Service Training Manual
Volume 1
ES 6 Programming

Service program

ES VI-Technology

Program version: 1.02j
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The information and illustration contained in this manual are up to date at the time of publication.

Subject to technical modification without obligation to modify equipment already delivered!

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Manufactured in Germany

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Basics of operating the service program

Definitions

Normal mode: I.e. normal operating mode for customers. The phonograph accepts inserted money and plays selected titles.

Service mode: The service operating mode for the operator of the phonograph or the service staff. The door of the phonograph is open and the service switch is pulled out. Setting changes are possible, phonograph statistics can be read out, or several tests can be made.

Menu: This is a list of different service functions.

Direct access: Direct access of a service function is possible by entering the corresponding number. Regard the syntax: Menu points are separated by dots (e.g.: 2.3.1.1).

Dialog box: Group of matching input fields (mask).

Operating

By pulling out the service switch the phonographs service program is entered. The service program is menu driven. It is separated into multiple sections. The service program is operated via the operators key pad in the operating console of the phonograph or via the IR-remote control.

For your orientation: The menu number (e.g. /2.1.5.4) is displayed in the lower left corner of the operators display.

A service function can be accessed directly by entering the corresponding menu number („direct access"). For example, if you want to modify the sound setting of the phonographs amplifier, just enter the corresponding number 2.3.1.1 directly. Afterwards the dialog field for sound settings appears in the operators display.

If there is a „>" sign in front of a menu name, it indicates that there is another menu field following this one. For example „2.>Settings" means, that another menu will appear after entering „2".

Entering the number „0" within any menu position takes you back to the main menu. This is optimized for operators that always jump to service functions directly using „direct access".

For stepping through the entry fields within a dialog box use the arrow keys (→, ↑, ↓). For your orientation: Within the upper right corner of the operators display the corresponding name of the entry field is displayed.

After closing the front door the service switch is automatically pushed in, and the service program is terminated. The phonograph re-enters the normal mode.

While not otherwise specified the keys of the operators key pad have the following meaning if the phonograph is in service mode:

- 1...0: Input of menu item or parameter values.
- C: „Cancel input" (1. pressing) or „Back one menu level" (2. pressing).
- →:   Within dialog box step right one entry field.
- ↑:   Within dialog box step up one entry field.
- ↓:   Within dialog box step down one entry field.
- Hit: Confirm entry.
- *:   Step to the next possible parameter, switch display mode, or switch upper case/lower case while in text input mode.
- A-Z: Text input. Here the number keys (1...0) have a different meaning (see also layout of the IR remote control transmitter). Key 1 is also designed as „ABC", key 2 as „DEF" and so on. In this mode the first pressing of key 1 works as „A", two times pressing gives you a „B" and so on.
- Symbols: This is for entering symbols, such as monetary symbols, while you are in text input mode. The different symbols are displayed by repeatedly pressing the symbols key.

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Service Program

/0   **Main menu**

After pulling the service switch (push button switch) the phonograph switches to service mode, and the service program is entered.

The service mode can be terminated by either pushing the service switch back into its closed position or by confirming „YES" after pressing the „C" key (on the IR transmitter or the operators key pad).

Setup

/1.   **>Setup**

This service program section is used for the basic initialization of the phonograph.

CD-Initialization

/1.1   **>CD Initialization**

Newly inserted CD must be initialized (read in of table of contents), thus to enable correct title selection and credits calculation for selected album (different number of tracks/titles).

CDs may be classified as "known", "not known", or "not available".

After deleting the title memory all CDs are marked as "not known". In this case only track 1 of it can be selected. Each time a CD is played, it is newly initialized. New inserted CDs or CDs marked as "not known" can be initialized by selecting track 1 once.

/1.1.1   **Initialize Discs**
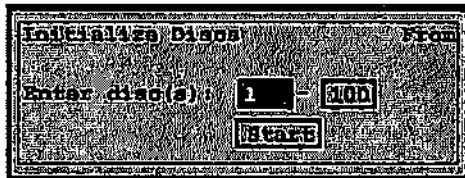
Enter the range of CDs to be initialized. Afterwards select Start and press the "HIT" key to start the initialization routine.

Enter disc(s):
From: First CD to be initialized.
To: Last CD to be initialized.
Start: To start the initialization routine.

First the data of the entered range are cleared. Afterwards the defined CDs are read-in one after another to be initialized. While initialization the keys have the following function:
"C" key   = To cancel the initialization routine.
"Hit" key   = Change the range of CDs to be initialized.
"*" key   = Display the initialized title memory.

/1.1.2   **Show Disc Database**
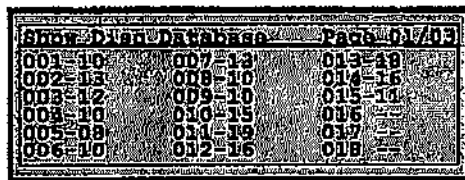
The initialized information of all CDs is shown (format: **CD-tracks**). Press the arrow keys to step through multiple screens. Press "C" key to leave this menu.

/1.1.3   **Clear Disc Database**
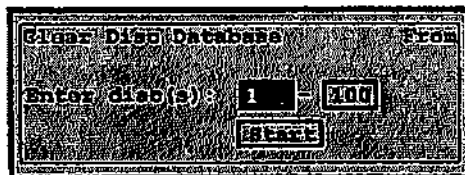
Enter the range of CDs of which the data base should be cleared.
Afterwards select Start and press the "HIT" key to start this routine.
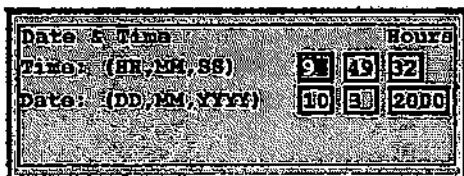
Enter disc(s):
From: First CD to be cleared.
To: Last CD to be cleared.
Start: To start clearing routine.

Date & Time

/2.7   **Date & Time**

This function is used to set date and time. The internal real-time clock is used to control various functions within special time windows, such as auto-play, background, happy-hour, and so on.
**Time:**
The actual time. Format: hours, minutes, seconds.
Date:
The actual date. Format: day, month, year.
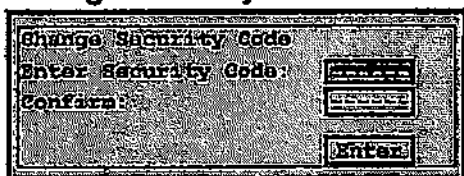
Remark: The week-day (Monday...Sunday) is automatically calculated from the entered date.

Security Code

/1.3.   **Change Security Code**

By defining a security code (password) you can protect your phonograph against unauthorized usage. Service functions can only be started by authorized service staff who knows the right password. After pulling the service switch you are requested to enter the right password.

Enter Security Code:
Input of security code.
Input is requested twice to exclude typing errors.
If you enter the code = "0" this function is disabled.

Enter:
Select ⌐Enter⌐ and press the „Hit" key to store the newly entered security code.

Attention: Note the security code (password) and store it in a safe place, because if you lost the password you will not have any access to the service program!

Factory Presets

/1.4   ****Reset To Factory Presets
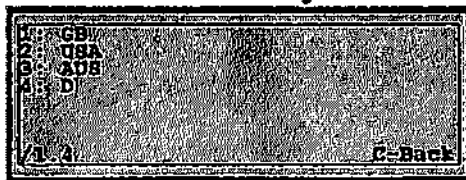
(WINDOW NOT RIGHT)

The phonograph is prepared to use default values set at the factory site. Use this function to reset the phonograph to this settings. For different countries different price and monetary settings (basic settings) are programmed:

GB: Settings for GB
USA: Settings for USA
AUS: Settings for Australia
D: Settings for Germany

To confirm your selection select CONFIRM and press "Hit" key. Afterwards the desired factory default settings are activated and the phonograph's program will be restarted.

Settings

/2.   >Settings

Within this menu different settings of the phonograph can be changed.

Monetary & Prices

/2.1   >Monetary & Prices

Settings for monetary values, prices, or free credits can be changed here.

/2.1.1   >Monetary

Settings for currency and monetary values.

/2.1.1.1   Value Per Channel

Here you can value up to 6 coin channels and up to 2 bill channels. Just enter the corresponding value of coins and/or bills related to the smallest value unit of your country. For example: 50c = 50, 1$ = 100.

Tip: If you insert a coin into the coin insert the program automatically activates the corresponding entry field, and you can directly enter the expected value. Repeat this steps for all valid coins used in your country.

/2.1.1.2   Mech. Coinmeter Value

This is to define the monetary value to be necessary to indicate a impulse to the electromechanical cash counter.

Example: Setting = 10: Inserting 1$ makes 10 impulses to the electro-mechanical cash counter. That means the cash counter counts in steps of 10c.

/2.1.1.3   Currency Settings

Setting the currency.

Symbol Position:
You can define whether the currency symbol is displayed in front of the value (Leading), or following the value (Behind). Press the "*" key to change the setting.

Currency Symbol:
Here you define the currency symbol to be displayed with the price information on the operators display. Enter using the operators key pad or IR remote control transmitter, press key "1" for Letters ABC; press key "2" for letters DEF and so on.

For input of a symbol like $, £, or so, press the "0" key as long as necessary to meet your symbol. (Note: possible symbols are listed in "Appendix A: Possible Symbols".

Point Position:
This is to define the decimal point for displaying the monetary value.
Example: Setting = "0": Value 100 (e.g. 1$) is displayed as 100.
Example: Setting = "2": Value 100 (e.g. 1$) is displayed as 1.00.

Price Settings

/2.1.2 **>Price Lists**

Use this command to define different prices for different time windows, i.e. different daily or weekly events.

2.1.2.1 **List #1**
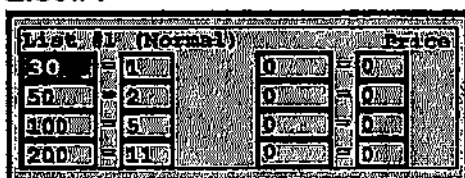
Defines the pricing for normal operation. Example setting 50 = 2: that means you need 50 monetary impulses to get 2 credits for selections. Enter prices sorted by increasing monetary values. Regard the settings of menu 2.1.4 (Conversion) to ensure either direct or indirect conversion is to be used.

2.1.2.2 **List #2**
Bonus pricing in HAPPY HOUR time windows.

2.1.2.3 **List #3**
Bonus pricing for special occasions or operating times.

2.1.2.3 **List #4**
Bonus pricing for other special occasions or operating times.

/2.1.3 **>Time Windows**
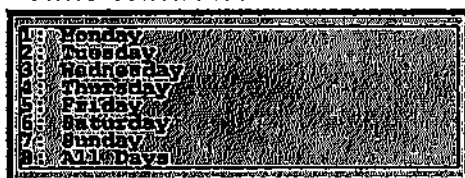
Settings for different pricing for different daily and weekly time periods.
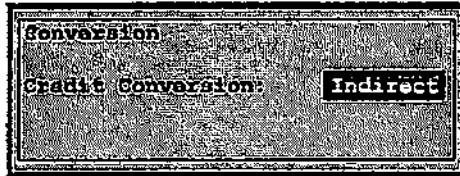
/2.1.3.1 - /2.1.3.8 Monday...Sunday, All Days

Enter time values in format "hhmm", i.e. 1015 for a quarter past ten o'clock AM.

I2.1.4 **Conversion**

Direct: The conversion of inserted coins into given credits is performed on each inserted coin directly (coin related). Example: 50c = 1credit, 1$ = 3 credits → insertion of 2x50c gives 2 credits.

Indirect: The conversion of inserted coins into given credits is performed indirectly, that means related to the total amount of inserted coins. Example: 50c = 1credit, 1$ = 3 credits → insertion of 2x50c gives 3 credits.

Free Credits

/2.1.5   **>Free Credits**

Menu for programming free credits.

/2.1.5.1   **>Restrictions**
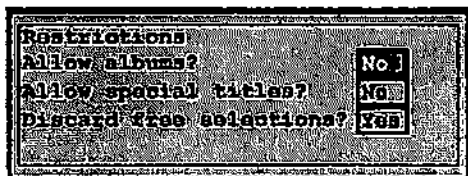
Restrictions while using free credits.

Allow Albums?:
Setting to allow album selection (selection of track 00) while phonograph is in free credit mode.

Allow Special Titles?:
Setting to allow selection of special tracks while phonograph is in free credit mode.

Discard Free Selections?:
Use this setting to define if selections in free credit mode are deleted from the title memory after termination of the free credit mode (either by using remote control or automatically by running out of the programmed time window).

/2.1.5.2   **Free Credit Settings**
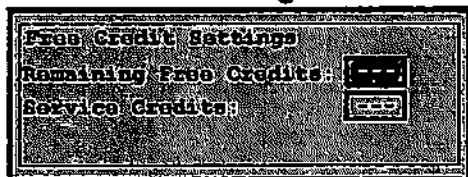
Settings for free credits.

Remaining Free Credits:
Setting of the total number of free credit to be given.
The programmed value is decreased by 1 each time a free credit is given until the value is "0". If the value is = "0" no further free credits are given until this program step is performed again. Exception: programmed value = "999" means endless amount of free credits.

Service Credits:
Setting the number of free credits given after pulling the service switch and if the "normal" credit counter (credit display) is "0".

This function is used to enable the service technician to make title selections for service purposes without money insert.

/2.1.5.3 Free Credits per Weekday

Settings for different numbers of maximum free credits for each day of the week.

/2.1.5.4 Time Windows

Within different time windows you may activate free credits to be given automatically or after pressing a function key on the remote control.

/2.1.5.4.1 - /2.1.5.4.8 Monday...Sunday, All Days

4 independent entries are possible for each week-day to activate free credits automatically or for selection via remote control.
Settings:
Start time:
This is the beginning time of the time window.

Stop-Time:
This is the ending time of the time window.

Limited?:
To define if single free credits are limited as programmed in parameter "/2.1.5.2 Remaining Free Credits". Entry = Yes/No.

Automatic?:
Setting if free credit mode is entered automatically within this time window (Yes), or if free credits are to be selected from the remote control (No).

Mode:
Setting if free credits are given as single credit (Single) by repeatedly pressing the free credit key of the remote control or all at once (Bulk).

Categories
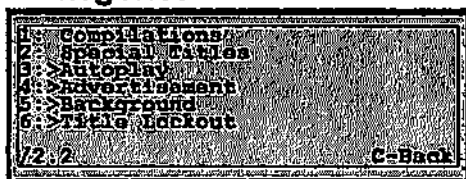
/2.2 **>Categories**

Summary of functional categories

Compilations

/2.2.1 **Compilations**

Compilations are summaries (lists) of different titles or albums (CDs). This summaries are to be used for "AutoPlay" (automated attract mode within time intervals),"Advertisement" (automated playing of ad tracks within time intervals), "Background" (automated back ground music) and "Title Lockout". You also can enable the audience to select Compilations. Thus you can expand your musical offering or categorize it.

Up to 100 Compilations can to be programmed. Each with up to 100 entries (single tracks or albums). The total number of entries over all compilations is limited to 1000.

Compilation are numbered from 1 to 250.

Compilations 101-199 can to be selected by the audience (i.e. selection 103*05) thus to enlarge the music offering over the limitation of 100 CDs loaded into the CD changer.

Compilations 200-250 are not selectable, because they are reserved to be played as "AutoPlay titles", "Advertisement titles", or "Background titles".

If you define a compilation in the range from 1 to 100 you hereby cancel the corresponding CD to be played. Example: If you define a compilation number 30 each time one will select 30*01 not the corresponding title of CD number 30 is played but your compilations first entry. By this you can build "Virtual CDs" (Virtual Discs). Use virtual CDs to build special music categories (Country, Rock, Pop, Classic, New Hits, and so on).

As factory default one compilation number 200 is pre-programmed including all CD albums 01 to 100. This compilation is used for „AutoPlay" and „Background", thus to play from the whole repertoire while in this modes.

Compilation number 000 is reserved for the registration of automatically locked out titles or CDs. Ref. 2.2.6.2 (>Automatically Lockout).
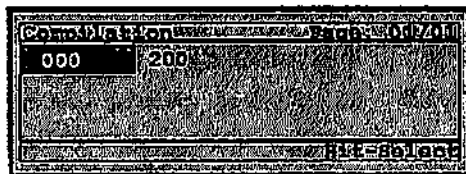
<u>Usage:</u>

Select the desired position using the arrow keys (Compilations) In the lower right corner of the display the function of the HIT key is displayed (i.e. Hit=Select). By pressing the *-key you can choose between the following functions: "Select", "Insert", and "Delete".

Activate the insert function by pressing the *-key until "Hit=Insert" is displayed. Then press the HIT key to add a new compilation.

Activate the delete function by pressing the *-key until "Hit=Delete" is displayed. Then press the HIT key to delete an existing compilation.

Activate the select function by pressing the *-key until "Hit=Select" is displayed. Then press the HIT key to display the contents of a compilation. In this mode you can add new titles or delete titles from the selected compilation.

Special Titles

/2.2.2   Special Titles
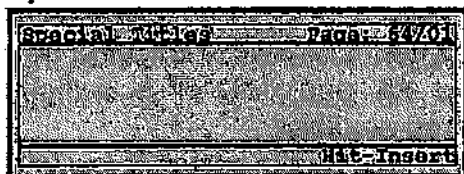
„Special Titles" are titles or albums which are defined with special features.

<u>Usage:</u>
Select the desired position using the arrow keys (Special Title) In the lower right corner of the display the function of the HIT key is displayed (i.e. Hit=Insert). By pressing the *-key you can choose between the following functions: "Insert", "Modify", and "Delete".

Activate the insert function by pressing the "*"-key until "Hit=Insert" is displayed. Then press the HIT key to add a new special title.

Activate the delete function by pressing the *-key until "Hit=Delete" is displayed. Then press the HIT key to delete an existing special title.

Activate the modify function by pressing the "*"-key until "Hit=Modify" is displayed. Then press the HIT key to change the features of a selected title or CD.
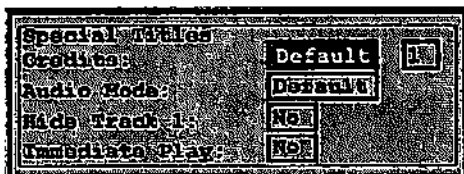
After selection of „Insert" enter the number of the desired title and press the "Hit" key. Input of title 00 i.e. 02*00, means that the whole CD is defined as " Special".

Features:

Credits:

In this entry field you may define how many credits are to be deducted for selection of this title/CD. Here you have the possibility to define different prices for different titles, some more expensive and some for free. Change entry by pressing the "*" key:

Default: As many credits are deducted as defined.

Special: A different number of credits is deducted for this title. See entry in next field.

Audio-Mode:

Enter the audio channel of the amplifier to which the reproduction of this title is switched to. This setting is to be used, i.e. for "Karaokee-CDs" where sound and voice is recorded to one channel (left channel), and only sound is recorded to the other channel (right channel).

Use a function key of the remote control to switch this features between "Left", "Right" and "Stereo". See also "/2.3.3.2 Function Keys".

Default: A predefined audio channel is switched to the amplifier.

Left: The left channel of the audio signal is switched to the both channels of the stereo amplifier.

Right: The right channel of the audio signal is switched to the both channels of the stereo amplifier.

Stereo: Normal setting. Both channel are switched to the stereo amplifier. Remark: This setting is independent from setting "Mono/Stereo" as described in "/2.3.1.4 Audio Modes".

Hide Track 1:

On most Video CDs track 1 is used as intro or table of contents. In this case the printed cover of this CD differs from the real contents of the CD. Use this setting to suppress track 1, that means on selection of track 1 track 2 is played (selection of xx*01 plays xx*02).

No: Track #1 is not suppressed.

Yes: Track #1 is suppressed.

Immediate Play:

Certain titles can be played directly after selection independent of previously selections. For example: A "Happy Birthday" title at a predefined moment.

No: The title is not played immediately (normal setting)

Yes: After selection the title is played next.

Autoplay

/2.2.3 **>Autoplay**

Use "AutoPlay" to play certain titles automatically in predefined time intervals. This function becomes active if it is enabled in at least one of four time windows of the corresponding week day and if the phonograph is in stand-by (no actions on the phonograph).
A selection of a title will fade out the "AutoPlay" title.

/2.2.3.1 **Autoplay Settings**
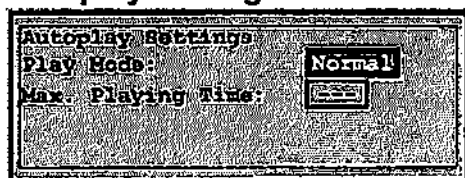
Settings:
Play Mode:
Normal: Titles are played in order of the programmed compilation used.
Random: Titles are played randomly from the programmed compilation.
Off: AutoPlay is deactivated. No AutoPlay titles are played.

Max. Playing Time:
This is the maximum time an AutoPlay title is played. After the end of the programmed time in seconds the title is faded out.

/2.2.3.2 **Time Windows**
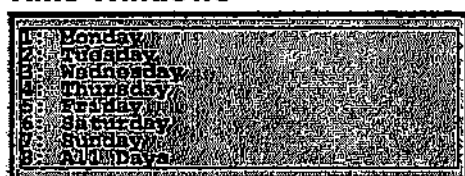
Within different time windows you may activate AutoPlay to start automatically.

/2.2.3.2.1 **- /2.2.3.2.8 Monday...Sunday, All Days**

4 independent entries are possible for each week-day to activate AutoPlay automatically.
Settings:
Start time:
This is the beginning time of the time window.

Stop-Time:
This is the ending time of the time window.

Compilation #:
Number of the programmed compilation to be played in the AutoPlay mode.

Interval (min):
Time in minutes between two AutoPlay titles respectively the time the phonograph is in stand-by before an AutoPlay title is played automatically.

Advertisement

/2.2.4   **>Advertisement**

Use this function to play special advertisement titles within predefined time intervals. This function becomes active if it is enabled in at least one of four time windows of the corresponding week.

/2.2.4.1   **Advertisement Settings**

Settings:
Play Mode:
Normal: Titles are played in order of the programmed compilation used.
Random: Titles are played randomly from the programmed compilation.
Off: Advertisement is deactivated. No advertisement titles are played.

Max. Playing Time:
This is the maximum time an Advertisement title is played. After the programmed time in seconds is over the title is faded out.

/2.2.4.2   **Time Windows**
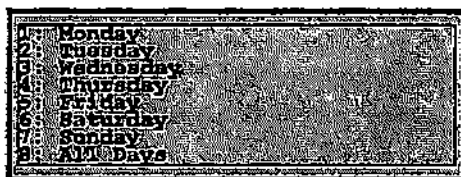
Within different time windows you may activate Advertisement titles to start automatically.

/2.2.4.2.1   **- /2.2.4.2.8 Monday...Sunday, All Days**
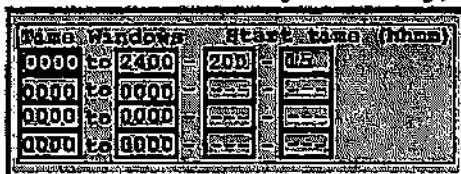
4 independent entries are possible for each week-day to activate automatically playing of Advertisement titles.

Settings:

Start time:

This is the beginning time of the time window.

Stop-Time:

This is the ending time of the time window.

Compilation #:

Number of the programmed compilation to be played in the Advertisement mode.

Interval (min):

Time in minutes between two advertisement titles. After this time the next advertisement title is played from the programmed compilation regardless of eventually existing title selections.

Background Music

/2.2.5   >Background
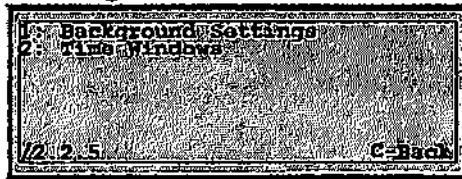
In Background mode titles are played from 3 predefined compilations as long as no titles are selected by audience. A selected title will fade-out a just playing background title. Background mode becomes active if it is enabled in at least one of four time windows of the corresponding week-day.

/2.2.5.1   Background Settings

Settings:
Play Mode:
Normal: Titles are played in order of the programmed compilation used.
Random: Titles are played randomly from the programmed compilation.
Off: Background mode is deactivated. No Background titles are played.

Max. Playing Time:
This is the maximum time a background title is played. After the programmed time in seconds is over the title is faded out.

/2.2.5.2   Time Windows
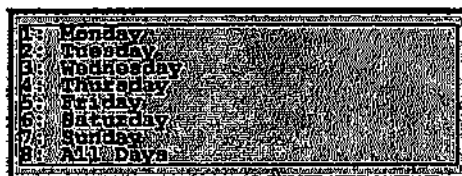
Within different time windows you may activate background titles to start automatically.

/2.2.5.2.1   - /2.2.5.2.8 Monday...Sunday, All Days
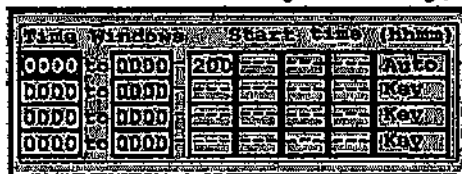
4 independent entries are possible for each week-day to activate automatically playing of background titles.

Settings:

Start time:

This is the beginning time of the time window.

Stop-Time:

This is the ending time of the time window.

Compilation #:

Number of a programmed compilation to be played as background music.

3 different compilations may be predefined. Titles from one of these 3 compilations are played until the background mode is terminated by reaching the end of the time window or by pressing the function key on the remote control. With each call-up of the background mode the compilation is changed.

Mode:

Mode of operation for background music.

Auto: Background mode will start automatically if one of the four time windows is set. Background music is played automatically. By pressing the function key on the remote control you may deactivate the background mode (ref. /2.3.3.3 Function Keys).

Key: Background mode will start automatically if one of the four time windows is set to start. Background music is played after pressing the function key on the remote control.

Title Lockout

/2.2.6 **> Title Lockout**

```
1:>Time Restricted Lockout
2:>Automatic Lockout

/2.2.6                    C=Back
```

Selection of titles or albums can be locked out automatically or in a time window.

Time Restricted Lockout

/2.2.6.1 **> Time Restricted Lockout**

```
1: Activate/Deaktivate
2: Time Windows

/2.2.6.1                  C=Back
```

At certain week-days or day-times titles or albums can be locked against selection.

/2.2.6.1.1 **Activate/Deactivate**

```
      Time Restricted Lockout

           deactivated
```

Activate or deactivate this function by pressing the *-key.
deactivated: Time Restricted Lockout is deactivated.
activated: Time Restricted Lockout is activated.

/2.2.6.1.1 **Time Windows**

```
1: Monday
2: Tuesday
3: Wednesday
4: Thursday
5: Friday
6: Saturday
7: Sunday
8: All Days
```

Titles and albums may be locked for each week-day separately.

/2.2.6.1.1.1 **- /2.2.6.1.1.8 Monday...Sunday, All Days**

```
Time Windows    Start time (hhmm)

0000 to 0000
0000 to 0000
0000 to 0000
0000 to 0000
```
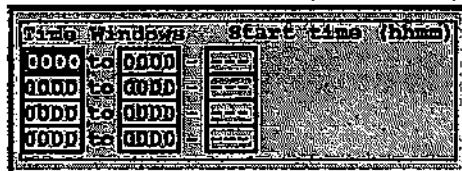
4 independent entries are possible for each week-day to lock-out titles.

<u>Settings:</u>
Start time:
This is the beginning time of the time window.

Stop-Time:
This is the ending time of the time window.

Compilation #:
Number of a programmed compilation including titles to be locked against selection.

Automatic Lockout

/2.2.6.2   **> Automatic Lockout**

Titles or albums having problems while playing because of pollution or scratches can automatically be locked out.

/2.2.6.2.1   **Edit Lockout Title List**
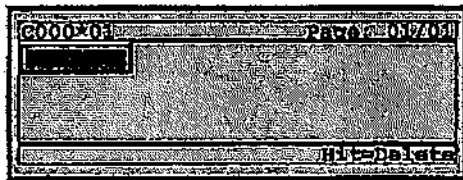
The list of automatically locked out titles or albums can be viewed The entries can be changed or deleted manually.

Activate the select function by pressing the *-key until "Hit=Select" is displayed. Then press the HIT key to display the contents of a compilation. In this mode you can add new titles or delete titles from the selected compilation.

/2.2.6.2.3   **Number Of Errors Allowed**
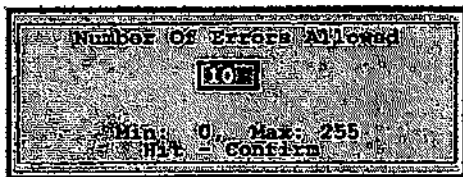
Here you may define the number of playing errors to occur until a title is locked out.

/2.2.6.2.4   **Release All Titles**
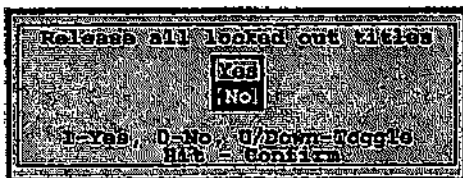
All automatically locked out titles within the corresponding list can be released to enable them to be selectable again.

Use the arrow keys or key 1 or key 2 to select Yes / No. Press the HIT key to confirm your selection.

Hardware Settings

/2.3   **>Hardware**

Summary of the functional units: Amplifier, Title display, Remote control, Operators display, Operators key pad, and CD changer.

Amplifier Settings

/2.3.1   **>Amplifier**
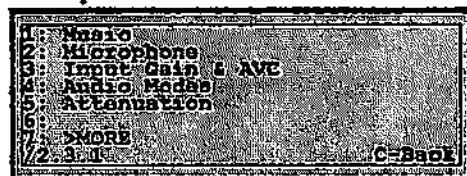
Summary of all settings for audio reproduction.

Volume&Tone

/2.3.1.1 **Music**
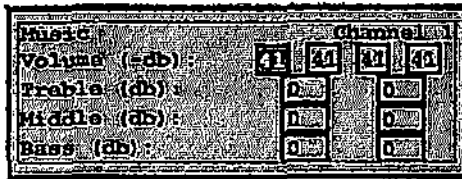
Settings for volume and sound of music.

Volume:
Decay in "dB" of the actual music volume of the four audio channels:
0dB   = maximum volume.
-79dB   = minimum volume.

Treble:
Equalizer-setting in "dB" for the high frequencies of music for channel 1/2 or channel 3/4. Enter the desired value. Press *-key to toggle polarity (+/-).
0dB   = normal setting
14dB   = maximum treble boost.
-14dB   = maximum treble cut.

Middle:
Equalizer-setting in "dB" for the middle frequencies of music for channel 1/2 or channel 3/4. Enter the desired value. Press *-key to toggle polarity (+/-).
0dB   = normal setting
14dB   = maximum middle boost.
-14dB   = maximum middle cut.

NOTE: This setting cannot be changed via remote control.
Bass:
Equalizer-setting in "dB" for the low frequencies of music for channel 1/2 or channel 3/4. Enter the desired value. Press *-key to toggle polarity (+/-).
0dB   = normal setting
14dB   = maximum bass boost.
-14dB   = maximum bass cut.

NOTE: The setting for volume, treble, and bass are changed by pressing the corresponding keys on the IR remote control respectively by sliding the controls on the wired remote control.

Microphone

/2.3.1.2   **Microphone**

Settings for volume and sound of a connected MIC.

Volume:
Attenuation in "dB" of the actual MIC volume of the four audio channels:
0dB   = maximum volume.
-37dB   = minimum volume.

Treble:
Equalizer-setting in "dB" for the high frequencies of the MIC for channel 1/2 or channel 3/4. Enter the desired value. Press *-key to toggle polarity (+/-).
0dB   = normal setting
14dB   = maximum treble boost.
-14dB   = maximum treble cut.

Bass:
Equalizer-setting in "dB" for the low frequencies of the MIC for channel 1/2 or channel 3/4. Enter the desired value. Press *-key to toggle polarity (+/-).
0dB   = normal setting
14dB   = maximum bass boost.
-14dB   = maximum bass cut.

NOTE: The defined settings are changed by pressing the corresponding keys for MIC volume and sound on the IR remote control.

Input Gain & AVC

/2.3.1.3   **Input Gain & AVC**

Gain:
It is possible to set the input gain of 3 different inputs separately.
Depending on the type of connected audio source (CD-Player/SAT-Receiver/Tape or capacitor microphone/dynamic microphone) the output level of the source can vary extremely and therefore optimization of this setting is required.

12dB   = maximum input sensitivity
0db   = minimum input sensitivity

AVC:
The volume dynamic of CDs often is not equal. So we have integrated an automatic volume control (AVC = Automatic Volume Control) for the CD player, thus to avoid extreme volume changes while playing different CDs.

Settings:
Response Time:
This is the response time for the automatic control.

Gain Music:
This is input sensitivity in dB for the CD input.
6db   = normal setting

AVC Response Time:
This is the response time for the AVC.
No: = AVC deactivated
Yes: = AVC activated

Gain AUX:
This is input sensitivity in dB for the AUX-In input.

Gain MIC:
This is input sensitivity in dB for the MIC input.

Audio Modes

/2.3.1.4   **Audio Modes**

Different modes for playing of music or for the auxiliary inputs/outputs (AUX-In/AUX-Out) can be set paired for the audio channels (1/2 or 3/4).

Signal:
Select between MONO and STEREO. Press the *-key to select.

Stereo: Music reproduction is performed in "Stereo". Use this setting only for rooms where it is possible to hear the stereo effect.

Mono: Music reproduction is performed in "Mono". Use this setting if an equal positioning of loudspeakers for stereo is not possible, or if different rooms should be exposed with different volumes.

AUX-Mode:
The mode of operation of the 2x2 AUX-outputs (1/2 or 3/4) can be set differently. Use the *-key to change the mode:

Fixed: The output level of the outputs is fixed that means it is independent from the volume setting and sound setting of the phonograph. Use this setting i.e. for connecting a tape recorder or an additional amplifier with integrated volume control.

3 Band: The output level of the outputs is depending on the setting for volume and sound of the phonograph. Use this setting i.e. for connecting an additional amplifier without integrated volume and sound control.

Surround: For using this phonograph with *real surround sound* you need at least four loudspeakers for that different sound material. An external amplifier to drive the surround speakers must be connected to the AUX-Out connectors.

Variable: Equivalent to "3 Band" the output level depends on the setting of the phonograph.

AUX-Priority:
The priority of the "AUX-In"-inputs (1/2 or 3/4) can be set differently. Use the *-key to change the priority:

Idle: Playing a CD has priority.
            The phonograph switches the AUX-In signal to the amplifier only if no CD is played (stand-by).

Detect: The external device has priority.
            The phonograph switches the AUX-In signal to the amplifier immediately after detecting an audio signal.

Fixed: The "AUX-In"-input is directly switched to the amplifier. In this mode the CD music is not played to the corresponding channels (1/2 or 3/4).

Off: The "AUX-In"-input is deactivated.

Attenuation

/2.3.1.5   Attenuation

```
Attenuation
Background Mode (-db):      8
Microphone Mode (-db):     20

Output (-db):      0   0   0   0
```

The output level can be attenuated differently for different mode of operation.

Background Mode:
Attenuation of music volume in background mode.
If background titles are played the volume is automatically decreased by the programmed value.
0dB: = no attenuation.
-36dB: = maximum attenuation.

Microphone Mode:
Attenuation of music volume if a MIC signal is detected. Example: For any message broadcasting it is useful to reduce the music volume.
0dB: = no attenuation.
-36dB: = maximum attenuation.

Output:
The total output level of the four channels can be attenuated differently. Use this setting for limiting the volume or the output power.
0dB: = no attenuation.
-36dB: = maximum attenuation.

/2.3.1.7   >MORE

```
1: Sound Features
2: Save NOFM Values
3: Power-Up Values

/2.3.1.7                    C-Back
```
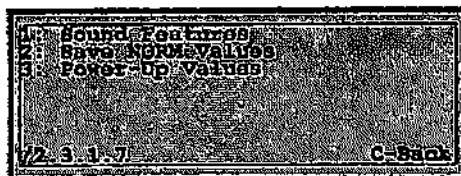
More settings for sound reproduction.

Sound Features

/2.3.1.7.1   >Sound Features

```
1: Surround Sound
2: SRS Sound
3: Factory Presets

/2.3.1.7.1                  C-Back
```

Two different sound effects are available within this phonograph. They can be activated via the IR remote control. The parameter for this sound effects can be set or changed as desired.

/2.3.1.7.1.1   Surround Sound

Surround Sound   Mode
Mode   Music
Effect Control (-dB)   6
Phase Shift: 2 2 2 2
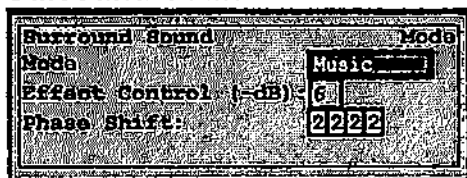
Mode:

4 different modes can be set:

Simulated: A stereo effect is simulated built from a mono input signal.
Music: Optimized setting for music-CDs
Movie: Optimized setting for movie sound tracks
Off: Surround sound is deactivated and cannot be activated via remote control.

Effect Control:

The intensity of the surround effect can be attenuated to the following values:
-6dB   = minimum attenuation
-21dB   = maximum attenuation

/2.3.1.7.1.2   SRS Sound

SRS Sound   Mode
Mode   =Surround
Space Control (-dB)   17
Center Control (-dB)   5
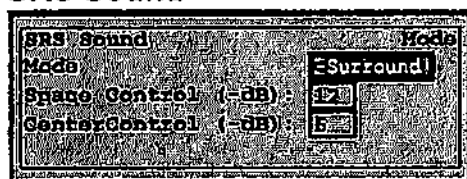
Mode:

You may select between 3 different modes:

-Surround: The original audio signal is the input signal for the SRS-module
+Surround: The audio signal modified by the surround module is the input signal for the SRS module.
Off: SRS is deactivated and is not to be activated by the IR remote control.

Space Control:

The space effect of the sound reproduction can be set to:
0dB   = maximum "space effect".
-31dB   = minimum "space effect".

Center Control:

The center effect of the sound reproduction can be set to:
0dB   = maximum „center effect".
-31dB   = minimum „center effect".

/2.3.1.7.1.3 Factory Presets
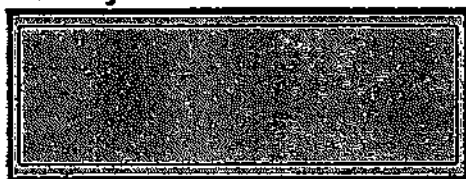
Typical pre-settings for Surround and SRS.

Audio NORM Settings
/2.3.1.7.2 Save NORM Values
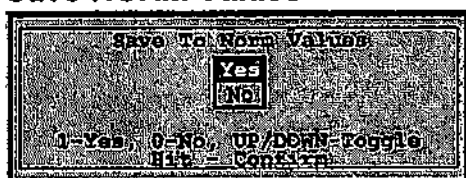
The actual setting for sound reproduction for VOLUME, BASS, MIDDLE, TREBLE, SURROUND, and SRS are saved as NORM values.

You can recall these saved values any time by pressing the NORM-key on the IR remote control.

Use the arrow keys to select YES or the 1 key and confirm your selection by pressing the HIT key.

Power-Up Values
/2.3.1.7.3 Power-Up Values
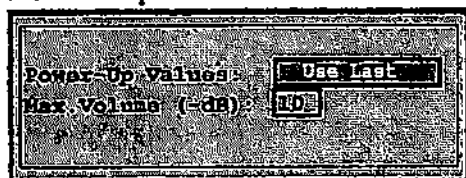
Within this program step you can predefine which settings should be used for audio reproduction after power-on the phonograph.

Power-Up Values:

Use Last: The actual settings just before power-off are taken as new settings after power-on. _

Use NORM: The settings saved as NORMal settings are used after power-on (see "Save NORM Values").
Use the *-key to toggle.

Max. Volume:

Setting to define the maximum power-on pre-set volume. This setting is useful i.e. to avoid high volume on the silent morning after a big party.

Title Display

/2.3.2   **Title Display**
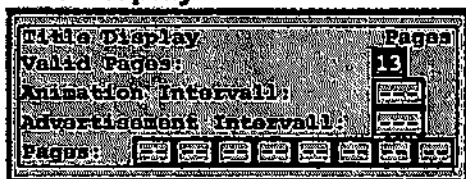
For the mechanical title display unit several settings may be taken.

Valid Pages:
The number of display positions in the title display.

.25	= sliding title display showing 4 covers on each position
.13	= wall boxes with 8 viewable covers on each position
.7	= stand alone phonographs with 16 viewable covers on each position

Animation Interval:
The time interval (in minutes) until the move to the next position is performed. This function is useful to attract attention to the phonograph.
Enter "0" to deactivate this function.

Advertisement Interval:
The time interval (in minutes) until the next automatic move to the next defined position is performed.
This function is useful to show preferred **pages** in defined time intervals.
Enter "0" to deactivate this function.

Pages:
Enter the pages (positions) to be displayed after the "Advertisement Interval" time is reached. 8 different positions are possible. After reaching the interval time the next position is moved to.

Remote Control

/2.3.3   **>Remote Control**
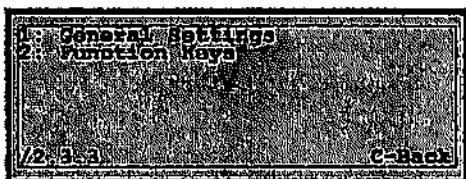
Settings for the remote control.

/2.3.3.1   **General Settings**
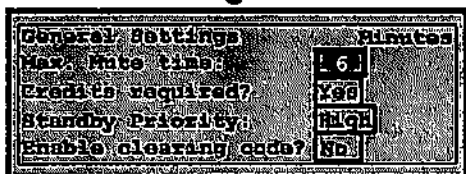
Max. Mute Time:

This is the maximum time in minutes the phonograph stays MUTE. Use this function to avoid that the phonograph stays in MUTE mode by mistake too long.

Credits required:
Title selection via remote control can be done without credits. Use the *-key to toggle (No/Yes):
No: No credits necessary.
Yes: Credits necessary.

Stand-by Priority:
This is to define the reaction of the phonograph after pressing the "Stand-by key" (see Function Keys).
Low: The phonograph terminates all functions first and then goes into Stand-by mode.
High: The phonograph immediately goes into stand-by mode after pressing the stand-by key.

Enable clearing code?:
The combined pressing of the MUTE key and the REJECT key gives you the possibility to clear the whole title memory. Therefor you have to press the following sequence within 10 seconds: *Mute, Reject, Reject, Reject.*
Use the *-key to activate or deactivate this function.
No: Function deactivated.
Yes: Function activated.
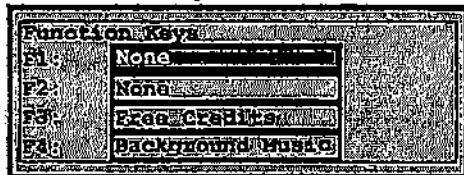
/2.3.3.2   Function Keys

The function keys F1 to F4 can be programmed according to the following list. To change the function use the *-key to select between the following possibilities:

Stand-by: Stand-by function. After pressing this function key the phonograph goes into stand-by mode (see /2.3.3.3 "General Settings / Stand-by Priority"). After pressing the function key once more this mode is stopped.

Free Credits: Free credit function (see: /2.1.5 „Settings / Free Credits").

Voice Cancel: Use this function to cancel the soloists voice from a music title. This can be done using customary music CDs. The quality of the voice canceling depends on the recording method of the CD. Ideally CDs are recorded having the voices within the middle of the stereo signal. Use this function i.e. for Karaoke events.

Background Music: Background function (see /2.2.5 „Settings / Background").

Switch Channels: Karaoke-CD's (Video) normally have the music including voice recorded to the right channel and music without voice recorded to the left channel. Use this predefined function to toggle between:
- Play left channel
- Play right channel
- Play in stereo

Change MIC Vol: After pressing the corresponding function key you may use the slide controls of the wired remote control to vary the volume of the connected MIC. To terminate function press this function key again.

Unassigned: The function key is deactivated.

Display

/2.3.4   **>Display**

Settings for the liquid crystal display in the operators panel (LCD).

/2.3.4.1   **Display Pages 1**
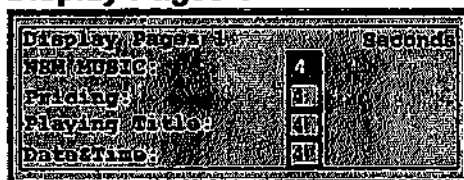
Used to set the display time for several standard pages. Enter "0" to turn off the corresponding page.

Pricing:
Time in seconds for displaying the price information.

Current (Playing) Title:
Time in seconds for displaying the actually played title/track.

NSM MUSIC:
Time in seconds for displaying the NSM MUSIC logo.

Top Hits:
Time in seconds for displaying the "10 Top-Hits".

Top CDs:
Time in seconds for displaying the "10 Top-Discs".

Local Msg::
Time in seconds for displaying a local message (see /2.3.4.4 "Local Message").

Next Tracks:
Time in seconds for displaying the next title to be played.

Happy Hour:
Time in seconds for displaying the "Happy-Hour" information (see /2.1.2.2 "Price List #2").

Free Cedits:
Time in seconds for displaying the "Free Credit" information.

Date&Time:
Time in seconds for displaying the actual date and time.

/2.3.4.4   Local Message

You have the possibility to enter a local message which is displayed while the phonograph is in stand-by mode Regard the layout of the number keys of the remote control (1/ABC, 2DEF.. 0/Sym).
Usage: the first pressing of key 1 works as „A", two times pressing gives you a „B" and so on. Use key 0/Sym to enter symbols.
Correct your entries using the Cancel key "C". Confirm your entry by pressing the HIT key.

Key-Pad

/2.3.5   >Key-Pad

Several 6 digit codes can be defined to activate different functions via the operators key pad.

For example:
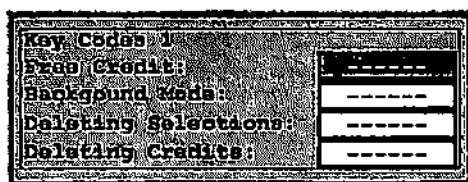
Free Credit
Code for activating the free credit function.

Background Mode
Code for activating the background mode.

Deleting Selections
Code for deleting the title memory.

Deleting Credits
Code for deleting of still existing credits.

Reject Title
Code for interrupting the now playing title (reject).

Volume Control
Code for changing the volume via the key pad. For changing the volume just use the arrow keys afterwards.

Data Transmission

/2.3.6   **>Data Transmission**
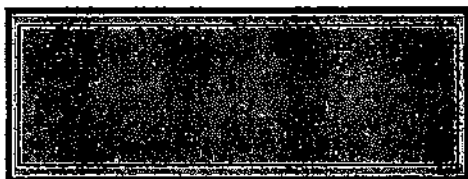
Data transmission to a printer or personal computer (PC).

Selection (Number of CDs)

/2.4   **Selection**

Settings concerning the title selection.

Max CDs/Tracks:
The number of selectable CDs and tracks/titles can be limited. Thus to avoid selection of not existing titles by mistake.
Max. CDs
Number of installed CDs in the CD-changer. Use this function if you have not equipped all CD trays.
Max. Tracks
Number of selectable tracks per CD. Use this function to define the number of titles/tracks you are able to display on the title strips.

Overplay Limitation:
The number of same titles to be stored in the title memory while selection can be limited. If this value is exceeded the corresponding title will not be stored in the title memory again but credits are deducted for it.

Enable Album:
Use this function to enable album selection (selected as track 00). Use the *-key to toggle (Yes/No).
Yes: Album selection enabled.
No: Album selection disabled.

Enable Hits:
Use this function to enable hit selection. Use the *-key to toggle (Yes/No).
Yes: Hit selection enabled.
No: Hit selection disabled.

Playing

/2.5   **Playing**

Settings concerning the reproduction of CDs.

Play Mode:
Define the playing sequence for the selected titles. Use the arrow keys to toggle and confirm your selection by pressing the HIT-key.
Normal: Selected titles are played in sequence of selection.
Random: Selected titles are played randomly.

Max. Playing Time
Define the maximum playing time in minutes for one title. After this time limit is reached the title will be faded out.

Max. Titles Same Disc:
This function is used to define the maximum number of titles played from the same CD. If this value is reached the next title is played from another CD. Use this function to get more variety of music reproduction.
Enter "0" to deactivate this function.

Credit & Selection Decay

/2.6   **>Decay**
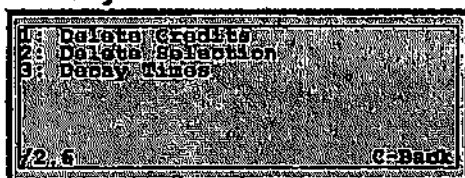
Settings for automatically or manually deleting of existing credits or title selections in the title memory.

/2.6.1   **Delete Credits**
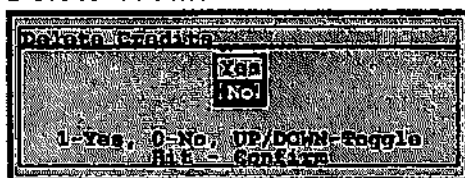
The credit memory is cleared.
Use arrow keys or key "1" to select YES and confirm selection by pressing the HIT-key.

/2.6.2   **Delete Selections**
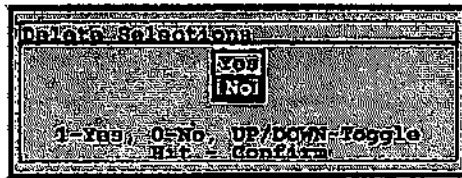
The title memory is cleared.
Use arrow keys or key "1" to select YES and confirm selection by pressing the HIT-key.

/2.6.3   **Decay Times**
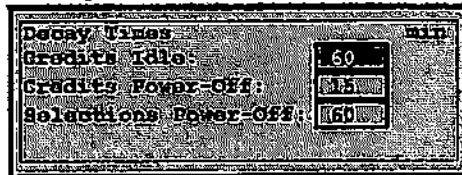
Credits Idle:
After this programmed time (in minutes) the automated deleting of existing credits is started if the phonograph is in stand-by mode.

Credits Power-Off:
After this programmed time (in minutes) the automated deleting of existing credits is started if the phonograph is powered-off.

Selections Power-Off:
After this programmed time (in minutes) the automated deleting of existing selection in the title memory is started if the phonograph is powered-off.

Bookkeeping

/3.	>Bookkeeping

```
1: >Popularity
2: >Accounting Within Period
3: >Accounting Total



/3                                    C-Back
```
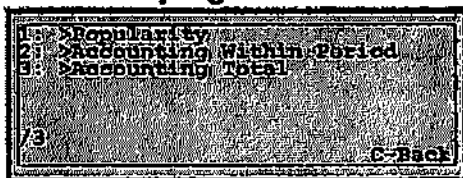
Statistics functions as bookkeeping, statistics, cash box values, popularity, counters, and so on.

Popularity

/3.1   **Popularity**

```
1: Last reset
2: Show Least Selected CD
3: Show Most Selected CD
4: Show Most Selected Titles
5: Reset Popularity

/3.2                                  C-Back
```

Read out of the popularity of CDs and single titles.

/3.1.1   **Last reset**

```



         Friday, 01/07/2000 16:14


         Press key to continue
```

Displays date and time the popularity counter was last cleared.

/3.1.2   **Show Least Selected CD**

```
Show Least Selected CD      >None
001:00      007:00      013:00
002:00      008:00      014:00
003:00      009:00      015:00
004:00      010:00      016:00
005:00      011:00      017:00
006:00      012:00      018:00
```

Display of all CD popularity's in order of least played CDs. Example: 051:03 = CD51 was selected 3 times.
The display is capable of displaying 18 entries on each page. Press any key to turn pages.

/3.1.3   **Show Most Selected CD**

```
Show Most Selected CD
020:12
031:07
028:06
032:04
```
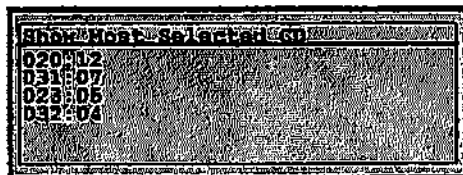
Display of all CD popularity's in order of most played CDs.
The display is capable of displaying 18 entries on each page. Press any key to turn pages.

/3.1.4   Show Most Selected Titles
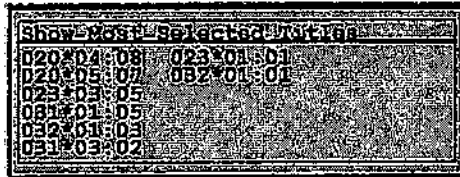
Display of all title popularity's in order of most played title. Example: 020*04: 08 = title 20*04 was played 8 times.
The display is capable of displaying 18 entries on each page. Press any key to turn pages.

/3.1.5   Reset Popularity

All Popularity counters are set to "0".
Use arrow keys or key "1" to select YES and confirm selection by pressing the HIT-key.

Accounting Within Period

/3.2   Accounting within period
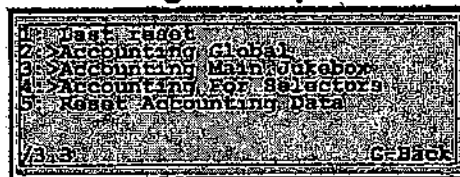
All accounting data within one accounting period.

/3.2.1   Last reset

Display of date and time the accounting data were deleted the last time.

/3.2.2   >Accounting Global

General accounting data within the accounting period.

/3.2.2.1   **Play Report**

Display of all playing results.

Regular Titles
Playing of "normally selected" titles.
Background Titles
Playing of background titles.
Auto-Play Titles
Playing of auto-Play titles.
Advertisement Titles
Playing of advertisement titles.

/3.2.2.2   **Paid Credits Per Hour**

Display of earned credits per each hour a day, within the accounting period.
I.e. 13:   68, means between 1.00 and 2.00 p.m. you have earned money for
68 credits.

Press the *-key to toggle to percentage display. I.e. 15: 24%, means between
3.00 and 4.00 p.m. you have earned 24% of the total cash box.
Use this information to find out at which time of a day you make the greatest
amount. Thus to decide whether different prices for different times should be
activated or not (see /2.1 Price Lists & Time Windows). Also you may find out
that your idea was good to place HAPPY HOUR time (Price List #2) at this
times as you did.

/3.2.2.3   **Event Log**

Display the number of several events.
Use this function to find out if the phonograph is placed well at this location,
how it is used, and which functions are used how often or not.

Background Music:
Number of activating the background mode.
Mute: Activation's
Number of activating the MUTE function via remote control.
Title Display Movement's:
Number of moves of the title display.
Microphone Detection's:
Number of detecting a signal at "MIC"-input.
A microphone is detected if the audio level of a signal at the "MIC"-input reaches a defined level.
Aux-In Detection's:
Number of detecting a signal at "AUX-in"-input.
An AUX-in-signal is detected if the audio level of a signal at the "AUX-in" input reaches a defined level.
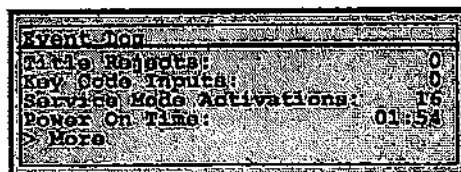
Press any key to turn pages to display more events.

Title Rejects:
Number of detecting a "Reject"-key pressing.
Key Code Inputs:
Number of detecting a key code entries (see 2.3.6 Key-Codes).
Service Mode Activation's:
Number of detecting an action on the service switch.
Power On Time:
The power-on time (in hours:minutes) of this phonograph since the last reset.
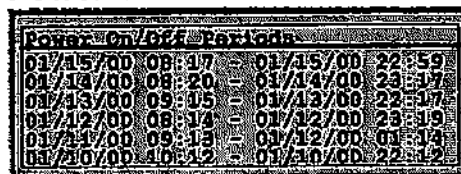
/3.2.2.4   Power On/Off Periods

Get a list of the last 6 power-on periods.
Here you can find out at which times the phonograph is normally powered on and off.

Accounting Within Period For Main Jukebox

/3.2.3   **>Accounting Main Jukebox**

```
1: Cash Takings
2: Monetary Entries
3: Selections
4: Credits

/3.3.3.                          C=Back
```

Bookkeeping data of the main phonograph (w/o Selectors).

/3.2.3.1   **Cash Takings**

```
Cash Takings
Cash takings:                    300
```

Display of the cash takings in monetary units of this phonograph.

/3.2.3.2   **Monetary Entries**

```
Monetary Entries
C1 (100)      3  B1 (20)        0
C2 (20)       0  B2 (50)        0
C3 (10)       0
C4 (50)       0
C5 (200)      0
C6 (0)        0
```

Number of coins and bills per channel of this phonograph:
C1-C6:   Number off inserted coins.
B1-B2:   Number off inserted bills.

/3.2.3.3   **Selections**

```
Selections
Total Titles:                    8
Regular Titles:                  8
Special Titles:                  0
Albums:                          0
Overplay Regular:                0
Overplay Special:                0
```

Listing of the frequency of title selections at this phonograph.

Total Titles:
Total number of title selections.
Regular Titles:
Number of normal title selections.
Special Titles:
Number of paid for "special selections".
Albums:
Number off album selections.
Overplay Regular:
Number of not played "overplay selections" of regular (normal) titles. These are titles which were selected although the overplay limit was reached.
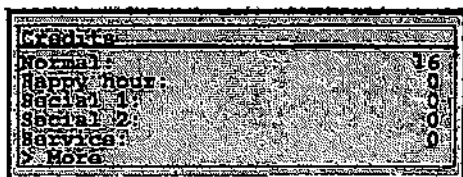
Overplay Special:
Number of not played "overplay selections" of special titles. These are titles which were selected although the overplay limit was reached.

/3.2.3.4 **Credits**

```
Credits:
Normal:                    16
Happy hour:                 0
Special 1:                  0
Special 2:                  0
Service:                    0
> More
```

Display of given credits of this phonograph.

Normal:
Number of credits based on price list #1 (Normal Price List).
Happy Hour:
Number of credits based on price list #2 (Happy-Hour Price List).
Special 1:
Number of credits based on price list #3 (Special1 Price List).
Special 2:
Number of credits based on price list #4 (Special2 Price List).
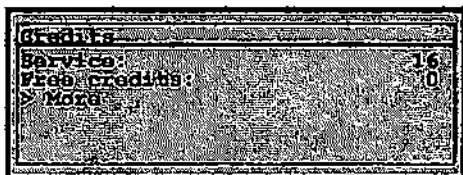
Press any key to turn to next page displaying given credits.

```
Credits:
Service:                   16
Free credits:               0
> More
```

Service:
Number of credits given at pulling the service switch (see 2.1.5.3 No.Credits Service Mode)
Free credits:
Number of free credits given.

Accounting Within Period For Selectors

/3.2.4 **>Accounting For Selectors**
Description see /3.2.3 "Accounting For Main Jukebox".

/3.2.4.1 **Cash Takings**
Display the cash takings in monetary units of all connected Selectors.
Description see /3.2.3.1.

/3.2.4.2 **Monetary Entries**
Number of coins and bills per channel of all connected Selectors.
Description see /3.2.3.2.

/3.2.4.3   **Selections**
Listing of the frequency of title selections at all connected Selectors.
Description see /3.2.3.3.

/3.2.4.4   **Credits**
Display of given credits at all connected Selectors.
Description see /3.2.3.4.

/3.2.5   **Reset Accounting Data**

All bookkeeping data are set to "0".
Use the arrow keys or key 1 or key 2 to select Yes / No. Press the HIT key to
confirm your selection.
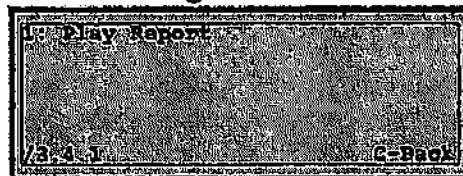
Accounting Total

/3.3   **Accounting Total**
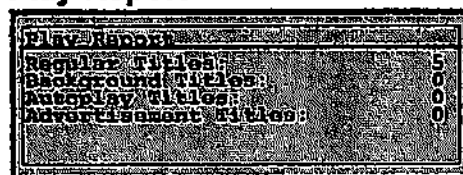
The cumulated data of all accounting information.
These information cannot be reset.

/3.3.1   **>Accounting Global**

General accounting information within the accounting period.

/3.3.1.1   **Play Report**

Display of all playing results. Description see /3.2.2.1

Accounting Total For Main Jukebox

/3.3.2 **>Accounting Main Jukebox**

Bookkeeping data of this phonograph (w/o Selectors). Description see /3.2.3)

/3.3.2.1 **Cash Takings**
Display of the cash takings in monetary units of this phonograph (w/o Selectors). Description see /3.2.3.1.

/3.3.2.2 **Monetary Entries**
Number of coins and bills per channel of this phonograph (w/o Selectors).
Description see /3.2.3.2.

/3.3.2.3 **Selections**
Listing of the frequency of title selections at this phonograph (w/o Selectors).
Description see /3.2.3.3.

/3.3.2.4 **Credits**
Display of given credits at this phonograph (w/o Selectors).
Description see /3.2.3.4.

Service:
Number of credits given at pulling the service switch (see 2.1.5.3 No.Credits Service Mode)
Free credits:
Number of free credits given.

Accounting Total For Selectors

/3.3.3 >Accounting For Selectors
Bookkeeping data of all connected Selectors. Description see /3.2.3 "Accounting For Main Jukebox".

/3.3.3.1 **Cash Takings**
Display of the cash takings in monetary units of all connected Selectors.
Description see /3.2.3.1.

/3.3.3.2 **Monetary Entries**
Number of coins and bills per channel of all connected Selectors.
Description see /3.2.3.2.

/3.3.3.3 **Selections**
Listing of the frequency of title selections at all connected Selectors.
Description see /3.2.3.3.

/3.3.3.4   Credits

Display of given credits at all connected Selectors.
Description see /3.2.3.4.

Service Functions

/4 **Service Functions**

```
1: >CD-Changer
2: >CPU & Memory Test
3: >Display & Keyboard Test
4: >Title Assembly Test
5: >Continuance Tests
6: >Error Logbook
7: >Data Transmission
/4                              C=Back
```
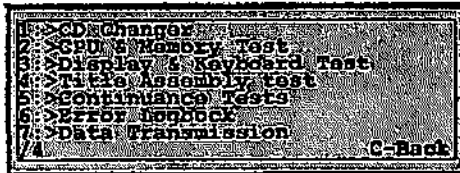
This menu offers functions for testing the phonograph.
Attention: These functions should be performed only by authorized service staff.

CD-Changer

/4.1 **>CD Changer**

```
1: >CD-Changer Adjustment
2: >CD-Changer Test



/4.1                            C=Back
```

Used to test and adjustment functions for the CD changer MBC III used in this phonograph.

/4.1.1 **>CD-Changer Adjustment**

```
1: Adjust Gripper Reference
2: Adjust Lift Reference



/4.1.1                          C=Back
```

Adjustment for the CD changer MBC III.

/4.1.1.1 **Adjust Gripper Reference**
The adjustment of the gripper reference is performed automatically.
If the function is completed the following message is displayed:

```
     Adjust Gripper Reference

New Gripper settings have been
saved successfully.
Press any key to continue
```

The adjustment is completed and the new values are saved.
Press any key to terminate this function.

/4.1.1.2   Adjust Lift Reference

For the adjustment of the lift reference follow the instructions on the display:
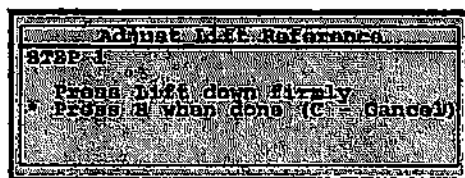
Step 1:

Press the lift down firmly to the bottom of the CD changer. Afterwards press the HIT key.
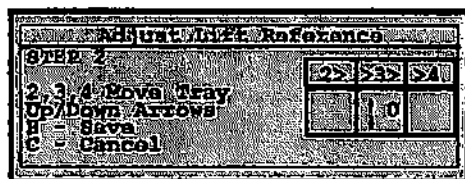
Step 2:

The lift automatically moves to position 49 of the CD magazine. In this position you can check if the gripper perfectly moves the CD tray out of / into the magazine. Therefore use the following keys:

Key 2: Grip left CD tray
Key 3: Replace CD tray.
Key 4: Grip right CD tray.

Use the arrow keys Up / Down to move the lift in single steps to adjust the height. Afterwards press the HIT key.
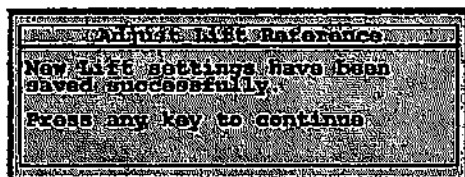
Adjustment of the lift reference is finished and the new values are saved. Press any key to terminate this function.

/4.1.2   CD-Changer Test

Functions to test the CD changer.

/4.1.2.1   **CD-Changer Opto Test**

The 5 optos in the MBC III CD changer can be checked automatically if they are defective, or dirty, or if they have not enough brightness.

ULed-Reference: This reference value for the supply voltage of the optos should be in the range of 165 to 195.

sLift: The value for this opto which controls the synchronization of the lift height should be in the range of 25 to 80.

sGrO, sGrI: The values for these optos controlling the position of the grippers ("Grippers Out" and "Grippers In") should be in the range of 25 to 80.

sGrL, sGrR   The values for these optos controlling the positions "Grip Left" and "Grip Right" should be in the range of 15 to 75.

The displayed values indicate the switching level of the optos in percent of the supply voltage. The lower the value is, the more sensitive the opto. A value 100 indicates that this opto is dead, a value 0 indicates stray light.
If the values are not in a "normal" range you should change the corresponding opto.
Press any key to quit this function.

/4.1.2.2   **CD-Changer Manual Control**
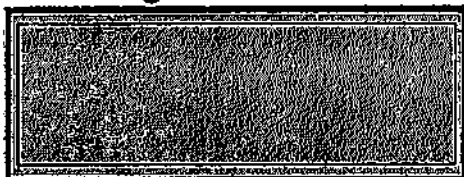
Functions for manual control of the CD changer.

CPU & Memory Test

/4.2   **>CPU & Memory Test**

Test functions for CPU and memory.

| /4.2.1 | **CPU Test** |

Functions to test the micro controller on the CB CENTRAL UNIT.
Press any key to quit this function.

| /4.2.2 | **Volatile Memory Test** |
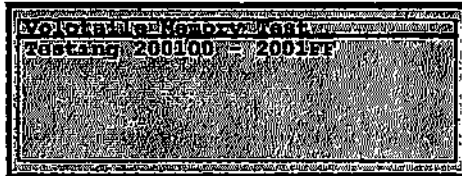
The main memory of the micro controller is tested for correct functioning. Each address of the respective memory location checked is displayed. Press "C" to cancel this function, or press any other key to quit after the test has ended.

| /4.2.3 | **Non Volatile Memory Test** |

This battery buffered memory is tested for correct functioning. Each address of the respective memory location checked is displayed. Press "C" to cancel this function, or press any other key to quit the terminated test.

I/O Test

| /4.3 | **I/O Test** |

Functions for testing operating devices, inputs, and outputs.

/4.3.1   Test Display
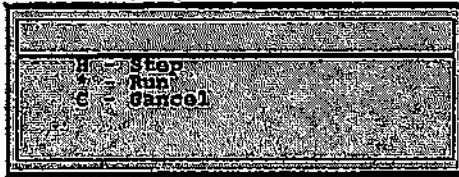
Function to test the operators display (LCD).

Several test pattern are scrolled through the display horizontally and vertically. Check that all pixel are displayed.

Use the following keys:

"Hit":   Stop the test pattern.

"*"   Continue the test.

"C"   Quit the test.

/4.3.2   Key pad Test
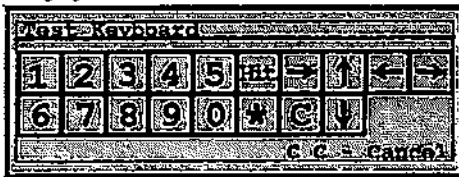
The key pad layout is displayed on the operators display.

On each key press of the key pad (or the remote control) the corresponding symbol is displayed inverted.

Also the rocker button for moving the title display can be checked.

To quit this test routine you must press the "C" key twice.

/4.3.3   Input Ports
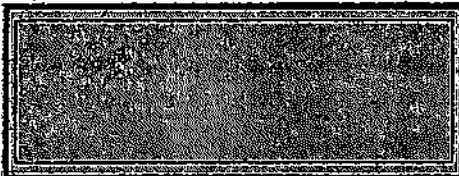
Functions to test the input ports of the CB CENTRAL UNIT.

/4.3.4   Output Ports
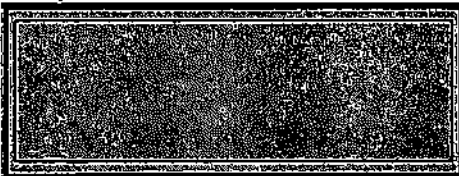
Functions to test the output ports of the CB CENTRAL UNIT.

/4.3.5   Remote Control
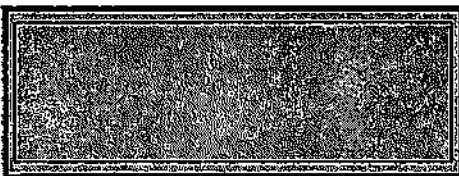
Functions to test the IR remote control or the wired remote control.

Title Assembly Test

/4.4   **>Title Assembly Test**

Functions to test the title display types 7x16, 13x8, and 25x4.

/4.4.1   **Continuance Test**

Continuous run test for the title display.
All pages of the title display are moved one after another.

Continuance Tests

/4.5   **>Continuance Tests**
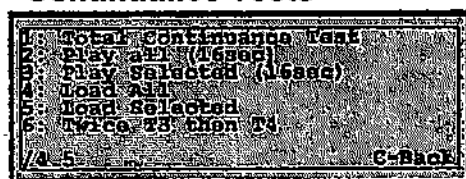
Continuous run test for the CD changer and for the title display.
While a continuance test is running the number of turns (Pxxx) and the number of occurred errors (E000) is displayed in the upper right corner of the display.

/4.5.1   **Total Continuance Test**
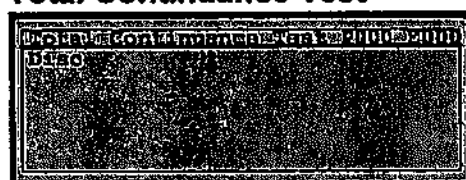
Combination of "Play 6" and "Continuance test title display".

/4.5.2   **Play All (16sec)**

All CDs are played for 16 seconds each.

/4.5.3   **Play Selected (16sec)**
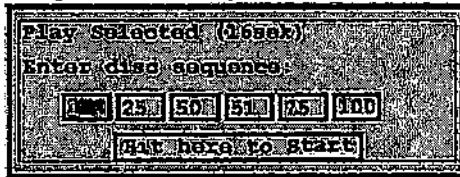
Up to 8 different CDs may be selected to be used for this test.
To start the test: Select Hit here to Start using the arrow keys and press the "Hit" key.
Note: If you enter "99" for the track number the last track of the corresponding CD is always played. This may be helpful to check if the CD player plays the outer tracks of a CD correctly.
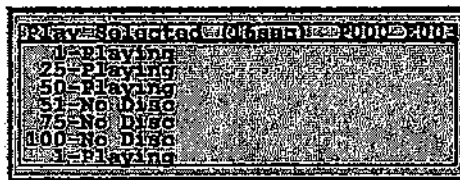
The selected CDs are repeatedly played for 16 seconds each.

/4.5.4   **Load All**
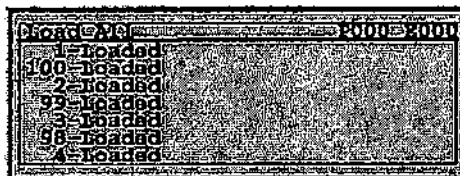
All CDs are repeatedly loaded from and restored into the magazine.

/4.5.5   **Load Selected**

Up to 8 different CDs may be selected to be used for this test.
To start the test: Select Hit here to Start using the arrow keys and press the "Hit" key.
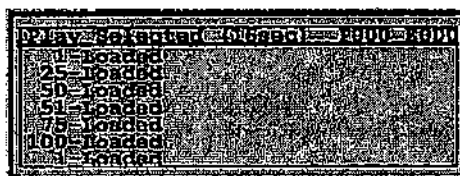
The selected CDs are repeatedly loaded from and restored into the magazine.

/4.5.6   **Twice T4 then T3**
Combination of 2 times running test "Load All" followed by repeatedly running "Play Selected (16sec)".

Error Logbook

/4.6   **>Error Logbook**

The phonograph is equipped with a special memory to save all occurring errors.

/4.6.1   **Show Error Log**
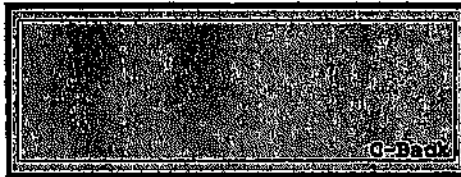
Display of all errors occurred since the last reset.
After calling this function the last page is displayed. Use the arrow keys to turn pages up and down.

/4.6.2   **Clear Error Log**
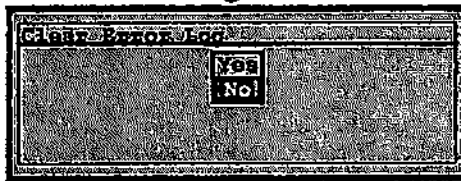
To clear the error log memory use the arrow keys to select "YES". Press "Hit" key to confirm it.

Data Transmission

I4.7   **>Data Transmission**
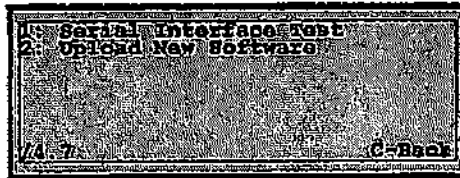
Functions for serial data transmission via the RS232 interface.

I4.7.1   **Serial Interface Test**
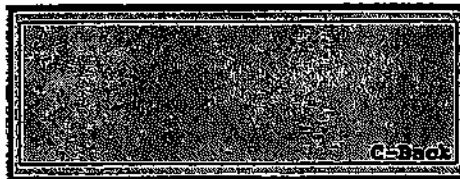
I4.7.2   **Upload New Software**
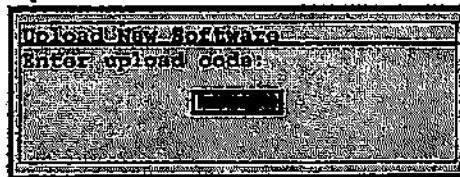
Using a Personal-Computer (PC) you can download a new version of the phonograph's firmware (i.e. new program). For protection against unauthorized usage a special security code is needed (Upload Code). Get this code if necessary from your local service department.

For transmitting data a standard terminal program may be used (i.e. „HyperTerminal" (accessory from Win95®).

PC setting:

Baud rate: 38400 Baud

Protocol: X-Modem

Attention: After input of the valid security code the original firmware is deleted and the program asks for downloading the new version of firmware. The phonograph is operable again only after this download is completed!

NOTES

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

Section 1:

ES 5.1 Programming version V0106 CCU
V0106 MBC III

Section 1:   *ES 5.1 Programming Tips*

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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 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 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.
            <u>With access to all CDs.</u>

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
(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.
   <u>With no selections in P105 all CDs will be selected.</u>
   (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 button
			"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.
<u>With no selections in P115 all CDs will be selected.</u>
(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 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"
Det 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" = <u>No Happy Hour</u>
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 continuos 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" sGrl 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 synchronization 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 synchronization values, for example: **P158 1517**
	(outer distance=17 motor steps, inner distance=15 motor steps).
Enter H	The new values are saved to memory.

<u>Note:</u> 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 synchronization 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 synchronization at the bottom plate and moving to the reference 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" Continuos 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" Continuos 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)

TABLE 9 : Possible error messages

Displays 1	Displays 2	Displays 3	Possible Causes	Corrections
	Er	01	EPROM-contents (CONTROL-UNIT) disturbed.	Change EPROM (IC2).
	Er	10	RAM (CONTROL-UNIT) defective.	Change RAM (IC3). After that repeat 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 (IC3). After that repeat 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) invalid.	No corrections necessary; the displayed command is automatically reprogrammed.
Pxxx	Er	31	Memory contents (CONTROL-UNIT) invalid or not programmed.	Execute displayed command, program new values.
Pxxx	Er	40	Wrong price setting.	Check price setting and reprogram if necessary.
	Er	50	Coin mechanism defective, too much credit.	Check coin mechanism.
	Er	60	Connection to the CD-player interrupted. No supply voltage present for decoder board or CD-player	Check connection cables to the CD-player.
	Er	61	No CD recognized by CD-player. No CD in CD tray, player defective.	Check CD and exchange if necessary. Exchange CD-player.
	Er	62	Specified track on the CD not found.	Check CD.
	Er	63	Malfunction while playing a CD. CD defective.	Check CD.

Displays 1	2	3	Possible Causes	Corrections
	Er	64	Contact to CD changer interrupted.	Check connection to changer. Replace CD changer or control unit.
	Er	65	No communication between CD changer and CONTROL-UNIT.	Restart phonograph.
	Er	70	Malfunction of operating control.	No correction necessary.
	Er	71 - 74	Malfunction of CD changer.	If error display does not disappear after 2 seconds error cannot be automatically corrected. No CD will be played until cabinet switch or "power in" is activated.
	Er	71	Error during grip from magazine (left or right).	Equip CD-magazine with tray. Check alignment from magazine to pickup assy and adjust if necessary. Check grip lever for function. Check function of light barriers sGrl and sGrO.
	Er	72	Error during replacing CD in magazine.	Check alignment of magazine to pickup assy and adjust if needed. Check function of grip. Check function of light barriers sGrl and sGrO.
	Er	73	Malfunction during lift drive, playing CD not possible.	Check lift for jamming. Check function and correct adjustment of light barrier sLift and encoder.
	Er	74	Lift cannot synchronize, playing CD not possible.	Check function and adjustment of light barrier sLift and encoder.
	Er	80	Short circuit on wallbox signal wire.	Check wallbox connection.
	Er	81	Malfunction of the audio processor (CB-CENTRALE ES 5.1).	Change IC = TDA 4390 if frequently occurring.
	Er	90	Title display, not functional anymore (three blockings in sequence).	Unjam 112er = no more move possible 112er = no more move possible
	Er	91	Blocking title display while left movement.	
	Er	92	Blocking title display while right movement.	
	Er	93	Blocking title display, left stacker.	
	Er	94	Blocking title display, right stacker.	

Section 2:

NSM
Parts Reference Guide

Section 2:   *NSM Parts Reference Guide*

Table of Contents

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

Cable Harnesses

Part #	Description		
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

Part #	Description
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
231-498	Voltage Regulator 7906
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

Part #	Description
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

Lift Assembly 173-607

Part#	Description
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

Part#	Description
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
174-276	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

Part #	Description		
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

Part #	Description	
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

Quantity	Part #	Description	
2	224-177	Tweeter	HM 10 = 224-151
2	224-153	Woofer	P 245
2	224-154	Midrange	HM 30

Century 21

Quantity	Part #	Description
2	224-141	Tweeter
2	224-145	Woofer P 30

Prestige E 160

Quantity	Part #	Description
2	224-153	Woofer P 245
2	224-177	Tweeter HM 10 = 224-151
2	224-152	Midrange P 1521

ES II Model Jukeboxes

City ES 160

Quantity	Part #	Description	
2	224-153	Woofer P 245	8 Ohms
4	224-190	Midrange HM 1318	6.5 Ohms
2	224-176	Tweeter KK7	8 Ohms

City II

Quantity	Part #	Description	
2	224-216	Woofer	
2	224-190	Midrange HM 1318	6.5 Ohms
2	224-171	Midrange P130	
2	224-176	Tweeter KK7	8 Ohms

Consul ES 160

Quantity	Part #	Description	
2	224-177	Tweeter HM 10 = 224-151	
2	224-171	Midrange P130	8 Ohms
2	224-172	Woofer	P 245

Festival ES 160

Quantity	Part #	Description	
2	224-157	Woofer 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

Quantity	Part #	Description	
2	224-157	Woofer 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

Quantity	Part #	Description	
2	224-199	Woofer P 265	
2	224-214	Tweeter	
2	224-171	Midrange P 130	8 Ohms
2	224-193	Midrange	

ES III Model Jukeboxes

Satellite 200

Quantity	Part #	Description	
2	224-207	Woofer P 265	
2	224-201	Tweeter	4 Ohms
2	224-206	Midrange P135	8 Ohms

240 I

Quantity	Part #	Description	
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	Woofer P265	

ES IV Vinyl Model Jukeboxes

City IV

Quantity	Part #	Description		
2	224-216	Woofer PMT 245		
2	224-171	Midrange P130	8 Ohms	10 Watts
2	224-176	Tweeter KK 7	8 Ohms	4 Watts

City Combi

Quantity	Part #	Description		
2	224-216	Woofer PMT 245		
2	224-171	Midrange P130	8 Ohms	I0 Watts
2	224-176	Tweeter KK 7	8 Ohms	4 Watts

Concert 240

Quantity	Part #	Description	
2	224-220	Woofer 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

Quantity	Part #	Description	
2	224-220	Woofer 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

Quantity	Part #	Description	
2	224-220	Woofer 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

Quantity	Part #	Description	
1	224-149	Midrange SP - 3P	8 Ohms

CD FireBird/Country

Quantity	Part #	Description	
1	224-149	Midrange SP - 3P	8 Ohms

Fascination

Quantity	Part #	Description	
2	224-243	Woofer PMT 245	4 Ohms
4	224-242	Midrange P 135	8 Ohms
2	224-233	Tweeter SSK 10	

Silver City

Quantity	Part #	Description	
2	224-237	Woofer PMT 245	
2	224-176	Tweeter KK 7	8 Ohms 4 Watts
2	224-171	Midrange P130	8 Ohms I0 Watts

Performer Grand

Quantity	Part #	Description	
2	224-240	Woofer 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

Performer Grand II

Quantity	Part #	Description	
2	224-240	Woofer PMT 300	4 Ohms
2	224-151	Woofer	
2	224-241	Midrange P175	8 Ohms
2	224-242	Midrange P135	8 Ohms
2	224-243	Tweeter SKK	10 Ohms

Performer Classic

Quantity	Part #	Description	
2	224-237	Woofer PMT 245	6.5 Ohms
2	224-176	Tweeter KK 7	8 Ohms 4 Watts
2	224-171	Midrange P130	8 Ohms I0 Watts

Old Fashion Wizard

No Speakers Installed

FireBird II

No Speakers Installed

Performer Wall

No Speakers Installed

Nostalgia Gold

Quantity	Part #	Description
1		Dual Coil Woofer
2		Midrange

Solid Gold

Quantity	Part #	Description	
2	224-264	Woofer	8 Ohms
2	224-265	Tweeter	
2	224-267	Midrange	8 Ohms

ES 5.1 Model Jukeboxes

Digital Thunder

Quantity	Part #	Description	
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

Quantity	Part #	Description	
2	224-277	Woofer	8 Ohms
2	224-276	Midrange	8 Ohms
2	224-278	Tweeter	8 Ohms

Performer Wall 2000
No Speakers Installed

Emerald Ice
No Speakers Installed

Sapphire/Midnight Sapphire

Quantity	Part #	Description	
2	224-277	Woofer	8 Ohms
2	224-262	Midrange	8 Ohms
2	224-288	Tweeter	8 Ohms

Gemfire/Gemstar
No Speakers Installed

NSM Fluorescent Lamp Masterlist

E Model Jukeboxes
Hit E 120
Quantity	Part #	Description	Length	Location
1	226-033	Fluorescent Lamp 30 Watts	35 3/4" (36")	Lower Cabinet

Century 21
Quantity	Part #	Description	Length	Location
1	226-033	Fluorescent Lamp 30 Watts	35 3/4" (36")	Lower Cabinet

Prestige E 160
Quantity	Part #	Description	Length	Location
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
Quantity	Part #	Description	Length	Location
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Title Holders
6	226-049	Lamp 12 Volt 2 Watts		Display

Prestige II
Quantity	Part #	Description	Length	Location
1	226-074	Fluorescent Lamp 18 Watts	27 3/4" (28")	Under Title Holders
6	226-049	Lamp 12 Volt 2 Watts		Speaker Grill

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

Festival ES 160
Quantity	Part #	Description	Length	Location
1	226-073	Fluorescent Lamp 16 Watts	28 3/4" (29")	Upper Cabinet
1	226-049	Lamp 12 Volt 2 Watts		Display

ES III Model Jukeboxes

Satellite 200

Quantity	Part #	Description	Length	Location
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

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

ES IV Vinyl Model Jukeboxes

City IV

Quantity	Part #	Description	Length	Location
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

Quantity	Part #	Description	Length	Location
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")	CD T. Holder
	226-049	Lamp 12 Volt 2 Watts		Display

Concert 240

Quantity	Part #	Description	Length	Location
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

Quantity	Part #	Description	Length	Location
1	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

CD Galaxy

Quantity	Part #	Description	Length	Location
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		Speakers Grill
1	226-049	Lamp 12 Volt 2 Watts		Flip Button T. Drum

CD Fire

Quantity	Part #	Description		Length	Location
2	226-072	Fluorescent Lamp	4 Watts	6"	Side 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

Quantity	Part #	Description		Length	Location
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

CD FireBird/Country

Quantity	Part #	Description		Length	Location
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

Quantity	Part #	Description		Length	Location
2	226-079	Fluorescent Lamp	8 Watts	12"	Lower Speaker 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	16 Watts	27 3/4" (28")	Under Trimplate

Silver City

Quantity	Part #	Description		Length	Location
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

Quantity	Part #	Description		Length	Location
12	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

ES V CD Model Jukeboxes

Performer Grand II

Quantity	Part #	Description		Length	Location
1	226-074	Fluorescent Lamp	18 Watts	27 3/4" (28")	Under Lower Masks
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

Quantity	Part #	Description		Length	Location
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

Quantity	Part #	Description		Length	Location
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

Quantity	Part #	Description		Length	Location
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

Performer Wall

Quantity	Part #	Description		Length	Location
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

Quantity	Part #	Description	Length	Location
2	43654	Fluorescent Lamp		Sides Bubbler Tube
2		Fluorescent Lamp		Upper Bubbler Tube

Solid Gold

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

ES 5.1 CD Model Jukeboxes

Digital Thunder

Quantity	Part #	Description		Length	Location
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

Quantity	Part #	Description		Length	Location
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")	Side Masks

Performer Grand 2000

Quantity	Part #	Description		Length	Location
2	226-106	Fluorescent Lamp	8 Watts	12"	Sides of CD Changer
1	226-074	Fluorescent Lamp	16 Watts	28"	Under front tube
2	226-105	Fluorescent Lamp	13 Watts		Upper/Lower T.D.
2	226-056	Lamp	12-15v/2w		T.D. pushbutton

Performer Wall 2000

Quantity	Part #	Description		Length	Location
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")	Side Masks

Emerald Ice

Quantity	Part #	Description		Length	Location
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")	Side Masks

Sapphire/Midnight Sapphire

Quantity	Part #	Description		Length	Location
1	226-086	Fluorescent Lamp	8 Watts	20"	Top of CD Changer
2	226-074	Fluorescent Lamp	16 Watts	28"	Upper and lower T.D.
2	226-049	Lamp	12-15V / 2 Watts		T.D. Push button

Gemfire/Gemstar

Quantity	Part #	Description		Length	Location
4	226-075	Fluorescent Lamp TL13W/33		20"	Front Door
2	226-056	Lamp	12-15v / 2 Watts		Front Cover

NSM Lock & Key Masterlist

E Model Jukeboxes

Hit E 120

Quantity	Part #	Description
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

Quantity	Part #	Description
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

Quantity	Part #	Description
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

Quantity	Part #	Description
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

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

Consul ES 160

Quantity	Part #	Description
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

Quantity	Part #	Description
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

Quantity	Part #	Description
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

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

ES III Model Jukeboxes

Satellite 200

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

240 I

Quantity	Part #	Description
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

Quantity	Part #	Description
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

Quantity	Part #	Description
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

Quantity	Part #	Description
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

Quantity	Part #	Description
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 Galaxy

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

CD Fire

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

Silver Sky

Quantity	Part #	Description
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

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

Fascination

Quantity	Part #	Description
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

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

Performer Grand

Quantity	Part #	Description
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 CD Model Jukeboxes

Performer Grand II

Quantity	Part #	Description
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

Quantity	Part #	Description
1	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

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

Old Fashion Wizard

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

Performer Wall

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

Solid Gold

Quantity	Part #	Description
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 CD Model Jukeboxes

Digital Thunder

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

Digital Thunder Wall

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

Performer Grand 2000

Quantity	Part #	Description
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

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

Emerald Ice

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

Sapphire/Midnight Sapphire

Quantity	Part #	Description
1	17X-4000	Ace Lock Kit
	17X-3975	Spare key for Ace Lock

Gemfire/Gemstar

Quantity	Part #	Description
1	17X-4000	Ace Lock Kit
	17X-3975	Spare key for Ace Lock

Capacitor Master List

Part #	Description	
220-065	Capacitor	220 Mfd/63 V
220-077	Capacitor	200 Mfd/250 V
220-110	Capacitor	MKT 01Pf/400 V
220-113	Capacitor	.33Mfd/400 V
220-142	Capacitor	.1N/250 V
220-143	Capacitor	22 Mfd/63 V
220-146	Capacitor	15 Mfd/ 40 V
220-151	Capacitor	220 Mfd/50 V
220-157	Capacitor	2200 Mfd/40 V
220-158	Capacitor	4700 Mfd/40 V
220-159	Capacitor	4700 Mfd/63 V
220-160	Capacitor	100 Mfd/10 V
220-161	Capacitor	220 Mfd/40 V
220-162	Capacitor	10 Mfd/63 V
220-164	Capacitor	220 Mfd/63 V
220-165	Capacitor	470 Mfd/40 V
220-166	Capacitor	6800 Pf
220-167	Capacitor	1500 Pfd/100 V
220-173	Capacitor	.068 mfd/250v
220-175	Capacitor	.01 Mfd/250 V
220-176	Capacitor	.22/100 V
220-177	Capacitor	1 Pf/100 V
220-181	Capacitor	47 mfd/Ceramic
220-185	Capacitor	270Pf/400 V
220-197	Capacitor	68/35 V
220-198	Capacitor	U68/35 V
220-201	Capacitor	33 Mfd/10 V
220-206	Capacitor	220 Mfd/40 V
220-207	Capacitor	4700 Pf/63 V
220-210	Capacitor	33 Mfd/63 V
220-218	Capacitor	10 Mfd/160 V
220-220	Capacitor	4700 Pf/160 V
220-231	Capacitor	
220-233	Capacitor	47 Mfd/35 V
220-239	Capacitor	47 Mfd/100 V
220-241	Capacitor	560Pf/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
220-253	Capacitor	1000 Mfd/25 V

Capacitor Master List (Cont.)

Part #	Description	
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	2200 Mfd/63 V
220-263	Capacitor	1 NF/ Ceramic
220-265	Capacitor	.022 Mfd/32 V
220-266	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
220-292	Capacitor	
220-307	Capacitor	3300 Mfd/40 V
220-317	Capacitor	
220-330	Capacitor	.68 Mfd/63 V
220-332	Capacitor	033 Nf
220-334	Capacitor	.1 Mfd/63 V
220-335	Capacitor	.22 Mfd/35 V
220-339	Capacitor	4700 Mfd/35 V
220-341	Capacitor	4700 Mfd/5 V
220-342	Capacitor	
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
220-425	Capacitor	
220-435	Capacitor	4700 Pf

Capacitor Master List (Cont.)

Part #	Description	
220-436	Capacitor	4700 Pf/63 V
220-439	Capacitor	4700 Mfd/100 V
220-462	Capacitor	2.2 Pf/50 V
220-481	Capacitor	
220-493	Capacitor	
220-496	Capacitor	
220-497	Capacitor	
220-508	Capacitor	
220-534	Capacitor	
220-535	Capacitor	
907-453	Capacitor	68 Uf/16 V

I.C. Master List

Part #	Description
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 Modification 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. 555 Timer
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	I.C. 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
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

I.C. Master List (Cont.)

Part #	Description
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
231-304	I.C. Linear
231-330	I.C.
231-339	I.C. 74HCT4053
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 IV/V CCU
231-413	I.C. R65 C02 N.L.A. = 231-412
231-414	I.C. R65 C22 -I.C. #4 Microprocessor For ES IV/V 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. = 231-414
231-431	I.C. Linear
231-443	I.C.
231-462	I.C. P65c52 I.C. Microprocessor for ES V CCU
231-470	I.C. TMS 27C512
231-488	I.C.

I.C. Master List (Cont.)

Part #	Description
231-497	I.C. Battery RAM For ES IV CCU
231-514	I.C. Digital Audio
231-540	I.C. TDA 4390
231-554	I.C.
231-616	I.C.
231-617	I.C.
231-632	I.C.
231-633	I.C.
231-692	I.C.-TL072C
231-775	I.C.
231-791	I.C. Micro Computer
231-792	I.C.
231-794	I.C. Motor Driver
231-804	I.C.
231-805	I.C.
231-807	I.C.
231-808	I.C.
231-809	I.C.
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
907-176	I.C. LM 833N
907-354	I.C. 145-687 For ES IV/V Transmitter
907-628	I.C. TDA 8900 ESV-Decoder Board
907-629	I.C. SAA 7310 GP-ESV-Decoder Board
907-630	I.C. SAA 7321 GP-ESV-Decoder Board
907-631	I.C. NJM 5532 DD ESV-Decoder Board
907-632	I.C. MC68HCOSC8P-ESV-Decoder Board
907-633	907-885 I.C. Replaces 906-690

Resistor Master List

Part #	Description		
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
221-161	Resistor	47 Ohms	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
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

Resistor Master List (Cont.)

Part #	Description		
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
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

Resistor Master List (Cont.)

Part #	Description		
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
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		

Transistor Master List

Part #	Description		
221-214	Transistor	BC 140-10	
221-217	Transistor	BC 109B	
221-249	Transistor	BC 550	
221-283	Transistor	BC 557	
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

Major Components Master List

NSM Jukebox Component Listing-Vinyl Jukeboxes

MODEL	CCU	E-PROM	CENTRALE	CARRIAGE	AMP	DISPLAY	T. DISPLAY
Technology: ES							
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	
Technology: ES II							
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	108-189	109-286/109-287	108-453			109-267	
HIDEAWAY			103-954	106-610	103-615		
SOUNDMASTER COMPACT	108-189	109-286/109-287	109-830	171-406		109-267	
** PRODUCED W/ BOTH	106-590		106-730				
	106-730		109-830				
Technology: ES III							
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	
Technology: ES IV Vinyl							
CONCERT 240 II/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-CD Jukeboxes

MODEL	CCU	E-PROM	CENTRALE	CHANGER	AMP	DISPLAY	T. DISPLAY
Technology: ES IV CD							
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
Technology: ES V							
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
Technology: ES V.1							
DIGITAL THUNDER FLOOR	178-239	178-238 V0106	177-437	140-100		177-400	177-914
DIGITAL THUNDER WALL	178-239	178-238 V0106	177-437	140-100		177-400	177-914
PERFORMER GRAND 2000	178-239	178-238 V0106	177-437	140-100		177-400	177-914
PERFORMER WALL 2000	178-239	178-238 V0106	177-437	140-100		177-400	177-914
EMERALD ICE	178-239	178-238 V0106	177-437	140-100		177-400	177-914
SAPPHIRE/MIDNIGHT SAPP	178-239	178-238 V0106	178-973	179-240		177-400	179-200
GEMFIRE/GEMSTAR	178-239	178-238 V0106	178-973	179-240		177-400	179-540