Response (see curve) \_\_\_\_\_ 50-15,000 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 $\frac{5}{16}$ "  
 Diameter (bolt fixing circle) \_\_\_\_\_ 16 $\frac{1}{4}$ "  
 Diameter (overall frame) \_\_\_\_\_ 17"

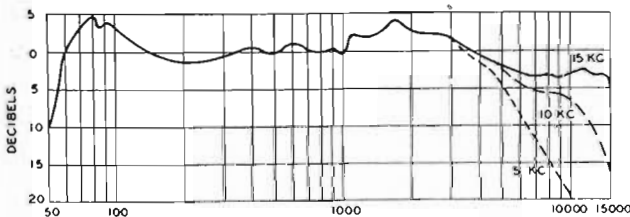
**LC-1A CABINET**

**Dimensions:**

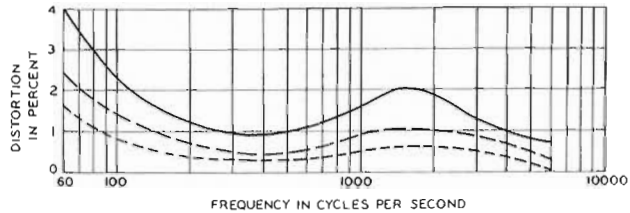
Height \_\_\_\_\_ 40 $\frac{5}{8}$ "  
 Width \_\_\_\_\_ 27 $\frac{1}{2}$ "  
 Depth \_\_\_\_\_ 15"  
 Weight \_\_\_\_\_ Approx. 50 lbs.

**Stock Identification:**

- LC-1A Speaker, cabinet complete with BA-4C monitor amplifier, volume control, high frequency filter unit 5 kc, 10 kc, and 15 kc, 10-position channel selector switch, and an on-off switch with a visual indicator (less tubes for amplifier) \_\_\_\_\_ MI-11411/11401/MI-11711/11223-B
- LC-1A Speaker and Cabinet \_\_\_\_\_ MI-11411/11401
- LC-1A Duo-cone Loudspeaker Mechanism only \_\_\_\_\_ MI-11411
- LC-1A Speaker Console Cabinet Only (Umber Gray) \_\_\_\_\_ MI-11401
- LC-1A Speaker Console Cabinet Only (Walnut) \_\_\_\_\_ MI-11401-A



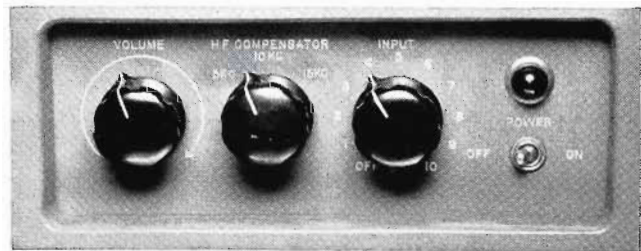
FREQUENCY RESPONSE OF A TYPICAL LC-1A SPEAKER IN CABINET



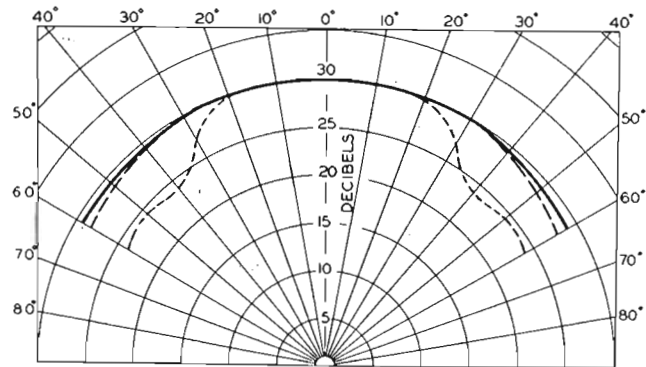
HARMONIC DISTORTION OF A TYPICAL LC-1A SPEAKER IN CABINET  
 — 10 WATTS  
 - - - 2 WATTS  
 . . . 1 WATT

**Accessories**

- Speaker Filter Unit \_\_\_\_\_ MI-11707  
 (This item is included in both cabinets, MI-11401 and MI-11401-A, but is necessary if a high frequency filter is desired when the speaker only is ordered. This unit includes a filter switch and an escutcheon plate reading 5 kc, 10 kc, and 15 kc.)
- Speaker Power Attenuator, 15 ohms \_\_\_\_\_ MI-11708-A  
 (This is necessary when the audio source is fed externally through a buss bar, etc. This is mounted on the speaker cabinet escutcheon.)
- Speaker Accessory Kit \_\_\_\_\_ MI-11711  
 (This kit contains a 10 position channel selector switch, "on-off" switch with visual indicator and necessary hardware for mounting BA-4C amplifier.)



*Close-up of control panel of LC-1A showing controls for MI-11707, MI-11708, and MI-11711*



DIRECTIONAL CHARACTERISTICS OF A TYPICAL LC-1A SPEAKER IN CABINET

— 1000 CYCLES  
 - - - 7000 CYCLES  
 . . . 15000 CYCLES

# Wall Speaker Housing, MI-13225

### Description

The MI-13225 wall speaker housing is constructed of special molded material, with excellent acoustical properties. The exterior has an attractive appearance of rich brown Morocco-grain leather. The sloping front provides for maximum radiation in all directions. Mounting bolts in the housing facilitate a secure and easy speaker installation. This speaker housing was specifically designed to accommodate the MI-6234-B accordion speaker with adequate space for the MI-12371 or MI-12373 transformer. Mounting hardware and terminal strip for the speaker leads are provided.



### Specifications

Dimensions (exterior):

Height \_\_\_\_\_ 17"  
 Width \_\_\_\_\_ 13"

Depth \_\_\_\_\_ 5½" maximum  
 Stock Identification \_\_\_\_\_ MI-13225

# Molded Speaker Housings, MI-6106, and Adaptor, MI-13245

### Description

These speaker housings are available for use with MI-12421 speakers. MI-6106 housings may also be used with MI-6333-C (10" speakers) when insert adaptor MI-13245 is employed. These molded fiber wall baffles are particularly suitable for all internal installations and are handsomely finished in "moulded-in" walnut-grained bakelite with a gray and silver grill cloth. The front of the housing has a 10° slope, giving good sound radiation characteristics. The baffle board attached to the housing permits the speaker to be securely installed and eliminates vibration. Speaker mounting bolts for either speaker render speaker installation an easy operation. Wall mounting brackets and associated hardware complement each housing.



### Specifications

MI-6106 plus Adaptor, MI-13245 for 10" PM Speaker MI-6333-C  
 MI-6106 \_\_\_\_\_ for 12" PM Speaker MI-12421

Dimensions:

Length \_\_\_\_\_ 23"  
 Width \_\_\_\_\_ 17¾"  
 Depth \_\_\_\_\_ .8" (top)

# Permanent Magnet Loudspeaker Mechanisms

## Speaker Mechanism, MI-12421

### Description

The MI-12421 is a 12" permanent magnet type speaker using an Alnico magnet and suitable for all general purpose applications. The cone is constructed in one piece, effecting a superior response to the lapped type of cone. The voice coil assembly is supported by an adjustable centering device. The speaker gives a good frequency response and has a power handling capacity of 10 watts. The MI-6106 speaker housing is recommended for use with this speaker.

### Specifications

Frequency Range \_\_\_\_\_ 50-8500 cycles  
 Power Handling Capacity \_\_\_\_\_ 10 watts  
 Voice Coil Impedance \_\_\_\_\_ 2 ohms  
 Transformer Primary Impedances  
 1000-2000-4000-8000-16,000 ohms



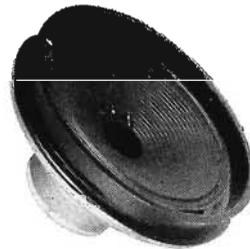
Overall Diameter \_\_\_\_\_ 12 19/64"  
 Weight (unpacked) \_\_\_\_\_ 4 1/2 lbs.  
 Stock Identification \_\_\_\_\_ MI-12421

## Accordion Edge Speaker Mechanism, MI-6234-B

The MI-6234-B is a 7" permanent magnet type loudspeaker with folded edge (accordion) cone. This type of cone is particularly suited for applications where an undistorted low frequency response is demanded. The cone is virtually freely suspended and allows the low frequencies to vibrate the maximum length and are not impeded by the reluctance of the conventional type suspension system. The permanent field is produced by Alnico magnet insuring a maximum and stable field. To derive maximum benefit from this type of speaker, an enclosed type of housing, such as the MI-13225 which was specifically designed for this speaker, is recommended. MI-12373 transformers are available for matching use.

### Specifications

Frequency Range \_\_\_\_\_ 70-7000 cycles  
 Power Handling Capacity \_\_\_\_\_ 5 watts



Voice Coil Impedance \_\_\_\_\_ 6 ohms nominal  
 Finish \_\_\_\_\_ Umber gray  
 Weight \_\_\_\_\_ 2 1/4 lbs.  
 Stock Identification \_\_\_\_\_ MI-6234-B

## Speaker Mechanism, MI-6333-C

The MI-6333-C is a high quality 10" general purpose, permanent magnet speaker suitable for wall baffle or ceiling mounting. The cone is of single piece construction and moisture resistant, giving it great ruggedness and a handling capacity of 25 watts of power.

The speaker uses Alnico II metal for the permanent magnets, insuring high efficiency and sensitivity with an unusually good frequency response. The MI-6381 molded speaker housing was designed and is recommended for use with this speaker. MI-12370 and MI-12371 transformers are recommended.

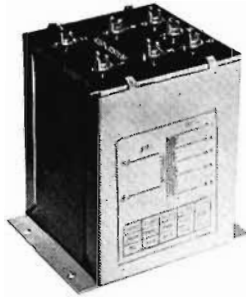
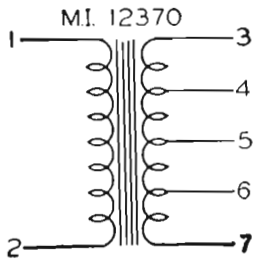
### Specifications

Frequency Range \_\_\_\_\_ 60-7000 cycles  
 Power Handling Capacity (maximum) \_\_\_\_\_ 25 watts  
 Voice Coil Impedance \_\_\_\_\_ 6 ohms nominal



Cone Diameter \_\_\_\_\_ 10 1/4"  
 Depth of Speaker \_\_\_\_\_ 6 3/8"  
 Weight (unpacked) \_\_\_\_\_ 6 3/4 lbs.  
 Stock Identification \_\_\_\_\_ MI-6333-C

## Speaker Transformer, MI-12370



The MI-12370 is an ideal speaker matching transformer for use where a large power handling capacity is required. The secondary has three taps which, for a given source impedance provide ten different output impedances for matching to the load. All taps are connected to lugs on a bakelite terminal cover to which the load may be attached by either a screw or solder connection. The transformer is enclosed in a metal case which is finished in aluminum gray. The terminal arrangement, voltage ratios, and a schematic diagram of the windings are stenciled on the side of the case. Four holes through the two bottom flanges provide for mounting the unit.

### Specifications

Impedance: (primary connected to 500/600 ohm source)

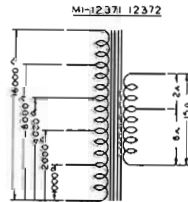
Terminals	Impedance
1-2 (Primary)	500/600 ohms
3-4	33 "
3-5	66 "
3-6	132 "
3-7	264 "
4-5	6 "
4-6	32 "
4-7	106 "
5-6	10.6 "
5-7	63 "
6-7	22 "

Frequency Response \_\_\_\_\_  $\pm 1$  db, 30 to 10,000 cycles  
 Power Handling Capacity \_\_\_\_\_ 40 watts  
 Distortion \_\_\_\_\_ Less than 1% 100-8000 cycles  
 Maximum Primary Voltage \_\_\_\_\_ 125 volts rms  
 Dimensions \_\_\_\_\_  $4\frac{3}{8}'' \times 4\frac{1}{4}'' \times 5''$   
 Finish \_\_\_\_\_ Aluminum gray  
 Weight (unpacked) \_\_\_\_\_ 7 lbs.  
 Stock Identification \_\_\_\_\_ MI-12370

## Speaker Transformer, MI-12371

The MI-12371 speaker transformer is a good quality unit with several taps on the primary winding, giving a wide impedance range of 1000 to 16,000 ohms. The secondary winding has a variable tap for three speaker voice coil impedances. It is designed for bracket mounting with 8" connection leads. This transformer is suitable for use with the MI-6234-B, MI-6333-C and the MI-12422 RCA speakers.

The MI-12372 is identical to the MI-12371 except that it is hermetically sealed.

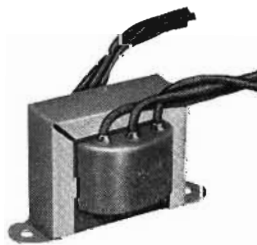
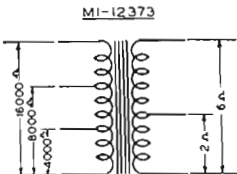


### Specifications

Frequency Response \_\_\_\_\_  $\pm 2$  db 100-6500 cycles  
 Distortion \_\_\_\_\_ Less than 1% 100-6500 cycles on 2000 ohm tap  
 Power Handling Capacity \_\_\_\_\_ 10 watts

Length \_\_\_\_\_  $2\frac{3}{8}''$   
 Width \_\_\_\_\_  $2''$   
 Height \_\_\_\_\_  $2\frac{5}{8}''$   
 Weight \_\_\_\_\_  $1\frac{1}{4}$  lbs.

## Speaker Transformer, MI-12373



This transformer is ideal for operating a number of medium power speakers with a voice coil having 6 or 2 ohms impedance. The primary winding has three taps for 4000, 8000 and 16,000 ohms. It is designed for bracket mounting and has 10"

connection leads. The same transformer, hermetically sealed for tropical use, is available as MI-12374.

### Specifications

Frequency Response \_\_\_\_\_  $\pm 1$  db 100-12,000 cycles  
 Distortion \_\_\_\_\_ Less than 2% between 100 and 8000 cycles  
 Power Handling Capacity \_\_\_\_\_ 5 watts  
 Maximum Primary Voltage \_\_\_\_\_ 125 volts  
 Height \_\_\_\_\_  $2''$   
 Length \_\_\_\_\_  $2\frac{7}{8}''$   
 Width \_\_\_\_\_  $1\frac{1}{2}''$   
 Mounting Centers \_\_\_\_\_  $1\frac{1}{8}''$   
 Connections \_\_\_\_\_ 10" leads  
 Net Weight \_\_\_\_\_  $\frac{3}{4}$  lbs.