SECTION 2 - INSTALLATION & PROGRAMMING

INTRODUCTION

This section contains information that will help you to install the phonograph on location. It should be read carefully before proceeding further with the unpacking and installation process.

The phonograph is shipped in a single carton, pre-assembled. All of the major components are in place. The instructions for removing the shipping apparatus should be carefully followed. The hardware that is removed should be saved and stored in the event it becomes necessary to move the phonograph in the future.

ACCESSORIES BAG

Inside the Handy Case is a small plastic bag called the Accessories Bag. It contains slip-on terminals used in connecting accessories to the phonograph; it also contains an assortment of spare parts and fuses. It is recommended that you store the Service Manual and the accessory bag inside the phonograph cabinet. These items will then be readily available when needed.

WARRANTY REGISTRATION CARD

A postage-paid Warranty Registration Card is included with the Phonograph. This card should be returned to the manufacturer to register the phonograph and insure that any in-warranty repairs that may be needed will be performed.

UNPACKING INSTRUCTIONS

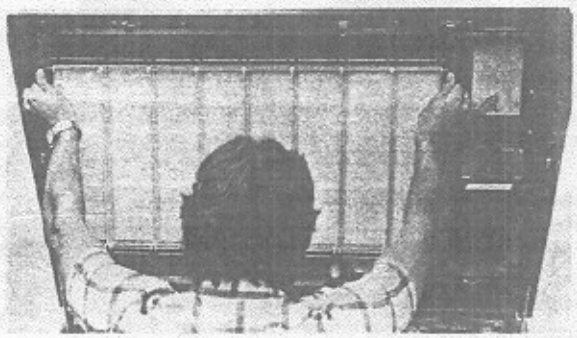
Carefully inspect the interior and exterior of the phonograph to insure that no damage occured during transit. If damage is detected, the carrier who delivered the phonograph should be contacted immediately to examine it. Regardless of the exterior condition of the shipping cartons, the carrier should be called and notified of damage. Do not destroy the packing material or boxes until the carrier's agent has examined them. Damage claims are the responsibility of the cosignee. Do not return shipping-damaged merchandise until after your claim has been established. Once your claim has been established, merchandise may be returned to your Rowe distributor for repair. The invoice amount for repair charges can then be collected from the carrier.

Step 1: Remove the Packing Case

a. Remove the shipping carton with care. Do not use shipping hooks or any sharp instrument that would mar or damage the finish of the phonograph cabinet.
b. Remove the plastic covering the phonograph.

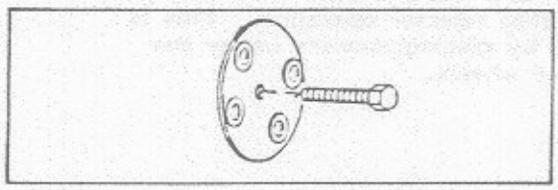
Step 2: Open the Phonograph Cabinet

a. Locate the red key-bag taped to the glass on the top door and unlock the front door.
b. Remove the shipping brackets, release the door latches and open the doors.

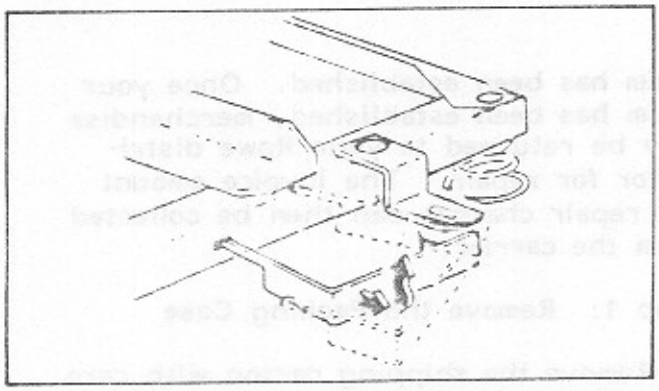


Step 3: Remove the Shipping Apparatus

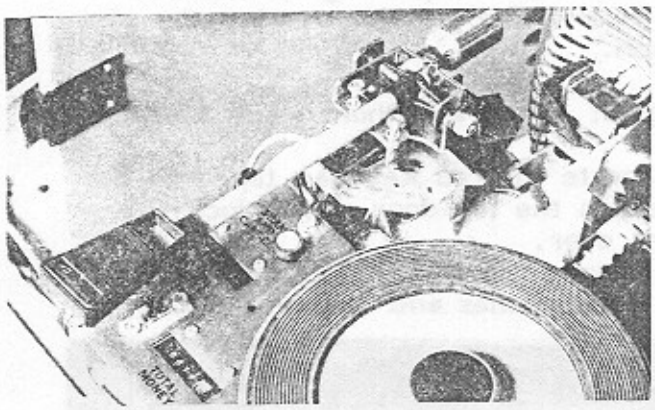
a. Remove shipping bolt from rear of cabinet as shown.



b. Rotate record changer tie-down brackets away from mechanism support frame as shown. Lift up and remove.



c. Remove rubber bands and shipping block from tone arm.



d. Remove turntable hold-down clip. Replace screw.
e. Remove stylus cover from cartridge and stylus.
f. Save shipping hardware for future use.
g. Remove the rubber band, wire hook and warning tag that hold the sprag lever.
h. Remove adhesive tape.
i. Remove the tape from the magazine belt and pulley.
j. Check that all plugs are firmly seated in their respective receptacles.

Step 4: Level the Phonograph

Level the phonograph cabinet left-to-right and front-to-back to ensure proper slug rejector operation. This is done by placing spacers under the caster wheels.

PROGRAMMING THE CREDIT AND SELECTION SYSTEM

The Rowe R-89 Phonograph uses the capacities of the Central Control Computer to make some valuable features available to you. By using the Keyboard, the Central Control Computer allows you to retrieve information stored in its memory, change the prices charged for selections and program which selections the Phonograph plays through the AutoPlay function.

The following sections will explain the various features that are built into the phonograph and help you to use the Keyboard to take advantage of the flexibility that those features provide.

PROGRAMMING FEATURES

The Phonograph uses the Keyboard, the LED displays, and the displays on the Memorec unit in setting-up and maintaining the pricing, credit and AutoPlay functions of the Central Control Computer. The Central Control Computer stores all its information in specific memory locations. To program a feature or inquire about information in the Computer you must access the proper memory location at which the computer has that information stored. A chart with the memory locations is included on page 14. (An alternate method for retrieving information from the Memorec is discussed under the Routine Service section of this manual).

ENTERING THE PROGRAMMING MODE

1. Place the Phonograph in the Service mode by setting the switch on the Control Console to the Service position. The Control Console is located on the upper left side of the cabinet. (See note 1 page 13).

2. Hold down the Popular button while typing the built in security code-000. (The security can be changed to a number of your choosing. Instructions are included below for doing this.) The Selections Remaining display will show the prompt character (Ξ).

3. When you are at the prompt you may choose the memory location you wish to examine or change. Enter the location number from the Keyboard. The Selections Remaining LED will display the location number and the Selections Being Made LED will show the contents of the location. The contents of the location may now be programmed by entering new data and then pressing the Popular Key.

NOTE: If you make an error when typing in data, press the Reset key then type in the correct data. If you wish to skip several locations or repeat a location, press and hold the "RESET" key, until the prompt character appears. Type in the desired location number and proceed as previously instructed.

The Displays will then index to the next location and show the contents of it.

When you reach location 99 the machine will automatically exit from the programming mode. To exit the programming mode at any time, first press and hold the "RESET" key until the prompt character appears. Then type "99".

Exit programming mode by typing memory location 99 (≡ 99).

SECURITY

To protect the phonograph program from tampering, a three digit security code may be entered into the computer. The security code preset by the factory is 000.

To change the security code:

1. Place the Phonograph in the Service mode.

2. Depress the Most Popular Selection button while typing the security code 000.

3. When the prompt appears in the display, type in memory location 58 and change the setting to the security code you wish to use.

Note: If you change the security code and forget the number, the number can be changed back to the default number (000). Depress the Most Popular Selection button and type in the number 0 twelve times. This will set the memory location back to 000. A new security code can be entered.

If, after using the phonograph and the security code for some time, the code you designated does not work, try the 000 code. If this is successful the security code system has been tampered with. Memory location 58 will contain 000, and the code you entered will have been erased. The security code will not need to be changed as it has not been discovered.

PRICING

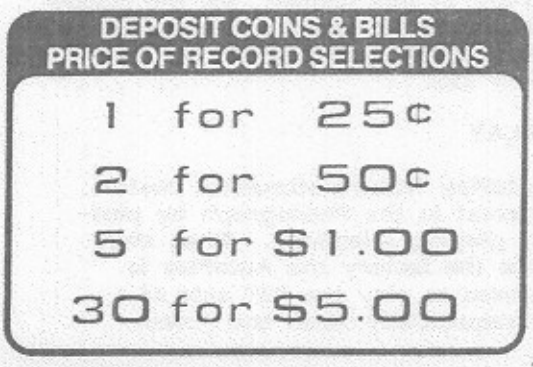
Built into the R-89 is the ability to adjust the prices charged for record selection. When shipped from the factory the prices are set as follows:

First Credit Level: 1 Selection for .25
Second Credit Level: 2 Selections for .50
Third Credit Level: Not Used
Fourth Credit Level: 5 Selections for $1.00
Fifth Credit Level: 30 Selections for $5.00

1	1	1	1	2	2	2	2	3	3	3
3	4	4	4	4	5	5	5	5	6	6
6	6	7	7	7	7	8	8	8	8	9
9	9	9	10	10	10	10	11	11	11	12
12	12	13	13	13	14	14	14	15	15	15
20	20	20	25	25	25	30	30	30	35	35
35	40	40	40	45	45	45	50	50	50	55
55	55	60	60	60						

UNIVERSAL PRICE SHEET

STANDARD PRICE CARD



Enclosed in the Handy Case is an Alternate Pricing Decal that may be substituted for the Standard Price Card. The Handy Case also contains the Universal Price Sheet with printed prices which can be peeled off and applied to the appropriate slot in the Alternate Price Card. Using the Keyboard of the R-89 the pricing structure of the Phonograph may then be adjusted to match the new prices.

TO SET THE PRICES:

1. Depress the Most Popular Selection button while typing the security code number.

2. At the prompt, press and release the Most Popular Selection button. The location 00 will display in the Selections Remaining LED and the contents of 00 will display in the Selections Being Made LED. 00 is the location of the First Record Credit Level. Five Record Credit Levels are available. Their location numbers are 00 to 04.

3. Enter the prices in dollars and cents at the desired locations. Press and release the Most Popular Selection button. The data currently in the display will be stored in that location and the next location with its contents will be displayed. The maximum amount that can be set is 9.95.

4. The contents of locations 05 to 09 determine the amount of credit to be given for each level of credit. Enter the number of selections to be given. 255 is the maximum number.

5. Extra credit may be given the customer for tendering a dollar bill. To give credit in this fashion, set the number of extra credits in memory location 26. The number of extra credits given can extend from 0 to 255.

AUTOPLAY

The AutoPlay feature stimulates customer interest in the Phonograph by periodically playing selections. When shipped from the factory the AutoPlay is programmed to play the "B" side of a record sequentially when the Phonograph has not had a selection made for twenty minutes. This feature may be programmed. The interval may be set for any length of time between 0 and 255 minutes; the selections may be programmed to play specific records in a specific sequence, a sequence of the "A" side of the record or a sequence of the "B" side of the record. (The sequence of the "B" side of the record is the default- the setting with which it arrives from the factory.)

To program the AutoPlay Function

1. Set the switch on Control Console to Service mode.

2. Depress the Most Popular Selection key and enter the three digit security code.

3. Set memory location 32 to 0 if the AutoPlay function is not desired, to 1 for playing record side "A" sequentially, to 2 for playing record side "B" sequentially, to 5 for playing a program of specific selections.

4. If programming specific selections into the AutoPlay function enter the selection numbers into memeory locations 59-73. Begin with location 59 and set as many of the 15 selections as desired. Locations that are not used should be set to 0.

Special Command Modes

With the Phonograph in Service mode the special commands shown below can be used.

1. The number of times a selection has been made since the last time data was cleared from the memory can be determined by typing in from the Keyboard 1XX or 2XX. XX can be any two digit number from 00 to 99 which, when added to the first digit in the box matches a selection number currently installed in the Phonograph. The selection number you type in will display on the Selection Being Made LED. The number of times that selection has been made will display on the Selection Playing LED.

2. The 5XX series of commands are entered from the Keyboard and cause totals kept in Memorec to display on the LED'S. The totals that can be displayed range from 0000 to 9999.

500 Number of times audio selection has been made using the Most Popular button.
501 Total number of record selections.
504 Total number of Autoplay selections.
505 Number of #1 coins received (5¢).
506 Number of #2 coins received (10¢).
507 Number of #3 coins received (25¢).
508 Number of #4 coins received (50¢).
509 Number of #1 bills received ($1.00).
510 Number of #2 bills received ($5.00).
511 Total collection in nickels.
512 Total Wallbox collection in nickels.

3. 7XX series commands are also entered from the Keyboard. These are primarily used to clear the Memorec totals.

700 Adds 25¢ credit. (Also set location 28 to 255 to retain credits).
701 Clears credits.
702 Clears Autoplay selections.
799 Clears regular selections.
750 Clears Memorec money totals. (See note 97.
999 Returns phono to normal operating mode when door is completely closed (See Note 1).

Note 97

If a 0 is entered at memory location 97 the Memorec Reset Switch can be used to clear the 5XX totals. (The totals can be reset manually by anyone who has access to the inside of the Phonograph cabinet.)

If a 1 is entered at memory location 97 the Memorec Reset Switch will not clear the 5XX totals- a 750 command must be entered from the Service mode. (The totals can be cleared from the Keyboard).

If a 2 is entered at memory location 97 the totals cannot be reset except from the programming mode. The totals are reset when memory location 97 is typed at the prompt. (The totals cannot be cleared except by someone who has access to the security code.)

Note 1

Factory setting for location 56 is 0. If location 56 is set to 255 you can completely close the front door and still program or audit the phono. Simply put control console switch to service position for 2 seconds and then close the door. When you are finished auditing or programming type 999 to return phono to normal operation mode. Set factory location 56 to 255 if you want to use this feature.

PROGRAMMING CODES

Factory Setting	Location Number	Description
25	00	First Record Credit Level - Enter in Dollars and Cents - Max = 9.95
50	01	Second Record Credit Level
75	02	Third Record Credit Level
100	03	Fourth Record Credit Level
500	04	Fifth Record Credit Level
1	05	First Record Credits - Enter number of plays for first record credit level - Max = 255
2	06	Second Record Credits
0	07	Third Record Credits
5	08	Fourth Record Credits
30	09	Fifth Record Credits
1	20	Coin Switch #1 Value - Enter value of coin or bill which
2	21	Coin Switch #2 Value activates the appropriate device in
5	22	Coin Switch #3 Value number of nickels
10	23	Coin Switch #4 Value (1 = 5¢, 2 = 10¢, 20 = $1, etc.)
20	24	Bill Value
05	25	Coin Switch Multiplier - Set to 5 for U.S. currency.
00	26	Bill Bonus - Number of extra credits for a bill (0 to 255)
00	27	Free Play - Set to 255 for free play, else to zero.
255	28	Retain Credits on power if = 255 - Cancel if = 0.
00	29	Set to 255 to prevent selection of records with 3rd digit = 8/9 otherwise set to zero.
255	30	255 = Records only, 000 = Video
02	32	Autoplay Style - 0 = None, 1 = Record Side A, 2 = Record Side B, 5 = Programmed
20	33	Autoplay in minutes Max = 255, Default = 20
00	35	Phono I.D. number last 2 digits (Of 4 digit I.D.#)
00	36	Phono I.D. number 1st 2 digits
00	56	Service sw. overide 255 = Stays in service 0 = No overide
255	57	Fifo Record Flag. 0 = Conventional 255 = Fifo
0	58	Program Security Code. Used to enter programming mode.
0	59	Programmed Autoplay Selection #1
0	60	Programmed Autoplay Selection #2
0	61	Programmed Autoplay Selection #3
0	62	Programmed Autoplay Selection #4
0	63	Programmed Autoplay Selection #5
0	64	Programmed Autoplay Selection #6
0	65	Programmed Autoplay Selection #7
0	66	Programmed Autoplay Selection #8
0	67	Programmed Autoplay Selection #9
0	68	Programmed Autoplay Selection #10
0	69	Programmed Autoplay Selection #11
0	70	Programmed Autoplay Selection #12
0	71	Programmed Autoplay Selection #13
0	72	Programmed Autoplay Selection #14
0	73	Programmed Autoplay Selection #15
0	97	Clear Memorec 5XX Totals - Note 97

Note 97 0 = Clear if memorec reset switch is pushed.
1 = Do not clear if reset switch is pushed but clear if code "750" is entered in service mode.
2 = Do not allow either 0 or 1 above but clear when = 97 occurs. in programming mode.

Remember - Always press "Popular" key to enter data when programming.

OPERATIONAL INFORMATION

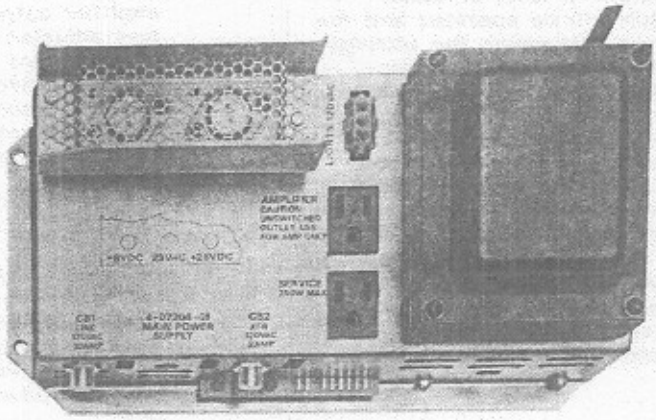
STATUS LAMPS

Red indicator lamps are connected to various strategic points in the phonograph circuit to indicate status of power and signal circuits.

Power Supply

+ 8 Volts DC
+28 Volts DC
28 Volts AC

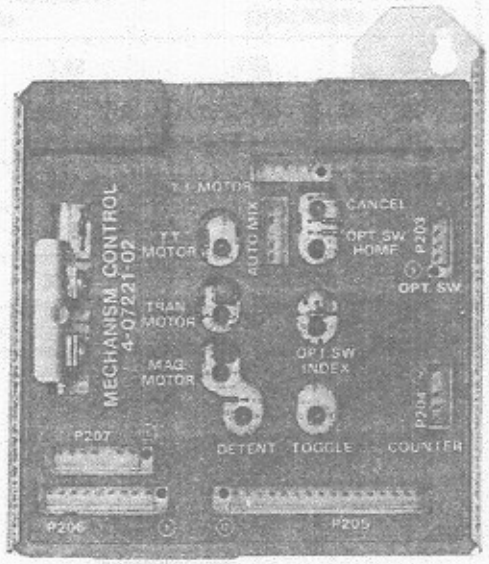
Shows presence of respective voltage and implies that there is no short on the lines.



MAIN POWER SUPPLY

Mechanism Control

T.T. Motor	Lights when Turntable motor command is present. Motor should be running
Tran Motor	Lights when Transfer command is present. Transfer motor should be running.
Mag. Motor	Lights when Magazine Motor command is present - Motor should be running.
Detent	Lights when Detent command is present. Detent coil should be actuated. Detent disengaged.
Toggle	Lights when Toggle command is present. Toggle coils should be actuated. Both toggle pins moved to left.
Opt. Sw. Index	Lights when the Index section of the optical switch sees the tooth space of the magazine drive gear. Flickers when the magazine rotates.
Opt. Sw. Home	Lights when the Home section of the optical switch sees the hole in the magazine drive gear. Flashes when the magazine record position 99 passes the Transfer position.
Cancel	Lights when the cancel signal line is shorted to ground.



MECH. CONTROL UNIT

SOUND SYSTEM

ACOUSTICAL COMPENSATION (BASS AND TREBLE CONTROLS)

The pre-amplifier contains treble range and bass boost controls to compensate for room acoustics in various locations. These controls are on the amplifier chassis. The sound level at which the phonograph will be operated and the room furnishings determine the settings of these controls. A room with carpeting and drapery is a soft or highly-absorbent location. A crowded room is also highly-absorbent. These locations require higher sound levels. A room with paneled walls and a bare or tiled floor is a hard non-absorbent location. Bass boost and treble range control settings are listed in Table below. Note that more bass boost is required at low volume levels. The amplifier incorporates circuitry that provides extra bass compensation at low volume levels.

PAGING

Paging circuitry is now a part of the 6-07925-01 Preamplifier. The microphone plugs directly into the Preamplifier.

STEREO BALANCE

The stereo balance control is provided to equalize left and right channel amplifier output. This control is factory-adjusted for best performance. If adjustment is required, play a monaural selection and adjust the control for equal sound from each top speaker. When balanced, the sound will seem to come from the center of the phonograph

AMPLIFIER OPERATION WITH HIGH LINE VOLTAGE.

In locations where input line voltage to the phonograph exceeds 125 volts, use the black/red primary lead of the amplifier power transformer instead of the black/yellow lead. This results in a 10% reduction is secondary voltage.

TABLE 2 USE OF AMPLIFIER CONTROLS FOR ACOUSTICAL COMPENSATION

	ROOM ACOUSTICS					
SOUND LEVEL IN ROOM	DEAD OR SOFT HIGHLY ABSORBENT		AVERAGE - MODERATELY ABSORBENT		LIVE OR HARD NON-ABSORBENT	
	SET BASS BOOST CONTROL	SET TREBLE RANGE CONTROL	SET BASS BOOST CONTROL	SET TREBLE RANGE CONTROL	SET BASS BOOST CONTROL	SET TREBLE RANGE CONTROL
LOUD	LOW	MOD/MAX	LOW	MOD/MAX	MOD	LIM
MODERATE	LOW	MAX	MOD	MOD/MAX	MAX	LIM
SOFT	MOD	MAX	MAX	MAX	MAX	MOD

Note: Reduce Treble Range setting as required by record noise (scratch) conditions.

AMPLIFIER OPERATION WITH FM, BACKGROUND MUSIC, QUAD

This is an optional, add on accessory. See Accessory equipment section for explanation of the Amplifier Accessory Kit.

EXTENSION SPEAKER OPERATION

Care must be exercised when adding extension speakers to the phonograph to avoid poor sound. Three requirements must be met:

1. The speakers must be wired so that the power consumed by the phonograph speakers and the extension speakers, including Wallettes, does not exceed the power rating of the amplifier.

2. The extension speakers should produce the desired sound level relative to the sound level of the phonograph speaker system. This is done by adjusting the amount of power consumed by each speaker until the desired balance is reached.

3. All speakers must be connected with the correct polarity. This means that all speaker cones in the system will move in the same direction at the same time.

Several charts have been included to assist in the connection of extension speakers. Figure 7 is a chart of the entire sound system. NOTE that the left channel output of the amplifier is reversed in phase (or instantaneous polarity) with respect to the right channel. This phase reversal makes monaural extension of sound possible in a stereo system. This phase reversal is accomplished in the preamplifier. Because of this phase reversal, speaker connections to the left channel must be reversed when compared with connections to the right channel except for the 70 volt speaker connections which are in phase. (The left channel is reversed within the output transformer assembly).

Power to the phono speakers must be reduced as extension speakers are added so that the total speaker power does not exceed the power rating of the amplifier. Table 3 gives connections for different phono speaker power levels and corresponding power available for extension speakers. The phono speakers can be considered as two 8 ohm speakers-one for each channel.

Table 5 and 6 are extension speaker connection charts for different power levels. Power levels are indicated for low impedance speakers as well as for 70 volt speakers. For 70 volt speakers, the power level is set at each speaker. Low impedance speakers, i.e. 8 ohm speakers, can be used where the connecting cable is under 100 feet. The loss in 100 feet of zipcord feeding one 8 ohm speaker is 15%. For two 8 ohm speakers it would be 30%. 4 ohm speakers should not be parallel on the same speaker line because of high line losses. Instead, a separate line from each 4 ohm speaker to the phonograph should be used. To avoid prohibitive cable losses on long speaker lines, 70 volt speakers must be used. These contain built in transformers that permit setting of the desired power level.

Do not connect a low impedance speaker for more power than it can handle. For example, a 5 watt, 8 ohm speaker should not be connected to the 12.5 watt tap.

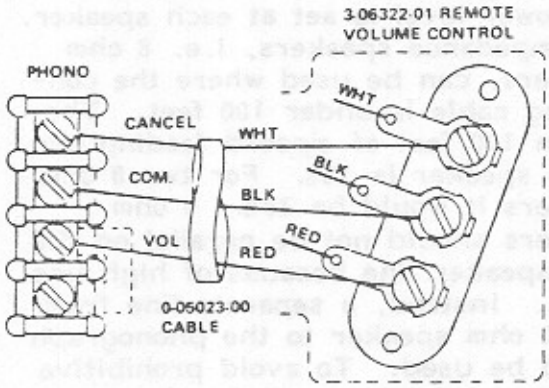
In any speaker installation, the total power of the speaker load MUST NOT EXCEED the power rating of the amplifier. In the system in Figure 4, the power of the speakers as connected is: phono, 28 watts; 8 ohm speakers, 24 watts; 70 volt speakers, 72 watts; wallette, 2.8 watts for a total of 126.8 watts. This is slightly over the 125 watt rating of the amplifier which is permissible as long as the speaker rating does not exceed the amplifier rating by more than 5%. In any installation, it is advantageous to adjust the speaker load to approximate the rating of the amplifier so that optimum bass boost will be attained at low volume.

NOTE

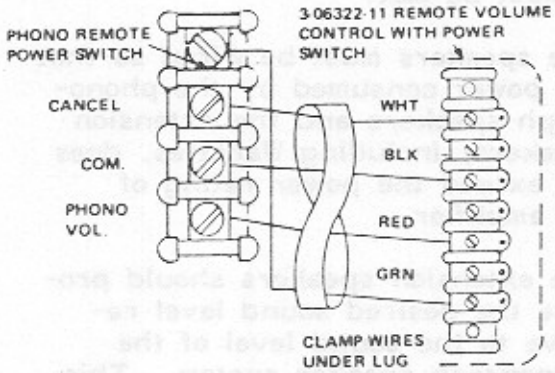
Wallette speakers are treated as 45 ohm extension speakers in Table 5. For convenience, the left channel speaker in the wallbox has been reversed in polarity.

REMOTE VOLUME AND CANCEL CONTROL

Connect the 3-06322-01 remote volume and cancel control to the Phonograph as shown below.



REMOTE VOLUME AND CANCEL CONTROL WITH POWER SWITCH



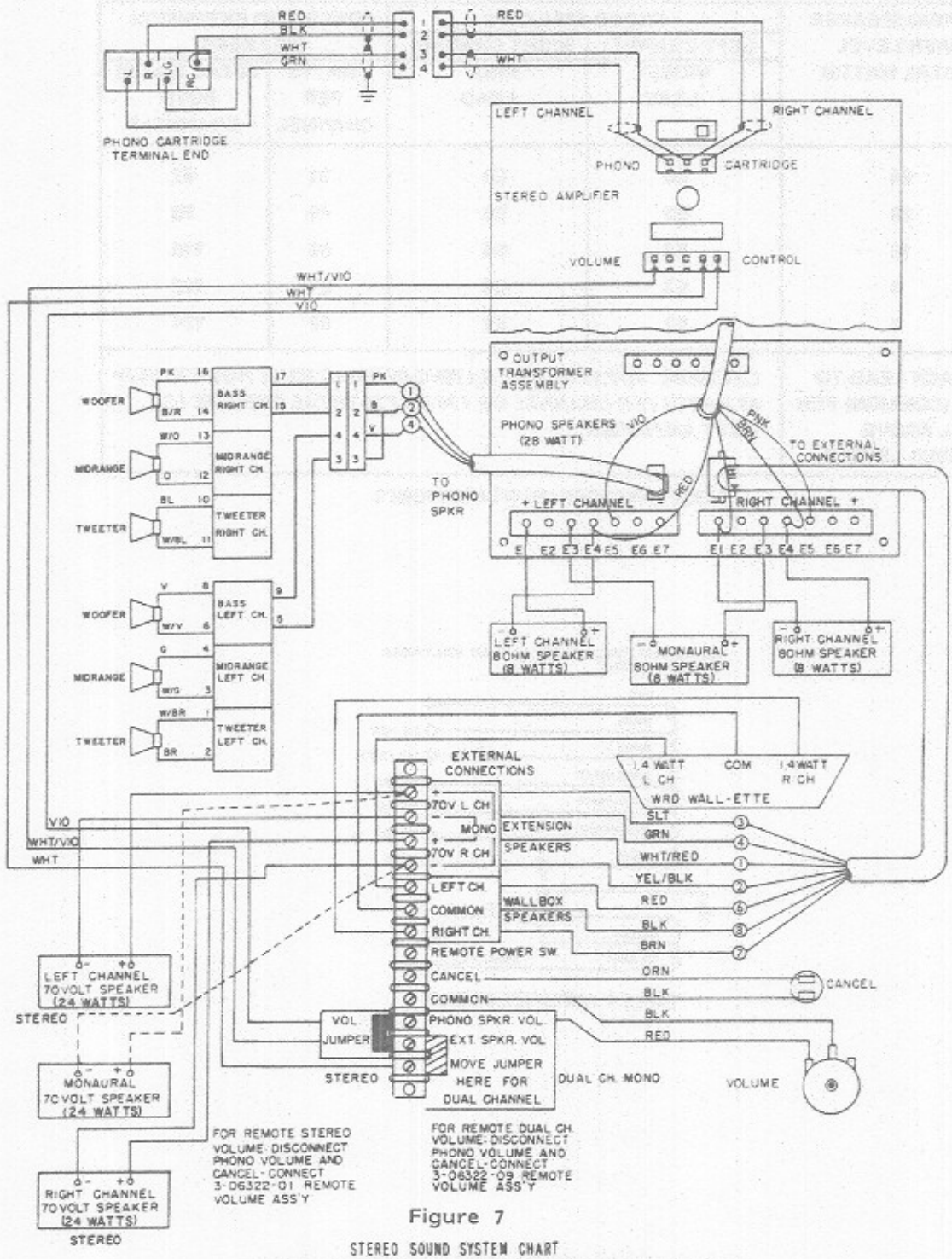


Figure 7

STEREO SOUND SYSTEM CHART
FOR STEREO PHONOGRAPH, EXTENSION SPEAKERS & WALLETTE SPEAKERS

PHONOGRAPH SPEAKER POWER CONNECTION CHART

PHONO SPEAKER POWER LEVEL (TOTAL WATTS)	PHONO SPEAKERS		POWER FOR EXTENSION SPEAKERS	
	LEFT CHANNEL	RIGHT CHANNEL		
	VIOLET LEAD	PINK LEAD	WATTS PER CHANNEL	TOTAL WATTS BOTH CHANNELS
64	E6	E6	31	62
28	E5	E5	49	98
16	E4	E4	55	110
4	E3	E3	61	122
1	E2	E2	62	124
BLACK LEAD TO E1 (COMMON) FOR ALL ABOVE POWER LEVELS	*CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 65 WATTS PER CHANNEL OR 130 WATTS TOTAL FOR THE 125 WATT AMPLIFIER.*			

TABLE 3 PHONOGRAPH SPEAKER POWER

AMPLIFIER FULL POWER OUTPUT VOLTAGES (PER CHANNEL)

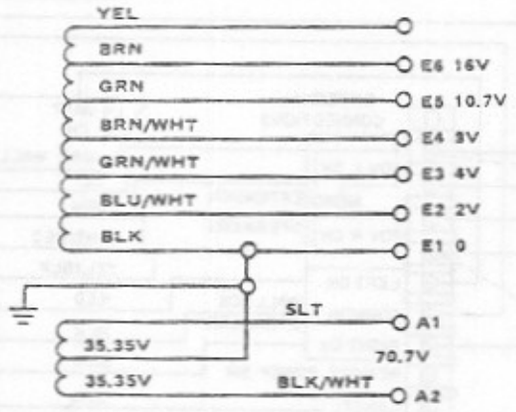


TABLE 4 AMPLIFIER OUTPUT

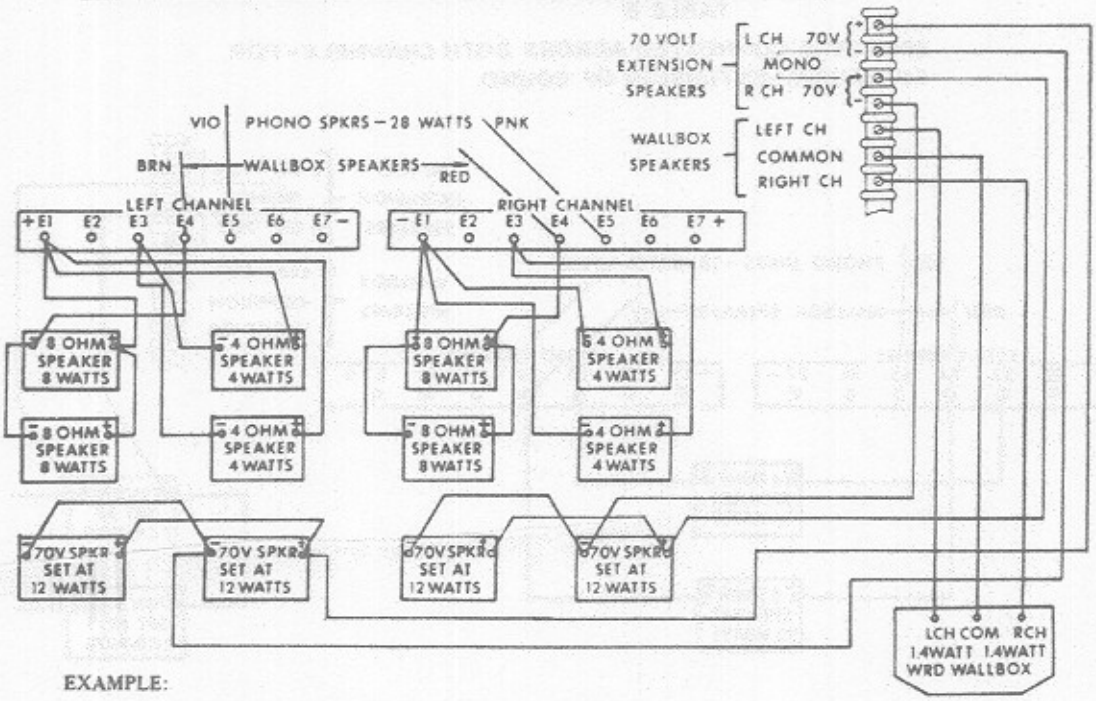
STEREO

TABLE 5

EXTENSION SPEAKER CONNECTIONS

OUTPUT TERMINALS	WATTS PER SPEAKER			
	8 OHM SPEAKERS	4 OHM SPEAKERS	45 OHM WALLBOX	70.7V CONSTANT VOLTAGE SPEAKERS
E1-E2	0.5	1		
E4-E5	0.9	1.75		
E1-E3	2	4	0.35	
E2-E4	4.5	9		
E1-E4	8	16	1.4(NORM)	
E1-E5	14	28	5	
E2-E6	24			
A1-A2				DETERMINED BY POWER SETTING AT EXTENSION SPKR
CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 65 WATTS PER CHANNEL OR 130 WATTS TOTAL FOR 125W AMPLIFIER.				

SPEAKERS CONNECTED TO EITHER CHANNEL USED IN PAIRS FOR STEREO EXTENSION OF SOUND.



EXAMPLE:

NOTE:

1. Left channel has reversed polarity for low impedance speakers. See page 17.
2. Each 4 OHM speaker is connected directly to terminal strip. See page 17.
3. Add Wattages:

Left Channel:	8 + 8 + 4 + 4 + 12 + 12 + 1.4	=	49.4 Watts
Right Channel:	8 + 8 + 4 + 4 + 12 + 12 + 1.4	=	49.4 Watts
Phonograph (E5-E5)		=	28 Watts
	TOTAL	=	126.8 Watts

4. For speaker impedances not listed in Table 5, use Table 4 and use the impedance method (Watts = E^2/R).

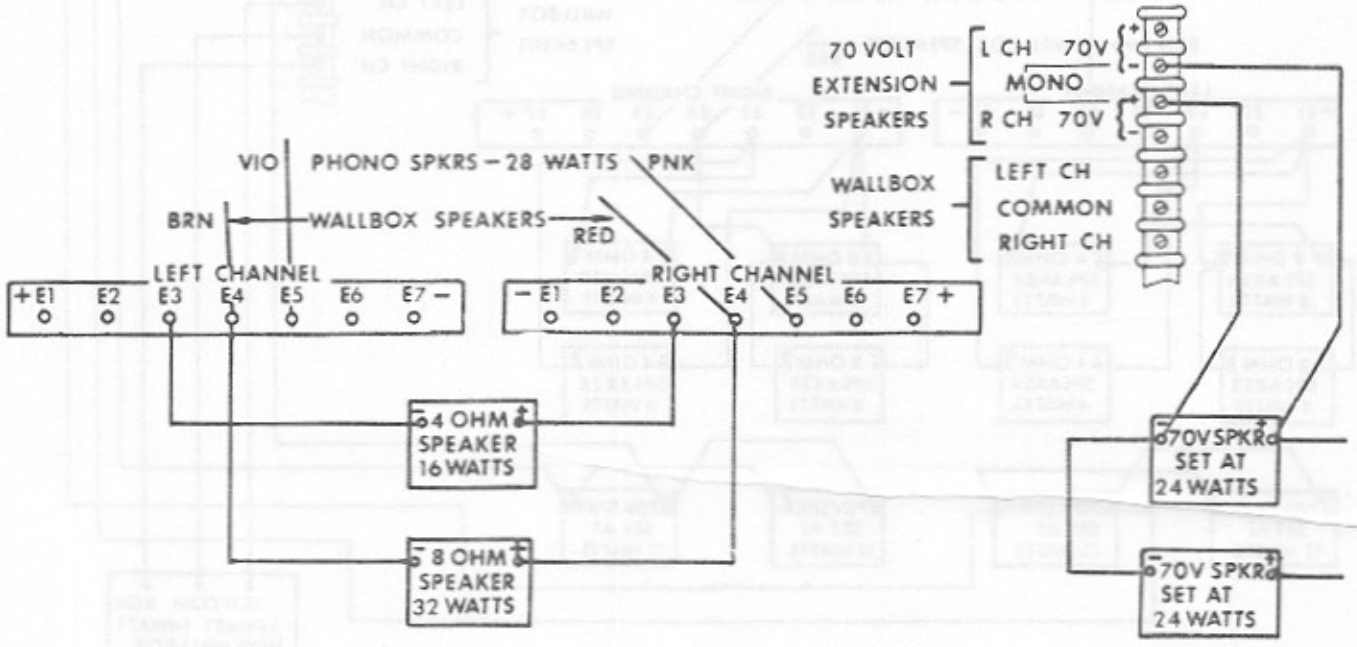
MONAURAL

EXTENSION SPEAKER CONNECTIONS

OUTPUT TERMINALS	WATTS PER SPEAKER			WATTS PER CHANNEL		
	8 OHM SPEAKERS	4 OHM SPEAKERS	70.7 VOLT CONSTANT VOLTAGE SPEAKERS	8 OHM SPEAKERS	4 OHM SPEAKERS	70.7 VOLT CONSTANT VOLTAGE SPEAKERS
E2-E2	2	4		1	2	
E3-E3	8	16		4	8	
E4-E4	32			16		
MONO 70 VOLTS			POWER SETTING AT EXTENSION SPEAKER			1/2 OF POWER SETTING AT EXTENSION SPEAKER

TABLE 6

SPEAKERS CONNECTED ACROSS BOTH CHANNELS - FOR MONAURAL EXTENSION OF SOUND.



EXAMPLE:

NOTES:

1. Add Wattages:
   Extension Speakers: 16 + 32 + 24 + 24 = 96 Watts
   Phonograph (E5 - E5) 28 Watts
   TOTAL = 124 Watts

2. For speaker impedances not listed in Table 6, use Table 4 and use the impedance method (Watts = E^2/R).