

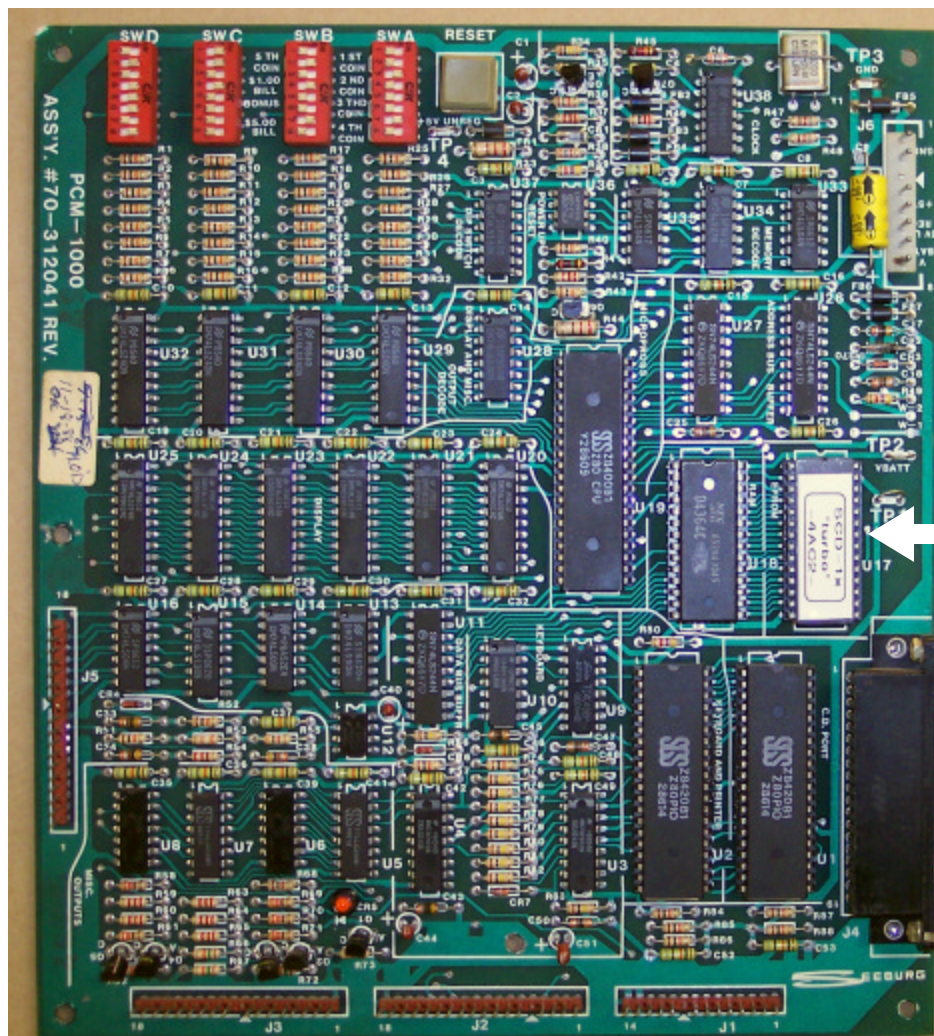
# THE NEW TURBO EPROM PROGRAM FOR SEEBURG SCD-1x CD JUKEBOXES

The Compact Disc was launched on the consumer market in October 1982 from the combined efforts of Philips (Netherlands) and Sony (Japan). By 1985, CD sales were skyrocketing. A year later, Seeburg introduced its first CD jukebox called the Laser Music model SCD-1. Thousands of these jukeboxes were manufactured up until the model SCD-1F (Skyline) in 1990.

The sound system in this jukebox is superb. Instead of transistors, Seeburg used the latest MOSFET technology in its power amplifier design. Many say it resembles the performance of tube amplifiers. The six speaker system is also unique. It employs two 2x6 horn tweeters, two 5x7 polycone midrange and two powerful 12" bass reflex woofers. The CD player is the Sony 60 disc model CDK-006 which has a laser life of about 50,000 hours. Estimated life of this player should be around 20 years (to about 2006). Unfortunately, there are no player replacements which leaves some of these magnificent machines dormant.

This has captured my interest to develop the Seeburg SCD-1x EPROM program called "turbo". This new program has some of the improved SCD features plus an increase to 90 CD's, but was mainly written to offer better and safer setup of the coin/bill credit system, a much faster song play response and to work with either the PCM-1000 or PCM-2x00 phono control module. This, together with a new MP3 player system, adds a whole new life to the Seeburg SCD Jukebox.

- No modifications to the jukebox
- Takes only minutes to install
- Works with PCM-1000 or PCM-2x00 control computers
- No Learn-In is required
- Uses the high speed HDD MP3-DSP Player
- Super fast response between songs
- Can be set for 60 or 90 CD disc selections
- Switch selectable coin/dollar credits/bonus or Free Play
- Album plays from ENTER key or 00 track #
- Wireless remote for volume, pause, reject and BGM
- Background Music on/off from remote or keypad
- Play Stimulator at 15, 30, 45 or 60 minutes
- Viewable tracks per disc verification
- Viewable dip-switch settings verification
- "Battery low" and "EPROM checksum" messages
- Non destructible Total Lifetime Money & Play counters



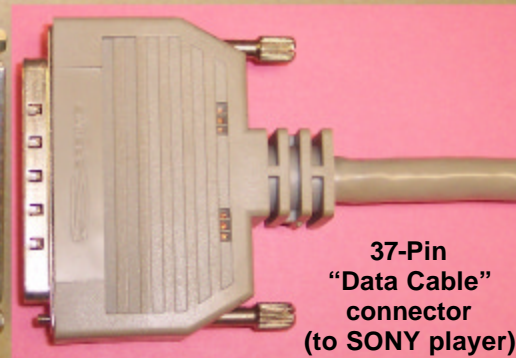
## PCM-1000 Phono Control Module

### NOTICE:

The PCM-2x00 Control Module does not have a dipswitch "A" component. In this case, a Virtual Dipswitch "A" memory location is used instead. See next page for the VDA one time setup.

Carefully remove the EPROM from the socket by gently prying at each end using a small screwdriver.

Insert the new EPROM with the notch facing up.



37-Pin  
"Data Cable"  
connector  
(to SONY player)

# TURBO Program "Switch Settings"

**NOTICE !** Before changing the dip-switch settings, record the current settings in case you decide to switch back

### Dip-Switch "A" - Monetary settings

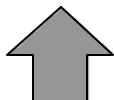
Example ratio setting: 3, 7, 10, 13 and 18 (at \$1 increments)

Credit at 2 Units (50¢ or 25¢)	1 OFF	Credit to Add 1, 2, 3 or 4 (see chart below)
Credit at 4 Units (\$1 or 50¢)	2 OFF	Credit to Add 1, 2, 3 or 4 (see chart below)
Credit at 6 Units (\$1.50 or 75¢)	3 ON	Credit to Add 1, 2, 3 or 4 (see chart below)
Credit at 8 Units (\$2 or \$1)	4 OFF	Credit to Add 1, 2, 3 or 4 (see chart below)
	5 OFF	
	6 OFF	
	7 ON	
	8 OFF	

### Dip-Switch "C" - BGM, Free Play & Stim.

BGM Disabled	1 OFF	BGM Enabled
BGM Reject Off	2 OFF	BGM Reject On
BGM Range, all	3 OFF	BGM Range 61-90
No Keypad BGM	4 OFF	Keypad BGM On/Off
Pay For Play	5 OFF	Free Play
Play Stim. Disabled	6 OFF	Play Stim. Enabled
Play Stimulator Interval	7 OFF	15, 30, 45 or 60 minutes (see chart below)
	8 OFF	

Setting the Virtual Dipswitch "A" for PCM-2x00.



Set switches D1 & D2 off. Set dipswitch "B" equal to the dipswitch "A" monetary settings, power up jukebox. After PLAY message, reset dipswitch "B" as credit options and switches D1 & D2 for jukebox model, press PCM RESET button.

### Dip-Switch "B" - Credit Options

NOTE: All switches on select Factory Test Mode

No \$1 Bonus	1 OFF	Add 1 Credit at \$1
No \$2 Bonus	2 ON	Add 1 Credit at \$2
\$5 Bonus	3 OFF	Bonus Credit 0, 1, 2, 3, 4, 5, 6, or allow Album (see chart below)
After 20 Pulses Received	4 ON	
1 Pulse = 1 Unit	5 OFF	1 Pulse = 2 Units
Erase Credits	6 ON	Keep Credits
B.A. = 1 Pulse / \$	7 ON	B.A. = 4 Pulses / \$
	8 OFF	

### Dip-Switch "D" - Jukebox Options

Jukebox Model Type	1 OFF	See Jukebox Model Setup For Details
Disc Range 1-60	2 OFF	Disc Range 1-90
No Album Play	3 OFF	Allow Album Play
Album on Enter key	4 ON	Album on 00 track
Erase Selections	5 ON	Keep Selections
Number of Consecutive Tracks/disc	6 ON	Unlimited, 1, 2, or 3 (see chart below)
	7 OFF	
	8 ON	

Credit at # Units	1	2	3	4	<b>Dip-Switch Chart</b>							
Play Stimulator	15 Min	30 Min	45 Min	60 Min								
Consecutive Tracks	Unlimited	1 per disc	2 per disc	3 per disc								
	↑	↑	↑	↑	OFF	ON	OFF	ON	OFF	ON	OFF	ON
					OFF	ON	OFF	ON	OFF	ON	OFF	ON
					OFF	ON	OFF	ON	OFF	ON	OFF	ON
	↓	↓	↓	↓	OFF	ON	OFF	ON	OFF	ON	OFF	ON
\$5 Bonus	No Credits	1 Credit	2 Credits	3 Credits	4 Credits	5 Credits	6 Credits	ALBUM				

## Dip Switch Features

The PCM-1000 board uses both the keypad module (KM-1000) and service panel module (SPM-1000). The settings of Dipswitch "B" are copied to a memory location named "VDA". The settings of Dipswitch "A" are used by the program.

The PCM-2x00 board uses the keypad module (KM-1000) only. Dipswitch "A" is ignored because it is not inserted on the circuit board, used instead, are the copied settings in memory location named "VDA".

### **UNIT CREDITS**

Units are used as the method of evaluation for entered coins and bills.

At 25 cents per play (switch B6 on), 1 pulse from the coin or bill acceptor will equal 2 units. This is to say that 1 quarter would need to be entered to reach the first credit step of Credit at 2 Units. The bill acceptor will produce 4 pulses per dollar giving 8 units to reach the fourth credit step of Credit at 8 Units.

At 50 cents per play (switch B6 off), 1 pulse from the coin or bill acceptor will equal 1 unit. This is to say that 2 quarters would need to be entered to reach the first credit step of Credit at 2 Units. The bill acceptor will produce 4 pulses per dollar giving 4 units to reach the second credit step of Credit at 4 Units. It would take \$2 worth of coins or bills to reach the fourth credit step of Credit at 8 Units.

After the Credit at 8 Unit step is reached, the unit counter is cleared and the credit steps are again repeated. The pulse counter is not affected. After a song selection is made, both the unit counter and pulse counter are cleared.

### **BONUS CREDITS**

After unit credits are processed, bonus credits can be added. Bonus credits are based on the accumulative pulse counts from the coin or bill acceptor. At 4 pulses (\$1), switch B1 allows an extra bonus credit to be added. At 8 pulses (\$2), switch B2 allows an extra credit to be added. And finally at 20 pulses (\$5), different bonus credits or album selection can be added by switches B3, B4 & B5.

### **ERASE CREDITS / KEEP CREDITS**

Unused credits remaining on the jukebox when powered-off can either be saved (switch B7 on) or erased (switch B7 off).

### **BILL ACCEPTOR SETTING: 1 PULSE PER DOLLAR BILL / 4 PULSES PER DOLLAR BILL**

Switch B8 is off if Bill Acceptor outputs 1 pulse per dollar bill, switch B8 is on if Bill Acceptor outputs 4 pulses per dollar bill.

### **BGM DISABLED / BGM ENABLED**

When switch C1 is on, background music from the MP3 player can be toggled on/off from the wireless or wired remote. If switch C4 is also on, background music can be toggled on/off from the keypad by entering "0000".

A random disc/track background music play will immediately follow the end of the last selected play when no other selections are waiting to be played. This provides non-stop music plays. The BGM and AUX volume control levels can be adjusted on jukeboxes that use the PAM-2000 power amplifier module.

**The amplifier AUX input is automatically selected when BGM is off and no song selections are being played.**

### **BGM REJECT OFF / BGM REJECT ON**

If switch C2 is on, the selected song has priority over background plays. The background song will be rejected.

### **BGM RANGE ALL DISCS / BGM RANGE 61-90**

If switch C3 is off, random background selections will be played from discs (1-60 if D2 is off) or (1-90 if D2 is on).

If switch C3 is on, random background selections will be from discs 61-90 only.

### **NO KEYPAD BGM / KEYPAD BGM ON-OFF**

If both switches C1 & C4 are on, background music can be toggled on/off from either the wireless or wired remote or from the keypad by entering "0000". NOTE: Background toggle from keypad requires at least 1 credit or Free Play to operate.

### **PAY FOR PLAY / FREE PLAY**

When switch C5 is on, the display will show FP in the credit digits and allow unlimited selections.

## **PLAY STIMULATOR FEATURE DISABLED / PLAY STIMULATOR FEATURE ENABLED**

If switch C6 is on, the jukebox will select a random disc/track when “no activity” for the time as set by switches C7 & C8.

## **PLAY STIMULATOR INTERVAL**

Switches C7 & C8 set the time period of random plays when there is no jukebox activity. Time period of every 15-min, 30-min, 45-min or 60-min can be chosen.

## **DISC RANGE 1-60 / DISC RANGE 1-90**

If D3 is off, disc selection range is 1-60, if switch D3 in on, selection range is 1-90. If the selected disc or track is not found, the “Error “ message will be displayed.

## **(D4) NO ALBUM PLAY / ALLOW ALBUM PLAY and (D5) ALBUM ON ENTER KEY / ALBUM ON “00” TRACK**

- [ ] **Allow ALBUM selection after 2-digit disc number then ENTER key**  
Switch “D4” on and switch “D5” off
- [ ] **Ignore the ENTER key and allow ALBUM selection on “00” track number**  
Switch “D4” on and switch “D5” on
- [ ] **Ignore the ENTER key and allow ALBUM selections only after \$5 worth of credits entered**  
Switch “D4” off, switch “D5” on and switches “B3”, “B4” & “B5” on
- [ ] **Ignore the ENTER key and NO ALBUM selections**  
Switch “D4” off and switch “D5” on

## **ERASE SELECTIONS / KEEP SELECTIONS**

Any un-played selections remaining in memory when the jukebox is powered-off can either be saved (switch D6 on) or erased (switch D6 off) when the jukebox power is turned back on.

## **NUMBER OF CONSECUTIVE TRACKS PER DISC**

If switches D7 & D8 are both off, all songs are played in the order as entered, including track after track album plays. Otherwise, these switches can set the number of track plays allowed on the same disc when more than 1 disc number is waiting to be played.

For example, if the consecutive track count was set to 2 and the user made 3 disc album selections with the 1st album having 10 tracks, the 2nd having 12 tracks and the 3rd having 14, the first 2 albums would cycle back and forth playing 2 songs on each until all songs were played on album 1 which would then cause the 2 song cycle between album 2 & 3, then finally, the balance of all songs on album 3 would be played. This also applies to multiple mixed tracks on the same disc.

## **“KWIK PICK” SELECTIONS ON JUKEBOX MODELS SCD-1C, SCD-1D & SCD-1F**

The “Kwik Pick” lamp will not illuminate until after 10 or more popular hits have accumulated and the jukebox has credits or is in free play. This only occurs after the TOP 40 has been cleared. Afterwards, the TOP 40 popular hits are updated as jukebox selections are made. A popular hit is defined as a song that has been played 2 or more times. As new popular hits, or the same hits are selected, they are placed at the top of the list, and eventually, the older popular hits will drop off.

## **“TOP 40” LAMP ON JUKEBOX MODELS SCD-1C, SCD-1D & SCD-1F**

The “TOP 40” lamp will illuminate when the playing song is found in the popular hits list.

The selection keypad can be alternately switched between selection mode and service mode by pressing the SERVICE button. When pressed, the message “SCE on” will momentarily appear to indicate the keypad is for service functions, press it again and the message “SCEoFF” will momentarily appear when in selection mode. Selection mode is entered when the jukebox is powered-up or the PCM RESET button is pressed.

**Entering SERVICE MODE clears the “Check Battery” LED and “bAt Lo” display message**

No FREE CREDITS function during PLAYER TEST function.

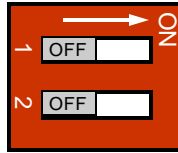
KEYPAD TEST can only be exited by pressing the PCM RESET button or power-off the jukebox.

# Jukebox Model Setup

<b>1</b> PLAYER TEST	<b>2</b> DIPSWITCH SETTINGS	<b>3</b> DISC TOC CHECK
<b>4</b> DISPLAY TEST	<b>5</b> AUDIT	<b>6</b> POPULARITY
<b>7</b> CLEAR	<b>8</b> FREE CREDITS	<b>9</b> REVERSE
<b>ENTER</b> KEYPAD TEST	<b>0</b> REJECT	<b>RESET</b> SERVICE EXIT

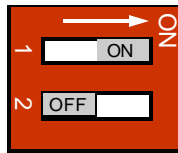
Service Mode switch functions are shown in small print

Dipswitch "D"



**SCD-1**  
Control Computer: PCM-1000  
With Audio Power Meter

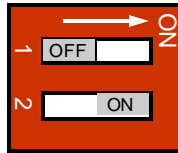
Dipswitch "D"



**SCD-1A, SCD-1B**  
Control Computer: PCM-2000

<b>1</b> PLAYER TEST	<b>2</b> DIPSWITCH SETTINGS	<b>3</b> DISC TOC CHECK	<b>4</b> DISPLAY TEST
<b>5</b> AUDIT	<b>6</b> POPULARITY	<b>7</b> CLEAR	<b>8</b> FREE CREDITS
<b>RESET</b> SERVICE EXIT	<b>9</b> REVERSE	<b>0</b> REJECT	<b>ENTER</b> KEYPAD TEST

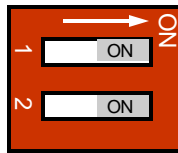
Dipswitch "D"



**SCCD-1 Classic**  
Control Computer: PCM-2x00  
1015 Bubbler Repro

<b>0</b> REJECT	<b>1</b> PLAYER TEST	<b>2</b> DIPSWITCH SETTINGS	<b>3</b> DISC TOC CHECK
<b>RESET</b> SERVICE EXIT	<b>4</b> DISPLAY TEST	<b>5</b> AUDIT	<b>6</b> POPULARITY
<b>ALBUM</b> KEYPAD TEST	<b>7</b> CLEAR	<b>8</b> FREE CREDITS	<b>9</b> REVERSE

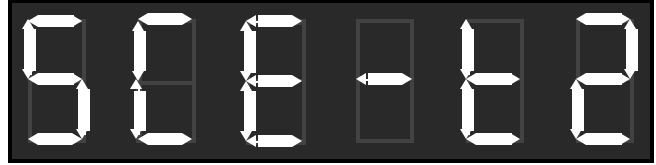
Dipswitch "D"



**SCD-1C, SCD-1D, SCD-1F**  
Control Computer: PCM-2100  
With 40-Hit Kwik Pick

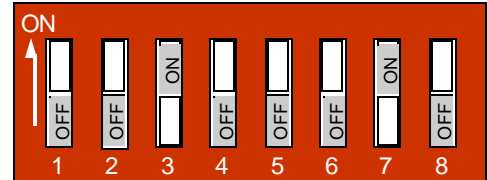
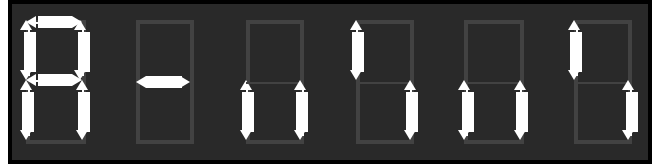
## (1) PLAYER TEST

The jukebox will play all the tracks on disc 1, then all the tracks on disc 2, etc., until all tracks on all discs have been played. During play, the display will show Disc, Track, t2. The cycle will continue to repeat until this service function is exited. Pressing the CLEAR button (7) will erase stored credits & selections.



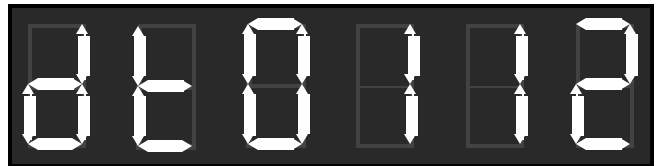
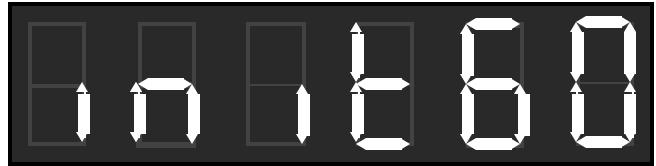
## (2) VIEW DIP-SWITCHES

Shows the on/off position of each dip-switch setting using the display segments. Each button press cycles through dip-switches A, b, C, and d then back to A. If PCM-1000 board, the actual dip-switch A is displayed. If PCM-2x00 board, the memory location named VDA (Virtual Dip-switch A) is displayed instead.



## (3) DISC TOC CHECK

When first entered, the total number of discs initialized (learned-in) will be displayed then each button press steps through each disc number showing the number of tracks found. The REVERSE button (9) can be used to change the step direction. Zero track count indicates "no disc".



Disc Number      Number of Tracks

Also from TEST  
on the SPM-1000  
service keypad

## (4) DISPLAY TEST

All six display digits will cycle together showing numerals 0 - 9 at a rate of three per second. First all digits will show 0's then all 1's etc., through the 9's and repeat. All LED's and selection lamps will also flash on & off at 1-1/2 times per second. The cycle will continue until this service function is exited.

Also from AUDIT  
on the SPM-1000  
service keypad

## (5) AUDIT

There are 7 audit functions plus clear. Each button press steps to the next audit function. The last function, AdtCLr, allows the audit data to be erased by pressing the CLEAR button (7). The total lifetime money audit is an accumulative count for this jukebox and will not be erased.

1	<b>C00000</b> Total number of coins	5	<b>PL0000</b> Total # of selections played
2	<b>bL0000</b> Total number of bills (x4)	6	<b>AL0000</b> Total # of album selections
3	<b>000000</b> Total lifetime money	7	<b>Crd000</b> Number of free credits
4	<b>SL0000</b> Total # of selections made	8	<b>AdtCLr</b> Push CLEAR to erase audits

Also from POP  
on the SPM-1000  
service keypad

## (6) POPULARITY

Each button press steps through disc popularity rankings from least to most popular. The step direction can be changed by the REVERSE button (9). The last function, POPCLr, allows the popularity and Top 40 lists to be erased using the CLEAR button (7). The total lifetime plays will not be erased.

Also from CLEAR  
on the SPM-1000  
service keypad

## (7) CLEAR

This function erases the accumulated counts of money, selections and popularity. To clear audits, press (5) until "AdtCLr" appears then press (7). For popularity, press (6) until "POPCLr" appears then press (7). You can also clear stored selections and credits, press (1), when Player Test starts, press (7).

Also from CREDIT  
on the SPM-1000  
service keypad

## (8) FREE CREDITS

This function is used to add credits. Each button press adds 1 credit up to a maximum of 99 credits. This function is ignored during Player Test.

Also from REVERSE  
on the SPM-1000  
service keypad

## (9) REVERSE

This function switches the direction of the popularity or disc toc steps while in that function.

**NOTE:** to set MP3-DSP player back to normal volume level (in case remote was lost) press (1), when Player Test starts, press (9).

Also from REJECT  
on the SPM-1000  
service keypad

## (0) REJECT

This button is not the same as the REJECT at the back of the cabinet. This button causes a player stop which simulates reaching the end of the current playing track.

**000000**

Total lifetime plays

**dPxxyy**

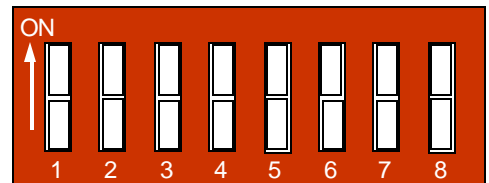
"xx" is disc #, "yy" is rank #  
Most popular rank is 01  
Least popular rank is 60  
(—) if disc has never played

**POPCLr**

Push CLEAR to erase all  
popularity rankings and  
Top 40 list.

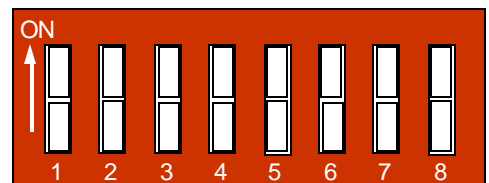
### Record Your Original Switch Settings Here

**SWA**

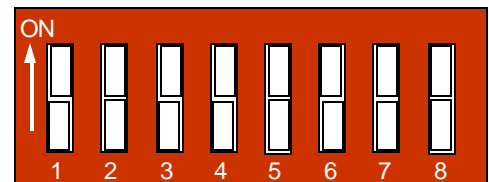


Not available on PCM-2x00 control modules

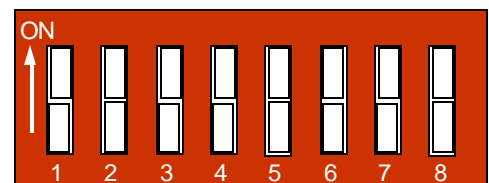
**SWB**



**SWC**



**SWD**



## (ENTER) or (ALBUM) KEYPAD TEST

This function displays the name of each keypad button press. On PCM-2x00 equipped jukeboxes, it will also display the coin, bill acceptor and "Kwik Pick" switches. Once the keypad test is entered, the only way to exit is by pressing the reset on the PCM board or power off the jukebox.

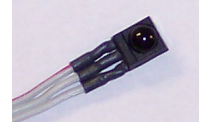
Also from RESET  
on the SPM-1000  
service keypad

## (RESET) SOFT RESET

This function performs a jukebox "soft reset". In other words, as long as the program is operating (not crashed), this function will be recognized. A "hard reset" can be done by pressing the RESET button on the PCM board or power off the jukebox.

## Wireless Remote Control

Remote sensor "eye" can be placed at the corner edge inside title page glass, in speaker grill or front panel.



### POWER

Cancels song play

### CH+

Toggles BGM on/off  
(needs switch C1 on)

### MUTE

Toggles pause on/off

### VOL-

Decreases the  
volume level

### VOL+

Increases the  
volume level



### Remote Set Up

Press & hold SETUP  
until LED blinks twice.

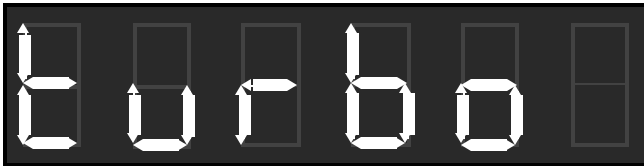
Release SETUP

Using VOL & CH keys

Enter **1214**

LED blinks twice after  
code is entered.

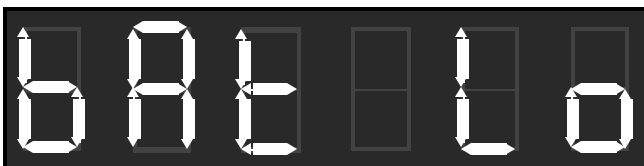
## Power-Up Displays



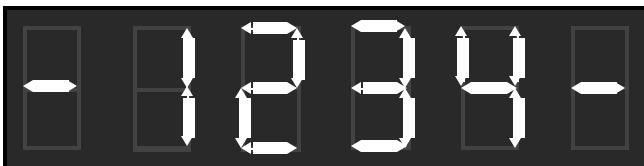
This message is momentarily displayed when the jukebox is powered-up or the RESET button is pressed. If the first two letters are "JP", check the 37-pin cable connections. If only "J" instead of "JP" is displayed, you may have a problem with the jukebox memory chip or PCM board.



This rotating pattern indicates that the jukebox is waiting for the player to be ready. Normally it appears for a few seconds (depending on the number of songs). If it appears longer than a minute, a player problem may exist or the Interface Control Unit may not be plugged in.



If at any time the jukebox memory becomes corrupted, such as from a low battery or severe electrical storm, this message will appear each time the jukebox is turned on. It is cleared by entering the SERVICE mode.  
NOTE: this indicates popularity and audit data was erased.



This is the final display message which shows a four character checksum calculation of the EPROM program. Each new version of an EPROM program will display different checksum numbers and letters. Refer to this checksum code when reporting errors and problems.