

Broadcast Systems

# **REAL** Broadcast Audio Equipment

Microphones  
Turntable Equipment  
Consoles  
Reel and Cart Tape Machines  
Intercom and Interphone  
Amplifiers, Audio Processors  
Speakers and Accessories





213-468-4083  
RCA Hollywood

## About This Catalog

This is one of several catalogs published by RCA Broadcast Systems Department. It describes RCA products that serve the audio portions of the broadcast plant.

For radio broadcasting, RCA publishes a companion catalog that describes AM and FM transmitters, accessories, remote control equipment, monitors, transmission line, towers and antennas.

For TV broadcasting, companion catalogs describe camera equipment, terminal and switching gear, UHF- and VHF-TV transmitters, transmission line, towers and antennas.

These catalogs are available at RCA regional offices. Each office is staffed by a sales representative with broad experience in the broadcast business. He can help you plan your equipment facilities and supply the information you need. (See list of offices on next page.)

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# Microphones, General Information

The wide range of RCA microphones—velocity, ribbon, pressure and dynamic—offers users a choice of quality and economy; performance and price. There is considerable overlap in the applications of the various types, but each possesses certain attributes which make it particularly suited to specific applications. The chart below provides a convenient reference for selecting the RCA microphones which best match the intended usage.

Microphone Applications, Chief Characteristics and Recommended Mounts

Type No.	Use <sup>1</sup>	Directional Characteristic	Effective Output Level <sup>1</sup> and $G_M$ <sup>4</sup>	Output Impedance Ohms	Frequency Response Hz	Max. Hum Pick-up Level <sup>2</sup>	Finish	Stand
77-DX	Program, Announce	Poly-directional	-53 dBm $G_M$ -147 dB	30/150 250	30-20,000	-128 dBm	Chrome	Boom, Desk, Floor
BK-1	Program, Announce	Semi- and Non-directional	-52 dBm $G_M$ -144 dB	30/150 250	60-10,000	-102 dBm	Satin Chrome & Gray	Boom, Desk, Floor
BK-5	Program, Announce	Improved Cardioid	-56 dBm $G_M$ -157 dB	30/150 250	30-20,000	-128 dBm	Low Luster Gray	Boom, Desk, Floor
BK-6	Speech	Semi-directional	-65 dBm $G_M$ -159 dB	30/150 250	60-15,000	-112 dBm	Low Luster Gray	Lanyard, Clip
BK-11	Program, Announce	Bi-directional	-56 dBm $G_M$ -147 dB	30/150 250	20-20,000	-130 dBm	Stainless Steel & Gray	Desk, Floor
BK-12	Speech	Non-directional	-60 dBm $G_M$ -154 dB	30 to 250	60-18,000	-120 dBm	Bronze epoxy & matte gold	Lanyard, Clip
BK-14	Program, Announce	Omni-directional	-60 dBm $G_M$ -154 dB	30 to 250	40-20,000	-120 dBm	Satin Nickel	Floor, Hand, Desk
BK-16	Program, Announce	Omni-directional	-60 dBm $G_M$ -154 dB	30 to 250	40-20,000	-120 dBm	Satin Nickel	Floor, Hand, Desk
SK-30	Public Address Paging	Omni-directional	-55 dBm $G_M$ -149 dB	30 to 250	50-14,000	-115 dBm	Midnight Blue	Floor, Hand, Desk
SK-39	Public Address Paging	Semi-directional	-54 dBm $G_M$ -148 dBm	250	70-10,000	-105 dBm	Two-Tone Gray	Desk, Floor
SK-46	Public Address Paging	Bi-directional	-58 dBm $G_M$ -150 dB	200/15,000	40-15,000	-113 dBm -98 dB below 1 volt	Satin Chrome & Gray	Desk, Floor

<sup>1</sup> Reference level 0.001 watt, sound pressure 10 dynes per square centimeter. This corresponds to a rating by the EIA system at a sound pressure level of 94 dB.

<sup>2</sup> Level referred to a hum field of  $10^{-3}$  gauss.

<sup>3</sup> For details refer to description of each particular type.

<sup>4</sup>  $G_M$  = (EIA rating).

<sup>5</sup> Switched low-frequency rolloff -8 and -16 dB @ 50 Hz.

## High Quality Microphones

Microphones such as the Types BK-1, BK-5, BK-6, BK-11, BK-12, BK-14, BK-16 and 77DX, all have certain common performance criteria which make them especially suited. They offer smooth frequency-response characteristics, low-distortion, high output level, well-shielded output transformers (to prevent hum pickup) and where necessary, shock mounting to reduce low-frequency "rumble."

## Public Address Microphones

Public Address microphones such as the SK-30, SK-39 and SK-46 are designed as economy microphones. In general, frequency range and sensitivity are sacrificed to some extent to gain ruggedness and lower cost.

## Unloaded Transformer Input

RCA Microphones work into a microphone preamplifier equipped with an unloaded input transformer. Under this condition, the voltage appearing at the input of the first amplifier stage results in a 3- to 6-dB gain in signal-to-noise ratio as compared with a matched-resistance load.

## Microphone Resistance Loading

Microphones in which the moving system is highly damped, in general, have their frequency response characteristics little changed by electrical loading. The BK-1 and BK-6 are examples of this.

Microphones which show output impedance variations with respect to frequency will have their response characteristics adversely affected by resistance loading. The Type BK-5 and 77-DX (in the bi-directional and uni-directional positions) are typical examples. Resistance loading of these microphones will generally result in a reduction in low frequency response.

## 150 Ohms vs. 250 Ohms

When microphones connect to unloaded input transformers, impedance matching is not a consideration and the effects of connecting microphones with an output impedance of 250 ohms to a microphone amplifier designed to operate from a 150-ohm source and vice versa are usually of small consequence. The effect on the level is:

Mic. Output Impedance	Level Change dB	
	250	+2.2
150	-2.2	0
Amp. Input Designation	250	150

In addition, there is some change in the overall response-frequency characteristic of the system below 100 Hz and above 5000 Hz, the magnitude depending on the connection and the design of both the microphone and the amplifier input transformer. Variations in response with quality microphone amplifiers, in most cases, is less than  $\pm 1$  dB.

With microphones connected to a resistance load, these changes in level result when the output is referred to a matched condition:

Mic. Output Impedance	Level Change dB	
	250	-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, popular types of plugs are cataloged and they may be ordered as an accessory if desired.\*

## Microphone Mounting

RCA has standardized on the  $\frac{5}{8}$ "-27 and half-inch pipe-thread for microphone mounting. This makes it easy to add microphone stand extensions, booms, etc., made up from standard half-inch pipe and fittings. Stands listed for use with microphones having  $\frac{5}{8}$ "-27 thread accommodate RCA Broadcast Microphones by the addition of an adapter. (See *Microphone Stands and Accessories*).

## Effective Output Level

When a microphone connects to an unloaded transformer, its power output can-

\* Microphones are shipped connected for 250 ohms since, in normal usage, an improved signal-to-noise ratio results when connected to a 150-ohm preamplifier input.

not be expressed in dBm because the microphone delivers no appreciable power. The logical approach is to arrive at some level figure which, when combined with the conventionally measured amplifier gain, gives the correct output level for the combination. This figure is listed in the catalog for each microphone and is called the Effective Output Level. It differs from the EIA standard rating ( $G_M$ ) in the value of sound pressure and source impedance. The EIA rating computation is based on a source impedance of 150 ohms for all microphones having output impedances between 75 and 300 ohms, and on a sound pressure of 0.0002 dynes per square centimeter.

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

The EIA 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  $E$  = open circuit voltage (mic.)  
 $P$  = the undisturbed sound field pressure

$R_{MR}$  = mic. rated impedance  
 Electrical reference level = .001 watt  
 Sound pressure = .0002 dynes/sq. cm.

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

## Hum Pickup Level

An arbitrary standard, 60-Hz a-c field of 10<sup>9</sup> gauss, is established as a reference. The hum level is referred to 0.001 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.

## Dynamic Microphones, BK Series

- Smooth, wide-range frequency response for voice or music
- Semi- and omni-directional models
- Hand-held, lavalier or stand mount
- Durable design to withstand rough usage



Dynamic microphones are ideally suited for indoor, remote or outdoor TV, radio or public address applications where the mike is hand-held, mounted on a stand, or worn as a lavalier. The speech balance and directional characteristics of these dynamic microphones make them especially desirable for voice pickup of interviews or performers. Omni- and semi-directional models are offered, all with smooth, wide-range frequency response.

## Pressure Microphone, Type BK-1



- Wide range—60 to 10,000 Hz response
- Smooth response over essential range
- Removable from base for floor-stand mount or hand-held use
- Ideal for remote pickups — low sensitivity to wind and mechanical vibrations
- Frequency characteristic independent of source distance

The high-fidelity BK-1 Pressure Microphone is particularly well suited for remote pickups where, if used in the open air, the modern design practically eliminates the effect of air currents. It features a smooth response and frequency range of 60 to 10,000 Hz.

The BK-1 is an omni-directional microphone when mounted vertically. A semi-directional characteristic is obtained when horizontally mounted, in which case the BK-1 is essentially non-directional for frequencies below 2,000 Hz. The higher frequencies are attenuated more as the angle with the perpendicular to the diaphragm increases.

### Specifications

Directional Characteristics	Semi-Directional (horizontal) Omni-Directional (vertical)
Frequency Response	60 to 10,000 Hz
Output Impedance	30/150/250 ohms (250 as shipped)
Output Level (1000 Hz):	
a. Effective (10 dynes/cm <sup>2</sup> )	-52 dBm
b. EIA—G <sub>m</sub>	-144 dB
Hum Pickup (0.01 gauss, 60 Hz)	-102 dBm (max.)
Cable (attached)	30 ft., 3 conductor shielded, without connector
Mount	Ball and socket, 1/2" pipe thread
Dimensions	7 3/4" long, 1 7/8" dia. (200 x 48 mm)
Weight (less cable)	18 oz. (510 g)
Finish	Low luster gray and satin chrome

### Ordering Information

Pressure Microphone, Type BK-1	MI-11007
Desk Stand, Type KS-11	MI-11008

## Subminiature Dynamic Microphone, Type BK-12



The BK-12 Subminiature Dynamic Microphone is a very small, extra lightweight mike with excellent speech balance. The BK-12's small bulk and neutral color make it inconspicuous when clipped to the clothing or worn around the neck on a lanyard. As a result of its small size, the BK-12 is essentially non-directional to 6,000 hertz, thus ordinary errors in orientation are inconsequential.

The 0.71-ounce mike has a wide range frequency response of 60 to 18,000 Hz which is compensated for proper speech balance. Other notable features include a line-impedance voice coil that permits use with 30- to 250-ohm unloaded inputs. Through elimination of the output transformer, magnetic hum sensitivity is lower than comparable microphones with line-matching transformer. The micron-mesh acoustical filter provides dirt and moisture protection. Through careful design and the availability of improved magnetic materials, an extremely high acoustical-to-electrical power efficiency is achieved in the BK-12 despite its small diaphragm area.

Due to its small size and light weight, the BK-12 is adequately supported by the tie clip holder which fastens equally well to shirt front or lapel. A lavalier holder is also supplied for suspending the microphone around the neck.

The user need never send the BK-12 back for factory repairs. A complete replacement cartridge can be installed in a few minutes. The cable is also easily replaced.

### Specifications

Directional Characteristics	Non-directional
Output Impedance	Low—for use with 30- to 250-ohm unloaded inputs
Frequency Response	60 to 18,000 Hz, shaped for lavalier use
Output Level (1000 Hz):	
Effective (10 dynes/cm <sup>2</sup> )	-60 dBm (150 ohms)
EIA—G <sub>m</sub>	-154 dB (150 ohms)
Effective Output Level @ 1000 Hz	-60 dBm (150 ohms) (referred to a sound pressure of 10 dynes/cm <sup>2</sup> )
EIA Sensitivity Rating	-159 dB (150 ohms)
Output Voltage (open circuit)	75 mV/d/cm <sup>2</sup>
Hum Pickup (0.001 gauss, 60 Hz)	-120 dBm max.
Cable (attached)	30 ft. 2-conductor shielded, highly flexible, beige PVC jacket
Mounting	Tie-clip and lavalier holders supplied
Dimensions	3/4" dia. x 1 1/2" long (20 x 38 mm)
Weight (less cable)	0.71 oz. (20 g)
Finish	Bronze epoxy and matte gold

### Ordering Information

Subminiature Dynamic Microphone, Type BK-12 complete with Lavalier Holder, Tie Clip Holder and Cable Clip	MI-11024
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## Dynamic Microphone, Type BK-14



- Lightweight broadcast microphone
- Wind and “pop” resistant
- Internal shock resistant
- Replaceable cartridge
- Uniform frequency response—40 to 20,000 Hz

The BK-14 is a dynamic cartridge-type microphone, ideal for indoor or outdoor use where a hand held lightweight mike with good response to voice and music is required. The microphone is omnidirectional with a frequency response essentially uniform from 20 to 20,000 Hertz.

It is contained in a non-reflecting satin nickel 8-inch long case only 3/4-inch in diameter. A protective wind screen, and internal shock and isolation construction permit effective use with loud “pop” noises. The microphone has provisions for stand mounting. A swivel mount and a 30-foot, 2-conductor shielded cable with Cannon plug to fit the microphone base are supplied as standard equipment.

### Specifications

Directional Characteristics .....	Omnidirectional
Frequency Response .....	40 to 20,000 Hz
Output Impedance .....	Low—for use with 30 to 250 ohm unloaded inputs
Output Level (1000 Hz):	
Effective (10 dynes/cm <sup>2</sup> ) .....	-60 dBm (150 ohms)
EIA-G <sub>m</sub> .....	-154 dB (150 ohms)
Hum Pickup Level (.001 gauss, 60 Hz) .....	-120 dBm (max.)
Cable (Removable) .....	30 feet, 2 conductor, shielded with Cannon XLR-3-11C to fit microphone base
Mounting .....	Hand held or stand (swivel mount supplied)
Finish .....	Non-reflecting satin nickel
Dimensions .....	8" long, 0.75" dia., screen dia. 2" (193, 19, 51 mm)
Weight (less cable) .....	6 oz. (170 g)

### Ordering Information

Dynamic Microphone, Type BK-14 .....MI-11042

## Dynamic Microphone, Type BK-16



- Extremely smooth frequency response—40 to 20,000 Hz
- New slim silhouette for hand or stand use
- Replaceable cartridge
- Omnidirectional at all frequencies

The slim silhouette and light weight of the BK-16 microphone make it particularly well suited for pickups where a hand held or stand microphone is required. It is omnidirectional, and has a smooth response over a frequency range of 40 to 20,000 Hz.

The BK-16 is encased in a non-reflecting satin nickel housing 8 inches long and 3/4-inch in diameter. It is provided with a swivel mount and a 30-foot, 2-conductor shielded cable with Cannon connector to fit the base. Internal shock and isolation filters assure smooth speech or music pick-up.

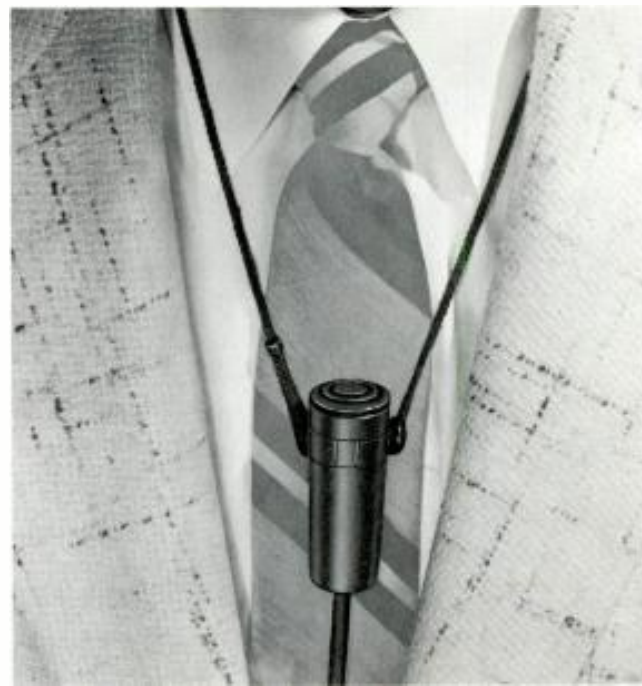
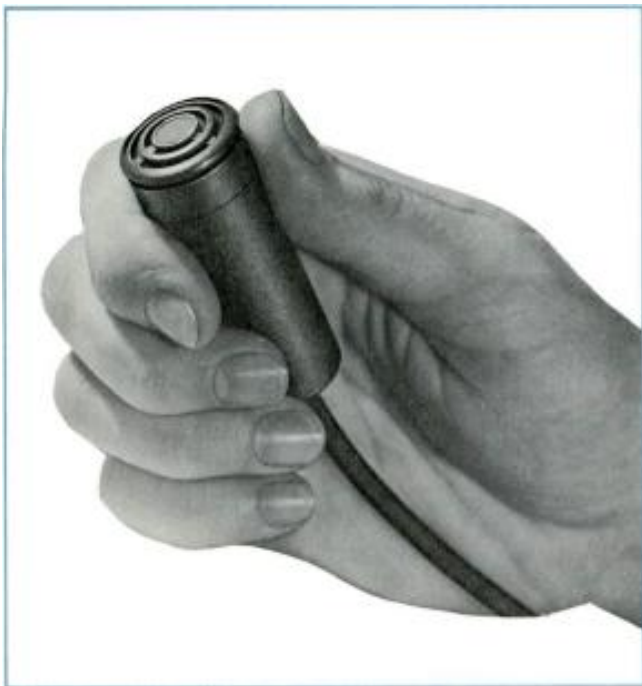
### Specifications

Directional Characteristics .....	Omnidirectional
Frequency Response .....	40 to 20,000 Hz
Output Impedance .....	Low—for use with 30 to 250 ohm unloaded inputs
Output Level (1000 Hz):	
Effective (10 dynes/cm <sup>2</sup> ) .....	-59 dBm (150 ohms)
EIA-G <sub>m</sub> .....	-153 dB (150 ohms)
Hum Pickup Level (.001 gauss, 60 Hz) .....	-120 dBm (max.)
Cable (removable) .....	2 conductor, shielded, 30-ft. with Cannon XLR-3-11C plug to fit microphone base
Mounting .....	Hand held or stand (swivel mount supplied)
Finish .....	Non-reflecting satin nickel
Dimensions .....	8" long, 0.75" dia. (193 x 19 mm)
Weight (less cable) .....	5.5 oz. (156 g)

### Ordering Information

Dynamic Microphone, Type BK-16 .....MI-11048

# Miniature Dynamic Microphone, Type BK-6



The Miniature Dynamic Microphone, Type BK-6 is specially designed for correct speech balance. Frequency response and directional characteristics are engineered to complement human speech so that the microphone has excellent balance when the performer is talking "off axis."

The BK-6 may be worn by the performer; its small bulk and neutral color make it inconspicuous. The lightweight and flexible cable permit free, unhampered movement of the performer. Suspended from the neck, resting on the chest, the BK-6 attenuates the low pitched chest sounds while at the same time it points straight up towards the lips, the position in which it is most sensitive to the high-frequency sounds that would normally be lost.

A special internal acoustic resonator is employed to support the response to lower frequencies and a damped resonator placed in front of the diaphragm reduces high frequency emphasis while extending the upper frequency limit. The result is a pleasing balance for speech when the microphone is used "off axis," or worn on the person. The special plastic diaphragm and coil assembly, output transformer and terminal board and bracket assembly are housed in a rugged and practically weather-proof case.

The cable for the BK-6 unit has unusual flexibility combined with long life under conditions of severe abuse. High tensile alloy conductors provide high flexibility and long life. The external jacket gives a tough, neutral color, protective covering to the cable.

## Specifications

Directional Characteristics	Semi-directional
Frequency Response	60 to 15,000 Hz shaped for lavalier use
Output Impedance	30/150/250 ohms (250 as shipped)
Output Level (1000 Hz):	
Effective (10 dynes/cm <sup>2</sup> )	-65 dBm
EIA-G <sub>m</sub>	-159 dB
Hum Sensitivity (.001 gauss, 60 Hz)	-112 dBm (max.)
Cable (Attached)	30 ft., two-conductor shielded, highly flexible, brown PVC jacket, no plug
Mounting	Removable lanyard supplied for suspending about neck
Dimensions	2 3/16" long x 15/16" diameter (65 x 24 mm)
Weight (less cable)	2.3 oz. (65 g)
Finish	Low luster gray

## Accessories

Microphone Holder, Clamp Type	MI-12086
Microphone Stand Adaptor Kit (for gooseneck)	MI-11073
13" Flexible Microphone Stand	MI-11745
19" Flexible Microphone Stand	MI-11746

## Ordering Information

Type BK-6 Miniature Dynamic Microphone	MI-11017
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## Microphones, SK Series

- Excellent for close-talking applications
- Rugged and reliable
- Ribbon and Dynamic models
- Wide frequency range



SK Series microphones are economical and durable, designed for general purpose announce and public address functions in TV, radio and professional audio systems.

### Ribbon Microphone Type SK-46

The SK-46 Ribbon Microphone puts the smooth, uncolored response of the velocity mike in a case size comparable to that of many dynamic mikes. The program quality and inconspicuous size make it preferred for professional audio systems of all types.

### Unusual Low-Frequency Response

The SK-46 offers unattenuated low-frequency response all the way to 40 Hz and below. Because of this, the mike "hears" all of the mellowness required by the professional user. At the normal speaking distance of one foot (305 mm), the SK-46 is free of unnatural boominess owing to its integral acoustic damping.

### Bi-Directional Pattern

The SK-46 Microphone's directivity pattern—the familiar "figure-8"—rejects sound energy incident to the sides of the mike. This characteristic is most useful where script noise or other distractions create unwanted background noise. It provides superior acoustic gain characteristics and is very effective for sound-reinforcement situations, particularly when the speakers are located directly above or to the side.

### Rugged, Repairable Construction

Built to take the hard knocks of daily use with little loss in quality or looks, the SK-46 is completely unaffected by temperature, humidity or barometric pressure. Being repairable, it can always be reconditioned to perform like new.

The combination of small size and outstanding quality makes the SK-46 an excellent choice as a desk mike on TV shows.

# Ribbon Microphone Type SK-46



### Specifications

Directional Characteristics .....Bi-directional  
 Frequency Range .....40 to 15,000 Hz  
 Output Impedance .....200/15,000 ohms (200Ω as shipped)

### Effective Output Level at 1000 Hz:

Low Impedance .....-58 dBm, EIA  $G_m$  -150 dB  
 High Impedance .....-60 dB below 1 volt/dyne/cm<sup>2</sup>

### Hum Pickup (.001 gauss, 60 Hz):

Low Impedance (200 ohms) .....-113 dBm  
 High Impedance (15,000 ohms) .....-94 dB below 1 volt

Cable .....25 feet (7.6 m), 2 conductor plus shield, no plug

Mounting .....Swivel mount, 5/8"-27 thread

Dimensions .....5 1/8" H; 1-15/16" W; 1 3/8" D (130, 49, 35 mm)

Finish .....Satin chromium and low luster gray

Weight (less cable) .....13 ounces (369 g)

### Ordering Information

Ribbon Microphone, Type SK-46 .....MI-12046

# Dynamic Microphone Type SK-30



The RCA SK-30 Dynamic Microphone is a small, light-weight unit with a broad range of applications. It is relatively insensitive to mechanical shock and wind disturbances.

Frequency response of the unit is exceptionally wide, 50 to 14,000 Hz. The microphone has an omni-directional pick-up pattern which tends to become uni-directional at high frequencies.

The SK-30 microphone may be hand held or mounted in a variety of ways. By removing the end cap, the microphone gooseneck-mounts for use on lecterns. A swivel adapter permits the microphone to mount on any standard floor or desk stand with a 5/8"-27 thread.

### Specifications

Frequency Response .....50 to 14,000 Hz  
 Output Impedance .....For use with 30 to 250 ohm unloaded inputs

Output Level (1000 Hz); (150 ohm system):  
 Effective (10 dynes/cm<sup>2</sup>) .....-55 dBm  
 E.I.A.— $G_m$  .....-149 dB

Hum Sensitivity (.001 gauss, 60 Hz) .....-115 dBm

Cable (attached) .....2 conductor shielded cable

Dimensions .....1.5" diameter by 4.5" long (38 mm, 114 mm)

Finish Color .....Midnight Blue

Weight .....5 oz. (140 g)

### Accessories

Swivel Mounting Adapter (5/8"-27 female thread) .....MI-11032

Flexible Gooseneck, 13" (330 mm) .....MI-11745

Flexible Gooseneck, 19" (483 mm) .....MI-11746

### Ordering Information

Dynamic Microphone, Type SK-30:  
 With 20-foot (6m) of cable .....MI-11030-1

# Aerodynamic Microphone Type SK-39



The Type SK-39 Aerodynamic Microphone has excellent response for close talking announce purposes. Its light weight and small size make it ideal for remote pickup and mobile use. It is used for paging and announcing in areas of high noise level because its rising high frequency characteristic gives excellent intelligibility.

The SK-39 is relatively insensitive to mechanical shock and wind disturbances and will withstand nominal exposure to moisture or rain because of its plastic diaphragm.

### Specifications

Directional Characteristics .....Semi-Directional

Frequency Response .....70 to 10,000 Hz

Output Impedance .....250 ohms

Output Level (1000 Hz):

Effective (10 dynes/cm<sup>2</sup>) .....-54 dBm

E.I.A.— $G_m$  .....-148 dB

Hum Pickup (.001 gauss, 60 Hz) .....-105 dBm

Cable (attached) .....25 ft., 2 conductor, shielded

Dimensions .....2 7/8" dia., 2 3/4" L, 3 1/4" H, (73, 70, 82 mm)

Finish Color .....Two-Tone Gray

Weight .....1 lb. (.45 kg.) less cable

### Ordering Information

Aerodynamic Microphone, Type SK-39 .....MI-12039



## Ribbon Microphones

- Exceptionally smooth frequency response
- Adjustable pick-up pattern
- Best for wide-range music
- Desk, floor or boom-mount



The RCA Ribbon Microphones described here are designed for highest quality sound pickup in radio, TV or recording studio applications. Smooth response over a wide frequency range is characteristic of these fine instruments. Each is provided with a 3-position voice-music switch to permit selection of the most desirable operating characteristic. These microphones are normally mounted on a desk or floor stand or mike boom.

# Cardioid Ribbon Microphone, Type BK-5



A dependable, high-quality ribbon instrument with an improved cardioid directional characteristic, the RCA Type BK-5 Microphone offers essentially flat frequency response from 30 to 20,000 Hz. Its smooth response and wide frequency range make it ideal for both speech and music.

### “Uniaxial” Directivity

The microphone’s maximum sensitivity lies on a single mechanical axis (see directivity pattern). This “uni-axial” directional characteristic simplifies microphone placement.

### Ribbon Element

The moving element of the Type BK-5 Microphone is a thin, corrugated, metallic ribbon clamped under tension. It vibrates in near perfect sympathy with almost any sound waves it intercepts. Placed between the pole pieces of a

magnetic circuit, one side of the ribbon is exposed to the open air while the rear side sees an acoustical labyrinth. Phase-shift openings in the labyrinth cancel essentially all of the backwave to give the instrument its cardioid characteristic.

### Triple-Impedance Output

An impedance-matching transformer, housed within the microphone case, raises the extremely low impedance of the ribbon to a line impedance of 30, 150 or 250 ohms (connected for 250 ohms at the factory). Changing the connections for either 30 or 150 ohms is a simple matter. Transformer shielding prevents hum pickup even even in moderately strong magnetic fields.

### Built-In Blast Filter

So faithful is the ribbon element to the sound pressures it intercepts that a sharp, loud transient—such as a gun shot—could do it harm. However, the BK-5 mike includes a double-layer blast filter that effectively shields the ribbon from such transients without impairing its sensitivity to more pleasant sounds.

### Voice-Music Switch

The essentially-flat low-frequency response of the BK-5 (see curve) makes it an outstanding choice for musical instrument pickup, even to 32-foot organ pipes, double string bass and the tympani.

A built-in, three-position switch allows modification of this low-frequency response for voice work.

### Repairable Element

Unlike many microphones available in today’s marketplace, the BK-5 is built for the long haul: it is fully repairable in the event of damage and ready for recalibration at any time.

### Specifications

Directional Characteristic .....	Improved Cardioid Pattern
Frequency Response .....	30-20,000 Hz (see curve)
Response Compensation .....	3 position, voice-music switch
Output Impedance .....	250 ohms, may be changed to 30 or 150 ohms
Effective Output Level at 1000 Hz	
Sound Pressure 10 dynes/cm <sup>2</sup> .....	-56 dBm
EIA Rating (G <sub>m</sub> ) (150 ohm connection) .....	-150 dB
Hum Pickup Level (.001 gauss, 60 Hz) .....	-128 dBm (max.)
Cable .....	3-conductor, shielded, 30 feet (9 m), no plug
Dimensions (overall) .....	7" long, 1 3/4" dia. (180 x 45 mm)

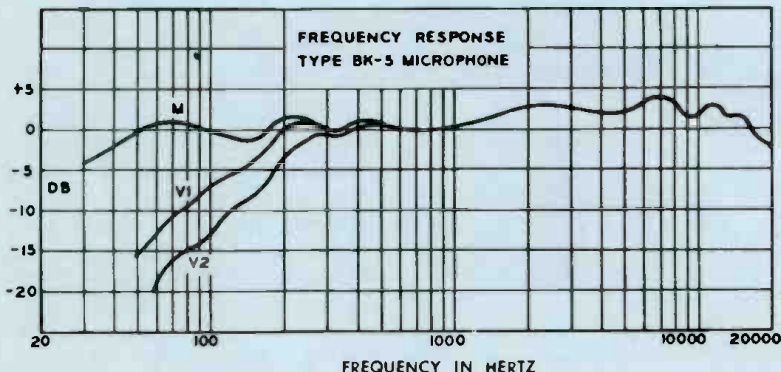
Weight (less cable) .....	1 lb., 11 oz. (760 g)
Finish Color .....	Low luster gray
Mount .....	Cushion-mount, 1/2" pipe-thread (female)

### Accessories

Thread Adapter, 1/2-inch pipe to 5/8"-27 thread .....	MI-11021-4
Boom Mount (See photo below) .....	MI-11012
Wind Screen (See photo below) .....	MI-11011

### Ordering Information

Cardioid Ribbon Microphone, Type BK-5 .....	MI-11010
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# Polydirectional Ribbon Microphone, Type 77DX



## Ribbon Element—Smoothest Characteristics

Ribbon mikes long ago established a reputation for response smoothness from sub-audibility to super audibility (see typical curve). The 77DX instrument has remained essentially unchanged for a decade and more because it is virtually beyond performance improvement and it continues to serve those to whom quality sound is important.

## Adjustable Pickup Patterns

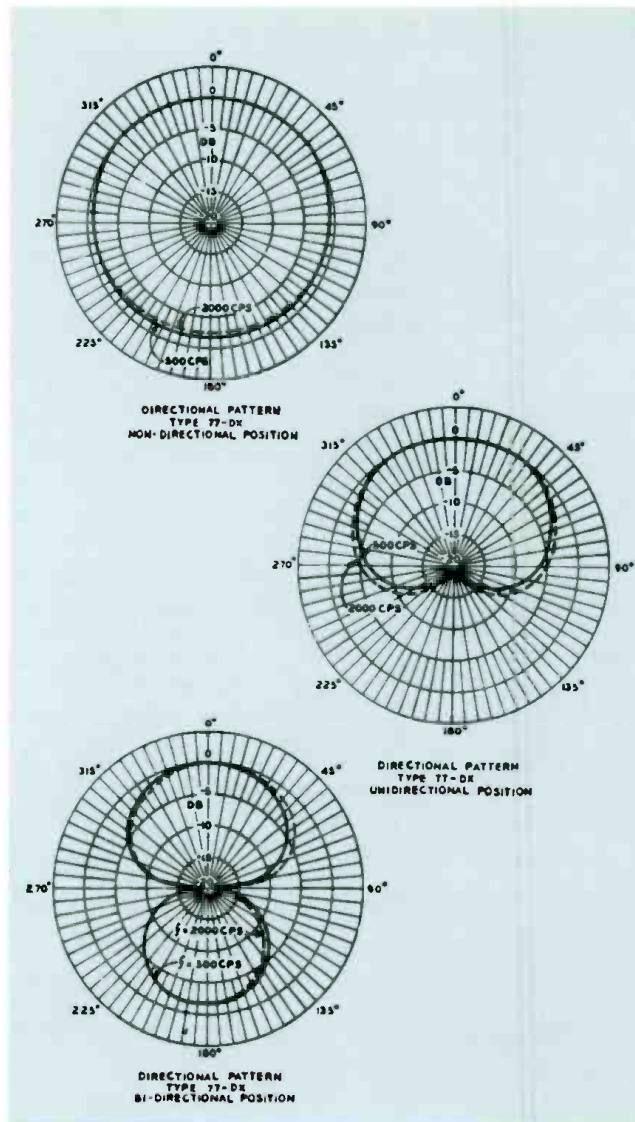
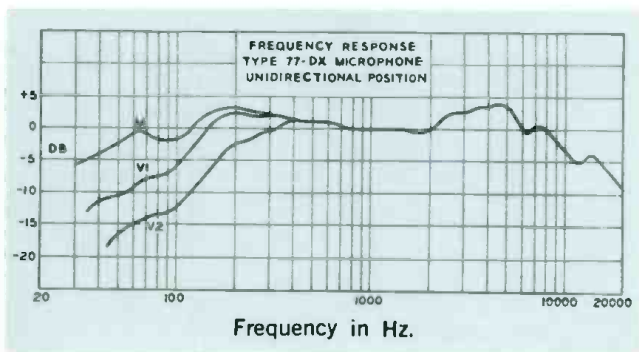
The 77DX includes a system that controls the mike's directivity to provide three patterns: bi-directional, omnidirectional and uni-directional cardioid. This system uses a movable shutter covering the opening of an acoustical labyrinth. The labyrinth opening is slotted directly "behind" the ribbon. When the shutter completely closes the labyrinth, the 77DX operates as a non-directional, pressure mike; with the shutter wide open, the 77DX operates as a bi-directional instrument; with the shutter partially closed, a phase-shift changes the pattern to a cardioid or uni-directional.

## Best for Wide-Range Music

Unsurpassed for the pickup of string bass, tympani and other low-frequency musical instruments, a 77DX mike not only responds to these "lows" but does it with superb fidelity to the acoustical waveform. So sensitive at the low frequency end is the 77DX, a special shock mount isolates the element from ordinarily imperceptible building rumble.

## Adjustable Low-End Response

For voice work, particularly in close-talk situations, the excellent low-frequency response of the 77DX captures the resonance of a trained male voice. For situations where this effect is inappropriate, a built-in, three-position switch allows adjustment of the low-frequency response (see curve).



## Specifications

Frequency Response Characteristic .....	30-20,000 Hz (see curve)		
Response Adjustment, 50 Hz .....	-10 dB; -15 dB		
Output Impedance .....	30, 150, 250 ohms		
Output Level (at 1000 Hz):	<b>Bi-Dir</b>	<b>Uni-Dir</b>	<b>Non-Dir</b>
Effective (10 dyn/cm <sup>2</sup> ) ..	-50 dBm	-53 dBm	-56 dBm
EIA-G <sub>M</sub> .....	-144 dB	-147 dB	-150 dB
Hum Pickup (1mG 60 Hz field) .....	-128 dBm (max.)		
Physical Characteristics:			
Dimensions .....	11½" L; 3¾" W; 2½" D (292 x 95 x 63 mm)		
Weight (less cable) .....	.3 lbs. (1,360 g)		
Mount .....	½" pipe		

## Accessories

Thread Adapter, ½-inch pipe to ⅝"-27 thread .....MI-11021-4

## Ordering Information

Polydirectional Velocity Microphone, Type 77DX:  
Satin-chrome finish .....MI-4045  
Supplied with 30-foot (9.2 m) cable (MI-43), no plug

# Bi-directional Ribbon Microphone, Type BK-11



The BK-11 is a dependable bi-directional microphone free of the effects of cavity resonance, audible ribbon resonance and pressure doubling. It is well shielded against stray magnetic fields and can perform satisfactorily in high hum fields. Acoustically designed sturdy stainless steel screens protect the microphone from mechanical injury. Internal shock and vibration isolation is provided between the case and the element. The microphone has a swivel mount which permits a 45-degree forward or backward tilt.

### Specifications

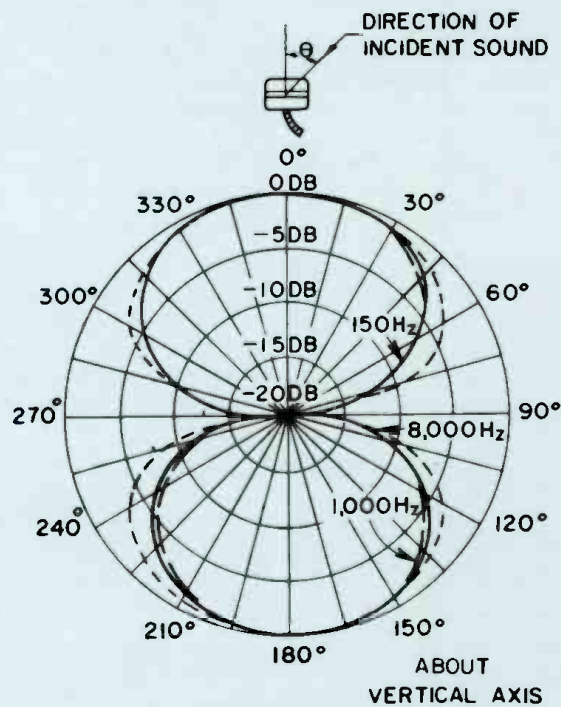
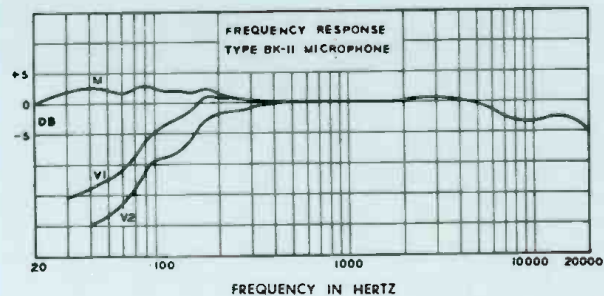
- Directional Characteristics .....Bi-directional
- Frequency Response .....20 to 20,000 Hz
- Response Compensation .....3 position voice-music switch
- Output Impedance .....30/150/250 ohms (250 as shipped)
- Output Level (1000 Hz):
  - Effective (10 dynes/cm<sup>2</sup>) .....-56 dBm
  - EIA-G<sub>m</sub> .....-147 dB
- Hum Pickup Level (.001 gauss, 60 Hz) .....-130 dBm (max.)
- Cable Attached .....30 ft. 3 conductor, shielded, brown neoprene jacket
- Mounting .....Swivel mount 1/2" pipe thread
- Dimensions (overall) .....8" long, 2 7/8" wide, 2 3/8" deep (200 x 73 x 60 mm)
- Weight (less cable) .....2 lbs. (900 g)
- Finish .....Low luster gray and stainless steel

### Accessories

- Thread Adapter, 1/2-inch pipe to 5/8"-27 thread .....MI-11021-4
- Desk Stand, Type KS-11 .....MI-11008

### Ordering Information

- Velocity Microphone, Type BK-11 (less stand) .....MI-11019





# Microphone Stands and Accessories

- Rugged construction
- Attractive appearance
- Easy to assemble or take apart
- Compact and convenient for portability



## MICROPHONE DESK STANDS

Type No.	Mounting	Base Dimension	Height	Weight	Finish	Ordering Information
91-D	1/2" Pipe Thread	4 1/2" by 6 5/8"	1 3/4"	4 lbs. (1.8 kg.)	Umber Gray Chrome Trim	MI-4092
KS-11A	1/2" Pipe Thread	4 3/8" diameter	—	1 1/2 lbs. (.68 kg.)	Dull Umber Gray	MI-11008
DS-10	5/8"—27 Fixture Thread	—	—	1 1/2 lbs. (.68 kg.)	Dull Gray Chrome Trim	MI-11021-3
DS-5	5/8"—27 Fixture Thread	6" diameter	4"	2 lbs. (.91 kg.)	Gun Metal Shrivel Finish	MI-11021-5
TS-6	5/8"—27 Fixture Thread	8" diameter	14 1/2" to 26"	6 lbs. (2.7 kg.)	Chrome	MI-11021-6

## MICROPHONE FLOOR STANDS

Type No.	Mounting	Base Diameter	Height	Weight	Finish	Ordering Information
90-A	1/2" Pipe Thread 5/8"—27 Fixture Thread	12 1/4" diameter	44" to 74"	33 lbs. (15 kg.)	Chrome	MI-4090
CS-1	5/8"—27 Fixture Thread	Collapsible	23" to 62"	5 lbs. (2.3 kg.)	Chrome and Cadmium	MI-11021-1
MS-25	5/8"—27 Fixture Thread	17"	38" to 67"	22 lbs. (10 kg.)	Chrome and Gray	MI-11021-7
MS-20	5/8"—27 Fixture Thread	12"	37" to 66"	15 lbs. (6.8 kg.)	Chrome and Gray	MI-11021-8

**MICROPHONE HOLDER**

Use .....To mount BK-6 Microphone to floor or flexible stands  
 Size .....2 5/8" long x 1 1/4" dia.  
 Weight—Holder .....2 oz. (57 g.)

**Ordering Information**

BK-6 Microphone Holder, 5/8"—27 thread .....MI-12086



**CABLE HOOK**

Use .....Fits all microphones  
 Weight .....15 oz. (425 g.)  
 Finish .....Polished Chrome  
 Fits Stands 7/8" to 1 1/4" in diameter  
 Attachment .....One screw

**Ordering Information**

Cable Hook .....MI-11099



**MICROPHONE ADAPTORS**

Stand Thread	Microphone Thread	Ordering Information
1/2" pipe thread	5/8"—27 male	MI-12053
5/8"—27 female	1/2" pipe thread	MI-11021-4



**GOOSENECK STANDS**

**Ordering Information**

6" Gooseneck, chrome finish, 5/8"—27 thread, wt. 8 oz. (230g)	MI- •
13" Gooseneck, chrome finish, 5/8"—27 thread, wt. 1 lb. (450g)	MI-11745
19" Gooseneck, chrome finish, 5/8"—27 thread, wt. 1 1/2 lbs. (680g)	MI-11746
6" Stand Bracket Clamp, 5/8"—27 thread	MI-11747

**MICROPHONE STAND ADAPTOR KIT**

Weight .....8 oz. (230 g.)

**Ordering Information**

BK-6 Microphone Stand Adaptor Kit (Consisting of stand adaptor flange, 3 tapping screws, microphone adaptor, 2 machine screws and rubber gasket) .....MI-11073



**MICROPHONE CABLES**

RCA microphone cables are of rugged construction and are jacketed with a neoprene compound to assure long life. They are specially designed for rugged service either in studio or remote operation.

**LOW IMPEDANCE CABLE**

Use .....Low impedance microphone circuits  
 Type .....Two-conductor, twisted  
 Conductors .....#28 AWG  
 Insulation .....Special rubber compound  
 Shield .....Braided  
 Outer Covering .....Dark Beige PVC  
 Overall Diameter .....0.156" (4 mm)

**Ordering Information**

Available in 100-foot (30 m) hanks only .....MI-13373

**HEAVY DUTY CABLE**

Type .....Two-conductor, twisted  
 Conductors .....Stranded, equivalent to #16 AWG  
 Insulation .....Special rubber compound  
 Shield .....Tinned copper  
 (Complete coverage without loss in flexibility)  
 Outer Covering .....Black neoprene compound  
 Overall Diameter .....0.300" (8 mm)

**Ordering Information**

Available in 100-foot (30 m) hanks only .....MI-13307

**LIGHTWEIGHT CABLE**

Type .....Two-conductor, twisted  
 Conductors .....Stranded cadmium copper,  
 equivalent to #24 AWG  
 Insulation .....Polyethylene  
 Shield.....Semiconducting wrapped and braided tinned copper  
 (Complete coverage with greater flexibility)  
 Outer Covering .....Neoprene  
 Overall Diameter .....0.215" (6 mm)

**Ordering Information**

Available in 100-foot (30 m) hanks only .....MI-13322



**MICROPHONE PLUGS AND RECEPTACLES**

RCA microphones are sold without plugs in order that the purchaser may use any type desired. Three series of Cannon plugs are stocked. These include the "UA" series of plugs which have been designed as a result of EIA recommendations, the "P" Type Connectors and the "XLR" matched family of small 3-contact connectors.

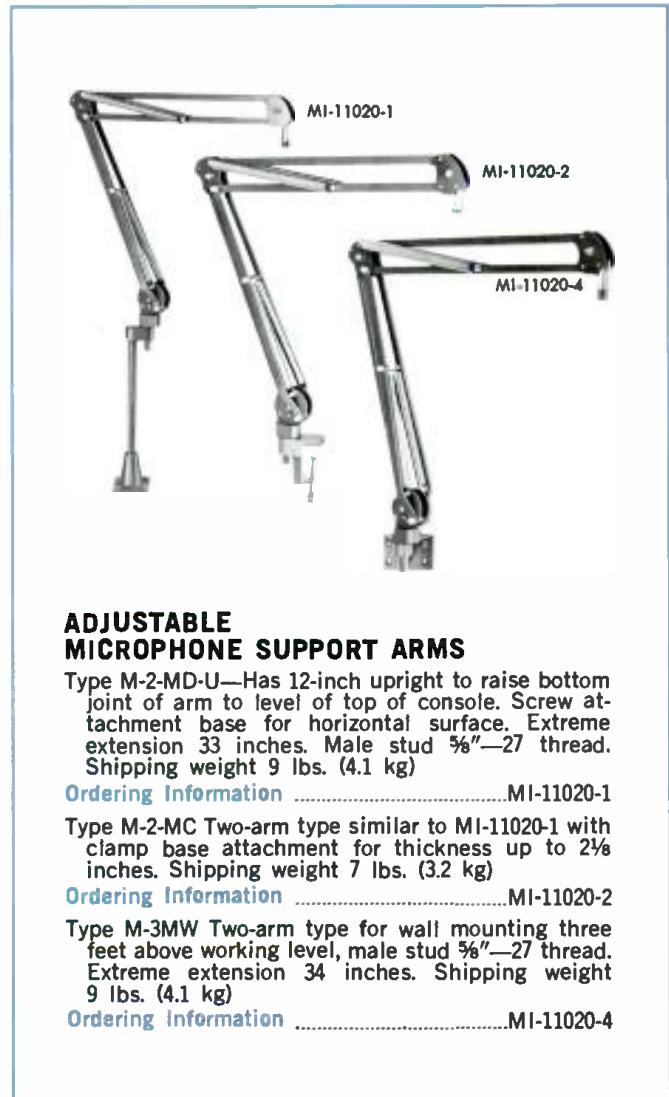
The "UA" connectors have gold-plated contacts for low-loss and noise-free operation. Flat-top construction provides positive polarization. All have thumb action latch-lock for quick insertion and firm engagement and a 1 3/4-inch rubber sleeve for cord protection.

The "P" connectors are the original connectors for audio circuits and accommodates wires up to No. 10. The "P" connectors have a 15 ampere contact capacity. The Cannon connectors "XLR" type plugs and receptacles are miniature connectors favored by many users.

**ORDERING INFORMATION**

Description	Cannon Stock No.	Ordering Information
Female Plug for Microphone Extension Cable (mates with MI-11062) .....	UA-3-11	MI-11061
Male Plug for Microphone Cable (mates with MI-11061 and MI-11063) .....	UA-3-12	MI-11062
Flush Mounting Receptacle (mates with MI-11062) .....	UA-3-13	MI-11063
Male Plug for Microphone Cords .....	P3-CG-12S	MI-4630
Wall Receptacle for Above Plug .....	P3-35	MI-4624*
Extension Cord—Female Connector..	P3-CG-11S	MI-4620
Microphone Receptacle, Female .....	XLR-3-31	MI-11088
Microphone Receptacle, Male .....	XLR-3-32	MI-11087
Microphone Plug, Female .....	XLR-3-11C	MI-11090
Microphone Plug, Male .....	XLR-3-12C	MI-11089
Wall Receptacle, Single Male .....	XLR-3-36	MI-141051-1
As Above but Double Male .....	XLR-3-36-2G	MI-141051-2
Wall Receptacle, Single Female .....	XLR-3-35	MI-141050-1
As Above but Double Female .....	XLR-3-35-2G	MI-141050-2

\*Note: The MI-4624-A Receptacle will fit a standard outlet box.



**ADJUSTABLE MICROPHONE SUPPORT ARMS**

Type M-2-MD-U—Has 12-inch upright to raise bottom joint of arm to level of top of console. Screw attachment base for horizontal surface. Extreme extension 33 inches. Male stud 5/8"—27 thread. Shipping weight 9 lbs. (4.1 kg)

Ordering Information .....MI-11020-1

Type M-2-MC Two-arm type similar to MI-11020-1 with clamp base attachment for thickness up to 2 1/2 inches. Shipping weight 7 lbs. (3.2 kg)

Ordering Information .....MI-11020-2

Type M-3MW Two-arm type for wall mounting three feet above working level, male stud 5/8"—27 thread. Extreme extension 34 inches. Shipping weight 9 lbs. (4.1 kg)

Ordering Information .....MI-11020-4

## MICROPHONE BOOMS WITH STANDS OR PERAMBULATOR

### DESCRIPTION

RCA Microphone Boom Stands and Perambulator afford proper microphone placement for programs where the best microphone position cannot be reached with conventional stands. Boom length and counter balance overhang are easily adjustable.

### KS-3 MICROPHONE BOOM & STAND

Height of Stand .....Adjustable from 5' 3" to 8' 10"

Horizontal Arm Adjustment  
(with overhang to rear) .....5' 4" to 8' 1"

Microphone Mounting .....Standard 1/2" pipe thread  
5/8"-27 fixture thread with adaptor removed

Weight (unpacked) .....67 lbs. (30.4 kg.)

Finish .....Satin stainless steel and low luster gray

Ordering Information .....MI-11056

### BS-36 FLOATING ACTION BOOM & STAND

Height of Stand .....Adjustable from 4' to 6'

Boom Length .....62" (an additional 31" extension may  
be added if a lightweight mike is used)

Microphone Mounting .....5/8"-27 Fixture Thread

Base Diameter .....17"

Weight Shipping .....36 lbs. (16 kg.)

Finish .....Chrome plated with base of polished chrome  
and gun metal

Ordering Information .....MI-11021-2

### MI-26574 MICROPHONE BOOM & PERAMBULATOR

Dimensions:

Maximum Height (with boom pedestal elevated) .....9' 5"

Height (with pedestal lowered) .....6' 5"

Length of Boom:

Extended .....17'

Retracted .....7' 4 1/2"

Weight:

Boom (with gunning device  
and counterweights) .....102 lbs. (46.5 kg.)

Perambulator .....421 lbs. (190 kg.)

### Accessory

Standard Clamp Type Holders  
(Mole Richardson) .....Type H-1 to H-7

### Ordering Information

Boom and Perambulator (complete) .....MI-26574

Boom Only .....MI-26574-1

Perambulator Only .....MI-26574-2







## Audio Consoles, Types BC-7, -8, -9, -17, -19; BCM-2

- All amplifiers and power supplies plug-in
- Mono, stereo, two-channel mono and simulcast units
- Long-life, step-type faders
- Noiseless, telephone-type key switches
- Expandable capabilities



catalog AU.2010A

(Replaces B.1160)

RCA Audio Consoles are high-quality systems designed to stand up under day-in, day-out use and abuse. There are mono, stereo, two- and three-channel consoles plus an auxiliary console for system expansion. Modular construction permits a variety of input combinations, depending on the modules selected. For your convenience, a selection of input arrangements is included for each console.

### **Two-Channel Console, Type BC-7**

The Type BC-7 is offered in five basic forms for dual-channel mono and stereo operation. The console provides ten faders.

### **Two-Channel Console, Type BC-8**

The Type BC-8 is a dual-channel, mono console with eight faders. It uses plug-in modules identical to those of the BC-7 and is offered in two versions.

### **Mono Console, Type BC-9**

Featuring four input faders, the Type BC-9 is a mono console ideally suited to the needs of the smaller studio or audio system. Its components are identical to those of the larger consoles described in these pages.

### **Simulcast Audio Console, Type BC-17**

Essentially a three-channel version of the versatile Type BC-7 Console, the Type BC-17 provides mono and stereo mixing facilities together or separately without external switching or jack-field assemblies. As a result, the BC-17 can control stereo and mono program material simultaneously.

### **Stereo Console, Type BC-19**

The Type BC-19 is a stereo or two-channel equivalent of the mono Type BC-9. Its components are interchangeable with those of the other consoles described in these pages.

### **Auxiliary Mixer Console, Type BCM-2**

The Type BCM-2 expands the input capability of any of the foregoing consoles by five faders. It is offered in two standard versions: one for mixer bus bridging and one for mixer input.

## Two-Channel or Stereo Console, Type BC-7



- Eight dual, two single step-attenuator faders
- Plug-in assemblies
- Balanced inputs and outputs
- Solid state design
- High reliability components

The BC-7 Audio Console provides stereo or mono mixing, switching, and monitoring, plus dependable plug-in amplifiers, low-impedance mixing circuits, power supply and built-in cue/intercom amplifier. Two mono and three stereo versions are available from stock. Special configurations are available on order.

### Ten Input Faders

The BC-7 console contains ten faders: five low level, three high level and two line level. All inputs and outputs are brought out to terminal connections within the console, so that external wiring is easily accomplished.

### Functional Design

The BC-7 Console is designed for operating convenience with a double-sloped front panel, large illuminated VU meters and uncluttered control panel. The main control panel finish is anodized, brushed aluminum while the housing and upper panel are finished in a pleasant blue color.

### Compact Control Arrangement

All switching, mixing, and operational controls are contained on the main control panel and are grouped and color coded for fast identification. Permanent panel designations are etched in black, while designations which are most subject to change, are left blank. Panel recesses, provided at these locations, accept an assortment of pressure-sensitive labels supplied with each console. Plug-in, unitized construction is the key to the flexibility of the BC-7 to meet varying studio applications. Six types of plug-in units are used in the BC-7: preamplifier, program amplifier, monitor amplifier, cue/intercom amplifier, power supply and high-level isolation unit.

### All Solder Input Connectors

One feature of the design is the availability of the input and output circuits on terminals. This facilitates wiring to external sound effects equipment, compensating networks or jack panels. Another feature is the muting-relay strapping panel, conveniently located behind the main control panel at the top, center. Any of the five muting relays may be controlled by any combination of source selection lever keys associated with faders 1 thru 8.

### Self-Contained Power Supply

The power supply provides operating power for up to ten preamplifiers, two program amplifiers, five speaker muting

relays as well as reserve power for operation of five additional optional warning light relays. The 10-watt monitor amplifier and the cue/intercom amplifier contain their own power supply.

### Mixing Features

Each of the ten faders accepts one of three plug-in units: the preamplifier (for low-level sources); a high-level isolation unit (for balanced high-level sources); or a simple jumper plug (for direct, unbalanced-input). The console housing is supplied with dual attenuators in fader positions 1 through 8.

### Specifications

Faders	10
Inputs	31
Outputs:	
Program lines	2
External monitors (one for each channel)	2
Speakers per channel (or 10 speakers, two per location for stereo using optional second monitor amplifier)	5
Source Impedances:	
Microphones	37.5/150/600 ohms
Hi-Level (Balanced)	600 ohms
Load Impedances:	
Line (Balanced)	600 ohms
Loudspeaker (Balanced)	16 ohms
Headphone	High Impedance
Output Level:	
Program Channels (after 6 dB isolation pad)	+18 dBm
Monitor Amplifier	10 watts or +40 dBm
Input Level:	
Microphone Inputs (maximum)	-22 dBm
Hi-Level Input (maximum)	+18 dBm
Gain:	
Mic to Program Line	105 or 111 dB
Hi-Level to Program Line	64 dB
Frequency Response	30 to 20,000 Hz, $\pm 0.75$ dB
Distortion:	
Program Channel	50-20,000 Hz 0.5% max.
Monitor Amplifier	30-20,000 Hz 1% max.
Signal-to-Noise Ratio	
Microphone to Program Line (68 dB gain, +18 dBm output)	68 dB
Power Requirements	117/234V, 50/60 Hz, 120W max.
Dimensions	39 $\frac{1}{4}$ " W, 12 $\frac{1}{2}$ " H, 20" D (997, 318, 508 mm)

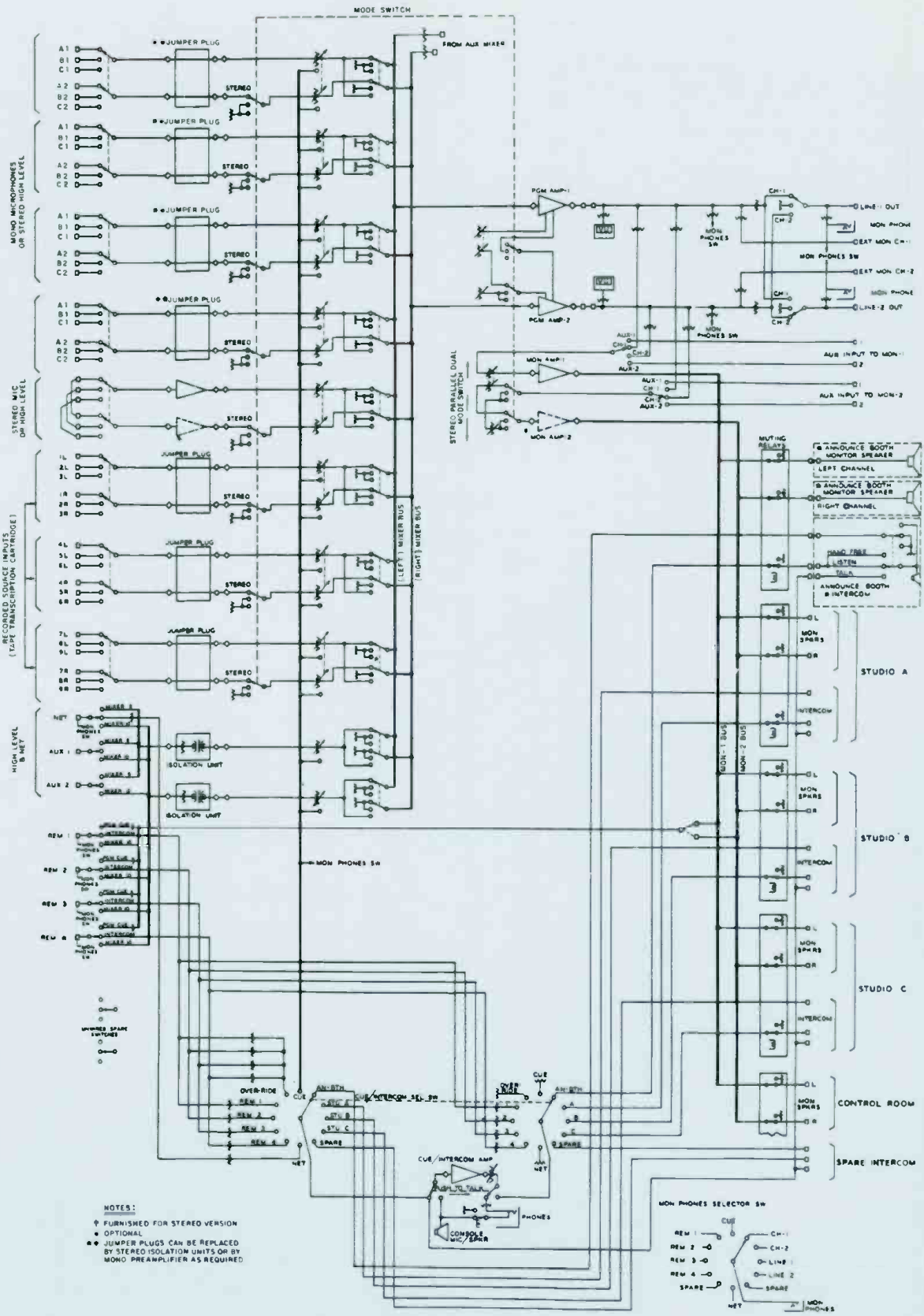
### Accessories

Auxiliary Mixer Housing, Type BCM-2B	MI-11656
On-Air Light Relay	MI-11702
Warning Lights	MI-11706-Series
Spare Program Amplifier, Type BA-72	MI-11672
Spare Program Amplifier, Type BA-73	MI-11659
Spare Monitor Amplifier, Type BA-74	MI-11661
Spare Cue/Intercom Amplifier, Type BA-78	MI-11662
Spare Power Supply, Type BX-71	MI-11663
Spare Stereo Hi-Level Isolation Unit	MI-11665S
Spare Mono Hi-Level Isolation Unit	MI-11665
Intercom Sub Station	MI-11452
Jumper Plugs, Set of two	MI-14105

### Ordering Information

Mono, Two-Channel Consoles, Type BC-7: (4 BA-72 Preamps; 2 BA-73 Program Amps; 1 BA-74 Monitor Amp; 1 BA-78 Cue/Intercom Amp; 2 Hi-Level Iso Units; 1 BX-71 Power Supply)	ES-11176
As above, with two BA-72 Preamps	ES-11177
Stereo, Two-Channel Consoles, Type BC-7: (6 BA-72 Preamps; 2 BA-73 Program Amps; 2 BA-74 Monitor Amps; 1 BA-78 Cue/Intercom Amp; 2 Hi-Level Iso Units; 1 BX-71 Power Supply)	ES-11180
As above, with four BA-72 Preamps	ES-11179
As above, with two BA-72 Preamps	ES-11178





NOTES:  
 \* FURNISHED FOR STEREO VERSION  
 # OPTIONAL  
 • JUMPER PLUGS CAN BE REPLACED BY STEREO ISOLATION UNITS OR BY MONO PREAMPLIFIER AS REQUIRED

Functional Diagram, Type BC-7 Console

# Two-Channel Mono Console, Type BC-8



- Dual-channel operation
- Plug-in electronics
- Built-in cue and intercom amplifiers
- Step-attenuator faders
- Eight faders

Possessing great flexibility and featuring simplified operation, the BC-8 Studio Console provides a high-fidelity audio input system for AM, FM and TV stations. Designed for operating convenience and ease of servicing, the console offers two-channel mixing and switching with monitoring facilities, plus dependable plug-in amplifiers, low-impedance mixing circuits, self-contained power supply and built-in cue/intercom amplifier. Also included are two VU meters so that simultaneous, visual monitoring of both program channels may be accomplished.

Field installation of a third program channel is possible. This is useful for pre-testing microphone circuits for quality and level before switching to program or preview channels.

### Plug-In Unitized Construction

Plug-in unitized construction is the key to the flexibility of the BC-8. The basic console consists of a wired housing including all operating controls, three dust-protected speaker muting relays, two VU meters, and guide assemblies for plug-in modules. These include microphone preamplifiers, program amplifiers, cue/intercom amplifier, a monitor amplifier, a power supply, and high-level isolation units. Plug-in units are identical with those of the BC-7 Console and BCM-2 Auxiliary Mixer.

### Eight Low-Impedance Faders

The BC-8 Studio Console contains a total of eight fader positions; three low-level, (each switchable to one of three inputs); three high-level, (each switchable to one of three inputs); and two line-level, (each switchable to one of three inputs). All amplifier inputs and outputs are brought out to terminal connections within the console, so that wiring to external jack fields may be easily accomplished.

### Ease of Operation

All switching, mixing, and operational controls are contained on the main control panel and are grouped and color

coded for fast identification. The double-slope front panel, pleasing functional design, large illuminated VU meters and completely uncluttered control panel highlight the simplicity and beauty of the unit. The finish of the main control panel is anodized, brushed aluminum, while the housing and upper panel are finished in a harmonizing blue color. The console is intended for desk top mounting. The BCM-2 Auxiliary Mixer may be used with the BC-8 to increase the number of available faders by five. Convenient terminals are provided in the BC-8 to extend the mixer bus to the BCM-2.

### Specifications

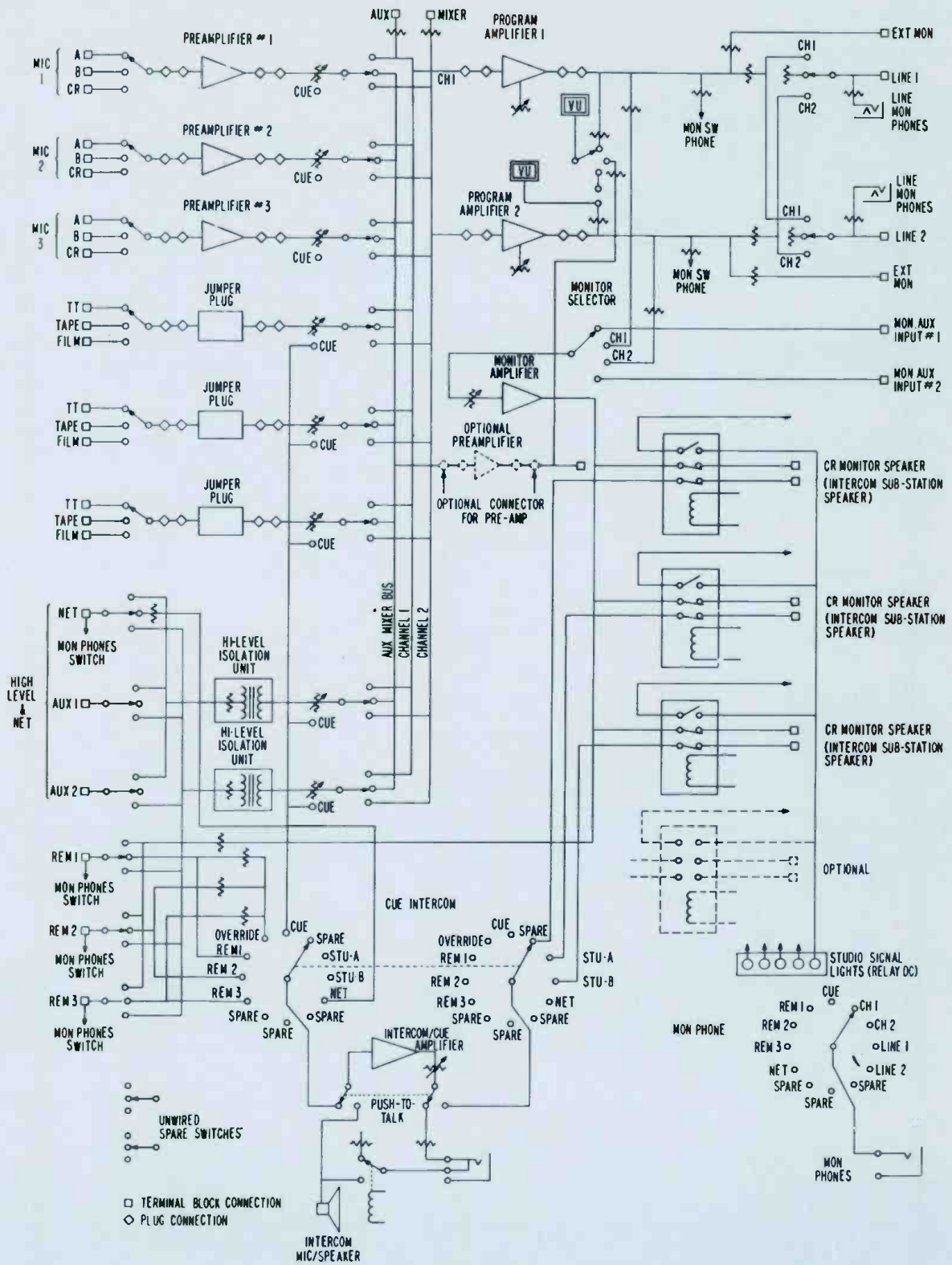
Faders (selectable to either program channel) .....	8
Inputs .....	24
Outputs:	
Program lines (either channel feeds either or both) .....	2
External monitor (one for each channel) .....	2
Loudspeakers .....	3
Source Impedance:	
Microphones (Balanced) .....	37.5/150/600 ohms
Hi-Level (Balanced) .....	600 ohms
Load Impedance:	
Line .....	600 ohms balanced from 6 dB pad
Speaker (Balanced) .....	16 ohms
Headphone .....	High Impedance
Input Level:	
Microphone Inputs (maximum) .....	-22 dBm max.
Hi-Level (maximum) .....	+18 dBm max.
Output Level:	
Program Line (After 6 dB isolation pad) .....	+18 dBm
Monitor .....	10W or +40 dBm
Gain:	
Mic Input to Program Line .....	105 or 111 dB
Hi-Level to Program Line .....	64 dB
Frequency Response .....	30 to 20,000 Hz, ±0.75 dB
Distortion:	
Program Channel (50-20,000 Hz) .....	0.5% max.
Monitor Amplifier (30-20,000 Hz) .....	1% max.
Signal-to-Noise Ratio:	
Mic to Program Line (68 dB gain, +18 dBm output) .....	68 dB min.
Dimensions .....	34¾" W, 12½" H, 20" D (883, 318, 508 mm)
Weight (approx.) .....	125 lbs. (58 kg)
Finish Color .....	Blue, brushed aluminum panel, color coded controls
Power Requirements .....	115/230 V, 50-60 Hz, 120 W max.

### Accessories

Auxiliary Mixer Housing, Type BCM-2 .....	MI-11656
On-Air Light Relay .....	MI-11702
Warning Lights .....	MI-11706-Series
Jumper Plugs, Set of two .....	MI-141015
Spare Preamplifier, Type BA-72 .....	MI-11672
Spare Program Amplifier, Type BA-73 .....	MI-11659
Spare Monitor Amplifier, Type BA-74 .....	MI-11661
Spare Cue/Intercom Amplifier, Type BA-78 .....	MI-11662
Spare Power Supply, Type BX-71 .....	MI-11663
Spare Mono Hi-Level Isolation Unit .....	MI-11665
Intercom Sub-station .....	MI-11452

### Ordering Information

Mono Two Channel Consoles, Type BA-8:	
(3 BA-72 Preamps; 2 BA-73 Program Amps;	
1 BA-74 Monitor Amp; 2 Hi-Level Iso Units; 1 BA-78	
Cue/Intercom Amp; 1 BX-71 Power Supply) .....	ES-11167
As above with one BA-72 Preamp .....	ES-11181



Functional Diagram, Type BC-8 Console

# Simulcast Three-Channel Audio Console, Type BC-17



- Extensive FM, AM and TV features
- Reliable solid state design
- Easy operation
- Ten dual step-attenuator faders

The BC-17 Simulcast Three-Channel Audio Console provides modern mixing and switching facilities for the AM/FM/TV broadcaster. The console allows an operator to simultaneously switch program material to a stereo FM transmitter and an AM transmitter.

## Input Facilities

The BC-17 has provisions for 46 audio inputs; 18 mono sources, 28 stereo inputs, including two inputs for auxiliary program sources. Two extra unwired utility level keys are also provided.

Mixing is accomplished by a ten-fader low impedance mixer, using ladder attenuators. Cueing positions are provided on all attenuators.

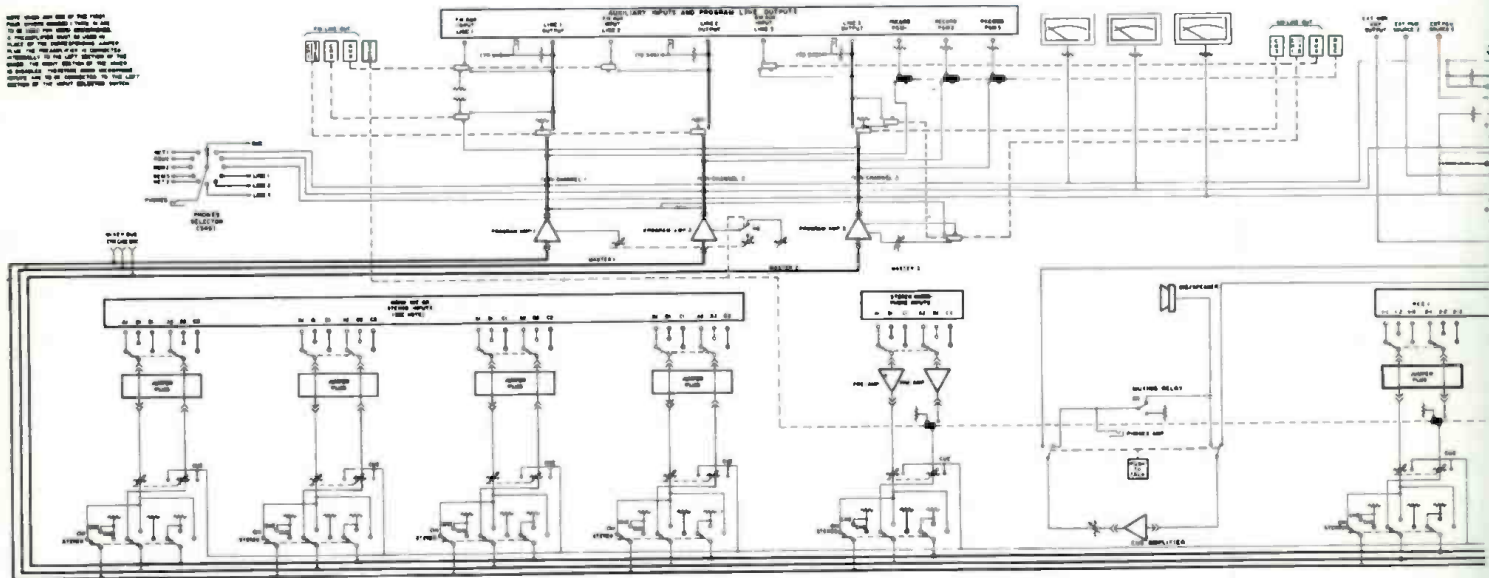
The console has twelve single, low-level input channels allowing twelve single mono microphones to be individually switched (three per channel) into four mixing channels. Three stereo pairs of microphones may be switched separately into the first five faders (stereo).

Ten high-level stereo inputs are provided. These channels include stereo turntable, reel- and cartridge-tape and film projector sources, and one auxiliary input.

The high-level channels include one network, one auxiliary, and three remote line inputs. They are individually switched to provide maximum flexibility. These inputs are wired for one (left) channel only. However, wiring for the right channel can be added since switch facilities are available to provide stereo when desired. Two relay switching assemblies and one external auxiliary input provide fifteen stereo inputs.

## Program Channels

All input sources are routed to any one of three program channel buses which, in turn, direct mono programs into a corresponding program amplifier. A stereo source is routed into the channel 1 bus and channel 2 bus, then into program





amplifiers 1 and 2 respectively. A selector switch connects the right channel of the source through the channel 2 program amplifier.

**Monitoring Features**

Monitoring facilities permit the operator to control the mode of program fed to studio speakers.

Other monitoring facilities include four phone jacks for program amplifier outputs, line outputs, cue information and network and remote line programs. Through a panel speaker, it is possible to select cue, networks, or remote line information and studio intercommunications at speaker signal level.

**Specifications**

Mixing Channels .....	10
Inputs .....	46
External High Level Sources .....	1 Mono; 1 Stereo
Operating Modes .....	Three-Channel or Stereo/Mono simultaneously
<b>Output Levels:</b>	
Program (Three Lines) .....	+18 dBm
Recording Outputs (Four outputs) .....	-0 dBm
Stereo Speaker Outputs (Five sets) .....	10W or +40 dBm
Auxiliary Input/Output Circuits .....	1 high-level auxiliary
<b>Source Impedances:</b>	
Microphone Inputs (Balanced) .....	37.5/150/600 ohms
Hi-Level Inputs .....	600 or 600/150 ohms
<b>Load Impedances:</b>	
Line (Balanced) .....	600 ohms
Loudspeaker (Balanced) .....	16 ohms
Headphones .....	High Impedance
<b>Input Levels:</b>	
Microphone (Max.) .....	-22 dBm
Hi-Level (Max.) .....	+18 dBm

**Gain:**

Microphone to Program Line .....	106 or 112 dB
Recorded Inputs to Program Line .....	66 dB max.
Network, Auxiliary and Remote .....	66 dB
Microphone Input to Speaker Line .....	127 dB

Signal-to-Noise Ratio .....

68 dB min.

Frequency Response (30-20,000 Hz) .....

±0.5 dB

**Distortion:**

Program Channels (50-20,000 Hz) .....

0.5% max.

Monitor Amplifier (30-20,000 Hz) .....

1.0% max.

Dimensions .....

39¼" W, 12½" H, 20" D (997, 318, 508 mm)

**Weight:**

Stereo Console .....

180 lbs. (82 kg)

Power Requirements .....

115 or 230 V AC, 50-60 Hz, 130 W max.

**Accessories**

On-Air Light Relay .....

MI-11702

Warning Lights .....

MI-11706-Series

Jumper Plugs, Set of Two .....

MI-141015

Spare High Level Isolation Unit (Mono) .....

MI-11665

Spare Hi-Level Isolation Unit (Stereo) .....

MI-11665S

Spare Preamplifier, Type BA-72 .....

MI-11672

Spare Program Amplifier, Type BA-73 .....

MI-11659

Spare Monitor Amplifier, Type BA-74 .....

MI-11661

Spare Cue/Intercom Amplifier, Type BA-78 .....

MI-11662

Power Supply, Type BX-71 .....

MI-11663

Intercom Sub Station .....

MI-11452

**Ordering Information**

Three-Channel Console, Type BC-17:

(6 BA-72 Preamps; 3 BA-74 Program Amps; 2 BA-74

Monitor Amps; 1 BA-78 Cue/Intercom Amp; 2 Stereo

Hi-Level Iso Units; 1 BX-71 Power Supply) .....

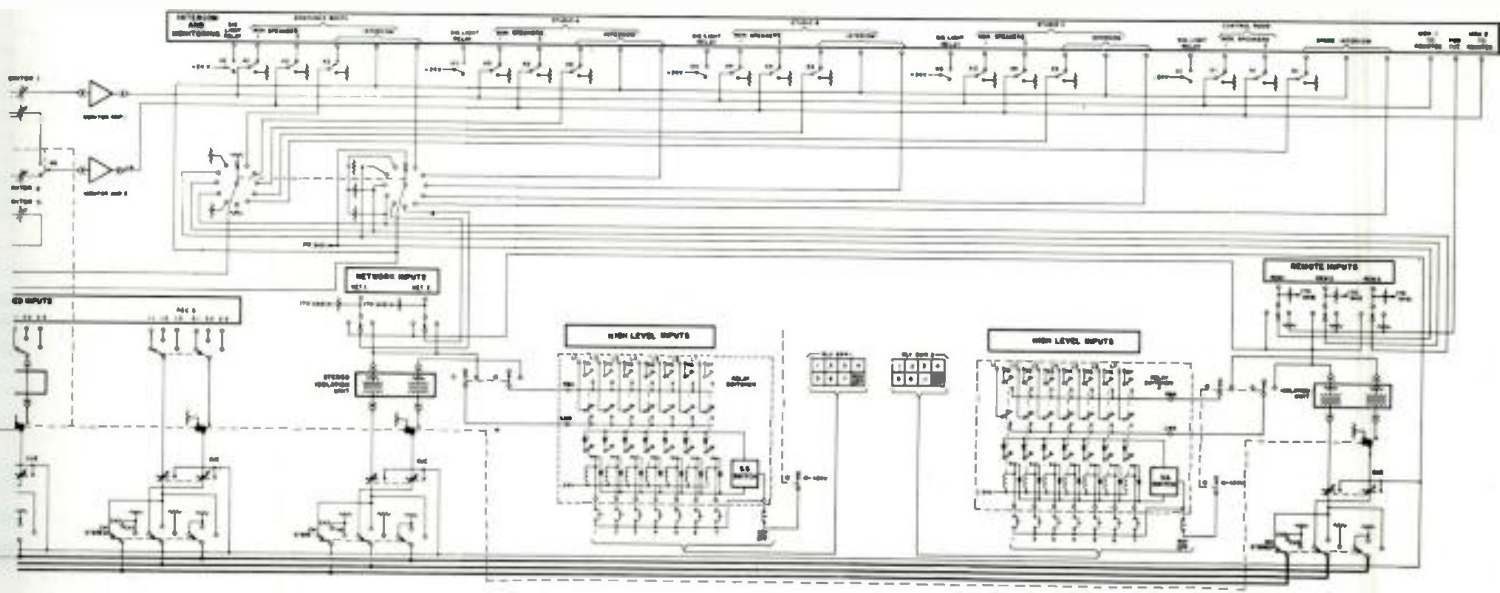
ES-11173

As above with four preamps .....

ES-11174

As above with two preamps .....

ES-11175



Functional Diagram, Type BC-17 Console

# Mono Console, Type BC-9



LIMITED  
QUANTITIES

- Extended frequency response
- Pushbutton source selection
- Self-contained relay switching
- Built-in Intercom

The BC-9 Four-Fader Mono Console packs a lot of versatility and convenience. Multiple pushbuttons permit easy selection of high level sources (such as tape recorders, cartridge tape, turntable, etc.) to each of two fader controls. The BC-9 may be operated remotely, since the sources are switched by self-contained relays. Two additional faders are provided for use with microphones.

The modular plug-in amplifiers and power supply used in the BC-9 are identical with those incorporated in several other RCA audio consoles (BC-7, BC-8, BC-17, BC-19).

Communications between control room and studio or remote locations is facilitated by the intercom facilities built into the BC-9.

## Specifications

Faders .....	4
Inputs (Total) .....	20
Outputs .....	1 Program; 3 Monitor Speaker
Source Impedance:	
Microphones (Balanced) .....	3.75/150/600 ohms
Turntables/Tape (Balanced) .....	60 ohms

Input Levels:	
Microphone .....	-22 dBm max.
Hi-Level .....	-10 dBm
Output Levels:	
Program (after 6 dB isolation pad) .....	+18 dBm
Monitor .....	10W or +40 dBm
Maximum Gain .....	105 dB
Frequency Response .....	30-20,000 Hz, $\pm 0.75$ dB
Distortion:	
Program Channel (50-20,000 Hz) .....	0.5% max.
Monitor Channel (30-20,000 Hz) .....	1% max.
Signal-to-Noise Ratio .....	68 dB
Dimensions .....	19½" W, 12½" H, 24" D (495, 318, 610 mm)
Weight (Approx.) .....	125 lbs. (57 kg)

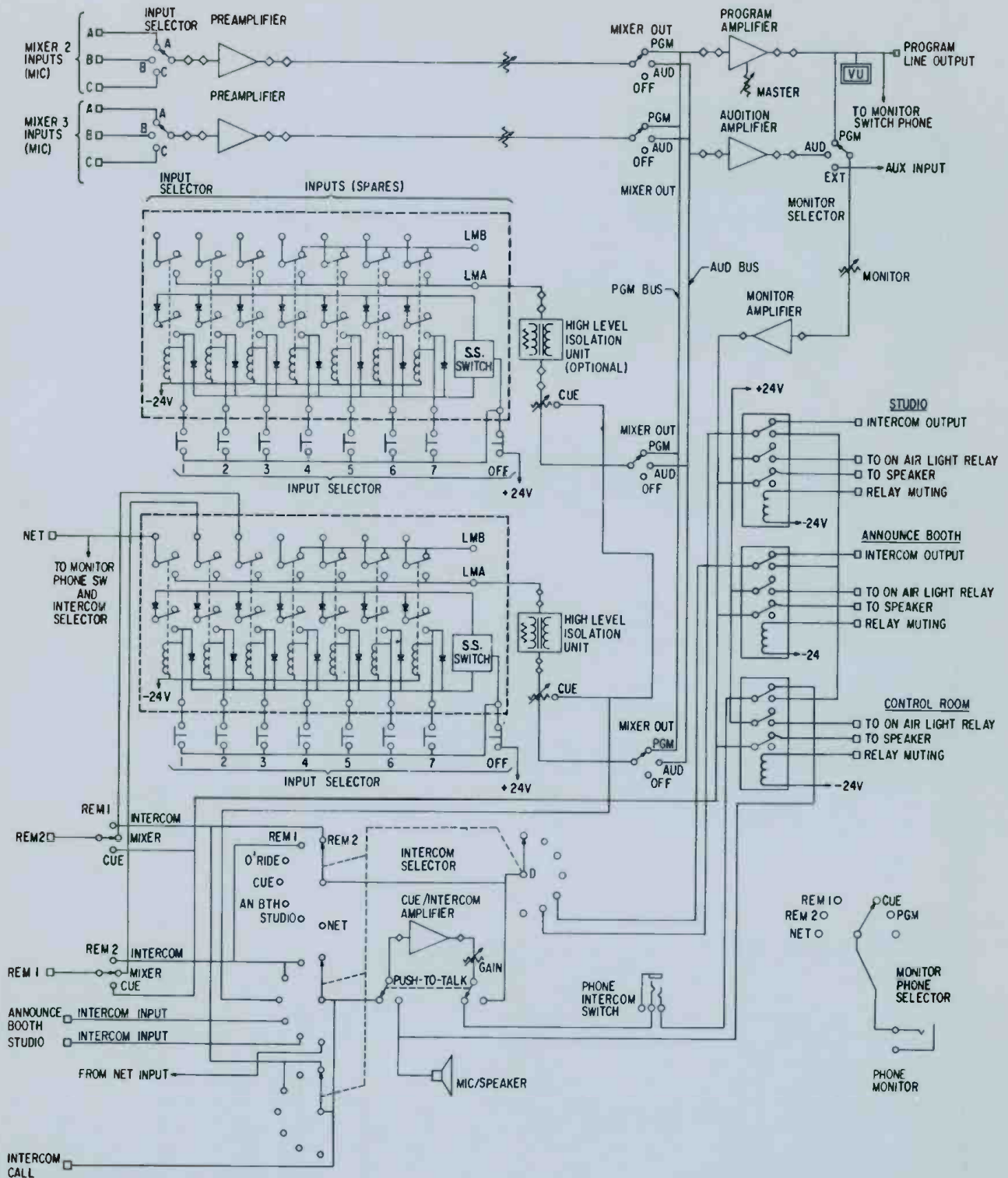
## Accessories

On-Air Light Relay .....	MI-11702
Warning Lights .....	MI-11706-Series
High Level Isolation Unit .....	MI-11665
Spare Preamplifier, Type BA-72 .....	MI-11672
Spare Program Amplifier, Type BA-73 .....	MI-11659
Spare Monitor Amplifier, Type BA-74 .....	MI-11661
Spare Cue/Intercom Amplifier, Type BA-78 .....	MI-11662
Power Supply, Type BX-71 .....	MI-11663
Jumper Plugs, Set of two .....	MI-141015
Intercom Sub Station .....	MI-11452

## Ordering Information

Mono Console, Type BC-9: (3 BA-72 Preamps; 1 BA-73 Program Amp; 1 BA-74 Monitor Amp; 1 BA-78 Cue/Intercom Amp; 2 Hi-Level Iso Units; 1 BX-71 Power Supply) .....	ES-11153
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Functional Diagram, Type BC-9 Console

# Two-Channel or Stereo Console, Type BC-19



- Compact and versatile
- Two-Channel or stereo operation
- Four stereo step-attenuator faders
- Fourteen high-level inputs
- Built-in intercom
- Balanced inputs and outputs

The BC-19 Console offers versatility and many performance features.

Multiple pushbuttons permit easy selection of high level sources (such as tape recorders, cartridge tape, turntable, etc.) to each of two stereo mixer attenuators. Self-contained relays switch the sources, permitting remote operation of the BC-19. Two additional stereo faders are provided for use with microphones.

Interchangeability is another feature of the BC-19. The modular, plug-in amplifiers and power supply are identical to those used in the BC-7, BC-8, BC-9 and BC-17 consoles. Intercom facilities built into the BC-19 facilitate communications between control room and studio or remote locations.

For applications where stereo operation is not required, the console can be used to provide two program channels and a separate intercom channel. (See diagram.)

LIMITED  
QUANTITIES

## Specifications

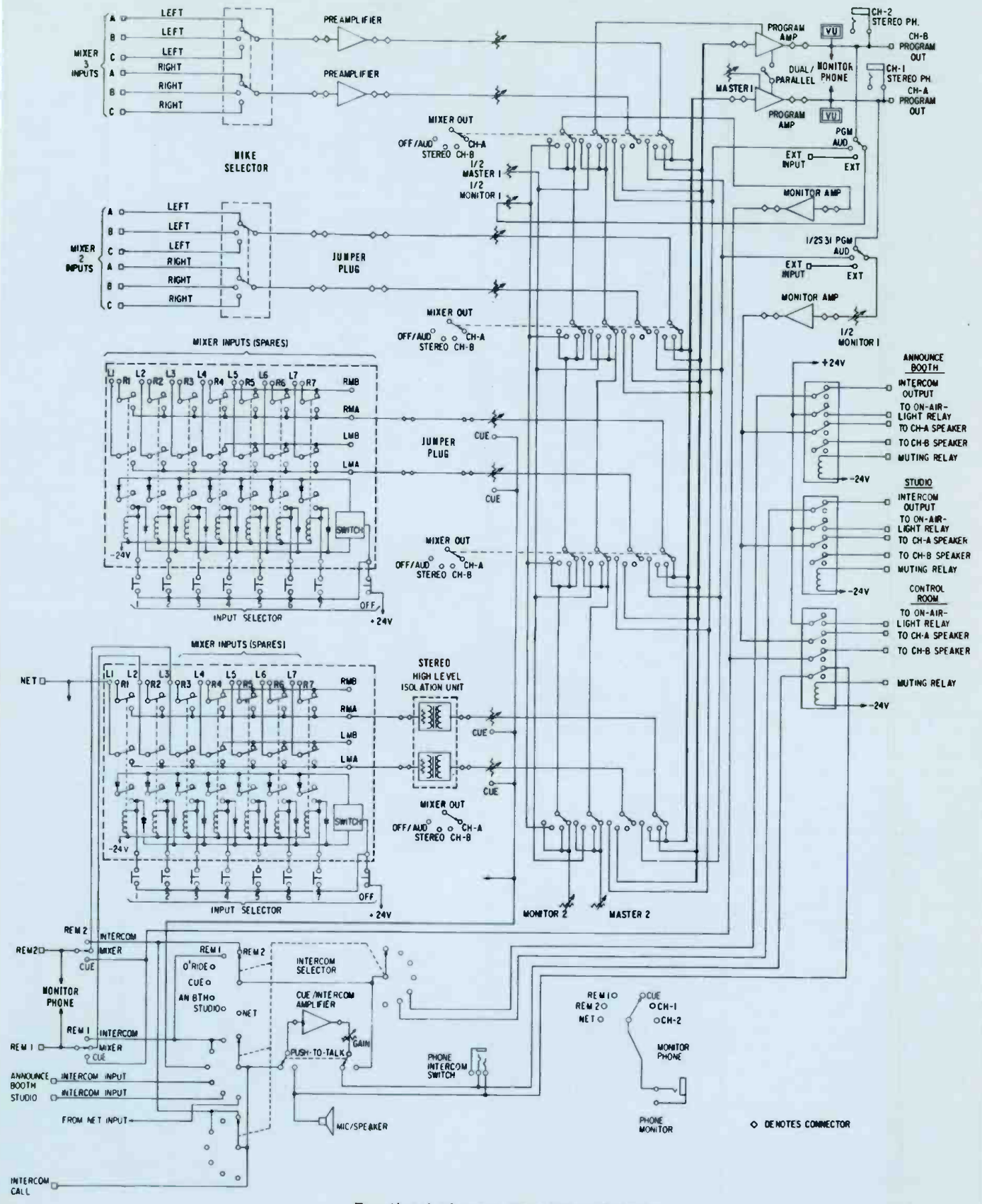
Faders	4 stereo
Inputs (Total)	20
Outputs:	
Program	2 mono, 1 stereo
Monitor Speaker Relays	2
Source Impedances:	
Microphones	37.5/150/600 ohms
Hi-Level	600 ohms
Load Impedances:	
Line (Balanced)	600 ohms
Loudspeaker (Balanced)	16 ohms
Headphone	High Impedance
Input Levels:	
Microphone	-22 dBm max.
Turntables/Tape/Remote	-10 dBm max.
Output Levels:	
Program (after 6 dB isolation pad)	+18 dBm
Monitor	10W or +40 dBm
Maximum Gain	105 dB
Frequency Response	30 to 20,000 Hz, $\pm 0.75$ dB
Distortion:	
Program Channel (50-20,000 Hz)	0.5% max.
Monitor Amplifier (30-20,000 Hz)	1% max.
Signal-to-Noise Ratio	68 dB min.
Power Requirements	117/234V, 50/60 Hz
Dimensions	19½" W, 12½" H, 24" D (495, 318, 610 mm)

## Accessories

Auxiliary Mixer Housing, Type BCM-2B	MI-11656
On-Air Light Relay	MI-11702
Warning Lights	MI-11706-Series
Spare Preamplifier, Type BA-72	MI-11672
Spare Program Amplifier, Type BA-73	MI-11659
Spare Monitor Amplifier, Type BA-74	MI-11661
Spare Cue/Intercom Amplifier, Type BA-78	MI-11662
Spare Power Supply, Type BX-71	MI-11663
Spare Stereo Hi-Level Isolation Unit	MI-11665S
Spare Mono Hi-Level Isolation Unit	MI-11665
Intercom Sub Station	MI-11452
Jumper Plugs, Set of two	MI-141015

## Ordering Information

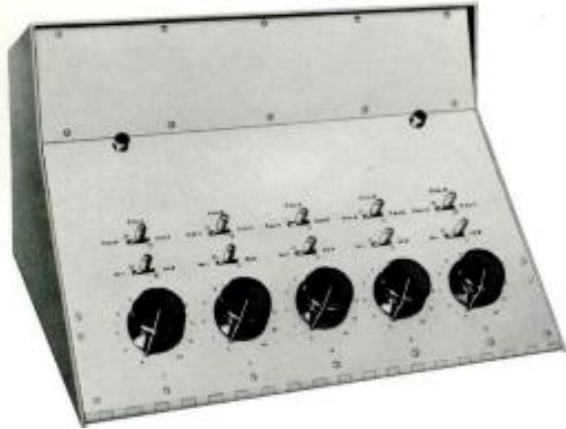
Type BC-19 Stereo Console:	
2 BA-72 Preamplifiers; 2 BA-73 Program Amplifiers;	
2 BA-74 Monitor Amplifiers; 1 BX-71 Power Supply;	
1 BA-78 Cue Amplifier; 1 Stereo High-Level	
Iso Unit	ES-11154



Functional Diagram, Type BC-19 Console



# Auxiliary Mixer Console, Type BCM-2



- Supplements facilities of stereo or mono consoles
- Five step faders with fifteen additional sources
- Modules offer low- or hi-level input
- Modules interchangeable with other RCA consoles

The BCM-2 Auxiliary Console is designed to supplement RCA Mono, Dual-Channel and Stereo Consoles by providing five additional fader controls and fifteen inputs. The console is styled to match the BC-7, BC-8, BC-9, BC-17 and BC-19 Consoles and is designed so that each fader channel accepts a preamplifier, high-level isolation unit or straight-through jumper plug, for a wide choice of input levels.

By use of preamplifiers as booster amplifiers, the 600-ohm outputs of the console may be bridged into the console's main mixer buses; or the BCM-2 may be fed into one of the high level inputs of the main console to provide a submaster. Substitution of high level isolation units for booster amplifiers enables the auxiliary mixer outputs to be fed into the microphone inputs of the main console. The gain is such that the same fader settings may be used on both BCM-2 and the console faders for equivalent levels.

The console has panel space for additional equipment or controls including extra space on the main panel plus a 4½-by-19-inch panel and a spare shelf for housing additional equipment such as the BA-70 Series of plug-in amplifiers.

Five faders and delegation switches are equally spaced across the console. Above each fader is also a source selector switch. Throwing a fader delegation switch to the left connects it to the channel 1 mixer bus; throwing it to the right connects it to the channel 2 mixer bus; the center is an off position. Each of the five input selector keys permits selection of one of three inputs, thus the BCM-2 Auxiliary Console makes available fifteen sources.

## Two Channel Facilities

Three-position fader delegation keys and two mixer buses provide facilities suitable for two-channel operation (either stereo; program-audition; or two independent channels). The mixer delegation keys are pre-wired for stereo faders so that any fader can be conveniently replaced by a dual (stereo) fader available from stock. Extra contacts are provided on the input selector switches so that, if desired, it may be custom wired to simultaneously select both left and right channels of a stereo source.

## Control Circuit Patch Board

A muting relay panel is located behind the main control panel. The console muting relays may be controlled by any combination of source selection lever keys.

## Specifications

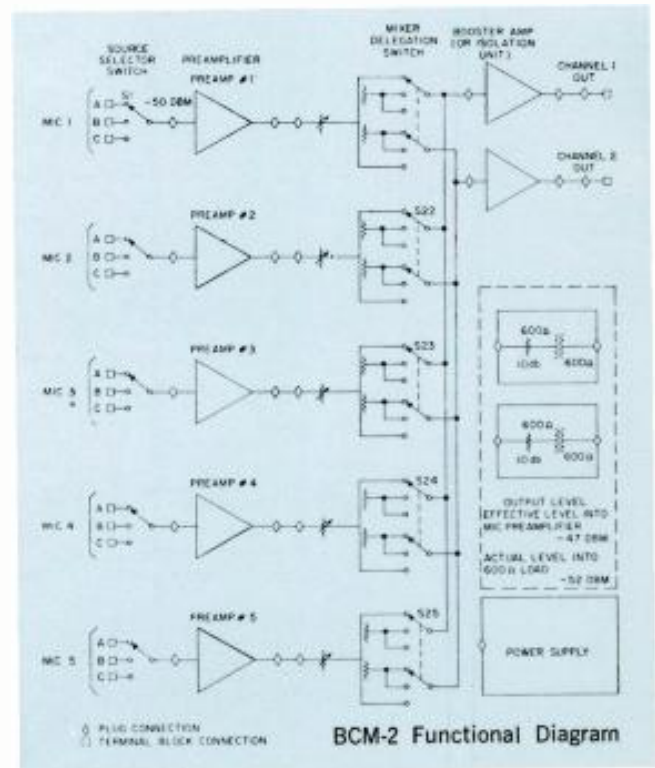
Mixers .....	5
Inputs (Total) .....	15
Source Impedance (Preamp Input, balanced) .....	37.5/150/600 ohms
Load Impedance (Balanced) .....	150/600 ohms
Outputs (from booster or isolation units) .....	2-each 150/600 ohms
Maximum Output .....	+18 dBm
Frequency Response .....	30-20,000 Hz ±1 dB
Distortion .....	Less than 0.5%, 50-20,000 Hz
Signal-to-Noise Ratio:	
Microphone to Program Line Out (68 dB gain +18 dB output) .....	At least 68 dB
Power Requirements .....	117/234V, 50/60 Hz
Dimensions Overall .....	19½" W x 12½" H x 20" D (495, 317, 508 mm)
Weight (approx.) .....	70 lbs. (32 kg)
Power Supply (approx.) .....	14 lbs. (6.35 kg)
Preamps/Booster Amplifiers .....	Each approx. 2¼ lbs. (1020 g)

## Accessories

Mono High-Level Isolation Unit .....	MI-11665
Stereo High-Level Isolation Unit .....	MI-11665-S
Power Supply, Type BX-71 .....	MI-11663
Spare Preamplifier, Type BA-72 .....	MI-11672
Jumper Plugs, Set of two .....	MI-141015

## Ordering Information

BCM-2 Auxiliary Mixing Console (for Mixer Bus Bridging): (7 BA-72 Preamplifiers/Booster Amplifiers; 1 BX-71 Power Supply) .....	ES-11155
BCM-2 Auxiliary Mixing Console (for Mixer Input): (5 BA-72 Preamplifiers; 2 Isolation Units; 1 BX-71 Power Supply) .....	ES-11156





## Audio Consoles, Types BC-14, -15, -18

- Competitively priced
- Mono, stereo and dual-channel
- Pushbutton input selection
- Four, five or eight input faders
- Sixteen, twenty or thirty-two inputs



Striking an excellent compromise between capability and purchase price, the Type BC-14, -15 and -18 Consoles deliver versatility at low cost. Each console is offered in mono, dual-channel mono and stereo configurations.

### **Four-Fader Consoles, Type BC-14 Series**

Available in desk-top cabinet or rack-mount versions, the Type BC-14 Console series is intended primarily for light-duty production such as in broadcasting, mobile units, sound-reinforcement systems and the like. The low initial cost and dependable operation give it universal appeal.

### **Five-Fader Consoles, Type BC-15 Series**

The Type BC-15 Console series is intended for those situations where production needs are moderate and duty is severe. The BC-15 provides for twenty inputs to its five input faders. Each fader handles four inputs through pushbuttons.

### **Eight-Fader Consoles, Type BC-18 Series**

Our largest audio console, the Type BC-18 provides for 32 program inputs to its eight input faders. Like the BC-15 consoles, the BC-18 input faders each have four inputs, selected through pushbuttons.

## Five-Fader Consoles, Type BC-15

## Eight-Fader Consoles, Type BC-18

- Mono, stereo and dual-channel
- Built-in cue channel
- Preamp in each mixer circuit
- 10-watt monitor
- Step-attenuator faders, with cue position

The BC-15 and BC-18 consoles are available in stereo, mono and dual-channel versions. The consoles differ only in physical size and the number of input faders each includes. The smaller console, the BC-15, contains five input faders; the BC-18, eight input faders.

The consoles are ideally suited to the audio control needs of radio, TV, CCTV and cable-television production. Too, these consoles serve in the control of sound reinforcement systems in auditoriums, amphitheatres, coliseums, stadiums and convention halls.

Each console is a self-contained audio-control center featuring pushbutton input selection, high-quality, step-type attenuators (with cue position), telephone-type lever switches, 10-watt monitor amplifiers, built-in cue amplifiers, speaker-muting re-



Five-Fader Type BC-15 Console

lays (with space for additional relays, see *Accessories*), cue speaker and a self-contained power supply.

### Preamplifier Modules

The number of preamplifiers included in each console is proportional to the number of faders. The stereo consoles contain two preamplifiers for each input fader; the mono and dual-channel consoles contain a single preamplifier for each input fader.

### Program Channel

A program-bus amplifier drives the Master Gain control which, in turn, drives the program amplifier and line driver amplifier. In the stereo console, the Master Gain Controls are ganged and an adjustment is provided to balance the gain of each channel individually.

The driver amplifier delivers a balanced, transformer-coupled, 18-dBm output level to the line. A balanced, bridging, zero-level recorder output is permanently connected to the program line. Program outputs are also provided to the Audition/Monitor Input Selector switch and the Program Headphone Jack.

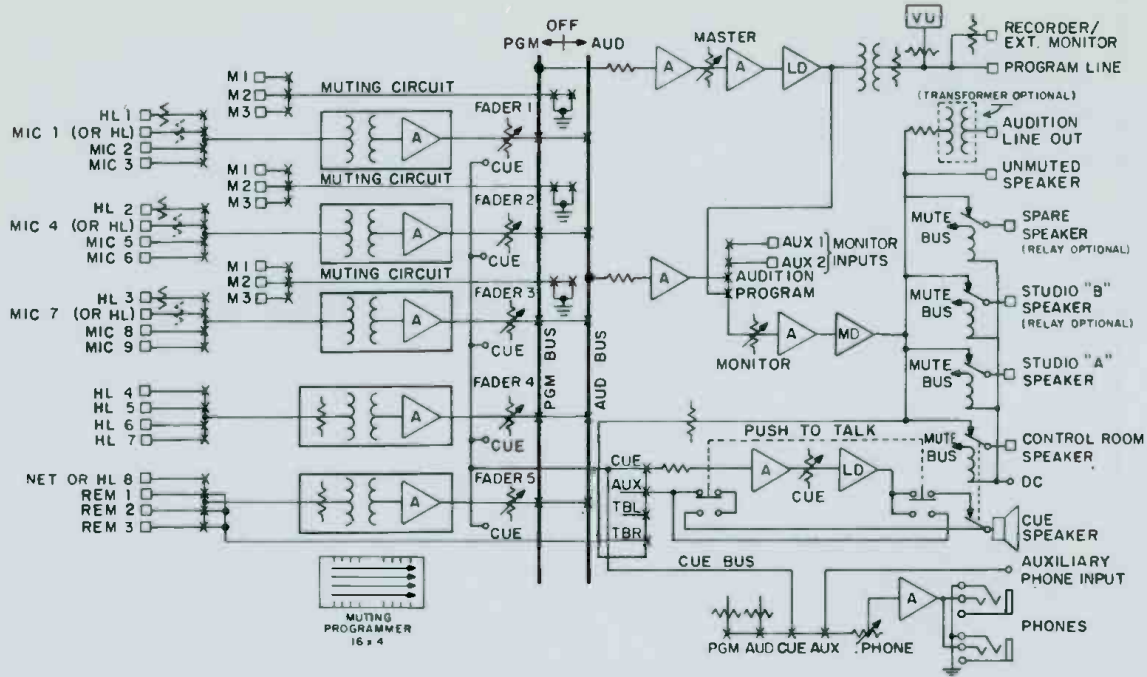
### Audition/Monitor Channel

The audition-bus boost amplifier feeds an input of the Monitor-Input Selector. Plug-in, speaker-mute relays are included: three in the BC-18 and two in the BC-15. The muting relays are energized through the mike-input selector switch.

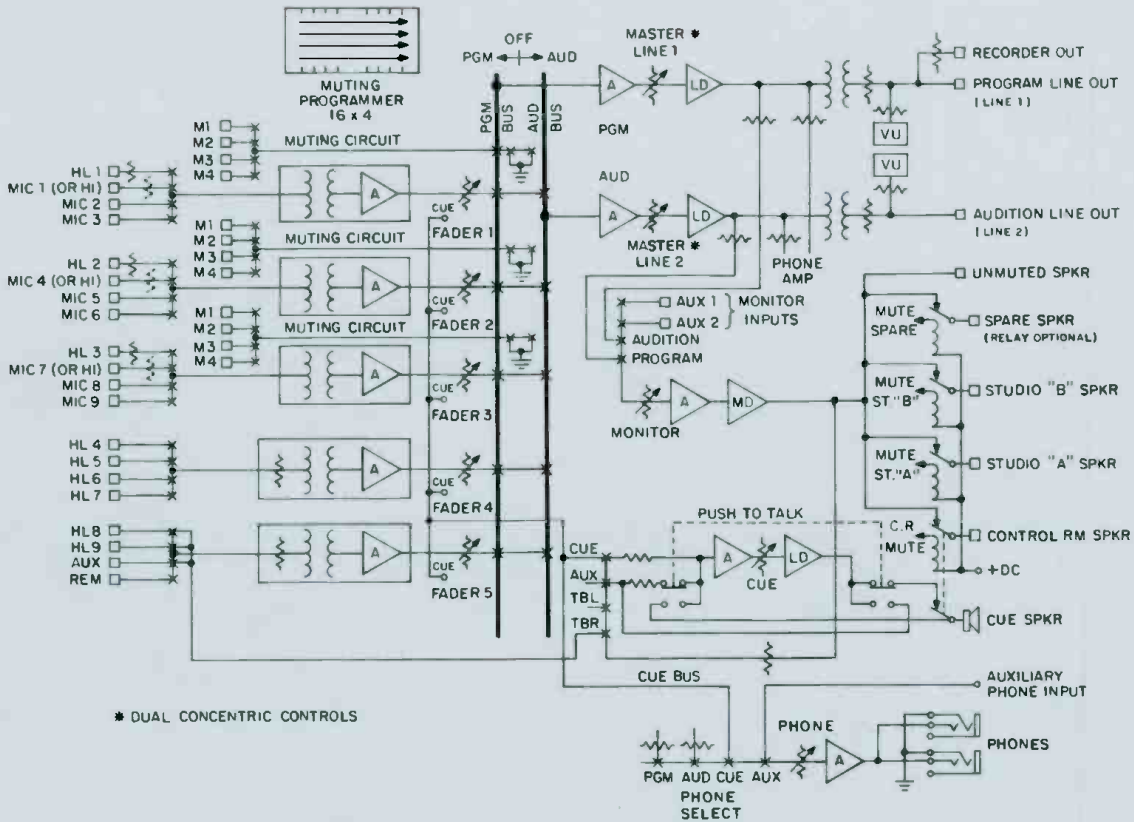
A switchable headphone-jack output, with level control, delivers +10 dBm output.



Eight-Fader Type BC-18 Console

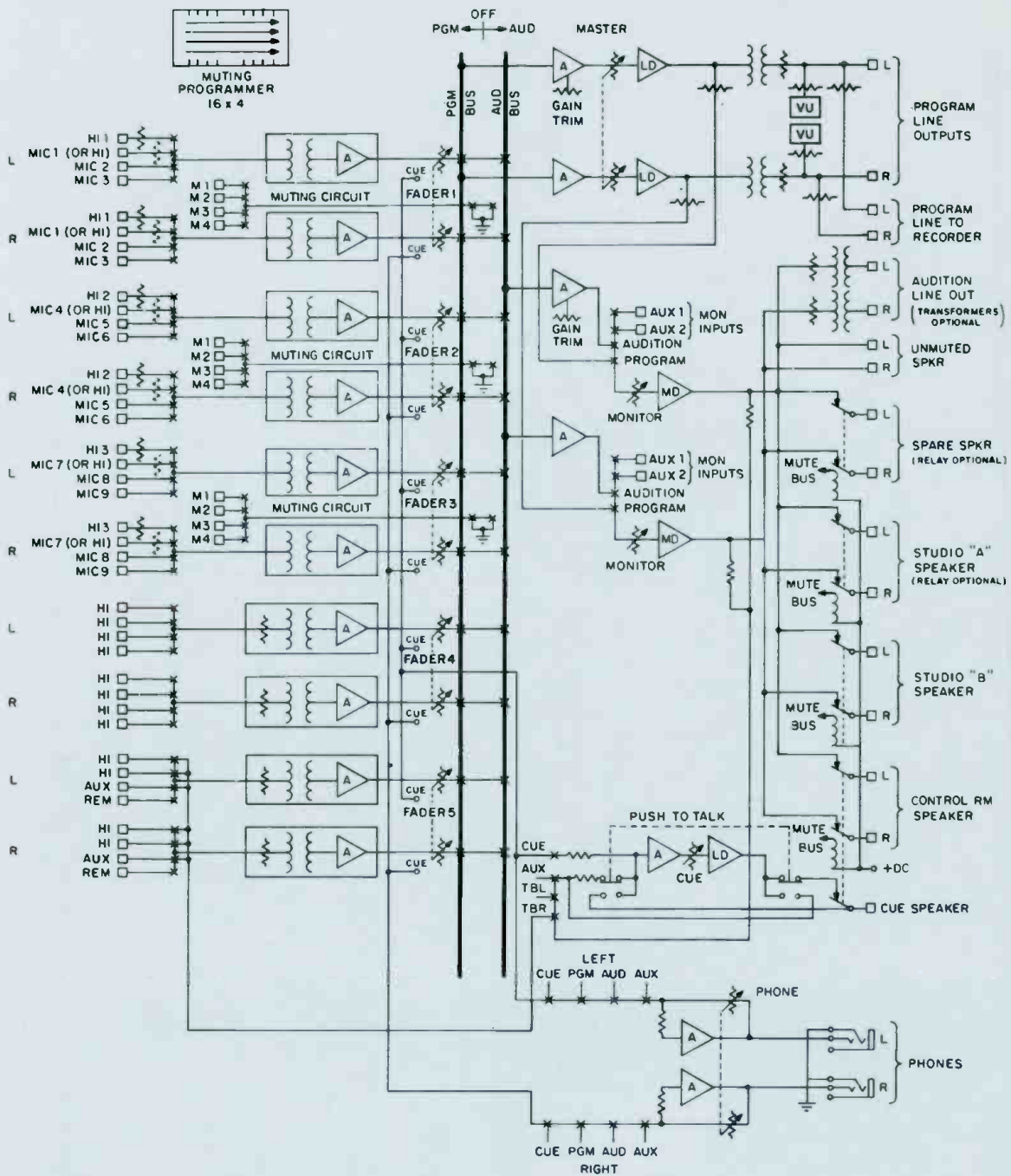


Functional Diagram, Type BC-15 Mono Console

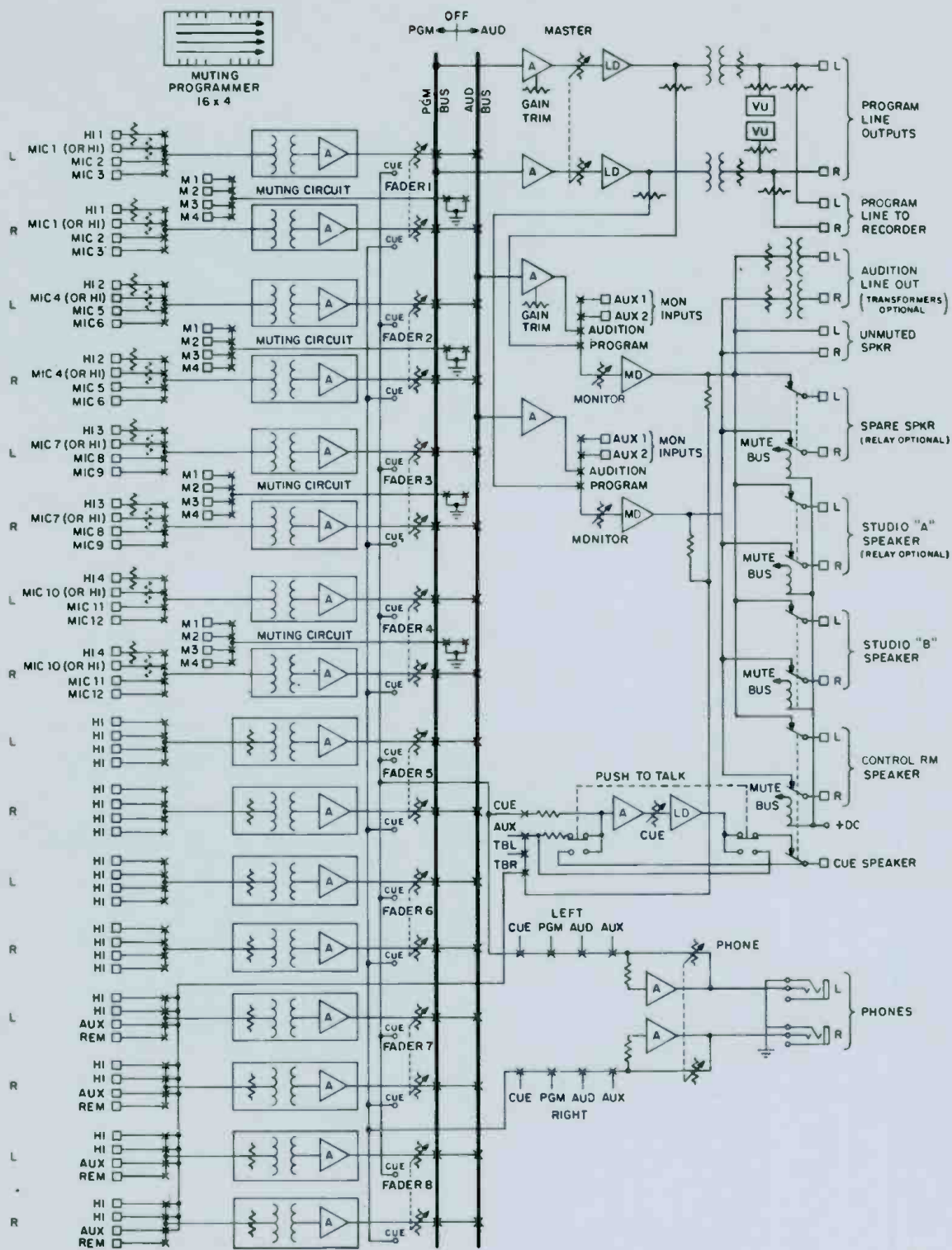


Functional Diagram, Type BC-15D Dual-Channel Mono Console

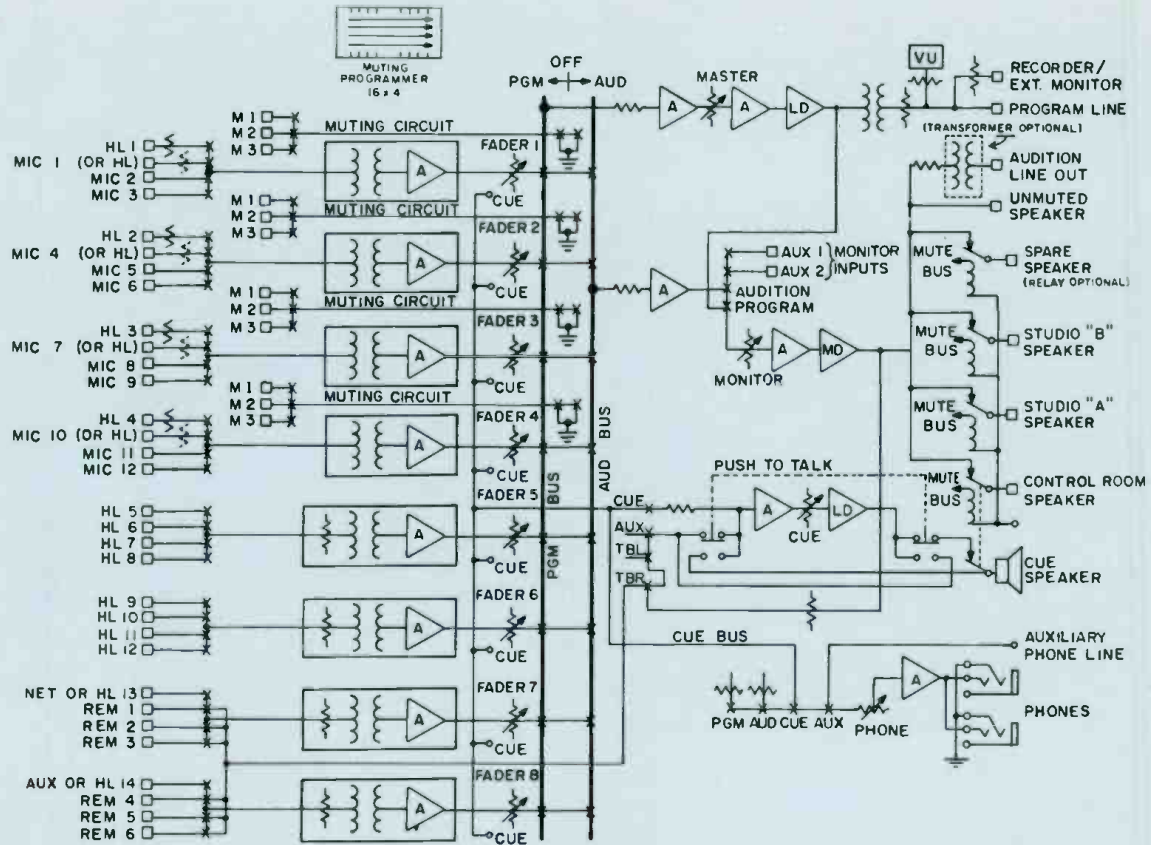




Functional Diagram, Type BC-15S Stereo Console



Functional Diagram, Type BC-18S Stereo Console



Functional Diagram, Type BC-18 Mono Console

**Specifications**

**Inputs:**

- BC-15, BC-15S, BC-15D .....20: 9 Lo-; 11 Hi-Level\*
- BC-18, BC-15S, BC-18D .....32: 12 Lo-; 20 Hi-Level\*

**Input Faders:**

- BC-15, BC-15S, BC-15D .....Five (dual-ganged in BC-15S), with cue position
- BC-18, BC-18S, BC-18D .....Eight (dual-ganged in BC-18S), with cue position

**Input Impedances (Source):**

- Microphone (Balanced) .....150/600 ohms
- Hi-Level (Balanced) .....600 ohms or bridge

**Input Levels (dBm):**

- Microphone .....-50 nom.; -26 max.
- Net/Remote .....0 nom.; +10 max.
- High Level (Bridging) .....-20 nom.; +5 max.

**Output Levels (dBm):**

- Program .....+18 nom.; +24 max.
- Audition .....+10
- Monitor .....10W or +40

**Crosstalk**

- .....67 dB down

**Load Impedances:**

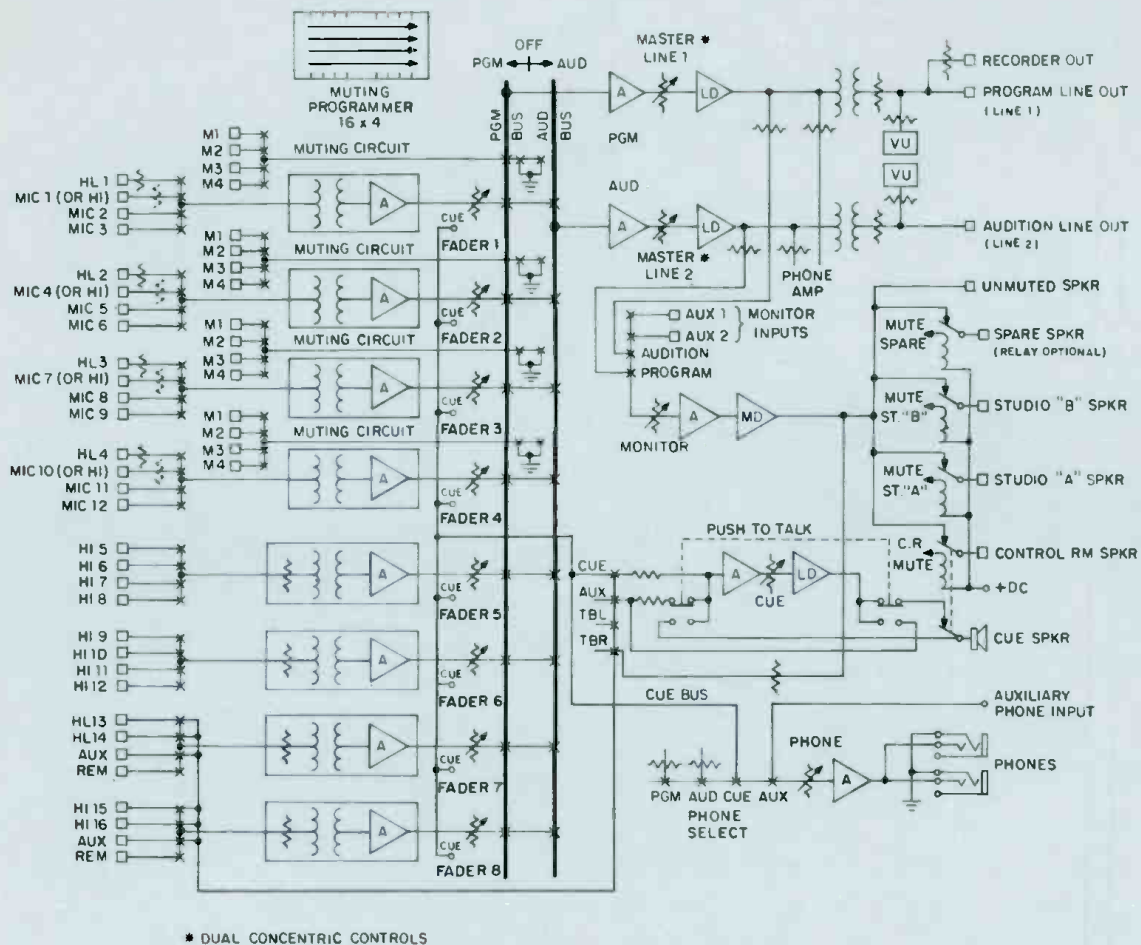
- Line (Balanced) .....600 ohms
- Speakers (Minimum) .....4 ohms
- Headphones (Minimum) .....600 ohms

\*Factory-wired. Easily rewired in field for more high-level and fewer mike inputs.

Overall Gain	.....104 dB max.
Frequency Response	.....20 to 20,000 Hz, ±1.5 dB
Distortion (30-20,000 Hz)	.....
Program Channel	.....0.75% max.
Monitor Channel (10 W, 4/8 ohms)	.....1% max.
Signal/Noise Ratio (20-20,000 Hz)	.....70 dB min.
Power Requirements	.....117/234V, 50/60 Hz 110W max.
<b>Dimensions</b>	.....
BC-15 Series	.....27 <sup>3</sup> / <sub>8</sub> " W; 9 <sup>3</sup> / <sub>8</sub> " H; 18 <sup>3</sup> / <sub>4</sub> " D (695, 238, 476 mm)
BC-18 Series	.....36 <sup>3</sup> / <sub>8</sub> " W; 9 <sup>3</sup> / <sub>8</sub> " H; 18 <sup>3</sup> / <sub>4</sub> " D (924, 238, 476 mm)
<b>Weight:</b>	.....
BC-15	.....40 lbs. (18 kg) 50 lbs. (23 kg) 45 lbs. (20 kg)
BC-18	.....47 lbs. (21 kg) 57 lbs. (26 kg) 52 lbs. (24 kg)

**Accessories**

Monitor Amplifier	.....MI-141048
Audition Line Transformer	.....MI-141011
Speaker Muting Relay	.....MI-141012
Preamplifier Module	.....
(for mono or dual-channel console)	.....MI-141013
(for stereo console)	.....MI-141023
Hi-Level Preamp Module	.....
(for mono or dual channel console)	.....MI-141014
Hi-Level Preamp Module (for stereo console)	.....MI-141024
Output Circuit Assembly	.....MI-141049
Power Supply Regulator	.....MI-141025



Functional Diagram, Type BC-18D Dual Channel Console

**Ordering Information**

**Five-Fader Consoles:**

Mono, Type BC-15 .....	MI-11676
Stereo, Type BC-15S .....	MI-11678
Dual-Channel, Type BC-15D .....	MI-11683

**Eight-Fader Consoles:**

Mono, Type BC-18 .....	MI-11677
Stereo, Type BC-18S .....	MI-11679
Dual-Channel, Type BC-18D .....	MI-11684

**Shipping Data:**

**Packing Dimensions**

BC-15 .....	13" x 24" x 32" (330, 610, 813 mm)
BC-18 .....	13" x 24" x 41" (330, 610, 1041 mm)

**Gross Weight (approx.):**

BC-15 .....	55 lbs. (25 kg)
BC-18 .....	70 lbs. (32 kg)

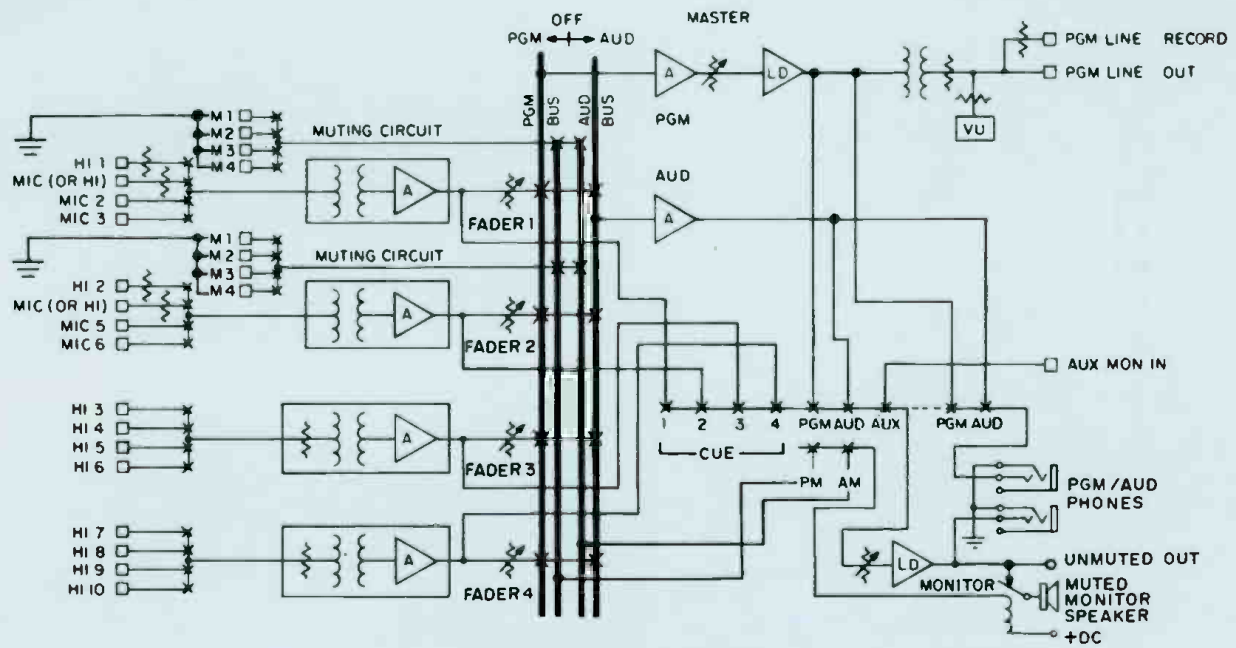


## Four-Fader Consoles, Type BC-14

- Mono, stereo and dual-channel
- Desk-top or rack-mount versions
- Pushbutton input selection
- Four input faders
- Balanced inputs and outputs



The BC-14 consoles are provided in stereo, mono and dual-channel mono models, each of which is available in console and rack-mounted versions. All are identical in physical size, with the exception that the rack-mounted versions have no console cabinet housing. The consoles are ideally suited to the audio-control needs of radio, TV and CCTV program production and for the control of sound reinforcement systems in auditoriums, amphitheatres, coliseums, stadiums and convention halls. They are high-performance units designed for high-quality audio production, particularly for economical and cost-conscious applications.



Functional Diagram, Type BC-14 Mono Console

### Pushbutton Input Selection

The consoles feature pushbutton input-selection, and audition provisions on all input fader channels. Each input fader handles four inputs through a four-position pushbutton bank.

Low-level preamplifiers are included for input mixer channels 1 and 2. These preamplifiers (with 40 dB gain) and the program line amplifier (with 60 dB gain) provide a maximum program line gain of 100 dB. For the high-level input to these preamplifiers, a bridging pad is provided between the selector pushbutton switch and its input transformer. Thus,

faders 1 and 2 each handle three microphone and one high-level inputs. With strapping, faders 1 and 2 can handle two microphone and two high-level inputs.

Faders 3 and 4, for high-level inputs only, include a bridging pad between the input selector pushbutton switch and the preamplifier input. Thus, input faders 3 and 4 each handle four high-level inputs.

### Separate Program Amplifier

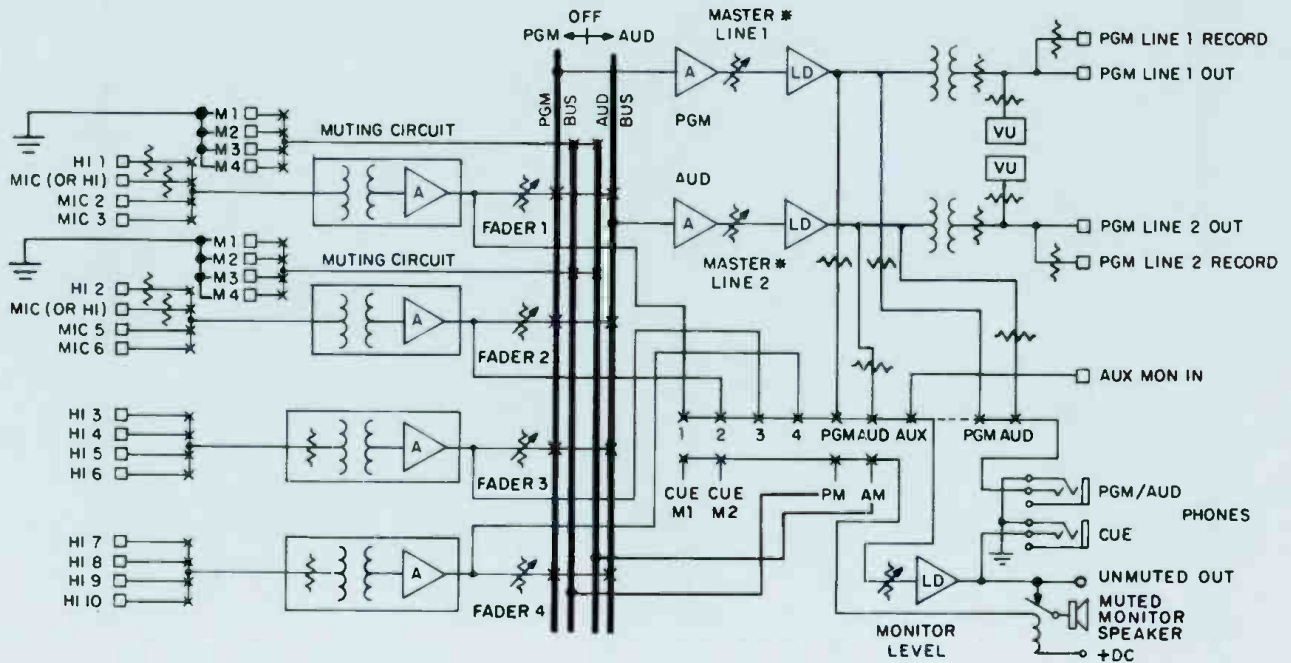
A program-boost amplifier drives the Master Gain Controls (individual master gain controls for mono and dual-channel

consoles; ganged master gain control for stereo). The program line amplifier delivers a balanced, transformer-coupled, +18 dBm output level, through a 6 dB pad, to the program line.

### Monitor Line Output

The audition bus feeds a monitor-selector pushbutton switch which is used to select the input to the cue speaker, located in the top cover of the console housing assembly. The monitor output power is 1.5 watts into a 45-ohm load.

A single muting relay is provided. The relay is energized by operating the mike input selector switch for faders 1 and 2.



\* DUAL CONCENTRIC CONTROLS

Functional Diagram, Type BC-14D Dual-Channel Mono Console

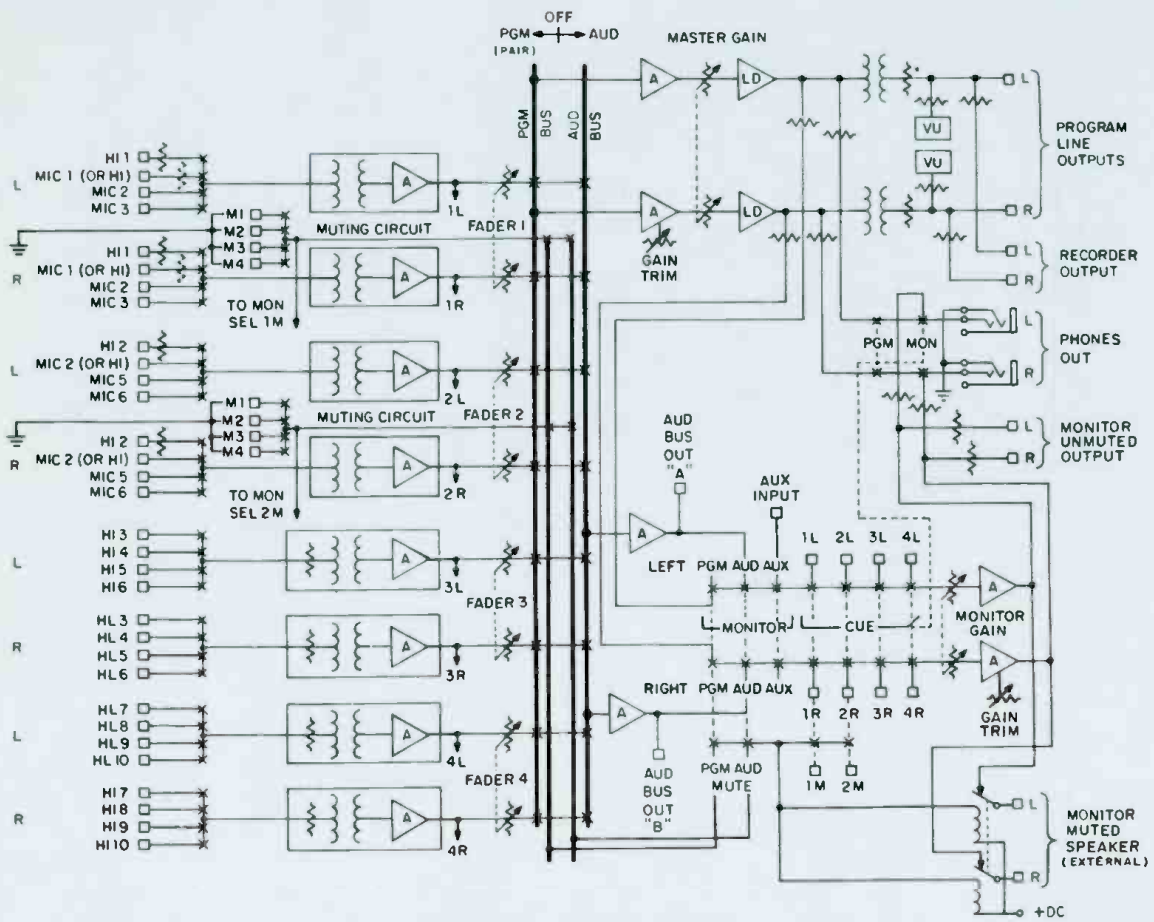
**Specifications**

Program Output Level (after 6 dB pad)	+18 dBm
Monitor Output Level	+32 dBm (1.5 watts)
Frequency Response Characteristics:	
Program and Audition Channels	30 to 15,000 Hz, ±1 dB
Monitor Channel	30 to 15,000 Hz, ±1.5 dB
Harmonic Distortion:	
Program Line (+18 dBm output, 50 to 15,000 Hz)	1% max.
Monitor Line	1% max.
Noise Level (rel. input noise in mike channels)	-120 dBm
Gain:	
Mike to Line	100 dB
High-Level to Line	55 dB
Load Impedances:	
Program Line (Balanced)	600 ohms
Monitor Loudspeakers	45 ohms
Headphones (Minimum)	600 ohms
Source Impedances:	
Microphone (Balanced)	150 ohms
High Level (Balanced)	600 ohms

Power Requirements	117/234 V., 50/60 Hz
Dimensions:	
BC-14, BC-14D, BC-14S	17" W, 7½" H, 16⅜" D (432, 191, 411 mm)
BC-14R, BC-14DR, BC-14SR	19" W, 7½" H, 16⅜" D (483, 191, 411 mm)

**Accessories**

Mono and Dual Hi-Level Preamp	MI-141014
Mono and Dual Microphone Preamp	MI-141013
Stereo Hi-Level Preamp	MI-141024
Stereo Microphone Preamp	MI-141023
Power Supply Regulator	MI-141046
Muting Relay, Plug-in	MI-141012
Console Cabinet (converts rack unit to console)	MI-11685
Transformer, 45-ohm to speaker	MI-11686
Stereo Output Assembly	MI-141047



Functional Diagram, Type BC-14S Stereo Console

**Ordering Information**

Desk-Top Console, Four Fader:

- Mono, Type BC-14 .....MI-11680
- Stereo, Type BC-14S .....MI-11681
- Dual-Channel, Type BC-14D .....MI-11682

Rack-Mount Console, Four Fader:

- Mono, Type BC-14R .....MI-11680R
- Stereo, Type BC-14SR .....MI-11681R
- Dual-Channel, Type BC-14DR .....MI-11682R





## Two-Fader Remote Console Type BN-7

## Four-Fader Remote Console Type BN-17

- Self-contained for a-c or battery operation
- Program and P-A outputs
- 18 dBm balanced line output
- Lighted VU meter
- Headphone output monitoring



Type BN-7



Type BN-17

The BN-7 and BN-17 remote consoles combine high program quality with rugged portability. The major difference between the two is the number of inputs and input faders. The larger BN-17 uses step-type attenuators and includes line-cue switch arrangement.

### Two-Fader Console, Type BN-7

The Type BN-7 is a fully self-contained, two-fader console providing two unbalanced, 250-ohm inputs which convert to 37.5/150-ohm balanced inputs through the use of an optional plug-in input transformer for each input.

The BN-7 operates from commercial power or a self-contained battery pack. The batteries are contained in a special pull-out compartment to the left of the VU meter. The battery pack holds five mercury cells and one D-size flashlight cell. The latter powers the VU-meter lamp when the console operates from the battery pack.

A headphone jack, bridging the output, allows headphone monitoring. A "PA-Gain" control also bridges the output line to feed a local public-address system, when appropriate.

All connections to the console are made at the rear to appropriate connectors: Two Cannon XLR connectors for the mikes, a twist-lock connector for the 8-foot power cord and binding posts for the PA- and line-outputs. The power cord stores in cleats inside the panel cover.

### Four-Fader Remote Console, Type BN-17

The Type BN-17 Portable Remote Console is a four-fader, transistorized mixer amplifier designed for remote broadcasting. Its small size and low power dissipation makes it equally useful in other applications requiring additional or auxiliary mixing facilities. AC or battery operation is available at the flip of a switch. Sixteen single-type silicon transistors in the amplifier contribute to its dependability and excellent performance characteristics. Four separate, balanced-input channels and two high-level inputs are provided as well as cue, monitor, a test oscillator and a mixer facility.

### AC and Battery Power Supplies

The BN-17 is completely self-contained for 115 or 230-volt, 50 or 60-Hz power or battery operation. Other features include microphone input transformers for all channels, earphone monitoring, line cueing facilities and a PA gain control.

The input facilities can be expanded by inter-connecting BN-17 Amplifiers through receptables at the rear of the unit. Bridge-in and bridge-out receptables prevent mixer-bus loading.

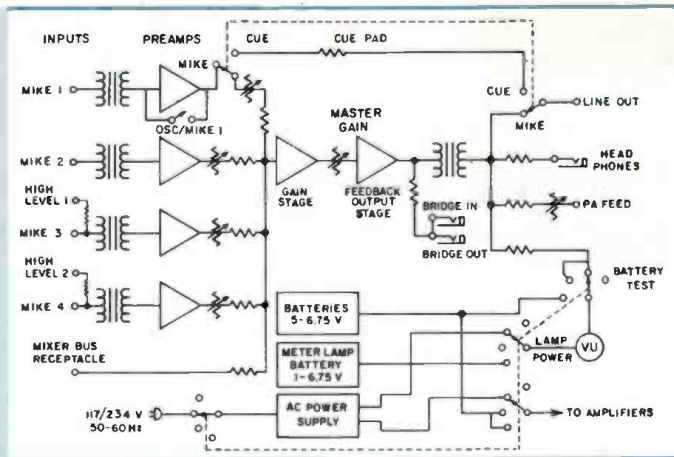
**Functional Styling**

The BN-17 console is functionally styled with an etched wiring board including amplifier components, controls, batteries and alternate AC power supply all contained in a steel carrying case. The case, finished in midnite blue, is provided with a soft leather handle. A 6-foot power cord is located inside the carrying case. The front cover is easily removed from the hinges to serve as a tilt-rest for the console. A recess in the bottom of the case protects the AC power cord, fuse holder, high-level connectors, the test oscillator switch and the line binding posts.

**High-Level Mixing**

High-level mixing on all four channels is afforded by the BN-17 console. Each

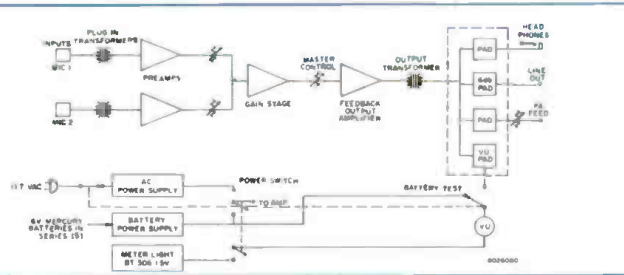
Functional Diagram, Type BN-17



channel follows a similar path through its corresponding transformer, transistor and fader to the gain stage. The output of Mike 1 Amplifier is fed through the cue-mic switch. When this switch is operated to the cue position, the telephone line from the output of the amplifier is

connected to the Mike 1 fader. Cue signals from the studio are then amplified through the BN-17 to the headphones. A pad in the cue circuit reduces the signal to proper preamplifier input level. The test oscillator uses the positive-feedback principle to make the Mike 1 Amplifier oscillate at approximately 400 Hz.

Functional Diagram, Type BN-7



**PA Gain Control**

The PA gain control bridges the output of the BN-17 console and allows the operator to conveniently control the level fed to external PA equipment. Five convenient binding posts are mounted on the rear panel of the amplifier. Two are used for feeding the PA equipment, two for line output, and one for ground.

**Specifications, Type BN-7**

Inputs	Two
Connectors	Cannon XLR 3-12
Impedance (unbalanced)	150/250 ohms
	(37.5/150 ohms with optional plug-in transformer)
Output (balanced):	
Impedance	150/600 ohms
Level (6 dB isolation included)	+18 dBm
Gain (150 ohms in; 600 ohms out)	92.5 ±2 dB
Frequency Response	30 -15,000 Hz ±2 dB
Harmonic Distortion (+18 dBm output):	
100-15,000 Hz	1.5% max.
50-15,000 Hz	1.0% max.
Noise Level (ref: input)	-118 dB
Power Requirements:	
Ac	117/235 V, 50/60 Hz, 5W
Dc	.5 Mallory TR-135R and 1 RCA VSO 36 (or equivalents)
Dimensions	5½"H; 14½"W; 10½"D (110, 368, 267mm)
Weight (approx.)	15 lbs (7 kg)

**Specifications, Type BN-17**

Inputs:	
Connectors:	
Mike	Cannon XLR
High Level	Phone Jack
Mixer Bus	RCA Phono Jack
Impedance:	
Mike (Balanced)	150/250 ohms
High Level (Balanced)	600 ohms

Program Output:	
Impedance (Balanced)	150/600 ohms
Level (6 dB isolation included)	+18 dBm
PA Output:	
Impedance (balanced)	600 ohms
Level	-7 dBm
Gain	94 ±2 dB
Frequency Response	30 to 20,000 Hz ±0.75 dB
Harmonic Distortion (+18 dBm output)	0.75% max.
Test Oscillator Frequency (non-sinusoidal, approx.)	400 Hz
Noise Level (ref to input)	-122 dBm
	(Equiv. to 72 dB s/n w/ -50 in +18 dBm out, 30-20,000 Hz)
Power Requirements:	
Ac	117/235V, 50/60 Hz, 5W
Dc	.6 Mallory TR-135R Mercury Cells
Dimensions	5½"H; 18½"W; 10½"D (469, 143, 267 mm)
Weight (approx.)	18 lbs (8 kg)

**Accessories**

Input Connector, Cannon XLR-3-12C	MI-11089
Plug-In Transformer (for BN-7)	MI-11776
Rack-Mount Panel (for one BN-17)	MI-11591-1

**Ordering Information**

Two-Input Remote Console, Type BN-7, less batteries	MI-11451
Four-Input Remote Console, Type BN-17, less batteries	MI-141400



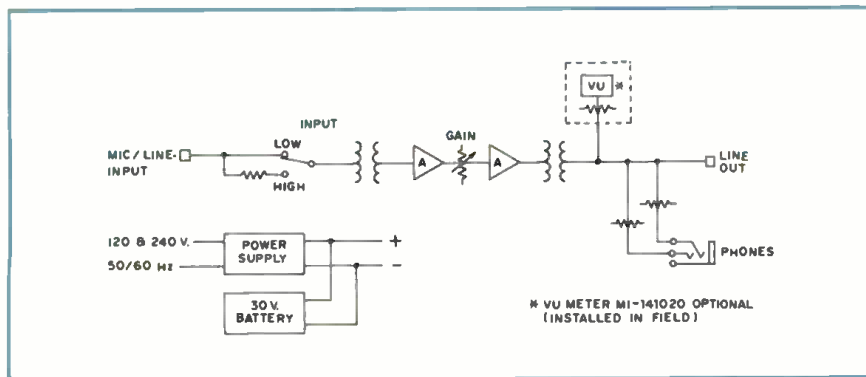
## Remote Amplifiers, Types BN-1 and BN-4

- Broadcast quality at low cost
- Balanced-line inputs and output
- Battery or power line operation
- Two compact units: one input or four inputs
- Lighted VU Meter

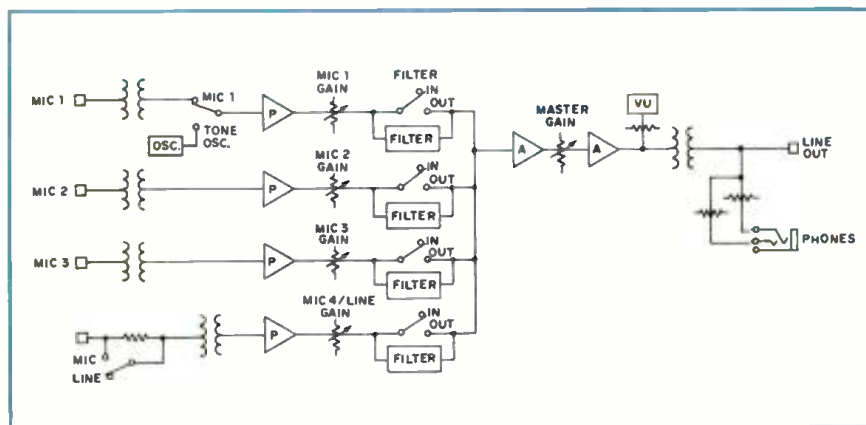
Each of the amplifiers described here is a low-cost, broadcast-quality product designed and built for programming on location. They are fully transistorized designs of compactness and convenience. The Type BN-1 Amplifier is a single-input device while the BN-4 handles four program sources. The Type BN-4 has usefulness in other fields beyond broadcasting. For example, it can be used as an audio mixer panel in "professional audio" situations or for sound reinforcement systems in theaters, arenas, stadiums and the like. The BN-4 serves CATV, educational sound systems (schools and colleges) and in the aural function of educational-TV systems. The BN-1 can also be used as a line amplifier by use of a bridging pad at the input. A rack-mount shelf is offered for both amplifiers (see **Accessories**) for installation of the BN-1 and BN-4 in any equipment rack or console using 19-inch (483 mm) panels.







Functional diagram, Type BN-1



Functional diagram, Type BN-4

**Specifications**

**Type BN-4 Remote Amplifier**

Frequency Response Characteristic .....30-15,000 Hz,  $\pm 2$  dB  
 Gain (150-ohm mike; 600-ohm load) .....90 dB  
 Hum and Noise (low-Z mike; 600-ohm load) .....-125 dBV<sup>1</sup>  
 Distortion (at +10 dBm output) .....1% or less; typically 0.5%  
 Inputs .....4 low-Z mikes; 1 line (600-ohm or bridging)  
 Output Level .....+18 dBm (max.) into 600-ohm line  
 Power Requirements  
 (see "Ordering Information") .....105 to 130V, 50/60 Hz  
 or 210 to 260V, 50/60 Hz  
 Dimensions .....11 $\frac{3}{8}$ " x 7 $\frac{1}{2}$ " x 2 $\frac{1}{2}$ " (289 x 190 x 64 mm)  
 Finish Color .....Shadow Blue and Silver Gray  
 Weight (approximate) .....4 lbs., 13 oz. (2 kg)  
 Ambient Operating Temperature .....0° to 135° F.  
 (-18° to 57°C)

**Shipping Data:**

Dimensions .....19" x 10.5" x 5.5" (483 x 267 x 140 mm)  
 Cube .....0.6 ft.<sup>3</sup> (0.02 m<sup>3</sup>)  
 Weight .....6.5 lbs. (3 kg)

**Accessories**

Battery Pack Power Supply (less batteries) .....MI-141016  
 Batteries for Battery Pack .....RCA VS085 or equivalent  
 Portable Carrying Case .....MI-141017  
 Amplifier Stacking Kit .....MI-141018  
 Rack-Mount Shelf .....MI-141019  
 Handle/Tilt Stand .....MI-141021

**Ordering Information**

Four-Input Remote Amplifier Type BN-4 for 117-volt power (less batteries and battery case) .....MI-141402

**Battery or Power Line Operation**

So that they might be used most anywhere, both amplifiers operate from either battery power or commercial power line. The battery pack is optional (see *Accessories*). The amplifier automatically switches over to battery power (if so equipped) when disconnected from commercial power.

**Lighted VU Meter**

For operation independent of ambient lighting, the BN-1 and BN-4 contain lighted VU meters. The meter lights only when the amplifier operates from a power line. If equipped with the optional battery pack, the amplifiers operate from battery power but without lighting. The meter is an extra-cost option in the BN-1 unit and standard equipment in the larger BN-4.

**Built-In Tone Oscillator**

The BN-4 includes a built-in tone oscillator (in the "Mic 1" channel, see diagram). This is useful in a number of ways as a test tone, a level reference and the like. The tone oscillator switch is located on the unit's rear panel.

**Two Compact Units**

The Types BN-1 and BN-4 are the smallest ever included in the RCA product line. They are the choice where minimum size and weight are important criteria.

**Type BN-1 Remote Amplifier**

Frequency Response .....30-15,000 Hz  $\pm 1$  dB  
 Gain (150-ohm mike; 600-ohm load) .....94  $\pm 2$  dB  
 Hum and Noise (low-Z mike; 600-ohm load) .....-120 dB<sup>2</sup>  
 Distortion (at +10 dBm output, 15-15,000 Hz) .....Less than 1%  
 Inputs .....One; Low-Z mike (30-600-ohms -30 dBm max.)  
 Output Level .....+18 dBm @ 600 ohm (after 6 dB isolation)  
 Power Requirements .....105-130V or 210-260V, 50/60 Hz, 5W  
 Dimensions .....7 $\frac{1}{4}$ " W; 3 $\frac{1}{2}$ " H; 8 $\frac{1}{16}$ " D (184 x 89 x 205 mm)  
 Finish Color .....Shadow Blue and Silver Gray  
 Weight (Approx.) .....5 lbs. (2.3 kg)  
 Ambient Operating Temperature .....32 to 131°F (0 to 50°C)

**Accessories**

VU Meter (for Type BN-1 only) .....MI-141020  
 Battery Pack Power Supply  
 (Batteries not included) .....MI-141016  
 Batteries  
 (for battery pack, 3 required) .....RCA VS085 or equivalent  
 Rack-Mount Panel .....MI-11449

<sup>1</sup> Maximum equivalent input hum and noise, 30-15,000 Hz.  
<sup>2</sup> Referred to input, 30-15,000 Hz.

Type BN-4 factory wired for 234-volt power .....MI-141403  
 One-Input Remote Amplifier, Type BN-1  
 (less VU meter, batteries and battery case) .....MI-141401





## Five-Fader Mixer Preamplifier, Type SN-10

- High- and low-level mixing
- Separate bass and treble controls
- Plug-in input/output transformers
- Power line or battery operated

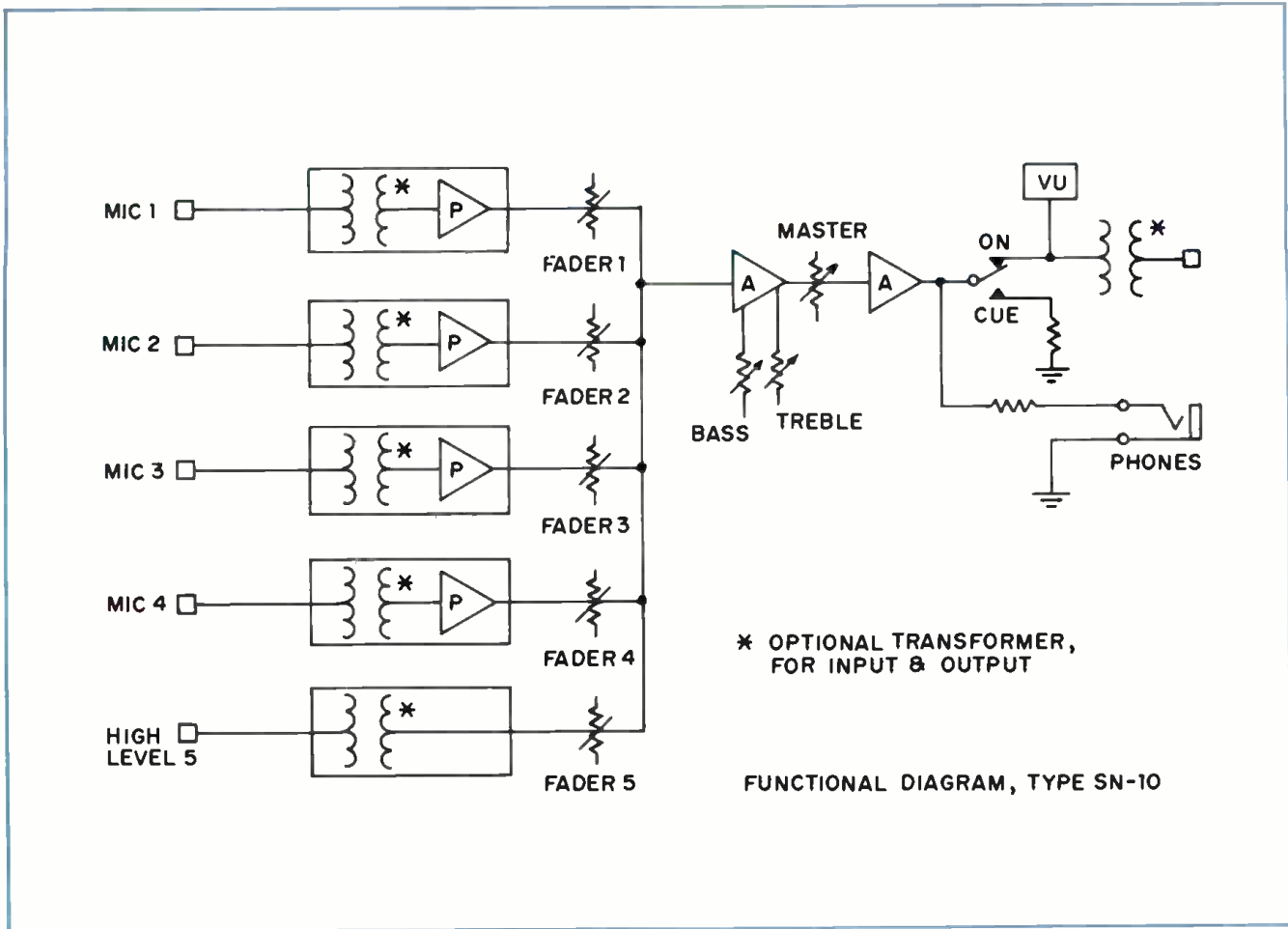
The SN-10 Mixer Preamplifier is a five-fader transistorized amplifier. Four of the inputs are for low-level microphones; the fifth for high-level (+18 dBm) mixing. All inputs are unbalanced or, with an accessory plug-in transformer, balanced.

The same transformer matches and balances input and output circuits. Separate bass and treble controls provide 15-dB range from full boost and cut, with a flat response at mid-range.

### Battery or Power Line Operation

The SN-10 operates from a 115 or 230 volt, 50/60 Hz power line or an external battery. Terminals are provided in the rear for the connection of an external d-c supply. The unit is compact to allow installation of two units in one rack-mount shelf, or desk-top mounting. The input connections are XLR types for microphone inputs and screw terminals for the high level input. The unbalanced high-level inputs and unbalanced output of the amplifier are RCA type phono jacks. The balanced output connection is screw-type terminals. The steel case is finished in midnight blue and the amplifier is provided with a 6-foot power cord.





### Specifications

Frequency Response:  
 Without input transformers ..... 20 to 20,000 Hz,  $\pm 1$  dB  
 With input transformers ..... 50 to 20,000 Hz,  $\pm 1\frac{1}{2}$  dB

Noise Level (Ref. input) ..... -120 dBm

Harmonic Distortion ..... -50 dBm input, +10 dBm output,  
 1000 Hz 1% max

Tone Control:  
 Bass ..... 15 dB  $\pm 2$  dB boost and cut @ 50 Hz  
 Treble ..... 15 dB  $\pm 2$  dB boost and cut @ 10 kHz  
 Crossover Frequency ..... 1000 Hz

Input Impedances, Mic and Line ..... 600 or 10,000 ohms  
 (balanced or unbalanced)

Gain Program Input) ..... 80 dB  $\pm 2$  dB

Gain (Program Input) ..... 45 dB  $\pm 2$  dB

Output Level ..... (balanced or unbalanced) +10 dBm

Power Input ..... 117/235 V, 50-60 Hz, 5 W or 32 Vdc (36 mA)

Input Connectors:  
 Microphone ..... Type XLR-(3)  
 Balanced Line ..... Terminal Strip 3-Screw Type  
 Unbalanced Line ..... RCA Phono Jack  
 External Dc Supply ..... Terminal Strip 2-Screw Type

Output Connectors:  
 Balanced Line ..... Terminal Strip 3-Screw Type  
 Unbalanced Line ..... RCA Phono Jack  
 Earphones ..... Standard  $\frac{1}{4}$ " Phone Jack

Dimensions ..... 4 $\frac{5}{8}$ " H, 8 $\frac{1}{2}$ " W, 11 $\frac{1}{4}$ " D (118, 254 285 mm)

Weight ..... 9 lbs. (4 kg.)

### Accessories

BR-22 Mounting Shelf (Room for two SN-10) ..... MI-11597  
 Standard 19" Rack Mounting Panel ..... MI-38483  
 XLR-3-12C Input Cable Connector ..... MI-11089  
 Combination Input/Output Transformer ..... MI-9667

### Ordering Information

Five-Fader Mixer Preamplifier, Type SN-10 ..... MI-38705



## Four-Fader Remote Audio Mixer, Type PAM-1

- Internal monitor
- High/low level inputs
- Cue position on faders
- Unique mounting

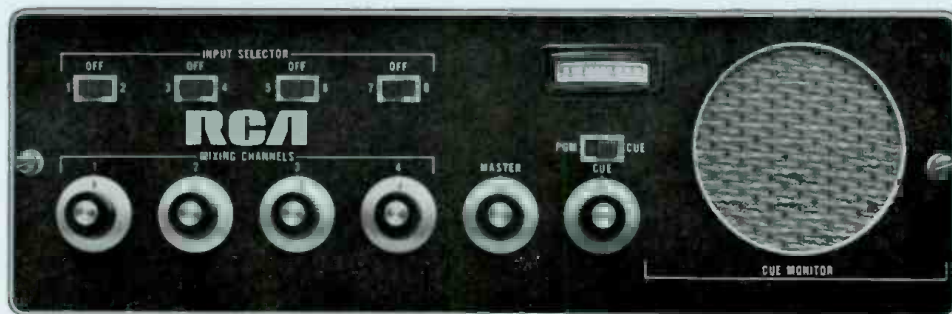
The PAM-1 is a four-fader remote audio mixer, for small studio, CATV and industrial use. Its small size makes it ideally suitable for either rack, wall, or standard desk top. Integrated circuits and low-noise transistors in the amplifier provide dependability and excellent performance characteristics. Eight separate input facilities as well as cueing, monitoring, and switchable input selection are provided.

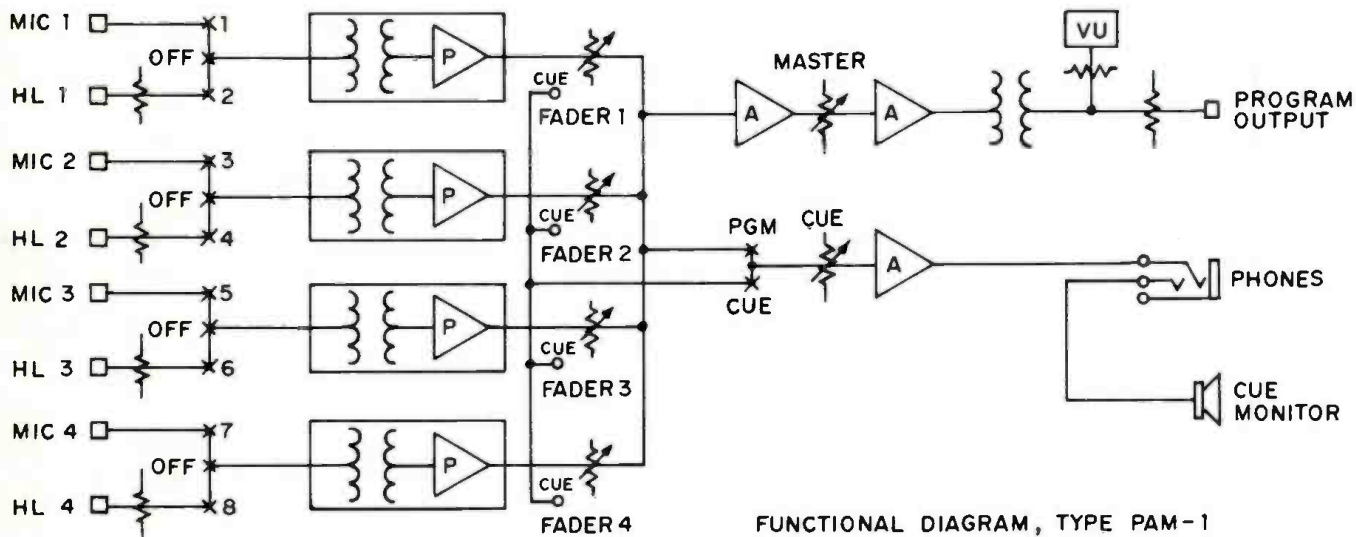
### Operational Features

The PAM-1 is self-contained for operation on 115/230 volt, 50/60 Hz power. Other features include four microphone input transformers, four high-level pads (one selectable per channel), headset and built-in speaker monitoring, and line cueing facilities.

### Versatile Controls

All controls are located on the front panel, including an edgewise VU meter, power switch, program/cue selection switch, four fader controls with cue position, four fader input-selection switches including a mid-off position, and a master gain control. Also included on the front panel is a 3-inch speaker and cue/external phone jack.





**Specifications**

Inputs ..... 8 Inputs (4 Mic., 4 Line)  
 Input Impedance (Balanced) ..... 50 ohms to 250 ohms  
 Frequency Response ..... 20 Hz to 20 kHz,  $\pm 2$  dB  
 Harmonic Distortion ..... 0.5% max. (1 kHz,  $\pm 10$  dBm)  
 into 600 ohms load on Pgm. Channel  
 Gain ..... 90 dB  
 Output Level ..... (at 600 ohms) +10 dBm max.  
 Channel Separation ..... (1 kHz) 55 dB  
 Signal/Noise Ratio (Ref. to  
 -50 dBm Input) ..... 65 dB (115 dBm Ref. to Input)

Dimensions ..... 14" W, 4 1/4" H, 3 1/2" D (355, 107, 88 mm)  
 Temperature Range ..... 0° to 55°C  
 Power Input ..... 115/230V, 50/60 Hz or  $\pm 12$ Vdc (200 mA)  
 (from external battery)

**Ordering Information**

Audio Mixer, Type PAM-1 (less cabinet) ..... MI-586000  
 Wall Mounting Ring ..... MI-586001  
 Rack Mount Adaptor ..... MI-586002  
 Cabinet, Desk Top ..... MI-586003  
 Connector Panel (for use with XLR Connectors) ..... MI-586004





## Custom-Built Audio Equipment Type BC-100 Series

- Built to specific requirements
- Modularized subassemblies
- Easily revised or expanded
- Increased program flexibility
- Extra operational ease

RCA custom designs and fabricates modular audio equipment to satisfy the specific needs of radio and television broadcast, audio and video production organizations, and sound and film studios for fixed or mobile use. A specialized group of audio engineers and implementation people are available to help solve even the most complex audio requirements.

The modular idea allows assembly of systems without limitation: infinite inputs, infinite outputs, infinite switching and so on. The combination results in a superbly flexible facility capable of virtually any audio signal-handling assignment one might imagine.



## Modules for Custom-Built Audio Consoles, Type BC-100 Series

The several modules described here fit together to form custom-built audio consoles of extremely high quality, flexibility and usefulness. In all, there are five types of input modules, two mixer module types, an equalizer sub-module, an "iso-mix" submodule, suitable blank panels and a choice of console housings. Your RCA representative is ready to help specify the custom console that best fits your needs. He will help determine your audio console needs and define them in terms of console facilities.

- Choice of five input modules
- Equalization easily added anytime
- Standard 10-, 22-, 24-, 28-, 33-, or 44-mixer consoles
- Built to any customer requirement



## Operational Amplifier Submodule, MI-141651

Common to every active module in the BC-100 Series, the Operational Amplifier Submodule is a device with all the characteristics useful to audio control-console applications. The "Op Amp" submodule simply plugs into a connector mounted in the module. The connections to the submodule determine the operating characteristics of the Op Amp.



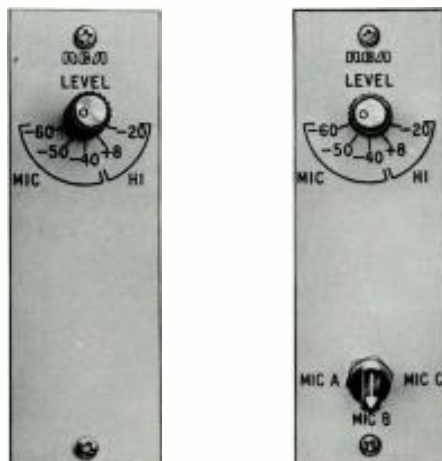
### Specifications

Open Loop Voltage Gain .....	94 dB min.
Frequency Response Characteristic:	
Small Signal Gain Bandwidth Product .....	40 MHz min.
Equivalent Input Noise (20-20,000 Hz) .....	Typically 0.7 $\mu$ V
Common Mode Input Voltage .....	+4V max.
Differential Input Impedance .....	200 kohms
Output Impedance (Open Loop) .....	100 ohms max.
Output Voltage .....	+10 V.
Output Current .....	+ 100 mA
Output Power .....	20 dBm @600 ohms
Connector .....	Mates with ELCO No. 7024-017-163-001
Power Requirements	
(Quiescent) .....	-16, +16 Vdc, 12 mA (Typ.)
Dimensions .....	2.5" x 3.16" x 0.68" (64 x 80 17 mm)
Weight .....	2 oz.
Shipping Dimensions .....	3" x 6" x 2" (Approx.) (75 x 150 x 50 mm)
Shipping Weight .....	6 oz. (160 g) (Approx.)

### Ordering Information

Operational Amplifier Submodule for BC-100 Series Modules .....	MI-141651
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## Preamplifier Modules, Types BA-101, BA-103



The preamplifier module comes in two forms: a single-input and a three-input unit. The modules are identical except for the three-position input-selector switch on the Type BA-103. A special feature is the five-position attenuator switch to adjust input sensitivity to the program source.

### Specifications

Frequency Response Characteristics	
(1 kHz ref. 20-20,000 Hz) .....	+0, -0.5 dB
Distortion Characteristic (20-20,000 Hz) .....	0.25% max.
Noise Level (Unweighted, 20-20,000 Hz) .....	-126 dBm
Source Impedance .....	150 ohms low level; 600 ohms high level
Input Impedance .....	1500 ohms low level; 20,000 ohms high level
Nominal Input Level .....	-50, -40 or -30 dBm unterminated, low level; -10 +18 dBm terminated, high level
Output Impedance .....	10 ohms
Output Level (Nominal) .....	-10 dBm
Power Requirements .....	-16, +16 Vdc @ 15 mA quiescent, 30 mA peak (600 $\Omega$ load)
Dimensions .....	5 $\frac{1}{4}$ " H; 1 $\frac{3}{4}$ " W; 8 $\frac{1}{2}$ " D (133 x 44 x 216 mm)
Weight:	
Single-Input Module .....	28 oz. (794 g)
Three-Input Module .....	32 oz. (907 g)
Shipping Dimensions .....	3" x 6" x 10" Approx. (75 x 150 x 510 mm)
Shipping Weight .....	25 lbs. (11 kg) Approx.

### Ordering Information

Single-Input Preamplifier Module, Type BA-101 (Less Op-Amp Submodule) .....	MI-141501
Three-Input Preamplifier Module, Type BA-103 (Less Op-Amp Submodule) .....	MI-141503
Operational Amplifier Submodule (one required for each of above) .....	MI-141651

## High-Level Input Modules, Types BP-101, BP-103, BP-107



BP-103



BP-107

High-level input modules are offered in three forms: a single-input, a three-input and a seven-input. The three-input module uses a rotary switch for input selection while pushbutton switches serve in the seven-input unit. All three modules are passive, requiring no input power.

### Specifications

#### Dimensions:

Single-Input Module	.....1¾" W, x 5¼" H, x ⅛" D (44 x 165 x 3 mm) 3 oz. (85 g)
Three-Input Module	.....1¾" W, x 5¼" H, x 8½" D (44 x 165 x 215 mm) 22 oz. (623 g)
Seven-Input Module	.....1¾" H, x 5¼" H, x 8" D (44 x 165 x 203 mm) 22 oz. (623 g)
Shipping Dimensions	.....4" x 6" x 10" (100 x 150 x 250 mm)
Shipping Weight	.....2½ lbs. (1134 g)

### Accessory

Audio Relay Switcher Module .....MI-11787

### Ordering Information

Single-Input High-Level Module, Type BP-101	.....MI-141511
Three-Input High-Level Module, Type BP-103	.....MI-141513
Seven-Input High-Level Module, Type BP-107	.....MI-141517

## Submaster Mixer Module, Type BMM-110



Includes a 30-step, tapered-to-infinity fader; an echo-mix network, an echo-return level control and selector switch, and four channel-output selector switches. The output switches are illuminated, alternate-action pushbuttons that allow simultaneous, multiple-output feeds. At the uppermost edge of the module's panel is an unwired potentiometer provided for auxiliary feed such as PA, submaster monitor, etc. (customer specified). The Submaster Mixer Module is mechanically interchangeable with the Type BMM-100 Mixer Module.

### Specifications

Input Impedance	.....600 ohms
Maximum Input Level	.....30 dBm
Attenuator Range	.....0 to infinity
Output Impedance	.....600 ohms
Maximum Output Level	.....30 dBm
Power Requirements	.....24 Vdc @ 160 mA (lamps)
Dimensions	.....1¾" x 16¼" x 8¼" (44 x 411 x 210 mm)
Weight	.....3 lbs., 12 oz. (1620 g)
Shipping Dimensions	.....3" x 10" x 20" Approx. (75 x 250 x 500 mm)
Shipping Weight	.....4.5 lbs., (2040 g) Approx.

### Ordering Information

Submaster Mixer Module, Type BMM-110 .....MI-141570



# Mixer Module, Type BMM-100



Includes a 30-step, tapered-to-infinity fader, provisions for a plug-in booster amplifier, an echo-select (pre- or post-) and -level control, four submaster-select pushbuttons, a cue on-off switch, channel on-off switch, and a foldback- select switch. Wired to accommodate a Type BE-100 Equalizer Module (see below). Two modules illustrated: one at left has equalizer installed; other is without equalizer.

### Accessories

Op Amp Submodule .....MI-141651  
Equalizer, Type BE-100 .....MI-141560

### Ordering Information

Master Mixer Module, Type BMM-100  
(Less Op Amp and Equalizer) ...MI-141550

### Specifications

Frequency Response (1 kHz ref., 20-20,000 Hz) ....+0, -0.5 dB  
Distortion Characteristic (20-20,000 Hz) .....0.25% max.  
Noise Level (Unweighted, 20-20,000 Hz) .....-126 dBm  
Source Impedance .....600 ohms  
Input Impedance .....600 ohms  
Nominal Input Level .....-10 dBm  
Maximum Input Level .....+15 dBm  
Attenuator Range .....0 to infinity  
Output Impedance .....10 ohms  
Output Level .....+20 dBm  
Power Requirements:  
Lamps .....24 Vdc @ 200 mA  
Active Circuitry .....-16, +16 Vdc @ 15-30 mA  
Dimensions .....13¼" x 16¼" x 8¼" (44 x 411 x 210 mm)  
Weight .....4½ lbs. (2050 g)  
Shipping Dimensions .....3" x 10" x 20" Approx.  
(75 x 250 x 500 mm)  
Shipping Weight .....5.5 lbs. (2500 g)

# Equalizer Submodule, Type BE-100



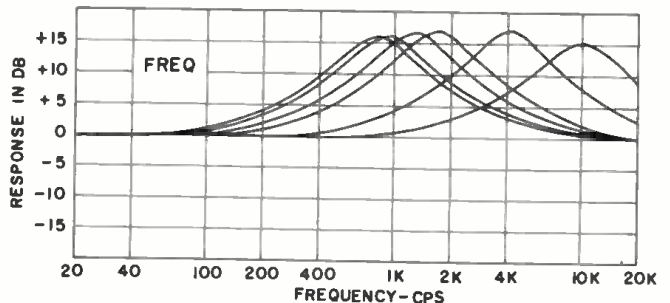
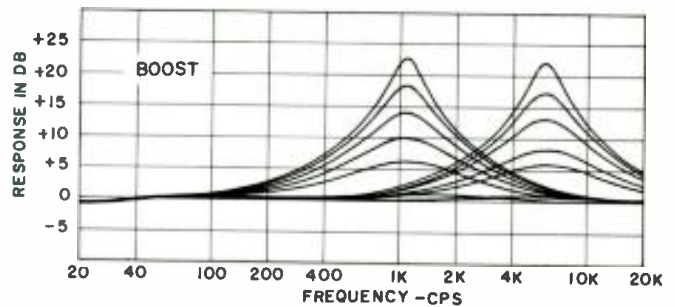
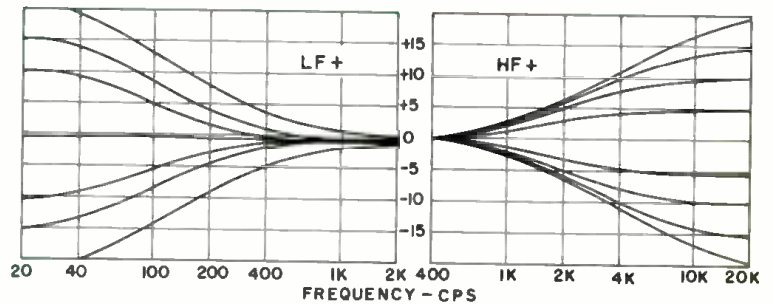
Designed as a plug-in for the Type BMM-100 Master-Mixer Module, the equalizer submodule is a zero-loss device which provides separate low-, high- and peaking-frequency (presence) equalization. Maximum equalization exceeds 19 dB boost or cut at 40 Hz; 15 dB boost or cut at 10 kHz and 16 dB boost at any frequency between 800 and 10,000 Hz (see curves). Added to the mixer module at anytime.

### Specifications

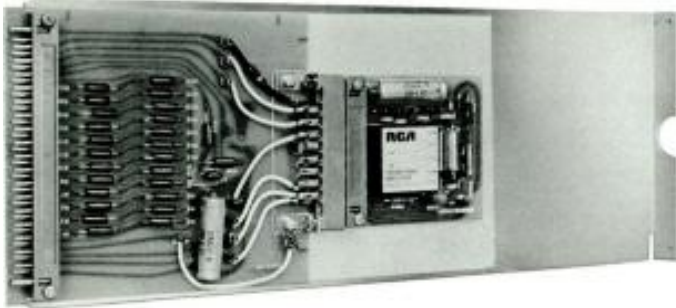
Power Requirements .....-16, +16 Vdc @ 35 mA  
Dimensions .....13¼" x 3½" x 6¾"  
Weight .....18 oz (500g)  
Shipping Dimensions .....3" x 5" x 8" Approx.  
(75 x 125 x 200 mm)  
Shipping Weight .....32 oz (900 g) Approx.

### Ordering Information

Equalizer Submodule, Type BE-100 .....MI-141560



## Iso-Mix Submodule, Type BIM-100



The Iso-Mix Submodule provides 90 dB isolation between inputs and imparts a voltage gain to the signals it passes. Normally this gain factor is either zero or 15 dB, pre-adjusted. However, an adjustment extends this to any value between zero and 25 dB.

The module accepts up to 24 inputs in standard form while additional inputs can be added where necessary. Two or more Iso-Mix Submodules can be cascaded to increase input capacity.

### Specifications

Frequency Response Characteristic (1 kHz ref., 20-20,000 Hz)	+0, -0.5 dB
Distortion Characteristic (20-20,000 Hz)	0.25% max.
Noise Level (Unweighted, 20-20,000 Hz)	-126 dBm
Input Channels	24
Input Isolation	90 dB
Input Impedance (unbalanced)	12 kohms
Nominal Input Level	-10 dBm
Maximum Output Level	+20 dBm
Output Impedance	10 ohms
Power Requirements	-16, +16 Vdc @ 15-30 mA
Dimensions	7/8" x 4 5/8" x 12"
Weight	20 oz (560 g)
Shipping Dimensions	3" x 5" x 15" Approx. (75 x 125 x 375 mm)
Shipping Weight	32 oz (900 g) Approx.

### Accessories

Rack-Mount Module Frame	MI-557300
Operational Amplifier Submodule	MI-141651

### Ordering Information

Iso-Mix Submodule, Type BIM-100, (Less operational amplifier submodule)	MI-141520
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## Blank Panels Type BP-101, BP-110

Used to fill unoccupied module spaces in control console, the Type BP-101 Blank Panel is identical to the input module panels while the Type BP-110 is identical to the mixer modules.

### Specifications

Input Module Blank Panel, Type BP-101	MI-141511
Mixer Module Blank Panel, Type BP-110	MI-141540

## Monitor Control Module, Type BMM-120



Available in any conceivable configuration to the needs of the control console, the Monitor Control Module is a built-to-order console component. The one pictured here is typical of monitor control panels and fits in the space ordinarily occupied by four input modules. Its upper controls are for control room monitors, while the lower row controls the level of cue, echo-send, foldback and/or other similar circuits.

### Ordering Information

Monitor Control Module, Type BMM-120	Built to requirement
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# Housings, Custom Audio Consoles

Three "standard" console desks are available off-the-shelf; two are ultramodern designs that accommodate 24 or 28 mixer and input modules. The third is a rack-width enclosure that accommodates as many as ten mixers and input modules. These rack-width units combine (in the factory) to make a single enclosure accommodate additional modules in multiples of eleven. The unit illustrated is a double desk which accommodates 22 module units.

### Ordering Information

- Console Desk for 28 Module Units .....MI-141600-1
- Console Desk for 24 Module Units .....MI-141600-2
- Rack-Width Desk Units for  
10, 22 or 33 Module Units .....Built to order







Built especially for Lewron Television in New York City, this is one of two custom audio consoles recently installed. The console offers 20 inputs, which accept either high- or low-level signals, fed to any or all of four output channels. A fifth output channel is equipped with built-in AGC. Each output channel feeds a one-by-two splitter. Also included is a slating switch and a built-in tone oscillator.

Designed and built to the exacting requirements of WPIX in New York City, this BC-100 audio console includes performer reinforcement (with pre- and post-fade), pre-hear and foldback facilities. Each facility is equipped with a VU meter and a level control. There are four echo-send channels with pre- and post-faders. A built-in 21 x 5 relay switcher (at the right of the meter panel) provides multiple feeds to five console inputs; digital readouts indicate the selected source on the first eight inputs in this switcher. Two of the six submasters have selectable AGC and a unique warping mixer provides for the mixing of six pre-selected inputs at various artificial levels.



## Typical System Specifications

### Microphone Inputs:

Source Impedance .....	150 ohms
Input Impedance (Balanced or floating) .....	1500 ohms
Nominal Level (Unterminated, switch selectable) .....	-50, -40 or -30 dBm
Maximum Level .....	-5 dBm

### Auxiliary, High-Level Inputs:

Source Impedance .....	600 ohms
Input Impedance (Balanced or floating) .....	20 kohms
Nominal Level (Terminated, switch selectable) .....	-10 or +18 dBm
Maximum Level .....	+43 dBm

### High-Level Inputs:

Source Impedance .....	600 ohms
Input Impedance (Floating) .....	600 ohms
Nominal Level .....	-10 dBm
Maximum Level .....	+15 dBm

### Program Outputs:

Load Impedance .....	600 ohms
Output Impedance .....	Less than 60 ohms
Nominal Level .....	+18 dBm
Maximum Level .....	+30 dBm

### Monitor Outputs:

Load Impedance .....	4, 8, 16 ohms
Maximum Level .....	+40 dBm

### Echo-Send Outputs:

Load Impedance .....	600 ohms
Output Impedance .....	Less than 60 ohms
Nominal Level .....	0 dBm
Maximum Level .....	+18 dBm

### Echo-Return Inputs:

Source Impedance .....	600 ohms
Input Impedance (Unbalanced) .....	1000 ohms
Nominal Level .....	0 dBm
Maximum Level .....	+35 dBm

### Frequency Response (No Equalization):

Program .....	20-17000 Hz, +0 -0.5 dB
Monitor .....	30-15000 Hz, +0 -2 dB

### Harmonic Distortion:

Program .....	20-20000 Hz, 0.5% max.
Monitor .....	20-20000 Hz, 1% max.

### Signal/Noise Ratio (Bandwidth

Unweighted) .....	70 dB or greater, 20-20000 Hz
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### Crosstalk (At 15000 Hz)

.....	More than 70 dB down between any two operating channels (console input to output)
-------	---

### Headroom:

(At All Points in Program Circuits not with VU Meter)	
Above Test Level .....	+15 dB
Above Operating Level .....	+25 dB

### Nominal Gain (Program)

.....	+68 dB
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### Fader Range

.....	+14 dB to -44 dB or greater
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### Ambient Temperature Maximum (Operating)

.....	90°F. (32°C.)
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### Equalization (Continuously variable):

Low Frequency .....	±18 dB @ 40 Hz
High Frequency .....	±15 dB @ 10 kHz
Presence Peaking .....	+16 dB any freq. 800-10000 Hz





## Custom-Built Audio Consoles, Type BC-50

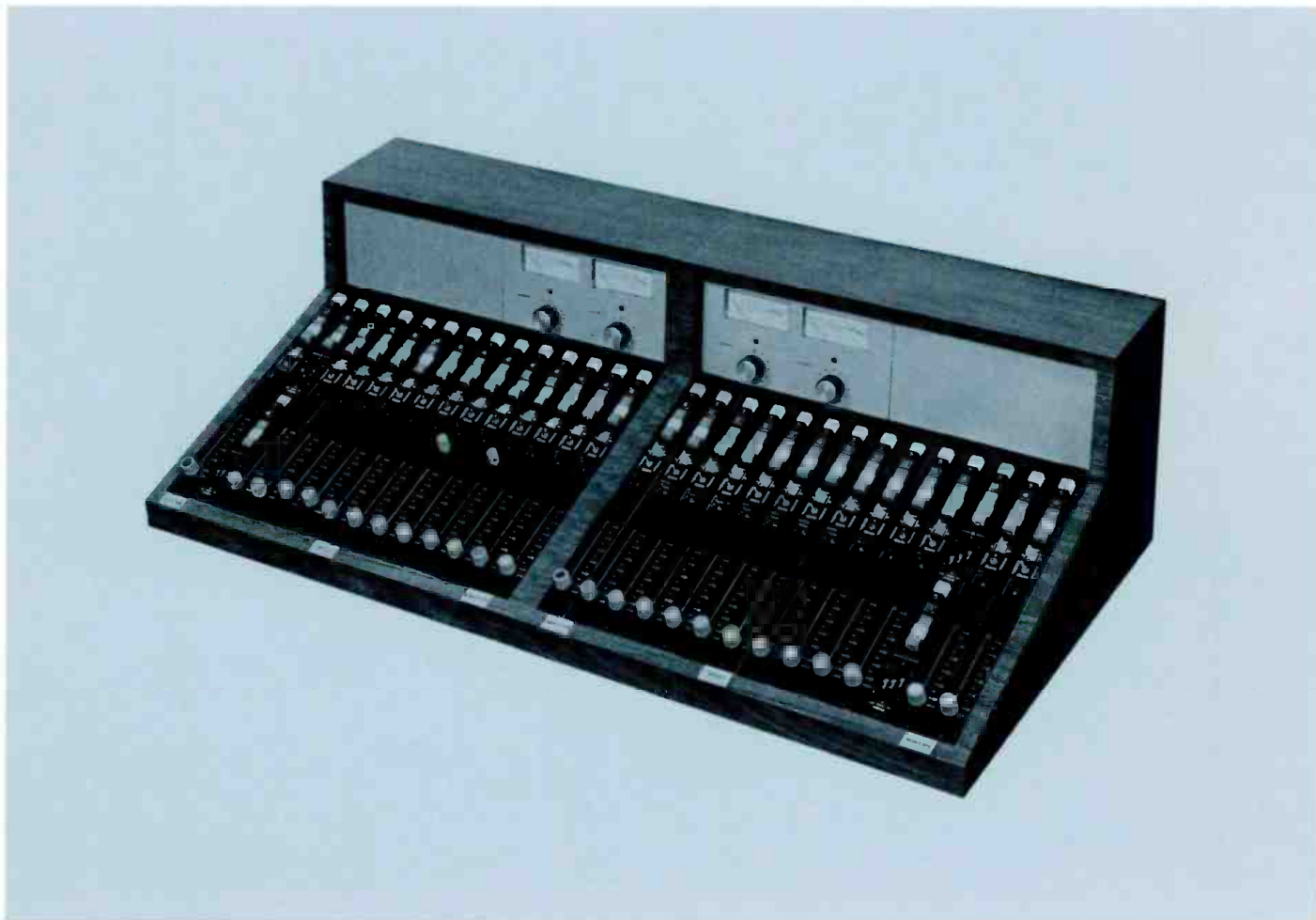
- A modular, do-it-yourself console system
- Essentially unlimited Input facilities
- Wide range of output capabilities
- Modular design allows future revision
- Mono, stereo, quad or multiple-channel

This is the new idea in audio consoles: A do-it-yourself system from a series of modules that connect together in a myriad of combinations to form almost anything anyone could desire in an audio console.

For those who'd rather buy a console already made and tested, we can assemble the console you want from these modules, at nominal expense.

The design centers around a versatile module called a "Unimodule." This device, through a series of plug-in submodules, serves as an input mixer, a submaster mixer or an echo send/return level control.

Each of the modules and submodules are described on the next few pages along with a typical console functional diagram to illustrate the relationships of the various devices.



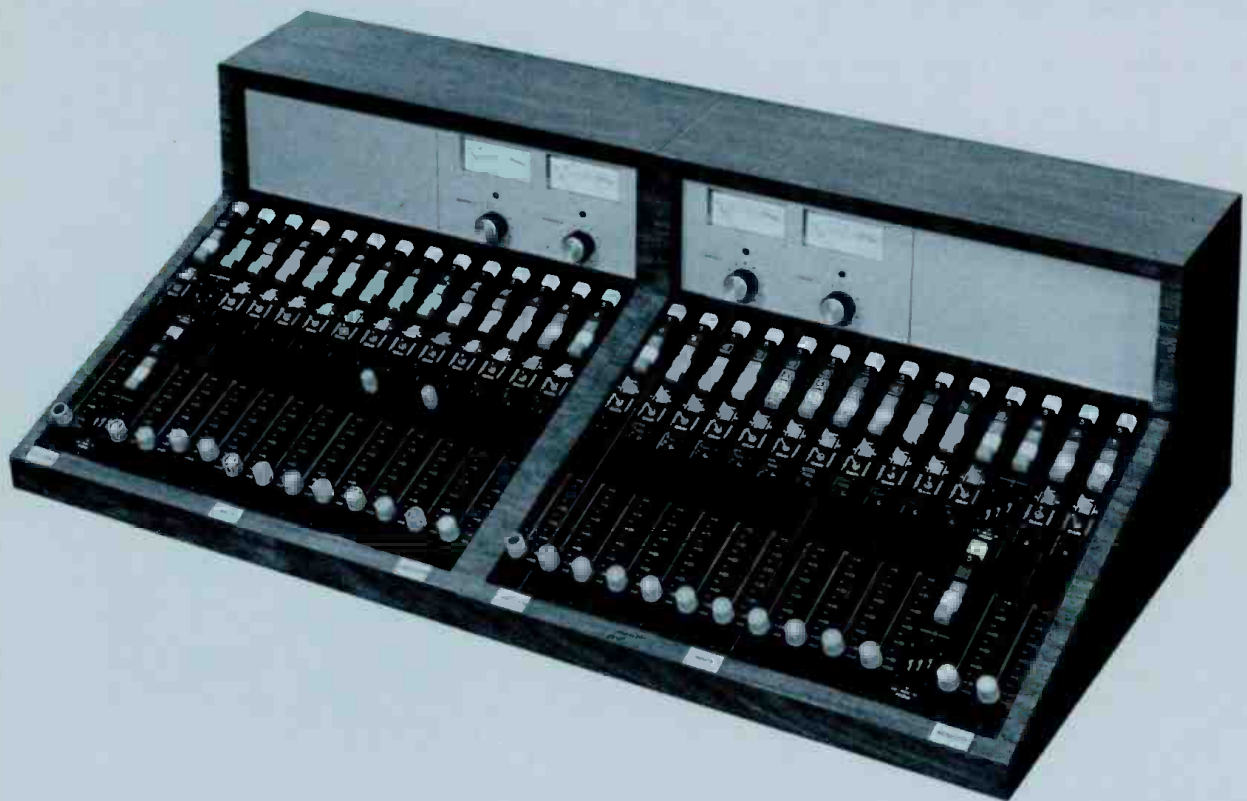
## Console Housing

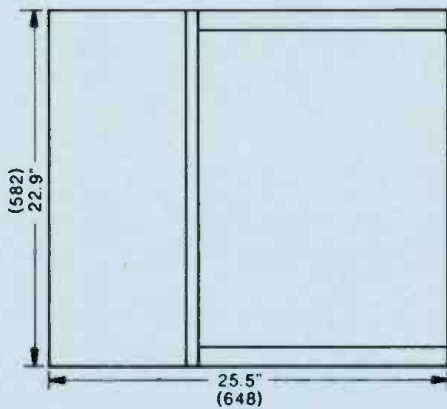
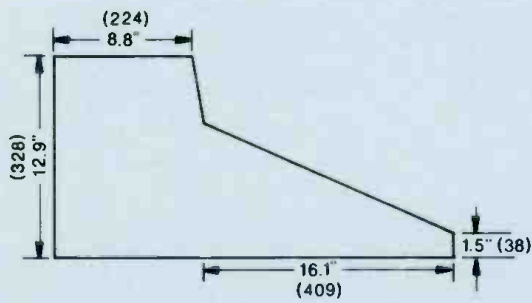
Finished in walnut-grained plastic laminate, the housing accommodates up to 14 Unimodules. In the base are connector strips for the output lines such as program outputs, echo send-and-return, monitor lines and power connections. Also at the rear are provisions to mount XLR panel-type connectors. (XLR connectors not included.)

For situations requiring more than 14 places and up to 28 places, two console housings couple through a "jumper" cable. Each console section requires a separate power supply (see *Accessories*).

On the base plate of each console are connectors that mate with those of the modules to make console assembly that much easier. The connectors allow module interchange without rewiring.

The housings include the upper panels, one of which is equipped with two VU meters, two master gain controls, two input monitor-select switches and a monitor output gain control. Inside, there's space for two monitor amplifiers and two program amplifiers.





PARENTHETICAL DIMENSIONS  
ARE MILLIMETERS

**Specifications**

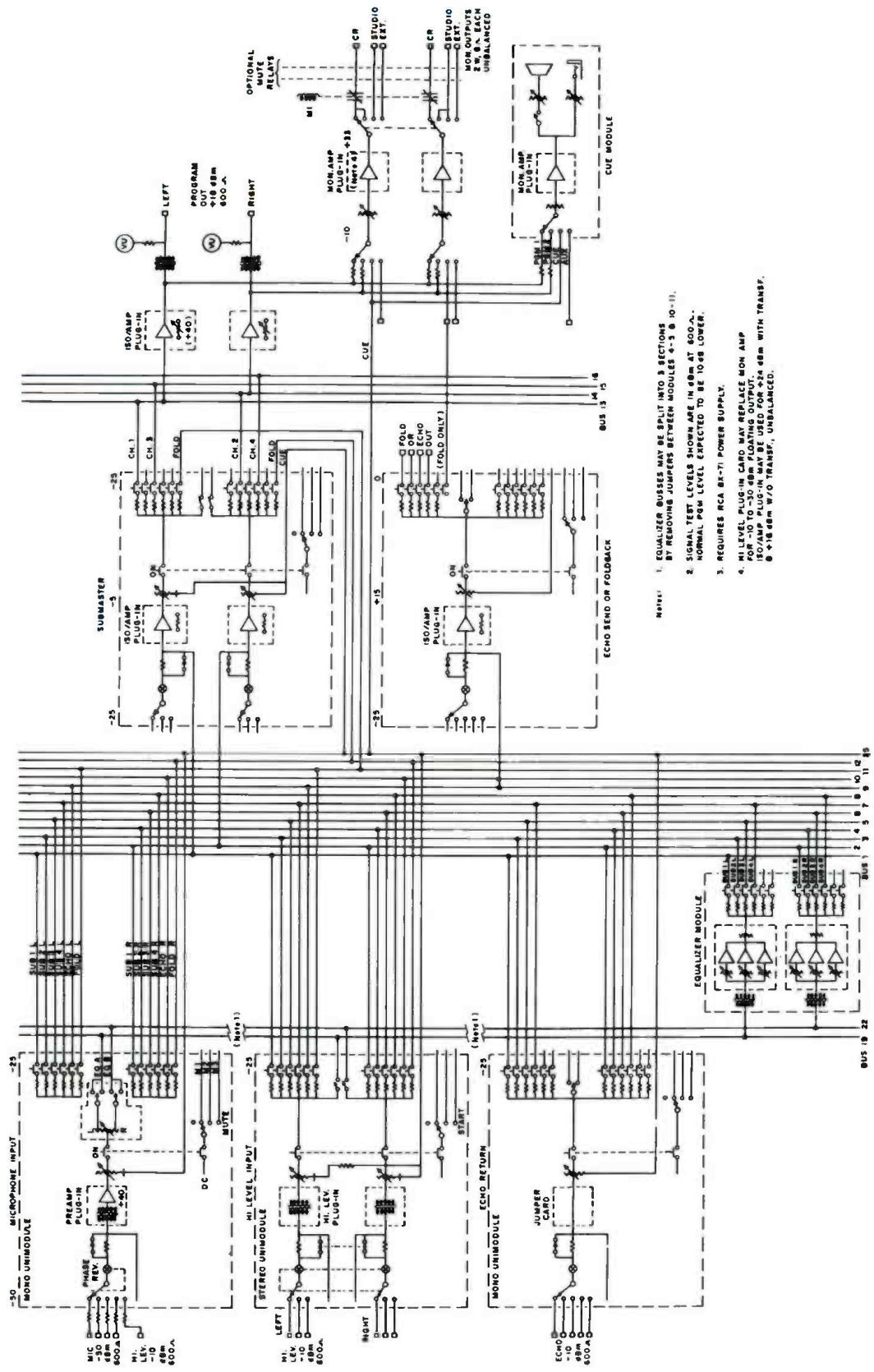
Dimensions .....	See Drawing
Weight (Approx.) .....	25 lbs. (11.4 kg)
Shipping Weight (Approx.) .....	30 lbs. (14 kg)
Shipping Volume .....	6 ft. <sup>3</sup> (0.17m <sup>3</sup> )

**Accessories**

Power Supply, Type BX-51 .....	MI-11318
Mono Unimodule .....	MI-141665
Stereo Unimodule .....	MI-141666
Equalizer Submodule .....	MI-141685
Cue Module .....	MI-141692
Mike Preamp Submodule .....	MI-141670
High Level Balanced and Isolating Submodule .....	MI-141672
High Level Unbalanced Submodule .....	MI-141674
Iso/Mix Amplifier Submodule .....	MI-141680
Program Output Module .....	MI-141680
Monitor/Cue Submodule .....	MI-141690
Blank Panel .....	MI-141695
Console Interconnect Cable .....	MI-141697
Output Bus Assembly .....	MI-141696

**Ordering Information**

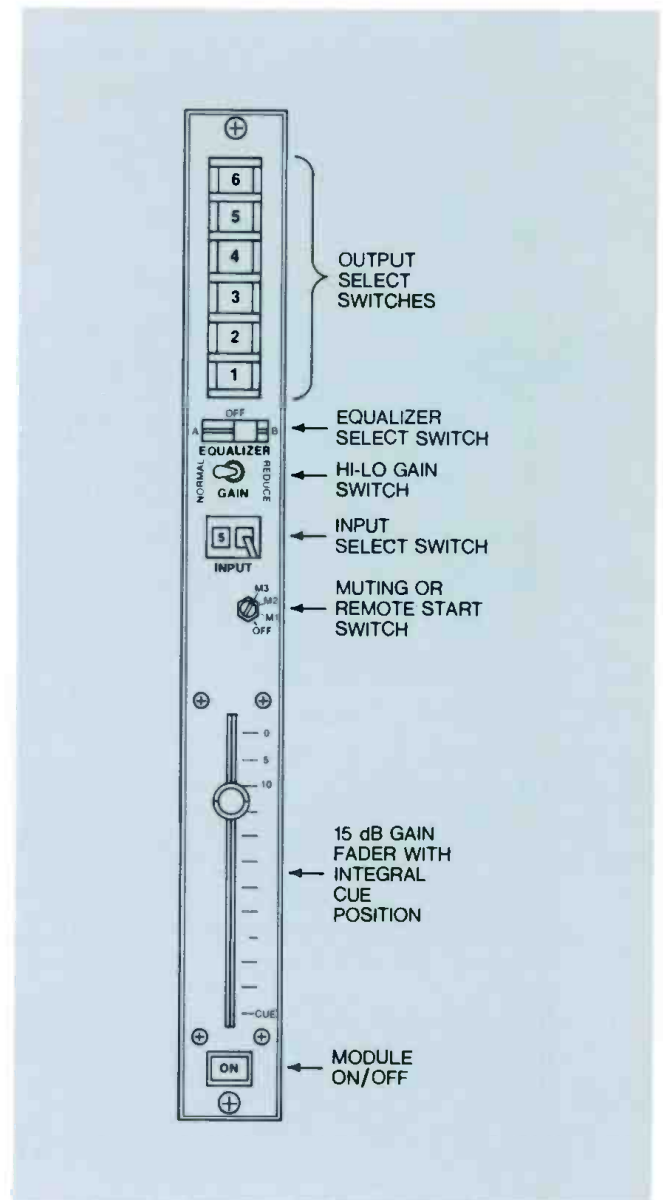
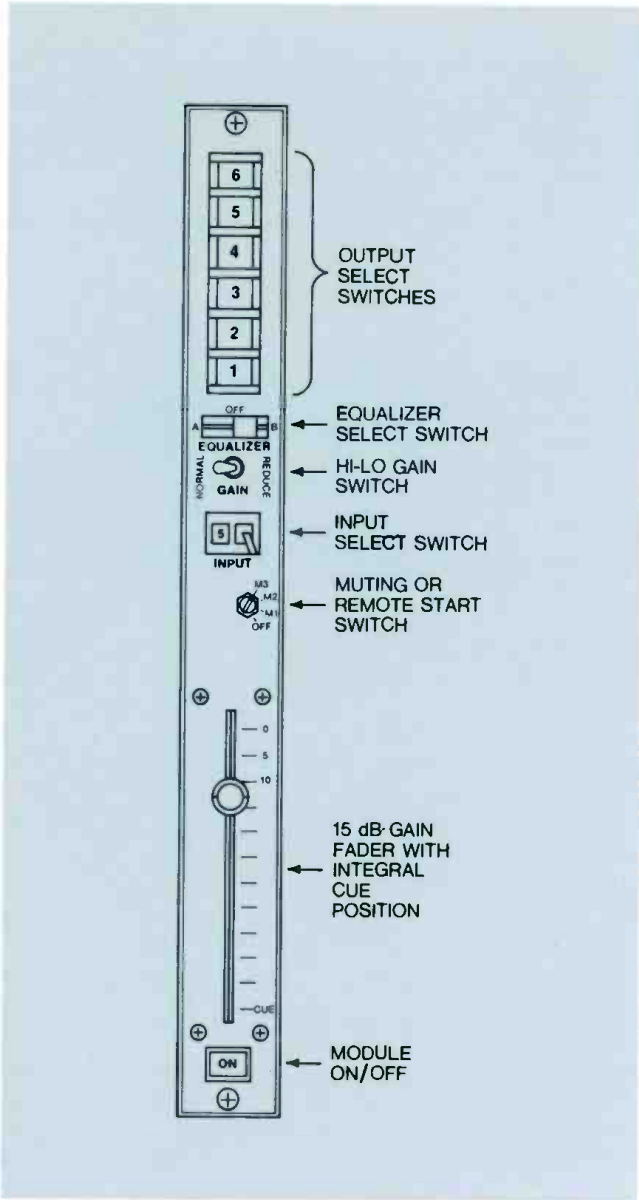
Console Housing, Type BC-50 .....	MI-141660
(Includes two VU meters, monitor switch and two program level controls.)	



- NOTE 1: EQUALIZER BUSES MAY BE SPLIT INTO 3 SECTIONS BY REMOVING JUMPERS BETWEEN MODULES 4-5 & 10-11.
- NOTE 2: SIGNAL TEST LEVELS SHOWN ARE IN dBm AT 600 Ω. NORMAL PSM LEVEL EXPECTED TO BE 10 dB LOWER.
- NOTE 3: REQUIRES RCA BR-71 POWER SUPPLY.
- NOTE 4: HI LEVEL PLUG-IN CARD MAY REPLACE MON AMP FOR -10 TO -30 dBm FLOATING OUTPUT. ISO/AMP PLUG-IN MAY BE USED FOR -22 dBm WITH TRANSF. @ 410 Ωm 870 TRANSF., UNBALANCED.

Functional diagram, typical stereo console using BC-50 components.





**Mono Unimodule, Type BMM-50**

The mono unimodule serves as an input mixer, submaster mixer or echo send/return level controller. Submodules required for operation, see *Accessories*, below.

**Specifications**

- Dimensions (approx.) . . . 1.5" W, 15" L, 6" D (38, 381, 152 mm)
- Weight (Approx.) . . . . . 2 lbs. (1 kg)
- Shipping Dimensions . . . . . 4" x 20" x 10" (102, 508, 254 mm)
- Shipping Weight (Approx.) . . . . . 10 lbs. (4.5 kg)

**Accessories**

- Microphone Preamp Submodule . . . . . MI-141670
- High Level Matching and Isolating Submodule . . . MI-141672
- High Level Matching Submodule . . . . . MI-141674
- Iso/Mix Amplifier Submodule . . . . . MI-141680

**Ordering Information**

- Mono Unimodule, Type BMM-50 . . . . . MI-141665

**Stereo Unimodule, Type BMS-50**

The stereo unimodule is essentially two mono units in one: it serves as a stereo input mixer, stereo submaster mixer or, if desired, stereo echo send/return level controller. Submodules required for operation, see *Accessories*.

**Specifications**

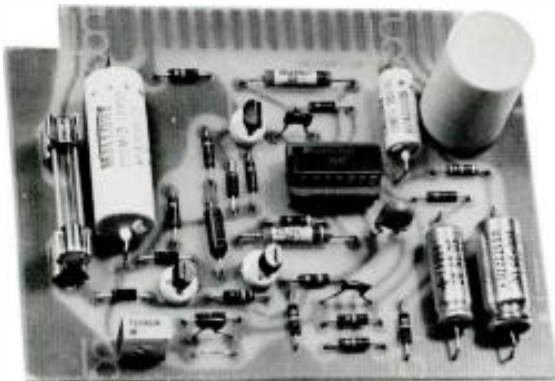
- Dimensions (approx.) . . . 1.5" W, 15" L, 6" D (38, 381, 152 mm)
- Weight (Approx.) . . . . . 2 lbs. (1 kg)
- Shipping Dimensions . . . . . 4" x 20" x 10" (102, 508, 254 mm)
- Shipping Weight . . . . . 10 lbs. (4.5 kg)

**Accessories**

- High Level Matching and Isolating Submodule . . . MI-141672
- High Level Matching Submodule . . . . . MI-141674
- Iso/Mix Amplifier Submodule . . . . . MI-141680

**Ordering Information**

- Stereo Unimodule, Type BMS-50 . . . . . MI-141666



**Microphone Preamplifier Submodule**

Used with the mono unimodule only, the preamp submodule provides 25 dB of gain and includes an isolation transformer. It plugs into a socket on the unimodule.

**Specifications**

Input Impedance (floating) .....	1200 ohms
Source Impedance .....	150 ohms
Nominal Input Level (Unterminated) .....	-50 or -30 dBm
Maximum Input Level .....	0 dBm

**Ordering Information**

Microphone Preamplifier Submodule .....	MI-141670
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**High-Level, Balanced and Isolating Submodule**

Used in either the mono or stereo unimodule, this submodule interconnects the unimodule input circuitry with the signal-routing components of the unimodules. Built-in, balanced transformer isolates the input. (Not illustrated.)

**Specifications**

Input Impedance (floating) .....	600/1200 ohms
Source Impedance .....	600 ohms
Nominal Input Level .....	-10 to +10 dBm
Maximum Input Level .....	+20 dBm

**Ordering Information**

High-Level, Balanced and Isolating Submodule .....	MI-141672
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**High-Level, Unbalanced Input Submodule**

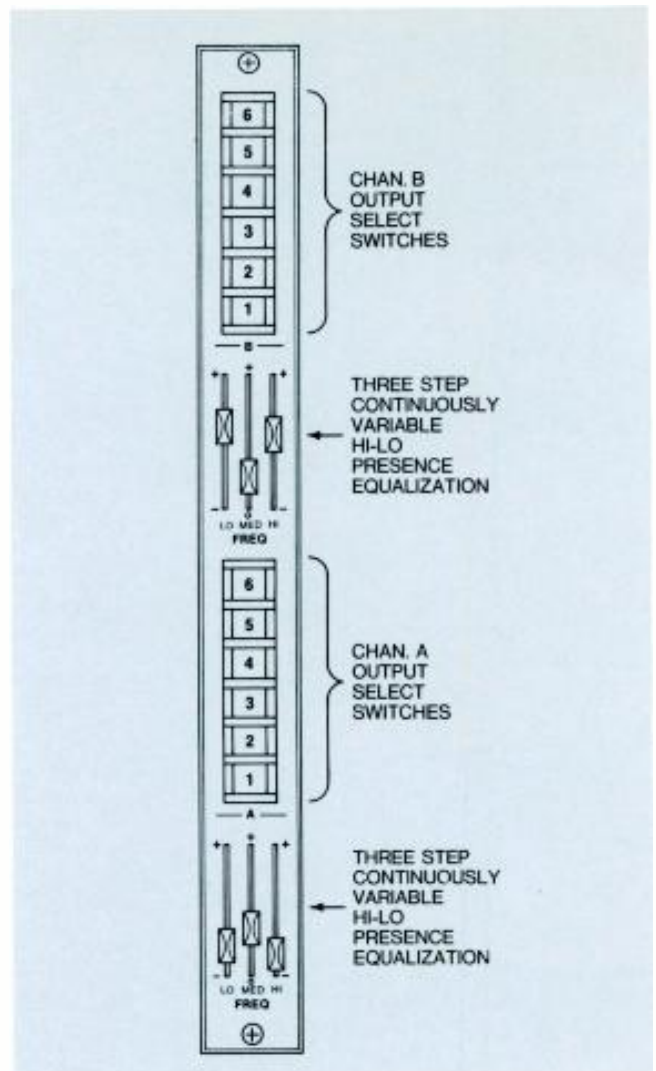
Essentially identical to the high-level submodule described above, this unit omits the built-in isolation transformer which, in turn, makes the input unbalanced and unisolated.

**Specifications**

Input Impedance (unbalanced) .....	600 ohms
Source Impedance .....	600 ohms
Nominal Input Level .....	-10 to +5 dBm
Maximum Input Level .....	+30 dBm

**Ordering Information**

High-Level, Unbalanced Input Submodule .....	MI-141674
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**Equalizer Unimodule, Type BEM-50**

Using the same panel dimensions as the mono and stereo unimodules, the equalizer module provides two separate equalized channels for mono or one stereo channel. The module provides continuously variable boost or cut of high and low frequencies in addition to a variable boost in mid-frequency region. Submodule with active circuitry sold separately, see *Accessories*. Inoperable without submodule.

**Specifications**

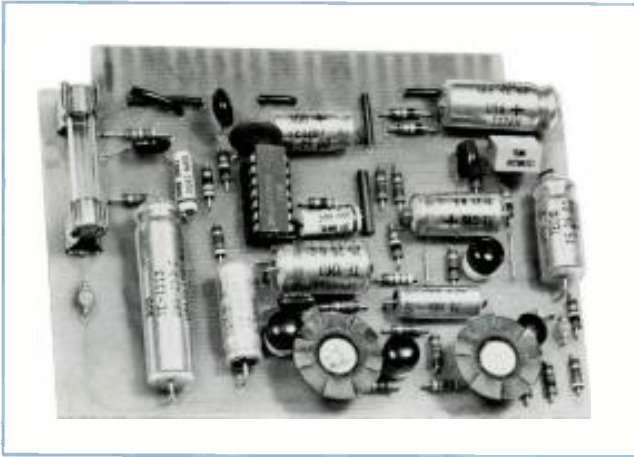
Low Frequency Boost/Cut (40Hz) .....	+18/-18 dB
High Frequency Boost/Cut (10 kHz) .....	+15/-15 dB
Mid-Frequency Boost (1100Hz) .....	+16 dB
Dimensions .....	1.5" W, 15" L, 6" D (38, 381, 152 mm)
Weight .....	2 lbs. (1 kg)
Shipping Weight .....	10 lbs. (4.5 kg)
Shipping Volume .....	2 ft. <sup>3</sup> (0.6m <sup>3</sup> )

**Accessories**

Equalizer Submodule (Two req'd) .....	MI-141687
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**Ordering Information**

Equalizer Module, Type BEM-50 .....	MI-141685
(Submodules not included; two required for two-channel or stereo operation. See "Accessories" above.)	



**Isolation/Monitor/Program Amplifier Submodule**

A quadruple-use submodule. First, it serves as an isolation amplifier in a unimodule operating as a submaster mixer; second, a booster amplifier in a unimodule operating as echo send/return or foldback control; third, as a program amplifier in the output line or lines and, fourth as a monitor amplifier (see functional diagram of typical system). Two are included in each console housing, mounted behind the VU-meter panel, operating as program amplifiers.

**Specifications**

Nominal Output Level .....	+18 dBm
Maximum Output Level .....	+24 dBm
Output Impedance .....	60 ohms max.
Nominal Input Level .....	-25 dBm

**Ordering Information**

Iso/Mon/Pgm Amplifier Submodule .....	MI-141680
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**Blank Panel, Type BP-50**

For filling unused module spaces in consoles with fewer than maximum mixer modules, submaster modules or cue modules. Match modules in dimension, color and trim. Hardware included. (Not illustrated.)

**Specifications**

Dimensions .....	1.5" W, 15" L, 1/8" D (38, 381, 3 mm)
Weight .....	0.5 lbs. (0.23 kg)

**Ordering Information**

Blank Panel, Type BP-50 .....	MI-141695
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**Console Interconnect Cable**

For situations where two console housings are required to accommodate modules. (Not illustrated.)

**Ordering Information**

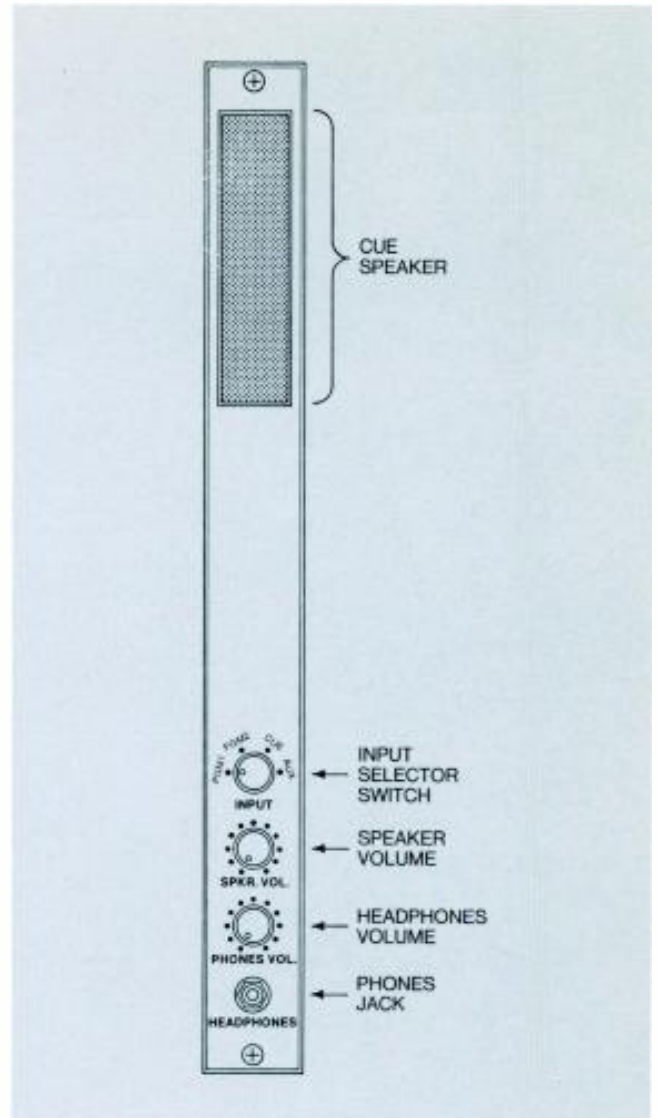
Console Interconnect Cable .....	MI-141697
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**Output Bus Assembly**

Allows use of BC-50 modules in housings other than those offered here. (Not illustrated.)

**Ordering Information**

Output Bus Assembly .....	MI-141696
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**Cue Module, Type BCM-50**

A combination cue and monitor module. It monitors two program lines, cue or an external source (network, for example). Built-in loudspeaker, headphone jack and separate volume controls for each increase operating convenience. Appropriate switching allows use of speaker and headphones individually or simultaneously. Requires monitor/cue submodule for operation, see *Accessories*.

**Specifications**

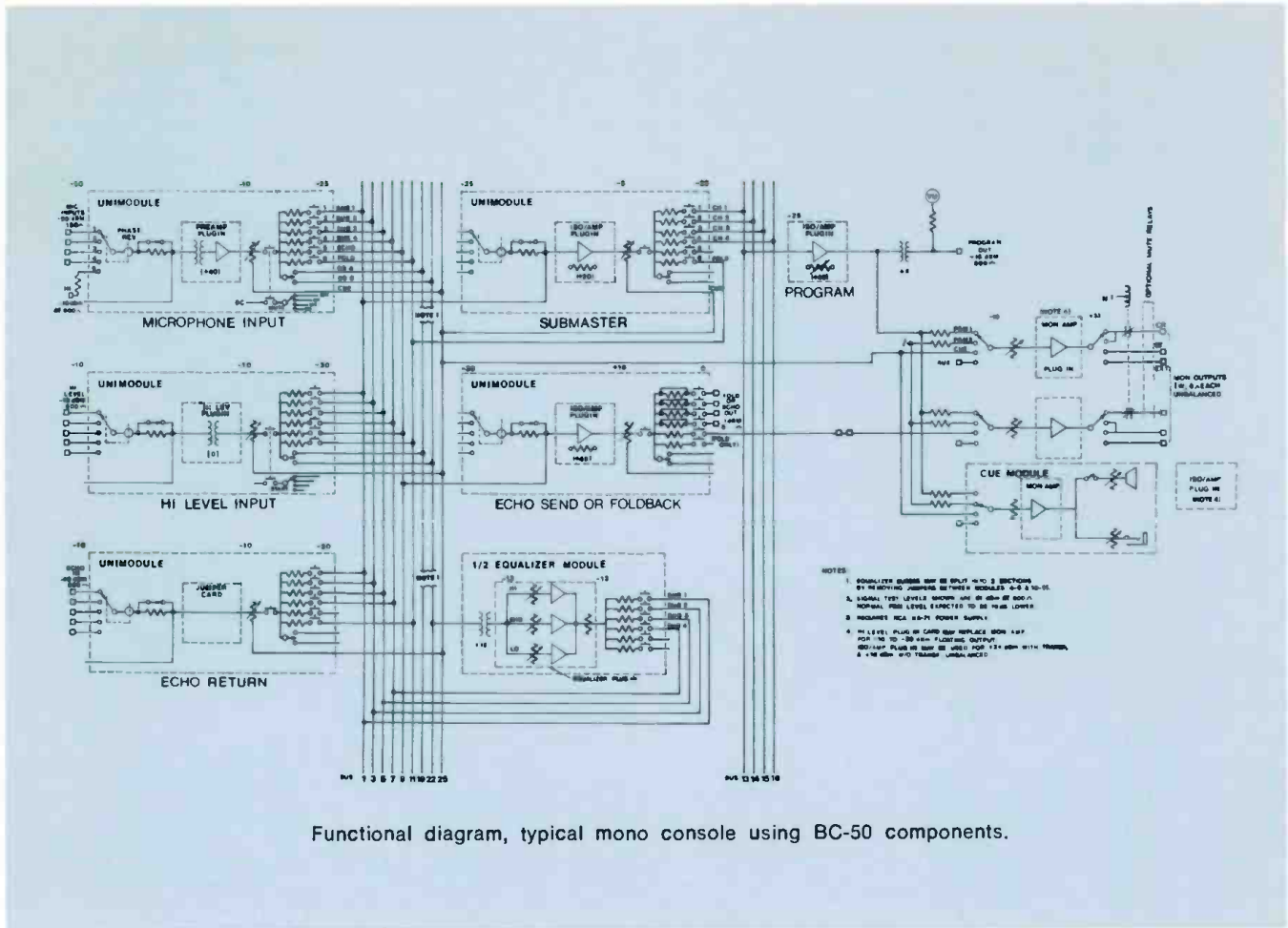
Power Output (8 ohms) .....	2W max.
Load Impedance .....	4-16 ohms
Dimensions .....	1.5" W, 15" L, 6" D (38, 381, 152 mm)
Weight .....	2 lbs. (1 kg)
Shipping Weight (Approx.) .....	10 lbs. (4.5 kg)
Shipping Dimensions (Approx.) .....	4" x 20" x 10" (102, 508, 254 mm)

**Accessories**

Monitor/Cue Amplifier, 2W .....	MI-141690
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**Ordering Information**

Cue Module, Type BCM-50 .....	MI-141692
(Less amplifier submodule, see "Accessories".)	



Functional diagram, typical mono console using BC-50 components.

Typical BC-50 Specifications

Published here as an indicator of the performance to be expected of BC-50 consoles assembled according to instructions and tested with nominal input and output levels. Normal operating level is 10 dB below nominal.

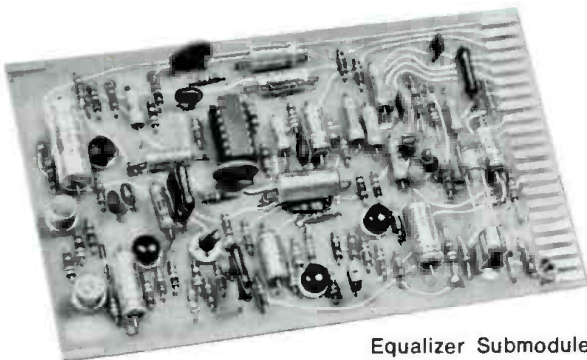
Specifications

Frequency Response <sup>1</sup>	30-15,000Hz ±0.75 dB
Harmonic Distortion:	
Program (30-15,000 Hz)	0.75% max.
Monitor (30-15,000 Hz)	1.5% max.
Signal/Noise Ratio (20-20,000 Hz, unweighted)	68 dB min.
Crosstalk <sup>2</sup>	-65 dB
Headroom (Above nominal level)	±15 dBm
Program Channel Gain:	
Nominal	68 dB
Maximum	108 dB
Fader Range	+14 to -44 dB
Ambient Operating Temperature	113°F (50°C) max.
Power Requirements <sup>3</sup>	117/234V, 50-60Hz

<sup>1</sup> At program outputs.

<sup>2</sup> Between any two operating channels, at 15,000 Hz, reference: nominal output level.

<sup>3</sup> Power consumption proportional to facilities included in console.



Equalizer Submodule.





## Digital Automatic Programmer, Type DAP-5000

- Controls up to 12 program sources (expandable to 92)
- Memory for 2000 program events (expandable to 8000)
- Building-block design—easy interconnection
- Adaptable to any program format
- Easy access to memory for program changes

The DAP-5000 is an electronic controller for an automatic program system which randomly sequences up to 12 audio-program sources according to a program stored in its 2000-event memory.

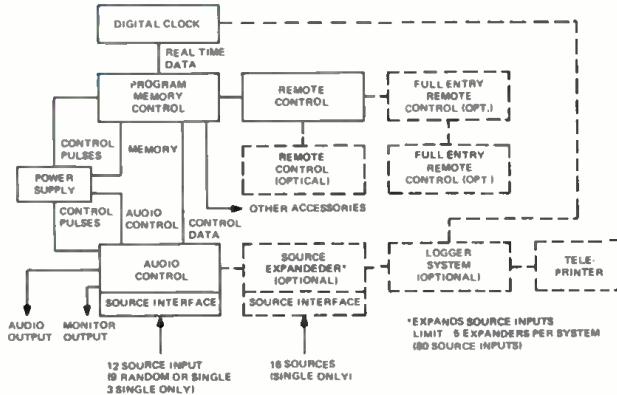
The program sources include remote-control reel-to-reel tape players, cartridge players, network or remote feeds and, of course, local studio programming.

The control center consists of three interrelated sections: a memory section (which stores the sequence instruction), an audio-control section (which switches and monitors the audio from each source to the program line) and a computer-type power supply.

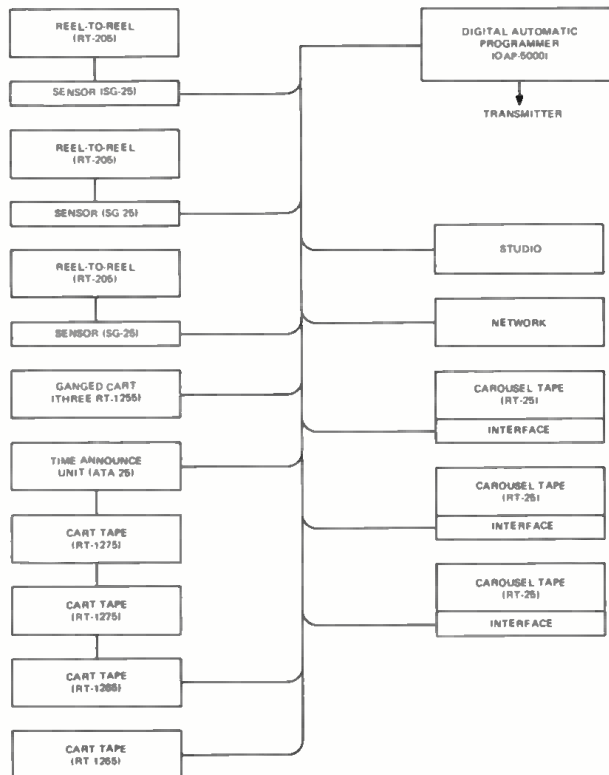




This is the power supply unit for the DAP-5000. It requires only 5.25 inches (133 mm) of rack space.



Functional Diagram, DAP-5000 Digital Automatic Programmer.



Suggested automatic program system using DAP-5000 Programmer.

The DAP-5000 is an integrated automatic program controller that selects up to 12 audio sources and operates them in complete random access from an electronic memory capable of storing instructions for as many as 2000 consecutive program events. The program sources are such things as reel-to-reel or cartridge-tape playback machines, network, studio or remote feeds. A special feature of the system is the immediate access to the stored program should revision be necessary.

Designed around a building-block philosophy, the DAP-5000 is expandable, through the addition of periphery units, to increase memory capacity to 8000 events (in two steps) or expand the number of program sources from the basic 12 to 92 in blocks of 16 sources.

This automatic program controller is suitable for updating present systems and, at the same time, eminently qualified as the center of a new automatic program system.

### Digital Readout

The first of three digital readouts displays the number of the event currently on the line or "on-air"; the second displays the event number, the function number and the source number of the event next up or "next to run". The third readout serves to search the entire memory and, through the keyboard, provides for entry, revision or cancellation of program events. This third display avoids the annoyances of a time-shared readout.

These displays use LED (light-emitting-diode) display devices for long life and extra dependability.

### Modular Construction

All units in the DAP-5000 are rack-mounted and interconnections between them are simple plug-ins. Each unit, in turn, is modular with plug-in circuit sub-modules.

There are three major units in the controller system: the main unit carries the keyboard and the two large digital readouts. The second unit (with the VU meters), is the audio control and monitor unit with system power supply in the third unit. These three require only 5.25 inches (133 mm) of rack space for each or a total of 15.75 inches (400 mm). The units mount separately and interconnect through cables.

### Expandable Memory and Source Control

The basic DAP-5000 memory capacity stores the instructions for up to 2000 events. This capacity is expandable, during manufacture, to 4000 to 8000 events. Extra event capacity very likely requires

increased source capacity. Plug-in sub-modules provide for five additional 16-source groups for a maximum of 92 sources.

### Digital Keyboard

The events to be stored in memory are entered through a digital keyboard. Entry involves tabulating the event number, the function number and the source number in that order. As these numbers go into

the register, they come up on the "program entry" readout for verification. Entry into the memory takes place only when the "enter" button is touched (see photo). Other keys on the panel allow memory "scan", "back space", "special event", memory "advance", "clear", "query", "auto load", "start" and "stop".

### Built-In Audio Monitor

The audio control unit includes, in

addition to the "on-air" digital readout, two VU meters, level controls for the aural monitor audio and a "silence-sensor" system that silently monitors the program line for quiet periods that exceed an adjustable interval. Once the interval is exceeded, the system closes a pair of contacts that can actuate any suitable alarm in the control room or other appropriate place and moves the control to the next sequenced event.

### Specifications

Memory Capacity	2000 events <sup>1</sup>
Source Capacity	12 sources <sup>2</sup>
Digital Readout	LED devices
Dimensions (each unit)	5.25" H, 19" W, 12" D (133, 483, 305 mm)
Output Level (600 ohms, balanced)	+8 dBm
Clip Level (Headroom)	+21 dBm
Frequency Response (50 Hz to 20 kHz)	±0.5 dB <sup>4</sup>
Distortion (50 Hz to 20 kHz)	0.5% max.
25 Hz Attenuation (Both stereo channels)	50 dB min.
Signal-Noise Ratio (Ref: +8 dBm output)	60 dB min.
Crosstalk	-60 dB min.
Silence Sense Timing (Adjustable; on both stereo channels)	3-10 s.
Silence Sense Threshold (Adjustable)	-20 to -40 dB

### Accessories

Interface Cards:	
Audio Source	MI-141826-1
Carousel* Source	MI-141826-2
Source Expander	MI-141825
Enlarged Event Memory:	
4000 Event Capacity	MI-141823
8000 Event Capacity	MI-141824
Tone Sensor, 25 Hz, Type SC-25S	MI-141840
Tone Sensor, 25 Hz, Type TG-25S	MI-141841

\*Trademark of Son-Mag Corporation.

Audio Fade Timing (Both channels)	0.5 to 5 s.
Stop Delay (Adjustable; on reel/reel interface only)	0-6 s.
Output (For external monitor amplifier)	10k ohms
Internal Monitor Amp. (optional) Output	4W, 8 ohms
Memory Retention (During power failure)	60 min.
<b>Weights:</b>	
Control Unit	25 lbs. (11 kg)
Audio Controller	25 lbs. (11 kg)
Power Supply Unit	35 lbs. (16 kg)
Power Requirements	117V, 60 Hz, 288W <sup>3</sup>

<sup>1</sup>Expandable to 4000 or 8000 on order. See "Accessories".  
<sup>2</sup>Field expandable to 92 with the Source Expander accessory. See below.  
<sup>3</sup>Power for control system only; source power not included. Units for 50 Hz power available on special order.  
<sup>4</sup>Active notch filter at 25 Hz.

Time Announce Controller, Type TA-60	MI-141848
Monitor Amplifier, 10W, Type BA-44	ES-11134 <sup>5</sup>
Monitor Amplifier, 4W	MI-141872-5

<sup>5</sup>Includes plug-in guide for rack shelf mount. Two required for stereo monitor.

### Ordering Information

Digital Automatic Programmer, Type DAP-5000 ES-11119  
 Includes Audio Controller and Power Supply Units. Order one Audio Source Interface Card (see "Accessories") for each source in system. Specify event capacity desired if greater than 2000.

## Tone Sensor Unit, Type SC-25S

- Adjustable delay to 10 seconds
- Requires only 1.625 inches rack space
- Built-in end-of-tape sensor

The Type SC-25 senses a 25 Hz (recorded) cue tone in the audio output of a reel-to-reel tape player and performs three functions: First, it receives a signal from the program controller to start the taped event. Second, it rolls the tape machine for an adjustable time interval (up to 10 seconds) beyond the end of the tone at which time it stops the tape cued for the next selection. Third, the SC-25 filters the 25 Hz tone in the audio that the tone cannot reach air at an audible level. The tone sensor unit is required for each reel-to-reel tape machine in the automatic program system.

### Specifications

Frequency Response (50 Hz to 20 kHz)	Flat ±0.5 dB
Bandwidth, 25 Hz Detector	22.5 to 27.5 Hz
Distortion (50 Hz to 20 kHz at +8 dBm)	0.5% max.
Rejection, 25 Hz Filter	50 dB min.



Insertion Loss	0 dB
Headroom	+21 dBm
Input Sensitivity at 25 Hz	-18 dB
Signal-Noise Ratio	60 dB min.
Crosstalk	-60 dB max.
Input Impedance (Bridging)	10K ohms
Output Impedance (Unbalanced)	600 ohms
Stop Delay Interval (Adjustable)	0-10 sec.
End-of-Reel Signal Duration (25 Hz)	8 sec. min.
Control Contact Current Rating (Non-inductive)	2A, 26Vdc or 1A, 115Vdc
Power Requirements	117V, 50/60 Hz, 5W
Dimensions	1.625" H, 19" W, 9" D (41, 483, 229 mm)
Weight (Approx.)	5 lbs. (2.3 kg)
Shipping Weight (Approx.)	7 lbs. (3.2 kg)

### Ordering Information

Tone Sensor Unit, Type SC-25	MI-141840
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## Cue-Tone Generator, Type ATG-25

- Muting circuit eliminates recorded start/stop noises
- Easy, two-button operation
- Requires only 1.625 inches rack space

The ATG-25 works with a broadcast-quality, remote-control, audio tape recorder in the preparation of recorded tapes for automatic program systems. Operation is a simple two-button technique: the "start" button rolls the tape and initiates the muting circuit to eliminate bias pops and other unwanted noises in the recorded tape. The "tone" button switches on the 25 Hz tone and, after a length of tone is recorded, stops tape motion. The unit also includes a filter in the input circuit to prevent the inadvertent recording of an unwanted cue tones or other signals that resemble a cue tone.

### Specifications

Frequency Response (50 Hz to 20 kHz)	Flat $\pm 0.5$ dB
Distortion (50 Hz to 20 kHz at +8 dBm)	0.5% max.
Insertion Loss	1 dB
Headroom	+21 dBm
Crosstalk	-60 dB max.
Signal-Noise Ratio	60 dB min.
Cue-Tone Injection Level (Adjustable)	+2 dBm
Cue-Tone Distortion	0.5% max.
Cue-Tone Frequency	25 Hz $\pm 1\%$



Input Impedance (Bridging)	10K ohms
Output Impedance (Balanced)	600 ohms
Input Delay (Adjustable)	0-10 seconds
Contact Rating (Non-inductive load)	2A, 26Vdc or 1A, 115Vac
Power Requirements	117V, 50/60 Hz, 7W
Dimensions	1.75" H, 19" W, 9" D (44, 483, 229 mm)
Weight (Approx.)	5 lbs. (2.3 kg)
Shipping Weight (Approx.)	7 lbs. (3.2 kg)

### Ordering Information

Cue-Tone Generator, Type ATG-25	MI-141841
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## Time Announce Controller, Type ATA-60

- Controls reel-to-reel or cart machines
- One-minute time intervals
- Built-in power-failure indication

The ATA-60 controls two tape machines, either reel-to-reel or cartridge units, carrying recorded time announcements for synchronized, random broadcast as part of an automatic program system.

The controller actuates the tape machines alternately (one on the odd-numbered minutes and the other on the even-numbered) to keep the tapes synchronous with real time. When the system controller commands a time announcement for air, the ATA-60 rolls the appropriate tape and feeds the audio to the system controller.

Since a power failure of any length longer than a few seconds can spoil announcement sync with real time, the ATA-60 includes a power-failure indicator that operates on any interruption longer than ten seconds and remains lighted until manually reset. The person performing the reset should then advance the tapes an appropriate amount.



### Specifications

Insertion Loss (Passive Audio Switching)	1 dB
Power Requirements	115V, 50/60 Hz, 7W
Dimensions	1.625" H, 19" W, 9" D (41, 483, 229 mm)
Weight (Approx.)	5 lbs. (2.3 kg)
Shipping Weight (Approx.)	7 lbs. (3.2 kg)

### Ordering Information

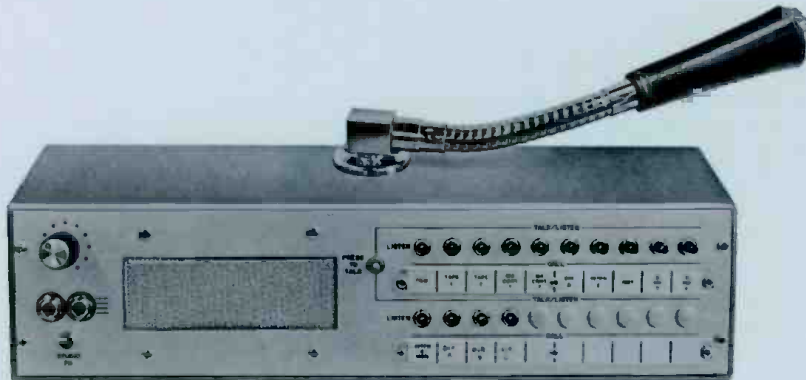
Time Announce Controller, Type ATA-60	MI-141848
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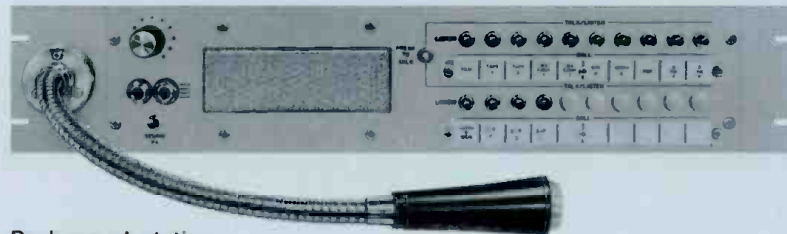


## Expandable Intercom System, Type BCS-5000

- Virtually unlimited expandability
- Custom-designed systems
- Desktop or rack-mount control stations
- Up to 5000-crosspoint capacity
- Ten basic modules



Desk-mount station.



Rack-mount station.

The Expandable Intercommunication System, Type BCS-5000, consists of a series of solid-state modules that may be used in various combinations to fabricate virtually any size intercom system for radio and television plant facilities.

### Modular Construction

The modules include Microphone Pre-amplifiers, a solid-state Switching Matrix, Coupling Amplifiers, Monitor Amplifiers, Power Supplies and Control Panels, plus auxiliary equipment such as microphones, speakers and mounting hardware.

The "heart" of the system is a group of these modules centrally located in a standard 19-inch equipment rack plus two (or more) control panels that include microphones, speakers and/or headsets. All systems are custom designed, using the modules described here, to meet customer's individual requirements. All of the modules are constructed on printed-circuit boards which plug into pre-wired module frames. This makes a planned expansion practical at any time in the future. As a result of the electrical and mechanical design of the system, it requires considerably less rack space than comparable systems.

### Monitor Amplifier

The Monitor Amplifier is the basic module of the system. In addition to its function as a 3-watt output Amplifier, it provides power and plug-in mounting for a Pre-amplifier or Coupling Amplifier. The Monitor Amplifier module is designed to plug into a pre-wired mounting frame, that installs in a Type BR-21 shelf. All connections are made via gold-plated contacts. Up to ten Monitor Amplifier modules mount in a single mounting frame.

An interstage gain control, to set the level for the preamplifier, is also incorporated on the Monitor Amplifier board. To adjust the preamplifier level control and the monitor amplifier level control, a screw driver access hole is located on the front panel. This allows setting of levels with the units plugged in.

Each amplifier module incorporates a transistorized voltage sub-regulator which furnishes 32( $\pm 1$ ) volts to the amplifier. The DC sub-regulator isolation minimizes system crosstalk through the power supply.

An important feature of the unit is the solid-state circuit which mutes the output to prevent feedback from a nearby microphone.

**Carbon Microphone Preamplifier Module**

This module furnishes the amplification required to feed the switching matrix from a carbon microphone. "Button" current for the microphone is supplied by the module. A unique feature is a solid-state input-switching circuit which essentially eliminates the transient generally associated with turning a carbon microphone on.

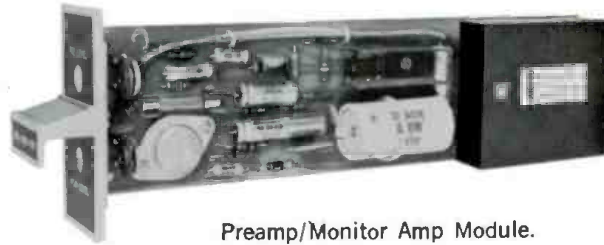
**Dynamic Microphone Preamplifier Module**

This module is a preamplifier which incorporates 30 dB of automatic-gain control. The AGC feature is defeated by turning the Threshold Control fully

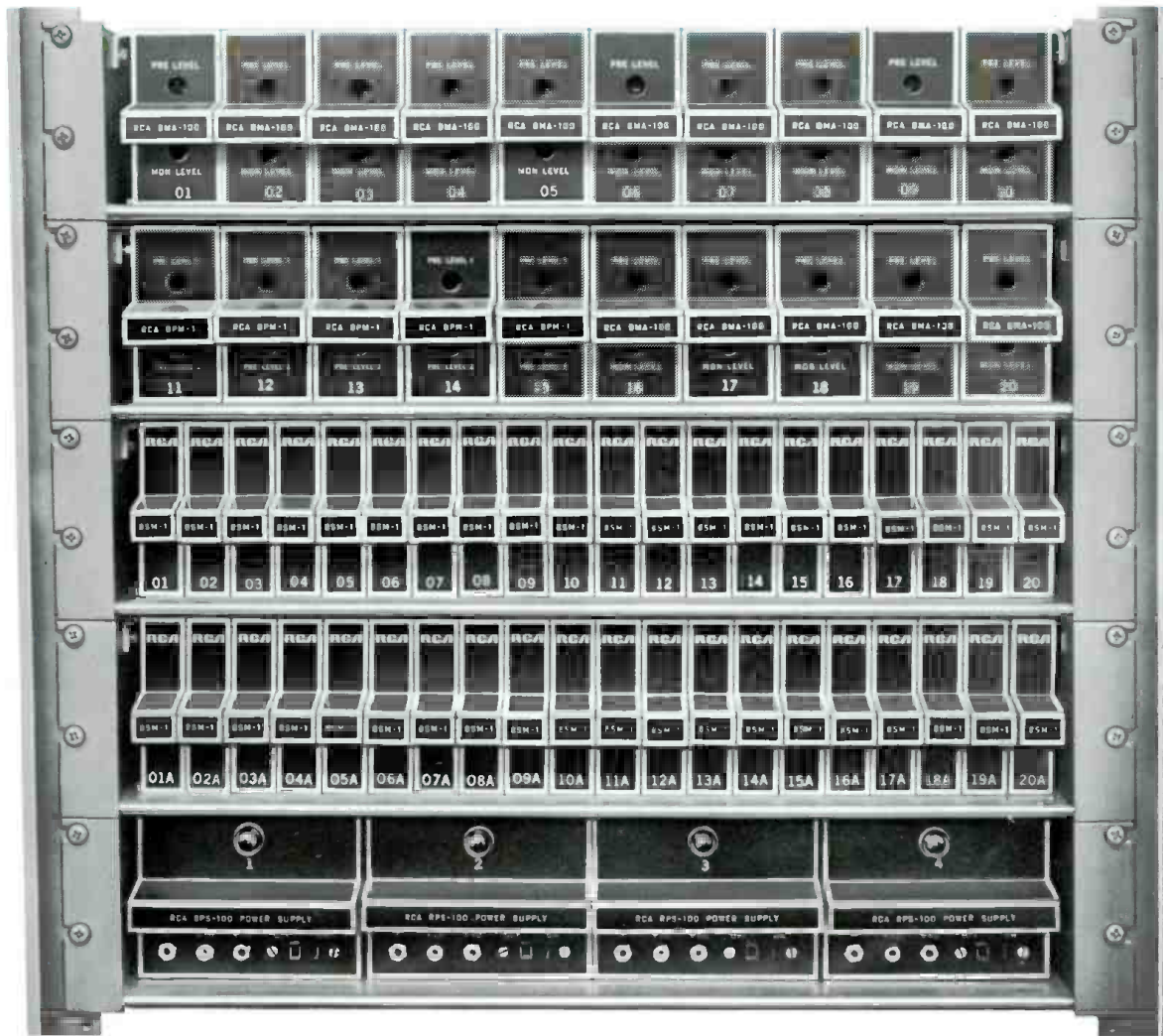
counter-clockwise. The preamplifier increases the output voltage of a dynamic microphone to the level required to drive the Switching Matrix. The overall gain of this module without AGC is 50(±2) dB with 47(±2) dB of AGC.

**Coupling Amplifier Module**

This module provides an audio signal-interconnect with the RCA Interphone System. Mounting and connections are identical to the Carbon and Dynamic Mike Preamplifier modules.



Preamp/Monitor Amp Module.



BCS-5000 Modules in rack-mount frames. This photo shows a typical 20x20 matrix system.



Unique "belt box" station for studio floormen. The box hangs on his trousers belt and connects him with the intercom system without restricting mobility. Four pushbuttons give him two-way communication with as many stations on the intercom system.



### Solid-State Switching Matrix Module

This module consists of a plug-in board which has provisions for mounting up to 10 plug-in solid-state crosspoints for audio switching. This module is so designed that it may be used as two 5-by-1 or one 10-by-1 switcher modules. It is similar to the Monitor Amplifier modules but requires only half the mounting space, making it possible to mount up to 20 switching modules in a single frame. Using the switching module as two 5-by-1 switchers results in reduced costs and reduced space requirements. Plug-in crosspoints of this type make future expansion or modification of a system a simple matter.

### Solid-State Audio Crosspoints Modules

The crosspoint module is an unbalanced switching device which may be controlled remotely by means of 12-or-24-volt (DC) control energy. The audio isolation between adjacent crosspoints is greater than 65 dB.

### Power Supply Module

The power supply module provides regulated DC power for operation of all the modules. Two output voltages are furnished by 40 V at 800 mA (for opera-

tion of Monitor Amplifier and Preamplifier modules) and 20 V at 200 mA (for operation of switching and associated crosspoints).

The power supply module plugs into the Mounting Frame and occupies 2/10 of the space.

### Receptacle Board—Switching Matrix

This component provides the mating receptacles for five switching matrix modules and also provides all interconnections except for the d-c control points. These must be wired to their respective locations during installation. The board mounts at the rear of the mounting frame perpendicular to the switching matrix boards.

### Receptacle Board—Monitor Amplifier

This board provides the mating receptacle for five Monitor Amplifier modules and all the required interconnections. The board mounts at the rear of the mounting frame, perpendicular to the Monitor Amplifier modules.

### Mounting Frame

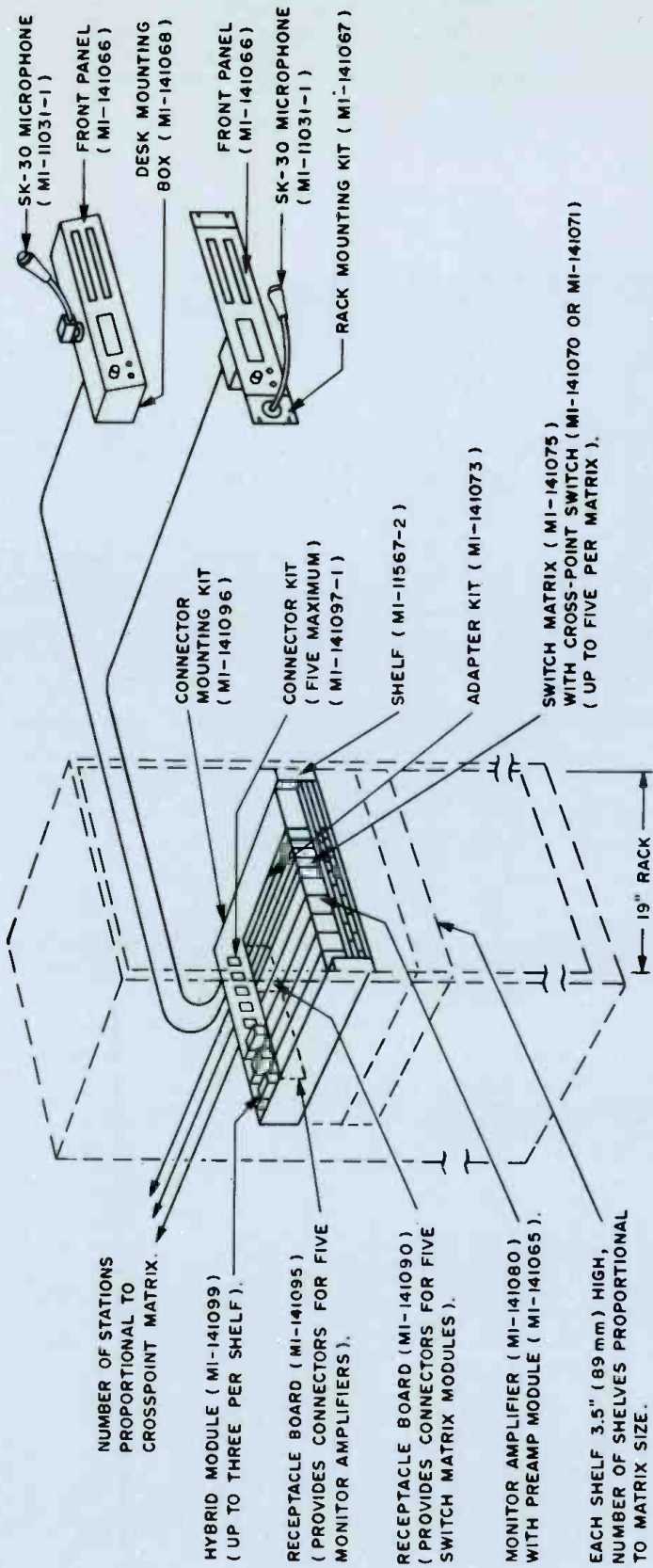
The Frame attaches the various modules of the system to the Type BR-21 Mounting Shelf.

Crosspoint Matrix Module.

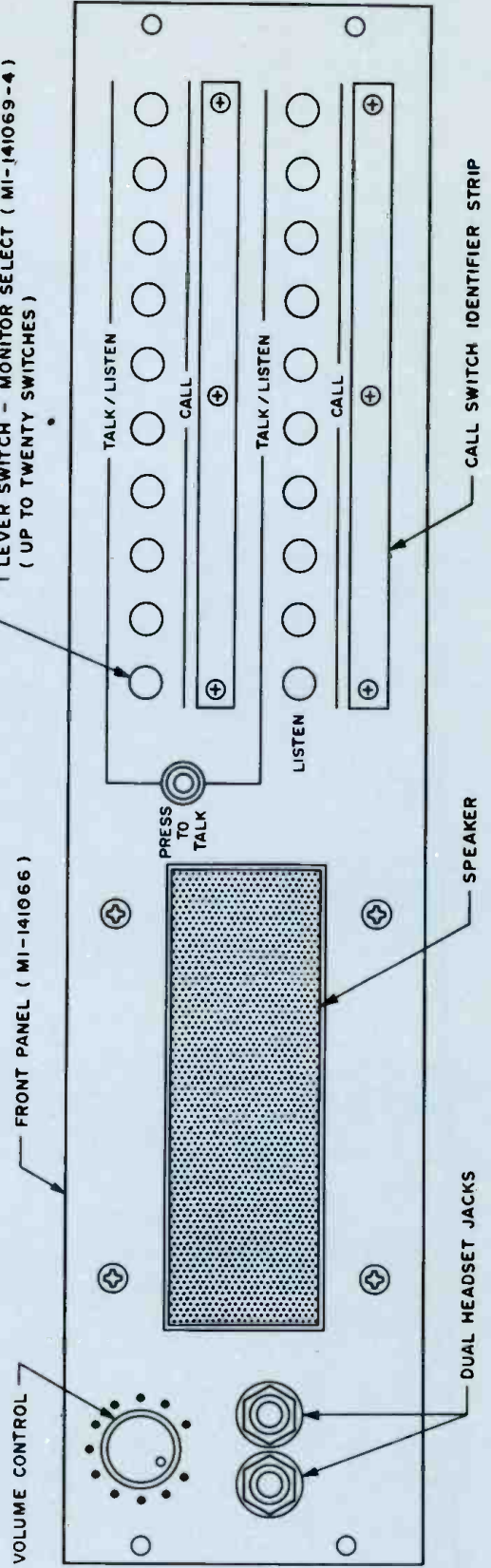


Power Supply Module.

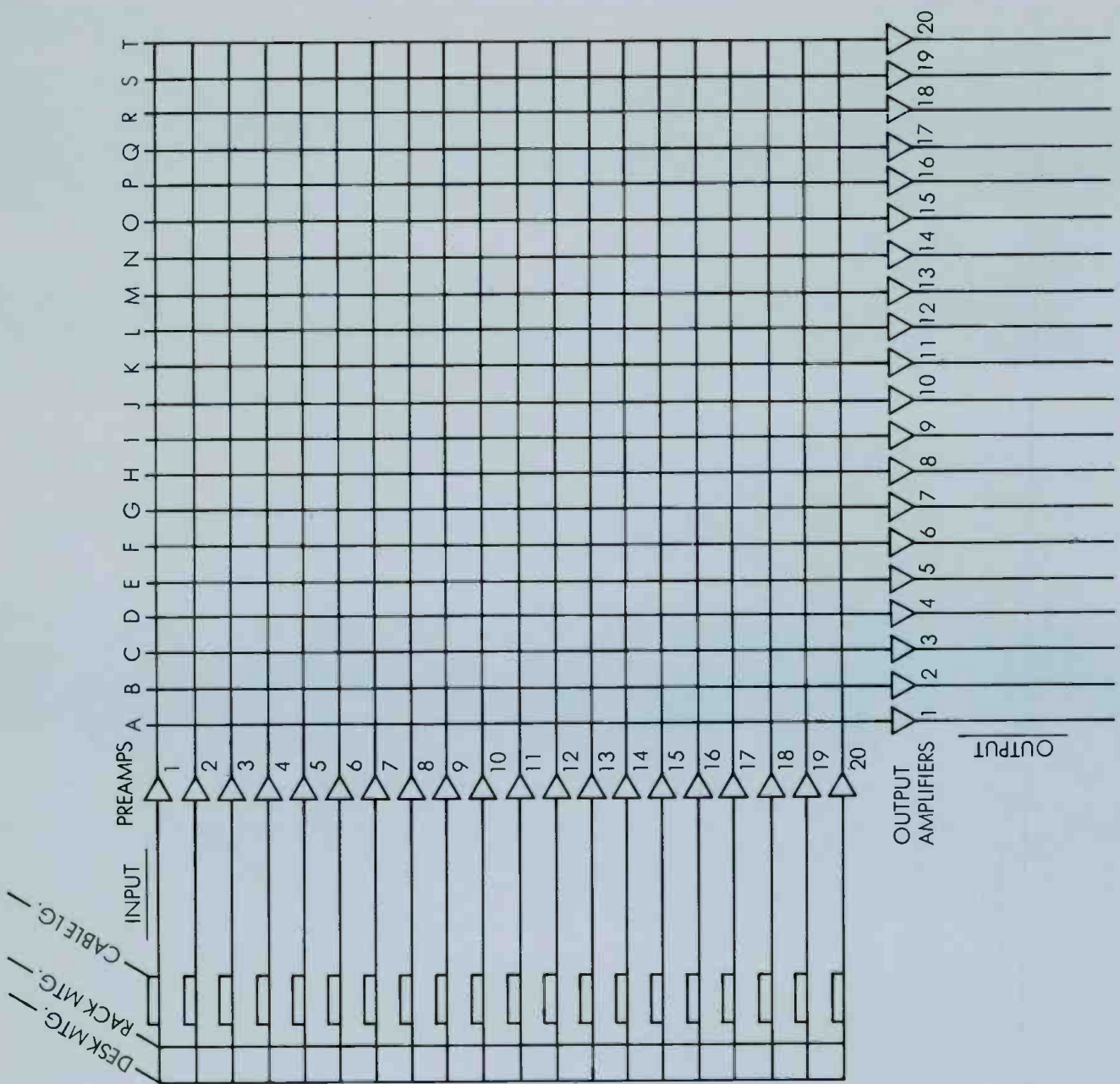




LEVER SWITCH - CALL SELECT ( MI-141069-1 )  
 LEVER SWITCH - INTERPHONE MODULE ( MI-141069-3 )  
 LEVER SWITCH - MONITOR SELECT ( MI-141069-4 )  
 ( UP TO TWENTY SWITCHES )



# Planning Guide



**TO USE GUIDE:**

1. Cross off each station for either "DESK MTG" or "RACK MTG".
2. Write in station name under "INPUT" and under "OUTPUT".
3. Determine cable length from main rack to each station and write in box under "CABLE LG".
4. Determine the stations which interconnect and mark "X" at the appropriate crosspoint.

Give the marked guide to your RCA Regional Representative. RCA can custom design a system for you on the basis of the marked guide.

# Typical Equipment Lists, BCS-5000 Intercom Systems

These equipment lists are for three typical intercom systems: a "5x5" system, a "10x10" and a "20x20". Please bear in mind that smaller and larger systems are available. The largest system possible using this equipment encompasses 5000 crosspoints. These three systems, with or without appropriate expansion, fulfill most intercom system requirements.

## BCS-5000 5x5 INTERCOM SYSTEM (Catalog ES-41900)

Equipment	Qty.	Catalog No.
Monitor Amplifier Module .....	5	MI-141080
Microphone Preamplifier Module .....	5	MI-141065
Switching Matrix Module .....	5	MI-141075
Audio Crosspoint (Normally Open) .....	Note 1	MI-141070
Audio Crosspoint (Normally Closed) .....	Note 1	MI-141071
Power Supply Module .....	1	MI-141085
Receptacle Board-Switching Matrix .....	1	MI-141090
Receptacle Board-Monitor Amplifier .....	1	MI-141095
Equipment Shelf .....	1	MI-11567-1
Adapter Kit (for above) .....	1	MI-141073-4
Connector Mounting Kit .....	1	MI-141096
Connector Kit .....	5	MI-141097-1
Connector Kit .....	5	MI-141097-2
Lever Switch .....	Note 2	MI-141069
Desk-Mount Control Box .....	Note 1	MI-141068
Rack-Mount Kit .....	Note 1	MI-141067
Front Panel Assembly .....	Note 1	MI-141066
Microphone, Type SK-30 .....	Note 1	MI-11030-1
Belt Box, Four Position .....	Note 1	MI-141074
Hybrid Module .....	Note 1	MI-141099
Installation Drawing .....	—	—
Wiring Diagrams .....	—	—
Cable Assembly Instructions .....	—	—
Interconnecting Cable .....	Note 1	—

<sup>1</sup> Quantity according to system requirements.  
<sup>2</sup> Quantity and type according to system requirements.

## BCS-5000 10x10 INTERCOM SYSTEM (Catalog ES-41901)

Equipment	Qty.	Catalog No.
Monitor Amplifier Module .....	10	MI-141080
Microphone Preamplifier Module .....	10	MI-141065
Switching Matrix Module .....	10	MI-141075
Audio Crosspoint (Normally Open) .....	Note 1	MI-141070
Audio Crosspoint (Normally Closed) .....	Note 1	MI-141071
Power Supply Module .....	2	MI-141085
Receptacle Board-Switching Matrix .....	2	MI-141090
Receptacle Board-Monitor Amplifier .....	2	MI-141095
Equipment Shelf .....	1	MI-11567-1
Equipment Shelf .....	1	MI-11567-2
Adapter Kit (For MI-11567-1 above) .....	1	MI-141073-3
Adapter Kit (For MI-11567-2 above) .....	1	MI-141073-4
Connector Mounting Kit .....	1	MI-141096
Connector Kit .....	10	MI-141097-1
Connector Kit .....	10	MI-141097-2
Strap Kit .....	1	MI-141098-1
Lever Switch .....	Note 2	MI-141069
Desk-Mount Intercom Box .....	Note 1	MI-141068
Rack-Mount Kit .....	Note 1	MI-141067
Front Panel Assembly .....	Note 1	MI-141066
Microphone, Type SK-30 .....	Note 1	MI-11030-1
Belt Box, Four Position .....	Note 1	MI-141074
Hybrid Module .....	Note 1	MI-141099
Installation Drawing .....	—	—
Wiring Diagrams .....	—	—
Cable Assembly Instructions .....	—	—
Interconnecting Cable .....	—	—
Connector (for cable above) .....	Note 1	—

<sup>1</sup> Quantity according to system requirements.  
<sup>2</sup> Quantity and type according to system requirements.

## BCS-5000 20x20 INTERCOM SYSTEM (Catalog ES-41902)

Equipment	Qty.	Catalog No.
Monitor Amplifier .....	20	MI-141080
Microphone Preamplifiers .....	20	MI-141065
Switching Matrix .....	40	MI-141075
Audio Crosspoint (Normally Open) .....	Note 1	MI-141070
Audio Crosspoint (Normally Closed) .....	Note 1	MI-141071
Power Supply .....	4	MI-141085
Receptacle Board, Switching Matrix .....	8	MI-141090
Receptacle Board, Monitor Amplifier .....	4	MI-141095
Equipment Shelf .....	1	MI-11567-1
Equipment Shelf .....	4	MI-11567-2
Adapter Kit (For MI-11567-2 above) .....	4	MI-141073-3
Connector Mounting Kit .....	20	MI-141096
Connector Kit .....	20	MI-141097-1

Equipment	Qty.	Catalog No.
Connector Kit .....	20	MI-141097-2
Strap Kit .....	1	MI-141098-4
Lever Switch .....	Note 2	MI-141069
Desk-Mount Intercom Box .....	Note 1	MI-141068
Rack-Mount Kit .....	Note 1	MI-141067
Front Panel Assembly .....	Note 1	MI-141066
Microphone, Type SK-30 .....	Note 1	MI-11030-1
Belt Box, Four Position .....	Note 1	MI-141074
Hybrid Module .....	Note 1	MI-141099
Installation Drawing .....	—	—
Wiring Diagrams .....	—	—
Cable Assembly Instructions .....	—	—
Interconnecting Cable .....	—	—
Connector (for cable above) .....	Note 1	—

<sup>1</sup> Quantity according to system requirements.  
<sup>2</sup> Quantity and type according to system requirements.



Typical 10x10 matrix system. All electronic functions are housed in three different modules: Pre-amp/Monitor Amps, Switching Matrix and Power Supply.

### Ordering Information

Type BCS-5000 Intercom Systems are offered on a custom-built basis. RCA builds a system to your needs using the modules, accessories and equipment listed here. If required, special-design modules are used.

Monitor Amplifier, 3-watt, Type BMA-100 .....	MI-141080
Carbon Microphone Preamplifier, Type BMA-10 .....	MI-141060
Dynamic Microphone Preamplifier with AGC, Type BMA-11 .....	MI-141065
Coupling Amplifier (for use with RCA Interphone Equipment), Type BMA-12 .....	MI-141063
Switching Matrix, Solid-State, Type BSM-1 .....	MI-141075
Audio Crosspoint, solid-state (Normally open), Type BCP-1 .....	MI-141070
Audio Crosspoint, solid-state (Normally closed), Type BCP-2 .....	MI-141071
Power Supply, Type BPS-100 .....	MI-141085
Receptacle Board—Switching Matrix, Type BSM-1-1 .....	MI-141090
Receptacle Board—Monitor Amplifier, Type BMA-100-1 .....	MI-141095
Hybrid Module .....	MI-141099
Dual Preamp Mounting Module, Type BPM-1 .....	MI-141076
Module Extender (for Type BMA-100), Type BMA-100-2 .....	MI-141077
Mounting Shelf, Type BR-21: For Power Supply Modules .....	MI-11567-1
For Amplifier and Crosspoint Modules .....	MI-11567-2
Shelf Adapter Kits: For 5x5 Matrix .....	MI-141073-4
For 10x10 Matrix .....	MI-141073-3/4

Connector Mounting Kit .....	MI-141096
Connector Kit .....	MI-141097-1/2
Lever Switches: Call Select .....	MI-141069-1
Interphone Module .....	MI-141069-2
Monitor Select .....	MI-141069-3
Front Panel Assembly .....	MI-141066
Desk Mount Control Box (for MI-141066) .....	MI-141068
Rack Mounting Adapter Kit (for MI-141066) .....	MI-141067

### Accessories

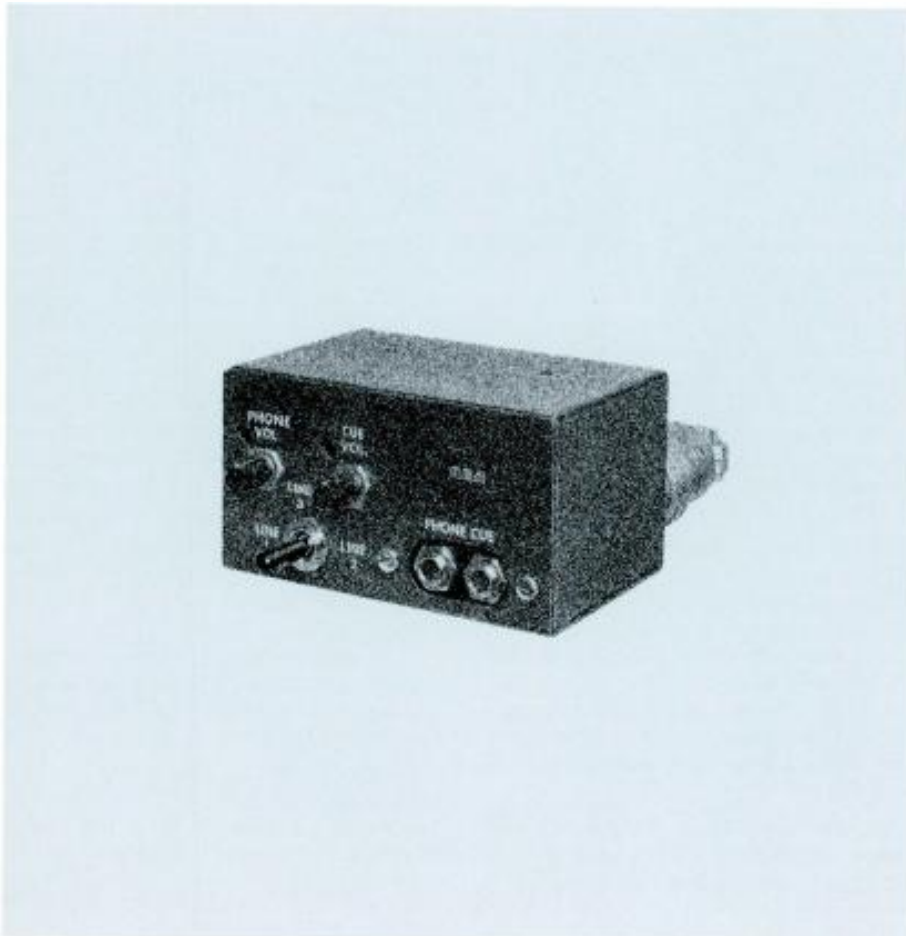
Microphone, Dynamic, Type SK-30 .....	MI-11030-1
Camerman Single Headset/Carbon Mic .....	MI-141006
Camerman Double Headset/Carbon Mic .....	MI-141007
Commentator's Single Headset/ Dynamic Mic .....	MI-141009S1
Commentator's Double Headset/ Dynamic Mic .....	MI-141009DI
Single Headset/Transmitter Assembly .....	MI-11743
Double Headset/Transmitter Assembly .....	MI-11744
Flexible Gooseneck Mic Extension, 6-inch (152 mm) .....	MI-141745
Flexible Gooseneck Mic Extension, 13-inch (330 mm) .....	MI-11745
Flexible Gooseneck Mic Extension, 19-inch (483 mm) .....	MI-11746
Gooseneck Adapter Kit .....	MI-11073
Belt Box, Four Position .....	MI-141074





## Interphone Equipment

- Interconnection for studio and/or remote
- Mounts to console, desk, wall, camera head
- Designed for RCA Cameras—compatible with most others
- Two types available—transistorized or induction-coil



Interphone Equipment provides convenient line-switching and headset-connection facilities for TV-camera, studio and remote communication systems.

Heart of the system is the Interphone Connection Unit. Two types of connection are available: The Transistorized Interconnection Unit (MI-11784) must be used with the RCA Type TK-45 and other late model cameras having transistorized intercommunication systems. The Intercom Interconnection Unit (MI-11734) is for use with earlier RCA studio- and field-type cameras. The two interconnection units cannot be intermixed in a system.

Interphone Connection Unit (MI-11734) for use with earlier cameras and equipment with "party-line" intercoms.



Transistorized Interphone Connection Unit (MI-11784) for use with RCA TK-45 Camera and other late-model units with transistorized intercom systems.

The MI-11784 unit includes a single stage transistorized amplifier with bridge rectifier, sidetone-compensation network and level control. Each station on the line can adjust volume to suit individual requirements. A three-way switch selects three intercom lines and separate volume controls for "phone" and "cue" adjustments are on the front panel. The box also contains two phone jacks to accommodate single or double headsets. A 9-pin and a 12-pin cable-connector plug on the rear are used for external connection.

Operating power for the MI-11784 interphone unit is derived from a common-battery circuit to which it is connected. A bridge-rectifier, in the line to the amplifier, maintains correct polarity at the amplifier regardless of line polarity. The sidetone-compensation bridge holds the sidetone level to within 2 dB of received level for any number of stations up to 32.

The Transistorized Interphone Connection Unit, MI-11784 can replace the

MI-11734 unit where it is designed to modernize the system. The unit physically replaces the MI-11734 Connection Unit and operates with virtually all commercially available TV headsets using carbon microphones. The substitution can be made only if the camera is modified by substituting an MI-11757 Transistor Amplifier for the induction coil in the interphone circuit. Other circuit changes, as outlined in the instruction book, are also required.

The Interphone Connection Unit (MI-11734), consists of a simple circuit with an anti-sidetone feature. The circuit is housed in a compact box with two phone jacks for use either with a single or double headset as required and a two-position switch for "local" circuit or "remote" line. It is designed to work in early intercom systems employing induction coils throughout.

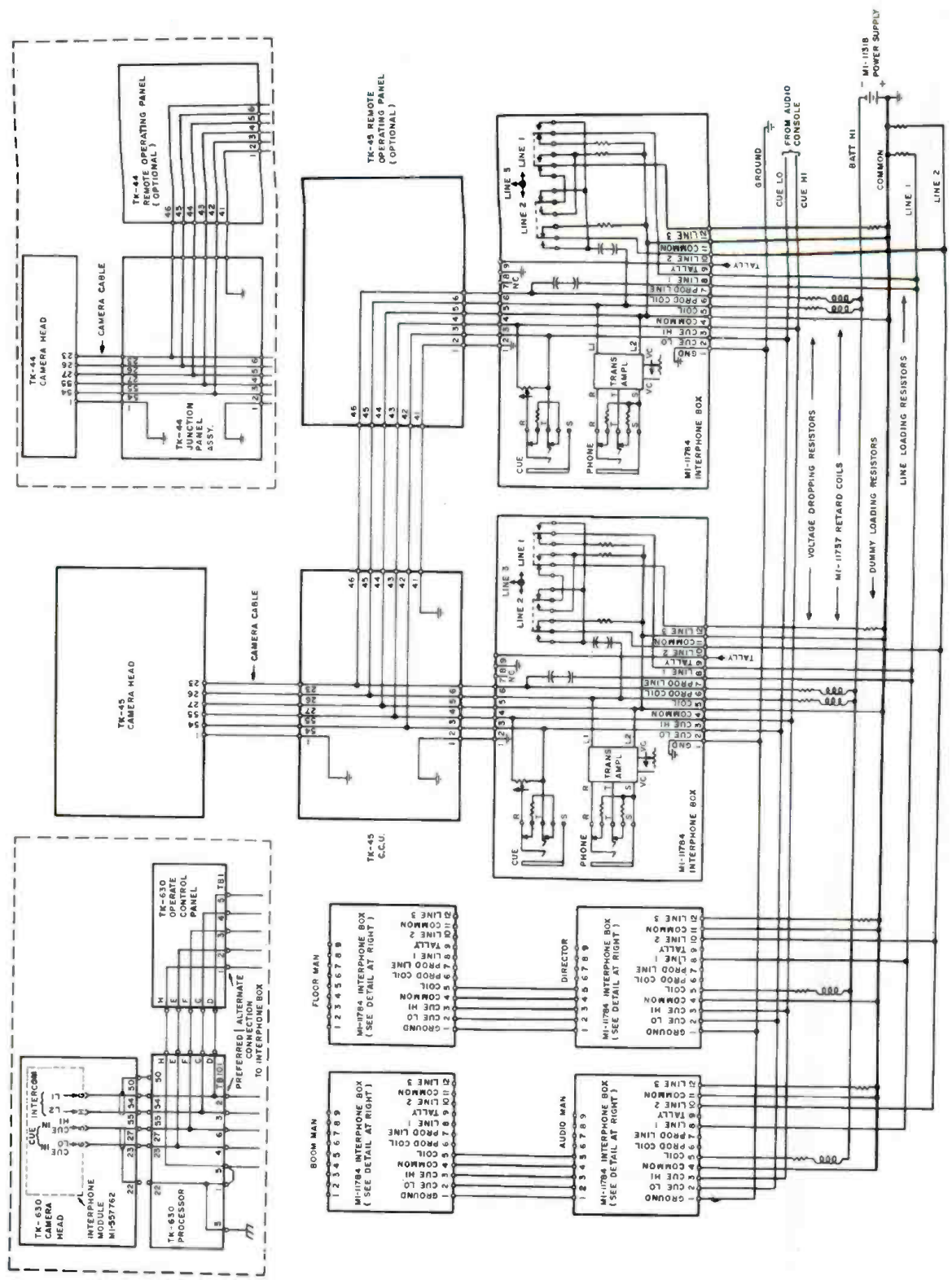
All other components of the Interphone System are designed for operation with either Interconnection Unit.

The Retardation Coil (MI-11737), permits simultaneous use of four carbon microphones such as one interphone connection unit and three camera headsets on a common power supply. The coil permits a d-c power voltage to be imposed upon the two-wire telephone talking line. MI-11737 is an audio-frequency choke which isolates the power supply from the telephone line at voice frequencies.

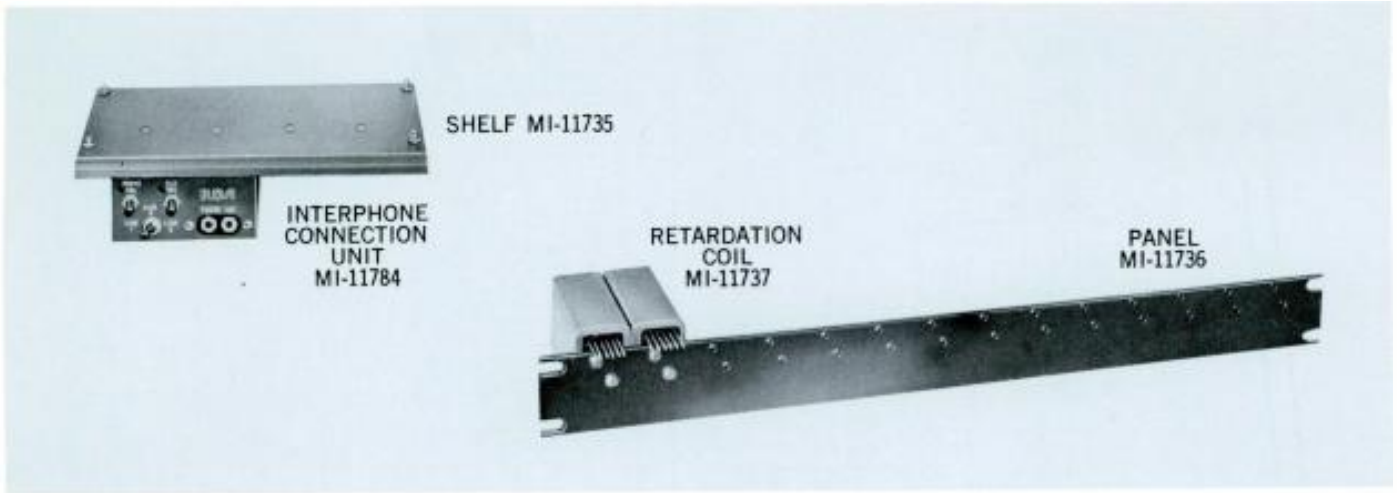
The Mounting Panel (MI-11736) is recommended for mounting retardation coils. The panels have standard mounting dimensions for use in the Type BR-84 Series Racks.

The Accessory Shelf (MI-11735) is available for mounting the interphone connection units under the desktops of console housings. The plate accommodates one or two Interphone Connection Units.

Either a single or double headset can be used. One earphone unit of the double head-band assembly is used for "cue" reception. Either type can be used in the same system.



Typical Interconnection Diagram for RCA TK-44 and TK-45 Cameras.



**Specifications**

**Transistorized Interphone Connection Unit (MI-11784)**

Impedance .....120 ohms  
 DC Voltage (Nominal) .....3.5 V  
 DC Current (Approx.) .....40 mA  
 Dimensions Overall .....4<sup>5</sup>/<sub>8</sub>" W, 2<sup>1</sup>/<sub>2</sub>" H, 6<sup>3</sup>/<sub>4</sub>" D  
 (117, 64, 171 mm)  
 Weight .....30 oz. (850 g)

**Interphone Connection Unit (MI-11734)**

Dimensions Overall .....4<sup>5</sup>/<sub>8</sub>" W, 2<sup>3</sup>/<sub>16</sub>" H, 4<sup>1</sup>/<sub>4</sub>" D  
 (117, 36, 108 mm)  
 Weight .....27 oz. (765 g)

**Retardation Coil, MI-11737**

DC Resistance .....165 ohms  
 Inductance .....3.4 mh  
 Maximum Recommended Load Current (DC) .....125 mA  
 Dimensions Overall .....1<sup>3</sup>/<sub>16</sub>" W, 1-45/64" H, 4<sup>3</sup>/<sub>8</sub>" D  
 (302, 42, 117 mm)  
 Weight .....16 ozs. (454 g)

**Power Supply (MI-11318)**

Power Requirements .....117/234 V, 50/60 Hz, 144 W  
 Output .....Regulated 24 Vdc, 6A  
 Dimensions Overall .....19" W, 5<sup>1</sup>/<sub>4</sub>" H, 9<sup>3</sup>/<sub>4</sub>" D  
 (483, 133, 248 mm)  
 Weight .....25 lbs. (11 kg)

**Mounting Shelf (MI-11735)**

Capacity .....Mounts one or two Units  
 Dimensions .....11" L, 6<sup>3</sup>/<sub>8</sub>" W (280, 162 mm)  
 Weight (Approx.) .....2 lbs. (907 g)

**Retardation Coil Panel (MI-11736)**

Capacity .....14 retardation coils  
 Dimensions .....19" W, 1<sup>3</sup>/<sub>4</sub>" H (483, 44 mm)  
 Weight .....18 ozs. (680 g)

**Accessories**

Single Headband Assembly .....MI-11743 or MI-141006  
 Double Headband Assembly .....MI-11744 or MI-141007  
 Regulated Power Supply (24 Vdc, 6A)  
 117 V, 50/60 Hz .....MI-11318

**Ordering Information**

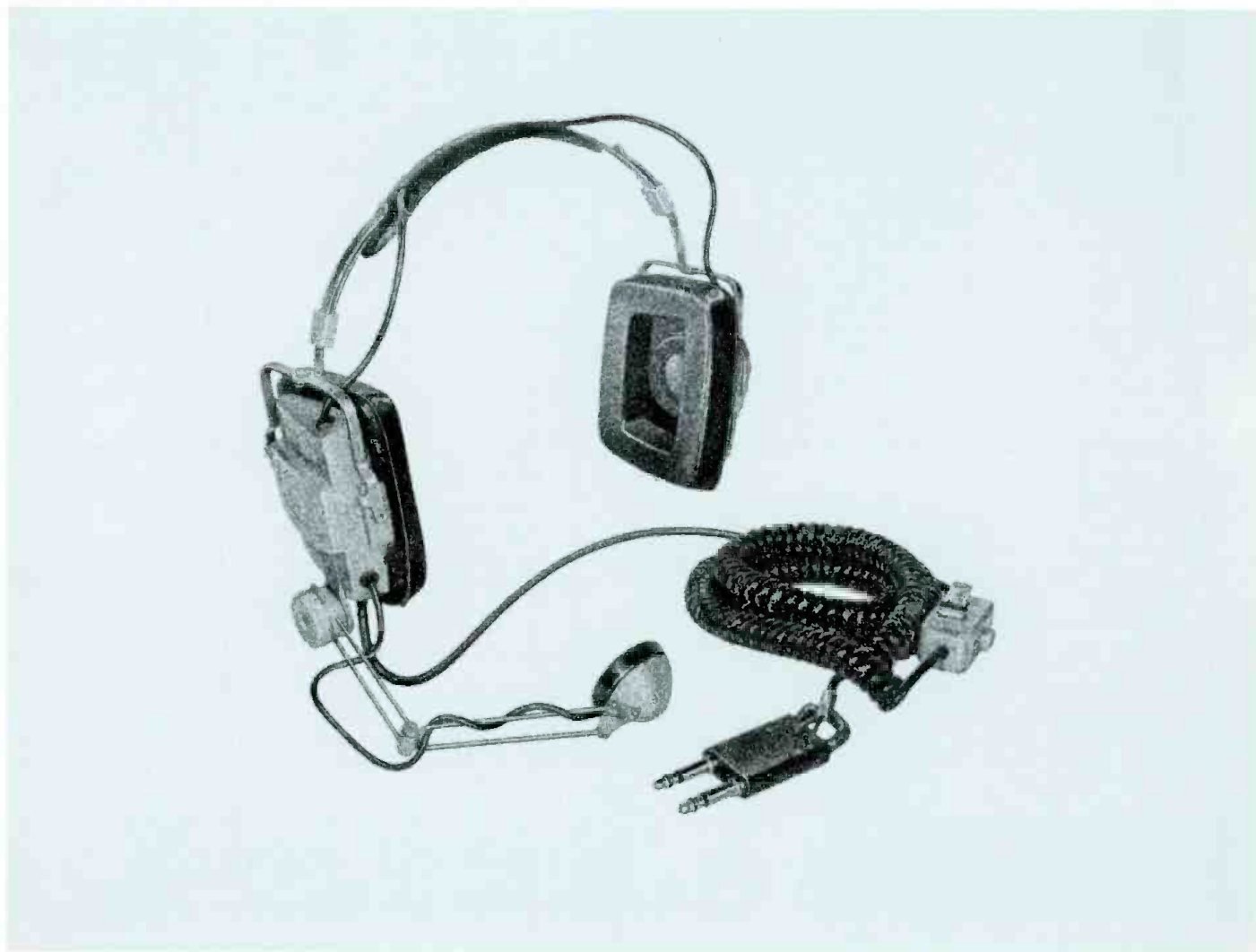
Transistorized Interphone Connection Unit .....MI-11784  
 Interphone Connection Unit .....MI-11734  
 Retardation Coil .....MI-11737  
 Mounting Shelf .....MI-11735  
 Retardation Coil Panel .....MI-11736  
 Transistorized Amplifier (Replacement  
 for Induction Coil) .....MI-11757



## Headphones and Headsets

- Singles, doubles, with, without mike
- Noise-cancelling microphones
- Comfortable ear and headband pads
- Sliding friction headband adjustment
- Belt clip included with long cords

RCA single and double headsets are lightweight, durable assemblies for use by commentators, cameramen and other crew members. There are twelve sets in the group. The selection provides a choice between single and double earpieces, magnetic or dynamic earpiece elements, with mike or without, carbon or dynamic microphone elements, cord length, cord style and connector configuration.



### Cameraman/Commentator Lightweight Headsets

Equipped with a noise-cancelling carbon or dynamic microphone. These headsets are intended for use in areas of high ambient noise. The earpieces are equipped with plastic cushions that help keep noise outside. Carbon-mike sets include a mike on/off switch that connects a dummy load resistor in the circuit while the mike is off.

#### Specifications

##### Carbon Microphone

Noise Cancellation (average) .....18 dB  
 Sensitivity (ref: 1 mW/Nm<sup>2</sup>, 30-ohm load) .....-13 dB  
 Nominal Impedance .....30 ohms  
 Frequency Range .....300-4000 Hz

##### Dynamic Microphone

Noise Cancellation (average) .....15 dB  
 Sensitivity (ref: 1 mW/Nm<sup>2</sup>) .....-57 dB  
 Nominal Impedance .....150 ohms  
 Frequency Range .....100-5000 Hz

##### Earphone Element

Sensitivity (in 6 cc coupler) .....118 ±3 dB  
 Input Impedance .....300 ohms  
 Frequency Range .....100-4300 Hz  
 Power Handling Capability .....100 mW  
 Harmonic Distortion .....3% max.

#### Cord Length (vinyl covered):

MI-141006 and MI-141007 (coiled cord) .....15 ft. (4.6 m)  
 MI-141009S and MI-141009D .....62 in. (1.56 m)  
 MI-141009S1 and MI-141009D1 (coiled cord) .....15 ft. (4.6 m)

#### Plugs and Connectors:

MI-141006 .....PJ-051B  
 MI-141007 .....PJ-6  
 MI-141009S .....PJ-051B and XLR-3-12C  
 MI-141009S1 .....Switchcraft 414

#### Weights (less cord, approx.):

Single Earpiece Sets .....8.5 oz. (241 g)  
 Double Earpiece Sets .....9.5 oz. (269 g)

#### Ordering Information

##### Camera Headsets:

Single Earpiece with Carbon Mike .....MI-141006  
 Double Earpiece with Carbon Mike .....MI-141007

##### Commentator Headsets:

Single Earpiece with Dynamic Mike .....MI-141009S  
 As above with coil cord and  
 Switchcraft 414 plug .....MI-141009S1  
 Double Earpiece with Dynamic Mike .....MI-141009D  
 As above with coil cord, on/off switch and  
 Switchcraft 414 plug .....MI-141009D1

### Cameraman Single and Double Headsets

These headsets are available in single and double-receiver styles. The double-earpiece set is wired to monitor both cue and program. The microphone is a noise-cancelling carbon unit on a trombone boom. Earpiece elements are dynamic. The double headset includes a mike on/off switch, a 15-foot coiled cord and a PJ-6 (WE-213) plug.

#### Specifications

##### Single-Receiver/Transmitter Headset

Receiver Impedance (at 800 Hz) .....275 ohms  
 Microphone (noise-cancelling) .....single button carbon  
 Cord Length (3-conductor) .....5 ft. (1.5 m)

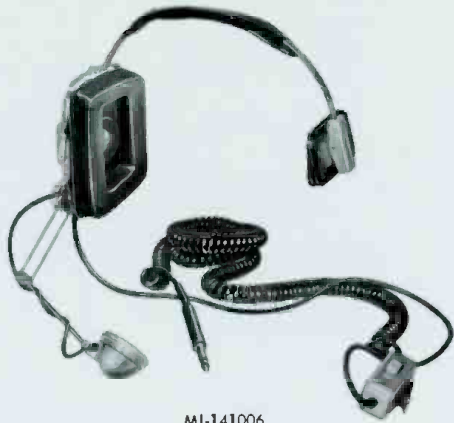
Plug .....PJ-051B (WE-310)  
 Weight (less cord) .....6½ oz. (184 g)

##### Double-Receiver/Transmitter Headset

Right-Side Receiver Impedance .....275 ohms  
 Left-Side Receiver Impedance .....650 ohms  
 Microphone (Noise-cancelling) .....Single button carbon  
 Cord Length (In-line mike switch) .....3 to 15 ft. (0.9 to 4.5 m)  
 Plug .....PJ-6 (WE-213)  
 Weight (less cord) .....10½ oz. (298 g)

#### Ordering Information

Single Headset/Transmitter Assembly .....MI-11743  
 Double Headset/Transmitter Assembly .....MI-11744



MI-141006



MI-141007



MI-141009S



MI-141009D



MI-11743



MI-11744

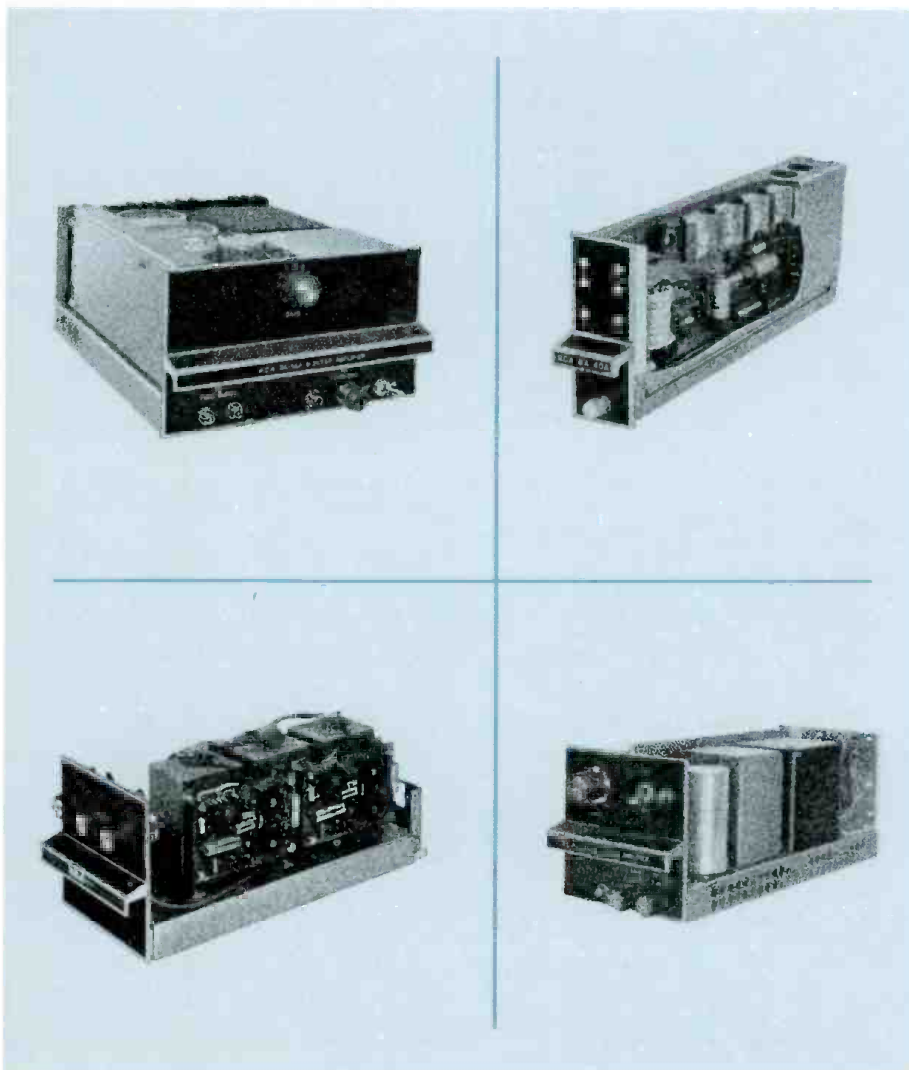






## Modular Audio Amplifiers, Type BA-40 Series

- Plug-in connections
- Wide frequency response—low noise
- Signal-processing systems included
- Low distortion



catalog AU.6010A

(Replaces B.1450)

The BA-40 Series of modular amplifiers are similar to those included in RCA Consoles. They are offered for use wherever high-quality audio equipment is appropriate.

### **Distribution Amplifier, Type BA-40**

The Type BA-40 converts one line into six well-isolated lines.

### **Preamplifier, Type BA-41**

The Type BA-41 Audio Pre-amplifier is useful as a mike preamp or a line-booster amplifier.

### **Program Amplifier, Type BA-43**

The Type BA-43 Program Amplifier is a bridging as well as matching amplifier.

### **10-Watt Monitor Amplifier, Type BA-44**

Particularly suitable for monitoring, recording and talk-back duty, the Type BA-44 provides high-quality, low-distortion operation.

### **50-Watt Monitor Amplifier, Type BA-48**

The Type BA-48 Monitor Amplifier produces 50 watts (47 dBm) of wideband, low-distortion audio power.

### **AGC Program Amplifier System, Type BA-43/45**

The RCA Type BA-43/45 AGC Amplifier System expands low-level program material and compresses high-level material to maintain a constant program level.

### **Limiter Amplifier System, Type BA-43/46**

For use where extremely fast and abrupt limiting action is needed, the Type BA-43/46 Limiter Amplifier operates only on program peaks.

### **FM-Clipper Amplifier System, Type BA-43/47**

The Type BA-43/47 Program Clipper performs two functions essential to FM broadcasting: program pre-emphasis and peak-level clipping.

## Distribution Amplifier, Type BA-40



- Input for bridging or matching
- Six isolated 600-ohm outputs
- Low harmonic distortion
- Broad, flat frequency response
- Versatile input and output configurations

Designed for program-audio distribution, isolation and level recovery applications, the BA-40 Distribution Amplifier either matches or bridges a 600-ohm program line and provides five isolated 600-ohm audio output lines.

### Versatile Input and Output Configuration

A high-quality transformer in the input circuit allows the amplifier to match or bridge a 600-ohm balanced transmission line. The output stages offer extremely low output impedance, and the amplifier is adaptable to a wide variety of load-impedance and power-splitting arrangements.

### Built-In Voltage Regulator

The BA-40 operates from either a-c or d-c power. Operated from a-c, it needs approximately 12 watts of 50-volt power at 50 or 60 Hz. Operated from an external d-c source, the amplifier needs approximately 10 W of 60-volt negative-ground power. An optional a-c power supply (see *Accessories*) offers sufficient capability to power up to ten BA-40 Amplifiers.

### Amplifiers, Interchangeable

The BA-40 packaging is such that as many as ten units fit side-by-side in a Type BR-22 Shelf.

The amplifier has very little harmonic distortion even at full output. Harmonic distortion is less than 0.2% at +16 dBm output and 0.3%, or less, at maximum output, +24 dBm.

### Specifications

**Input:**  
 Impedance ..... Matching: 600 ohms; Bridging: 20k ohms  
 Mode ..... Balanced or unbalanced  
 Max. Input Level ..... -10 dBm matching; +20 dBm bridging

**Outputs (six):**  
 Impedance ..... 600 ohms, load  
 Maximum Level, each output ..... +24 dBm  
 Matching Input Gain ..... 35  $\pm$ 0.5 dB  
 Bridging Input Gain ..... Unity  $\pm$ 0.5 dB  
 Noise Level (20-20,000 Hz) ..... -70 dBm max.  
 Isolation between Outputs (signal) ..... 47 dB at 1 kHz  
**Harmonic Distortion:**  
 At +16 dBm ..... 0.2% max.  
 At +24 dBm ..... 0.3% max.  
**Frequency Response:**  
 30 to 15 kHz .....  $\pm$ 0.5 dB  
 20 to 20 kHz .....  $\pm$ 1.0 dB  
**Power Requirements:**  
 AC ..... 40-50V, 49-62 Hz, 5-12W  
 DC ..... 60-70V, Neg. gnd., 4-10W  
 Dimensions ..... 4-21/32" H, 1 1/8" W, 13" D (118, 42, 330 mm)  
 Weight ..... 3 1/2 lbs. (1.6 kg)

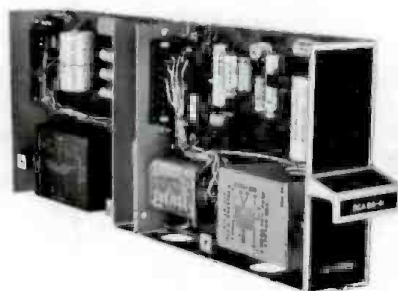
### Accessories

Transformer 150/600 ohms to 150/600 ohms ..... MI-11713  
 Rack-Mount Shelf, Type BR-22  
 (Holds 10 Amplifiers) ..... MI-11597  
 Spare Guide Assembly ..... MI-11593-7  
 BX-40 Power Supply (for 1 to 10 BA-40) ..... MI-11447

### Ordering Information

Distribution Amplifier, Type BA-40:  
 With guide assembly ..... ES-11136  
 Less guide assembly ..... MI-11433

# Preamplifier, Type BA-41



- High-gain, low-noise circuitry
- 40 or 46 dB gain
- Frequency response: 20-20,000 Hz
- Excellent common-mode signal rejection
- Multiple-tap input and output transformers

The Type BA-41 Preamplifier, available either with or without a guide assembly for shelf mounting, is ideal as a microphone preamplifier or as a booster amplifier.

The solid-state circuit design, coupled with the flexibility of multiple-tap input and output transformers, provide low-distortion, high-gain characteristics with excellent frequency response and low noise over a wide range of input and output impedances.

### Specifications

Source Impedance	37.5 ohms unbal.; 150/600 ohms bal.
Input Impedance:	
Matching	Unloaded input transformer
Bridging	Requires externally mounted bridging gain control (approx. 20,000 ohms)
Load Impedance	150/600 ohms
Maximum Input Level:	
Matching	(with 40 dB gain strapping) -22 dBm
Bridging	30 dBm
Matching Gain	40 or 46 ±1 dB
Frequency Response	20 to 20,000 Hz ±0.75 dB
Rated Output Level and Distortion	+18 dBm; 0.5%
Noise Level	-81 dBm
Maximum Ambient Temperature	55° C (131° F)

Power Requirements	115 or 230V, 50/60 Hz
Dimensions	4-21/32" H, 1 5/8" W, 13" D (118, 41, 330 mm)
Weight	3 1/2 lbs. (1590 g)

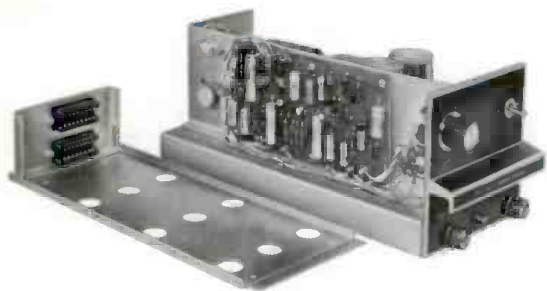
### Accessories

Guide Assembly for BA-41	MI-11593-6
Rack-Mount Shelf, Type BR-22 (Holds 10 amplifiers)	MI-11597
Bridging Gain Control (Panel Mount)	MI-11278-E
Bridging Gain Control (Chassis Mount)	MI-11278-F

### Ordering Information

Preamplifier, Type BA-41:	
With guide assembly	ES-11135
Less guide assembly	MI-11463

## Program Amplifier, Type BA-43



- Silicon transistors and etched wiring
- Extended frequency and power bandwidth
- Self-contained, regulated power supply
- Plug-in chassis for shelf mounting

The BA-43 is a wide-band program amplifier designed for audio service by itself or in conjunction with signal processing amplifiers. The circuitry features silicon transistors, provides the advantages of compact design, uniform performance, reduced power consumption and long life. The high gain and low distortion of the unit make it ideal for use as a program or line amplifier, bridging amplifier or as an isolation unit.

The BA-43 has excellent performance, especially in the areas of bandwidth, noise and temperature stability, due largely to the use of silicon transistors.

## 10-Watt Monitor Amplifier, Type BA-44



- High Gain—accepts microphone input level
- 10 watt output—low distortion
- Plug-in chassis, shelf mounting, self powered
- For recording or broadcast monitoring

The BA-44 Monitor Amplifier is a high quality amplifier with 104 dB of gain and a full 10 watts of audio power output. It is particularly designed as a monitor, audition or recording amplifier. It may also be used as a program or a line amplifier. It is ideal for playback of transcriptions from the output of an equalized pickup cartridge. The BA-44 is designed for convenient plug-in installation in a mounting shelf using an optional guide assembly (see *Accessories*).

## 50-Watt Monitor Amplifier, Type BA-48



- Full 50-watt rms continuous power output
- Very low distortion
- Frequency response 20 Hz to 20 kHz
- Stable, solid-state design

The BA-48 50-Watt Monitor Amplifier is ideal for program-monitor facilities in professional sound studios and broadcast stations. This solid-state amplifier is capable of amplifying phono pickup, tape recorder, telephone-line sources, and the audio channels for transmitters.

The BA-48 produces 50 watts (rms) with or without an output transformer, with very low total harmonic and intermodulation distortion. It has a broad frequency response and is temperature and frequency stabilized. Complete output short-circuit, overload, and open circuit protection is provided.



## Specifications

Source Impedance .....	600/150 ohms, balanced
Matching Input Impedance .....	600/150 ohms
Bridging Input Impedance .....	20,000 ohms
Load Impedance .....	600/150 ohms
Matching Input Level .....	-17 dBm max.
Bridging Input Level .....	+13 dBm max.
Frequency Response (20-20,000 Hz) .....	±0.75 dB
Output Level .....	+30 dBm max.
Harmonic Distortion (25-20,000 Hz) .....	0.5% rms, max.
Matching Gain .....	76 ± ½ dB (Loaded), 82 ± ½ dB (Unloaded)
Bridging Gain .....	46 ± 1 dB (Loaded), 52 ± 1 dB (Unloaded)
Noise Level Referred to:	
Input (20-20,000 Hz) .....	-126 dBm
Output (20-20,000 Hz) .....	-44 dBm
Ambient Temperature Range .....	-20 to +75° C (-4 to +167° F)

Power Requirements .....	115/230 V, 50/60 Hz, 10 W
Dimensions .....	4" H, 5" W, 11¾" D (118, 127, 284 mm)
Weight .....	9½ lbs. (4.3 kg)

## Accessories

Bridging Volume Control (Panel Mounting) .....	MI-11278-E
Bridging Volume Control (Chassis Mounting) .....	MI-11278-F
Rack-Mount Shelf, Type BR-22 (Holds 3 amplifiers) .....	MI-11597
BA-43 Guide Assembly (with receptacles) .....	MI-11593-1

## Ordering Information

Program Amplifier, Type BA-43:	
With guide assembly .....	ES-11128
Less guide assembly .....	MI-11454

## Specifications

Source Impedance .....	150- or 600-ohm balanced; 37.5 ohm unbalanced (shipped connected for 150-ohm balanced)
Input Level:	
Matching .....	-25 dBm max.
Bridging .....	+25 dBm max.
Gain:	
Matching .....	103 ± 1 dB
Bridging .....	53 ± 1 dB
Load Impedance .....	4/8/16/150/600 ohms balanced and 70-volt line
Average Power Output .....	10 watts (40 dBm) max.
Frequency Response .....	±0.5 dB, 30-20,000 Hz
Noise Level (20 to 20,000 Hz) .....	-123 dBm ref. input
Harmonic Distortion (10W output) .....	1.0% max.

Power Requirements .....	115/230 V, 50/60 Hz, 35 W
Ambient Temperature .....	55° C max. (131° F)
Dimensions .....	13½" L, 5" W, 4-31/32" H (333, 127, 120 mm)
Weight .....	12 lbs. (5440 g)
Mounting .....	Plug-in mounting on BR-22 mounting shelf

## Accessories

Rack-Mount Shelf, Type BR-22 (Holds 3 amplifiers) .....	MI-11597
Guide Assembly for BA-44 .....	MI-11593-4

## Ordering Information

10-Watt Monitor Amplifier, Type BA-44:	
With guide assembly .....	ES-11134
Less guide assembly .....	MI-11442

## Specifications

Source Impedance (Bal. or Unbal.) .....	600/150 ohms
Matching Input Impedance .....	Unloaded input transformer
Bridging Input Impedance .....	20,000 ohms
Load Impedance .....	8 ohms <sup>1</sup>
Matching Input Level .....	-20 dBm max.
Bridging Input Level .....	+22 dBm max.
Input Sensitivity (Full gain; 50 W at 1 kHz) .....	-35 dBm
With Remote Volume Control Kit installed .....	-30 dBm
Maximum Gain (Matching) .....	82 ± 1 dB
Frequency Response .....	20 to 20,000 Hz ±0.25 dB
Noise Level (20-20,000 Hz) .....	-124 dBm ref. input
Harmonic Distortion (30-20,000 Hz) .....	0.5% max.
Power Required .....	105-130/210-260 V, 50/60 Hz; 115 W
Rated Power Output .....	50 watts rms (+47 dBm)

<sup>1</sup>With optional transformers: 4, 8 or 16 ohms balanced and 70-volt line.

Ambient Temperature .....	0 to 55° C max. (32 to 131° F)
Weight .....	26 lbs. with (12 kg); 20 lbs. less transformer (9 kg)
Dimensions .....	4½" H, 8½" W, 11¾" D (143, 216, 284 mm)

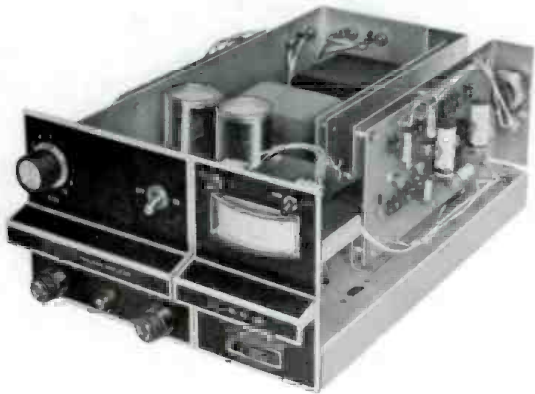
## Accessories

Output Transformer (4, 8, or 16 ohms) .....	MI-141002
Output Transformer (70-volt, 100 ohms) .....	MI-141003
Remote Volume Control Kit .....	MI-11499
Rack-Mount Shelf, Type BR-22 (Holds 2 amplifiers) .....	MI-11597
Guide Assembly .....	MI-11593-3

## Ordering Information

50-Watt Monitor Amplifier, Type BA-48:	
Complete with Guide Assembly .....	ES-11132
Less Guide Assembly .....	MI-11458

# AGC Program Amplifier System, Type BA-43/45



- Wide range AGC action
- Low distortion
- Input and output controls
- Provision for remote metering
- Step attenuator output

The BA-43/45 Automatic-Gain-Control Program Amplifier System automatically controls variations in audio program level. The amplifier maintains a nearly constant average output level over wide variations in input level, since it provides compression of high-level signals and expansion of low-level signals.

The AGC Program Amplifier System consists of the BA-45 Automatic Gain Control Unit used in conjunction with an RCA Type BA-43 Program Amplifier, from which it derives power and signals. The system can be used in program or preamplifier channels. The amplifier may be used with an external bias source for remote gain-control or automatic fading, to permit unattended remote-controlled operation.

## Specifications

Source Impedance (balanced or unbalanced) .....	600/150 ohms
Input Impedance .....	6000/1500 ohms
Load Impedance .....	600/150 ohms
Frequency Response .....	20-20,000 Hz, +0 to -3/4 dB
Operating Levels:	<b>Input, dBm      Output, dBm</b>
Verge of Compression .....	-54 (adj.)      +26 (adj.)
Verge of Expansion .....	-70 (adj.)      0 (adj.)
Maximum Rated .....	-17      +26.5 (adj.)
Maximum Uncontrolled .....	-17      +32 (adj.)
Expansion/Compression Range .....	+10/-19 dB
Gain, Maximum below Verge of Compression .....	80 dB unloaded
Compression Ratio .....	20 dB into 0.5 dB
Time Constants:	<b>Attack      Recovery</b>
Expansion .....	4 sec.      6 sec.
Compression .....	15 μs      3 sec.
Uncontrolled .....	2 μs      2 μs
Harmonic Distortion (Total rms, 25 to 20,000 Hz) .....	0.6% max.
Noise Level (20 to 20,000 Hz):	
Input .....	-125 dBm
Output .....	-55 dBm

Input Gain Control .....	Continuous
Output Gain Control (15 2-dB steps) .....	30 dB total
Power Requirements .....	115/230 V, 50/60 Hz, 10 watts
Ambient Temperature Range .....	-20 to +55° C (-4 to 131° F)
Dimensions (BA-45 only) .....	4-21/32" H, 3-5/16" W, 11-3/16" D (118, 84, 284 cm)
Weight .....	3 3/4 lbs. (1.7 kg)

## Accessories

Rack-Mount Shelf Type BR-23* .....	MI-11564
Guide Assembly (for BA-45 only) .....	MI-11593-2

## Ordering Information

AGC Program Amplifier System, Type BA-43/45:	
Mono .....	ES-11112; Stereo..... ES-11113
AGC Module, Type BA-45:	
Less guide assemb. ....	MI-11455; with guide..... ES-11129

\*Accommodates one BA-43/45.

# Limiter Amplifier System, Type BA-43/46



- 200  $\mu$ s limiting action
- Low distortion
- Separate input and output controls
- Provision for remote metering
- Plug-in module

The BA-43/46 Limiter Amplifier System provides extremely fast audio limiting action for audio fed to broadcast transmitters. It automatically limits the peaks to a pre-determined level to prevent overmodulation or overload.

Using a BA-43/46 permits more effective use of transmitter power by allowing the system to operate at near maximum output. It raises the average modulation percentage several dB without increasing harmonic distortion appreciably. The limiting characteristics of the system also adapt it readily to use in recording.

## Specifications

Source Impedance (balanced or unbalanced)	.....150/600 ohms	
Input Impedance	.....1500/6000 ohms	
Load Impedance	.....150/600 ohms	
Frequency Response	.....20 to 20,000 Hz, $\pm$ 0.38 dB	
Operating Levels:	<b>Input, dBm</b>	<b>Output, dBm</b>
Verge of Limiting	-60 (adj.)	+30 (adj.)
Maximum	-17	+30 (adj.)
Maximum Uncontrolled	-17	+32 (adj.)
Maximum Gain Through System	.....90 dB	
Attenuators: Input; Continuous: Output; 15 2-dB steps		
Noise Level (20-20,000 Hz)	.....-125 dBm	
Harmonic Distortion (25-20,000 Hz):		
Total rms at 20 dB limiting, slow action	.....0.75% max.	
Limiting Characteristic	.....30 dB	
Compression Ratio	.....20 to 0.5 dB	
Time Constants:	<b>Attack</b>	<b>Recovery</b>
Uncontrolled	2 $\mu$ s	2 $\mu$ s
Fast Action Limiting	200 $\mu$ s	400 ms
Slow Action Limiting	200 $\mu$ s	3 s.

Power Requirements	.....115/230 V, 50/60 Hz, 100 W
Ambient Operating Temperature	.....-20 to 50° C (-4 to 131° F)
Dimensions	.....4-21/32" H, 8-5/16" W, 11-3/16" D (118, 211, 284 mm)
Weight	.....13 $\frac{3}{4}$ lbs. (6 kg); Module 3 $\frac{3}{4}$ lbs. (2 kg)

## Accessories

Rack-Mount Shelf, Type BR-23	.....MI-11564 & MI-11565
Spare guide assembly (BA-46 only)	.....MI-11593-2

## Ordering Information

Limiting Amplifier System, Type BA-43/46:	
Mono	.....ES-11114; Stereo.....ES-11115
AGC Program Amplifier and Limiter Amplifier System, Type BA-43/45 and BA-43/46:	
Mono	.....ES-11116; Stereo.....ES-11116S
Limiting Amplifier System and Clipper Amplifier System, Type BA-43/46 and BA-43/47:	
Mono	.....ES-11118, Stereo.....ES-11118S
Limiting Module Type BA-46:	
Less guide assemb.	.....MI-11456; with guide.....ES-11130

## FM-Clipper Amplifier System, Type BA-43/47



- Prevents transmitter overmodulation with no audible signal degradation
- Built-in standard 75  $\mu$ sec pre-emphasis network
- Highly sensitive monitoring circuit
- Front panel indicator light
- Reliable solid-state circuitry

The Type BA-43/47 FM-Clipper Amplifier System is a solid state unit that performs both the functions of pre-emphasis and peak clipping. When this combination is fed from a BA-43/46 Limiter Amplifier System only the signal peaks in the pre-emphasis range above 100 percent modulation are clipped. The unit provides absolute protection against overmodulation with no audible signal degradation.

### Specifications

Source Impedance (balanced)	600/150 ohms
Input Impedance	(20 to 20,000 Hz) 150 kohms, min.
Load Impedance	600 ohms
Frequency Response	Standard 75 $\mu$ s pre-emphasis curve
Harmonic Distortion (below clipping)	0.5% max.
Clipping Level	+27 dBm $\pm$ 0.2 dB
Maximum Output Level	+27 dBm (Factory set for +10 dBm $\pm$ 0.5 dB)
Noise Level (20 to 20,000 Hz referred to input)	-127 dBm
Ambient Temperature	-20° C to +75° C (-4° F to 167° F)
Clipping Indicator Sensitivity	(20 to 20,000 Hz) 0.5 dB max.
Power Required	115/230 V, 50/60 Hz, 10 W
Dimensions:	
BA-43/47	4 $\frac{5}{8}$ " H, 8 $\frac{3}{8}$ " W, 11 $\frac{3}{8}$ " D (118, 211, 284 mm)
BA-47 Only	4 $\frac{5}{8}$ " H, 3 $\frac{5}{8}$ " W, 11 $\frac{3}{8}$ " D (118, 84, 284 mm)
Weight (approx.):	
BA-43/47	12 $\frac{1}{2}$ lbs. (6 kg)
BA-47 Only	3 lbs. (1.4 kg)

### Accessories

Spare Guide Assembly (for BA-47A only)	MI-11593-5
Rack-Mount Shelf, Type BR-23	MI-11565

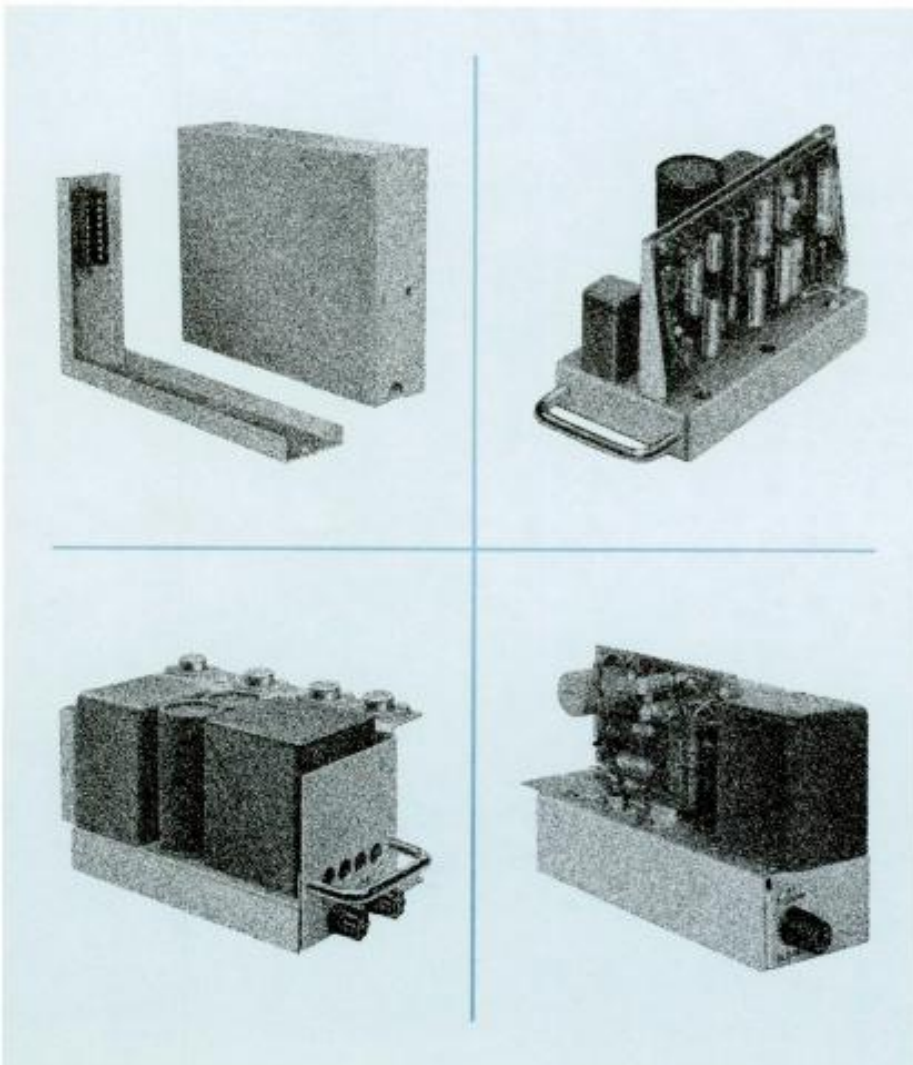
### Ordering Information

FM-Limiter/Clipper Amplifier System, Type BA-43/46, 43/47:	
Mono	ES-11118; Stereo.....ES-11118S
FM-Clipper Module, Type BA-47:	
With guide assembly	ES-11131
Less guide assembly	MI-11459



## Console Audio Amplifiers, Type BA-70 Series

- Console or rack-mount capabilities
- Plug-in connections
- Wide frequency response—low noise
- Low distortion
- Extra sensitivity for versatility



The BA-70 Series of Console Audio Amplifiers are used in the RCA deluxe line of Audio Control Consoles. The amplifiers are offered separately for use in custom-built installations.

### **Preamplifier, Type BA-72**

A sensitive, compact unit useful as either a microphone preamplifier or a line-booster, the Type BA-72 is a three-stage amplifier with up to 46 dB of gain, smooth frequency response and low waveform distortion.

### **Program Amplifier, Type BA-73**

An amplifier of enviable quality, the Type BA-73 doubles as either a program or line-booster amplifier. Its input sensitivity, smooth frequency response and low distortion characteristics give it wide application in audio installations.

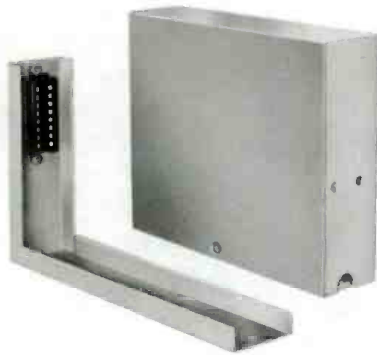
### **Ten-Watt Monitor Amplifier, Type BA-74**

Capable of delivering 10 watts of wideband, high-quality audio to a loudspeaker load, the Type BA-74 Monitor Amplifier features cool-running, dependable circuitry and hermetically sealed transformers.

### **Eight-Watt Cue/Intercom Amplifier, Type BA-78**

An 8-watt, AGC-equipped power amplifier with up to 100 dB gain, the Type BA-78 maintains an essentially constant output level with a varying input level. A 25-dB change in input level results in an output level change of less than 1 dB.

## Preamplifier Module, Type BA-72



- High-gain, low-noise circuitry
- 40 or 46 dB gain
- Frequency response: 20-20,000 Hz
- Excellent common-mode signal rejection

The RCA Type BA-72 Preamplifier Module is ideal as a microphone preamplifier or as a booster amplifier.

The preamplifier's solid-state design, coupled with the flexibility of multiple-tap input and output transformers, provides low-distortion, high-gain characteristics with excellent frequency response and low noise over a wide range of input and output impedances.

### Specifications

Source Impedance	150/600 ohms balanced or unbalanced; 37.5 ohms unbalanced
Input Impedance:	
Matching	Unloaded input transformer
Bridging	Externally mounted bridging gain control required (approx. 20,000 ohms)
Load Impedance (Balanced)	150/600 ohms
Maximum Input Level:	
Matching	-22 dBm (40 dB gain)
Bridging	30 dBm
Matching Gain	40 or 46 ±1 dB
Frequency Response	20 to 20,000 Hz ±0.75 dB
Output Level	+18 dBm
Distortion (+18 dBm output, 25-20,000 Hz)	0.5% max.
Noise Level (20 kHz bandwidth)	-127 dBm referred to input; -81 dBm referred to output; 99 dB maximum s/n referred to +18 dBm
Maximum Ambient Temperature	55°C (131°F)
Power Requirements	30 Vdc, 80 mA
Dimensions	4 5/8" H, 1 3/8" W, 7 5/8" D (117, 35, 194 mm)
Weight	2 1/4 lbs. (1200 g)

### Accessories

Guide Assembly for BA-72	MI-11759-1
Mounting Shelf, Type BR-22 (accommodates ten amplifiers)	MI-11597
Bridging Gain Control (Panel mounting with knob)	MI-11278-E
Bridging Gain Control (Chassis mount with screw driver type adjustment)	MI-11278-F
Power Supply Module, Type BX-72	MI-11320
Power Supply Module, Type BX-71	MI-11663

### Ordering Information

Preamplifier, Type BA-72:	
With Guide Assembly	ES-11172
Less Guide Assembly	MI-11672

## Program Amplifier, Type BA-73



- High gain, low distortion
- Ideal for custom applications
- Very low noise level, -122 dBm
- Response, 30 to 20,000 Hz ±0.5 dB

## Ten-Watt Monitor Amplifier, Type BA-74



- Very low distortion
- 64 dB gain; -50 dB noise level
- Low heat dissipation
- Self-contained power supply

The BA-73 Program Amplifier is designed for use as a high-quality booster or program amplifier. There is provision for adding an external volume control which may be used as a master fader. Input and output transformers provide circuit isolation.

The BA-73 is designed to plug directly into RCA consoles. Guide Assembly MI-11759-2 permits the BA-73 to be mounted in a BR-22 Shelf or any enclosure used in custom construction. Up to three Program Amplifiers can be mounted on the BR-22 Shelf. Power for the amplifier is supplied by the Type BX-71 Power Supply. Up to three amplifiers may be operated from one BX-71 supply.

The BA-73 Amplifier incorporates all solid-state circuitry, providing the advantages of reduced power consumption and long life. The high gain and low distortion of the unit make it an ideal choice for any audio system.

### Specifications

Source Impedance	.....600/150 ohms, balanced or unbalanced
Input Impedance:	
Matching	.....Input transformer unloaded, with impedance higher than source impedance
Load Impedance	.....150/600 ohms

Maximum Input Level:	
Unloaded Input	.....-30 dBm
Loaded Input	.....-24 dBm
Frequency Response	.....30 to 20,000 Hz, $\pm 0.5$ dB
Rated Output Level	.....+24 dBm
Harmonic Distortion	
(+24 dBm output, 50-20,000 Hz)	.....0.5% rms max.
	.....0.25% max. at 1 kHz
Gain:	
Unloaded Input	.....92 $\pm 1$ dB
Matching Input	.....86 $\pm 1$ dB
Noise Level	.....-122 dBm referred to unloaded input
Power Requirements	.....30 Vdc, 300 mA
Ambient Temperature	.....55°C (131°F)
Dimensions	.....9" L, 3 $\frac{3}{4}$ " W, 4 $\frac{5}{8}$ " H (229, 95, 118 mm)
Weight	.....4 lbs. (1800 g)
Finish	.....Cadmium plate with clear chromate dip

### Accessories

Guide Assembly for BA-73	.....MI-11759-2
Rack Mounting Shelf, Type BR-22	.....MI-11597
Power Supply, Type BX-71	.....MI-11663

### Ordering Information

Program Amplifier, Type BA-73:	
With Guide Assembly	.....ES-11159
Less Guide Assembly	.....MI-11659

The BA-74 10-Watt Monitor Amplifier is designed for monitoring, audition and "talk back" applications. The amplifier offers 70 dB gain with 10 watts of audio output.

The BA-74 is a plug-in amplifier, designed for console and custom applications. It can be plugged into the RCA Type BC-7, BC-8, BC-9, BC-17 and BC-19 Consoles or installed on a rack-mount shelf with the aid of an accessory mounting guide (see *Accessories*). Three BA-74 Amplifiers mount on one shelf. Its small size makes it very useful in many custom-built applications.

The circuit design of the Monitor Amplifier is simple and straightforward.

### Specifications

Source Impedance	.....600/150 ohms
Input Impedance	.....Unloaded input transformer
Load Impedance	.....4/8/16/150/600 ohms and 70-volt line
Maximum Input Level	.....-23 $\pm 2$ dBm
Maximum Gain:	
Loaded Input	.....64 $\pm 1$ dB
Unloaded Input	.....70 $\pm 1$ dB

Frequency Response	.....30 to 20,000 Hz, $\pm \frac{1}{2}$ dB
Average Power Output	.....10 watts (40 dBm)
Harmonic Distortion	.....1% max.
Noise Level (64 dB gain)	.....-50 dBm max.
Power Requirements	.....115/230 V, 50/60 Hz, 30 W
Ambient Temperature	.....55°C (131°F) max.
Mounting	.....In console or guide assembly for installation on shelf
Dimensions	.....8" L, 5" W, 4 $\frac{5}{8}$ " H (203, 127, 118 mm)
Weight	.....11 lbs. (4990 g)

### Accessories

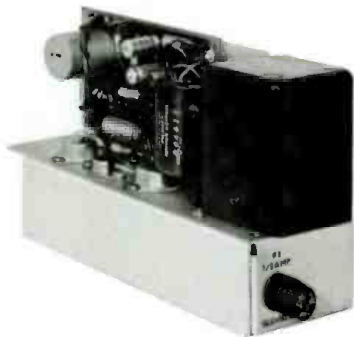
Guide Assembly for BA-74	.....MI-11759-3
Rack-Mount Shelf, Type BR-22	.....MI-11597
Bridging Volume Control (external mount):	
With Screwdriver Adjustment	.....MI-11278-F
With Knob Adjustment	.....MI-11278-E

### Ordering Information

10-watt Monitor Amplifier, Type BA-74:	
With Guide Assembly	.....ES-11161
Less Guide Assembly	.....MI-11661



# Eight-Watt Cue/Intercom Amplifier, Type BA-78



- Automatic Gain Control
- Self-contained regulated power supply
- High gain—full output with mic level input
- One watt (+30 dBm) output with AGC
- 8-watt output without AGC

The Type BA-78 8-Watt Cue/Intercom Amplifier is a compact chassis-mounted unit featuring automatic gain control and a self-contained power supply. It is designed specifically for plug-in use within RCA broadcast deluxe audio consoles, for intercom and cueing purposes. However, it may also be shelf-mounted by use of an accessory guide assembly (see *Accessories*).

The principal feature of the BA-78 is its ability to maintain essentially constant output for a wide variation of input level. Automatic gain control action is maintained over a 25-dB range. Output level changes are limited to approximately 1 dB for each 5-dB input change, over the operating range. The BA-78 amplifier is nominally a 1-watt amplifier but has an output capability of 8 watts with AGC disabled.

The BA-78 has a self-contained power supply with taps for 117 or 234 volts 50-60 Hz operation, making it easily adaptable to general applications independent of the consoles. Its relatively high-power and high-quality output makes it useful with loudspeakers for applications where a communication or monitoring channel with AGC is specified.

### Specifications

Source Impedance .....	50-150 ohms
Input Impedance .....	150 ohms with center tap
Load Impedance .....	50 ohms floating, 8 ohms unbalanced

Effective Input Level .....	-69 dBm for verge of AGC action -61 dBm handled by AGC action
Output Level .....	Nominally set at 1 watt average (+30 dBm) by AGC action (8 watts max. with AGC disabled)
AGC Action .....	Approx. 0.5 dB change in output level for each 5 dB change in input level throughout operating range of 25 db
Gain .....	100 dB (with AGC disabled) 80 dB with max. AGC
Frequency Response .....	30 to 20,000 Hz $\pm$ 1.25 dB
Distortion (at 1 watt output with 10 dB AGC action, 35 Hz to 20 kHz) .....	3% max.
Noise Level (with no gain reduction) .....	At least 60 db below max output
Power Required .....	117/234 V, 50/60 Hz, 18 W
Dimensions .....	4 $\frac{5}{8}$ " H, 2 $\frac{7}{8}$ " W, 8 $\frac{1}{2}$ " D (118, 73, 216 mm)
Weight .....	5 lbs. approx. (2.2 kg.)
Temperature Range .....	-10 to +131°F (-23 to 55°C)

### Accessories

Guide Assembly for BA-78 .....	MI-11759-5
Mounting Shelf Type BR-22 .....	MI-11597

### Ordering Information

Cue Amplifier, Type BA-78:	
With Guide Assembly .....	ES-11162
Less Guide Assembly .....	MI-11662





## Limiter Amplifier for AM Radio,

Type BA-146

## Limiter/Clipper Amplifier for FM Radio & TV,

Type BA-147

- Inaudible limiting action
- Asymmetrical and symmetrical limiting
- Proof-of-performance operational mode
- High compression ratio—fast attack
- Program modulated release time

These two units are fast-acting limiters to allow high peak-modulation levels for maximum broadcast coverage. They contribute little distortion to the audio waveform and inhibit transmitter overmodulation.

The BA-146 unit is intended for use in AM-radio operations while the BA-147 unit is designed for the need of FM radio or the aural channel of TV broadcast transmitters.

The BA-147 is essentially a BA-146 expanded to include a pre-emphasis time constant and a peak clipper.



Type BA-146



Type BA-147



Either unit occupies only 1¾ inches (44 mm) of rack space. Depth of 14½ inches (360 mm) allows mounting in 18-inch (457 mm) depth rack or rack cabinet.

### AM-Broadcast Peak Limiter, Type BA-146

The BA-146 is a fast acting peak limiter for AM-broadcast operations. Its limiter action allows increased transmitter modulation without overmodulation. The effect is an apparent increase in broadcast coverage without an increase in licensed transmitter power.

#### Microsecond "Attack" Time

In operation, the BA-146 connects between the program line and the trans-

mitter audio input. As long as the audio level on the program line is below the threshold of overmodulation, the limiter takes no action. However, when modulation peaks exceed a predetermined level that would result in overmodulation, the BA-146 applies limiting action at the rate of one microsecond per decible of compression. This action is inaudible to even trained ears.

#### Inaudible Limiting Action

Fast limiting action, in many systems,

adds a noticeable "thump" to program audio. The faster the action, the more noticeable the thump.

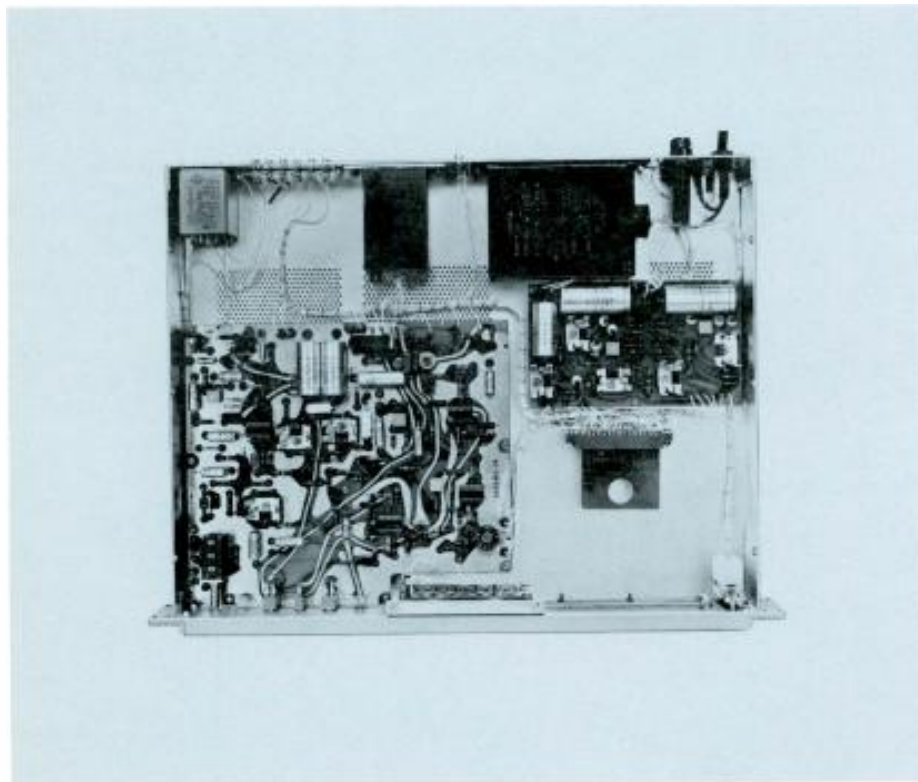
In the BA-146, the thump is non-existent because the design isolates the control voltage (the thump-maker) from the program audio. The heart of this design is an insulated-gate field-effect transistor (IG/FET) that operates as a voltage-controlled amplifier in the program line.

#### Adjustable Release Time

Uncontrolled release time can also introduce undesirable effects into the program material. In the BA-146, release time is adjustable to three values: 0.2, 0.5 and 5 seconds through a three-position toggle switch on the front panel. Should these three values be unsuitable for your programming, a simple circuit modification allows a variety of release times.

#### Asymmetrical and Symmetrical Limiting

The BA-146 affords two modes of limiting: symmetrical and asymmetrical. In symmetrical mode, the unit limits both positive and negative peaks equally; in



A look inside a BA-146. Clipper module fits in space at lower right.



This module plugs into a BA-146 to convert it to a BA-147 Limiter/Clipper for FM, SCA and TV aural use.

asymmetrical mode, it allows positive peaks to attain a 125 percent level while maintaining a 100 percent limit on negative peaks.

In the event that your transmitter cannot attain 125 percent positive modulation, a simple resistor change within the unit adjusts the BA-146 to limit at a level compatible with the transmitter.

#### Proof-of-Performance Operational Mode

The BA-146 includes a front-panel switch that allows proof-of-performance tests to be accomplished using the active components of the limiter.

#### LED Limit Readout

Instead of the familiar meter readout of limiting action, the BA-146 uses a series of twelve LED devices (light-emitter-diodes) on the front panel. As limiting action increases, the number of lighted diodes increases. This method eliminates the inaccuracies provided by the meter movement method of monitoring.

#### FM & TV Broadcast Peak Limiter/Clipper, Type BA-147

The BA-147 is a peak limiter and clip-

per for FM-broadcast, the aural channel of TV-broadcast or FM subsidiary communications authority (SCA) system where the pre-emphasis characteristics of the modulator can cause overmodulation in the high-frequency portion of the pass-band.

The BA-147 duplicates the peak limiting action of the BA-146 described in this section and adds to it a clipper that complements the pre-emphasis characteristic. The clipper circuitry is housed in a plug-in module. As a result, a BA-146 is convertible in the field to a BA-147 with the addition of the FM clipper module (see *Accessories*).

For stereo and quadraphonic programming, two (for stereo) or four (for quad) BA-147 amplifiers are synchronized through a simple interconnection at rear-mounted connectors.

#### Frequency Selective Clipper Action

The clipping action of the BA-147 is selective, according to the pre-emphasis curve used in the transmitter system and

the desired operational fidelity. For example, a "Top 40" operation might establish a clipping level between 4 and 6 kHz; an MOR station between 6 and 10 kHz; while a classical-music facility clips only above 10 kHz.

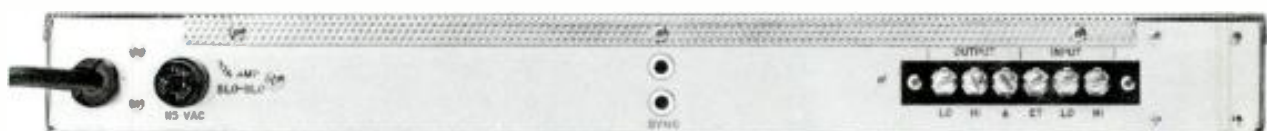
Selective clipping sets up easily with the use of an audio signal generator and an adjustment of the peak control on the front panel. LED's light as the negative and positive peaks reach clipping.

#### Proof-of-Performance Operation

A front-panel toggle switch bypasses the clipper and pre-emphasis functions for proof-of-performance measurements. This convenience eliminates the need to disconnect and reconnect the unit for "proof" tests.

#### Dual-Voltage Power Supply

The BA-146 and 147 are wired for operation from 117 volt, 50 or 60 hertz power lines during manufacture. However, the unit's power transformer primary is split for operation on 234-volt power. A simple rewiring operation converts the unit to 234-volt operation.



Rear view. Input/Output connections are screw-type; stereo/quad sync enters through connectors at center.

**Specifications**

	<b>BA-146</b>	<b>BA-147</b>
Input Impedance	600 ohms <sup>1</sup>	600 ohms <sup>1</sup>
Output Load Impedance	600/150 ohms <sup>1</sup>	600/150 ohms <sup>1</sup>
Input Level:		
Verge of Limiting Action	-26 dBm <sup>2</sup>	-26 dBm <sup>2</sup>
Maximum	+20 dBm	+20 dBm
Output Level:		
Symmetrical Limiting	+24 dBm	+24 dBm
Asymmetrical Limiting:		
Negative Peaks	+24 dBm	—
Positive Peaks	+26 dBm <sup>3</sup>	—
Clipping Level	—	+24 ±0.4 dBm
Clipping Indicator		
Sensitivity	—	0.5 dB max. <sup>11</sup>
Maximum Gain	50 ±0.5 dB	50 ±0.5 dB
Signal/Noise Ratio	70 dB min. <sup>4</sup>	70 dB min. <sup>4</sup>
Frequency Response	20-15,000 Hz ±0.5 dB	20-15,000 Hz ±1 dB <sup>9</sup>
	20-20,000 Hz ±1 dB	
Harmonic Distortion	1% max. <sup>5</sup>	1% max. <sup>10</sup>
Pre-emphasys Time		
Constant	—	75 μs <sup>12</sup>
Compression Ratio	50:1 <sup>6</sup>	50:1 <sup>6</sup>
Attack Time	1 μs/dB <sup>7</sup>	1 μs/dB <sup>7</sup>
Recovery Time	0.2, 0.5, 5s <sup>8</sup>	0.2, 0.5, 5s <sup>8</sup>
Ambient Operating		
Temperature	55°C (130°F) max.	55°C (130°F) max.
Compression Range	26 dB	26 dB
Connections	Term Strip	Term Strip
Power Requirements	117/234V, 50-60Hz 18W	117/234V, 50-60Hz 25W

	<b>BA-146</b>	<b>BA-147</b>
Dimensions	1.75" H, 19" W, 15" D	1.75" H, 19" W, 15" D <sup>13</sup>
	(44, 483, 381 mm)	(44, 483, 381 mm)
Weight	14 lbs. (6.4 kg)	15 lbs. (6.8 kg)

<sup>1</sup> Balanced or unbalanced, with input and output transformers.

<sup>2</sup> Adjustable to higher levels.

<sup>3</sup> For 125 percent modulation. Adjustable from 100 to 125 percent and above through resistor interchange in circuit.

<sup>4</sup> Bandwidth: 20 to 20,000 Hz.

<sup>5</sup> Bandwidth: 50-15,000 Hz; throughout control range.

<sup>6</sup> Compresses 25 dB change into 0.5 dB.

<sup>7</sup> Without clipping, regardless of signal waveform.

<sup>8</sup> Three fixed values. Adjustable through resistor change.

<sup>9</sup> At levels below clipping level.

<sup>10</sup> At levels below clipping level, 50 to 15,000 Hz.

<sup>11</sup> At any frequency between 20 and 20,000 Hz.

<sup>12</sup> Adjustable to 50 μs through components interchange.

<sup>13</sup> Clipper module dimension 6" x 5.5" x 1.375" (132, 140, 35mm); weight, 16 oz. (454 g).

**Accessories**

FM Clipper Module (for BA-146) ..... MI-141457

**Ordering Information**

AM Limiter Amplifier, Mono, Type BA-146 ..... MI-141456  
 As Above but for Stereo, Type BA-146S ..... MI-141456S  
 FM Limiter/Clipper Amplifier, Type BA-147 ..... ES-11141  
 As Above but for Stereo, Type BA-147S ..... ES-11141S

In the interest of product improvement, specifications are subject to change without notice.





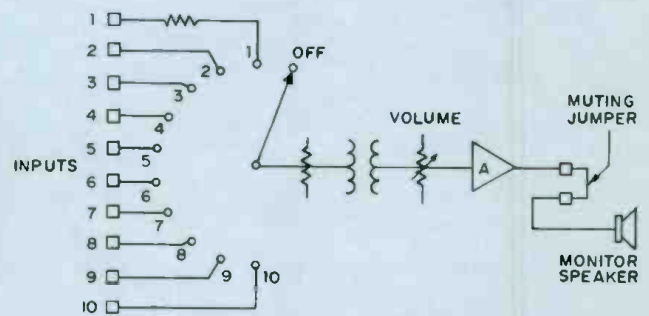
# Monitoring System, Type BA-8

- Built-in loudspeaker
- Equalized for high intelligibility
- Optional rack-mount panel
- Ten-position Input selector
- Bridging or matching inputs

The Type BA-8 Monitoring System is a compact, low-cost system designed to provide high intelligibility. It is an ideal monitor for the announce lounge, program director's office, newsroom office, TV-studio prop area, etc. Muting provisions are included in the amplifier for use in the control room or any location where a microphone is also used.

It serves equally well as a quality monitor for "house" sound systems in hotels, hospitals, stores, auditoriums, stadiums and churches. The selector switch and volume control give it an extra measure of convenience.

Up to ten inputs may be selected by the input selector switch. Connections to the amplifier are made at a rear terminal board. The first input is wired for bridging a 600-ohm line, the other nine are matching inputs, but convert into bridging inputs by installation of a resistor network within the unit.



FUNCTIONAL DIAGRAM, TYPE BA-8 MONITORING SYSTEM

### Specifications

Power Requirements	117/235 volts, 50/60 Hz, 13 W
Frequency Response	Equalized for high intelligibility
Number of Inputs	9 matching, 1 bridging
Input Impedance:	
Matching	600 or 150 ohms
Bridging	10,000 ohms
Input Level:	
Matching (1W Output)	-23 dBm ±2 dBm, min.
Bridging (1W Output)	+8 dBm ±2 dBm, min.

Gain (Approx.)	53 dB
Maximum Output Level	+30 dBm (1 watt)
Distortion (1 W at 1 kHz)	2% max.
Muting Provision	Strapping on rear terminals
Dimensions	7¼" W, 3½" H, 8⅛" D (184, 89, 205 mm)
Weight	6½ lbs. (3 kg)

### Ordering Information

Monitoring System, Type BA-8	MI-11450
Rack-Mount Panel	MI-11449





## AM/FM/FM-Stereo Tuner Type ST-6

- For off-air monitoring, rebroadcast or recording
- 35 dB stereo separation
- Built-in ferrite AM antenna
- High signal-to-noise ratio
- Automatic stereo switching

The Type ST-6 AM/FM/FM-Stereo Tuner is a high-quality, fully solid-state unit ideally suited to off-air monitoring, rebroadcast or off-air recording. It is also most useful as a tuner for quality sound systems in hotels, hospitals, stores, auditoriums, etc.

The tuner circuitry is entirely solid state and features an RF amplifier in both the AM and FM sections. The AM section uses a built-in ferrite loop antenna (with an external antenna connection) while the FM section provides a 300-ohm input for an external antenna. The extra sensitivity in both sections assures excellent signal-to-noise ratio under most conditions.

The ST-6 Tuner includes "Inter-channel Hush", a type of squelch that silences the FM tuner when no signal appears at the antenna input. A front-panel switch provides defeat of the squelch whenever appropriate. Another feature is the Automatic Stereo/Mono Switch. This device switches the circuitry to stereo whenever it receives a stereo program. A green jewel, in the dial, lights when a stereo signal is received.









## Monitor and Public-Address System Power Amplifiers, Types SA-115, SA-1000TR, SA-1000, SA-1004, SA-2000

- For studio monitors or auditorium systems
- Five in series: 10-watt to 200-watt power capability
- Rated and tested under EIA industrial standards
- Multi-impedance output circuitry
- Conservatively rated for long life
- Wideband response at low distortion



10-Watt, SA-115



100-Watt, SA-1000TR



100-Watt, SA-1004



200-Watt  
SA-2000

The amplifiers in the "SA-" series are high-quality units intended primarily for studio public-address applications. There are five amplifiers in the series: an all-transistor 10-watt unit, a 100-watt solid-state, two 100-watt, tube-powered amplifiers and a 200-watt theater-type amplifier. Three of the five are "bridging" amplifiers only while two include preamplifier stages for the extra sensitivity microphones require. Each includes a line-bridging unit as well.

### 10-Watt Transistorized Amplifier, Type SA-115

The smallest amplifier in the "SA-" series is the totally solid-state Type SA-115. It is both a "bridging" and preamplifier unit providing for one microphone input.

### 100-Watt Transistorized Bridging Amplifier, Type SA-1000TR

A fully solid-state, heavy-duty amplifier suitable for studio monitoring and/or public address applications. Optional preamplifier and tone-control modules expand the unit's input capabilities as appropriate to the situation.

### 100-Watt Bridging Amplifier, Type SA-1000

Intended for operation singly or in multiples, the Type SA-1000 provides only a line-bridging input. Its tube-powered design increases expected life and operational dependability.

### 100-Watt, Tube-Powered Mixer-Amplifier, Type SA-1004

The choice wherever mike inputs are needed, the Type SA-1004 provides for four microphone inputs, two "phono" inputs and a bridging input. The amplifier is a well refined design with a reputation for dependability.

### 200-Watt Power Amplifier, Type SA-2000

The largest amplifier in the line is the Type SA-2000, a unit capable of delivering the sound requirements of the largest of indoor auditoria. For use in outdoor systems, the SA-2000 is used in multiples to obtain the extra sound power required. The amplifier rack-mounts with a tilt-down front for easy maintenance.

# Solid State 100-Watt Power Amplifier, Type SA-1000TR

- All-silicon transistorized circuitry
- Multi-impedance output connection
- Built-in overload protection
- Expandable input capacity
- Balanced 600-ohm input



The basic 100-watt amplifier requires only 5.25 inches (133 mm) of rack space. Rear view on page opposite.

Adding input modules (optional extra) to the system increases the adaptability manifold. Modules are described on Page 4 of this section.



The SA-1000TR is a heavy duty, full-fidelity, 100-watt power amplifier ideally suited to sound-distribution situations where a reliable, high-quality amplifier is appropriate.

The SA-1000TR mounts in ordinary 19-inch equipment racks and requires only 7" (178 mm) of rack space. It provides two inputs: a balanced, 600-ohm, transformer-coupled input and a high-impedance, unbalanced input with a sensitivity, for full power output, of only 300 mV. Additional inputs can be added by way of modules (optionally extra) in an external assembly.

The amplifier uses silicon transistors and diodes exclusively for long life and extra stability.

## Built-In Overload Protection

A special circuit breaker, built into the power-output stage of the amplifier, protects the amplifier from overload. When overload or short-circuit in the speaker line occurs, the circuit

senses the increased load and interrupts amplifier operation. At the same time, it lights an indicator on the front panel. As soon as the overload clears, the circuit automatically restores normal operation and extinguishes the indicator lamp.

## Balanced 600-ohm Input

The SA-1000TR includes two input connections: a balanced, 600-ohm input (requires optional transformer, see *Accessories*) and an unbalanced, high-impedance (10k ohm) input. The sensitivity at the 600-ohm input is  $-8$  dBm for full output while the high-impedance input requires only 300 mV.

A special feature is a "Low-Cut" switch (at the rear of the unit) that reduces the amplifier response at low frequencies. This switch cuts response at 20 Hz by 40 dB for use in situations where the amplifier's low-frequency power capability is unneeded. An example of such a situation is a paging system using limited response speakers.

### Expandable Input Capacity

The amplifier is equipped to power a variety of optional input modules which accommodate microphones, program lines and tone-control circuits. These modules and their rack-mount frame are described elsewhere in this section. Each rack assembly holds up to eight modules.

### Multi-Impedance Output Connections

At the rear of the unit is a barrier-strip terminal block for connection of the load circuit (see photo). The amplifier

provides 4-, 8- and 16-ohm outputs for speaker lines as well as an output for 70-volt line. This block also provides connection for an output meter, useful in balancing the output level of the amplifier.

### Front-Panel Master Gain

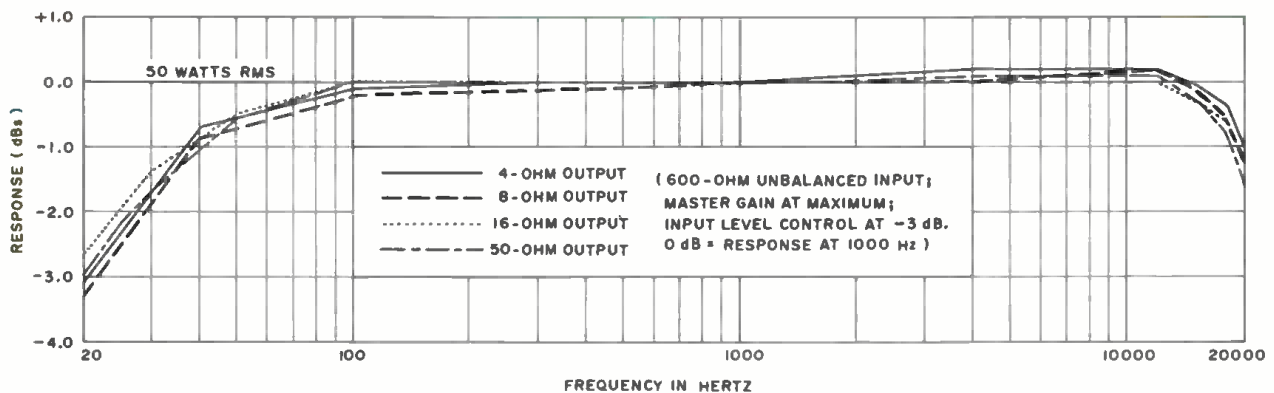
The only control on the front panel, other than the power switch, is a "Master" gain control. This allows convenient adjustment of amplifier output without need for access to the rear. As its name implies, it controls the level of all inputs simultaneously.



Rear view of module frame shows one each of the four modules available.



Rear view, basic amplifier. Note barrier-strip connections and power outlet. "Lo-Cut" switch at upper right, next to outlet.



Typical response characteristics at 50-watt power output.

### Specifications

Frequency Response <sup>1</sup>	20-20,000 Hz $\pm$ 2 dB
Power Output (rms)	(+50 dBm) 100W
Distortion (At 100W output)	2% max.
Residual Noise (Below 100W output minimum)	80 dB
Power Gain (Minimum)	75 dB
Low-Frequency Cut:	
At 500 Hz	3 dB
At 200 Hz	10 dB
At 20 Hz	40 dB
Input Impedances:	
Balanced Input	
(Using optional input transformer)	600 ohms
Unbalanced Input	10,000 ohms
Input Sensitivity (for rated output)	-8 dBm or 0.3V rms
Overload Protection	Auto Reset Circuit Breaker
Load Impedances	4, 8, 16, and 50 ohms (70.7V line)
Power Requirements <sup>2</sup>	120V <sup>3</sup> , 50-60 Hz, 50W no sig; 272W rated output
Ambient Operating Temperature	0 to 60°C (32 to 140°F)
Dimensions	5.25" H; 19" W; 10" D (133, 483, 305 mm)

Finish	Brushed Aluminum
Weight (Approx.)	35 lbs. (16 kg)

<sup>1</sup>Ref. 3 dB below rated output.

<sup>2</sup>Fused at 5A, slow-blow.

<sup>3</sup>For operation on 240V, use accessory stepdown transformer.

### Accessories

Rack-Mount Module Frame	MI-141200
Preamplifier Module, Lo-Z Mike, Type MML-1	MI-141205
Program Module, Hi-Z, Type PMH-1	MI-141206
Program Module, 600-ohm, Type PML-1	MI-141207
Tone-Control Module, Type TCM-2	MI-141210
Transformer, Input, Plug-In	MI-9667
Stepdown Transformer, 240 to 120 Volts	MI-141010-250

### Ordering Information

Solid State 100W Power Amplifier, Type SA-1000TR	MI-38490
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# Input Modules

## Low-Impedance Microphone Preamplifier, Type MML-1

Provides amplification for all low-impedance microphones. Built-in electrostatically shielded transformer. Mounts in module frame described below. Front-panel knob controls preamp sensitivity. Powered from SA-1000TR amplifier.

### Specifications

Sensitivity (250-ohm source; for full output)	.....200 mV
Input Level (max.)	.....250 mV
Input Impedance	.....50-250 ohms
Frequency Response	.....20-20,000 Hz $\pm$ 2 dB
Input Connector	.....XLR male, 3-pin
Shipping Weight (Approx.)	.....6 lbs. (2.7 kg)

### Ordering Information

Low-Impedance Microphone Preamplifier, Type MML-1	.....MI-141205
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## Program Module, 600 Ohms, Type PML-1

A preamplifier to match 600-ohm line sources (wired background music, program monitor, telephone paging) to an SA-1000TR amplifier. Front-panel knob controls preamp sensitivity. Powered from SA-1000TR amplifier.

### Specifications

Sensitivity	.....25 mV (-30 dBm)
Input Impedance (balanced)	.....600 ohms
Frequency Response	.....20-20,000 Hz $\pm$ 2 dB
Input Connector	.....Screw Terminals (3)
Shipping Weight (Approx.)	.....6 lbs. (2.7 kg)

### Ordering Information

600-Ohm Program Module, Type PML-1	.....MI-141207
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## Tone-Control Module, Type TCM-2

Controls frequency response of amplifier system. Concentric knobs on front panel allow separate treble or bass boost/cut. Powered from SA-1000TR amplifier.

### Specifications

Treble Boost (@ 10 kHz)	.....+10 dB
Treble Cut (@ 10 kHz)	.....-10 dB
Bass Boost (@ 50 Hz)	.....+15 dB
Bass Cut (@ 50 Hz)	.....-15 dB
Shipping Weight (Approx.)	.....4 lbs. (1.8 kg)

### Ordering Information

Tone Control Module, Type TCM-2	.....MI-141210
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## Program Module, Hi-Z, Type PMH-1

A high-gain, high-impedance preamplifier to interface high-level, high-impedance signal sources (crystal phonographs, tuners, etc.) with an SA-1000TR power amplifier. Front-panel knob controls preamp sensitivity. Powered from SA-1000TR amplifier.

### Specifications

Sensitivity	.....100 mV
Input Impedance	.....250k ohms
Frequency Response	.....20-20,000 Hz $\pm$ 2 dB
Input Connector	.....RCA Phono Jack
Shipping Weight (Approx.)	.....6 lbs. (2.7 kg)

### Ordering Information

High-Z Program Module, Type PMH-1	.....MI-141206
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## Rack-Mount Module Frame

Mounts modules described above. Holds eight modules of any mix. Power-supply connector system included; plugs for unused panel holes included. Finished to match aluminum color of SA-1000TR amplifier.

### Specifications

Dimensions	.....3½" H; 19" W; 7½" D (87.5, 483, 187.5 mm)
Weight (Approx.)	.....15 lbs. (6.75 kg)
Shipping Weight (Approx.)	.....17 lbs. (7.65 kg)

### Ordering Information

Rack-Mount Module Frame for SA-1000TR	.....MI-141200
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# 10 Watt Transistorized Amplifier, Type SA-115



- Built-in mike preamp
- Multi-impedance output
- Continuous tone control

The SA-115 is a compact, fully solid-state 10-watt audio amplifier for general use. It provides two inputs: one low-level for any high-impedance microphone and a high-level, high-impedance input for tuners and the like. Both inputs can be converted to low impedance (50 to 600 ohms) through use of a plug-in transformer (see *Accessories*).

The output circuit provides an 8-ohm unbalanced, and two balanced outputs: a 70.7-volt and a 25-volt for connection to a multiple-speaker sound system.

The Type SA-115 is tested and rated in accordance with EIA industrial standard SE-101A.

## Specifications

Power Output	.....8W cont. (1 kHz) 12W music; 16W peak
Frequency Response	.....20 to 20,000 Hz $\pm 3$ dB; 30 to 15,000 Hz $\pm 2$ dB
Distortion	(50 to 15,000 Hz at 1W; 1 kHz at 8W) .....1% max.
Hum and Noise	(Below 8W) (Mike channel: 55 dB) .....70 dB
Inputs (Without Accessory Transformer):	
Program Input (Unbalanced)	.....15 kohms
Mike Input (Unbalanced)	.....Hi-Z
Inputs (With Accessory Transformer):	
Program Input	(Balanced or Unbalanced) .....600/10,000 ohms
Mike Input	(Balanced or Unbalanced) .....125/600 ohms
Outputs	.....8 ohms unbal; 25, 70V bal
Tone Control	.....0 to 20 dB cut at 10 kHz
Power Requirements	.....115/230V*, 50-60 Hz, 18W
Dimensions	.....9" W; 4½" H; 7" D (229, 114, 178 mm)
Height (Approx.)	.....6 lbs. (2700 g)

\*Factory wired for 115V; easily reconnected for 230V Input.

## Accessories

Plug-In Transformer	.....MI-38482
Panel, Rack Mount (for SA-115 only)	.....MI-38481

## Ordering Information

10-Watt Transistorized Amplifier, Type SA-115	.....MI-38480
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# 100 Watt Bridging Amplifier, Type SA-1000

- Rated for continuous operation
- Beam-power output tubes
- Compact, open-chassis design
- Bifilar-wound output transformer
- Built-in bias-balance controls



The Type SA-1000 is a compact, tube-powered 100-watt amplifier for use wherever high quality and long life are appropriate. It provides an unbalanced bridging input and a multi-impedance output. The input is convertible to balanced with an optional transformer (see *Accessories*).

The amplifier is a three-stage design using push-pull drivers and output stages. The phase inverter stage offers exceptional balance qualities that are independent of the effects of tube condition as the result of aging.

The output tubes are the efficient Type 6550 beam-power design. The output transformer uses grain-oriented, silicon-steel laminations and bifilar winding to achieve the low distortion important in high quality systems.

### Specifications

Power Output .....100W cont.; 175W max.; 238W peak  
 Frequency Response  
 (Bridging Input) .....20 to 20,000 Hz  $\pm$  2 dB  
 Distortion (50-20,000 Hz, 100W) .....2% max.  
 Output Regulation (No load to full load) .....1.5 dB  
 Hum and Noise (Below 100W) .....-93 dB

Input  
 Sensitivity (For 100W Output) .....0.53V rms  
 Impedance (Unbalanced) .....10,000 ohms  
 Outputs  
 Speaker .....3.2, 8, 16 ohm  
 Line .....12.5, 25, 35, 70V  
 Power Requirements .....120/130V, 50-60 Hz, 90 to 228W  
 Dimensions .....6 $\frac{3}{4}$ " H; 7" W 17" L (171, 178, 432 mm)  
 Weight (Approx.) .....24 lbs. (11 kg)  
 Weight, Shipping (Approx.) .....30 lbs. (14 kg)

### Accessories

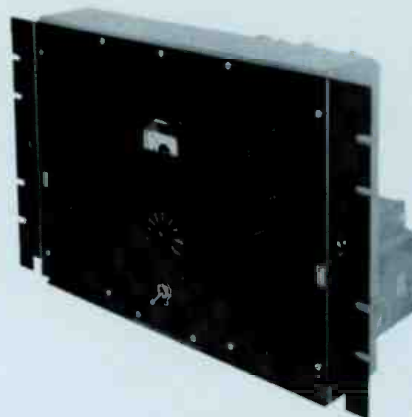
Shelf, Rack Mount (8 $\frac{3}{4}$ " Rack Space) .....MI-38195  
 Panel, Blank (For above) .....MI-38100-8  
 Trim Panel (For above) .....MI-38100-9  
 Rack Mount (Swing-out) .....MI-38196  
 Stepdown Transformer, 220 to 110V .....MI-141010-250  
 Input Transformer (10k/100k ohms, wire-in) .....MI-38703

### Ordering Information

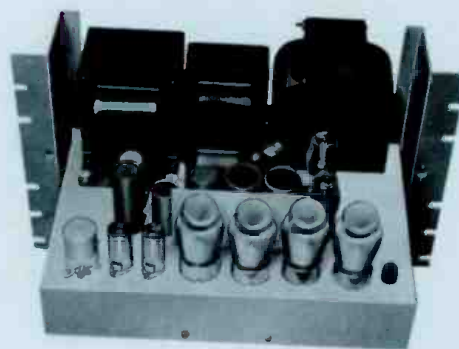
100-Watt Bridging Amplifier,  
 Type SA-1000 .....MI-38194



## 200-Watt Power Amplifier, Type SA-2000



- Built for continuous duty
- Tilt-down chassis, easy maintenance
- Built-in bias meter
- Regulated power supply
- Sensitive: 70 mV input level



The 200-watt Power Amplifier is a bridging type amplifier using four Type 6550 beam tetrodes in a push-pull, Class AB<sub>1</sub> circuit. Its exceptional frequency response and low distortion make it ideal for wide-range reproduction of music. When more than one amplifier is used in a system the inputs are paralleled. With 16 decibels of inverse feedback for frequency stabilization, it produces 200 watts of clean audio power.

The self-contained a-c power supply operates from 105/115/125 volts, 60 hertz source. Power consumption of the amplifier is 168 watts idling and 440 watts at maximum signal. The amplifier is equipped with screw-type terminals.

The frequency range is essentially flat from 20 to 20,000 hertz with the high frequency end down 1.5 dB at 20,000 hertz. The amplifier uses a 470-pF capacitor in the input circuit to provide the frequency response rolloff required for larger drive-in theatre installations.

The amplifier is designed for mounting in a standard 19-inch rack or cabinet. Because of a "tip-out" feature, the amplifier is serviced from the front side.

A meter, with a selector switch, tests the balance of the power-amplifier tubes. The meter also indicates power output (as a VU meter).

### Specifications

Power Output	200W cont.; 240 max.; 410W peak
Frequency Response	20 to 20,000 Hz $\pm$ 1 dB
Distortion (40 to 10,000 Hz, 175W*)	3% max.
Output Regulation (No load to full load)	1.8 dB
Hum and Noise (Below 200W)	.95 dB
Referenced to 1 mW	-49 dBm
<b>Input</b>	
Sensitivity (for 200W output; 1 kHz)	230 or 70 mV
Impedance	600 ohms
Connections	Barrier Strip Terminals
Gain (400 Hz)	69 or 79 dB
<b>Output</b>	
Impedance	3.57; 7.15; 28.6; 114.3 ohms
Voltages (At 175W)	25; 35.3; 70.7; 141V
Connections	Barrier Strip Terminals
Feedback Level (At 1 kHz)	16 dB
Power Requirements	105-125V, 50/60 Hz, 168-440W
External Power Load (Max.)	10 mA, 250 Vdc; 0.6 A, 6.3 Vac
Duty Rating	Continuous, 24 hr/day

\*600-ohm source; 114.3-ohm load on 114.3-ohm output.

### Ordering Information

200-Watt Power Amplifier, Type SA-2000 .....MI-9289

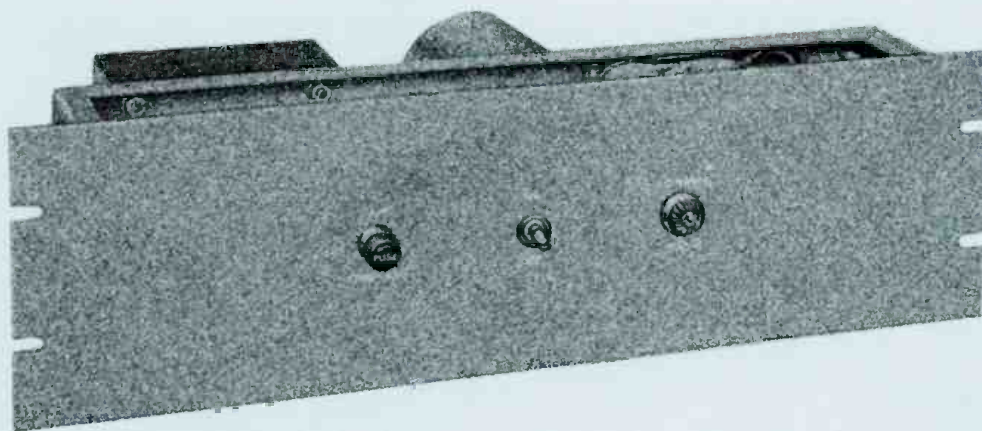


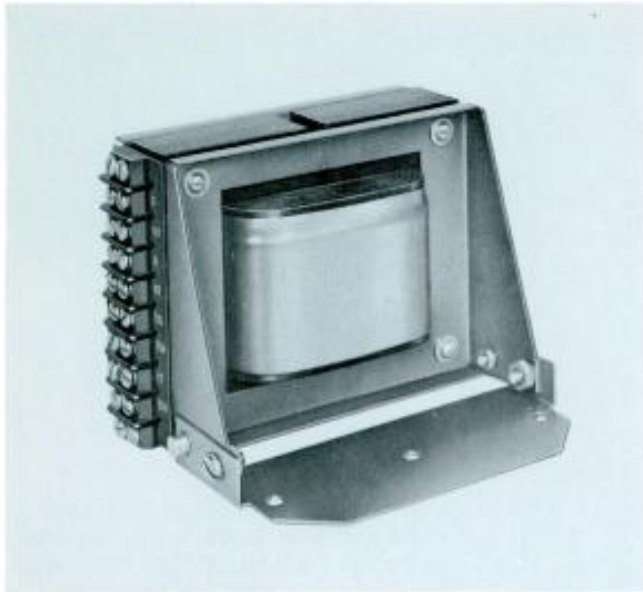


## Audio Equipment Power Supplies, Type BX-40, BX-51, BX-71

- For console modules
- For rack equipment
- For custom-built systems
- For emergency spares

Here are power supplies RCA uses in its audio consoles, audio systems and other equipment. They are made available as spares for operating equipment, for use as part of equipment installations or custom-built systems.





### Distribution-Amplifier Power Supply, Type BX-40

The Type BX-40 is an a-c power supply built to power up to ten Type BA-40 Audio Distribution Amplifiers. It is an isolation and step-down transformer delivering 40 to 50 volts at up to 50 watts from a 117- or 234-volt power line. It usually mounts at the rear of a Type BR-22 Mounting Shelf with the hardware supplied.

#### Specifications

Input .....	117/234V, 50/60Hz
Output .....	40-50V, 50/60Hz, 50W
Dimensions .....	5¼" W, 3¾" H, 4¾" D (33, 95, 120 mm)
Weight .....	6 lbs. (2.7 kg)

#### Accessories

Rack-Mount Shelf, Type BR-22 .....	MI-11597
(Mounts ten BA-40 Amplifiers and one BX-40 Power Supply)	

#### Ordering Information

Distribution-Amplifier Power Supply, Type BX-40.....	MI-11447
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#### Specifications

Input .....	117/234V, 50/60Hz
Output .....	24V dc at 6A max.

#### Regulation:

No load to full load .....	7.5%
Half load to full load .....	2.5%



### Console Power Supply, Type BX-71

The Type BX-71 delivers a well-regulated d-c voltage for operation of the BA-70 Series preamplifiers and program amplifiers. It powers as many as 22 BA-72 Preamps or three BA-73 Program Amplifiers or any combination with total current requirements of 1000 mA or less. In addition, the BX-71 provides an unregulated d-c voltage for powering speaker-mute relays and "on-air" lights and the like. A 6-volt a-c output is included for VU-meter and other panel lamps.



#### Specifications

Input (Tapped primary) .....	105-125/210-250V, 50/60Hz
Regulated Output .....	30V dc 1A max.
Unregulated Output .....	24V dc 0.56A; 6V ac 1.5A
Regulation (zero load to full load) .....	0.35%
Ripple (in 30-volt output) .....	0.15 mV max.
Dimensions .....	4¾" H, 7½" W, 8¾" D (118, 191, 225 mm)
Weight .....	14 lbs. (6.4 kg)
Finish .....	Cadmium plate; clear chromate dipped

#### Accessories

Rack-Mount Shelf, Type BR-22 .....	MI-11597
(accommodates 2 power supplies)	
Spare Guide Assembly .....	MI-11759-4

#### Ordering Information

Console Power Supply, Type BX-71:	
With guide assembly .....	ES-11163
Less guide assembly .....	MI-11163

Ripple Voltage .....	0.2V max.
Dimensions .....	19" W, 5¼" H, 9¾" D (483, 133, 245 mm)
Weight (approx.) .....	25 lbs. (11 kg)

#### Ordering Information

Regulated Power Supply, Type BX-51 .....	MI-11318
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### Regulated Power Supply, Type BX-51

The Type BX-51 Power Supply delivers up to 6 amperes at 24 volts to any suitable load, inductive, capacitive or resistive. This power supply is used widely in relay-switching systems, intercom systems, tally-light circuits and other loads requiring a constant-voltage, d-c source.



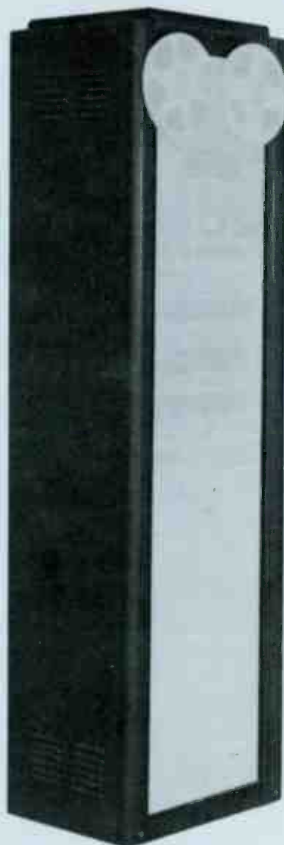
## Cabinet Racks, Jack Panels, Patch Cords, Rack Accessories

- Three cabinet-rack styles
- Rack-mount equipment shelves
- Blank panels—electrical shields
- Power distribution—circuit breakers
- Terminal boards—patch panels and cords

Described in these pages is a line of cabinet racks and various rack-associated accessories useful in the installation of both audio and video systems. There are three styles of cabinet racks, rack-mount shelves for amplifier and switcher modules, terminal blocks and boards, blank panels, trim strips, electrostatic shields, jack panels, cords and plugs, ground-bus kits, power circuit-breakers, wiring kits and so on.



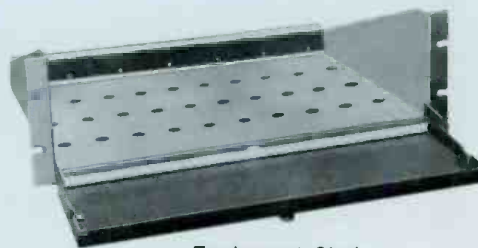
De Luxe  
Cabinet Racks



Standard  
Cabinet Racks



Patch Panels and Cords

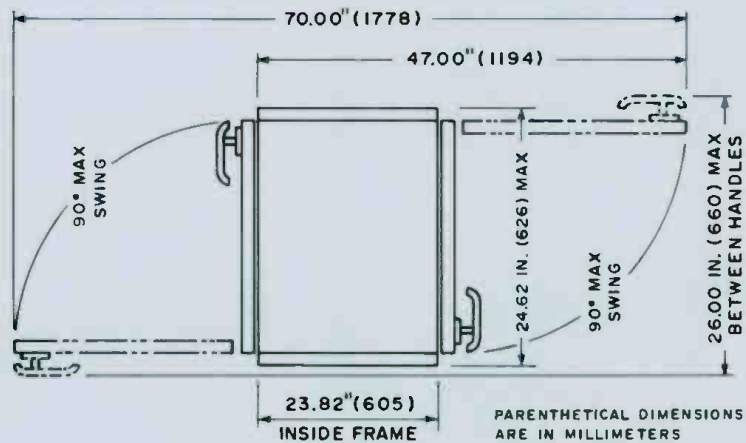
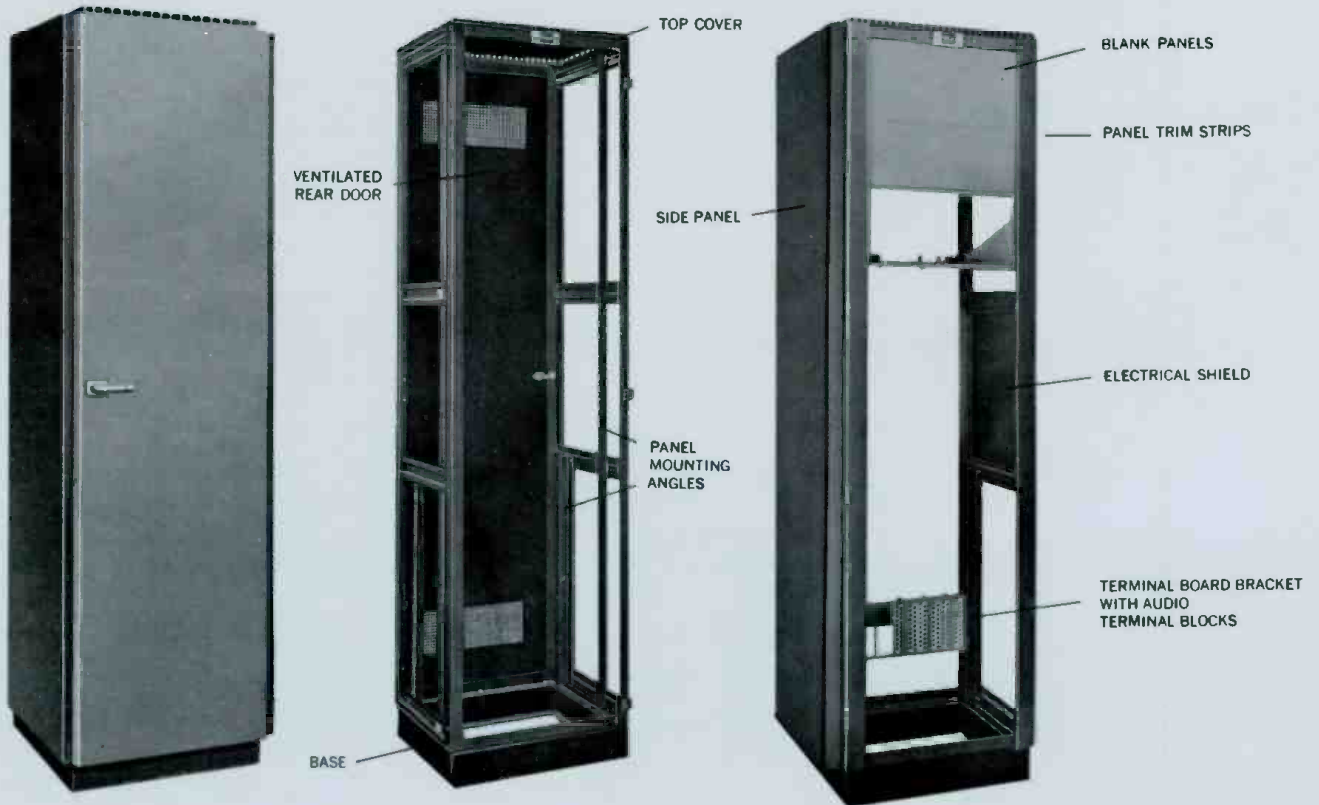


Equipment Shelves

## Cabinet Racks and Accessories

Three styles of cabinet racks are offered: two deluxe units and one standard-duty unit. The deluxe racks are modular units available in two heights. The standard-

duty rack is available in but one form with integral side panels, a rear door and no front door. In 77" height and 18" depth only. (Type BR-19).





<b>Specifications</b>	<b>84" Height 24" Depth</b>	<b>77" Height 24" Depth</b>	<b>BR-19 18" Depth</b>
<b>Height:</b>			
Frame .....	80" (2032 mm)	73" (1854 mm)	—
Frame with base .....	84" (2134 mm)	77" (1956 mm)	—
Frame with base and top .....	85" (2159 mm)	78" (1981 mm)	84" (2134 mm)
<b>Panel Mounting Area:</b>			
Width .....	19" (483 mm)	19" (483 mm)	19" (483 mm)
Height .....	77" (1956 mm)	70" (1778 mm)	77" (1956 mm)
Depth .....	24" (610 mm)	24" (610 mm)	18" (457 mm)
Color .....	2-Tone Blue; Vinyl Alum.	2-Tone Blue; Vinyl Alum.	Midnight Blue

<b>Ordering Information</b>	<b>84" Height 24" Depth</b>	<b>77" Height 24" Depth</b>	<b>BR-19 18" Depth</b>
Complete Cabinet Rack (Rack, side covers, top cover, front door and ventilated rear door) .....	ES-36591-N84	ES-36591-N77	Note 1
As Above—Less front door .....	ES-36591-P84	ES-36591-P77	MI-11550
As Above—Less side panels .....	ES-36591-R84	ES-36591-R77	Note 2
Cabinet Rack—with rear door only .....	ES-36591-S84	ES-46591-S77	Note 2
Cabinet Rack— Less doors and panels .....	ES-36591-T84	ES-36591-T77	Note 2
Basic Rack—includes base, panel mounting angles, terminal board mounting angles, hardware .....	MI-36551-U84	MI-36551-U77	Note 2
Ventilated Door—includes handle, keeper, hinges, hardware .....	MI-36535-S84	MI-36535-S77	Note 2
Unventilated door—includes handle, keeper, hinges, hardware .....	MI-36530-S84	MI-36530-S77	Note 2
Side Panels .....	MI-36541-B84	MI-36541-B77	Note 2
Top Cover (ventilated) .....	MI-36521-B1	MI-36521-B1	Note 2
Base (with electrical outlet) .....	MI-36511-2	MI-36511-2	Note 2
Electrical shield: top and bottom .....	MI-36546-A28	MI-36546-A21	Note 2
Electrical shield for mid-section of rack .....	MI-36546-A21	MI-36546-A28	Note 2
Trim Strip Single .....	MI-30566-A84	MI-30566-A77	Note 2
Trim Strip Double .....	MI-30568-A84	MI-30568-A77	Note 2
Terminal Board Mounting Angles .....	MI-30527-A29	MI-30527-A29	Note 2
Panel Mounting Angles .....	MI-30526-A84	MI-30526-A77	Note 2
Terminal Board Bracket .....	MI-4570-A2	MI-4570-A2	MI-4570-A2

NOTE 1: The BR-19 is a standard-duty rack cabinet. It is available in but one form: with integral side panels, top, base and ventilated rear door. Shipped unassembled, hardware included.

NOTE 2: These elements apply only to the 77- and 84-inch Cabinet Racks. They are incompatible with the BR-19.

# Cabinet Rack Electrical Accessories

## Ordering Information

<b>Terminal Blocks</b>	
Power Connections (includes cover) .....	MI-4568
Audio Connections (with 80 terminals) .....	MI-4569
Mounting Bracket (for two MI-4568 or three MI-4569) .....	MI-4570
<b>Ground-Bus Kit (for system ground connections) .....</b>	
MI-11728	
<b>Circuit Breakers (115/230V):</b>	
2.5 Ampere .....	MI-26176-1
5.0 Ampere .....	MI-26176-2
10 Ampere .....	MI-26176-3
20 Ampere .....	MI-26176-4
40 Ampere .....	MI-26176-5
Mounting Panel (For up to 3 breakers) .....	MI-11792
<b>Rack Wiring Kits (include grounding and lacing bars, mounting hardware):</b>	
For 84" (2134 mm) Rack .....	MI-36570-1
For 77" (1950 mm) Rack .....	MI-36570-2

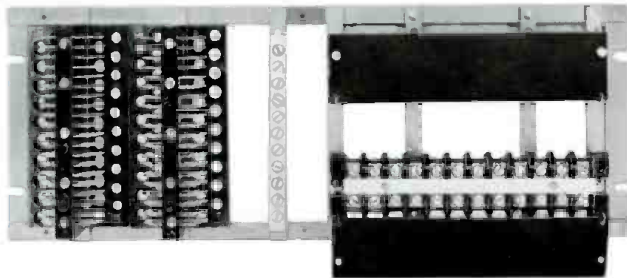
These accessories simplify the wiring of cabinet racks with terminal blocks, ground-bus connections, power-circuit breakers and rack-wiring kits.



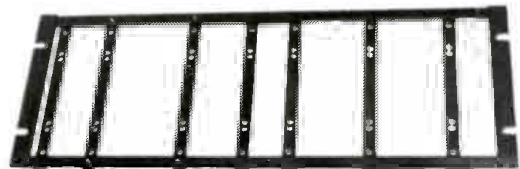
Mounting Panel MI-11792 with one breaker installed



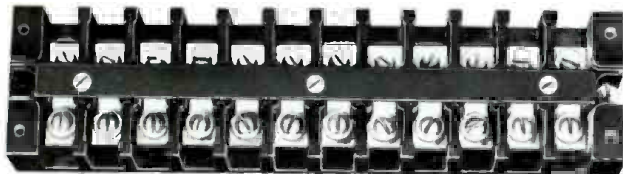
Audio Terminal Block MI-4569



Mounting bracket MI-4570 with two MI-4569 Blocks, one MI-11728 Kit and two MI-4568 Blocks mounted



Mounting Bracket MI-4570



Power Terminal Block MI-4568 (Cover Removed)



Ground-Bus Kit MI-11728

## Equipment Shelves, Type BR-22

The BR-22 Rack-Mount Shelf mounts RCA modular amplifiers. It fits any standard, 19-inch equipment rack and occupies only 5¼ inches of rack space. A removable, hinged cover provides ventilated enclosure for the equipment. One BR-22 shelf accommodates these equipment combinations:

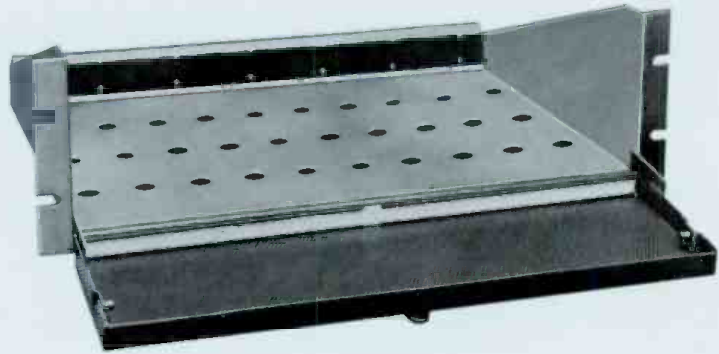
- 10 Preamplifiers (BA-71 or BA-41)
- 3 Program Amplifiers (BA-73, BA-43)
- 3 Monitor Amplifiers (BA-74, BA-44)
- 5 Cue/Intercom Amplifiers (BA-78)
- 2 Power Supplies (BX-71)
- 10 Distribution Amplifiers (BA-40)
- 5 AGC Modules (BA-45)
- 5 Limiter Modules (BA-46)
- 5 Peak-Clipper Modules (BA-47)
- 2 Monitor Amplifiers (BA-48)

### Specifications

Dimensions .....19" W; 5-7/32" H; 13¼" D (483, 133, 337 mm)  
 Mounting Space .....17½" W; 4-11/16" H; 11-3/16" D  
 (435, 119, 284 mm)  
 Weight (Approx.) .....10 lbs. (45 kg)  
 Finish .....Aluminum Color Epoxy Enamel  
 Packed Dimensions .....10" x 17" x 22" (254, 432, 559 mm)  
 Packed Weight .....13 lbs. (6 kg)

### Ordering Information

Rack-Mount Equipment Shelf, Type BR-22 .....MI-11597



## Blank Panels

All panels are fabricated of 0.18-inch (4.5 mm) aluminum or steel and finished in aluminum-color epoxy enamel. The aluminum panels are available in four widths; the steel, six widths (see *Ordering Information*).

### Ordering Information

Panel Width	Aluminum	Steel
1¾" (44 mm) .....	MI-3090	MI-36547-1
3½" (89 mm) .....	MI-3091	MI-36547-2
5¼" (133 mm) .....	MI-3092	MI-36547-3
7" (178 mm) .....	MI-3093	MI-36547-4
8¾" (222 mm) .....	N/A	MI-36547-5
10½" (267 mm) .....	N/A	MI-36547-6



## Patch Panels, Mats and Cords, Type BJ-12, BJ-20, BJ-24

The BJ-12 Jack Panel is a single row of 12 double jacks. The BJ-24 offers two rows of 12 double jacks. Both include individual cord holders for each jack pair. The jacks mate to cords fitted with PJ-1 or WE-241A plugs (see below).

The Type BJ-20 Jack Panel is a single row of 20 tip-ring-sleeve jacks, spaced 0.75 inches (18 mm) center-to-center.

### Jack Mats

Jack mats are dress panels for jack fields. Two styles are available: one for a single (BJ-24) panel and another for two (BJ-24) panels. The single mat measures 17 by 3-5/32 inches (432 by 80 mm) and the double, 17 by 5-7/32 inches (432 by 133 mm).

### Specifications

	BJ-12	BJ-24	BJ-20
Jack Type .....	Double	Double	Tip, Ring, Sleeve
Panel			
Dimensions .....	1¾" x 19" (44 x 438 mm)	2½" x 19" (54 x 483 mm)	1¾" x 19" (44 x 438 mm)
Mating Patch Cord	PJ-12, -14, -16	PJ-12, -14, -16	PJ-72
Weight (Approx.)....	3 lbs. (1.4 kg)	5½ lbs. (2.5 kg)	3 lbs. (1.4 kg)

### Ordering Information

#### Jack Panels:

12 Jack Pairs, Type BJ-12 .....	MI-11646
24 Jack Pairs, Type BJ-24 .....	MI-11645
20 Tip-Ring-Sleeve Jacks, Type BJ-20 .....	MI-11666

#### Jack Mats:

For single BJ-24 Panel .....	MI-11647-1
For double BJ-24 Panel .....	MI-11647-2

### Patch Cords

RCA Patch Cords are available in 2-, 4- and 6-foot lengths with single or double plugs. Cards are jacketed in tough black braided nylon for extra wear.

### Ordering Information

#### Patch Cord (Double-Plug Cords):

Two Feet (610 mm) Long, Type PJ-12 .....	MI-4652-2
Four Feet (1220 mm) Long, Type PJ-14 .....	MI-4652-4
Six Feet (1830 mm) Long, Type PJ-16 .....	MI-4652-6

#### Patch Cord (Tip-Ring-Sleeve Plugs):

Two Feet (610 mm) Long, Type PJ-72 .....	MI-4652D-2
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Double Jack Mat, MI-11647-2

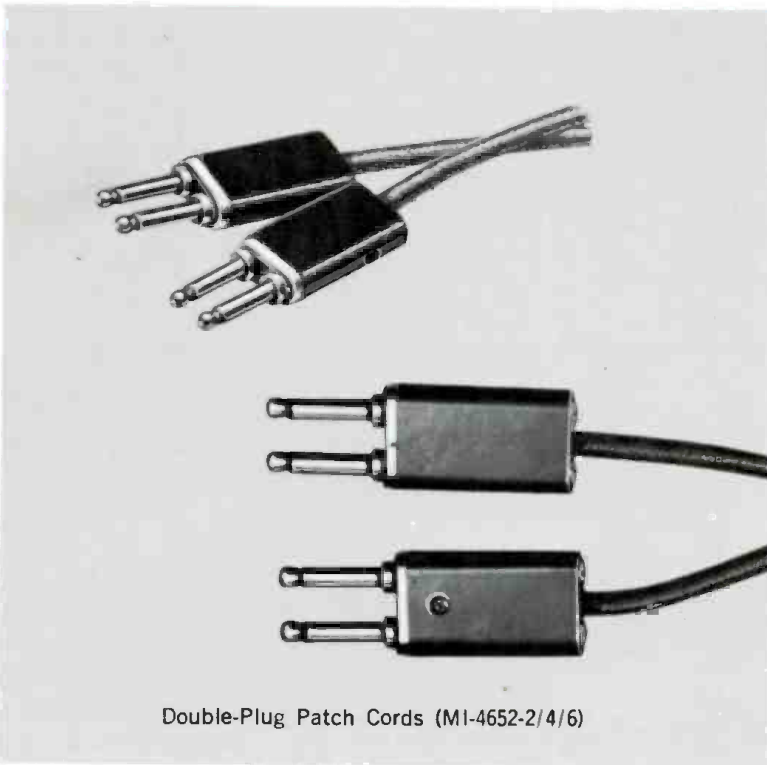
Type BJ-24  
Patch Panel



Type BJ-12  
Patch Panel



Type BJ-20 Patch Panel



Double-Plug Patch Cords (MI-4652-2/4/6)



Tip-Ring-Sleeve Patch Cord  
(MI-4652D-2)

# Switches and Panels

- Six-gang, Form-C leaf switches
- Nine-place panels

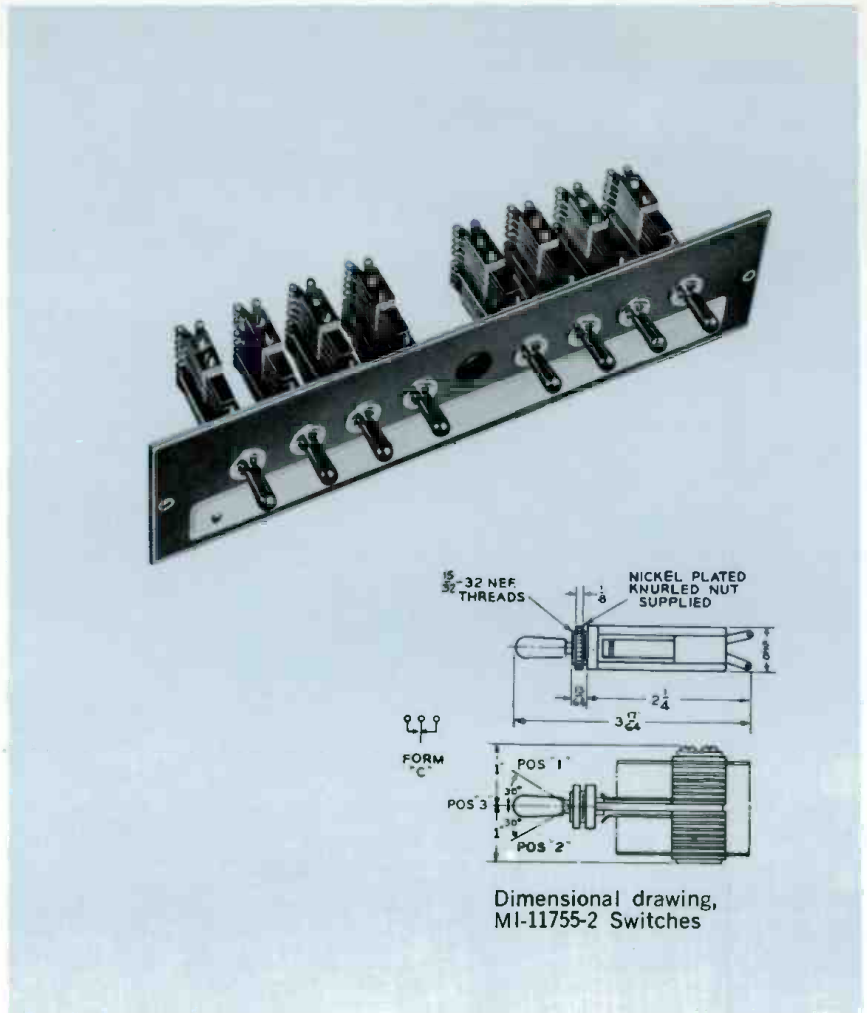
Switches and panels for general studio use in the routing of program audio or a-c power. The items shown in the photo are available individually to allow assembly of the unit that best fits the need at hand.

## Switches

Switches are lever-type, low-capacitance leaf devices with a total of six form-C contact stacks (single-pole, double-throw) with a center-off position. The switches are arranged for lever lock on one side and non-locking on the other. However, they are adjustable for lock or non-lock on either side. The lever uses a Nylon hub for extended life and the contacts are plated with palladium. Maximum current is 3A at 120Vac to a non-inductive load. Two cable clamps included.

## Panels

Made of reverse-etched aluminum, the panel is punched with nine 15/32-inch holes to accommodate the switches described above or other appropriate devices such as indicator lamp, toggle switches, etc. An erasible, write-in strip is included for labelling.



Dimensional drawing, MI-11755-2 Switches

### Specifications

#### Switches

Type .....Six Form-C (SPDT) circuits  
 Contact Rating (Non-inductive load) .....3A at 120Vac  
 Dimensions .....See drawing

#### Panels

Dimensions .....2 5/8" W; 11 1/2" L (67, 292 mm)  
 Hole Diameter .....15/32" (12 mm)  
 Write-in Strip Dimensions (Approx.) .....1" x 10" (51 x 254 mm)  
 Weight (Approx.) .....1 lb. (454 g)

### Ordering Information

Switch .....MI-11755-2

Panel (Includes plug for each hole) .....MI-11754



## Studio Furniture, Cartridge Storage Racks

- Pleasant styling
- Designed especially for the studio
- Sturdy construction
- Facillitates Installation
- Provides ample, orderly storage



Studio furniture, designed especially to meet audio equipment requirements, is available from RCA. A series of walnut-laminate tables, cabinets and storage racks complements the metal cabinets, racks, panels and other accessories available. The furniture increases station efficiency, facilitates installation, and provides ample, orderly storage space.

Each item is semi-customized to meet specific needs. Tables with optional wire ducts for audio consoles and their attendant wiring; one-, two- or three-unit turntable cabinets provide new ease of operation while cabinets and storage racks provide new ease in cartridge handling.

Square steel framework, sheet steel and walnut high-pressure laminate are the materials used. Satin chrome finished trim with colors that match other RCA equipment lets the furniture create a clean and modern studio appearance.

## Cartridge Tape Equipment Cabinets



Heavy-duty cartridge tape machine cabinets, shown with a single desk-top cabinet, are sturdy, well-constructed versions. The desk-top unit doubles the storage area for additional playback/record units. Dual cabinets and dual desk-top units, as shown on preceding page, are also available.

### Specifications

Construction.....Steel and high-pressure laminate  
 Finish.....Walnut and light gray with satin chrome  
 Dimensions (Overall):  
 Single Floor Mount Cabinet.....23½" W, 19½" D, 29" H  
 (597, 495, 737 mm)  
 Double Floor Mount Cabinet.....45½" W, 19½" D, 29" H  
 1146, 495, 737 mm)  
 Single Floor Mount Cabinet with  
 additional top cabinet.....23½" W, 19½" D, 42" H  
 (597, 495, 1067 mm)  
 Double Floor Mount Cabinet with  
 double top cabinet.....45½" W, 19½" D, 42" H  
 (1146, 495, 1067 mm)  
 Weight (Approximate):  
 Single Floor Cabinet.....25 lbs. (11 kg.)  
 Double Floor Cabinet.....40 lbs. (18 kg.)  
 Single Floor Cabinet with top cabinet.....40 lbs. (18 kg.)  
 Double Floor Cabinet with double  
 top cabinet .....65 lbs. (30 kg.)

### Ordering Information

Cartridge Tape Machine Cabinet,  
 single floor model.....MI-141032  
 Cartridge Tape Machine Cabinet,  
 double floor model (not illustrated).....MI-141033  
 Single, Desk-Top Cabinet.....MI-141034  
 Double, Desk-Top Cabinet (not illustrated).....MI-141035

## Tape Cartridge Storage Units



MI-141037



MI-141038

A swivel cartridge-tape storage case mounted on a pedestal and a wall-mount case are practical means for storing carts in the studio. Both provide added convenience and quick accessibility.

### Specifications

Construction:  
 Case.....High-pressure laminate  
 Compartments.....Hard Board  
 Pedestal.....Steel, Chrome Plated  
 Finish.....Walnut and light gray

	Swivel Case	Wall Mount Case
Storage Capacity.....	204 cartridges	100 cartridges
Dimensions:		
Case (On Side).....	33½" W, 31¼" H (851 mm, 794 mm)	33½" W, 31¼" H (851 mm, 794 mm)
Case (Depth).....	12" (305 mm)	6" (152 mm)
Weight (Approx.).....	50 lbs. (23 kg.)	40 lbs. (18 kg.)

### Ordering Information

Swivel Case on Pedestal.....MI-141037  
 Wall Mount Case.....MI-141038



**Console Tables**



Tables with movable wire ducts are ideal for mounting audio consoles and other studio equipment. Convenient levelers, left-center-right mounting provisions for the ducts, protective one-inch aprons are construction features.

**Specifications**

Construction.....	Steel and high-pressure laminate
Finish.....	Walnut grain and light gray with satin chrome
Table Top Dimensions.....	36 x 44 or 64 or 84 inches (914 x 1117 or 2225 or 2733 mm)
Table Height .....	29" (733 mm)
Leveler Range .....	1¼"
Wire Duct.....	18" W, 12" D, 27-½" H (457, 305, 694 mm)
Weight (Approximate):	
44-Inch Table.....	35 lbs. (16 kg.)
64-Inch Table.....	45 lbs. (21 kg.)
84-Inch Table.....	65 lbs. (30 kg.)

**Ordering Information**

44-Inch Table .....	MI-141030-1
64-Inch Table .....	MI-141030-2
84-Inch Table .....	MI-141030-3

**Turntable Consoles**



Functionally designed turntable consoles afford a simplified mounting for one, two or three Type BQ-50 or BQ-51 Turntables. Top panels (see below) convert the console into a table. Shown at left is a single-unit console; below it, a triple-unit model with one blank top panel in place

**Specifications**

Construction.....	Steel and high-pressure laminate
Finish.....	Walnut and light gray with satin chrome
Top Dimensions.....	9⅞ x 23 or 46 or 69⅞ inches (486 x 584 or 1171 or 1757 mm)
Leveler Range.....	1¼" (32 mm)
Turntable Console Height.....	29" (737 mm)
Turntable Blank Panel .....	23" x 19⅞" (584 mm x 486 mm)
Weight (Approximate):	
One-turntable Unit .....	25 lbs. (11 kg.)
Two-turntable Unit .....	40 lbs. (18 kg.)
Three-turntable Unit .....	60 lbs. (27 kg.)
Turntable Blank Panel .....	6 lbs. (3 kg.)

**Ordering Information**

Turtable Console for one BQ-50 or BQ-51 Turntable.....	MI-141026-1
Turtable Console for two BQ-50 or BQ-51 Turntables (not shown).....	MI-141026-2
Turtable Console for three BQ-50 or BQ-51 Turntables.....	MI-141026-3
Blank Top Panel .....	MI-141027

## Tape Cartridge Storage Racks

Wall-mount and mobile tape-cartridge racks fabricated of welded, heavy-gauge wire. Each wall rack holds 25 Type A cartridges. Mounting bracket included. The mobile rack holds 200 Type A cartridges.

### Ordering Information

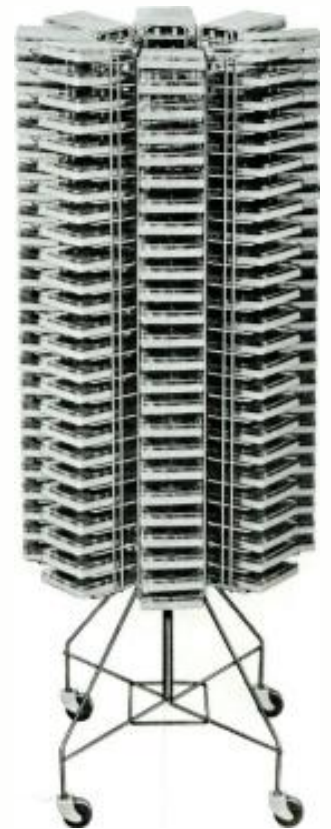
Wall-Mount Cart Rack, Type WR-25 .....	MI-141039
Mobile Cart Rack, Type MR-200 .....	MI-141041
Mobile Rack Base (Racks not included), Type MRB-1 .....	MI-141040



Wall Rack  
(Type WR-25)

*Ordered MR-200  
for K020 w/ B4  
\$2000*

*2-1-79*

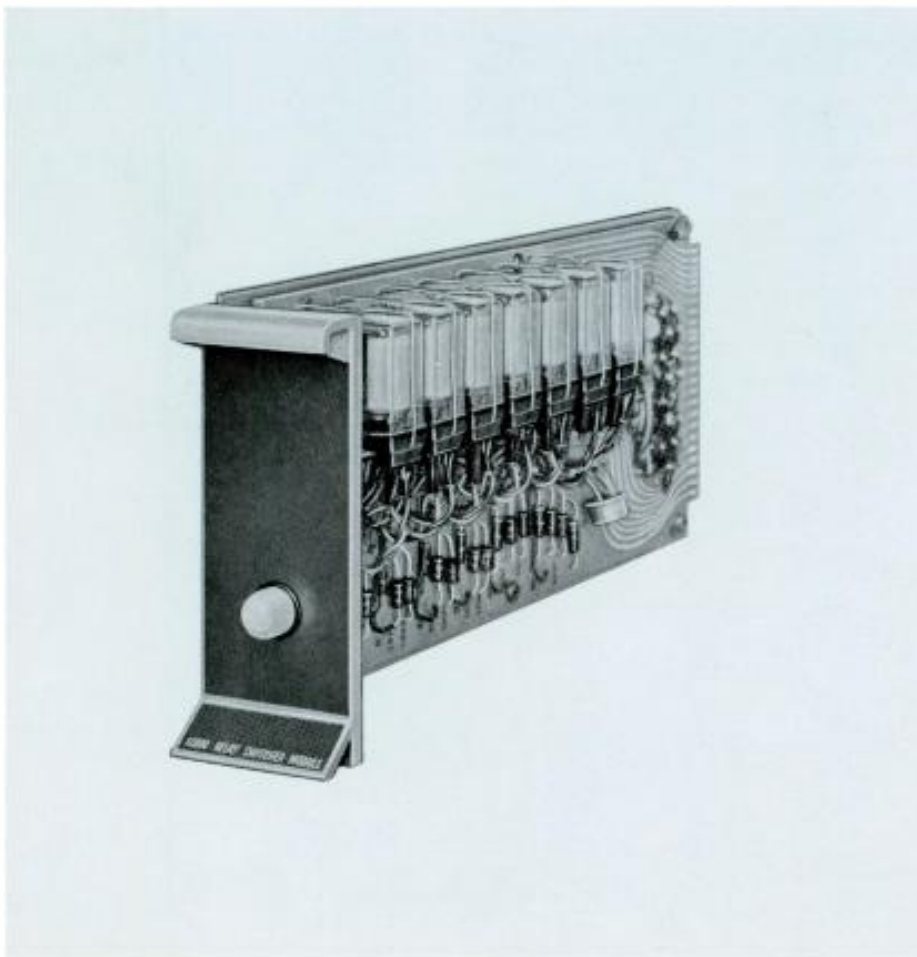


Mobile Rack  
(Type MR-200)



## Audio Relay Switcher Module

- Basic seven-by-one matrix
- "Custom" switcher for audio installations
- Solid-state modules form unlimited switcher configurations
- Plug-in, unitized construction
- Switching level 0 to +18 dBm in 600 ohms



catalog AU.7410A

(Replaces B.1530)

The Audio Relay Switcher Module is a primary component for use in custom relay switching systems. The basic module is a seven-input by one-output switcher and offers a true building block in the development of unlimited audio switcher configurations.

### Electronic Expansion

The Switcher Module may be combined in numerous combinations to fit the needs of individual systems. A typical switcher (see diagram) has 21 inputs each switchable to either or both of two outputs, such as preview and program bus. Such a switcher utilizes six modules mounted in a Standard Frame Assembly. Up to nine audio switcher modules can be mounted in the frame to provide combinations such as the following: two modules for 14x1 or 7x2; three modules for 21x1 or 7x3; four modules for 28x1, 14x2 or 7x4; five modules for 35x1, or 7x5; 6 modules for 42x1, 21x2, 14x3 or 7x6; seven modules for 49x1 or 7x7; eight modules for 56x1, 28x2, 14x4 or 7x8; nine modules for 63x1, 21x3 or 7x9. Systems beyond these configurations are assembled with additional frames and modules.

The use of standard plug-in modules greatly reduces the cost of custom-built switching systems, provides reliable performance and allows for future expansion requirements. The switcher may be controlled either by a custom-designed bank of individual push buttons or by pulses generated in automation or preset switching equipment.

### DC Power Supply

A 24-volt d-c power source is required. Two module connector units are available as accessory items, a connector assembly and connector kit (see *Accessories*).

The connector assembly consists of three connectors wired for use with three relay modules in a 7x3 switcher configuration. The assembly, if desired, reconnects for a 21x1 switcher. All audio, tally and control circuits are wired to an audio terminal block on the assembly. Also included are three transformer mounting plates and hardware for securing the assembly to the rear of the frame assembly. Numerous connector assemblies may be cross-connected to obtain any desired switcher configuration.

### Mounting Accessories

The mating connector kit includes one connector housing, solder-type terminals, one transformer mounting plate, and all hardware required for securing the connector and mounting plate to the rear of the frame assembly. One connector kit is required when installing a single relay module.

### Gap Switching

The Audio Relay Switcher Module utilizes a transistor-latch circuit. The circuit design and relay characteristics are chosen so that relay drop-out is faster than pickup, hence gap switching is assured. Each Module contains a pilot light to indicate presence of control voltage and fuse continuity. The lamp is operated at low voltage for extended life.

### Printed Circuitry

The latest printed circuitry techniques are employed including two-sided printed wiring on glass epoxy boards. The board contacts as well as the contacts of the mating receptacle are gold plated for

maximum reliability. All audio circuits are wired with two conductor twisted pair cable, individually shielded and insulated to minimize crosstalk as well as hum and noise pickup. Each module contains seven plug-in relays held in place by spring retaining clips. Each relay is equipped with gold contacts and a clear plastic dust cover to assure long life and quiet operation.

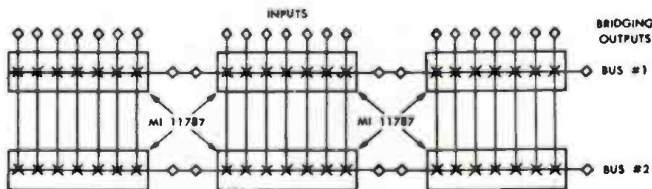
The Switcher is designed for switching balanced audio circuits at levels of 0 dBm (up to +18 dBm) in 600 ohms, or equivalent levels at other impedances. An external bridging transformer is normally used to provide 20,000 ohms impedance at the switcher crosspoints, with a choice of either 150 or 600 ohms output bus impedance. The Bridging Transformer mounts on either the Connector Kit or the Connector Assembly. Back loading of the input source is not required when using a bridging output, unless many outputs simultaneously connect to one input. However, each relay crosspoint has "C" contacts, and the terminals are arranged so that back loading resistors may be conveniently installed if required.

### Specifications

Input/Output Impedance	Dependent upon associated circuit (usually 600 or 150 ohms)
Insertion Loss	Essentially zero in the module (Normal loss through external bridging transformer 20 dB)
Crosspoint Activation	Pulse or continuous voltage
Switching Level	0 to +18 dBm, 600 ohms
Switching Time (Break before make)	5 ms (approx.)
Signal-to-Noise Ratio	Better than 60 dB; with 0-dBm, 600-ohm input
Relay Contacts	Gold plated; two form "C" and three form "A" (each relay)
Control Cable (Max. Length)	300 ft. using #22 AWG wire
Power Requirements	24 volts, dc; at 135 ma (including pilot lamp but excluding tally lamps)
Fuse	1/2 amp, 3 AG
Pilot Lamp	Type 327
Dimensions (Overall)	4 3/4" high, 1 1/8" wide, 13" deep (120 mm, 45 mm, 330 mm)
Weight	2 1/2 lbs. (1.13 kg)

### Optional and Accessory Equipment

Standard Frame Assembly (holds up to nine modules)	MI-557300
24-volt DC Power Supply	MI-11318
Mating Connector Kit	MI-11789
7x3 Connector Assembly	MI-11790
Bridging Transformer	MI-11791



### Ordering Information

Audio Relay Switcher, Positive Pulse Actuated	MI-11787
Audio Relay Switcher, Negative Pulse Actuated	MI-11787N



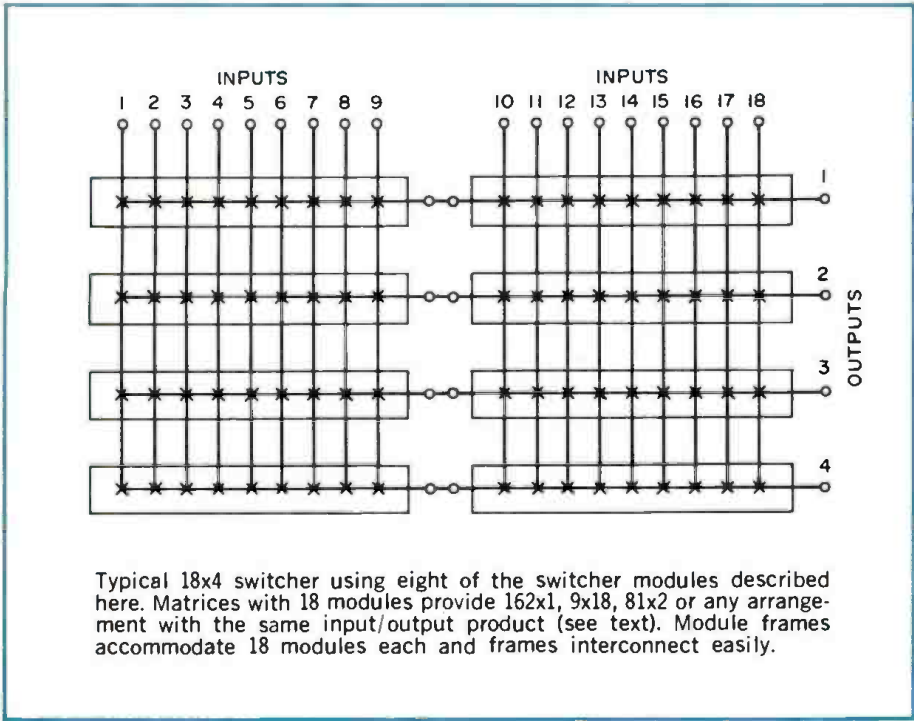


## Audio Switcher Module

- Basic nine-by-one matrix
- Unlimited switcher configurations
- Sealed reed-relay contacts
- Magnetically shielded relays
- Switching level: 0 to +10 dBm

The Audio Relay Switcher Module is a primary component for custom relay switching systems. The basic module is a nine-input-by-one-output (9x1) switcher and is a true building block in the development of unlimited audio switcher configurations.





**Expandable Electronically**

The Switcher Module may be expanded to fit the needs of individual systems. A typical switcher (see drawing, next page) has 18 inputs, each switchable to any or all of four output lines. Such a switcher utilizes eight modules mounted in a standard frame assembly. Up to eighteen audio switcher modules mount in the frame to provide combinations such as two modules for 18x1 or 9x2; three modules for 27x1 or 9x3; four modules for 36x1, 18x2 or 9x4; five modules for 45x1 or 9x5, etc. up to 18 modules for a 162x1 or 9x18 switcher. Systems using more than 18 modules require additional frames.

The use of standard plug-in modules reduces the cost of custom-built switching systems, assures and allows for future expansion requirements. The switcher may be controlled through a custom-designed bank of individual push buttons or by pulses generated in an automation or preset-switching system.

**Frame and Connector Assemblies**

A 24Vdc power source (see Accessories) is required. Two module connector units are available as accessory items; a "matrix assembly" and "connector kit."

The "matrix assembly" consists of a housing, wired for an 18x4 switcher con-

figuration utilizing eight relay modules, inputs, tallies and controls brought out to individual connections. Inputs are looped to a second connector to facilitate back-loading. Numerous matrix assemblies may be cross-connected to obtain any desired switcher configuration.

The "connector kit" includes one connector housing, solder-type terminals, with replaceable terminals and all hardware for attaching the connector and mounting plate to the rear of the main frame. One connector kit is required for each relay module.

**Gap Switching**

The module utilizes a "transistor-latch" circuit. The circuit design and relay characteristics are selected for faster relay drop-out than pickup. This assures a break-before-make ("gap") switch.

**Zero-Level Switching**

The latest printed circuitry techniques are employed including two-sided printed wiring on glass epoxy boards. The board contacts as well as the contacts of the mating receptacle are gold plated for maximum reliability. The Switcher is designed for switching balanced audio circuits at levels of 0 dBm (up to +18 dBm) on 600 ohms, or equivalent levels at other impedances. An external bridging transformer (mounting not provided on pre-wired connector assembly), is used to provide 20,000 ohms impedance at the switcher crosspoints, with a choice of either 150- or 600-ohm output-bus impedance. Back loading of the input source is not required when using a bridging output, unless many outputs connect simultaneously to one input.

**Specifications**

Input/Output Impedance (Dependent on Source Z) .....	150/600 ohms
Insertion Loss .....	0 dB <sup>1</sup>
Crosspoint Activation .....	Pulse or closure to ground
Switching Level .....	0 to +18 dBm
Switch Time .....	Break before make <sup>2</sup>
Noise Level (600 ohm input) .....	-90 dBm max.
Crosstalk Rejection (at 1 kHz) .....	Greater than 80 dB
Power Requirement (per module) .....	24 Vdc, 80mA
DC Current (Max.):	
Switching .....	2A
Carrying .....	3A
Dimensions	
Module .....	6.44" H; 0.92" W; 12.7" D (164, 23, 323 mm)
Frame .....	7.5" H; 19" W; 18.5" D (190, 483, 470 mm)

Weight (Approx.)	
Module .....	1.6 lbs. (726g)

**Accessories**

Power Supply, 24 Vdc .....	MI-11318 or MI-3537
Bridging Transformer .....	MI-11791
Main Frame (for 18 modules) .....	MI-141453
Matrix Assembly .....	MI-141452
Connector Kit .....	MI-141451
Extender Board .....	MI-141449

**Ordering Information**

Audio Relay Switcher Module .....	MI-141450
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<sup>1</sup>Using accessory bridging transformer: 20 dB

<sup>2</sup>Sustained ground closure, momentary closure (Vid-Au-Mac pulse of 50-100 ms) gap switching.



catalog AU.7610A

(Replaces B.1540)

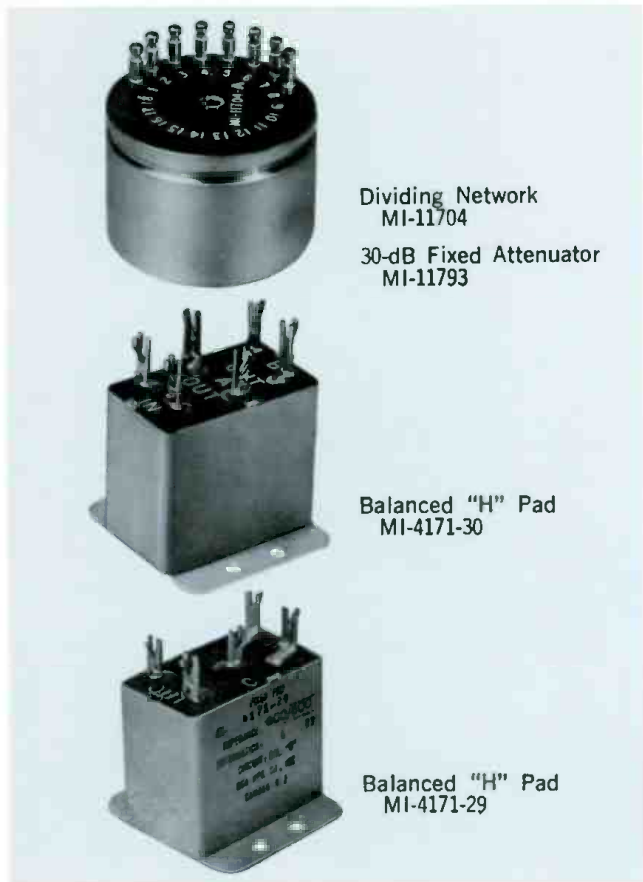
## Studio Accessories

- Pads and networks
- VU-meter panels, mono and stereo
- Lighted studio signs—studio clocks
- Line equalizers

Described here are a series of attenuator and bridging pads, divider networks, a pair of VU-meter panels, several lighted studio signs, two studio clocks, and a line-equalizer unit.



## Pads and Networks



Dividing Network  
MI-11704  
30-dB Fixed Attenuator  
MI-11793

Balanced "H" Pad  
MI-4171-30

Balanced "H" Pad  
MI-4171-29

RCA offers a comprehensive selection of attenuator pads, bridging pads and dividing networks. The pads and networks are constructed with precision resistors. The terminals are securely mounted with stencilled nomenclature. The fixed, balanced-*H* type is available in four forms; introducing 6-, 10-, 20- or 40-dB insertion loss. The dividing networks are available as shown below:

### Specifications

#### Dimensions:

Balanced H Type (MI-4171- )	.....1 5/8" x 1 1/2" x 1 7/8" H (41 x 38 x 48 m)
Dividing Networks (MI-11704)	.....1 3/4" Dia. x 1 5/8" H (44 x 41 mm)
Isolation Pad (MI-11705)	.....1 5/8" x 1 1/2" x 1 7/8" H (41 x 38 x 48 m)
Fixed Attenuator (MI-11793)	.....1 3/4" Dia. x 1 1/4" H (44, 32 mm)

### Ordering Information

#### Balanced H Pads (Input/Output Z: 600 ohms):

6 dB Insertion Loss	.....MI-4171-29
10 dB Insertion Loss	.....MI-4171-30
20 dB Insertion Loss	.....MI-4171-32
40 dB Insertion Loss	.....MI-4171-39

#### Dividing Networks, 600-ohm, balanced:

Two-Way, 6-dB loss	.....MI-11704
Three-Way, 9.5-dB loss	.....MI-11704A
Four-Way, 12-dB loss	.....MI-11704B
Six-Way, 15.6 dB loss	.....MI-11704D

#### Isolation Pad, 600-ohm, balanced, 45-dB isolation:

Two-Way, 10-dB loss	.....MI-11705
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#### Fixed Attenuator, 30 dB:

10 k to 600 ohms or 600 to 600 ohms	.....MI-11793
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## VU-Meter Panels



Single Meter Panel

Stereo Meter Panel

Two VU-meter panels are available: a single-meter and a double-meter panel. Each is equipped with a ten-position switch and a step attenuator; the double-meter panel is intended for stereo or dual-channel mono operations.

The attenuator provides up to 40 dB attenuation in 2-dB steps. Both panels mount in 19-inch (483 mm) racks and require 3 1/2 inches (89 mm) of space.

### Specifications

	Mono	Stereo
Input Impedance (Bridging)	7500 ohms*	7500 ohms*
No. of Input Connections	10 pair	1 pair
Attenuator	4 to 40 dB	4 to 40 dB
Attenuator Steps	2 dB	2 dB
Dimensions	19" W; 3 1/2" H; 4" D (483, 89, 101 mm)	19" W; 3 1/2" H; 5" D (483, 89, 127 mm)
Weight	5 lbs. (2.3 kg)	7 lbs. (3.2 kg)
Finish	Enamel	Enamel

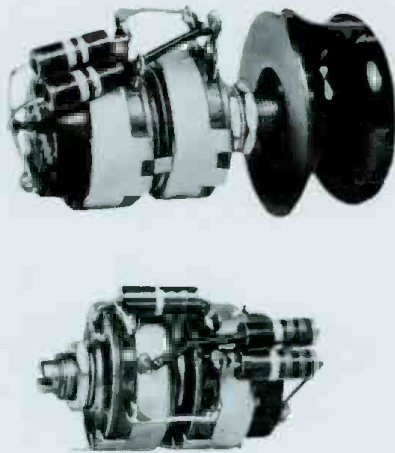
\*Except in 1-mW attenuator position.

### Ordering Information

Mono VU-Meter Panel, Type BI-5	.....MI-11265
Stereo VU-Meter Panel, Type BI-55	.....MI-11265S



## Bridging Level Controls



Dual-ganged composition potentiometers wired as volume controls for bridging 600- or 150-ohm balanced lines. The output matches a 600- or 150-ohm balanced line. MI-11278E includes a 1¾-inch knob while MI-11278F has a short, slotted shaft for screwdriver adjustment. Bushing fits ¾-inch (10 mm) hole in panels up to ⅛-inch thick. Nuts included.

### Specifications

Input Impedance .....	20,000/10,000 ohms
Output Impedance .....	600/150 ohms
Insertion Loss .....	32/24 dB
Maximum Input Level .....	+40 dBm
Dimensions .....	1¾" Dia.; 2¾" or 3" Long (35, 55, 76 mm)
Weight .....	4.5 oz. (128 g)

### Ordering Information

Volume Control, Panel Mounting .....	MI-11278E
Volume Control, Chassis Mount .....	MI-11278F

## Lighted Studio Signs

Constructed of satin-finished, cast-aluminum, these lighted studio signs use an opaque, dark-brown glass insert with frosted, 2-inch letters. The light source is a 40-watt lamp for operation on 117 V power. Operation on 230-volt, a-c power requires a stepdown transformer (see *Accessories*) or, two units connected in series.

### Accessories

Stepdown Transformer* (230/117 V, 50/60 Hz) .....	MI-141010-85
Signal-Light Relay (24 V coil) .....	MI-11702

### Specifications

Lamp .....	117 V, 40 W
Dimensions .....	14" L; 3½" H; 2¾" D (355, 89, 69 mm)

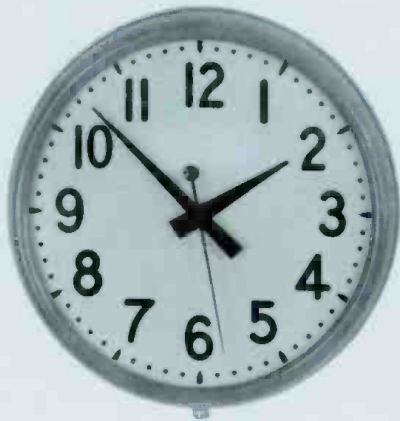
\*Power capacity sufficient for two signs.



### Ordering Information

Lighted Studio Sign (Lamp included):

Sign, less glass .....	MI-11717
With "On-Air" glass (MI-11718-1) .....	ES-11706-1
With "Rehearsal" glass (MI-11718-2) .....	ES-11706-2
With "Audition" glass (MI-11718-3) .....	ES-11706-3
With "Standby" glass (MI-11718-4) .....	ES-11706-4
With "Silence" glass (MI-11718-5) .....	ES-11706-5
With "Recording" glass (MI-11718-6) .....	ES-11706-6



## Studio Clocks

These are self-starting electric clocks for general use. Two models are available: one for operation on 117 V, 60-Hz power and another for operation on 234 V, 50-Hz power (not illustrated).

### Ordering Information

Studio Clocks:

117 V, 60-Hz Operation (13½" dia., 2¾" deep) (346, 70 mm) .....	MI-11758
234 V, 50-Hz Operation (11½" dia., 2¾" deep) (292, 70 mm) .....	MI-11788-3

# Line Equalizer, Type BE-2

The Type BE-2 Line Equalizer reshapes the non-linear frequency-response characteristics of a non-loaded telephone pair. It is suitable for 15,000-Hz FM-broadcast circuits. The unit is recommended for use on lines that are permanently installed and used continuously such as studio-transmitter or remote-program lines.

The equalizer uses a parallel-resonant circuit. A rotary selector switch selects different resistance values in series with the inductance of the resonant circuit. The resonant frequency is just above 15 kHz so that the characteristics of the lower passband are used to equalize the line (see drawing).

### Accessories

- Rack-Mount Panel (3½" x -9") (89 x 483 mm) .....MI-4591
- Line-Match Transformer .....MI-11713

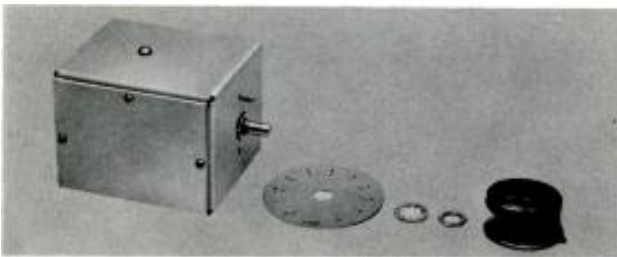
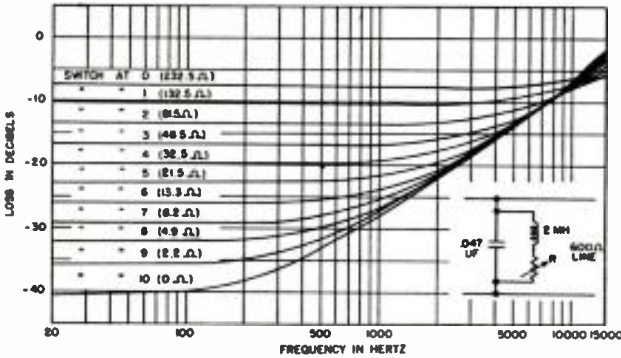
### Specifications

- Source Impedance .....150/600 ohms
- Equalization Frequency Limit .....15 kHz
- Insertion Loss (at 1000 Hz) .....7 dB min.
- Dimensions .....3" W; 2½" H; 3¾" D (73, 64, 86 mm)

### Ordering Information

- Line Equalizer, Type BE-2 .....MI-11752

Frequency characteristic of Type BE-2A Line Equalizer.



# No-Loss Equalizer, Type BE-100R

An equalizer with separate low-, high- and peaking-frequency (presence) equalization without insertion loss. Equalization exceeds 18 dB boost or cut at 40 Hz; 15 dB boost or cut at 10 kHz and 16 dB boost at any frequency between 800 and 10,000 Hz.

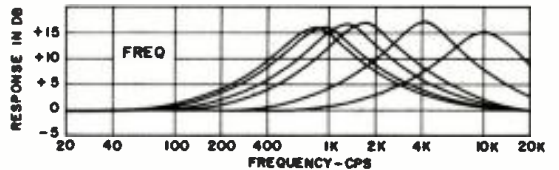
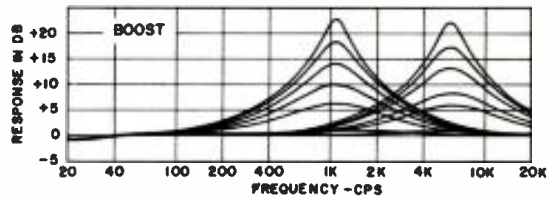
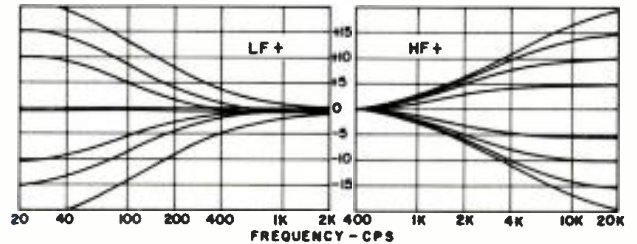
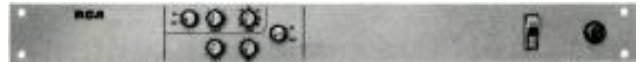
### Specifications

- Input/Output Level .....+10 dBm max.
- Input Impedance .....50/150/600 ohms bal.
- Output Impedance .....600 ohms, unbal.\*
- Insertion Loss .....0.75 dB max.
- Power Requirements .....117V†, 50-60 Hz, 2W
- Dimensions .....1¾" H; 19" W; 6¾" D (34, 483, 171 mm)
- Weight (Approx.) .....4 lbs. (1.8 kg)
- Shipping Data (Approx.):
  - Dimensions .....4" H; 24" W; 10" D (101, 610, 254 mm)
  - Weight .....5 lbs. (2.3 kg)

\*Accessory plug-in transformer (MI-141001) converts output to balanced 600 ohms.  
†Available for 234V operation on special order.

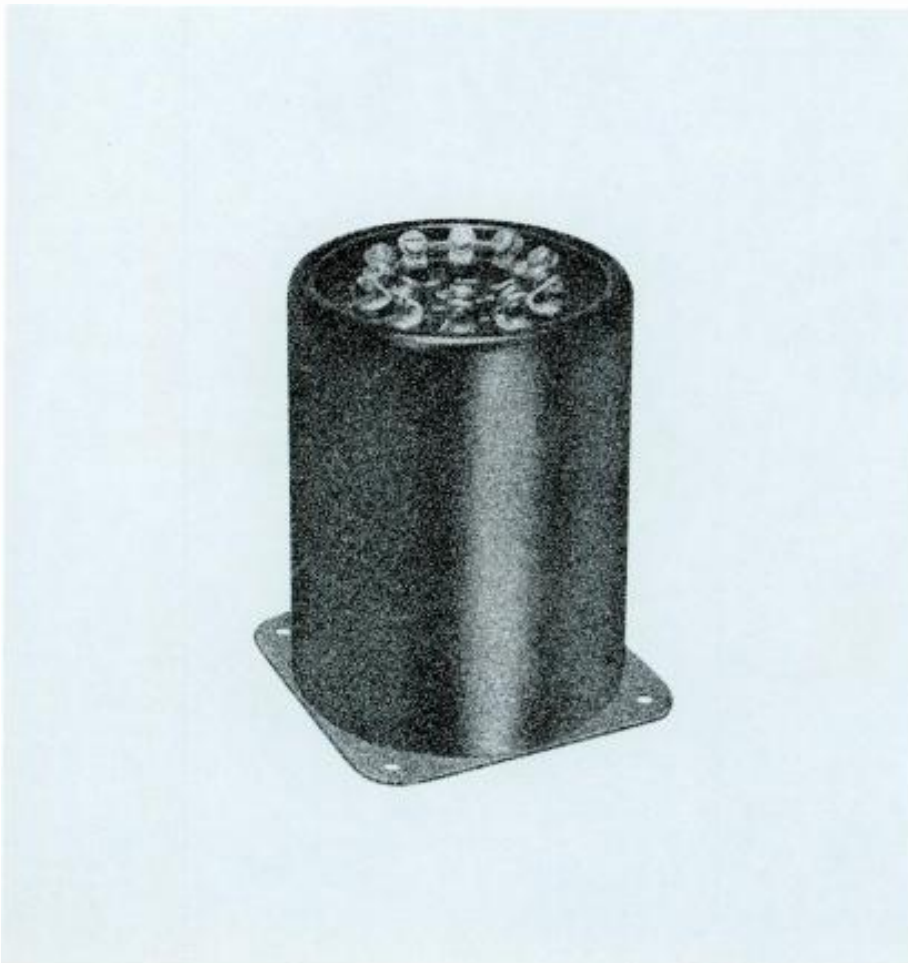
### Ordering Information

- Zero-Loss Equalizer, Type BE-100R .....ES-11466



## Transformers, Wire and Cable

- **Bridging and line-matching transformers**
- **Speaker-matching transformers**
- **Power-line step-down transformers**
- **Microphone cables**
- **Console and rack cable**
- **Lacing cord and tape**



Described here are line-bridging and line-matching transformers, speaker-matching transformers, microphone cables and console- and rack-wiring cables.

## Bridging Transformers



Well-shielded, chassis-mount transformers for bridging any 600-ohm program line. The differences between the two described here lie mostly in dimensions and frequency response.

Specifications	MI-11712	MI-11791
Frequency Response (Hz)	20-20k $\pm 0.5$ dB	30-15k $\pm 0.5$ dB
Primary Impedance	20,000 ohms	20,000 ohms
Secondary Impedance	150/600 ohms	150/600 ohms
Distortion (30 Hz)	0.5%	0.5%
	(45V input)	(32V input)
Insertion Loss (1000 Hz)	19 dB max.	20 dB max.
Input Level		
(Min. to Max., dBm)	-30 to +20	-20 to +20
Output Level		
(Min. to Max., dBm)	-10 to 0	-20 to 0
Winding Imbalance	0.5% (100 Hz)	1% (1000 Hz)
Insulation	500V 60 Hz	500V 60 Hz
Dimensions (inches)	4 x 2.34 x 1.22	2.58 x 1.19 x 1.69
Dimensions (mm)	102 x 60 x 31	65 x 30 x 30
Weight	46 oz. (1204 g)	24 oz. (680 g)

## Speaker Transformers



### Autotransformers

These three transformers increase (or decrease) line impedance to match speaker impedance. The autotransformer principle provides impedance ratio without isolation between primary and secondary.

Specifications	MI-9471	MI-9472	MI-11731
Frequency Response (Hz)	50-15k $\pm 2.5$ dB	50-15k $\pm 2$ dB	60-10k $\pm 1$ dB
Power Level	25W	100W	8W
Distortion	0.15%	0.2%	2% (100-10k Hz)
Winding Taps	250, 125, 30, 15, 7, 5, 4, 2	250, 63, 30, 15, 10, 7, 5, 4, 2	16/8/4 ohms
Dimensions (inches)	3 $\frac{5}{8}$ x 2 $\frac{1}{8}$ x 3 $\frac{7}{8}$	4 $\frac{1}{2}$ dia., 5 $\frac{1}{2}$ H	1.66 x 2 x 0.75
Dimensions (mm)	92 x 62 x 98	114 x 140	34 x 51 x 19
Mounting Centers	3 $\frac{1}{4}$ " x 1 $\frac{3}{4}$ "	3 $\frac{3}{8}$ " x 3 $\frac{3}{8}$ "	2.38" (61 mm)
Weight	50 oz (1.4 kg)	162 oz (1.7 kg)	10 oz. (284 g)

### Ordering Information

Autoformer Speaker Transformers:	
25W	MI-9471
100W	MI-9472
8W	MI-11731

## Matching Transformers



For any isolation requirement, these two transformers match 150/600-ohm lines. The difference between the two are largely in size and maximum operating level.

Specifications	MI-11713	MI-141001
Frequency Response (Hz)	20-20K $\pm 0.5$ dB	30-20k $\pm 0.25$ dB
Primary Impedance	150/600 ohms	150/600 ohms
Secondary Impedance	150/600 ohms	150/600 ohms
Distortion (30 Hz)	0.8% max. (7.5V/600 ohms)	0.5% max.
Insertion Loss	2 dB max.	1 dB max.
Input Level		
(Min. to Max., dBm)	-50 to +10	-40 to 0
Insulation	500V 60 Hz	500V 60 Hz
Dimensions (inches)	4 x 2.34 x 1.22	2.75 x 1.19 x 1.69
Dimensions (mm)	102 x 60 x 31	70 x 30 x 30
Weight	46 oz. (1204 g)	7 oz. (198 g)



## Multi-Tap Speaker Transformer

This multi-tap transformer provides isolation between primary and secondary as opposed to the autotransformers described above. Conventional strap mount with stripped and tinned pigtail leads.

### Specifications

Frequency Response (Hz)	60-10k ±0.5 dB
Power Level	10W
Distortion	2% max.
Core Stack	0.75 x 0.825" (19 x 22 mm)
Primary Impedance (ohms)	5000/2500/1250/625
Secondary Impedance (ohms)	16/8/4
Dimensions (inches)	2.28 x 3.78 x 2.25
Dimensions (mm)	58 x 95 x 57
Mounting Centers	3.125" (79 mm)
Lead Lengths	10" (254 mm)
Weight	22 oz. 624 g)

### Ordering Information

Speaker Matching Transformer	MI-12368
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## Matching Transformers for BC-14, -15 and -18 Consoles

These transformers are specially selected for use with the BC-14, -15 and -18 Consoles. The one for the BC-14 matches the 50 ohm console monitor output to a 4-, 8- or 16-ohm loudspeaker; the other converts the unbalanced, low-impedance audition output of the BC-15 and -18 into a balanced 150/600 ohm output.

### Specifications

	MI-11686	MI-141011
Frequency Response (Hz)	40-20K ±2 dB	20-20K ±.5 dB
Power Level	10 W	1 W
Primary Impedance	50 ohms	50 ohms
Secondary Impedance	16/8/4 ohms	150/600 ohms
Dimensions	1¾" W; 2⅞" L; 2⅝" H (44, 73, 60 mm)	2-7/16" W; 1-15/16" L; 3¼" H (62, 49, 83 mm)
Mounting Centers	2⅝" (60 mm)	1-3/16"
Weight (Approx.)	14 oz. (397 g)	22 oz. (624 g)
Distortion	1% Max.	0.39% Max.



### Ordering Information

Matching Transformer, BC-14 Monitor Output	MI-11686
Matching Transformer, BC-15, -18 Audition Output	MI-141011

## Stepdown Transformers

Available in five power capabilities, these transformers allow operation of 117-volt equipment on 234-volt power lines. They are autotransformers and provide no isolation. All supplied with 5-foot, heavy-duty power cord and built-in, non-polarized outlet.

### Specifications

Watts	Length (mm)	Width (mm)	Height (mm)	Stock ID
85	3.13" (80)	2.63" (67)	3.19" (81)	MI-141010-85
125	3.50" (89)	3.00" (76)	3.50" (89)	MI-141010-125
175	3.75" (95)	3.25" (83)	3.88" (99)	MI-141010-175
250	3.88" (99)	3.25" (83)	3.88" (99)	MI-141010-250
500	4.63" (118)	3.88" (99)	4.63" (118)	MI-141010-500
1200	6.63" (168)	3.88" (99)	4.63" (118)	MI-141010-1200



## Microphone Cable: Shielded 2- and 3-Conductor

Four types of microphone cable are available: two heavy-duty and two lightweights. Rugged and flexible. Available in 100-foot (30 m) lengths only.

Cond.	AWG	Shield	Rating	OD (mm)	Jacket	Color	Stock ID*
3	#20	Braided	1000V	0.3" (8)	Rubber	Brown	MI-43
2	#16	Braided	600V	0.3" (8)	Neoprene	Brown	MI-13307
2	#24	Braided	600V	0.215" (6)	Neoprene	Brown	MI-13322
2	#28	Braided	200V	0.156" (4)	PVC	Dark Beige	MI-13373

\*Stocked in 100-foot (30 m) hanks only

## Audio Cabling: Stranded and Solid Conductor

General-purpose audio cable for console and equipment-rack wiring.

### Stranded Conductors

Cond.	AWG	Shield	Rating	OD (mm)	Jacket	Color	Stock ID*
2	#22	Wire	200V	0.210" (5)	Vinyl	Black	MI-13342-2
2	#22	Foil	200V	0.135" (3)	Vinyl	Black or Gray	MI-13342-4
2	#22	Braid	300V	0.166" (4)	Vinyl	Brown	MI-34
2	#18	Braid	300V	0.236" (6)	Vinyl	Brown	MI-35
2	#28	Braid	200V	0.160" (4)	Vinyl	Brown	MI-13395-1

### Solid Conductors

Cond.	AWG	Shield	Rating	OD (mm)	Jacket	Color	Stock ID*
2	#22	Braid	300V	0.170" (4)	Vinyl	Brown	MI-33
2	#22	Braid	200V	0.200" (5)	Vinyl	Black	MI-13342-1

\*Stocked in 100-foot (30 m) lengths only



## Phono Equipment: Turntables, Tone Arms, Cartridges, Equalizers, Amplifiers, Cabinetry

- High performance—low maintenance
- Extra flexibility
- Easy stylus replacement
- "Flat-less" turntable drives



In the pages that follow, several of the RCA products intended for high-quality record reproduction are described.

**Two-Speed Turntable, Type BQ-51**

Our finest turntable, the Type BQ-51 features a heavy platter and a deep-well pivot. Very low rumble, wow and flutter give it a quality of performance difficult to surpass at both 45 and 33 rpm speeds.

**Three-Speed Turntable, Type BQ-50**

For applications where three speeds are useful, the Type BQ-50 Turntable combines enviable performance characteristics with a moderate purchase price.

**Turntable Pickup System, Type BDR-1**

Our finest pickup system, the Type BDR-1 is an extremely light weight, low inertia device with the kind of ruggedness essential to reliable duty. Designed as a matched system—arm-cartridge-stylus.

**Lightweight Tone Arms**

Available for either twelve-inch or sixteen-inch discs, these tone arms feature accurate stylus force adjustment, plug-in cartridges, quick-change stylus assemblies and a "stylus-saver" adjustment.

**Moving-Magnet Stereo Pickup Cartridge**

Featuring superior performance and simplified stylus replacement, this cartridge fits any EIA-standard phono arm and simply plugs into the RCA Lightweight Arms described above.

**Pickup Equalizer/Preamplifier, Types BA-26 and BA-36**

Offered in mono and stereo versions, the Type BA-26 (mono) and Type BA-36 (stereo) equalize and amplify the output of pickup cartridges to mixer level.

**All-Metal Turntable Cabinet**

A rugged, all-steel unit designed specifically for broadcast turntable duty, this cabinet makes a turntable a self-contained unit with considerable storage space inside.

## Dual-Speed Turntable Type BQ-51



- Precision, 2-speed rim-drive
- Individual idler wheels for each speed
- Provision for two tone arms
- Smooth and rapid starts

The RCA BQ-51 turntable is a high-quality mechanism for disc recordings at speeds of 33-1/3 and 45 rpm. The BQ-51 is available for mounting in custom-built arrangements or as a complete assembly with a styled cabinet.

Space is provided on the top panel of the BQ-51 for mounting one or two standard pickups that conform to EIA standards.

There are three RCA tone arms suitable for the BQ-51 Turntable: two 12-inch and one 16-inch. For highest quality reproduction the Type BDR-1 Arm is recommended.

The Type BQ-51 is a rim-drive mechanism, using a hysteresis-synchronous motor. It is available for 60 or 50 hertz operation. A two-position speed selector switch is provided on the turntable assembly. An "off-on" selector control operates a mercury switch and simultaneously engages the appropriate rubber idler wheel. This feature eliminates the idler "flat" when set to the "off" position.

### Specifications

Turntable Speed	33 1/3 and 45 rpm ±0.3%
Rumble	40 dB below 1.4 cm/s at 100 Hz
Wow or Flutter	0.1% of mean speed
Motor	1/100 h.p., at 60 Hz; 1/125 h.p., at 50 Hz
Power	105-125 V, 50/60 Hz, 40 W
Power Cord	8 ft. long (2.44 m)
Dimensions	22" W, 18 1/4" D (559 x 459 mm) depth below top surface 9" (228 mm) height above surface 1 1/2" (38 mm)
Weight	31 lbs. (14.06 kg)

### Accessories

Studio Furniture (Walnut Finish)	
Turntable Console, for one turntable	MI-141026-1*
Turntable Console, for two turntables	MI-141026-2*
Turntable Console, for three turntables	MI-141026-3*
Stepdown Transformer 230/115-volt, 85 W	MI-141010-85

### Ordering Information

Dual-Speed Turntable, Type BQ-51 for 60 hertz power	MI-11810-D
Dual-Speed Turntable, Type BQ-51 for 50 hertz power	MI-11810-E

\*See page AU.7210 for complete information.

## Three-Speed Turntable Type BQ-50



- Low flutter performance
- Simple, rugged construction
- Heavy-duty synchronous motor
- Fast acceleration

The BQ-50 Three-Speed Turntable meets precision requirements for fine music reproduction. The 16-pound unit mounts in custom-built arrangements or in turntable consoles or cabinets.

The BQ-50 is powered by a heavy duty, synchronous motor. The rim drive system is a neoprene idler wheel transmitting power directly from the stepped capstan on the motor shaft. Acceleration is extremely fast with average results of one-sixteenth revolution at 33; one-tenth revolution at 45; and one-half revolution at 78 rpm.

Oilite bronze bearings assure long, maintenance free service. The solid, cast-aluminum platter has a black felt cover and the base has a midnight blue finish. Platter offset on the base permits compact turntable arrangement and free movement of the tone arm when installed side-by-side. Shock mounts isolate motor vibration for quiet performance. The turntable has a motor on off switch, light and speed-control lever. When the lever is in neutral the platter spins freely.

### Specifications

Turntable Speed	33 1/3, 45 and 78 rpm
Acceleration Time	1/6 rev at 33; 1/10 at 45; 1/2 at 78 rpm
Rumble	36 dB below 1.4 cms at 100 Hz
Wow or Flutter	0.3 % max.
Motor (Synchronous)	1/75 h.p. at 60 Hz, 1/90 h.p. at 50 Hz
Power Supply	105-125 V, 50/60 Hz, 40 W
Chassis Dimensions	15 1/2" x 15 1/2" (394 mm)
Depth Below Surface	6 1/2" (165 mm)
Weight:	
Platter only	5 1/2 lbs. (2.5 kg)
Entire Unit	16 lbs. (7.25 kg)

### Accessories

Stepdown Transformer 230/115V, 85W	MI-14010-85
Turntable Console*	MI-141026-1/2/3
Adapter Plate	MI-141005

### Ordering Information

Three-Speed Turntable, Type BQ-50 (60 Hz, 115 volts)	MI-141004
Three-Speed Turntable, Type BQ-50-A (50 Hz, 115 volts)	MI-141004-A



## Turntable Pickup System Type BDR-1



- Integrated system
- Excellent tracking
- Selection of low mass, high compliance styli
- Set down limit adjustment

The Type BDR-1 is a twelve-inch pickup system with a nominal 15-degree cartridge and stylus intended for use with turntables such as Types BQ-51 and BQ-50.

The BDR-1 incorporates an extremely light weight, low inertia arm. This is an "integrated" design in which the arm, pickup cartridge and stylus are designed as a system.

The pickup uses a very low mass, moving-magnet cartridge with high compliance and interchangeable stylus assemblies.

The cartridge accommodates several stylus assemblies. Elliptical styli provide low distortion, wide range reproduction of stereo discs at 1.5- and 2.5-gram tracking forces.

Provision is made for the insertion of an electrical signal used for testing the system, including the cartridge, wiring, equalizer, and associated equipment. This feature eliminates test records except where the stylus assembly must be checked.

Quick-change stylus assemblies, identified by color codes, insert or remove without the use of tools. The stylus assemblies are weighted to provide the proper tracking force for each type used.

### Specifications

Tracking Force of Pickup System	.....1.5, 2.0 or 2.5 grams
Tracking Error	.....1° max.
Weight	.....13 oz. (368 g)
Tracking Ability at 1½ g:	
400 to 10,000 Hz	.....22 cm/sec or greater
1,000 to 5,000 Hz	.....30 cm/sec or greater
Frequency Response	.....20 to 20,000 Hz
Output Level	.....3.5 mV per channel at 1,000 Hz (5 cm/sec peak)
Channel Balance at 1 kHz	.....Within 1½ dB
Channel Separation	.....25 dB min. at 1,000 Hz; 17 dB min. from 500 to 10,000 Hz
Load Impedance	.....60 kohms optimum; 47 kohms min.

### Accessories

Spare Cartridge (less stylus)	.....MI-11472
Diamond Stylus Assemblies:	
0.2 x 0.7 mil, Elliptical, 1.5 gram tracking	.....MI-11474-2
0.4 x 0.7 mil, Elliptical, 2.5 gram tracking	.....MI-11474-4
0.7 mil, Spherical, 1.5 gram tracking	.....MI-11474-7
0.1 mil, Spherical, 2 gram tracking	.....MI-11474-10
2.5 mil, Spherical, 2.5 gram tracking	.....MI-11474-25

### Ordering Information

12-Inch Integrated Pickup Arm and Cartridge:	
With anti-skate feature	.....MI-11473
Without anti-skate feature	.....MI-11473-A

## Lightweight Tone Arms



- Lightweight—low distortion
- Accurate stylus force adjustment
- Track properly at all times
- Plug-in pickup cartridge

The RCA Lightweight 12 and 16-inch Tone Arms, and the Universal Cartridge and Stylus fill the need for a high quality pickup combination for playing stereo and mono fine-groove records as well as transcriptions and 78 rpm records. The tone arms are designed to operate with Type BQ-50 and BQ-51 Turntables.

The advanced tone arm design incorporates a three-terminal pickup socket, with free-floating collets, to accept the plug-in "Universal" cartridge. Facilities for accepting pickups which mount on standard ½-inch mounting centers are also included.

Both models of the tone arm include the "Stylus Saver" adjustment. This limits the vertical travel of the arm so that the cartridge stylus engages only the record groove and not the turntable, to prevent accidental damage to the stylus, should the arm drop off the edge of the record.

Tone arm resonance is well outside the operating frequency range of the system. Distortion due to tracking error in the arm and pickup is reduced to a minimum. The anti-friction vertical and lateral pivots and low mass let the tone arms track properly on warped and eccentric records.

The arm is hinged at the pivot center for easy access to the pickup and wiring on the underside. An adjustable counterweight, controlled by a thumb wheel at the rear of the arm, provides accurate stylus-force adjustment. Less cartridge and styli. See next page.

### Specifications

Tracking Error, 16-inch Record	.....4° max.
Pivot Bearings	.....Anti-resonant in both planes
Tone Arm Head Receptacle	.....Quick-lock, plug-in type
Construction of Arm	.....Aluminum casting
Length of Arm:	
16-inch arm	.....16¾" (425 mm)
12-inch arm	.....12" (305 mm)
Height of Arm	.....Adjustable
Weight:	
16-inch arm	.....2 lbs. (906 g)
12-inch arm	.....1½ lbs. (679 g)
Mounting:	
16-inch	.....Approx. 12" (305 mm) from spindle center
12-inch	.....Approx. 8" (203 mm) from spindle center

### Ordering Information

Tone Arm, 12-Inch, with rest and hardware, less cartridge and styli	.....MI-11894
Tone Arm, 16-Inch, with rest and hardware, less cartridge and styli	.....MI-11895

## Universal Pickup Cartridge



The Universal Pickup Cartridge and Replaceable Stylus provide a fully compatible unit for reproducing stereophonic and monophonic phonograph records. The cartridge utilizes a moving-magnet system for superior performance and simplified stylus replacement. It is completely housed in a molded plastic case. The stylus replaces without use of tools.

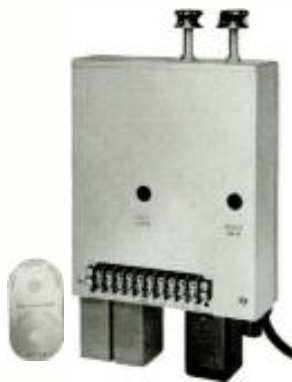
### Specifications

Inductance .....	400 mH
DC Resistance .....	280 ohms
Output Voltage at 1000 Hz, 5 cm/sec .....	5 mV
Channel Separation .....	20 dB min. @ 1000 Hz
Recommended Load Impedance .....	47,000 ohms
Dimensions (overall) .....	1 $\frac{1}{16}$ " L x $\frac{3}{4}$ " W x $\frac{1}{8}$ " H (33 x 19 x 17 mm)
Weight .....	10.5 grams
Mounting .....	Plug-in (standard EIA mounting centers)
Recommended Stylus Force .....	4 to 8 grams

### Ordering Information

Pickup Cartridge (less stylus) .....	MI-11865
Stylus Assembly, 0.7 mil (black) .....	MI-11866-7
Stylus Assembly, 1.0 mil (red) .....	MI-11866-10
Stylus Assembly, 2.5 mil (green) .....	MI-11866-25

## Pickup Equalizer-Preamplifier Type BA-26/36



- Internal power supply
- Low distortion—high output level
- Level adjustment control
- NAB/RIAA equalization

The Type BA-26 Monophonic and Type BA-36 Stereo Pickup Equalizer-Preamplifiers provide correct equalization and amplification for records and transcriptions. They are recommended for use with Type BDR-1 Pickup Arm and the "Universal" Pickup.

### Feedback Equalized Design

Both the BA-26 and BA-36 use a four-stage amplifier with selective feedback to achieve NAB and RIAA equalization.

### Simplified Controls

Two control knobs and a dial plate are supplied with each unit. One control is a three-position filter switch which provides "normal equalization," "high-frequency de-emphasis" and "high-frequency cut-off." The second selects either of two tone arms or from stereo to mono.

### Specifications

Power Requirements .....	115/230 V, 50/60 Hz, 1 W
Frequency Response .....	NAB or 20-20,000 Hz, $\pm 0.5$ dB
Hum and Noise Level .....	30 to 15,000 Hz, -78 dBm max. (5 microvolts equivalent 1000 Hz signal at input)
Input Impedance:	
BA-26 .....	24,000 ohms, 100 pf. (Up to 60,000 ohms)
BA-36 .....	47,000 ohms, 100 pf. (Up to 60,000 ohms)

Load Impedance (Balanced) .....	150/600 ohms
Input Voltage (-20 dBm Output Level) .....	16 mV to 13 mV
Output Level .....	-5 dBm max.
Distortion (At -20 dBm Output Level)	
Intermodulation (40/4000 or 400/4000 Hz 4:1) .....	1% max.
Harmonic (30 to 15,000 Hz) .....	0.25% max.
Distortion (At -5 dBm Output Level)	
Intermodulation .....	4% max.
Harmonic .....	1% max.
High Frequency Compensation .....	0, -35, or -10 dB at 10 kHz
Crosstalk (30 to 15,000 Hz) .....	Below noise level
Dimensions .....	10 $\frac{3}{4}$ " L x 6 $\frac{1}{2}$ " W x 2 $\frac{1}{2}$ " D (273 x 168 x 64 mm)

### Weight:

BA-26: 4 lbs. 10 ozs. (2.1 kg.); BA-36: 5 lbs. 4 ozs. (2.4 kg.)

### Ordering Information

Mono Pickup Equalizer-Preamplifier,	
Type BA-26 .....	MI-11436
Stereo Pickup Equalizer-Preamplifier,	
Type BA-36 .....	MI-11441

## Turntable Cabinet

Built for the Type BQ-50 and BQ-51 Turntables, the Turntable Cabinet makes the turntable and associated pre-amplifiers a self-contained unit. Its rugged design provides a stable platform for the turntable and tone arm while the inside volume behind the hinged door houses the equalizer-preamplifier chassis and approximately five cubic feet (0.14 m<sup>3</sup>) of storage. (See photo, previous page.)

Included are four leveling-screw cabinet feet to simplify the task of turntable leveling. The cabinet is all-steel construction finished in blue enamel. For a complete line of Walnut Studio Furniture, see separate section.

### Accessories

Adapter Plate (for Type BQ-50 Turntable) .....	MI-141005
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### Ordering Information

Turntable Cabinet .....	MI-11809
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### Specifications

Dimensions .....	23 $\frac{1}{4}$ " W x 19 $\frac{1}{8}$ " D x 29" H (586 x 460 x 736 mm)
Weight .....	47 lbs. (21 kg)
Finish .....	Blue enamel

# RCA

catalog AU.8210A

(Replaces B.1705)

## Reel-to-Reel Tape Recorder, Type RT-21

- Monaural or stereo
- Tape speeds: 7½ and 15 or 3¾ and 7½ ips
- Rack, console or portable mounting



The RCA Type RT-21 Tape Recorder is designed to meet rigid specifications and requirements set forth by broadcast and studio engineers for mono or stereo tape operations.

Solid-state circuitry assures low power consumption, cool operation and small size. An etched capstan shaft is used to achieve maximum tape contact and minimize tape slippage.

The basic recorder is supplied in two sections: a tape transport and a control panel which includes one amplifier in the mono model, two in the stereo. The equipment is normally supplied for rack mounting. Console cabinet and portable carrying case are optional.

### Exclusive Stereo-Phase Head Adjustment

Of particular interest to FM-stereo broadcasters, a Stereo-Phase Head Mounting Assembly allows three-axis alignment (azimuth, zenith, height) to minimize the out-of-phase components that cancel high frequencies when stereo tracks are mixed to mono.

### Amplifier Controls

The record/playback amplifier modules are identical and interchangeable. Front panel facilities consist of a *record level* control, *playback level* control, *headset* jack, *bias* adjustment and meter-function selector to monitor playback, record, bias and erase signals. A light on each amplifier indicates the record mode.

### Continuously Variable Cue Speed; Interlocked RECORD Operation

Operating controls consist of the following: variable *cue speed* and related *cue delegate* button, *record*, *record delegate*, *start*, *stop*, *fast forward* and *fast reverse*. The panel features an interlocked record arrangement in which the *record* button and then the *start* button must be depressed to begin record operation.

### Tape Transport

The tape transport panel accommodates either 10½-inch or 7-inch reels. NAB 10½-inch reels and NAB hubs are

available as accessories. Proper tape tension for 10½ or 7-inch reels is provided by means of a toggle switch. Tape equalization is automatically selected by a speed change switch. 7½/15 ips and 3¾/7½ ips models are available. Each RT-21 is supplied with a plug-in record equalizer according to the tape speed and track width.

provides velvet smooth braking action by use of large surface area brake hubs. A safety feature stops the transport mechanism in the event of tape breakage.

**Solenoid-Operated Tape Lifters**

These lift the tape away from all magnetic heads whenever the machine is in the *fast forward* or *fast reverse* mode. When the *cue* mode is selected, tape is lifted from all heads except playback. This permits the operator to listen to the

audio as he "jockeys" the tape for final cueing.

**Full or Dual Half-Track**

Four magnetic head positions are available. Three heads (normally supplied) provide recording, erase and playback functions. An optional fourth head may be used for playing pre-recorded stereo tapes, of the consumer variety, with interlaced tracks.

**Velocity Brake System**

The "velocity sensing brake system"

**Specifications**

- Tape Speed .....7½ and 15 ips, 3¾ and 7½ ips
- Track Width .....Full- or dual half-track (80 mil tracks)
- Frequency Response (Overall):
  - 15 ips .....50-15,000 Hz ±2 dB (within 6 dB at 30 Hz)
  - 7½ ips .....50-15,000 Hz ±2 dB (within 5 dB at 30 Hz)
  - 3¾ ips .....40-75,000 Hz ±2 dB (within 4 dB at 30 Hz)
- Signal-to-Noise Ratio (7.5 & 15 ips) .....60 dB full track  
55 dB half track
- Flutter and Wow (Over a band of 0.5 to 250 Hz):
  - 15 ips .....0.1% rms, max.
  - 7½ ips .....0.15% rms, max.
  - 3¾ ips .....0.2% rms, max.
- Starting Time .....0.1 second, max.
- Stopping Time .....2" of tape at 15 ips
- Playback Timing Accuracy .....±3 seconds in 30 minutes
- Rewind Time (Approx.) .....90 seconds for 2400 ft. on 10½" reel
- Tape .....¾" wide
- Reels .....7" and 10½ EIA, NAB hubs optional
- Amplifiers .....Independent Record and Playback
- Record Input:
  - Matching .....150 or 600 ohms, balanced
  - Bridging .....20,000 ohms
- Record Input Level:
  - Matching .....-70 to -20 dBm
  - Bridging .....-30 to +20 dBm
- Playback Output ....+18 dBm, max. into 600 ohms, balanced
- Distortion .....1% max.
- Metering .....Record/playback level, bias/erase current
- Monitoring .....VU meter and headphone; input source or tape output
- Record Selector .....Track A, Track A & B, Track B

- Record Equalization .....NAB Standard, CCIR available
- Bias frequency .....80 kHz
- Tape Lifters .....Tape lifted from all heads, automatically during fast forward and fast reverse. Tape is lifted from the erase and record heads when in cue mode.
- Remote Control .....All control functions (except variable cue speed) may be remotely controlled. Optional remote panel includes tape lifter control.
- Power Requirements .....115/230 volts, 50/60 Hz,  
115 W mono, 135 W stereo
- Dimensions (Overall):
  - Transport .....19" W, 15¾" H, 9" D (483, 400, 229 mm)
  - Control Panel .....19" W, 5¼" H, 9"D (483, 134, 229 mm)
- Finish.....Anodized aluminum overlay
- Weight (Approx.) .....75 lbs. (34 kg) mono; 83 lbs. (38 kg) stereo

**Accessories**

- NAB Reel Hubs Consisting of:
  - a. 2—MI-41604 NAB Reel Hubs
  - b. 1—MI-11932-2 10½" Empty NAB Reel .....ES-41919
- Bulk Tape Eraser .....MI-11992
- Fourth Head Kit (Dual ¼ Track Playback) .....MI-41602
- 220 V Transformer .....MI-41605
- Remote Control Panel .....MI-141301
- Record/Playback Amplifier Module .....MI-141351
- Portable Carrying Case .....MI-141302
- Console Cabinet .....MI-141303
- Remote Control Panel Housing .....MI-141308
- Stereo Head Mounting Kit .....MI-141325

**Ordering Information**

Reel-To-Reel Tape Recorders, Type RT-21	115 V. 60 hertz	115 V. 50 hertz	220 V. 50 hertz
Mono, Full Track, 3¾ & 7½ ips, Less NAB Hubs	MI-41920	MI-41909	MI-41909 (220)
Mono, Dual Half Track, 3¾ & 7½ ips, Less NAB Hubs	MI-41921	MI-41911	MI-41911 (220)
Stereo, Dual Half Track, 3¾ & 7½ ips, Less NAB Hubs	MI-41921S	MI-41911S	MI-41911S (220)
Mono, Full Track, 7½ & 15 ips, Less NAB Hubs	MI-41930	MI-41910	MI-41910 (220)
Mono, Dual Half Track, 7½ & 15 ips, Less NAB Hubs	MI-41931	MI-41912	MI-41912 (220)
Stereo, Dual Half Track, 7½ & 15 ips, Less NAB Hubs	MI-41931S	MI-41912S	MI-41912S (220)





## Reel-to-Reel Tape Reproducer, Type RT-20

- Monor or stereo; full track or half track mono
- Tape Speeds: 3¾ and 7½ ips or 7½ and 15 ips
- Rack, console or portable mounting



The RCA Type RT-20 Tape Reproducer is designed to meet the specifications and requirements set forth by broadcast and studio engineers for mono or stereo tape reproduction.

Solid-state circuitry assures low power consumption, cool operation and small size. An etched capstan shaft is used to achieve maximum tape contact and minimize tape slippage.

The reproducer is supplied in two sections; a tape transport and a control panel which includes one playback amplifier in the mono model, two in the stereo. The equipment is normally supplied for rack mounting. Console cabinet and portable carrying case are optional.

### Exclusive Stereo-Phase Head Adjustment

Of particular interest to FM-stereo broadcasters, a Stereo-Phase Head Mounting Assembly allows three-axis alignment (azimuth, zenith, height) to minimize the out-of-phase components that cancel high frequencies when stereo tracks are mixed to mono.

### Pushbutton Operation

Operating controls consist of start, stop, fast forward and rewind.

### Tape Transport

The tape transport panel accommodates either 10½-inch or 7-inch reels. NAB 10½-inch reels and NAB hubs are available as options. Proper tape tension for 10½ or 7-inch reels is provided by a toggle switch. Tape equalization is automatically selected by a speed change switch.

### Velocity Brake System

The "velocity sensing brake system" provides velvet smooth braking action by use of large surface area brake hubs. A safety feature stops the transport mechanism in the event of tape breakage.

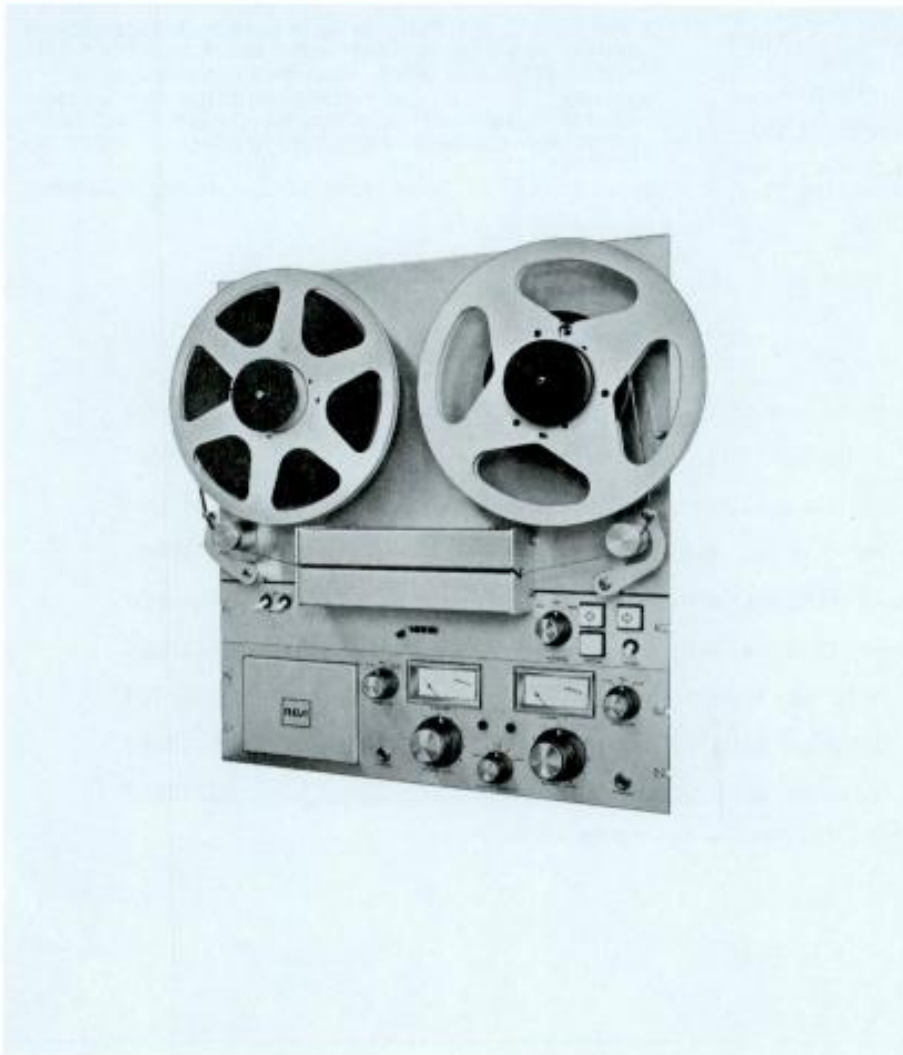
### Solenoid-Operated Tape Lifters

These lift the tape away from all magnetic heads whenever the machine is in the fast forward or rewind mode.



## Program Logger, Type RT-19

- Unattended logging and monitoring
- Solid-state components for high reliability
- Reel capacity—up to 307 hours with no reel turnover



The Type RT-19 Program Logger tape recorder is designed for continuous long-duration recording. It records and plays in both directions to equal performance specifications. The logger is especially useful in broadcasting where it can serve as a complete and accurate program log and monitor to assure compliance with FCC regulations.

### Four-Track System

The RT-19 makes four tracks available on quarter-inch tape, which may be used in a variety of ways. One channel of program material may be recorded on each of the four tracks in sequence, or four channels may be recorded simultaneously.

Since the basic mechanism is 4-track, a broadcast station with AM, FM and TV facilities can record the AM station on Track 1, FM on Track 2, TV on Track 3 and the 4th track can be used to record external time signals.

### Good Quality Monitoring

The modular solid-state electronics provides clear recording, high reliability and long, unattended operation. Even at the slowest speed of 5/16 ips, recorded voices are clear and sharp. The signal-to-noise ratio is better than 43 dB, flutter is low, and response is within 3 dB from 200 to 2700 Hz.

### Designed to Demands of Unattended Operation

The RT-19 is simple to operate. Accessibility is rapid; no point on the tape is more than 1½ to 3 minutes away. All electronic adjustments and operation are readily accessible from the front. It has such features as straight-line threading, automatic tape lifters, interlocked controls (which make it impossible to break or spill tape by improper control sequences), and editing and cueing versatility.

The modular, solid-state electronics provide quick plug-in replacement of any components requiring service. Extremely

high reliability in the transport is inherent in the basic design. The heavy-duty components and careful construction more than meet the continuous recording functions demanded of the equipment.

### Low Cost Operation

The RT-19 uses standard 10½-inch NAB reels and hubs, or EIA 7-inch plas-

tic reels. Low cost tape of 1 mil plastic base will provide nearly 154 hours of continuous recording and reproducing at a low tape cost. If extremely long unattended hours of recording are desired, 7200 feet of ½ mil tape on an NAB hub will provide over 300 hours of continuous logging (twelve 24-hour days, or seventeen 18-hour days).

### Rack or Console, Vertical or Horizontal Mounting

The RT-19 Logger Tape Recorder is designed for rack or console mounting or can easily be incorporated into custom installations demanding either horizontal or vertical mounting. Several models are available to provide the utmost flexibility.

### Specifications

Head and Track Configurations .....4 track, 1 channel, 2 channel, 4 channel and multiples thereof. Erase facility included on special order.

Overall Frequency Response .....15/16 ips: 200 Hz -8 kHz, ±3 dB; 15/32 ips: 200 Hz -4 kHz, ±3 dB; 5/16 ips: 200 Hz -2.7 kHz, ±3 dB. Adjustable level and equalization for each head, as well as bias and calibration adjustments

Signal-to-Noise Ratio .....43 dB min.

Total Unattended Time .....204 hours 48 min. at 15/32 ips w/triple-play tape; 307 hours 12 min. at 5/16 ips w/triple-play tape

Inputs ("XL" connectors) .....One per channel, -15 dBm sensitivity, 100k bridging. Provision for various plug-in units, such as 200-ohm adjustable 30-60 dB mic. preamplifier, balanced line bridging or matching transformers, etc.

Outputs ("XL" connectors) .....0, +4 or +8 dBm into 600 ohm balanced or unbalanced (per strapping). +25 dBm undistorted capability. Monitoring jacks included

Distortion (+8 dBm output) .....0.25% THD max.

Power Requirements (approx.) .....117 V, 50-60 Hz, 100 W

Tape Counter .....4 digit pushbutton reset on supply reel; returns to zero on reverse tape travel.

Size and Weight:  
 Transport .....19" x 15¾", 47 lbs. (482 x 400 mm, 21 kg)  
 Electronics .....19" x 5¼", 9 lbs. (428 x 133 mm, 4 kg)

Reel Size .....10½" NAB, or 7" EIA reels. Independent torque switches allow intermixed sizes

Tape Size and Tape Guides .....¼" (6 mm) wide, ½ mil to 1½ mil thickness, acetate or polyester base. Close tolerance guides provide accurate quarter-track guidance.

Tape Speeds and Playback Timing Accuracy .....Speed 15/16 ips, 15/32 ips, 5/16 ips. Accuracy within 1%

Wow and Flutter (rms) .....1% max.

Fastwind Time .....3600 feet (1097 m), approx. 100 seconds

Start Time .....1/10 sec. max.

Remote Control .....Designed for complete adaptability to any automation system

Capstan Control .....Solenoid actuated (externally controllable)

Brakes .....Fail-safe solenoid actuated Permaband design, for smoothness and predictable action. Solid-state control eliminates relays, tape feelers, etc.

Reversing .....Low current conductive tape contacts reliably trigger reversing circuit for completely automatic action and maximum unattended playing (or recording) time

Motors .....Three, long-life, ball-bearing suspended

### Ordering Information

RT-19 Logger Tape Recorder*, 1-channel, 4-track, automatic triple reverse, 5/16 ips, 60-Hz, 115 volt power .....	MI-141904-1
RT-19 Logger Tape Recorder*, 1-channel, 4-track, automatic triple reverse, 15/32 ips, 60-Hz, 115 volt power .....	MI-141904-2
RT-19 Logger Tape Recorder*, 1-channel, 4-track, automatic triple reverse, 15/16 ips, 60-Hz, 115 volt power .....	MI-141904-3
RT-19 Logger Tape Recorder*, 2-channel, 4-track, automatic reverse, 5/16 ips, 60-Hz, 115 volt power .....	MI-141905-1
RT-19 Logger Tape Recorder*, 2-channel, 4-track, automatic reverse, 15/32 ips, 60-Hz, 115 volt power .....	MI-141905-2
RT-19 Logging Tape Recorder*, 2-channel, 4-track, automatic reverse, 15/16 ips, 60-Hz, 115 volt power .....	MI-141905-3
RT-19 Logging Tape Recorder*, 4-channel, 4-track, one direction, 5/16 ips, 60-Hz, 115 volt power .....	MI-141906-1
RT-19 Logger Tape Recorder*, 4-channel, 4-track, one direction, 15/32 ips, 60-Hz, 115 volt power .....	MI-141906-2
RT-19 Logger Tape Recorder*, 4-channel, 4-track, one direction, 15/16 ips, 60-Hz, 115 volt power .....	MI-141906-3

\*For 220-volt operation use stepdown transformer (MI-141010-175). Specify 50-Hz recorder, if required.





## Cartridge Tape Players and Recorders, Types RT-125, RT-126, RT-127

- Mono and stereo units
- Play-only and record-play units
- Fast-forward facility available
- Independent head azimuth and height adjustments
- Air-cushion pinch roller solenoid

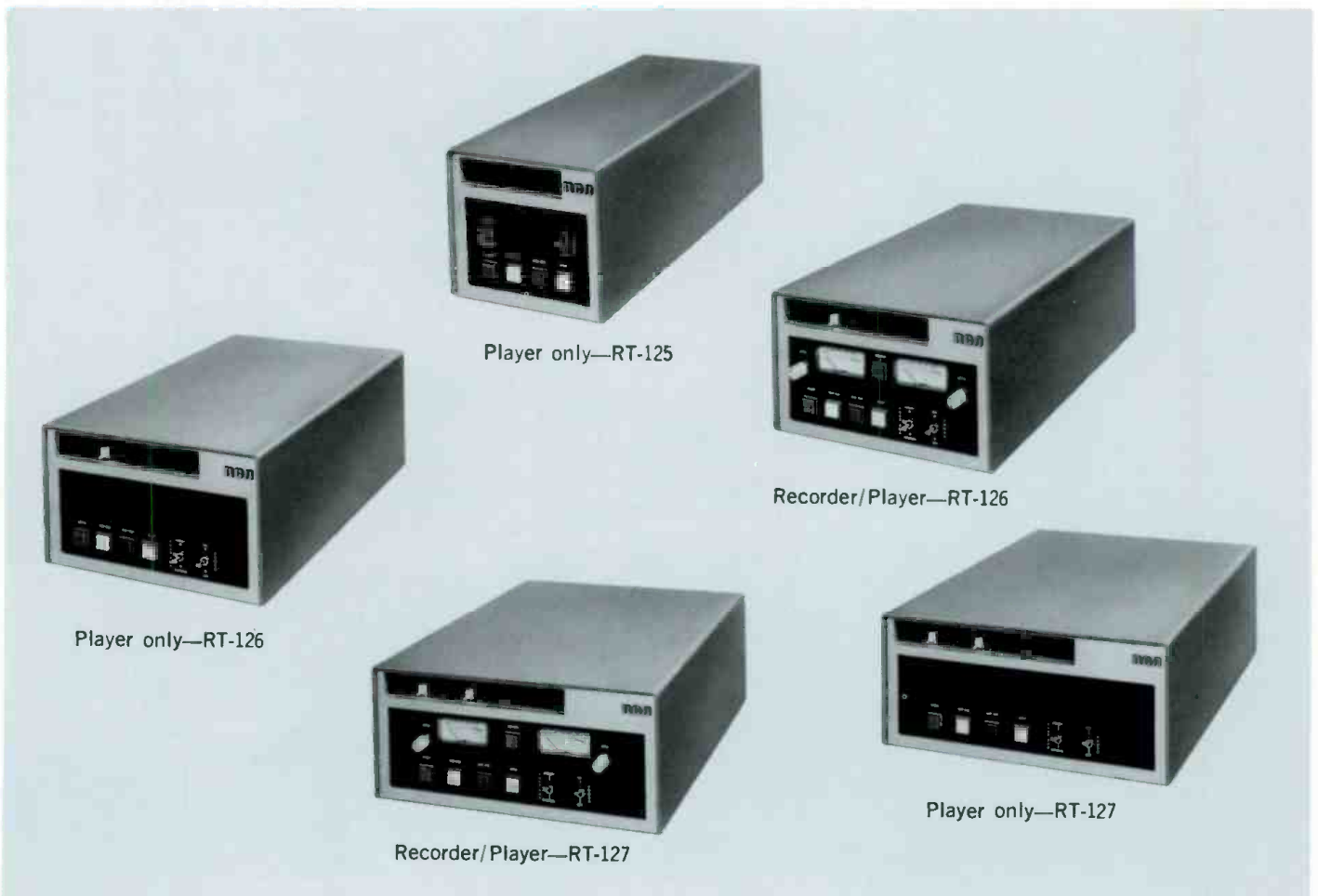
Here are three cartridge-tape machines for broadcast and other high-quality production facilities.

The RT-125 is a play-only unit for NAB Type A cartridges in mono or stereo. Three machines mount in 5¼ inches (133 mm), of equipment rack space.

The RT-126 handles NAB Type A and B cartridges and is available as a play-only or a record-and-play unit in mono or stereo. Two of these machines mount in only 5¼ inches (133 mm) of rack space.

The RT-127 handles all three NAB cartridges: Types A, B and C. It is available in play-only or record-and-play versions in mono or stereo.

These three basic machines, with the options offered, parlay into 140 individual units to satisfy essentially any cartridge-tape requirement.



The RT-125, -126 and -127 are newly designed cartridge-tape devices available for mono or stereo operations. In all, there are 140 distinctive units in the line. Each model offers a slightly different complement of features. The chart under *Ordering Information* delineates the differences.

The RT-125 is a play-only unit for NAB Type A cartridges. It is available in mono or stereo in seven versions which include a variety of extra facilities such as end-cue, trip-cue and fast-forward tape shuttle (See *Ordering Information*). The dimensions of the individual unit allow three units to fit in only 5¼ inches (133 mm) of rack space.

The RT-126 unit is a play-only unit or a record-play unit for Type A and B cartridges. It is available in mono or stereo in fourteen versions which pick up extra cue facilities and/or switching and fast-forward. The RT-126 occupies one half of the rack width to let two units fit in only 5¼ inches (133 mm) of rack space.

The RT-127 is essentially an RT-126 unit with the ability to play or record all three NAB cartridge series: A, B, C. This makes the cartridge recess larger which, in turn, enlarges the space requirement. The RT-127 occupies two thirds of rack width. The third section can be used for an RT-125 play unit or a blank panel, whichever is appropriate.

#### Optional Fast-Forward Mode

The fast-forward operational mode advances tape at three times normal speed. A three-position front-panel switch provides for "manual", "automatic" or "inhibit" operation of the fast-forward facility, if the option is included.

#### Self-Aligning Pinch Roller

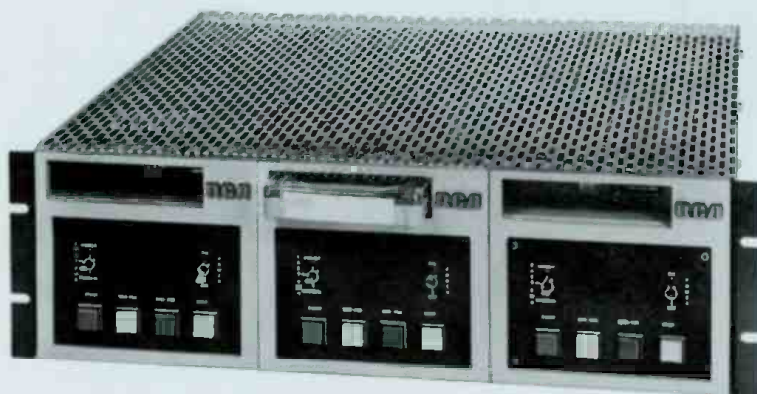
A special feature of the RT-125/-126/-127 tape transport system, head-alignment adjustments are such that head height and azimuth adjust without interaction. The self-aligning pinch roller uses an air-cushion solenoid action to eliminate mechanical "cocking" and improve reliability.

#### Entirely Solid State Logic and Switching

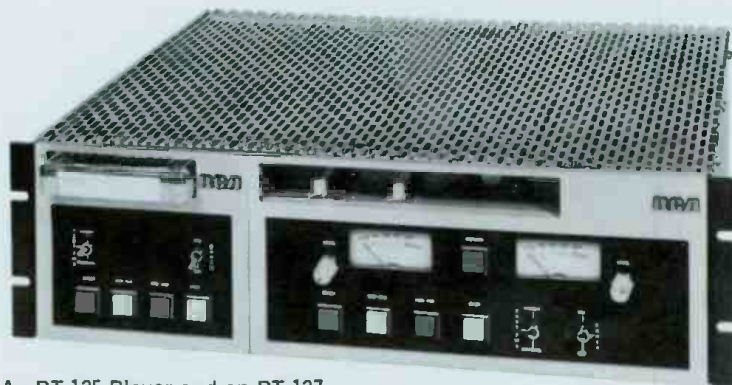
All amplifiers, logic electronics and switching systems are entirely solid state. (except for a fast-forward motor relay). This increases reliability and reduces maintenance by eliminating electro-mechanical relays.

#### Expandable Design

All units in the RT-125/-126/-127 product line are field-expandable to include



Three RT-125 Players in rack shelf (See "Accessories".)



An RT-125 Player and an RT-127 Recorder/Player in rack shelf.



Two RT-126 Recorder/Players in rack shelf. Note access to panel wiring and components.

most facilities not factory installed. For example, a unit originally purchased without end cue and/or trip cue can be modified — in the field — to include these functions. Changeover is a mere matter of circuit-board interchange which takes but a few minutes. This expandability, however, doesn't apply to the fast-forward facility or the audio mute option which are factory options only.

### Wired for Sequential Operation

Multi-unit, self-sequencing arrangements are provided for in the design of the RT-125/-126/-127. Terminal strips (in-

ternal) allow unit interconnection for sequential operation.

### Noiseless Operation

Since cart-tape machines often operate in close proximity to on-air mikes, the RT-125/-126/-127 are noiseless at all stages of operation.

### Integrated-Circuit Tone Generator

The cue-tone generators in the RT-126 and RT-127 record-and-play units are high-purity oscillator circuits using integrated circuits. Under normal use, these

circuits should require no maintenance for the life of the machine.

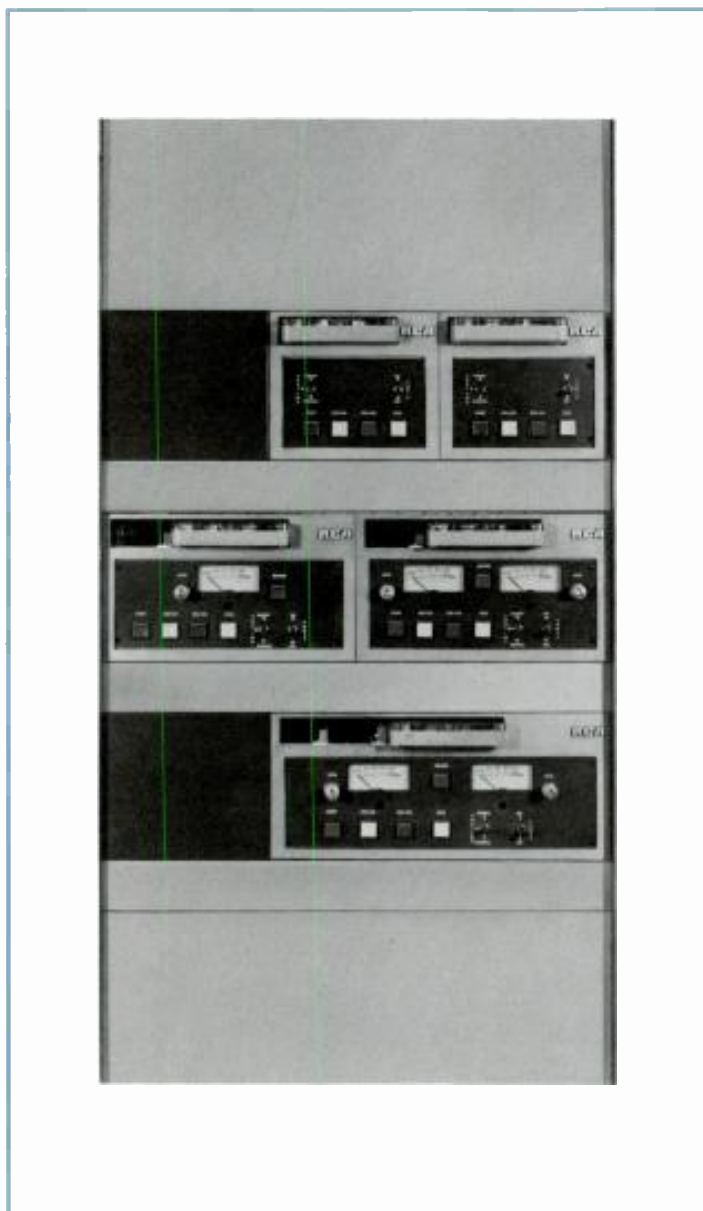
The stop-cue sensor employs a wideband detector to assure cue function, even in fast-forward mode.

End-cue and trip-cue can be recorded at anytime during play or record in a unit so equipped.

### Automatic Audio Mute

Offered as an option, the audio output of each unit can be muted to prevent extraneous material from going on the line.

Typical rack setup of RT-125/-126/-127 machines  
Blank panels (See "Accessories") fill in empty spaces.



Record/playback Equalization	NAB Standard <sup>1</sup>
Tape Velocity	7.5 in/s (190.5 mm/s)
Timing Accuracy (7.5 in/s)	0.1%
Frequency Response (400 Hz ref):	
50-15,000 Hz	±2 dB
30-18,000 Hz	±4 dB
Distortion:	
Playback only (50-15,000 Hz) <sup>2</sup>	0.5 % THD
Record/Play (NAB Ref + 8 dB, 400 Hz, 3M156 Tape)	3% max.
Signal/Noise Ratio <sup>3</sup>	50 dB stereo; 55 dB mono
Wow and Flutter (Unweighted)	0.2% rms max.
Crosstalk (Magnetic head limited):	
Cue channel to program channel:	
1500 Hz	-50 dB max.
1000 Hz	-55 dB max.
8000 Hz	-50 dB max.
Input Impedance:	
Program <sup>4</sup> (Bal. or Unbal.)	Eight times 150/600 ohm source
Microphone (When included)	37/150/250 ohms bal.
Input level:	
Program	-20 to +8 dB
Microphone	-50 to -26 dBm
Output Impedance (Balanced)	600/150 ohms <sup>5</sup>
Output Level (400 Hz NAB Standard)	+8 dBm
Bias Oscillator Frequency	100 kHz
Fast-Forward Tape Velocity	22.5 in/s (1171 mm/s)
Ambient Operating Temperature	0 to 55°C
Tape Start/Stop Time	0.1s max.
Tape Pull Force	1.5 lbs (700g) min.
Power Requirements	105-125/210-230V, 50 or 60 Hz <sup>6</sup> , 80W max.
Dimensions (Approx.):	
RT-125	5¼" H; 5⅞" W; 17" D (133, 149, 432 mm)
RT-126	5¼" H; 8¾" W; 17" D (133, 222, 432 mm)
RT-127	5¼" H; 11¾" W; 17" D (133, 298, 432 mm)
Weight:	
RT-125	22 lbs. (10 kg)
RT-126	25 lbs. (11 kg)
RT-127	27 lbs. (12 kg)

<sup>1</sup> CCIR Standards optional.

<sup>2</sup> Using loop-injection measurement techniques.

<sup>3</sup> Below 400 Hz at 3% THD level, 3M156 Tape, 20-20,000 Hz, 58 dB S/n ratio, tape standing still; 50 dB, tape still. 5 machines in parallel.

<sup>4</sup> Bridging input (20K ohms) available. See "Accessories".

<sup>5</sup> Restrapping required for 150 ohms.

<sup>6</sup> Motor speed synchronous to line frequency. Use 60 Hz units on 60 Hz power only; 50 Hz units on 50 Hz only.



**Accessories**

High Level Isolation Input Transformer .....	MI-141717
Test and Maintenance Cartridges	
Head-Cleaner Cartridge .....	MI-141808
Torque-Test Cartridge .....	MI-141809
Speed-Test Cartridge .....	MI-141810
Azimuth Alignment & Freq. Response Test .....	MI-11993-4
Bulk Tape Eraser .....	MI-11992
Tape Head Degausser (117V) .....	MI-11995
Tape Head Degausser (230V) .....	MI-11996
Splice Finder/Bulk Eraser, Type SFE-1/2 .....	MI-141036-1/2
Tape Cartridges .....	MI-11988 or MI-141988
Kit, Alignment Tools .....	MI-141732

Desk-Top Cabinet for:	
RT-125 .....	MI-141721
RT-126 .....	MI-141722
RT-127 .....	MI-141723
Rack Shelf for:	
RT-125/126/127 .....	MI-141725
Blank Panels:	
One-Third Rack Width .....	MI-141728
One-Half Rack Width .....	MI-141729
Four-Unit Remote Control ("Start" Control) .....	MI-141726
Five-Button Remote Control (Record/Play) .....	MI-141727
Extender Board .....	MI-141731

**Ordering Information**

	CATALOG NUMBER		EXTRA FACILITIES <sup>1</sup>				CATALOG NUMBER	
	60 Hz	50 Hz	E/Q	T/Q	A/S	F/F	60 Hz	50 Hz
	<b>RT-125 MONO</b>		<b>PLAY-ONLY MACHINES</b>				<b>RT-125S STEREO</b>	
Plays Type 300 Cartridges ONLY	ES-141750-1 ES-141750-2 ES-141750-3 ES-141750-4 ES-141750-5 ES-141750-6 ES-141750-7	ES-141750-8 ES-141750-9 ES-141750-10 ES-141750-11 ES-141750-12 ES-141750-13 ES-141750-14	x x x x x x	x x x	x x x	x x	ES-141751-1 ES-141751-2 ES-141751-3 ES-141751-4 ES-141751-5 ES-141751-6 ES-141751-7	ES-141751-8 ES-141751-9 ES-141751-10 ES-141751-11 ES-141751-12 ES-141751-13 ES-141751-14
	<b>RT-126 MONO</b>		<b>PLAY-ONLY MACHINES</b>				<b>RT-126S STEREO</b>	
Plays Types 300 and 600 Cartridges	ES-141752-1 ES-141752-2 ES-141752-3 ES-141752-4 ES-141752-5 ES-141752-6 ES-141752-7	ES-141752-8 ES-141752-9 ES-141752-10 ES-141752-11 ES-141752-12 ES-141752-13 ES-141752-14	x x x x x x	x x	x x	x x	ES-141753-1 ES-141753-2 ES-141753-3 ES-141753-4 ES-141753-5 ES-141753-6 ES-141753-7	ES-141753-8 ES-141753-9 ES-141753-10 ES-141753-11 ES-141753-12 ES-141753-13 ES-141753-14
	<b>RT-127 MONO</b>		<b>PLAY-ONLY MACHINES</b>				<b>RT-127S STEREO</b>	
Plays Types 300, 600 and 1200 Cartridges	ES-141756-1 ES-141756-2 ES-141756-3 ES-141756-4 ES-141756-5 ES-141756-6 ES-141756-7	ES-141756-8 ES-141756-9 ES-141756-10 ES-141756-11 ES-141756-12 ES-141756-13 ES-141756-14	x x x x x x	x x	x x	x x	ES-141757-1 ES-141757-2 ES-141757-3 ES-141757-4 ES-141757-5 ES-141757-6 ES-141757-7	ES-141757-8 ES-141757-9 ES-141757-10 ES-141757-11 ES-141757-12 ES-141757-13 ES-141757-14
	<b>RT-126R MONO</b>		<b>RECORD-AND-PLAY MACHINES</b>				<b>RT-126SR STEREO</b>	
Plays and Records <sup>2</sup> Types 300 and 600 Cartridges	ES-141754-1 ES-141754-2 ES-141754-3 ES-141754-4 ES-141754-5 ES-141754-6 ES-141754-7	ES-141754-8 ES-141754-9 ES-141754-10 ES-141754-11 ES-141754-12 ES-141754-13 ES-141754-14	x x x x x x	x x	x x	x x	ES-141755-1 ES-141755-2 ES-141755-3 ES-141755-4 ES-141755-5 ES-141755-6 ES-141755-7	ES-141755-8 ES-141755-9 ES-141755-10 ES-141755-11 ES-141755-12 ES-141755-13 ES-141755-14
	<b>RT-127R MONO</b>		<b>RECORD-AND-PLAY MACHINES</b>				<b>RT-127SR STEREO</b>	
Plays and Records <sup>2</sup> Types 300, 600 and 1200 Cartridges	ES-141758-1 ES-141758-2 ES-141758-3 ES-141758-4 ES-141758-5 ES-141758-6 ES-141758-7	ES-141758-8 ES-141758-9 ES-141758-10 ES-141758-11 ES-141758-12 ES-141758-13 ES-141758-14	x x x x x x	x x	x x	x x	ES-141759-1 ES-141759-2 ES-141759-3 ES-141759-4 ES-141759-5 ES-141759-6 ES-141759-7	ES-141759-8 ES-141759-9 ES-141759-10 ES-141759-11 ES-141759-12 ES-141759-13 ES-141759-14

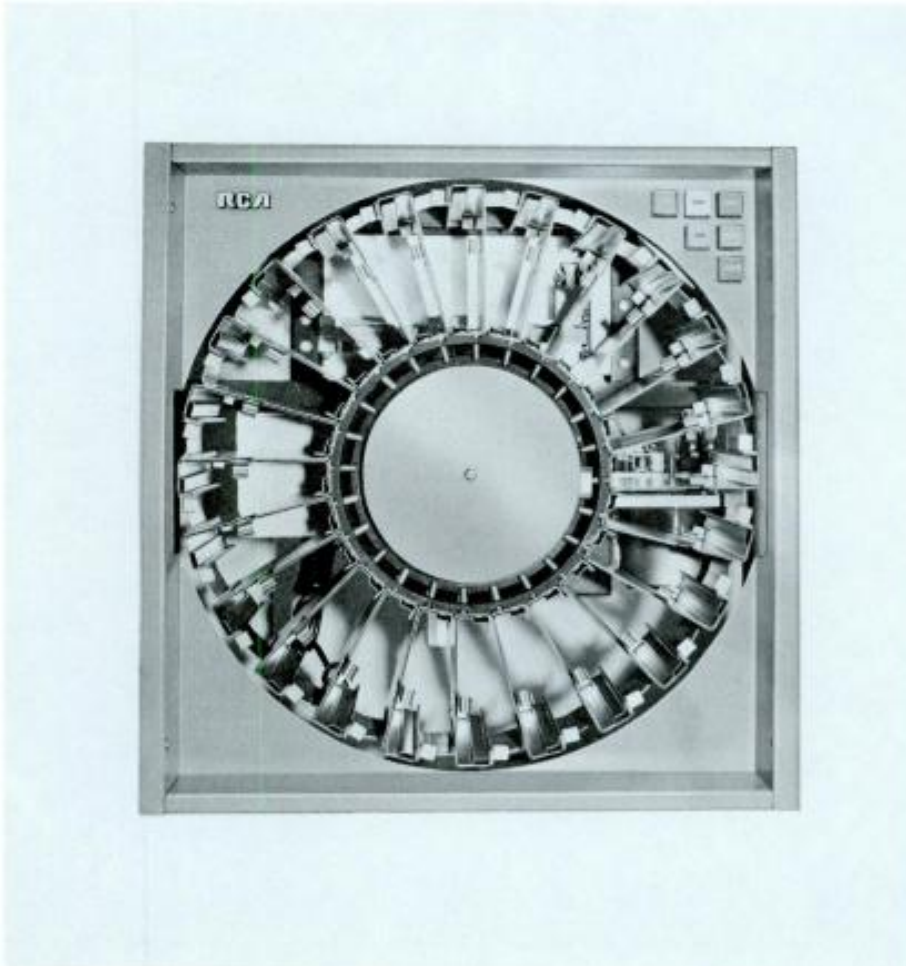
<sup>1</sup>All units include start-stop cue facilities. "E/Q" is End-Cue; "T/Q" is Trip Cue; "A/S" is Audio Switch; "F/F" is Fast-Forward facility.  
<sup>2</sup>Balanced high-level input. Isolation transformer optional, see Accessories. To specify mike input, suffix catalog number with "/P" thus: MI-141759-7/P.





## Cartridge Tape Carousel,\* Type RT-25

- Random or sequential cartridge-tape playback
- Modular, solid-state electronics
- Unique, 24-cartridge "carousel" transport
- Excellent performance with very low distortion and noise



The Type RT-25 Cartridge Tape Carousel is a convenient, reliable, cartridge-tape playback system for low-cost, automation programming. The carousel stores up to 24 pre-recorded cartridge tapes in its drum; two or more carousels can be used back-to-back for multiple-spot announcements.

### High Performance Audio

The carousel is compatible with any automation system, whether manually or remotely controlled. Reliable, solid-state electronics provide excellent performance with low distortion and noise. The frequency response is from 50 to 12,000 hertz  $\pm 1.5$  dB with an audio-output level (NAB reference-level tape) of +4 dBm at 600 ohms.

### Sequential or Random-Select

Stereo or mono carousels are available for either sequential or random-select operation. The sequential carousel (when cued to the beginning of the endless tape loop), stops the tape drive and automatically removes the cartridge from the playing position, moves to the next cartridge and inserts it, ready for a "start" command. This sequence is repeated each time a cartridge is played. The carousel has start-stop cue (1000 Hz) and end-of-message cue (150 Hz) tone to start other units. The 150-Hz tone is pre-recorded at the end of a program segment and, when played back, is sensed by circuits in the carousel to switch additional units.

A 50-event programmer (see *Accessories*) is available to provide random selection of any of the 24 cartridges. Automatic switching of audio output circuits is provided as well as selective starting of other carousels in a group where the 150-Hz cue tone feature is utilized.

The RT-25 Carousel system has few moving parts and single-cam adjustment of index stops. Its unique transport makes all cartridge trays accessible without revolving the drum, and simplifies operation and routine maintenance. The transport handles unbalanced cartridge loads and aligns a cartridge precisely with the stationary transport. The cartridge tape transport is solenoid operated and has many refinements: fine pressure-roller adjustment, adjustable cross shaft, a hysteresis-synchronous capstan motor, and ball thrust roller.

\*Sono-Mag Corp. trademark.

## Vernier Head Holder

Another feature of the RT-25 playback system is the vernier head holder. Design features here include: vernier adjustment of head azimuth, tape-guide adjustment (before and after heads), vernier adjustment of head-tape parallelism, cartridge

hold-down springs, positive cartridge location, complete head shielding, and upper and lower jacks for track identification.

The RT-25 is designed for 7½ ips operation, with fast start and stop time,

and quick cartridge-transfer. The RT-25 operates from an ordinary 115-volt, 60-Hz (50 Hz on special order) power source. The equipment mounts in standard 19-inch equipment racks. Three carousels can be housed in a 66-inch high rack.

## Specifications

Frequency Response .....	50-12,000 Hz, ±1.5 dB
Signal-to-Noise (overall record/playback from NAB Reference Level) .....	48 dB (55 dB Ref. 3% THD)
Distortion (0 dBm output) .....	1%, max.
Audio Output Level (NAB Reference Level tape, 600-ohm output) .....	±4 dBm
Wow and Flutter .....	0.2% rms max.
Time Capacity .....	10 sec. to 10½ mins. per cartridge
Tape Drive Control .....	Common motor-capstan, hysteresis-synchronous operation with precision instrument type ball bearings
Speed .....	7½ ips (in/s or 190.5 mm/s)
Timing Accuracy .....	99.9%
Start Time .....	0.1 s.
Stop Time .....	0.1 s.
Cartridge Transfer Time (plus re-cueing time) .....	1.75 s., min.
Size .....	19¼" H, 19" W, 17" D (489 x 483 x 432 mm)
Weight (approx.) .....	90 lbs. (41 kg)
Power Requirements .....	115V, 60Hz, 0.8W idle, 31W standby, 62W run
Shipping Data:	
Dimensions (approx.) .....	22" H, 22" W, 19" D (559 x 559 x 483 mm)
Weight (approx.) .....	115 lbs. (52 kg)

## Accessories

Fifty-Event Programmer (for Automation) .....	MI-141923
Interface Assembly (for above) .....	MI-141924
Step-Down Transformer (234 to 117 V.) .....	MI-141010-125
Head Cleaner Cartridge .....	MI-141808
Torque-Test Cartridge .....	MI-141809
Strobe Cartridge (for Speed Testing) .....	MI-141810
Azimuth Alignment & Freq. Resp. Cartridge (Mono) .....	MI-11993-4

## Ordering Information

Cartridge Tape Carousel, Type RT-25:

Mono Systems

With Random Cartridge Selection .....	MI-141901
With Sequential Action .....	MI-141911

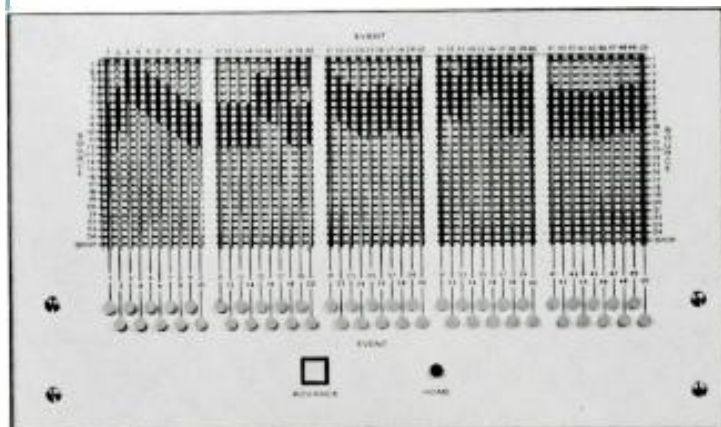
Stereo Systems

With Random Cartridge Selection .....	MI-141900
With Sequential Action .....	MI-141910

(Available also for operation from 115V, 50Hz power. For operation from 230V power, order MI-141010-125 Stepdown Transformer for each Carousel system.)



The RT-25 Carousel is compatible in any automation system. Two Carousels provide "back to back" multiple instantaneous spot announcements.



Fifty-Event Carousel Programmer



catalog AU.8900A

(Replaces B.1763)

## Tape Recorder Accessories

- Pre-loaded and empty cartridges
- Head-cleaner and test cartridges
- Bulk erasers; head degaussers
- Remote control panels
- Spare decks, amplifiers, relays

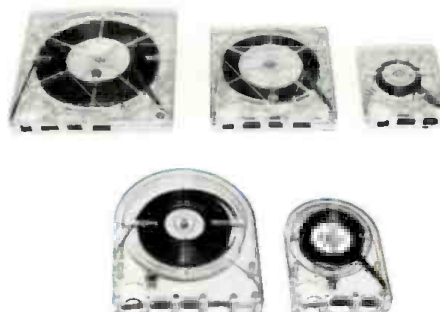
Here are a series of accessories appropriate to magnetic-tape operations: cartridges, tape bulk erasers, head degaussers, test cartridges, remote control panels and spare assemblies.





## Tape Cartridges

Cartridges, empty or loaded, for use with the RCA Tape Cartridge Systems are available in playing times ranging from 40 seconds to more than a half hour. Each cart includes pressure pads and an automatic brake that prevents tape spillage when the cartridge is outside of the cartridge machine. Tape lengths other than those listed are available on special order. The tape is one-mil thick polyester base, back-lubricated for smooth cartridge performance. Two styles are available: "Fidelipac" and "Marathon".



### Specifications

#### Series 300 "Fidelipac" Cartridges

Play Time at 7.5 ips (in/s) .....40 s to 10.5 min.  
 Dimensions .....4" W, 5½" L, 7/8" D (102, 130, 22 mm)  
 Weight (empty) .....2.75 oz. (78 g)  
 Carts per Package .....6  
 Package Weight .....See Ordering Information

#### Series 300 "Marathon" Cartridges

Play Time at 7.5 ips (in/s) .....40 s to 10.5 min.  
 Dimensions .....4" W, 5½" L, 7/8" D (102, 130, 22 mm)  
 Weight (empty) .....3 oz. (85 g)  
 Carts per Package .....6  
 Package Weight .....See Ordering Information

#### Series 600 "Fidelipac" Cartridges

Play Time at 7.5 ips (in/s) .....16 min. max.  
 Dimensions .....6" W, 7" L, 7/8" D (152, 178, 22 mm)

Weight (3 oz. empty) .....10 oz. (284 g)  
 Carts per Package .....2  
 Package Weight .....1.5 lbs. (680 g)

#### Series 600 "Marathon" Cartridges

Play Time at 7.5 ips (in/s) .....16 min. max.  
 Dimensions .....6" W, 7" L, 7/8" D (152, 178, 22 mm)  
 Weight (3 oz. (85 g) empty) .....10 oz. (284 g)  
 Carts per Package .....2  
 Package Weight .....1.5 lbs. (680 g)

#### Series 1200 "Fidelipac" Cartridges

Play Time at 7.5 ips (in/s) .....31 min. max.  
 Dimensions .....7½" W, 8¾" L, 7/8" D (194, 212, 22 mm)  
 Weight (4 oz. empty) .....13 oz. (370 g)  
 Carts per Package .....2  
 Package Weight .....32 oz. (907 g)

### Ordering Information

#### Fidelipac Cartridges

Play Time	Series	Weight	Package Weight	Stock ID
40 s.	300	3 oz. (85 g)	1¼ lbs. (567 g)	MI-11988-1
70 s.	300	3½ oz. (99 g)	1½ lbs. (680 g)	MI-11988-2
2.5 min.	300	4 oz. (114 g)	1¾ lbs. (794 g)	MI-11988-11
3.5 min.	300	4 oz. (114 g)	1¾ lbs. (794 g)	MI-11988-3
5.5 min.	300	4½ oz. (128 g)	2 lbs. (907 g)	MI-11988-4
10.5 min.	300	5½ oz. (156 g)	2¼ lbs. (1021 g)	MI-11988-5
15.5 min.	600	10 oz. (284 g)	1½ lbs. (680 g)	MI-11988-6
31 min.	1200	13 oz. (370 g)	2 lbs. (907 g)	MI-11988-7
Empty	300	3 oz. (85 g)	1½ lbs. (510 g)	MI-11988-8
Empty	600	3 oz. (85 g)	1¼ lbs. (567 g)	MI-11988-9
Empty	1200	4 oz. (114 g)	10 oz. (284 g)	MI-11988-10

#### Marathon Cartridges

40 s.	300	3 oz. (85 g)	1¼ lbs. (567 g)	MI-141988-1
70 s.	300	3½ oz. (99 g)	1½ lbs. (680 g)	MI-141988-2
90 s.	300	3½ oz. (99 g)	1½ lbs. (680 g)	MI-141988-3
2.5 min.	300	4 oz. (114 g)	1¾ lbs. (794 g)	MI-141988-4
3.5 min.	300	4 oz. (114 g)	1¾ lbs. (794 g)	MI-141988-5
5.5 min.	300	4½ oz. (128 g)	2 lbs. (907 g)	MI-141988-6
7.5 min.	300	4½ oz. (128 g)	2 lbs. (907 g)	MI-141988-11
10.5 min.	300	5½ oz. (156 g)	2¼ lbs. (1021 g)	MI-141988-7
15.5 min.	600	10 oz. (284 g)	1½ lbs. (680 g)	MI-141988-8
Empty	300	3 oz. (85 g)	1½ lbs. (510 g)	MI-141988-30
Empty	600	3 oz. (85 g)	1¼ lbs. (567 g)	MI-141988-60

### Test Cartridges

#### Azimuth Alignment and Frequency Response Test

Useful whenever tape head alignment requires adjustment, this Series 300 cartridge is recorded in mono format (two-track). It provides recorded tones for head-height and azimuth adjustment, a series of tones for frequency-response test and a series of tones for cue, trip-cue and stop-cue. Not available in stereo format.

### Specifications

Head-Azimuth Adjustment Track .....15 kHz  
 Head-Height Adjustment Frequency .....400 Hz

Frequency-Response Test Frequencies .....15, 10, 12, 10, 7, 4, 2, 1 kHz; 700, 400, 200, 100, 50 Hz (All recorded 10 dB below normal "zero" level)

#### Cue-Facility Test:

Cue .....One 1 kHz tone  
 Stop-Cue (End-Cue) .....Three 150 Hz tones  
 Trip Cue .....Three 8 kHz tones  
 Length of Test Recording (approx.) .....3:30

### Ordering Information

Azimuth Alignment & Frequency Response Test Cart (Mono only) .....MI-11993-4



**Head Cleaner Cartridge**

Provides 20 seconds of automatic, programmed head cleaning and conditioning. At the end of the cycle, a pre-recorded 1000 Hz cue tone stops the tape.



**Specifications**

Cleaning and Conditioning Program (20 seconds total):	
Mild Abrasive Action (silicon carbide) .....	5s
Head Lubrication .....	5s
Head Polishing .....	5s
Final Head Lubrication .....	5s
Automatic Stop .....	Pre-recorded cue tone

**Ordering Information**

Head Cleaner Cartridge .....MI-141808

**Torque-Test Cartridge**

Valuable in determining and adjusting the tape-pulling torque of cartridge-tape machines, the Torque-Test Cartridge fits into the machine in the normal manner. As the capstan and pinch roller pull tape, the force is displayed on a calibrated scale in the cartridge. If the pulling force is more or less than the 1.5 lb. NAB spec., the pinch roller pressure should be re-adjusted.



**Ordering Information**

Torque-Test Cartridge .....MI-141809

**Speed-Test Cartridge**

The Speed-Test Cartridge contains 50- and 60-Hz strobe discs that indicate the speed accuracy of cartridge-tape machines when viewed under the supplied strobe lamp (lamp for 115-volt operation only).



**Ordering Information**

Speed-Test Cartridge (50 and 60 Hz) .....MI-141810

**Tape Head Degausser**

The Tape Head Degausser demagnetizes record/playback and erase heads. The degausser is housed in a lightweight hand-grip case. A momentary-contact on-off pushbutton switch energizes the unit.



**Specifications**

Power Requirements .....	117 or 230 V, 50/60 Hz
Switch .....	Momentary contact
Line Cord .....	5 ft. long (1.52 m)
Dimensions (Overall) .....	9 <sup>7</sup> / <sub>8</sub> " L, 7 <sup>1</sup> / <sub>8</sub> " Dia. (251, 22 mm)
Weight .....	9 oz. (250 g)

**Ordering Information**

Cartridge Tape Head Degausser (117 V, 50/60 Hz) .....MI-11995  
 Cartridge Tape Head Degausser (230 V, 50/60 Hz) .....MI-11996

**Bulk Tape Eraser**

A bulk tape eraser provides erasure of any 1/4-inch recorded reel of tape or tape cartridge. It is housed in a brown plastic, hand-grip case measuring only 4<sup>7</sup>/<sub>8</sub> (124 mm) inches in diameter and 4<sup>3</sup>/<sub>4</sub> (121 mm) inches high overall. A momentary-contact, on-off pushbutton switch prevents current being applied when not in use.



**Ordering Information**

Bulk Tape Eraser (117 V, 50/60 Hz) .....MI-11992

**Circuit Boards for RT-8/-17/-18/-27/-27S/-37**

The circuit boards are offered for service replacements and/or equipment expansion. Limited quantities.

**Ordering Information**

Power Supply Board .....	MI-11974-1
Cue Amplifier Board .....	MI-11974-3
Bias and Cue-Tone Board .....	MI-11974-5
Record Amplifier Board .....	MI-11974-6

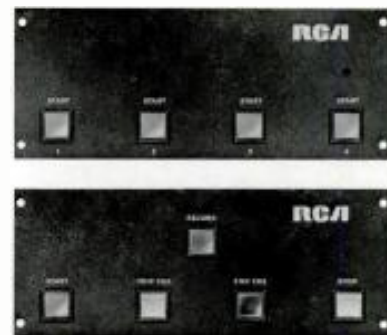
**Remote Control Panels for RT-125/-126/-127**

The Remote Control Panels provide convenient means for operating from one to four cartridge-tape playback units via remote control. Four momentary "Start" pushbuttons are mounded on an aluminum panel for control of up to four playback units.

Remote control of a single record/playback cartridge tape system is provided by another Remote Control Panel. Parallel operational functions of the system are controlled through five pushbutton switches, labelled "Start", "Record", "Stop", "End Cue" and "Trip Cue".

**Specifications**

Dimensions .....	2 <sup>1</sup> / <sub>2</sub> " H, 6" W, 2-13/16" D (89, 152, 72 mm)
Weight .....	1/2 lb. (250 g)
Finish .....	Dark umber gray



**Ordering Information**

Remote Control Panel for up to four RT-125, RT-126 and RT-127 Playback Units .....MI-141726  
 Remote Control Panel for single record/playback systems .....MI-141727

### Plug-In Relays for RT-17/-27/-27S/-37

Stocked as spares, these relays minimize machine down time in the event of relay failure. Limited quantities.

#### Ordering Information

Two Form-C Relay .....	MI-141800-1
Four Form-C Relay .....	MI-141800-2
Six Form-C Relay .....	MI-141800-3

### Reel-To-Reel Recorder Accessories (RT-20, RT-21)

The accessories listed are unique to reel-to-reel recorders and specifically to the RCA reel-to-reel machines. Each accessory fits both systems, unless stated otherwise.

#### Ordering Information

NAB Reel Hub .....	MI-41604
Empty 10½-inch NAB Reel .....	MI-11932-2
Remote-Control Panel (for RT-21 only) .....	MI-141301
Remote-Control Panel Housing .....	MI-141308
Spare Record/Play Amplifier Module (RT-21 only less equalizer) .....	MI-141351
Plug-In Equalizer (for half-track 3¾ & 7½ ips) .....	MI-141350-1
Plug-In Equalizer (for half-track 7½ & 15 ips) .....	MI-141350-2
Plug-In Equalizer (for full-track 7½ & 15 ips) .....	MI-141350-3
Plug-In Equalizer (for full-track 3¾ & 7½ ips) .....	MI-141350-4
Portable Carrying Case .....	MI-141302
Console Cabinet .....	MI-141303
Fourth-Head Kit .....	MI-41602
Stereo Head-Mounting Kit .....	MI-141325

### Step-Down Transformers

For situations where 115-volt tape equipment must operate from 200 to 240-volt power mains, RCA offers step-down transformers selected specifically for each tape machine. For 50/60 Hz power.

#### Ordering Information

230/115-Volt Step-Down Transformer for Types:	
RT-19 .....	MI-141010-175
RT-25 .....	MI-141010-125

### Spare Modules for RT-125/-126/-127 Cart Tape Units

Modules for service replacements and/or equipment expansion.

#### Ordering Information

Mono Playback Amplifier Module .....	MI-141710-1
As Above plus Audio Switcher Module .....	MI-141710-2
Stereo Playback Amplifier Module .....	MI-141711-1
As Above plus Audio Switcher Module .....	MI-141711-2
Stop-Cue Module, 1000 Hz .....	MI-141712-1
As Above plus 150 Hz End-Cue Module .....	MI-141712-2
As Above plus 8000 Hz Trip-Cue Module .....	MI-141712-3
Mono Playback Logic Module .....	MI-141713-1
As Above plus Audio Switcher Module .....	MI-141713-2
As Above plus Fast-Forward Module .....	MI-141713-4

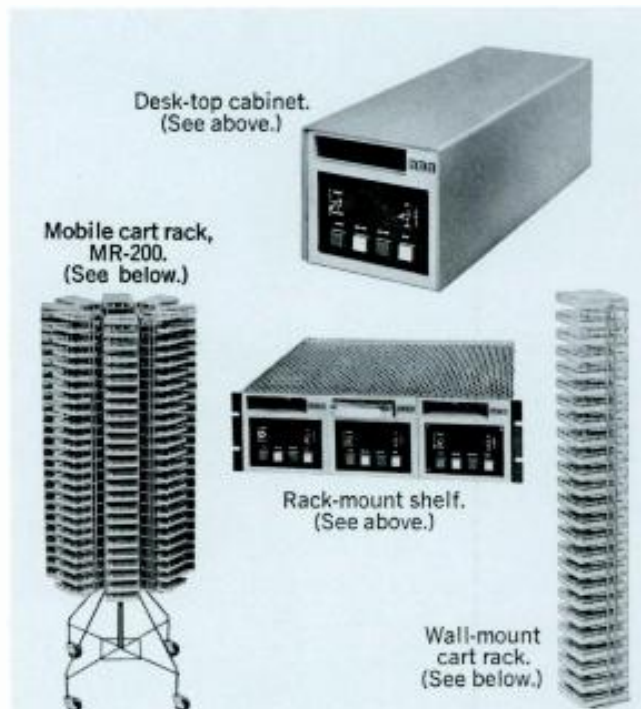
Stereo Playback Logic Module plus Switcher Module .....	MI-141713-3
As Above plus Fast-Forward Module .....	MI-141713-5
Record Logic Module with Stop-Cue Module .....	MI-141714-1
As Above plus End-Cue Module .....	MI-141714-2
As Above plus Trip-Cue Module .....	MI-141714-3
Mono Record Amplifier with High-Level Input .....	MI-141715-1
As Above but with Microphone Preamplifier .....	MI-141715-2
Stereo Record Amplifier with High-Level Input .....	MI-141716-1
As Above but with Microphone Preamplifier .....	MI-141716-2

### Accessories for RT-125/-126/-127 Cart Tape Units

Rack shelves, cabinets and miscellaneous items for use with RT-125, -126 and RT-127 cart tape units.

#### Ordering Information

Rack-Mount Shelf .....	MI-141725
(Holds three RT-125; two RT-126 or two RT-127 units)	
Blank Fill Panel, One-Third Rack Width .....	MI-141728
As Above but One-Half Rack Width .....	MI-141729
Desk-Top Cabinet, for RT-125 .....	MI-141721
As Above but for RT-126 .....	MI-141722
As Above but for RT-127 .....	MI-141723
Fast-Forward Relay, Plug-In .....	MI-141718
Module Extender .....	MI-141731
High-Level Input Transformer .....	MI-141717
Heavy-Duty Cue Relay and Panel .....	MI-141720



### Tape Cartridge Storage Racks

Wall-mount and mobile tape-cartridge racks fabricated of welded, heavy-gauge wire. Each wall rack holds 25 Type A cartridges. Mounting bracket included. The mobile rack holds 200 Type A cartridges.

#### Ordering Information

Wall-Mount Cart Rack, Type WR-25 .....	MI-141039
Mobile Cart Rack, Type MR-200 .....	MI-141041
Mobile Rack Base (Racks not included), Type MRB-1 .....	MI-141040

**RCA**

catalog AU.8910A

## Cartridge-Tape Splice Finder and Bulk Eraser, Type SFE-1, SFE-2

- Senses splice and cues it beyond capstan
- Handles all three cart sizes
- Senses splice by tape thickness—  
regardless of recording
- Built-in bulk eraser
- Adjustable sensitivity—  
senses tape fractures and tears

The SFE-1 and SFE-2 are time-savers wherever NAB cartridge tapes are recorded. The units locate the tape splice in cartridges in a way that reduces the possibility of inadvertent recording of either program or cue tones on the tape at the splice point. As an extra convenience, the units include manually operated bulk erasers that remove essentially all traces of recorded program and cue signals in a few seconds.



The Type SFE-1 and SFE-2 are devices most useful wherever NAB-type cartridges are recorded. It searches out and locates the tape splice at a point downstream of the capstan. With the splice so located, it is essentially impossible to record on the splice. This, in turn, eliminates the familiar program discontinuity a recorded splice almost always causes.

The SFE-1 and -2 include convenient bulk erasers interlocked with the search mechanism in such a way that the eraser cannot operate while the splice finder mechanism works. This eliminates the possibility of erasure of a recorded message on the cartridge in the finder. The eraser operates in the familiar manner with a rocker-type on-off switch.

#### Handles All NAB Cartridge Sizes

In operation, the splice finder accepts the cartridge—any NAB size—in much the

same manner as does a cart player. Once the cart is seated, the machine rolls tape at 15 in/s (381 mm/s). It senses the splice by monitoring tape thickness. Once the splice is located, the machine places it about an inch (25 mm) downstream of the capstan, stops the tape and ejects the cart. The time required for all of this depends on the location of the splice at the start of the search. The shortest possible time the SFE can sense a splice is approximately one second. Other anomalies in the tape such as tears and rough edges can also be located.

#### Adjustable Splice Sensitivity

The machine is factory adjusted for splices in one-mil tape with 1.5-mil splicing tape. The adjustment is accessible to provide for heavier or lighter tape—recording or splicing. Instructions included with the SFE detail this adjustment.

#### Automatic Shutoff

The SFE is arranged so that it cannot operate without a cartridge in the slot. Shutdown of the drive motor occurs when the indexed cart is withdrawn from the slot. It starts automatically as an un-indexed cart is inserted.

#### Manual Bulk Eraser

Since most cartridge-tape recorders require bulk-erased tape, the Unit includes a handy bulk eraser. Carts are erased cleanly and quickly in but a few seconds. A momentary-contact switch prevents inadvertent eraser operation.

#### Man-Hour Saver

The automatic operation of the SFE-1 can save many productive man-hours by eliminating the manual splice search and releasing manpower for other tasks.

### Specifications

Tape Velocity (during search)	15 in/s (381 mm/s)
Power Requirements:	
Searching	117V, 60 Hz, 70 W <sup>1</sup>
Bulk Erasing	117V, 60 Hz, 750 W <sup>1</sup>
Dimensions	6.25" H; 16.625" W; 10.125" D (159, 422, 257 mm)
Weight (approx.)	18 lbs. (8.2 kg)

<sup>1</sup>Available for 50 Hz power as SFE-2. See "Ordering Information".

### Accessory

Transformer, Stepdown, 234 to 117V, 50/60 Hz, 1200 W	MI-141010-1200
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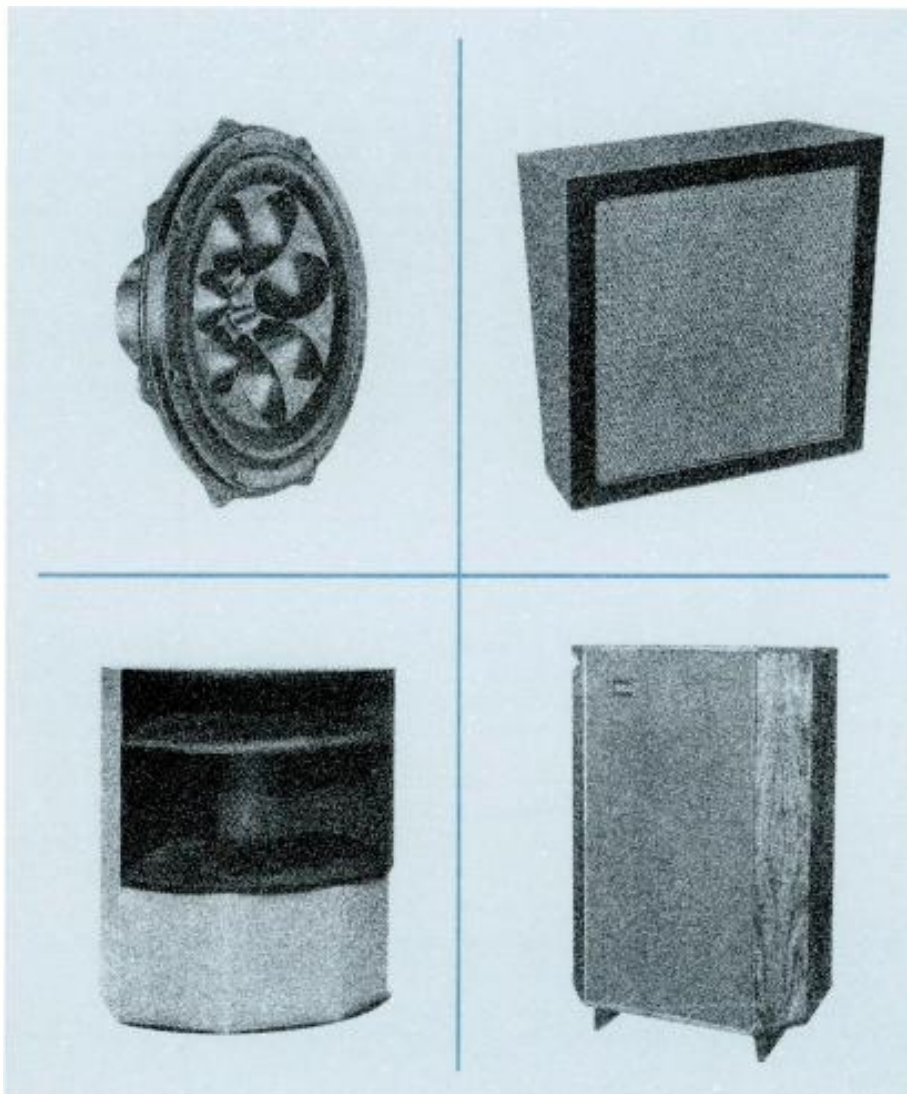
### Ordering Information

Cartridge-Tape Splice Finder and Bulk Eraser, Type SFE-1 (117V, 60 Hz)	MI-141036-1
As above but for 50 Hz power (Type SFE-2)	MI-141036-2
(Shipping weight, either unit, 24 lbs. or 11 kg)	



## Loudspeakers and Enclosures

- Speakers, enclosures, systems
- Paging, monitoring, quality-listening
- Power handling: 10 to 60 watts
- Curvilinear, dioplex and coaxial cones
- Wall-, floor-mount enclosures



There are five cone-type loudspeakers available from RCA: three 8-inch, one 12-inch and one 15-inch. The 8-inch units feature a dioplex-type cone and oversize ceramic magnets; they are most suitable for monitoring, paging and good-quality studio listening.

The 12-inch speaker features a curvilinear cone and a 10-ounce ceramic magnet. Its larger diameter improves the bass response slightly for better-quality monitoring, paging and studio listening.

The 15-inch unit is the famous Harry Olson duo-cone speaker. This is the fourth-generation LC-1 which features improved frequency crossover, bass response, dispersion angle and a ruggedized high-frequency voice coil.

### Complete Speaker Systems

RCA offers two complete speaker systems: a 60-watt column-type unit for use where beamed sound is required and a 50-watt auditorium unit with a cone-type woofer and a horn-type tweeter.

### Speaker Enclosures

RCA makes available four speaker enclosures: three wall-mount and a floor mount. Two of the wall-mount units are enclosed for extended bass response; the third is an open-back, wedge-type paging enclosure. The floor mount cabinet is designed specifically for the LC-1 Duo-Cone Speaker.

## 15-Inch Duo-Cone Speaker, Type LC-1



- Ruggedized high frequency voice coil
- Wide dispersion angle: 120°
- Frequency response: 25 to 16,000 Hz
- Crossover frequency: 1600 Hz
- Sensitivity at 1 watt input: 94.5 dB
- Power handling capability: 40 watts

The Type LC-1 is a 15-inch duo-cone speaker designed specifically for use in recording studios, studio control rooms and wherever the finest in reproduced sound is desired.

### Wide Bandwidth, Wide Dispersion

The LC-1 is a high compliance, duo-cone speaker with a 25 to 16,000-Hz frequency response and a 120-degree dispersion angle. As a result, it covers four times the area typical of other high-quality (60°) speakers. The two coaxial cones are direct radiators with separate voice coils. Crossover occurs at 1600 Hz.

The low-frequency cone is stiffened with seven acoustical domes which, because of their shape and relative location, contribute to the wide dispersion of the high frequencies from the tweeter, at the center, by spoiling the symmetry. This eliminates the interference normally characteristic of such shapes without loss of either high or low frequencies.

### Alnico V Magnets; Aluminum Voice Coils

The LC-1 uses a die-cast aluminum frame with Alnico V magnets in an epoxy-cemented structure. The two voice coils are wound of copper-clad aluminum wire which improves high-frequency efficiency. High-temperature materials and extra clearances increase the speaker's power-handling capability and reduce distortion even in the crossover frequency region.

The coaxial relationship of the two cones minimizes out-of-phase components in the crossover frequency range. The shallow angle of the cones improves response smoothness.

### Specifications

Frequency Response Characteristic .....	25-16,000 Hz
Program Power Handling Capability .....	40 watts*
Woofer Magnet Weight (Alnico V) .....	4 lbs. (1.8 kg)
Tweeter Magnet Weight (Alnico V) .....	6.8 oz. (193 g)
Axial Sensitivity (1 kHz at 1 W; 4 ft. [1220 mm]) .....	94.5 dB
Dispersion Angle .....	120°
Input Impedance (nominal) .....	15 ohms
Woofer Voice-Coil Diameter .....	2.5" (64 mm)
Tweeter Voice-Coil Diameter .....	0.75" (19 mm)
Crossover Frequency .....	1600 Hz
Cone Resonance (in infinite enclosure) .....	22 Hz
Overall Diameter .....	17" (432 mm)

Bolt-Circle Diameter .....	16¼" (413 mm)
Cone Diameter .....	15⅝" (396 mm)
Depth (mounted) .....	7⅞" (189 mm)
Weight (approx.) .....	21 lbs. (10 kg)

\*This speaker, when fused with a ¾-ampere fuse, is safe with any high-quality amplifier, regardless of power.

### Recommended Enclosures

Wall-Mount Enclosure, Type LS-1 .....	MI-11406
Olson Floor Enclosure, Type LS-11 .....	MI-11415

### Ordering Information

15-Inch Duo-Cone Loudspeaker, Type LC-1 .....	MI-11411
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## 8-Inch Dioplex-Cone Speaker, Type SL-8



- 50 to 18,000 Hz frequency response
- Balanced listening characteristic
- Ten-ounce ceramic field magnet (Indox)
- Curvilinear cone with high frequency cone

The Type SL-8 is an 8-ohm, extended-range speaker for use wherever smooth, uniform response and natural reproduction of voice and music are desired. It may be used in any suitable enclosure. For full exploitation of the speaker's capabilities the enclosure should contain a volume of at least 2.5 cubic feet (0.6m<sup>3</sup>).

### Balanced Listening Characteristic

The speaker's smooth frequency response is the result of a curvilinear cone of special material, a damping ring at the outer suspension and a mechanically coupled cone at the center to extend the high-frequency response.

### Specifications

Frequency Response Characteristic .....	50-18,000 Hz
Power-Handling Capability .....	10 watts
Magnet Weight (Indox) .....	10 oz. (284 g)
Gap Flux Density .....	9000 gauss
Axial Sensitivity (1 kHz at 1 W; 4 ft. [1220 mm]) .....	92 dB
Cone Resonance (in 6.5 ft. <sup>3</sup> [0.18m <sup>3</sup> ] enclosure) .....	74 Hz
Voice-Coil Impedance (at 400 Hz) .....	8 ohms
Overall Diameter .....	8 <sup>3</sup> / <sub>8</sub> " (210 mm)
Bolt Circle Diameter .....	7 <sup>5</sup> / <sub>8</sub> " (194 mm)
Depth .....	3 <sup>1</sup> / <sub>8</sub> " (80 mm)
Weight (approx.) .....	2 <sup>3</sup> / <sub>4</sub> lbs. (1640 g)

### Recommended Enclosures

Wall-Mount Enclosure, Type LS-3 .....	MI-11407
Wall-Mount Paging Baffle .....	MI-11414-2

### Ordering Information

Dioplex Cone 8-Inch Speaker, Type SL-8 .....	MI-38311
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## 8-Inch Dioplex-Cone Speaker, Type SL-890



- 50 to 18,000 Hz frequency response
- 5-ounce ceramic field magnet
- Handles 15 watts of program
- Designed for wall-baffle use

The Type SL-890 is a 15-watt, 8-inch speaker designed for use with open-back wall baffles in high-quality paging and music systems. It includes a matching transformer for bridging 70-volt constant-voltage lines.

### Edge-Damped Cone

The SL-890 uses an edge-damped cone and a mechanically coupled high-frequency cone to achieve its 50 to 18,000 Hz frequency response. An enclosure with volume greater than 2.5 cubic feet (0.6m<sup>3</sup>) is recommended wherever improved bass response is desired.

### Mounted Matching Transformer

For simplified mounting, the SL-890 includes a 70-volt, line-matching transformer mounted and wired to the voice-coil terminals. The transformer primary is tapped at 0.25-, 0.5- and 1-watt levels.

### Specifications

Frequency Response Characteristic .....	50 to 18,000 Hz
Program Power-Handling Capability .....	15 watts
Magnet Weight (Indox) .....	5 oz. (142 g)
Axial Sensitivity (1 kHz at 1 W; 4 ft. [1220 mm]) .....	96 dB
Voice Coil Impedance (at 400 Hz) .....	8 ohms
Voice Coil Diameter .....	1 inch (51 mm)
Matching Transformer Primary Taps .....	1/4-, 1/2-, 1-watt
Overall Diameter .....	8 <sup>1</sup> / <sub>8</sub> " (206 mm)
Bolt-Circle Diameter (4 holes) .....	7 <sup>5</sup> / <sub>8</sub> " (194 mm)
Depth .....	2 <sup>5</sup> / <sub>8</sub> " (67 mm)
Weight, Including Transformer (approx.) .....	2 <sup>1</sup> / <sub>2</sub> lbs. (1134 g)

### Recommended Enclosures

Wall-Mount Enclosure, Type LS-3 .....	MI-11407
Wall-Mount Paging Baffle .....	MI-11414-2

### Ordering Information

8-Inch Dioplex Speaker, Type SL-890 .....	MI-12454
As above, less transformer .....	MI-38304

## 12-Inch High-Fidelity Speaker, Type SL-12



- Curvilinear, edge-damped cone
- 20-ounce field magnet
- 10-watt power handling capability
- 1-inch voice-coil diameter
- Smooth frequency response

### Curvilinear, Edge-Damped Cone

The Type SL-12 is a third-generation speaker that features a 1-inch voice-coil diameter, a curvilinear cone with a damping ring at the outer edge. As a result, the speaker delivers wide, smooth frequency response with good dispersion. It may be used in any speaker baffle large enough to mount a 12-inch speaker. For full utilization of the speaker's low frequency response, an enclosure with a volume larger than 5 cubic feet (1.2 m<sup>3</sup>) is recommended.

The Type SL-12 is one of the finest high-fidelity speakers available in its price range. It is designed for use as a good-quality studio- or lounge-monitor speaker. Its 10-watt power-handling capability and extra sensitivity let it deliver considerable acoustic level.

### Specifications

Frequency Response Characteristic .....	50 to 16,000 Hz
Program Power-Handling Capability .....	10 Watts
Magnet Weight (Indox) .....	20 oz. (567 g)
Gap Flux Density .....	11,500 gauss
Cone Resonance (6.5 ft. <sup>3</sup> [10.18 m <sup>3</sup> ] enclosure) .....	60-70 Hz
Axial Sensitivity (1 kHz at 1 W; 4 ft. [1220 mm]) .....	95 dB
Voice Coil Impedance (at 400 Hz) .....	8 ohms
Voice Coil Diameter .....	1 inch (51 mm)
Overall Diameter .....	12-7/32" (310 mm)
Bolt-Circle Diameter .....	11-9/16" (294 mm)
Depth .....	5-5/32" (131 mm)
Weight (approx.) .....	4 lbs. (1.8 kg)

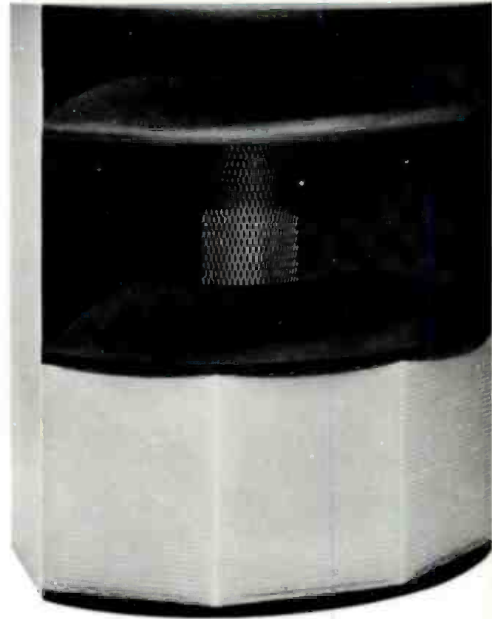
### Recommended Enclosures

Wall-Mount Enclosure, Type LS-3 .....	MI-11407
Wall-Mount Paging Baffle .....	MI-11414-2



## 50-Watt Loudspeaker System, Type LC-9

- Excellent frequency response—  
50 to 16,000 Hz
- 50 watts program input
- Wide-angle radiation at all frequencies
- Matching high- and  
low-frequency wavefronts
- 500 hertz crossover frequency



The LC-9 Loudspeaker System is designed for applications where high acoustical level, wide dispersion angle, and extended frequency response are required. The frequency range is covered by separate low and high frequency horns with a crossover point at 500 Hz. A feature of the LC-9 is the particular care with which the high and low frequency horns have been designed to provide matched acoustical wavefronts for smooth response over the entire frequency range.

### Specifications

Frequency Response Characteristic .....	50-16,000 Hz
Power-Handling Capability .....	rms: 35 watts; program: 50 watts
Crossover Frequency (12 dB/octave) .....	500 Hz
Input Impedance .....	16 ohms
Dispersion Angles .....	120° Horiz.; 45° Vert.
Diameter, Tweeter Diaphragm .....	1¾" (44 mm)
Diameter, Woofer Diaphragm .....	15" (381 mm)
Dimensions .....	44" H; 36" W; 27½" D (1118, 915, 689 mm)
Weight (approx.) .....	175 lbs. (79 kg)

### Ordering Information

50-Watt Auditorium Loudspeaker System, Type LC-9 .....	ES-11423
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## Column Speaker System

- **Wide horizontal dispersion—  
narrow, vertical dispersion—  
ideal for minimum reverberation**
- **High sensitivity 8-inch speakers**
- **Excellent frequency response—  
80 to 16,000 Hz**
- **25-watt sinewave and  
60-watt program capability**
- **Acoustically balanced, treated interior—  
exterior easily refinished  
to match any decor**
- **Nominal impedance 8-ohms—needs no  
matching transformer**



The Column Speaker System consists of five 8-inch speakers (RCA Type SL-8) mounted in a line, in a specifically designed and acoustically treated cabinet. The result of the "in line" combination is a concentration of sound into a fan-shaped beam which "aims" toward areas where sound coverage is desired. A number of column systems, properly placed, can provide large areas with high-quality sound reproduction relatively free of annoying reverberation. Side-tapered baffles allow a number of cabinets to mount in a cluster over a stage, if appropriate.

Because of the directional properties of this column speaker, relatively little sound reflects from the ceilings or floors, which, in turn reduces undesired reverberation.

### Specifications

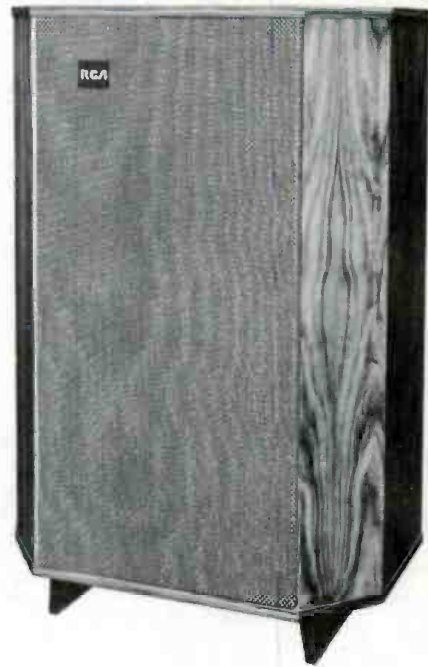
Frequency Response Characteristic .....	80-16,000 Hz
Power-Handling Capability:	
Program Material .....	60 watts
Continuous Sinewave .....	25 watts
Impedance .....	8 ohms
Dispersion Angles:	
Horizontal Plane (200 Hz) .....	-6 dB at 180°; -10 dB at 240°
Vertical Plane (800 Hz) .....	-6 dB at 40°; -10 dB at 50°
Dimensions .....	45½" H; 12½" W (front) 5¾" (rear); 13" D (1156, 318, 146, 330 mm)
System Weight (approx.) .....	25 lbs. (11 kg)

### Ordering Information

Column Speaker System .....	MI-38351
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# Speaker Enclosure, Floor Model, Type LS-11

- Acoustically engineered
- For RCA LC-1 speakers
- Fiber glass acoustic padding
- Infinite-baffle principle
- Sturdy wood construction



Designed specifically for the Type LC-1 Duo-Cone Loudspeaker, this floor cabinet uses the infinite-baffle principle to extend bass-frequency response without affecting the speaker unit's high-frequency capabilities. It is offered in a satin-walnut finish that harmonizes with good furnishings anywhere.

## Specifications, Type LS-11

Dimensions:	
Height (4-inch legs, removable) .....	44" (1118 mm)
Width .....	28½" (724 mm)
Depth .....	16" (406 mm)
Weight (approx.) .....	64 lbs. (27 kg)
Finish .....	Satin Finished Walnut

## Ordering Information

Olson Floor Cabinet for LC-1, Type LS-11: In Satin-Walnut Finish .....	MI-11415
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## Wall Speaker Enclosure, Type LS-1



A reflex enclosure designed to load the Type LC-1 Duo-Cone Speaker, this enclosure mounts on a wall at a 30- or 60-degree angle. It is finished to harmonize with any RCA-equipped studio.

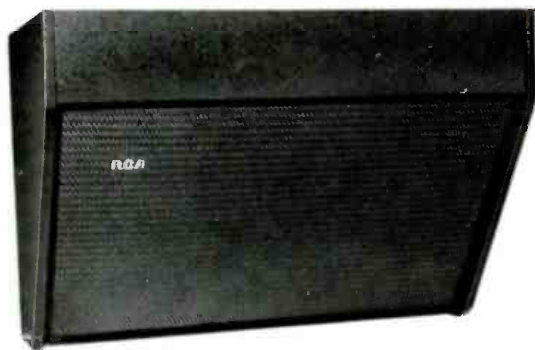
### Specifications

Dimensions:	
Height .....	22 $\frac{3}{4}$ " (553 mm)
Width .....	37 $\frac{1}{2}$ " (953 mm)
Depth .....	17 $\frac{1}{8}$ " (435 mm)
Weight .....	45 lbs. (20 kg)

### Ordering Information

Wall-Mount Enclosure, Type LS-1 .....MI-11406

## Wall Mount Speaker Enclosure, Type LS-3



The Type LS-3 Speaker Enclosure is designed for wall-mounting any standard eight-, ten- or twelve-inch diameter loudspeaker. It is particularly suitable for the RCA Types SL-8, SL-890 and SL-12 Speakers.

Built solidly of one-half-inch plywood, the LS-3 includes a back panel, glass-fiber acoustic insulation, two speaker adapter boards and two wall-mounting brackets. The aperture in the enclosure is cut for a twelve-inch speaker. The adapter boards provide for mounting eight- or ten-inch units.

### Specifications

Dimensions:	
Height .....	16 $\frac{1}{2}$ " (411 mm)
Width .....	25" (635 mm)
Depth .....	11 $\frac{1}{2}$ " (286 mm)
Weight (approx.) .....	12 lbs. (5 kg)
Finish .....	Textured lacquer: Midnight Blue

### Ordering Information

Wall-Mount Speaker Enclosure, Type LS-3 .....MI-11407

## Paging Baffle for 12-Inch Speaker



An open-back baffle for any standard 8- or 12-inch loudspeaker, the MI-11414-2 unit is built of one-half-inch plywood finished in textured lacquer. A fiber glass acoustic pad and adapter board are included. Two slotted brackets make mounting easy.

### Specifications

Dimensions:	
Height .....	15 $\frac{1}{4}$ " (387 mm)
Width .....	13 $\frac{7}{8}$ " (352 mm)
Depth .....	9 $\frac{1}{4}$ " ; 5 $\frac{1}{4}$ " (235; 133 mm)
Weight (approx.) .....	9 $\frac{1}{2}$ lbs. (4 kg)

### Ordering Information

Paging Baffle, Wall Mount .....MI-11414-2



# RCA

catalog AU.9610A

(Replaces B.1900)

## Audio Level Meter, "Little Nipper" Type BI-100

- Range: -60 to +40 VU in 10-dB steps
- Battery powered—light weight
- Calibrated for 150- or 600-ohm lines
- Response: 30 to 15,000 Hz  $\pm 1$  dB
- For balanced or unbalanced lines



The extremely compact and light weight "Little Nipper" Audio Level meter is designed for use as a utility level meter in checking audio distribution systems, remote lines and other similar applications.

### Eleven Ranges in 10-dB Steps

A selector switch provides for bridging either balanced or unbalanced audio circuits. The switch provides eleven ranges, in 10-dB steps, between -60 and +40 VU.

### Battery Powered

Power for the circuitry of "Little Nipper" is provided by a mercury battery with a useful life of approximately 250 hours. The long shelf life of this type of power source minimizes battery deterioration while the unit is not in use. A spare battery is stored within the case. The unit weighs only 26 oz. (707 g). A three-wire cable, fitted with alligator clips is included. The connector is a standard two-circuit phone plug (tip, ring and sleeve). The BI-100 is supplied with two magnetic mounting strips which permit permanent or temporary mount on any steel surface.

**Specifications**

Input (switch selected) ..... Balanced or Unbalanced  
 Input Impedance (bridging) ..... 20,000 ohms, min.  
 Frequency Response ..... 30 to 15,000 Hz  $\pm 1$  dB  
 Ranges ..... -60 to +40 VU in 10-dB steps  
 Battery ..... Mercury Cell, 6.75 V  
 Battery Life (approx.) ..... 250 hours

Input Connector ..... Two-circuit phone jack  
 Dimensions ..... 6" H; 2 $\frac{3}{4}$ " W; 2 $\frac{3}{4}$ " D (152 x 69 x 69 mm)  
 Weight ..... 26 oz. (707 g)  
 Shipping Data ..... 6" x 6" x 10" (152 x 152 x 254 mm)  
 40 oz. (1134 g)

**Ordering Information**

Audio Level Meter, "Little Nipper", Type BI-100 ..... MI-141022

**Audio Test Equipment Available Through RCA**

Literature and prices available from Radio Station Equipment Product Mgmt., RCA Bldg. 2-7, Camden, N.J. 08102 (U.S.A.) or the nearest RCA Broadcast Sales Representative.

**Audio Oscillators and Generators**

Waveforms .....	Models:	471B	471F	473B
		510C	512F	
Barker & Williamson .....	Model:	210		
Hewlett-Packard .....	Models:	651B	652A	209A
RCA .....	Types:	WA-44C	WA-504A	

**Transmission-Line Measuring Sets**

Waveforms .....	Models:	452A	452B	524C	5246R
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**Passive Attenuators**

Waveforms .....	Model:	454A
Hewlett-Packard .....	Model:	350D

**Distortion Analyzers**

Waveforms .....	Model:	456A			
Barker & Williamson .....	Model:	410			
Hewlett-Packard .....	Models:	331A	332A	333A	334A

**Noise and Distortion Test Set**

Waveforms .....	Models:	5146P	5146R
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**Sweep Signal Generators**

Waveforms .....	Models:	610B	610D
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**Audio Vacuum-Tube Voltmeters**

Waveforms .....	Models:	520A	520D	520L	
RCA .....	Types:	WV-76A	WV-77E	WV-98C	WV-98CX
		WV-500B	WV-510A		

**Volt-Ohm-Milliammeters**

RCA .....	Types:	WV-38A	WV-516A	WV-517A	WV-518A
		WV-519A	WV-520A		

**Audio Frequency Meters**

Waveforms .....	Models:	620B	620D
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**Oscilloscopes**

Tektronics .....	Types:	321A	323	535A/B	422
RCA .....	Types:	WO-33A	WO-505A		

**Radio-Frequency Signal Generators**

RCA .....	Type:	WR-52A
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**Grid-Dip Meter**

Barker & Williamson .....	Type:	331A
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**FM-Stereo Signal Simulator**

RCA .....	Type:	WR-50B
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**Transistor Tester**

RCA .....	Types:	WT-511A	WT-501A	WV-506A	WC-528A
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**Power Line Voltage Monitor**

RCA .....	Types:	WV-120A	WV-503A
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**BROADCAST  
AUDIO  
EQUIPMENT  
DOMESTIC PRICE LIST**

Issued June 1, 1974

Reference Number  
AU.9998A

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All sales are subject to RCA's Standard Terms and Conditions of Sale which are available upon request from your Broadcast Equipment Field Sales Representative.

*Prices subject to change without notice.*





CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>DYNAMIC MICROPHONES—Section AU.1210</b>			
MI-11007	BK-1	Pressure Microphone .....	\$ 95.00
MI-11008	KS-11	Desk Stand .....	5.00
MI-11024	BK-12	Subminiature Dynamic Microphone .....	90.00
MI-11042	BK-14	Dynamic Microphone .....	149.00
MI-11048	BK-16	Dynamic Microphone .....	139.00
MI-11017	BK-6	Miniature Dynamic Microphone .....	95.00
MI-12086	—	Microphone Holder, Clamp Type .....	4.75
MI-11073	—	Microphone Stand Adapter Kit (for gooseneck) .....	18.50
MI-11745	—	Flexible Microphone Stand (gooseneck), 13" (330 mm) .....	3.00
MI-11746	—	Flexible Microphone Stand (gooseneck), 19" (483 mm) .....	4.20
<b>MICROPHONES, SK- SERIES—Section AU.1410</b>			
MI-12046	SK-46	Ribbon Microphone .....	84.00
MI-11030-1	SK-30	Dynamic Microphone .....	22.00
MI-11032	—	Swivel Mounting Adapter .....	1.50
MI-11745	—	Flexible Gooseneck, 13" (330 mm) .....	3.00
MI-11746	—	Flexible Gooseneck, 19" (483 mm) .....	4.20
MI-12039	SK-39	Aerodynamic Microphone .....	28.00
<b>RIBBON MICROPHONES—Section AU.1610</b>			
MI-11010	BK-5	Cardioid Ribbon Microphone .....	172.00
MI-11021-4	—	Thread Adapter .....	1.00
MI-11012	—	Boom Mount .....	40.00
MI-11011	—	Wind Screen .....	22.50
MI-4045	77DX	Polydirectional Velocity Microphone .....	252.00
MI-11021-4	—	Thread Adapter .....	1.00
MI-11019	BK-11	Velocity Microphone .....	110.00
MI-11021-4	—	Thread Adapter .....	1.00
MI-11008	KS-11	Desk Stand .....	5.00
<b>MICROPHONE STANDS AND ACCESSORIES—Section AU.1810</b>			
MI-4092	91D	Desk Stand .....	21.00
MI-11008	KS-11	Desk Stand .....	5.00
MI-11021-3	DS-10	Desk Stand .....	5.00
MI-11021-5	DS-5	Desk Stand .....	2.50
MI-11021-6	TS-6	Banquet Stand .....	6.00
MI-4090	90A	Floor Stand .....	59.00
MI-11021-1	CS-1	Floor Stand .....	13.00
MI-11021-7	MS-25	Floor Stand .....	15.00
MI-11021-8	MS-20	Floor Stand .....	9.50
MI-12086	—	Microphone Holder .....	4.75
MI-11099	—	Cable Hook .....	2.50
MI-12053	—	Microphone Adapter .....	2.40
MI-11021-4	—	Microphone Adapter .....	1.00
MI-141745	—	Gooseneck, 6" (152 mm) .....	3.00
MI-11745	—	Gooseneck, 13" (330 mm) .....	3.00
MI-11746	—	Gooseneck, 19" (483 mm) .....	4.20
MI-11747	—	Stand Bracket Clamp .....	6.00
MI-11703	—	Microphone Stand Adapter for BK-6 .....	18.50
MI-13373	—	Low Impedance Microphone Cable (100' hank) .....	22.00
MI-13307	—	Heavy Duty Microphone Cable (100' hank) .....	38.00
MI-13322	—	Lightweight Microphone Cable (100' hank) .....	21.00
MI-11061	UA-3-11	Cannon Female Connector .....	13.00
MI-11062	UA-3-12	Cannon Male Connector .....	6.00
MI-11063	UA-3-13	Flush Mount Receptacle .....	10.50
MI-4630	P3-CG-12S	Male Plug .....	9.00
MI-4624	P3-35	Wall Receptacle .....	11.90
MI-4620	P3-CG-11S	Female Connector .....	11.00
MI-11088	XLR-3-31	Female Receptacle .....	2.70
MI-11087	XLR-3-32	Male Receptacle .....	2.05
MI-11090	XLR-3-11	Female Connector .....	1.70
MI-11089	XLR-3-12	Male Connector .....	1.90
MI-141051-1	XLR-3-36	Wall Receptacle, Single Male .....	4.05
MI-141051-2	XLR-3-36-26	Wall Receptacle, Double Male .....	8.75

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>MICROPHONE STANDS AND ACCESSORIES—Section AU.1810 (Cont.)</b>			
MI-141050-1	XLR-3-35	Wall Receptacle, Single Female .....	\$ 5.50
MI-141050-2	XLR-3-35-26	Wall Receptacle, Double Female .....	10.15
MI-11020-1	M-2-MD-U	Support Arm .....	39.00
MI-11020-2	M-2-MC	Support Arm .....	39.00
MI-11020-4	M-3MW	Support Arm .....	37.00
MI-11056	KS-3	Boom and Stand .....	251.00
MI-11021-2	BS-36	Boom and Stand .....	61.50
MI-26574	3555	Boom and Perambulator .....	4,489.00
MI-26574-1	103B	Boom .....	2,084.00
MI-26574-2	126B	Perambulator .....	2,405.00
<b>AUDIO CONSOLES—Section AU.2010</b>			
ES-11176	BC-7	Mono Console .....	5,288.00
ES-11177	BC-7	Mono Console .....	5,008.00
ES-11180	BC-7	Stereo Console .....	5,842.00
ES-11179	BC-7	Stereo Console .....	5,562.00
ES-11178	BC-7	Stereo Console .....	5,282.00
MI-11656	BCM-2	Auxiliary Mixer Housing .....	995.00
MI-11702	—	On-Air Light Relay .....	15.00
MI-11706	—	Lighted "On-Air" Sign .....	48.50
MI-11672	BA-72	Spare Preamplifier .....	140.00
MI-11659	BA-73	Spare Program Amplifier .....	219.00
MI-11661	BA-74	Spare Monitor Amplifier .....	274.00
MI-11662	BA-78	Spare Cue/Intercom Amplifier .....	219.00
MI-11663	BX-71	Spare Power Supply .....	231.00
MI-11665S	—	Spare Stereo Hi-Level Isolator .....	115.00
MI-11665	—	Spare Mono Hi-Level Isolator .....	58.00
MI-11452	—	Intercom Substation .....	75.00
MI-141015	—	Jumper Plugs .....	7.80
ES-11167	BC-8	Two-Channel Mono Console .....	3,901.00
ES-11181	BC-8	Two-Channel Mono Console .....	3,629.00
MI-11656	BCM-2	Auxiliary Mixer Housing .....	995.00
MI-11702	—	On-Air Light Relay .....	15.00
MI-11706	—	Lighted "On-Air" Sign .....	48.50
MI-141015	—	Jumper Plugs .....	7.80
MI-11672	BA-72	Spare Preamplifier .....	140.00
MI-11659	BA-73	Spare Program Amplifier .....	219.00
MI-11661	BA-74	Spare Monitor Amplifier .....	274.00
MI-11662	BA-78	Spare Cue/Intercom Amplifier .....	219.00
MI-11663	BX-71	Spare Power Supply .....	231.00
MI-11665	—	Spare Hi-Level Isolator .....	58.00
MI-11452	—	Intercom Substation .....	75.00
ES-11173	BC-17	Three-Channel Console .....	7,125.00
ES-11174	BC-17	Three-Channel Console .....	6,845.00
ES-11175	BC-17	Three-Channel Console .....	6,565.00
MI-11702	—	On-Air Light Relay .....	15.00
MI-11706	—	Lighted "On-Air" Sign .....	48.50
MI-141015	—	Jumper Plugs .....	7.80
MI-11665	—	Spare Hi-Level Isolator .....	58.00
MI-11665S	—	Spare Stereo Hi-Level Isolator .....	115.00
MI-11672	BA-72	Spare Preamplifier .....	140.00
MI-11659	BA-73	Spare Program Amplifier .....	219.00
MI-11661	BA-74	Spare Monitor Amplifier .....	274.00
MI-11662	BA-78	Spare Cue/Intercom Amplifier .....	219.00
MI-11663	BX-71	Spare Power Supply .....	231.00
MI-11452	—	Intercom Substation .....	75.00
ES-11153	BC-9	Mono Console (Limited Quantities) .....	3,266.00
MI-11702	—	On-Air Light Relay .....	15.00
MI-11706	—	Lighted "On-Air" Sign .....	48.50
MI-11665	—	Hi-Level Isolator .....	58.00
MI-11672	BA-72	Spare Preamplifier .....	140.00
MI-11659	BA-73	Spare Program Amplifier .....	219.00
MI-11661	BA-74	Spare Monitor Amplifier .....	274.00
MI-11662	BA-78	Spare Cue/Intercom Amplifier .....	219.00
MI-11663	BX-71	Spare Power Supply .....	231.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
MI-141015	—	Jumper Plugs	\$ 7.80
MI-11452	—	Intercom Substation	75.00
ES-11154	BC-19	Stereo Console	4,416.00
MI-11656	BCM-2	Auxiliary Mixer Housing	995.00
MI-11702	—	On-Air Light Relay	15.00
MI-11706	—	Lighted "On-Air" Sign	48.50
MI-11672	BA-72	Spare Preamplifier	140.00
MI-11659	BA-73	Spare Program Amplifier	219.00
MI-11661	BA-74	Spare Monitor Amplifier	274.00
MI-11662	BA-78	Spare Cue/Intercom Amplifier	219.00
MI-11663	BX-71	Spare Power Supply	231.00
MI-11665S	—	Spare Stereo Hi-Level Isolator	115.00
MI-11685	—	Spare Mono Hi-Level Isolator	58.00
MI-11452	—	Intercom Substation	75.00
MI-141015	—	Jumper Plugs	7.80
ES-11155	BCM-2	Auxiliary Mixing Console	2,206.00
ES-11156	BCM-2	Auxiliary Mixing Console	2,042.00
MI-11685	—	Mono Hi-Level Isolator	58.00
MI-11665S	—	Stereo Hi-Level Isolator	115.00
MI-11663	BX-71	Power Supply	231.00
MI-11672	BA-72	Spare Preamplifier	140.00
MI-141015	—	Jumper Plugs	7.80
<b>AUDIO CONSOLES—Section AU.2210</b>			
MI-11676	BC-15	Mono Console	1,795.00
MI-11678	BC-15S	Stereo Console	3,195.00
MI-11683	BC-15D	Dual-Channel Console	2,995.00
MI-11677	BC-18	Mono Console	2,495.00
MI-11679	BC-18S	Stereo Console	3,795.00
MI-11684	BC-18D	Dual-Channel Console	3,295.00
MI-141048	—	Monitor Amplifier	298.00
MI-141011	—	Audition Line Transformer	49.00
MI-141012	—	Speaker Muting Relay	12.00
MI-141013	—	Preamplifier Module, Mono	149.00
MI-141023	—	Preamplifier Module, Stereo	192.00
MI-141014	—	Hi-Level Preamp Module, Mono	149.00
MI-141024	—	Hi-Level Preamp Module, Stereo	192.00
MI-141049	—	Output Circuit Assembly, Stereo	298.00
MI-141025	—	Power Supply	124.00
MI-11680	BC-14	Mono Console	995.00
MI-11681	BC-14S	Stereo Console	1,695.00
MI-11682	BC-14D	Dual-Channel Console	1,395.00
MI-11680R	BC-14R	Mono Console, Rack-Mount	895.00
MI-11681R	BC-14SR	Stereo Console, Rack-Mount	1,595.00
MI-11682R	BC-14DR	Dual-Channel Console, Rack-Mount	1,295.00
MI-141014	—	Mono and Dual Channel Hi-Level Preamp	149.00
MI-141013	—	Mono and Dual Channel Mike Preamp	149.00
MI-141024	—	Stereo Hi-Level Preamp	192.00
MI-141023	—	Stereo Mike Preamp	192.00
MI-141046	—	Power Supply	124.00
MI-141012	—	Muting Relay	12.00
MI-11685	—	Console Cabinet	99.00
MI-11686	—	Transformer, 45-ohm to speaker	15.00
MI-141047	—	Stereo Output Assembly	435.00
<b>TWO- AND FOUR-FADER REMOTE CONSOLES—Section AU.2410</b>			
MI-11451	BN-7	Two-Input Remote Console	299.00
MI-141400	BN-17	Four-Input Remote Console	695.00
MI-11089	XLR-3-12C	Input Connector, Cannon	1.90
MI-11776	—	Plug-In Transformer	10.00
MI-11591-1	—	Rack-Mount Panel	29.00
<b>REMOTE AMPLIFIERS—Section AU.2610</b>			
MI-141402	BN-4	Four-Input Remote Amplifier	199.00
MI-141403	BN-4	Four-Input Remote Amplifier	199.00
MI-141016	—	Battery Pack Power Supply	25.00
MI-141017	—	Portable Carrying Case	30.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>REMOTE AMPLIFIERS—Section AU.2610 (Cont.)</b>			
MI-141018	—	Amplifier Stacking Kit	\$ 15.00
MI-141019	—	Rack-Mount Shelf	10.00
MI-141021	—	Handle/Tilt Stand	19.00
MI-141401	BN-1	One-Input Remote Amplifier	129.00
MI-141020	—	VU Meter	29.00
MI-141016	—	Battery Pack Power Supply	25.00
MI-11449	—	Rack-Mount Panel	25.50
<b>FIVE-FADER MIXER PREAMPLIFIER—Section AU.2810</b>			
MI-38705	SN-10	Five-Fader Mixer Preamplifier	125.00
MI-11597	BR-22	Mounting Shelf	54.00
MI-38483	—	Rack-Mount Panel	16.00
MI-11089	XLR-3-12C	Cable Connector	1.90
MI-9667	—	Combination Input/Output Transformer	16.00
<b>FOUR-FADER REMOTE AUDIO MIXER—Section AU.2820</b>			
MI-586000	PAM-1	Audio Mixer, less cabinet	560.00
MI-586001	—	Wall-Mounting Ring	35.00
MI-586002	—	Rack-Mount Adapter	33.00
MI-586003	—	Cabinet, Desk-Top	35.00
MI-586004	—	Connector Panel	53.00
<b>CUSTOM-BUILT AUDIO EQUIPMENT—Section AU.3010</b>			
MI-141651	—	Operational Amplifier Submodule	70.00
MI-141501	BA-101	Single-Input Preamplifier	134.00
MI-141503	BA-103	Three-Input Preamplifier	225.00
MI-141511	BP-101	Single-Input High Level Module	13.00
MI-141513	BP-103	Three-Input High-Level Module	70.00
MI-141517	BP-107	Seven-Input High-Level Module	155.00
MI-11787	—	Audio Relay Switcher Module	200.00
MI-141570	BMM-110	Submaster Mixer Module	362.00
MI-141550	BMM-100	Master Mixer Module	459.00
MI-141651	—	Operational Amplifier Submodule	70.00
MI-141560	BE-100	Equalizer Submodule	214.00
MI-141520	BIM-100	Iso-Mix Submodule	65.00
MI-557300	—	Rack-Mount Module Frame	95.00
MI-141651	—	Operational Amplifier Submodule	70.00
MI-141511	BP-101	Input Module Blank Panel	13.00
MI-141540	BP-110	Mixer Module Blank Panel	21.00
MI-141600-1	—	Console Desk, 28 Module Units	1,380.00
MI-141600-2	—	Console Desk, 24 Module Units	1,140.00
<b>CUSTOM-BUILT AUDIO EQUIPMENT—Section AU.3110</b>			
MI-141660	BC-50	Console Housing	1,590.00
MI-11318	BX-51	Power Supply	149.00
MI-141665	BMM-50	Unimodule, Five Input	215.00
MI-141666	BMS-50	Stereo Unimodule, Three Input	275.00
MI-141685	BEM-50	Equalizer Module	179.00
MI-141687	—	Equalizer Submodule	99.00
MI-141692	BCM-50	Cue Module	200.00
MI-141670	—	Preamp Submodule	99.00
MI-141672	—	High Level, Balanced-Input Submodule	37.50
MI-141674	—	High Level, Unbalanced-Input Submodule	20.00
MI-141680	—	Iso/Mix Amplifier Submodule	82.25
MI-141680	—	Program Output Module	82.25
MI-141695	BP-50	Blank Panel	17.50
MI-141697	—	Console Interconnect Cable	82.00
MI-141696	—	Output Bus Assembly	249.50
MI-141665	BMM-50	Mono Unimodule	215.00
MI-141670	—	Preamp Submodule	99.00
MI-141672	—	High-Level Balanced Input and Isolating Submodule	37.50
MI-141674	—	High-Level Unbalanced Input Submodule	20.00
MI-141680	—	Iso/Mix Amplifier Submodule	82.25
MI-141666	BMS-50	Stereo Unimodule	275.00
MI-141672	—	High-Level Matching and Isolating Submodule	37.50
MI-141674	—	High-Level Matching Submodule	20.00
MI-141680	—	Iso/Mix Amplifier Submodule	82.25



CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>CUSTOM-BUILT AUDIO EQUIPMENT—Section AU.3110 (Cont.)</b>			
MI-141670	—	Microphone Preamp Submodule .....	\$ 99.00
MI-141672	—	High-Level Matching and Isolating Submodule .....	37.50
MI-141674	—	High-Level Matching Submodule .....	20.00
MI-141685	BEM-50	Equalizer Module .....	179.00
MI-141687	—	Equalizer Submodule .....	99.00
MI-141680	—	Iso/Mon/Pgm Submodule .....	82.25
MI-141692	BCM-50	Cue Module .....	200.00
MI-141690	—	Monitor/Cue Amplifier, 2W .....	125.00
MI-141695	BP-50	Blank Panel .....	17.50
MI-141697	—	Console Interconnect Cable .....	82.00
MI-141696	—	Output Bus Assembly .....	249.50
<b>DIGITAL AUTOMATIC PROGRAMMER—Section AU.4110</b>			
ES-11119	DAP-5000	Digital Automatic Programmer .....	11,000.00
MI-141826-1	—	Audio Source Interface Card .....	130.00
MI-141826-2	—	Carousel Source Interface Card .....	165.00
MI-141825	—	Source Expander .....	1,280.00
MI-141823	—	Memory Enlarger, 4000-Event .....	1,375.00
MI-141824	—	Memory Enlarger, 8000-Event .....	2,775.00
MI-141840	SC-25	Tone Senser .....	395.00
MI-141841	ATG-25	Tone Generator .....	485.00
MI-141848	ATA-60	Time Announce Controller .....	1,350.00
ES-11134	BA-44	Monitor Amplifier, 10W .....	364.50
MI-141872-5	—	Monitor Amplifier, 4W .....	295.00
MI-141840	SC-25	Tone Senser Unit .....	395.00
MI-141841	ATG-25	Cue-Tone Generator .....	485.00
MI-141848	ATA-60	Time-Announce Controller .....	1,350.00
<b>EXPANDABLE INTERCOM SYSTEM—Section AU.5010</b>			
MI-141080	BMA-100	Monitor Amplifier, 3W .....	160.00
MI-141060	BMA-10	Carbon Microphone Preamplifier .....	44.00
MI-141065	BMA-11	Dynamic Microphone Preamplifier .....	110.00
MI-141063	BMA-12	Coupling Amplifier .....	43.00
MI-141075	BSM-1	Switching Matrix .....	52.00
MI-141070	BCP-1	Audio Crosspoint, Normally Open .....	17.50
MI-141071	BCP-2	Audio Crosspoint, Normally Closed .....	17.50
MI-141085	BPS-100	Power Supply .....	220.00
MI-141090	BSM-1-1	Receptacle Board .....	63.00
MI-141099	—	Hybrid Module .....	203.00
MI-141076	BPM-1	Dual Preamp Mount Module .....	56.00
MI-141077	BMA-100-2	Module Extender .....	48.00
MI-11567-1, -2	BR-21	Rack-Mount Shelf .....	161.00
MI-141096	—	Connector Mounting Kit .....	98.00
MI-141097	—	Connector Kit .....	17.00
MI-141069	—	Lever Switch .....	10.00
MI-141066	—	Front Panel Assembly .....	333.00
MI-141068	—	Desk-Mount Control Box .....	150.00
MI-141067	—	Rack-Mount Adapter .....	89.00
MI-141073-3	—	Shelf Adapter Kit .....	105.00
<b>INTERPHONE EQUIPMENT—Section AU.5110</b>			
MI-11784	—	Transistorized Interphone Connection Unit .....	119.00
MI-11734	—	Interphone Connection Unit .....	54.00
MI-11737	—	Retardation Coil .....	13.00
MI-11735	—	Mounting Shelf .....	10.00
MI-11736	—	Retardation Coil Panel .....	11.00
MI-11757	—	Transistorized Amplifier (Replacement) .....	50.00
<b>HEADPHONES AND HEADSETS—Section AU.5210</b>			
MI-141006	—	Cameraman Headset .....	108.00
MI-141007	—	Cameraman Headset .....	167.50
MI-141009S	—	Commentator Headset .....	132.00
MI-141009S1	—	Commentator Headset .....	133.00
MI-141009D	—	Commentator Headset .....	153.00
MI-141009D1	—	Commentator Headset .....	154.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>HEADPHONES AND HEADSETS—Section AU.5210 (Cont.)</b>			
MI-11743	—	Single Headset .....	\$ 46.00
MI-11744	—	Double Headset .....	100.00
MI-11750	—	Double Magnetic Headset .....	13.00
MI-141008	—	Mono Professional Headset .....	64.00
MI-141008S	—	Stereo Professional Headset .....	72.00
<b>MODULAR AUDIO AMPLIFIERS—Section AU.6010</b>			
ES-11136	BA-40	Distribution Amplifier .....	286.50
MI-11433	BA-40	Distribution Amplifier .....	262.00
MI-11713	—	Transformer .....	36.00
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11593-7	—	Spare Guide Assembly .....	24.50
MI-11447	BX-40	Power Supply .....	55.00
ES-11135	BA-41	Preamplifier .....	223.50
MI-11463	BA-41	Preamplifier .....	199.00
MI-11593-6	—	Guide Assembly .....	24.50
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11278E	—	Bridging Gain Control .....	10.50
MI-11278F	—	Bridging Gain Control .....	9.50
ES-11128	BA-43	Program Amplifier .....	355.50
MI-11454	BA-43	Program Amplifier .....	331.00
MI-11278E	—	Bridging Gain Control .....	10.50
MI-11278F	—	Bridging Gain Control .....	9.50
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11593-1	—	Guide Assembly .....	24.50
ES-11134	BA-44	Monitor Amplifier .....	364.50
MI-11442	BA-44	Monitor Amplifier .....	340.00
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11593-4	—	Guide Assembly .....	24.50
ES-11132	BA-48	Monitor Amplifier .....	519.50
MI-11458	BA-48	Monitor Amplifier .....	495.00
MI-141002	—	Output Transformer .....	37.00
MI-141003	—	Output Transformer .....	37.00
MI-11499	—	Remote Volume Control Kit .....	79.00
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11593-3	—	Guide Assembly .....	24.50
ES-11112	BA-43/45	AGC Program Amplifier System, Mono .....	695.50
ES-11113	BA-43/45	AGC Program Amplifier System, Stereo .....	1,256.50
MI-11455	BA-45	AGC Module .....	241.00
ES-11129	BA-45	AGC Module .....	265.50
MI-11564	BR-23	Rack-Mount Shelf .....	112.50
MI-11593-2	—	Guide Assembly .....	24.50
ES-11114	BA-43/46	Limiter Amplifier System, Mono .....	657.50
ES-11115	BA-43/46	Limiter Amplifier System, Stereo .....	1,170.50
ES-11116	BA-43/45	AGC Program/Limiter Amplifier System, Mono .....	1,218.50
ES-11116S	BA-43/45	AGC Program/Limiter Amplifier System, Stereo .....	2,437.00
ES-11118	BA-43/46	Limiter Amplifier/Clipper Amplifier System, Mono .....	1,125.00
ES-11118S	BA-43/46	Limiter Amplifier/Clipper Amplifier System, Stereo .....	2,250.00
MI-11456	BA-46	Limiter Module .....	203.00
ES-11130	BA-46	Limiter Module .....	227.50
MI-11564	BR-23	Rack-Mount Shelf .....	112.50
MI-11565	BR-23	Rack-Mount Shelf .....	112.50
MI-11593-2	—	Spare Guide Assembly .....	24.50
ES-11118	BA-43/46	Limiter Amplifier/Clipper Amplifier System, Mono .....	1,125.00
ES-11118S	BA-43/46	Limiter Amplifier/Clipper Amplifier System, Stereo .....	2,250.00
ES-11131	BA-47	FM-Clipper Module .....	172.00
MI-11459	BA-47	FM-Clipper Module .....	147.50
MI-11593-5	—	Spare Guide Assembly .....	24.50
MI-11565	BR-23	Rack-Mount Shelf .....	112.50

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>CONSOLE AUDIO AMPLIFIERS—Section AU.6210</b>			
ES-11172	BA-72	Preamplifier .....	\$ 164.50
MI-11672	BA-72	Preamplifier .....	140.00
MI-11759-1	—	Guide Assembly .....	24.50
MI-11597	BR-22	Mounting Shelf .....	54.00
MI-11278E	—	Bridging Gain Control .....	10.50
MI-11278F	—	Bridging Gain Control .....	9.50
MI-11320	BX-72	Power Supply Module .....	99.00
MI-11663	BX-71	Power Supply Module .....	231.00
ES-11159	BA-73	Program Amplifier .....	243.50
MI-11659	BA-73	Program Amplifier .....	219.00
MI-11759-2	—	Guide Assembly .....	24.50
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11663	BX-71	Power Supply .....	231.00
ES-11161	BA-74	Monitor Amplifier, 10W .....	298.50
MI-11661	BA-74	Monitor Amplifier, 10W .....	274.00
MI-11759-3	—	Guide Assembly .....	24.50
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11278E	—	Bridging Volume Control .....	10.50
MI-11278F	—	Bridging Volume Control .....	9.50
ES-11162	BA-78	Cue/Intercom Amplifier .....	243.50
MI-11662	BA-78	Cue/Intercom Amplifier .....	219.00
MI-11759-5	—	Guide Assembly .....	24.50
MI-11597	—	Rack-Mount Shelf .....	54.00
<b>SIGNAL PROCESSING EQUIPMENT—Section AU.6410</b>			
MI-141456	BA-146	Limiter Amplifier, Mono .....	795.00
MI-141456S	BA-146S	Limiter Amplifier, Stereo .....	1,590.00
MI-141457	—	Clipper Module .....	150.00
ES-11141	BA-147	FM Limiter/Clipper Amplifier, Mono .....	895.00
ES-11141S	BA-147S	FM Limiter/Clipper Amplifier, Stereo .....	1,790.00
<b>MONITORING SYSTEM—Section AU.6610</b>			
MI-11450	BA-8	Monitoring System .....	139.00
MI-11449	—	Rack-Mount Panel .....	25.50
<b>AM/FM/FM-STEREO TUNER—Section AU.6710</b>			
MI-12116	ST-6	AM/FM/FM-Stereo Tuner .....	250.00
MI-141001	—	Isolation Transformer .....	37.00
<b>MONITOR, PUBLIC-ADDRESS AMPLIFIERS—Section AU.6810</b>			
MI-38490	SA-1000TR	Solid State 100W Power Amplifier .....	234.00
MI-141200	—	Rack-Mount Module Frame .....	36.00
MI-141205	MML-1	Preamplifier Module, Lo Z .....	40.00
MI-141206	PMH-1	Program Module, Hi-Z .....	19.00
MI-141207	PML-1	Program Module, 600-ohm .....	40.00
MI-141210	TCM-2	Tone-Control Module .....	32.00
MI-9667	—	Transformer, Plug-In .....	16.00
MI-141010-250	—	Transformer, Stepdown .....	28.00
MI-38480	SA-115	Solid State 10W Power Amplifier .....	110.00
MI-38482	—	Transformer, Plug-In .....	19.25
MI-38481	—	Rack-Mount Panel .....	16.50
MI-38194	SA-1000	Bridging Amplifier, 100W .....	165.00
MI-38195	—	Shelf, Rack Mount .....	11.00
MI-38100-8	—	Panel, Blank .....	11.70
MI-38100-9	—	Trim Panel .....	9.50
MI-38196	—	Rack-Mount, Swing-Out .....	12.00
MI-141010-250	—	Stepdown Transformer .....	28.00
MI-38703	—	Input Transformer .....	19.00
MI-38191	SA-1004	Mixer Amplifier .....	299.00
MI-38174	—	Perforated Metal Cover .....	22.00
MI-38195	—	Shelf .....	11.00
MI-38100-8	—	Blank Panel .....	11.70
MI-38100-9	—	Trim Panel .....	9.50
MI-38196	—	Rack Mount .....	12.00
MI-12399	—	Plug-In Transformer .....	15.95
MI-38703	—	Bridging Input Transformer .....	19.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>MONITOR, PUBLIC-ADDRESS AMPLIFIERS—Section AU.6810 (Cont.)</b>			
MI-141010-250	—	Stepdown Transformer .....	\$ 28.00
MI-38155	—	Adapter Plug .....	3.60
MI-9289	SA-2000	200 Watt Power Amplifier .....	399.00
MI-38665	—	Microphone Input Transformer .....	13.50
<b>AUDIO EQUIPMENT POWER SUPPLIES—Section AU.6910</b>			
MI-11447	BX-40	Distribution Amplifier Power Supply .....	55.00
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
ES-11163	BX-71	Console Power Supply .....	255.50
MI-11163	BX-71	Console Power Supply .....	231.00
MI-11597	BR-22	Rack-Mount Shelf .....	54.00
MI-11759-4	—	Spare Guide Assembly .....	24.50
MI-11318	BX-51	Regulated Power Supply .....	149.00
<b>CABINET RACKS, JACK PANELS, PATCH CORDS, RACK ACCESSORIES—Section AU.7010</b>			
ES-36591-N84	BR-84N	Complete Cabinet Rack, 84-inch height .....	540.00
ES-36591-P84	BR-84P	As Above, less front door .....	433.00
ES-36591-R84	BR-84R	As Above, less side panels .....	410.00
ES-36591-S84	BR-84S	Cabinet Rack, with rear door only .....	311.00
ES-36591-T84	BR-84T	Cabinet Rack, less doors and panels .....	191.00
MI-36551-U84	BR-84U	Basic Rack .....	173.00
MI-36535-S84	—	Ventilated Door .....	120.00
MI-36530-S84	—	Unventilated Door .....	99.00
MI-36541-B84	—	Side Panels .....	65.00
MI-36521-B1	—	Top Cover (ventilated) .....	18.00
MI-36546-A28	--	Electrical Shield, top and bottom .....	16.00
MI-36546-A21	—	Electrical Shield, midsection .....	15.00
MI-30566-A84	—	Trim Strip, single .....	27.00
MI-30568-A84	—	Trim Strip, double .....	32.00
MI-30527-A29	—	Terminal Board Mounting Angles .....	16.00
MI-30526-A84	—	Panel Mounting Angles .....	29.00
MI-4570-2	—	Terminal Board Bracket .....	12.00
ES-36591-N77	BR-77N	Complete Cabinet Rack, 77-inch height .....	521.00
ES-36591-P77	BR-77P	As Above, less front door .....	420.00
ES-36591-R77	BR-77R	As Above, less side panels .....	401.00
ES-36591-S77	BR-77S	Cabinet Rack, with rear door only .....	290.00
ES-36591-T77	BR-77T	Cabinet Rack, less doors and panels .....	191.00
MI-36551-U77	BR-77U	Basic Rack .....	173.00
MI-36535-S77	—	Ventilated Door .....	112.00
MI-36530-S77	—	Unventilated Door .....	99.00
MI-36541-B77	—	Side Panels .....	60.00
MI-36521-B1	—	Top Cover, ventilated .....	18.00
MI-36546-A21	—	Electrical Shield, top and bottom .....	16.00
MI-36546-A28	—	Electrical Shield, midsection .....	15.00
MI-30566-A77	—	Trim Strip, single .....	27.00
MI-30568-A77	—	Trim Strip, double .....	32.00
MI-30527-A29	—	Terminal Board Mounting Angles .....	16.00
MI-30526-A77	—	Panel Mounting Angles .....	26.00
MI-4570-A2	—	Terminal Board Bracket .....	12.00
MI-11550	BR-19	Rack Cabinet .....	165.00
MI-4570-A2	—	Terminal Board Bracket .....	12.00
MI-4568	—	Terminal Block .....	9.50
MI-4569	—	Terminal Block .....	10.50
MI-4570	—	Mounting Bracket .....	12.00
MI-11728	—	Ground-Bus Kit .....	5.00
MI-26176-1	—	Circuit Breaker, 2.5A .....	23.00
MI-26176-2	—	Circuit Breaker, 5A .....	23.00
MI-26176-3	—	Circuit Breaker, 10A .....	23.00
MI-26176-4	—	Circuit Breaker, 20A .....	23.00
MI-26176-5	—	Circuit Breaker, 40A .....	23.00
MI-11792	—	Mounting Panel .....	31.00
MI-36570-1	—	Rack Wiring Kit .....	47.00
MI-36570-2	—	Rack Wiring Kit .....	52.50
MI-11597	BR-22	Rack-Mount Equipment Shelf .....	54.00



CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>CABINET RACKS, JACK PANELS, PATCH CORDS, RACK ACCESSORIES—Section AU.7010 (Cont.)</b>			
MI-3090	—	Aluminum Panel, 1¾" width .....	\$ 5.70
MI-3091	—	Aluminum Panel, 3½" width .....	6.30
MI-3092	—	Aluminum Panel, 5¼" width .....	8.40
MI-3093	—	Aluminum Panel, 7" width .....	9.45
MI-36547-1	—	Steel Panel, 1¾" width .....	6.50
MI-36547-2	—	Steel Panel, 3½" width .....	7.50
MI-36547-3	—	Steel Panel, 5¼" width .....	9.50
MI-36547-4	—	Steel Panel, 7" width .....	11.00
MI-36547-5	—	Steel Panel, 8¾" width .....	12.00
MI-36547-6	—	Steel Panel, 10½" width .....	15.50
MI-11646	BJ-12	Jack Panel, 12 jack pairs .....	35.00
MI-11645	BJ-24	Jack Panel, 24 jack pairs .....	63.00
MI-11666	BJ-20	Jack Panel, 20 Tip-Ring-Sleeve Jacks .....	63.00
MI-11647-1	—	Jack Mat for single BJ-24 panel .....	6.50
MI-11647-2	—	Jack Mat for double BJ-24 panel .....	8.50
MI-4652-2	PJ-12	Patch Cord, 24" long .....	9.20
MI-4652-4	PJ-14	Patch Cord, 48" long .....	9.50
MI-4652-6	PJ-16	Patch Cord, 72" long .....	11.00
MI-4652D-2	PJ-72	Patch Cord, 24" long .....	13.00
MI-11755-2	—	Form C Leaf Switch .....	Disc.
MI-11754	—	Panel .....	Disc.
<b>STUDIO FURNITURE—Section AU.7210</b>			
MI-141032	—	Cartridge Tape Machine Cabinet .....	142.00
MI-141033	—	Cartridge Tape Machine Cabinet .....	175.00
MI-141034	—	Cartridge Tape Machine Cabinet .....	99.00
MI-141035	—	Cartridge Tape Machine Cabinet .....	127.00
MI-141037	—	Cartridge Storage Case .....	167.00
MI-141038	—	Cartridge Storage Case .....	120.00
MI-141030-1	—	Table .....	160.00
MI-141030-2	—	Table .....	175.00
MI-141030-3	—	Table .....	195.00
MI-141031	—	Wire Duct, Adjustable .....	22.00
MI-141026-1	—	Turntable Console .....	125.00
MI-141026-2	—	Turntable Console .....	135.00
MI-141026-3	—	Turntable Console .....	145.00
MI-141027	—	Blank Panel .....	25.00
MI-141039	WR-25	Wall-Mount Cart Rack .....	13.50
MI-141041	MR-200	Mobile Cart Rack .....	150.00
MI-141040	MRB-1	Mobile Rack Base .....	42.00
<b>AUDIO RELAY SWITCHER MODULE—Section AU.7410</b>			
MI-11787	—	Audio Relay Switcher .....	200.00
MI-11787N	—	Audio Relay Switcher .....	200.00
MI-557300	—	Standard Frame Assembly .....	95.00
MI-11318	BX-51	Power Supply .....	149.00
MI-11789	—	Mating Connector Kit .....	20.00
MI-11790	—	Connector Assembly .....	137.00
MI-11791	—	Bridging Transformer .....	27.00
<b>AUDIO SWITCHER MODULE—Section AU.7412</b>			
MI-141450	—	Audio Relay Switcher Module .....	219.00
MI-11318	BX-51	Power Supply, 24V .....	149.00
MI-3537	—	Power Supply, 24V .....	Disc.
MI-11791	—	Bridging Transformer .....	27.00
MI-141453	—	Main Frame .....	163.00
MI-141452	—	Matrix Assembly .....	606.00
MI-141451	—	Connector Kit .....	24.00
MI-141449	—	Module Extender .....	on Request
<b>AUDIO ACCESSORIES—Section AU.7610</b>			
MI-4171-29	—	Balanced H Pad .....	12.00
MI-4171-30	—	Balanced H Pad .....	12.00
MI-4171-32	—	Balanced H Pad .....	11.00
MI-4171-39	—	Balanced H Pad .....	11.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>AUDIO ACCESSORIES—Section AU.7610 (Cont.)</b>			
MI-11704	—	Dividing Network	\$ 11.80
MI-11704A	—	Dividing Network	12.00
MI-11704B	—	Dividing Network	15.00
MI-11704D	—	Dividing Network	17.00
MI-11705	—	Isolation Pad	14.00
MI-11793	—	Fixed Attenuator	11.00
MI-11265	BI-5	Mono VU-Meter Panel	260.00
MI-11265S	BI-5S	Stereo VU-Meter Panel	390.00
MI-11278E	—	Volume Control	10.50
MI-11278F	—	Volume Control	9.50
MI-11717	—	Lighted Studio Sign	37.50
ES-11706-1	—	Above with "On-Air" glass	48.50
ES-11706-2	—	Above with "Rehearsal" glass	48.50
ES-11706-3	—	Sign with "Audition" glass	48.00
ES-11706-4	—	Sign with "Standby" glass	48.00
ES-11706-5	—	Sign with "Silence" glass	48.00
ES-11706-6	—	Sign with "Recording" glass	48.00
MI-11718-1	—	"On-Air" glass	11.00
MI-11718-2	—	"Rehearsal" glass	11.00
MI-11718-3	—	"Audition" glass	10.50
MI-11718-4	—	"Standby" glass	10.50
MI-11718-5	—	"Silence" glass	10.50
MI-11718-6	—	"Recording" glass	10.50
MI-11758	RB-89	Studio Clock	19.00
MI-11788-3	—	Studio Clock	19.00
MI-11752	BE-2	Line Equalizer	72.00
MI-4591	—	Rack-Mount Panel	Disc.
MI-11713	—	Line-Match Transformer	36.00
ES-11466	BE-100R	Zero-Loss Equalizer	450.00
<b>TRANSFORMERS, WIRE AND CABLE—Section AU.7910</b>			
MI-11712	—	Bridging Transformer	28.00
MI-11791	—	Bridging Transformer	27.00
MI-11713	—	Matching Transformer	36.00
MI-141001	—	Matching Transformer	37.00
MI-9471	—	Autoformer Speaker Transformer (25W)	17.00
MI-9472	—	Autoformer Speaker Transformer (100W)	30.00
MI-11731	—	Autoformer Speaker Transformer (8W)	4.25
MI-12368	—	Speaker Matching Transformer	3.00
MI-11686	—	Matching Transformer	15.00
MI-141011	—	Matching Transformer	49.00
MI-141010-85	—	Stepdown Transformer	25.00
MI-141010-125	—	Stepdown Transformer	26.00
MI-141010-175	—	Stepdown Transformer	27.00
MI-141010-250	—	Stepdown Transformer	28.00
MI-141010-500	—	Stepdown Transformer	32.00
MI-141010-1200	—	Stepdown Transformer	38.00
MI-43	—	Microphone Cable, 100-foot hank	35.00
MI-13307	—	Microphone Cable, 100-foot hank	38.00
MI-13322	—	Microphone Cable, 100-foot hank	21.00
MI-13373	—	Microphone Cable, 100-foot hank	22.00
MI-13342-2	—	Stranded Audio Cable, 100-foot hank	10.00
MI-13342-4	—	Stranded Audio Cable, 100-foot hank	7.00
MI-34	—	Stranded Audio Cable, 100-foot hank	6.00
MI-35	—	Stranded Audio Cable, 100-foot hank	10.00
MI-13395-1	—	Stranded Audio Cable, 100-foot hank	5.00
MI-33	—	Solid Audio Cable, 100-foot hank	6.00
MI-13342-1	—	Solid Audio Cable, 100-foot hank	8.00
<b>PHONO EQUIPMENT—Section AU.8010</b>			
MI-11810D	BQ-51	Dual-Speed Turntable, 60 Hz	475.00
MI-11810E	BQ-51	Dual-Speed Turntable, 50 Hz	485.00
MI-141026-1	—	Turntable Console	125.00
MI-141026-2	—	Turntable Console	135.00
MI-141026-3	—	Turntable Console	145.00
MI-141010-85	—	Stepdown Transformer	25.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>PHONO EQUIPMENT—Section AU.8010 (Cont.)</b>			
MI-141004	BQ-50	Three-Speed Turntable, 60 Hz .....	\$ 199.00
MI-141004A	BQ-50	Three-Speed Turntable, 50 Hz .....	220.00
MI-141010-85	—	Stepdown Transformer .....	25.00
MI-141026-1	—	Turntable Console .....	125.00
MI-141026-2	—	Turntable Console .....	135.00
MI-141026-3	—	Turntable Console .....	145.00
MI-11473A	BDR-1	Integrated Pickup Arm and Cartridge .....	149.00
MI-11472	—	Spare Cartridge .....	36.00
MI-11474-2	—	Diamond Stylus Assembly .....	22.00
MI-11474-4	—	Diamond Stylus Assembly .....	22.00
MI-11474-7	—	Diamond Stylus Assembly .....	21.00
MI-11474-10	—	Diamond Stylus Assembly .....	21.00
MI-11474-25	—	Diamond Stylus Assembly .....	19.00
MI-11894	—	Tone Arm, 12-inch .....	95.00
MI-11895	—	Tone Arm, 16-inch .....	99.00
MI-11865	—	Universal Pickup Cartridge .....	26.00
MI-11866-7	—	Stylus Assembly .....	19.85
MI-11866-10	—	Stylus Assembly .....	19.85
MI-11866-25	—	Stylus Assembly .....	19.85
MI-11436	BA-26	Mono Preamp-Equalizer .....	156.00
MI-11441	BA-36	Stereo Preamp-Equalizer .....	249.00
MI-11809	—	Turntable Cabinet .....	145.00
MI-141005	—	Adapter Plate .....	40.00
<b>REEL-TO-REEL TAPE RECORDER—Section AU.8210</b>			
MI-41920	RT-21	Mono, Full-Track Recorder .....	2,420.00
MI-41921	RT-21	Mono, Dual Half-Track Recorder .....	2,420.00
MI-41921S	RT-21	Stereo, Dual Half-Track Recorder .....	2,995.00
MI-41930	RT-21	Mono, Full-Track Recorder .....	2,420.00
MI-41931	RT-21	Mono, Half-Track Recorder .....	2,420.00
MI-41931S	RT-21	Stereo, Dual Half-Track Recorder .....	2,995.00
MI-41604	—	NAB Reel Hub .....	35.00
MI-11932-2	—	Empty 10½" NAB Reel .....	4.00
MI-11992	—	Bulk Tape Eraser .....	39.00
MI-41602	—	Fourth Head Kit .....	195.00
MI-41605	—	Stepdown Transformer .....	40.00
MI-141301	—	Remote Control Panel .....	145.00
MI-141351	—	Record/Playback Amplifier Module .....	520.00
MI-141302	—	Portable Carrying Case .....	150.00
MI-141303	—	Console Cabinet .....	332.00
MI-141308	—	Remote Control Panel Housing .....	32.00
MI-141325	—	Stereo Head Mounting Kit .....	25.00
<b>REEL-TO-REEL TAPE REPRODUCER—Section AU.8240</b>			
MI-141916	RT-20	Full-Track Mono Machine .....	1,695.00
MI-141942	RT-20	Full-Track Mono Machine .....	1,695.00
MI-141913	RT-20	Half-Track Mono Machine .....	1,695.00
MI-141915	RT-20	Half-Track Mono Machine .....	1,695.00
MI-141912	RT-20	Half-Track Stereo Machine .....	1,895.00
MI-141914	RT-20	Half-Track Stereo Machine .....	1,895.00
MI-41604	—	NAB Reel Hub .....	35.00
MI-11932-2	—	Empty 10½" NAB Reel .....	4.00
MI-11992	—	Bulk Eraser .....	39.00
MI-41605	—	Stepdown Transformer .....	40.00
MI-141301	—	Remote Control Panel .....	145.00
MI-141302	—	Portable Carrying Case .....	150.00
MI-141303	—	Console Cabinet .....	332.00
MI-141308	—	Remote Control Panel Housing .....	32.00
MI-141325	—	Stereo Head Mounting Kit .....	25.00
<b>PROGRAM LOGGER—Section AU.8250</b>			
MI-141904-1	RT-19	Logger Tape Recorder .....	1,595.00
MI-141904-2	RT-19	Logger Tape Recorder .....	1,595.00
MI-141904-3	RT-19	Logger Tape Recorder .....	1,595.00
MI-141905-1	RT-19	Logger Tape Recorder .....	1,695.00
MI-141905-2	RT-19	Logger Tape Recorder .....	1,695.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>PROGRAM LOGGER—Section AU.8250 (Cont.)</b>			
MI-141905-3	RT-19	Logger Tape Recorder .....	\$ 1,695.00
MI-141906-1	RT-19	Logger Tape Recorder .....	1,945.00
MI-141906-2	RT-19	Logger Tape Recorder .....	1,945.00
MI-141906-3	RT-19	Logger Tape Recorder .....	1,945.00
<b>CARTRIDGE TAPE PLAYERS AND RECORDERS—Section AU.8420</b>			
MI-141750-1	RT-125	Mono Cart Player .....	660.00
MI-141750-2	RT-125	Mono Cart Player .....	690.00
MI-141750-3	RT-125	Mono Cart Player .....	720.00
MI-141750-4	RT-125	Mono Cart Player .....	765.00
MI-141750-5	RT-125	Mono Cart Player .....	800.00
MI-141750-6	RT-125	Mono Cart Player .....	885.00
MI-141750-7	RT-125	Mono Cart Player .....	920.00
MI-141751-1	RT-125S	Stereo Cart Player .....	795.00
MI-141751-2	RT-125S	Stereo Cart Player .....	825.00
MI-141751-3	RT-125S	Stereo Cart Player .....	855.00
MI-141751-4	RT-125S	Stereo Cart Player .....	920.00
MI-141751-5	RT-125S	Stereo Cart Player .....	950.00
MI-141751-6	RT-125S	Stereo Cart Player .....	1,045.00
MI-141751-7	RT-125S	Stereo Cart Player .....	1,075.00
MI-141752-1	RT-126	Mono Cart Player .....	725.00
MI-141752-2	RT-126	Mono Cart Player .....	755.00
MI-141752-3	RT-126	Mono Cart Player .....	785.00
MI-141752-4	RT-126	Mono Cart Player .....	830.00
MI-141752-5	RT-126	Mono Cart Player .....	865.00
MI-141752-6	RT-126	Mono Cart Player .....	950.00
MI-141752-7	RT-126	Mono Cart Player .....	985.00
MI-141753-1	RT-126S	Stereo Cart Player .....	895.00
MI-141753-2	RT-126S	Stereo Cart Player .....	925.00
MI-141753-3	RT-126S	Stereo Cart Player .....	955.00
MI-141753-4	RT-126S	Stereo Cart Player .....	1,020.00
MI-141753-5	RT-126S	Stereo Cart Player .....	1,050.00
MI-141753-6	RT-126S	Stereo Cart Player .....	1,145.00
MI-141753-7	RT-126S	Stereo Cart Player .....	1,175.00
MI-141756-1	RT-127	Mono Cart Player .....	775.00
MI-141756-2	RT-127	Mono Cart Player .....	805.00
MI-141756-3	RT-127	Mono Cart Player .....	835.00
MI-141756-4	RT-127	Mono Cart Player .....	880.00
MI-141756-5	RT-127	Mono Cart Player .....	915.00
MI-141756-6	RT-127	Mono Cart Player .....	1,000.00
MI-141756-7	RT-127	Mono Cart Player .....	1,035.00
MI-141757-1	RT-127S	Stereo Cart Player .....	950.00
MI-141757-2	RT-127S	Stereo Cart Player .....	980.00
MI-141757-3	RT-127S	Stereo Cart Player .....	1,010.00
MI-141757-4	RT-127S	Stereo Cart Player .....	1,075.00
MI-141757-5	RT-127S	Stereo Cart Player .....	1,105.00
MI-141757-6	RT-127S	Stereo Cart Player .....	1,200.00
MI-141757-7	RT-127S	Stereo Cart Player .....	1,230.00
MI-141754-1	RT-126R	Mono Cart Recorder/Player .....	1,125.00
MI-141754-2	RT-126R	Mono Cart Recorder/Player .....	1,195.00
MI-141754-3	RT-126R	Mono Cart Recorder/Player .....	1,265.00
MI-141754-4	RT-126R	Mono Cart Recorder/Player .....	1,290.00
MI-141754-5	RT-126R	Mono Cart Recorder/Player .....	1,340.00
MI-141754-6	RT-126R	Mono Cart Recorder/Player .....	1,390.00
MI-141754-7	RT-126R	Mono Cart Recorder/Player .....	1,460.00
MI-141755-1	RT-126SR	Stereo Cart Recorder/Player .....	1,495.00
MI-141755-2	RT-126SR	Stereo Cart Recorder/Player .....	1,565.00
MI-141755-3	RT-126SR	Stereo Cart Recorder/Player .....	1,635.00
MI-141755-4	RT-126SR	Stereo Cart Recorder/Player .....	1,655.00
MI-141755-5	RT-126SR	Stereo Cart Recorder/Player .....	1,725.00
MI-141755-6	RT-126SR	Stereo Cart Recorder/Player .....	1,780.00
MI-141755-7	RT-126SR	Stereo Cart Recorder/Player .....	1,850.00
MI-141758-1	RT-127R	Mono Cart Recorder/Player .....	1,175.00
MI-141758-2	RT-127R	Mono Cart Recorder/Player .....	1,245.00
MI-141758-3	RT-127R	Mono Cart Recorder/Player .....	1,315.00
MI-141758-4	RT-127R	Mono Cart Recorder/Player .....	1,335.00



CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>CARTRIDGE TAPE PLAYERS &amp; ACCESSORIES—Section AU.8420 (Cont.)</b>			
MI-141758-5	RT-127R	Mono Cart Recorder/Player .....	\$ 1,390.00
MI-141758-6	RT-127R	Mono Cart Recorder/Player .....	1,440.00
MI-141758-7	RT-127R	Mono Cart Recorder/Player .....	1,510.00
MI-141759-1	RT-127SR	Stereo Cart Recorder/Player .....	1,550.00
MI-141759-2	RT-127SR	Stereo Cart Recorder/Player .....	1,620.00
MI-141759-3	RT-127SR	Stereo Cart Recorder/Player .....	1,690.00
MI-141759-4	RT-127SR	Stereo Cart Recorder/Player .....	1,730.00
MI-141759-5	RT-127SR	Stereo Cart Recorder/Player .....	1,780.00
MI-141759-6	RT-127SR	Stereo Cart Recorder/Player .....	1,835.00
MI-141759-7	RT-127SR	Stereo Cart Recorder/Player .....	1,905.00
MI-141717	—	High-Level Isolation Input Transformer .....	36.00
MI-141808	—	Head-Cleaner Cartridge .....	11.00
MI-141809	—	Torque-Test Cartridge .....	13.00
MI-141810	—	Spread-Test Cartridge .....	15.00
MI-11993-4	—	Azimuth Alignment and Frequency Response Test Cartridge .....	43.00
MI-11992	—	Bulk Tape Eraser .....	39.00
MI-11995	—	Tape Head Degausser .....	27.00
MI-11996	—	Tape Head Degausser .....	40.00
MI-141036-1	SFE-1	Splice-Finder/Bulk Eraser (60 Hz) .....	360.00
MI-141038-2	SFE-2	Splice-Finder/Bulk Eraser (50 Hz) .....	380.00
MI-141988	—	Tape Carts (See Secion AU.8900) .....	←
MI-11988	—	Tape Carts (See Secion AU.8900) .....	←
MI-141732	—	Kit, Alignment Tools .....	39.00
MI-141721	—	Desk-Top Cabinet .....	29.00
MI-141722	—	Desk-Top Cabinet .....	49.00
MI-141723	—	Desk-Top Cabinet .....	69.00
MI-141725	—	Rack Shelf .....	49.00
MI-141728	—	Blank Panel .....	18.00
MI-141729	—	Blank Panel .....	19.00
MI-141726	—	Four-Unit Remote-Control Panel .....	80.00
MI-141727	—	Five-Button Remote Control Panel .....	90.00
MI-141731	—	Extender Board .....	48.00
<b>CARTRIDGE-TAPE CAROUSEL—Section AU.8440</b>			
MI-141901	RT-25	Mono Cart Tape Carousel .....	1,524.00
MI-141911	RT-25	Mono Cart Tape Carousel .....	1,474.00
MI-141900	RT-25	Stereo Cart Tape Carousel .....	1,664.00
MI-141910	RT-25	Stereo Cart Tape Carousel .....	1,614.00
MI-141923	—	Fifty-Event Programmer .....	1,248.00
MI-141924	—	Interface Assembly .....	on Request
MI-141010-125	—	Step-Down Transformer .....	26.00
MI-141808	—	Head-Cleaner Cartridge .....	11.00
MI-141809	—	Torque-Test Cartridge .....	13.00
MI-141810	—	Strobe Test Cartridge .....	15.00
MI-11993-4	—	Azimuth Alignment and Frequency Response Test Cartridge .....	43.00
<b>TAPE-RECORDER ACCESSORIES—Section AU.8900</b>			
MI-11988-1	300	Fidelipac Cartridges, 40 sec., Pkg. of 6 .....	14.00
MI-11988-2	300	Fidelipac Cartridges, 70 sec., Pkg. of 6 .....	14.50
MI-11988-11	300	Fidelipac Cartridges, 2.5 min., Pkg. of 6 .....	16.50
MI-11988-3	300	Fidelipac Cartridges, 3.5 min., Pkg. of 6 .....	17.50
MI-11988-4	300	Fidelipac Cartridges, 5.5 min., Pkg. of 6 .....	20.00
MI-11988-5	300	Fidelipac Cartridges, 10.5 min., Pkg. of 6 .....	25.00
MI-11988-6	600	Fidelipac Cartridges, 16 min., Pkg. of 2 .....	13.50
MI-11988-7	1200	Fidelipac Cartridges, 31 min., Pkg. of 2 .....	22.00
MI-11988-8	300	Fidelipac Cartridges, no tape, Pkg. of 6 .....	12.00
MI-11988-9	600	Fidelipac Cartridges, no tape, Pkg. of 2 .....	6.00
MI-11988-10	1200	Fidelipac Cartridges, no tape, Pkg. of 2 .....	9.00
MI-141988-1	300	Marathon Cartridges, 40 sec., Pkg. of 6 .....	13.00
MI-141988-2	300	Marathon Cartridges, 70 sec., Pkg. of 6 .....	13.50
MI-141988-3	300	Marathon Cartridges, 90 sec., Pkg. of 6 .....	14.50
MI-141988-4	300	Marathon Cartridges, 2.5 min., Pkg. of 6 .....	15.50
MI-141988-5	300	Marathon Cartridges, 3.5 min., Pkg. of 6 .....	16.50
MI-141988-6	300	Marathon Cartridges, 5.5 min., Pkg. of 6 .....	19.00
MI-141988-11	300	Marathon Cartridges, 7.5 min., Pkg. of 6 .....	21.00
MI-141988-7	300	Marathon Cartridges, 10.5 min., Pkg. of 6 .....	10.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>TAPE-RECORDER ACCESSORIES—Section AU.8900 (Cont.)</b>			
MI-141988-8	600	Marathon Cartridges, 15.5 min., Pkg. of 2	\$ 14.00
MI-141988-30	300	Marathon Cartridges, no tape, Pkg. of 6	11.00
MI-141988-60	600	Marathon Cartridges, no tape, Pkg. of 2	7.00
MI-11993-4	—	Azimuth Alignment and Frequency Response Test Cartridge	43.00
MI-141808	—	Head-Cleaner Cartridge	11.00
MI-141809	—	Torque-Test Cartridge	13.00
MI-141810	—	Speed-Test Cartridge	15.00
MI-11995	—	Tape Head Degausser	27.00
MI-11996	—	Tape Head Degausser	40.00
MI-11992	—	Bulk Tape Eraser	39.00
MI-11974-1	—	Power Supply Board	44.00
MI-11974-3	—	Cue Amplifier Board	54.00
MI-11974-5	—	Bias and Cue-Tone Board	84.00
MI-11974-6	—	Record Amplifier Board	79.00
MI-141726	—	Remote Control Panel	80.00
MI-141727	—	Remote Control Panel	90.00
MI-141800-1	—	Relay (Two Form C)	15.00
MI-141800-2	—	Relay (Four Form C)	15.00
MI-141800-3	—	Relay (Six Form C)	15.00
MI-41604	—	NAB Reel Hub	35.00
MI-11932-2	—	Empty 10½-inch NAB Reel	4.00
MI-141301	—	Remote-Control Panel	145.00
MI-141308	—	Remote-Control Panel Housing	32.00
MI-141351	RT-21	Spare Record/Play Amplifier Module	520.00
MI-141350-1	—	Equalizer, Plug-In	16.50
MI-141350-2	—	Equalizer, Plug-In	16.50
MI-141350-3	—	Equalizer, Plug-In	12.00
MI-141350-4	—	Equalizer, Plug-In	12.00
MI-141302	—	Portable Carrying Case	150.00
MI-141303	—	Console Cabinet	332.00
MI-41602	—	Fourth-Head Kit	195.00
MI-141325	—	Stereo Head-Mounting Kit	25.00
MI-141010-175	—	Stepdown Transformer	27.00
MI-141010-125	—	Stepdown Transformer	26.00
MI-141710-1	—	Mono Playback Amplifier Module	120.00
MI-141710-2	—	As Above, plus Audio Switcher Module	160.00
MI-141711-1	—	Stereo Playback Amplifier Module	237.00
MI-141711-2	—	As Above, plus Audio Switcher Module	285.00
MI-141712-1	—	Stop-Cue Module, 1000Hz	115.00
MI-141712-2	—	As Above, plus 150Hz End-Cue Module	147.00
MI-141712-3	—	As Above, plus 8000Hz Trip-Cue Module	180.00
MI-141713-1	—	Mono Playback Logic Module	59.00
MI-141713-2	—	As Above, plus Audio Switcher Module	97.00
MI-141713-4	—	As Above, plus Fast-Forward Module	144.00
MI-141713-3	—	Stereo Playback Logic Module	105.00
MI-141713-5	—	As Above, plus Fast-Forward Module	152.00
MI-141714-1	—	Record Logic Module	200.00
MI-141714-2	—	As Above, plus End-Cue Module	240.00
MI-141714-3	—	As Above, plus Trip-Cue Module	280.00
MI-141715-1	—	Mono Record Amplifier	126.00
MI-141715-2	—	As Above but with Microphone Preamplifier	216.00
MI-141716-1	—	Stereo Record Amplifier	252.00
MI-141716-2	—	As Above but with Microphone Preamplifier	432.00
MI-141725	—	Rack Shelf	49.00
MI-141728	—	Blank Fill Panel	18.00
MI-141729	—	Blank Fill Panel	19.00
MI-141721	—	Desk-Top Cabinet (for RT-125)	29.00
MI-141722	—	Desk-Top Cabinet (for RT-126)	49.00
MI-141723	—	Desk-Top Cabinet (for RT-127)	69.00
MI-141718	—	Fast-Forward Relay, Plug-In	9.95
MI-141731	—	Module Extender	48.00
MI-141717	—	High-Level Input Transformer	36.00
MI-141720	—	Heavy-Duty Cue Relay and Panel	130.00
MI-141039	WR-25	Wall-Mount Cart Rack	13.50
MI-141041	MR-200	Mobile Cart Rack	150.00
MI-141040	MRB-1	Mobile Rack Base	42.00

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>CARTRIDGE-TAPE SPLICE-FINDER/BULK ERASER—Section AU.8910</b>			
MI-141036-1	SFE-1	Cartridge-Tape Splice Finder/Bulk Eraser	\$ 360.00
MI-141036-2	SFE-2	Cartridge-Tape Splice Finder/Bulk Eraser	380.00
MI-141010-1200	—	Step-Down Transformer	38.00
<b>LOUDSPEAKERS AND ENCLOSURES—Section AU.9020</b>			
MI-11411	LC-1	Duo-Cone Loudspeaker	199.00
MI-11406	LS-1	Wall-Mount Enclosure	96.50
MI-11415	LS-11	Olson Floor Enclosure	290.00
MI-38311	SL-8	Dioplex Cone 8-inch Speaker	10.50
MI-11407	LS-3	Wall-Mount Enclosure	90.00
MI-11414-2	—	Wall-Mount Paging Baffle	25.00
MI-12454	SL-890	Dioplex Speaker, 8-inch	6.75
MI-38304	SL-890	Dioplex Speaker, 8-inch, less transformer	4.25
MI-11407	LS-3	Wall-Mount Enclosure	90.00
MI-11414-2	—	Wall-Mount Paging Baffle	25.00
MI-38315	SL-12	Dioplex Speaker, 12-inch	19.00
MI-11407	LS-3	Wall-Mount Enclosure	90.00
MI-11414-2	—	Wall-Mount Paging Baffle	25.00
ES-11423	LC-9	50-Watt Auditorium Loudspeaker System	599.00
MI-38351	—	Column Speaker System	124.00
MI-11415	LS-11	Olson Floor Cabinet	290.00
MI-11406	LS-1	Wall-Mount Enclosure	96.50
MI-11407	LS-3	Wall-Mount Speaker Enclosure	90.00
MI-11414-2	—	Paging Baffle, Wall Mount	25.00
<b>AUDIO LEVEL METER—Section AU.9610</b>			
MI-141022	BI-100	Audio Level Meter	199.50
—	471B	Waveforms Audio Oscillator	350.00
—	471F	Waveforms Audio Oscillator	450.00
—	473B	Waveforms Audio Oscillator	450.00
—	510C	Waveforms Audio Oscillator	250.00
—	512F	Waveforms Audio Oscillator	575.00
—	210	Barker & Williamson Audio Oscillator	357.50
—	651B	Hewlett-Packard Test Oscillator	790.00
—	652A	Hewlett-Packard Test Oscillator	950.00
—	209A	Hewlett-Packard Oscillator	425.00
—	WA-44C	RCA Audio Sinewave/Squarewave Generator	99.95
—	WA-504A	RCA Solid State Sinewave/Squarewave Generator	99.95
—	452A	Waveforms Transmission-Line Test Set	1,190.00
—	452B	Waveforms Transmission-Line Test Set	1,600.00
—	5246P	Waveforms Transmission-Line Test Set, Portable	550.00
—	5246R	Waveforms Transmission-Line Test Set, Rack-Mount	590.00
—	454A	Waveforms Attenuator Box	275.00
—	350D	Hewlett-Packard Attenuator	199.50
—	456A	Waveforms Distortion Analyzer	250.00
—	410	Barker & Williamson Distortion Meter	390.00
—	331A	Hewlett-Packard Distortion Analyzer	815.00
—	332A	Hewlett-Packard Distortion Analyzer	850.00
—	333A	Hewlett-Packard Distortion Analyzer	1,100.00
—	334A	Hewlett-Packard Distortion Analyzer	1,140.00
—	5146P	Waveforms Noise and Distortion Test Set, Portable	800.00
—	5146R	Waveforms Noise and Distortion Test Set, Rack-Mount	840.00
—	610B	Waveforms Audio Sweep Generator	1,500.00
—	610D	Waveforms Audio Sweep Generator	1,750.00
—	520A	Waveforms AC Vacuum-Tube Voltmeter	300.00
—	520D	Waveforms AC Vacuum-Tube Voltmeter	300.00
—	520L	Waveforms Logarithmic AC VTVM	320.00
—	WV-76A	RCA High Sensitivity AC VTVM	99.00
—	WV-77E	RCA VoltOhmyst	69.50
—	WV-98C	RCA Senior VoltOhmyst	99.95
—	WV-500B	RCA Solid-State Senior VoltOhmyst	99.95
—	WV-510A	RCA Solid-State Master VoltOhmyst	135.00
—	WV-38A	RCA Volt-Ohm-Milliammeter	69.50
—	WV-516A	RCA VOM Pin-Jack Connector	14.95

CATALOG NUMBER	TYPE NUMBER	PRODUCT DESCRIPTION	PRICE
<b>AUDIO LEVEL METER—Section AU.9610 (Cont.)</b>			
—	WV-517A	RCA VOM .....	\$ 24.95
—	WV-518A	RCA VOM .....	36.00
—	WV-519A	RCA VOM .....	44.75
—	WV-520A	RCA VOM .....	59.90
—	620B	Waveforms Frequency Meter .....	900.00
—	620D	Waveforms Frequency Meter .....	1,150.00
—	321A	Tektronix Oscilloscope .....	1,250.00
—	323	Tektronix Oscilloscope .....	1,150.00
—	535A	Tektronix Oscilloscope .....	1,825.00
—	422	Tektronix Oscilloscope .....	1,800.00
—	WO-33A	RCA Oscilloscope .....	229.00
—	WO-505A	RCA Oscilloscope .....	329.00
—	331A	Barker & Williamson Grid Dip Meter .....	on Request
—	WR-50B	RCA Stereo Simulator .....	89.90
—	WV-511A	RCA Picture Ammeter .....	250.00
—	WT-501A	RCA Transistor Tester .....	75.00
—	WV-506A	RCA Transistor Checker .....	19.95
—	WC-528A	RCA Transistor Curve Checker .....	14.75
—	WV-120A	RCA Power Line Monitor .....	24.50
—	WV-503A	RCA Power Line Monitor .....	24.50









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