



# BOGEN

A DIVISION OF LEAR SIEGLER, INC.

**SERIES 15**

**MCT-1**  
*Control Centre*

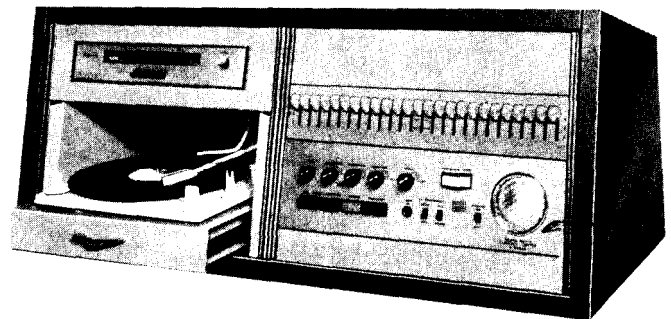
**MODELS 15-1,  
15T-1,15-2,15-3**

## DESCRIPTION

The Bogen Series 15-1 Centralized School Sound System is designed to serve up to 50 rooms. It incorporates one Model MCT-1 Control Center and either one or two Model SBS-25 Switchbanks, and is housed in a desk-top console. The Series 15T-1 accommodates up to 25 rooms and includes one Control Center, one Switchbank and one Model TP-160B AM/FM Tuner housed in a desk-top console. The Series 15-2 consists of one Control Center, one or two Switchbanks, one AM/FM Tuner and one BSR 3-speed record changer. It is housed in a desk-top, dual console and serves up to 50 rooms. The Series 15-3 consists of one Control Center, one or two Switchbanks, one AM/FM Tuner and one 3-speed record changer. It can accommodate up to 50 rooms and is operated from a sturdy free-standing console.

Each system has one 35-watt program channel and an independent 4-watt intercom channel. The program channel has two low-impedance microphone inputs which can be used balanced or unbalanced. It also has inputs for radio, phono and tape program sources and a fader control to select either radio or phono-tape. The selected program may be used alone or may be mixed with the microphone program.

The MCT-1 control panel has a loudspeaker which serves as both a program monitor speaker and an intercom transmitter/receiver. By means of the intercom channel, the operator may hold a two-way conversation with occupants of any room without disturbing the program being transmitted to other rooms. If desired, the intercom channel also may be used to permit the operator to monitor any selected room through its room speaker.



**Model 15-2**

In addition to the control panel, each Series 15 console or console has one or two switchbanks containing the individual room selector switches. In the standard system, these are 3-position lever switches used to connect each room speaker to either the program (A) channel or the intercom (C) channel, or to disconnect the speaker from the system (Systems with optional light-annunciator call circuit have four-position lever switches). The units have an Emergency mode of operation which overrides these selector switches. When operating in Emergency, the operator can transmit from the control panel speaker to all room speakers, regardless of the settings of the room selector switches or of other program inputs to the speakers. The Emergency function operates whether the power switch is on or off.

## INSTALLATION

### UNPACKING

Inspect the shipping container and unit for indications of improper handling. The unit was carefully checked before leaving the factory. If the unit has been damaged, make an *immediate* claim to the dealer or distributor from whom it was purchased. If the unit was shipped to you, notify the transport company without delay and place your claim.

## LOCATION OF CONSOLE/CONSOLETTA

Where possible locate the console centrally, relative to the rooms being served, in order to minimize the length of speaker cables. The rear of the unit must remain accessible for maintenance and for changing input and output connections. It is advisable that the unit be oriented in such a manner that the operator, program director and other interested parties are able to observe the controls at all times. Provide adequate lighting and ventilation. Do not locate the unit close to heat sources, such as radiators and warm-air ducts, or against a wall which prevents proper ventilation.

The Series 15-1 and 15T-1 consolettes are 21¼" (54 cm.) wide x 16" (40.6 cm.) high x 16" deep. The Series 15-2 consolette is 40½" (102.9 cm.) wide x 16" high x 16" deep. The Series 15-3 console is 22" (55.9 cm.) wide x 46" (116.8 cm.) high x 31" (78.7 cm.) deep.

## POWER

Connect the 3-wire cord with ground to a 105-125V, 50/60 Hz source. Make certain that the ground terminal of the power receptacle connects to earth ground.

Two 50W AC power receptacles are provided on the rear panel for a tuner, automatic record changer or auxiliary equipment. Line voltage is applied to these components when the consolette or console power switch is on. Plug AC line cords into appropriate receptacle.

## INPUT CONNECTIONS

**MICROPHONE INPUTS.** Two terminal strips on the rear of the MCT-1 provide for two low impedance balanced or unbalanced microphone inputs. Two-conductor shielded microphone cable should be used (Bogen #1008 or equivalent). Connect shield to terminal 1.

**TUNER/PHONO-TAPE INPUTS.** Two jacks accept single-conductor shielded cable.

**TAPE RECORDER/BOOSTER AMP INPUT.** Accepts a two-conductor shielded cable (Bogen BB 8450 or equivalent).

**INTERCOM CALL-IN LINE.** Connect parallel lines from station call-in switches with 2-conductor shielded cable. Connect shield to terminal 3.

**SWITCHBANK CONNECTION.** Eleven-pin plug connects three shielded pairs plus annunciator wire from a switchbank. Also accommodates three lines for optional telephone system.

**TIME CLOCK INPUT.** Terminal strip connects a single-circuit time clock, closing contacts to activate the optional Model SST-1 Module.

## GENERAL WIRING

### RUNNING CABLES

**WIRES.** Class II wiring may be used for all audio and annunciator lines. Make certain to properly support cables to prevent sagging or strain. Keep wires clear of objects which would subject them to heat, friction, or other abuse.

Use No. 20 AWG shielded pairs with insulated outer jacket (Bogen BB-8450, or equivalent) for speaker lines. Annunciator lines require a third wire, which usually is No. 22 AWG insulated wire with red insulation (Belden 8937, or equivalent). The number and types of wires running from each room to the consolette and running inside the classroom depend upon the type of speaker operation required. Consult Table I for the wires required in your particular system.

**TABLE I. CABLE RUNNING CHART FOR SERIES 15**

Type of Classroom Switch or Device Used with Speaker	Wires from Room to Consolette		Wires From Room Switch to Room Speaker	
	Shielded Pair (Jacketed) (Bogen BB-8450)	No. 22 AWG Single Conductor (Belden 8937)	Shielded Pair (Jacketed) (Bogen BB-8450)	Refer to Figure
None (Speaker Only)	1	0	0	1(A)
Call (Model CA-10)	1	1	1	1(B)
Call/Privacy (Model CA-1 1)	1	1	1	1(C)
Voice Call-In, Non-Private (Model CA13)	2*	0	1	2, 7

**\*Alternate method:** Run two cables from room nearest consolette and one cable from each remaining room. Run one cable in a loop or branch circuit connecting all room switches.

**OUTLET BOXES.** Where flush-mounting switches are used, single-gang outlet boxes will be installed. In installing such boxes, make certain to place them in a location that permits personnel to operate the switch while communicating via the room speaker. The normal height (above the finished floor) for room switches is approximately four feet, while speakers are normally placed at a height of about seven and one-half feet.

### SOLDERING INSTRUCTIONS

**SOLDER.** Do not use acid-core solder or acid paste. Make all solder connections with standard 60/40 resin-core radio solder. Do not apply excessive heat. Soldering irons or guns from 75 to 200 watts will provide ample capacity.

**GROUNDS.** Do not connect cable shields to earth ground or to convenient metal objects. It is important to connect cable shields only as shown in the wiring diagrams.

## CLASSROOM WIRING

### CONNECTIONS

Refer to the left-hand column of Table I for the type of classroom operation used in your system. The corresponding right-hand column calls out the wiring diagram required. Solder the wires as shown in the proper diagram and wrap with insulating tape.

### CAUTION

*Make certain to connect all wires in accordance with the color codes given on the diagram.*

### SECURING SWITCHES

The Model CA switches are designed for flush mounting in a standard single-gang electrical outlet box,

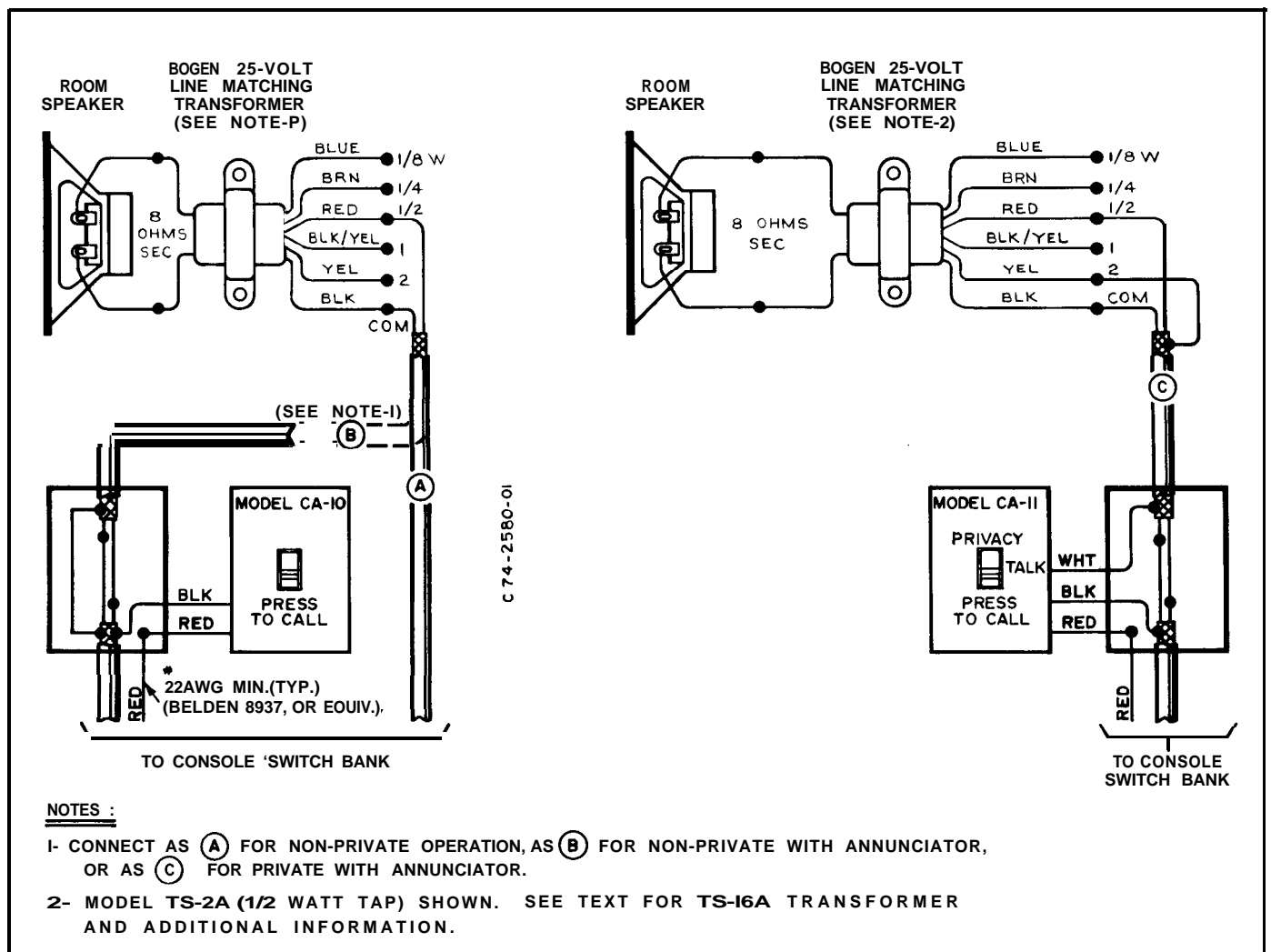


Figure 1 - Connection Diagram, Speaker Installation

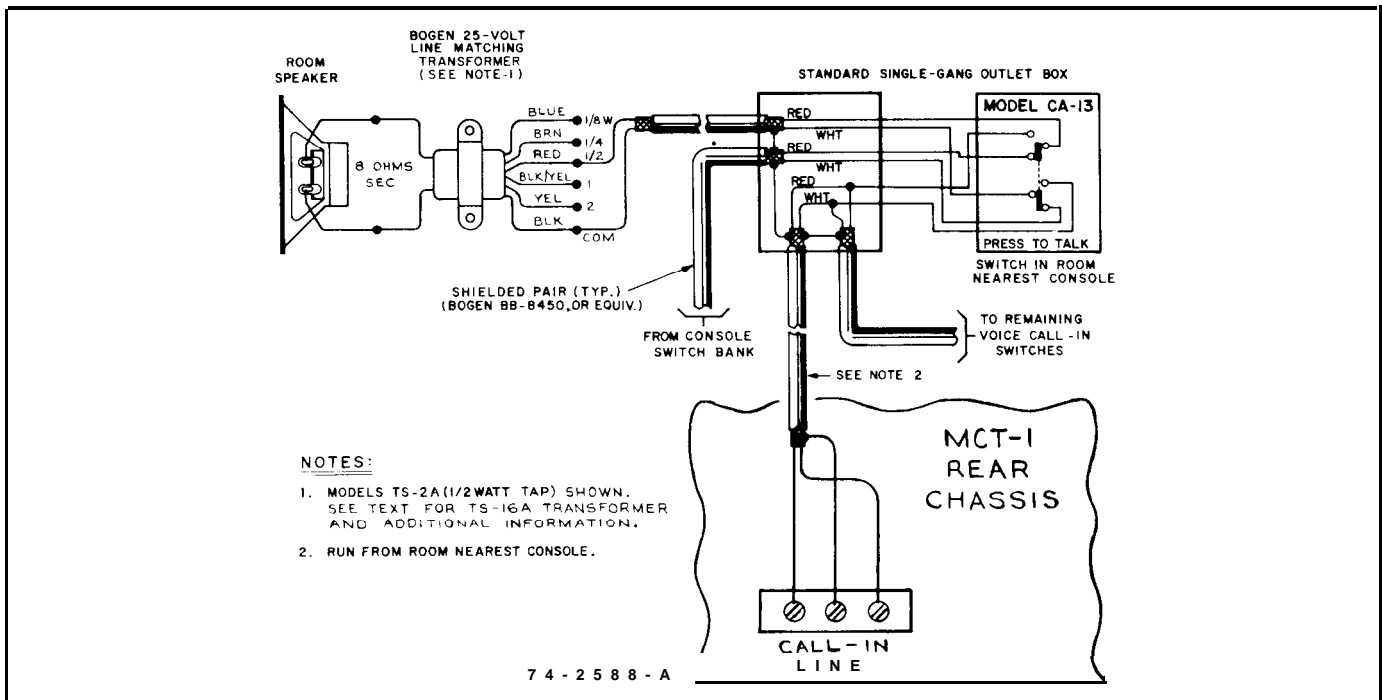


Figure 2 — Room Speakers with Voice Call-In Switch, Connection Diagram

or for surface mounting in a standard deep single-gang wire mold outlet box. Install the box in a location which provides convenient access to both the switch and the room speaker.

### LINEMATCHING TRANSFORMERS

The installation diagrams show Bogen line-matching transformers of  $\frac{1}{4}$  or  $\frac{1}{2}$ -watt capacity (Models TS-025 or TS-05). Other recommended transformers are shown in figure 3. The console output is designed for a 25-volt constant voltage distribution system and all system loudspeakers must be provided with line-matching transformers.

### CAUTION

*Speakers and transformers must be properly matched with respect to power requirements.*

### CONSOLETTA WIRING

Remove the Phillips-head screws securing the louvered panel on the rear of the consolette (or console). There are three rows of solder terminals across the rear of each switchbank. Each selector switch corresponds to the three terminals directly behind it, one terminal from each row.

White tabs are provided for identifying the room controlled by each selector switch. Insert the tabs in the slots provided in the transparent switch knobs. When rooms are identified by number, it is common practice to start numbering the switches from left to right (viewing from the front or operator position), starting with the top switchbank.

### SWITCHBANK WIRING

Wire the switchbanks as shown in figure 4. If annunciator lamps are used (Model SBL), always solder the single annunciator wire to the top solder terminal. For all switch banks, solder the speaker lines to the center and bottom terminals, with the shield to the ground bus bar. **This is the only place where speaker shields should be grounded.**

### VOICE CALL-IN OPTION

Figure 2 shows the room connections and switch required for installing an optional voice call-in system. The wiring must be completed by connecting the shielded pair from the switch to the terminal strip on the rear of the MCT-1 chassis. The polarity of the inner conductors is not critical, but make certain to connect the cable shield to the shield of the cable already connected to the terminal strip.

Note that only one cable goes to the terminal strip. Usually, the cables from all room switches are connected by a common control cable and one cable is run to the consolette. If this type of installation is not practical, then the control cables for two or more switches are run to the consolette. In this case, connect all the cables in parallel in a junction box at the consolette and run a single control cable from the junction box to the terminal strip on the MCT-1 chassis.

### CALL/PRIVACY OPTION

Figure 1c shows the room connections and switch required for installing an optional annunciator/privacy function in the intercom system.

# CONTROL FUNCTIONS

All operating controls for the Series 15 Centralized School Sound Systems are located on the front of the consolettes (consoles). The Series 15T-1 is equipped with an AM/FM radio tuner, while the Series 15-2 and 15-3 have both a tuner and an automatic record changer. The operating controls for the tuner and record changer are described in their individual instruction manuals.

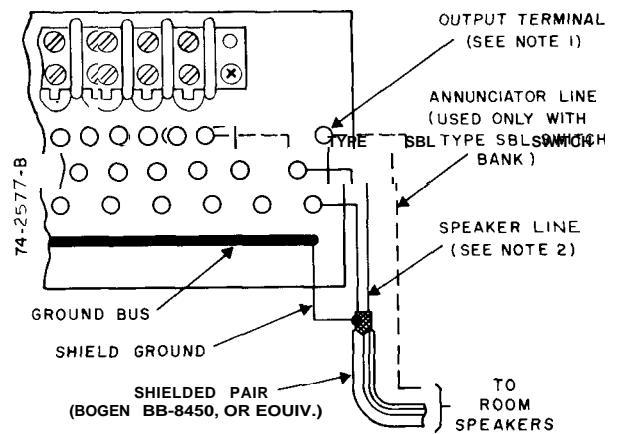
## MCT-1 CONTROL PANEL

The controls on the Model MCT-1 Control Panel are: **POWER ON-OFF SWITCH.** Turns the system on and off.

**FUNCTION SELECTOR SWITCHES.** These switches determine the mode of system operation. These operating modes are:

1. **Microphone.** Connects microphone input to program channel (selected by MIC level control).
2. **Program.** Permits transmission of program material as determined by program distribution and program output switches.
3. **Intercom.** Enables and disables TALK/LISTEN switch.
4. **Emergency.** Permits operator to transmit to all stations via panel speaker, regardless of switchbank settings. Overrides all program and intercom functions. Operates with power switch On or Off.
5. **Talk/Listen.** Allows operator to communicate with room(s) selected on switchbank without affecting program distribution to remaining rooms. Enabled by Intercom switch; depress to talk, release to listen.

CONSOLE SWITCH BANK



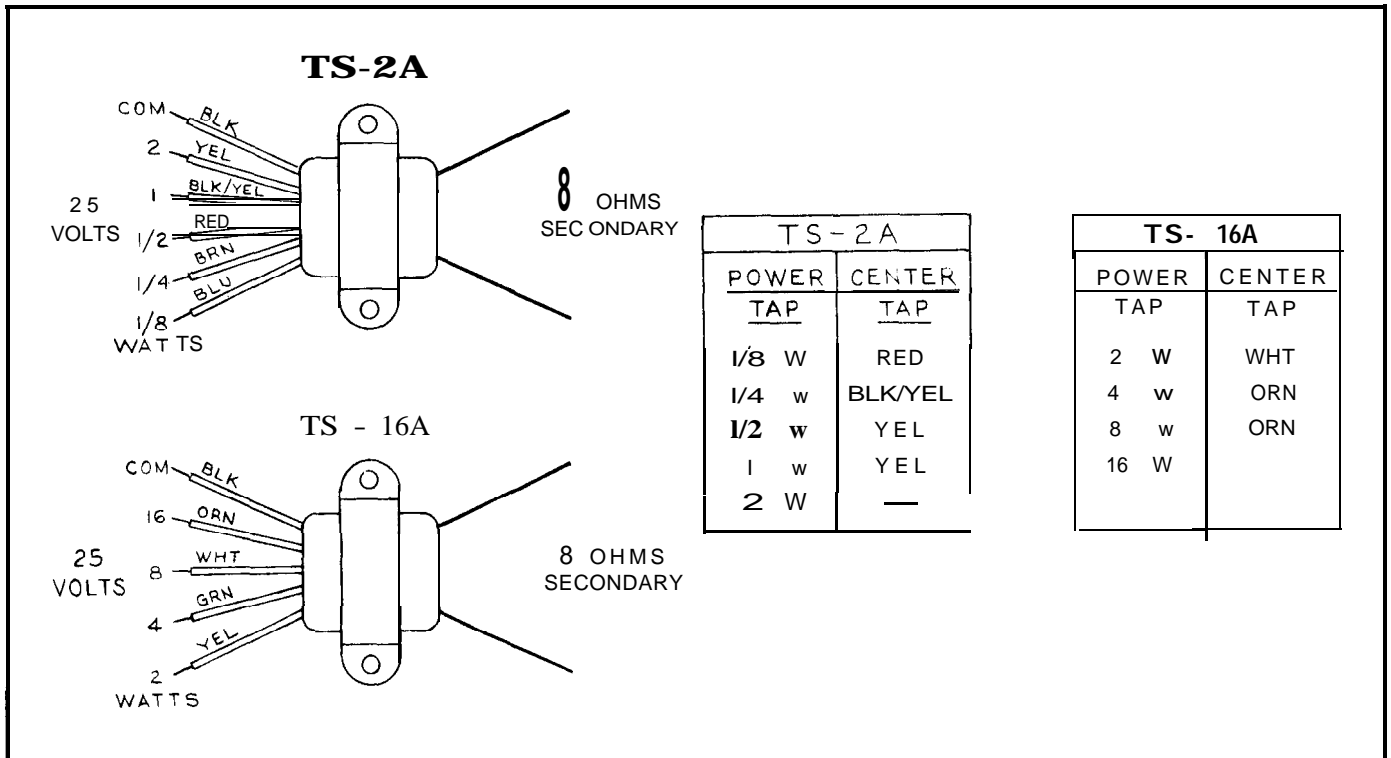
**NOTES:**

- 1-TERMINALS CORRESPOND TO SWITCH ON OPPOSITE SIDE OF FRONT PANEL.
- 2-DRESS SPEAKER LEADS TO PREVENT SHORTING LOWER TERMINALS TO GROUND BUS.

**Figure 4 – Consolette Switch Bank, Connection Diagram**

## LEVEL CONTROL SWITCHES

1. **Microphone.** Fader control sets level of Mic 1 or Mic 2 program as indicated on output meter. May be used with Program level control for mixing.



**Figure 3 – Bogen Line-Matching Transformers**

**2. Program.** Fader control sets level of radio or phono/tape program as indicated on output meter. May be used with Microphone level control for program mixing.

**3. Intercom.** Sets outgoing level of intercom transmission to room speakers.

**4. Monitor.** Sets panel speaker level in program and intercom modes.

**5. Tone.** Provides flat response or reduces high-frequency response as control is moved toward HI CUT.

**PROGRAM OUTPUT METER.** Color-coded to clearly display 25 V reference level.

#### PROGRAM SWITCHES

**1. Program Distribution.** Functions when program output selector is in SEND. NORM(a1) position provides switchbank control over program distribution. ALL position distributes program to all rooms not connected to the intercom.

**2. Program Output.** SEND position enables program distribution switch. SET position disconnects program output from load for monitoring or presetting prior to distribution. Does not offset intercom functions. *The program output switch should not be left in the SET position. Once adjustment is made, switch should be returned to SEND position.*

#### SWITCH BANKS

**MODEL SBS SWITCHBANK.** Standard consolettes are equipped with one or two Model SBS Switchbanks. Each switchbank has 25 three-position lever switches for connecting individual rooms to the system. Each switch functions as follows:

**A - (Up position)** - Connects classroom speaker to program channel for distribution of microphone, radio, or phono program.

**0 - (Center position)** - Disconnects classroom speaker from system, except when consolette is operating in Emergency mode.

**C - (Down position)** - Connects classroom speaker to intercom channel.

**MODEL SBL SWITCHBANKS (OPTIONAL).** If the system is equipped with an optional light-annunciator call system, the consolette switchbanks will have four-position lever switches. These switches operate exactly as those in the Model SBS Switchbank, except that there is a "B" (top) position of the switches which is not used. If a switch is placed in the "B" position, it functions exactly the same as in the "A" position.

## OPERATION

#### NOTE

*Before attempting to operate for the first time after installation, check all input and output connections and make certain the consolette is connected to a power outlet.*

#### TO TURN CONSOLETTES-ON

Set POWER ON-OFF switch to ON position.

#### TO DISTRIBUTE MICROPHONE PROGRAM

Move program output switch to SET position. Depress MIC function switch. Select microphone level with MIC fader control knob according to control panel speaker volume and/or reading on PROGRAM LEVEL output meter. When appropriate level is reached, distribute program by moving program output switch to SEND position. Select either NORM for Switchbank control over distribution or ALL for distribution to all stations not connected to the intercom. (May be used in conjunction with PROGRAM level control for program mixing).

#### TO DISTRIBUTE RADIO/PHONO-TAPE PROGRAM

Move program output switch to SET position. Depress PROG function switch. Select level of radio/phono/tape program with PROGRAM fader control knob according to control panel speaker volume and/or output meter reading. Distribute program by switching program output to SEND position.

To distribute output from a tape recorder, connect the 2-conductor phone plug from the tape recorder to TAPE IN jack on the control panel and follow procedure outlined above. Phonograph input will be automatically disconnected.

#### TO OPERATE ALL-CALL FUNCTION

Move program output switch to SEND position. Move program distribution switch to ALL position. Program is transmitted to all stations regardless of position of station selector switches. (Note: Disconnect intercom function; stations connected to the intercom will not be affected).

#### TO COMMUNICATE WITH SELECTED STATIONS

**TO SEND.** Depress INTERCOM function switch. Select station to be contacted on switchbank panel. Depress TALK/LIST switch to send; release switch to monitor. *Intercom level control should always be left at the setting for normal transmission to room speakers.* (Note: does not affect program distribution to other stations).

**TO RECEIVE.** If a voice call-in system is installed, the station operator makes contact over the intercom channel via the station speaker and CA-13 call switch, and identifies his or her station. To respond to call, select station on switchbank and depress TALK/LIST

switch. Speak clearly into the control panel speaker from a distance of approximately 12" (Note: Intercom function switch must be depressed to receive VOICE CALL IN from stations).

## TO OPERATE EMERGENCY

Depress EMERG switch and speak clearly into panel speaker. Message is transmitted to all stations regardless of switchbank settings, program and intercom function settings, and position of POWER ON-OFF switch.

## ACCESSORY EQUIPMENT

### LIGHT-ANNUNCIATOR CALL SYSTEM

If a light-annunciator call-in function is installed, the optional Model SBL Switchbank panels have an annunciator lamp above each station selector switch. Each station has a call switch to light the appropriate lamp. When lamp lights, move the corresponding switch to "C" position. The intercom channel is now open for normal intercom communication. The control panel also has a built-in tone alert to provide audible annunciation that supplements switchbank lamps.

### PRIVACY FUNCTION

Prevents the console operator from monitoring the speaker station if the station is provided with the optional CA-1 1 CALL/PRIVACY Switch. A station in the Privacy mode will still receive messages from the console.

### TIME TONE OPTION

The external single-circuit time clock closes contacts that are normally open to activate the optional Time Tone Module SST-1 for timed, preset signals to station speakers. Connects to terminal strip on the rear of the control panel.

### EXTERNAL BOOSTER AMPLIFIER

Model MT-60A or MT-125B (60 or 125 watts) provide increased power output. To install, remove the MCT-1 top cover and cut the jumpers on the terminal strip between points A, B and C, D as shown in figure 5. Insert two-conductor shielded cable in hole F. Connect 25 V balanced output leads to terminal strip points B and C. Connect the shield to E. Attach the cable from the Tape Out/Booster output jack on the rear of the MCT-1 to the Hi-Z input of the MT-60A or MT-125B.

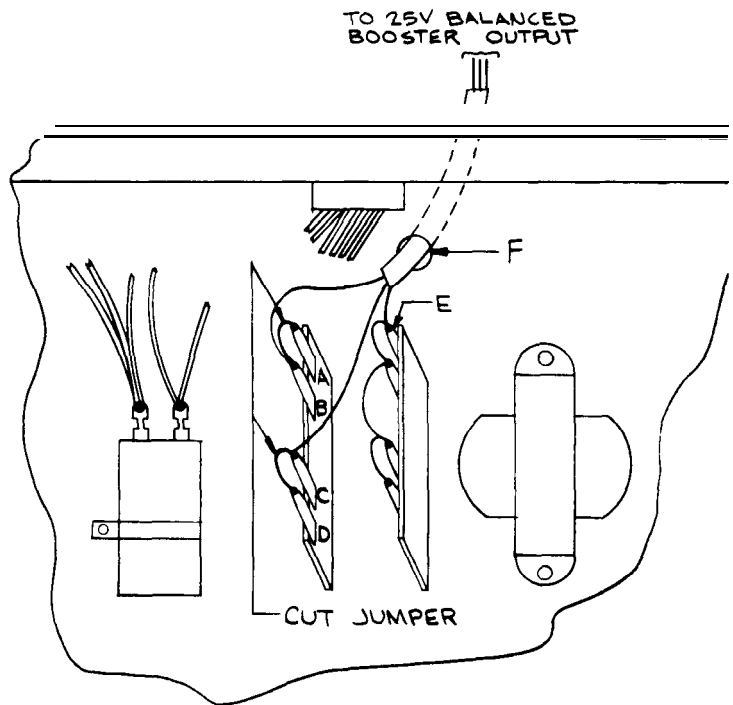


Figure 5 – Connecting Booster-Amplifier

## MAINTENANCE

### CAUTION

***There are no user-replaceable parts within the unit. Have all internal servicing done by qualified service personnel.***

### BOGEN SERVICE

We are interested in your Bogen equipment for as long as you have it. If trouble ever develops, do not hesitate to ask our advice or assistance. Information can be obtained by writing to Service Department, Bogen Division, P.O. Box 500, Paramus, N.J. 07652.

When communicating with us, give the model and series designation of your unit. Describe the difficulty and include details on the electrical connections to associated equipment, and list such equipment. When we receive this information, we will send you service information if the trouble appears to be simple. If the trouble requires servicing, we shall send you the name and address of the nearest Bogen authorized service agency to which you can send your unit for repairs.

When shipping your unit, pack the amplifier well, using the original shipping carton or a similar container and filler material to prevent damage in transit. Send the unit, fully insured and prepaid, via any responsible carrier. The unit will be promptly repaired and returned to you express collect.

# TECHNICAL SPECIFICATIONS

<b>Rated Output:</b>	Program: 35 Watts Intercom: 4 watts	<b>Controls:</b>	Mic Volume (fader-MIC 1/MIC 2) Program Volume (Radio/Phono-Tape fader) Intercom Level Monitor Tone Hi Cut/Flat
<b>Frequency Response:</b>	Program: 100 to 20,000 Hz $\pm$ 2 dB Intercom: Shaped for best voice articulation.	<b>Indicators:</b>	Illuminated output meter
<b>Distortion:</b>	Less than 3% @ 35 Watts: 100 to 10,000 Hz	<b>Dimensions</b>	<b>Width      Height      Depth</b>
<b>Noise Level:</b>	Microphone: -50 dB Radio/Phone: -60 dB	(Inches & Cm):	
<b>Sensitivity:</b>	Microphone: 300 $\mu$ V Radio/Phone: 100 mV Tape In: 100 mV Intercom: 4 mV	MCT-I Control Panel	19(48.3)    5¼( 13.3)    1½(29.2)
<b>Inputs:</b>	2 Microphones (Lo-Z, balanced or unbalanced) Radio Phono Tape In (Front Panel)	Series 15-1 (15T-1) Consolettes	21¼(54)    16(40.6)    16(40.6)
<b>Outputs:</b>	Program: 25 Volts balanced Intercom: 25 Volts balanced Tape Out/Booster: 2 Volts	Series 15-2 Consolette	40½( 102.9)    16(40.6)    16(40.6)
<b>Switches:</b>	Pushbutton Type: Microphone. Program, Intercom, Emergency, and Talk/Listen. Program Send/Preset Program Normal/All Call Power On/Off	Series 15-3 Console	22(55.9)    46(116.8)    3 1(78.7)
		<b>Finish:</b>	Back and Sides-Satin Mocha Control Panels-Desert Beige
		<b>Optional Equipment:</b>	Model SBL Switch Banks, for use with visual and audible annunciation. Model SST- 1 A Single-Circuit Module, for classroom change signals. Room switches, for use with intercom: Model CA-IO Call switch. Model CA- I I Call/Privacy switch, Model CA-13 Voice Call-In switch.

## ADJUSTMENTS

*(For Qualified Service Personnel Only)*

### CAUTION

***The following adjustments require removal of the top cover. Use standard precautions to prevent electric shock or accidental short circuits within the unit.***

### OUTPUT METER ADJUSTMENT

This is a factory adjustment that normally is not required in the field. If a meter replacement is required, a calibration adjustment may be needed. Proceed as follows:

Feed a 1 kHz input signal in radio or phono jack. Connect an A.C. V.T.V.M. across half the program line (Pin 6 and 1 on output socket). With program level control adjusted to read 12.5 volts on the V.T.V.M., turn the meter control R102 (potentiometer nearest to front panel) until the needle reaches the black mark on meter scale.

### EMERGENCY LEVEL ADJUSTMENT

This is a factory adjustment that sets the emergency output level the same as the intercom output level. If it is necessary to adjust this level, turn the level control

R101 (potentiometer furthest from front panel) clockwise to increase output.

### REPLACING COMPONENTS

All semiconductor components on the printed circuit board are soldered in place to ensure maximum reliability. When soldering or unsoldering transistors or diodes, use a heat sink (such as a small alligator clip) between the component and the source of heat. When replacing driver and output transistors (Q10-Q11), be certain to install the collector insulator, after lightly coating both sides with a thermal conducting compound (such as Dow Corning No. 340, or equivalent).

### REPLACEMENT PARTS

Most components used in Bogen equipment are standard parts available through reputable parts dealers. This section lists those parts which should be replaced with genuine Bogen parts, available through Bogen distributors, service agency or directly from the factory.

When ordering a part, give the part number and description as listed below. Specify the model of the unit. For parts in the MCT-1 control chassis, specify the series designation, which is a letter followed by numbers and is stamped or screened on the rear of the chassis.



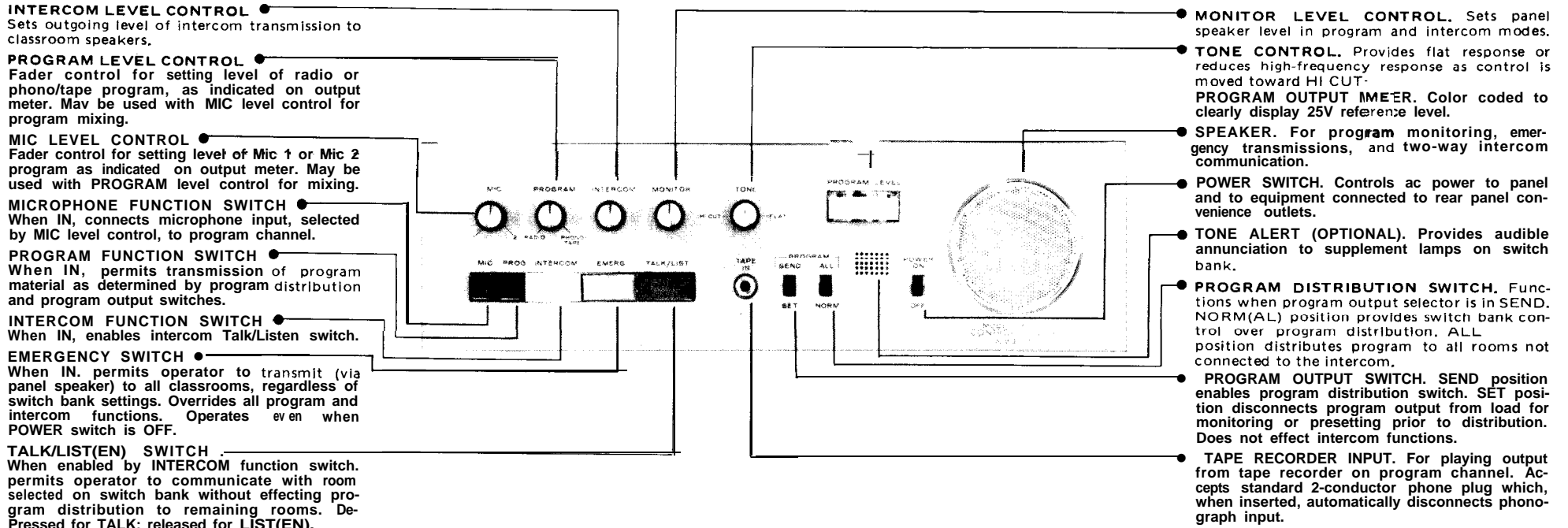


Figure 6 – Front view, MCT-1 Control Panel

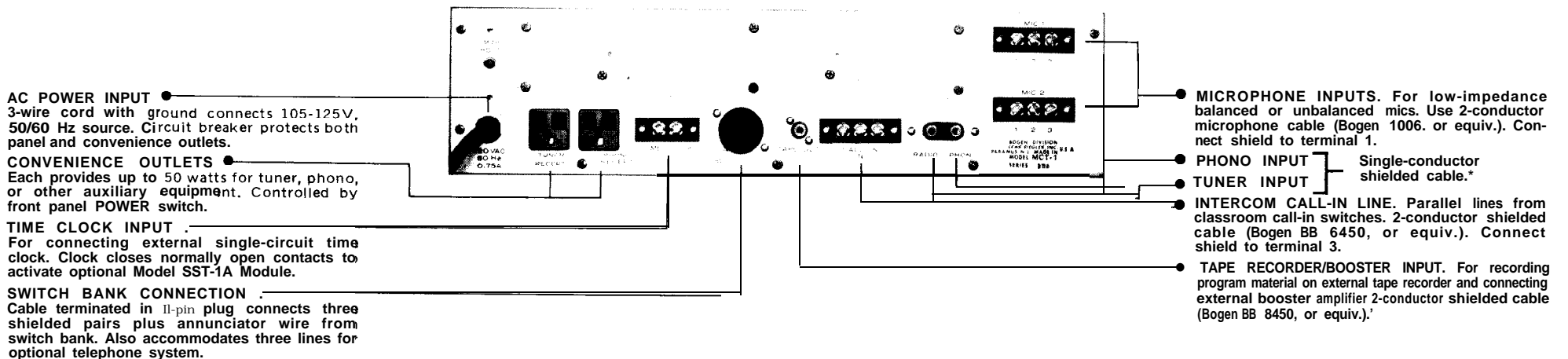


Figure 7 – Rear view, MCT-1 Control Panel

\*Accepts Cinch 13A. or equivalent.

TD 31908

Schematic Reference	Part No.	Description	Schematic Reference	Part No.	Description
A1	45-9995-01	P.C. Board Assy, Amp.	PL-101	94-0 197-0 1	Pilot lamp, # 19
C3A, 4A	79-008-03 1	Capacitor, Electrolytic, 10μF, 16V	Q101-102	96-5232-02	Transistor —
3B, 4B, 12			R101, 102	77-00 1-576	Control, Level Adj., 5R
C7A, 7B	79-008-0 11	Cap., Electrolytic, 330μF, 3V	R103, 104	77-00 1-763	Control, Mic./Prog. Volume, 1 M
c17, 20, 28	79-008-053	Cap., Electro., 100μF, 35V	R105, 106	77-00 1-762	Control, Intercom/Tone, ½ M
C23	79-008-045	Cap., Electro., 330μF, 25V	R107	77-00 1-76 1	Control, Monitor/Emerg. 200R
C26	79-008-030	Cap., Electro., 100μF, 10V	R110	76- 113-099	Resistor, .27R, 5 W
C27	79-008-049	Cap., Electro., 500μF, 35V	R114	75-742-25 1	Resistor, 250R, 7W
CR-1, 2	96-53373-0 1	Diode, 400 piv, 1A	R118	75-742- 100	Resistor, 100R, 7W
IC1	96-5396-0 1	Integrated Circuit; TBA 800	MI01	94-1097-0 1	Meter w/mounting bracket
Q1-7	96-5213-01	Transistor, 2N5089 or	KI01	90-0037-0 1	Relay
	96-5346-0 1	Transistor, BC 239C	SPI01	93-0047-01	Speaker, 3½", 45R
Q-8	96-5298-01	Transistor, SPS-1910	SWI01-103	8 1-003-022	Switch, Slide, DPDT, 3A
Q-9	%-5283-0 1	Transistor, MPS-A5	TIO1	45-702 1-0 1	Transformer, Power (83-759-c-0)
Q-10	96-5357-0 1	Transistor, 2SD-389 (P)	T103	45-9999-0 1	Transformer, Intercom Output (83-428-000)
Q-11	96-5356-0 1	Transistor, 2SB 512 (P)	T104	83-449-000	Transformer, Intercom output
Q12	96-5290-0 1	Transistor, MPS-A05	T105	45-9998-0 1	Transformer, Intercom Input (83-054-000)
R30, 35	76-107-105	Resistor, 4.7R, 2W	YI01	94-1361-01	Sonalert Assy.
R39	76- 147-087	Resistor, IR, ½ W	—	03-0590-0 1	Knob

*Switching*

A2	45-9996-01	P.C. Board Assy.
CR-1, 2	96-5333-01	Diode, 400 piv, 1A
S-1	81-004-077	P.B. Switch w/knobs

*Chassis Electrical Parts*

CI02	79-509-050	Capacitor, Electrolytic, 1500μF, 75V
CI03	79-009-070	Cap., Electrolytic, 500μF, 75v
CI05	79-009-052	Cap., Electro, 2200μF, 35V
CI06	79-005-050	Cap., Electro., 100μF, 25V
CI07	79-509-0 14	Cap., Electro., 500μF, 50V
CBIO1	94-00 17-04	Circuit Breaker, .93A
CB102	94-00 14-04	Thermal Breaker
CR101	96-5202-01	Triple Diode, HVR-3
CR102	96-5333-01	Diode, 400 piv, 1A
CR103-106	96-5241-01	Diode, 300 piv, 3A

*Switchbanks*

81-005-035	Lever Switch Assy (SBS-25)
81-005-036	Lever Switch (SB/SBL-25)
94-0221-07	Pilot Light (SBL-25)
94-0310-03	P.L. Cap (SBL-25)
03-0550-0 1	Knob

*Cabinet Parts*

82-2254-01	Cable Assy
82-2246-0 1	"J" Cable Assy

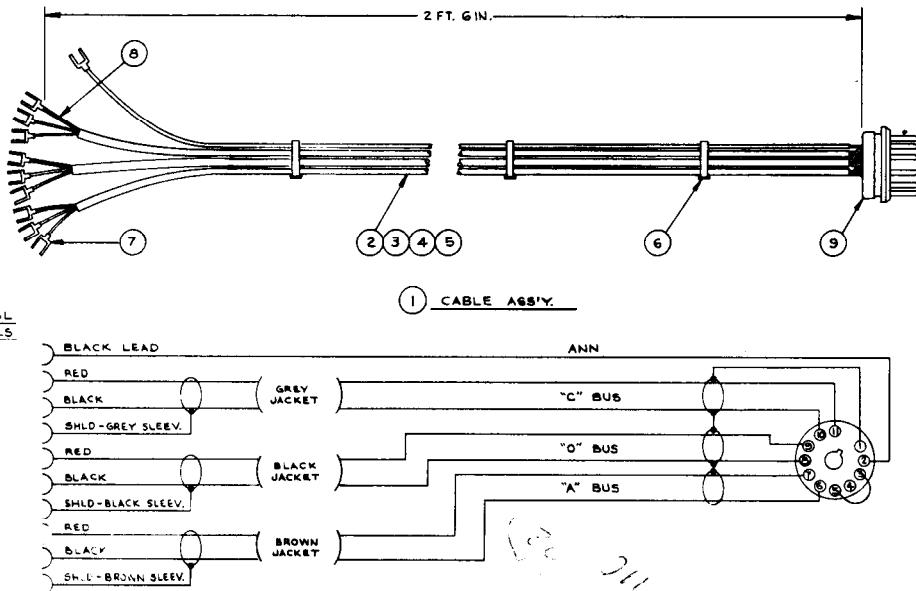


Figure 8 - Output Cable

10.11 INT

A 6.7 P.  
89 000

-11-

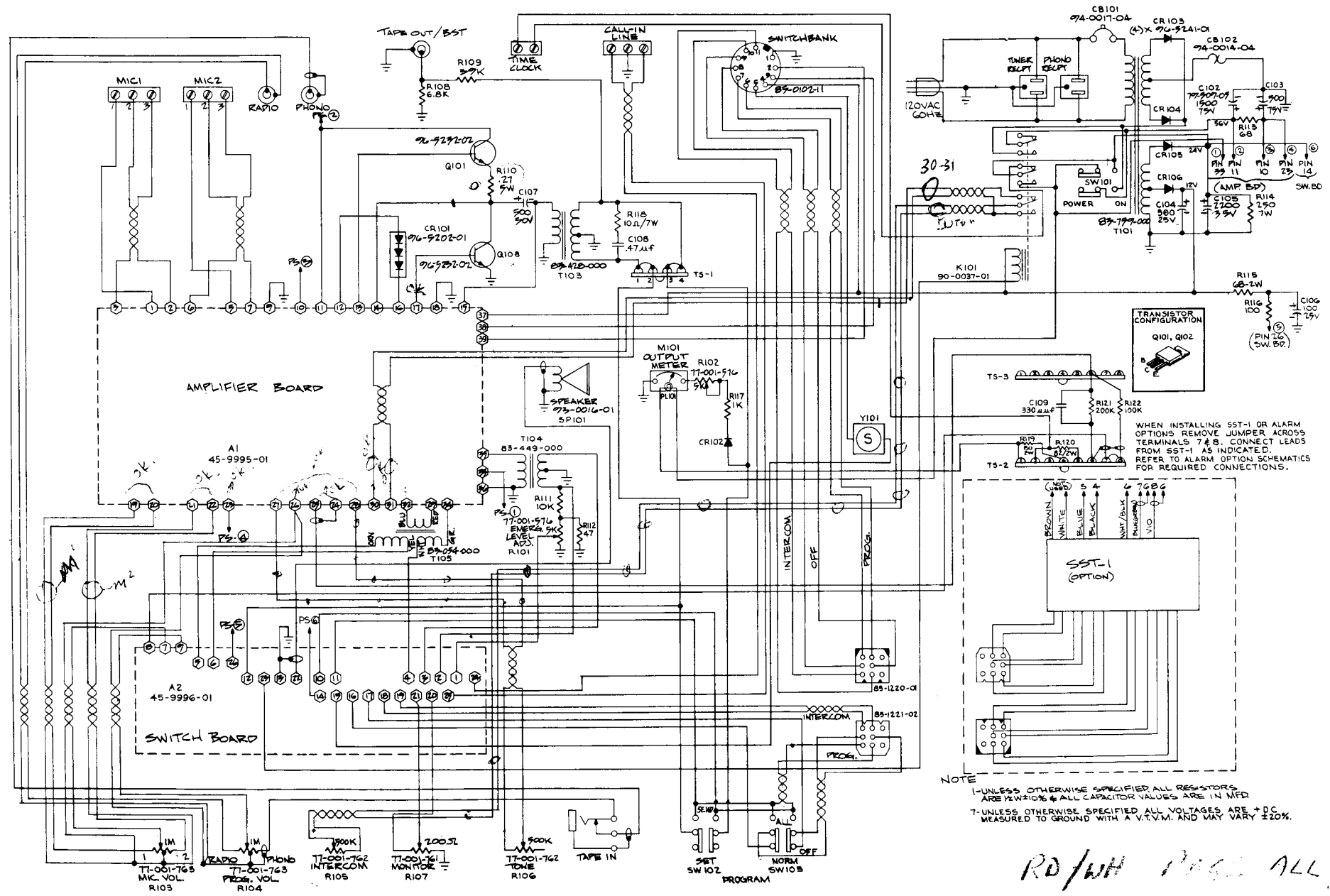


Figure 9 — MCT-1 Control Panel, Schematic Diagram

RD/WH PAGE ALL  
SKAT/ML A  
RD/CHK INT

WHEN INSTALLING SST-1 OR ALARM OPTIONS REMOVE JUMPER ACROSS TERMINALS 7 & 8. CONNECT LEADS FROM SST-1 AS INDICATED. REFER TO ALARM OPTION SCHEMATICS FOR REQUIRED CONNECTIONS.

NOTE  
1-UNLESS OTHERWISE SPECIFIED ALL RESISTORS ARE 1/2WATT & ALL CAPACITOR VALUES ARE IN MFD  
2-UNLESS OTHERWISE SPECIFIED ALL VOLTAGES ARE + DC MEASURED TO GROUND WITH A V.T.V.M. AND MAY VARY ±20%.

NOTE  
 1-UNLESS OTHERWISE SPECIFIED, ALL RESISTORS  
 ARE 1/2W 10% & ALL CAPACITOR VALUES ARE IN MFD

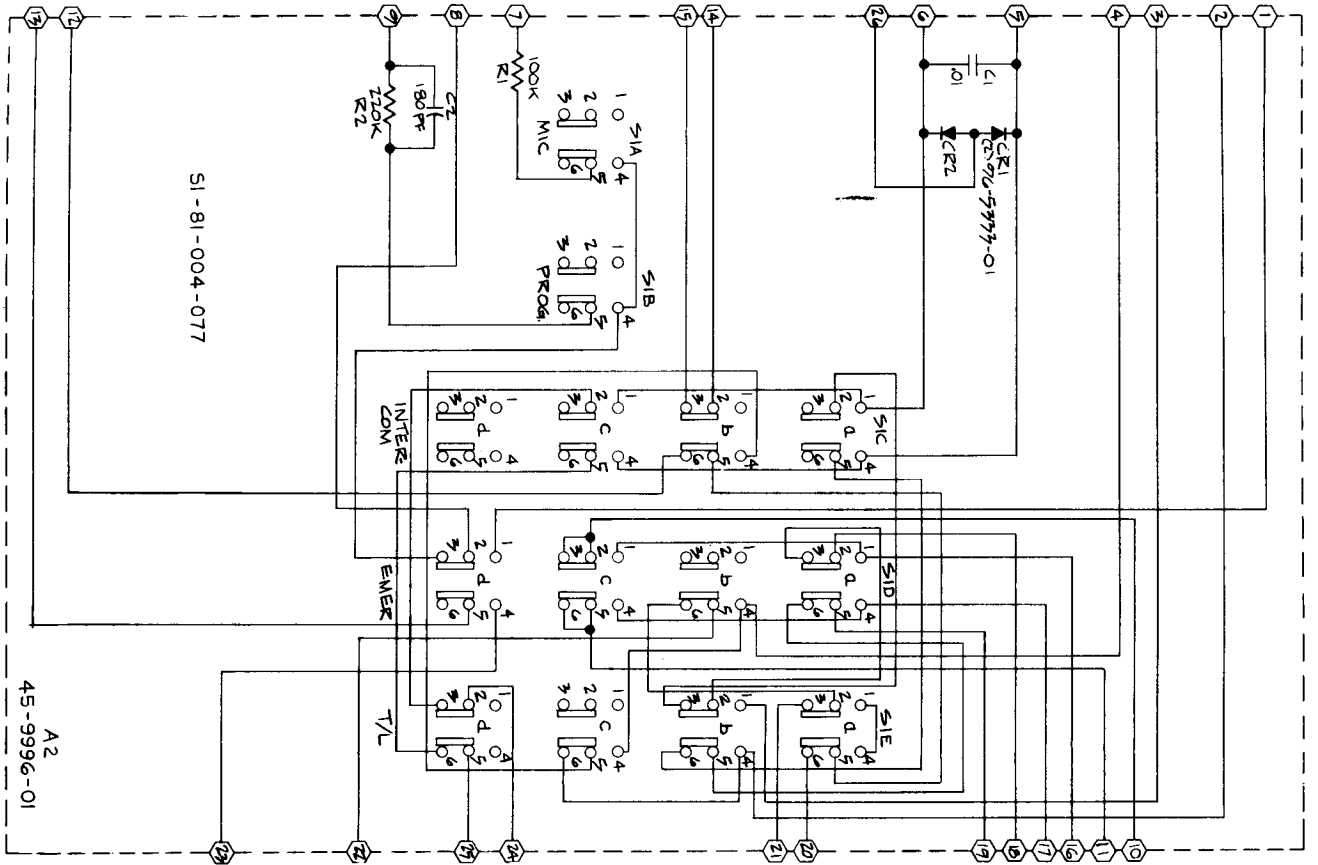


Figure 10 — Switch Board, Schematic Diagram

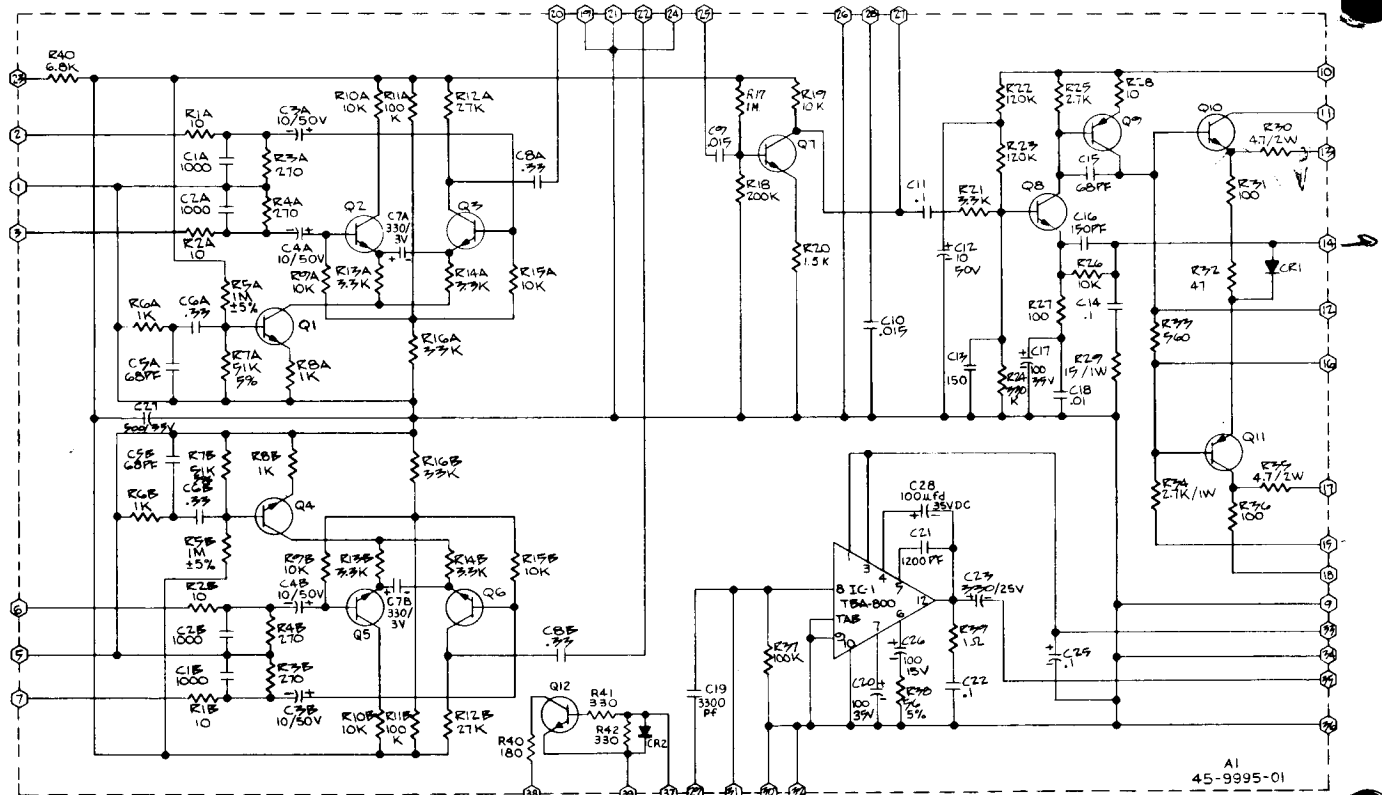
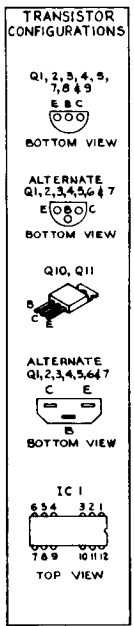


Figure 11 — Preamp/Output Board, Schematic Diagram

Bogon

MCT-1

## CONTROL FUNCTIONS

All operating controls for the Series 15 Centralized School Sound Systems are located on the front of the consolettes (consoles). The Series 15T-1 is equipped with an AM/FM radio tuner, while the Series 15-2 and 15-3 have both a tuner and an automatic record changer. The operating controls for the tuner and record changer are described in their individual instruction manuals.

### MCT-1 CONTROL PANEL

The controls on the Model MCT-1 Control Panel are: **POWER ON-OFF SWITCH.** Turns the system on and off.

**FUNCTION SELECTOR SWITCHES.** These switches determine the mode of system operation. These operating modes are:

1. **Microphone.** Connects microphone input to program channel (selected by MIC level control).
2. **Program.** Permits transmission of program material as determined by program distribution and program output switches.
3. **Intercom.** Enables and disables TALK/LISTEN switch.
4. **Emergency.** Permits operator to transmit to all stations via panel speaker, regardless of switchbank settings. Overrides all program and intercom functions. Operates with power switch On or Off.
5. **Talk/Listen.** Allows operator to communicate with room(s) selected on switchbank without affecting program distribution to remaining rooms. Enabled by Intercom switch; depress to talk, release to listen.

**Figure 4 — Consolette Switch Bank, Connection Diagram**

#### LEVEL CONTROL SWITCHES

1. **Microphone.** Fader control sets level of Mic 1 or Mic 2 program as indicated on output meter. May be used with Program level control for mixing.

2. **Program.** Fader control sets level of radio or phono/tape program as indicated on output meter. May be used with Microphone level control for program mixing.

3. **Intercom.** Sets outgoing level of intercom transmission to room speakers.

4. **Monitor.** Sets panel speaker level in program and intercom modes.

5. **Tone.** Provides flat response or reduces high-frequency response as control is moved toward HI CUT.

**PROGRAM OUTPUT METER.** Color-coded to clearly display 25 V reference level.

#### PROGRAM SWITCHES

1. **Program Distribution.** Functions when program output selector is in SEND. NORM(al) position provides switchbank control over program distribution. ALL position distributes program to all rooms not connected to the intercom.

2. **Program Output.** SEND position enables program distribution switch. SET position disconnects program output from load for monitoring or presetting prior to distribution. Does not offset intercom functions. *The program output switch should not be left in the SET position. Once adjustment is made, switch should be returned to SEND position.*

#### SWITCH BANKS

**MODEL SBS SWITCHBANK.** Standard consolettes are equipped with one or two Model SBS Switchbanks. Each switchbank has 25 three-position lever switches for connecting individual rooms to the system. Each switch functions as follows:

A - (**Up position**) - Connects classroom speaker to program channel for distribution of microphone, radio, or phono program.

0 - (**Center position**) - Disconnects classroom speaker from system, except when consolette is operating in Emergency mode.

C - (**Down position**) - Connects classroom speaker to intercom channel.

**MODEL SBL SWITCHBANKS (OPTIONAL).** If the system is equipped with an optional light-annunciator call system, the consolette switchbanks will have four-position lever switches. These switches operate exactly as those in the Model SBS Switchbank, except that there is a "B" (top) position of the switches which is not used. If a switch is placed in the "B" position, it functions exactly the same as in the "A" position.

## OPERATION

### NOTE

*Before attempting to operate for the first time after installation, check all input and output connections and make certain the consolette is connected to a power outlet.*

## **TO TURN CONSOLETTTE ON**

Set POWER ON-OFF switch to ON position.

## **DISTRIBUTE MICROPHONE PROGRAM**

**Move** program output switch to SET position. Depress MIC function switch. Select microphone level with MIC fader control knob according to control panel speaker volume and/or reading on PROGRAM LEVEL output meter. When appropriate level is reached, distribute program by moving program output switch to SEND position. Select either NORM for Switchbank control over distribution or ALL for distribution to all stations not connected to the intercom. (May be used in conjunction with PROGRAM level control for program mixing).

## **TO DISTRIBUTE RADIO/PHONO-TAPE PROGRAM**

Move program output switch to SET position. Depress PROG function switch. Select level of radio/phono/tape program with PROGRAM fader control knob according to control panel speaker volume and/or output meter reading. Distribute program by switching program output to SEND position.

To distribute output from a tape recorder, connect the 2-conductor phone plug from the tape recorder to PE IN jack on the control panel and follow procedure outlined above. Phonograph input will be automatically disconnected.

## **TO OPERATE ALL-CALL FUNCTION**

Move program output switch to SEND position. Move program distribution switch to ALL position. Program is transmitted to all stations regardless of position of station selector switches. (Note: Disconnect intercom function; stations connected to the intercom will not be affected).

## **TO COMMUNICATE WITH SELECTED STATIONS**

**TO SEND.** Depress INTERCOM function switch. Select station to be contacted on switchbank panel. Depress TALK/LIST switch to send; release switch to monitor. *Intercom level control should always be left at the setting for normal transmission to room speakers.* (Note: does not affect program distribution to other stations).

**TO RECEIVE.** If a voice call-in system is installed, the station operator makes contact over the intercom channel via the station speaker and CA-13 call switch, and identifies his or her station. To respond to call, select station on switchbank and depress TALK/LIST

switch. Speak clearly into the control panel speaker from a distance of approximately 12" (Note: Intercom function switch must be depressed to receive VOICE CALL IN from stations).

## **TO OPERATE EMERGENCY**

Depress EMERG switch and speak clearly into panel speaker. Message is transmitted to all stations regardless of switchbank settings, program and intercom function settings, and position of POWER ON-OFF switch.