

Section 1:

ES 5.1

Programming Tips

Section 1: *ES 5.1 Programming Tips*

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OVERVIEW: COMMANDS OF SERVICE PROGRAMS

Group	Name of Command Group	Command Number
1	Authorization	P001...P002
2	Statistics	P010...P026
3	Data Transfer/Cancellation	P030...P033
4	General Settings	P040...P054
5	Price Setting	P060...P066
6	Monetary Value Setting	P070...P076
7	Programming real time clock	P080...P082
8	Programming free credits	P090...P094
9	Programming background music	P100...P107
10	Programming auto play	P110...P117
11	Programming advertising	P120...P127
12	Lock-out of different titles	P130...P135
13	Programming Happy-Hour-Credits	P140...P145
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New Features & Changes - ES 5 To ES 5.1

2. Statistics

P010 Least Popular Disc

- #0: Starts P010 over
- #1: Advances to the next ranked disc
- #2: Shows the number of plays for that disc
- #3: Allows you to put in a disc number and go directly to it and see the ranking

P011 Most Popular Disc

- #0: Starts P011 Over
- #1: Advances to the next ranked disc
- #2: Shows the number of plays for that disc
- #3: Allows you to put in a disc number and go directly to it and see the ranking

P012 Displays the top 30 singles

- #0: Starts P012 Over
- #1: Advances to the next ranked single
- #2: Shows you the number of plays for the single shown

P013 Displays the cash readings (rounded off to the nearest dollar)

- #0: Displays the cash since the last collection (this is resetable)
- #1: Displays the lifetime cash total (this is nonresetable)

P014 Cash for individual coin channels and bill acceptor

- #0: Coins through chute 1 (# Coins x .10 = Money)
- #1: Coins through chute 2 (# Coins x .50 = Money)
- #2: Coins through chute 3 (# Coins x .25 = Money)
- #3: Coins through chute 4 (No Value)
- #4: Bills counted in bill validator (# = Dollars)
- #5: Lifetime counter of chute 1 (x .10)
- #6: Lifetime counter of chute 2 (x .50)
- #7: Lifetime counter of chute 3 (x .25)
- #8: Lifetime counter of chute 4 (x .00)
- #9: Lifetime of bill validator (# = Dollars)

P016 Number of songs played

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P017 Number of songs selected

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P018 Number of albums selected

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P019 Number of overplayed songs

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P020 Number of credits paid for

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P021 Number of free credits

#0: Number since last time collected (resetable)

P022 Number of background songs that played

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P023 Number of songs played in auto play mode

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P024 Number of plays in advertising mode

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P025 Number of Happy-Hour-credits

#0: Number since last time collected (resetable)

#1: Lifetime number (nonresetable)

P028 Number of unused credits (no lifetime)

P029 Number of unplayed songs that were selected (no lifetime)

P033 Cancellation of resettable counters

"0" + "H": Cancels all resetable memory contents

"1" + "H": Resets hit parade (P012)

"2" + "H": Resets popularity (P010 + P011)

"3" + "H": Resets counters and cashbox counters (P013 to P024)

"4" + "H": Cancels credits

"5" + "H": Cancels selections in memory

"6" + "H": Clears error codes (P150)

3. Data Transfer/Cancellation

P030 "0" + "H" Stores all data in data print and prints out depending on data print setting. The counters are then reset after the printout is done and the interlock switch is pushed in.

P031 Prints-out at data print only.

"0" Prints all data.

"1" Prints cashbox amount.

"2" Prints counters with cashbox.

"3" Prints the general settings.

"4" Prints the popularity of all CDs.

"5" Prints the top 30 single tracks with the number of plays.

"6" Prints the last 20 error codes with date and time.

P032 "0" Allows the entire statistics to print out with any other printer.

P033 Cancellation of resettable memory programs

"0" + "H" Cancels all resettable memory contents

"1" + "H" Resets hit parade. (P012)

"2" + "H" Resets popularity. (P010 + P011)

"3" + "H" Resets counters and cashbox counters. (P013 TO P024)

"4" + "H" Cancels credits on display.

"5" + "H" Cancels selections in memory.

"6" + "H" Clears error codes. (P150)

4. General Settings

P040 Resets P040 to P054 & P094 also sets P091 to P135 to zero.

"0" + "H" = Default values

"1" + "H" = Same as before but enables background and the auto play.

With access to all CDs.

P041 I.D. Number for use with NSM Data print

#1 to #9999 Then push "H"

P042 The maximum number of selectable CDs and tracks.

of CDs and # of tracks then push "H"

P043 Light organ in stand-by(Not used)

P044 Light organ during play(Not used)

P045 Time limit on songs

From 1 to 99 min. Then push "H"

"0" + "H" = Unlimited time

P046 Playing sequence on playing paid songs

"0" + "H" Play as selected (FIFO)

"1" + "H" Play in numerically ascending numbers

"2" + "H" Play randomly

P047 Maximum number of song on the same CD to play in a row. (Also affects background play.)

"0" + "H" = Unlimited

"1" to "99" + "H" = The number of tracks to be played in a row.

P048 Automatic advance of title display

"10" + "H" = 10 Min.

"20" + "H" = 20 Min. Up to "99" + "H" = 99 Min.

"0" + "H" = Disabled

P049 Cancel credits after power off and standby

"0" + "H" = No cancellation of credits.

"1" + "H" = 6 Min.

"2" + "H" = 12 Min. Up to "240" + "H" = 24Hrs

P050 Cancellation of selections in memory after power off

"0" + "H" = No cancellation of selections

"1" + "H" = 6 Min.

"10"+ "H" = 1 Hr. Up to "240" + "H" = 24Hrs

P051 Maximum volume level during paid play

"0" + "H" Mute Up to "31" + "H" (Loudest)

P052 Maximum volume level during background mode

"0" + "H" Mute Up to "30" + "H"

P053 Volume control from inside the jukebox

Key "2" Louder key "8" quieter both channels

Key "1" Louder key "7" quieter left channel

Key "3" Louder key "9" quieter right channel

P054 Bass and treble settings

Key "2" More bass and treble both channels

Key "8" Less bass and treble both channels

Key "1" More bass both channels

Key "7" Less bass both channels

Key "3" More treble both channels

Key "9" Less treble both channels

5. Price Setting

P060 Resets pricing to default.

"18" + "H" = 1 Play for \$.50

3 Plays for \$ 1.00

18 Plays for \$ 5.00

P061 to P065 You can customize the pricing. Always start with the lowest amount of money you want to give credit for and don't change until the number of credits for money changes.
Unused step may be programmed with zero.

P066 Sets the album pricing.

"0" + "H" = No album selection possible.

"1" + "H" = Charges for only how many tracks are on the disc.

"2" + "H" = Only charges 4 credits for every 5 tracks on the disc.

"3" + "H" = Only charges 3 credits for every 4 tracks on the disc.

"4" + "H" = Only charges 2 credits for every 3 tracks on the disc.

6. Coin Channel Value Setting

P070 Resets coin chutes to factory setting
"10" + "H" = USA coin chute setting.

P071 Coin Channel 1 (USA \$ 0.10)

P072 Coin Channel 2 (USA \$ 0.50) (With single rocker coin mechanism \$ 0.25)

P073 Coin Channel 3 (USA \$ 0.25)

P074 Coin Channel 4 (USA \$.00 Free credit button)

P075 Coin Channel 5 (USA \$ 1.00)

P076 Dollar Bill Bonus

P077 Indirect/Direct money to credit revaluation

"0" + "H" = Indirect revaluation: inserted coins are stored. At a defined coin value the credit is given for the highest price setting.

Example: Pricing = 1 Credit for \$ 0.50
3 Credits for \$ 1.00
18 Credits for \$ 5.00

4 \$ 0.25 will give 3 credits

40 \$ 0.25 will give 18 credits

5 \$1.00 bills will give 18 credits

"1" + "H" = Direct revaluation: inserted coins are not stored. They are revalued after each insertion, making it impossible for bonus credits with multiple coins or bills.

Example: Pricing = 1 Credit for \$ 0.50
3 Credits for \$ 1.00
18 Credits for \$ 5.00

4 \$ 0.25 will give only 2 credits

40 \$ 0.25 will give only 10 credits

5 \$1.00 bills will give only 15 credits

1 \$5.00 bill will give only 15 credits

7. Setting the real time clock

P080: Time of day (in hundreds I.E. 3PM = 1500)

- Key "1" Advances hours
- Key "7" Subtracts hours
- Key "3" Advances minutes
- Key "9" Subtracts minutes

P081: Day month and year

- Key "1" Advances the day
- Key "7" Decreases the day
- Key "2" Advances the month
- Key "8" Decreases the month
- Key "3" Advances the year
- Key "9" Decreases the year

P082: Day of the week

- Key "3" Advances the day code
 - Key "9" Decreases the day code
- 1= Monday, 2= Tuesday, 3= Wednesday, 4= Thursday,
5= Friday, 6= Saturday, 7= Sunday

8. Programming Free Credits

P090 Resets free credits to 200

"0" + "H" = Unlimited free credits with no time periods

P091 Starting time for free credits

Hours with keys "1" or "7"

Minutes with keys "3" or "9"

Key "6" = 30 Min.

Key "4" = 12 o'clock

Key "5" = 0000

Push "H" after entry

P092 Stopping time for free credits

Hours with keys "1" or "7"

Minutes with keys "3" or "9"

Push "H" after entry

P093 Weekdays that free credit is enabled on the middle display the weekdays are shown with numbers 1 to 7. Each weekday can be activated individually. "1" means active on that day. "0" means off for that day. Pick "0" or "1" then push "H"

P094 Entering the number of free credits

"0" + "H" = No free credits are possible.

Less than "200" = Limited free credits. The amount corresponds to the inputted number + "H"

"200" + "H" = Unlimited free credit.

"201" + "H" = Switching between paid credits and unlimited credits.

"202" + "H" = Free play (99 Credits) while time window is active.

9. Background Music

P100 Resets background to disabled

"0" + "H" = Disabled

P101 Starting time for background music

Set hours with keys "1" or "7"

Set minutes with keys "3" or "8"

Push "H" after entry

P102 Stopping time for background music

Set hours with keys "1" or "7"

Set minutes with keys "3" OR "8"

Push "H" after entry

P103 Weekdays that background is enabled on the middle display the weekdays are shown with the numbers 1 to 7.

Each day can be activated individually.

"1" Means active on that day.

"0" Means off for that day.

Pick "0" or "1" then push "H"

P104 Type of operation for background

"0" + "H" = No background music

"1" + "H" = Allows starting and stopping of background music by pressing background key on the machine or remote control.

"2" + "H" = Automatically plays background music at defined times.

P105 What is played as background music

Enter 20 four digit entries.

20 titles or albums can be selected.

With no selections in P105 all CDs will be selected.

(03 Version Eprom & later for ES V)

P106 Lock out selections of background music

"0" + "H" = Titles or albums free for selecting

"1" + "H" = Titles or albums cannot be selected

P107 Sequence of playing background music

"0" + "H" = Play in order of entry

"1" + "H" = Random play

10. Programming auto play

P110 Resets auto play to disabled
"0" + "H" = Disabled

P111 Starting time for auto play
Set hours with keys "1" or "7"
Set minutes with keys "3" or "9"
Push "H" after entry

P112 Stopping time for auto play
Set hours with keys "1" or "7"
Set minutes with keys "3" or "9"
Push "H" after entry

P113 Weekdays that auto play is enabled on the middle display the weekdays are shown with the numbers 1 to 7.
Each weekday can be activated individually.
"1" Means active on that day.
"0" Means off for that day.
Pick "0" or "1" then push "H"

P114 Defines the time between songs in auto play.
"1" to "99" + "H" = Minutes between songs.
"0" + "H" = No auto play.

P115 Defines the songs or albums to be played in auto enter 20 four digit entries.
20 titles or albums can be selected.
With no selections in P115 all CDs will be selected.
(03 Version Eprom & later ES V)

P116 Lock out selections of auto play.
"0" + "H" = Titles or albums free for selecting.
"1" + "H" = Titles or albums cannot be selected.

P117 Sequence for playing auto play songs.
"0" + "H" = Play in order of entry.
"1" + "H" = Random play.

11. Programming advertising

P120 Resets advertising to disabled
"0" + "H" = Disabled

P121 Starting time for advertising
Set hours with keys "1" or "7"
Minutes with keys "3" or "9"
Push "H" after entry

P122 Stopping time for advertising
Set hours with keys "1" or "7"
Minutes with "3" or "9"
Push "H" after entry

P123 Weekdays that advertising is enabled on the middle display the weekdays are shown with the numbers 1 to 7.
Each weekday can be activated individually.
"1" Means active on that day.
"2" Means off for that day.
Pick "0" or "1" then push "H"

P124 Defines the time between advertising spots.
"1" to "99" + "H" = Minutes between spots
"0" + "H" = No advertising spots

P125 Defines the tracks or albums to be played in advertising.
Enter 20 four digit entries
20 Tracks or albums can be selected.

P126 Lock out selections of advertising.
"0" + "H" = Tracks or albums free for selecting.
"1" + "H" = Tracks or albums cannot be selected.

P127 Sequence for playing advertising.
"0" + "H" = Play in order of entry.
"1" + "H" = Random play.

12. Locking out of titles

P130 Resets all locked out songs.

"0" + "H" = All songs can be played.

P131 Starting time for playing locked songs.

Set hours with keys "1" or "7"

Set minutes with keys "3" or "9"

Key "6" = 30 Min.

Key "4" = 12 o'clock

Key "5" = 0000

P132 Stopping time for playing locked songs.

Set hours with keys "1" or "7"

Set minutes with keys "3" or "9"

Key "6" = 30 Min.

Key "4" = 12 o'clock

Key "5" = 0000

P133 Weekdays for releasing locked songs on the middle display the weekdays are shown with the numbers 1 to 7.

Each weekday can be activated individually.

"1" Means selectable on that day.

"0" Means not selectable on that day.

Pick "0" or "1" then push "H"

P134 Enable and disable time window.

"0" + "H" = Songs can be selected all the time.

"1" + "H" = Songs are blocked in time window.

P135 Defines the songs or albums which are blocked.

Enter up to 20 four digit entries.

20 Songs or albums can be selected.

To unlock one or more, find that song in P135 and then put in "0" + "H".

13. Happy-Hour-Credits

P140 Resets Happy-Hour-Credits to disabled
"0" + "H" = Disabled

P141 Starting time for Happy-Hour-Credits
Set hours with keys "1" or "7"
Set minutes with keys "3" or "9"
Key "6" = 30 Min.
Key "4" = 12 o'clock
Key "5" = 0000
Push "H" after entry

P142 Stopping time for Happy-Hour-Credits
Set hours with keys "1" or "7"
Set minutes with keys "3" or "9"
Key "6" = 30 Min.
Key "4" = 12 o'clock
Key "5" = 0000
Push "H" after entry

P143 Weekdays that Happy-Hour is enabled.
On the middle display the weekdays are shown with the number 1 to 7.
Each day can be activated individually.
"1" Means active for that day.
"0" Means off for that day.
Pick "0" or "1" then push "H"
All seven set to 0 will activate the whole week.

P144 Sets the bonus credits for happy-hour
"0" + "H" = No Happy Hour
Any number from "1" to "5" = The number of credits
That have to be paid for to receive an extra credit.

14 .1 Test Programs

P150 Read-out of error codes.

- "0" = Last registered error.
- "1" = Previous (next) error code
- "2" = CD, Tray, or display page during the occurrence of the error showing.
- "3" = Time of the error showing.
- "4" = Date the error showing occurred.

P151 Plays all CDs for 16 sec. (F1)

- "0" Starts continuous run.

P152 Plays selected CDs for 16 sec. (F2)

- "0" Then put in the CD number and track numbers. As many as you want.

P153 Other continuous play test (F3 TO F5)

- "0" All CDs are placed on the player, but not played (F3)
- "1" CDs No. 1, 25, 50, 51, 75, & 100 are played for 16 sec. continuously. (F4)
- "2" Combination of continuous run F3 followed by (F4).

P155 Lamp Test (F6)

- "0" Starts lamp test

P156 Input test (F7)

- "0" Starts input test

P157 Manual control for CD changer via keypad (F8)

- | | | |
|----------------------|-----------------------|-------------------------------|
| "1" Enable laser | "2" Lift up | "3" Lift up by step |
| "4" Get CD from left | "5" Replace CD | "6" Get CD from RT. |
| "8" Lift Down | "9" Lift down by step | "0" Replace CD- Set lift down |

This test serves also to check the opto couplers. (See Manual)

14.2 Recording song quantities (Initialization)

P160 After entering this program the phonograph searches through all CD slots for the number of CDs defined in P042. During the search it reads the number of songs recorded on each CD into memory.
Push "0" to start the learn in.

P161 Recording song quantities of one CD.
New CD number + "H" = Learn in of new CD.

P162 Displaying all disc and song quantities
"0" = Number of songs on CD #1
"1" = Switch to the next CD #
"2" = Return to the previous CD #
"3" = Title number of any CD

P163 Erasing CD from memory
"0" + "H" = Resets all CD Tracks to 01

P164 Switching between signal sources
(See Manual)

**BASIC SET-UP OF NSM ES 5
EPROM VERSION. 0002, 0003, 0004, & 0005**

- P042 Set the number of CDs and max. number of tracks
- P080 Sets the time
- P081 Sets the date
- P082 Sets the day of the week
- P160 "0" Starts the initialization.

FACTORY DEFAULT

P040 "0" + "H" Sets P041 to P054 and P094 to factory settings also sets P091 to P144 to disabled

"1"+"H" Same as "0", but enables background and auto play.

P060: Price Setting

"18" + "H" Sets price at 1 for \$ 0 .50 3 for \$1.00 18 for \$5.00

P070: Value of coin channel

"10" + "H" Sets coin channels for the USA

P100: Background music

"0" + "H" Will set P101 to 107 all to zeroes
(DISABLED)

P110: Auto play (Play stimulator)

"0" + "H" Will set P111 to P117 all to zeroes
(DISABLED)

P120: Advertisement

"0" + "H" Will set P121 to P127 all to zeroes
(DISABLED)

P130: Blocking certain titles(Locking out selections)

"0" + "H" Unlocks all selections locked out
P131 to P135 set to zero

P140: Happy-Hour-Credits

"0" + "H" Will set P141 to P144 all to zeroes
(DISABLED)

New features & changes in NSM ES 5.1 jukeboxes with the MBC III changer.

Compared to the ES 5 service programs, the following programs have been changed:

Changes in the P156 test program:

The display for port 6 (pickup driver) has been removed. The functionality of the optos in the MBC III changer may be tested using the P157 test program.

Changes in program P157:

The "5" button on the keypad *always* has the "replace CD" function, even when the lift is in the playing position.

Display: (from right to left)

1st digit: Change in encoder status. For each step, the display changes from 1 to 0 or from 0 to 1.

2nd digit: A "1" denotes lift in playing position (the opto sLift is blocked). There is no longer a direct relationship between sLift and encoder.

3rd & 4th digits: Not relevant.

7th & 8th digits: Gripper position; "01" = Grippers out, "10" = Grippers in. "00" = in between.

9th & 10th digits: Gripper switch; "10" = pull from left magazine, "01" = pull from the right magazine.

Error codes:

The error codes remain principally the same as in ES 5.

A new error code is "Er 64" = "no connection to changer."

Possible causes are:

1. Cable leading to changer damaged or not properly connected.
2. Changer program not in sync with jukebox program. After displaying "Er 64" both programs are synchronized.

NEW PROGRAMS:

P158: Gripper reference.

P159: Lift reference

Both programs are described in depth on the following pages.

Lift Reference (P159)

Enter **P159 + H**

Display shows: **P159** __ __

Enter **0**

Display shows: **P159** __ __**01** (for example)

The value 01 denotes that, during the previous adjustment, the lift was set 1 (one) step higher.

Enter **H**

Display shows: **P159** __ __**0**

Lift is moved to its electrical bottom position, i.e. to the point where the optos Lift is blocked.

Now press the lift firmly against the bottom of the changer.

Enter **H**

Display shows: **P159** __ __**00**

The distance in steps from the bottom of the changer to the lift optos Lift (position 49) is measured.

Using the keypad keys, you should now pull the tray on the left and right side into the lift, making sure that the movement is smooth and that the lift is not being forced upwards or downwards during this procedure. If it is, use the **3** or **9** buttons to adjust.

The functionality of the keypad buttons are as follows:

Key 4: Grip tray from left magazine.

Key 6: Grip tray from right magazine.

Key 5: Return tray.

Key 3: Move lift one step upwards.

Key 9: Move lift one step downwards.

The value shown in the display denotes the corrected value, measured in steps from the expected position.

Enter **H**

Display shows: **P160** __ __

The new value is stored in memory, the lift is moved to the bottom position, and the next program step is shown in the display.

NOTE: The program may be interrupted at any stage by pressing the **C** button on the keypad.

P012: EXTENDED HIT PARADE

Change: Whereas in the past the top 30 titles were shown, now the top 100 will be shown. Furthermore, the hit parade is now computed on the basis of 500 titles instead of 30 as in the past. The titles and counters are stored until they are manually deleted. Titles are not overwritten. New: The NSM Dataprint printout contains 10 titles as default (as opposed to 30 previously). An extended printout of 500 titles is possible (see below).

P030 "1" Show hit Parade.

Instead of 30 titles, all played titles will be displayed (max. 500).

P031 "5" Dataprint printout of Hit Parade.

Instead of 30 titles, all played titles will be printed out (max. 500).

INDEPENDENT VOLUME SETTINGS

P052 Maximum volume for background music (BGM). (Default 16)

"0" The BGM volume is set to be equal to the normal volume.

"1" to "31" BGM volume limit (value between 1 and 31).

P055 Maximum volume for Microphone. (Default 16)

"0" Microphone volume is set to be equal to the normal volume.

"1" to "31" Microphone volume limit (value between 1 and 31).

If P055 is higher than "0", then as soon as the microphone is switched on, the microphone volume is activated. Using the volume control, the microphone volume can now be adjusted (but not higher than the limit set in P055). As soon as the microphone is switched Off, the microphone volume level is switched off and the normal playing volume is resumed.

Note: The NSM Data print has a new entry for the P055 setting under "Box Status"

P056 PROGRAMMING LED DISPLAY OF HIT PARADE (Default 2)

"0" No Hit Parade displayed (only credits displayed).

"1" Hit Parade displayed after 16 seconds (previously standard).

"2" Hit Parade displayed after 16 seconds *only if no credits are present.*

- P057** PLAY LIST OVERRIDE (Default 0)
 Deleting play list using the remote control.
- "0" Disabled, deleting via remote control not possible.
 "1" Enabled, all selections in the play list will be deleted when the following
 button sequence on the remote control is pressed.
 "MUTING"+"REJECT"+"REJECT"+"REJECT"
- P078** CASH METER PULSE COUNT
 "0" 1 pulse (default value as previously).
 "1" 10 pulses.

EXPANDED FREE CREDIT FEATURE

- P094** FREE CREDITS (Default 0)
 "0" No free credit possible.
 "1" to "199" Number of free credits (see P095 below).
 "200" Same as before.
 "201" Same as before.
 "202" Same as before.
- P095** RENEWAL RATE OF FREE CREDITS
NOTE: Only active if P094 is set between "1" and "199".
 Free credits can be automatically renewed on a daily or weekly basis. The
 number of free credits in P094 will be renewed.
- "0" No renewal of free credits. When the free credits set in P094 have been
 used, no renewal will occur.
 "1" Daily renewal. Resets at midnight.
 "2" Weekly renewal. Resets Sunday night at midnight.

BACTA & DCL INTERFACE (U.K. ONLY)

- P170** PROTOCOL SETTING FOR THE COM PORT (BACTA INTERFACE)
 "0" COM port inactive.
 "1" BACTA protocol (England)
 "2" Data Cartridge Loader (DLC) protocol for BLMS.

IMPORTANT: Changes in P170 will not be activated until the phonograph is switched off, then on again.

OPTO PERFORMANCE TEST

P154

OPTO COUPLER CHECK FOR THE MBCIII

"0" The MBCIII changer will then check each of the 5 optos in succession by performing certain lift movements. Afterwards, a relative value denoting the supply voltage will be displayed.

This number should be between 165 and 185.

"1" sLift opto value. Between **25** and **80**. Otherwise change opto.

"2" sGrO opto value. Between **25** and **80**. Otherwise change opto.

"3" sGrI opto value. Between **25** and **80**. Otherwise change opto.

"4" sGrR opto value. Between **15** and **75**. Otherwise change opto.

"5" sGrL opto value. Between **15** and **75**. Otherwise change opto.

NOTE: This test is a *performance* test, and requires all optos to be at least minimally functional. If the test gives the error return value "00", one or more optos may be dead.

In this case, use P157 program (see service manual) to check which opto or optos are defective.

Section 2:

NSM

Parts Reference Guide

Section 2: *NSM Parts Reference Guide*

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NSM Jukebox Component Listing

MODEL	CCU	E-PROM	CENTRALE	CARRIAGE	AMP	DISPLAY T. DISPLAY
<i>Technology: ES</i>						
CITY ES	108-913	109-286/109-287	109-830	107-510		106-668
PRESTIGE ES (Chrome)	108-913	109-286/109-287	109-830	107-510		106-668
CONSUL CLASSIC	106-590	107-949	106-730	107-510		106-668
<i>Technology: ES II</i>						
CITY ES 160	108-913	109-286/109-287	109-830	107-510		106-668
CITY II	171-609	109-286/109-287	109-830	171-406		106-668
CONSUL ES 160	106-590	107-949	106-730	107-510		106-668
FESTIVAL ES 160	106-590	107-949	106-730	107-510		106-668
PRESTIGE ES 160	108-913	109-286/109-287	109-830	107-510		106-668
PRESTIGE ES II (Lights)	171-609	109-286/109-287	171-380	171-406		106-668
SOUNDMASTER HIDEAWAY	108-189	109-286/109-287	108-453			109-267
SOUNDMASTER COMPACT	108-189	109-286/109-287	109-830	106-610	103-615	
** PRODUCED W/ BOTH	106-590		106-730	171-406		109-267
	106-730		109-830			
<i>Technology: ES III</i>						
240 I	170-160	170-403/111-014	170-168	170-333	170-161	170-125
SATELLITE 200	170-830		170-843	170-333	170-161	170-651
<i>Technology: ES IV Vinyl</i>						
CONCERT 240 III/III	171-651	172-071	171-741	171-226	171-702	171-652
GALAXY 200	171-651	172-071	171-741	171-226	171-702	171-964
CITY IV/ SOUND	171-651	172-071	171-741	171-226	171-702	171-964

NSM Jukebox Component Listing (cont'd)

MODEL	CCU	E-PROM	CENTRALE	CHANGER	AMP	DISPLAY	T. DISPLAY
<i>Technology: ES IV CD</i>							
CITY IV CD COMBO	173-268	173-314	173-270	171-226	171-702	171-964	
GALAXY CD	173-663	175-102 V08	173-666	173-470	171-702	173-664	173-416
CD FIRE	173-663	175-102 V08	173-666	173-470	171-702	173-664	173-416
SILVER SKY	174-873	175-102 V08	173-666	173-470	171-702	173-664	174-710
SILVER CITY	174-873	175-102 V08	173-666	173-470	171-702	173-664	174-710
FIREBIRD	174-873	175-102 V08	173-666	173-470	171-702	173-664	174-710
FIRE COUNTRY	174-873	175-102 V08	173-666	173-470	171-702	173-664	174-710
PERFORMER GRAND I	174-873	175-102 V08	173-666	175-980	171-702	173-664	174-710
FASCINATION	174-873	175-102 V08	173-666	173-470	171-702	173-664	174-710
<i>Technology: ES V</i>							
PERFORMER GRAND II	176-328	176-396 V09	176-327	175-600	171-702	173-664	174-710
FIREBIRD II	176-328	176-396 V09	176-327	176-360	171-702	173-664	174-710
OLD FASHION WIZARD	176-328	176-396 V09	176-327	176-360	171-702	173-664	174-710
PERFORMER CLASSIC	176-328	176-396 V09	176-327	175-600	171-702	173-664	174-710
PERFORMER WALL	176-328	176-396 V09	176-327	176-360	171-702	173-664	174-710
NOSTALGIA GOLD	176-328	176-396 V09	176-327	176-360	171-702		
SOLID GOLD	176-328	178-238 V09	177-437	175-600		177-400	176-730
<i>Technology: ES 5.1</i>							
DIGITAL THUNDER FLOOR	176-328	176-396 V0103	177-437	140-100		177-400	176-914
DIGITAL THUNDER WALL	176-328	176-396 V0103	177-437	140-100		177-400	176-914
PERFORMER GRAND 2000	176-328	176-396 V0103	177-437	140-100		177-400	176-914
PERFORMER WALL 2000	176-328	176-396 V0103	177-437	140-100		177-400	176-914
EMERALD ICE	176-328	176-396 V0103	177-437	140-100		177-400	176-914

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ES IV CD Changer Parts Breakdown
173-470 & 175-980 CD Changers

Cable Harnesses

<u>Part #</u>	<u>Description</u>		
173-636	Cable Harness	For Lift Assembly	16 Pin
173-639	Cable Harness	For Laser Assembly To Decoder Board	14 Pin
173-641	Cable Harness	For Laser Assembly To Decoder Board	5 Pin
173-644	Trailing Cable	Lift Assembly To Pick-Up Driver	
111-645	Cable Harness	Decoder Board To Adapter Board	8 Pin
173-646	Cable Harness	Pick-Up Driver To Decoder Board	5 Pin
173-647	Cable Harness	Pick-Up Driver To Adaptor Board	12 Pin
173-648	Cable Harness	Pick-Up Driver To Adaptor Board	10 Pin
173-649	Cable Harness	Pick-Up Driver To Adaptor Board	8 Pin
173-740	Cable Harness	Audio Cable - Decoder Board To Adaptor Board	

Decoder Board 173-507 & 176-042

<u>Part #</u>	<u>Description</u>
907-160	I.C. MN 4264
907-161	I.C. SAA 7201
907-162	I.C. MAB 8441 P
907-163	I.C. TDA 7220
907-164	I.C. TDA 1541A
907-453	Capacitor 6800 mfd/ 16 Volt
220-462	Capacitor 2.2 PF/ 50 Volt
907-179	Voltage Regulator 7906
221-572	Voltage Regulator 5 Volt
250-307	Heat Sink
229-197	Clip To Hold Heat Sink To Voltage Regulator
640-011	Screw For Mounting Decoder Board To CD Changer
690-210	Insulating Washer For Mounting Screw

Laser Assemblies 173-551 CDM3 & CDM4/36

<u>Part #</u>	<u>Description</u>
212-429	Laser Assembly Cover
175-497	Rubber Feet For Bottom Of Laser Assembly
176-341	Bottom Plate For CDM4/36 Laser Assembly
176-357	Mounting Brackets For CDM4/36 Laser Assembly
907-165	I.C. TDA 0372 - Servo Board
907-172	I.C. TDA 5709 - Servo Board
907-173	I.C. 4560 D - Servo Board
907-175	I.C. TDA 5708 - Servo Board
221-332	Transistor BC 337 - Servo Board
221-444	Transistor BD 135 - Servo Board

ES IV CD Changer Parts Breakdown (cont'd)

Lift Assembly 173-607

<u>Part #</u>	<u>Description</u>
173-597	Top Piece For Lift Assembly
	Bottom Piece For Lift Assembly
175-503	Clamp Kit
173-614	Belt Lock
173-606	Gripper Motor
173-577	Left Gripper Pin
173-578	Right Gripper Pin
206-643	Vertical Drive Belt
206-644	Horizontal Drive Belt
231-322	Opto Coupler
173-586	Center Pickup Lever
173-603	White Pin For Center Pickup Lever
726-008	Mounting Pin For Center Pickup Lever
205-801	Spring For Center Pickup Lever
205-807	Spring For Grip Lever

Mechanical Parts For ES IV and ES V CD Changers

<u>Part #</u>	<u>Description</u>
173-491	Left Magazine Assembly
173-499	Right Magazine Assembly
176-395	Box of 10 5" Trays
174-537	Box of 10 3" Trays
174-294	Lower Left Locking Lever
174-295	Lower Right Locking Lever
174-296	Upper Left Locking Lever
174-297	Upper Right Locking Lever
173-947	Magazine Adjusting Post
173-948	Adjusting Screw For Magazine Post
174-809	Right Hinge For View Glass
174-810	Left Hinge For View Glass
174-265	Clip For View Glass
175-428	View Glass For Silver Sky
175-019	View Glass For Silver City
174-275	View Glass For CD Galaxy
174-729	View Glass For FireBird, Fire Country, & Fascination
175-977	View Glass For Performer Grand
174-277	View Glass For Hideaway
175-717	View Glass For Performer Grand II & Performer Classic
176-362	View Glass For FireBird II & Old Fashion Wizard
176-682	View Glass For Performer Wall

ES V CD Changer Parts Breakdown

175-600 & 176-360 CD Changers

Cable Harnesses

<u>Part #</u>	<u>Description</u>		
176-557	Cable Harness	For Lift Assembly	
206-943	Cable Harness	For Laser Assembly To Decoder Board	15 Pin
206-942	Cable Harness	For Laser Assembly To Decoder Board	4 Pin
175-964	Trailing Cable	Lift Assembly To Pick-Up Driver	14 Pin
176-385	Cable Harness	Pick-Up Driver To Decoder Board	15 Pin

Laser Assembly 176-725 CDM4/53

Decoder Board 177-231

<u>Part #</u>	<u>Description</u>
907-160	I.C. MN 4264
907-628	I.C. TDA 8900
907-629	I.C. SAA 7310 GP
907-630	I.C. SAA 7221 GP
907-631	I.C. NJM 5532 DD
907-632	I.C. MC68HC05C8P
220-462	Capacitor 2.2 PF/50 Volt

NSM Speaker Masterlist

E Model Jukeboxes

Hit E 120

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-177	Tweeter HM 10 = 224-151
2	224-153	Woofers P 245
2	224-154	Midrange HM 30

Century 21

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-141	Tweeter
2	224-145	Woofers P 30

Prestige E 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-153	Woofers P 245
2	224-177	Tweeter HM 10 = 224-151
2	224-152	Midrange P 1521

ES II Model Jukeboxes

City ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-153	Woofers P 245 8 Ohms
4	224-190	Midrange HM 1318 6.5 Ohms
2	224-176	Tweeter KK7 8 Ohms

City II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-216	Woofers
2	224-190	Midrange HM 1318 6.5 Ohms
2	224-171	Midrange P130
2	224-176	Tweeter KK7 8 Ohms

Consul ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-177	Tweeter HM 10 = 224-151
2	224-171	Midrange P130 8 Ohms
2	224-172	Woofers P 245

ES II Model Jukeboxes (cont'd)

Festival ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-157	Woofers P 245	6.5 Ohms
2	224-158	Midrange P 1318	8 Ohms
2	224-176	Tweeter KK 7	8 Ohms
2	224-171	Midrange P 130	8 Ohms

Prestige ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-157	Woofers P 245	6.5 Ohms
2	224-158	Midrange P 1318	8 Ohms
2	224-170	Tweeter KK 7	8 Ohms
2	224-171	Midrange P 130	8 Ohms

Prestige II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-199	Woofers P 265	
2	224-214	Tweeter	
2	224-171	Midrange P 130	8 Ohms
2	224-193	Midrange	

ES III Model Jukeboxes

Satellite 200

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-207	Woofers P 265	
2	224-201	Tweeter	4 Ohms
2	224-206	Midrange P135	8 Ohms

240 I

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-201	Tweeter SKK 10	4 Ohms
2	224-202	Passive Radiator P135	
2	224-193	Midrange P 135	8 Ohms
2	224-203	Midrange P 175	
2	224-204	Passive Radiator P 203	
2	224-199	Woofers P 265	

ES IV Vinyl Model Jukeboxes

City IV

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-216	Woofers PMT 245	
2	224-171	Midrange P130	8 Ohms 10 Watts
2	224-176	Tweeter KK 7	8 Ohms 4 Watts

City Combi

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-216	Woofers PMT 245	
2	224-171	Midrange P130	8 Ohms 10 Watts
2	224-176	Tweeter KK 7	8 Ohms 4 Watts

Concert 240

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-220	Woofers P300	4 Ohms
2	224-203	Midrange P175	8 Ohms
4	224-193	Midrange P135	8 Ohms
2	224-201	Tweeter SSK10	4 Ohms

Galaxy 200

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-220	Woofers P300	4 Ohms
2	224-203	Midrange P175	8 Ohms
2	224-193	Midrange P135	8 Ohms
2	224-233	Tweeter SKK 10	4 Ohms

ES IV CD Model Jukeboxes

Silver Sky

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
2	224-220	Woofers PMT 300	4 Ohms
2	224-241	Midrange P175	8 Ohms
2	224-242	Midrange P135	8 Ohms
2	224-233	Tweeter SSK 10	

CD Fire

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	
1	224-149	Midrange SP - 3P	8 Ohms

ES IV CD Model Jukeboxes (cont'd)

CD FireBird/Country

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	224-149	Midrange SP - 3P 8 Ohms

Fascination

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-243	Woofers PMT 245 4 Ohms
4	224-242	Midrange P 135 8 Ohms
2	224-233	Tweeter SSK 10

Silver City

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-237	Woofers PMT 245
2	224-176	Tweeter KK 7 8 Ohms 4 Watts
2	224-171	Midrange P130 8 Ohms 10 Watts

Performer Grand

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-240	Woofers PMT 300 4 Ohms
2	224-241	Midrange P175 8 Ohms
2	224-242	Midrange P135 8 Ohms
2	224-243	Tweeter SKK 10 Ohms

ES V Model Jukeboxes

Performer Grand II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-240	Woofers PMT 300 4 Ohms Or:
2	224-151	Woofers
2	224-241	Midrange P175 8 Ohms
2	224-242	Midrange P135 8 Ohms
2	224-243	Tweeter SKK 10 Ohms

Performer Classic

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-237	Woofers PMT 245 6.5 Ohms
2	224-176	Tweeter KK 7 8 Ohms 4 Watts
2	224-171	Midrange P130 8 Ohms 10 Watts

ES V Model Jukeboxes (cont'd)

Old Fashion Wizard

No Speakers Installed

FireBird I

No Speakers Installed

Performer Wall

No Speakers Installed

Nostalgia Gold

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1		Dual Coil Woofer
2		Midrange

Solid Gold

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-264	Woofer 8 Ohms
2	224-265	Tweeter
2	224-267	Midrange 8 Ohms

ES 5.1 Model Jukeboxes

Digital Thunder

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-264	Woofer 8 Ohms
2	224-265	Tweeter
2	224-267	Midrange 8 Ohms

Digital Thunder Wall

No Speakers Installed

Performer Grand 2000

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	224-277	Woofer 8 Ohms
2	224-276	Midrange 8 Ohms
2	224-278	Tweeter 8 Ohms

ES 5.1 Model Jukeboxes (cont'd)

Performer Wall 2000

No Speakers Installed

Emerald Ice

No Speakers Installed

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NSM Fluorescent Lamp Masterlist

E Model Jukeboxes

Hit E 120

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-033	Fluorescent Lamp 30 Watts	35 3/4" (36")	Lower Cabinet

Century 21

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-033	Fluorescent Lamp 30 Watts	35 3/4" (36")	Lower Cabinet

Prestige E 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-073	Fluorescent Lamp 16 Watts	28 3/4" (29")	Lower Cabinet
1	226-049	Lamp 12 Volt 2 Watts		Credit Unit

ES II Model Jukeboxes

City ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Title Holders
6	226-049	Lamp 12 Volt 2 Watts		Display

City II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Title Holders
6	226-049	Lamp 12 Volt 2 Watts		Display

Consul ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-033	Fluorescent Lamp 30 Watts	35 3/4"(36")	Cabinet
6	226-049	Lamp 12 Volt 2 Watts		Display

Festival ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-073	Fluorescent Lamp 16 Watts	28 3/4"(29")	Upper Cabinet
1	226-049	Lamp 12 Volt 2 Watts		Display

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NSM Fluorescent Lamp Masterlist (cont'd)

ES II Model Jukeboxes (cont'd)

Prestige ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-073	Fluorescent Lamp 16 Watts	28 3/4" (29")	Under Title Holders
6	226-049	Lamp 12 Volt 2 Watts		Display

Prestige II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Title Holders
12	226-049	Lamp 12 Volt 2 Watts		Around Speaker Grill

ES III Model Jukeboxes

Satellite 200

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
40	226-049	Lamp 12 Volt 2 Watts		Surrounds Speakers
1	226-071	Fluorescent Lamp 18 Watts	23 3/4" (24")	Lower Title Holders
1	226-076	Fluorescent Lamp 15 Watts		Upper Title Holders

240 I

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
32	226-049	Lamp 12 Volt 2 Watts		Outer Circular Frame
1	226-073	Fluorescent Lamp 16 Watts	28 3/4" (29")	Cabinet

ES IV Vinyl Model Jukeboxes

City IV

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Title Holders
6	226-049	Lamp 12 Volt 2 Watts		Display & Keyboard

City Combi

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Title Holders
1	226-033	Fluorescent Lamp 30 Watts	35 3/4" (36")	Behind CD T. Holder
	226-049	Lamp 12 Volt 2 Watts		Display

NSM Fluorescent Lamp Masterlist (cont'd)

ES IV Model Vinyl Jukeboxes (cont'd)

Concert 240

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Lower Cabinet - T.H.
1	226-076	Fluorescent Lamp 15 Watts		Display & Keyboard
18	226-049	Lamp 12 Volt 2 Watts		Side/Lower Speakers

Galaxy 200

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Carriage Rack
1	226-078	Fluorescent Lamp	23 3/4" (24")	Under Trimplate
14	226-049	Lamp 12 Volt 2 Watts		Speaker Grill
10	226-049	Lamp 12 Volt 2 Watts		Bottom of Cabinet

ES IV CD Model Jukeboxes

CD Galaxy

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Under Trimplate
2	226-079	Fluorescent Lamp 8 Watts	12"	CD Changer Sides
1	226-074	Fluorescent Lamp 16 Watts	27 3/4" (28")	Title Drum
7	226-049	Lamp 12 Volt 2 Watts		Speaker Grill
1	226-049	Lamp 12 Volt 2 Watts		Flip Button T. Drum

CD Fire

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp 4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp 4 Watts	6"	Upper Lamp Masks
1	226-085	Fluorescent Lamp 15 Watts	17 3/4" (18")	Title Drum I
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Side Masks
1	226-049	Lamp 12 Volt 2 Watts		Keyboard
1	226-049	Lamp 12 Volt 2 Watts		Button Assembly

Silver Sky

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 16 Watts	27 3/4" (28")	Under Trimplate
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Title Drum
12	226-049	Lamp 12 Volt 2 Watts		Upper Lighting PCB
12	226-049	Lamp 12 Volt 2 Watts		Lower Lighting PCB

NSM Fluorescent Lamp Masterlist (cont'd)

ES IV CD Model Jukeboxes (cont'd)

CD FireBird/Country

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp 4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp 4 Watts	6"	Upper Lamp Masks
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Side Masks
2	226-079	Fluorescent Lamp 8 Watts	12"	Title Drum
2	226-049	Lamp 12 Volt 2 Watts		Button Assembly
1	226-049	Lamp 12 Volt 2 Watts		Keyboard Assembly

Fascination

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-079	Fluorescent Lamp 8 Watts	12"	Lower Spker Masks
2	226-079	Fluorescent Lamp 8 Watts	12"	Title Drum
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Lid Frame Masks
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Trimplate

Silver City

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Title Drum
1	226-085	Black Fluorescent Lamp 20 Watts		CD Changer
	226-049	Lamp 12 Volt 2 Watts		

Performer Grand

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Lower Masks
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Title Drum
2	226-079	Fluorescent Lamp 8 Watts	12"	Sides of CD Changer
1	226-049	Lamp 12 Volt 2 Watts		Dollar Bill Entry
5	226-049	Lamp 12 Volt 2 Watts		Display
2	226-049	Lamp 12 Volt 2 Watts		Button Assembly
8	226-049	Lamp 12 Volt 2 Watts		Speaker Grill

NSM Fluorescent Lamp Masterlist (cont'd)

ES V Model Jukeboxes

Performer Grand II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Lower Mask
2	226-079	Fluorescent Lamp 8 Watts	12"	Title Drum
2	226-079	Fluorescent Lamp 8 Watts	12"	Sides of CD Changer
1	226-049	Lamp 12 Volt 2 Watts		Dollar Bill Entry
5	226-049	Lamp 12 Volt 2 Watts		Display
2	226-049	Lamp 12 Volt 2 Watts		Button Assembly
8	226-049	Lamp 12 Volt 2 Watts		Speaker Grill

Performer Classic

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Title Drum
1	226-085	Fluorescent Lamp 15 Watts	20 3/4" (21")	Under Lower Masks
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Sides of CD Changer
1	226-049	Lamp 12 Volt 2 Watts		Dollar Bill Entry
5	226-049	Lamp 12 Volt 2 Watts		Display
2	226-049	Lamp 12 Volt 2 Watts		Button Assembly

FireBird II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp 4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp 4 Watts	6"	Upper Lamp Masks
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Side Masks
2	226-079	Fluorescent Lamp 8 Watts	12"	Title Drum
2	226-049	Lamp 12 Volt 2 Watts		Button Assembly
1	226-049	Lamp 12 Volt 2 Watts		Keyboard Assembly

Old Fashion Wizard

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp 4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp 4 Watts	6"	Upper Lamp Masks
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Side Masks
2	226-079	Fluorescent Lamp 8 Watts	12"	Title Drum
2	226-049	Lamp 12 Volt 2 Watts		Button Assembly
1	226-049	Lamp 12 Volt 2 Watts		Keyboard Assembly

NSM Fluorescent Lamp Masterlist (cont'd)

ES V CD Model Jukeboxes (cont'd)

Performer Wall

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp 4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp 4 Watts	6"	Upper Lamp Masks
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Side Masks
2	226-079	Fluorescent Lamp 8 Watts	12"	Title Drum
1	226-079	Fluorescent Lamp 8 Watts	12"	Behind CD Changer
2	226-049	Lamp 12 Volt 2 Watts		Button Assembly
1	226-049	Lamp 12 Volt 2 Watts		Keyboard Assembly
1	226-049	Lamp 12 Volt 2 Watts		Running Board Assy

Nostalgia Gold

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	43654	Fluorescent Lamp		Side Bubbler Tube
2		Fluorescent Lamp		Upper Bubbler Tube

Solid Gold

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
12	226-049	Lamp 12 Volt 2 Watt		Upper Display
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Title Display

ES 5.1 Model Jukeboxes

Digital Thunder

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
1	226-033	Fluorescent Lamp 30 Watts	35 3/4" (36")	Cabinet
1	226-033	Fluorescent Lamp 30 Watts	35 3/4" (36")	Lid Frame
1	226-072	Fluorescent Lamp 4 Watts	6"	Top Display
1	226-085	Fluorescent Lamp 15 Watts	20 3/4" (21")	Title Display

Digital Thunder Wall

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>	<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp 4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp 4 Watts	6"	Upper Lamp Masks
2	226-079	Fluorescent Lamp 8 Watts	12"	Title Drum
2	226-075	Fluorescent Lamp 13 Watts	20 3/4" (21")	Sides of Masks

NSM Fluorescent Lamp Master List (cont'd)

ES 5.1 Model Jukeboxes (cont'd)

Performer Grand 2000

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>		<u>Length</u>	<u>Location</u>
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Performer Wall 2000

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>		<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp	4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp	4 Watts	6"	Upper Lamp Masks
2	226-079	Fluorescent Lamp	8 Watts	12"	Title Drum
2	226-075	Fluorescent Lamp	13 Watts	20 3/4" (21")	Sides of Masks

Emerald Ice

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>		<u>Length</u>	<u>Location</u>
2	226-072	Fluorescent Lamp	4 Watts	6"	Sides of CD Changer
2	226-072	Fluorescent Lamp	4 Watts	6"	Upper Lamp Masks
2	226-079	Fluorescent Lamp	8 Watts	12"	Title Drum
2	226-075	Fluorescent Lamp	13 Watts	20 3/4" (21")	Sides of Masks

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NSM Lock & Key Masterlist

E Model Jukeboxes

Hit E 120

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	042-292	Right Cabinet Lock
1	042-293	Left Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Century 21

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	042-277	Left Cabinet Lock
1	042-278	Right Cabinet Lock
	207-309	Spare Cabinet Key # 167676
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Prestige E 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	042-390	Left Cabinet Lock
1	042-391	Right Cabinet Lock
	207-309	Spare Cabinet Key # 167676
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES II Model Jukeboxes

City ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

City II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES II Model Jukeboxes

Consul ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	108-141	Right Cabinet Lock
1	108-142	Left Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Festival ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	107-256	Right Cabinet Lock
1	107-257	Left Cabinet Lock
	207-309	Spare Cabinet Key # 167676
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Prestige ES 160

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	108-892	Right Cabinet Lock
1	108-893	Left Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Prestige II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES III Model Jukeboxes

Satellite 200

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

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NSM Lock & Key Masterlist (cont'd)

ES III Model Jukeboxes

240 I

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-541	Cabinet Lock
	207-309	Spare Cabinet Key # 167676
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES IV Vinyl Model Jukeboxes

City IV

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

City Combi

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Concert 240

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-864	Cabinet Lock
1	217-847	Cash Box Lock
	217-992	Spare Key For Cabinet Lock
1	217-847	Cash Box Lock For Cash Box Door

Galaxy 200

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	217-814	Cabinet Lock
	217-992	Spare Key For Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES IV CD Model Jukeboxes

CD Galaxy

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	217-814	Cabinet Lock
	217-992	Spare Key For Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

CD Fire

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	206-676	Cabinet Lock
	206-718	Spare Cabinet Key #587602 CS
	206-719	Spare Cabinet Key #9901

Silver Sky

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	217-814	Cabinet Lock
	217-992	Spare Key For Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

CD FireBird/Country

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock

Fascination

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	217-133	Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Silver City

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES IV CD Model Jukeboxes

Performer Grand

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	217-814	Cabinet Lock
	217-992	Spare Key For Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES V Model Jukeboxes

Performer Grand II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	217-814	Cabinet Lock
	217-992	Spare Key For Cabinet Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Performer Classic

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
2	217-133	Cabinet Lock
	217-176	Spare Cabinet Key #2H 0010
1	207-008	Cash Box Lock For 042-108 Cash Box Door

FireBird II

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock

Old Fashion Wizard

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock

Performer Wall

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock

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NSM Lock & Key Masterlist (cont'd)

ES IV CD Model Jukeboxes

Nostalgia Gold

Solid Gold

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

ES 5.1 Model Jukeboxes

Digital Thunder

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Digital Thunder Wall

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock

Performer Grand 2000

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock
1	207-008	Cash Box Lock For 042-108 Cash Box Door

Performer Wall 2000

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock

Emerald Ice

<u>Quantity</u>	<u>Part #</u>	<u>Description</u>
1	17X-4000	Ace Lock Kit
	17X-3975	Spare Key For Ace Lock

Capacitor Master List

<u>Part #</u>	<u>Description</u>
220-065	Capacitor 220 Mfd/63V
220-077	Capacitor 200 Mfd/250 V
220-110	Capacitor MKT 01Pf/400 V
220-113	Capacitor .33Mfd/400V
220-142	Capacitor .1N/250V
220-143	Capacitor 22 Mfd/63 V
220-146	Capacitor 15 Mfd/40V
220-151	Capacitor 220 Mfd/50 V
220-157	Capacitor 2200 Mfd/40V
220-158	Capacitor 4700 Mfd/40V
220-159	Capacitor 4700 Mfd/63 V
220-160	Capacitor 100 Mfd/10 V
220-161	Capacitor 220 Mfd/40V
220-162	Capacitor 10 Mfd/63 V
220-164	Capacitor 220 Mfd/63 V
220-165	Capacitor 470 Mfd/40V
220-166	Capacitor 6800 Pf
220-167	Capacitor 1500 Pfd/100 V
220-173	Capacitor
220-175	Capacitor .01 Mfd/250 V
220-176	Capacitor .22/100 V
220-177	Capacitor 1 Pf/100 V
220-181	Capacitor
220-185	Capacitor 270Pf/400 V
220-197	Capacitor 68/35 V
220-198	Capacitor U68/35 V
220-201	Capacitor 33Mfd/10 V
220-206	Capacitor 220 Mfd/40 V
220-207	Capacitor 4700 Pf/63V
220-210	Capacitor 33 Mfd/63 V
220-218	Capacitor 10 Mfd/160 V
220-220	Capacitor 4700 Pf/160 V
220-233	Capacitor 47 Mfd/35 V
220-239	Capacitor 47 Mfd/100 V
220-241	Capacitor 560 Pf/160 V
220-242	Capacitor .68 Mfd
220-243	Capacitor 100 Mfd/3 V
220-247	Capacitor 4 Mfd/63 V
220-248	Capacitor 220 Mfd/63 V
220-249	Capacitor 1 Mfd/63 V
220-250	Capacitor 100 Mfd/25 V

Capacitor Master List

Part #	Description
220-253	Capacitor 100 Mfd/25 V
220-254	Capacitor 47 Mfd/100 V
220-255	Capacitor 3300 Mfd/160 V
220-256	Capacitor 6800 Mfd/160 V
220-257	Capacitor 1500 Mfd/100 V
220-261	Capacitor 22000 Mfd/63 V
220-263	Capacitor
220-265	Capacitor
220-274	Capacitor 330 Pf
220-275	Capacitor 4700 Mfd/50 V
220-281	Capacitor 1000 Mfd/25 V
220-283	Capacitor 2200 Mfd/25 V
220-284	Capacitor 3300 Mfd/35 V
220-285	Capacitor 3300 Mfd/40 V
220-286	Capacitor 4700 Mfd/25 V
220-287	Capacitor 4700 Mfd/40 V
220-289	Capacitor 1000 Mfd/40 V
220-290	Capacitor 1000 Mfd/63 V
220-291	Capacitor 2200 Mfd/63 V
220-307	Capacitor 3300 Mfd/40 V
220-330	Capacitor 68 Mfd/63 V
220-332	Capacitor 033 Nf (C9)
220-334	Capacitor .1 Mfd/63 V
220-335	Capacitor
220-339	Capacitor 4700 Mfd/35 V
220-341	Capacitor 4700 Mfd/5 V
220-344	Capacitor 22 Nf
220-365	Capacitor 120 Pf
220-388	Capacitor 3300 Pf
220-389	Capacitor 47 Mfd/25 V
220-390	Capacitor 100 Mfd/40 V
220-392	Capacitor 1000 Mfd/63 V
220-393	Capacitor 4700 Mfd/25 V
220-394	Capacitor 4700 Mfd/50 V
220-396	Capacitor 4700 Mfd/63 V
220-400	Capacitor 1500 Pf
220-401	Capacitor 3300 Pf
220-402	Capacitor 6800 Pf
220-435	Capacitor 4700 Pf
220-436	Capacitor 4700 Pf/63 V
220-439	Capacitor 4700 Mfd/100 V
907-453	Capacitor 68 Uf/16 V

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I.C. Master List

<u>Part #</u>	<u>Description</u>
107-144	I.C. SN 74 LS 139 N
107-145	I.C. 74 LS 04 = 221-652
107-497	I.C. 74 LS 74
107-849	I.C. 74 LS 00
107-949	I.C. E-Prom Set For 106-590 ES II CCU
108-480	I.C. E-Prom For ES II CCU
108-485	I.C. E-Prom For ES II CCU
111-014	I.C. E-Prom For 240 I CCU
170-270	I.C. E-Prom For ES II CCU
170-403	I.C. E-Prom For 240 I CCU
170-832	I.C. E-Prom For Satellite 200
170-833	I.C. E-Prom For Satellite 200
171-660	I.C. E-Prom For Concert 240 CCU
171-661	I.C. E-Prom For Concert 240 CCU
172-071	I.C. E-Prom For 171-651 CCU
173-299	I.C. E-Prom Moddification For ES II CCU
173-314	I.C. E-Prom For City Combi CCU
173-699	I.C. E-Prom For Galaxy CD
175-102	I.C. E-Prom For ES IV CCU (# 174-873)
176-396	I.C. Memory For ES V CCU (# 176-328)
176-397	I.C. Memory For ES V CCU (# 176-328)
221-388	I.C. 55
221-417	I.C. 4007
221-477	I.C. UA 723
221-478	I.C. 4081
221-480	I.C. TMS 1000 For E Model CCU
221-493	I.C. 3082
221-497	I.C. ULN 2003
221-525	I.C. 74 LS503
221-541	IC F 4049 BC
221-598	I.C. SN 74 LS 374 N
221-651	I.C. 75468
221-652	I.C. 74 LS 04
221-653	I.C. 74 LS 139
221-654	I.C. 74 LS 259
221-655	I.C. HEF 4066BP
221-660	I.C. 7445
221-663	I.C. 74 LS 241
221-665	I.C. 74 LS 00
221-671	I.C. 74 LS 02
221-672	I.C. 74 LS 08

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I.C. Master List (cont'd)

Part #	Description
221-703	I.C. 74 LS 367
221-705	I.C. 74 LS 74A
221-714	I.C. 74 LS 32
221-759	I.C. 74 LS 122
221-763	I.C. 4021
221-771	I.C. 4094
221-792	I.C. 74 LS 123
221-796	I.C. 74 LS 138
221-808	I.C. HEF 4013 BP
221-810	I.C. HEF 4050 BP
221-813	I.C. LM 339
221-852	I.C. 74 LS 151
221-893	I.C. CPU 6503
221-894	I.C. 6532
221-895	I.C. ER 1400
221-993	I.C. LM 556
221-999	I.C. 74 LS 11
231-054	I.C. TD 0124
231-059	I.C. 6502-CPU
231-061	I.C. 6522P
231-078	I.C. ULN 2803
231-088	I.C. U 351
231-089	I.C. TDA 4290
231-120	I.C. HEF 4016B
231-143	I.C. U353M
231-236	I.C. TDA 1029
231-244	I.C. MC 3456
231-269	I.C. MC 14051
231-303	I.C. Linear L298
231-355	I.C. TL 074
231-386	I.C. Battery RAM For DataPrinter
231-409	I.C. MAB T018 - I.C. 8 For Pick-Up Driver
231-412	I.C. R65 C02 - I.C. #1 Microprocessor For ES IVV CCU
231-413	I.C. R65 C02 N.L.A. = 231-412
231-414	I.C. R65 C22 - I.C. #4 Microprocessor For ES IVV CCU
231-415	I.C. R65 C22 N.L.A. = 231-414
231-422	I.C. Battery RAM
231-423	I.C. Battery RAM N.L.A. = 231-422
231-462	I.C. R65 C52 I.C Microprocessor For ES V CCU
231-463	I.C. R65 C52 N.L.A. = 231-462
231-497	I.C. Battery RAM For ES IV CCU

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I.C. Master List (cont'd)

<u>Part #</u>	<u>Description</u>
231-540	I.C. TDA 4390 Audio Chip For ES V Centrale
703-4320	I.C. Socket 20 Pin
703-4324	I.C. Socket 24 Pin
703-4328	I.C. Socket 28 Pin
703-4340	I.C. Socket 40 Pin
901-016	I.C. SDA 2008
905-150	I.C. TDA 4050
905-151	I.C. CD4538 For ES III Receiver
906-690	I.C. PIC 16054 For ES III/ IV Receiver
907-160	I.C. MN 4264 For ES IV Decoder Board
907-161	I.C. SAA 7201 For ES IV Decoder Board
907-162	I.C. MAB 8441P For ES IV Decoder Board
907-163	I.C. TDA 7220 For ES IV Decoder Board
907-164	I.C. TDA 1541 A FOR ES IV Decoder Board
907-165	I.C. TDA 0372 - CDM3 Laser Assy. Servo Board
907-172	I.C. TDA 5709 - CDM3 Laser Assy. Servo Board
907-173	I.C. NSW 4560D - CDM3 Laser Assy. Servo Board
907-175	I.C. TDA 5708 - CDM3 Laser Assy. Servo Board
907-354	I.C. 145-687 For ES IV/ V Transmitter

Resistor Master List

<u>Part #</u>	<u>Description</u>		
221-009	Resistor	1 Meg	1/4 Watt
221-017	Resistor	57 K Ohm	1/4 Watt
221-029	Resistor	1K Ohm	1/4 Watt
221-030	Resistor	1.5 K Ohm	1/4 Watt
221-031	Resistor	2.2 K Ohm	1/4 Watt
221-032	Resistor	2.7 K Ohm	1/4 Watt
221-033	Resistor	3.3 K Ohm	1/4 Watt
221-034	Resistor	4.7 K Ohm	1/4 Watt
221-035	Resistor	10 K Ohm	1/4 Watt
221-036	Resistor	15 K Ohm	1/4 Watt
221-037	Resistor	33 K Ohm	1/4 Watt
221-038	Resistor	47 K Ohm	1/4 Watt
221-039	Resistor	56 K Ohm	1/4 Watt
221-040	Resistor	680 K Ohm	1/4 Watt
221-041	Resistor	820 K Ohm	1/4 Watt
221-044	Resistor	82 K Ohm	1/4 Watt
221-045	Resistor	150 K Ohm	1/4 Watt
221-046	Resistor	120 K Ohm	1/4 Watt
221-048	Resistor	100 K Ohm	1/4 Watt
221-049	Resistor	470K Ohm	1/4 Watt
221-050	Resistor Wire Wound	5 Ohm	5 Watt
221-052	Resistor	2.7K Ohm	1 Watt
221-053	Resistor Wire Wound	270 Ohm	
221-094	Resistor	2.7 K Ohm	1/4 Watt
221-095	Resistor	6.8 K Ohm	1/4 Watt
221-096	Resistor	56 Ohm	1/4 Watt
221-097	Resistor	82 Ohm	1/4 Watt
221-098	Resistor	390 Ohm	1/4 Watt
221-099	Resistor	470 Ohm	1/4 Watt
221-100	Resistor	680 Ohm	1/4 Watt
221-169	Resistor Wire Wound	10 Ohm	1 Watt
221-172	Resistor	8.2 K Ohm	1/2 Watt
221-180	Resistor	3.9 K Ohm	1/2 Watt
221-182	Resistor	220 Ohm	1/2 Watt

Part #	Description		
221-185	Resistor	18 Ohm	2 Watt
221-189	Resistor	680 Ohm	1/2 Watt
221-191	Resistor	560 Ohm	1/4 Watt
221-193	Resistor	6.8K Ohm	1 Watt
221-209	Resistor	120 Ohm	1/2 Watt
221-210	Resistor	1.5 K Ohm	1/2 Watt 500 Ohm 1/2 Watt
221-218	Resistor	180 Ohm	9 Watt
221-230	Resistor	470 Ohm	1 Watt
221-246	Resistor	1 K Ohm	1 Watt
221-273	Resistor	1 K Ohm	1/2 Watt
221-274	Resistor	1. 5 K Ohm	1/2 Watt
221-275	Resistor	22 K Ohm	
221-276	Resistor	470 Ohm	
221-278	Trimmer Pot	10 K Ohm	
221-279	Trimmer Pot	250 K Ohm	
221-280	Trimmer Pot	25 K Ohm	
221-281	Resistor	1.5 K Ohm	1/2 Watt
221-293	Resistor	82 K Ohm	1/3 Watt
221-305	Trimmer Pot	2.2K Ohm	1 Watt
221-323	Slide Pot	100 K For E/ES II Volume Control	
221-362	Resistor Wire Wound	220 Ohm	4 Watt
221-395	Trimmer Pot	10 K Ohm	
221-397	Resistor	4.7 K Ohm	1/2 Watt
221-407	Trimmer Pot	50 K Ohm	
221-414	Trimmer Pot	100 K Ohm	1 Watt
221-502	Trimmer Pot	For 107-424 Pre-Amp	
221-581	Resistor Array	4.7K Ohm	
221-582	Trimmer Pot	100 K	1 Watt for 107-424 Pre-Amp
221-583	Trimmer Pot	2.2 K	1 Watt for 107-424 Pre-Amp
221-587	Resistor Array	2.2 K Ohm	
221-588	Resistor Array	220 K Ohm	
221-600	Resistor	100 Ohm	1/4 Watt
221-601	Resistor	27 K Ohm	1/4 Watt
221-603	Resistor	12 K OHM	1/4 Watt
221-604	Resistor	22 K OHM	1/4 Watt

<u>Part #</u>	<u>Description</u>		
221-605	Resistor	18 K Ohm	1/4 Watt
221-606	Resistor	47 K Ohm	1/4 Watt
221-609	Resistor	220 K Ohm	1/4 Watt
221-611	Resistor	10 K Ohm	1/4 Watt
221-614	Resistor	3.3 K Ohm	1/4 Watt
221-620	Resistor	22 Ohm	1/4 Watt
221-622	Resistor	820 Ohm	1/4 Watt
221-623	Resistor	39 K Ohm	1/4 Watt
221-624	Resistor	220 Ohm	1/4 Watt
221-625	Resistor	5.6 K Ohm	1/4 Watt
221-627	Resistor	1.2 K Ohm	1/4 Watt
221-628	Resistor	3.9 K Ohm	1/4 Watt
221-629	Resistor	68 K Ohm	1/4 Watt
221-630	Resistor	18 Ohm	4 Watt
221-637	Resistor	150 Ohm	1/4 Watt
221-638	Resistor	270 Ohm	1/3 Watt
221-646	Resistor	22 Ohm	5 Watt
221-668	Resistor	18 Ohm	1 Watt
221-679	Resistor	1.8 K Ohm	1/2 Watt
221-682	Resistor	1 Ohm	1/2 Watt
221-692	Resistor	2 Ohm	1 Watt
221-695	Resistor Wire Wound	220 Ohm	1 Watt
221-741	Resistor	1 K Ohm	1 Watt
221-753	Resistor	330 Ohm	1 Watt
221-865	Resistor	22 Ohm	
221-905	Resistor	430 Ohm	1/4 Watt
221-985	Resistor	220 Ohm	1 Watt
231-086	Trimmer Pot	10 K Ohm	
231-097	Slide Pot	10 K Ohm	-170-282 Volume Control
231-127	Resistor	3.9 K	2 Watt
231-130	Resistor	4.7 Meg	1/4 Watt
231-145	Resistor	2.2 Ohm	1.5 Watt
231-195	Resistor		
231-214	Trimmer Pot	25 K Ohm	
231-232	Resistor Wire Wound	6.8 K Ohm	1 Watt

<u>Part #</u>	<u>Description</u>	
231-233	Trimmer POT	1 Meg
231-234	Trimmer POT	2.5 Meg
231-237	Resistor Wire Wound	3.9 K/ 1 Watt
231-700	Resistor	
231-712	Resistor	

Part #	Description
221-214	Transistor BC 140-10
221-217	Transistor BC 109B
221-249	Transistor BC 550
221-283	Transistor BC 557 B
221-290	Transistor BD 241 B
221-292	Transistor BD 244
221 -317	Transistor BC 327-16
221-321	Transistor BC 338
221-332	Transistor BC 337-16
221-444	Transistor BD 135
221-459	Transistor BC 556 B
221-485	Transistor BC 546 B
221-488	Transistor BD 139
221-489	Transistor TIP 141
221-490	Transistor TIP 146
221-492	Transistor BC 517 B
221-494	Transistor TIP 3055
221-495	Photo Transistor For 172-690 Opto Scan
221-648	Photo Transistor For Coin Channels
221-681	Transistor BC 516
221-757	Transistor BC 547B
221-777	Transistor BD 679
221-883	Transistor BD 239 B
221-886	Transistor BDW 83 C
221-902	Transistor BDW 84 C
231-150	Transistor TIP 130
231-201	Transistor BD 136
231-240	Transistor BC 636
231-693	Transistor
231-694	Transistor
231-695	Mosfet Transistor 2SJ201
231-696	Mosfet Transistor 2SK1530
231-790	Transistor
904-949	Transistor BC 640 For I.R Remotes

Section 3:

NSM

ES 5.1

Programming Guide

Section 5 Programming of special and individual settings

General information, command overview

In order to program NSM phonographs in a simple yet extensive fashion, a service program has been installed with which the different settings can be altered via the keyboard of the phonograph.

In order to get into the service mode you have to perform the following steps:

- open the front door of the cabinet
- pull out the service switch (cabinet interlock switch)

By changing the display, the phonograph indicates that it is in service mode now. The display shows the following information:

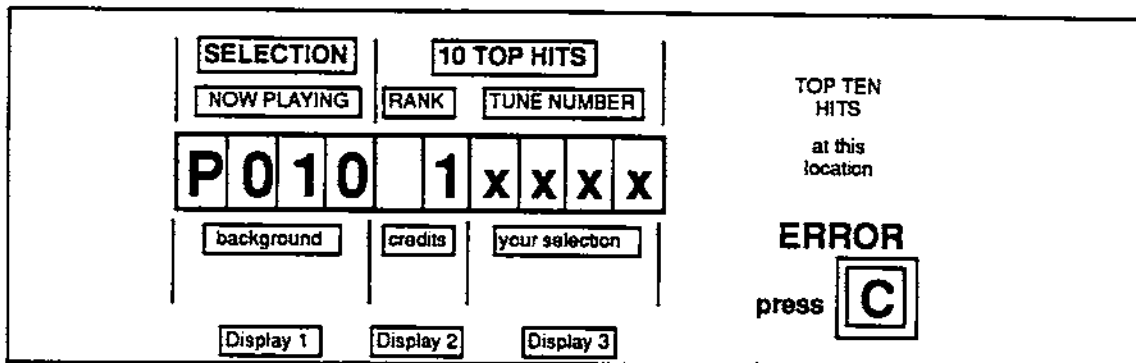
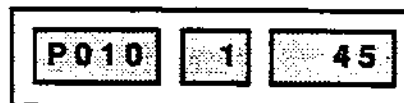


Figure 29: Display after entering the service mode

The display shows P010 and values concerning the popularity of the least played CD.
For example:



After pressing the key "C" the display is changed.
To the left the letter "P" appears.



Now enter the desired command number. Zeros before the number can be left out.
A command called up in error can be cancelled by pressing "C". Pressing "H" confirms the entry.

For example:

Enter: P 40 H 1 H

to program the phonograph
with all default values.



In order to find single commands more easily, all possible commands are put together in single groups.

P001	Authorization: Enter authorization code: *PPPP*	P040*	General settings: 0+H Default values for 041 to 054. 094
P002*	Change authorization code *PPPP*		1+H Default values for 041 to 054. 094 and 114, 117 ▼
	Statistics:	P041*	Define machine code number, maximum 4 digits "0"
P010	0: Number of least played CD 1: Number of second-least played CD	P042	Selection limit for CD/track (title) maximum 100CDs, 99 tracks "0024"
	2: Number of plays 3: Data about any CD	P043	Light show in stand-by, if installed "1105"
P011	0: Number of the most played (best) CD 1: Number of the second-best CD	P044	Light show in operation, if installed "1000"
	2: Number of plays 3: Data about any CD	P045*	Time limit for playing of tracks in minutes (0=no limit) "0"
P012	0: Top-title, hit #1 1: Second-best title	P046	Sequence of playing normal selected tracks (0= fifo / 1=numerical / 2=random) "0"
P013*	0: Cash amount since last evaluation 1: Accumulated Cashbox amount	P047	Maximum number of titles in a sequence from one CD (0 = no limit) "0"
P014*	0: Number of coins through Chute 1 (K1) 1: Number of coins through Chute 2 (K2)	P048	Automatic advancing of title display in minutes (0= none) "0"
	2: Number of coins through Chute 3 (K3) 3: Number of coins through K4 or bills into NP1	P049*	Cancels credits after power off / stand-by (x=0=no, x=1 to 240=yes) x/10 hrs. "2"
	4: Number of bills into validator NP2 5: Accumulated counter for K1	P050*	Cancels selection memory after power off (no: x=0, yes: x=1 to 240) x/10 hrs. "2"
	6: Accumulated counter for K2 7: Accumulated counter for K3	P051*	Maximum volume in play operation (max. 31) "31"
	8: Accumulated counter for K4 or NP1 9: Accumulated counter for K5 or NP2	P052*	Maximum volume for background music (max. 31) "16"
P015 *1)	0: Cash amount of wall box 1: Accumulated Cashbox amount	P053	Sound system setting set volume "0505"
P016*	0: Counter of played titles 1: Accumulated counter	P054	Sound system setting set treble and bass "0808"
P017*	0: Counter of selected titles 1: Accumulated counter		
P018*	0: Counter of album selections 1: Accumulated counter		Price settings: see table "Price settings"
P019*	0: Counter of overplay titles 1: Accumulated counter	P060*	0+H Cancels previous price setting n+H Selection "n" from table (s.a.)
P020*	0: Counter for paid credits 1: Accumulated counter	P061*	Arbitrary price setting for chute 1 xx=selections, yyyy=price "xx yyyy"
P021*	0: Counter for free credits 1: Accumulated counter	P062*	same for chute 2
P022*	0: Counter for background titles 1: Accumulated counter	P063*	same for chute 3
P023*	0: Counter for autoplay titles 1: Accumulated counter	P064*	same for chute 4
P024*	0: Counter for advertising tracks 1: Accumulated counter	P065*	same for chute 5
P025*	0: Counter for Happy-Hour-credits 1: Accumulated counter	P066*	Bonus listing for album setting 0: No album selection allowed "1"
P026	reserved		1: No bonus
P027	reserved		2: 1 bonus for 5 titles
P028	Number of unused credits		3: 1 bonus for 4 titles
P029	Number of selections not yet played		4: 1 bonus for 3 titles
P030	Data transfer to Data Print in text mode 0: cashbox, counters, popularity, errors,...		
P031*	Data transfer to Data Print in graphic mode 0: all available data		Monetary value settings: see table "Monetary value settings"
	1: Cashbox 2: Counter and cashbox contents	P070*	0+H Cancels previous monetary value n+H Selection "n" from table (s.a.)
	3: General settings 4: Popularity of all CDs	P071*	Arbitrary monetary value setting for chute 1 zzzz=coin value (e.g. 0500=\$ 5,-) "zzzz"
	5: Top 30 hits 6: Previous 20 error reports	P072*	same for chute 2
P032	option, not used for USA	P073*	same for chute 3
P033*	Cancellation routines! 0+H clear all memory entries!	P074*	same for chute 4
	1+H clear hit parade! 2+H clear popularity!	P075*	same for chute 5
	3+H clear counters and cashbox contents! 4+H clear credits!	P076*	Bonus credits for bill insert "0"
	5+H clear selection memory! 6+H clear error memory!	P077*	0: indirect revaluation 1: direct revaluation of inserted money "0"

P080*	Programming real time clock: Set time "hhmm"	P130*	Programming lock-out times: 0+H default values; cancels entries + time
P081*	Set date "ddmmyy"	P131*	Start time for time window "Free title selection"
P082*	Set week-day (d=1 to 7) "d"	P132*	Stop time for time window "Free title selection"
P090*	Programming free credits: 0+H default values; cancels entries + time	P133*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display
P091*	Start time of time window "Free Credit"	P134*	Activate/deactivate lock-out: 1: Title locked / 0: Title available in time window
P092*	Stop time of time window "Free Credit"	P135*	Entry of 20 titles or albums Enter: nnnn+H
P093*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display	P140*	Programming Happy-Hour-credits: 0+H default values; no Happy-Hour
P094*	Number of free credits: 0: No free credits "0"	P141*	Start time for time window "Happy-Hour"
	<200: No. of free credits individually used =200: Unlimited use	P142*	Stop time for time window "Happy-Hour"
	=201: Switch between no/unlimited use =202: automatically unlimited use	P143*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display
P100*	Programming background music: 0+H default values; cancels entries + time	P144*	Calculation number (n=1 to 5) Enter: n+H (0= no Happy-Hour) "0"
P101*	Start time for time window "Background music"		
P102*	Stop time for time window "Background music"		Calling up Test Programs:
P103*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display	P150	Read out error report memory: 0: Last reported error
P104*	Lock for background music (BGM): 0: No BGM "0"		1: Previous error report 2: CD-Nr. at which the error occurred
	1: BGM possible in time window 2: BGM automatically in time window		3: Time of occurrence 4: Date of occurrence
P105*	Entry of 20 titles or albums Enter: nnnn+H	P151 to P159 are reserved for the service staff. See Service manual	
P106*	Patron Selection (0=free, 1=locked for guests)		
P107*	Sequence of play (0=FIFO, 1=RANDOM) "0"		Title memory:
P108*	paid for BGM Enter: nn+H (0=no credit) "0"	P160	0: Read in all CD titles, i.e. with initial equipping of all CD's
P110*	Programming auto play: 0+H default values; cancels entries + time	P161	Read in all titles of one newly equipped CD. Enter CD# "nn"+H
P111*	Start time for time window "Auto Play"	P162	Read the title memory. 0: Number of titles from first CD
P112*	Stop time for time window "Auto Play"		1: Number of titles from the next CD 2: Number of titles from the last CD
P113*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display		3: Number of titles from any CD. Enter CD# "nn" +H
P114*	Time between two titles in minutes Enter: nn+H (0=no auto play) "15"	P163	Cancel title memory of all CD's, 0+H all entries set to 1
P115*	Entry of 20 titles or albums Enter: nnnn+H		
P116*	Patron Selection (0=free, 1=locked for guests)		Switching signal sources
P117*	Sequence of play (0=FIFO, 1=RANDOM) "1"	P164	This is only necessary when servicing
P120*	Programming advertisement play: 0+H default values; cancels entries + time		0+H Mute (no signal source) 1+H CD-player
P121*	Start time for time window "Advertisement"		2+H Tape or cassette player 3+H microphone
P122*	Stop time for time window "Advertisement"		
P123*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display		
P124*	Time between two titles in minutes. Enter: nn+H (0=no adverts) "0"		
P125*	Entry of 20 titles or albums. Enter: nnn+H		
P126*	Patron Selection (0= free, 1= locked for guests)		
P127*	Sequence of play (0=FIFO, 1=RANDOM) "0"		

1)= Not yet implemented, * = Enter authorisation code, "Value" = Factory default value

The structure of the service program steps

The whole service program steps are divided into command groups

Table 6: Overview of Commands of the Service Program

Group	Name of Command Group	Command Numbers
1	Authorization	P001...P002
2	Statistics	P010...P026
3	Data Transfer/Cancellation	P030...P033
4	Programming General Settings	P040...P054
5	Programming Price Settings	P060...P066
6	Programming Monetary Value Settings	P070...P076
7	Programming Real Time Clock	P080...P082
8	Programming Free Credits	P090...P094
9	Programming Background Music	P100...P107
10	Programming Auto Play	P110...P117
11	Programming Advertising	P120...P127
12	Programming Lock-out of titles	P130...P135
13	Programming Happy-Hour-credits	P140...P144
14	Test Programs	P150...P157
15	Initializing CD titles into title memory	P160...P164

In the following chapter the meaning and the syntax of each command of the service program will be described in detail.

1. Authorization (P001 to P002)

Because the phonographs can be programmed with so much important data as well as input in cash counter and statistics, it is even more important than before that only authorized personnel may have access. For this reason access to essential data of the phonograph can be protected by using an authorization code.

Enter Authorization Code

P001: In order to call up the protected commands, the authorization is started by the command P001.

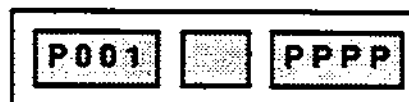
Enter: P 001 H P P P P H or P 1 H P P P P H

The authorization code "0000" has been programmed for delivery. The memories are not protected and the operator can choose his own code by entering command **P002**. For security reasons the code number is not shown. In the display each number is shown as "P". When "PPPP" is shown, the secret code number is complete and after pressing "H" and leaving the programming mode, the machine is protected.

Changing the Authorization Code

P002: During regular operation changing of the authorization code is only possible after previous authorization.

Enter: P 001 H P P P P H (for authorization)



Enter: P 002 H P P P P H (when entering new authorization code)

Caution: As described beforehand, the authorization code is NEVER shown! Therefore, it is important that the code is never lost since there is no opportunity to reprogram the phonograph.

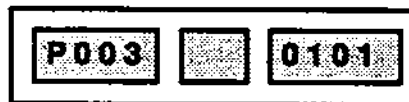
Show version

P003: Enter this command to get the version of the firmware of the phonograph the CD changer MBC III or the CD player.

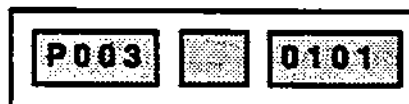
Enter: P 003 H 0 shows the version of the phonograph's firmware:



1 shows the version of the CD changer MBC III:



2 shows the version of the CD player:



Statistics (P010 to P029)

Within the program group of statistics there is information regarding cash as well as statements as to how often CDs are played (popularity, hit parade).

The single commands for cash value and counters are divided into two groups. The regular information is under code "0". Cumulated values are under code "1" which have been added up since the jukebox has been operated.

Individual commands:

Popularity

Relating to CD albums, the commands P010 and P011 are dedicated in order to determine the popularity.

- P010:**
- 0: Display of number of **least played CD**
 - 1: Display of number of the next higher CD (stepping through with "1")
 - 2: Number of plays
 - 3: Information to any CD (enter CD number)

After entering the proper code, the display shows the information such as the following:

Enter: P 010 H 0 i.e. least played CD no. 45
 1

P 010	1	45
-------	---	----

Enter: P 010 H 2 i.e. 13269 plays

P 010	1	3269
-------	---	------

Enter: P 010 H 3 53 H
 i.e. CD no. 53 in 17th place

P 010	17	53
-------	----	----

- P011:**
- 0: Display of number of **most popular CD**
 - 1: Display of number of next higher CD (advance with "1")
 - 2: Number of plays
 - 3: Information regarding any CD (enter CD number).

After entering the proper code, the display shows the respective data.

Enter: P 011 H 0 i.e. most popular CD no. 19
 1

P 011	1	19
-------	---	----

Enter: P 011 H 2 i.e. 731 plays

P 011		731
-------	--	-----

Enter: P 011 H 3 24 H
 i.e. CD no. 24 in 2nd place

P 011	2	24
-------	---	----

Hit Parade

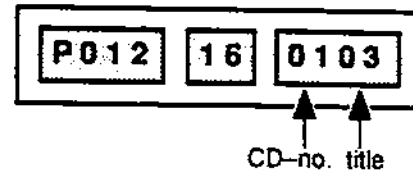
You also can call up the top 30 titles including information of how many times a title was played.

- P012:**
- 0: Display of top title number, Hit no. 1
 - 1: Display 2nd best title (advance with key "1")
 - 2: Number of plays of the actual title

Enter: P 012 H 0

1 i.e. in 16th place:
The third title of CD 01

2 i.e. this title was played
169 times until now



Cashbox contents

Use the following commands to display the actual cash contents as well as diverse counter readings since the last collection. You receive statistics concerning the entire time of operation by displaying the cumulated counters.

Cash

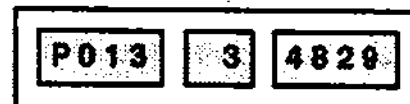
The display of the cash amount is done by total numbers, read out in currency amounts. Contrary to the monetary value setting in command group P07x where the coin value multiplied by factor 100 is displayed, i.e. \$1 are entered in P07x as 0100, but are shown as 1 in P013.

Display of the cash contents is indicated by maximum 6 spaces (max. display: \$ 99 9,999).

- P013:**
- 0: display of cash contents since the last collection
 - 1: cumulated cash contents

Enter: P 013 H 0

1 i.e. \$34,829



Counter for number of coins / bills

Besides displaying the cash levels, the counters of the individual money chutes can be called up. This makes possible an additional control of the cash contents. The five integrated counters are distributed as follows:

- Chutes 1 to 3: only coins (defined by monetary value setting P071 to P073)
- Chute 4: coins as well as bills (can be selected with P074)
- Chute 5: only bills (defined by P075)

The total of the individual counters corresponds to the total of the cashbox contents.

- P014:**
- 0: Number of coins through Chute 1 (enter P071)
 - 1: Number of coins through Chute 2 (enter P072)
 - 2: Number of coins through Chute 3 (enter P073)
 - 3: Number of coins through Chute 4 and/or bills counted in Bill Validator 1 (enter P074)
 - 4: Number of bills counted in Bill Validator 2 (enter P075)
 - 5: Cumulated counter Chute 1 (enter P071)
 - 6: Cumulated counter Chute 2 (enter P072)
 - 7: Cumulated counter Chute 3 (enter P073)
 - 8: Cumulated counter Chute 4 (enter P074)
 - 9: Cumulated counter Chute 5 (enter P075)

Enter: P 014 H 0

- 1 i.e. 12.543 coins through
- 2 channel 2:
- ...
- 9



The respective cashbox total is derived by multiplying number of coins x monetary value of coin.

Additional Counters

With commands P016 to P025 diverse counters can be called up which can be used as actual counters and as cumulative ones as the commands described previously. The statistical data contained therein can be used to settle accounts.

- P016:** 0: Number of titles played
1: Cumulated counter
- P017:** 0: Number of titles chosen
1: Cumulated counter
- P018:** 0: Number of albums chosen
1: Cumulated counter
- P019:** 0: Number of overplay titles
1: Cumulated counter
- P020:** 0: Number of credits paid
1: Cumulated counter
- P021:** 0: Number of free credits
1: Cumulated counter
- P022:** 0: Number of background titles
1: Cumulated counter
- P023:** 0: Number of titles in auto play mode
1: Cumulated counter
- P024:** 0: Number of advertising titles
1: Cumulated counter
- P025:** 0: Number of Happy-Hour-credits
1: Cumulated counter

i.e.: calling up number of titles played; a total of 10273 titles were played on this phonograph.

Enter: P 016 H 1 i.e. 10,273 titles played
in total



The counters P026 and P027 are not used.
Further interesting data are recorded in counters P028 and P029.

P028: Number of credits unused.
This shows the number of paid credits available for selections of titles or albums.

P029: Number of chosen unplayed titles.
This shows how many entries are remaining in the selection storage.

Data Transfer (P030 to P031)

In this group of service program commands the data in the counters mentioned beforehand are prepared for output to a DATAprint or to evaluation devices which process the data. After calling up the command and entering the respective code, data transfer follows.

There are two ways of print-out possible:

P030 transfers all available data in text mode.
The data is stored within the DATAprint.
The data can be printed out or edited on a PC i.e. with the software DATAcontact.
The counters of the phonograph are deleted after the printout is done and the cabinet is closed.

P031 transfers all data in graphic mode.
The data is printed out directly after downloading.

See also the sample print outs shown in chapter "How to evaluate the statistics?"

Display of error numbers while evaluation is performed

If an error is determined, "E0" is shown in display 3. In that case, please check the connection to the DATAprint unit.

Display of the phonograph if a transfer error occurs:



Remember to un-plug the interface cord after the print out is finished.

DATAprint Printout in Text Mode

P030: 0: All data in the counters is processed and sent to DATAprint. There they are stored and printed out depending on the setting of the DATAprint.

The stored data can continue to be processed by a software tool for PCs, i.e. by DATAcontact.

Enter: P 030 H 0



DATAprint Printout in Graphic Mode

Contrary to the output of P030, the entire statistics as well as individual statistical areas can be printed out by P031. But the data are not stored within the DATAprint.

- P031:**
- 0: Print all data
 - 1: Cashbox amount
 - 2: Counter with cashbox
 - 3: General settings
 - 4: Popularity of all CDs
 - 5: Hit parade of the best 30 titles
 - 6: The last 20 errors shown

Enter: P 031 H 0
 1
 ... i.e. 4 print-out popularity:
 6



If you just would not have selected this menu item, you just push in, then pull out the service switch and you re-enter the service mode at the main menu level.

Cancellation of counters (P033)

The P30 group contains not only the printing commands but also the cancellation commands of counters P010 to P024. Only the "regular" counters are cancelled. The cumulated counters are excluded from cancellation. The memories for credit and selection of titles as well as the error memory are cancelled.

Note: To avoid the cancellation of data by accident or by unauthorized persons, this function can be protected by an authorization code (enter P001).

- P033:**
- 0+H: Cancellation of all memory contents
 - 1+h: Cancels hit parade (P012)
 - 2+H: Cancels popularity (P010)
 - 3+H: Cancels counters and cashbox contents (P013-P024)
 - 4+H: Cancels credit memory
 - 5+H: Cancels selection memory
 - 6+H: Cancels error memory
- !!CAUTION!!**

Note: To additionally safeguard accidental cancellations, each input has to be confirmed by pressing the key "H".

Enter: P 033 H 0 H
 1 H
 2 H i.e. cancel popularity:
 ...
 6 H



4. Programming General Settings P040 to P054

In order to adjust each phonograph individually to the location requirements, certain general settings can be individually changed. Below you may find detailed values which have been set at the factory (Note: "standard values").

Standard values

If you generally want to reset all values to the standard values of the factory settings, you have to perform this programm step.

P040: 0+H: programming of standard values (P041 to P054, P077, P094)
cancellation of values (P091 to P144), set to inactive:

P041: 0	P050 2	P077 0
P042: 0024	P051 31	P094 0
P043 1105	P052 16	P104 0
P044 1000	P053 0505	P107 0
P045 0	P054 0808	P124 0
P046 0		P127 0
P047 0		P134 0
P048 0		P144 0
P049 2		0

1+H: as above, additional programming of standard values for:

autoplay titles with defined acces to all CDs.

P114 15
P117 1

Enter: P 040 H 0 H
1 H i.e. set factory standards



I.D. number of the phonograph

P041: Every phonograph can be programmed with its own I.D. number. DATAprint print-outs can then be easily identified if you have evaluated several machines. The I.D. number has at most 4 digits.

Enter: P 041 H nnnn H



Maximum number of selectable CDs and tracks/titles

P042: When partially equipping phonographs, unused magazine slots can be excluded. A maximum of 100 CDs (01-to 00) as well as a maximum of 99 titles can thus be selected. (Standard value: 0024).
Attention: 00 = number 100

Enter: P 042 H 0024 H

*i.e. allow 100 CDs with
 24 titles each to be selected*



Note: Please remember that with each change regarding the number of CDs, the new parameters will have to be reported to the phonograph via program step P160 or P161. Otherwise, there will be problems when playing the CD.

Light effects in stand-by

P043: A light generator can be programmed in order to attract the patrons' attention as long as no music has been selected.

Attention: Only useable on phonographs with a light organ installed.

Enter: P 043 H



Programming the running light is done by entering a 4 digit number according to the following scheme:

A: Switch over characteristic	0= hardly 1= softly		1105: Running light no.05, slowly with softly switching light.
B: Speed	0= slowly 3= fast		
C+D: Various running lights	01 to 15		

Light effects during play

P044: Another light generator can be programmed here to differentiate between the two.

Enter: P 044 H



Programming the light effects is done by entering a 4 digit number according to the following scheme:

A: Mode of operation	0= steady light 1= light organ		1000: light organ, relatively dark.
B: Basic brightness/contrast	0= dark 3= bright		
C+D: Various light effects	00= lightorgan 01 to 15 *)		

*) see P043

Limit play time of one track

P045: in minutes; in order to suppress long titles play time can be limited. The title playing will slowly fade when the time is up. When entering 0, there is no limit.

Enter: P 045 H nn H
3 H: titles will slowly fade after 3 min.

P045		3
------	--	---

Sequence of plays at normal selection

P046: In order to alter the music menu, three variations can be chosen when playing :
0 – play as selected (FIFO)
1 – play in numerically ascending numbers
2 – play randomly (RANDOM).

Enter: P 046 H n H
2 H i.e. play randomly

P046		2
------	--	---

Maximum number of titles of one CD

P047: Use this program step to determine how many titles of one CD are played in sequence. Value "n" as number of titles to be played."0"means no limit.

Enter: P 047 H n H
0 H i. e. no limit

P047		0
------	--	---

Automatic advancing of title display

P048: Use this program step to define the automatic advance of the title display. Enter value "nn" as minutes. If minutes are entered the title display is changed accordingly in stand-by. 0 = no automatic advancing.

Enter: P 048 H nn H
10 H i.e. advancing of title display every 10 min.

P048		10
------	--	----

Cancel credit

P049: Remaining credits are cancelled after $n/10$ hrs. ($n \times 6$ min.) of power off or stand-by.

Value "n" can be between 0 and 240 with commands P049 and P050.

i.e. $n = 1$: waiting time = 6 min.

$n = 10$: waiting time = 1 hr.

$n = 240$: waiting time = 24 hrs.

"0" does not cancel.

Enter: P 049 H 2 H

*i.e. cancel credit after 12 min. of
power off/stand-by (2/10 hrs.):*



Cancel selection memory

P050: Remaining selections entered in the selection memory are cancelled after $n/10$ hrs. ($n \times 6$ min.) of power off.

Value "n" can be between 0 and 240 with commands P049 and P050.

i.e. $n = 1$: waiting time = 6 min.

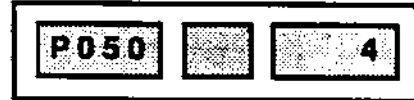
$n = 10$: waiting time = 1 hr.

$n = 240$: waiting time = 24 hrs.

"0" does not cancel.

Enter: P 050 H 4 H

*i.e. cancel selection memory
after 24 min. of power off:*



Sound system settings

Maximum Volume Levels

Maximum volume levels during play and background mode can be pre-set to a certain limit. The manually adjustable volume level of the phonograph cannot go beyond the set levels.

P051: Maximum volume during play; can be set between 0 (mute) and 31 (loud).

P052: Maximum volume for background mode; can be set between 0 (mute) and 31 (loud).

Enter: P 051 H 31 H
i.e. maximum volume possible



Set volume for play mode

P053: With this command the volume of the phonograph is set.

This function can be set in two ways:

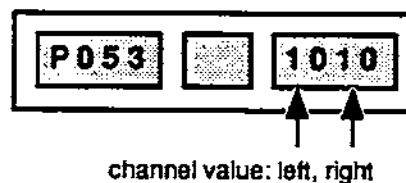
In the program mode it can be set via the key pad of the phonograph or by using the remote control.

Key pad layout for volume setting:

▲ 1 left channel louder	▲ 2 both channels louder	▲ 3 right channel louder
4	5	6
▼ 7 left channel quieter	▼ 8 both channels quieter	▼ 9 right channel quieter
C Cancel	0	H Step to the next com- mand.

Figure 30: Key pad layout for volume setting

Enter: P 053 H
Change per pressing keys
i.e. Key "2" = louder



Sound setting

With command **P054** the sound setting is performed in a range from 1 to 10. Here treble and bass volume are set for both channels at the same time. The changed setting can also be immediately heard.

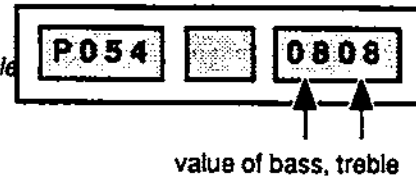
Key pad layout for sound setting:

▲ 1 more bass	▲ 2 more bass + treble	▲ 3 more treble
4 mean value	5 mean values	6 mean value
7 less bass ▼	8 less bass + treble ▼	9 less treble ▼
C Cancel	0	H Step to the next com- mand.

Figure 31: Key pad layout for sound setting

Enter: P 054 H

Change per pressing keys
i.e. Key "8" = less bass and treble



5. Price Settings P060 to P066

To make programming of credits easier a table for price settings via code number has been programmed for command **P060** in which actual price values have been entered. The programming of the five possible price levels can be automatized with the table.

Look for your country and enter the code number for those listed prices.

Another possibility is the individual programming of the individual price scales using commands **P061** to **P065**.

Please use 6 digits and keep the price settings in numerically increasing order (ie: **P061** lowest price, **P065** highest price)

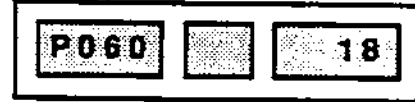
Table 7: Price Settings

Code No.	COUNTRY	P061	P062	P063	P064	P065	Remarks
0	_____	00 0000	00 0000	00 0000	00 0000	00 0000	no coin conversion in this setting
1	Germany	01 0100	01 0100	03 0200	03 0200	03 0200	1 play = 1.-DM
2	Belgium	02 2000	02 2000	02 2000	06 5000	06 5000	
3	Netherlands	02 0100	02 0100	02 0100	06 0250	06 0250	2 different settings
4	France	02 0500	02 0500	10 1000	10 1000	10 1000	
5	Switzerland	02 0100	02 0100	05 0200	05 0200	14 0500	
6	Austria	01 0500	01 0500	03 1000	03 1000	07 2000	
7	Italy	01 0400	01 0400	01 0400	03 1000	03 1000	
8	Spain	01 0050	01 0050	02 0100	02 0100	05 0200	
9	Greece	01 2000	01 2000	01 2000	02 5000	02 5000	
10	Yugoslavia	01 0200	01 0200	01 0200	03 0500	03 0500	
11	Denmark	01 0300	01 0300	02 0500	05 1000	12 2000	4 different settings
12	Norway	01 0300	01 0300	02 0500	02 0500	04 1000	
13	Finland/Sweden	01 0300	01 0300	01 0300	02 0500	02 0500	
14	Hungary	01 2000	01 2000	01 2000	01 2000	01 2000	
15	Ireland	01 0010	01 0010	03 0020	03 0020	10 0050	
16	Great Britain	01 0030	01 0030	02 0050	02 0050	05 0100	
17	USA (1) / Canada	01 0050	01 0050	01 0050	03 0100	03 0100	Dollarbill on chan.5 (P065)
18	USA (2)	01 0050	01 0050	03 0100	03 0100	18 0500	
19	Africa	01 0020	01 0020	03 0050	03 0050	07 0100	
20	Australia	01 0100	01 0100	01 0100	03 0200	03 0200	
21	Netherl. Antillen	01 0400	01 0400	01 0400	01 0400	01 0400	
22	New Zealand	01 0050	01 0050	01 0050	01 0050	01 0050	

Programming the price settings by standard values

P060: In order to program the phonograph with the standard values of the table, the respective code number is entered after command P060 and confirmed with "H". The setting selected (n = code no. of the table) is automatically matched to the respective price scales.

Enter: P 060 H n H
18 H i.e. price setting: USA



Programming the price settings with custom settings

P061 to P065: The stakes for the individual price scales can also be separately defined.

With commands P061 to P065 the respective stake can be programmed.

You just have to observe the order of entering the values: P061 is programmed with the lowest and P065 is programmed with the highest price setting.

Unused steps may be programmed with zero or with the preceding value (examples see table)

Example of individual price setting: 12 titles for \$ 5,- (price scale 3).

Enter: P 065 H 120500 H



Programming an album bonus

The setting of bonus credits for album selection is done with command P066 in the service program. The following settings are permitted:

P066:

- 0: no album selection possible
- 1: no bonus (default setting), this means credit for each track on the album.
- 2: 1 bonus for every 5th track,
- 3: 1 bonus for every 4th track.
- 4: 1 bonus for every 3rd track.

Setting is confirmed by pressing "H".

Enter: P 066 H 0 H
1 i.e. no bonus
...
4



6. Monetary Value Setting P070 to P077

As with the price setting, the identification of the different coins as related to values processed by the phonograph can be done automatically with the pre-defined basic values. Table 8 "Monetary Value Settings" shows which setting can be programmed as basic value.

P070: The standard values of the table are selected with command P070 "n" + "H"
(n = code no. from table).

Enter: P 070 H n H
10 H i.e. USA



"n" is the code number for the setting according to table 8. To avoid erroneous entries, each entry has to be confirmed by "H". This is very important since entry of Code Number "0" cancels the current monetary value setting and no currency acceptance is possible.

Individual monetary values

P071 to P075: The monetary value settings for different coin values of each chute can be individually identified. This is easily done by inserting one or more coins after command P070 has been called up. According to the coin value the program changes to the proper chute command P071 to P075. On display 1 the monetary value of each coin is displayed. This can be changed as needed. Unused chutes have to be programmed with monetary value 0.

Entries occur in the smallest counting unit of each currency that makes sense, for example USA: with \$1 ⇒ 0100. Normally the standard setting is sufficient.

Bonus Credits

P076:

With this command another bonus (value n = 0 to 4) is defined: the bonus for paying with bills instead of coins.

Enter: P 076 H nn H
3 H i.e. 3 bonus credits



When accepting a bill in chute 5, this bonus is added to the regular credits.

Indirect / direct money to credit revaluation

Use this command to differ between the how and when of the revaluation of inserted coins.

P077:

"0" + "H" Indirect revaluation: inserted coins are stored. At an appointed coins value the credit is defined from the highest possible price setting, including a possible bonus.

"1" + "H" Direct revaluation: inserted coins are revaluated directly after insertion.
Then no bonus is possible with multiple insertion of coins.

Enter: P 077 H n H
0 H i.e. indirect revaluation



Table 8: Monetary Value Settings

Table No.	COUNTRY	channel 1(P071)	channel 2(P072)	channel 3(P073)	channel 4(P074)	channel 5(P075)	Remarks, example for 1 chan.
0		0	0	0	0	0	no coin conversion
	mechanical coin acceptor						
1	Germany, Switzerland, Venezuela	100	500	200	0	0	100 = 1,-DM 100 = 1 sfr 100 = 1,-Bol
2	Belgium	0	2000	500	0	0	2000 = 20 Bfr
3	Netherlands	25	250	100	0	0	250 = 2,5 hfl
4	Denmark, France	100	500	1000	0	0	100 = 1 dkr
5	Austria	500	2000	1000	0	0	500 = 5 OS
6	Italy	200	100	500	0	0	200 = 200 L
7	Spain	0	25	100	0	0	25 = 25 Pst
8	Finland, Norway, Yugoslavia	0	500	100	0	0	500 = 5 mK 500 = 5 Kr 500 = 5 Din
9	Great Britain, Ireland	20	50	10	0	0	20 = 20 p
10	USA	10	50	25	0	100	10 = 10 c, 100 = 1 \$
11	Canada	0	25	0	0	100	25 = 25 c, 100 = 1 \$
12	Union of South-Africa	20	100	50	0	0	20 = 20 c, 100 = 1 R
13	Australia	100	50	20	0	0	100 = 1 \$
14	Netherl. Antillen	0	100	25	0	0	100 = 1 NAF
	electronic coin acceptor						
15	Germany, Switzerland, Italy	500	100	0	200	0	500 = 5,-DM 500 = 5sfr 500 = 500 L
16	Belgium	5000	500	0	2000	0	100 = 1 Bfr
17	Netherlands	25	250	500	100	0	25 = 25 c, 500 = 5 hfl
18	France	1000	200	100	500	0	1000 = 10 F
19	Denmark, Austria	2000	500	100	1000	0	2000 = 20 dkr 2000 = 20 OS
20	Spain	200	50	25	100	0	200 = 200 Pst
21	Greece	0	50	20	0	0	50 = 0,5 Dr
22	Norway	1000	100	0	500	0	1000 = 10 Kr
23	Finland	0	500	100	0	0	200 = 200 L
24	Sweden	500	100	0	100	0	500 = 5 Kr
25	Great Britain	100	20	10	50	0	100 = 1£, 20 = 20 p
26	USA	100	25	0	50	0	100 = 1\$
27	Canada	10	100	25	0	0	10 = 10 c, 100 = 1 \$
28	Australia	0	100	20	200	0	200 = 2 \$
29	Netherl. Antillen	0	0	100	0	0	100 = 1 NAF
30	New Zealand	50	10	5	20	0	50 = 50 c

Chutes entered with "0" in this table are blocked. Be careful to block the coin pathways so that these coins will not be accepted and are rather expelled through the coin return.

7. Programming Real Time Clock P080 to P082

The most important update to the ES-V technology is the implementation of a real time clock. Referring to the data supplied by the clock, a number of functions have been developed that are dependent on chronological data for start and stop times. Together with the weekday programming which continues to be available, an "automatic program" for a whole week can be developed during which all functions operate automatically.

The real time clock runs quartz-precise with a battery backed power supply if the phonograph is turned off. The clock runs on military time.

Set time

P080: Use this command to set the time of the phonographs control unit. The newly set minute information starts the counter for seconds automatically at zero.

▲ hour +1 1	2	▲ minute +1 3
4 12:00	5 00:00	6 30 minutes
▼ hour -1 7	8	▼ minute -1 9
C Cancel	0	H Step to the next command

Figure 32: Key pad layout for command "set time"

Enter: P 080 H

change per pressing keys
i.e. 10.45 h



Set date

P081: Use this command to set the date information of the phonographs control unit. The date is shown on displays 2 and 3.

Enter: P 081 H

change per pressing keys
i. e. May 21, 1992:



▲ 1	▲ 2	▲ 3
day +1	month +1	year +1
4	5	6
▼ 7	▼ 8	▼ 9
C	0	H
Cancel		Step to the next command

Figure 33: Key pad layout for command "set date"

Set day code: Use the command **P082** to set the day code for the week-day of the previous set date.

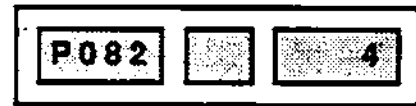
- Day-code
- 1 = Monday
 - 2 = Tuesday
 - 3 = Wednesday
 - 4 = Thursday
 - 5 = Friday
 - 6 = Saturday
 - 7 = Sunday

1	2	▲ 3
		day code +1
4	5	6
7	8	▼ 9
C	0	H
Cancel		Step to the next command

Figure 34: Key pad layout for command "set day code"

Enter: **P 082 H**

change per pressing keys
i.e Thursday is 4:



After confirming one week-day entry the phonograph switches to the next week-day.

The data supplied by the real time clock are processed by commands P090 to P135 (described as follows) for the so-called time windows. Here the entry of the time window values also occurs via the illustrated key pad layout.

Furthermore the information of time and date are used for the print-out of statistical data to the DATA-print (P030 and P031).

8. Programming Free Credits P090 to P094

The group of 90th commands allows the operator to give free credits (music selection without coin insert) at specified times.

Amount of free credits are set in the program as well as the time periods.

All times are based on a 24-hour clock (ie: afternoon times are from 13:00 to 23:00)

P090: In P090 a standard setting cancels automatically the previous setting.

The time factor is set to zero, so there are no automatic time periods for free credits.

Enter: P 090 H 0 H



P091: To set the starting time for the time window "free credit", the key pad is used (see P080).

Enter: P 091 H

Set by pressing keys
i.e. starting time 12:34
confirm setting with key "H".



P092: Here the stop time of the time window is set (see P080).

Enter: P 092 H

Set by pressing keys
i.e. stopping time 13:45
confirm setting with key "H".



P093: Here the day is chosen on which the determined time window is to become active.

On the center display the days (according to the programs of P082) are shown through numbers 1 to 7. Each weekday can be activated individually. "1" means active on that day, "0" means non-active. The inputs must be confirmed by pressing "H".

To simplify the entries it is defined that the whole week is active with "0" or "1" (for all days).

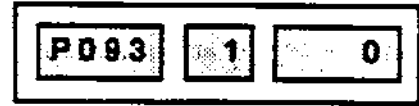
Enter: P 093 H

0 or 1 H

Set per pressing keys

i.e. Monday is inactive

confirm setting with key "H".



After confirming one day's entry the software steps to the following day.

P094: Entering the number of free credits.

Different settings are possible:

- 0: No free credits possible (factory setting).
- <200: Limited free credit. Free credits can be used one at a time subtracts from total input.
- =200: Unlimited free credit while time window is active.
- =201: Switching between no free credits and unlimited free credits while time window is active. Switching via remote control.
- =202: Free play automatically while time window is active. If non-active switching is done via remote control.

Enter: P 094 H 200 H

i.e. no free credit:



9. Programming Background Music P100 to P107

The phonograph operator can call up the background mode. This operational mode remains even after a power failure. If money is inserted into the machine and a title selected, the background music is faded out and the paid for selection is started.

P100: If the command P100 is called up and "0" is entered and confirmed with "H", the default setting is activated because all settings of group P10x will be set to 0.

Enter: P 100 H 0 H



With command **P101** the starting time and with command **P102** the stopping time are set for the time window of background music. Key pad layout see P080.

P103: With command P103 the week-days are set when background music should be played. Key pad layout see P082.

Enter: P 103 H 0 or 1 H

*Set per pressing keys
i.e. Wednesday inactive:
confirm settings with key "H"*



With confirming one entry the software steps to the following week-day.

P104: With command P104 the mode of operation is set. Three types are possible:

- P104 "0" no background music. This value is the factory setting.
- P104 "1" allows starting and stopping background music by pressing background key on machine or on remote control.
- P104 "2" automatically plays background music at defined times of the time window.

Enter: P 104 H n H

*2 H i.e. automatically
within the time window*



P105: What is played as background music is also determined by the operator. With command P105, followed by 20 four-digit entries, 20 titles or albums can be determined. With no entry in P105 all CDs (defined by P042 to be selectable) are played.

Enter: P 105 H nnnn H

i.e. first entry: CD #17 title 3

P 105		1703
-------	--	------

P106: A new function is the "Patron Selection". With command P106 the operator determines whether the selected titles for background music can also be chosen by other customers.

P106 "0" titles and albums free for selection

P106 "1" titles or albums are locked.

Enter: P 106 H n H

0 H i.e. titles are not locked:

P 106		0
-------	--	---

P107: The titles selected in P105 are played in the sequence selected in P107.

P107 "0" sequence of play in order of entry (FIFO), factory setting

P107 "1" random play (RANDOM).

Enter: P 107 H n H

0 H i.e. FIFO playing:

P 107		0
-------	--	---

P108: With this step background music can be set up in such a way that it has to be paid for. In this case, every time BGM is turned on "n" credits are subtracted, independent of the number of titles to be played. When n=0 no credits are subtracted.

P108 "0" Background music as in the past, without credit.

P108 "n" Background music deducts "n" credits (n=1 to 99).

Enter: P 108 H n H

2 H i.e. two credits are deducted:

P 108		2
-------	--	---

10. Programming Auto Play P110 to P117

The phonograph can be programmed to automatically play a title once in a while to attract the public during stand-by, when no selections are being made. The factory setting (P040=1) makes it possible that any title is played every 15 minutes (P114=15, P117=1).

P110: The standard setting is "no auto play" since with command P110 "0" + "H" all entries in group P11x are set to zero.

Enter: P 110H 0 H

i.e. set standard values:



With command **P111** the starting time and with command **P112** the stopping time are set for the time window of auto play. Key pad layout see P080.

P113: With command P113 the days are set for auto play. Key pad layout see P082.

Enter: P 113 H 0 or 1 H

*Set per pressing keys
i.e. Wednesday inactive:
confirm settings with key "H"*



After confirming one day's entry the software steps to the following day.

P114: With command P114 the mode of operation is set. Three types are possible:

P114 "0" + "H"

no auto play

P114 "nn" + "H"

time between two titles (nn = max. 99 minutes)

Enter: P 114 H nn H

*30 H i.e. all 30 minutes play an
animation title*



P115: With command P115 followed by 20 four-digit entries (value nnnn), 20 titles or albums can be defined. Without entry in P105 all CDs (defined by P042 to be selectable) are played.

Enter: P 115 H nnnn H

i.e. first entry: CD # 97 all titles

P115		9700
------	--	------

P116: also defines a "Patron Selection" (see P106) which defines if a title is locked or not

P116 "0" titles and albums are free for selection

P116 "1" titles and albums are locked.

Enter: P 116 H n H

0 H i.e. titles are not locked:

P116		0
------	--	---

P117: defines the sequence of play for the titles or albums chosen under P115.

P117 "0" Play in sequence of entry (FIFO)

P117 "1" Play randomly (RANDOM)

Enter: P 117 H n H

1 H i.e. play randomly:

P117		1
------	--	---

11. Programming Advertisements P120 to P127

The broad distribution of CDs has led to advertising for various areas being recorded on CDs. Thus, you have another source of income with phonographs with ES-V technology. Standard value is again "no advertising".

P120: With the command P120 "0" + "H" all entries of group P12x are cancelled (set to zero) and no advertisement is played.

Enter: P 120 H 0 H
i.e. set standard values:



With command **P121** the starting time and with **P122** the stopping time are set for the time window of advertisement play. Key pad layout see P080.

P123: With P123 the days are set for advertisement play. See P082 for key pad layout.

Enter: P 123 H 0 or 1 H
Set per pressing keys
i.e. Sunday inactive:
confirm settings with key "H"



After confirming one day's entry the software steps to the following day.

P124: With P124 it is set if or if not and how much time between advertising spots should be allowed.

P124 "0" + "H" no advertisement play
P124 "nn" + "H" time between titles (nn = max. 99 minutes).

Enter: P 124 H nn H
30 H i.e. play a title
every 30 minutes:



P125: With command P125 followed by 20 four-digit entries (value nnnn), 20 titles or albums can be defined.

Enter: P 125 H nnnn H

i.e. first entry: CD # 903.title

P125	1	9003
------	---	------

P126: defines "patron selection" again. See P106.

P126 "0" titles and albums are free for selection
P126 "1" titles and albums are locked.

Enter: P 126 H n H

0 H i.e. titles are not locked:

P126		0
------	--	---

P127: defines the playing sequence for advertising spots selected with P125.

P127 "0" Play in sequence of entry (FIFO)
P127 "1" Play randomly (RANDOM)

Enter: P 127 H n H

1 H z.B. title in playing sequence

P127		1
------	--	---

12. Programming Lock-Out Titles P130 to P135

At certain times it may be necessary to lock-out one or more titles from being played. Perhaps these titles should not be played by minors or are simply damaged (bad playing quality). Standard is that all titles can be played.

P130: With the command P130 "0" + "H" all entries of group P13x are set to zero and no CDs or titles are locked-out.

Enter: P 130 H 0 H

i.e. set standard values



With command **P131** the starting time and with **P132** the stopping time are set for the time window for lock-out. Key pad layout see P080.

P133: With P133 the day is set. See P082 for key pad layout.

Enter: P 133 H 0 or 1 H

*Set per pressing keys
i.e. Saturday active:
confirm settings with key "H"*



After confirming one day's entry the software steps to the following day.

P134: With P134 "0"+"H" the titles can be selected in the time window; with "1" they are locked-out.

Enter: P 134 H 1 H

*0 H i.e. all titles are
selectable within the
time window:*



P135 defines a maximum of 20 titles or albums which are supposed to be locked-out. Input occurs with 4 digits for the CD number (nn__) and the title (__nn).

Enter: P 135 H nnnn H

i.e. 1.entry: CD #85 all titles
etc.



NOTE: Take care to change entries in P135 (if necessary delete entry) to a certain CD number if you change this CD. To delete an entry you step through the list of P135 by pressing key "H" as long as you reach the right entry. Now enter "0" and confirm with "H".

Or you delete all entries by setting default values with command P130 and "0" + "H".

13. Programming Happy-Hour-Credits P140 to P144

For additional attraction of the audience this function is implemented.

At defined times of the week additional free credits (Happy-Hour-credits) are given, depending on the number of paid for credits.

Standard setting is that no Happy-Hour-credits are given.

P140: With the command P140 "0" + "H" all entries of group P14x are set to zero so that there is no happy-hour.

Enter: P 140 H 0 H

*i.e. set standard values
No Happy-Hour:*



With command **P141** the starting time and with **P142** the stopping time are set for the time window for Happy-Hour-credits. Key pad layout see P080.

P143: With P143 the day is set. See P082 for key pad layout.

Enter: P 143 H 0 or 1 H

*Set per pressing keys
i.e. Saturday active:
confirm settings with key "H"*



After confirming one day's entry the software steps to the following day.

P144: Here a calculated number may be programmed. This number defines how many credits must be bought to get an additional Happy-Hour-credit.

P144 "0"+"H" no Happy-Hour

P144 "n"+"H" after "n" bought credits (n=1 to 5) 1 additional Happy-Hour-credit is given.

Enter: P 144 H n H

*3 H i.e. after 3 bought credits
1 additional Happy-Hour-
credit is given*



14. Initialization and Test Programs P150 to P164

To help the operator when loading the CD changer with new CDs, trouble-shooting or servicing, several aid functions have been incorporated from earlier phonographs. Group 15x of the test programs includes functions such as read-out of error memory, various continuous run tests as well as input and display tests. For these purposes, the group code (Fx) is shown in the middle display. Group 16x serves to initialize the CDs and their number of tracks in the title memory of the phonograph.

Test Programs for Service Operation

P150: Read-out of Error Memory:

- 0: last registered error; see table 9 for "Error Codes" on the next page.
- 1: previous error; the phonograph records the last 20 error reports.
- 2: CD number during which the error occurred.
- 3: Time of error and
- 4: Date of occurrence

Display:



Continuous run tests

With commands P151 to P153 various tests in continuous run mode are executed. A continuous run can only be stopped by using the cabinet switch.

P151: Plays all CDs for 16 sec. (F1):

Enter: P 151 H 0

Start continuous run 1:



CD / Track

number of errors

P152: Plays selected CDs for 16 sec. (F2):

During CD play another number "nnnn" can be entered (continuous run 2). With each entry "Your Selection" will light up on the display panel.

Enter: P 152 H n n n n H
(enter a CD-number)

P153: Other Continuous Play Tests (F3 to F5):

Enter: P n

- 0: All CDs are placed on player, but are not played (continuous run 3, F3).
- 1: 6 certain CDs (CD No. 1, 25, 50, 51, 75, 00) are placed and played 16 sec. each continually (continuous run 4, F4)
- 2: Combination of twice continuous run 3 followed by 4 until cabinet switch is turned off (continuous run 5, F5).

P155: Display Test (F6):

During the display test all digits of the displays and all control lamps are turned on and off. Pressing "H" will stop the test and continue it after pressing "H" again. The display test does not check the lamps of a light organ that might be connected. Pressing "C" stops the test.

Enter: P 155 H

- 0: Start lamp test
(Display 2 shows briefly F6)



Table 9: Error Displays

Displays	Possible Causes		Corrections	
	1	2 3		
Er	01	EPROM contents (CONTROL-UNIT) disturbed.	Change EPROM (IC2).	
Er	10	RAM (CONTROL-UNIT) defective.	Change RAM (IC 3). After that reprogram all program steps.	
Er	11	RAM contents (CONTROL-UNIT) short-term disturbance.	No correction necessary; program is reinitialized. Change RAM IC 3 if frequently occurring.	
Er	12	RAM battery is empty.	Change RAM (IC 3). After that reprogram all program steps.	
Er	20	Verification errors in program (CONTROL UNIT).	No correction necessary; program is reinitialized. Change CPU IC 1 if frequently occurring.	
Pxxx	Er	30	Memory contents (CONTROL UNIT) lost or missing.	No correction necessary; program step Pxxx (in display 1) is automatically reprogrammed.
Pxxx	Er	31	Memory contents (CONTROL UNIT) incorrect.	Program step Pxxx shown in display 1 must be reprogrammed.
Pxxx	Er	40	Wrong price setting.	Check price setting and reprogram if necessary.
Er	50	Coin mechanism defective. Too much credit. Coin channel failure.	Check coin mechanism.	
Er	6x	Error at CD player.	See Er 60 – Er 63.	
Er	60	Connection to the CD-player interrupted. No supply voltage present for decoder board or CD player.	Check connection cables to the decoder board, check fuses.	
Er	61	No CD recognized by CD player. No CD in CD tray, CD defective. Player defective.	Check CD and exchange if needed. Exchange CD player. Exchange decoder board.	
Er	62	Specified track on the CD not found.	Check the CD.	
Er	63	Malfunction while playing a CD.	Check the CD player with equipped CD for easy running.	
Er	64	Connection to CD changer	Check connection cables and control cable to CD changer. Check fuses.	
Er	70	Malfunction of operating control.	No correction necessary.	
Er	71	Malfunction of CD changer.	If error display does not disappear after 2 sec., error cannot be automatically corrected. No CD will be played until cabinet switch or "power on" is activated.	
	74			
Er	71	Error during grip from magazine.	Load CD-tray to magazine. Check alignment from magazine to pickup assy and adjust if necessary. Check function of light barriers sGrL and sGR.	
Er	72	Error during replacing CD in magazine. Malfunction of grip lever.	Check alignment of magazine to pickup assy and adjust if needed. Check function of grip. Check function of light barriers sGrL and sGR.	
Er	73	Malfunction during lift drive. Playing of CD not possible.	Check lift for jamming. Check function and correct adjustment of light barrier Encoder (drive wheel).	
Er	74	End position of lift not o.k. Playing of CD not possible.	Check function and adjustment of light barrier slit.	
Er	80	Short circuit on wallbox signal wire.	Check wallbox connection.	
Er	81	Malfunction of the audio processor (CB CENTRALEINHEIT).	Change IC 1 = TDA 4390 if frequently occurring.	
Er	90	Title display, three jams in sequence, not functional anymore.		
Er	91	Jam in title display while left movement.	Un-jam	
Er	92	Jam in title display while right movement.		
Er	93	Jam in title display, stack left.		
Er	94	Jam in title display, stack right.		

Additional test programs for the service operator

Test of the Control Unit (Input Test "F7")

P156: The input test checks all input ports and shows the results in a matrix on display 3. The test can be stopped by pressing "C". This function is only allowed to be carried out by authorized service staff, therefore you can find more information only in the Service Manual.

Checking the adjustment of the CD changer

P157: Manual control of CD changer via key pad (F8):

In this test program the CD changer is controlled manually via the keyboard. Several functions are executed by pressing the corresponding key depending on whether a CD is on the laser player or not. This test serves to check the light barrier in the various positions.

Adjusting of grip-reference

P158: This function allows the service operator to set in the adjustment of the grips to the CD-trays via display and keyboard of the phonograph. You can find more information only in the Service Manual, because this function is only allowed to be carried out by authorized service staff.

Adjusting of the lift-reference

P159: This function allows the service operator to set in the adjustment of the lift to the CD-trays via display and keyboard of the phonograph. You can find more information only in the Service Manual, because this function is only allowed to be carried out by authorized service staff.

15. Recording titles into title memory

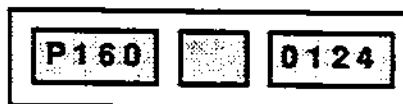
P160: Recording title quantities of all CDs

After calling up this command, the phonograph searches through all CD trays in both magazines up to the number of CDs defined in P042. During the search it reads the number of titles recorded on each CD and stores this information into the title memory. This command is to be used after initial loading of CD's or if several CDs are exchanged.

The number of titles on each CD is registered in the title memory. Simultaneously, the CD number and amount of tracks are displayed.

Enter: P 160 H 0

i.e. result: CD 01 has 24 titles



P161: Initializing of one CD

After calling up this command and entering the number of the newly installed CD, its number of titles is registered in the title memory. The number of titles from each CD is also read with every normal play. This function serves as single entry cancellation, if a not initialized CD is selected.

Enter: P 161 H nn H

67 H i.e. = CD #67:



P162: Read-out all title memories

After calling up this command and entering the code number, the corresponding CD's data will be displayed.

- 0: Number of titles from CD #01
- 1: Switch to the next CD #
- 2: Return to the previous CD #
- 3: Title number of any CD



With P162,3 the two-digit CD number must be entered and confirmed with "H".

P163: Erasing entry in title memory

All entries in the title memory are set to 1. So all CD titles are cleared, but the phonograph may access any CD tray. If new CDs are loaded and the command P160 is used you may be sure that all new titles are stored in the title memory.

Enter: P 163 H 0 H



After removing a CD you also have to remove the corresponding CD cover in the display unit.

15.1 Switching signal sources for testing the audio amplifier

P164:

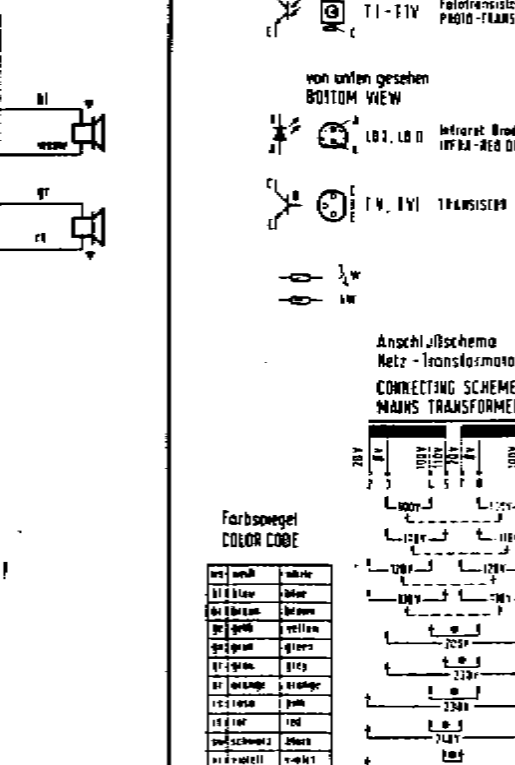
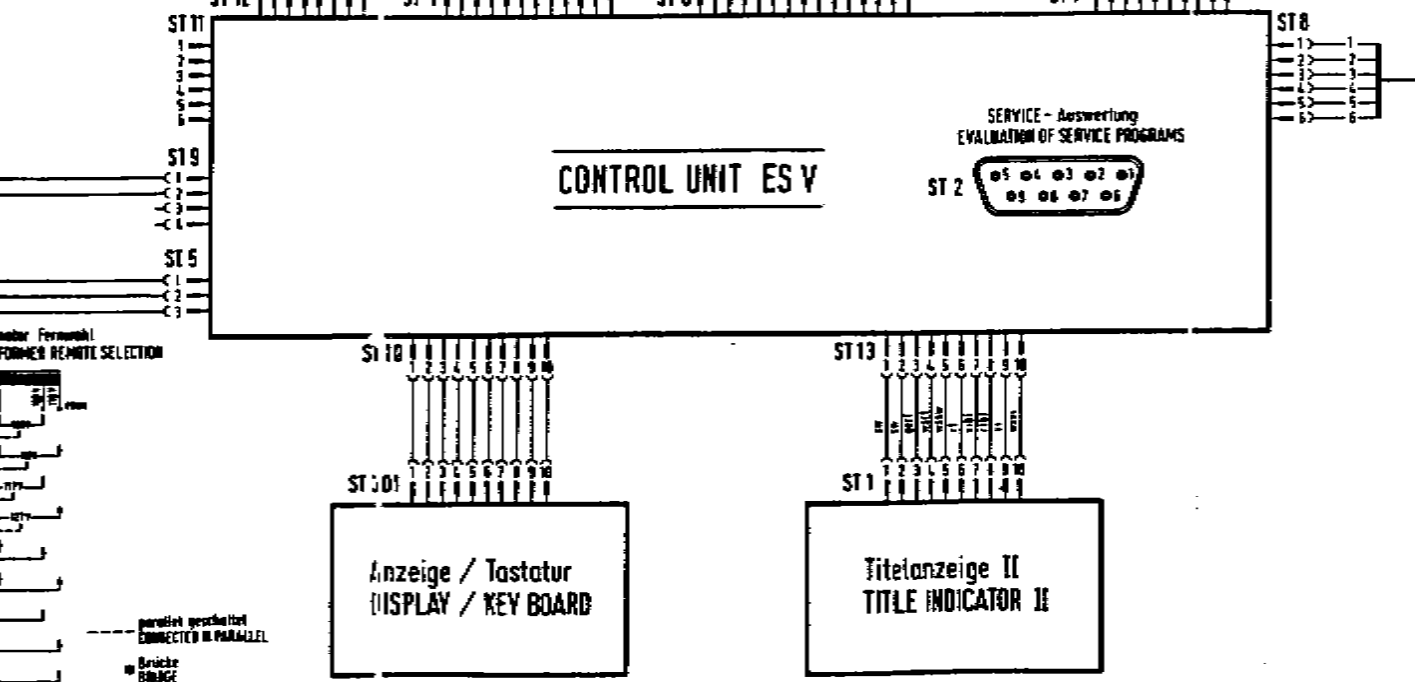
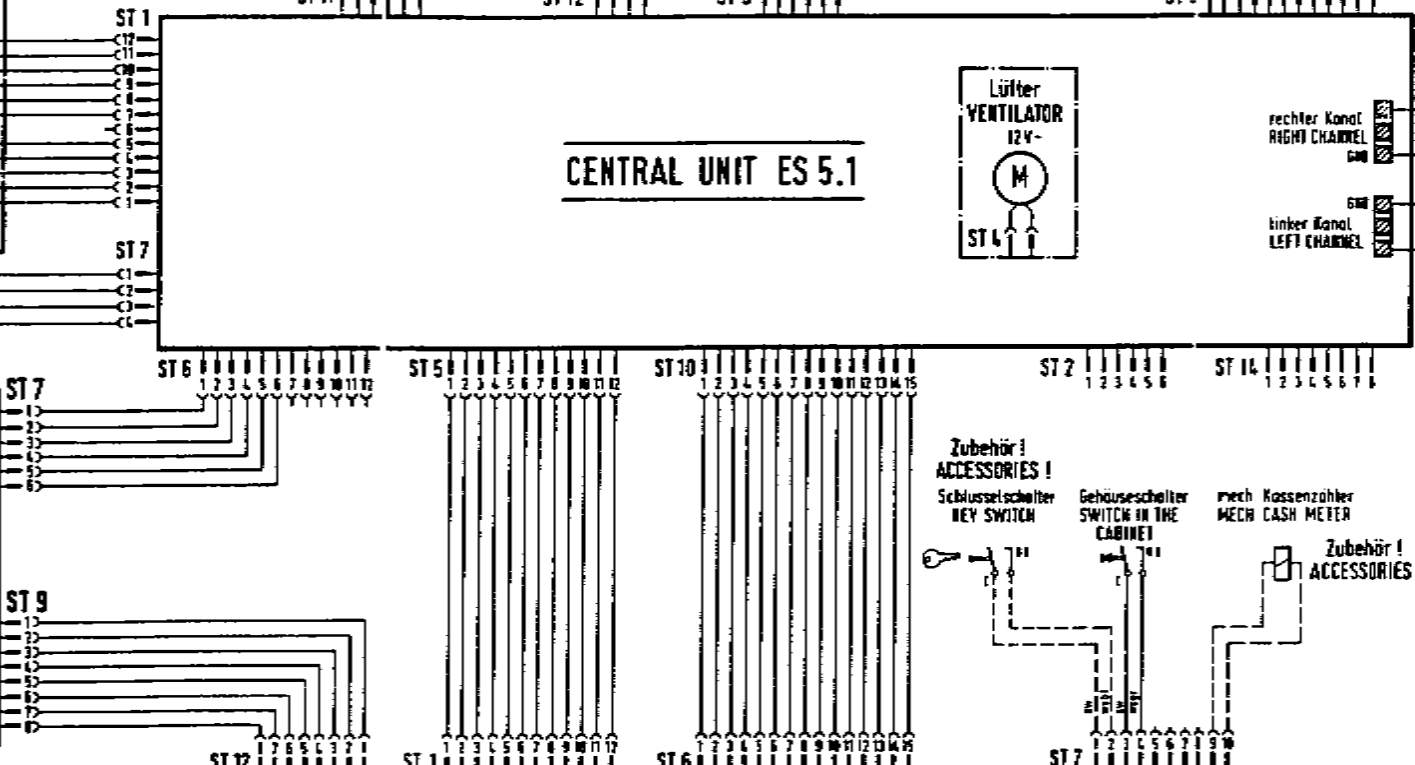
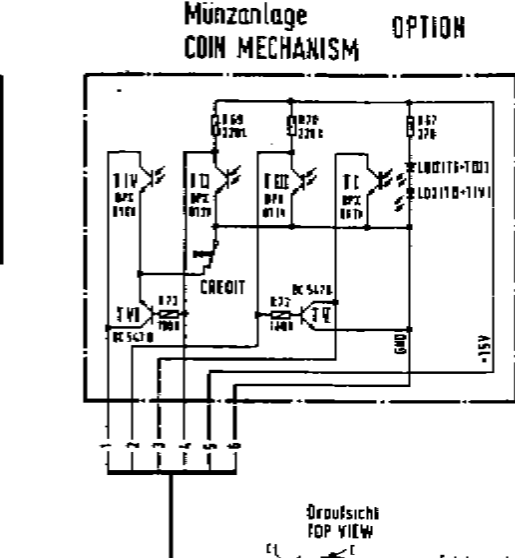
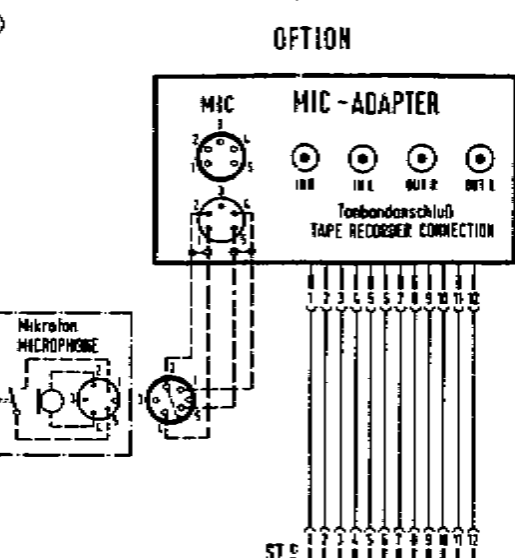
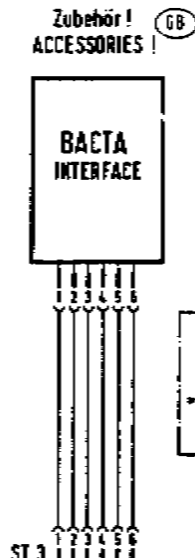
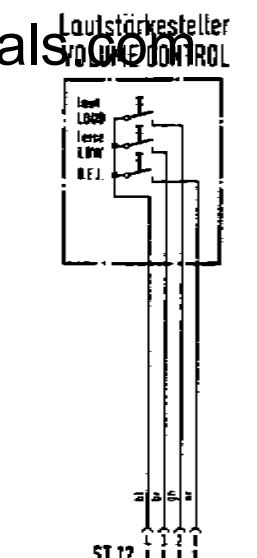
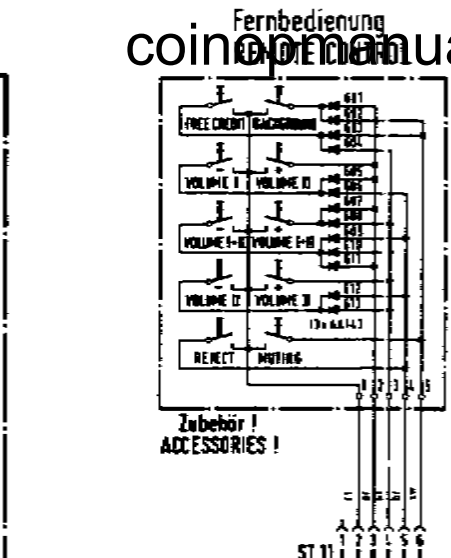
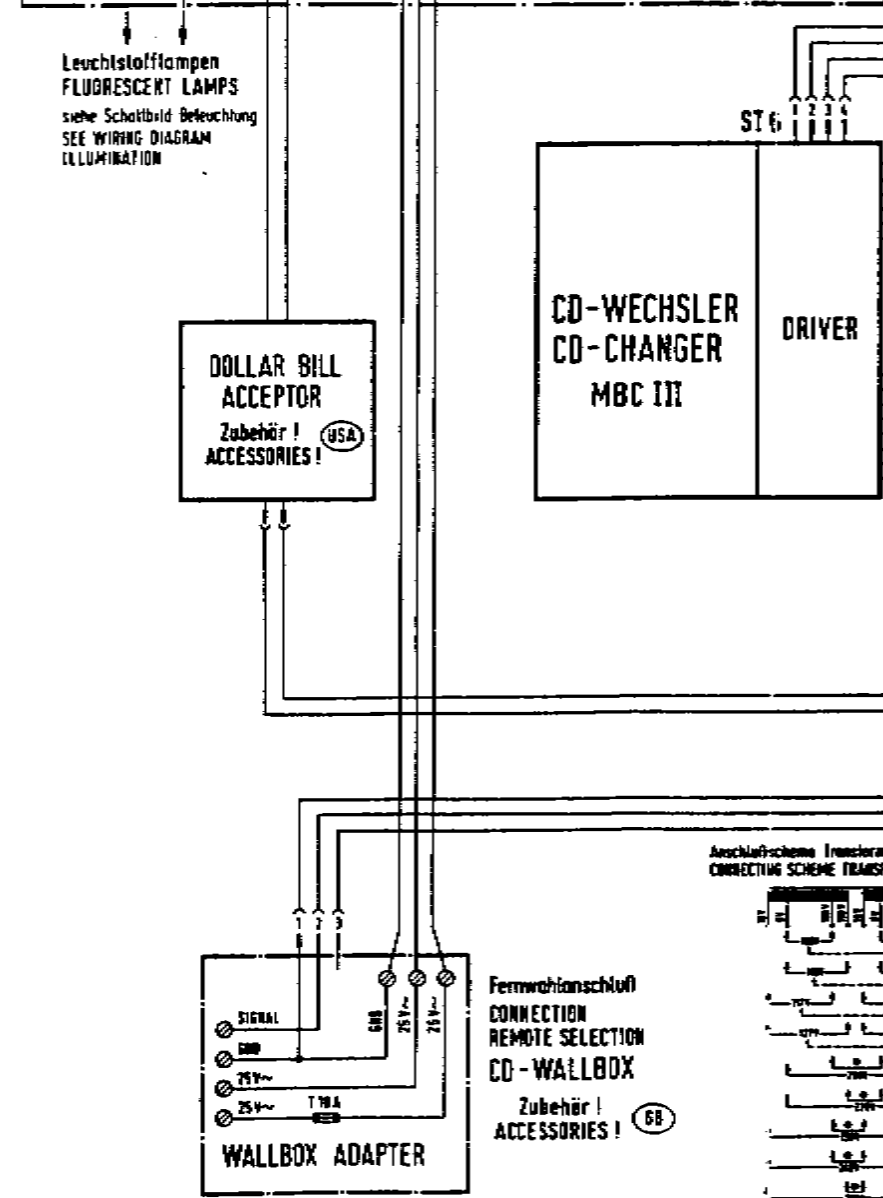
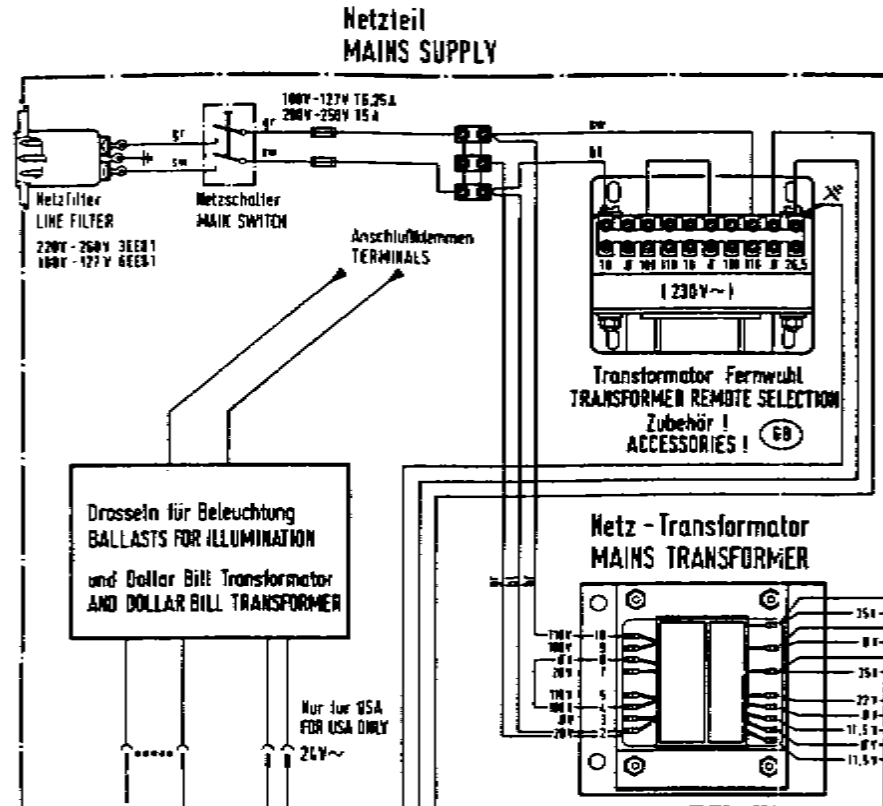
For test purposes different signal input ports for the 3 intended signal sources can be switched individually. This is done with command P164 by entering different code numbers:

- 0: No signal source active, mute (amplifier turned off)
- 1: CD changer is signal source
- 2: An audio cassette player (tape recorder) is signal source.
- 3: A microphone is signal source.

This "manual" switching occurs automatically in normal play according to the signal source that is turned on.

Enter: P 164 H n H
2 H i.e. for tape recorder:





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JEDOCHE KEINE NACHSTPFLICHT!
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