

BROADCAST AUDIO EQUIPMENT

Type 76-C

Studio Console



RADIO CORPORATION OF AMERICA
ENGINEERING PRODUCTS DEPARTMENT CAMDEN, N. J.

IB-24483

BROADCAST AUDIO EQUIPMENT

INSTRUCTIONS

Type 76-C Studio Consolette

(MI-11624 CONSOLETTTE)

(MI-11301-B POWER SUPPLY)

**RADIO CORPORATION OF AMERICA
ENGINEERING PRODUCTS DEPARTMENT, CAMDEN, N. J.**

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TECHNICAL DATA

Power Required

One MI-11301-B Power Supply, or similar equipment to supply the following:

a. D-C Plate Supply

Term.	Volts	Milliamperes
116	375	62.0
115	210	1.2
114	278	5.1
104	285	42.0
105	220	4.6
106 (Reg.)	220	21.0
106 (Emg.)	200	13.0

b. A-C Filament Supply

Term.	Volts	Amperes
112 and 113	6.2	2.7
109 and 110	6.2	1.6
107 and 108	6.2	0.3
101 and 102	6.2	3.0

c. D-C Relay Supply

Term.	Volts	Milliamperes
117 and 118	60	100.0

Tubes

MI-11268 Tube Kit

- | | |
|-------------------|--------------------|
| 1. 13 RCA-1620 | } for consolette |
| 2. 2 RCA-1621 | |
| 3. 2 RCA-1622 | |
| 4. 1 RCA-5R4-GY | } for power supply |
| 5. 1 RCA-5Y3-GT/G | |

MI-11268-A Tube Kit*

- | | |
|-------------------|--------------------|
| 1. 13 RCA-6J7 | } for consolette |
| 2. 2 RCA-6F6 | |
| 3. 2 RCA-6L6 | |
| 4. 1 RCA-5R4-GY | } for power supply |
| 5. 1 RCA-5Y3-GT/G | |

* May be used when maximum uniformity of characteristics, and minimum of microphonics, hum and distortion are not required.

Inputs

- Six 30- or 250-ohm microphone inputs (balanced), and two unbalanced
 - One 250-ohm talk-back microphone input (balanced)
 - Four remote-line inputs, 600- or 150-ohm, balanced or unbalanced**
- ** When these inputs are to be used, two line- or bridging transformers must be connected between the remote lines and Mixers 5 and 6 as directed under *Installation*.
- Two 250-ohm transcription inputs (unbalanced)
 - Five 20,000-ohm monitor cue lines (balanced)

Outputs

- One 500- to 600-ohm line
- Three 15-ohm monitor lines for speakers
- One high-impedance headphone output (2000 to 5000 ohms)
- One 10,000-ohm output for external recording (See *Installation*)
- One 600-ohm unbalanced output for external transcription turntable cueing amplifier

Noise Level

68 db signal-to-noise ratio (Microphone input at -50 dbm, to program amplifier output at +18 dbm)

68 db signal-to-noise ratio (Microphone input to monitor output at 4 watts, +36 dbm)

Gain

- Microphone input to line output: 110 ± 2 db
- Transcription input to line output: 110 ± 2 db
- Remote line input to line output: $79 \pm 1\frac{1}{2}$ db
- Microphone input to monitor output: 108 ± 2 db
- Remote line input to monitor output: 77 ± 2 db
- Transcription input to monitor output: 108 ± 2 db
- Cue input to monitor output: 36 ± 2 db
- Talkback input to monitor output: 93 ± 2 db
- Microphone input to emergency line output: 91 ± 2 db
- Remote line through override: $27 \pm 2\frac{1}{2}$ db
- External record: $72 \text{ db} \pm 2 \text{ db}$ when terminated by 620 ohms
- Remote talkback: 75 ± 2 db

Line Output Level

+18 dbm with 0.5% rms harmonic distortion from 100 to 7500 cycles and 0.65% rms harmonic distortion at 50 cycles

Frequency Response

- Microphone input to line output: ± 2.0 db from 30 to 15,000 cycles
- Microphone input to monitor output: ± 2 db from 30 to 15,000 cycles (audition channel)

Monitor Power Output

- 4.0 watts (+36 dbm) with $1\frac{1}{2}\%$ rms harmonic distortion from 50 to 7500 cycles
- 8.0 watts (+39 dbm) with 3% rms harmonic distortion from 50 to 7500 cycles

Dimensions and Weight

Width—39 inches
 Depth—17 inches
 Height— $10\frac{1}{2}$ inches
 Weight—135 pounds

TYPE 76-C CONSOLETTA

PART I

Description

GENERAL

The Type 76-C Console, MI-11624, is a complete broadcast-audio control unit. The major function of the console is to mix and amplify the outputs of microphones, transcription turntables and remote lines for broadcasts and auditions. Other uses including monitoring, talk-back to the studio or to remote points, studio cueing, transcription-turntable cueing, and sending cues over remote lines. When an external amplifier and recorder are connected to the console, programs may be re-

corded and monitored while they are on the air or on audition.

The console contains six preamplifiers, six mixers, a program amplifier, a monitor amplifier, and three relays. Preamplifiers 1, 2, and 3 have fixed microphone inputs. A switch connected to the input of preamplifier 4 may be used to select either a studio microphone, or any one of two announce microphones. Pushbuttons may be used to select a microphone or transcription-turntable input for preamplifiers 5 and 6, or to connect any one of four remote-line inputs to mixers 5 or 6. Acoustic

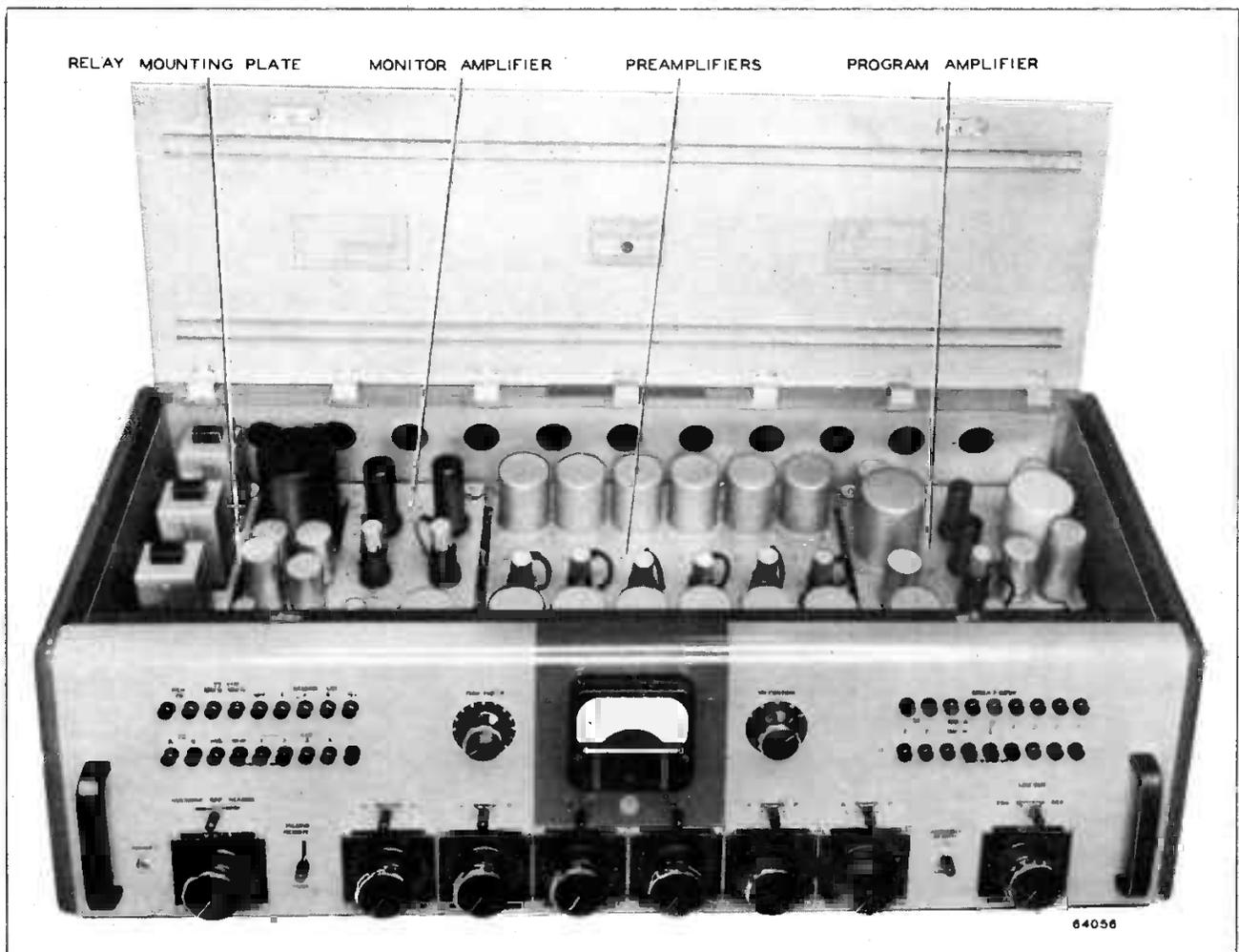


Figure 1 — Type 76-C Console

feedback is prevented by the action of the three relays, which automatically cut off any loudspeakers in the vicinity of a microphone that is on the air or on audition.

The consolette is particularly suitable for single-studio operation at large stations; however it may also be adapted for use as a complete control unit for a small station that has two studios, a control room and an announce booth. Detailed instructions for both types of installation are given in *Part II, Installation*.

All components of the consolette are mounted in a two-tone umber-gray cabinet having wooden sides and a steel front panel. The cabinet is hinged at the back so that it may be tilted for access to the terminal boards on the base and the wiring beneath the chassis. The lid of the cabinet is also hinged to permit access to the tubes and relays. Four rubber-cushioned chassis containing the relays, the monitor amplifier, the pre-amplifiers, and the program amplifier are mounted in the cabinet. On the baseboard beneath the chassis are the four terminal boards for external connections. (See fig. 2.)

A VU meter and all controls are conveniently mounted on the sloping front panel of the unit. A selector switch connected to the VU meter permits testing of the pre-amplifier and program-amplifier tubes from the front panel.

ASSOCIATED EQUIPMENT

The following equipment or its equivalent is recommended for a complete installation:

Microphones

The RCA 44 BX and KB-2C Velocity Microphones, the 77-D Polydirectional Microphone, and the MI-6203 Series of Varacoustic Microphones are recommended for program pickup, the 88-A Pressure Microphone for announcing, and the MI-6226 Aerodynamic Microphone for talk-back. The consolette may be connected to six studio microphones, a control-room announce microphone, a control-room talk-back microphone, and a remote-announce, or extra studio microphone.

Microphone Stands

The best floor stand for use with the studio microphones is the Type 90-A Program Stand. Lower priced stands such as the KS-1A and MI-4068-D Floor Stands are also available. The Type 91-A Announce Stand is specially designed for the 44-BX

Velocity Microphone. The Type 91-B Desk Stand is recommended for the control-room microphone.

Transcription Turntables

The Type 70-C and 70-D series of Transcription Turntables are recommended for the transcription-booth or control-room installation. These turntables may be used with the Type 72-C and 72-D series of Recording Attachments.

Transcription Turntable Cueing Amplifier

To permit transcription-turntable cueing, the consolette may be connected to any one of the Type BA-3 Series of Program Amplifiers, or the Type BA-4 Series of Monitoring Amplifiers.

Recorders and Recording Amplifiers

The Type 73 series of Professional Recorders are recommended for high quality performance. The Type BA-4 and BA-5 series of Recording Amplifiers may be used with these recorders.

Loudspeakers

A maximum of four loudspeakers may be connected to the consolette. For high-fidelity reproduction, use the Type LC-1A Loudspeaker, MI-11411. Cabinets for the LC-1A speaker are available in umber-gray (MI-11401), and walnut (MI-11401-A).

Signal Lights and Relays

The MI-11706 series of studio signal lights are recommended for the studio, announce booth and control room. Lights are available with inscriptions listed in the following table:

STUDIO WARNING LIGHTS

<i>MI- Number</i>	<i>Inscription</i>
MI-11706-1	ON AIR
MI-11706-2	REHEARSAL
MI-11706-3	AUDITION
MI-11706-4	STAND BY
MI-11706-5	SILENCE

NOTE: The relays and additional equipment required for these lights are listed under *Addition of Signal Lights and Relays* in *Part II, Installation*.

Power Supply

The MI-11301-B Power Supply will supply the necessary voltages for the consolette and its associated relays. The voltages required at the consolette are listed under *Technical Data*. See *Part*

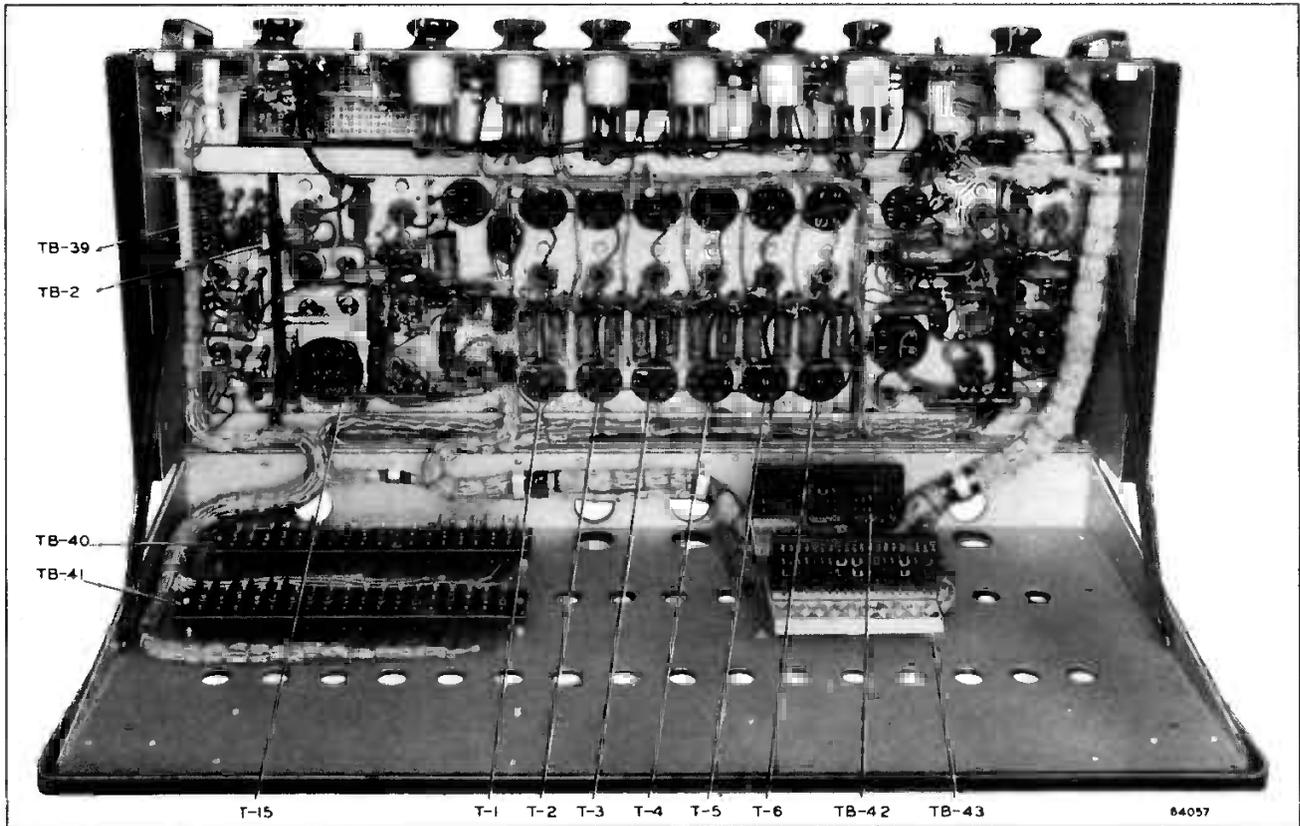


Figure 2 — Type 76-C Console With Chassis Raised

IV, The MI-11301-B Power Supply for complete instructions on the power supply.

Equipment for Use With Telephone Line

The consolette may be connected to four incoming remote lines, five incoming cue lines, and one outgoing program line. The following equipment is recommended for connection between the consolette and the telephone lines:

a. *Line or Bridging Transformer.* When the remote-line inputs are to be used, two line or bridging transformers must be connected between the remote lines and mixers 5 and 6. The MI-11713 Line Transformer is recommended for installations at which the line level is between -30 and $+10$ dbm. The MI-11712 Bridging Transformer is recommended for installations at which the remote lines are connected to a master control system. Since the bridging transformer has a relatively high insertion loss (approximately 19 db at 1000 cycles from 600-ohm source to 600-ohm load) it should not be used unless the line level is between -5 and $+20$ dbm.

b. *6-db Pad.* When the program output of the consolette is to be connected to a long telephone

line, a 600- to 600-ohm pad should be connected between the output terminals of the consolette and the line. This pad (MI-4171-29) may be ordered, or it may be constructed from the following components:

(1) Resistor, 100 ohms—RCA stock number 34765 (4 required).

(2) Resistor, 400 ohms—RCA stock number 30498 (2 required).

The connections for the pad are shown in figure 3.

c. *Jack Panels.* The Type 33-A and 33-B Jack panels will provide a flexible means of making input and output connections to the consolette. They will be specially convenient for remote-line connections.

d. *Line Equalizers.* The Type BE-1 series of Variable Line Equalizers, and the Type 56-E Dual Line Equalizer are recommended for connection between the remote lines, and the remote-line input terminals of the consolette. They are designed to equalize unloaded telephone lines up to 10 miles long. The Type 56-E provides equalization up to 10,000 cycles, and the Type BE-1 series, up to 15,000 cycles.

e. *Cabinet Rack or Wall Box.* The telephone pad, line jacks and line equalizer may be mounted in an MI-11500 Wall Box. This box has space for four Type 33-A or six Type 33-B Jack Panels, and one type 56-E equalizer. If more space is required, the BR-84 Cabinet Rack may be used instead of the wall box.

Tubes

Tubes are not supplied with the consolette. For regular use, the MI-11268 Tube Kit, which contains one complete set of tubes for the consolette and the power supply should be ordered. For emergency use, the MI-11268-A Tube Kit should be ordered. The components of these kits are listed under *Technical Data*.

Wall and Floor Outlets

Wall and floor outlets for microphones, signal lights, loudspeakers, and turntables are listed in figures 4 and 5.

Conduit Terminating Box

A conduit terminating box is required for the installation. This box may be constructed by the installing electrician as shown in figure 6.

Multiple-Channel Switching Systems

The BCS-2A Switching Console, MI-11622, may be used to switch the outputs of two consolettes to any two outgoing channels. The BCS-1A Switch-

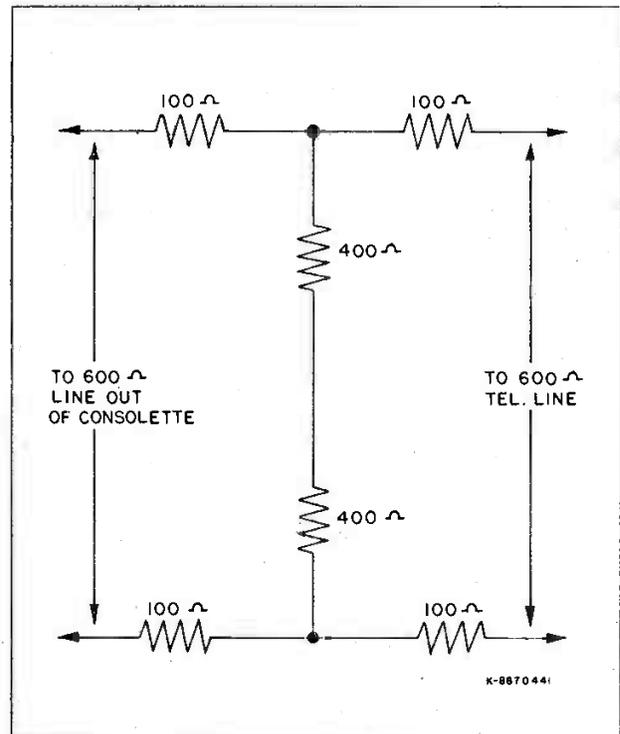


Figure 3 — 6-dB Pad for Telephone Line

ing System which consists of the MI-11625 Master Console, and the MI-11625-A Studio Console, may be used to switch any of five consolettes to any of three outgoing channels. These switching systems will be particularly useful at stations having both f-m and a-m transmitters.

TYPE 76-C CONSOLETTTE

PART II Installation

GENERAL

The Type 76-C Consolette is primarily designed for a "single-studio" installation containing one large studio, a control room and an announce booth. A typical installation of this type is shown in figure 4. An alternative layout referred to as a "two-studio" installation is shown in figure 5. As shipped, the consolette is wired for single-studio operation. If a two-studio installation is to be used, the connections must be changed on a terminal board containing 20 terminals (TB-39) which is on the bottom of the relay mounting plate. These connections are shown in figure 8.

The details of the installation will vary with individual requirements. The following procedure is suggested: Install the consolette, power supply, announce microphone, and monitor loudspeaker in the control room. Place the consolette on a level surface as shown in figure 6, and mount the power supply on the wall as instructed in *Part IV, the MI-11301-B Power Supply*. Construct a metal box of the type shown in figure 6 and mount it in the wall or floor near the consolette. Run four 1¼-inch flexible conduits from the box to the holes in the back or the bottom of the consolette. Terminate the conduits from all associated equipment at the box,

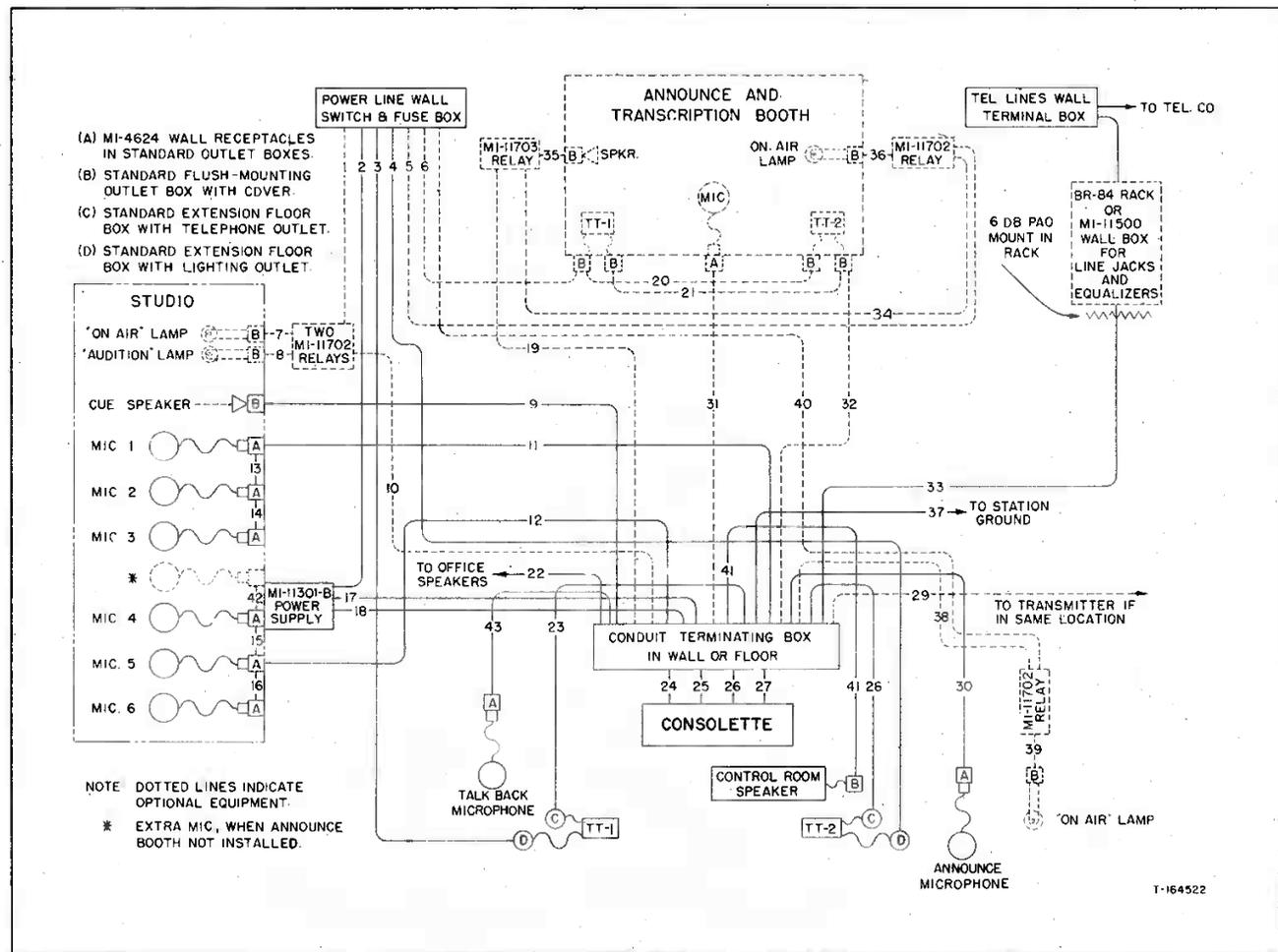


Figure 4 — Typical Conduit Layout for Single-Studio Installation

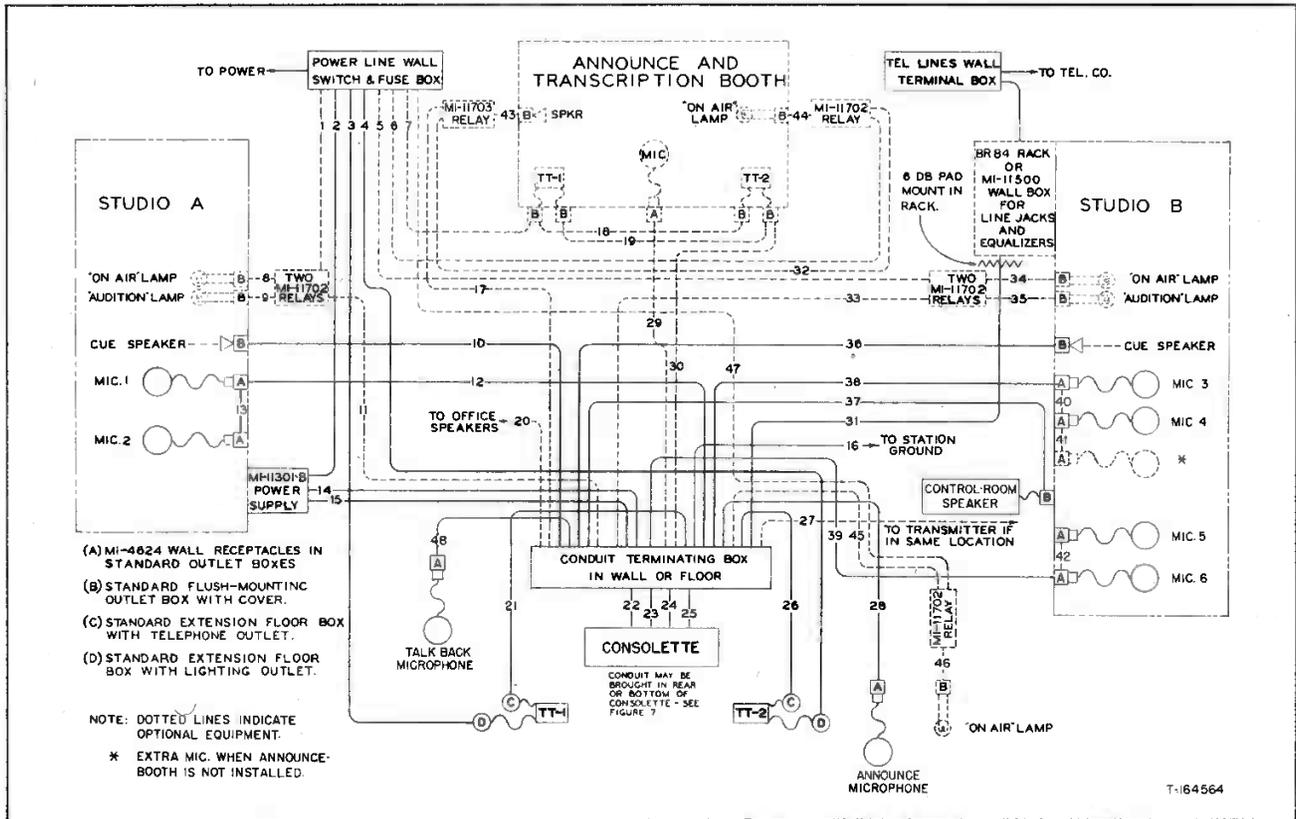


Figure 5 — Typical Conduit Layout for Two-Studio Installation

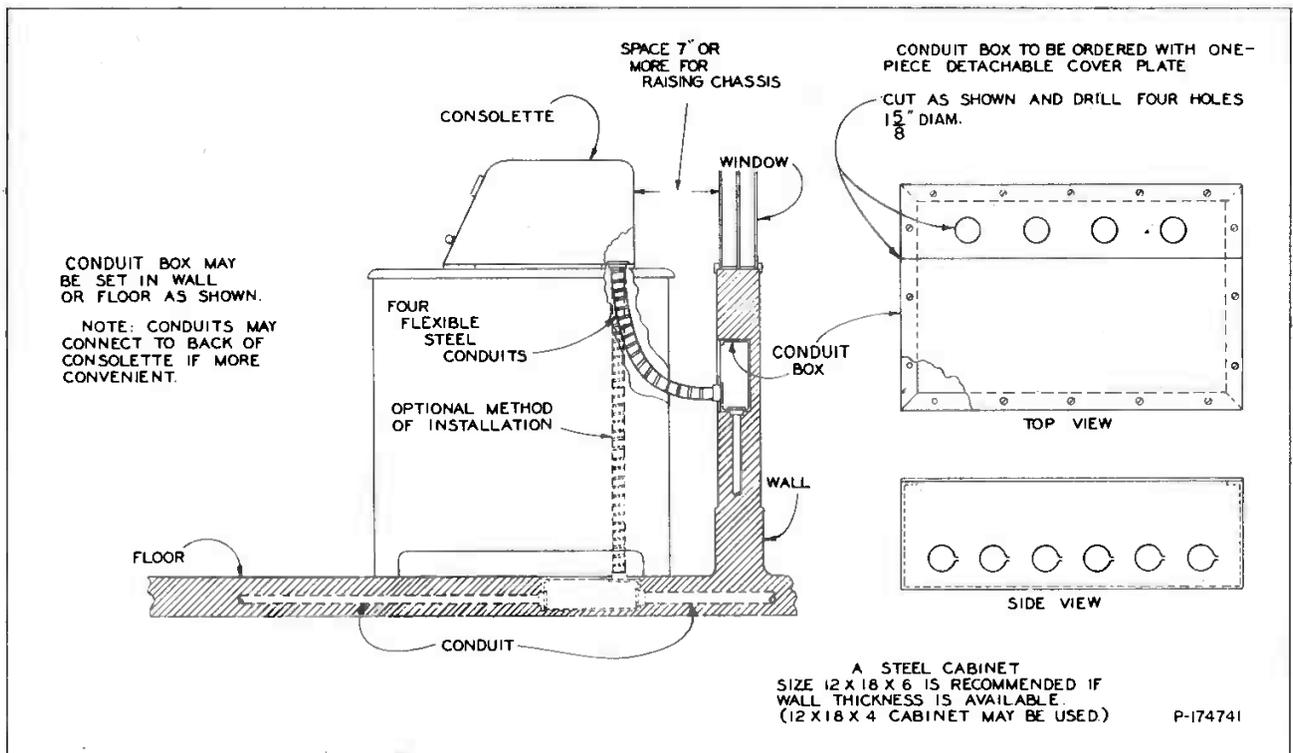


Figure 6 — Installation Diagram

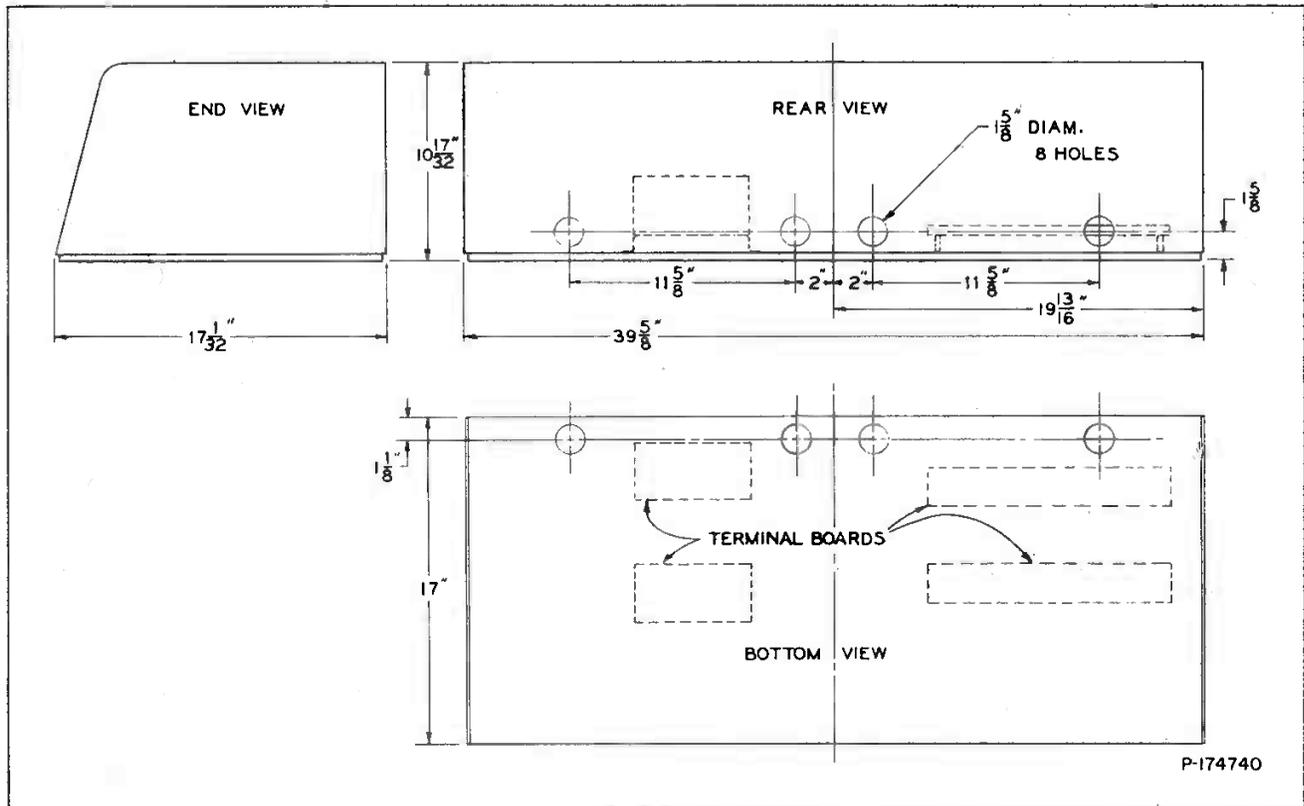


Figure 7 — Mounting Dimensions

CONNECTIONS

Two conduit lists are supplied to supplement figures 4 and 5. *Conduit List A* provides the essential connection information for single-studio installations, and *Conduit List B* for two-studio installations. Although it is not necessary to follow these lists in all details, the following instructions should be observed:

- a. Do not place a-c power leads and audio leads in the same conduit.
- b. Do not place low- and high-level leads in the same conduit.
- c. In a two-studio installation, install microphones 1 and 2 in studio A, and microphones 3, 4, 5, and 6, in studio B.

To reach the terminal boards, grasp the two handles on the front panel of the console, and swing the cabinet back. As seen from the front, two audio terminal boards are mounted on the right-hand side of the base board. The terminal boards for relay, loudspeaker, and power connections are mounted on the left.

Pull the leads through the conduits and connect them to the terminal boards as directed in the appropriate conduit list.

IMPORTANT: Do not cut shielded leads at the conduit terminating box.

Audio Input Connections

As the console is shipped, each of the input transformers is wired for operation from a 250-ohm source. If it is desired to connect a microphone having a 30-ohm output impedance to any of inputs 1 to 4 inclusive, change the connections to the input

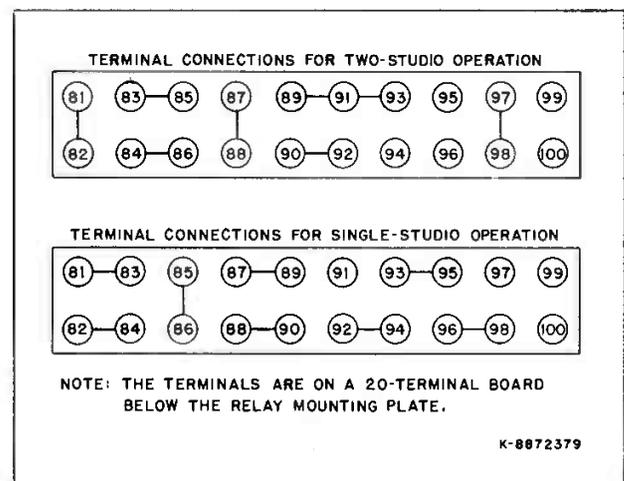


Figure 8 — Connections for One or Two Studios

transformer corresponding to the desired input (T-1, -2, -3, or -4) as follows:

a. Unsolder the wire from transformer terminal number 1 and solder it to transformer terminal number 2.

b. Unsolder the wire from transformer terminal number 6 and solder it to transformer terminal number 5.

All microphones must be phased properly. If the studio microphones are all of the same type, connect them as follows: Connect microphone 1 to terminals 1 and 2 of the console; then connect the other microphones so that the microphone leads that are ultimately connected to terminals 3, 5, 7, 13, and 15 are of the same color as the microphone lead connected to terminal 1. If the microphones are not all of the same type, phase them as directed in the microphone instruction books.

The console is connected so that the control-room announce microphone also serves as a talk-back microphone. If it is desired to use a separate microphone for talk-back, remove the jumpers between terminals 59 and 63, and 60 and 64, and connect the talk-back microphone to terminals 59 and 60.

When the remote-line inputs are to be used, two line or bridging transformers must be connected between the remote lines and mixers 5 and 6. (See *Equipment for Use with Telephone Lines* under *Associated Equipment*.) Since all the transformer connections are made to terminals in the console, the transformers may be installed in the console

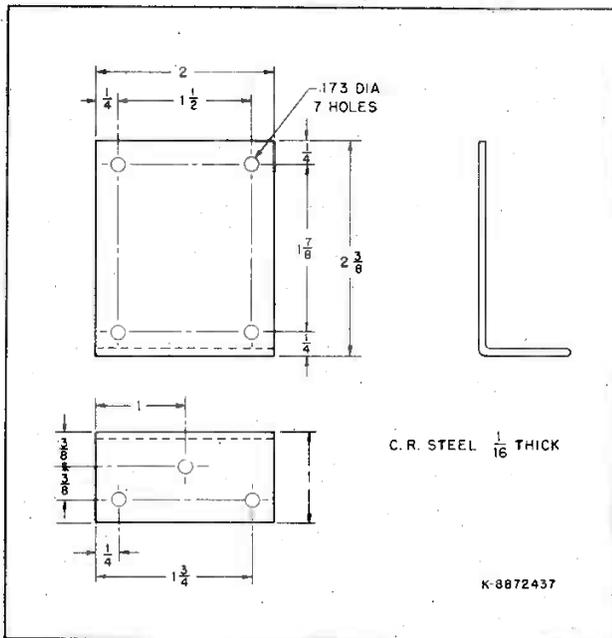


Figure 9 — Mounting Bracket for Line Transformers

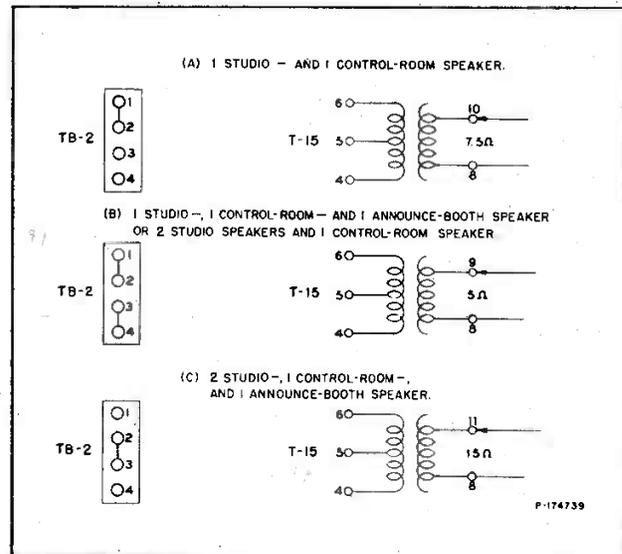


Figure 10 — Loudspeaker Connections

cabinet. It is suggested that the transformers be mounted on the base of the console near the terminal boards. Two L-shaped mounting brackets, which may be constructed as shown in figure 9 are required.

To connect the transformers, proceed as follows:

a. Unsolder the jumpers that are between the following terminals:

- 209 and 213
- 210 and 214
- 211 and 215
- 212 and 216

b. Connect the primary of one transformer across terminals 209 and 210, and the secondary across terminals 213 and 214.

c. Connect the primary of the second transformer across terminals 211 and 212, and the secondary across terminals 215 and 216.

d. Ground the shields of both transformers. When balanced lines are to be used, ground the primary center-taps of both transformers.

Audio Output Connections

The LINE OUT terminals, 145 and 146 should be connected to a 500- to 600-ohm telephone line. If the telephone line is long, connect a 6-db pad between these terminals and the line. (See *Equipment for Use with Telephone Line* under *Associated Equipment*.)

Loudspeaker Connections

The loudspeaker terminals, 129 to 136 inclusive,

on TB-41, are connected to an auxiliary board containing four terminals, TB-2, on the bottom of the relay mounting plate (see fig. 2). As the console is shipped, TB-2 is wired for operation of the control-room speaker and one studio speaker. If a third speaker, for an announce booth or an additional studio is to be used, TB-2 must be connected so that the three loudspeakers will be in parallel, and the monitor-amplifier output transformer, T-15, must be connected for five ohms. If four loudspeakers are to be used (as in a two-studio installation containing an announce booth) T-15 must be connected for 15 ohms and TB-2 must be wired to connect the four loudspeakers in series-parallel. Make all necessary changes in the terminal-board and transformer connections as shown in figures 10b and 10c; then connect the speakers as instructed in the conduit lists.

If field power is required, follow the instructions under *Loudspeaker Field Supply* in *Part IV, the MI-11301 Power Supply*. The MI-11301-B Power Supply will furnish power for a maximum of three 1000-ohm, 10-watt loudspeaker fields. Obtain power for additional speakers or speakers having ratings that differ from those for which the power supply is designed, from an additional power supply.

Recorder Connections

An external recording amplifier and recorder may be connected to the external record terminals, 203 and 204. A typical recording set-up using the MI-11274 Remote Volume Control is shown in figure 11.

The impedance across terminals 203 and 204 is 10,000 ohms. For set-ups which do not include the remote volume control, shunt terminals 203 and 204 with a resistor of the proper value to present the desired source impedance to the recording amplifier.

Transcription-Turntable Cueing Amplifier Connections

The console is connected so that either of two transcription turntables can be cued by use of the monitor amplifier in the console; however, terminals are also provided for connections to an external cueing amplifier such as any of the Type BA-3 Series of Program Amplifiers or the Type BA-4 Series of Monitoring Amplifiers. Use of an external amplifier will free the monitor amplifier for other operations while a transcription turntable is being cued.

Connect the external cueing amplifier to the console as follows:

a. Unsolder the jumpers that are between the following pairs of terminals in the console:

- 199 and 203
- 200 and 204
- 197 and 201
- 198 and 202

b. Connect terminal 203 to terminal 201, and terminal 204 to 202.

c. Connect terminal 199 to the high side of the 600-ohm unbalanced input of the amplifier, and connect terminal 200 to the low side. Refer to the instruction book supplied with the amplifier.

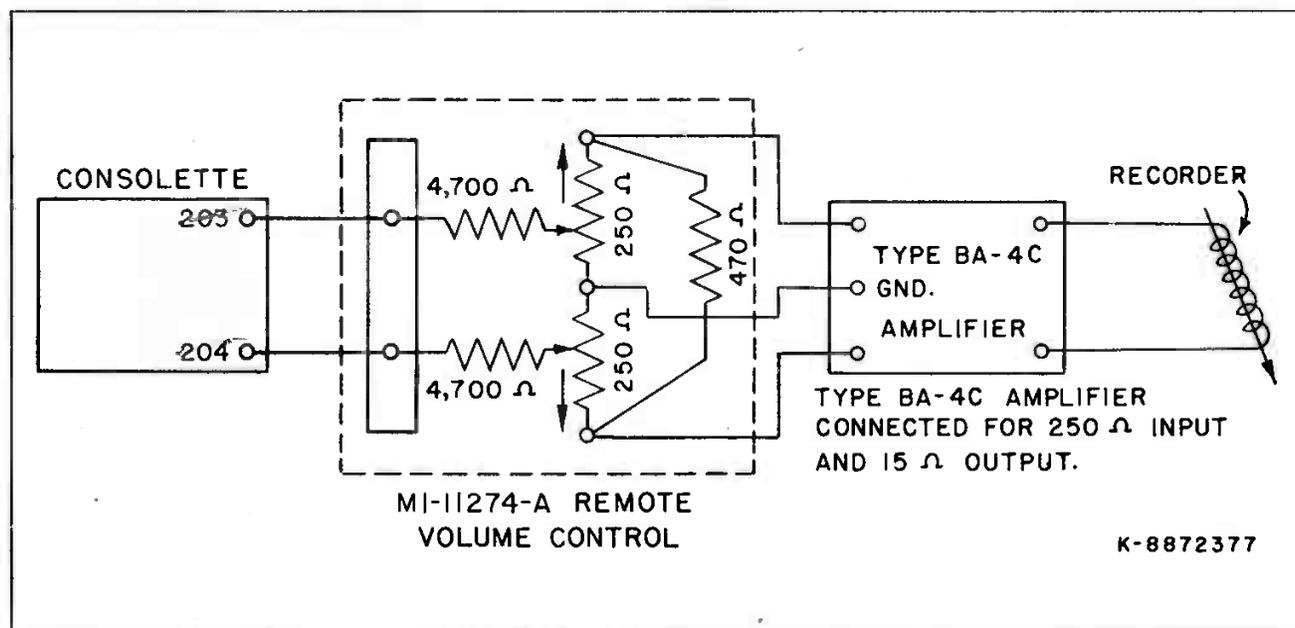


Figure 11 — Typical Recording Setup

AUXILIARY SIGNAL LIGHTS AND RELAYS

Installation	Description	Number Required
Studio	MI-11702 Relay and Capacitor	2 for each studio
	Relay mounting box	1 for each studio
	Studio lights*	2 for each studio
Control-room	MI-11702 Relay and Capacitor	1
	Relay mounting box	1
	Resistor, 180 ohms, 20 watts, RCA stock number 17666	1
	"ON AIR" light*	1
Announce-booth	MI-11702 Relay and Capacitor	1
	MI-11703-A Relay and Capacitor (for speaker)	1
	Relay mounting box	1
	Resistor, 180 ohms, 20 watts, RCA stock number 17666	2
	"ON AIR" light*	1

* See *Signal Lights and Relays* under *Associated Equipment*.

Addition of Signal Lights and Relays

"ON AIR" and "AUDITION" signal lights and relays may be installed in the studio, control room and announce booth. The relays and lights are not supplied with the consolette. The required equipment is listed under *Auxiliary Signal Lights and Relays*.

a. Studio "ON AIR" and "AUDITION" lights.

To install the lights in each studio, proceed as follows:

(1) Mount the two relays in a metal box as shown in figure 12 and install the box near the studio.

(2) Connect the relays and lights as shown in figure 13.

b. Control-Room "ON AIR" Light. To install the control-room signal light proceed as follows:

(1) Mount the relay in a metal box as shown in figure 12, and install the box near the control room.

(2) Connect the relay and light as shown in figure 14. Note that terminal 122 should be connected to 208 if the announce-booth light is to be installed. (The power-supply connection will then be made through the announce-booth relay.)

c. Announce-Booth Speaker and Signal Light.

To install the announce-booth speaker and signal light, proceed as follows:

(1) Change the output transformer connections and the connections on TB-2 as instructed under *Loudspeaker Connections*.

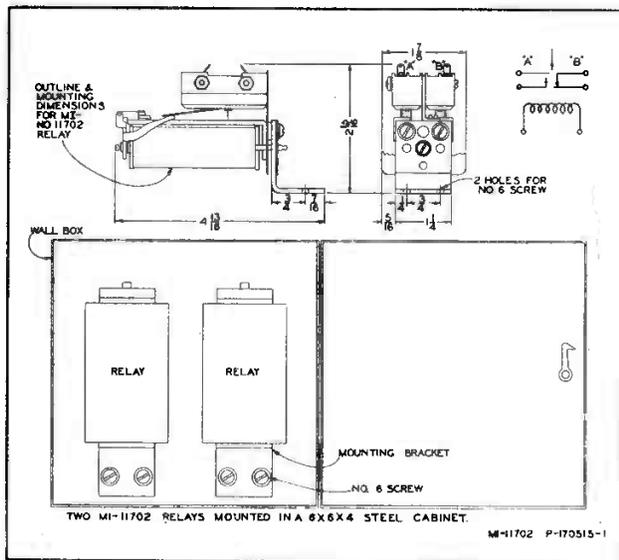


Figure 12 — Relay Mounting Diagram

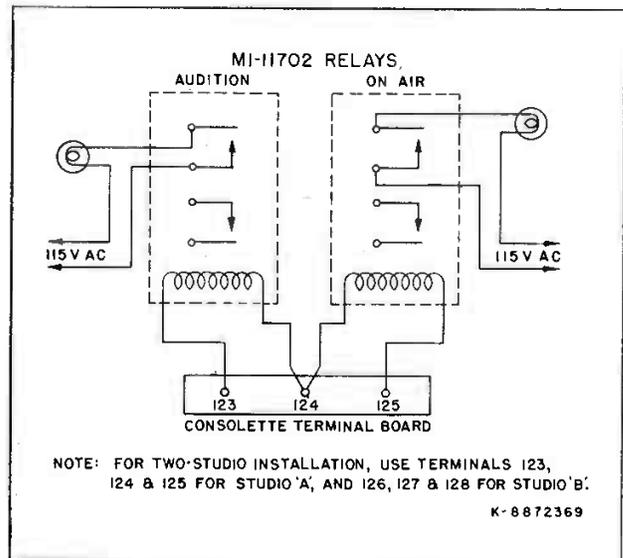


Figure 13 — Studio Signal-Light Connections

(2) Mount the two relays in a metal box as shown in figure 12 and install the box near the announce booth.

(3) Connect the relays and lights to the console as shown in figure 15. If the control-room light is not to be installed, connect terminal 208 to terminal 118. If the control-room light is to be installed, connect terminal 208 to 122.

IMPORTANT: When either the control-room or announce-booth signal lights or both are to be installed, do not connect terminal 18 of the power supply to terminal 118 of the console as directed in the conduit lists. The power supply connection for all of the relays will be made through the control-room and announce-booth relays.

Console Signal Lights

Two signal lights (such as "PRE-SET" and "ON AIR" lights) may be installed on the front panel of the console. When the console is installed at a large station, these lights may be operated from the master control room.

Wiring and two holes covered by plug buttons (one on each side of the meter) are provided for the lamp sockets. If the lights are to be operated

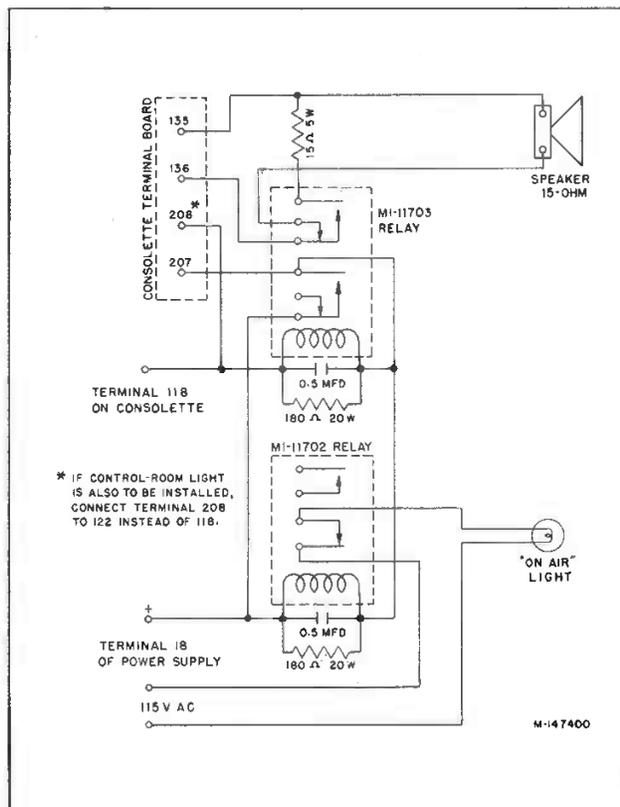


Figure 15 — Announce-Booth Relay Connection

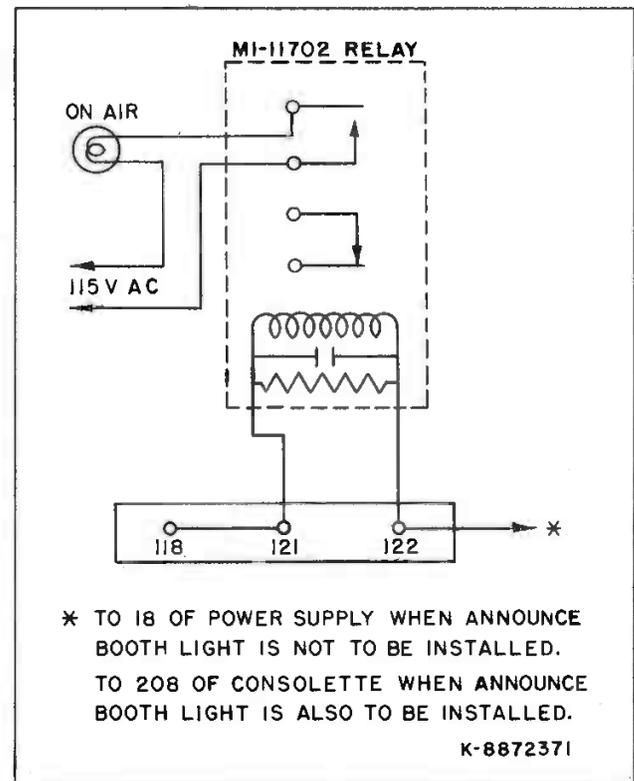


Figure 14 — Control-Room Signal-Light Connections

from a 6- to 8-volt source, the MI-11714 Supervisory Lamp Kit should be ordered. This kit contains two 8-volt lamps, two lamp sockets, one red and one green cap. When the lights are to be operated from a 12-volt source, the components should be ordered as follows:

- (a) 2 lamp sockets, RCA stock no. 26562
- (b) 2 lamps, RCA stock no. 21332 (12 volt rating)
- (c) 1 lamp cap, green, RCA stock no. 17931
- (d) 1 lamp cap, red, RCA stock no. 17930

Make the external connections to the lamp sockets through terminals 157, 158, 159, and 160. Obtain power for the 8-volt lamps from the filament supply terminals, 101 and 102. Obtain power for the 12-volt lamps from an external source.

Tubes

With a large screwdriver or dime, turn the two slotted spring catches on the top of the cabinet, through 90 degrees. Lift the lid of the console, and place the tubes in the proper sockets as indicated by the stencilling on the chassis. Place the grid caps and shields on the tubes. Make certain that each shield makes a good connection to the tube shell.

CONDUIT LIST A

SINGLE STUDIO INSTALLATION

Conduit No.	Diam. (inches)	From	To	** Wire	Circuit	*** Terminals
1*	1/2	Power box	MI-11702 Relays	1-C	A-C supply	A-C
2	1/2	Power box	MI-11301-B Power Supply	1-C	A-C supply	21 and 22
3	1/2	Power box	TT-1	1-C	A-C supply	A-C to TT-1
4	1/2	Power box	TT-2	1-C	A-C supply	A-C to TT-2
5*	1/2	Power box	MI-11702 Relay	1-C	A-C supply	A-C
6*	1/2	Power box	TT-1 (booth)	1-C	A-C supply	A-C
7*	1/2	MI-11702 Relay	Studio "On Air" light	1-C	A-C	A-C
8*	1/2	MI-11702 Relay	Studio "Audition light	1-C	A-C	A-C
9	1/2	Conduit box	Studio cue speaker	1-B	Speaker field	Series conn.: 19 to studio speaker (through cond. 17), studio speaker to control-room speaker (through cond. 41)
10*	1/2	Conduit box	Studio light relays	1-C	Speaker audio	133 and 134
				2-A	D-C to relays	124 and 125 "On Air" 123 and 124 "Audition"
11	1/2	Conduit box	Studio microphones	3-A	Microphone	1 and 2, 3 and 4, 5 and 6
12	1/2	Conduit box	Studio microphones	3-A	Microphone	7 and 8, 13 and 14, 15 and 16
13	1/2	Microphone 1	Microphone 2	1-A†	Microphone	11 and 12†
14	1/2	Microphone 3	Microphone 2	2-A	Microphone	
15	1/2	Microphone 4	Microphone 5	1-A	Microphone	
16	1/2	Microphone 6	Microphone 5	1-A†	Microphone	
17	1 1/4	MI-11301-B Power supply	Conduit box	1-A	Microphone	
				1-B	Speaker fields	19 and 20
						1 to 101 2 to 102 7 to 107 8 to 108 4-B Filament supply } 9 to 109 10 to 110 11 to 111 12 to 112 13 to 113
18	1 1/4	MI-11301-B Power supply	Conduit box	1-B	Relay	17 to 117 18 to 118
						15 to 115 16 to 116 4 to 104 4-B Plate supply } 5 to 105 6 to 106 3 to 103 14 to 114
19*	1/2	Conduit box	Announce booth relay	1-B	Audio	135 and 136
				2-A	D-C to relays	207 and 208
20*	1/2	TT-1 (booth)	TT-2 (booth)	1-C	A-C	A-C
21*	1/2	TT-1 (booth)	TT-2 (booth)	1-A	Audio	Aud. term. of TT
22*	1/2	Conduit box	Office speakers	1-B	Audio	135 and 136
23	1/2	Conduit box	TT-1 Audio (control-room)	1-A	Audio	17 and 18

CONDUIT LIST A (Cont'd)

Conduit No.	Diam. (inches)	From	To	** Wire	Circuit	*** Terminals	
24	1¼	Consolette	Conduit box	Include in conduits 24 and 25 all wires from filaments, plates, d-c to relays, audio to speakers, and station ground.			
25	1¼	Consolette	Conduit box				
26	1¼	Consolette	Conduit box	Include in conduits 26 and 27 all wires from microphones, turntables, remote lines, cue lines, and line out.			
27	1¼	Consolette	Conduit box				
28	½	Conduit box	TT-2 Audio (control-room)	1-A	Audio	19 and 20	
29*	½	Conduit box	Line out	1-A	Audio	145 and 146	
30	½	Conduit box	Control-room announce microphone	1-A	Microphone	9 and 10	
31*	½	Conduit box	Announce booth microphone	1-A	Microphone	11 and 12	
32*	½	Conduit box	Announce booth TT-2	2-A	Audio	17 and 18 19 and 20	
33	1¼	Conduit box	Remote lines	4-A	Remote	67 and 68 69 and 70 71 and 72 73 and 74 183 and 184 185 and 186	
			Cue lines	5-A	Cue	187 and 188 189 and 190 191 and 192	
			Line out	1-A	Audio	145 and 146	
			MI-11702 Booth relay	MI-11703 Booth relay	1-A	D-C to relay	D-C terminals
			MI-11702 Relay	MI-11703 Relay	1-B	Audio	
34*	½	MI-11702 Booth relay	MI-11703 Booth relay	1-A	D-C to relay	D-C terminals	
35*	½	Announce booth speaker	MI-11703 Relay	1-B	Audio		
36*	½	Announce booth "On Air" lamp	MI-11702 Relay	1-C	A-C	A-C terminals of lamp	
37*	½	Conduit box	Station ground	1-C	Ground	103	
38*	½	Conduit box	MI-11702 Relay (control-room)	1-A	D-C to relay	121 and 122	
39*	½	MI-11702 relay	"On Air" lamp (control-room)	1-C	A-C	A-C terminals of lamp	
40*	½	Power box	MI-11702 Relay	1-C	A-C supply	A-C	
41	½	Conduit box	Control-room speaker	1-B	Speaker field	Series conn: 20 to control-room speaker (through cond. 17); control-room speaker to studio speaker through cond. 9)	
				1-B	Speaker auto	129 and 130	
42†	½	Microphone 4	Extra studio microphone	1-A	Microphone	11 and 12	
43	½	Talk-back Microphone	Conduit box	1-A	Microphone	59 and 60	

*** Numbers in bold face type refer to MI-11301-B Power Supply terminals.

* Conduits for optional equipment or optional locations.

† For extra studio microphone, when announce booth is not installed.

** The type of wire in the conduits is indicated as follows:

A. MI-64 (No. 20 AWG stranded 500 v shielded, twisted pair).

B. MI-65 (No. 16 AWG 600 v shielded, twisted pair).

C. No. 14 lead covered pair.

CONDUIT LIST B

TWO-STUDIO INSTALLATION

Conduit No.	Diam. (inches)	From	To	** Wire	Circuit	*** Terminals
1*	1/2	Power box	Studio A light relays	1-C	A-C supply	A-C
2	1/2	Power box	MI-11301-B Power Supply	1-C	A-C supply	21 and 22
3	1/2	Power box	TT-1	1-C	A-C supply	A-C of TT-1
4	1/2	Power box	TT-2	1-C	A-C supply	A-C of TT-2
5*	1/2	Power box	Studio B light relays	1-C	A-C supply	A-C
6*	1/2	Power box	Announce booth light relay	1-C	A-C supply	A-C
7*	1/2	Power box	TT-1 (booth)	1-C	A-C supply	A-C of TT-1
8*	1/2	Studio A light relay	Studio A "On Air" light	1-C	A-C	A-C
9*	1/2	Studio A light relay	Studio A "Audition" light	1-C	A-C	A-C
				1-B	Speaker field	Series connection: 19 to Stud. A field; (through cond. 14); Stud. A field to Stud. B field (through cond. 36)
10	1/2	Conduit box	Studio A speaker			
				1-C	Speaker audio	133 and 134
11*	1/2	Conduit box	Studio A light relays	2-A	Relay d-c	124 and 125 "On Air" 123 and 124 "Audition"
12	1/2	Conduit box	Studio A microphones	2-A	Microphone	1 and 2; 3 and 4
13	1/2	Microphone 1	Microphone 2	1-A	Microphone	
14	1 1/4	MI-11301-B Power Supply	Conduit box	1-B	Speaker field	19 (see Cond. 10) 20 (see Cond. 37) 1 to 101 2 to 102 7 to 107 8 to 108 9 to 109 10 to 110 12 to 112 13 to 113 17 to 117
				4-B	Filament	18 to 118 15 to 115 16 to 116 4 to 104 5 to 105 6 to 106 11 to 111 3 to 103 14 to 114
15	1 1/4	MI-11301-B Power Supply	Conduit box	1-B	Relay d-c	18 to 118 15 to 115 16 to 116 4 to 104 5 to 105 6 to 106 11 to 111 3 to 103 14 to 114
				4-B	Plate d-c	11 to 111 3 to 103 14 to 114
16	1/2	Conduit box	Station ground	1-C	Ground	103
17*	1/2	Conduit box	Announce booth relay	1-B	Audio	135 and 136
				2-A	Relay d-c	207 and 208
18*	1/2	TT-1 (booth)	TT-2 (booth)	1-C	A-C	A-C
19*	1/2	TT-1 (booth)	TT-2 (booth)	1-A	Audio	Audio term. of TT
20*	1/2	Conduit box	Office speakers	1-B	Audio	135 and 136
21	1/2	Conduit box	TT-1 (control-room)	1-A	Audio	17 and 18
22	1 1/4	Consolette	Conduit box			

Include in conduits 22 and 23 all wires from filaments, plates, d-c to relays, audio to speakers, and station ground.

CONDUIT LIST B (Cont'd)

Conduit No.	Diam. (inches)	From	To	** Wire	Circuit	*** Terminals
23	1¼	Consolette	Conduit box			
24	1¼	Consolette	Conduit box			Include in conduits 24 and 25, all wires from microphones, turntables, remote lines, cue lines and line out.
25	1¼	Consolette	Conduit box			
26	½	Conduit box	TT-2 (control-room)	1-A	Audio	
27*	½	Conduit box	Line out	1-A	Audio	145 and 146
28	½	Conduit box	Control-room microphone	1-A	Microphone	9 and 10
29*	½	Conduit box	Announce booth microphone	1-A	Microphone	11 and 12
30*	½	Conduit box	Announce booth turntables	2-A	Audio	17 and 18 19 and 20
31	1¼	Conduit box	Remote lines	4-A	Remote audio	67 and 68 69 and 70 71 and 72 73 and 74
			Cue lines	5-A	Cue	183 and 184 185 and 186 187 and 188 189 and 190 191 and 192
			Line out	1-A	Audio	145 and 146
32*	½	MI-11702 Booth relay	MI-11703 booth relay	1-A	Relay d-c	D-C terminals
33*	½	Conduit box	Studio B light relays	2-A	Relay d-c	127 and 128 "On Audition" 126 and 127 "On Air"
34*	½	Studio B light relay	Studio B "On Air" light	1-C	A-C	A-C term. of lamp
35*	½	Studio B light relay	Studio B "Audition" light	1-C	A-C	A-C term. of lamp
36	½	Conduit box	Studio B speaker	1-B	Speaker field	Series connection between studio A and control room speaker fields (cond. 10 and 37)
				1-B	Audio	
37	½	Conduit box	Control-room speaker	1-B	Speaker audio	129 and 130
				1-B	Speaker field	Series connection: 20 to control-room speaker field through cond. 14); control-room speaker field to studio B speaker field (through cond. 36)
38	½	Conduit box	Studio B microphones	2-A	Microphone	5 and 6 7 and 8
				1-A†	Microphone	11 and 12
39	½	Conduit box	Studio B microphones	2-A	Microphone	13 and 14 15 and 16
40	½	Microphone 3	Microphone 4	1-A, 1-A†	Microphone	
41†	½	Microphone 4	Extra Studio B microphone	1-A	Microphone	

CONDUIT LIST B (Cont'd)

<i>Con- duit No.</i>	<i>Diam. (inches)</i>	<i>From</i>	<i>To</i>	<i>** Wire</i>	<i>Circuit</i>	<i>*** Terminals</i>
42	1/2	Microphone 5	Microphone 6	1-A	Microphone	
43*	1/2	Announce booth speaker	MI-11703 relay	1-B	Audio	
44*	1/2	Announce booth "On Air" lamp	MI-11702 relay	1-C	A-C	A-C term. of lamp
45*	1/2	Conduit box	Control-room relay	1-A	Relay d-c	121 and 122
46*	1/2	Control-room light relay	Control-room "On Air" lamp	1-C	A-C	A-C term. of lamp
47*	1/2	Power box	Control-room light relay	1-C	A-C supply	A-C
48	1/2	Talk-back micro- phone	Conduit Box	1-A	Microphone	59 and 60

*** Numbers in bold face type refer to MI-11301-B Power Supply terminals.

* Conduits for optional equipment or optional locations.

† For extra studio microphone, when announce booth is not installed.

** The type of wire in the conduits is indicated as follows:

- A. MI-64 (No. 20 AWG stranded 500 v shielded, twisted pair).
- B. MI-65 (No. 16 AWG 600 v shielded, twisted pair).
- C. No. 14 lead covered pair.

TYPE 76-C CONSOLETTA

PART III

Operation

GENERAL

The block diagram, figure 16, shows the amplifiers, controls, and switches of the consolette. Many of the switches are interlocked in groups so that only one of each group may be operated at a time. The mechanically interlocked groups are indicated by dotted lines. Electrical interlocking is shown by the connections between the switches. Figure 17 shows all controls and stenciled designations as they appear on the front panel. Symbols corresponding to those on the block diagram have been added to this figure for rapid identification.

In a group at the bottom and center of the front panel are six volume controls. Each volume control is associated with the mixer that is indicated by the number above the control. Mixers 1, 2, and 3 are permanently connected to microphone inputs 1, 2, and 3 respectively, through their associated preamplifiers. A switch (ANNOUNCE switch, K-7) in the input of preamplifier 4, may be used to connect the control-room microphone, the fourth studio microphone, or an additional microphone in the studio or announce booth to the fourth mixer.

Two groups of pushbuttons in the upper right-hand corner of the panel (MIXER 5 INPUT and MIXER 6 INPUT) are used to select the inputs to mixers 5 and 6. The input of each of these mixers may be either a remote line, a transcription turntable or an extra studio microphone. The pushbuttons are mechanically and electrically interlocked so that only one input may be connected to each mixer at a time, and the same input may not be simultaneously connected to both mixers.

By use of the A-P switches (K-1 to K-6) directly above the mixer volume controls, each of the mixers may be connected either to the program or the audition channel. The program channel consists of a four-stage program amplifier, the LINE-OUT switch K-8, and the outgoing line. The audition

channel consists of a pushbutton labeled AUD (in the MONITOR INPUT group, PK-4), the monitor amplifier and the monitor loudspeakers. The MASTER and MONITOR volume controls regulate the volume of the program and the monitor amplifiers respectively. When the LINE-OUT switch is in the REG position, the program amplifier is connected to the outgoing line. When the LINE-OUT switch is in the EMERGENCY position, the monitor amplifier is connected to the outgoing line. The EMERGENCY position is to be used only when the program amplifier is defective.

Two groups of pushbuttons in the left-hand corner of the consolette, (PK-3 and PK-4) are used for subsidiary functions such as studio cueing, remote cueing, transcription-turntable cueing, talk-back, remote intercommunication and monitoring. The use of these pushbuttons, the PH-MON switch, and the OVERRIDE switch is explained under *Operating Procedure* and in the *Switch Operation Table*.

Separate rectifiers for the program and the monitor amplifiers are provided in the MI-11301-B Power Supply. If the program amplifier rectifier should become defective, a switch on the power supply may be operated to obtain plate and screen voltages for the preamplifiers from the monitor amplifier rectifier. The operation of this switch is explained in section IV, *The MI-11301-B Power Supply*.

An interlocking relay system is used to prevent acoustic feedback from studio loudspeakers to nearby microphones, and to operate the signal lights. The speaker relays are part of the consolette, but the light relays are accessories. (See *Signal Lights and Relays* under *Installation*.) A description of the relay system is given under *Relay Operation*.

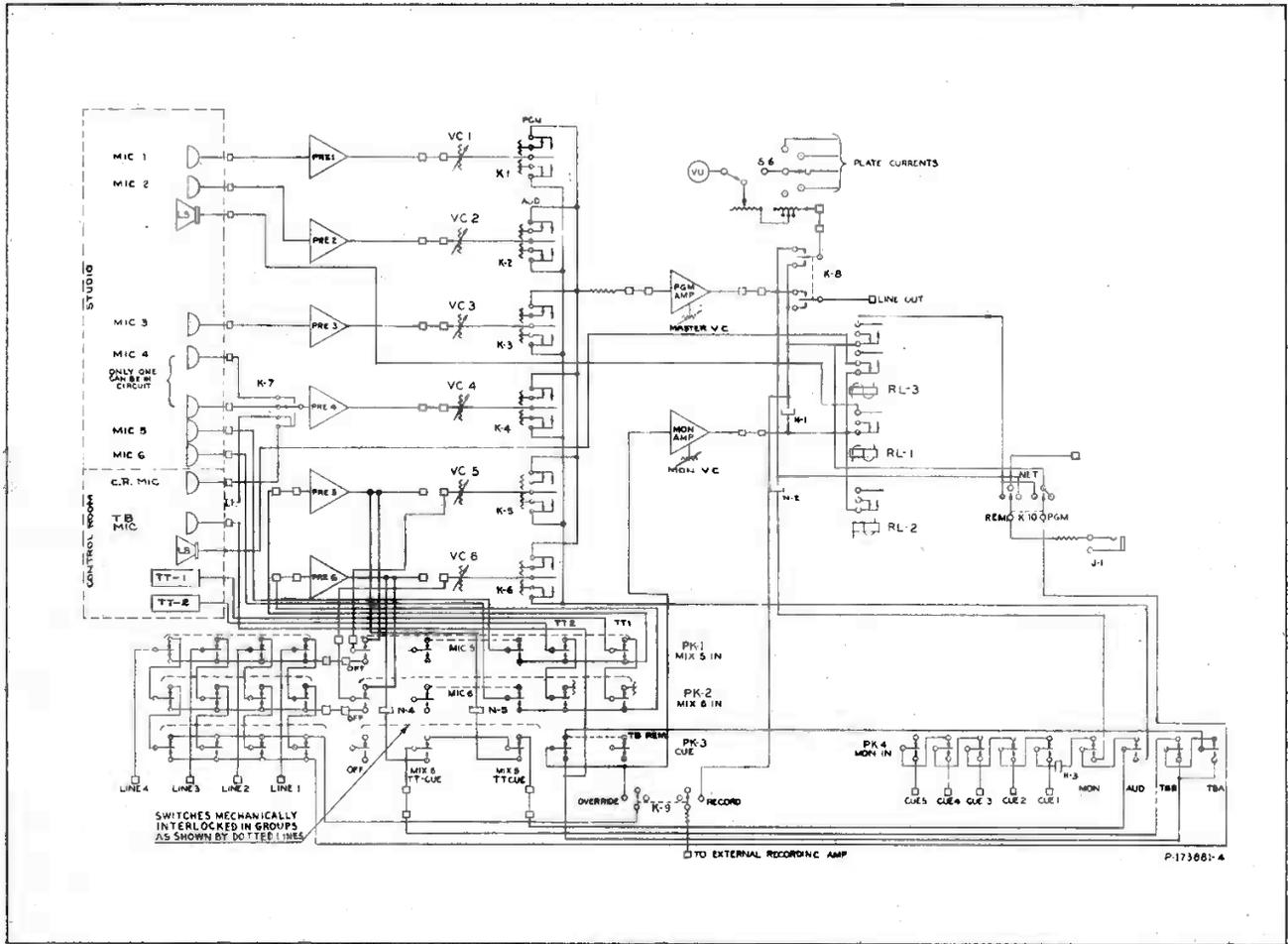


Figure 16 — Simplified Block Diagram of Type 76-C Consolette

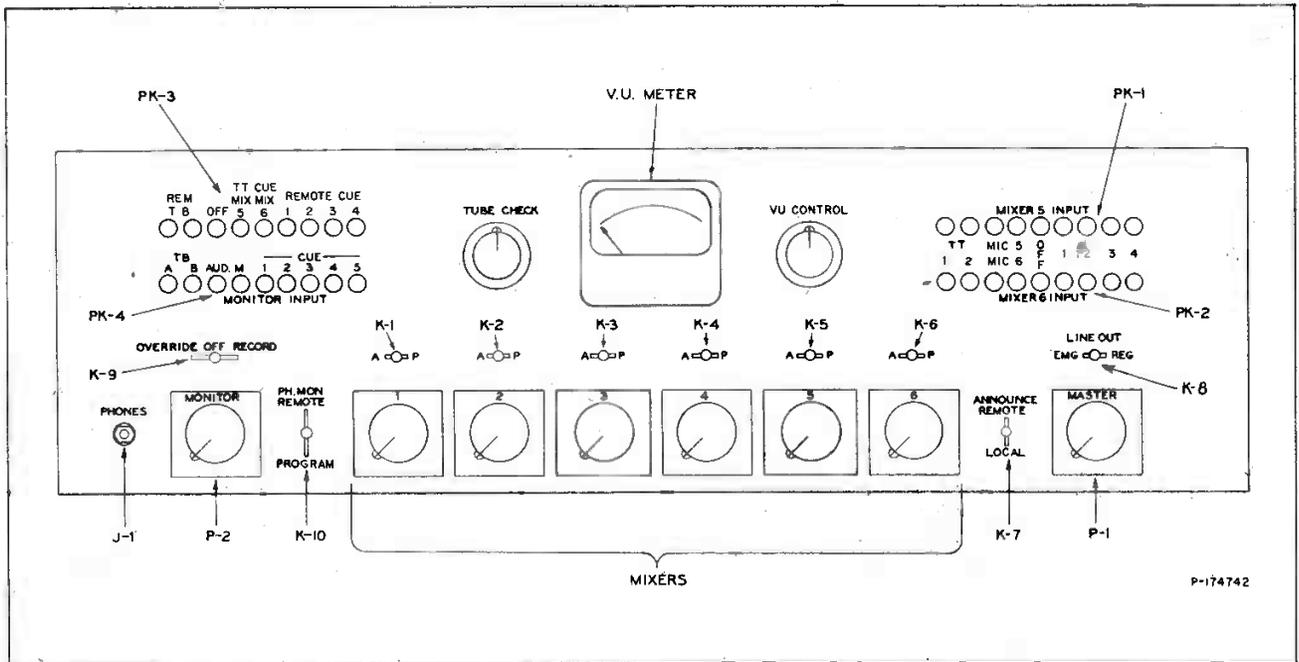


Figure 17 — Front Panel

SWITCH OPERATION TABLE

Key Switches			
<i>Switch</i>	<i>Position</i>	<i>General Function</i>	<i>Exact Function</i>
A-P (Audition-Program) switches, K-1 to K-6	P (Program)	Broadcasting: See LINE-OUT switch, K-8	K-1 to K-6 connect mixers 1 to 6 respectively to input of program amplifier
	Center		K-1 to K-6 disconnect and terminate mixers 1 to 6 respectively
	A (Audition)	Auditioning: See AUD pushbutton of MONITOR INPUT group, PK-4	K-1 to K-6 connect mixers 1 to 6 respectively to AUD pushbutton of PK-4
ANNOUNCE switch, K-7	REMOTE	Announcing from remote microphone in announce or transcription booth. See K-1 to K-6 and LINE-OUT switch, K-8	Connects remote microphone to mixer 4 through preamplifier 4
	Center	Broadcasting or auditioning with Studio mic. 4. See K-1 to K-6 and LINE-OUT switch, K-8	Connects studio mic. 4 to mixer 4 through preamplifier 4
	LOCAL	Announcing from control room. See K-1 to K-6 and LINE-OUT switch, K-8	Connects control-room microphone to mixer 4 through preamplifier 4
LINE OUT switch, K-8	REG	Regular use of program amplifier for broadcasting	Connects program amplifier to outgoing line
	Center		Terminates program amplifier in resistive load
	EMG	Emergency use of monitor amplifier for broadcasting	Connects monitor amplifier to outgoing line
OVERRIDE-RECORD switch K-9	OVERRIDE	Monitoring any remote lines that are not in use as inputs	Connects remote lines that are not in use to monitor amplifier input
	RECORD	Recording (with external amplifier and recorder)	Connects output of monitor amplifier to external record terminals No. 203 and 204
PH-MON switch K-10	PROGRAM	Monitoring program through headphones	Connects output of program amplifier to phone jack
	Center	a. Network monitoring b. Remote cueing. See PK-3 REMOTE CUE buttons	a. Connects monitoring terminals 147, 148 to phone jack b. Connects output of monitor amplifier to REMOTE CUE buttons of PK-3
	REMOTE	Remote talk-back. See PK-3 Remote Cue and REM TB buttons	Connects output of monitor amplifier to REMOTE CUE buttons of PK-3 when control-room microphone is in use

SWITCH OPERATION TABLE (Cont'd)

Pushbuttons			
<i>Pushbutton Group</i>	<i>Pushbutton Designation</i>	<i>General Function</i>	<i>Exact Function</i>
MIXER 5 INPUT, PK-1	1, 2, 3, and 4	Broadcasting or auditioning from remote-line input. See K-1 to K-6 and LINE-OUT switch K-8	Connect remote line corresponding to button pressed to input of mixer 5, when OFF button is pressed
	MIC 5	Broadcasting or auditioning with microphone 5. See K-1 to K-6 and LINE-OUT switch K-8	Connects mic. 5 to mixer 5 through preamplifier 5 when OFF button is in normal (out) position
	TT-1, TT-2	Broadcasting or auditioning with transcription turntable input. See K-1 to K-6 and LINE-OUT switch	Connects transcription turntable corresponding to button pressed, to mixer 5 through preamp. 5 when OFF button is in normal (out) position
	OFF	Broadcasting or auditioning using remote line inputs. See pushbuttons 1, 2, 3, and 4 of PK-1	Connects remote-line buttons to input of mixer 5 and disconnects MIC 5 and TT buttons
MIXER 6 INPUT, PK-2	1, 2, 3, 4	Same as corresponding buttons of PK-1	Same as corresponding buttons of PK-1 except for the following: mixer 6 is used instead of mixer 5; microphone 6 is used instead of microphone 5
	MIC 6 TT-1, TT-2		
REMOTE CUE and TT-CUE	REMOTE CUE	a. Sending cues over remote lines	a. Connects output of monitor amplifier through PH-MON switch (center or program position) to remote line corresponding to button pressed
		b. Remote intercommunication. See K-10, PH-MON switch, REM TB buttons of PK-3	b. Connects output of mon. amplifier through PH-MON switch (REMOTE position) to remote line, when REM TB buttons are pressed
	MIX 5 TT-CUE MIX 6 TT-CUE	Transcription turntable cueing. See PK-1, 2, TT buttons	Connects input of mixer corresponding to button pressed, to input of monitor amplifier, or to external cueing amplifier
	REM TB	Remote talkback. See REMOTE CUE buttons, PK-3	Connects control-room microphone to input of monitor amplifier. Connects output of monitor amplifier through K-10 (REMOTE position) to REMOTE CUE buttons
	OFF		Disconnects all buttons of PK-3 except REM TB buttons, by mechanical interlocking

SWITCH OPERATION TABLE (Cont'd)

Pushbuttons			
<i>Pushbutton Group</i>	<i>Pushbutton Designation</i>	<i>General Function</i>	<i>Exact Function</i>
MONITOR INPUT, PK-4	CUE 1, 2, 3, 4, 5	Cueing the studio from cue telephone lines	Connects cue line corresponding to button pressed to input of monitor amplifier
	M (Monitor)	a. Program monitoring through control-room speaker b. Remote cueing. See PK-3 REMOTE CUE buttons	Connects output of program amplifier to input of monitor amplifier
	AUD	Auditioning. See K-1 to K-6	Connects mixers corresponding to any of switches K-1 to K-6 that are in the A position, to the monitor amplifier input
	TB-A, TB-B	Talk-back from control room to studio	Connect control-room microphone to monitor amplifier input. Turn desired studio speaker on, and other studio speaker off

NOTE: The following switches are electrically interlocked; only one of each group should be used at a time.

- a. K-7 (LOCAL position), TB-B, TB-A of PK-4, REM TB, MIX 5, 6 TT-CUE of PK-3.
- b. All buttons of PK-4.
- c. Remote-cue buttons of PK-3 with corresponding remote-line buttons of PK-1 and PK-2.
- d. Buttons of PK-1 with corresponding buttons of PK-2.

The following switches are mechanically interlocked; only one of each group can be used at a time.

- a. Remote line buttons of PK-1.
- b. MIC 5, TT-1, -2 buttons of PK-1.
- c. Remote line buttons of PK-2.
- d. MIC 6, TT-1, -2 buttons of PK-2.
- e. All buttons of PK-3 except REM TB.

Relay Operation

The consolette contains three relays for the control-room, studio A and studio B speakers. The three speakers are normally connected to the monitor amplifier through their relay contacts. The speaker relays and any auxiliary light relays that have been installed as directed under *Installation* will be operated by the controls of the consolette as indicated in figures 18 and 19, *Speaker Relay Operation Tables A and B*, and *Light Relay Operation Tables A and B*. When a microphone is on the air or on audition, the speaker that is installed in the same room as the microphone will be disconnected by the speaker relays. The "ON AIR" and "AUDITION" lights of any one studio can not

be on simultaneously. No combination of switch settings will energize more than three relays simultaneously.

If the relay power should be cut off, the studio speakers will be off, and the control-room speaker will be on because the studio-speaker relays are normally energized and the control-room speaker relay de-energized. All signal-lights are normally off and all light relays (except the announce-booth relay) are normally de-energized. When a control-room "ON AIR" light is used, the light will be on only when the speaker is off. The announce-booth light will also be on only when the announce-booth speaker is off.

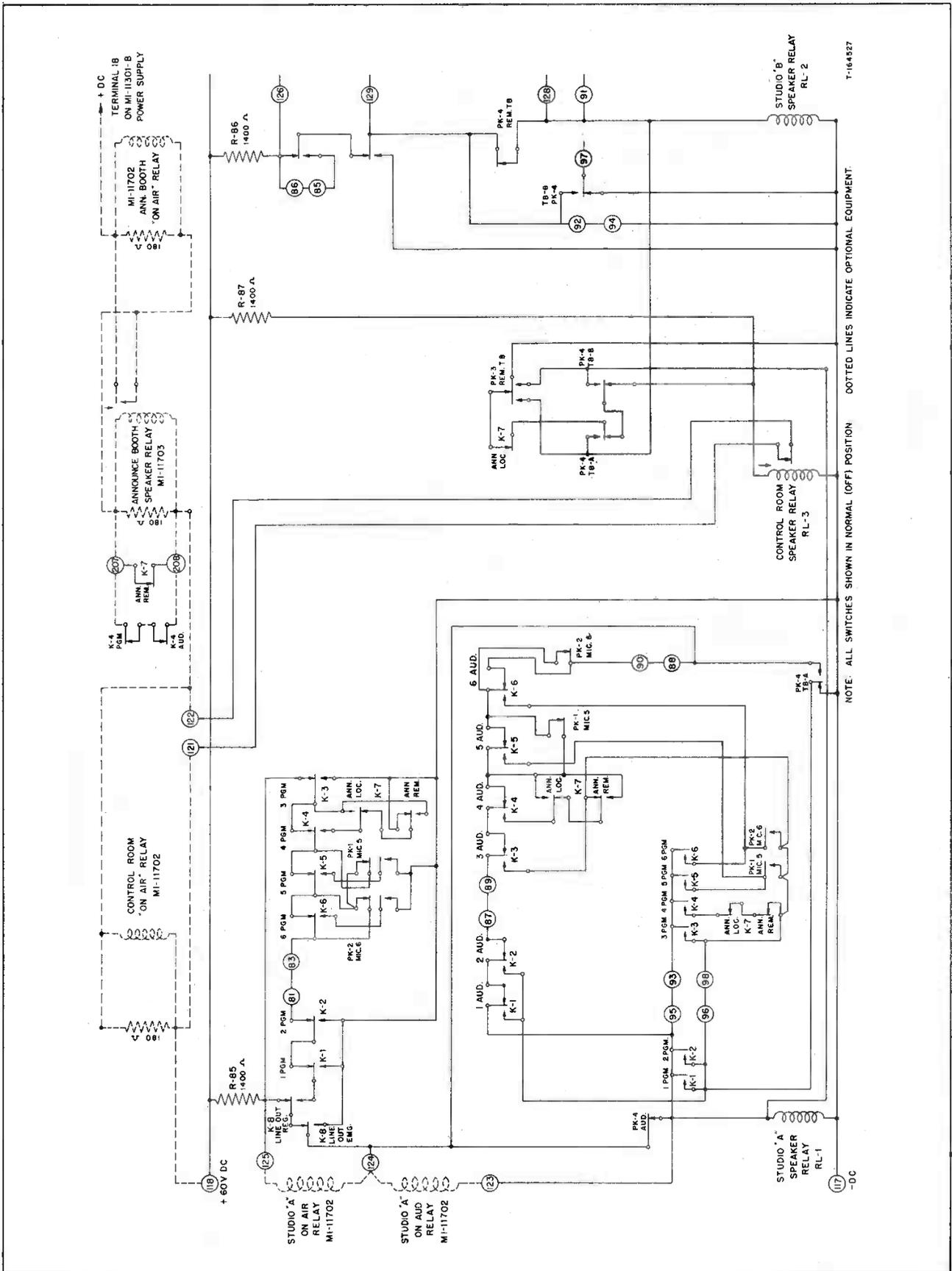


Figure 18 — Simplified Control Circuit Diagram for Single Studio Operation

SPEAKER RELAY OPERATION TABLE A — SINGLE-STUDIO OPERATION

<i>Function</i>	<i>Switching</i>	<i>Studio Speaker</i>	<i>Control Room Speaker</i>
Studio in use	Switches normal	on	on
	a. K-1 and/or K-2, K-3 to P or A	off	on
	b. K-4 to P or A, K-7 center	off	on
	c. K-5 and/or K-6 to P or A, MIC 5 and MIC 6 buttons normal	on	on
	d. Same as "a," and/or "b," TB-A pressed	on	off
	e. K-5 to P or A and MIC 5 button pressed	off	on
	f. K-6 to P or A and MIC 6 button pressed	off	on
	g. K-1 and/or K-2, K-3 to P, K-8 to REG; K-4 to P, K-7 center, K-8 to REG	off	on
Announcing	h. Same as "g" and TB-A pressed	off	off
	a. K-7 to LOCAL, K-4 to P, A, or center	on	off
Remote talk-back	b. K-7 to REMOTE, K-4 to P, A, or center	on	on
Emergency	Remote TB buttons pressed	off	off
	K-8 to EMG position	off	on

NOTE: Speaker relays are controlled by the following switches:
 Studio Speaker: K-1, K-2, K-3, K-4, K-5 and MIC 5 button; K-6 and MIC 6 button; K-7, K-8, TB and REMOTE TB buttons.
 Control-room speaker: K-7 and K-4.

SPEAKER RELAY OPERATION TABLE B — TWO-STUDIO OPERATION

<i>Function</i>	<i>Switching</i>	<i>Studio A Speaker</i>	<i>Studio B Speaker</i>	<i>Control Room Speaker</i>
Studio A in use	Switches normal	on	on	on
	a. K-1 and/or K-2 to P or A	off	on	on
	b. Same as "a" and TB-A pressed	on	off	off
	c. K-1 and/or K-2 to P and K-8 to REG	off	on	on
Studio B in use	d. Same as "c" and TB-A pressed	off	off	off
	a. K-3 to P or A	on	off	on
	b. K-4 to P or A, K-7 center	on	off	on
	c. K-5 and/or K-6 to P or A, MIC 5 and MIC 6 buttons normal	on	on	on
	d. K-5 to P or A and MIC 5 button pressed	on	off	on
	e. K-6 to P or A and MIC 6 button pressed	on	off	on
	f. Same as "a" and/or "b" and TB-A pressed	off	on	off
	g. K-3 to P, K-8 to REG, K-4 to P, K-7 center, K-8 to REG	on	off	on
h. Same as "g" and TB-B pressed	off	off	off	
Announcing	a. K-7 to LOCAL, K-4 to P, A, or center	on	on	off
	b. K-7 to REMOTE, K-4 to P, A, or center	on	on	on
Remote talk-back	Remote TB buttons pressed	off	off	off
Emergency	K-8 to EMG	off	off	on

NOTE: Speaker relays are controlled by the following switches:
 Studio A speaker: K-1, K-2, K-8, TB and REMOTE TB buttons.
 Studio B speaker: K-3, K-4, K-8, TB and REMOTE TB buttons.
 Control-room speaker: K-7, TB and REMOTE TB buttons.

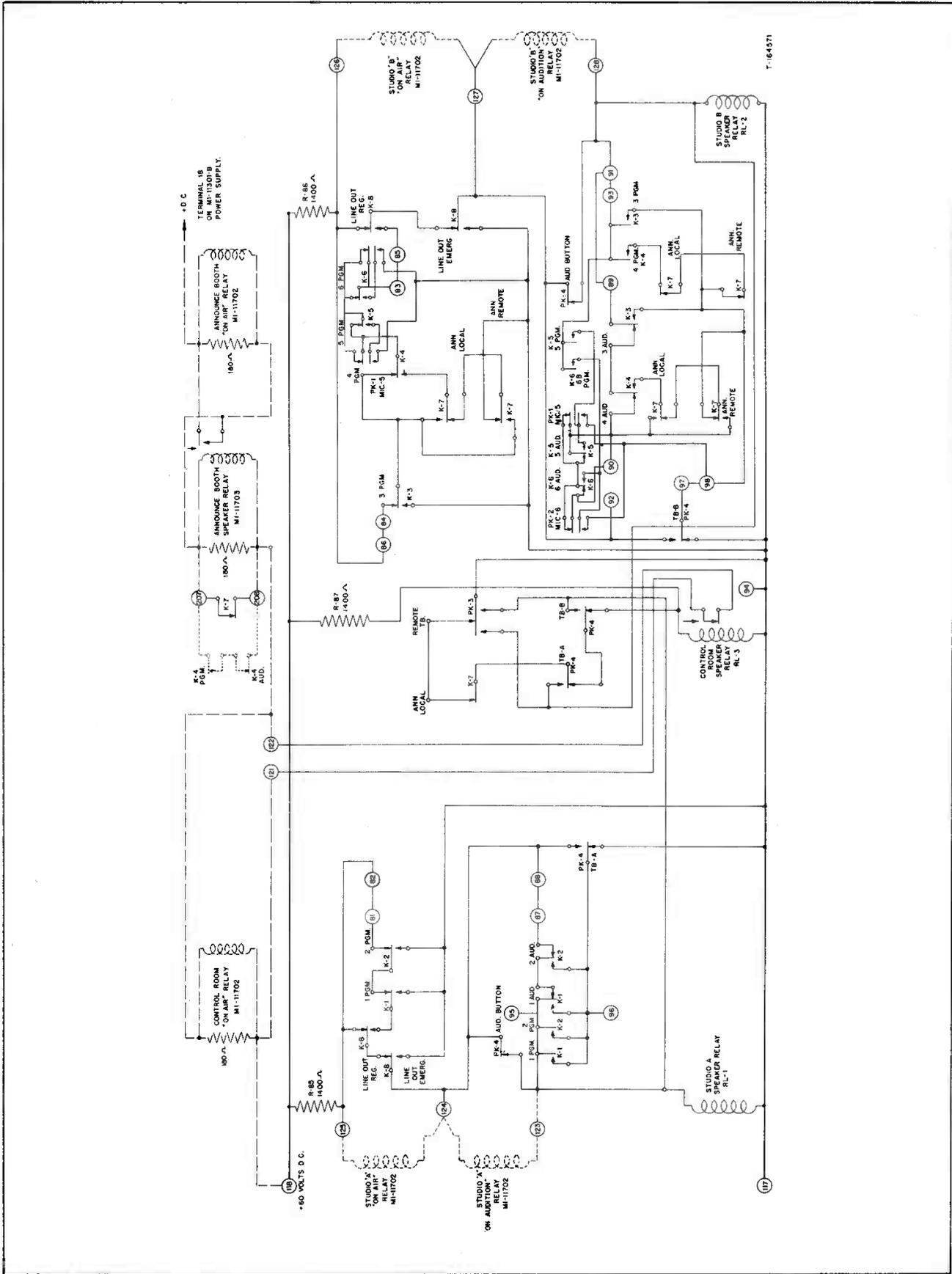


Figure 19 — Simplified Control Circuit Diagram for Two-Studio Operation

LIGHT RELAY OPERATION TABLE A — SINGLE-STUDIO OPERATION

<i>Function</i>	<i>Switching</i>	<i>"On Air"</i>	<i>"Audition"</i>
Studio in use	Switches normal	off	off
	a. K-1 and/or K-2, K-3 to P and K-8 to REG	on	off
	b. K-4 to P, K-7 normal, K-8 to REG	on	off
	c. K-5 and/or K-6 to P or A, MIC 5 and MIC 6 buttons normal, K-8 to REG	off	off
	d. K-5 to P, MIC 5 button pressed, K-8 to REG	on	off
	e. K-6 to P, MIC 6 button pressed, K-8 to REG	on	off
	f. K-1 and/or K-2, K-5 to A and AUD button pressed	off	on
	g. K-4 to A, K-7 center, AUD button pressed	off	on
	h. K-5 to A, MIC 5 button pressed, AUD button pressed	off	on
	i. K-6 to A, MIC 6 button pressed, AUD button pressed	off	on
	j. Same as "f," "g," "h," "i" and TB-A button pressed	off	off
Announcing	a. K-7 to LOCAL or REMOTE, K-4 to P, K-8 to REG	off	off
	b. K-7 to LOCAL or REMOTE, K-4 to A, AUD button pressed	off	off
Emergency	K-8 to EMG	on	off

NOTE: Light relays are controlled by the following switches:

Studio "On Air" relay: K-1, K-2, K-3, K-4; K-5 and MIC 5 button; K-6 and MIC 6 button; K-7 and K-8.

Studio "Audition" relay: K-1, K-2, K-3, K-4; K-5 and MIC 5 button; K-6 and MIC 6 button; K-7 AUD and TB-A buttons.

LIGHT RELAY OPERATION TABLE B — TWO-STUDIO OPERATION

<i>Function</i>	<i>Switching</i>	<i>Studio A</i>		<i>Studio B</i>	
		<i>"On Air"</i>	<i>"Audition"</i>	<i>"On Air"</i>	<i>"Audition"</i>
Studio A in use	Switches normal	off	off	off	off
	a. K-1 and/or K-2 to P and K-8 to REG	on	off	off	off
	b. K-1 and/or K-2 to A and AUD button pressed	off	on	off	off
	c. Same as "b" and TB-A button pressed	off	off	off	off
Studio B in use	a. K-3 to P, K-8 to REG	off	off	on	off
	b. K-4 to P, K-7 center K-8 to REG	off	off	on	off
	c. K-5 and/or K-6 to P or A, MIC 5 and MIC 6 buttons normal, K-8 to REG	off	off	off	off
	d. K-5 to P, MIC 5 button pressed, K-8 to REG	off	off	on	off
	e. K-5 to A, MIC 5 button pressed, AUD button pressed	off	off	off	on
	f. K-6 to P, MIC 6 button pressed, K-8 to REG	off	off	on	off
Announcing	g. K-6 to A, MIC 6 button pressed, AUD button pressed	off	off	off	on
	h. K-3 to A, AUD button pressed	off	off	off	on
	i. Same as "e" and/or "g," "h" TB-B button pressed	off	off	off	off
	a. K-7 to LOCAL or REMOTE, K-4 to P, K-8 to REG	off	off	off	off
	b. K-7 to LOCAL or REMOTE, K-4 to A, AUD button pressed	off	off	off	off
Emergency	K-8 to EMG	on	off	on	off

NOTE: Light relays are controlled by the following switches:

Studio A "On Air" relay: K-1, K-2 and K-8.

Studio A "Audition" relay: K-1, K-2, K-8, AUD and TB-A buttons.

Studio B "On Air" relay: K-3, K-4; K-5 and MIC 5 buttons; K-6 and MIC 6 button; K-7 and K-8.

Studio B "Audition" relay: K-3, K-4; K-5 and MIC 5 button; K-6 and MIC 6 button; K-7, AUD and TB-B buttons.

OPERATING PROCEDURE

Operating procedure applicable to both single- and two-studio installations is given in the following paragraphs. For information on the exact function of each switch, and the interlocking of the switches, see the switch operation table and the accompanying footnote.

To Put A Program On The Air

To put a program on the air proceed as follows:

a. Switch the desired microphones, transcription turntables or remote lines to the proper mixers as indicated in the *Mixer Input Table*.

b. Place the A-P switch (K-1 to K-6) corresponding to these mixers in the P position.

c. Turn the MASTER volume control to position 13 (approx.).

d. Adjust the volume controls of each of the mixers that are in use one at a time, until the desired level is indicated by the VU meter. As each adjustment is made, note the volume control setting corresponding to the desired level; then return the volume control to the "0" position before the next adjustment is made. When a signal of normal intensity is being picked up, this setting should be approximately position 13.

e. At the moment that the program is to go on the air, place the LINE-OUT switch in the REG. position; then adjust the mixer volume controls to the previously determined settings.

f. Press the M (monitor) pushbutton of the MONITOR INPUT group, PK-4. Adjust the MONITOR volume control until the desired volume is obtained from the control-room speaker.

Auditioning

To audition a program, proceed as follows:

a. Switch the desired microphones, transcription turntables or remote lines to the proper mixers as indicated in the *Mixer Input Table*.

b. Place the A-P switches corresponding to these mixers in the A position.

c. Press the AUD pushbutton of the MONITOR INPUT group, PK-4.

NOTE: If the remote-microphone input (terminals 11 and 12) is connected to a studio microphone, this microphone may be used only in conjunction with one or more of the other studio microphones. When K-7 is in the REMOTE position, K-4 will not operate the studio signal-light and speaker relays.

MIXER INPUT TABLE

<i>Input</i>	<i>Switch</i>	<i>Mixer</i>
Mic. 1*	None	1
Mic. 2	None	2
Mic. 3	None	3
Mic. 4	K-7 Center	4
Mic. 5	PK-1 OFF button normal, PK-1 MIC 5 button pressed	5
Mic. 6	PK-2 OFF button normal, PK-2 MIC 6 button pressed	6
Rem. Mic.	K-7 to REMOTE	4
Cont. room mic. (announce)	K-7 to LOCAL	4
Trans. Turn.	PK-1 OFF button normal, PK-1 TT-1 or TT-2 button pressed	5
	or	
	PK-2 OFF button normal, PK-2, TT-1 or TT-2 button pressed	6
Remote Lines	PK-1 OFF button pressed, PK-1 button corresponding to desired line pressed	5
	or	
	PK-2 OFF button pressed, PK-2 button corresponding to desired line pressed	6

* In a two-studio installation, microphones 1 and 2 are in studio A, and microphones 3, 4, 5, and 6 are in studio B.

To Cue The Studio From A Cue Line

To cue the studio from any one of the five cue lines, press the cue button of the MONITOR INPUT group, PK-4 that corresponds to the desired line.

To Cue Studio A From Studio B

To cue studio A from studio B (or studio B from A), press the M button of the MONITOR INPUT group, PK-4.

NOTE: For any operation requiring the use of loudspeakers, make certain that the desired speakers are on. (See *Relay Operation*.)

Program Monitoring

To monitor a program through the control-room speaker, press the M button of the MONITOR INPUT group, PK-4. To monitor a program through

headphones, plug the phones into the phone jack, and place the PH-MON switch, K-10 in the PROGRAM position.

Remote Cueing

To send a cue over a remote line proceed as follows:

- a. Place the PH-MON switch in the center or PROGRAM position.
- b. Press the M button of the MONITOR INPUT group, PK-4.
- c. Press the REMOTE CUE button of PK-3 that corresponds to the desired line.

The electrical interlocking of the switches makes it impossible to cue a remote line that is being used as an input.

To Talk Back to the Studio

To talk back to the studio, press the button corresponding to the desired studio (TB-A or TB-B) of the MONITOR INPUT group, PK-4, and speak into the control-room microphone. For single-studio operation, use only the TB-A button.

To Talk Back over the Remote Lines

To talk back over the remote lines, proceed as follows:

- a. Press the REM TB button of PK-3.
- b. Press the CUE button of PK-3 corresponding to the desired line.
- c. Place the PH-MON switch in the REMOTE POSITION.
- d. Speak into the control-room microphone.

Incoming signals on the remote line may be heard through headphones plugged into the phone jack.

Monitoring the Remote Lines

To monitor a signal on any of the remote lines that are not being used as inputs, place the OVER-

RIDE-RECORD switch in the OVERRIDE position.

Recording

To record a program that is on the air, press the M button of PK-4, and place the OVERRIDE-RECORD switch in the RECORD position. To record a program that is not on the air, operate the controls as directed under *To Audition* and place the OVERRIDE-RECORD switch in the RECORD position.

NOTE: An external amplifier and recorder should be connected to the console as directed under *Installation*.

Transcription-Turntable Cueing

To permit the transcription-turntable operator to listen to a record just before it is to go on the air, proceed as follows:

- a. Switch the desired transcription turntable to either Mixer 5 or 6, as directed in the *Mixer Input Table*.
- b. Press the TT-CUE button of PK-3 that corresponds to the mixer to which the transcription-turntable is connected.

Emergency Use of the Monitor Amplifier for Broadcasting

If the program amplifier should become defective while a program is on the air, the monitor amplifier may be used for broadcasting as follows: Place the A-P switches corresponding to the mixers being used, in the A position, press the AUD button, and place the LINE-OUT switch in the EMG position. If the defect is in the program amplifier rectifier, also place the REG-EMG switch of the MI-11301-B Power Supply in the EMG position.

Network Monitoring

If the monitoring terminals 147 and 148 are connected to a network, the network may be monitored through headphones plugged into the phone jack, when the PH-MON switch is in the center position.

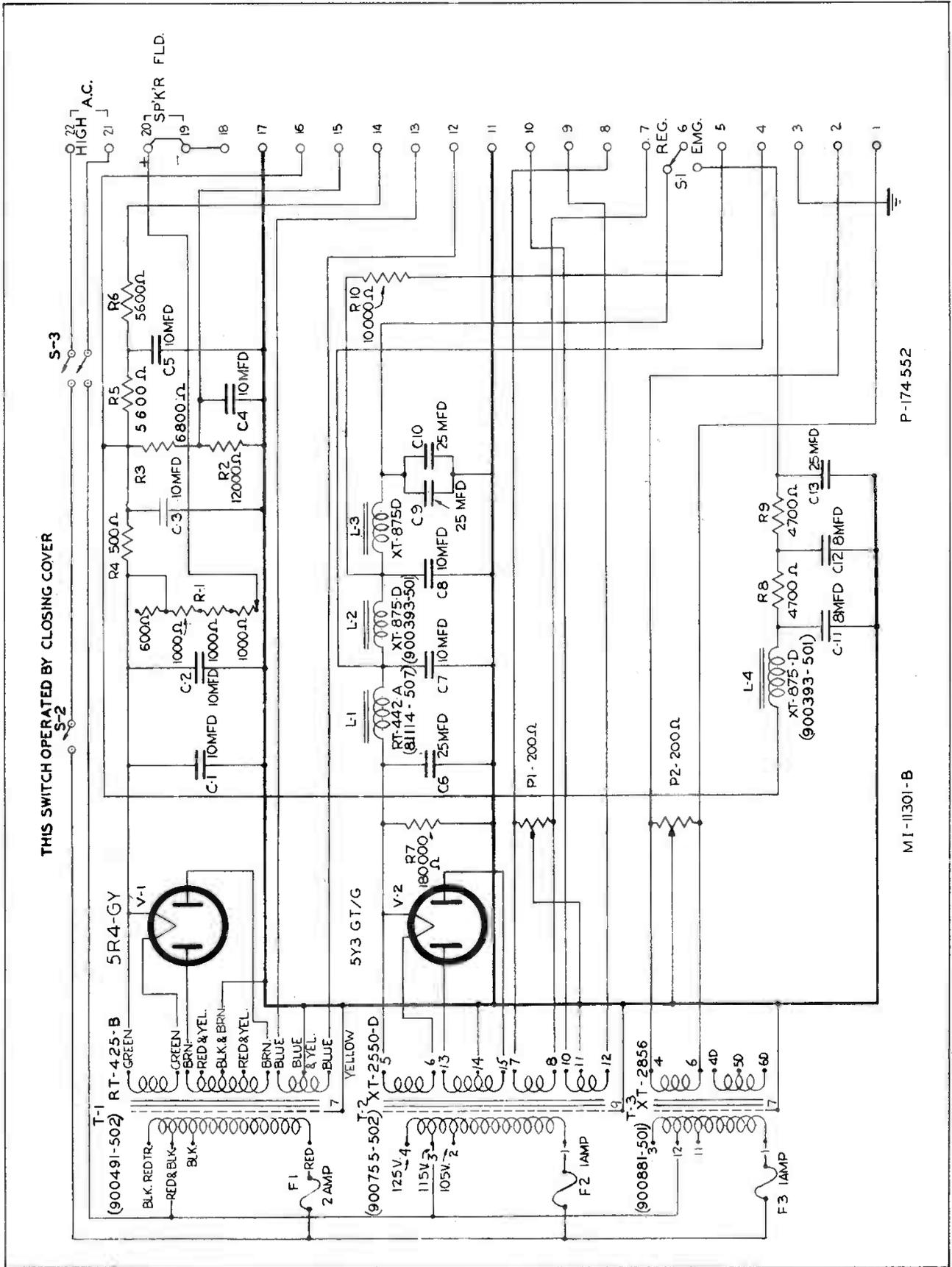


Figure 20 — Schematic Diagram, MI-11301-B Power Supply

TYPE 76-C CONSOLETTTE

PART IV

MI-11301-B Power Supply

TECHNICAL DATA

Power Required

100 to 130 volts
50 to 60 cycles
225 watts

Fuses

Transformer T-1, 2 amp
Transformer T-2, 1 amp
Transformer T-3, 1 amp

Tubes

Rectifier 1 RCA-5R4-GY
Rectifier 1 RCA-5Y3 GT/G

Dimensions and Weight

Height—15 inches
Width—15 inches
Depth—8 inches
Depth—15 $\frac{3}{8}$ inches (opened)
Weight—60 pounds

Mounting

Wall mounting by the use of two mounting brackets

Power Supplied

a. *D-C Plate (with respect to terminal No. 17)*

<i>Terminal No.</i>	<i>Volts</i>	<i>Ma.</i>
4	285	42.
5	220	4.6
6 REG	220	21.
6 EMG	200	13.
14	278	5.1
15	210	1.2
16	375	62.

b. *A-C Heater Supply*

Terminals No. 1 and No. 2—6.2 volts at 2.4 amp.
Terminals No. 7 and No. 8—6.2 volts at 0.3 amp.
Terminals No. 9 and No. 10—6.2 volts at 1.6 amp.
Terminals No. 12 and No. 13—6.2 volts at 2.7 amp.

c. *Field Supply*

Terminals No. 19 and No. 20—100 ma. to one, two or three, 100-volt, 10-watt speaker fields.

d. *Relay Supply*

Terminals No. 17 and No. 18—60 volts at 100 ma. d-c.

DESCRIPTION

The MI-11301-B Power Supply furnishes plate, heater, relay, and loudspeaker field power to broadcast speech-input installations, such as the RCA-76-B and 76-C Series of Studio Consolettes. This power supply operates from a source of 100 to 130 volts, 50 to 60 cycles. It has two full-wave rectifier circuits. The power supply furnishes the energy for external relays requiring 60 volts at 100 milliamperes, and one, two, or three 100-volt, 10-watt loudspeaker fields.

Ventilating screens are provided on the top and bottom of the cabinet. Knockouts for conduits carrying the wiring to the unit are in the sides of the cabinet. External connections to the power supply are made to a terminal board at the left of the chassis. Tubes, terminal connections, fuses, resistors and wiring are accessible for servicing when a hinged door is swung open to the right. Other re-

sistors, capacitors and transformers are mounted on the back of a hinged chassis, and are made accessible by swinging the main chassis outward. Opening the cover opens switch S-2, thereby removing power from the circuit for safety. A POWER ON-OFF toggle switch is mounted on the side of the cabinet.

INSTALLATION**Mounting**

The power supply is provided with two mounting brackets for use in mounting it on a wall. Refer to the mounting dimensions diagram, figure 22. The unit should be near the consolette to reduce wiring, but not closer than three feet.

Connections

All connections should be made by means of a flexible cable to the terminal board at the left of the chassis through the knockouts. The screw-type

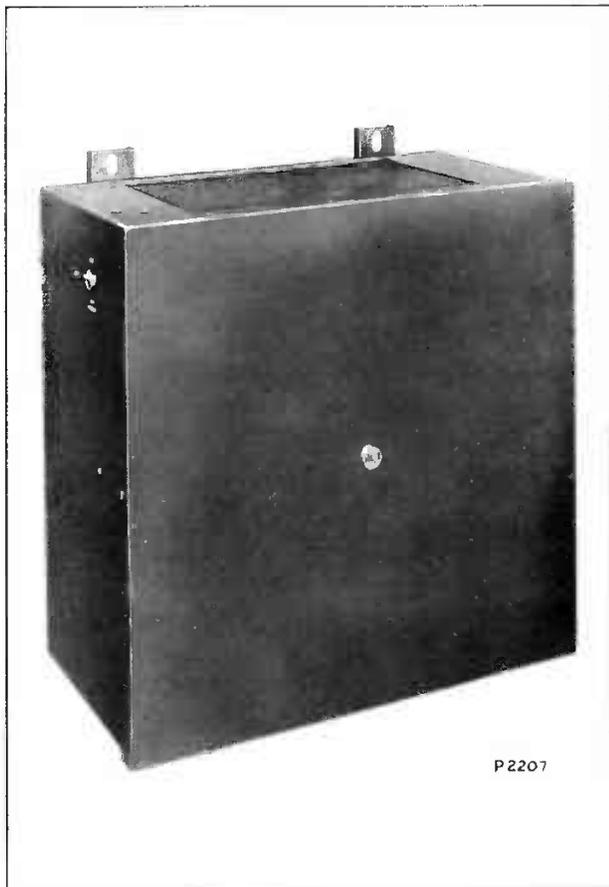


Figure 21 — MI-11301-B Power Supply

terminals are numbered and the corresponding numbers, together with their power-supply connections are shown in the schematic diagram.

Field Supply

To connect one, two, or three loudspeaker fields of 1,000 ohms, 10 watts each, such as the 64A and 64B electrodynamic speakers, proceed as follows:

- a. Remove the jumper between terminals 19 and 20 on the power-supply terminal board.
- b. Connect the field between these same two terminals.
- c. If two or three fields are used, connect the fields in series.
- d. Omit one, two, or three 1,000-ohm sections of resistor R-1, corresponding to the number of loudspeaker fields used. This is accomplished by moving connections of either lead to resistor R-1. (The 600-ohm section of R-1 is not to be used.) R-1 is mounted on the back of the hinged chassis.

Emergency Switch

A toggle switch is mounted on a bracket located in the lower center of the chassis. This switch has two positions, REGULAR and EMERGENCY. When the switch is thrown to the EMG position, the monitor amplifier power supply furnishes the

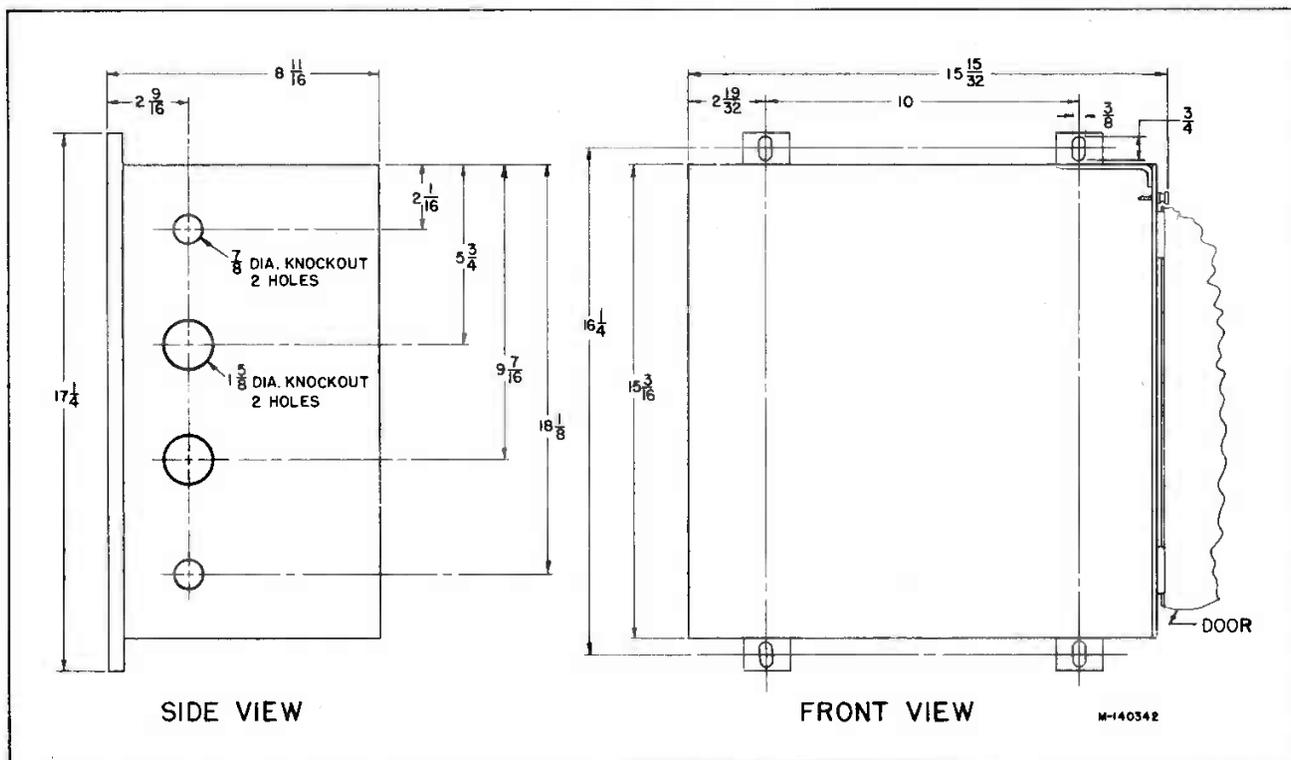


Figure 22 — Mounting Dimensions, MI-11301-B Power Supply

power for the microphone pre-amplifiers and booster amplifiers. The monitor amplifier is then used in place of the program amplifier in the console.

Hum Adjustment

If it becomes necessary to make a hum adjustment on the console, the following procedure is recommended: Load the microphone lines (Nos. 1, 2, 3 and 4) with 250-ohm resistors. Set the master con-

trol and the mixer controls (Nos. 1, 2, 3 and 4 attenuators) for 67 db or normal gain. Connect a noise meter or an amplifier having approximately 60 db gain to the line-out terminals of the Console. Connect a volume indicator meter across the output of the external amplifier, and adjust hum potentiometers P-1 and P-2 for the minimum hum. (The line-out switch must be in the REGULAR position and the associated mixer switches Nos. 1, 2, 3 and 4 on PROGRAM.)

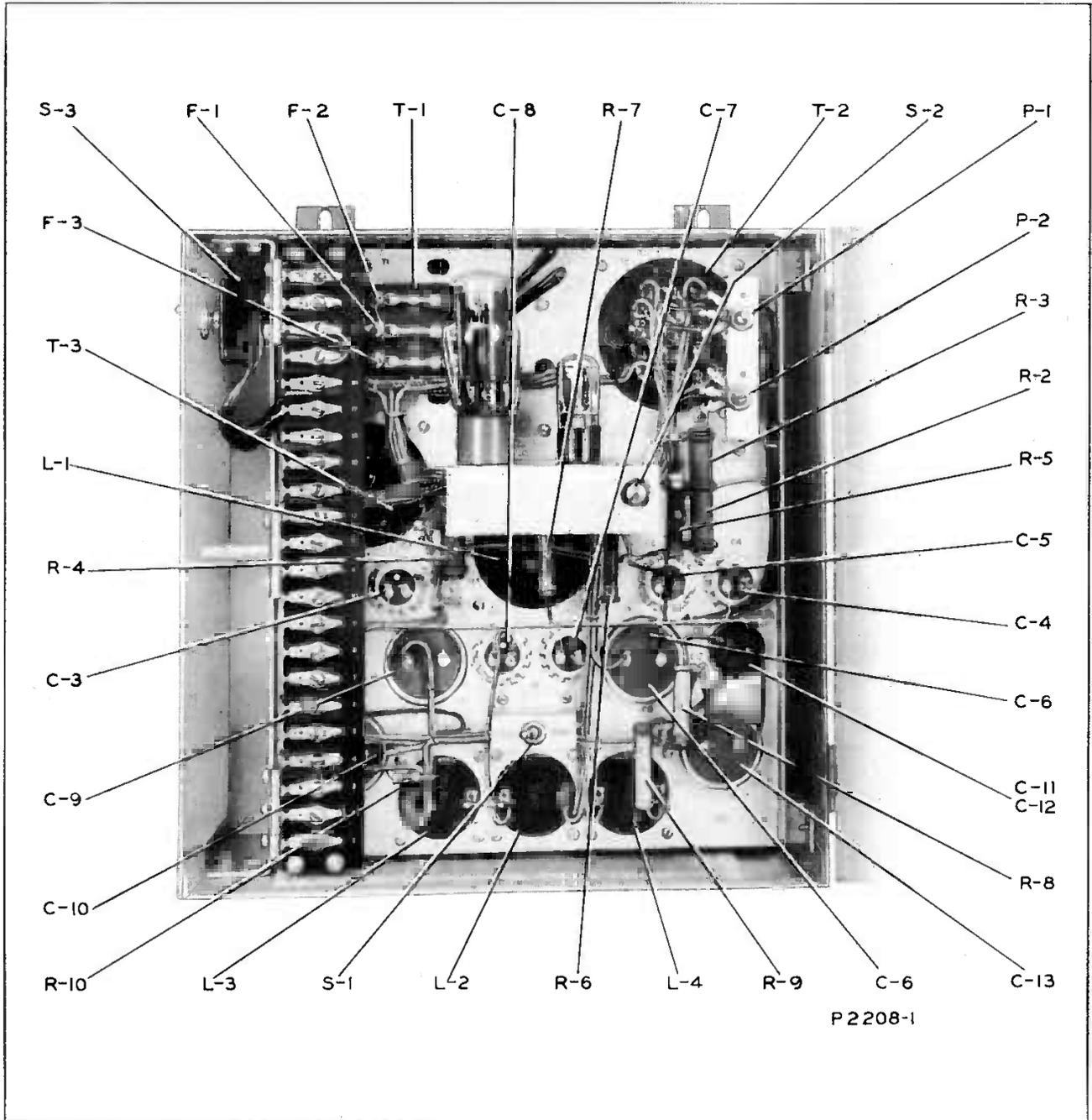


Figure 23 — Interior View of Power Supply

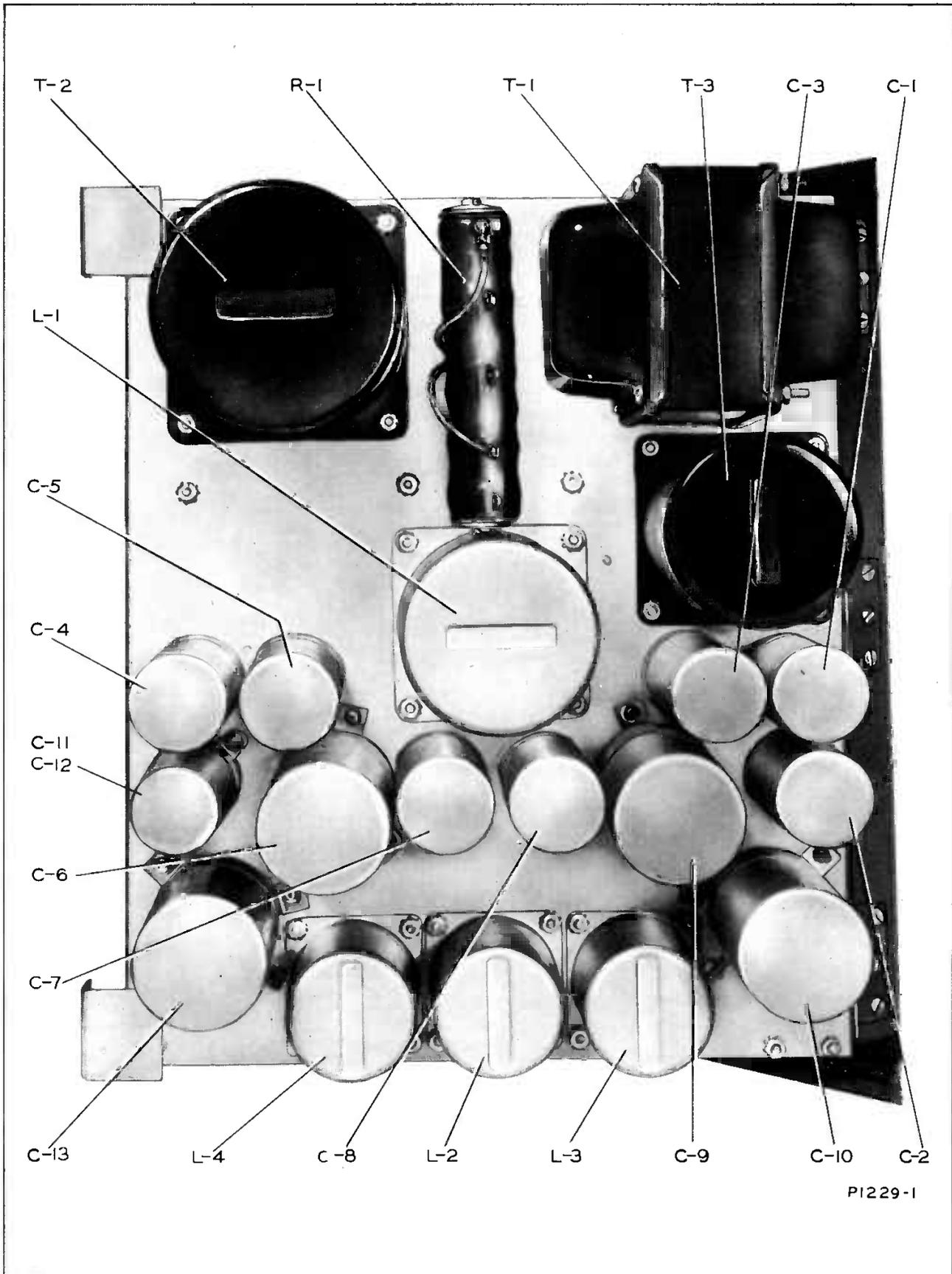


Figure 24 — Rear View of Power Supply Chassis

TYPE 76-C CONSOLETTTE

PART V

Maintenance

TUBE CHECK READINGS

Selector Switch Setting	Tube	Meter Reading
1	RCA-1620, preamplifier number 1	70 ± 10
2	RCA-1620, preamplifier number 2	70 ± 10
3	RCA-1620, preamplifier number 3	70 ± 10
4	RCA-1620, preamplifier number 4	70 ± 10
5	RCA-1620, preamplifier number 5	70 ± 10
6	RCA-1620, preamplifier number 6	70 ± 10
7	RCA-1620, first stage of program amplifier	70 ± 10
8	RCA-1620, first stage of monitor amplifier	70 ± 10
9	RCA-1620, second stage of program amplifier	70 ± 10
10	RCA-1620, third stage of program amplifier	70 ± 10
11	RCA-1621, output stage of program amplifier	70 ± 10
12	RCA-1621, output stage of program amplifier	70 ± 10

INSPECTION AND CHECKING

The Type 76-C Consolette is specially designed so that the components may easily be reached for servicing. The cabinet lid is hinged to permit access to the tubes and relays. The lid is locked by two slotted spring catches which may be released with a screwdriver or dime. The cabinet may be swung back on hinges to expose the terminal boards and the components beneath the chassis.

To avoid noise caused by corroded contacts or dirt on terminals and sockets set up a regular inspection routine. To prevent faulty operation, check the tubes regularly. To test the tubes, turn the VU control to the OFF position; then rotate the TUBE CHECK switch through positions 1 to 12 and observe the VU meter at each step. The meter readings will be proportional to the cathode bias voltages and hence will indicate the emission of the

tubes. The normal meter reading for each tube is listed under *Tube Check Readings*. When these readings were taken, the line voltage was 115 volts ac.

Clean the tube caps and sockets with carbon tetrachloride or crocus cloth every three months. To clean the volume controls, apply Davenoil to the contacts and rotate the knobs. If any dark streaks appear, wipe off the contacts. Repeat this procedure until the contacts are clean, then apply a thin film of Davenoil. The Davenoil is shipped with the consolette.

IMPORTANT: The Davenoil is provided for cleaning the volume-control contacts; no other cleaning agent should be used.

CARE OF PUSHBUTTON SWITCHES

The pushbutton switches are designed so that a frequent routine of inspection and cleaning is not required; however if noisy operation is experienced as a result of dirty switch contacts, the following cleaning procedure is recommended:

- a. Open the lid of the cabinet.
- b. With a toothpick, or similar instrument, put a drop of Davenoil into each of the eyelet holes directly over the switch contacts.
- c. Move the plungers in and out several times, and then remove the excess oil with a pipe cleaner.

CARE OF KEY SWITCHES

The key switches have been adjusted so that a microphone and a loudspeaker in the same studio may not be "on" simultaneously. If acoustic feedback should occur, adjust the contacts with a standard relay-contact bending tool. Note the following desired sequence of operation: *The relay contacts must operate first and the audio circuit contacts last.* To adjust the contacts, relieve the tension of the center spring of the switch contacts that operate the relays, and increase the tension of the center spring of the contacts in the audio circuits. Do not alter the spring shape or reduce the pressure excessively so as to cause poor contact or short circuits.

TUBE VOLTAGE TABLE

Tube socket voltages are listed in the following table. All d-c voltages are measured with respect to ground. If a meter that has a sensitivity

different from 20,000 ohms per volt is used, the readings obtained may differ from the listed voltages.

Preamplifier Voltages				
Tube Element		RCA-1620 #1 to 6		
Plate		200 v dc		
Cathode		8.3 v dc		
Heater		6.2 v ac		

Program Amplifier Voltages				
Tube Element	RCA-1620 #7	RCA-1620 #9	RCA-1620 #10	RCA-1621 #11, 12
Plate	155 v dc	80 v dc	85 v dc	270 v dc
Screen	70 v dc
Cathode	5 v dc	1.9 v dc	2.2 v dc	23 v dc
Heater	6.2 v ac	6.2 v ac	6.2 v ac	6.2 v ac

Monitor Amplifier Voltages				
Tube Element	RCA-1620 #8	RCA-1620 #13	RCA-1620 #14, 15	RCA-1622 #16, 17
Plate	155 v dc	115 v dc	140 v dc	340 v dc
Screen	220 v dc
Cathode	5.8 v dc	4.3 v dc	5 v dc	12 v dc
Heater	6.2 v ac	6.2 v ac	6.2 v ac	6.2 v ac

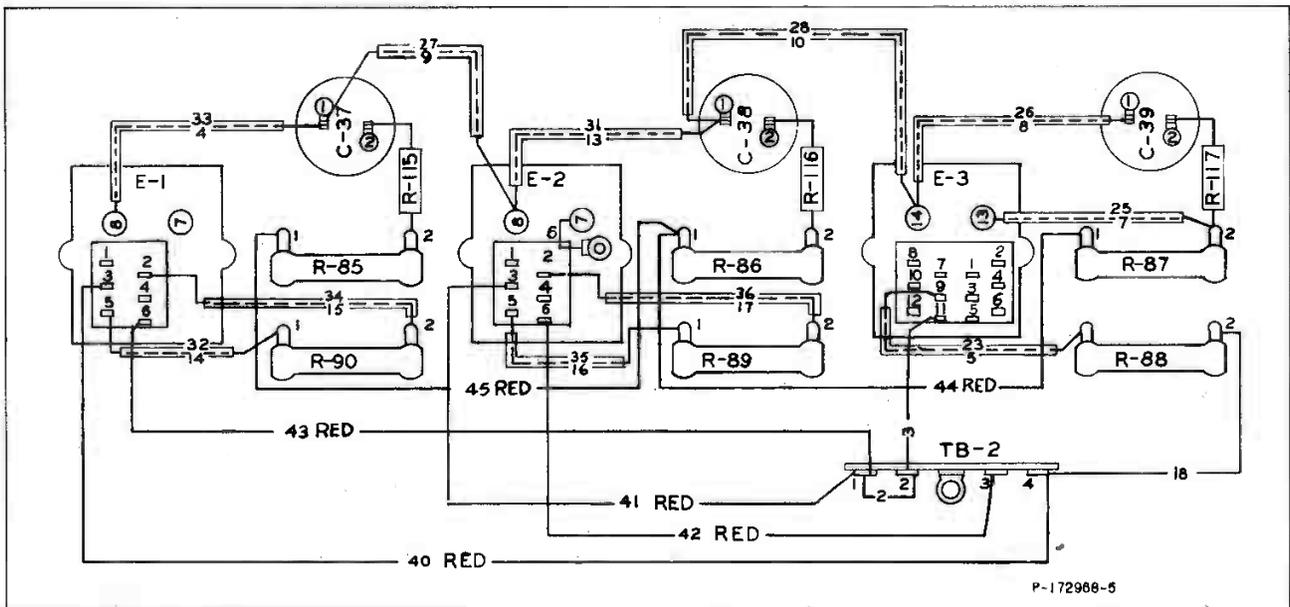


Figure 25 — Relay Mounting Plate

P-172968-5

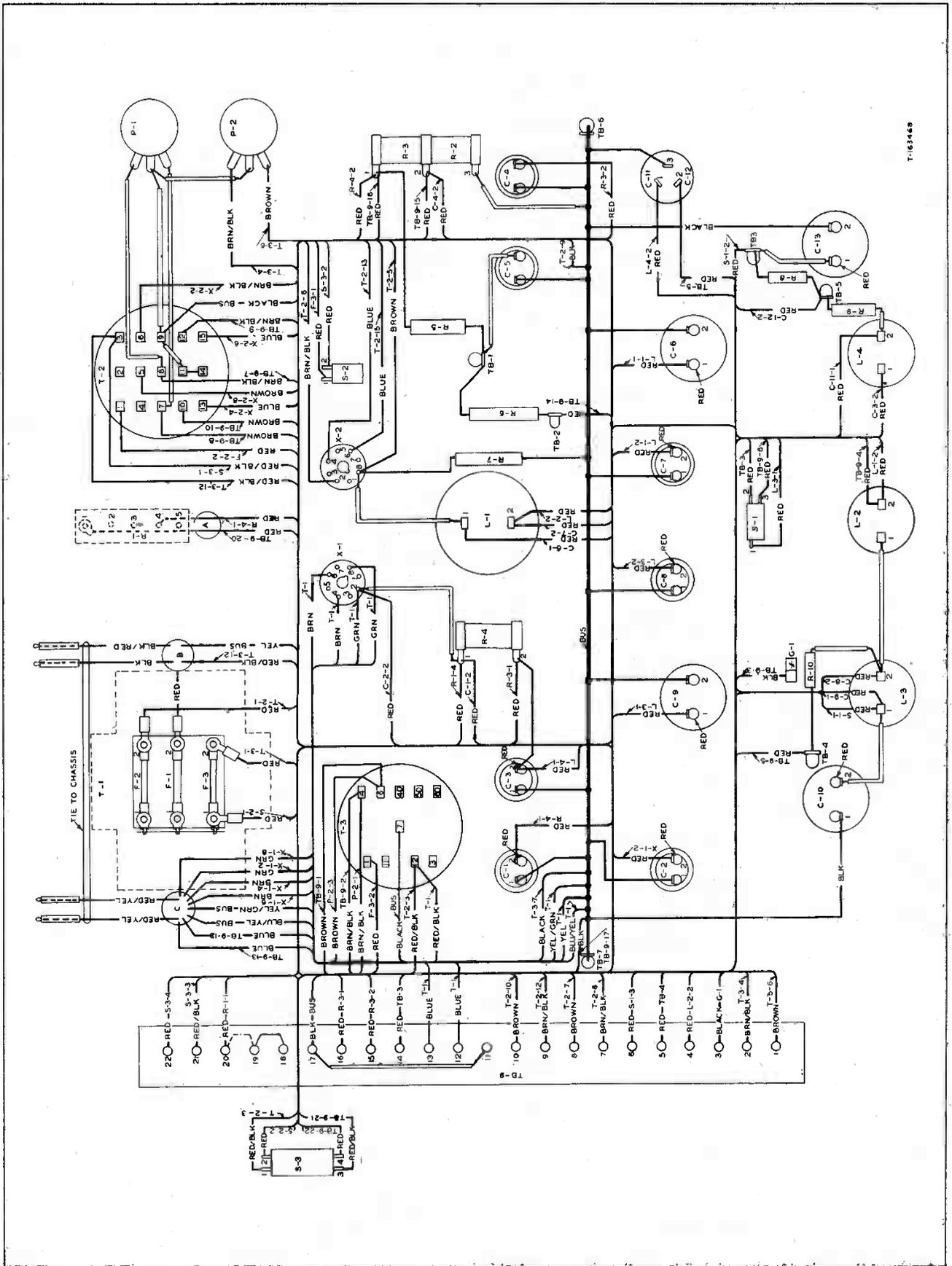


Figure 26 - Wiring Diagram, MI-11301-B Power Supply

Replacement Parts

The following list of parts is included to provide identification when ordering replacement parts. Order from *RCA Replacement Parts Department, Camden, New Jersey*, giving the *Stock Number* and *Description* of the parts wanted. Replacement parts supplied may be slightly different in form or size from the original parts but will be completely interchangeable with them.

LIST OF PARTS

Symbol	Description	Stock No.
MI-11301-B Power Supply		
C-1, -2, -3, -4, -5, -7, -8	Capacitor, electr., 10 mf, 475 v	13224
C-6, -9, 10, -13	Capacitor, electr., 25 mf, 475 v	13036
C-11, -12	Capacitor, 20 ⁴⁰⁻⁴⁰ mf, 450-450 v	52532
F-1	Fuse, 2 amp	3883
F-2, -3	Fuse, 1 amp	14133
L-1	Reactor, RT-442-A	17568
L-2, -3, -4	Reactor, XT-875-D	17569
P-1, -2	Potentiometer, 200 ohms	18953
R-1	Resistor, 600-1000-1000-1000 ohms	17167
R-2, -3	Resistor, 12,000-6800 ohms	51373
R-4	Resistor, 500 ohms, 4.8 w	17451
R-5, -6	Resistor, 5600 ohms, 2 w	8097
R-7	Resistor, 180,000 ohms, 2 w	19734
R-8, -9	Resistor, 4700 ohms, 2 w	17248
R-10	Resistor, 10,000 ohms, 1 w	13097
S-1	Switch, REG-EMG, toggle	7925
S-2	Switch, automatic cut-off	19433
S-3	Switch, power	15874
T-1	Transformer, power, RT-425-B	44068
T-2	Transformer, power, XT-2550-D	44683
T-3	Transformer, XT-2856	18237
	Clamp, capacitor	14088
Relay Mounting Plate		
C-37, -38, -39	Capacitor, electr., 25 mfd, 50 v dc	26410
R-85, -86, -87	Resistor, 1400 ohms, 10 w	18235
R-88, -89, -90	Resistor, 15 ohms, 10 w	18236
R-115, -116, -117	Resistor, 120 ohms, 1/2 w	30189
RL-1, -2	Relay, 12 v dc	19186
RL-3	Relay, 12 v dc	18292
Audio Terminal Board (TB-43)		
R-137, -138	Resistor, 4700 ohms, 20 ¹ w	30194 69570

Monitor Amplifier		
C-22, -23	Capacitor, 0.5 mfd, 200 v dc	52943
C-24	Capacitor, 0.25 mfd, 600 v dc	70639
C-25	Capacitor, electr., 25 mfd, 50 v. dc	26410
C-26, -27	Capacitor, electr., 8-8 mfd, 450-450 v dc	17432
C-28	Capacitor, 0.1 mfd, 600 v dc	70638
C-30	Capacitor, electr., 10 mfd, 50 v dc	13222
C-31, -32	Same as C-28	
C-34	Same as C-25	
C-35, -36	Capacitor, .0025 mfd, 1000 v dc	70644
R-66	Resistor, 100,000 ohms, 1/2 w	3252
R-67	Resistor, 2200 ohms, 1/2 w	34767
R-68	Resistor, 820 ohms, 1/2 w	30158
R-69	Resistor, 39,000 ohms, 1 w	30434
R-70	Resistor, 2700 ohms, 1/2 w	30730
R-71	Resistor, 15,000 ohms, 1/2 w	36714
R-72	Same as R-66	
R-73	Resistor, 1 megohm, 1/2 w	30652
R-74, -75	SAME AS R-70 Resistor, 87,000 ohms, 1/2 w	8064
R-76, -77	RESISTOR, COMP. 82,000-2 1/2 w Same as R-66	8064
R-79	Resistor, 8200 ohms, 1/2 w	14250
R-80	Resistor, 200 ohms, 2 w	30288
R-81	Same as R-66	
R-82	Resistor, 27,000 ohms, 1/2 w	30409
R-83, -84	Resistor, 470 ohms, 1 w	30681
R-95, -96	Resistor, 1200 ohms, 1/2 w	30731
R-97	Resistor, 680 ohms, 1/2 w	12262
T-14	Transformer, input, XT-3635	43569
T-15	Transformer, output, XT-3541	43679
	Mounting, cushion; for tube socket	37396
	Socket, tube for RCA-1620, -1622	33084
Pre-amplifiers		
C-1, ^{to} 8 incl.	Capacitor, 0.5 mfd, 200 v dc	52943
C-41, -42, -43, -44	Same as C-1	
R-1	Resistor, 100,000 ohms, 1/2 w	3252
R-2	Resistor, 560 ohms, 1/2 w	5164
R-3	Resistor, 2200 ohms, 1/2 w	34767
R-4	Same as R-1	
R-5	Same as R-2	
R-6	Same as R-3	
R-7	Same as R-1	
R-8	Same as R-2	
R-9	Same as R-3	
R-10	Same as R-1	
R-11	Same as R-2	
R-12	Same as R-3	
R-120	Same as R-2	
R-121	Same as R-3	
R-122	Same as R-1	
R-123	Same as R-2	
R-129	Same as R-3	
R-132	Same as R-1	
T-1, ^{to} 4 incl.	Transformer, input	43569
T-5, ^{to} 8 incl.	Transformer, output	17595
T-16, -17	Same as T-1	
T-18, -19	Same as T-5	
	Mounting, grommet; for RCA 1620 socket	37396
	Socket, cushion; for RCA 1620	33084

**ERRATA FOR IB-24483
TYPE 76-C CONSOLETTTE**

Make the following changes and additions* in the List of Parts on pages 36 and 39:

<i>Symbol No.</i>	<i>Description</i>	<i>Stock No.</i>
MI-11301-B Power Supply		
C-11, -12	Capacitor, electrolytic, 40-40 mf, 450-450 v	52532
Audio Terminal Board (TB-43)		
R-137, -138	Resistor, 4700 ohms, 1 w	69570
Monitor Amplifier		
C-28	Capacitor, 0.1 mf, 600 v dc	70638
R-74, -75	Same as R-70	
*R-76, -77	Resistor, comp., 82,000 ohms, ½ w	8064
R-80	Resistor, comp., 200 ohms, 2 w	30287
Pre-amplifiers		
C-1 to C-8, incl.	Capacitor, 0.5 mf, 200 v dc	52943
T-1 to T-4, incl.	Transformer, input	43569
T-5 to T-8, incl.	Transformer, output	17595
Program Amplifier		
C-9, -10	Capacitor, 0.5 mf, 200 v dc	52943
*Resistor Board (TB-44)		
*R-91, -92	Resistor, comp., 10,000 ohms, ½ w	3078
*R-93, -94	Resistor, comp., 120 ohms, ½ w	30189
*R-113, -114	Resistor, comp., 10 ohms, ½ w	34761

Change the title *Audio Terminal Board (TB-42)* on page 36 to *Audio Terminal Board (TB-43)*.

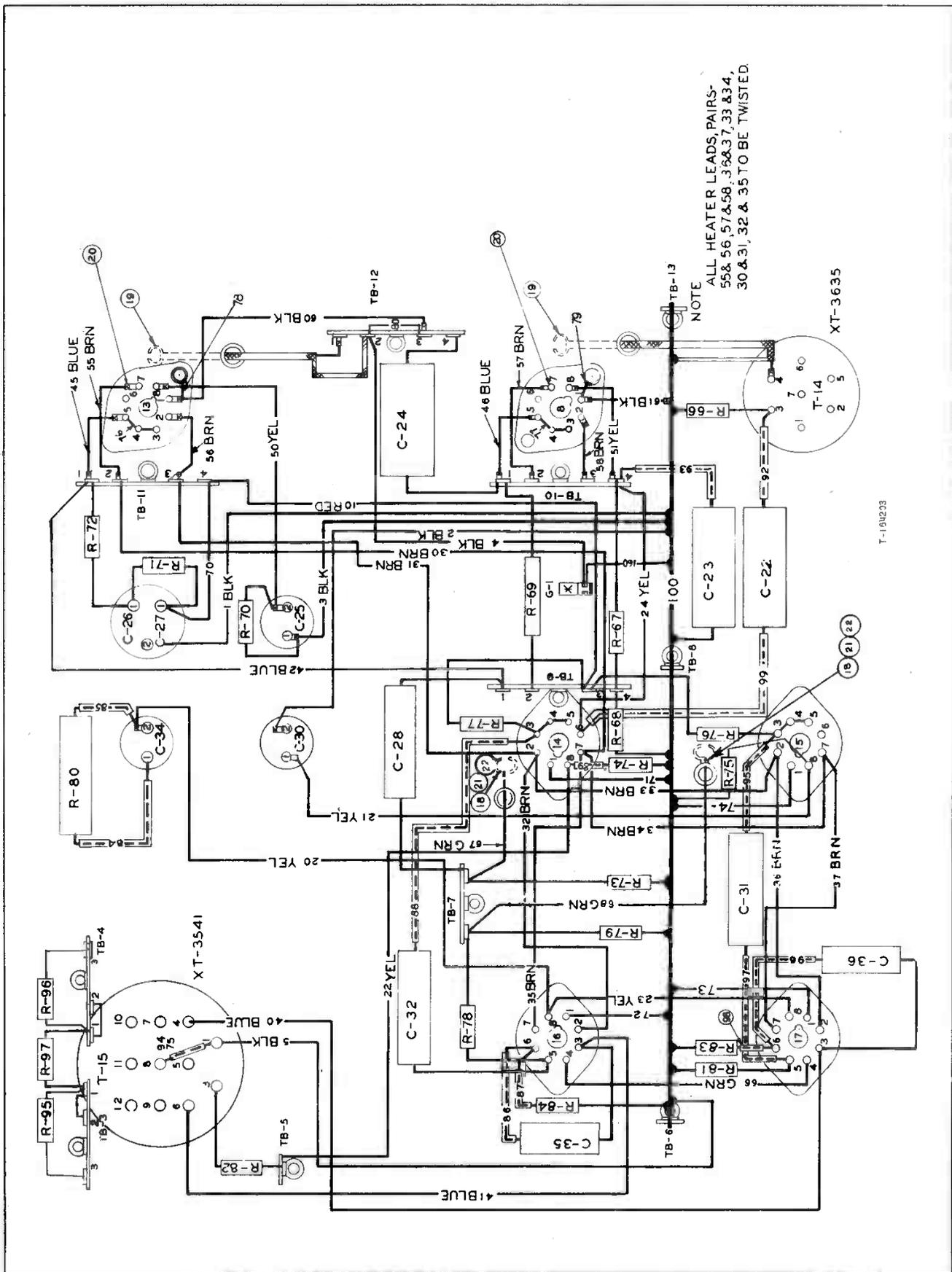
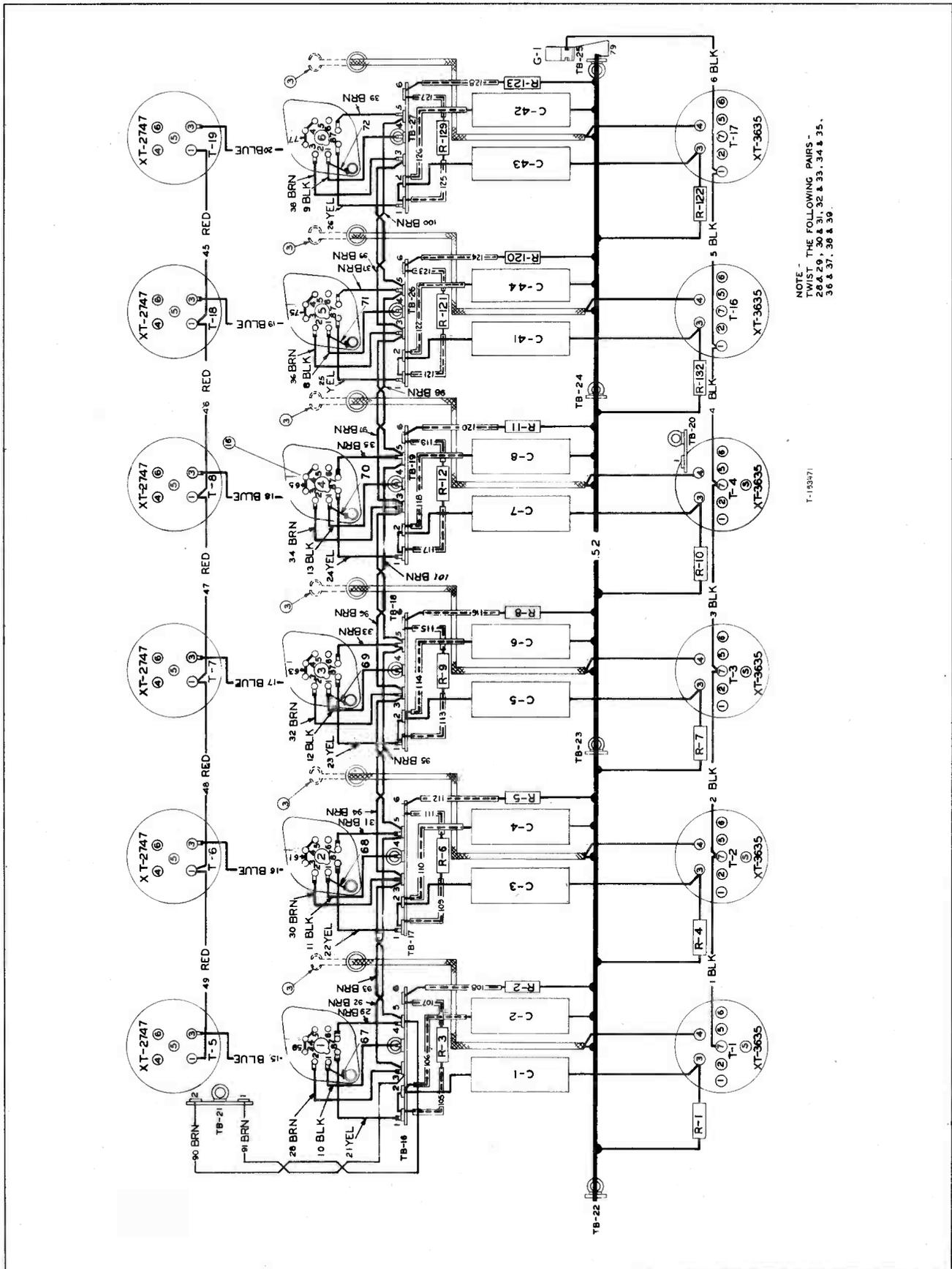


Figure 27 — Monitor Amplifier



NOTE - THE FOLLOWING PARTS -
 28 & 29, 30 & 31, 32 & 33, 34 & 35,
 36 & 37, 38 & 39

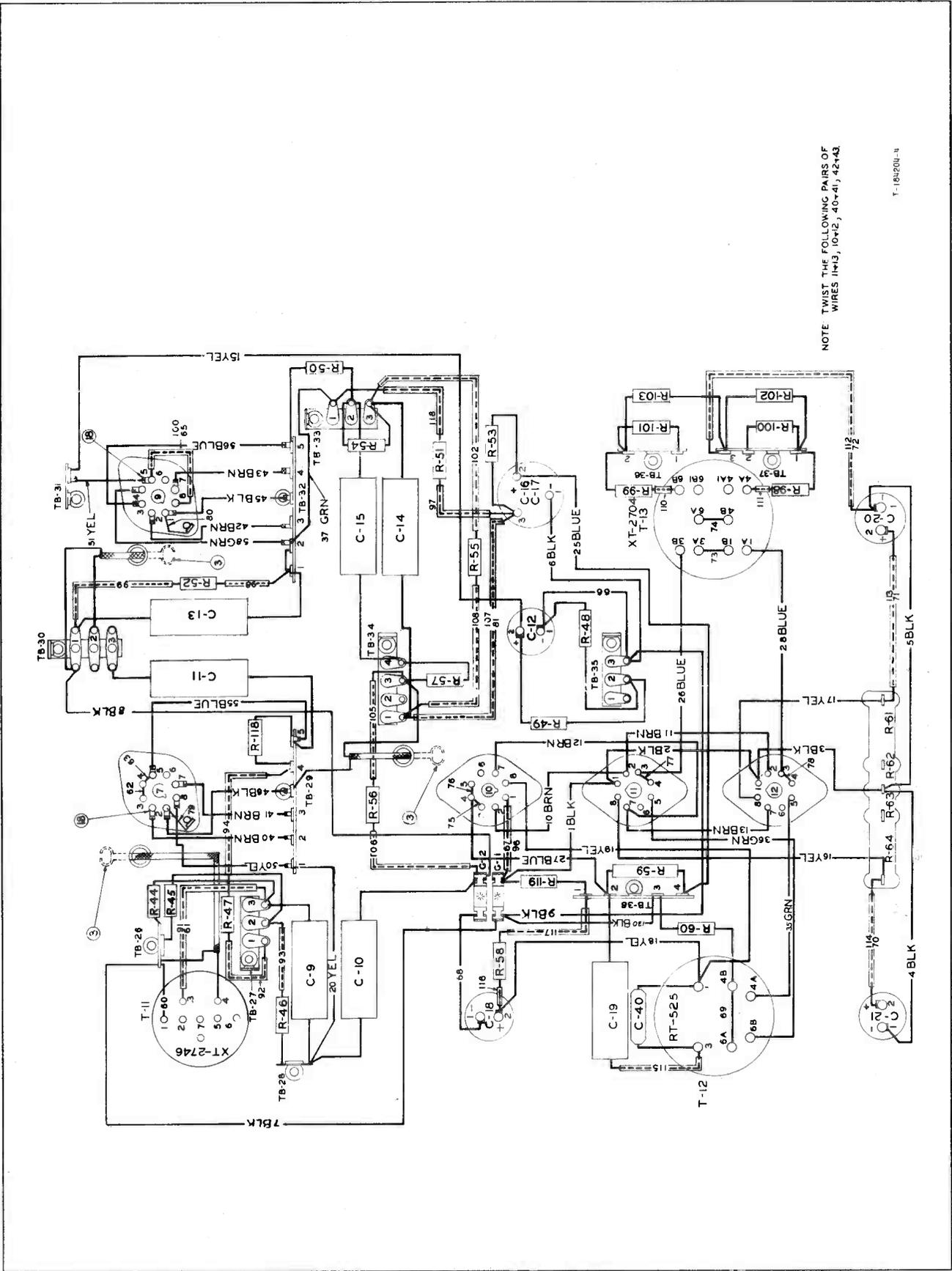
T-153471

Figure 28 — Preamplifier Assembly

LIST OF PARTS (Cont'd)

Symbol	Description	Stock No.
Program Amplifier		
C-9, -10	Capacitor, 0.5 mfd, 200 v dc	52943
C-11	Capacitor, 0.25 mfd, 400 v dc	70618
C-12	Capacitor, electr., 25 mfd, 50 v dc	26410
C-13, -14, -15	Same as C-11	
C-16, -17	Capacitor, electr., 8-8 mfd, 450-450 v dc	17432
C-18	Same as C-12	
C-19	Same as C-11	
C-20, -21	Same as C-12	
C-40	Capacitor, 1000 mmf, 500 v	39652
R-43	Resistor, 130 ohms, 1 w	60079
R-44	Resistor, 100,000 ohms, 1/2 w	3252
R-45	Resistor, 820 ohms, 1/2 w	30158
R-46	Resistor, 2200 ohms, 1/2 w	34767
R-47	Resistor, 12,000 ohms, 1/2 w	30436
R-48	Resistor, 910 ohms, 1 w	
R-49	Resistor, 240 ohms, 1 w	
R-50	Resistor, 39,000 ohms, 1/2 w	30147
R-51, -52	Same as R-44	
R-53	Resistor, 10,000 ohms, 1 w	13097
R-54	Resistor, 22,000 ohms, 1/2 w	30492
R-55	Resistor, 10,000 ohms, 1/2 w	3078
R-56	Resistor, 33,000 ohms, 1/2 w	30685
R-57	Resistor, 68,000 ohms, 1/2 w	14138
R-58	Resistor, 270 ohms, 1/2 w	
R-59	Resistor, 56,000 ohms, 1 w	17440
R-60	Resistor, 27,000 ohms, 1/2 w	30409
R-61, -62, -63, -64	Resistor, 985-75-75-985 ohms, 25 w	17606
R-98, -99	Same as R-55	
R-100, -101	Resistor, 120 ohms, 1/2 w	30189
R-102, -103	Resistor, 10 ohms, 1/2 w	34761
R-118	Resistor, 27,000 ohms, 1 w	13477
R-119	Resistor, 680 ohms, 1/2 w	12262
T-11	Transformer, input, XT-3635	43569
T-12	Transformer, interstage	17427
T-13	Transformer, output	17567
	Mounting, cushion; for RCA-1620 and -1621 tube sockets	37396
	Socket, tube; for RCA-1620 and -1621	33084
Front Panel Assembly		
J-1	Jack, phone	16999
K-1, -2, -3	Switch, key A-P 1 to 3	54878
K-4	Switch, key A-P 4	54879
K-5, -6	Same as K-1 (A-P 5, 6)	
K-7	Switch, key, "Announce"	54880

Symbol	Description	Stock No.
Front Panel Assembly		
K-8	Switch, key, "Line-out"	53063
K-9, -10	Switch, lever, "Phone-Mon" "Override-Off-Record"	19573
P-1	Resistor, "Attenuator, Master"	17643
P-2	Resistor, "Attenuator, Monitor"	17604
PK-1	Switch, selector-key; 9 keys	54547
PK-2	Switch, selector-key; 9 keys	54533
PK-3	Switch, selector-key; 9 keys	55395
PK-4	Switch, selector-key; 9 keys	18320
R-13, -14, -15, -16, -17, -18	Resistor, 270 ohms, 1 w	54264
R-19, -20	Resistor, 750 ohms, 1/2 w, at K-1	19785
R-21, -22	Same as R-19, at K-2	
R-23, -24	Same as R-19, at K-3	
R-25, -26	Same as R-19, at K-4	
R-27, -28	Same as R-19, at K-5	
R-29, -30	Same as R-19, at K-6	
R-31, -32, 33, -34	Resistor, 560 ohms, 1/2 w, at PK-3	5164
R-40, -41	Resistor, 270 ohms, 1/2 w, at PK-2	30929
R-42	Resistor, 560 ohms, 1 w	
R-65	Resistor, 130 ohms, 1 w, at K-6	60079
R-104	Resistor, 12,000 ohms, 1/2 w, at tube check	30436
R-111	Resistor, 4700 ohms, 1/2 w, at J-1	30494
R-124, -125	Resistor, 10,000 ohms, 1/3 w, at PK-3	3078
R-126	Same as R-31, at K-9	
R-127, -128	Same as R-124, at PK-3	
R-130, -131, -133, -134	Same as R-124, at PK-3	
R-135, -136	Resistor, 5600 ohms, 1/2 w, at K-9	30734
R-139, -140, -142, -143	Resistor, 1000 ohms, 1/2 w	34766
R-141, -144	Resistor, 270 ohms, 1/2 w	30929
R-200	Resistor, zero-adjusting attenuator, 800 ohms	19327
R-201	Resistor, multiplier-pad attenuator, 7100-3900 ohms	19328
	Handle	54532
	Knob, attenuator; for attenuators 1 to 6	17269
	Knob; for tube-check and VU switches	17268
	Knob; for K-9, -10	54534
	Meter, VU and tube check	43186
	Oil, attenuator	20752
	Resistor, attenuator 1 to 6	17644
	Switch, VU control	19570
	Switch, tube check	54546



NOTE TWIST THE FOLLOWING PAIRS OF WIRES 11-13, 10-12, 40-41, 42-43.

T-182001-N

Figure 29 — Program Amplifier

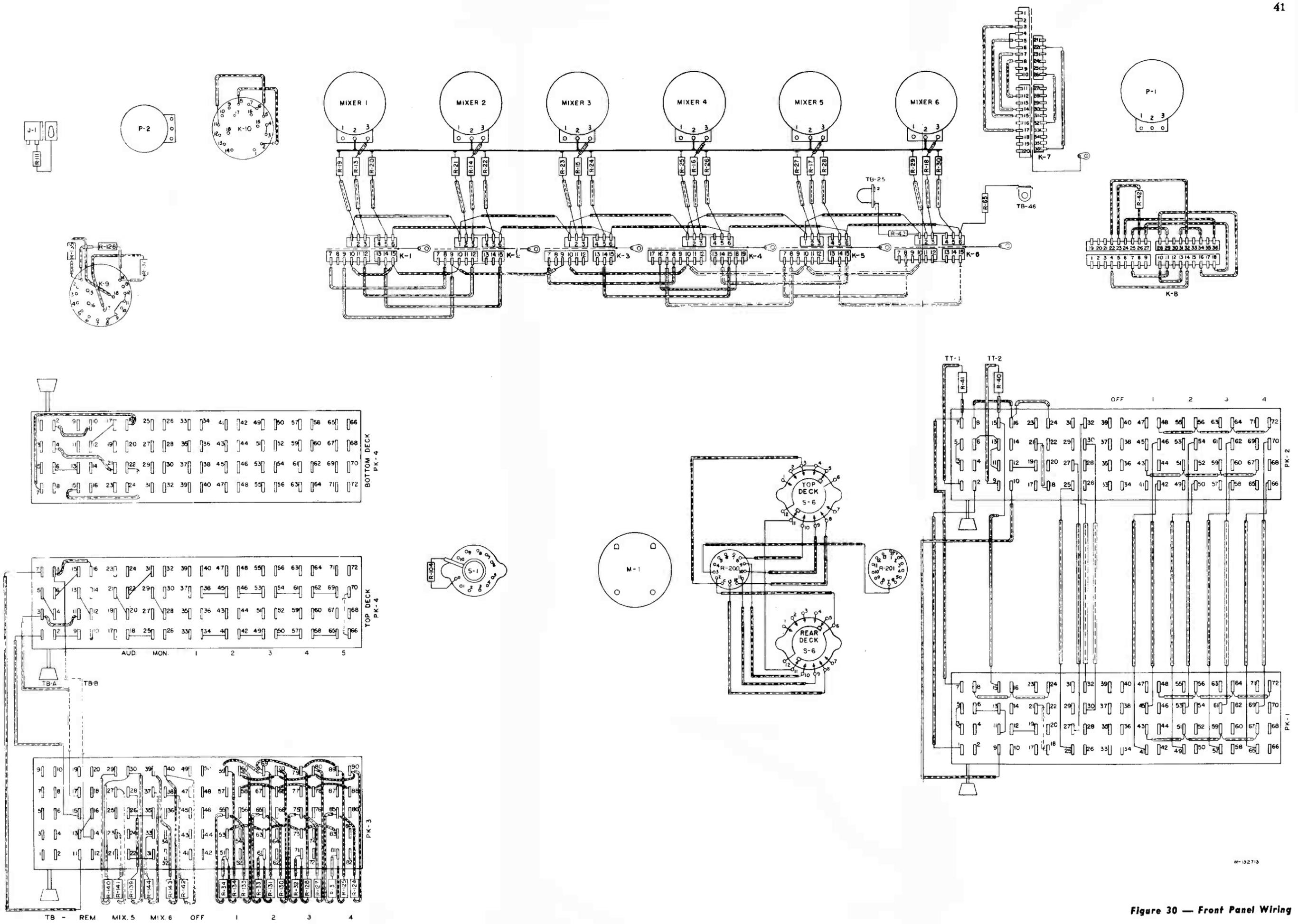
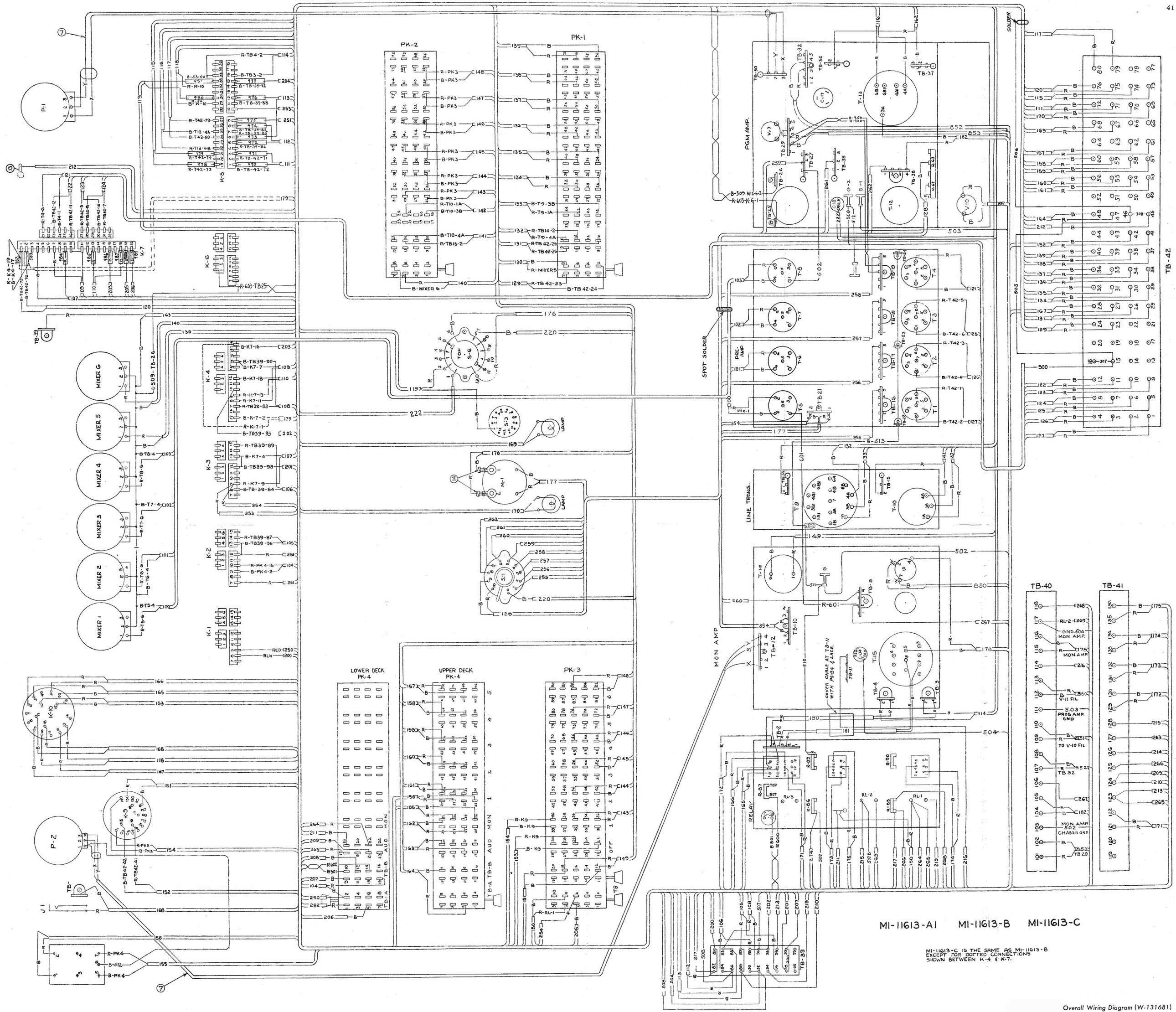


Figure 30 — Front Panel Wiring

W-132713



MI-11613-A1 MI-11613-B MI-11613-C

MI-11613-C IS THE SAME AS MI-11613-B EXCEPT FOR DOTTED CONNECTIONS SHOWN BETWEEN K-4 & K-7.

THE FOLLOWING TERMINALS ARE STRAPPED TOGETHER

21 TO 25 53 TO 75
 22 TO 26 54 TO 76
 23 TO 27 55 TO 77
 24 TO 28 56 TO 78
 33 TO 37 57 TO 61
 34 TO 38 58 TO 62
 35 TO 39 137 TO 141
 36 TO 40 138 TO 142

173 TO 177
 174 TO 178
 197 TO 201
 198 TO 202
 199 TO 203
 200 TO 204
 59 TO 63
 60 TO 64

THE FOLLOWING ARE BLANK TERMINALS

31,32 163,164 179,180
 149,150 167,168 181,182
 151,152 193,194 205,206
 119,120 161,162 195,196

— DENOTES PHASING

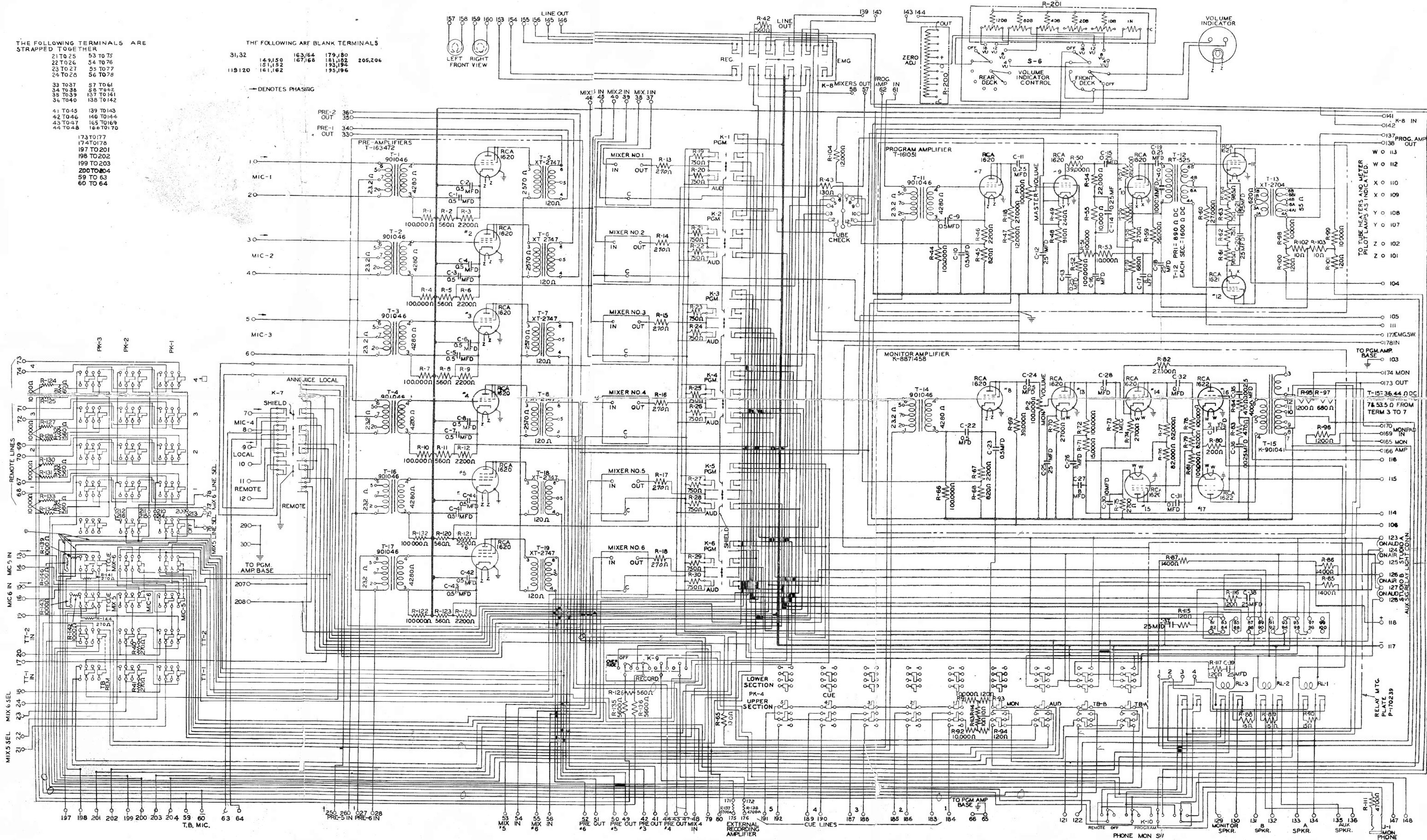


Figure 32 — Schematic Diagram