





This page intentionally left blank.

## Preface

To make installation easier, this manual describes a typical installation. This “typical” installation only includes loading the title rack and discs, setting up the sound system, and in some situations, modifying the pricing.

If you wish to make further programming changes, make them using the information that follows the basic installation.

This manual is divided into two parts. Volume 1 (Sections 1-3) contains routine installation and service information. Volume 2 (Sections 4-8) contains troubleshooting charts, schematics, and other maintenance information. Please take time to read this page and review the *Table of Contents* in both volumes.

The *Troubleshooting* section includes schematics, component lists, and board layouts for all serviceable modules.

This service manual is divided into eight sections:

### Volume 1

**Section 1 System Description** — Introduces you to the CD-100K, its features, and its major components, principles of operation, and step-by-step unpacking instructions. After unpacking the CD-100K, you should continue the installation process by following the title rack loading and programming instructions in *Section 2*.

**Section 2 Installation and Programming** — Continues the installation process with disc and title rack loading instructions, programming references, and step-by-step programming and pricing instructions. Whether you are familiar with previous Rowe phonographs or not, pay special attention to the pricing and programming.

Programming and pricing have been set at the factory, so you may not wish to change any of the CD-100K options. After you load the titles and the discs, the CD-100K is ready to play.

**Section 3 Routine Service** — Provides routine service instructions for collecting money, doing cash and play audits, resetting phonograph totals, and doing preventive maintenance.

### Volume 2

**Section 4 LED Lighting** —

**Section 5 Troubleshooting** — Provides troubleshooting charts, error code and disc condition descriptions, troubleshooting procedures, wiring diagrams, and diagnostic LED descriptions.

**Section 6 Mechanical Adjustments** — Details the mechanical checks and adjustment procedures for all of the CD-100K modules.

**Section 7 Miscellaneous** — Contains specifications, fuse and circuit breaker locations, and a resistor color code chart.

**Section 8 The Parts Catalog** — Lists and illustrates all replaceable modules in the CD-100K. The Accessory Equipment List is at the end of this section.

This manual is intended for owners, route operators, and technicians. It provides all field and shop related service and maintenance material. Accessories and their installation and service are discussed in the corresponding accessory instructions (or manuals).

## Table of Contents

### **SECTION 1 — INSTALLATION AND SYSTEM DESCRIPTION**

<b>Introduction .....</b>	<b>1-1</b>
<b>Features .....</b>	<b>1-2</b>
General Features .....	1-2
Service Features .....	1-2
<b>Unpacking Instructions .....</b>	<b>1-3</b>
Exterior .....	1-3
Doors .....	1-3
Shipping Bolts, Clips, and Tape .....	1-4
Title Page Assembly .....	1-4
Mechanism .....	1-5
CD Unpacking .....	1-5
<b>Visual Inspection .....</b>	<b>1-6</b>
<b>Phonograph Leveling .....</b>	<b>1-6</b>
<b>Handy Case .....</b>	<b>1-6</b>
<b>Warranty Registration Card .....</b>	<b>1-6</b>
<b>Major Components of the CD-100K .....</b>	<b>1-6</b>
CD Selection System .....	1-7
Keyboard .....	1-7
Central Control Computer .....	1-7
Memorec .....	1-7
Autoplay .....	1-8
<b>Principles of Operation .....</b>	<b>1-8</b>
Audio System .....	1-8
CD Player .....	1-8
Stereo Preamp .....	1-8
Stereo Amplifier .....	1-8
Two-Wire Volume Control .....	1-9
Output Transformers .....	1-9
Speaker System .....	1-9
CD Changer Mechanism .....	1-10
Magazine .....	1-10
Play Counter .....	1-10
Money Counter .....	1-10
Optical Switch .....	1-10
Cam Switch and Motor Assembly .....	1-11
Sprag Assembly .....	1-11
CD Modules .....	1-11
Mechanism Control Unit .....	1-12
Main Power Supply .....	1-12
Lighting and Bill Acceptor Power Control .....	1-12

### **SECTION 2 — INSTALLATION & PROGRAMMING**

<b>Introduction .....</b>	<b>2-1</b>
<b>Power On .....</b>	<b>2-1</b>
<b>Loading CD's and Titles .....</b>	<b>2-2</b>
Preparing Titles For The Title Holder .....	2-2
Loading the Title Holder .....	2-3

## Table of Contents

### **SECTION 2 — INSTALLATION & PROGRAMMING** *(Continued)*

<b>Procedures for Loading the Title Page Holder .....</b>	<b>2-4</b>
<b>Procedures for Loading Discs .....</b>	<b>2-5</b>
<b>Setting Title Page Limits for the First Time .....</b>	<b>2-7</b>
<b>Pricing .....</b>	<b>2-7</b>
To Set Disc Prices .....	2-8
How CD-100K Pricing Works .....	2-8
Sample Price Changes .....	2-8
Checking the Pricing .....	2-10
<b>Sound System Setup .....</b>	<b>2-10</b>
Extension Speaker Operation .....	2-10
70-Volt Speakers .....	2-11
Low Impedance Speakers .....	2-11
<b>Selecting Speaker Power .....</b>	<b>2-12</b>
General Instructions .....	2-12
Selection Procedures .....	2-12
4-Ohm Speakers .....	2-13
8-Ohm Speakers .....	2-14
70-Volt Speakers .....	2-14
<b>Transformer Wiring Diagram .....</b>	<b>2-20</b>
<b>Speaker Synopsis .....</b>	<b>2-22</b>
<b>IR Volume Control 2CH Preamp .....</b>	<b>2-29</b>
Single Volume Control Setup .....	2-29
Dual Volume Control Setup .....	2-29
<b>Sound System .....</b>	<b>2-30</b>
Acoustical Compensation (Equalizer Tone Controls) .....	2-30
What This Graphic Equalizer Does .....	2-30
Equalizer Settings .....	2-30
If the Room or Speaker System Requires a Trade-Off .....	2-31
Procedures for Adjustment .....	2-31
Soft and Highly Absorbent Rooms .....	2-31
Average or Moderately-Absorbent Rooms .....	2-32
Hard and Non-Absorbent Rooms .....	2-32
Paging .....	2-33
<b>Changing the Number of Credits Remaining .....</b>	<b>2-33</b>
<b>Entering the Service Mode .....</b>	<b>2-33</b>
<b>Viewing Menus .....</b>	<b>2-33</b>
If You "Get Lost" in the Menus .....	2-34
<b>Using CD-100K Commands .....</b>	<b>2-34</b>
Combining Menu and Command Modes .....	2-34
Service Mode Menu .....	2-38
Security Menu .....	2-38
Modem Menu .....	2-38
Audits Menu .....	2-38
Attract Mode Menu .....	2-38
Message Center Menu .....	2-38
Initialize Menu .....	2-38
Autoplay .....	2-39
Pricing Menu .....	2-39

## Table of Contents

### **SECTION 2 — INSTALLATION & PROGRAMMING** *(Continued)*

Options Menu .....	2-39
More Options 1 Menu .....	2-40
More Options 2 Menu .....	2-40
Reports Menu (Optional) .....	2-40
Status Menu .....	2-40
Remote Menu (Optional) .....	2-40
<b>How To Make Programming Changes .....</b>	<b>2-41</b>
Keyboard Controls .....	2-41
Security Levels .....	2-42
Factory Security Level .....	2-42
Loading Factory Settings .....	2-42
<b>Programming Autoplay, Premiums, Priorities, and Lockouts .....</b>	<b>2-76</b>
<b>Autoplay Programming Modes .....</b>	<b>2-77</b>
<b>Lockout and Timed Lockout Modes .....</b>	<b>2-78</b>
<b>Editing Autoplay, Premiums, Priorities, and Lockouts .....</b>	<b>2-78</b>
<b>Timed Free Play and Timed Lockout Scheduling Tutorial .....</b>	<b>2-78</b>
What Multiple Lockout On/Off Times Do .....	2-78
What Multiple Freeplay On/Off Times Do .....	2-78
<b>Rowe Phonograph Message Center .....</b>	<b>2-81</b>
Inserting or Changing Messages .....	2-82
Setting the Daily Message Display Time(s) .....	2-86
Setting the Master On/Off Date .....	2-88
<b>Enhanced Autoplay Tutorial .....</b>	<b>2-88</b>
Autoplay .....	2-88
Differences Between Standard and Enhanced Autoplay .....	2-88
<b>Setting Up Enhanced Autoplay .....</b>	<b>2-89</b>
Using RESET + 9 in the Category Menu .....	2-92
Disc Mode .....	2-92
Category Mode .....	2-92
Day Of The Week .....	2-93
Event .....	2-93
Time .....	2-93
Categories .....	2-93
Delay .....	2-93
Channel 1 and Channel 2 Volume (Optional) .....	2-93
<b>Working Example of Enhanced Autoplay .....</b>	<b>2-94</b>
<b>Optional Studio Sound System .....</b>	<b>2-101</b>
Introduction .....	2-101
Volume Control Unit .....	2-101
Audio/Video Controller .....	2-102
BGM, Autoplay, and Paid Play Volume .....	2-102
Karaoke Controls .....	2-102
Amplifier Factory Load .....	2-103
Other Configurations .....	2-103
Summary of Audio/Video Controller Features and Flow – Front to Back .....	2-103

## Table of Contents

### **SECTION 3 — ROUTINE SERVICE**

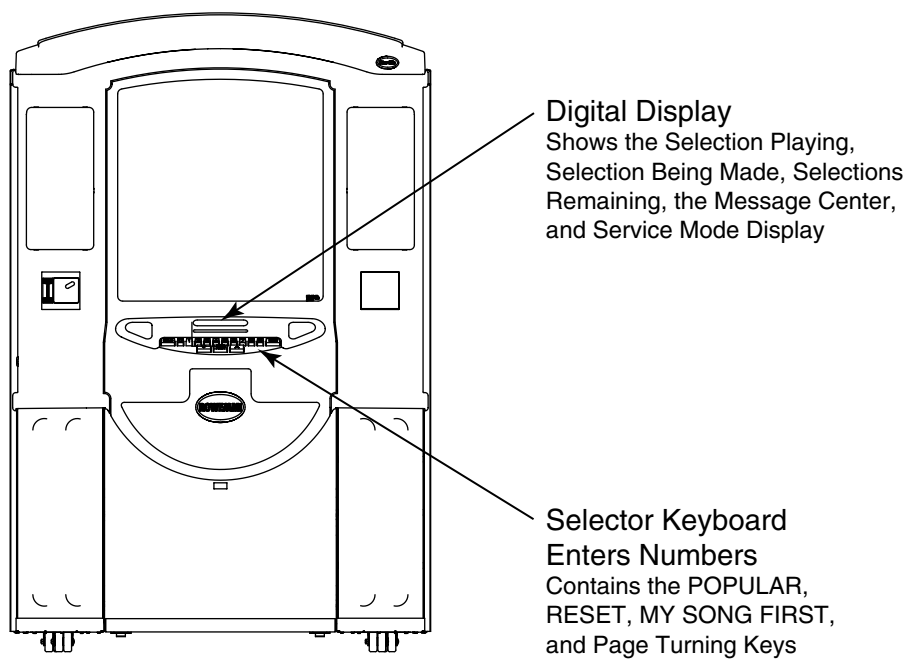
<b>Introduction .....</b>	<b>3-1</b>
<b>Doing an Audit .....</b>	<b>3-1</b>
<b>Collecting Audit Figures .....</b>	<b>3-1</b>
Entering the Service Mode .....	3-1
Cash Audits .....	3-2
Play Audits .....	3-2
Non-Resettable Audits .....	3-2
Most Popular Disc .....	3-2
Least Popular Disc .....	3-2
Most Popular Selection .....	3-3
Clearing the Audit Values .....	3-3
Clear Cash .....	3-3
Clear Plays .....	3-3
Clear Selection Popularity .....	3-3
<b>Changing CD's and Titles .....</b>	<b>3-4</b>
Preparing Titles for the Title Holder .....	3-4
Changing Discs .....	3-4
<b>Complete Audit Command List .....</b>	<b>3-6</b>
<b>Collecting Money .....</b>	<b>3-10</b>
<b>Preventive Maintenance .....</b>	<b>3-10</b>
CD Player Laser Lens .....	3-11
<b>Coin Acceptors (Optional) .....</b>	<b>3-12</b>
<b>Coin Mech (Optional) .....</b>	<b>3-12</b>

### **FREQUENTLY USED FIGURES AND TABLES**

#### **Volume 1**

Extension Speaker Worksheet ( <i>Table 2-1</i> ) .....	2-12
Amplifier Overload Check ( <i>Table 2-2B</i> ) .....	2-16
Speaker Connections ( <i>Figure 2-7</i> ) .....	2-18, 2-19
Volume & Cancel Control Diagrams ( <i>Figure 2-8</i> ) .....	2-28
Service Mode Map ( <i>Figure 2-10</i> ) .....	2-36
Keyboard Controls ( <i>Table 2-4</i> ) .....	2-41
Menu and Command Descriptions ( <i>Table 2-5A and Table 2-5B</i> ) .....	2-43
Command Index ( <i>Table 2-5</i> ) .....	2-69
Audit Commands ( <i>Table 3-1</i> ) .....	3-6





**Figure 1-1. CD-100K Major Components**









## Section 1: Installation & System Description

### INTRODUCTION

The CD-100K plays compact discs exclusively. The reliable CD mechanism holds up to 100 compact discs. These discs are played through a 1000 watt stereo amplifier.

Before you begin to unpack and use this phonograph, *please pay special attention to the following:*

#### READ THIS CAREFULLY BEFORE PLACING YOUR NEW PHONOGRAPH INTO SERVICE:

- **Mechanism** - Completely unpack the mechanism before plugging in the AC power line cord.
- **Title Pages** - If you wish to turn the title pages manually, use the Title Page Knob on the back of the title page assembly (see *Figure 1-2*).
- **CD Player** - Read the CD player unpacking procedure and the static caution that accompanies the procedure.

## FEATURES

The major CD-100K features are:

### General Features:

- All lighting done with LED's. No fluorescent or incandescent lamps used.
- LED lighting controllable by IR remote
- Sturdy construction and reliable design
- Conveniently located customer, operator, and service controls
- Message Center Display
- Electrically operated title pages
- Entire albums can be selected
- A 1000-watt (500 per channel) amplifier. Two-channel preamplifier with dual 7-band graphic equalizer.
- AVC keeps CD volume constant
- Volume controlled by IR remote and wired potentiometers
- 100 disc capacity
- As selected (FIFO) playback or random playback
- 500 bill capacity
- Attract mode to merchandise music or advertising with the use of the message center
- Many phonograph programming options
- Total of 50 selections may be "locked out". Total of 100 selections may be "priorities".
- Total of 30 selections may be "premium." Premium can be 2, 3, 4, etc., standard credits.
- Real-time clock allows scheduling of Autoplay, Lockouts, Free Play, and Messages by time and day
- Accessories available to play background music and/or autoplay at different volume levels
- Timed alternate pricing
- "My Song First" feature to play a song ahead of songs previously selected

### Service Features:

- All servicing can be done from the front of the phonograph
- Modular component construction for easy removal and replacement
- Alpha/Numeric display gives you more comprehensive readouts
- Complete cash and play audit information
- Three levels of security access provide limited access to route operators if desired
- Disc condition logging feature to help find skipping selections and unplayable discs
- Machine errors and disc conditions are logged by time and date
- Choice of 3 CD initialization procedures
- RS-232 interface allows you to print audit data, Memorec data, pricing options, disc conditions, and error history

## UNPACKING INSTRUCTIONS

This section contains information for unpacking the phonograph and installing it on location. The phonograph is shipped with all major components in place. Save all tie-down hardware in case the CD-100K must be moved to another location.

### Exterior

1. Remove the shipping carton with care: Do not use shipping hooks or sharp tools that could damage the phonograph cabinet.
2. Remove the plastic bag that covers the phonograph.
3. 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 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.

### Doors

Locate the red bag in the top hand hold on the back of the cabinet. Remove the door key from the bag and unlock the top door. The lock is on the left side of the top door.

### Shipping Bolts, Clips, and Tape

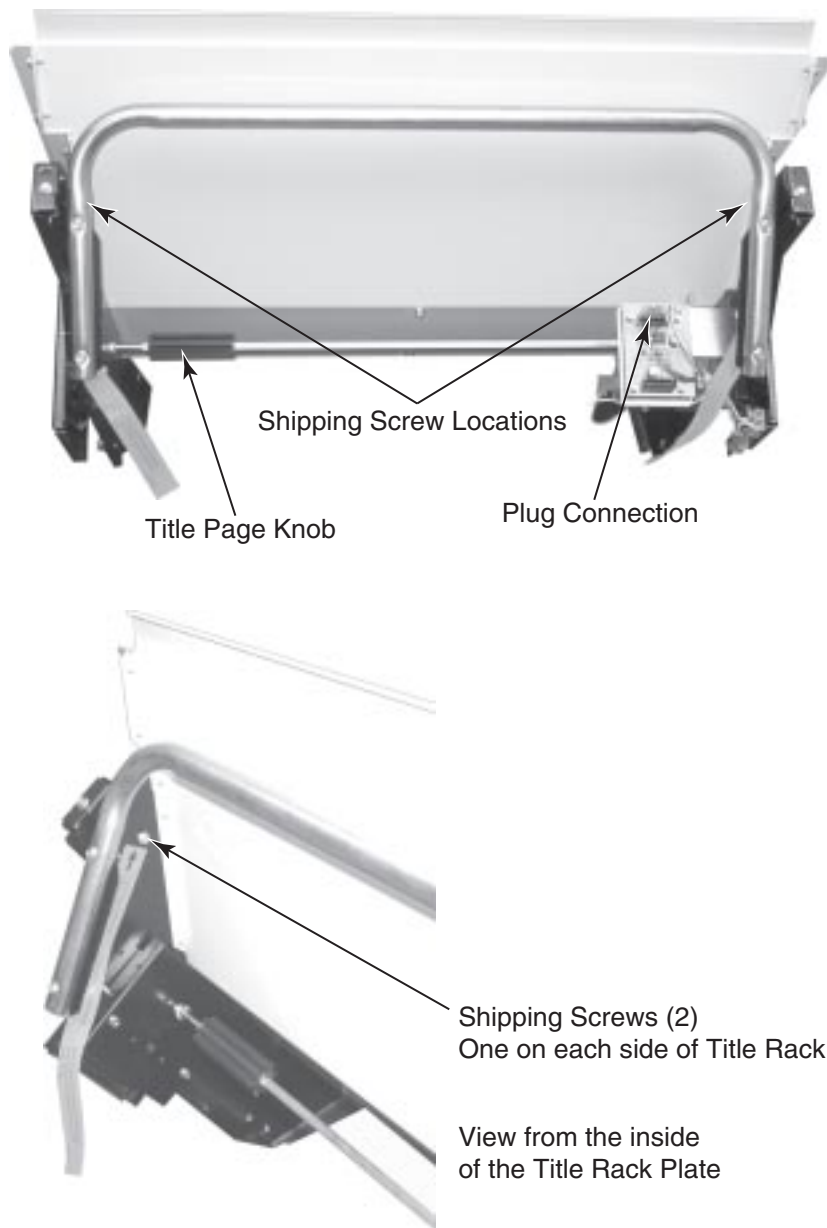
#### TITLE PAGE ASSEMBLY

See Next Page



**WARNING:**

Do not attempt to turn the CD title pages by hand. Use the handwheel on the back of the title page assembly (*see Figure 1-2*). Title rack will not operate without the two Shipping Screws being removed. Trying to force movement in the Title rack can result in broken parts.



**Title Page Assembly in the “UP” Position**

**Figure 1-2. Title Page**

**Title Page Assembly**

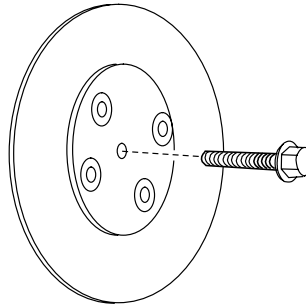
1. Remove the shipping screws from both ends of the lower title page assembly support bracket.
2. Remove the shipping band from the front of the title page assembly.
3. Check to see if the title page assembly is plugged in (*see Figure 1-2 above*).
4. Remove (2) shipping screws from the back of the cabinet (toward the top) to allow title page assembly removal.

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

## **Mechanism**

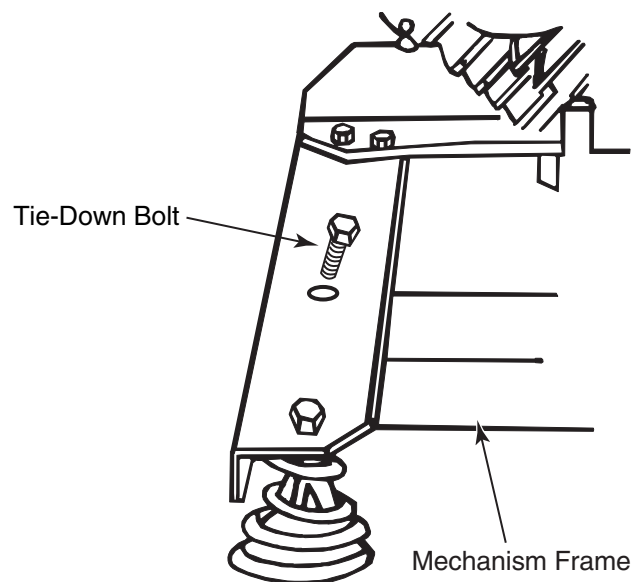
### **CDUNPACKING**

1. Remove the CD changer mechanism shipping bolt from the back of the phonograph cabinet (see *Figure 1-3*).



**Figure 1-3. Shipping Bolt Removal**

2. Remove the shipping tape from the front ends of the mechanism tie-down levers on the side of the mechanism frame (see *Figure 1-4*).
3. Push the end of the lever down slightly, rotate the lever away from the frame until the latch tab clears the hole in the frame, rotate the lever up until the mechanism is free, and remove the levers.



**Figure 1-4. CD Changer Tie-Down Screws**

Do not proceed with unpacking until you read and understand the following caution:

### CAUTION:



The CD mechanism is sensitive to static discharges. The photo diodes and the laser are more sensitive to discharges than MOSIC's. Careless handling may immediately destroy components within the player or cause undetectable damage that will lead to failure after several weeks or even months of use. Before you touch the player, discharge your hands and tools by touching a grounded metal part of the phonograph, such as the amplifier or power supply chassis. If you need to remove the CD player for servicing, place the CD player into the anti-static bag (shipped with the phonograph for this purpose) immediately after you remove it from the phonograph.

4. Remove the rubber band on the hold-down plate.
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.
7. Check to see that the title page assembly is plugged in.

## VISUAL INSPECTION

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

## PHONOGRAPH LEVELING

To insure proper operation, level the phonograph cabinet from left-to-right and front-to-back by inserting spacers under the caster wheels.

## HANDY CASE

Locate the Handy Case in a blue plastic envelope. The Handy Case contains a variety of items, including the phonograph service manual and parts catalog, spare parts, and fuses. Keep the Handy Case inside the phonograph so 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 filled out and returned to Rowe.

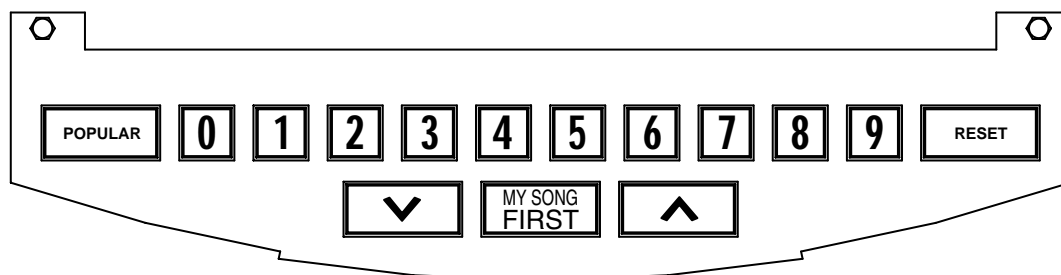
## MAJOR COMPONENTS OF THE CD-100K

*Figure 1-1* shows the major components of the CD-100K Phonograph. Take a minute to familiarize yourself with these components.

*Table 8-1 (Volume 2, Section 8)* lists the accessories that you may have in addition to the standard phonograph.

## CD Selection System

CD selections are made by entering the four-digit selection number on the selector keyboard (*see Figure 1-5*).



**Figure 1-5. Keyboard**

## Keyboard

The keyboard consists of 15 keys: Ten digit keys and five special keys. The two PAGE CHANGE keys move the title pages electrically. The RESET button allows the customer to reenter his selection if he has changed his mind or made a mistake. The POPULAR key selects the selection that customers have selected the greatest number of times. Pressing the POPULAR key a second time will select the second most popular selection. Pressing the POPULAR key a third time will select the third most popular selection and so on. The POPULAR key selection feature can be disabled if desired - see *Command 6994* in *Table 2-4*. The “My Song First” key allows a customer to put his song (for extra credit) ahead of other songs that have been selected previously. See *COMMAND 528* to disable this feature. See *COMMAND 529* to set the number of credits to “Make My Song First”.



### NOTE:

**On a new phonograph, a phonograph that has had its CCC replaced, or a phonograph that has had the POPULARITY cleared, the POPULAR key will not select any disc number until at least one normal selection has been made.**

## Central Control Computer

The central control computer (CCC) keeps track of all of the phonograph’s activities and determines what the various components are to do next. The CCC regulates the following functions:

- Calculating credit and making selections
- Keeping track of selections not yet played
- Calculating the most popular selection list
- Remembering the operator’s programmed values
- Storing and displaying the message center information

## Memorec

Memorec is the part of the CCC that remembers the:

- Number of times each selection was played
- The total amount of money deposited in the phonograph

## Autoplay

When no selections have been made for a predetermined time, the Autoplay feature will play selections from a programmed list or make random selections. The choice of which selections are chosen, the selection sequence, and the selection interval can be programmed by the owner or service person.

## PRINCIPLES OF OPERATION

### Audio System

The audio system consists of the electronic components that transform the recorded sound into music. The major components of the audio system are the:

- CD Player
- Stereo Preamplifier and Stereo Amplifier
- Output Transformers
- Speaker System

### CD PLAYER

This subassembly translates digital pulses from the CD into a left and right channel audio signal.

### STEREO PREAMP (*Figure 1-6*)

The preamp increases the signal from the CD player, corrects for varying recording levels (automatic volume control or AVC), allows the volume to be adjusted manually, and modifies the CD tone (tone changes are made through a 7-band graphic equalizer).

### STEREO AMPLIFIER (*Figure 1-6*)

The power amplifier converts the preamp signal to a signal that can be used by the phonograph speakers.

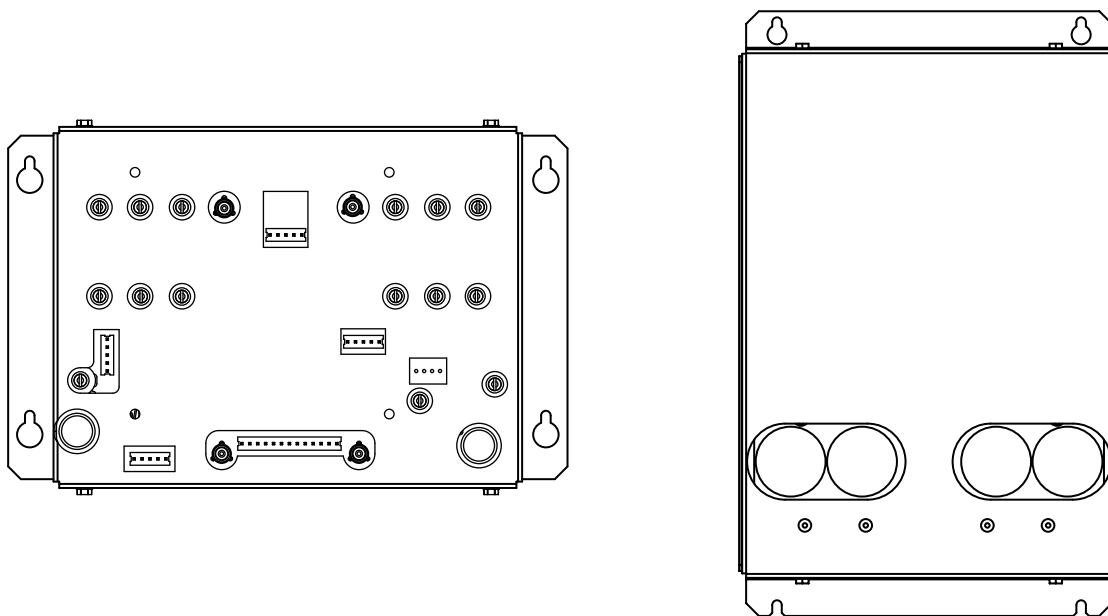


Figure 1-6. 1000 Watt Stereo Amplifier Components

### Two-Wire Volume Control

A Rowe innovation, the two-wire volume control simplifies complex installations and reduces cost. A special preamplifier design permits volume control wiring using any unshielded two-wire cable.

### OUTPUT TRANSFORMERS

The output transformers (*Figure 1-7*) “step up” the power amplifier’s output voltage for 70-volt extension speakers. The output transformers also provide connections (taps) for selecting different power levels for the speakers.

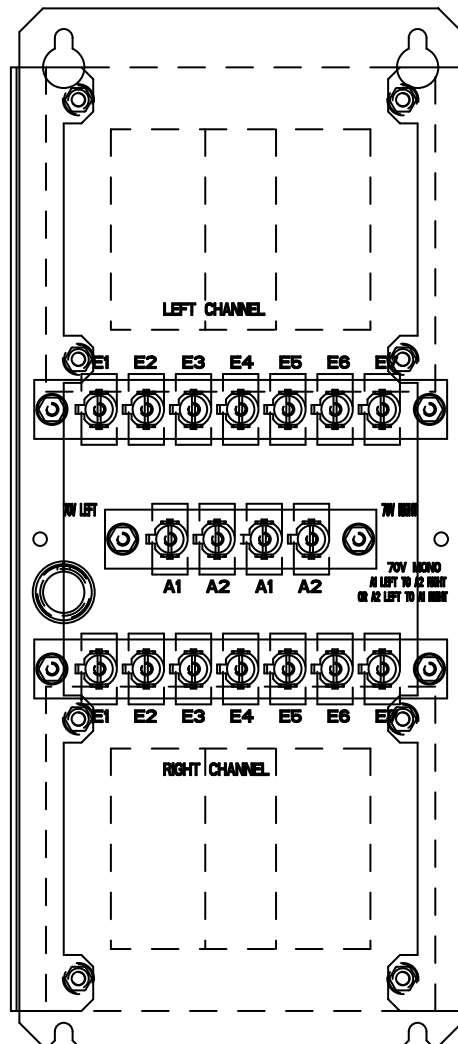


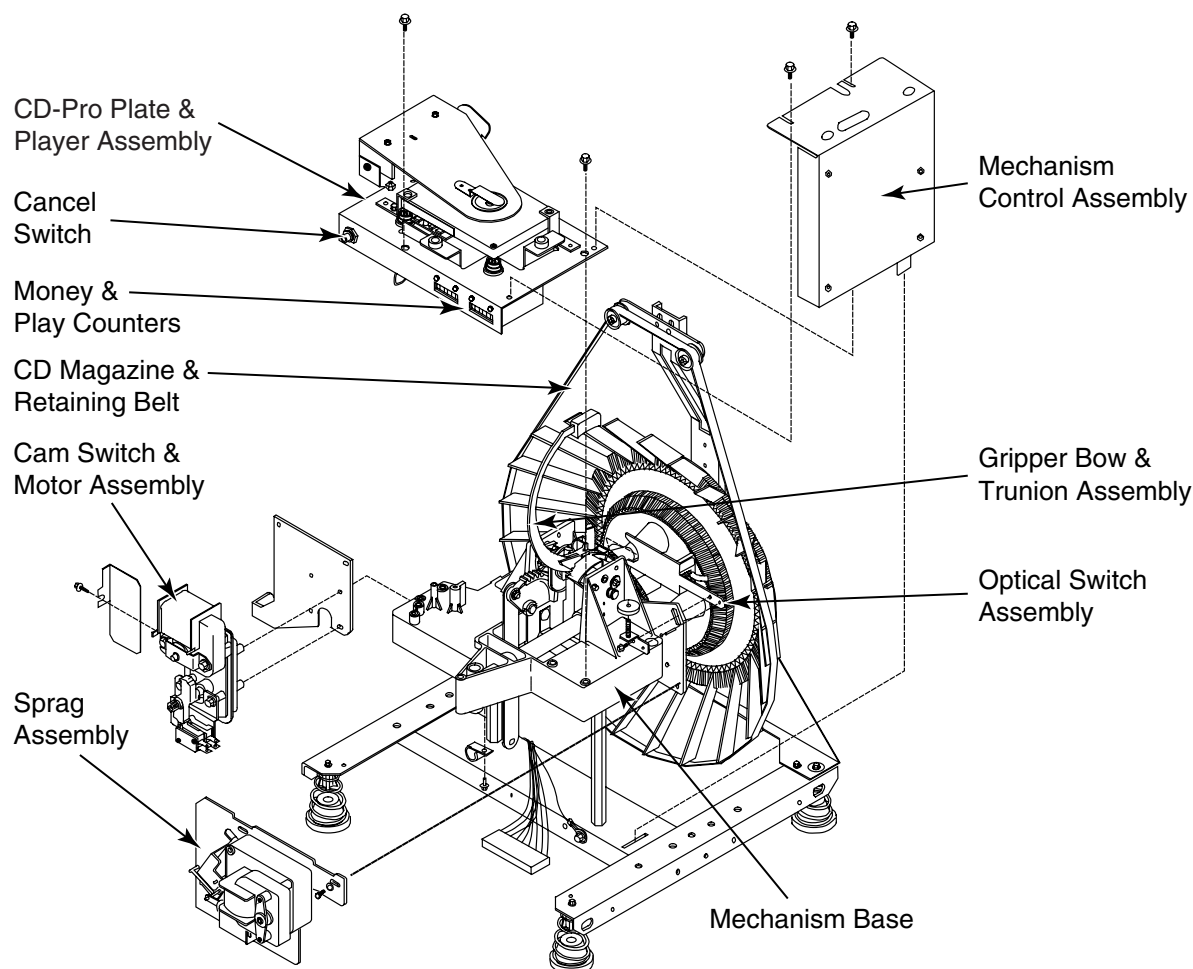
Figure 1-7. Output Transformer Package Components

### SPEAKER SYSTEM

The speaker system consists of two specially designed speaker channels. Each channel consists of one woofer, one mid/high range speaker, a tweeter, and a crossover network.

## CD Changer Mechanism

The CD changer mechanism, also referred to as the “mechanism” or “mech”, is located in the center of the cabinet’s interior. It is the primary mechanical component of the phonograph. The mechanism holds 100 CD’s and plays selections on command from the selection system. (Refer to Figure 1-8 for the location of each of the major mechanism components.)



**Figure 1-8. CD Changer Mechanism**

### MAGAZINE

The CD magazine stores 100 CD’s.

### PLAYCOUNTER

The play counter accumulates the total number of plays on the mechanism.

### MONEY COUNTER

The money counter registers the total money deposited in the phonograph.

### OPTICAL SWITCH

The optical switch senses the CD magazine position so that the CCC can determine which CD is in gripping position.

**CAM SWITCH AND MOTOR ASSEMBLY**

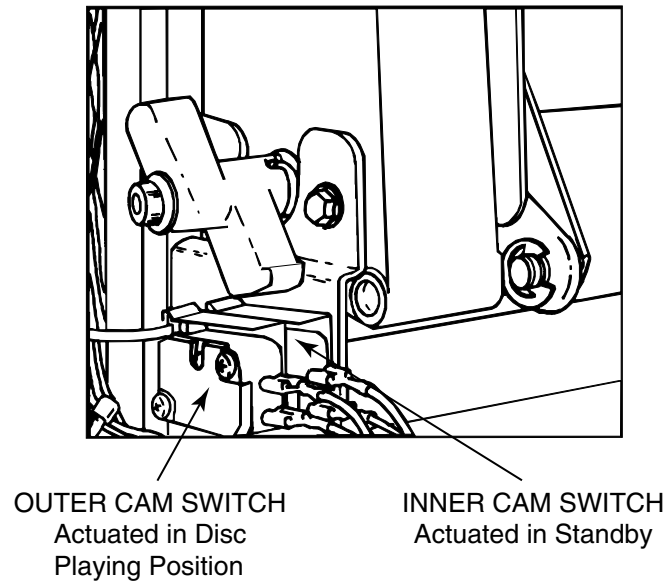
The cam switch and motor assembly (*see Figure 1-9*) consists of the transfer motor, cam, and two cam switches.

**SPRAG ASSEMBLY**

This assembly locks the CD magazine in position.

**CD MODULES**

The CD player plays the CD's after they are positioned on the turntable by the disk transfer arm.



**Figure 1-9. Cam Switch & Motor Assembly**



## Mechanism Control Unit

This solid-state switching unit controls the scan and transfer.

## Main Power Supply

The main power supply (*Figure 1-10*) distributes unregulated +24 VDC, +12 VDC, and regulated +9 VDC to the phonograph. The mains voltage (120 VAC or 240 VAC) to the main power supply is controlled by the power switch on the back of the phonograph cabinet. The phonograph is factory configured for 120 ~ main voltage. For 220 to 240 voltage, remove the 120 ~ Mains Supply Voltage Selector plug from the power supply, and install the 240 ~ Mains Supply Voltage Selector plug. Note - the Central Control Computer is attached to the front of the Main Power Supply.

## Lighting and Bill Acceptor Power Control

When the CANCEL button is held down for 5 seconds, a relay opens removing power from the LED lighting and the Bill Acceptor. Push the CANCEL button to apply power. Pushing the POWER button on the IR Remote will also operate the above relay.

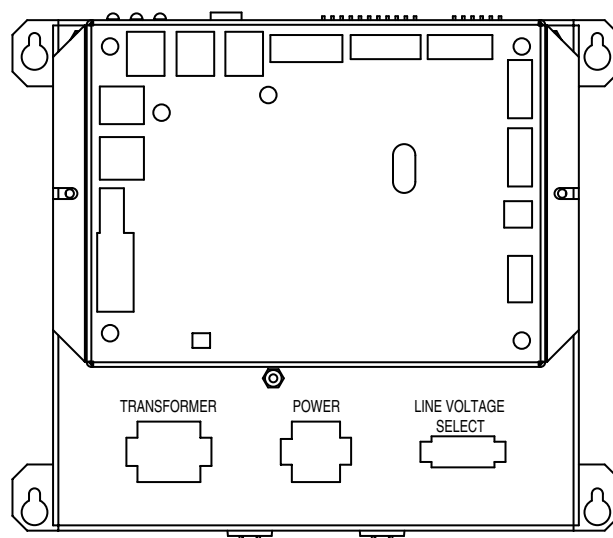


Figure 1-10. Main Power Supply.









































































































































































































































































## OPTIONAL STUDIO SOUND SYSTEM

### Introduction

The Studio Sound system can use one or two digital power amplifiers. Each 2-channel digital power amplifier is rated 1000 (500 x2) watts RMS @ 2 ohm load. The 4-channel Audio/Video Controller replaces the 2-channel preamplifier; and has 3 microphone jacks, many RCA jacks for easy connection and adaptability, and audio components for karaoke. The Volume Control Unit replaces the wired volume control and the IR 2-channel volume control, and controls volume of channels and microphones (see *Volume Control Unit*).

### Volume Control Unit

The Volume Control Unit on rear of phonograph displays and controls the volume of the amplifier channels and microphones, turns power ON/OFF (sleeping), rejects a selection playing, or adds a credit (same as IR remote credits). It also controls volume of the lead singer on karaoke CD's (see *Karaoke Controls*).

Channel volume is displayed when the mode LED is off, and microphone volume is displayed when the mode LED is on. The MODE key toggles between channels and microphones. Raise or lower the volume of the channel(s) or microphone using the UP DOWN keys. The volume range is 0 to 63.

The CH, MIC, and SINGER LED's indicate what volume is being displayed. When adjusting channel volume if more than one LED is on it means those channels have the same volume (i.e. they are locked together). All four channels are locked together when shipped from the factory (see service menu item 97 VOLUME OPTION for other possible configurations).

The Volume Control Unit can be removed from rear of phonograph and mounted remotely (behind bar, etc.). A plate to cover the hole is in the cash bag. You need to supply a 6-conductor modular (phone) cable (pin 1 to pin 6, pin 2 to pin 5, pin 3 to pin 4, pin 4 to pin 3, pin 5 to pin 6, pin 6 to pin 1). You can purchase cable(s) or parts to make you own from Radio Shack, Digi-Key, or other sources.

A total of 4 volume control units may be wired to a phonograph. Each volume control unit is assigned a different Rowelink address. The factory installed volume control unit (unit 1) is assigned address 0. Unit 2 would be assigned address 1, unit 3 address 2 and unit 4 address 3. To set the addresses for units 2, 3, 4, take the unit apart, and set the dip switches as follows:

Address 0 - Both switches OFF. (already assigned to unit 1)

Address 1 - Switch 1 OFF, Switch 2 ON

Address 2 - Switch 1 ON, Switch 2 OFF

Address 3 - Switch 1 ON, Switch 2 ON

Put the unit back together.



## Audio/Video Controller

### Description

The extremely versatile 4 channel Audio/Video Controller transforms audio signals from the CD player, microphones, background music equipment (tuner, tape, etc.), and other sound processors/equipment/systems, into signals for the Power Amplifier. Also, it has video and audio relays for interfacing your video requirements (karaoke, Video CD's, TV shows, etc.).

It has AVC (automatic volume control) to correct varying recording levels, and tone control via 5-band equalizers.

All adjustments and options are programmable and retained in the CCC.

### Microphones

Rowe microphones or low-level balanced/unbalanced microphones can be used. Up to 3 microphones can be connected and simultaneously used for paging and/or karaoke. Each microphone can be routed to any or all outputs. Factory setting sets all microphones for paging and routes all microphones to all outputs.

If a microphone is used for paging and music is playing the music volume is reduced at least 6 dB. The music volume can be reduced more by lowering the numbers programmed in menu items 900–903, mic volume override. The mic volume override number range is 0 to 63, and factory setting is 33.

### Background Music (BGM)

The phonograph goes to BGM mode after all phonograph selections are played. In BGM mode music can be provided by an external BGM unit (tapes, tuner, CD's, etc.).

***To use an external stereo BGM unit:*** connect to jacks marked STEREO A (BGM) INPUT, set menu item 90994 BGM SELECT IN to 4, and set menu item 909991 BGM MUT to 11111111.

***To use an external mono BGM unit:*** connect to jack marked MONO C (BGM) INPUT, set menu item 90994 BGM SELECT IN to 1, and set menu item 909991 BGM MUT to 11111111.

### BGM, AUTOPLAY, and PAID PLAY Volume

As shipped from the factory, the volume control treats AUTOPLAY, external BGM, and PAID PLAY the same. Menu item 96 allows PAID PLAY volume to be separate from AUTOPLAY and external BGM volume, or AUTOPLAY and external BGM volume to be locked at a volume. Menu item 908 sets a max volume level for AUTOPLAY and external BGM.

### Karaoke Controls

This phonograph has the audio components for Karaoke. Just add microphones, and install a Rowe CDG or CDV decoder kit compatible with the new electronics, for a complete Karaoke solution. The kit instructions tell how to setup and use the controls.

## Amplifier Factory Load

The AUDIO/VIDEO CONTROLLER has many programming options. For your convenience, service mode menu item 95 restores the amplifier programming to factory settings.

## Other Configurations

All the programming options and RCA jacks are covered in the audio block diagram, audio programming block diagram, and the menu and command descriptions. Many configurations are possible to satisfy your imagination and the location audio/video requirements.

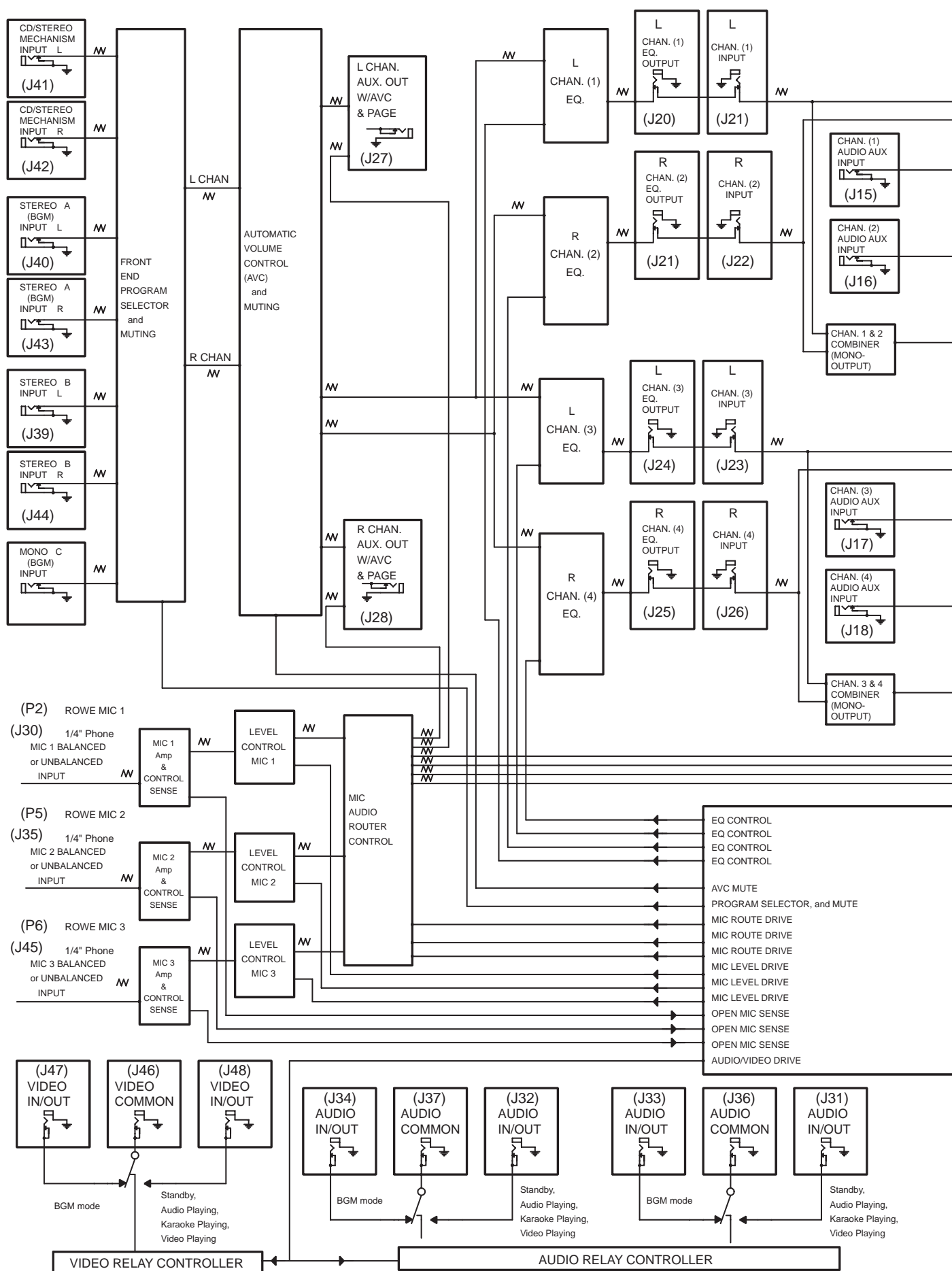
If you have any questions, call the Rowe customer service department.

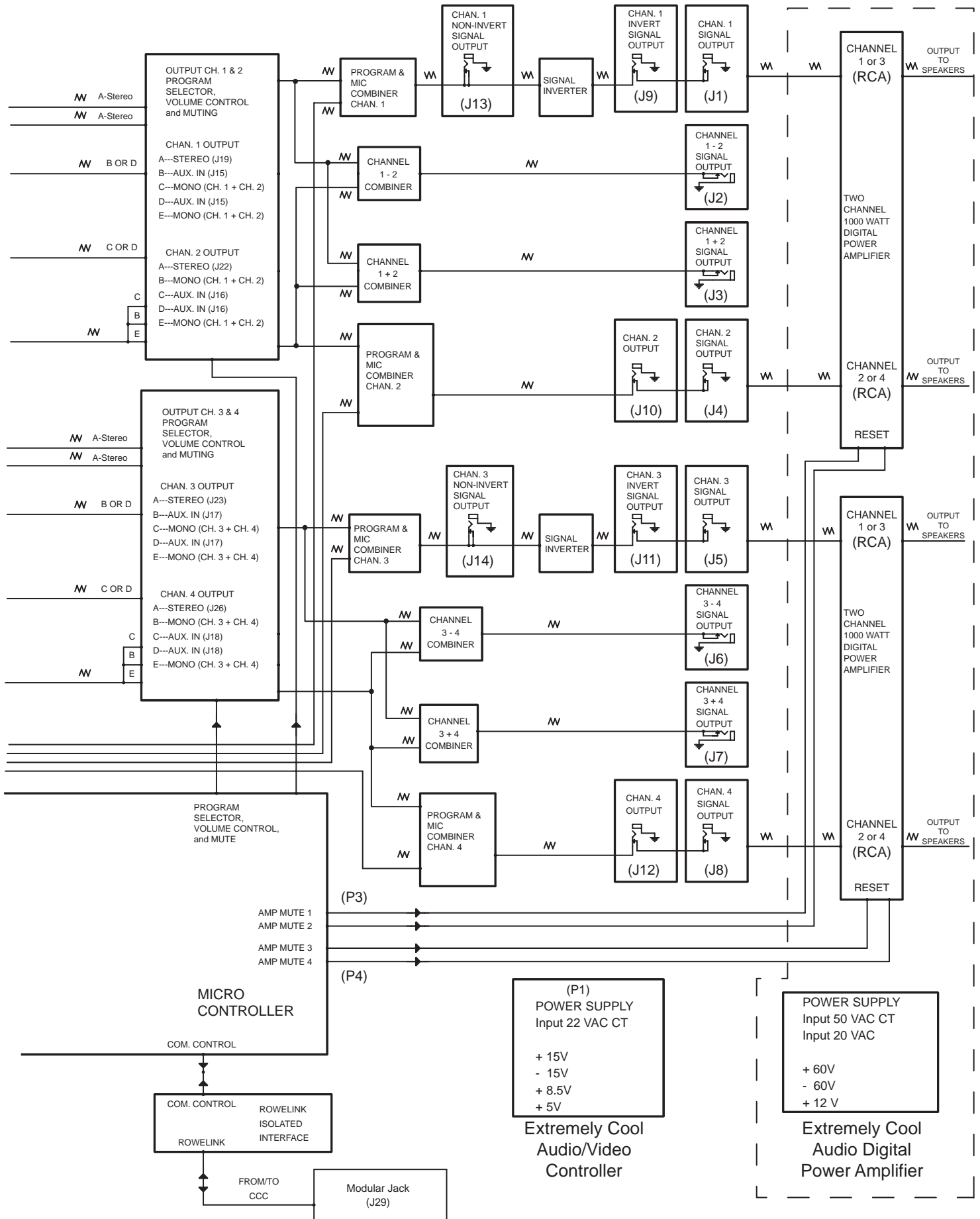
## Summary of Audio/Video Controller Features and Flow – Front to Back (ref: Audio Block Diagram)

- RCA jacks for Front End inputs
  - Jacks marked CD/Stereo Mechanism, Stereo A (BGM), Stereo B, Mono C (BGM)
- AVC corrects Front End signal for varying recording levels
- RCA jacks for Left and Right AUXILIARY OUT with AVC and PAGING
- Left and Right channels split into 4 channels
  - Left channel becomes channel 1 and channel 3
  - Right channel becomes channel 2 and channel 4
- Channels 1, 2, 3, and 4 are equalized. Each channel has its own 5-band equalizer.
- RCA jacks for connecting external sound processor, other sound systems, etc.
  - Jacks marked EQUALIZER OUT, and CH1 through CH4 INPUT
- RCA jacks for connecting AUX inputs
- Volume control for Channels 1, 2, 3, and 4. Each channel can be linked or separate
- Microphones
  - 3 microphones can be connected and used simultaneously
  - 1/4-inch jacks for balanced and unbalanced microphones, and headers for Rowe microphones
  - Each microphone can be routed to any or all 6 outputs (AUX L, AUX R, CH1, CH2, CH3, CH4)
  - Microphones can be used for paging and/or karaoke
- RCA jacks and video and audio relays for video CD's, karaoke, and location A/V (TV's, etc.)
  - Jacks marked AUDIO SWITCH and VIDEO SWITCH
- RCA jacks for connecting external sound processor, other sound systems, etc.
  - Jacks marked:
    - CH1 NON-INVERT SIGNAL, CH1 INVERT SIGNAL OUTPUT, CH1 SIGNAL OUTPUT
    - CH2 OUTPUT, CH2 SIGNAL OUTPUT
    - CH3 NON-INVERT SIGNAL, CH3 INVERT SIGNAL OUTPUT, CH3 SIGNAL OUTPUT
    - CH4 OUTPUT, CH4 SIGNAL OUTPUT

- RCA jacks for surround sound
  - Jacks marked:
    - CH1 - CH2 SIGNAL OUTPUT, CH1 + CH2 SIGNAL OUTPUT
    - CH3 - CH4 SIGNAL OUTPUT, CH3 + CH4 SIGNAL OUTPUT
- RCA jacks for back end signal outputs
  - Jacks marked:
    - CH1 SIGNAL OUTPUT, CH2 SIGNAL OUTPUT
    - CH3 SIGNAL OUTPUT, CH4 SIGNAL OUTPUT
    - CH1 and CH3 are inverted

This page intentionally left blank.





STUDIO SOUND AUDIO BLOCK DIAGRAM

**90993****Front-end****Program Selected  
in Standby Mode**

CD (J41, J42),  
Stereo A (BGM) (J40, J43),  
Stereo B (J39, J44),  
Mono C (BGM) (J38)  
Factory setting is CD (J41, J42)

**9099990****Output Ch.1, and 2  
Program Selected  
in Standby Mode**

mono(CH1+CH2) / mono(CH1+CH2)  
aux(J15) / aux(J16)  
mono(CH1+CH2) / aux(J16)  
aux(J15) / mono(CH1+CH2)  
stereo(J19) / stereo(J22)  
Factory setting is stereo/stereo

**9099991****Output Ch.3, and 4  
Program Selected  
in Standby Mode**

mono(CH3 + CH4) / mono(CH3 + CH4)  
aux(J17) / aux(J18)  
mono(CH3 + CH4) / aux(J18)  
aux(J17) / mono(CH3 + CH4)  
stereo(J23) / stereo(J26)  
Factory setting is stereo/stereo

**909990 Muting in Standby Mode**

Audio/Video Controller Out CH 3&4,  
Audio/Video Controller Out CH 1&2,  
Front End,  
AVC,  
Power Amp Out CH1,  
Power Amp Out CH2,  
Power Amp Out CH3,  
Power Amp Out CH4  
Factory Setting (00000000) mutes all

**90994****Front-end****Program Selected  
in BGM Mode**

CD (J41, J42),  
Stereo A (BGM) (J40, J43),  
Stereo B (J39, J44),  
Mono C (BGM) (J38)  
Factory setting is CD (J41, J42)

**9099992****Output Ch.1, and 2  
Program Selected  
in BGM Mode**

mono(CH1 + CH2) / mono(CH1 + CH2)  
aux(J15) / aux(J16)  
mono(CH1 + CH2) / aux(J16)  
aux(J15) / mono(CH1 + CH2)  
stereo(J19) / stereo(J22)  
Factory setting is stereo/stereo

**9099993****Output Ch.3, and 4  
Program Selected  
in BGM Mode**

mono(CH3 + CH4) / mono(CH3 + CH4)  
aux(J17) / aux(J18)  
mono(CH3 + CH4) / aux(J18)  
aux(J17) / mono(CH3 + H4)  
stereo(J23) / stereo(J26)  
Factory setting is stereo/stereo

**909991 Muting in BGM Mode**

Audio/Video Controller Out CH 3&4,  
Audio/Video Controller Out CH 1&2,  
Front End,  
AVC,  
Power Amp Out CH1,  
Power Amp Out CH2,  
Power Amp Out CH3,  
Power Amp Out CH4  
Factory Setting (00000000) mutes all

**908 BGM Volume Max**

Range is 0 to 63.  
Factory setting is 63.

**93 BGM Delay Time**

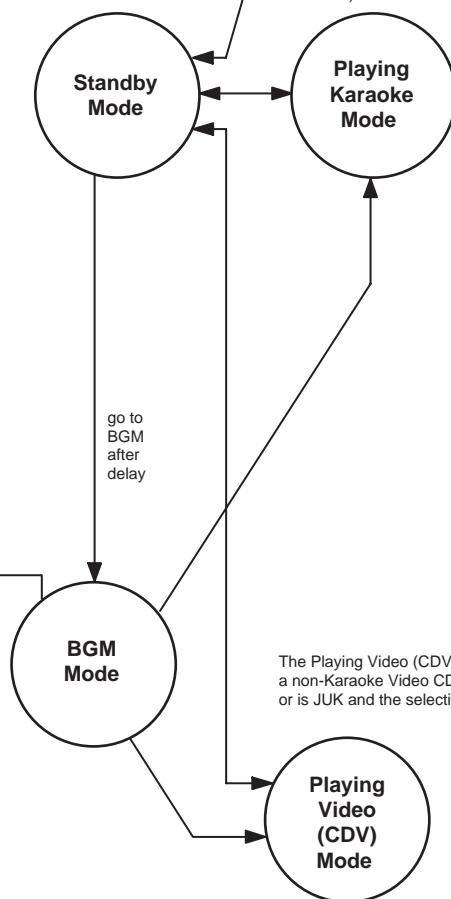
Delay from Standby Mode to BGM Mode.  
Factory setting is 10 seconds.

**96 Autoplay Volume**

Selects OFF, SEPARATE, or LOCKED for BGM, Autoplay, and Paid Play.  
Factory setting is OFF.

The Standby Mode is active between plays, and after all sections are played until phonograph goes to BGM Mode.

The Playing Karaoke Mode is active when playing a Karaoke selection (MENU item 68).

**90991****Front-end****Program Selected  
in Playing Karaoke Mode**

CD (J41, J42),  
Stereo A (BGM) (J40, J43),  
Stereo B (J39, J44),  
Mono C (BGM) (J38)  
Factory setting is CD (J41, J42)

**909995****Output Ch.1, and 2  
Program Selected  
in Playing Karaoke Mode**

mono(CH1 + CH2) / mono(CH1 + CH2)  
aux(J15) / aux(J16)  
mono(CH1 + CH2) / aux(J16)  
aux(J15) / mono(CH1 + CH2)  
stereo(J19) / stereo(J22)  
Factory setting is stereo/stereo

**909996****Output Ch.3, and 4  
Program Selected  
in Playing Karaoke Mode**

mono(CH3 + CH4) / mono(CH3 + CH4)  
aux(J17) / aux(J18)  
mono(CH3 + CH4) / aux(J18)  
aux(J17) / mono(CH3 + CH4)  
stereo(J23) / stereo(J26)  
Factory setting is stereo/stereo

**90997 Muting in Karaoke Mode**

Audio/Video Controller Out CH 3&4,  
Audio/Video Controller Out CH 1&2,  
Front End,  
AVC,  
Power Amp Out CH1,  
Power Amp Out CH2,  
Power Amp Out CH3,  
Power Amp Out CH4  
Factory Setting (11111111) unmutes all

The Playing Video (CDV) Mode is active when playing a non-Karaoke Video CD (MENU item 278 is ON, or is JUK and the selection is in the PRIORITY list MENU item 61).

**90992****Front-end****Program Selected  
in Playing Video Mode**

CD (J41, J42),  
Stereo A (BGM) (J40, J43),  
Stereo B (J39, J44),  
Mono C (BGM) (J38)  
Factory setting is CD (J41, J42)

**909997****Output Ch.1, and 2  
Program Selected  
in Playing Video Mode**

mono(CH1 + CH2) / mono(CH1 + CH2)  
aux(J15) / aux(J16)  
mono(CH1 + CH2) / aux(J16)  
aux(J15) / mono(CH1 + CH2)  
stereo(J19) / stereo(J22)  
Factory setting is stereo/stereo

**909998****Output Ch.3, and 4  
Program Selected  
in Playing Video Mode**

mono(CH3 + CH4) / mono(CH3 + CH4)  
aux(J17) / aux(J18)  
mono(CH3 + CH4) / aux(J18)  
aux(J17) / mono(CH3 + CH4)  
stereo(J23) / stereo(J26)  
Factory setting is stereo/stereo

**90998 Muting in Playing Video Mode**

Audio/Video Controller Out CH 3&4,  
Audio/Video Controller Out CH 1&2,  
Front End,  
AVC,  
Power Amp Out CH1,  
Power Amp Out CH2,  
Power Amp Out CH3,  
Power Amp Out CH4  
Factory Setting (11111111) unmutes all



### Playing Audio Mode

#### 90990 Front-end Program Selected in Playing Audio Mode

CD (J41, J42),  
Stereo A (BGM) (J40, J43),  
Stereo B (J39, J44),  
Mono C (BGM) (J38)  
Factory setting is CD (J41, J42)

#### 90993 Output Ch.1, and 2 Program Selected in Playing Audio Mode

mono(CH1 + CH2) / mono(CH1 + CH2)  
aux(J15) / aux(J16)  
mono(CH1 + CH2) / aux(J16)  
aux(J15) / mono(CH1 + CH2)  
stereo(J19) / stereo(J22)  
Factory setting is stereo/stereo

#### 90994 Output Ch.3, and 4 Program Selected in Playing Audio Mode

mono(CH3 + CH4) / mono(CH3 + CH4)  
aux(J17) / aux(J18)  
mono(CH3 + CH4) / aux(J18)  
aux(J17) / mono(CH3 + CH4)  
stereo(J23) / stereo(J26)  
Factory setting is stereo/stereo

#### 90996 Muting in Playing Audio Mode

Audio/Video Controller Out CH 3&4,  
Audio/Video Controller Out CH 1&2,  
Front End,  
AVC,  
Power Amp Out CH1,  
Power Amp Out CH2,  
Power Amp Out CH3,  
Power Amp Out CH4  
Factory Setting (11111111) unmutes all

### Mic Keyed Mode

#### 90995 Front-end Program Selected in Mic Keyed Mode

CD (J41, J42),  
Stereo A (BGM) (J40, J43),  
Stereo B (J39, J44),  
Mono C (BGM) (J38), Unchanged  
Factory setting is CD (J41, J42)

#### 9099994 Output Ch.1, and 2 Program Selected in Mic Keyed Mode

mono(CH1 + CH2) / mono(CH1 + CH2)  
aux(J15) / aux(J16)  
mono(CH1 + CH2) / aux(J16)  
aux(J15) / mono(CH1 + CH2)  
stereo(J19) / stereo(J22)  
Factory setting is stereo/stereo

#### 909995 Output Ch.3, and 4 Program Selected in Mic Keyed Mode

mono(CH3 + CH4) / mono(CH3 + CH4)  
aux(J17) / aux(J18)  
mono(CH3 + CH4) / aux(J18)  
aux(J17) / mono(CH3 + CH4)  
stereo(J23) / stereo(J26)  
Factory setting is stereo/stereo

#### 909992 Muting in Mic Keyed Mode

Audio/Video Controller Out CH 3&4,  
Audio/Video Controller Out CH 1&2,  
Front End,  
AVC,  
Power Amp Out CH1,  
Power Amp Out CH2,  
Power Amp Out CH3,  
Power Amp Out CH4  
Factory Setting (11111111) unmutes all

#### 900 -903

#### Mic Volume Override

#### Ch 1, 2, 3, 4

Range 0 to 63. Factory setting is 33.

#### 904 -906 Mic Routing

Each mic can be routed to any or all 6 channels.  
Factory setting routes all mics to all channels

#### 907 Mic Type

Each mic can be a paging or karaoke type. Also, sets phonograph type to CD or Download. Factory setting sets all mic's to paging, and phonograph type to CD.

#### 94 Lead Singer

Sets karaoke lead singer to LEFT or Right channel.  
Factory setting is RIGHT

## ADDITIONAL PROGRAMMING

#### 98 IR Volume Step

Controls how fast the volume changes when using IR remote to adjust volume. Range is 1 to 5. Factory Setting is 2

#### 9099996-9099999 Volume Control Switch Mask

Disable/enable individual switches when using multiple volume control units. Factory setting is 1111111111 (all switches enabled).

#### 95 Amp Factory Load

Loads Factory Setting for the amplifier

#### 9096 Equalizer Ch. 1,2 Two 5 band equalizers.

#### 9097 Equalizer Ch. 3,4 Two 5 band equalizers.

Range of each band is 0 to 9 Factory Setting is 1E99999 2E99999 3E99999 4E99999

#### 9090-9093 Attenuates or raises level of Front-end signal to fit into AVC range.

Range is 0 to 50. Factory Setting is 34

#### 9094,9095 Attenuates or raises level of outputs to give 1V rms output when volume is 63 (maximum) and equalizers have factory settings.

Range is 0 to 50. Factory Setting is 32.

#### 97 Volume Option. There are 10 different options. Factory setting is option 10.

L, L1, L2 means those channels volumes are locked together. Changing the volume on any L, L1, or L2 channel will also change the volume on all like channels.

S means separate. Changing the volume on a S channel will not affect other channels.

Option	CH1	CH2	CH3	CH4
1	L1	L1	L2	L2
2	L	L	L	S
3	L	L	S	L
4	L1	L1	L2	L2
5	S	L	L	L

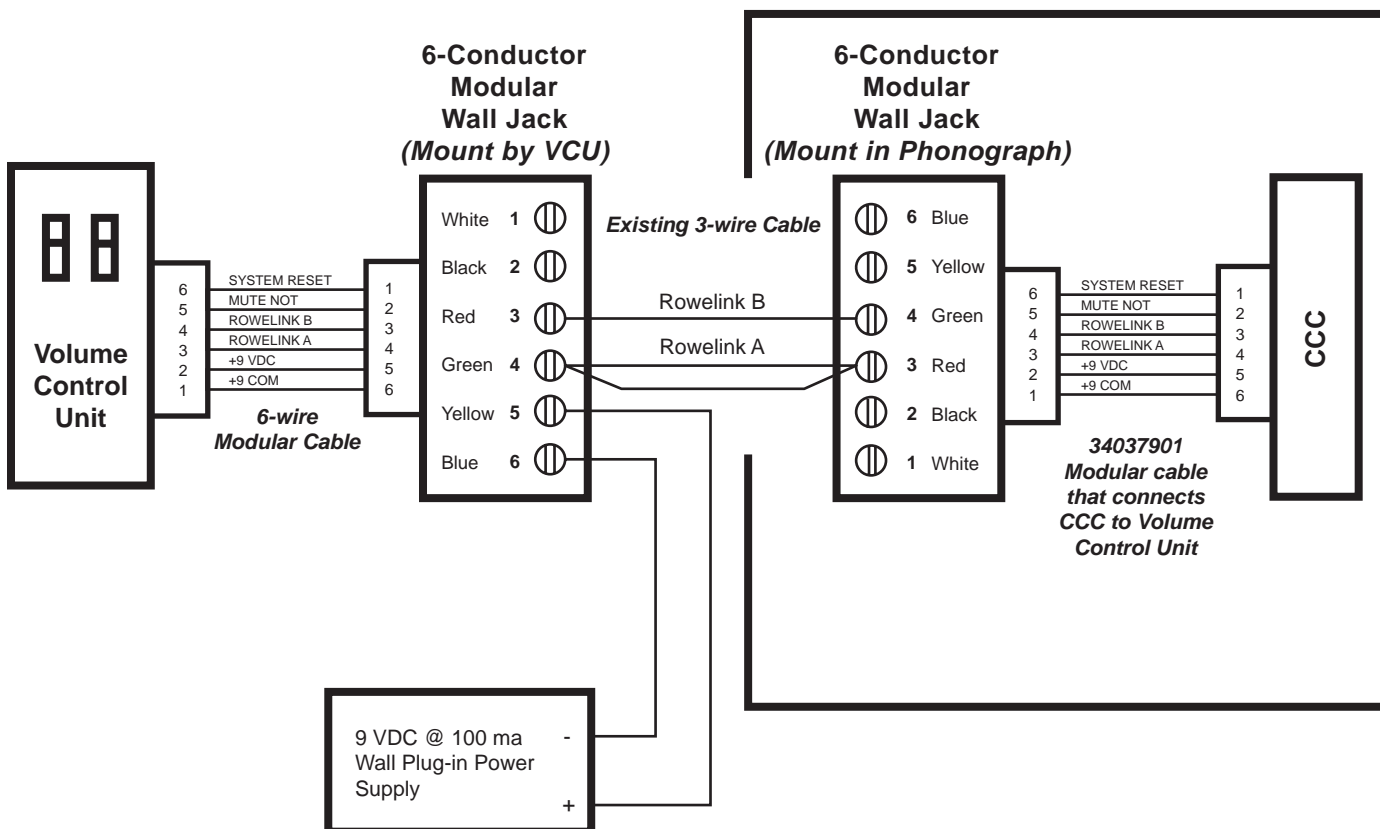
Option	CH1	CH2	CH3	CH4
6	L	L	S	S
7	S	S	L	L
8	S	S	S	S
9	L1	L2	L1	L2
10	L	L	L	L

## STUDIO SOUND AUDIO PROGRAMMING BLOCK DIAGRAM



## How to remote the Volume Control Unit using existing 3-wire cable

CD-100K Phonograph



## How to remote the Volume Control Unit using existing 4-wire cable

CD-100K Phonograph

