



# R-84 phonograph

## SELECTION SYSTEM

CAPACITY . . . . . 200 selections

## TRANSFORMER PACKAGE

POWER LEVELS FOR PHONOGRAPH SPEAKERS . . . . . 1, 4, 16, 28, 64 watts  
 PROVIDES 70-VOLT LINE FOR EXTENSION SPEAKERS

## SPEAKER SYSTEM

	LOW FREQUENCY	MID/HIGH FREQUENCY
SPEAKER DIAMETER . . . . .	10 inches	6 inches
VOICE COIL DIAMETER . . . . .	1-1/2 inches	1 inch
IMPEDANCE . . . . .	30 ohms	8.5 ohms
CROSSOVER . . . . .	400 Hz.	
SYSTEM FREQUENCY RESPONSE		50 to 12,000 Hz.

## LIGHTING

FRONT DOOR (Lower and Upper) . . . . . Fluorescent, 30 watts, 36 inch (T-8), 7-00601-12

CONTROL PANEL . . . . . Fluorescent 13W, 21 inch. Part No. 7-00601-15

CREDIT WINDOW . . . . . Light Emitting Diode 7-00353-03

DISCO FLASHING LIGHTS . . . . . Wedge Type904 12V 8W

## FUSES AND CIRCUIT BREAKERS

### MAIN POWER SUPPLY

120 VAC CIRCUIT (Transformer Primary Only) . . . . . 2 Amp Circuit Breaker, 7-00733-15

120 VAC CIRCUIT . . . . . 10 Amp Circuit Breaker, 7-00734-25

+28 VDC CIRCUIT . . . . . 5 Amp Slo-Blo Fuse (2) 7-00721-06

+8 VDC CIRCUIT . . . . . 5 Amp Slo-Blo Fuse 7-00721-06

### AMPLIFIER

Stereo - 125 W

120 VAC CIRCUIT . . . . . 3 Amp Circuit Breaker 7-00733-17

DC CIRCUIT . . . . . 5 Amp Fuse, Type MTH-5 (4) 7-00720-10

## IMPORTANT

THIS IS A MODULAR SERVICE MANUAL - PLEASE TAKE THE TIME TO READ THIS PAGE AND REVIEW THE TABLE OF CONTENTS ON THE FRONT OF THE DIVIDER PAGE FOR EACH PART NO: OBTAIN MAXIMUM BENEFITS FROM THIS TEXT .

This publication is divided into Two parts to fully realize the serviceability which is engineered into each Phonograph.

**PART 1 - FIELD SERVICE MANUAL** is intended primarily for location use to provide familiarization with phonograph components and accessories. Included are installation and routine service procedures plus sequential troubleshooting to isolate a malfunction to one of the plug-in circuit modules. The trouble isolation procedure, based entirely on visual observation, utilizes the LED indicator lamps on the main power supply and circuit modules.

**PART 2 - PARTS CATALOG** contains a complete listing of procurable replacement parts except for electronic components which are listed directly on the schematic diagrams.

**OPERATION SEQUENCE AND SCHEMATICS** elaborate on PART 1 to provide information for the repair of circuit boards and the replacement of electronic components. The information and procedures in this part are intended for an advanced level of maintenance where test equipment is available and service personnel have had electronics training. This is a separate publication available from your distributor. Please order Part No. 3-65355-04.

# warranty

Rowe extends to the original operator of this equipment the following warranty:

All parts are guaranteed to be free of defects in material and workmanship for the specific periods which follow. Rowe agrees to repair without charge during such period any part which proves defective upon examination by Rowe. All costs of shipping an allegedly defective part to or from Rowe's offices shall be borne by the original operator.

Mechanical Moving Parts	5 years
Electrical and Electronic Parts	2 years
Lamps and Styli	90 days

In the case of parts supplied to Rowe as components, Rowe extends the same warranty period as extended by the original manufacturer.

The above warranty applies provided that all parts of the machine have been serviced properly as directed in the service manual, and provided the alleged defective part, upon examination by Rowe, shall prove to be thus defective.

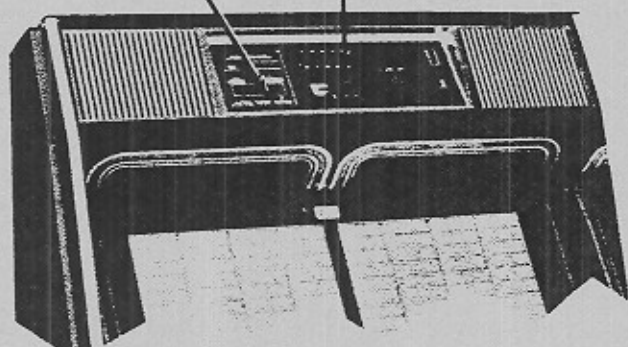
This warranty will not apply to any machine or any part which has been subjected to any accident, abuse, or misuse.

ROWE INTERNATIONAL, INC. EXTENDS NO WARRANTY, EXPRESSED OR IMPLIED, TO PURCHASERS OR USERS OF ITS PRODUCTS EXCEPT AS HEREIN SET FORTH, WHETHER BY OPERATION OF LAW OR OTHERWISE.

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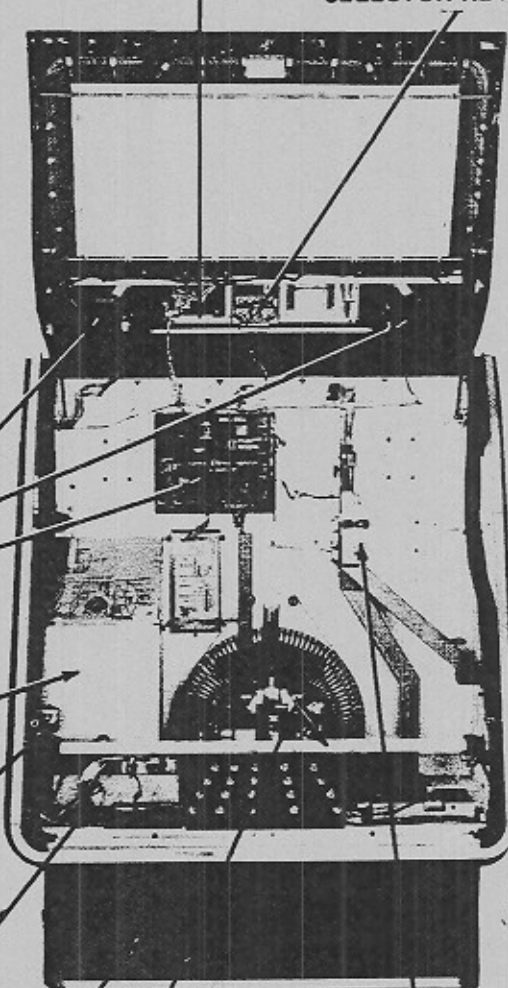
**DIGITAL ANNUNCIATOR** displays selection playing, customers selections, most popular tune, credits remaining.

**SELECTOR KEYBOARD** enters customer selections.



**DIGITAL ANNUNCIATOR**

**SELECTOR KEYBOARD**



**2 - 6" SPEAKERS**

**CENTRAL CONTROL COMPUTER**  
This unit controls all functions of the phonograph.

**PREAMPLIFIER AND AMPLIFIER (Inside Enclosure)** amplifies cartridge output and drives speaker system.

**OUTPUT TRANSFORMER PACKAGE** matches amplifier output to speaker system impedance.

**SERVICE SWITCH**

**MAIN POWER SUPPLY** distributes 120 volt power to components and provides 28 VDC, 8 VDC and 28 VAC. Fused and regulated.

**SLUG REJECTOR/COIN SWITCHES** accepts valid coins; establishes credit in credit system.

**MECHANISM CONTROL UNIT** controls scan, transfer, and toggle shift functions for mechanism. (Unit Hidden From View Behind Lights.)

**SPEAKER SYSTEM** consists of two 10 inch low frequency speakers and two 6 inch wide range speakers (see above) for high and mid frequencies. Crossover networks are provided.

**FIGURE 1. PHONOGRAPH MAJOR COMPONENTS**



## SECTION 1 - SYSTEM DESCRIPTION

### INTRODUCTION

The Rowe-AMI Model R-84 is a 200 Selection Stereo Phonograph. It has a new 100% Microprocessor Based Solid State Control.

The Central Control Computer is mounted on the rear wall of the cabinet. This unit controls all functions of the phonograph.

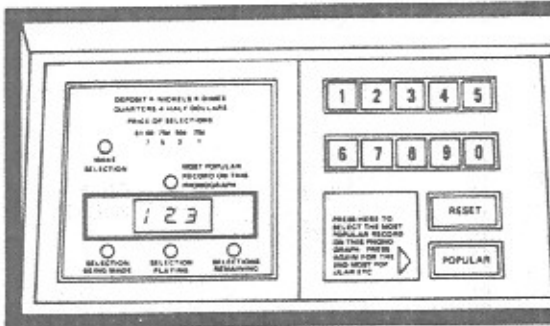
Grouped around the Central Control Computer are the Mechanism mounted on the center of the cabinet base, the coin acceptor and coin switches on the right side panel, and the digital annunciator, selector keyboard all located on the top door.

The pricing board is located on the rear wall.

The Main Power Supply is located at the left front of the cabinet base.

The 125 Watt Stereo Amplifier is in the enclosed compartment directly behind the Power Supply.

The display area includes a three digit numerical display and four LED lamps. The numerical display has four distinct functions while the lamps indicate which function is in effect.



### MOST POPULAR SELECTION

When the phonograph is "scanned out" the numerical display shows the number of the tune which has been selected the greatest number of times since the last time the machine was serviced.

### SELECTION BEING MADE

While a selection is being made the numerical display shows the number of the tune being selected. This number remains on the display for 5 seconds after the third digit is entered at the keyboard.

### SELECTIONS REMAINING

After each selection and after each deposit of money the number of selections which remain to be made is displayed for 5 seconds.

### SELECTION PLAYING

While the phonograph is playing, if no selection is in the process of being made, the number of the tune being played will appear on the display.

### MECHANISM

An aim of the mechanism design was to eliminate mechanical units such as the annunciator, popularity meter, and search unit. These have been replaced by electronic assemblies. By redesigning the mechanism to incorporate the latest electronics we have eliminated some of the drive train. This means less parts for wear, plus quiet and smooth operation.

### CENTRAL CONTROL COMPUTER

The Central Control Computer is the brain of the phonograph. It controls the memory for the select system and the credit system. It can store up to \$12.25 in credit and convert this into plays (up to 99). When the On-Off service switch is in "Service" position the microcomputer will search and display popularity. The most or least popular records can be found. Total selections and money are also displayed.

The Playmaker is part of the computer. It will stimulate plays by letting the customer know that the phonograph is there. It plays a flip side selected at random whenever the phonograph has been silent for twenty or forty minutes. The phonograph is shipped from the factory with the four position switch set on 20 minutes. The switch can be set for 40 minutes, 20 minutes, continuous or off.

## MEMOREC

The Memorec function has been expanded and incorporated into the Central Control Computer. Memorec has the following features:

- Records the number of times each record side is selected. Selections made by use of the "Most Popular Selection" key do not increase the count of the individual record side but are counted separately and also included in the total.
- Records the total number of selections made. Selections made by "Playmaker" are not included in the total or in the individual side counts.
- Records the total amount of money deposited in the phonograph including any WalleTTes which are connected to it.

## SOUND SYSTEM PRINCIPLES OF OPERATION

The phonograph sound system translates stylus vibration into electrical voltage, amplifies the voltage and the speaker converts it into sound. The sound system consists of a stylus and cartridge, a stereo preamplifier and amplifier unit, a speaker system, a volume control and an output transformer package. Identification and location of each major component is shown in figure 1. The purpose and description of each major component is explained in the following paragraphs.

**Stylus and Cartridge** The stylus and cartridge convert mechanical movement into equivalent electrical voltage. The unit is mounted on the record changer tone arm. This output voltage is transmitted through shielded cable to the pre-amplifier.

**Amplifier** (see figure 2). The amplifier unit amplifies phonograph cartridge output and drives the speaker system. The latest concepts in silicon transistor circuitry are designed into the 125 watt stereo system. It delivers a full 62.5 watts rms power per channel. Its wide frequency response and low distortion assure good record reproduction. The unit incorporates automatic volume control (AVC).

The output stage is coupled to the speakers. Treble range and bass boost controls are provided on the preamplifier to compensate for differences in room acoustics. A mute relay silences the amplifier while a record is being transferred to or from the turntable. Preamplifier circuitry is completely solid state for durability and long service life.

Protection is included for voltage transients, excessive heat and accidental shorting of speaker leads.

**Preamplifier** The preamplifier amplifies the phonograph cartridge output to drive the power amplifier. The components for both the right and left audio channels are contained in a single plug-in circuit board mounted under the amplifier chassis.

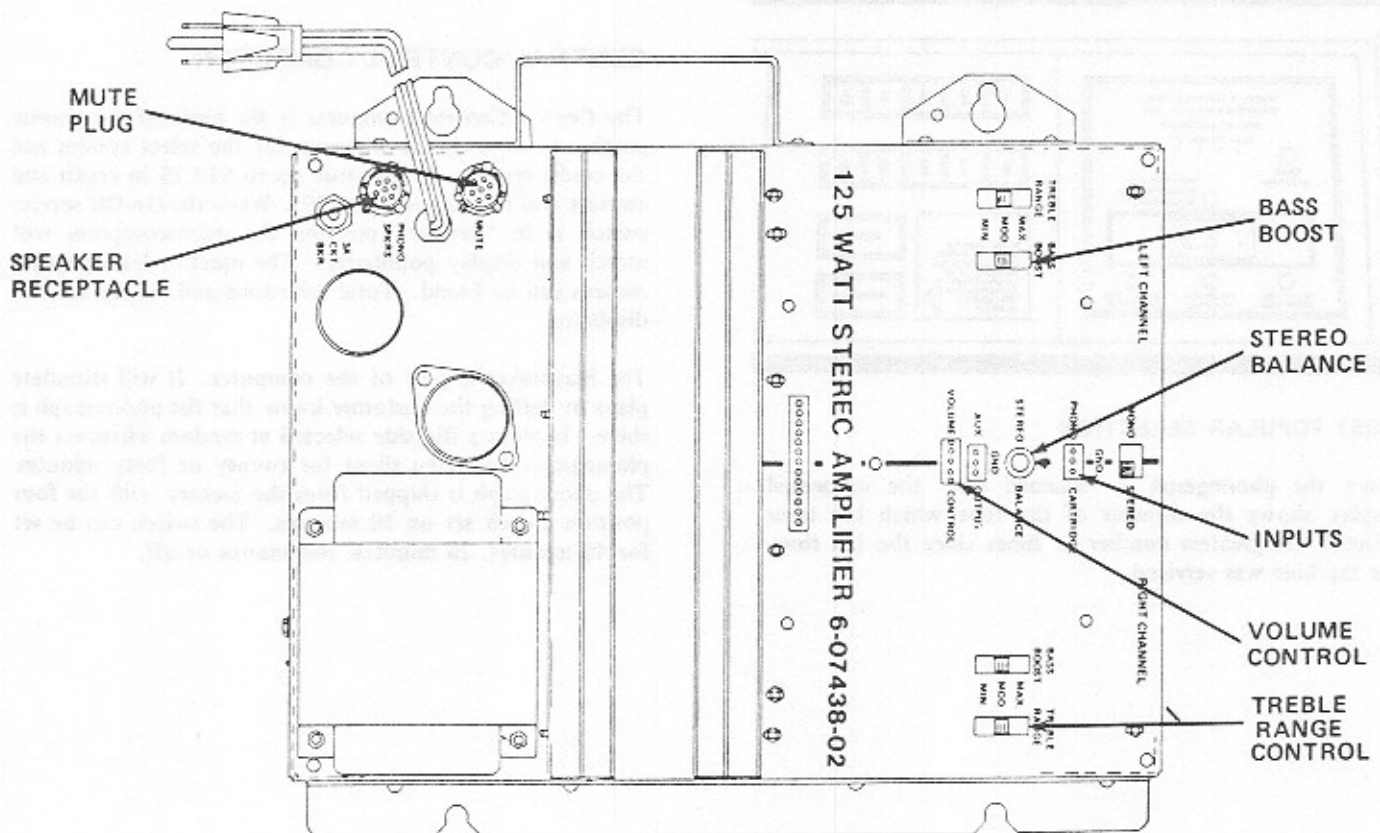


FIGURE 2. 125 WATT STEREO AMPLIFIER COMPONENTS

## SELECTION SYSTEM

The selection keyboard has ten numbered areas plus two which are marked "Reset" and "Most Popular Records".

To make a selection deposit money to establish credit. The numbered display will show the number of selections available. Press the numbered areas on the keyboard in order corresponding to the desired selection number as shown on the title rack. As the digits of the selection number are pressed, they will appear on the numerical display. Only legal selection numbers will be accepted. For example if any number other than a 1 or 2 is pressed as a first digit, it will be ignored. Nothing will happen. It is not necessary to press "Reset". Merely press the correct first digit.

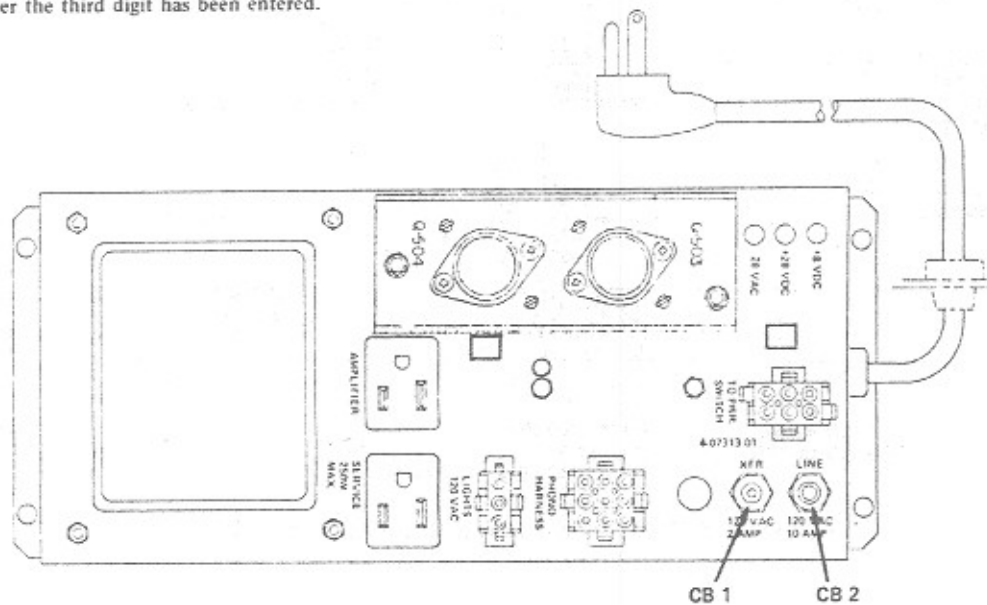
If you change your mind after beginning to make a selection pressing "Reset" will erase the partial selection number and also allow you to enter a new number. "Reset" is not effective after the third digit has been entered.

Press "Most Popular Selection" to select the tune which has been selected the greatest number of times since this phonograph was serviced last.

Press "Most Popular Selection" a second time to select the second most popular tune. This process may continue until credit is used up.

**NOTE:** If selections are made manually before "Most Popular Selection" is used, no selections are repeated even if the manual selections are most popular. Thus the customer is not "cheated".

The most popular selection sequence is reset when credit is exhausted.



MAIN POWER SUPPLY

## MAIN POWER SUPPLY

The main power supply distributes unregulated +28 VDC and 28 VAC, and regulated +8 VDC to the phonograph components. Power is controlled by a rocker switch located on the access door at the rear of the cabinet. 120 volt AC receptacles are provided for the amplifier, lights, accessories

and service equipment. The AC receptacles and transformer primary are protected by 10 amp circuit breaker CB2 while circuit breaker CB1 protects the transformer primary only. Both the circuit breakers can be reset from the front panel.

**Output Transformer Package** (see figure 3 ). The transformer package enables the amplifier to operate 70 volt lines for extension speakers. The package also provides terminal strips for obtaining several different power levels for both phonograph and extension speakers. The unit consists of two output transformers and associated parts mounted on a single chassis. The chassis is mounted to the floor of the cabinet to the left of the record changer mechanism.

The output transformer secondary connections are available at three terminal strips. Phonograph speaker power is selected by connecting the violet and pink leads according to figure 3. Extension speakers can be connected as directed in Table 3, of speaker connection chart.

**SPEAKER SYSTEM.** The speaker system consists of two 10 inch low frequency speakers, two 6 inch wide range speakers.

**TWO WIRE VOLUME CONTROL.** A Rowe/AMI exclusive, the two wire volume control simplifies large, complex installations and saves costs. Re-designed preamplifier circuitry permits remote volume control operation using two unshielded wires. Any wires can be used - there are no special requirements for conductor size and shielding.

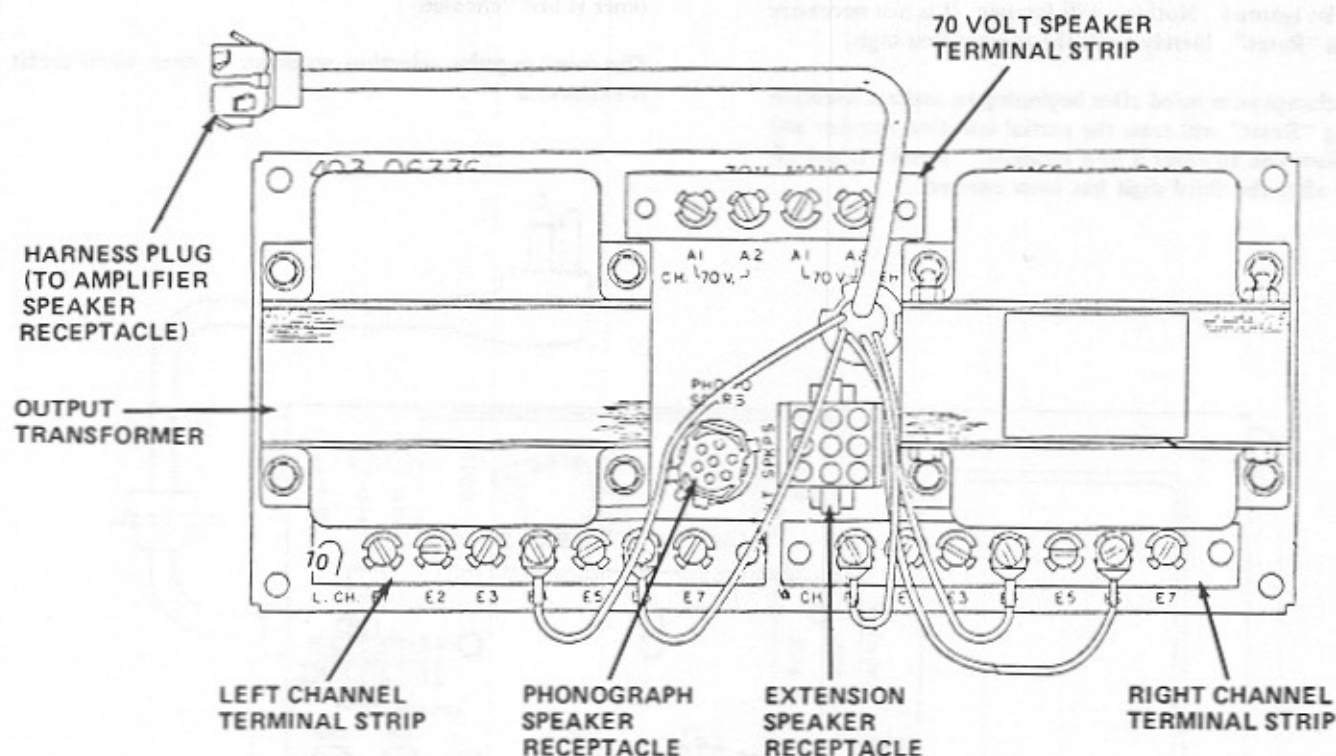


FIGURE 3. OUTPUT TRANSFORMER PACKAGE COMPONENTS



TABLE 1. ACCESSORY EQUIPMENT

PART NO.	DESCRIPTION	FUNCTION
2-66971-03	Dollar Bill Acceptor Kit (Includes Bill Stacker)	Accepts valid one dollar bills in U.S. currency and establishes one dollar's worth of credit in the phonograph.
3-65327-01	Amplifier Overload Tester - For All Rowe Solid State Amplifiers Except MM-1	Warns installer if extension speaker hook-up causes an overload.
2-66973-05	51 Coin Acceptor	51 Coin, 25¢ coin, 10¢, 5¢.
2-66681-06 2-66681-09	Automix Kit (60 Hz.) Automix Kit (50 Hz.)	Enables phonograph to play 33 and 45 RPM records interchangeably.
2-66946-01	Phono Paging System Amplifier Accessory Kit (Includes 2-66947-01)	New improved Paging System, not affected by A.V.C. All Plug-in unit, complete with microphone and 50 feet of microphone cable. Allows use of phono sound system for paging.
2-66947-01	Amplifier Accessory Kit	Provides access to auxiliary inputs and outputs of the preamplifier. Inputs will accept signals from most background music sources such as tape players and AM or FM radios. Outputs available to drive slave amplifiers before or after volume control.
6-03441-04	WRD Walleto Wallbox (3 coin) WRD Walleto Wallbox (4 coin)	Remote control unit for solid state phonograph. Has self-contained credit and pricing and selection system. Takes nickels, dimes, quarters and half-dollars. (3 coin does not take halves).
4-06891-01	Auxiliary Power Supply	Permits operation with WRD Wallbox.
4-05627-01	Auxiliary Power Supply	Powers up to 6 Rowe/AMI WRA or WRC Walleto wallboxes. Low voltage supply separate from that required for the phonograph.
4-05678-01	Secondary Power Supply	Powers each additional six or more Rowe/AMI WRA OR WRC Walleto wallboxes.
2-66965-02	Wallbox Interface Kit	Permits operation with WRA, WRC and Seeburg wallboxes.
2-66965-01	Wallbox Interface Kit	Permits operation with WRD Wallbox.
SPEC 0-05076-00	9 Conductor Cable	For connecting WRD Walleto to phonograph.
6-02187-01	Extension Speaker (Model EX201)	12 watt, compact "bookshelf" speaker contains one 8 inch full range speaker.
6-07447-01	Extension Speaker (Model EX350)	32 watt, two channel system includes 3-1/2 inch tweeter and 10 inch bass speaker.
2-66945-01	125 Watt Amplifier Kit	Amplifier and Adapter Cable for older consoles.
3-06322-01	Remote Volume and Cancel Control	Remote stereo volume control and cancel button.
6-65047-03	Service Kit	Includes Central Computer, Mech Control, Power Supply Board and Fuses.
6-08980-01	Remote Volume Power Switch, & Cancel Control	Volume Control incorporates on-off switch. 115V only.
3-06322-09	Dual Remote Volume Control	Controls volume of each channel separately
2-08199-07	Remote Volume And Cancel Control Cable	For connecting remote volume control to phonograph 3-conductor cable, 50 ft. length.
2-08199-08	Remote Volume And Cancel Control Cable	For connecting remote volume control to phonograph 4-conductor cable, 50 ft. length.