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Service Training Manual
Volume 2
Section 1: ES 5.1 Programming
Section 2: Parts Reference Guide

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Section 1:

ES 5.1 Programming version V0106 CCU
V0106 MBC III

1. Authorization/Display Version

P001 Enter Authorization code

Enter 4 digit code + H

P002 Changing the authorization code

Enter "new" 4 digit code + H

P003 Display version

#0: Displays version of eprom in the Control Unit (First numbers displayed when you enter P003)

#1: Displays the version of Eprom in the MBC III

#2: Version of CD player

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 100 singles

#0: Displays the number of the top title, Hit no. 1

#1: Advances to the next ranked single

#2: Shows you the number of plays for the single shown

P013 Display the cash readings (rounded off to the lower dollar)

#0: Displays the cash since the last collection (this is resettable)

#1: Displays the lifetime cash total (this is nonresettable)

P014 Cash for individual coin channels and bill acceptor

#0: Coins through chute 1 (# Coins x value in P71 = Money)

#1: Coins through chute 2 (# Coins x value in P72 = Money)

#2: Coins through chute 3 (# Coins x value in P73 = Money)

#3: Coins through chute 4 (No Value)

#4: Bills counted in bill validator (# = Dollars)

#5: Lifetime counter of chute 1 (Value in P71 = Money)

#6: Lifetime counter of chute 2 (Value in P72 = Money)

#7: Lifetime counter of chute 3 (Value in P73 = Money)

#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 (non resetable)
- 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)
- P026** Counter for power on hours (Version 0104 and up)
#0: Number of hours 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)

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.
"1" + "H" Only the hit parade will be sent to the Dataprint (Max. 500)

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 single tracks with the number of plays. (Max 500)
"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

P37 use with LASERSTORM or CARAVELL
set to "1" if wallbox is present
no wallbox "0"

- 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
 (Version 0105 and up this program deleted and replaced with P184)
 "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" The BGM volume is set to be equal to the normal volume.
 "1" to "31" + H BGM volume limit (Value between 1 and 31)
- 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
- P055** Maximum volume for Microphone (Version 0104 and up)
 "0" Microphone volume is set to be equal to the normal volume.
 "1" to "31" Microphone volume limit (Value between 1 and 31)

- P056** Programming LED Display of Hit Parade (Version 0104 and up)
"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 (Version 0104 and up)
Deleting the play list using the remote control.
"0" Disabled, deleting the play list via remote control not possible.
"1" Enabled, all the selections in the play list will be deleted when the following
button sequence on the remote control is pressed.
"Muting"+"Reject"+"Reject"+"Reject"

- P058** Maximum volume for tape input (Version 0106 and up)
"0" Tape volume=normal phonograph's volume.
"n" Separated tape volume, range from 1-31.

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. Monetary Value Setting

- P070** Resets coin chutes to factory setting
"10" + "H" = USA coin chute setting.
"11" + "H" = USA coin mech with single rocker.
- P071** Coin Channel 1 (USA \$0.10)
P072 Coin Channel 2 (USA \$.50)(With single rocker coin mechanism \$ 0.25)
P073 Coin Channel 3 (USA \$.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 \$.50

3 Credits for \$1.00

18 Credits for \$5.00

4 \$.25 will give 3 credits

40 \$.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 \$.50

3 Credits for \$1.00

18 Credits for \$5.00

4 \$.25 will give only 2 credits

40 \$.25 will give only 10 credits

5 \$1.00 bills will give only 15 credits

1 \$5.00 bill will give only 15 credits

P078 Cash meter pulse count

"0" 1 pulse (default value)

"1" 10 pulses

7. Programming 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.

P095 Renewal rate of free credits (Version 0104 and up)

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 in P094 have been used, no renewal will occur.

"1" Daily renewal. Resets at midnight.

"2" Weekly renewal. Resets Sunday night at midnight.

9. Programming 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 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

9a. Programming Background Music (Version 0106 and up)

Four time windows may be independently programmed using up to 20 different titles and/or CD's.

P100	1	"0" + "H"	Deletes program for time window 1
	2	"0" + "H"	Deletes program for time window 2
	3	"0" + "H"	Deletes program for time window 3
	4	"0" + "H"	Deletes program for time window 4

P101	1	Enter start time for program 1
	2	Enter start time for program 2
	3	Enter start time for program 3
	4	Enter start time for program 4

- P102** 1 Enter stop time for program 1
 2 Enter stop time for program 2
 3 Enter stop time for program 3
 4 Enter stop time for program 4

- P103** 1 **Monday:** 1234 Enter 1 to enable time window 1. Enter 2 to enable time window 2.
 Enter 3 to enable time window 3. Enter 4 to enable time window 4.
 2 **Tuesday:** 1234 Enter 1 to enable time window 1. Enter 2 to enable time window 2.
 Enter 3 to enable time window 3. Enter 4 to enable time window 4.
 3 **Wednesday:** 1234 Enter 1 to enable time window 1. Enter 2 to enable time window 3.
 Enter 3 to enable time window 3. Enter 4 to enable time window 4.
 4 **Thursday:** 1234 Enter 1 to enable time window 1. Enter 2 to enable time window 2.
 Enter 3 to enable time window 3. Enter 4 to enable time window 4.
 5 **Friday:** 1234 Enter 1 to enable time window 1. Enter 2 to enable time window 2.
 Enter 3 to enable time window 3. Enter 4 to enable time window 4.
 6 **Saturday:** 1234 Enter 1 to enable time window 1. Enter 2 to enable time window 2.
 Enter 3 to enable time window 3. Enter 4 to enable time window 4.
 7 **Sunday:** 1234 Enter 1 to enable time window 1. Enter 2 to enable time window 2.
 Enter 3 to enable time window 3. Enter 4 to enable time window 4.

- P104** 1 Window 1 "0" = No BGM
 "1" = Active in time window with BGM button
 "2" = Automatically on in time window
 2 Window 2 "0" = No BGM
 "1" = Active in time window with BGM button
 "2" = Automatically on in the time window
 3 Window 3 "0" = No BGM
 "1" = Active in time window with BGM button
 "2" = Automatically on in the time window
 4 Window 4 "0" = No BGM
 "1" = Active in time window with BGM butoon
 "2" = Automatically on in the time window

- P105** 1 to 20 Titles and/or CD's selected for time window 1
 21 to 40 Titles and/or CD's selected for time window 2
 41 to 60 Titles and/or CD's selected for time window 3
 61 to 80 Titles and/or CD's selected for time window 4

Note: If for an active time window no titles and/or CD's are entered here then the BGM will play from all the CD's in the phonograph.

- P106** 1 Window 1 "0" = titles freed for selection "1" = titles locked out from selection
 2 Window 2 "0" = titles freed for selection "1" = titles locked out from selection
 3 Window 3 "0" = titles freed for selection "1" = titles locked out from selection
 4 Window 4 "0" = titles freed for selection "1" = titles locked out from selection

- P107** 1 Window 1 "0" = titles play in FIFO(First in First out)
 "1" = titles play in random
 2 Window 2 "0" = titles play in FIFO(First in First out)
 "1" = titles play in random
 3 Window 3 "0" = titles play in FIFO(First in First out)
 "1" = titles play in random
 4 Window 4 "0" = titles play in FIFO(First in First out)
 "1" = titles play in random

- P108** "0" BGM activated without credit
 "N" Number of credits deducted to activate BGM

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 Emprom & 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 keys "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 songs, find that song in P135 and then put in "0" + "H".

12a. Locking out of titles (Version 0106 and up)

Note: Contrary to earlier program versions, titles or CD's are locked out during the active time window. These titles are selectable outside the active time window.

P130	1	"0" + "H"	Deletes program for time window 1
	2	"0" + "H"	Deletes program for time window 2
	3	"0" + "H"	Deletes program for time window 3
	4	"0" + "H"	Deletes program for time window 4

P131	1	Enter start time for program 1
	2	Enter start time for program 2
	3	Enter start time for program 3
	4	Enter start time for program 4

P132	1	Enter stop time for program 1
	2	Enter stop time for program 2
	3	Enter stop time for program 3
	4	Enter stop time for program 4

- P133**
- | | | | |
|---|-------------------|------|--|
| 1 | Monday: | 1234 | Enter 1 to enable time window 1. Enter 2 to enable time window 2.
Enter 3 to enable time window 3. Enter 4 to enable time window 4. |
| 2 | Tuesday: | 1234 | Enter 1 to enable time window 1. Enter 2 to enable time window 2.
Enter 3 to enable time window 3. Enter 4 to enable time window 4. |
| 3 | Wednesday: | 1234 | Enter 1 to enable time window 1. Enter 2 to enable time window 3.
Enter 3 to enable time window 3. Enter 4 to enable time window 4. |
| 4 | Thursday: | 1234 | Enter 1 to enable time window 1. Enter 2 to enable time window 2.
Enter 3 to enable time window 3. Enter 4 to enable time window 4. |
| 5 | Friday: | 1234 | Enter 1 to enable time window 1. Enter 2 to enable time window 2.
Enter 3 to enable time window 3. Enter 4 to enable time window 4. |
| 6 | Saturday: | 1234 | Enter 1 to enable time window 1. Enter 2 to enable time window 2.
Enter 3 to enable time window 3. Enter 4 to enable time window 4. |
| 7 | Sunday: | 1234 | Enter 1 to enable time window 1. Enter 2 to enable time window 2.
Enter 3 to enable time window 3. Enter 4 to enable time window 4. |

- P134**
- | | | |
|---|----------|--|
| 1 | Window 1 | "0" = No Lockout
"1" = Lockout in time window |
| 2 | Window 2 | "0" = No Lockout
"1" = Lockout in time window |
| 3 | Window 3 | "0" = No Lockout
"1" = Lockout in time window |
| 4 | Window 4 | "0" = No Lockout
"1" = Lockout in time window |

- P135**
- | | |
|----------|---|
| 1 to 20 | Titles and/or CD's selected for time window 1 |
| 21 to 40 | Titles and/or CD's selected for time window 2 |
| 41 to 60 | Titles and/or CD's selected for time window 3 |
| 61 to 80 | Titles and/or CD's selected for time window 4 |

Note: If a selection of a locked out title is attempted, the error lamp lights and the LED display displays the message "LOC" for about 2 seconds.

13. Programming 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 numbers 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).
- 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 to check which opto or optos are defective.

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)

P158 Gripper Reference (Version 0105 and up)

Enter 0 Display shows: **P158 1617**(for example)
 In this case, 17 denotes the actually stored synchronisation values for the grippers(outer distance=18 motor steps, inner distance=14 motor steps).

Enter H The grippers are moved automatically to the "outer position"
 Display shows: **P158 0**

Enter H Grippers are moved automatically to the "inner position".
 Display shows: **P158 1**

Enter H The new reference values will be evaluated and the grippers are moved to the outside position.
 The display shows the new synchronisation values, for example: **P158 1517**
 (outer distance=17 motor steps, inner distance=15 motor steps).

Enter H The new values are saved to memory.

Note: For best functionality of the changer the displayed values must be in a range from 12 to 25. The difference between the two displayed values must be less then or equal to 5. (Maximum display "P158 1217 or "P158 2025).

If the values are outside the allowed tolerances, the error lamp will blink and the old values are unchanged.

Alternative to this step by step routine you can use the automatic routine:

1. Call up the service program 158.
2. Enter 1 + H, The automatic routine is started. The evaluated values will be directly saved to memory.

P159 Setting the Lift reference (Version 0105 and up)

The setting of the lift reference should be performed after setting the grip reference (no tray in the lift).

The setting of the lift is performed without any mechanical adjustment.

The vertical distance from the lower bottom plate up to the synchronisation mark (sLift) is stored

Automatically by starting the service menu. A control and possible height correction is performed in front of tray 49.

- Enter 0 Display shows: **P159 2902** (for example)
The display shows the stored distance between bottom plate and opto coupler sLift (29).
The value 02 denotes that during the previous adjustment the lift was set 2 steps higher.
- Enter H The lift will automatically synchronize at the position "optocoupler sLift" and afterwards the stepper motor tries to move the lift against the bottom plate.
Display shows **P159 0**.
- Enter H The lift is moved automatically to tray 49 (reference tray). Now you can perform corrections of the lift position corresponding to the position of tray 49.
Display shows **P159 00**.
Use the keyboard of the phonograph to manually grip or to back a CD tray. The lift can be moved in single steps up or down. Thereby the actual height correction value is displayed (ex. **P159 01**).
The gripper can be moved manually by turning the right lift leading shaft.
- Enter H The displayed height correction value is saved to the non-volatile memory IC 4.
The setting of the lift reference is now terminated. The lift moves back to the bottom plate. If an error occurs while moving or if the height correction value is >10 the "error" lamp will blink and the old value is unchanged.

Note: Pressing the **C** button on the keypad at any stage of **P159** will interrupt this program step and the original values are unchanged.

Alternative to this step by step routine you can use the automatic routine:

1. Call up the service program **P159**.
2. Enter 1 + H. There is no pause between synchronisation at the bottom plate and moving to thereference position (tray 49).
3. Use the keyboard to manually grip or to put back a CD tray. The lift can be moved in single steps up or down. Thereby the actual height correction value is displayed. (Ex. **P159 01**)
The gripper can be moved manually by turning the right lift leading shaft.

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)

15. Animation of the title display

P180 "0" + "H" All entries in group P18X are set to zero and the title display works normal by the rocker button.

P181 Starting time is set for "Animated title display". See P080 in users manual for Key pad layout.

P182 Stopping time is set for "Animated title display". See P080 in users manual for Key pad layout.

P183 The days are set on which the animation should be active. Enter "0" for inactive or "1" for active. After entering the software steps to the next day.

P184 The delay time is set for the movement of the title display.

"0" + "H" No automatic movement of the title display.

"N" + "H" Movement after "N" minutes. ("N" = 1 to 99)

P185 You can define the target position of the title display. Up to target positions can be used.

Always

enter the position number of the upper left title strip (eg. 01,05, 09...93,97).

To clear errors press "C" one time, to terminate press "C" twice.

P186 This program defines the movement of the title display.

"0" + "H" Continuous movement of the title display in Standby for one position, or to the next programmed position.

"1" + "H" Single movement in standby to the next programmed position.

"2" + "H" Continuous movement of the title display of one position, or to the next programmed position.

"3" + "H" Single movement to the next programmed position.

P187 Sets the limitation of the title display position corresponding to the number of inserted CD's.

"0" + "H" Number of title strips will be equal to the number of CD's.

"N" + "H" Enter the number ("N") of title strips in the title display.

Note: The time window is always active if all entries in P181, P182, P183 and P184 are not ="0".

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)

