



REGATTA CD WALLBOX USER'S GUIDE

Rev. 0.5
22 March, 2001

NOTICE:

This is a pre-release version of the User's Guide. See the User's Guide shipped inside of your jukebox for current information.

www.regattajukebox.com

TABLE OF CONTENTS

1. SYSTEM OVERVIEW	5
1.1 Power Distribution Box	5
1.2 CD Mech/Controller Assembly	5
1.3 Display/Key Board	5
1.4 Amplifiers	6
1.5 Expansion Board	6
2. SETTING UP	6
2.1 Connecting Speakers	7
2.1.1 Selecting Stereo or Mono Mode	8
2.1.2 Connecting a Single External Speaker to Each Output	8
2.1.3 Connecting Speakers in Parallel	9
2.1.4 Maximum Number of External Speakers	9
2.1.4.1 Maximum External Speakers Connected to the Main Amp	9
2.1.4.2 Maximum External Speakers Connected to the AUX Amp	9
2.1.5 Controlling the Volume of the AUX Speakers	10
2.1.6 Pre-Amp Outputs	10
2.1.6.1 CD Out	10
2.1.6.2 AUX Out	11
2.1.6.3 SEL Out	11
2.2 Adding Background Music	11
2.2.1 Controlling the Volume of the Background Music	11
2.3 Auto Play	11
2.4 Connecting a Paging Mic (optional)	12
2.5 Remote Controls	12
2.5.1 Wired Remote Control	12
2.5.1.1 Wired Remote - Main and Aux	13
2.5.1.2 Wired Remote - Main Only	13
2.5.1.3 RF Wireless Remote Control (optional)	13
2.5.1.4 IR Wireless Remote Control (optional)	13
2.6 Remote Selection Boxes	14
2.7 Pricing	14
2.7.1 Default Pricing	14
2.7.2 Viewing Current Pricing	14
2.7.3 Adding a Level	15
2.7.4 Deleting a Level	15
2.7.5 Changing a Level	15

2.7.6	Bonus On/Off Times	15
2.7.7	VIP Pricing	16
2.7.8	Max Credits	16
2.7.9	Max Track Time	16
2.7.10	Currency Format	16
2.7.11	Input Values	17
2.7.12	Mechanical Money Counter	17
3.	NORMAL OPERATION	17
3.1	Installing and Removing Discs	17
3.2	Initializing Discs	18
3.2.1	Initializing All Discs	18
3.2.1.1	Initializing Specific Discs	18
3.3	Reading Audits	18
3.3.1	Printing Audits	19
3.3.2	Popularities	19
3.3.2.1	Top Ten	19
3.3.2.2	Most Popular Tracks	19
3.3.2.3	Least Popular Tracks	19
3.3.2.4	Clearing Popularities	19
3.3.3	Cash Reports	20
3.3.3.1	Viewing Cash Reports	20
3.3.3.2	Date Cleared, Hours Active	20
3.3.3.3	Clearing Cash Reports	20
4.	PRINTING	20
5.	SERVICE MENUS	21
5.1	Security	21
5.1.1	Entering a Security Code	22
5.1.2	Viewing the Security Level	22
5.1.3	Viewing and Changing the Security Codes	22
5.2	Error Reports	23
5.2.1	Printing Errors and Warnings	23
5.2.2	Viewing Errors and Warnings	23
5.2.3	Clearing Errors and Warnings	23
5.3	Diagnostics	23
5.3.1	Testing the Display	24
5.3.2	Testing the Remote Controls	24
5.3.3	Testing Switches	25
5.3.4	Testing the CD Mech	26
5.3.5	Testing the Preamps	26
5.3.6	Testing the Controller to Display/Key Board Communications	26
5.3.7	Testing the CD Player	27
5.3.7.1	CD Time and Status	27
5.3.7.2	Playing CD's Directly	27

5.3.7.3	CDM12 Service Mode	28
5.3.8	Testing the IR Printer	29
5.4	Audits	29
5.4.1	Printing Audits	29
5.4.2	Popularities	29
5.4.2.1	Top Ten	30
5.4.2.2	Most Popular Discs	30
5.4.2.3	Least Popular Discs	30
5.4.2.4	Clear Popularities	30
5.4.2.5	Date Cleared	30
5.4.3	Cash Reports	30
5.4.3.1	Local Cash	31
5.4.3.2	Remote Cash	31
5.4.3.3	Total Cash	31
5.4.3.4	Date Cleared	31
5.4.4	Play Reports	31
5.4.5	Clear Cash and Play Reports	31
5.4.6	Hours Active	31
5.4.7	Long-Term Audits	31
6.	DISC MAINTENANCE	33
7.	ADJUSTMENTS	33
7.1	AUX Preamp Control	35
7.2	CD Skip Detection	36
7.3	Auto Play	36
7.4	Acceleration	36
7.5	Initializing Bad/Empty Slots at Start Up	37
7.6	Maximum Volume	37
7.7	Factory Defaults	37
8.	PERIODIC MAINTENANCE	37
9.	TROUBLESHOOTING	37
10.	ERRORS AND WARNINGS	37

1. SYSTEM OVERVIEW

The key to the Regatta Jukebox system is its modular design. Each assembly is designed to be as compact and integrated as possible to minimize inter-assembly wiring and for ease of service and maintenance.

The core assemblies are the CD Mech (with the attached Controller board), the Display/Key Board assembly (sometimes referred to as the DKB), the Power Distribution Box, and the amplifiers. External connections are made through Main Amp tap bracket, located in the upper right corner of the cabinet, and the Expansion board, located on the back wall of the cabinet.

1.1 Power Distribution Box

The power distribution box is where the power enters the cabinet and is re-distributed to the various assemblies. A transformer converts the incoming line current to 24 VAC that is sent to the Controller board, which converts it into 30 VDC, 9 VDC, and 5 VDC. The Controller board sends 30 VDC to the DKB and Expansion boards, which is then further converted into the voltages needed locally. A signal received from the Controller board is used to switch on and off the AC line current to the amplifiers, the bill acceptor, and the cabinet lights. All of the systems fuses are found here.

1.2 CD Mech/Controller Assembly

The CD Mech/Controller assembly contains the bulk of the operational components of the Regatta Jukebox system. The Controller board has its own power supply (converting the 24 VAC provided by the power distribution box into 30 VDC for the motors, 9 VDC for the audio, and 5 VDC for the logic). It also houses the system's micro-processor, non-volatile memory (for maintaining set-up and audit information), motor driver circuitry (for the CD Mech), communication support (for the display boards and 30 additional external remote selection boxes on a single twisted pair of wires), control for the CD player, two independent preamps with volume, bass, and treble controls, drivers for the IR printer, and more. The Controller board directs operations for the entire system.

The CD Mech holds up to one hundred (100) 12-cm audio compact discs in a removable magazine. Discs are held and picked up by their outside edge only, no contact is made to the playing surface of the disc, and no compression or gripping action on the disc. Disc to disc changes average about 10 seconds.

1.3 Display/Key Board

The Display/Key Board (DKB) handles all operations that interface directly with the user. This includes making selections, accepting money, and controlling the title display unit. As with the Controller board, the DKB has its own power supply to convert the 30 VDC from the Controller board to the voltages needed. The DKB communicates with the Controller via a twisted pair of wires.

The title display or Page Unit is controlled by the DKB. The user presses a key to flip the pages manually; DIP switches may be set to cause the pages to flip automatically at one of four rates. DIP switch six (6) controls the speed of the pages.

Remote selection boxes consist of a DKB, currency acceptors, a page unit, and a power supply.

1.4 Amplifiers

The Regatta Jukebox system comes equipped with two separate stereo amplifiers, driven by separate preamplifiers on the Controller. One amplifier is referred to as MAIN, while the other is referred to as AUX. The amplifiers are located in the upper left of the cabinet in a separate enclosure to improve airflow across the amplifiers without drawing heat, dust, or other debris into the rest of the cabinet. The volume controls may be linked so that the AUX speakers are always a percentage louder or softer than the MAIN speakers or they may be independent so that the MAIN and AUX speakers have their own separate volume controls.

1.5 Expansion Board

The expansion board is used for most of the jukebox's connections to the outside world, including AUX speaker outputs, background music input, wired/wireless remote control(s), paging microphone input, and remote selection box communication. Additionally, the IR LED for the IR Printer is located on this board.

2. SETTING UP

Before operating the jukebox, remove the shipping bubble wrap from around the mech and page unit. Whenever the jukebox is transported, bubble wrap should be replaced to hold the mech in place during transit.

Detailed set up instructions can be found starting in section 3, Normal Operation. For minimum installation very little is required to set up the Regatta Jukebox: Quick set-up on-line at www.regattajukebox.com

Note: Before installing your Regatta Jukebox, check the line voltage at the location. The voltage should be between 110 and 125 volts.

1. Remove Sound Wave from its box. Remove the plastic cover. Do not remove the “wooden foot brace” on the bottom of your sound wave.
2. Remove the keys from the coin return cup on the left side of your Sound Wave, unlock and open the “Upper Door”.
3. Make sure the pages are on selection 12 or greater and open the “Page Unit”.
4. Remove the “Locking Bolt” from the center, back , inside wall. This will allow you to remove the “Mounting Bracket” on the back.
5. Locate wall studs near the location you want to hang your Sound Wave. Position the “Mounting Bracket” across two studs and securely fasten it to the wall.
6. Remove the “Power Cord” from inside the Sound Wave and plug it into the back of the box. DO NOT PLUG INTO AN ELECTRICAL OUTLET YET.
7. Close both doors and lift the box to position the top two “Mounting Spindles” to the corresponding top slots of the “Mounting Bracket”, then align the lower “Mounting Spindles” and allow the jukebox to slide into position.
8. Remove the “Wooden Foot Brace” from the bottom of the cabinet.
9. Remove the shipping bubble wrap from the CD Mech.
10. Remove the “CD Tray” by lifting up the “CD Retaining Arm” and pulling the tray out. Insert discs from number 00 to 99 with the title to the left.
11. After all the CD’s are in, slide the tray back in and lock the arm down.
12. Plug the “Power Cord” into a properly grounded 120Volt AC outlet and turn on your Sound Wave.
13. Insert the CD jackets and title cards into the “Page Unit”. Place the protective plastic cover over each CD jacket and title card.
14. Connect all external speakers to either the “MAIN Amp Bracket” or the “Expansion Board”.
15. Setup is now complete.

2.1 Connecting Speakers

The Regatta Jukebox system has two independent sets of preamps, referred to as ‘MAIN’ and ‘AUX’. Each preamp is connected to its own stereo amp. In a typical con-

figuration, the MAIN preamp and amp drive the MAIN speakers while the AUX preamp and amp are used to drive a pair of AUX speakers.

The connections to the AUX speakers are made through the Expansion board on the back wall of the cabinet. Connections are made via four screw terminals with quick-disconnects, labeled **LEFT+**, **LEFT-**, **RIGHT-**, and **RIGHT+**. DO NOT connect the negative terminals together. Never connect a speaker from the left to the right outputs, such as from the **LEFT-** to **RIGHT+** or from **LEFT+** to **RIGHT-** outputs, as this may damage the amplifier.

Proper speaker connections can be found on-line at www.regattajukebox.com.

2.1.1 *Selecting Stereo or Mono Mode*

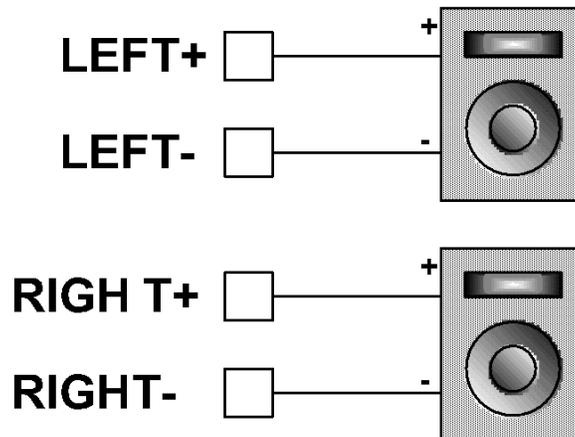
Stereo imaging is difficult to obtain in some installations due to speaker placement requirements. In these instances operating the amplifiers in mono mode may be more desirable. When in mono mode the left and right outputs from the preamp are summed and fed equally into the left and right inputs of the amplifiers, thus providing a mono (left+right) signal at both outputs.

To set the main preamp to mono mode locate the three-pin jumper block at the upper right of the Controller board (attached to the side of the mech), labeled J101, MAIN. Move the shorting block to the right two pins (labeled MONO). For stereo mode move the shorting block to the left two pins (labeled STEREO)

The AUX preamp is set similarly, using the three-pin jumper block labeled J102, AUX, located to the right of J101.

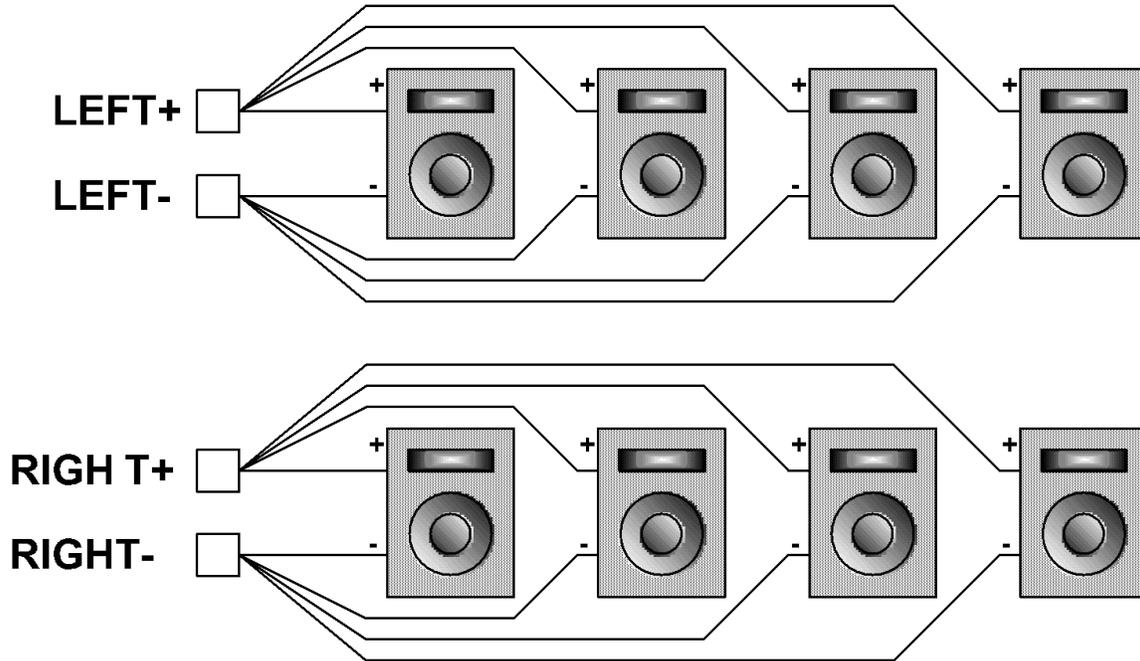
2.1.2 *Connecting a Single External Speaker to Each Output*

The total impedance of any set of speakers connected one amplifier output must be kept between 2Ω and 8Ω. If only one speaker is to be connected to each output this is simple. Connect the + wire from the amp to the + (red) terminal of the speaker and the - wire from the amp to the - (black) terminal of the speaker. More speaker combinations on-line at www.regattajukebox.com.



2.1.3 Connecting Speakers in Parallel

If more than one speaker is required to be connected to each output, connect them in parallel, like this:



ALWAYS CONNECT

- **LEFT+** from the amplifier to the + (red) terminal on all left speakers
- **LEFT-** from the amplifier to the - (black) terminal on all left speakers
- **RIGHT+** from the amplifier to the + (red) terminal on all right speakers
- **RIGHT-** from the amplifier to the - (black) terminal on all right speakers

NEVER connect a speaker from the **LEFT** to the **RIGHT** outputs.

2.1.4 Maximum Number of External Speakers

Care must be taken that the total impedance to each output is not less than 2Ω. If too many speakers are connected to a single output amplifier damage may result. Use the following guidelines to determine the maximum number of external speakers or visit us online at www.regattajukebox.com.

2.1.4.1 Maximum External Speakers Connected to the Main Amp

The MAIN amplifier only drives the MAIN speakers and may drive up to TWO 4Ω or FOUR 8Ω speakers **per channel**.

2.1.4.2 Maximum External Speakers Connected to the AUX Amp

The AUX amplifier only drives the AUX speakers and may drive up to TWO 4Ω or FOUR 8Ω speakers **per channel**.

2.1.5 Controlling the Volume of the AUX Speakers

Since the system has two separate preamps the volume for the MAIN and AUX speakers can be controlled independently. This is true of the tone controls (bass, treble, and loudness) as well.

The volume controls on the DKB and the wired remote have a switch to select between MAIN or AUX. When set to 'MAIN', the volume (and tone, if present) buttons control the main volume or tone. Likewise, when set to 'AUX', the buttons will adjust the AUX volume or tone.

Two modes are available to set the relationship between the MAIN and AUX volume (see section 7.1, AUX Preamp Control, for an explanation of how to select the desired mode). The AUX volume control may be independent, where it operates identically, but independently of the MAIN control, or it may be linked, where it is directly related to the MAIN volume. In a location where the AUX speakers are in the same room as the MAIN speakers, the AUX volume should usually be linked to the MAIN volume so that one adjustment controls all speakers. In a location where the AUX speakers are in a separate room, the AUX volume should usually be independent, so that the volume in the two rooms may be set individually.

When the AUX volume is set to be independent it can be set to any volume from 0 (off) to 40 (full). The setting of the MAIN volume will have no effect on the volume of the AUX amps.

When the AUX volume is "LINKED TO MAIN" the AUX volume may be set to any value from 0% to 250% (in increments of 2%). What this means is that for any setting of the MAIN volume, the AUX volume will be some percentage of it. For example, if AUX is set to 80% then whatever the MAIN volume is, the AUX volume will be 80% of it. Likewise, if AUX is set to 150% then the AUX volume will always be 150% of the MAIN setting (up to its maximum value). This enables the volume of the location to be controlled by the MAIN volume only, while maintaining the correct volume relationship between the MAIN and AUX speakers.

2.1.6 Pre-Amp Outputs

The Pre-Amp outputs are located at the top of the Controller Board on the Mech. These RCA's are used when connecting a house amp to the jukebox. All outputs are stereo, right and left, outputs.

2.1.6.1 CD Out

CD-L and CD-R are line level stereo outputs directly from the CD player. The sound information is not affected in any way from the Regatta internal circuitry. This means only the CD music is outputted with no volume, tone, or loudness controls. The BGM, Paging MIC, and Automatic Volume controls are also not outputted.

2.1.6.2 *AUX Out*

AUX-L and AUX-R are line level stereo outputs that are the same as the AUX speaker outputs. The same sound is sent through AUX-L and AUX-R that is heard over the AUX speakers. When the AUX Out is used with a house amp the sound is affected by all the Regatta internal circuitry such as: volume, tone, loudness, BGM, Paging MIC, and Automatic Volume Control.

2.1.6.3 *SEL Out*

SEL-L and SEL-R are line level outputs that output whatever is selected of the jukebox. The CD, AVC, Paging MIC, and BGM are all sent to SEL Out but the jukebox's volume, tone, or loudness controls have no affect.

2.2 **Adding Background Music**

'Background music' refers to an external source of audio which is played through the jukebox when no CD's are playing and the paging mic is not keyed. Background music is fed into the system through two RCA jacks on the expansion board. The signal coming in should ideally be line level audio, but low-level speaker outputs can be safely connected to this input. Any time the system is idle this input becomes active. A cut out at the back of the cabinet allows easy cable entry.

When the system is idle, the background music will play through. As soon as a selection is made, the background music will fade out, then the selection will play at normal volume. When all selections have finished playing, the background music will fade back up. Additionally, if the ac power to the amplifiers is connected to an unswitched source, the background music will continue to play even when the jukebox is turned off via the remote power switch (sleep). This can be useful in situations such as a sports bar where the audio for the TV is fed through the background music input of the jukebox and an event occurs where the jukebox needs to be turned off.

2.2.1 *Controlling the Volume of the Background Music*

The background music has a separate volume adjustment, BGM UP and BGM DOWN. Pressing these buttons will display and adjust the background music volume as a percentage of the main volume. This allows the background music volume to be set relative to the CD volume. For example, if you wish to have the background music play 80% as loud as CDs, set the BGM VOLUME to 80%. Then, whatever the main volume setting, the background music will be 80% of the main setting. The BGM volume may be set anywhere from 0% (off) to 250% of the MAIN volume setting, in 2% increments. BGM may also be set to independent.

2.3 **Auto Play**

Auto play allows the system to play random selections at predetermined intervals as an attract feature when no paid selections are playing. If an Auto play selection is playing and a paid selection is made the auto played track is faded out and canceled.

Four parameters control the behavior of Auto play, as described below. See section 7.3, Auto Play, for instructions on viewing or adjusting these settings.

- 1) Auto Play Interval. This controls how much time passes between when random selections are played, and can be set from 0 to 99 minutes (0 means no auto play).
- 2) Auto Play Length Limit. This adjusts how long each selection plays before it is faded out, and can be set from 0 to 99 minutes(0 means no length limit).
- 3) Auto Play Disc Range. This sets the range of discs from which auto play may randomly select tracks. Any contiguous set of discs is allowable, such as 90 through 99. The default setting is the entire magazine (00 through 99).
- 4) Auto Play Volume Source. The volume at which auto selections play may be the same volume as either paid selections or the background music volume.

2.4 Connecting a Paging Mic (optional)

The Regatta Paging Mic kit utilizes a novel technique which permits proper operation with only a single shielded wire (no key signal). Connect the center lead to the MIC+ terminal and the shield to the MIC- terminal on the expansion board. A cut out at the back of the cabinet allows cable entry. Similarly, connect the Regatta Paging Mic kit to the other end of the cable. An LED (labeled MIC KEY) on the Controller board lights when the microphone is keyed.

An existing paging system (three wire) may be connected instead of a Regatta Paging Mic kit. Connect the signal wire (mic) to the MIC+ terminal. Connect the shield to the MIC- terminal, Connect the mic switch signal to the MIC KEY terminal. The system expects that the MIC KEY signal connects to MIC - when the mic is keyed.

To use the paging mic, simply press the key switch. The system will switch over to the mic input and pause any CD playing. Adjust the mic volume by turning the volume knob on the mic kit box. Releasing the key switch resumes normal operation.

If no selections will play and background music is silent or intermittent, a short from the mic key wire and ground may exist. Look to see if the MIC KEY LED on the Controller board is lit. If so, find and remove the short.

2.5 Remote Controls

Both wired and wireless remote controls are available for the Regatta Jukebox; both are connected to the expansion board. The remote control uses two inputs, one for MAIN and one for AUX. Both work identically. See section 5.3.2, Testing the Remote Controls, for an explanation of the operation of the remote controls.

2.5.1 Wired Remote Control

The wired remote control requires either two wires (for control of main only) or three wires (to control both main and aux). Any number of remote controls may be connected but no more than one button may be pressed at a time. Pressing more than one button at a time will usually result in no action taken by the jukebox. In general, if the preamps are linked the location shouldn't need to separately adjust the main and aux vol-

umes; wire the remote for main only. If the preamps are not linked (main and aux adjust independently) then the location needs to have control over both preamps; wire the remote for main and aux.

2.5.1.1 Wired Remote - Main and Aux

Run three wires from the jukebox to the location where the wired remote control is to be mounted. Connect the jukebox end of the wires to MAIN, AUX, and GND on the Expansion board and the remote end to MAIN, AUX, and COM on the wired remote control. Be sure to connect MAIN to MAIN, AUX to AUX, and GND to COM.

2.5.1.2 Wired Remote - Main Only

Run two wires from the jukebox to the location where the wired remote control is to be mounted. Connect the jukebox end of the wires to MAIN and GND on the Expansion board. At the remote end connect one wire to both MAIN and AUX and the other wire to COM. This will allow the buttons to control the MAIN settings, regardless of the position of the MAIN/AUX switch.

If after installing the wired remote control all selections cancel immediately check for a short from MAIN or AUX to GND. See section 5.3.2, Testing the Remote Controls, to locate any problems.

2.5.1.3 RF Wireless Remote Control (optional)

To install the RF (radio frequency) wireless remote control, mount the remote receiver in the outer back of the cabinet. Plug the cable from the receiver into the REMOTE connector on the expansion board. The RF remote has the advantage that it operates on radio waves, not light, so it doesn't need to be pointing at or even in the same room as the jukebox. The disadvantage is that it may interfere with or be affected by other radio-operated devices.

2.5.1.4 IR Wireless Remote Control (optional)

To install the IR (infrared) wireless remote control, mount the receiver on the wall behind and above the jukebox. Plug the cable from the receiver into the REMOTE connector on the expansion board. The IR wireless remote works with infrared light, like a television remote. It requires 'line of sight' contact between the transmitter and receiver, which is why it is beneficial to mount the receiver high on the wall, above most people's heads. To some extent it will respond to light from the remote control bouncing off the walls or ceiling.

2.6 Remote Selection Boxes

The Regatta Jukebox system can support up to 30 remote selection boxes. To install, refer to the documentation which came with the remote selection box.

2.7 Pricing

Two pricing modes are available: normal and bonus. Most of the time normal pricing is in effect. If after some set period of time no paid selections have played and no money has been added the pricing switches to bonus. After some period of time the pricing will switch back to normal.

Both modes have five pricing levels. This enables the operator to award extra credits for paying more money. A typical normal pricing could be:

- Level 1 - 0 plays for \$0.00
- Level 2 - 0 plays for \$0.00
- Level 3 - 2 plays for \$1.00
- Level 4 - 5 plays for \$2.00
- Level 5 - 15 plays for \$5.00

Bonus pricing levels to complement this could be:

- Level 1 - 0 plays for \$0.00
- Level 2 - 0 plays for \$0.00
- Level 3 - 3 plays for \$1.00
- Level 4 - 7 plays for \$2.00
- Level 5 - 18 plays for \$5.00

This way, if the jukebox has been idle for a little while, the system 'goes on sale', offering a few extra credits.

The levels that show 0 plays for \$0.00 are not in use but are available. The system always sorts the levels so that the highest awards are at the higher levels.

2.7.1 Default Pricing

The default price levels may be reset at any time by entering service mode by pressing the SERVICE switch, then selecting ADJUSTMENTS, then PRICING, then DEFAULT PRICE. Press TOP TEN to confirm your choice. This will reset the pricing to the default settings.

2.7.2 Viewing Current Pricing

The current pricing will always show up on the display when it's in attract mode (no credits on the display). To jump right to the pricing sequence press any number key. If bonus pricing is active the 'BONUS PRICING' light will be flashing.

To get a detailed listing enter service mode by pressing SERVICE, then select ADJUSTMENTS then PRICING. Select NORMAL PRICING or BONUS PRICING, then select VIEW PRICING. The display will show each of the pricing levels, followed by the number of credits to charge for VIP plays (usually 1) and the maximum number of credits to charge to play an album.

2.7.3 Adding a Level

To add a pricing level select ADD NEW LEVEL. For example, say you want to add one play for fifty cents to the normal pricing list. Enter 01 for selections, then \$00.50 for price. The new level will be inserted into the normal pricing list.

***YOU MUST ENTER TWO (2) DIGITS FOR SELECTIONS**

***YOU MUST ENTER FOUR (4) DIGITS FOR PRICING**

Any consistent price level may be added. For example, if 12 plays for \$3.00 is entered, the new level would be inserted automatically, like this:

Level 1 - 0 plays for \$0.00
Level 2 - 3 plays for \$1.00
Level 3 - 7 plays for \$2.00
Level 4 - 12 plays for \$3.00
Level 5 - 20 plays for \$5.00

The system will not allow entry of *inconsistent* pricing levels. For example, the price level 10 plays for \$1.50 couldn't be added to the normal pricing listed above, because it has more plays than level 3 but for less money. The system would respond with the message INCONSISTENT W/CURRENT LEVELS.

2.7.4 Deleting a Level

To delete a level select DELETE LEVEL, then enter the two-digit number of the level to be deleted. If the level deleted is not the lowest level then any lower levels will be moved up so that all the active levels are sorted and grouped at the top. This is only an issue when deleting more than one level, since the other level numbers may change. Always go to VIEW LEVEL after deleting or adding levels to be sure the new pricing is what was intended.

2.7.5 Changing a Level

A price level can't be changed directly. First, delete the level to be changed. Then, add a new level with the correct values. For example, if level 3 is 7 plays for \$2.00 and the desired values are 8 plays for \$2.00, select DELETE LEVEL then enter 03 to delete level 3. Next, select ADD LEVEL, enter 08 for the number of selections and \$2.00 for the price.

2.7.6 Bonus On/Off Times

The BONUS PRICING menu also has options for SET BONUS ON and SET BONUS OFF. Select SET BONUS ON to set the time for the system to sit idle before switching to bonus pricing. Set this value to 00 to disable bonus pricing. Select SET BONUS OFF to set the time for bonus pricing to be on before it switches back to normal pricing.

2.7.7 VIP Pricing

Select VIP CREDITS to set the number of credits charged for VIP play. This is typically set to 1. This feature allows users to pay extra to push their selection to the front of the list so that it will be played next. As soon as that selection begins to play the feature is available again. Set this number to 0 to disable VIP play.

2.7.8 Max Credits

Select MAX CREDITS to set the maximum credits to charge for album play. When an entire album is selected (by entering 00 for the track number), the system will charge for the number of tracks up to this maximum. For example, if this number is set to 20 and a 19 track album is selected the system will charge 19 credits, but if a 22 track album is selected the system will only charge 20 credits.

2.7.9 Max Track Time

Select MAX TRACK TIME to set a limit to the number of minutes a track may play. When a track reaches this limit it will fade out and cancel. For example, if this is set to 8 minutes any tracks longer than 8 minutes will be faded out and canceled after that time. The default setting is 00, which means no limit.

2.7.10 Currency Format

The system supports currencies of several countries. The system utilizes the smallest currency unit for each country, which is referred to here as an atomic currency unit. For example, in the US this unit would be pennies, in Japan it's Yen. Select the format which most nearly resembles the currency of the country the jukebox is in. Note that this setting only changes how the pricing information is formatted on the display during attract mode; it does not change how it appears in the service menus and the bill and coin acceptors may need to be changed to accommodate the local currency. The available formats are:

\$xx.xx	Dollars (US, Canada)
£xx.xx	Pounds (U.K.)
xx.xxDM	Deutchmarks (Germany)
xx.xxfr	Francs (France)
xxxx\$	Pesos (Spain, Mexico)
xx\$xx	Escudos (Portugal)
xxxx¥	Yen (Japan)
R\$xx.xx	Real (Brazil)

Select VIEW FORMAT to view the currently selected format.

2.7.11 Input Values

The system uses up to five signals to indicate coins/bills received. Typically only two are used: one for coins and one for bills. The value of a switch closure on each of these wires can be set arbitrarily. The units used is the atomic currency unit of the current format (pennies in the US). Therefore, the default settings for the US are:

INPUT 1	5 (five pennies; nickel)
INPUT 2	10 (dime)
INPUT 3	25 (quarter) - this is connected to the quarter acceptor
INPUT 4	100 (dollar) - this is connected to the dollar bill acceptor
INPUT 5	500 (five dollars)

Each of these may be changed to any other weight. This should not be necessary in the US but may be useful in other countries.

2.7.12 Mechanical Money Counter

A mechanical counter may be connected to the display board to count money received in addition to the audits kept by the CPU. To set what units this counter is counting, select SET COUNT UNIT from the INPUT VALUES menu, in the PRICING menu. The number entered here sets the number of atomic currency units represented by one on the counter. For example, to count dollars enter 100. Then, every one hundred atomic currency units (pennies) the counter will register a one. This value may range from 0 (don't count at all) to 255.

3. NORMAL OPERATION

3.1 Installing and Removing Discs

1. Press SERVICE to enter service mode
2. Select DISC MAINTS from the SERVICE MODE menu
3. Select LOAD DISCS from the DISC MAINTS sub-menu
4. Wait for the Mech to go to its idle position (carriage fully left, transfer arm fully up). Any disc playing will be canceled and put away.
5. Rotate the CD locking bar to its full up position (directly over the CDs, holding them in the magazine).
6. Gently slide the magazine towards you, out of the cabinet.
7. Place the magazine on a clean, secure work surface.
8. Rotate the CD locking bar back to its full down position (be careful as discs may fall out if the magazine is bumped at this point).
9. Remove and put away any discs which are to be replaced (ALWAYS handle CDs by the edge only, taking care not to touch the playing surface).
10. Install new discs with the labels facing the left end of the magazine (note that the magazine is numbered 99 to 00, from left to right). Keep track of which slot

each disc was placed in, so that the title strips can be installed in the correct slots).

11. Carefully rotate the CD locking bar back to the full up position
12. Gently slide the magazine back into the mech.
13. Rotate the CD locking bar back to the full down position.
14. Press REDO to return to the DISC MAINTS sub-menu.

3.2 Initializing Discs

Before discs can be played they need to be initialized so that the system knows which slots contain discs and how many tracks are on each disc (used for selecting album play). When discs are removed and not replaced, those slots should be re-initialized as well so that the system knows the slots are empty.

Initialization only takes place when the jukebox is not in service mode and when no selections are pending. Initialization may occur while the system is in sleep.

With the factory default settings, slots which the system believes are empty or contain possibly bad discs are re-initialized every time the jukebox starts up after power off or sleep (this feature may be disabled -- see section 7.5, Initializing Bad/Empty Slots at Start Up). This allows the operator to install new discs and simply turn the jukebox on. All new discs will be initialized. This does not, however, work for discs which replace other discs. The jukebox will not know the number of tracks on the new disc, and therefore may not allow certain tracks to be selected, may allow selection of tracks which don't exist, or may charge incorrectly for album play. The number of tracks will be updated the next time the disc is read. However, the best practice is to initialize any new discs.

3.2.1 Initializing All Discs

1. Select INIT ALL from the DISC MAINTS sub-menu. Press TOP TEN to confirm. All discs will be initialized after exiting service mode.

3.2.1.1 Initializing Specific Discs

1. Select INIT SOME from the DISC MAINTS sub-menu.
2. Enter the disc numbers of the discs to be initialized.
3. Press REDO when finished to return to the DISC MAINTS sub-menu. The discs specified will be initialized after exiting service mode.

3.3 Reading Audits

Audits may be either read from the display or printed to the IR printer (see section 4, Printing).

1. Press SERVICE to enter service mode
2. Select AUDITS from the SERVICE MODE menu

3.3.1 *Printing Audits*

Select PRINT AUDITS to print available audits to the optional IR printer. The printer must be positioned so that it is lined up with the IR LED on the expansion board. See section 4, Printing, for more information about using the printer.

3.3.2 *Popularities*

Select POPULARITIES to go to the popularities menu. This menu allows you to see which discs and tracks are being selected most (and least) often.

3.3.2.1 *Top Ten*

Select VIEW TOP TEN to view the top ten most requested tracks. For each track the display will appear like this: 02-D59 T01/ 245. This means the number two most requested track is disc 59, track 1, and it's been selected 245 times since the popularities were last cleared.

The display will advance to the next disc every few seconds. You can manually advance by pressing a key, or REDO to exit. If fewer than ten different tracks have been selected since popularities were last cleared then only those tracks will appear in the top ten list.

When the TOP TEN key is pressed during attract mode the display will show the top ten list in order. When the TOP TEN key is pressed while credits are on the display, one of the top ten selections will be made (in order, 1 to 10) each time the button is pressed until the top ten list is exhausted or the credits run out.

3.3.2.2 *Most Popular Tracks*

Select VIEW MOST POP to view the number of times a track has been selected from each disc, sorted from most requested to least requested. For each disc the display will appear something like 24=DISC 17/ 29, which means the twenty-fourth most popular disc is disc 17, which has been selected 29 times since popularities were last cleared. The rank of the one-hundredth most popular disc (the least popular disc in a full magazine) displays as 00. The display will automatically cycle through the popularities, or you may press a key to manually advance, and REDO to exit.

3.3.2.3 *Least Popular Tracks*

Select VIEW LEAST POP to view the number of times a track has been selected from each disc, sorted from least requested to most requested. This is identical to VIEW MOST POP, above, except that the discs are sorted in reverse.

3.3.2.4 *Clearing Popularities*

Select CLEAR POPULAR to clear out the popularities (both top ten and disc rankings). Press TOP TEN to confirm your choice and REDO to cancel. Whenever the popularities are cleared the time and date is recorded for later reference. Select DATE

CLEARED to view the time (in 24hr format) and date that the popularities were last cleared.

3.3.3 Cash Reports

Cash reports track the amount of money put into the jukebox. The amount recorded by the jukebox and by any remote selection boxes is recorded separately. Select CASH REPORTS to go to the cash submenu.

3.3.3.1 Viewing Cash Reports

Select LOCAL CASH to see the amount recorded by the jukebox. Select REMOTE CASH to see the total amount recorded by all remote selection boxes, if any are attached. Select TOTAL CASH to see the total cash from all sources (local cash plus remote cash).

3.3.3.2 Date Cleared, Hours Active

Select DATE CLEARED to view the time and date that cash (and play) audits were last cleared. Select HOURS ACTIVE to view the number of hours the jukebox has been turned on since that date.

3.3.3.3 Clearing Cash Reports

Cash reports and play reports are cleared by selecting CLR. CASH/PLAYS, from the AUDITS menu. Press TOP TEN to confirm or REDO to cancel.

4. PRINTING

Printing is performed with a hand-held IR (infrared) printer. Data is transmitted from an IR LED on the jukebox Expansion board to the printer, which then prints it out. This requires no electrical connection and makes reporting easier because one printer can be carried to many different locations. The printer must be pointed at the IR LED and should be no more than two feet away (closer is better). If the path between the IR LED and the printer is blocked data will be lost. Missed data appears as block characters on the print out.

To operate, simply turn on the printer, point it toward the IR LED, and select the desired print function from the service menus. If the printer is left on and idle for several minutes it shuts itself off (the red light at the front of the printer will shut off). If this happens, press the line feed button on the printer to turn it back on.

The Expansion board is located on the back wall of the cabinet. The printer is a Hewlett Packard type 82240B infrared printer (sold separately), and operates on four AA batteries.

5. SERVICE MENUS

The service menus enable the operator to perform many tasks, including: checking audits, making adjustments, running diagnostics, and more. Many of the system's usual functions, like playing selections, are not suspended when in service mode, so most typical service functions, like reading audits, collecting money, and even changing a few discs, does not interfere with the regular operation of the jukebox.

To enter service mode, press the service button on the DKB. The display will show the software revision for the Controller board, the Display/Key board, and the CD player. Then, it will display the messages 'WARNINGS EXIST' and 'ERRORS EXIST', if the system has detected any warnings or errors.

Even when an error has been detected and the system displays '-OUT OF ORDER-' pressing the service button will still enter the service menus. In this case, however, the system will reset when exiting service mode, to attempt to resume normal operation. Note that, if the display shows 'OUT OF ORDER' with no dashes at the ends it indicates that the display board and the Controller board are not communicating, and service mode cannot be entered. See section 9, Troubleshooting.

Once in service mode, the available options will cycle on the display, with a number to the left of it. Press the number of the desired item to go to that feature or sub-menu. Once in a sub-menu, press REDO to back up to the previous sub-menu until the main menu is reached. To exit back to normal operation press 7 from the main menu. The main menu looks like this:

```
<SERVICE    >
1. SECURITY
2. ERROR REPORTS
3. DIAGNOSTICS
4. AUDITS
5. DISC MAINTS
6. ADJUSTMENTS
7. EXIT
```

5.1 Security

Access to certain features may be protected with a security code. The system has three security levels: zero, one, and two. Level zero is the lowest. Additional items are enabled in level one; all features are accessible from level two. A security code is a four-digit number that is entered from the SECURITY menu. The factory setting for both security codes is 0000. 0000 is a special code in that if the code for a level is 0000 then the system will automatically go to that security level on entry to the service menus. Therefore, if both codes are 0000 (as they are when first received from the factory) the system will go directly to security level two (full access) whenever service mode is entered.

A special adjustment mode is provided to allow the location to change the AutoPlay settings or clear the play list. The code to enter this mode is typed in from the

keypad in the attract mode (the jukebox does not need to be opened up). If this code is 0000, which is the default, then this mode is not available.

In the menus, items accessible only from security level two are **BOLD**, items accessible in security level one or two are in *ITALICS*. Other items are accessible from any level.

From the main menu, press 1 to go to the Security sub-menu. The Security sub-menu looks like this:

```
<SECURITY  >
1. VIEW LEVEL
2. ENTER CODE
3. VIEW USER CODE
4. CHNG USER CODE
5. VIEW CODE 1
6. CHANGE CODE 1
7. VIEW CODE 2
8. CHANGE CODE 2
```

Note that items 5 through 8 are **BOLD**; these items are only available from level two.

5.1.1 Entering a Security Code

To enter a security code, select ENTER CODE from the Security sub-menu. The message 'ENTER CODE ----' will appear on the display. Enter a four-digit security code. The message 'SECURITY LEVEL n' will appear, where n is the level of the security code entered. If a mistake is made part way through entering a number, pressing REDO will back up.

5.1.2 Viewing the Security Level

To view the current level press 1. If no security codes have been set, the message 'SECURITY LEVEL 2' should appear on the display for a few seconds (or until a key is pressed).

5.1.3 Viewing and Changing the Security Codes

If the current security level is two, select VIEW CODE 1 to view the code for level one. The message 'CODE 1 = nnnn' will appear on the display, where nnnn is the security code for level one. Again, the message will disappear after a few seconds or when a key is pressed.

To change the security code for level one, select CHANGE CODE 1. 'NEW CODE 1 ----' will appear on the display, with a flashing cursor at the right end. Enter the new security code for level one. Be sure to write down the new code before entering it, and keep it some place secure. If a mistake is made while entering the number press REDO to back up. Press REDO when no number is at the right of the display to back out

completely (abort entering a new code). This will take you back to the Security sub-menu.

Viewing and changing the codes for level two works similarly.

5.2 Error Reports

In the course of operations the system is constantly monitoring itself, watching for irregularities which are reported as warnings and errors. Warnings are minor faults which do not prevent some degree of operation, while errors are more severe problems which cause the system to go out of order. Both are viewable through the Error Reports sub-menu. Press 2 from the main menu to go to the Error Reports sub-menu, which looks like this:

```
<ERROR REPORTS >  
1. PRINT ERR/WARN  
2. VIEW WARNINGS  
3. VIEW ERRORS  
4. CLEAR WARNINGS  
5. CLEAR ERRORS
```

5.2.1 Printing Errors and Warnings

Select PRINT ERR/WARN from the Error Reports sub-menu to obtain a print out of the errors and warnings. This requires the IR Printer kit, explained in section 4, Printing. Printing errors and warnings provides more detailed descriptions than merely viewing them.

5.2.2 Viewing Errors and Warnings

Select VIEW WARNINGS to view any warnings currently detected. For each warning detected the display will show a code number, the number of times it has been detected, the name of the warning, and the date and time it was last detected. Press any key to advance through the list of warnings. Viewing errors works similarly; select VIEW ERRORS from the Error Reports sub-menu.

5.2.3 Clearing Errors and Warnings

To clear warnings, select CLEAR WARNINGS, then press TOP TEN to confirm, or REDO to cancel. Any warnings will be erased permanently. Similarly, for errors select CLEAR ERRORS then TOP TEN. Note that these functions can only be performed from security levels one or two.

5.3 Diagnostics

The diagnostics sub-menu is used to perform self-tests on various parts of the jukebox. Select DIAGNOSTICS from the main menu to enter the Diagnostics sub-menu, which looks like this:

```
<DIAGNOSTICS >  
1. DISPLAY TESTS
```

2. ADC TEST
3. SWITCH TESTS
4. MECH TESTS
5. PREAMP TESTS
6. DKB LINK TESTS
7. PLAYER TESTS
8. PRINTER TESTS
9. STOP SYSTEM

5.3.1 Testing the Display

Select DISPLAY TESTS from the Diagnostics sub-menu to test the display. First, each segment (row) from all columns will light in succession. Then, each character (column) is lighted with all segments on. Last, all segments will flash on and off. This will continue until a key is pressed. This test is useful for locating columns or rows which are inoperable or shorted together. Also, the last portion of the test provides a good indication of the condition of the display power supply.

5.3.2 Testing the Remote Controls

Select ADC TEST to test the remote controls. The remote controls are read via analog-to-digital converters (ADC) on the Controller board. Various resistor values are used to code for different switch closures. The voltage drop across the resistor is measured and converted into a number from 0 to 255 (\$00 to \$FF hexadecimal). This number is then used to determine which switch is pressed. Press 2 from the Diagnostics sub-menu to enter the ADC tests. The display should show FF/X, FF/X, FF/X. Each set of characters represents a different ADC. The first one is the main remote control, the second is the auxiliary remote control, and the third is reserved for future expansion. The FF represents the converted number from 0 to 255 in hexadecimal, while the X is the switch number interpreted from that value. The FF and X indicates that no switch is pressed. Pressing each of the remote switches should yield the following results in place of the X:

Cancel	0
Power	1
Loudness	2
BGM Down	3
BGM Up	4
Treble Down	5
Treble Up	6
Bass Down	7
Bass Up	8
Volume Down	9
Volume Up	A

The buttons continue to perform their designated functions during this test, so pressing Volume Up will increase the volume, etc. Press REDO to return to the Diagnostics sub-menu.

5.3.3 Testing Switches

Select SWITCH TESTS to go to the Switch Test sub-menu, which looks like this:

- ```
<SWITCH TESTS >
1. DKB SWITCHES
2. MAIN REMOTE
3. AUX REMOTE
4. CARRIAGE OPTOS
5. TEST MIC INPUT
```

Select DKB SWITCHES from the Switch Tests sub-menu to test the DKB switches (the DKB is short for Display/Key Board). Press each of the switches which are read by the display board to ensure they are being read properly. Following is a list of the switches and the message which will appear on the display when they are read:

0	ZERO
1	ONE
2	TWO
3	THREE
4	FOUR
5	FIVE
6	SIX
7	SEVEN
8	EIGHT
9	NINE

TOP TEN	TOP TEN
VIP	VIP
CRED+	ADD CREDIT
CRED-	SUB CREDIT
CANCEL	CANCEL
SERVICE	SERVICE
CASH 1	CURRENCY 1
CASH 2	CURRENCY 2
CASH 3	CURRENCY 3
CASH 4	CURRENCY 4
CASH 5	CURRENCY 5

Pressing REDO will also exit back to the Switch Tests sub-menu.

Select MAIN REMOTE to test the main remote. This is very much like the ADC test, above, except the name of the switch closed is displayed instead of its code. The AUX remote is tested similarly, by selecting AUX REMOTE. Press REDO to return to the Switch Tests sub-menu.

Select CARRIAGE OPTOS from the Switch Tests sub-menu to test the opto couplers (optos) on the CD Mech. The CD Mech has five optos, each of which is crucial to its operation. They are displayed as I (index), U (up), D (disc/down), H (home), and N (null), each followed by a + or a -. The + or - indicates the state of the opto: - means blocked and + means not blocked, except for index which is the reverse. The D represents both the disc present opto and the down opto. When the up opto is blocked (U-) the D indicates the state of the disc present opto (- = disc present, + = no disc present). When the arm is not blocked (U+) the D indicates the state of the down opto (- = blocked, + = not blocked). Each opto also has a corresponding LED, either on the Carriage board or on the Controller board. Press REDO to exit back to the Switch Test sub-menu.

Select MIC INPUT to test the mic key switch. + indicates the mic is not keyed, - indicates that it is. The mic key LED on the CPU board will also light when the mic is keyed. If no mic kit is in use and the system won't play discs, check here to see if somehow the mic key wire is shorted. Press REDO to exit back to the Switch Test sub-menu.

#### 5.3.4 Testing the CD Mech

#### 5.3.5 Testing the Preamps

Select PREAMP TESTS from the Diagnostics sub-menu to access the Preamp Tests sub-menu, which looks like this:

```
<PREAMP TESTS >
1. LOCATE PREAMPS
2. SELECT SOURCE
3. DISPLAY MAIN
4. DISPLAY AUX
```

Select LOCATE PREAMPS from the Preamp Tests sub-menu to locate the preamps. The Controller will check the communications with the preamps to determine if both appear to be present (both main and aux).

Select SELECT SOURCE from the Preamp Tests sub-menu to force the preamps to a particular signal source, regardless of the current proper signal source. Another sub-menu appears:

```
<SELECT SOURCE >
1. SOURCE = CD
2. SOURCE = BGM
3. SOURCE = MIC
4. SOURCE = MUTE
5. CD = DIRECT
6. CD = AVC
7. CD = KARAOKE
```

CD is the CD player on the Mech, BGM is the background music input, MIC is the paging mic, and MUTE is always silent (no input).

To force the preamps to a particular signal source, press the number next to the desired source. This will cause the preamps to instantly switch over to the new source. The effect is temporary, as the system will automatically switch back the next time a signal source switch should occur.

#### 5.3.6 Testing the Controller to Display/Key Board Communications

Select DKB LINK TESTS from the Diagnostics sub-menu to go to the DKB Link Tests. This tests the communication between the Controller and any display/Key boards that are connected. The system can support up to 30 remote selection boxes in addition to the display in the jukebox itself. The display will cycle through the addresses of all

display boards connected. The display board in the jukebox itself should be address 00. Each remote selection box should have a unique address.

### 5.3.7 *Testing the CD Player*

Select PLAYER TESTS from the Diagnostics menu to go to the CD player tests menu, which looks like this:

```
<PLAYER TESTS >
1. SHOW TIME CODE
2. SHOW STATUS
3. MOUNT DISC
4. RETURN DISC
5. SOURCE = CD
6. PLAY DISC
7. TEST CDM-12
```

Select TEST CDM-12 from the Player Tests menu to go to the CDM-12 test menu, which looks like this:

```
<TEST CDM-12 >
1. SERVICE CDM-12
2. FOCUS SERVO
3. TURNTABLE
4. LOOP
5. SLEDGE IN
6. SLEDGE OUT
7. RESET PLAYER
```

#### 5.3.7.1 *CD Time and Status*

Select SHOW TIME CODE from the Player Tests sub-menu to display the current time code returned from the CD player. The display will show something like '05/01 - 04:15', where the first two numbers are the track and index (the index is usually 1) and the next number is the relative time from the start of the track in minutes and seconds. If no disc is playing these numbers are meaningless. Press REDO to return to the Player Tests sub-menu.

Select SHOW STATUS from the Player Tests sub-menu to view the current status codes returned from the CD player. Three different codes are shown: Status, Error, and Mode. Press REDO to return to the Player Tests sub-menu.

#### 5.3.7.2 *Playing CD's Directly*

CD's can be played directly from the Play CD's sub-menu. This is useful both for testing the CD player and for checking out individual CD's for reported defects. The menu options will cycle at the left of the display as usual but in this sub-menu the time code returned from the CD player will be displayed at the right end of the display. The Play CD's sub-menu appears like this:

<PLAY CD'S >

1. PLAY
2. STOP
3. PAUSE
4. TRK->
5. TRK<-
6. SCAN->
7. SCAN<-

Start by mounting a disc on the player. Select PLAY to begin playing the disc. Select STOP to stop it. Select PAUSE to pause the disc; select PAUSE again to release pause and allow it to play again.

Select TRK-> to advance to the beginning of the next track on the disc.

Select TRK<- to move to the beginning of the previous track on the disc.

Select SCAN-> to skip a few seconds ahead on the disc.

Select SCAN<- to skip a few seconds back.

Press REDO to return to the Player Tests sub-menu.

### 5.3.7.3 CDM12 Service Mode

The remaining menu items are for sending service commands to the CDM12 CD player. Before any commands will be accepted, the player must be in service mode. Service mode is entered by selecting TEST CDM12, from the Player Tests sub-menu.

Select FOCUS SERVO to turn on the focus assembly. The lens should move in and out in an attempt to locate the surface of the disc. **WARNING:** this command activates the CD player's laser. Avoid looking into the lens. Press 5 again to turn the focus assembly off.

Select TURNTABLE to turn on the turntable motor. Select TURNTABLE again to turn it off.

Select LOOP to close the loop. The focus assembly will attempt to begin tracking the disc. Select LOOP again to release.

Select SLEDGE IN to move the focus assembly (sledge) fully in (toward the spindle). The assembly will move in then back out to its original position.

Select SLEDGE OUT to move the focus assembly fully out (to the outer edge). The assembly will move out then back in to its original position.

SELECT RESET PLAYER to reset the CD player. This will cancel any previous service operation and take the player out of service mode. Before exiting the Player Tests menu, be sure the CDM12 is no longer in service mode by selecting SERVICE CDM12 again (the message 'SERVICE MODE OFF' should appear), or by selecting RESET PLAYER to reset the player. *IF YOU EXIT WITHOUT TAKING THE CD PLAYER OUT OF SERVICE MODE THE CD PLAYER **WILL NOT PLAY DISCS!***

### 5.3.8 Testing the IR Printer

Select PRINTER TESTS from the Diagnostics sub-menu to go to the printer tests sub-menu, which looks like this:

- <PRINTER TESTS >
- 1. PRNT SELF TEST
- 2. STOP PRINTING

Select PRNT SELF TEST from the Printer Tests sub-menu to run the printer's self-test.

The system has a print 'spooler' which enables the system to go off and perform other tasks while data is still being put out to the printer. If for some reason it becomes necessary to stop the stream of data going to the printer, select STOP PRINTING from the Printer Tests sub-menu. This will cancel the remainder of the data waiting to be printed.

Press REDO from the Printer Tests sub-menu to return to the Diagnostics sub-menu.

## 5.4 Audits

The audits menu looks like this:

- <AUDITS >
- 1. PRINT AUDITS
- 2. POPULARITIES
- 3. CASH REPORTS
- 4. PLAY REPORTS
- 5. CLR. CASH/PLAYS
- 6. L.T. AUDITS

### 5.4.1 Printing Audits

Select PRINT AUDITS from the Audits menu to print the audits (see section 4, Printing). The amount of information which will print depends on the current security level.

Security Level Zero	Popularities
Security Level One	Popularities, cash & plays audits
Security Level Two	Popularities, cash & plays audits, long-term audits

### 5.4.2 Popularities

The popularities menu look like this:

- <POPULARITIES >
- 1. VIEW TOP TEN
- 2. VIEW MOST POP
- 3. VIEW LEAST POP
- 4. CLEAR POPULAR

## 5. DATE CLEARED

### 5.4.2.1 *Top Ten*

To view the top ten most selected tracks, select VIEW TOP TEN. The display will look something like this:

01-D04 T01/ 210

This means that the number one most popular selection is disc 4, track 1, and it has been selected 210 times. The display will automatically advance through the list every few seconds or you can manually advance by pressing a number key. Press REDO at any time to exit.

### 5.4.2.2 *Most Popular Discs*

Select VIEW MOST POP to view the most popular discs, in descending order, starting with the most popular. The display will look something like this:

01=DISC 09/ 422

This means that the most popular disc is disc 9, which has been selected 422 times. Press any number key to advance through the list. Press REDO to exit at any time.

### 5.4.2.3 *Least Popular Discs*

Select VIEW LEAST POP to view the discs in reverse order of popularity, from least popular to most popular. The display is the same as above.

### 5.4.2.4 *Clear Popularities*

CLEAR POPULAR to clear all popularities. Press either the TOP TEN key to confirm your choice, or press REDO to exit.

### 5.4.2.5 *Date Cleared*

Select DATE CLEARED to display the time and date of the last time that the popularities were cleared.

### 5.4.3 *Cash Reports*

The cash reports menu look like this:

<CASH REPORTS >

1. LOCAL CASH
2. REMOTE CASH
3. TOTAL CASH
4. DATE CLEARED
5. HOURS ACTIVE

#### *5.4.3.1 Local Cash*

Select LOCAL CASH to view the amount of money received by the jukebox since the last time cash and play reports were cleared.

#### *5.4.3.2 Remote Cash*

Select REMOTE CASH to view the amount of money received by all remote selection boxes since the last time cash and play reports were cleared.

#### *5.4.3.3 Total Cash*

Select TOTAL CASH to view the total amount of money received by both the jukebox and all remote selection boxes since the last time cash and play reports were cleared.

#### *5.4.3.4 Date Cleared*

Select DATE CLEARED to display the time and date of the last time that the cash and play reports were cleared.

#### *5.4.4 Play Reports*

- 4. PLAY REPORTS
  - 1. LOCAL PLAYS
  - 2. REMOTE PLAYS
  - 3. AUTO PLAYS
  - 4. VIP PLAYS
  - 5. TRACKS PLAYED
  - 6. DATE CLEARED
  - 7. HOURS ACTIVE

#### *5.4.5 Clear Cash and Play Reports*

Select CLR. CASH/PLAYS to clear the cash and play reports. Long-term audits are left unaffected.

#### *5.4.6 Hours Active*

Select HOURS ACTIVE to view the number of hours the jukebox has been turned on since the last time that the cash and play reports were cleared.

#### *5.4.7 Long-Term Audits*

- 6. L.T. AUDITS
  - 1. DATE CLEARED
  - 2. HOURS ACTIVE
  - 3. HOURS PLAYING
  - 4. MECH CYCLES
  - 5. TOTAL CASH

## 6. TRACKS PLAYED

## **6. DISC MAINTENANCE**

### **5. DISC MAINTS**

1. PRINT STATS
2. VIEW DISC STAT
3. VIEW BAD TRACKS
4. VW. LOCKED TRKS
5. LOAD CD'S
6. INIT SOME
7. INIT ALL
8. LOCK TRACKS
9. UNLOCK TRACKS
0. UNLOCK ALL TRK

## **7. ADJUSTMENTS**

### **6. ADJUSTMENTS**

1. PRINT ADJUSTS
2. CLEAR LIST
  1. CLEAR NOW
  2. VIEW CLR LIST
  3. CLEAR ON REQ.
  4. CLEAR AT WAKE
  5. CLEAR AT POWER
3. CLEAR CREDITS
  1. CLEAR NOW
  2. VIEW CLR CRED
  3. CLEAR ON REQ.
  4. CLEAR AT WAKE
  5. CLEAR AT POWER
4. CUSTOM MESSAGE
  1. VIEW MESSAGE
  2. CHANGE MESSAGE
  3. DEFAULT MSG.
5. PREAMP ADJUSTS
  1. MAXIMUM VOLUME
  2. AUX CONTROL
  3. BGM CONTROL
  4. BGM ON DELAY
  5. AUTO VOL CONTROL
6. PRICING
  1. NORMAL PRICING
    1. VIEW PRICING
    2. ADD NEW LEVEL
    3. DELETE LEVEL
  2. BONUS PRICING

1. VW. BONUS PRICE
2. ADD BONUS LEVL
3. DEL BONUS LEVL
4. SET BONUS ON
5. SET BONUS OFF
3. FREE PLAY
  1. VIEW FREE PLAY
  2. FREE PLAY ON
  3. FREE PLAY OFF
4. VIP CREDITS
5. MAX. CREDITS
6. MAX. TRACK TIME
7. DEFAULT PRICE
8. CURRENCY FORM.
  1. VIEW FORMAT
  2. \$XX.XX
  3. £XX.XX
  4. FXX.XX
  5. XX.XXDM
  6. XX.XXfr
  7. XXXX\$
  8. LXXXX
  9. XX\$XX
  0. XXXX¥
9. INPUT VALUES
  1. VIEW SETTINGS
  2. SET INPUT 1
  3. SET INPUT 2
  4. SET INPUT 3
  5. SET INPUT 4
  6. SET INPUT 5
  7. SET COUNT UNIT
  8. DEF. CURRENCY
7. AUTO PLAY
  1. VIEW AUTOPLAY TIME
  2. VIEW MAX TIME
  3. VW. AUTO DISCS
  4. VW. VOL SORCE
  5. SET AUTO TIME
  6. SET MAX TIME
  7. SET AUTO DISCS
  8. SET VOL SORCE
    1. AUTO VOL – CD
    2. AUTO VOL - BGM
8. DATE AND TIME
  1. VIEW DATE

- 2. VIEW TIME
- 3. VW. DST ADJUST
- 4. SET DATE
- 5. SET TIME
- 6. SET DST ON
- 7. SET DST OFF
- 8. VW. CLOCK TYPE
- 9. CHANGER ADJUST
  - 1. ACCELERATION
    - 1. VIEW ACCEL
    - 2. ACCEL LOW
    - 3. ACCEL HIGH
  - 2. SPEED
    - 1. VIEW SPEED
    - 2. SPEED LOW
    - 3. SPEED HIGH
  - 3. INIT AT START
    - 1. VIEW INIT START
    - 2. INIT AT START
    - 3. NO INIT START
  - 4. CD SKIP DETECT
    - 1. VW. SKIP DETECT
    - 2. SKIP DETECT ON
    - 3. SKIP DETECT OFF
  - 5. USE / IGNORE
    - 1. VW. USE/IGNORE
    - 2. USE INITS
    - 3. IGNORE INITS
- 0. FACTORY DEFAULT

### **7.1 AUX Preamp Control**

Select AUX CONTROL from the AJUSTMENTS menu to view or change the relationship between the MAIN and AUX preamp controls. The AUX preamp may be either linked to the MAIN, or independent. If it's linked the AUX preamp operates as a percentage of the MAIN volume. If independent it acts independently of the MAIN volume.

To view the setting select VIEW AUX CTRL.

To link the AUX preamp to the main preamp select LINK TO MAIN.

To set the AUX preamp to be independent from the main preamp select INDEPENDENT.

## 7.2 CD Skip Detection

The jukebox can be set to try to detect when tracks are skipping. If this feature is on and a track is determined to be skipping, the track will be faded out and canceled. Select CD SKIP DETECT from the ADJUSTMENTS menu.

Select VW. SKIP DETECT to view the current setting.

Select SKIP DETECT ON or SKIP DET. OFF to turn this feature on or off.

## 7.3 Auto Play

Select AUTO PLAY from the ADJUSTMENTS menu to see or change the auto play settings.

To view the auto play interval (amount of time between randomly played selections, provided no paid selections are playing), select VIEW AUTO TIME. The time interval, in minutes, will be displayed. If the time is set to zero the display will read AUTO PLAY IS OFF.

To view the max auto play time (time auto play tracks will play before fading out and canceling), select VIEW MAX. TIME. The max time, in minutes, will be displayed. If the max time is set to zero the display will read NO LENGTH LIMIT, which means auto play tracks will play all the way through, unless a paid selection is made or the maximum track time, from the PRICING menu, is reached.

To view the range of discs from which auto play selections may be randomly chosen select VW. AUTO DISCS.

To set the auto play interval select SET AUTO TIME, then enter the desired interval in minutes. Press REDO to back out, or 00 to turn auto play off.

To set the max auto play time select SET MAX. TIME, then enter the maximum number of minutes an auto play selection should be allowed to play. Press REDO to back out, or 00 to indicate no time limit.

To set the range of discs from which the jukebox may randomly make auto play selections select SET AUTO DISCS. Enter the lowest disc number in the range, then the highest disc number in the range. Auto play will then only choose tracks from discs within this range.

## 7.4 Acceleration

This adjustment allows the acceleration of the CD changer to be modified. It has two settings: LOW and HIGH. High acceleration causes the mech to reach its maximum speed more quickly, thus reducing the overall cycle time. Changing this adjustment should rarely be necessary. Select ACCELERATION from the MORE ADJUSTS menu, inside the ADJUSTMENTS menu.

To view the current setting select VIEW ACCEL.

To change the acceleration select ACCEL. LOW or ACCEL. HIGH.

## **7.5 Initializing Bad/Empty Slots at Start Up**

The system can check on start up all slots which are thought to be empty or contain seemingly bad discs. This can help to ensure that discs won't be overlooked simply because they haven't been initialized. To view or change this setting select INIT AT START from the CHANGER ADJUSTS menu (inside the ADJUSTMENTS menu).

To view the setting select VIEW INIT STRT.

To init bad or empty slots every time the jukebox is turned on, select INIT AT START.

To disable this feature, select NO INIT START.

## **7.6 Maximum Volume**

The maximum volume for each preamp may be set independently. This is especially useful when used in conjunction with powerful external amplifiers to limit the potential for clipping. The maximum volume setting may range from 00 to 40, with 40 being the loudest. This setting will stop the preamp from exceeding this limit but it will not stop the displayed volume from going higher. For example, if the main volume maximum is set to 32, all main volume settings from 33 to 40 will be no louder than 32 (the actual volume will stop increasing at 32).

To view the current maximum volumes select VW. MAIN MX VOL or VW. AUX MX VOL.

To set the maximum volume select SET MAIN MX VL or SET AUX MX VOL, then enter the new maximum volume (between 00 and 40). Press REDO to back out. If an out of range number is enter the value is left unchanged.

## **7.7 Factory Defaults**

All of the settings and adjustments may be reset to their factory settings by selecting FACTORY DEF from the ADJUSTMENTS menu. All short-term audits will be cleared as well. Be sure that no important settings will be lost before selecting this option. Press TOP TEN to confirm your selection or REDO to back out.

## **8. PERIODIC MAINTENANCE**

## **9. TROUBLESHOOTING**

## **10. ERRORS AND WARNINGS**

The first number is the group number, which is the board that signaled the error or warning. 1 is the CPU, 2 is the DKB.

The second number is the error or warning number within that group. The DKB doesn't currently report any errors, just one possible warning. Which is "STUCK DKB SWITCH," this means that at power up a stuck switch from the keyboard or coin switch was detected as closed.

Not all errors are currently detected but are expected to be in future versions.

CPU board errors:

- 01-01: CD communications error (no response from CD player)
- 01-02: index opto error (not reading index opto)
- 01-03: up opto error (not reading up opto)
- 01-04: down opto error (not reading down opto)
- 01-05: Mech error (generic mech failure)
- 01-06: EEP program error (failed to write to EEPROM)
- 01-07: EEP erase error (failed to erase EEPROM)

CPU board warnings:

- 01-01: config register set wrong (need special test startup)
- 01-02: COP reset occurred (watchdog)
- 01-03: clock restarted (clock stopped, needed to be restarted)
- 01-04: low battery
- 01-05: audits corrupted, cleared (checksum error detected)
- 01-06: popularities corrupted, cleared (checksum error detected)
- 01-07: out of popularities memory
- 01-08: long term audits corrupted, cleared (checksum error detected)
- 01-09: carriage stalled
- 01-10: transfer arm stalled
- 01-11: bad track detected (track canceled due to skipping)
- 01-12: code checksum error
- 01-13: remote control appears stuck