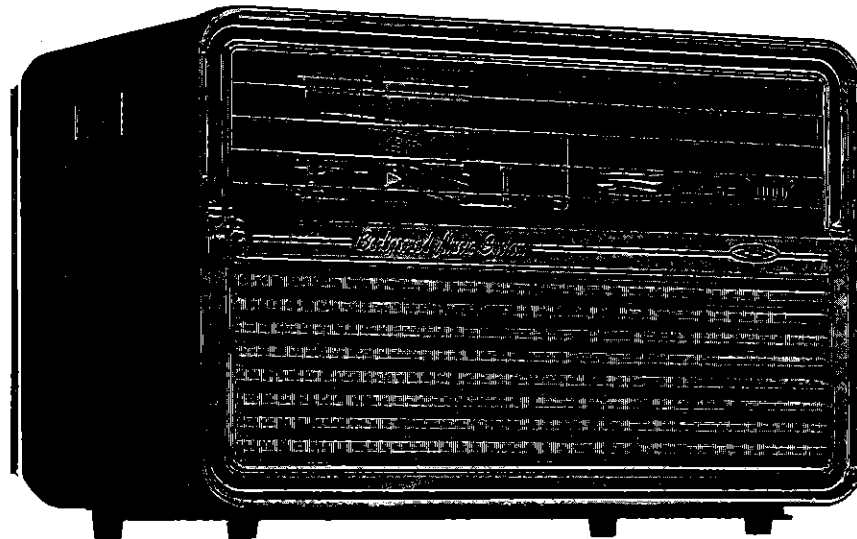


INSTALLATION MANUAL

SEEBURG "1000" BACKGROUND MUSIC SYSTEM, MODEL BMS2



The Seeburg Background Music System subsequently referred to as the Seeburg "1000" is a completely self-contained phonograph designed for the playing of Seeburg Music Library recordings. It incorporates the Seeburg Background Music Mechanism, Type BMM1 which plays both sides of 25 records sequentially to provide 1000 individual selections for 37½ hours

of music and then restacks the records.

The associated records are 9 inches in diameter with twenty tunes per side and are played at 16-2/3 rpm. The Seeburg "1000" also contains a fully transistorized (no vacuum tubes) Background Music Amplifier, Type BMA3-56 and a heavy duty 6 x 9 inch oval speaker.

SPECIFICATIONS

Dimensions and Weight:

Height.....14 5/8" above supporting surface
Width 22 1/4"
Depth 12 1/2"
Net Weight 51 Pounds
Shipping Weight 59 Pounds

Finish:

Cabinet:..... Scotch Textured - Charcoal
Front door: Wedgewood Blue with Chrome Trim.

Cabinet Lighting:

Frosted Miniature Double Contact Bulb No. 64.

Cabinet Key Number:

Chicago Lock C-2313
Illinois Lock L290

Carrying Case:

Waterproof, zippered, canvas, leather reinforced, Part No. 495147, available from your Seeburg Distributor.

Record Capacity: 25
1000 Selection, 37 1/2 hours of music without repetition.

Record Weight 25 records, approximately
5 pounds

Record Type: 16 2/3 RPM.
9 inch diameter, 2 inch center hole.
Property of Seeburg Music Library, Inc.

Power Requirements:

117 Volts A.C., 60 cycles, 0.7 amp., 65 watts
Accessory Receptables 1
Maximum Accessory Power 270 watts

Background Music Mechanism: Type BMM 1

Pickup: Seeburg High Fidelity Magnetic.
Armature Assemblies with Diamond Styluses
(red), Part No. 233176. Two used.

SPECIFICATIONS (continued)

Program Timer Connector:

12-prong dummy plug is removed to plug in Type BMPT1 Program Timer (Accessory Unit)

Audio Amplifier: (Fully Transistorized) Type BMA3-56
11 Transistors, 2 Silicon Diodes

Audio Power Rating: Program Material (Music)
20 watts at less than 5% distortion (IHFM)

Microphone: Miniature threaded collar
Coaxial connector. 250 ohms, 1 M.V. for full
output, Seeburg Part No. 503940.

Output Connections:

HI-Z Output: (for driving external power
amplifiers) Plug-in Coaxial Connector,
0.7 volts into 100,000 ohms (min)

Microphone Preamp Output: Plug-in
Coaxial Connector, 1 volt into 20,000 ohms (min)

External Program Control:

Out: Plug-in Coaxial Connector which is
output of Selector Switch; 0.5 volts into
50,000 ohm (min)

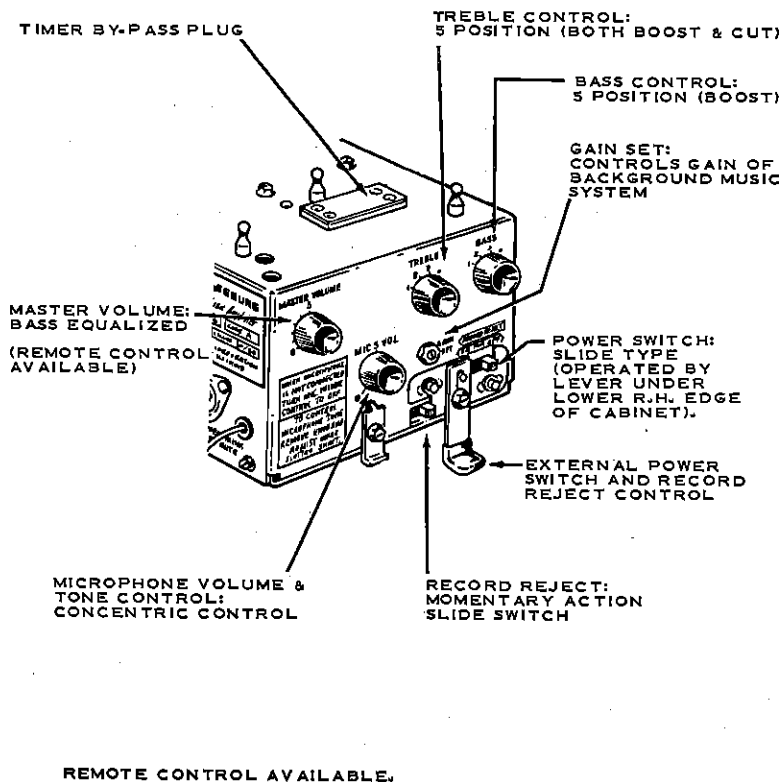
In: Plug-in Coaxial Connector, 0.5 volts
(max) into 50,000 ohms.

**Remote Volume & Record Reject Control, Type
BMRVC-1:**

Plugs into 9-pin noval socket at rear of
Amplifier Chassis.

Line Cord:

3-contact polarized receptacle on amplifier rear
panel. (2 wire line cord supplied)
3 wire line cord (accessory) Part No. 495158.



FRONT VIEW OF BMA3-56 AMPLIFIER

REAR VIEW OF BMS2

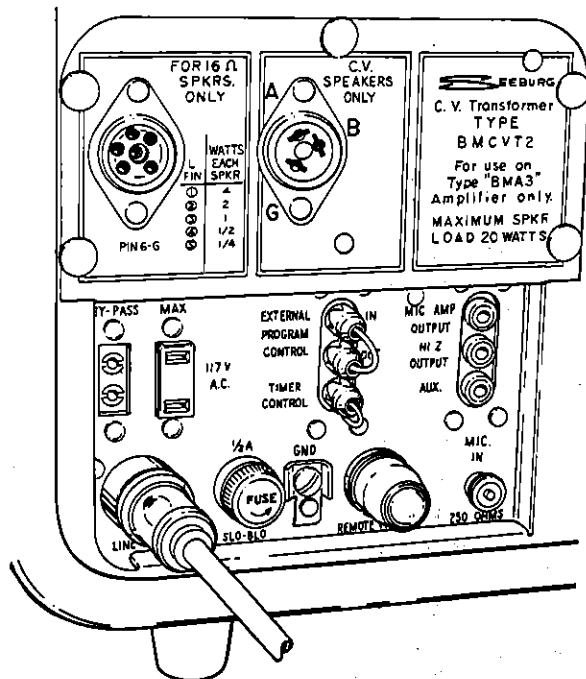


Figure 1. Identification Drawings.

INSTALLATION INSTRUCTIONS

INSPECTION

Examine the instrument for external as well as internal damage immediately after unpacking. If any damage is found, notify the transportation representative.

PLACING THE BACKGROUND MUSIC SYSTEM

Choose a location for the instrument in which it will be conveniently accessible for operation and servicing. It should be placed on a firm, level surface free from vibration or any sources of excessive heat (do not place on radiator). Adequate ventilation is essential to prevent warpage of records and overheating of components. Allow minimum cabinet clearances as follows: 2 inches in the rear, 2 inches on top, 1½ inches on the left side and 1½ inches on the right side.

The instrument may be secured in position to prevent unauthorized movement. A No. 10 by two inch long self-tapping screw and split rubber washer are provided and may be installed after removing the plug button from the base of the cabinet as shown in *Figure 2*.

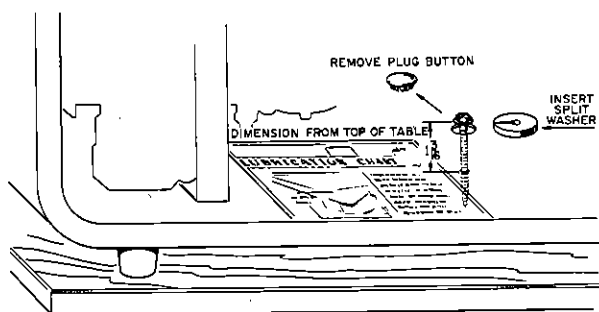


Figure 2. Securing Cabinet

PREPARATION FOR OPERATION

1. Before placing the system in operation, it is necessary to remove or loosen all shipping hardware, pads and packing. Carefully follow instructions on the tags. Store removed material in original carton for possible future shipment.
2. Make certain that the supply voltage and frequency agree with the markings on the instrument name plate.
3. Remove the line cord found in the case and plug one end into the rear of the amplifier and the other end into the service outlet.

LOADING RECORDS

Remove upper spindle weight and place it on a clean surface, padded side up. Before loading records, make certain that the pick-up-arm is in rest position, that the record clamping fingers on the lower spindle are retracted and that the upper spindle support fingers are extended as shown in *Figure 3*.

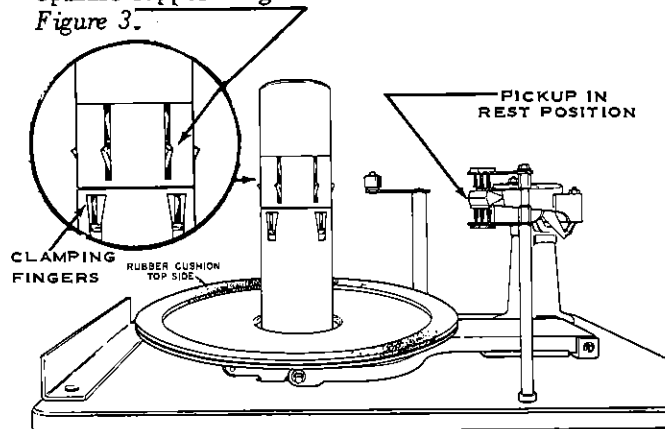


Figure 3. Ready For Loading-Pickup In Rest Position

CAUTION: Wash hands thoroughly before handling records. Hold records by outer edge or center hole and outer edge. **DO NOT TOUCH GROOVES.** To assure subsequent exclusion of dust and dirt, make certain that cabinet door is kept closed after completion of installation.

Load records, five or six at a time, in numerical order (1-25) with all "A" sides facing downward, the bottom record should be 1A. After the records are loaded, place the Record Weight on top of the stack.

A full load of 25 records must be used when testing or operating this equipment. Do not use partial loads. The instrument is designed to give optimum performance only with a full stack of records.

NOTE: After loading, let the mechanism "run-in" for half an hour to an hour. This will allow the rubber mounts and rubber motor coupling, which have been compressed by packing material, to be normal and function properly.

TO CHANGE RECORDS, conform to the following procedure:

1. If the mechanism is playing the underside of a record, *Figure 4*, reject this record side by pushing the Reject Button to the left. After the mechanism has started playing the top side of this record, *Figure 5*, push the power switch to the "OFF" position (to the right).

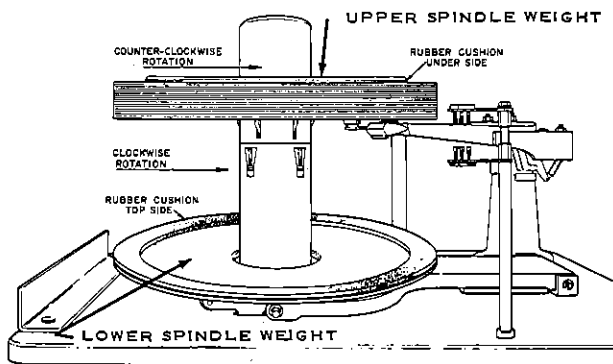


Figure 4. Playing Underside of Record.

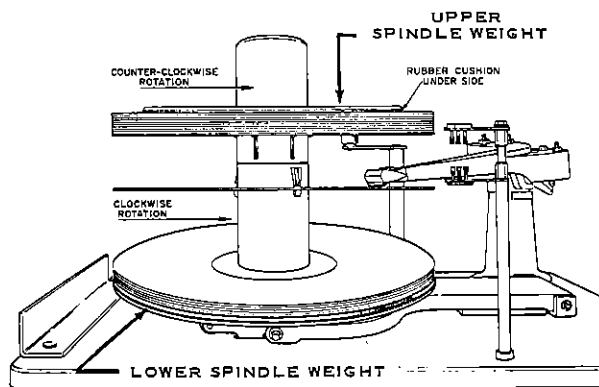


Figure 5. Playing Topside of Record.

2. Wait until all records have stopped rotating.
3. Remove upper spindle weight and place it on clean level surface padded side up. Remove records 5 or 6 at a time and stack them on record weight upside down thereby maintaining original sequence. To restack records on spindle reverse this procedure. See instructions on record replacement packages.

CAUTION: Do not remove Lower Spindle Weight. DO NOT TOUCH RECORD GROOVES.

REPLACEMENT OF LOWER SPINDLE WEIGHT

If at anytime the Lower Spindle Weight has been removed and is to be replaced, place it on the upper spindle support fingers. Firmly grasp the weight, push recessed button in top of the spindle and gently lower the weight to the turntable, *Figure 6*.

ACCELERATED RECORD DROPPING

Before rapid record drop operation, make certain that there is no record in the intermediate position.

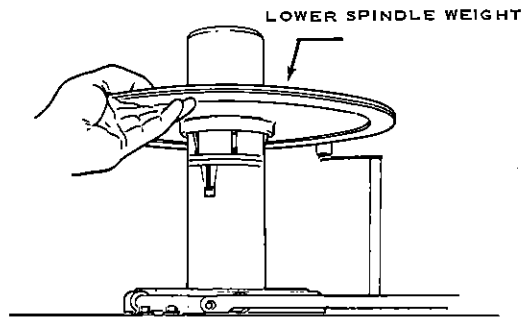


Figure 6.

Individual records may be rapidly dropped to the turntable by manually pulsing downwardly the recessed push button located on the top of the spindle, thus simulating a rapid transfer cycle, *Figure 7*.

CAUTION: Do not drop the last record manually: operate the mechanism electrically and actuate the Reject Button.

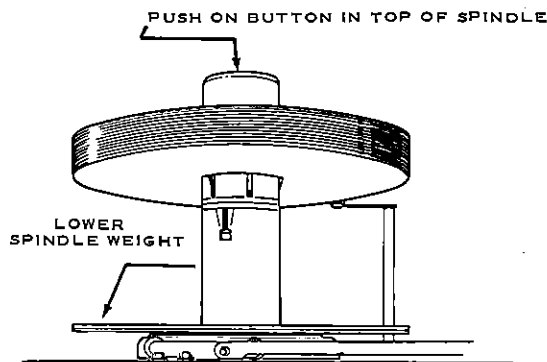


Figure 7.

OPERATION

Slide the power switch to the "ON" position (to the left) and set the Program Timer dial to "START". While a record is playing, proceed to balance the audio system.

1. The Gain Set is adjusted as follows:
 - a. Turn the Gain Set Control to its full counter-clockwise position.
 - b. Set the Master Volume Control at position 5.
 - c. Set the Treble and Bass Controls at position 3.
 - d. Turn the Gain Set Control clockwise to a position that will give the desired volume of sound for prevailing noise level conditions.
 - e. Subsequent volume adjustments are to be made with the Master Volume Control.

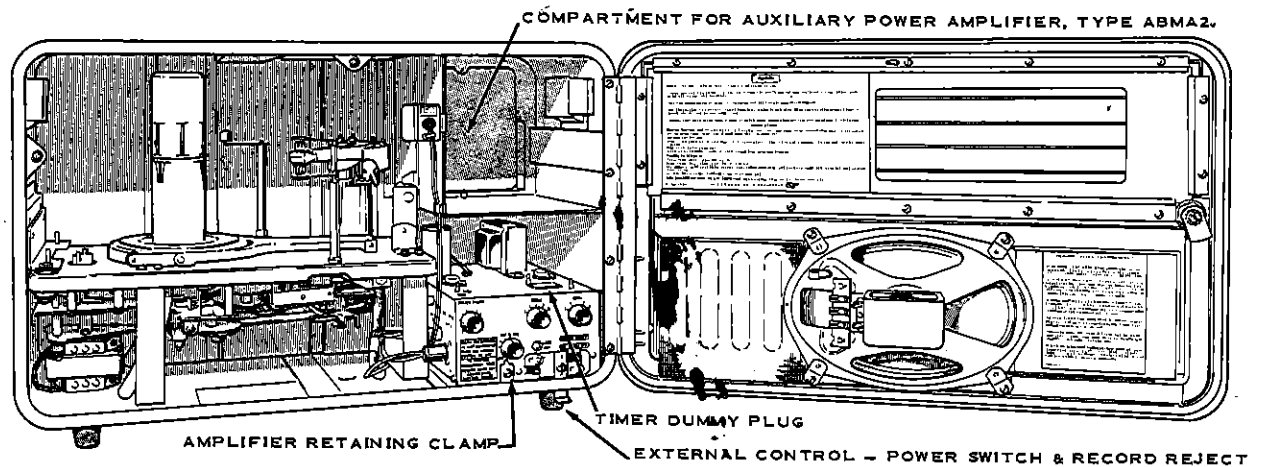


Figure 8. Internal View.

OPERATION (continued)

- Adjust the Treble and Bass Controls to the acoustic requirements of the establishment in order to achieve desired tone balance. Refer to tone balance settings table, *Figure 9*.

LOCATION CONDITIONS	TONE CONTROL SETTINGS	
ACOUSTICALLY LIVE - HARD WALLS, CEILING AND FLOOR - LITTLE OR NO UPHOLSTERY AND DRAPERIES.	BASS	3
	TREBLE	3-4
AVERAGE ROOM - AVERAGE AMOUNT OF SOUND DEADENING MATERIAL.	BASS	3-4
	TREBLE	4
ACOUSTICALLY DEAD - ACOUSTIC TILE, HEAVY DRAPERIES AND CARPETS, UPHOLSTERED BOOTHS.	BASS	2-3
	TREBLE	5

ROOM SIZE - IN SMALL ROOMS REDUCE TREBLE CONTROL ONE NUMBER. IN LARGE ROOMS INCREASE TREBLE CONTROL ONE NUMBER.

NOISE - THE NOISE ENCOUNTERED IN SOME LOCATIONS (RESTAURANTS, ETC) HAS A MASKING EFFECT ON HIGH FREQUENCIES. FINAL CONTROL SETTINGS SHOULD BE MADE UNDER ACTUAL NOISE CONDITIONS WITH A REPRESENTATIVE NUMBER OF PEOPLE PRESENT.

NOTE: GOOD QUALITY REPRODUCTION CANNOT BE ATTAINED WITH WORN STYLII. REMEMBER - WORN STYLII WILL RUIN YOUR RECORDS.

Figure 9. Tone Balance Settings.

Turn off the master power switch. If it is desirable to start the program with selection "1A", restack the records on to the upper spindle. Refer to section on Loading Records.

PROGRAM TIMER KIT, Type BMPT1 (Accessory)

The Program Timer Kit, Part No. 508540, is for use with the Seeburg "1000" to make available intermittent music - adjustable to any number of selections per each half-hour period.

The Program Timer plugs into a socket on the top of the preamplifier after removal of the existing 12-prong dummy plug.

AUXILIARY AMPLIFIER, Type ABMA3-56

If more than 20 watts of audio power is required, a fully transistorized Seeburg Auxiliary Background Music Amplifier, Type ABMA3-56, Part No. 375102 may be installed on the shelf above the master amplifier. A 3-prong socket on the rear of the amplifier, *Figure 1*, supplies 70-volt C.V. power to remote speaker lines. (See example 3 on page 11).

CAUTION: Do not install a Vacuum Tube amplifier in this compartment. Excessive heat generated will cause damage.

EXTERNAL AMPLIFIERS

External power amplifiers such as the Seeburg Type HFA4-56, Part No. 603251, may be connected to the HI-Z output plug-in coaxial connector located at the rear of the master amplifier to provide 60 watts of additional audio power. (See example 5 on page 13).

DYNAMIC MICROPHONE, (Accessory)

An input jack is provided at the rear of the amplifier for a low impedance (250 ohm) dynamic microphone. The microphone volume control is on the amplifier front panel; the tone control is a screw driver adjustment accessible by removing the volume control knob.

EXTERNAL PROGRAM CONTROL

External program control jacks on the rear of the BMA3 amplifier provide for connection of any number of additional program sources. *Figure 10.* illustrates a typical circuit using Seeburg switch, Part No. 508115.

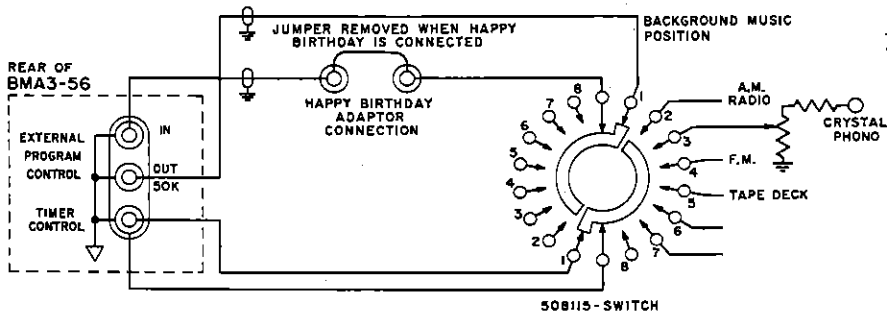


Figure 10.

Typical External Program Control Circuit.

The switch permits normal background music operation plus switching to seven (7) additional program sources. The connection to the timer control jacks serves to turn off the phonograph when switching to external program sources.

A Happy Birthday Adaptor, later described, may be connected after removal of the jumper as shown in *Figure 10.* Wiring of the external program switch to the BMA3 should be made using single conductor shielded cable such as Seeburg Part No. 95106 and single prong pin jacks such as Seeburg Part No. 246957.

HAPPY BIRTHDAY ADAPTER

"Happy Birthday", "Anniversary Song" or other specialty records may be played over the Seeburg Background Music System by the application of the "Happy Birthday" Adapter. Comprehensive construction details using standard components are described in the Adapter Instruction Sheet, Part No. 50766, available from your Seeburg Distributor.

Any conventional record player equipped with automatic shut-off controlling both the motor and an A.C. service outlet should be used. The V.M. record player Model 1229 satisfies the requirement.

The adapter is connected to the record player and to the rear panel of the BMA3-56 amplifier in the Seeburg "1000". When the external record player is in operation, the Seeburg Background Music is muted and resumes playing at the completion of the specialty selection.

MICROPHONE PREAMPLIFIER KIT,

Type TMPS2-56 (Accessory)

The Microphone Preamplifier Kit, which is fully transistorized, may be used in conjunction with the Seeburg "1000" when multiple microphones are required.

POWER TIMER ACCESSORY KIT,

Type BMPTAK1 (Accessory)

The Power Timer Accessory Kit is specifically designed for use with the Seeburg "1000" to modify its operation for daily automatic on-off control and cut out on one or more days of the

week. Use of this kit does not affect the operation of the Program Timer in the Background Music System.

REMOTE VOLUME CONTROL,

Type BMRVC-1 (Accessory)

The Background Music Remote Volume Control may be used to remotely control the volume and cancel selections of the Background Music System. It is plugged into the back panel of the master amplifier after removing a 9 prong dummy plug.

CABLE CLAMP

A cable clamp and self tapping screw are provided and should be applied as shown in *Figure 11,* after removal of the corner snap-in plug. Unhook the cable clamp and feed through all cables. Allow enough slack to avoid strain on plugs. Rehook the cable clamp.

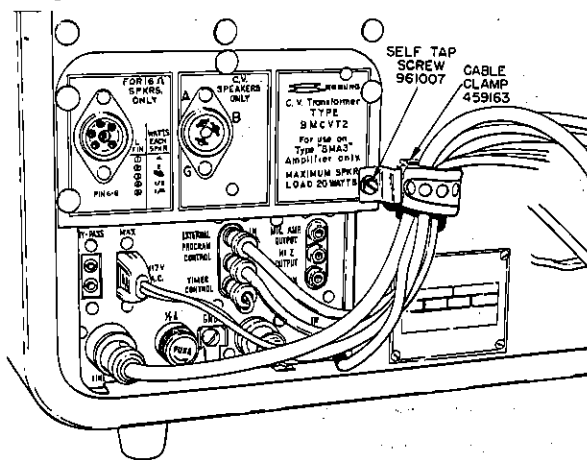


Figure 11. Cable Clamp Installed.

TRANSFORMER ASSEMBLY; Type BMCVT-2

The Transformer Assembly is used in conjunction with the Type BMA3-56 amplifier in the Seeburg "1000" to provide 70 volt C.V. line as well as low impedance (16 ohm) output circuits. It may be used to drive a number of Seeburg Background Music speakers as well as the speaker on the door of the cabinet. The combined low impedance and C.V. speaker load must not exceed 20 watts.

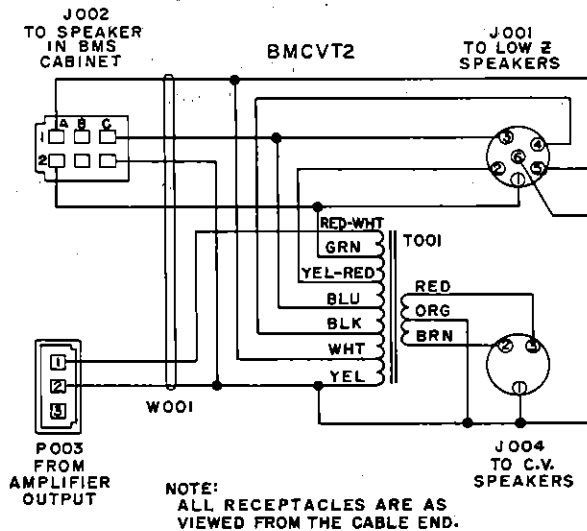


Figure 12. Type BMCVT-2 Schematic Diagram.

- PARTS LIST -

Item	Part No.	Description
-	508970	Type BMCVT2 Bkg. Music Constant Voltage Transformer Assembly
J001	84316	6-Contact Miniature Socket
J002	305632	6-Contact Socket
	941750	Contact
J004	12034	3-Prong Socket
P003	307049	3-Contact Plug
	941750	Contact
T001	508976	C.V. Transformer
W001	508982	C.V. Cable & Plug Assembly

ADDITIONAL SPEAKERS

If wider distribution of sound is required, additional speakers and speaker arrays may be used (see section on speaker systems) and are indicated as follows:

- Type BWAS -8, surface mounted, 16-ohm, 4-watt wall type speaker.
- Type BWAS-8CV, surface mounted, C.V., wall-type speaker. Taps at 4, 2, 1, ½ and ¼ watts.
- Type BCSM-8, surface mounted, 16-ohm, 4-watt corner speaker.
- Type BCSM-8CV, surface mounted, C.V., corner speaker. Taps at 4, 2, 1, ½ and ¼ watts.
- Type BROR-8, flush mounted, recessed speaker (round), 16-ohm, 4-watt, wall or ceiling.

- Type BROR-8CV, flush mounted, recessed speaker (round), C.V., wall or ceiling. Taps at 4, 2, 1, ½ or ¼ watts.
- Type BSQR-8, flush mounted, recessed speaker (square), 16-ohm, 4-watt, wall or ceiling.
- Type BSQR-8CV, flush mounted, recessed speaker (square), C.V., wall or ceiling. Taps at 4, 2, 1, ½ or ¼ watts.
- Type BTWW-8, two-way, surface mounted speaker, wall or ceiling, 16-ohm, 4-watt.
- Type BTWW-8CV, two-way, surface mounted speaker, wall or ceiling. Taps at 4, 2, 1, ½ and ¼ watts.

LINE TRANSFORMER ASSEMBLY

Type 4LT-1 (Accessory)

The Line Transformer Assembly, when connected to the far end of a 70-volt C.V. speaker line, feeds up to 4 watts of power to 16 ohm speakers. A choice of 4, 2, 1, ½ or ¼ watts is available to each speaker. (Refer to Example No. 4 on Page 12 for typical application).

LINE TRANSFORMER, Type 25LT-3 (Accessory)

This Line Transformer is similar in its application to the Type 4LT-1, however, its power rating is up to 25 watts with a choice of 8, 4, 2, 1 or ½ watts for each speaker. Refer to (Example 5 on Page 13 for typical application).

LINE CONTROLS

Types 12LC1 & 12LC2 (Accessory)

These line controls are rated at 12 watts and are installed in C.V. speaker lines to control the volume of one or more speakers on the line. The Type 12LC1 and Type 12LC2 differ only in that the former is for recessed mounting and the latter is for surface mounting. (Refer to Example 3 on Page 11 for typical application).

LINE CONTROL, Type 25LC-1 (Accessory)

The Type 25LC-1 Line Control serves the same purpose as the 12LC series but is heavier duty - rated at 25 watts.

LOW IMPEDANCE CONTROLS

Type 12LIC-1 & 12LIC-2 (Accessory)

The Low Impedance Controls are rated at 12 watts and are designed to control the volume of one or more 16 ohm speakers when connected in the low impedance speaker line. Type 12LIC-1 and Type 12LIC-2 differ only in that the former is for recessed mounting and the latter is for surface mounting. (Refer to Example 2 on Page 9 for typical application.)

UNIVERSAL MATCHING TRANSFORMERS

Types 12UMT-1 & 20UMT-1 (Accessory)

These multi-tap auto transformers are for use in matching the low impedance output of the amplifier in the Seeburg "1000" to speaker loads of 0.35 to 500 ohms impedance and are, respectively, for 12 watt and 20 watt maximum speaker loads.

SPEAKER SYSTEM FOR SMALL INSTALLATIONS

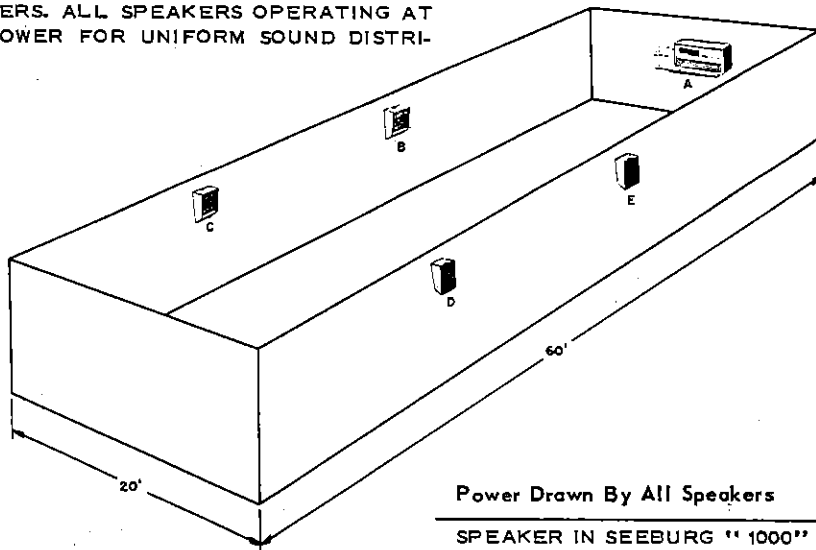
The sound distribution system for use with the Model BMS2 Background Music System is designed to distribute audio power at low impedance for small installations and 70-volt (C.V.) constant voltage for long speaker lines and large installations. This results in best economy and performance with high efficiency. The Type BMCVT-2 transformer assembly at the rear of the BMS2 cabinet provides connection for both C.V. speaker lines and low impedance for 16-ohm speakers connected to draw 4, 2, 1, 1/2 or 1/4 watts as illustrated in Figure 1 on Page 2.

Example 1 shown below illustrates a condition where the 16-ohm speaker in the Seeburg "1000" and four additional 16-ohm speakers mounted on the walls are connected to draw 4 watts per speaker. If sound output from the Seeburg "1000" cabinet is not required, a total of five external 16-ohm speakers may be used; in which case, the cabinet speaker load must be internally connected to unused 1 watt or 1/4 watt tab.

The volume of any remote 16-ohm speaker may be independently controlled by using a 12LIC1 or 12LIC2 speaker control. (Refer to Example 2 on Page 9).

Example 1.

A LONG NARROW ROOM SERVED BY THE SPEAKER IN THE SEEBURG "1000" PLUS FOUR ADDITIONAL WALL SPEAKERS. ALL SPEAKERS OPERATING AT THE SAME POWER FOR UNIFORM SOUND DISTRIBUTION.

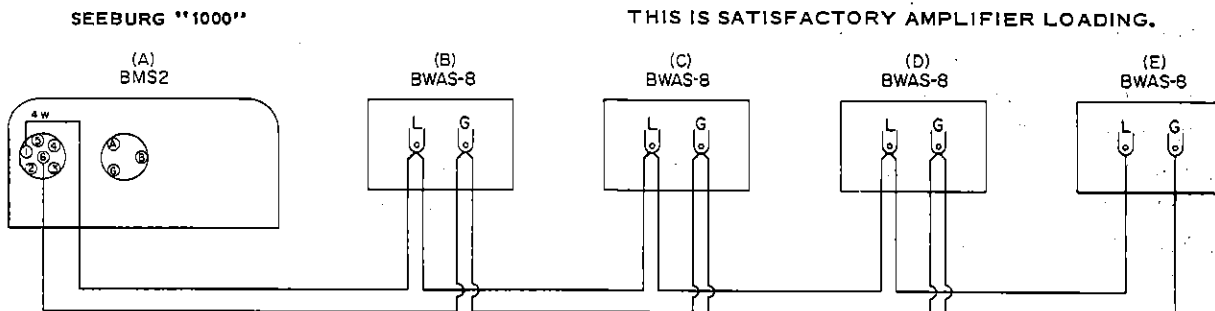


Power Drawn By All Speakers

SPEAKER IN SEEBURG "1000" (A).....	4 WATTS
BWAS-8 WALL SPEAKER (B).....	4 WATTS
BWAS-8 WALL SPEAKER (C).....	4 WATTS
BWAS-8 WALL SPEAKER (D).....	4 WATTS
BWAS-8 WALL SPEAKER (E).....	4 WATTS

TOTAL WATTAGE 20 WATTS

THIS IS SATISFACTORY AMPLIFIER LOADING.



Wiring Diagram.

SPEAKER SYSTEM FOR LARGE INSTALLATIONS

If a large number of speakers is required or if long speaker lines are needed, the Seeburg "1000" may be connected as follows:

1. The transformer assembly, Type BMCVT-2 is factory installed in the Model BMS-2 Cabinet to provide:
 - a. Constant voltage (C.V.) output for long speaker lines and C.V. speakers.
 - b. A low impedance output to which nearby 16-ohm speakers may be connected so as to draw 4, 2, 1, $\frac{1}{2}$ or $\frac{1}{4}$ watt each as required.

If more than 20 watts of audio power is required, a Seeburg Auxiliary Background Music Amplifier, Type ABMA3-52 may be installed on the shelf in the Seeburg "1000" cabinet to supply an additional 20 watts of C.V. power.

Seeburg constant voltage speakers (see system block diagram on page 14) may be connected directly to the C.V. line. The speakers are designed so that as many speakers as desired may be connected to an amplifier, provided that the sum of wattage settings of all speakers is equal to or less than the amplifier power rating. (Refer to example 4 on page 12 for a typical installation).

One or more external power amplifiers such as Seeburg Type HFA4-56 may be connected to the HI-Z output of the BMA3-56 amplifier for 60 watts of additional audio power. (Refer to example 7 on page 15).

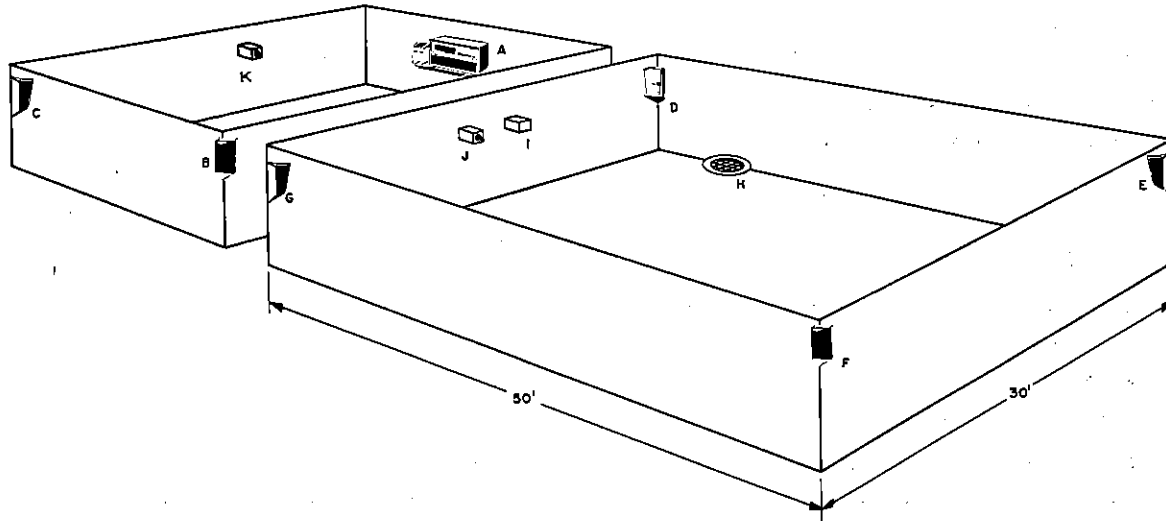
2. Long speaker lines may be run from the C.V. output of the transformer described above and, at the end of each such line, a single transformer, Type 4LT-1 or 25LT-3 may be installed to serve a large number of 16 ohm speakers in the remote area. (Refer to example 3 on page 11).
3. The volume of any group of speakers may be independently controlled by installing a Type 12LC-1, 12LC-2 or 25LC-1 line control in the C.V. line serving the group. (Refer to example 2 on page 10).
4. The volume of any one or more speakers of a remote group may be controlled by adding Type 12LIC-1 or 12LIC-2 low impedance control in the speaker line. (Refer to example 2 on page 10).
5. Existing factory sound systems may be driven from output terminals provided for this purpose on the rear panel of the Type BMA3-56 amplifier in the Seeburg "1000". (Refer to example 6 on page 13).
6. A Universal Matching Transformer, Type 12UMT-1 (12 watt speaker load) or 20UMT-1 (20 watt speaker load) may be used to match the output of the amplifier in the Seeburg "1000" to existing installation speaker loads of 0.35 to 500 ohm impedance.
7. The Block Diagram on page 14 is a pictorial representation depicting the overall sound distribution capabilities of the Seeburg Background Music System.

The following typical installations illustrate application of C.V. trunk-line and low impedance branch off combinations for large sound systems.

Example 2

TWO SEPARATE ROOMS ARE SERVED BY THE SEEBURG "1000". THE SMALLER ROOM CONTAINS THE CABINET AND IS SERVED BY ITS SPEAKER (A) AND TWO CORNER SPEAKERS (B) AND (C). THE CORNER SPEAKERS ARE CONNECTED TO THE LOW IMPEDANCE OUTPUT OF THE TYPE BMCVT-2 TRANSFORMER ASSEMBLY AND THEIR VOLUME IS CONTROLLED BY A LOW IMPEDANCE LINE CONTROL, TYPE 12LIC-1. (K)

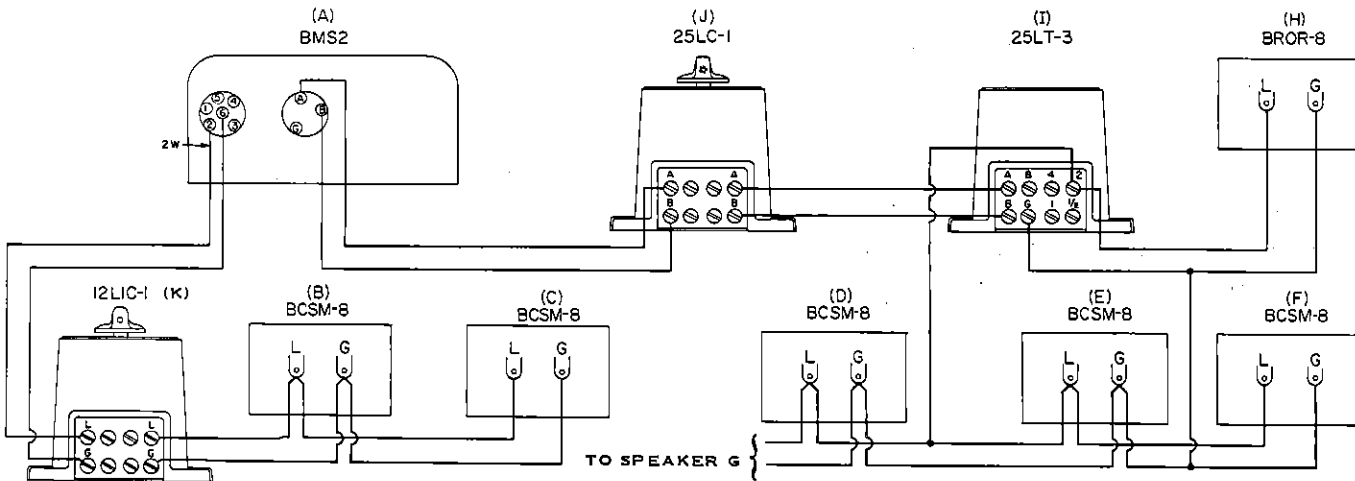
THE LARGE ROOM IS SERVED BY FOUR CORNER SPEAKERS (D), (E), (F) AND (G) AND A CEILING SPEAKER (H) CONNECTED TO THE CONSTANT VOLTAGE (C.V.) LINE OF THE BMCVT-2 THROUGH A SPEAKER LINE TRANSFORMER TYPE 25LT-3 (I). THE VOLUME OF THESE SPEAKERS IS CONTROLLED BY THE TYPE 25LC-1 (J) LINE CONTROL.



Power Drawn By All Speakers

SPEAKER IN SEEBURG "1000" (A) SET AT.....	4 WATTS
BCSM-8 CORNER SPEAKERS (B), (C), (D), (E), (F) AND (G) SET AT 2 WATTS EACH... ..	12 WATTS
BROR-8 RECESSED CEILING SPEAKER SET AT.....	2 WATTS
	TOTAL WATTAGE 18 WATTS

THIS IS SATISFACTORY AMPLIFIER LOADING.

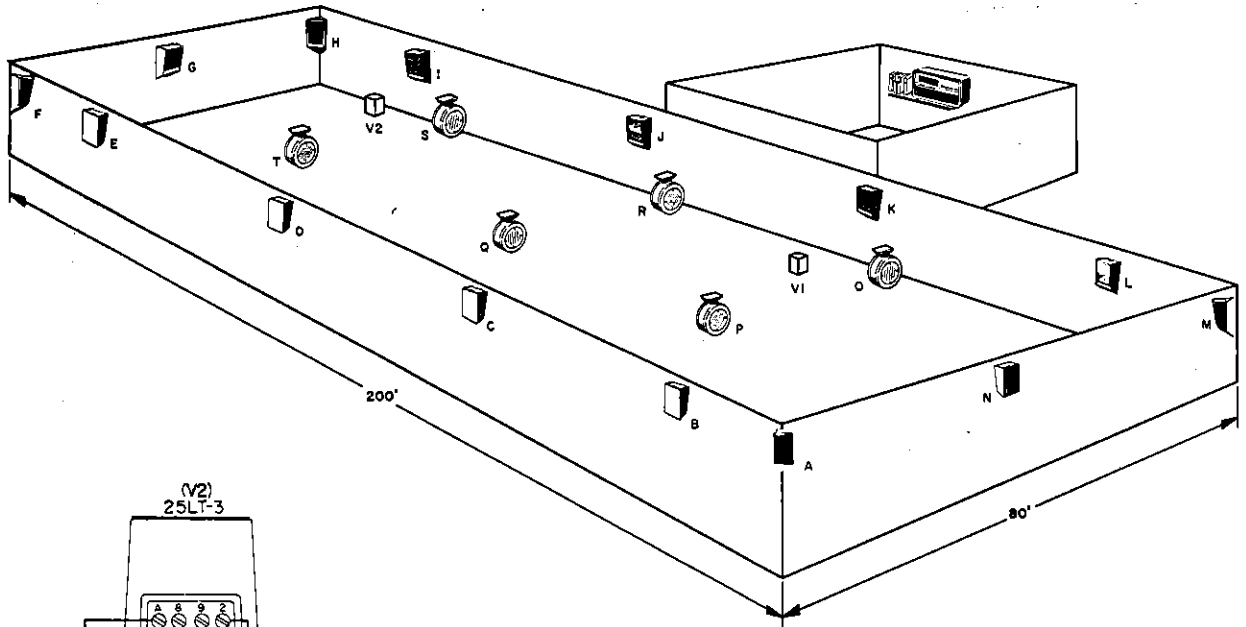


Wiring Diagram.

Example 3

A VERY LARGE ROOM IS SERVED BY THE SEEBURG "1000", AND THE AUXILIARY POWER AMPLIFIER, TYPE ABMA3-56.

THE RESPECTIVE C.V. LINES ARE FED AS SHOWN IN THE WIRING DIAGRAM TO SUPPLY TYPE 25LT3 LINE TRANSFORMERS (V1) AND (V2) WHICH IN TURN DISTRIBUTE POWER AT LOW IMPEDANCE TO TWO GROUPS OF SPEAKERS.



Power Drawn By Speakers Connected To BMA3-56 Amplifier

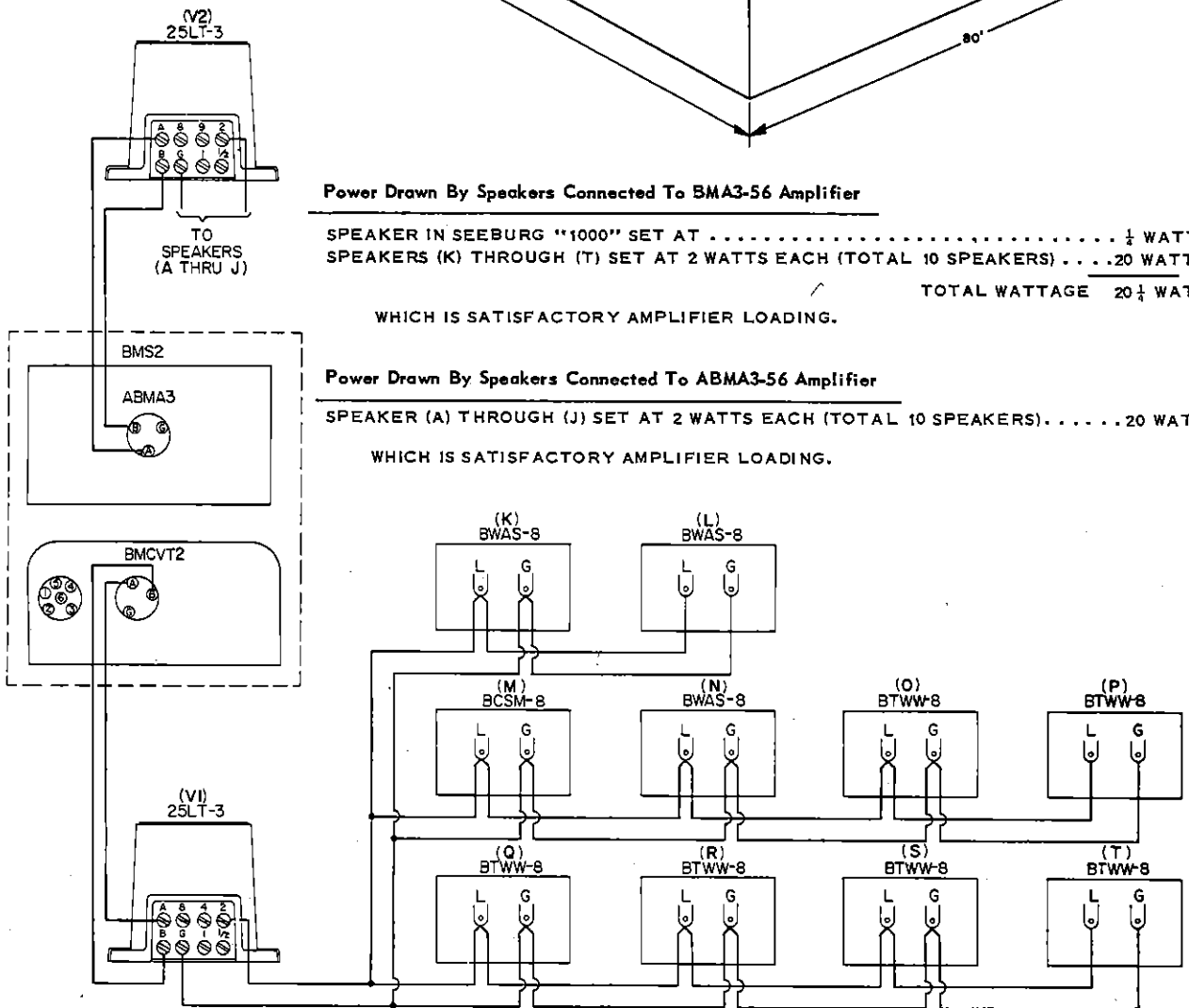
SPEAKER IN SEEBURG "1000" SET AT 1/4 WATT
 SPEAKERS (K) THROUGH (T) SET AT 2 WATTS EACH (TOTAL 10 SPEAKERS)20 WATTS
 TOTAL WATTAGE 20 1/4 WATTS

WHICH IS SATISFACTORY AMPLIFIER LOADING.

Power Drawn By Speakers Connected To ABMA3-56 Amplifier

SPEAKER (A) THROUGH (J) SET AT 2 WATTS EACH (TOTAL 10 SPEAKERS)20 WATTS

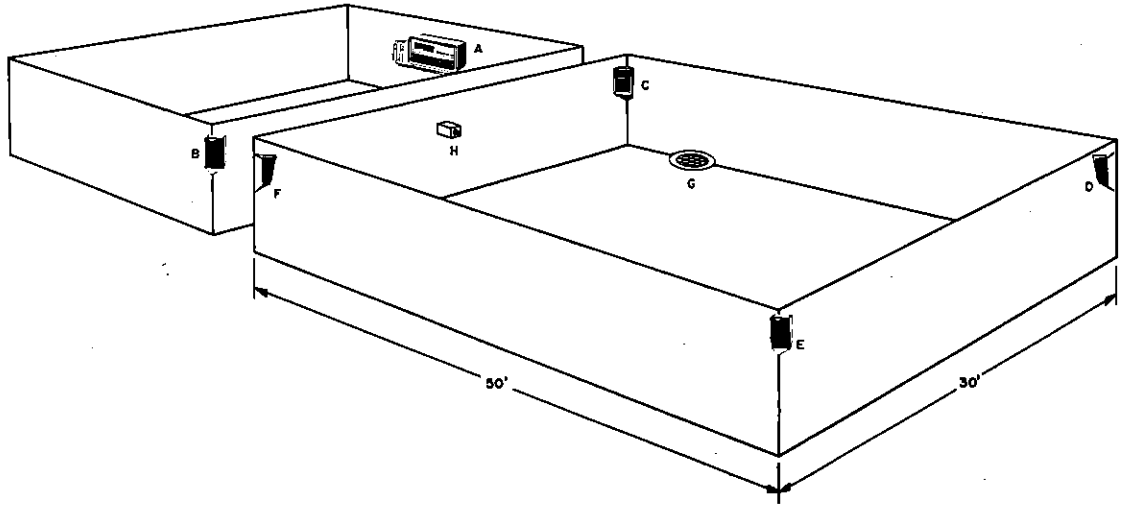
WHICH IS SATISFACTORY AMPLIFIER LOADING.



Wiring Diagram.

Example 4

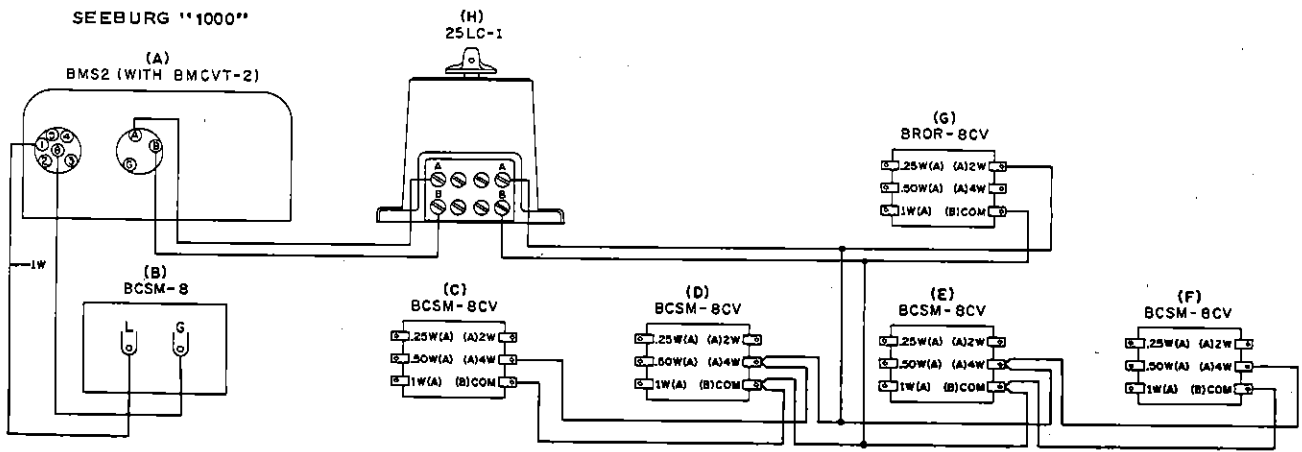
TWO SEPARATE ROOMS ARE SERVED BY THE SEEBURG "1000". THE SMALLER ROOM CONTAINS THE CABINET AND IS SERVED BY ITS SPEAKER (A) AND A LOW IMPEDANCE (16 OHM) CORNER SPEAKER (B). THE TRANSFORMER ASSEMBLY, TYPE BMCVT-2, MOUNTED ON THE CABINET PROVIDES A 70 VOLT CONSTANT VOLTAGE SPEAKER LINE. THIS LINE IS FED TO C.V. SPEAKERS LOCATED IN THE LARGE ROOM AND IS CONTROLLED (VOLUME OF SPEAKERS) BY LINE CONTROL, TYPE 25LC-1 (H). THE LARGE ROOM IS SERVED BY FOUR CORNER SPEAKERS (C), (D), (E) AND (F) AND A CEILING SPEAKER (G).



Power Drawn By All Speakers

SPEAKER IN SEEBURG "1000" (WITH BMCVT-1) (A)	1 WATT
BCSM-8 (B) SET AT	1 WATT
BCSM-8CV (C.V.) SPEAKERS (C), (D), (E) AND (F) SET AT 4 WATTS EACH TOTAL	16 WATTS
BROR-8CV (C.V.) (G) SPEAKER SET AT	2 WATTS
TOTAL WATTAGE	20 WATTS

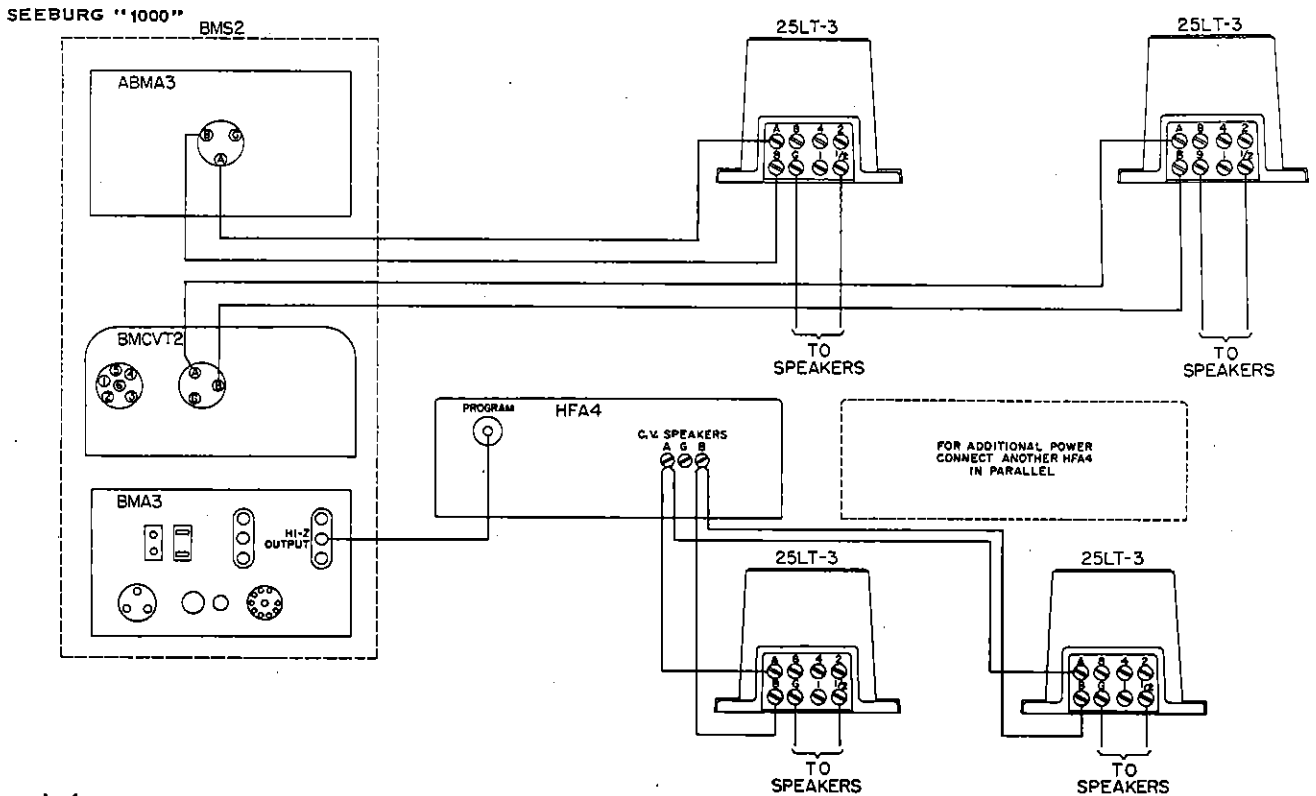
THIS IS SATISFACTORY AMPLIFIER LOADING.
25LC-1 LINE CONTROL (H) USED TO CONTROL
C.V. SPEAKER LINE.



Wiring Diagram

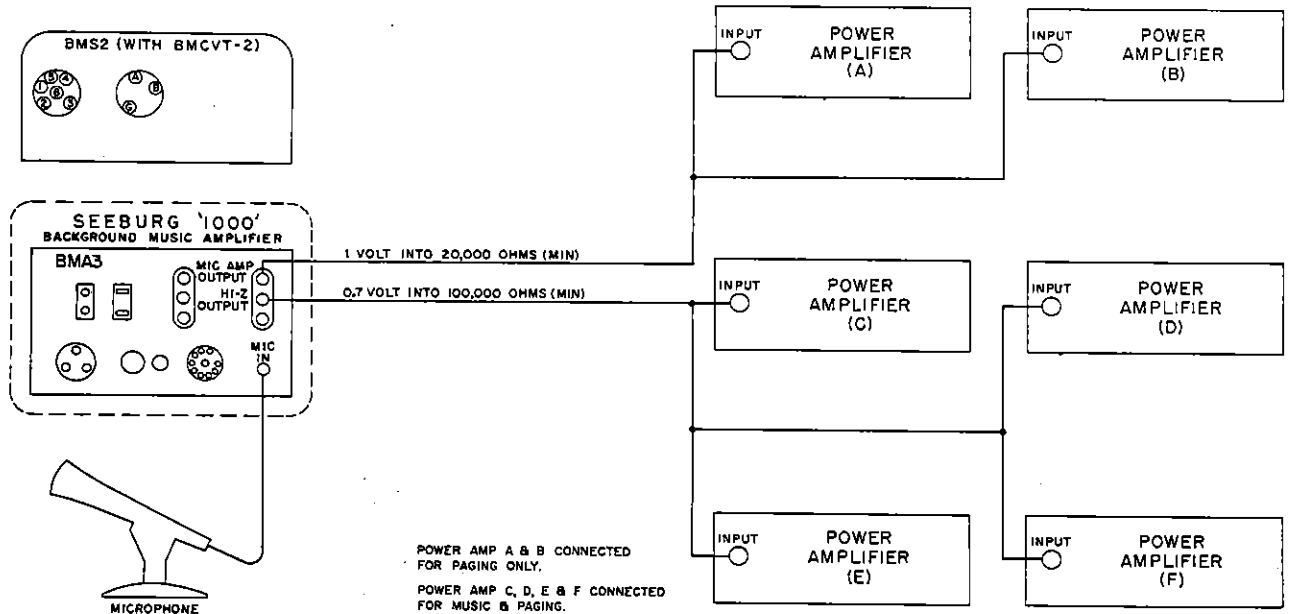
Example 5

IF MORE THAN 40 WATTS OF AUDIO POWER IS REQUIRED FROM THE SEEBURG "1000" BACKGROUND MUSIC SYSTEM, IT IS NECESSARY TO PROVIDE EXTERNAL POWER AMPLIFIERS SUCH AS THE SEEBURG HFA4-56. THEY ARE CONNECTED TO THE HI-Z OUTPUT OF THE BMA3 AMPLIFIER, AS SHOWN IN THE WIRING DIAGRAM BELOW. TYPE 25LT3 LINE TRANSFORMERS ARE USED TO SUPPLY UP TO 25 WATTS (PER TRANSFORMER) OF POWER TO LOW IMPEDANCE (16 OHM) SPEAKERS. SEEBURG CONSTANT VOLTAGE BACKGROUND MUSIC SPEAKERS MAY BE DIRECTLY CONNECTED TO THE AMPLIFIER C.V. OUTPUT.



Example 6

THE SEEBURG "1000" MAY BE USED TO DRIVE AN EXISTING FACTORY SOUND SYSTEM FROM OUTPUT TERMINALS PROVIDED ON THE REAR PANEL OF THE TYPE BMA3 AMPLIFIER. THE FOLLOWING ILLUSTRATION IS A TYPICAL EXAMPLE OF SUCH A SYSTEM IN WHICH TWO CHANNELS OF SOUND ARE SERVED -- POWER AMPLIFIERS (A) AND (B) ARE FOR PAGING ONLY AND POWER AMPLIFIERS (C), (D), (E) AND (F) COMBINE PAGING (SUPER IMPOSED) AND BACKGROUND MUSIC OR MUSIC ONLY.



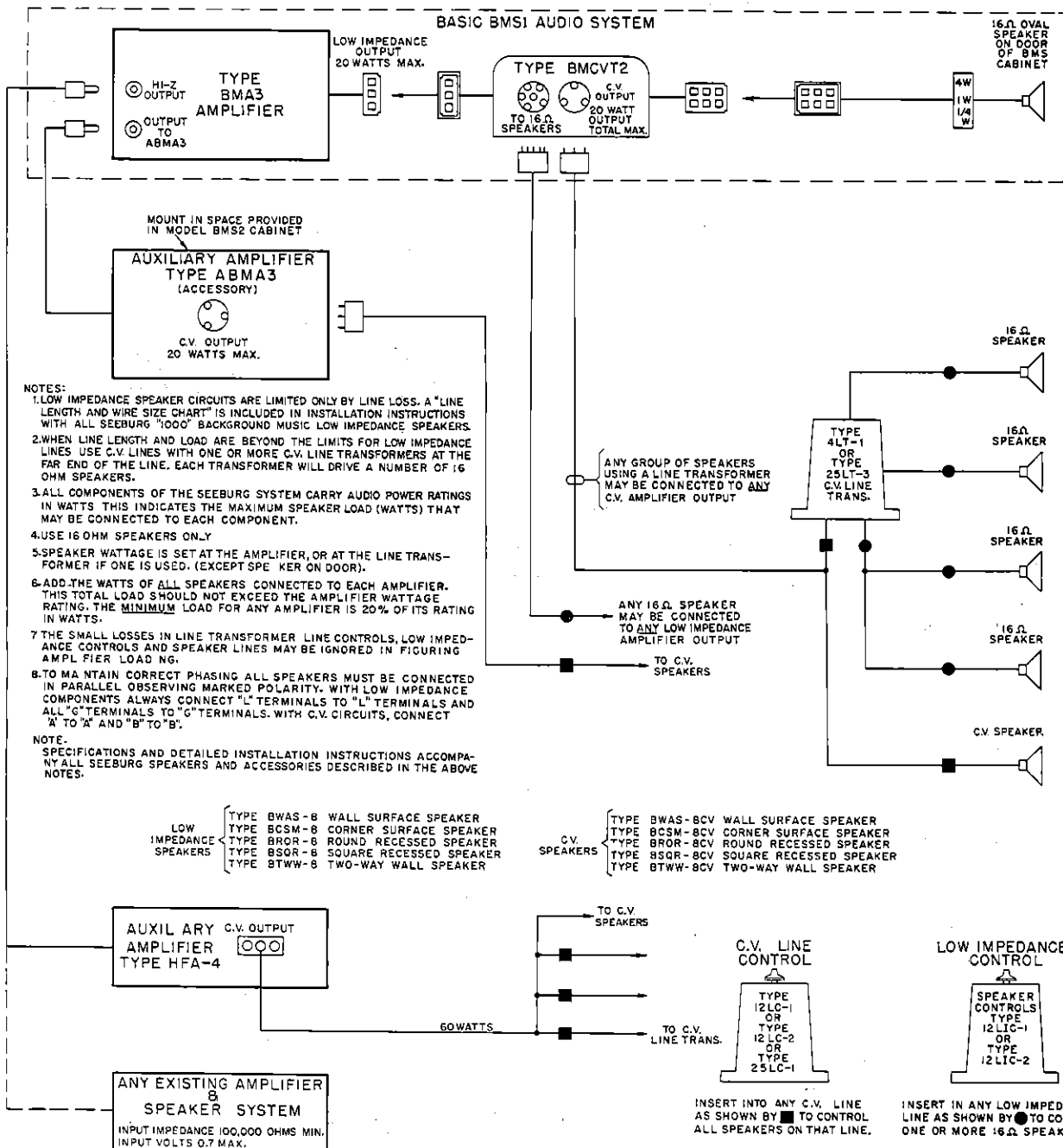
SEEBURG BACKGROUND MUSIC - SOUND DISTRIBUTION SYSTEM

FOR GOOD, UNIFORM COVERAGE OF THE SERVICE AREA, AN ADEQUATE NUMBER OF SPEAKERS MUST BE INSTALLED. THE FLOOR AREA PER SPEAKER WILL RANGE BETWEEN 300 SQUARE FEET FOR LOW CEILING ROOMS OR LONG, NARROW ROOMS TO 800 SQUARE FEET IN HIGH ROOMS WITH SPEAKERS MOUNTED WELL ABOVE HEAD HEIGHT. TOO FEW SPEAKERS WILL CAUSE:

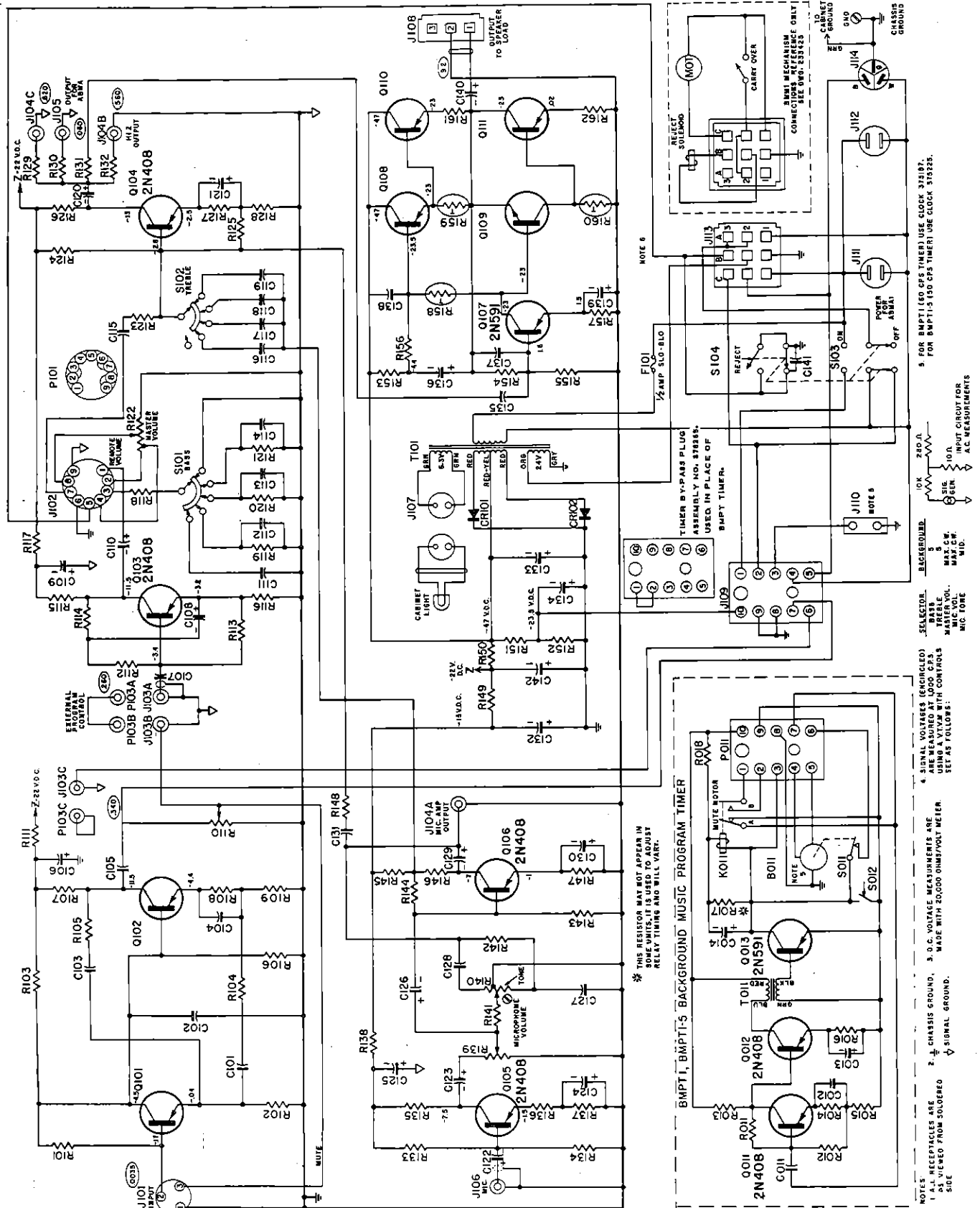
- A. NON-UNIFORM COVERAGE (TOO LOUD IN SOME PLACES AND NOT ENOUGH VOLUME IN OTHERS).
- B. EXCESSIVE REVERBERATION (ECHO) RESULTING IN HARSH AND UNPLEASANT REPRODUCTION.

SPEAKERS IN QUIET AREAS WILL PROVIDE ADEQUATE BACKGROUND MUSIC LEVEL IF SET FOR 1/2 WATT OR 1 WATT PER SPEAKER. NOISY AREAS WILL REQUIRE 1 WATT PER SPEAKER OR MORE DEPENDING ON THE NATURE AND LEVEL OF THE NOISE. RESTAURANTS, LOUNGES, OFFICES AND BANKS ARE EXAMPLES OF TYPICAL "QUIET AREAS". FACTORY AREAS INVOLVING MACHINERY, ASSEMBLY AREAS AND OFFICES WITH MANY BUSINESS MACHINES ARE USUALLY "NOISY AREAS".

IN VERY NOISY FACTORY AREAS AMPLIFIER POWER MAY BE CONSERVED BY THE USE OF PRESSURE-TYPE HORN SPEAKERS WHICH ARE MORE EFFICIENT THAN CONE-TYPE SPEAKERS. THEY ARE AVAILABLE WITH IMPEDANCE OF 16 OHMS AND MAY BE CONNECTED TO THE SEEBURG SYSTEM IN THE SAME WAY AS OTHER TYPES.



SEEBURG BACKGROUND MUSIC AMPLIFIER, Type BMA3-56



GENERAL MAINTENANCE OF THE SEEBURG "1000"

STYLUS REPLACEMENT

In the presence, of friction, wear of the stylus starts with the first play and continues until the stylus is replaced. The tone quality will be optimum and distortion remains at a low level for thousands of plays but gradually distortion increases until a disagreeable amount is noticed. The styluses should be replaced in pairs before objectionable wear has developed; approximately every 6 months of system operation and in pairs. Neglect may permanently damage records and subsequent replacement of styluses will not restore the original tone quality.

TO REPLACE ARMATURE ASSEMBLIES:

1. Push power switch to "OFF" position (to the right)
2. WAIT until pick-up is at REST position and the records stop rotating.
3. Hold the tone arm against the stylus brush post, *Figures 9 and 10*. Slide worn armature assemblies out of pickup by gripping the top portion of the "T", using the thumb and forefinger. Light pressure in the direction away from the stylus point will slide the armature out of the cartridge slot.
4. Install the new armature assembly by laying it flat in open end of cartridge slot and sliding forward in slot until it bottoms.
5. **CAUTION:** *The pickup and styluses must be handled carefully or the delicate armature suspension may be damaged.*

LUBRICATION

Every 6 months put 3 to 6 drops of Seeburg Special Purpose Oil No. 53014 in each of the two oil cups on motor and in each of the two oil holes in main drive bearing casting. A plastic tube of oil, Part No. 50998, is provided in the Seeburg "1000". To lubricate main drive bearing:

1. Restack records to upper spindle.
2. Manually lift turntable weight and hold to expose main drive bearing oil cups, *see label below mechanism.*

CAUTION: *Do not raise turntable weight to upper spindle. DO NOT USE AN EXCESS OF OIL.*

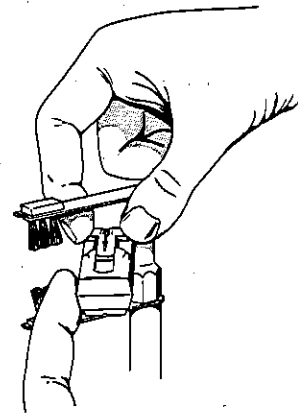


Figure 9. Replacing Upper Stylus.

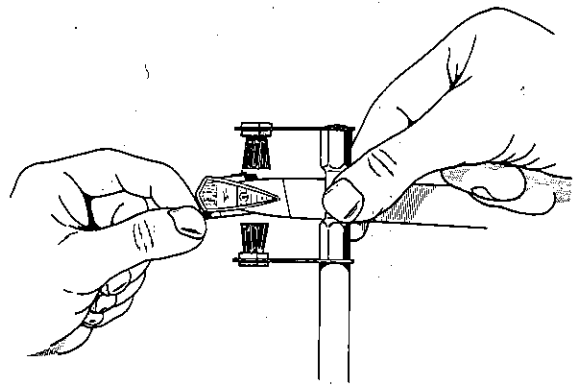


Figure 10. Replacing Lower Stylus.

CLEANING OF RUBBER IDLER WHEELS

It is recommended that, at the time of mechanism lubrication, all rubber drive wheels be carefully wiped off with a clean cloth dampened with denatured alcohol. Refer to the Background Music System Service Manual for details.

PREPARATION FOR SHIPMENT

If instrument is carried or transported short distances with records in place follow steps 1 and 2 under "TO CHANGE RECORDS".

TO SHIP

If instrument is to be shipped by way of a transportation company, it should be blocked and crated in the same manner in which it was received from the factory. Refer to step 1 under "PREPARATION FOR OPERATION."

- SEEBURG "1000" BACKGROUND MUSIC SYSTEM -

- NOTICE -

THE SEEBURG CORPORATION reserves the right to make any changes or improvements in its products without notice and without obligation, and without being required to make corresponding changes or improvements in products theretofore manufactured or sold.

- WARRANTY -

Except as hereinafter stated, THE SEEBURG CORPORATION warrants this product, manufactured by it, to be free from defects in material or workmanship under normal use. Our obligation under this warranty is limited to making good at our factory any part or parts thereof which shall, within one year after delivery of such product to the original purchaser, be returned to us through our authorized distributor from whom purchased, and which our examination shall disclose to our satisfaction to have been thus defective. Any part found by us to be defective will be exchanged by our distributor without charge to the owner; however, labor and transportation costs incidental to the replacement or exchange of such parts shall be borne by the owner.

In addition to the warranty set forth above, the Pickering Magnetic Pick-up (excepting the armature assemblies) is warranted for an additional four years.

This warranty does not extend (1) to any of our products which have been subject to misuse, neglect, accident, incorrect wiring not our own, improper installation, or to use in violation of instructions furnished by us, (2) to units which have been repaired or altered by anyone other than our distributor, (3) to cases where the manufacturer's date code or the serial number of the product has been removed, defaced or changed, (4) to tubes, lamps, lamp starters, glass, and fuses, or (5) to accessories not of our own manufacture used with our products.

This warranty applies only to our products which are used within the continental limits of the United States of America and is in lieu of all warranties expressed or implied, and no representative or person is authorized to assume for us any other liability in connection with the sale of our products.

THE SEEBURG CORPORATION

Chicago 22, Illinois, U. S. A.