INTRODUCTION

This section contains information for unpacking the R-90 Phonograph and installing it on location. The R-90 is shipped with all major components in place. Save all tie-down hardware in case the phonograph must be moved to another location.

HANDY CASE

The Handy Case is a blue plastic envelope located on the left hand side of the phonograph. The Handy Case contains a variety of items, including the R-90 Field Service Manual and Parts Catalog, spare parts, and fuses. Keep the Handy Case inside the phonograph so that the service manual and parts will 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 Rowe to register the phonograph for warranty.

UNPACKING INSTRUCTIONS

Exterior

1. Carefully inspect the interior and exterior of the phonograph to ensure that no damage occurred 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 your responsibility. 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.

2. Remove the shipping carton with care: Do not use shipping hooks or sharp tools that could damage the R-90 Phonograph cabinet.

3. Remove the plastic bag that covers the phonograph.

Doors

1. Locate the red bag on the top door. Remove the door key from the bag and unlock the top door (Turn the key to the right.).

2. Open the front door by pressing down on both front door latches (See Figure 1-1.).

Shipping Bolts And Clips

   Note: Save all shipping hardware that you remove in the following six steps.

1. Remove the Record Changer Mechanism shipping bolt from the back of the R-90 cabinet (See Figure 2-1.).
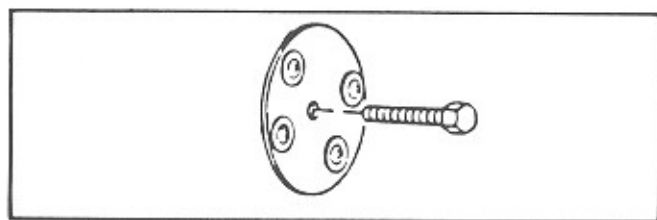

Figure 2-1. Shipping Bolt Removal

2. Rotate the record changer tie-down brackets away from the mechanism support frame as shown in Figure 2-2. Lift up the brackets and remove them.
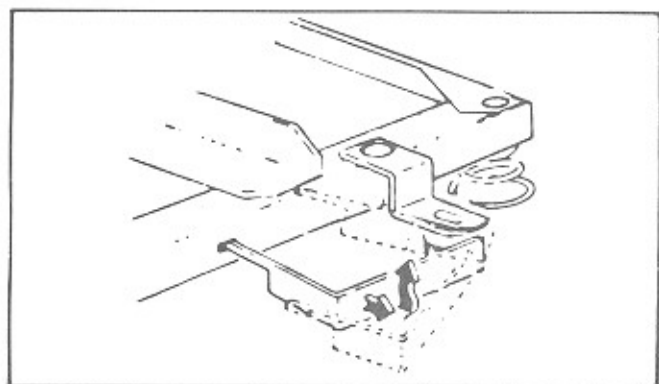

Figure 2-2.   Record Changer Tie-Down Brackets

3. Remove the turntable hold-down clip and screw Replace the screw (See Figure 2-3.).
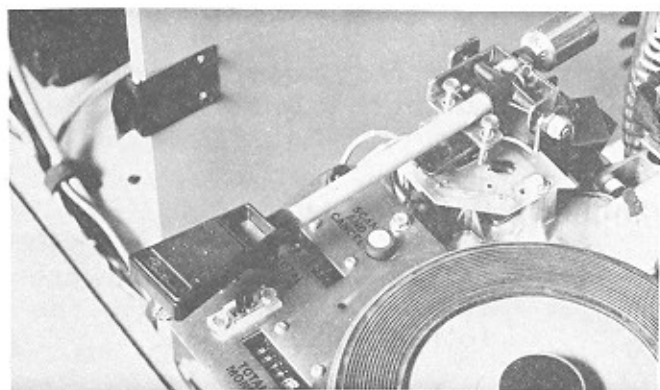

Figure 2-3.   Turntable Hold-Down Clip

4. Remove the stylus cover from the cartridge and stylus.

5. Remove the rubber band, wire hook, and warning tag that hold the sprag lever out of the sprag wheel.

6. Remove all tape from the magazine belt and magazine pulley.

Visual Inspection

Check to be sure that all electrical plugs are completely seated into their receptacles.

Phonograph Leveling

To ensure proper coin acceptor operation, level the R-90 Cabinet from left-to-right and front-to-back by inserting spacers under the caster wheels.

Records and Title Strips

Follow the instructions for **Changing Records** and **Changing Title Strips** in Section 3.

You have now completed the R-90 installation.

PROGRAMMING THE CREDIT AND SELECTION SYSTEM

The Programming Mode

The Programming Mode is used to examine and change the contents of specific locations in the computer's memory. Two methods for moving through the Programming Mode:

1. Move through the memory locations sequentially (Used to examine all the locations and change them as needed).

2. Move to specific memory locations (Used for quick access to only those locations that need examination or changing).   You can exit the Programming Mode at any point in the procedure.

Note: The POPULAR key must be pressed to record change in a location. Pressing the POPULAR key causes the Computer to automatically index to the next location and display its contents. Accessing Location 99 will exit the Programming Mode.

To enter the Programming Mode:

1. Place the phonograph in the service mode by setting the SERVICE switch to the SERVICE position (See Figure 1-1.).

2. Hold down the POPULAR key while typing the built-in security code 000. (The security code should be changed to a number of your choosing. Instructions follow:

A. Press and hold the RESET key until the prompt (≡) appears.

B. Enter 58.

C. Enter the new three digit security code (Be sure to write your new security code in your notebook or other safe place.).

D. Press the POPULAR key.

Note: If you do not press the POPULAR key, the new security code will not go into effect.

To Correct Errors:

1. To correct errors made while entering data into memory locations, press the RESET key and put in the correct data.

2. If an error has been made and the display has moved to the next memory location, simply go back to the location where the error was made and change the contents. Do this by pressing the RESET key and holding it until only the prompt appears, then enter the number of the location that needs to be corrected.

To Exit Programming Mode:

Press the RESET key and hold it until only the prompt appears. Enter 99 (Enter 99999 to return to Operating Mode.).

Pricing

The prices charged for record and video selections may be changed as needed. When shipped from the factory the prices are set as follows:

Records

```
 I Selection  for $ .25
 2 Selections for $ .50
 Credit level  not  used
 5 Selections for $1.00
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

DEPOSIT COINS & BILLS
PRICE OF RECORD SELECTIONS

1   for   25¢

2   for   50¢

5   for $1.00

30 for $5.00

STANDARD PRICE CARD

Figure 2-4.   Price Sheets

To set Alternate Record prices:

Enclosed in the Handy Case is an Alternate Price Decal (See Figure 2-4.) that may be substituted for the Standard Price Decal. The Handy Case also contains a Price Sheet with printed prices (See Figure 2-4.), which can be peeled off and placed at the appropriate spot on the Alternate Price Decal.

Using the Keyboard of the R-90, the pricing structure of the phonograph may be adjusted to match the prices on the Alternate Price Card. The maximum amount that can be charged for a selection is $9.95. The maximum number of selections that can be entered is 255. Enter 0 in any unused locations. The POPULAR key must be pressed to record the data entered in a location.

Follow the steps given below to complete an Alternate Price Card and enter the sample prices.

1. Determine the prices that are to be charged for record selections and place the price decals from the Price Sheet into the slots on the Alternate Price Card. The following is an example of a completed Alternate Price Card:

Record Prices

        1 for $ .25
        4 for $1.00
       12 for $2.00
       35 for $5.00

2. Enter the Programming Mode by setting the SERVICE switch to the SERVICE position.

3. Press the POPULAR key while typing the three digit security code number.

4. At the prompt, press and release the POPULAR key. Location 00 will display in the SELECTIONS REMAINING LED and the contents of 00 will display in the SELECTIONS BEING MADE LED.

Use the prices on the Price Card for the following steps:

5. Enter the lowest record selection price into Location 00 (In our example, enter 25.).

6. Enter the next highest price into Location 01 (In our example, enter 100.).

7. Enter the next highest amount to be charged into Location 02 (In our example, enter 200.).

8. Enter the next highest amount to be charged into Location 03 (In our example, enter 500.).

9. Enter the highest amount to be charged into Location 04 (In our example, enter 0 because we only have 4 prices.).

10. Enter the number of record selections to be given for the lowest amount on the record portion of the Price Card into Location 05 (In our example, enter 1.).

11. Enter the number of record selections to be given for the next highest amount on the Price card into Location 06 (In our example, enter 4.).

12. Enter the number of record selections to be given for the next highest amount into Location 07 (In our example, enter 12.).

13. Enter the number of record selections to be given for the next highest amount into Location 08 (In our example, enter 35.).

14. Enter the number of the record selections for the last and highest amount on the record portion of the Price Card into Location 09 (In our example, enter 0.).

15. Extra selections can be given to the customer for using dollar bills instead of coins. To use this feature enter the number of extra selections in Location 26. The number of extra credits can extend from 0 to 255.

Autoplay

The Autoplay feature stimulates customer interest in the phonograph by periodically playing selections. The Autoplay function is factory preset to play the "B" side of each record in reverse sequence beginning with 200, after the phonograph has been idle for twenty minutes. This feature may be programmed for any length of time between 0 and 255 minutes. Selections may be played in a specific sequence. A continuous sequence of the "A" side (selections 100-199) or a continuous sequence of the "B" side (selections 200-299) can be programmed.
To select specific record selections, enter 05 in Location 32 and enter the selection numbers in the order you wish them played.

Continuous Credit

If continuous free play of the phonograph is desired, the Central Control Computer may be programmed to play selections entered from the keyboard without putting money into the phonograph.

To use this feature, enter the Programming Mode and enter 255 in Location 27. When normal play is desired, set Location 27 to 0.

Reading And Setting A Program With Phonograph Doors Closed.

If Location 56 is set to 255, the top door can be completely closed while using the Keyboard in the Programming Mode or while auditing the Memorec function of the phonograph from the Service Mode. The factory setting for Location 56 is 0.

To use this feature:

1. Put the Control Console Service switch in the SERVICE position for at least 2 seconds and close the door. When you close the door, the phonograph returns to Service Mode. Memorec totals may now be audited or the Programming Mode entered (Hold down the POPULAR key and enter the security code.).

2. After auditing the Memorec totals, exit from the SERVICE Mode by entering 999.

    . When finished making changes in Programming Mode, exit Programming Mode and return to Service Mode by holding down the RESET key until only the prompt appears; enter 99 (You are now in Service Mode.). Exit from the SERVICE Mode by entering 999.

Operation	Instructions
Enter Programming Mode	Hold POPULAR while typing security code (factory setting is 000) to display prompt (≡).
To Program with top door closed	1. Enter Programming Mode as above. 2. At prompt type 56. 3. Type 255. 4. Press POPULAR. 5. Close top door. 6. Enter Programming Mode to view or change location contents.
View location contents	1. **Sequentially** – Press POPULAR at each location. At Location 99, computer exits Programming Mode. 2. **Skipping locations** – Press RESET for 2 seconds. At prompt, type location number.
Change location contents	1. **Current location** – Press RESET and type new data. Press POPULAR. 2. **Any other location** – Press RESET for 2 seconds. At prompt, type location number, type new data, press POPULAR.
Set alternate record prices	**Locations 0-4** - Type prices from lowest to highest, pressing POPULAR after each. Type corresponding number of selections in Locations 5-9, pressing POPULAR after each.
Give bill bonus	**Location 26** - Type number of extra record selections to be given for a dollar bill. Press POPULAR.
Set continuous free play feature	**Location 27** - Type 255 (0 to cancel). Press POPULAR.
Retain Selections Remaining during power failure	**Location 28** - Type 255 (0 to cancel). Press POPULAR.

Set AutoPlay style	**Location 32** –
	Press 0 for no Autoplay
	        1 for sequential record side "A"
	        2 for sequential record side "B"
	        5 for programmed selections;
	        6 **(R-90 Only)** for sequential both "A" and "B" sides
	        7 **(R-90 Only)** for all records sequentially side "A", then all records sequentially side "B"
	
	Press POPULAR after making choice.

Set time between Auto-play selections	**Location 33** - Type number of minutes. Press POPULAR.
Program with top door closed	**Location 56** - Type 255 (0 to cancel). Press POPULAR.
Set to play records sequentially	**Location 57** - Type 0 (255 for FIFO). Press POPULAR.
Program Autoplay selections	**Locations 59-73** - Type first selection number in Location 59. Press POPULAR. Repeat for remaining selections (Location 32 must be set to 05).
Change security code	**Location 58** - Type three digit number. Press POPULAR.
Clear 5xx totals	**Location 97** - Viewing Location 97 automatically clears the 5xx totals. Press RESET for 2 seconds. At prompt, type 97.
Select option for clearing 5xx totals	**Location 97** - Press 0, 1, or 2. Press 0 to clear all totals with Memorec RESET Switch. Press 1 to clear popularity totals with Memorec switch. Press 2 to clear 5xx totals from Programming Mode and popularity totals with Memorec RESET Switch. Press POPULAR after making choice.
Exit Prog. Mode	Hold RESET for 2 seconds, then type 99999.

Note: See Section 3 for details on resetting Memorec.

Programming Codes

Location Number	Factory Setting	Description
00	25	Lowest record price on Price Card
01	50	Next highest record price on Price Card
02	75	Next highest record price on Price Card
03	100	Next highest record price on Price Card
04	500	Highest record price on Price Card
05	I	Number of record plays for lowest record price on Price Card
06	2	Number of record plays for next highest record price on Price Card
07	0	Number of record plays for next highest record price on Price Card
08	5	Number of record plays for next highest record price on Price Card
09	30	Number of record plays for highest record price on Price Card
20	I	Coin Switch #1 Value ⌐Standard
21	2	Coin Switch #2 Value ⟨ 3-Coin
22	5	Coin Switch #3 Value ⌐Acceptor
23	10	Coin Switch #4 Value
24	0	Bill Value
25	05	Coin Switch Multiplier
26	00	Bill Bonus
27	00	Free Play
28	00	Retain Selections Remaining during power failure
29	00	Prevents selection of records that end in 8 or 9.
30	255	255=Standard Phono, 00=Video
32	02	Autoplay style (0 - 7)
33	20	Time between Autoplay selections in minutes (255=max).
35	00	Phono ID = 2nd 2 digits
36	00	Phono ID = 1st 2 digits
44	00	Video per record ratio (**Video models only)**
56	0	Audit or Program with top door closed
57	255	255=Play records in order selected 0=Sequential order of record play
58	0	Security Code Number
59	0	Programmed Autoplay Selection #1
60	0	Programmed Autoplay Selection #2
61	0	Programmed Autoplay Selection #3
62	0	Programmed Autoplay Selection #4
63	0	Programmed Autoplay Selection #5
64	0	Programmed Autoplay Selection #6
65	0	Programmed Autoplay Selection #7
66	0	Programmed Autoplay Selection #8

Location Number	Factory Setting	Description
67	0	Programmed Autoplay Selection #9
68	0	Programmed Autoplay Selection #10
69	0	Programmed Autoplay Selection #11
70	0	Programmed Autoplay Selection #12
71	0	Programmed Autoplay Selection #13
72	0	Programmed Autoplay Selection #14
73	0	Programmed Autoplay Selection #15
97	0	Clears 5XX Totals - 0 to clear totals if Memorec RESET Switch is pushed. 1 to clear totals if code 750 entered from Service Mode. 2 to clear totals only when 97 occurs in Programming Mode.
99	0	Exit code

Note: Always press POPULAR key to record data entered while programming.

Explanation of Programming Codes

Location	Explanation
00-04	The amount of money to be charged for record selections. Five levels of credit are available for coins or bills. Amounts should be entered in pennies.
05-09	The corresponding number of record selections that will be given for each amount of money entered in Locations 00 to 04.
10-14	The amount of money to be charged for video selections.
15-19	The corresponding number of video selections that will be given for each amount of money entered in Locations 10 to 14.

20-23

	Location Number:	20	21	22	23
3-Coin acceptor		1	2	5	
4-Coin acceptor		5	2	10	1

24   The value of a dollar bill expressed in nickels (A U.S. dollar is 20 nickels.)

Explanation of Programming Codes

Location	Explanation
25	The computer counts money according to a base value. For U.S. currency the value is a nickel. To the computer, the value of a coin or bill is the coin switch or bill value setting times the base value.
26	Extra credit can be given a customer for using a dollar bill instead of coins. The amount of extra credit to be given for each dollar should be entered. The maximum number of credits is 255.
27	Continuous credit can be given by setting this Location to 255.
28	If the power goes off and this Location is set to 255, the computer will retain Selections Remaining in the phonograph. The computer will not retain them if set to 00.
29	When the video portion is installed in the phonograph, 80 records are used instead of 100. The record selection numbers that are deleted have the number 8 or 9 as their third digit. A video phonograph should have 255 in this location to prevent these selections from being chosen.
30	If set to 000, the computer will accept the input from the video portions of the phonograph.
32	The Autoplay feature can be programmed to play in different ways by setting this location: 0 - No Autoplay 1 - Sequential record, Side A 2 - Sequential record, Side B 3 - Sequential Video 4 - Sequential Video 5 - Program specific selections 6 - Sequential record, side "A" and "B" 7 - Sequential record, all side "A" followed by all side "B"
33	Enter the number of idle minutes that the phonograph should wait before playing an Autoplay selection.
35	The phonograph identification number can be kept in the computer's memory. Enter the second two digits here.
36	Enter the first two digits of the identification number here.

Location	Explanation
43	**Video models only** - The Central Control Computer will play a record selection to fill the time the VCR takes to find a video selection. If the search time reported to the Central Control Computer by the Video Control Computer exceeds the time entered at this location, a fill-in record will be played. Enter the amount of search time in seconds.
44	**Video models only** - Video selections are always played before record selections unless this location's value is changed. To have the phonograph mix video and record selections, enter the number of video selections the phonograph is to play before it will play a record selection.
56	Closing the top door causes the phonograph to go back into normal operation. If this location is set to 255, the Service Switch will be disabled temporarily, allowing the computer memory locations to be audited and changed from the Keyboard with the top door closed.
57	If set to 255, the phonograph will play the record selections in the order in which they are selected. If set to 0, the phonograph will play them as it finds them in the record magazine.
58	A three digit security code can be entered to keep the Programming Mode from being entered by anyone except those who know the code.
59-73	If specific selections are chosen to be played by the Autoplay, the selection numbers are stored in these locations. The selections are played in the order in which they are stored starting with Location 59.
80-83	**Video models only** - The operator can prevent up to four video selections from being played if desired. Enter one selection number per location. Only video selections can be "locked out".
97	Viewing this location will automatically clear the 5xx totals. Enter a 0 to allow all the totals kept by the Central Control Computer to be cleared via the Memorec RESET Switch. Enter a 1 to allow only the popularity data to be cleared via the Memorec RESET Switch. The 5XX totals can be cleared from the Keyboard using a 750 command at a later time. Enter a 2 to allow only the popularity data to be cleared via the Memorec RESET Switch. The 5XX totals can be cleared from the Keyboard only after entering the Programming Mode.
99	The computer will exit the Programming Mode.

SOUND SYSTEM

Acoustical Compensation (Bass And Treble Controls)

The preamplifier 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 carpet 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 and treble range control settings are listed in table 2-1.

Note: More bass boost is required at low volume levels. The R-90 amplifier incorporates circuitry that provides the correct bass compensation at low volume levels.

Paging

Paging circuitry is part of the 6-07925-04 Preamplifier. The microphone plugs directly into the preamplifier.

Stereo Balance

A stereo balance control is provided to equalize the left and right channel outputs. This control is factory adjusted for best left-to-right balance.

If adjustment is required, play a monaural selection and adjust the balance control for an equal volume from each top speaker. When balanced, the sound will seem to come from the center of the phonograph.

Table 2-1.   Amplifier Control Settings For Acoustical Compensation

| SOUND LEVEL IN ROOM | ROOM ACOUSTICS | | | | | |
| | 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.

Extension Speaker Operation

To avoid a poor sounding phonograph, care must be taken when adding extension speakers. Three requirements must be met:

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

2. Extension speakers should produce the desired sound level relative to the sound level of the speakers on the phonograph.

3. All speakers must be connected with the correct polarity.

Several charts have been included to assist you with connecting the extension speakers. Figure 2-5 shows the entire sound system.

Note: The left channel output phase is reversed with respect to the right channel. This reversal is necessary to extend monaural sound in a stereo phonograph system. Because of this reversal, speaker connections to the left channel must be reversed when compared to the right channel, except for 70 volt speaker connections. The 70 volt phasing is reversed inside the output transformers.

Power to the phonograph speakers must be reduced so that the total speaker power does not exceed the amplifier power rating. Table 2-2 shows connection combinations for various extension speaker power levels. The phonograph speakers can be considered as two 8-ohm speakers (one for each channel).

Tables 2-3 and 2-4 are extension speaker charts for different power levels. Power levels are indicated for low impedance speakers as well as 70 volt speakers.

PHONOGRAPH SPEAKER POWER CONNECTION CHART

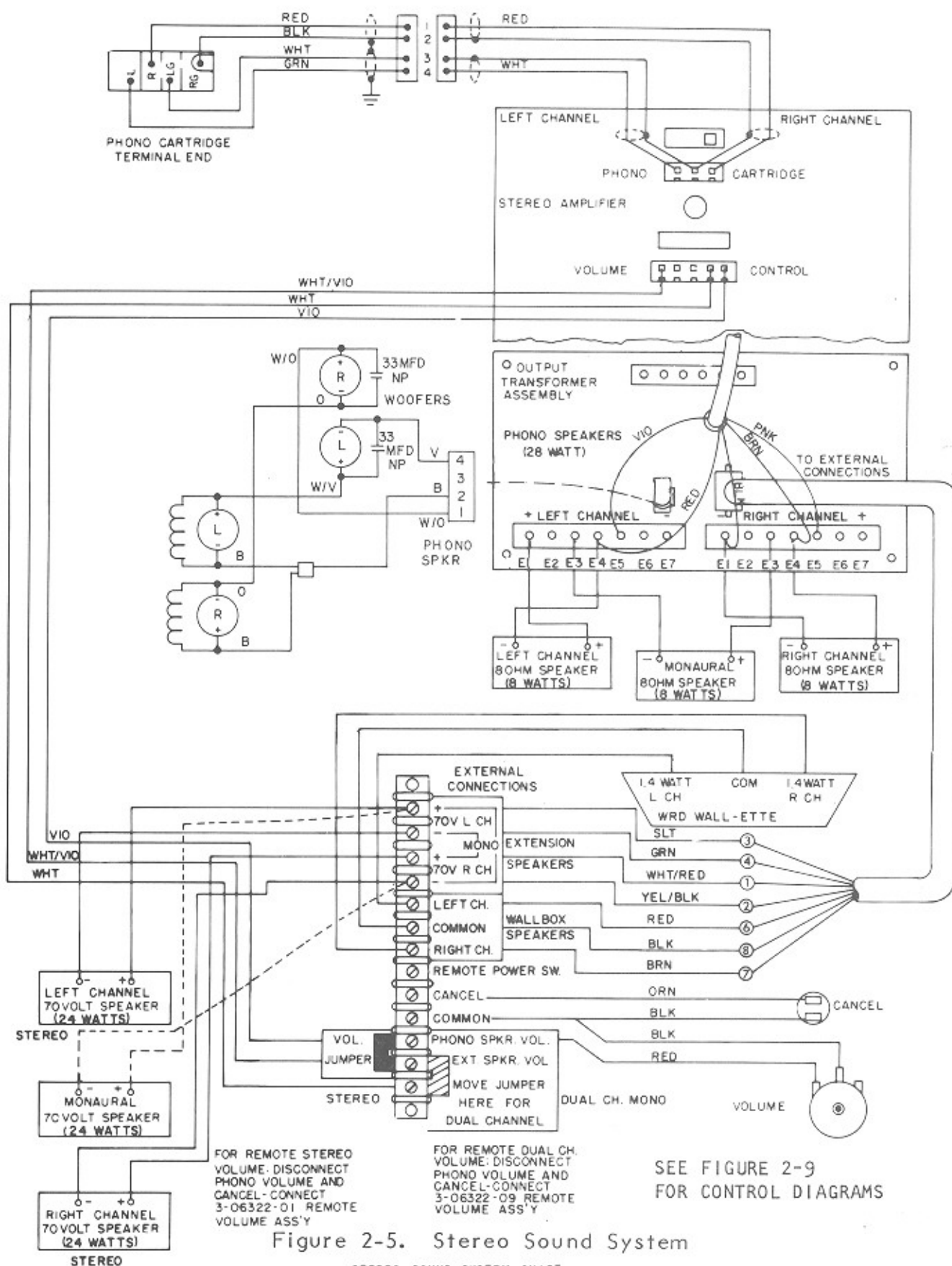| PHONO SPEAKER POWER LEVEL (TOTAL WATTS)	PHONO SPEAKERS		POWER FOR EXTENSION SPEAKERS	
	LEFT CHANNEL	RIGHT CHANNEL	WATTS PER CHANNEL	TOTAL WATTS BOTH CHANNELS
	VIOLET LEAD	PINK LEAD		
64	E6	E6	31	62
28	E5	E5	49	98
16	E4	E4	55	110
4	E3	E3	61	122
1	E2	E2	62	124
BLACK LEAD TO E1 (COMMON) FOR ALL ABOVE POWER LEVELS	CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 67.5 WATTS PER CHANNEL OR 135 WATTS TOTAL FOR THE 130 WATT AMPLIFIER.			

Table 2-2. Phonograph Speaker Power

Figure 2-5. Stereo Sound System

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

70-Volt Speakers

To avoid prohibitive cable losses on long speaker lines, 70-volt speakers should be used as much as possible.

The power level in the 70 volt speakers is set at each speaker.

Low Impedance Speakers

Low impedance speakers (8 ohms) can be used when the connecting cable is less than 100 feet.

The loss in 100 feet of zipcord feeding one 8-ohm speaker is 15%. The loss for 2 8-ohm speakers is 30%.

4-Ohm Speakers

No more than one 4-ohm speaker should connected to a speaker line. If several 4-ohm speakers are to be used, each speaker should have its own line.

Do not connect a low impedance speaker to a speaker tap that exceeds the speaker's power rating.

Caution: In any speaker installation, the total speaker load (the sum of all power ratings of all speakers) must not exceed 135 watts. For example: The stereo speaker system in Figure 2-7 consumes 126.8 watts. The monaural speaker system in Figure 2-8 consumes 124 watts.

Both examples are slightly under the power rating of the amplifier and are acceptable. The power consumption of the entire speaker system should be kept as close to 130 watts as possible, so that the bass compensation will be correct.

Note:
1. The amplifier may be connected to a load of 135 watts before distortion will begin to increase beyond specification.

2. The wallbox speakers in Table 2-3 have been treated as 45-ohm speakers.

STEREO

Table 2-3. Extension Speaker Connections

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

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

CAUTION: TOTAL POWER RATING OF LOAD MUST NOT EXCEED 67.5 WATTS PER CHANNEL OR 135 WATTS TOTAL FOR THE 130 WATT AMPLIFIER.

MONAURAL

Table 2-4.   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

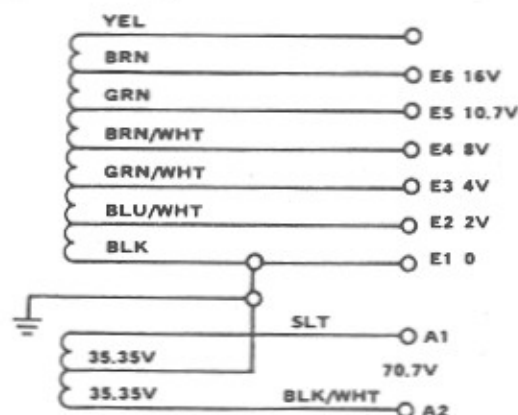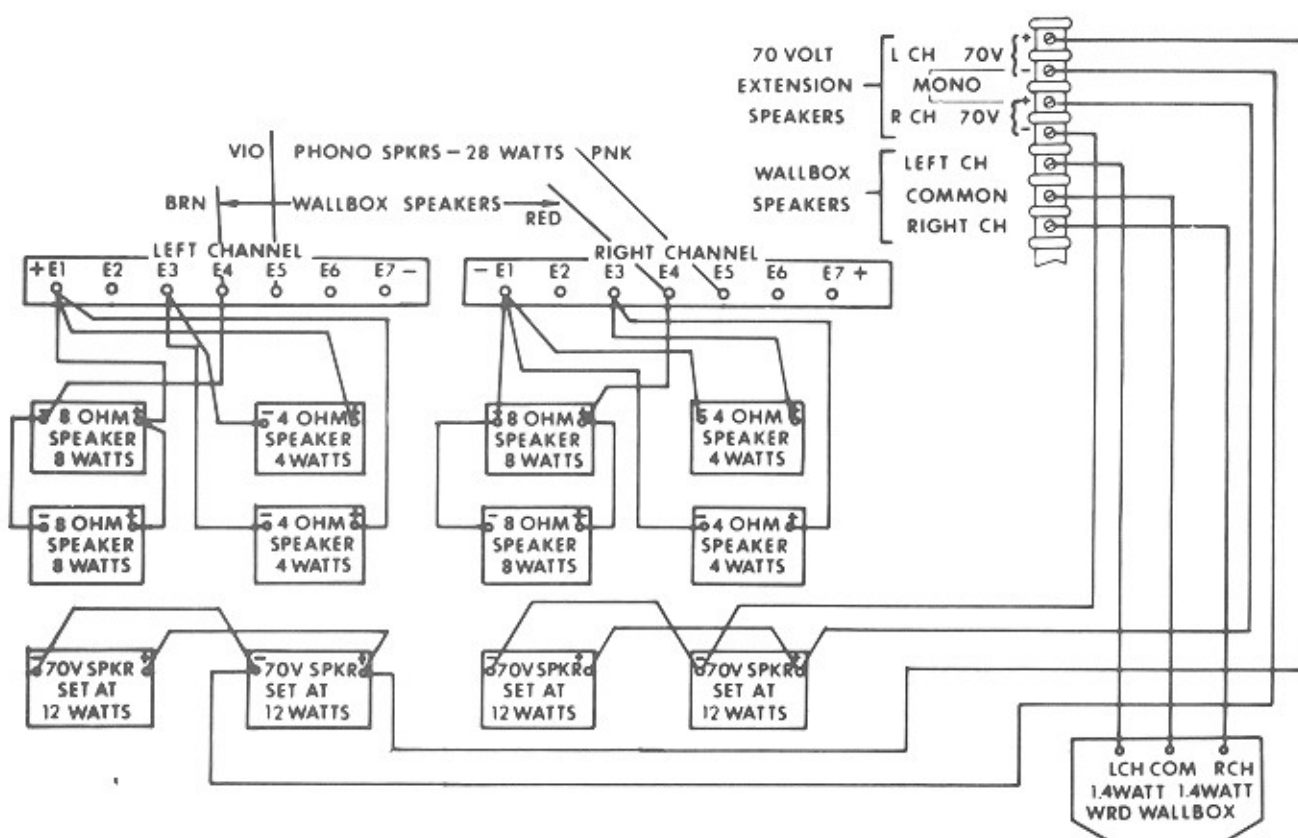AMPLIFIER FULL POWER OUTPUT VOLTAGES
(PER CHANNEL)

YEL	
BRN	E6 16V
GRN	E5 10.7V
BRN/WHT	E4 8V
GRN/WHT	E3 4V
BLU/WHT	E2 2V
BLK	E1 0
	SLT — A1
35.35V	70.7V
35.35V	BLK/WHT — A2

Figure 2-6.   Transformer Output Voltages

70 VOLT
EXTENSION
SPEAKERS
— L CH 70V
  MONO
  R CH 70V

WALLBOX
SPEAKERS
— LEFT CH
  COMMON
  RIGHT CH

VIO   PHONO SPKRS — 28 WATTS   PNK
BRN   WALLBOX SPEAKERS   RED

LEFT CHANNEL
+ E1 E2 E3 E4 E5 E6 E7 —

RIGHT CHANNEL
— E1 E2 E3 E4 E5 E6 E7 +

8 OHM SPEAKER 8 WATTS
4 OHM SPEAKER 4 WATTS
8 OHM SPEAKER 8 WATTS
4 OHM SPEAKER 4 WATTS

8 OHM SPEAKER 8 WATTS
4 OHM SPEAKER 4 WATTS
8 OHM SPEAKER 8 WATTS
4 OHM SPEAKER 4 WATTS

70V SPKR SET AT 12 WATTS (×4)

LCH COM RCH
1.4WATT 1.4WATT
WRD WALLBOX

EXAMPLE:

NOTE:

1. Left channel has reversed polarity for low impedance speakers.
   Extension Speaker Operation this section.
2. Each 4 OHM speaker is connected directly to terminal strip.
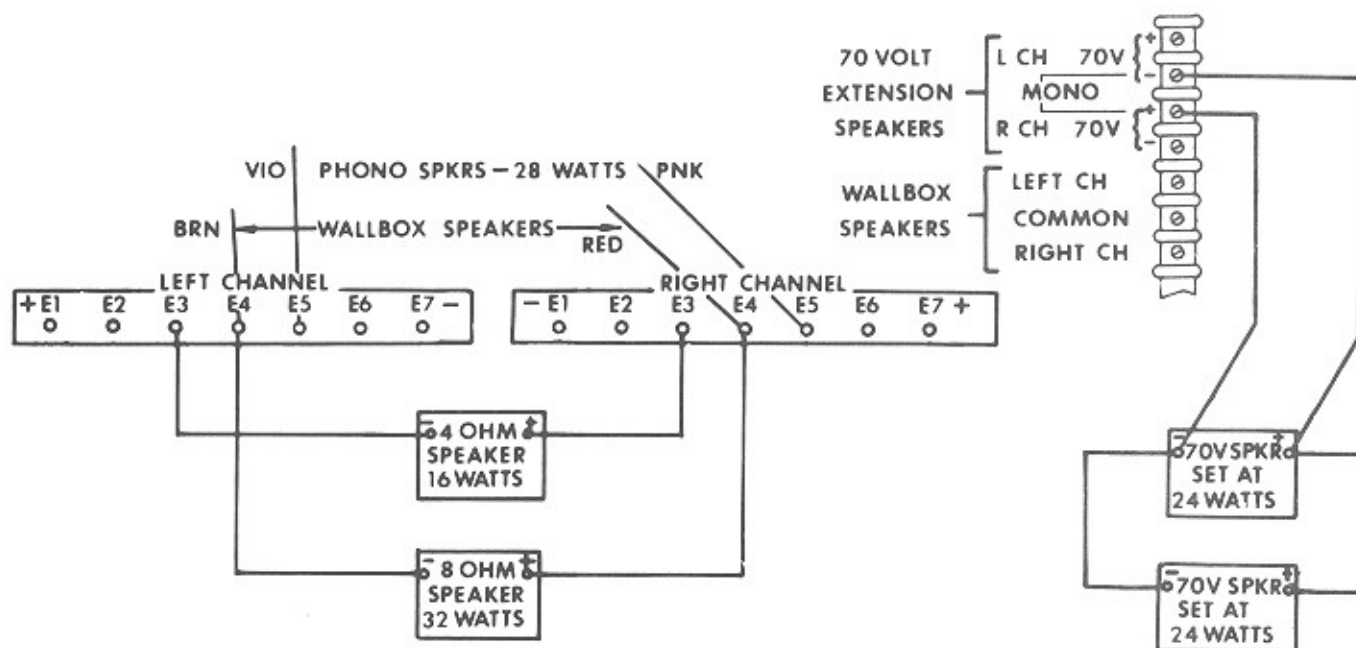   Low Impedance Speakers this section.
3. Add Wattages

   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
                                         TOTAL = 126.8 Watts

4. For speaker impedances not listed in Table 2-3, use Fig. 2-6
   and use the impedance method (Watts = E^2/R).

Figure 2-7. Speakers Connected For Stereo Extension Of Sound

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

EXAMPLE:

NOTES:

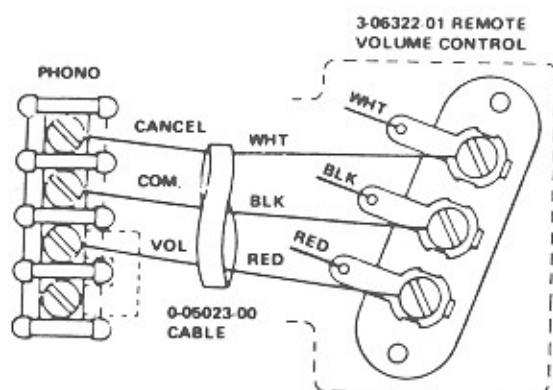1. Add Wattages:
   Extension Speakers: 16 + 32 + 24 + 24 = 96 Watts
   Phonograph (E5-E5)   28 Watts
                                   TOTAL = 124 Watts

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

Figure 2-8.   Speakers Connected For Monaural Extension Of Sound

REMOTE VOLUME AND CANCEL CONTROL

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

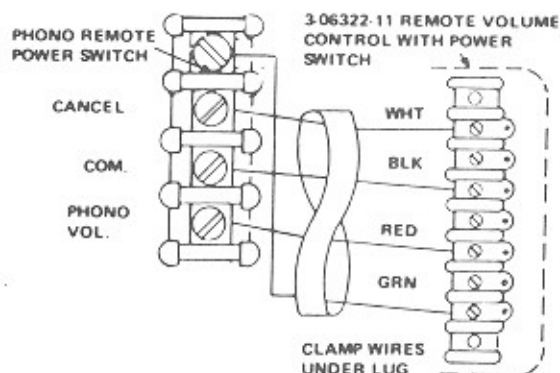REMOTE VOLUME AND CANCEL CONTROL WITH
POWER SWITCH

Figure 2-9.   Remote Volume And Cancel Control Schematic