

# **User's Manual**

for the

**NSM Phonograph**

**SOLID GOLD**

**PRELIMINARY**

Part number of this documentation: 177 743

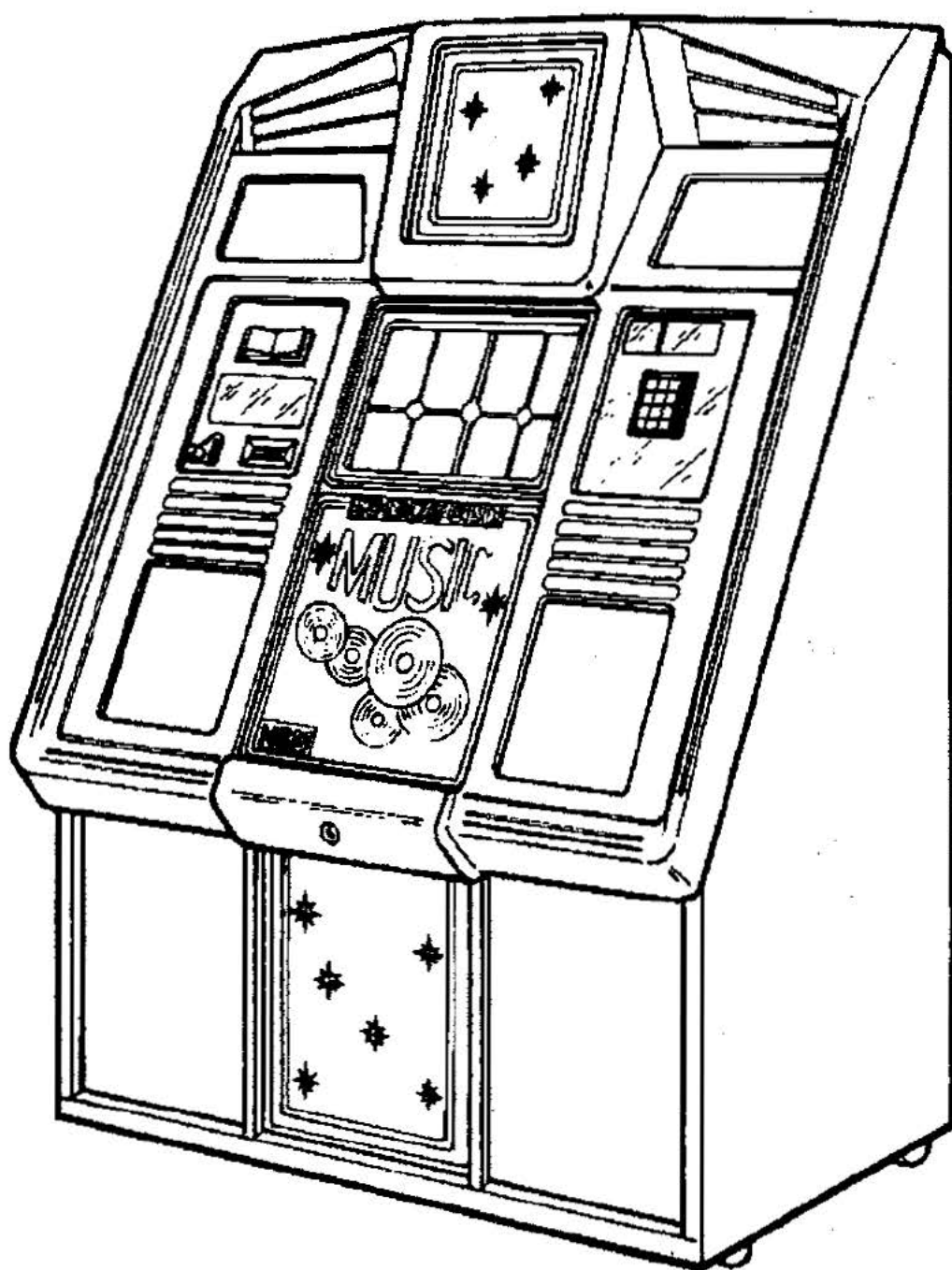
**NSM**

Aktiengesellschaft

NSM Aktiengesellschaft, Saarlandstraße 240, D-55411 Bingen am Rhein

# User's Manual

## SOLID GOLD





# KONFORMITÄTSERKLÄRUNG

Wir NSM Aktiengesellschaft

Saarlandstr. 240  
55411 BINGEN am RHEIN 1

erklären in alleiniger Verantwortung, daß das  
Produkt

**NSM-Musikautomat**

**SOLID GOLD**

auf das sich diese Erklärung bezieht, mit der/  
den folgenden Norm(en) oder normativen Do-  
kument(en) übereinstimmt.

EN 55 022; EN 60 555-2; EN 60 555-3

Gemäß den Bestimmungen der Richtlinie  
**89/336/EWG,**

Bingen am Rhein

21.02.94 Dr. Thomas Kühl

# DECLARATION OF CONFOR- MITY

We NSM Aktiengesellschaft

Saarlandstr. 240  
55411 BINGEN am RHEIN 1

declare under our sole responsibility that the  
product

**NSM-Phonograph**

**SOLID GOLD**

to which this declaration relates is in conformity  
with the following standard(s) or other norma-  
tive document(s).

EN 55 022; EN 60 555-2; EN 60 555-3

following the provisions of directive  
**89/336/EWG,**

Bingen am Rhein

02-21-94 Dr. Thomas Kühl

# DECLARATION DE CONFOR- MITE

Nous NSM Aktiengesellschaft

Saarlandstr. 240  
55411 BINGEN am RHEIN 1

déclarons sous notre seule responsabilité que  
le produit

**Juke Box-NSM**

**SOLID GOLD**

auquel se réfère cette déclaration est conforme  
à la (aux) norme(s) ou autre(s) document(s)  
normatif(s).

EN 55 022; EN 60 555-2; EN 60 555-3

conformément aux dispositions de directive  
**89/336/EWG,**

Bingen am Rhein

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**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different that to which the receiver is connected from
- Consult the dealer or an experienced radio/TV technician for help

### **Attention:**

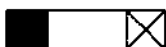
**Before opening any parts or covers marked with this lightning sign or working at the components connected to the mains voltage, as power switch, mains transformer, fluorescent lamps and lamps holder, you must unplug the power cable!**



The CD-player with a laser scanning system used in this phonograph is a class I product (no risk, harmless laser system). The respective label is attached to the front of the changer behind the view-glass.

**CLASS 1  
LASER PRODUCT**

according to IEC 825



"Caution: Replace with same type of fuses"

"Attention: Utiliser un fusible de rechange du même type"

The information and illustrations contained in these technical documents are up to date at the time of publication.

Version 04/27/94 – 1

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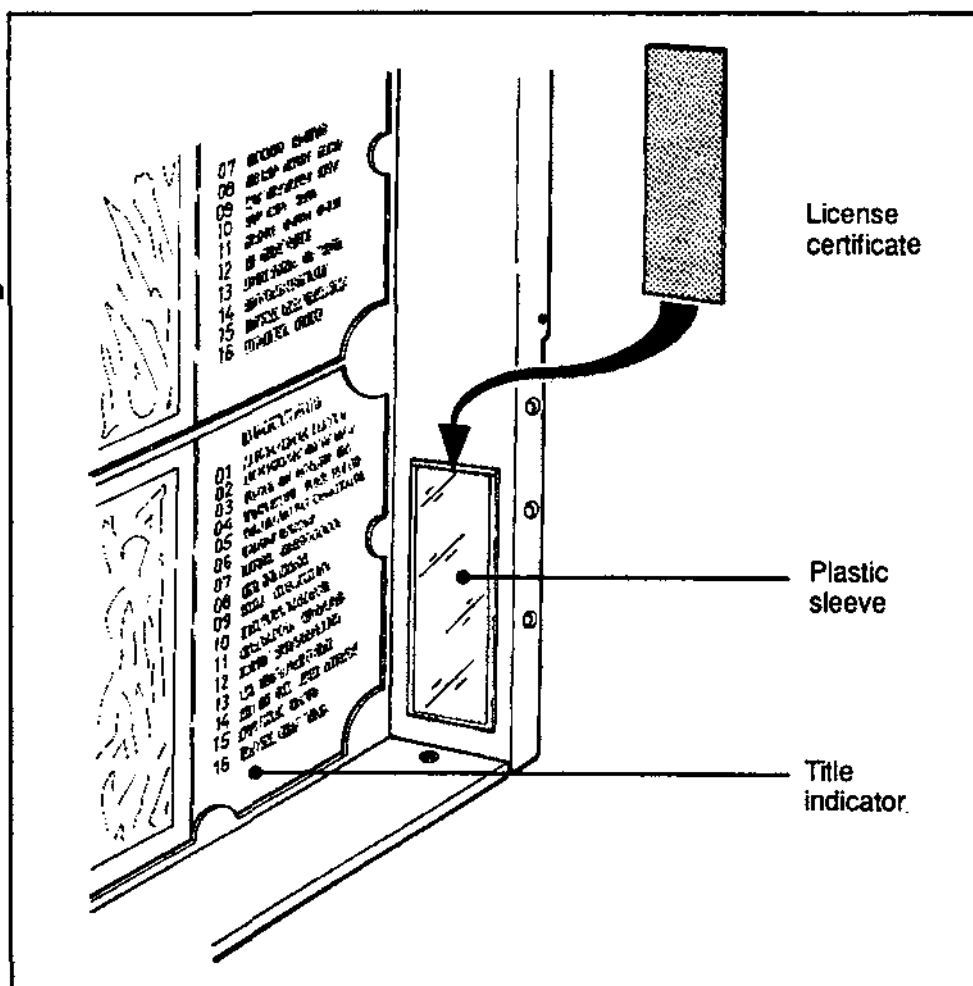
Manufactured in Germany

**CAUTION:** Servicing is allowed for qualified service personnel only.  
To avoid electric shock do not perform any servicing other than that contained  
in this user's manual section 6 unless you are qualified to do so.  
Refer all other servicing to qualified service personnel.

### Directions for placement of the phonograph license certificate (USA market only).

You will receive the  
license certificate  
after paying the ne-  
cessary fee to the  
Jukebox License  
Office.

Find the registration  
documents within  
the phonograph.



# Preface

## About this manual

This user's manual is the first of two parts of the technical information of the new NSM phonograph **SOLID GOLD**.

Within this first part we have described how to install the phonograph easily and successfully and how to handle it so that it will work a long time.

The phonograph is equipped with a **factory setting** of parameters concerning pricing and disc handling to perform an easy way of getting started.

If you would like to program more and individual settings of the phonograph you just have to perform the steps described within chapter **Programming of the phonograph**.

This user's manual is divided into 6 sections:

Table of contents is arranged in a manner that you will find any required information easily and fast.

### 1. Section      **System description**

Within this section a description of the phonograph is given, starting with unpacking the phonograph, followed by a check list of delivery and the set-up procedure of the phonograph.

### 2. Section      **Functional description**

Within this section we will introduce you to the main components of the phonograph as well as to the optional devices.

Also we will provide an overview of the possibilities offered by the audio system of the phonograph. Further attention is given to the principal of function of the CD changer and the title display.

### 3. Section      **Installation of the phonograph**

Within this section we will help you to power on the phonograph. Due to the factory settings you will be able to play titles after inserting CDs and performing the CD recognition routines. The phonograph is ready to work using the factory settings.

### 4. Section      **Basic operation**

This step-by-step description is useful if you don't want to use the integrated phonograph programming routines.

We will explain the basic programming of price and monetary setting as well as how to read out the statistics of the last operation period. Also we will give you a short introduction to the remote control panel and the statistic evaluation. Also we introduce you to the possibilities of connecting more loudspeakers in an individual manner.

### 5. Section      **Programming of special and individual settings**

This section of the user's manual is reserved to the operator who wants to program more and individual settings of the phonograph, as Happy-Hour-Play or Background music.

### 6. Section      **Maintenance**

Here you will find information about the cleaning of surfaces and the housing or the CD drive.

More information concerning necessary repairs and the spare parts list are included in the "Service Manual of the NSM phonograph".

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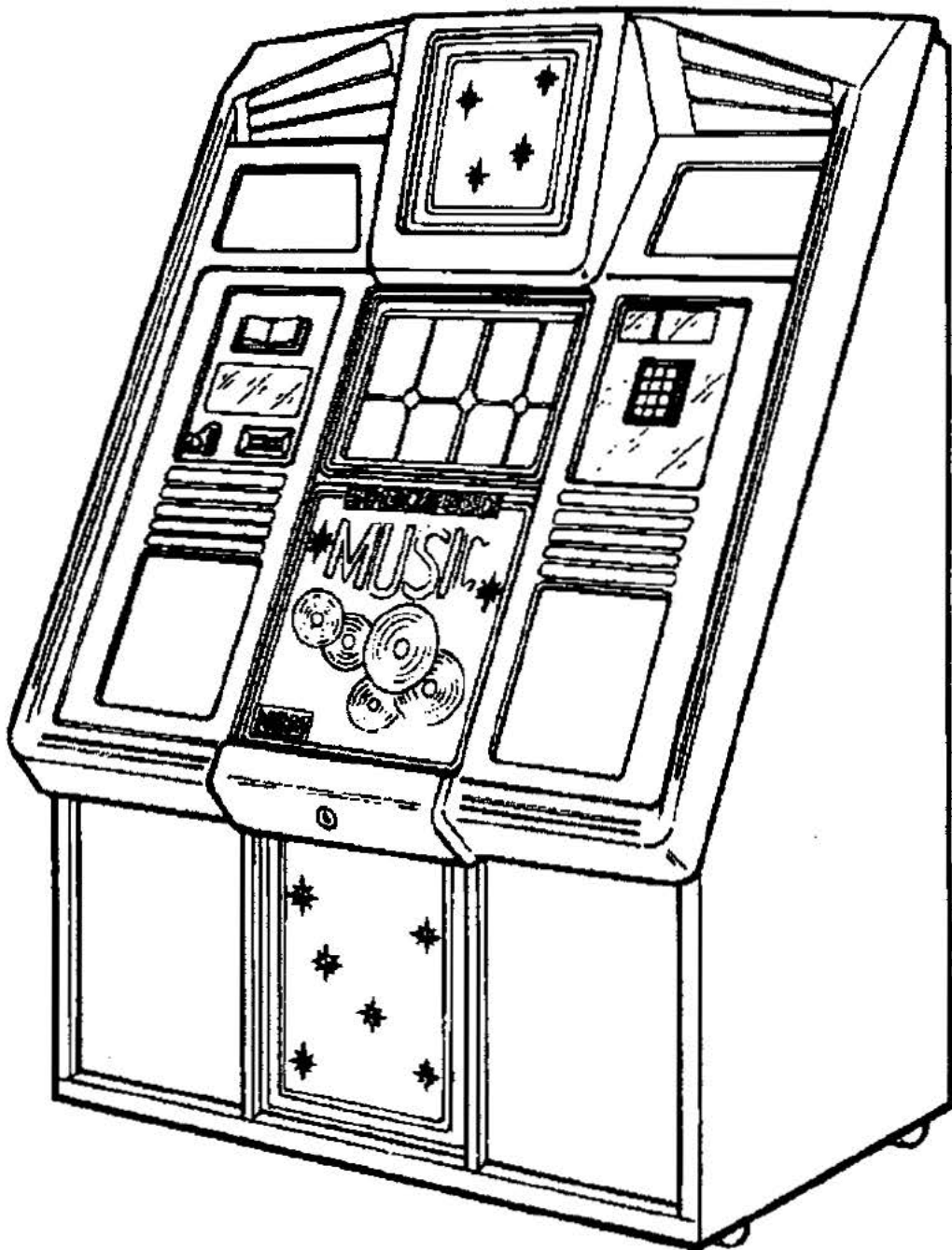
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# 1. Section

## SOLID GOLD

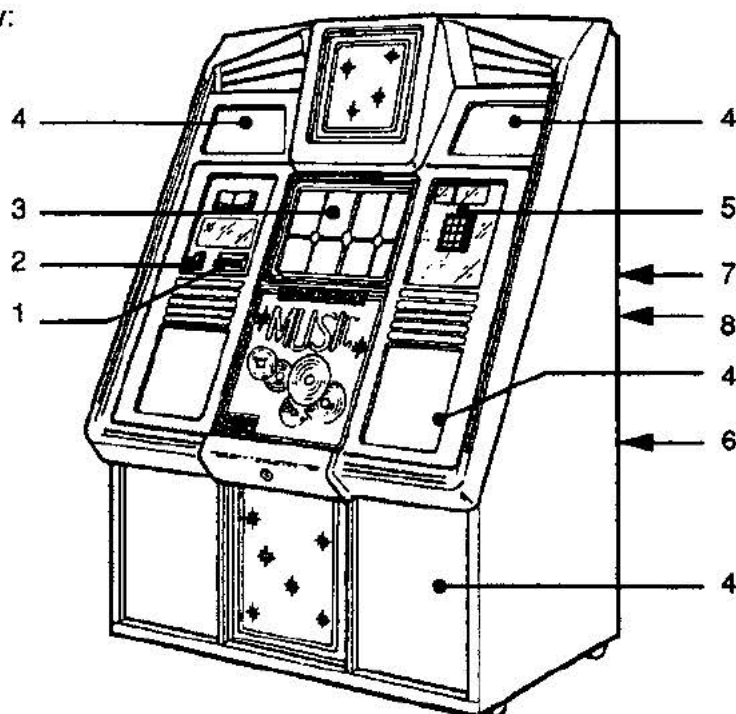


System description

# 1. Section System description

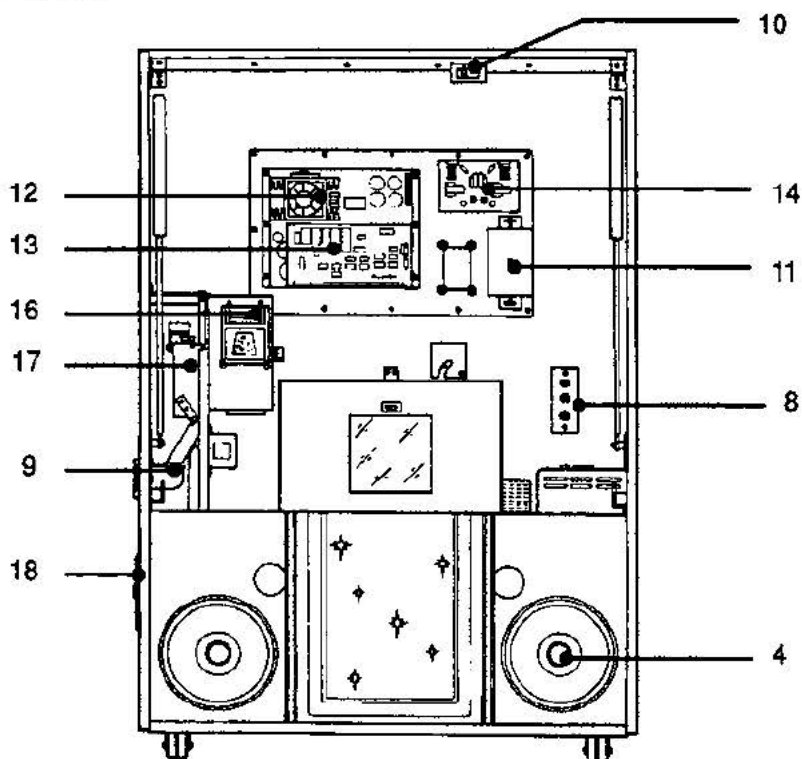
## The NSM phonograph SOLID GOLD

Front view:



- 1 bill insert
- 2 coin insert
- 3 title indication
- 4 loudspeakers
- 5 display and keyboard
- 6 mains connector
- 7 audio interfaces
- 8 volume control

View inside:



- 9 coin return cup
- 10 push button  
(service switch)
- 11 output transformer
- 12 central unit ES-V
- 13 control unit ES-V
- 14 crossover network
- 15 CD - changer
- 16 bill validator
- 17 coin mechanism
- 18 cash box

Figure 1: NSM phonograph SOLID GOLD, general view of the several components

## **Introduction**

Congratulation for purchasing this high quality phonograph.  
It is again built up with the famous 100 CD changer already known from our preceding phonographs.  
This phonograph performs a music power of 200 W per channel.

### **Before you begin**

Read the first three sections of this manual with special attention in order to perform an error free installation.

Remove all transportation security devices carefully from the phonograph and its components in order to avoid destruction and malfunctioning of the phonograph.

**Take care of the power supply voltage.** Connect the phonograph only to the mains voltage indicated on the label on the power cord.

Level the position of the phonograph carefully to avoid malfunctioning of the coin acceptor, the CD changer and the title indication.

Check the operating conditions. Storage and operation of this phonograph are allowed in dry rooms only.

## **Unpacking**

### **Transport damages**

If the shipping carton shows damage due to transport, this should at once be recorded on the delivery slip of the shipping papers and then endorsed by the person making the delivery.

**The manufacturer is not liable for damages during transport!**

### **Cabinet keys**

After removing the shipping carton you will find one cabinet key taped onto the front glas. The other keys are placed in the cashbox.

To open the cabinet put the key into the lock at the center of the lower end of the front frame and firmly open the door into the upwards direction.

**Watch out** for the movement of the front door in order to avoid hurting yourself.

### **List of delivered components**

After opening the phonograph you should find the following :

- Phonograph
- cabinet key taped onto the frontglass
- Inside the phonograph:
  - additional keys in the cash box
- user's manuel

Perform a visual control of all components to be placed right and to be well-connected.

## **Transportation fixtures**

Before operating the phonograph all fixtures for safety and protection during transport have to be removed.

Prior to any further transportation the safety and protection devices have to be re-inserted.

**Avoid static discharge** to the phonograph. Electro Static Discharge (ESD) may destroy the opto-electronics and other ESD sensitive parts within the phonograph

Figure 2: CD changer, transportation fixtures

### **Removing the transportation fixtures:**

1. Open the phonograph
2. Open the front door of the CD changer
3. Remove the card board transportation fixture, located between the two CD storage magazines
4. Push the corresponding black knobs to the center and swing out the left and right CD storage magazine
5. Remove the red plastic splint from the lift axle
6. Remove the four metal clamps mounted to each CD storage magazine by gently pulling them towards you
7. Release the CD-changer by removing the 4 nuts as far from the bottom plate as necessary. The CD-changer must be able to swing freely

## Setting up the phonograph

After you have removed all transportation security devices, you have to set up the phonograph in a leveled position. Thus to perform correct functioning of the installed coin acceptors, the CD changer and the title indication.

To perform a correct levelling, you first have to check the level from the front to the back and then from the left to the right side of the phonograph. If necessary you have to insert spacer (size 4"x4") under the wheels of the concerned corner of the cabinet.

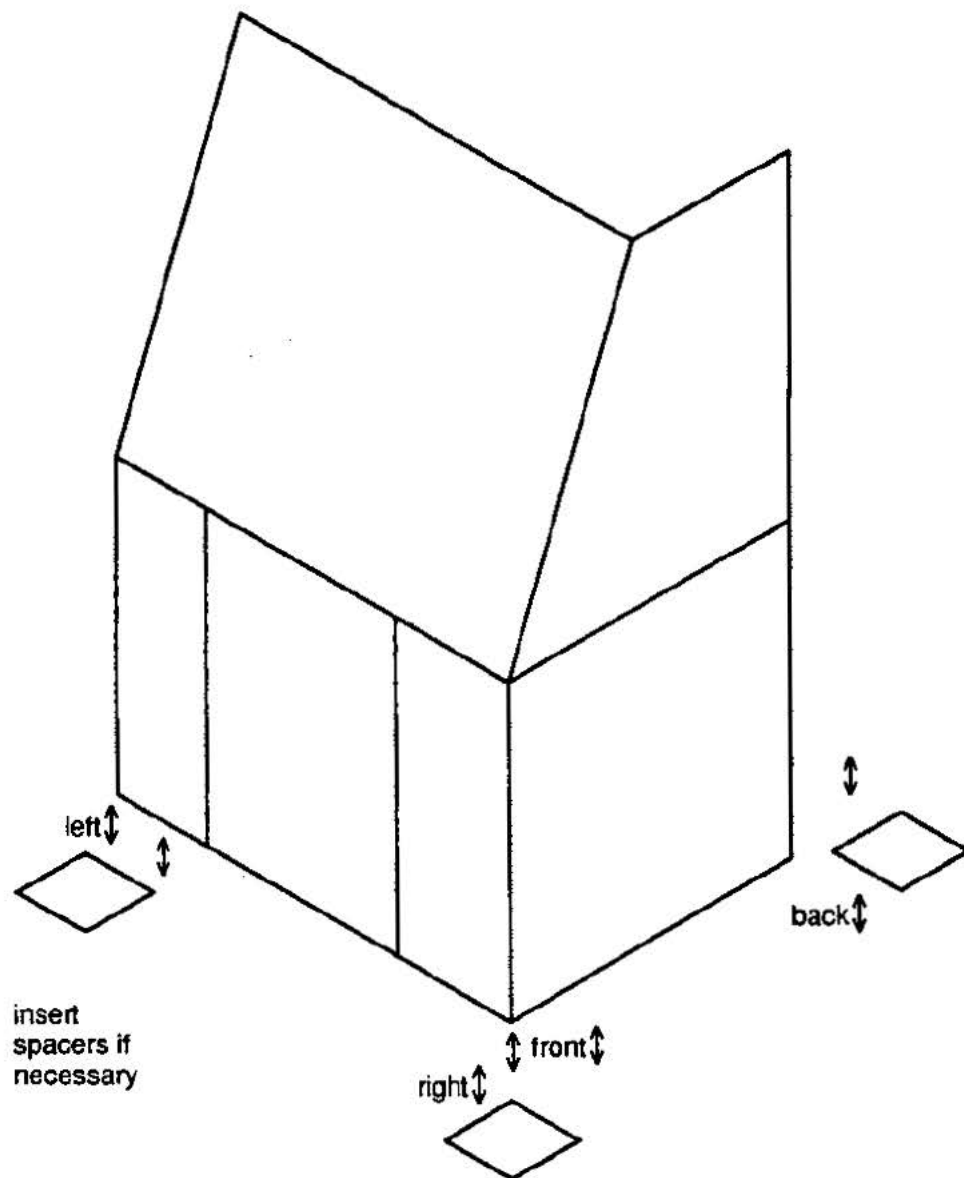
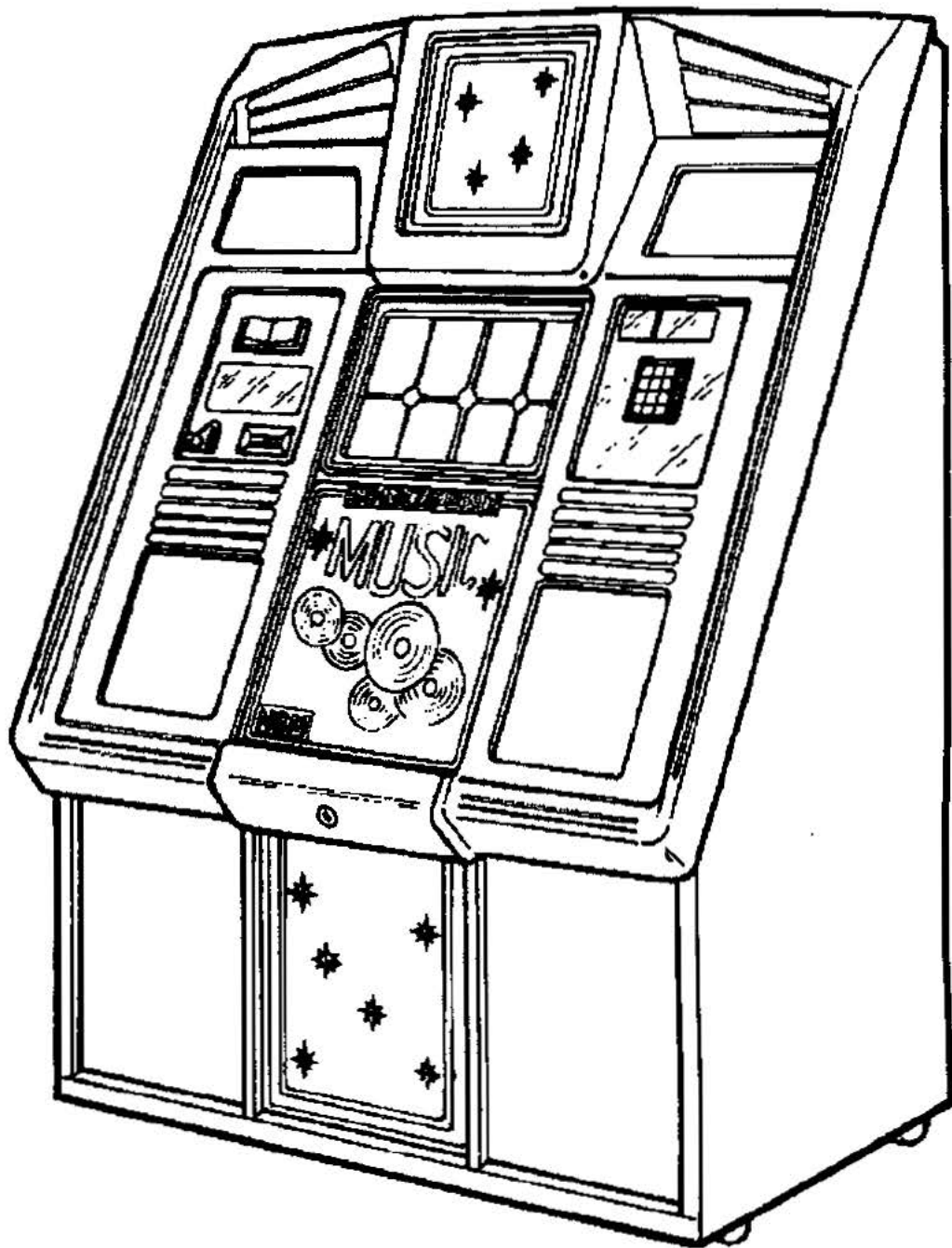


Figure 3: Levelling the phonograph

## 2. Section

### SOLID GOLD



Functional description



## 2. Section Functional description

### Components of the NSM phonograph

In the following chapter you will be introduced to the main components of the NSM phonograph "SOLID GOLD".

Refer to figure 1 for locating the several components.

#### The cabinet of the phonograph

The cabinet is built up from wooden plates, thus to perform good acoustical characteristics of the installed loudspeakers. This characteristics are also influenced by the cross over network.

#### The coin and bill inserts, playing instructions

To earn credits for playing different titles you have to insert either coin or bills in the signed manner. Look at the stickers on the front door to perform right inserts of money.

You also have the possibility to change the number of credits for a title selection or an album selection. Then you have to replace the corresponding credit stickers by new ones.

#### Operating Instructions

The operating instructions are also placed on the front door (see figure 4). If you wish to change any credit setting of the playing instruction, don't forget to change the operating instructions.

The playing and operating instructions for album selection are covered with a black sticker from the rear side (factory setting). If album selection should be allowed, remove the black sticker and replace it with the white sticker from the accessory package.

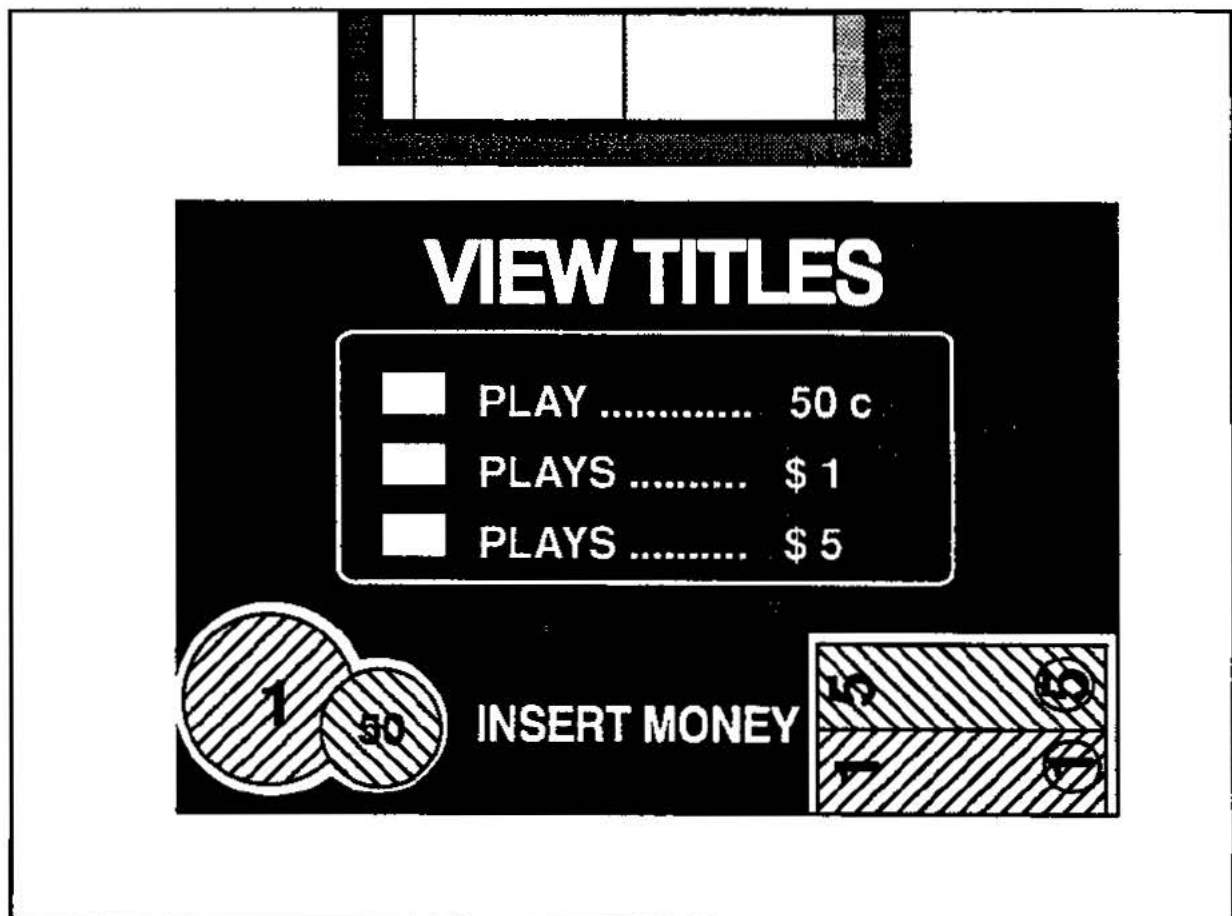


Figure 4: The playing instructions of the phonograph (illustration zoomed)

### The title indication

The title indication is mounted to the front. If you want to insert or remove title strips and/or CD covers you first have to open the phonograph. Firmly open the door into the upwards direction. Now fold down the title indication carefully after you have unlocked the two metal clamps left-hand and right-hand of the title indication.

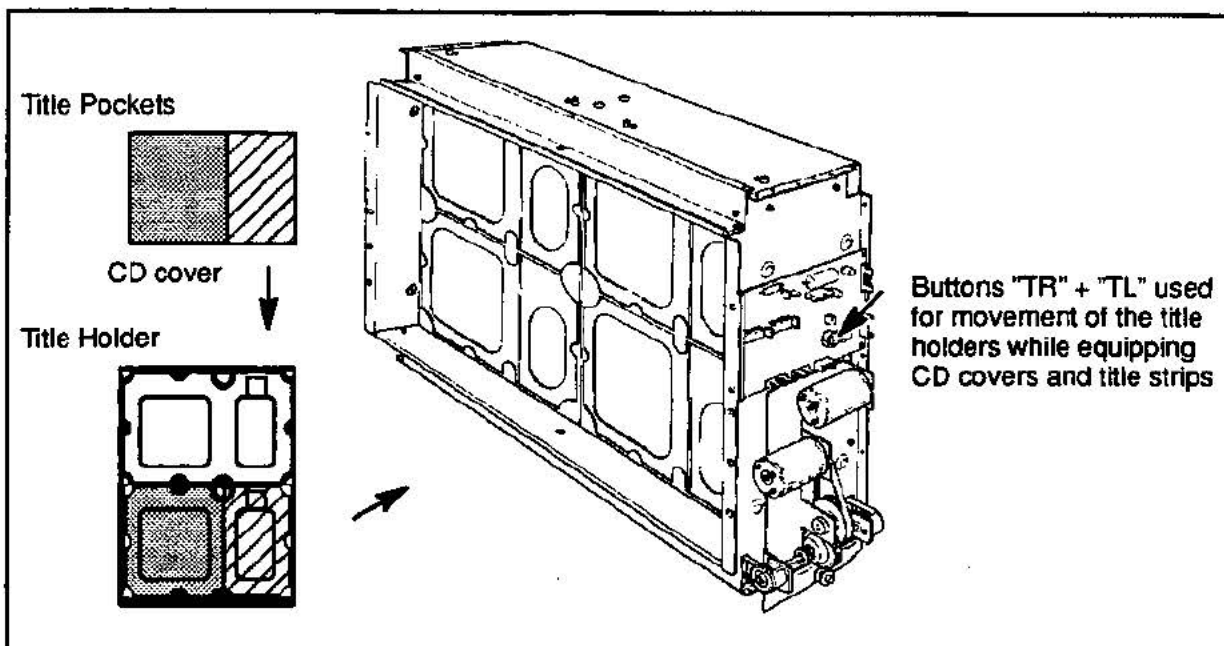


Figure 5: Preparing the title indication for insertion of CD covers

You have to be careful while inserting the CD covers into the title holders. Refer to 3. section **Equipping of title holders** to get information about insertion of CD covers into the title holders.

The title display will always show up to four covers of inserted CDs. You have to press the rocker button, placed on the left-hand-side on the front door of the phonograph, if you want to move the title holders within the title indication.

### The rocker button

By pressing this button the title holders are moved into the corresponding direction. Upon each button operation two new CD-covers including title strips are shown. In case of a limitation of selectable CDs by programming P042 (refer to chapter **Programming of the phonograph**) only the corresponding title holders are shown.

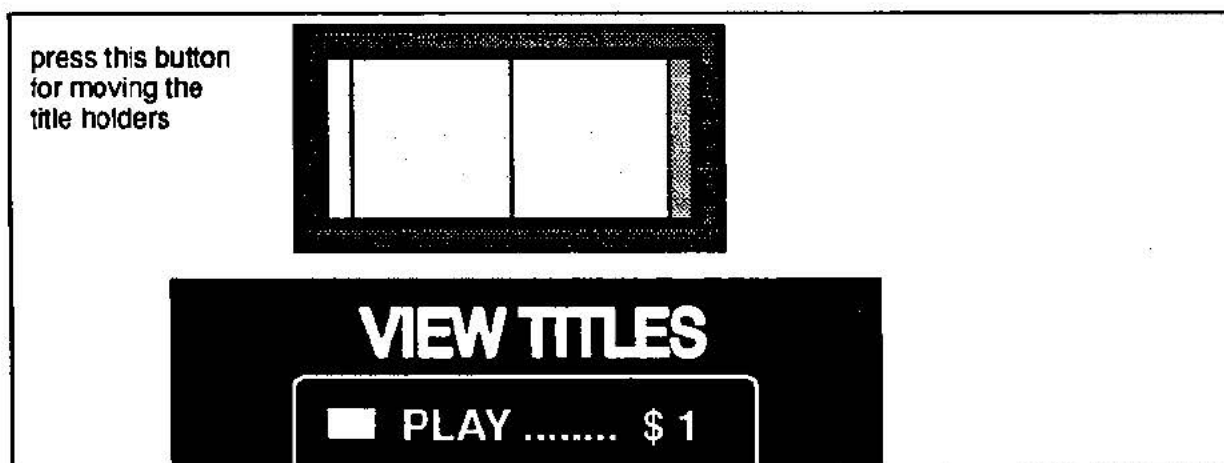


Figure 6: The rocker button for moving the title holders

## Display and keyboard

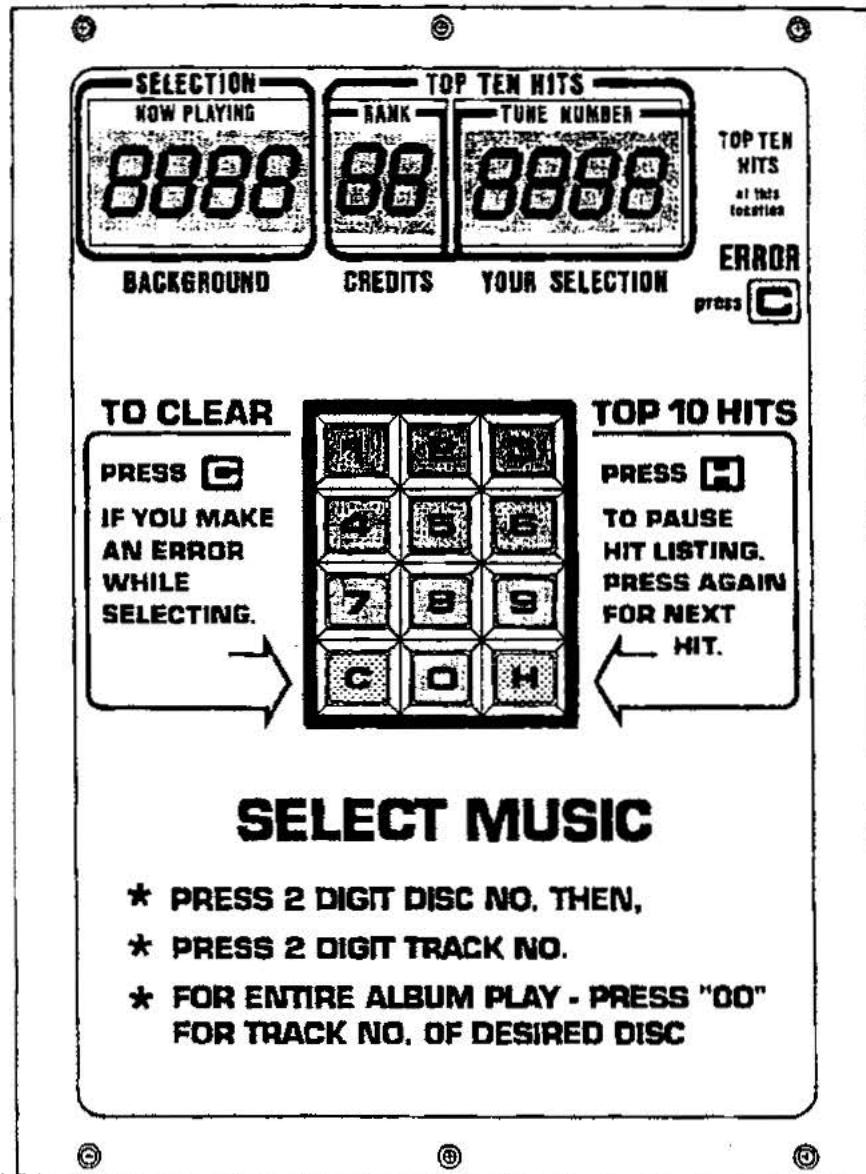


Figure 7: Operating instruction label placed on the front door of the phonograph

At the right hand side of the front of the phonograph you will find a keyboard with digits "0" to "9" and "H" and "C".

The multi-functional display consists of three parts. You will get different information via the display depending on the mode of operation of the phonograph:

Immediately after power-on the phonograph performs a self-test of the memory components of the control unit and all pre-programmed values respectively all pre-programmed settings. Afterwards display 1 shows the program index of the phonograph software for 2 sec.

If an error is found during the self-test, the errorcode is displayed as Er xx for 2 sec. With Er 31 (unverified memory contents) and Er 40 (price settings incorrect) display 1 shows the program step which needs to be re-programmed as Pxxx (refer to chapter **Programming of the phonograph**).

**Note:** For other Er-numbers in display 3, even during operation, refer to the Service Manual of the Phonograph to get more information about error locating or trouble shooting

During stand-by the phonograph calculates the ten most played titles out of the last played 30 titles. On display 3 the title numbers of the 10 most popular titles, whose rankings (1–10) are shown on Display 2, are changed in intervals of 2 sec. Also the lamp "top ten hits of this location" lights up.

When pressing the key "H", the hit display can be stopped for 16 sec. Every press on the key "H" causes an advance to the next hit.

**Note:** When the popularity counters are erased (program step P033, refer to chapter **Programming of the phonograph**), the hit parade is erased too. In that case "0" appears for ranking until records are played again.

After insertion of a coin the hit display is interrupted, the lamp "10 TOP HITS" goes off and the lamps "credits" and "your selection" light up. Display 2 shows the number of credits.

For every selection credit is deducted.

If not enough credits are available for the selection, the lamp "credit" flashes.

If no more coins are inserted within 16 sec. or no selector key is pressed, the mode changes to "hit display".

After selection of a title the CD which is to be played corresponding to the entries in the selection storage is transported to the player and then played.

Just before start the number of the title is shown on display 1 ("SELECTION NOW PLAYING"). After the disc is played, the display is erased and the CD is transported back to its magazine space.

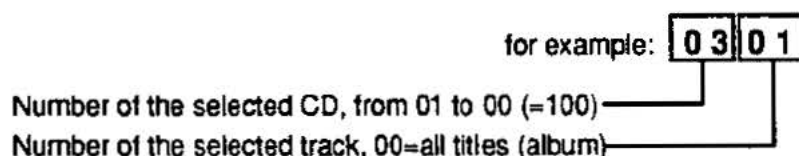
**Note:** If an error occurs with the CD changer or the player, "Er 7x" or "Er 6x" appears for 2 sec. In that case refer to the Service Manual to get more information about error locating or trouble shooting.

During programming mode the display shows the selected programming step with actual values. Use the keyboard to change settings.

**Note:** Programming is possible only if the phonograph is in service mode. Refer to chapter **Programming of the phonograph**.

## Selection of CDs

When there is enough credit for at least one track/title to be played, this title can be selected by entering the corresponding number of the CD and the track. This four digit number consist of two parts:



The lamps "credits" and "your selection" light up. The selection can be corrected by pressing "C" up to 2 sec. after pressing the 4th digit.

**Album Selection:** When entering track 00, all titles of a CD are automatically played (i.e. 0300 = all titles of CD 03).

**Note:** Because there are only two digits reserved for the number of the CD, we have defined that the hundredth CD of our CD changer is called with number 00.

### Central Unit

The power supply, stereo amplifier with fan control, interfaces for the inputs of microphone, CD drive, tape and remote control, interfaces for the output to control unit, CD drive, and illumination are all integrated on one circuit board "CENTRAL UNIT".

The music power per channel is 200 watts when matched to a loudspeaker impedance of 4 ohms.

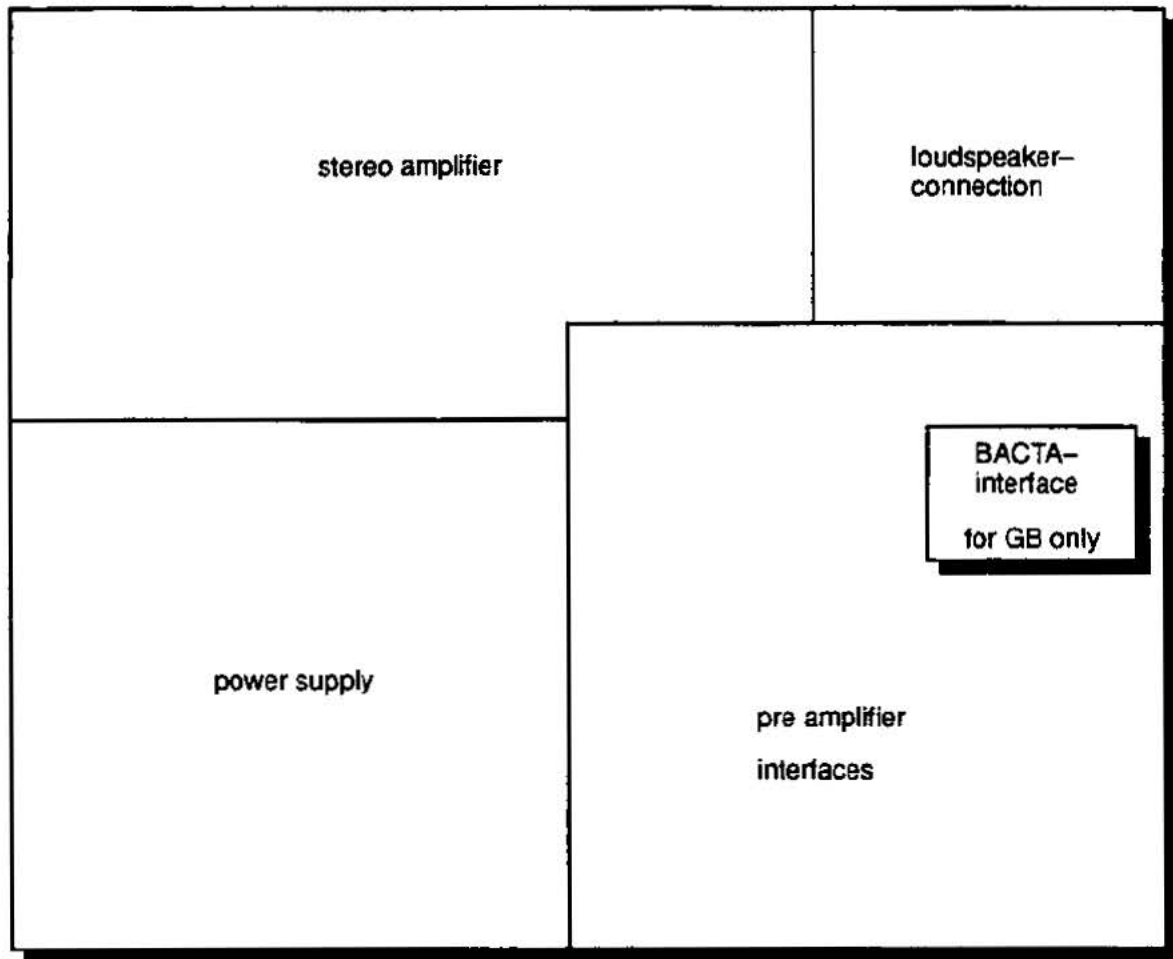


Figure 8: Structure of the circuit board Central Unit

## Audio system

The audio system of this phonograph consists on the following main parts:

CD player  
stereo amplifier  
output transformer  
cross over network with loudspeakers

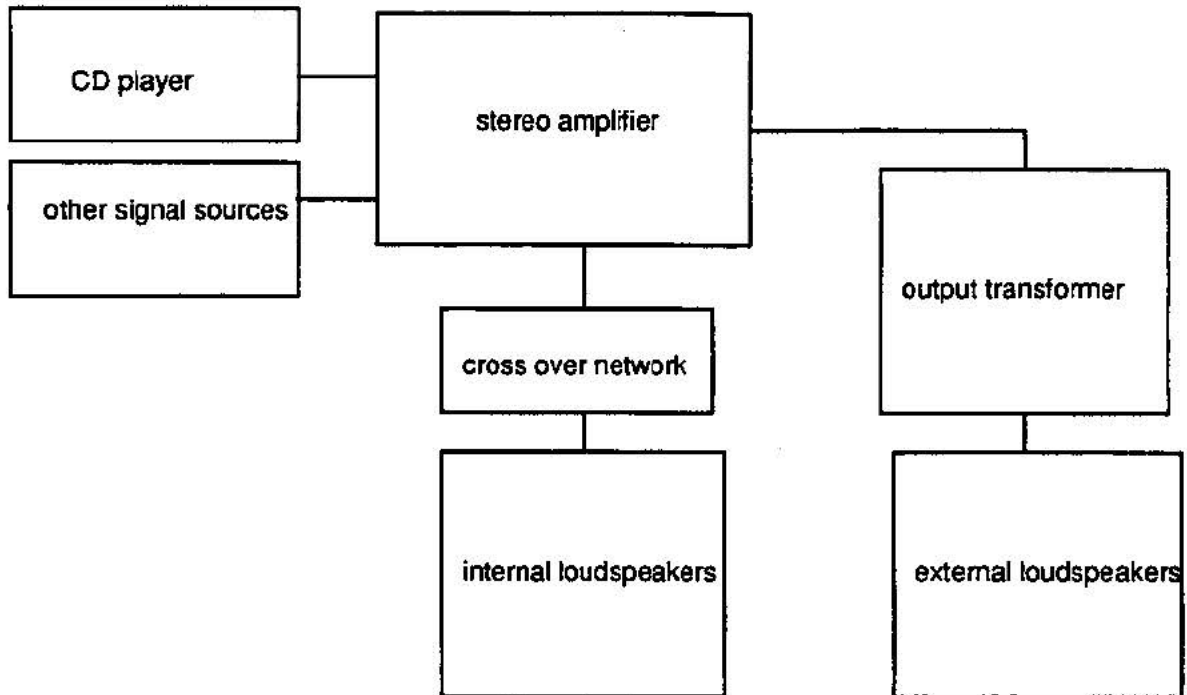


Figure 9: Structure of the main components of the audio system

## CD changer

The CD changer used within this phonograph is the one which is world wide the fastest 100 CD changer. This high quality product uses two CD storage magazines capable of storing max 50 CDs each. A simple locking mechanism is integrated to hold the two CD storage magazines. Refer to figure 10 to get well—accustomed to the location of the different types of locks used and to handling. You will need this knowlegde later while equipping CDs.

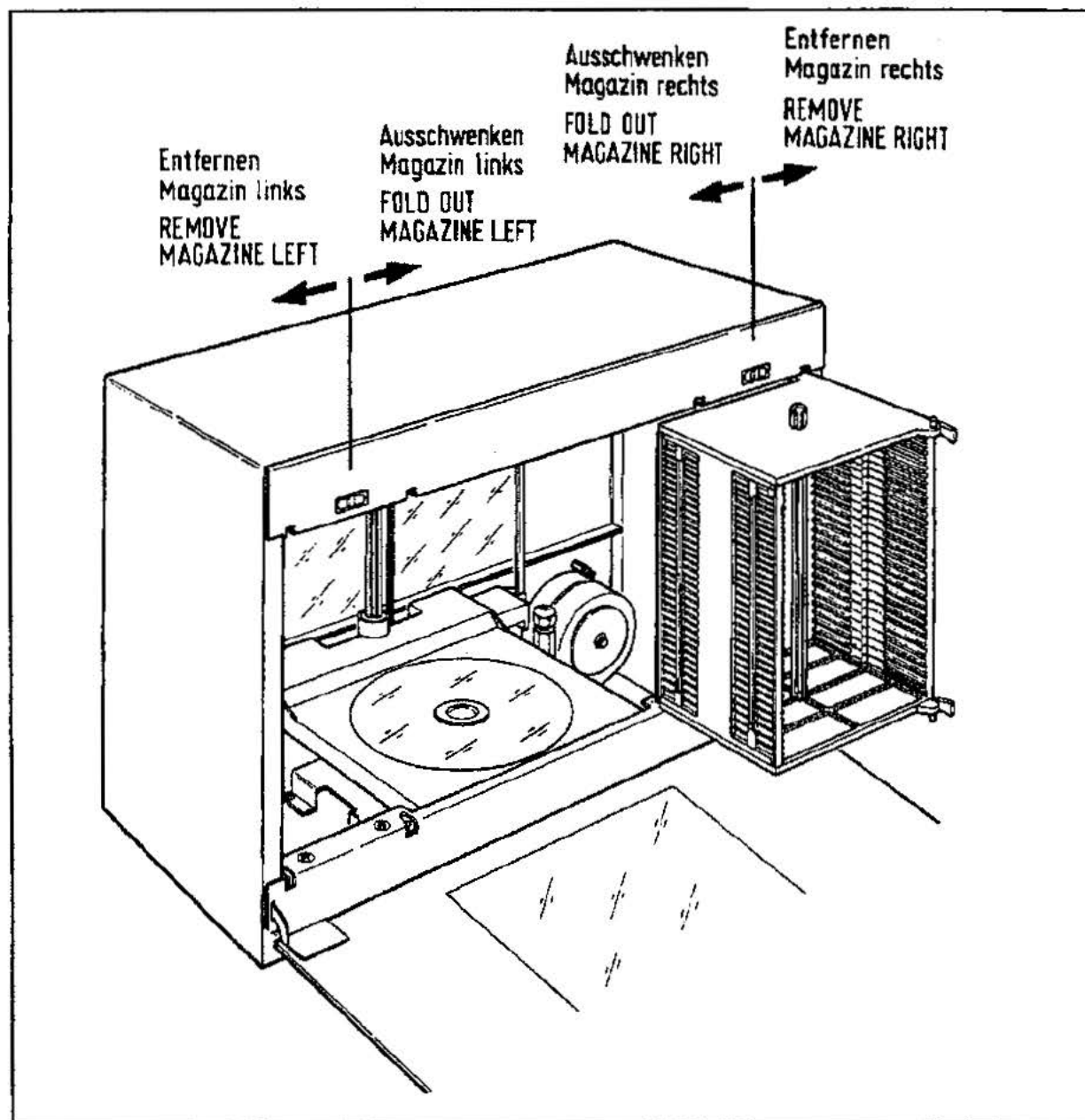


Figure 10: CD changer

## **Optional equipment and accessories**

### **Key-Switch optional**

A key switch on the rear side of the cabinet or on the side wall serves as protection against unauthorized calling up of the functions:

- free credits
- switching on the background mode

In position "key switch locked" settings from the remote control are disregarded.

The position "key switch open" permits programmed free credits to be called up and the background mode to be switched on.

The key switch not being installed means the same as position "key switch open".

This also permits programmed free credits to be called up and the background mode to be switched on. If this is not desired, the function generally can be locked or only be activated while a programmed time window becomes active. (Refer to chapter "Remote control")

### **Microphone with Paging Switch**

Connection via microphone socket to the central unit.

Microphone announcements are possible in any phonograph mode.

The microphone amplifier with electronic switch-over is integrated into the central unit.

The volume for the background music and microphone can be adjusted separately in the central unit.

### **Remote controls**

#### **Infrared Remote Control**

Wireless remote control consisting of transmitter, receiver and parts for installations. See wiring diagram for connections.

### **Cash counter**

NSM phonographs can be subsequently modified with an electro-mechanical cash counter (12 V = pulse counter).

### **DATA PRINT evaluation equipment**

The printer is intended for connection to NSM phonographs. A detailed description is included within the printer. Putting in the paper roll and color ribbon are described in detail in the "TECHNICAL INSTRUCTIONS" for the DATA PRINT.

### **CD Safe**

This CD-Safe offers a very easy solution to store and to transport your CD magazines. Stickers with positioning numbers are supplied for simple identification of the contents of the CD's on the CD-Safe and on the magazine.



## Technical data of the phonograph

### Electrical Data

Mains voltage:		100–260 V (variable), 50/60 Hz
Power consumption	stand by	170 W
	play mode	450 W
Music power	4 ohms load	2 x 200 W
Sine wave power	4 ohms load	2 x 125 W RMS (Sinus)

### Internal Loudspeakers

2 loudspeakers	P 245mm	8 ohms
2 loudspeakers	P 200mm	8 ohms
2 loudspeakers	Piezo Tweeter	

### Lighting

2 fluorescent lamps	13 W
Lamps	12 V / 2 W

### Dimensions

Height	1520mm
Width	1060mm
Depth	730mm
Weight	162 kg

### Credit / Cash Input

Maximum credit display is 99.

Price list adjustable individually or as per table.

Free credit adjustment / permanent credit key—operated switch for free credits and background, elect.—mech. cash counter (optional).

### Keyboard

10 number keys	0–9
1 correction key	"C"
1 hit—step key	"H"

### Displays

Display 1 with 4 seven—segment LED's

Display 2 with 2 seven—segment LED's

Display 3 with 4 seven—segment LED's

1 lamp display each for "10 top hits", "background", "credit", "your selection" and "error, press key "C"

### CD changer

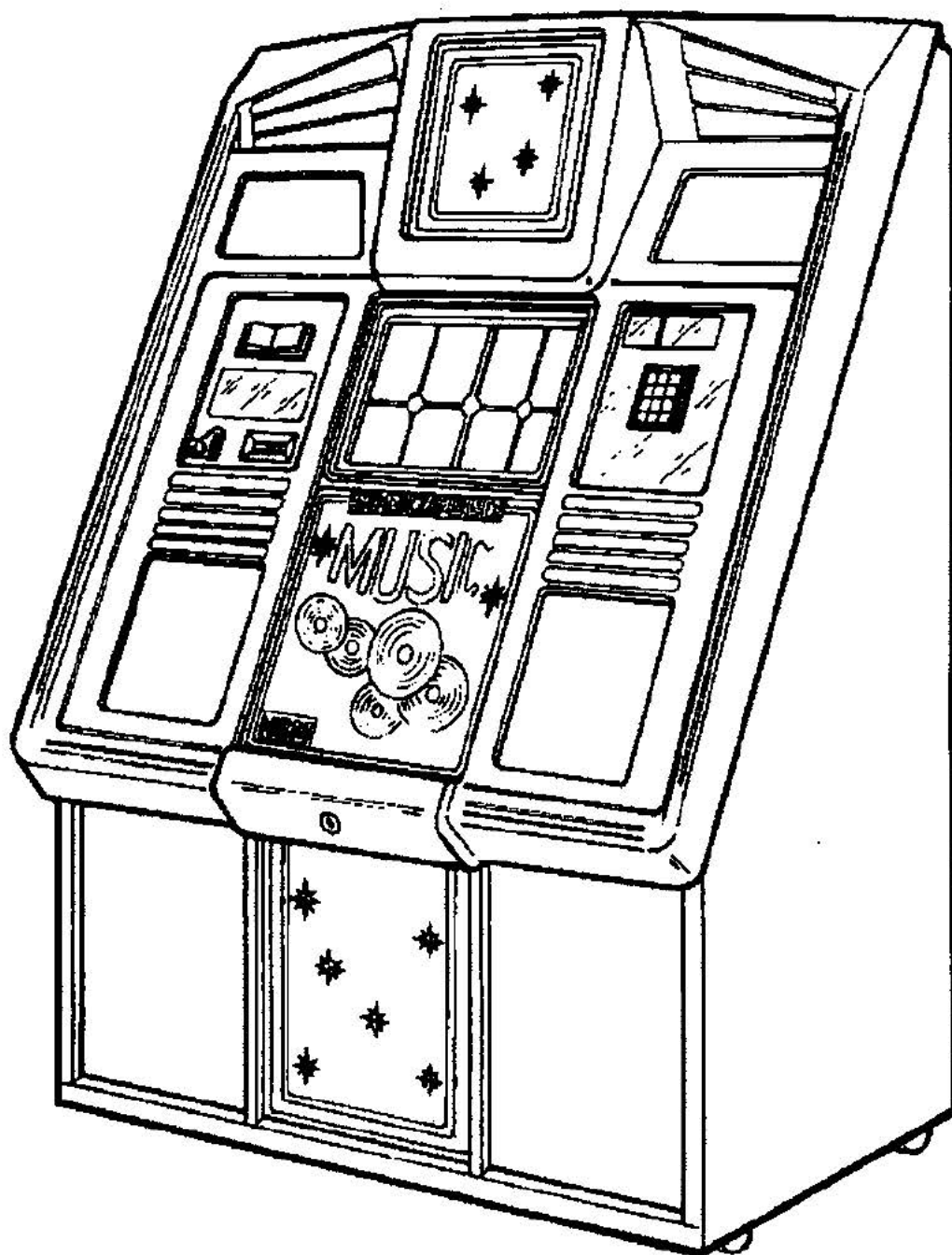
NSM CD changer for maximum 100 CD's, 5 inch. Disc—player: Philips CD—player unit.

### Special Features

Computer—controlled amplifier protection for overload (mismatch).

## 3. Section

### SOLID GOLD



Installation

### 3. Section Installation of the phonograph

#### Getting started

This section describes how to set the phonograph into play mode. You will get information about mains connections, equipment of CDs and title indication. When you have finished this section correctly your phonograph should play every selectable title.

#### Installation Note

**To protect your phonograph or any connected device from any damages please regard:**

**Before you connect any device, or before you make any changes to the connection between the phonograph and a device, please make sure to switch off the power supply of the phonograph and any connected device (i.e. external audio amplifier). Otherwise damages may be caused to the phonograph and/or the connected device(s).**

#### Mains connection

**Note: Check mains voltage before connecting the phonograph!**

The label on the power cord shows the factory setting of the mains voltage. For other voltages set the required voltage by re-wiring the corresponding wires of the mains transformer.

The line cord is located in a box on the rear of the cabinet. To pull out the line cord the steel cover has to be removed (4 screws). Put the cable through the respective hole in the cover and put the cover back afterwards. Refer also to the wiring scheme at the end of this manual.

**The green-yellow wire of the three-wire power cord must be connected to the ground according to the international safety code.**

After plugging in the phonograph, turn on the power switch located at the rear of the cabinet. The fluorescent lights and the star lights should now light up.

The phonograph is ready to operate now.  
The next step is to equip several CDs into the CD changer.

### How to equip the CD storage magazines

Refer to figure 10 to find the location of the different types of locks used and the handling while equipping CDs.

In order to avoid movement of the lift (attract mode) while working within the CD changer pull out the service switch before attaching the CD storage magazines. Now the phonograph is in service mode.

To equip the CD storage magazines open the front door of the CD changer. The front door will smoothly fold forward. When the door is totally opened fold the two CD storage magazines to the outside by pressing the corresponding black knobs to the inner side and folding the left magazine to the left and the right magazine to the right.

Remove the right-hand storage magazine by holding it with your right hand and pressing the right-hand, black knob to the right side.

Remove the left-hand storage magazine by holding it with your left hand and pressing the left-hand, black knob to the left side.

Remove a number of CD trays corresponding to the number of CDs you wish to insert into the magazine. Into the recess of each tray, place a CD **face up** (label up), and thereupon slide the tray into the first available slot of the magazine.

Observe the sequence of the magazine and title strip numbers.

Take care to push in the CD trays until they rest in center and do not hinder the lift.

**Note:** CDs have to be placed **face up** respectively **label up** into the CD trays. Otherwise the CD changer may cause an error when accessing the wrong inserted CD.

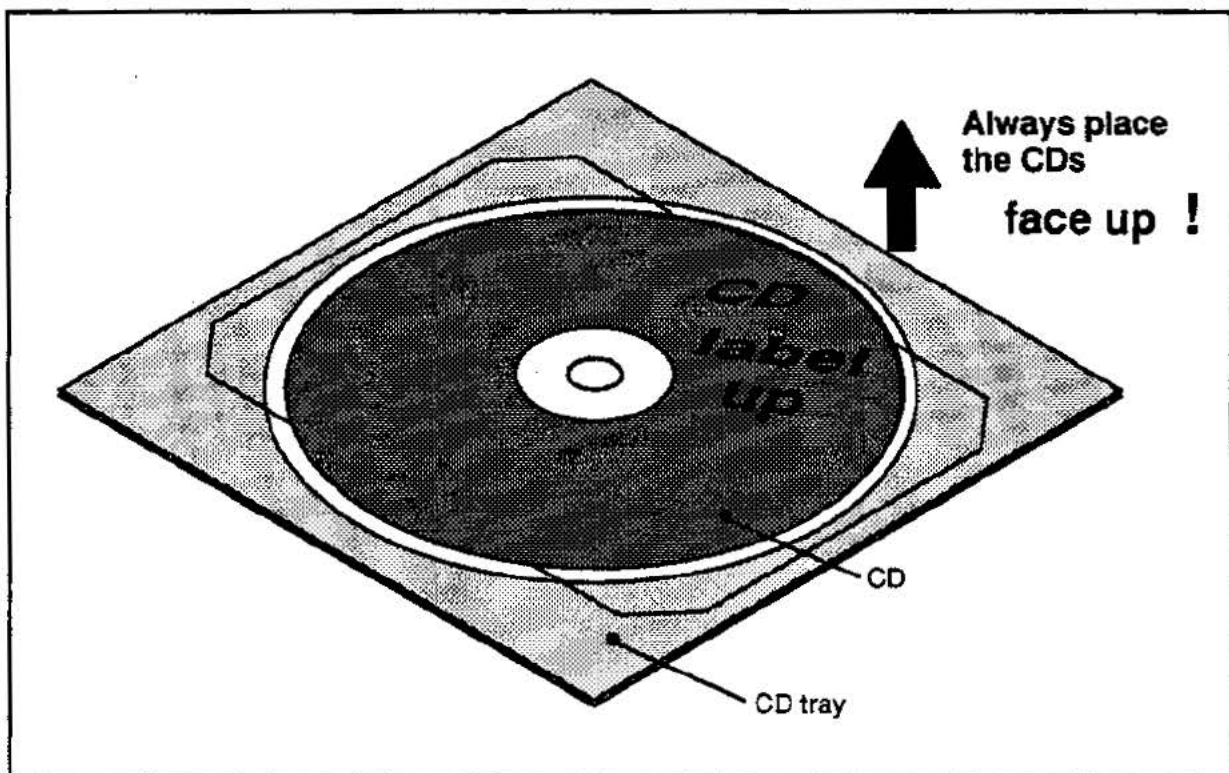


Figure 11: Placing directives for CDs

Return the two CD storage magazines by pushing them into the corresponding hinges and close the front door by latching it into its closed position.

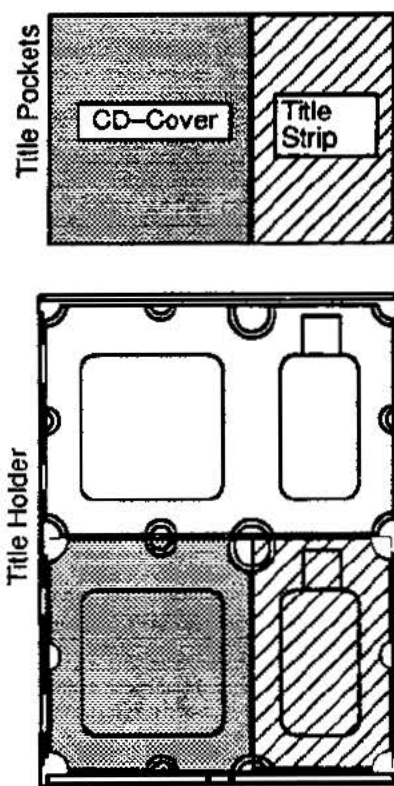
**Note:** When transporting loaded magazines the CD's can be protected against falling out by inserting the red plastic splint from the transportation security through the magazines and all loaded CD's. Use the enclosed four metal clamps as transportation fixture for the CD-magazines.

## Power Connection

The label on the power cord shows the factory setting of the mains voltage. For other voltages set required voltage by re-wiring the corresponding wires of the mains transformer.

## Equipment of the title indication

The title indication is designed to display up to four CD covers at a time. In maximum you can insert CD covers and title strips for 100 CDs. The following procedure describes how to prepare the CD covers and the title strips for insertion into the title holders.



Equipping of **black** title holders should be done as follows:

Remove title pockets from the accessory pack, insert the CD covers on the left side and the written title strips on the right side into the title pocket.

**Put the thicker foil side of title pocket to the outside.**

Then insert the title pocket into black title holder. If the covers are bigger than 120x120 mm, they need to cut to size – please use only title cover.

The title program displays are also moved by pressing the "TL" or "TR" buttons placed on the circuit board of the title display unit while inserting title holders.

Figure 12: Equipping of title holders

Additional titles strips and title pockets can be ordered using the following ordering informations:

**TITLE STRIP** Part-No. 219 185  
**TITLE POCKET** Part-No. 212 509

**Take care on the placement of the title holders.** They must stay inserted in a specified sequence to guarantee a synchronous movement and correct display of titles corresponding to the CD number.

In case of dislocation of title holders due to rough transportation, please refer to the following figure to reorganize the sequence of it.

**Note:** A problem with the title display will initiate error code "Er 9x" to be displayed on the display on the front of the phonograph. Refer to the Service Manual to get more information about error locating or trouble shooting.

## Sequence of title holders

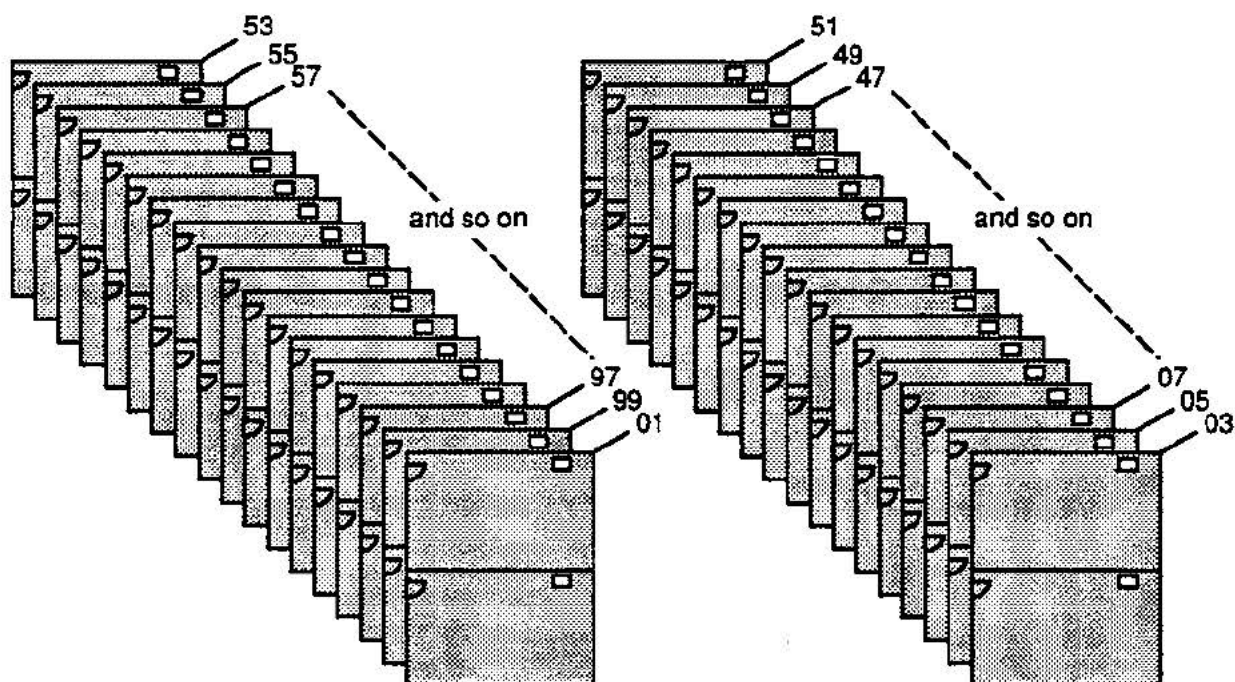


Figure 13: Sequence of title holders

**Note:** Special care has to be taken during insertion that the first holder has to be inserted into the last slot of the warm drive of the title indication. The next holder has to be inserted into the next slot directly in front of the previous. If you have accidentally skipped one slot, all following title holders have to be removed again. Start insertion at the left rear (holder 53) up to the front (holder 01). Then insert the holders of the right side also starting at the rear (holder 03).

Refer to the Service Manual of the phonograph to get more information on how to re-synchronize the title indication.

## Initialize the equipped CDs to the control unit of the phonograph

If the phonograph is not still in service mode, you should  
open the cabinet lid (door) and  
pull out the service switch (cabinet interlock switch) located at the right side of the cabinet.

By changing the display, the phonograph indicates that it is in operating mode "programming". The display shows the following text:

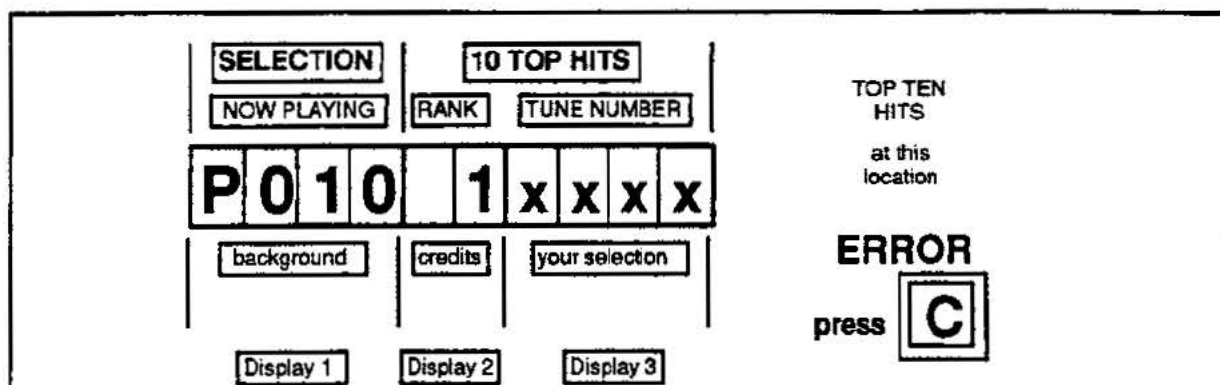


Figure 14: Display after entering the service mode

Now you should enter the command P160 to start the initialization. Perform the following steps:

press "C"	display shows P _ _ _
enter 1 6 0	display shows P 1 6 0
press "H"	to execute the command

The control unit then checks every tray, one after another, of both CD storage magazines to read the informations from the inserted CD concerning the number of tracks.

**Note:** The control unit searches all CD trays up to the number of CDs defined in P042. The factory setting of the value in P042 is 0024, that means 100 CDs with 24 tracks each. If you do not have equipped 100 CDs, you must first change the number of accessible CDs in P042. The number of tracks is calculated automatically with P160 afterwards.

**Take care** that you do not spare CD trays except from the last tray (for CD no.100) downwards.

After starting the initialization routine the phonograph needs a time (up to 20 minutes) to check all CDs. While this routine you may close the cabinet door. The phonograph returns automatically to the normal play mode after finishing the initialization procedure.

## Ready to play using factory settings

When the phonograph has finished the initialization procedure it is ready to play respectively ready to be used with the pre-programmed factory settings.

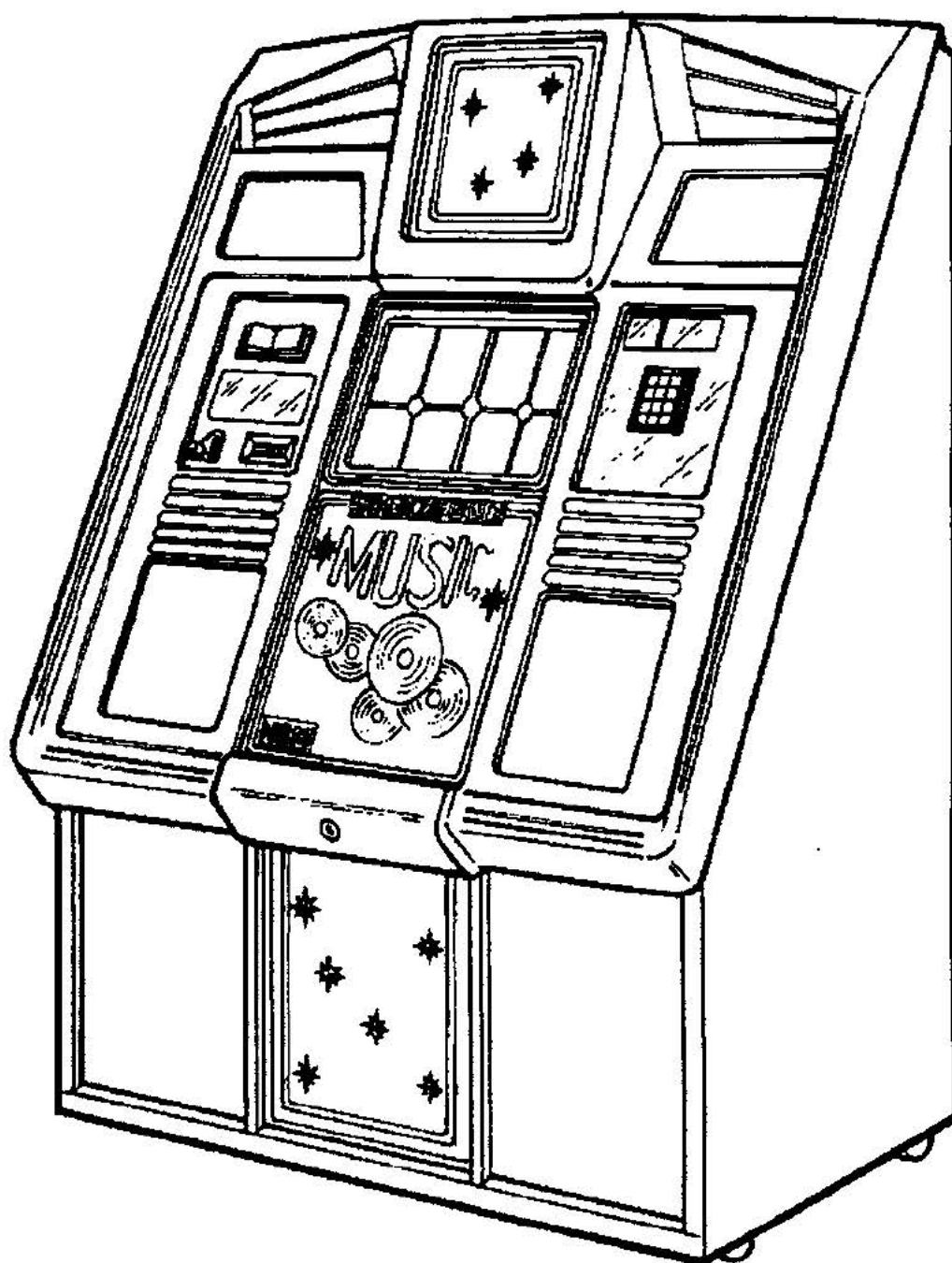
Table 1: Factory setting values of the phonograph

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



## 4. Section

### **SOLID GOLD**



Basic operation



## 4. Section Basic operation

### Changing the price – and monetary value settings

This description is a summary of a chapter of the service program.  
A detailed description and the corresponding tables are contained in chapters "Price Settings" and "Monetary Value Settings" in the section programming manual.

The values defined within the program steps P060 to P065 (factory settings) are designed to meet the information written on the label of the front door of the phonograph.

If you want to change the price settings from the factory settings to individual settings, you have to perform the following steps.

**Take care to change the label on the front door of your phonograph after changing the price settings.**

#### Example of programming the price settings:

Practical example for setting the "price settings":

- 1 play = 50 p
- 2 plays = 50 p
- 5 plays = 1 \$ (1 £)

Table 2: Programming of price settings:

Programming Information	Action of the operator	Displays		
		1	2	3
Call up to service mode	pull out the service switch	P010	xx	xxxx
	Press key(s)		Play	price
Entering command mode	"C"	P		
Direct selection of a command, Display of previous setting in P061.	"61", "H".	P061	xx	xxxx
New setting in P061 "1 play/50 p".	"01", "0050"	P061	01	0050
Confirm setting and advance to next command, Display of previous setting in P062.	"H"	P062	xx	xxxx
New setting in P062 "1 plays/50p".	"01", "0050"	P062	01	0050
Confirm setting and advance to next command, Display of previous setting in P063:	"H"	P063	xx	xxxx
New setting in P063 "5 plays/1 \$.	"05", "0100"	P063	05	0100
Confirm setting and advance to next command, Display of previous setting in P064:	"H"	P064	xx	xxxx
For only 3 classes setting "0".	"0"	P064	00	0000
Confirm setting and advance to next command, Display of previous setting in P065:	"H"	P065	xx	xxxx
For only 3 price classes setting "0".	"0"	P065	00	0000
Confirm setting and advance to next command:	"H"	P066		1

**Caution!** Press "C" key in the event of incorrect programming or when display flashes.

If you want to terminate the changing of settings you have to press the "C" key twice or close the cabinet door to **return to standard operating mode (play mode)**.

### Example of Programming the monetary value settings:

Depending on the type of coin validator the individual coin channels must be programmed for the associated monetary values in the corresponding program steps. Unused channels must be programmed with the monetary value "0"!

See also chapter 3: "Programming of monetary value settings" and chapter 10: "Electr. coin- and bill acceptor".

**1. Checking the monetary value settings:** Select one program step between P070 and P075. After inserting a certain coin the channel associated with the coin is displayed, e.g. 50 pence in channel 2: Display P072 0050.

**2. Changing the monetary settings:** As an example, the 20 pence slot (channel 1) is not to be used: First enter program step P071 as described above. In the coin acceptor or on the adapter PCB of electronic coin validators the respective channel has to be blocked also so that these coins drop into the coin return.

**3. Standard settings:** The programming of standard settings is done with the command P070 and entering the number of the desired table values (see table "Monetary value settings" in the chapter "Programming of the phonograph"). The correct programming of all channels is done automatically after entering the number and pressing the key "H".

Table 3: Programming the monetary value settings

Programming information	Action of the operator	Displays		
		1	2	3
Direct selection of a command, Display of previous setting in P071.	See text (2.)	P071		xxxx
New setting: no coin conversion	"0"	P071		0000
Confirm setting and advance to next command, Display of previous setting in P062.	"H"	P072		xxxx
If the standard setting according to the table of monetary standard settings is to be used thereafter, call up program step P070 (as described previously).				
Ready for standard setting P071 through P075	See text (3.)	P070		xxxx
Program entry "1" of the standard table.	"1"	P070		1
Confirm setting and advance to next command:	"H"	P071		xxxx

**Caution!** Press "C" key in the event of incorrect programming or when display flashes.

If you want to terminate the changing of settings you have to press the "C" key twice or close the cabinet door to **return to standard operating mode (play mode)**.

### The button "Credit"

The phonograph also offers a so-called **Free-credit button (add. button)**, located below the mechanical coin acceptor or on the adapter PCB with electronic coin validators. Action on this button is only possible when the cabinet lid is open and the service switch is pulled out. Pressing the add. button once gives 1 credit. Credits generated by pressing the add. button are not registered statistically.

## Summary of programmable features

This phonograph is equipped with a wide functional "Service Program". Thus to allow a lot of individual settings.

Following we describe only a short overview of the possibilities given by the service program of the phonograph.

### Play Mode

Your selection is stored temporarily in the selection storage. After selection of a title the CD which is to be played corresponding to the entries in the selection storage is transported to the player and then played.

Just before start the number of the title is shown on display 1 ("selection now playing"). After the disc is played, the display is cleared and the CD is transported back to its magazine space.

**Note:** If a error occurs with the CD changer or the player, "Er 7x" or "Er 6x" appears for 2 sec. Refer to the Service Manual to get more information about error locating or trouble shooting.

### Limit the playing time for a title (track)

By programming P045 the time that a title is to be played maximum can be set in minutes.

After expiration of this time the volume for that title is fading and then muted.

If you program "0" (factory default), there is no limit in playing time.

### Sequence of tunes playing

By programming P046 one can set in which sequence the selected titles are played.

Settings:        0 = in sequence of selection (FIFO)  
                  1 = in numerically increasing sequence  
                  2 = random sequence

### Limit of playing titles on the same CD

Using the programming of P047 you may define how many titles can be played consecutively on the same CD.

If you program "0" (factory default) there is no limit.

### Autoplay mode

A time interval can be set by programming the command group P 11x for playing of incentive titles.

Conditions for an incentive title to be played:

- Phonograph in standby mode
- No credit available
- Microphone switch not being used
- No muting

## Attention!

When playing a test CD, the description that comes with the test CD is to be exactly adhered to. By any means, it is to be avoided to give sine signals with peak signal "0dB" at full volume level to the loudspeakers for more than 1 sec.

But also other unfiltered noises and high-frequency signals (which are only used for measuring purposes) can damage the amplifier and loudspeakers at full volume.

When checking channel separation, it is to take in consideration if the box is not switch to "Mono-mode" (refer to **Mono mode operation**).

## **Credits**

Credits remain stored during "power off/on" (P049 = 0).

If the control unit detects no activity on the phonograph within a time, the stored credit is cancelled (P049 = time).

## **Title Indication**

By pushing the keys of the front door, respectively title holders are moved into the corresponding direction. Upon each key operation two new CD-covers including titlestrips are shown. In case of a limitation of selectable CDs by programming with command P042 only the corresponding title holders are shown.

## **Background Music**

The operator also has the possibility to play silent music in the background. Thus of course to animate the public to make selections. Background music can be programmed to be active at several days.

The programming of Background music titles is done with the group P10x of the service program.

## **Advertising**

With the commands of group 12x of the service program it is possible to define time slices for playing special CD's containing advertising information (ad).

While the ad-mode is active a title is played every x minutes (x ist the time defined in P124) after closing the currently played title. The CD's containing ad can be selected for "not to be played by normal customers" (P126).

## **Lock-out Titles**

If one titles of a CD is bad it can be locked out for a defined time at every day by programming the steps in group P13x of the service program.

A lock out title can be defined by

- bad quality of reproduction
- bad track within the title
- shocking information.

## **Happy-Hour Credits**

For additional animation of the audience, a so called Happy-Hour can be programmed to be active at several days. The programming of Happy-Hour is done with the group P14x of the service program.

While active an additional bonus credit is given if the customer has payed a number of credits (defined as calculation number in P144). I.e. After 5 payed credits one Happy-Hour credit is given if the calculation number is programmed as 5.

## **Service and Maintenance**

With the commands of groups P15x and P16x of the service program you can

- read out errors of the phonograph with CD and date of appearance,
- test the CD changer,
- test the CD played,
- test the lamps and keys,
- install new CDs
- remove bad or not actual CDs.

## Adjustments with remote control

The phonograph can optionally be equipped with cable-type remote control or infra-red remote control. All functions and the operation of both models are identical. Therefore, this description is valid for both of them.

The button-control box attached to the rear of the cabinet allows common control of both channels "+" or "-" and "REJECT".

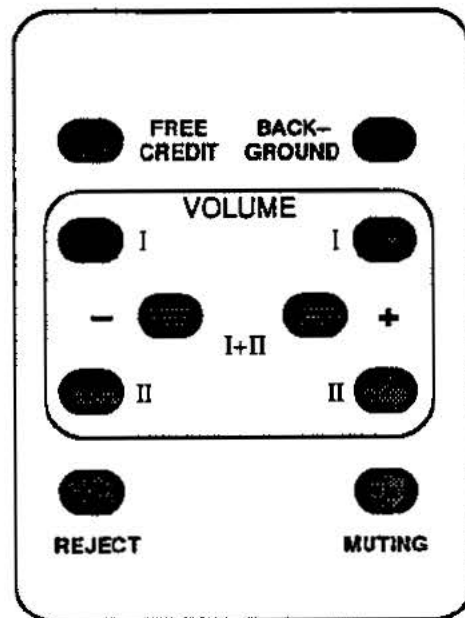


Figure 15: Remote control

### Volume Controls

We differentiate between two volumes:

- The "normal volume" of selected titles and random play titles
- The "background volume" of background titles

For selected titles and random titles or with microphone and tape mode the corresponding volume is adjustable; background volume only with background mode. The keys have the following meaning:

- Key "I" for the left channel
- Key "II" for the right channel
- Key "+" for increase volume
- Key "-" for decrease volume

When pushing the center key "I+II" the channels are regulated together. If they were differently set, they are first "balanced" and regulated together.

When no selection is taking place, the volume for the channels is shown on display 3 during the adjustment in steps of "1" to "31".

While "Muting" is active the message "OFF" appears in display 1. No more titles will be played until "Muting" is cancelled.

The last volume set is stored during "power off".

The maximum possible volume for normal and background mode can be limited by programming P051 and P052 in steps of "1" to "31".

**Note:** To protect the amplifiers a check is made whether an overload occurs due to mismatching. Upon recognition of an error the volume of the corresponding channel is reduced step by step automatically by the computer until a non-critical point is reached.

## **Muting**

The volume of both channels can be set to "0" by pressing the key "MUTING". The message "OFF" appears on display 1. An other pressing of the key "MUTING" or pressing one of the "VOLUME +" keys causes the system to switch back to the previously set volume for both channels.

**Note:** With display "OFF" no more records are played until "Muting" is cancelled.

## **Free Credits**

With an "open" key switch (optional device) free credits programmed in program step P094 can be called up. The following free credits are possible depending upon the settings in step P094:

- Number of set free credits can be called up individually step by step
- Unlimited free credits can be called up individually step by step
- Permanent credit when pressing key "FREE CREDIT" for the first time (credit display "99")  
When key "FREE CREDIT" is pressed again, permanent credit is blocked
- Permanent credit automatically within the time window

Using the program steps P091 to P093 a time window can be defined. While this time window is active one can call up free credits.

If no key switch is installed and also no time window is defined one can call up any number of free credits.

## **Background Music**

When the key switch is "open" the background mode can be switched on with the BACKGROUND key. "Background playing" lights up.

When pressing this key again, the background mode is switched off. In the background mode "random" records are played as defined in P105.

The time when background musik is played is to set in P10x.

The records are played at a "specific" background volume which can be changed as desired during playing.

A "normal record", selected while background music is playing, interrupts the background disc and the selected tune is played at "normal volume".

## **Key Switch (optional)**

A key switch at the rear side of the cabinet or at the side wall serves as protection against unauthorized calling up of the functions:

- free credits
- switching on the background mode

In position "key switch locked" settings from the remote control are disregarded.

The position "key switch open" permits programmed free credits to be called up and the background mode to be switched on.

When the key switch is not installed, that means the same as position "key switch open".

This also permits programmed free credits to be called up and the background mode to be switched on. If this is not desired the function generally can be locked or only be activated while a programmed time window becomes active.



## Changing CDs and evaluation of the phonographs statistics

From time to time it becomes necessary to make a cash collection and a statistic printout.

### How to perform a change of CDs?

- Open the phonograph and pull out the cabinet switch to enter the service mode. Display 3 automatically shows the least played CD.
- By pressing "1" successively, each time the number of the next best CD is displayed.
- Open the CD changer. Unlock the CD magazines and fold them out. Pull out the corresponding CD trays (CD holders) to change CD's. After changing a CD push back CD holder until it locks in. Close the CD changer after changing the last CD.
- The title information of the new inserted CDs must be recognized to the phonograph by calling the command P161. You also may call-up P160 if you have finished the service.
- Change corresponding title cards, unlock title indication unit and fold down carefully. Put the desired title strips and covers in position. If necessary move the title holders by pressing the buttons "TR" or "TL" placed on the PCB at the right-hand side of the unit.
- After service is finished call-up P160.  
The read-in of all CD title information is done also while the cabinet is closed. If the read-in was completed the program automatically returns to the normal play mode.

### How to evaluate the statistics?

- Read counters:
  - P013 = Cash total
  - P016 = Counter for plays
  - P017 = Number of selected titles
  - P018 = Number of selected albums
  - P019 = Number of overplay titles
  - P020 = Number of played credits
  - P021 = Number of free credits provided
  - P022 = Number of background titles played
  - P023 = Number of autoplay titles
  - P024 = Number of advertisement titles
  - P025 = Number of Happy-Hour credits
- Erase counters: P033, and selected code number.

You also have the possibility to make a print out of the statistical informations of the phonograph. Therefore you need the NSM DATA PRINT 3000 models statistics collector/printer, which is connected to the corresponding evaluation socket on the control unit of the phonograph.

### Data Transfer and Memorizing

- Enter the service mode by opening cabinet and pull out service switch manually, display 1 shows "P010".
- Put in printer connector into the 9 pole socket "EVALUATION" of the Control Unit.
- Enter "C", display 1 "P".
- Enter "30" and "H", display "P030".
- Enter Code "0" and "H".

Counters + Errors, as well as popularity are transferred.

**Note:** If an error occurs during data transfer, this is indicated by the messages "EO" shown on display 3.

**Attention:** After the data transfer has finished successfully the memory contents of the phonograph are cleared if the service switch is pushed in with closing the front door of the cabinet!

## Transfer to DATA PRINT

- Enter the service mode by opening cabinet, pull out the service switch manually. Display 1 shows "P010".
- Plug printer connector into the 9pole socket "EVALUATION" of control unit.
- Enter "C", display 1 shows "P".
- Enter "31" and "H", display 1 shows "P031".
- Enter code for the desired print-out and press "H".
  - "0" and "H" = complete information
  - "1" and "H" = all cash counters
  - "2" and "H" = all counters
  - "3" and "H" = settings
  - "4" and "H" = popularity
  - "5" and "H" = hit parade of this location
  - "6" and "H" = last 20 error messages

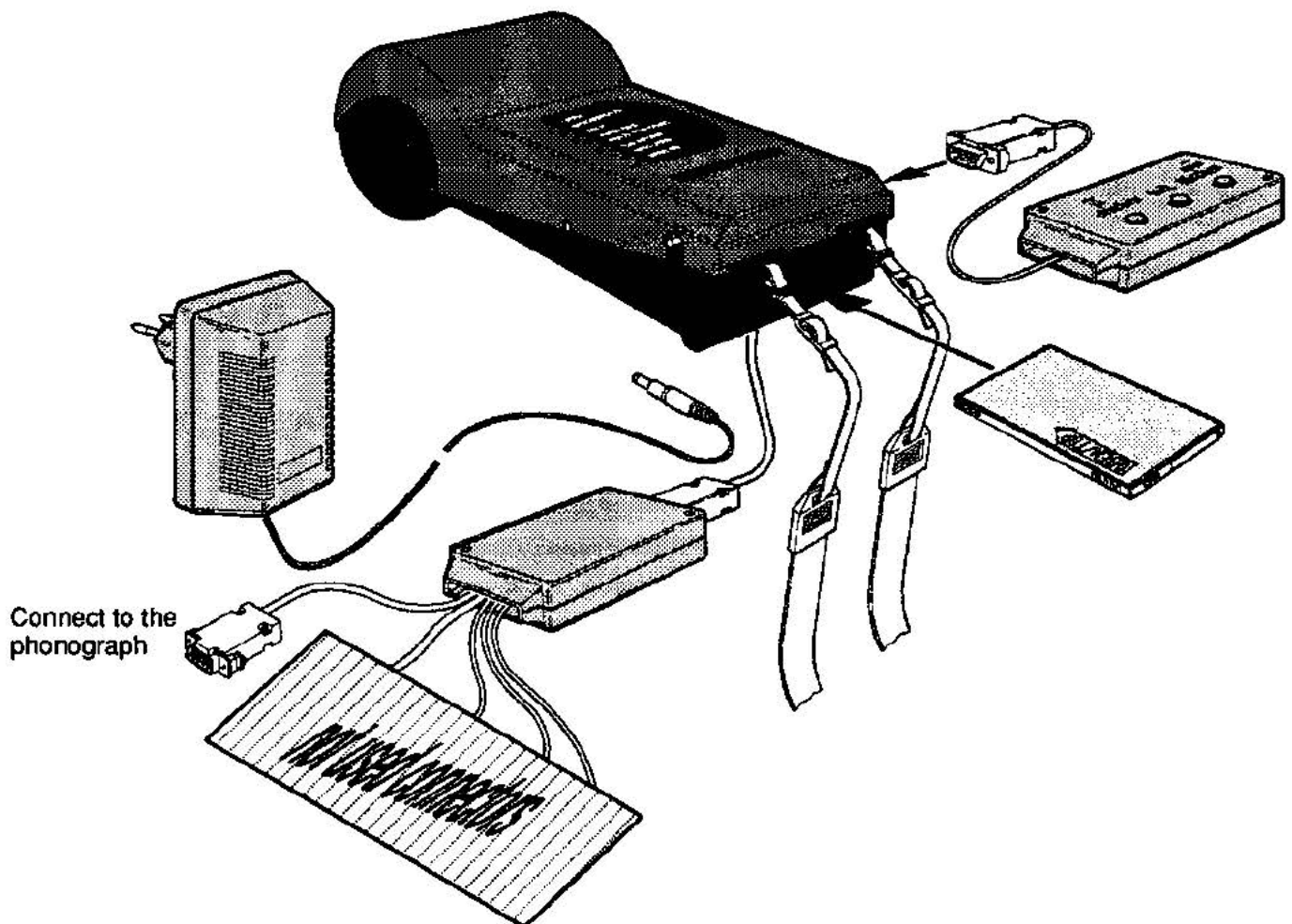


Figure 16: Evaluation using the NSM DATA PRINT

**Note:** When a popularity counter has reached value 200, all popularity counters are divided by half of the amount. After dividing the popularity printed out is relative; the number of divisions appears in the print-out: "RELATIVE 000" to "xxx". If the printer does not start, "E0" appears in Display 3.

The following figure shows a sample print-out of both modes. The graphic mode is shows with all print-outs which are possible (complete information).



# Sample print-out in grafic mode

```

BOX ES V ..... V.0003
BOX-ANALYSE:

BOX.NR. .... 0000
TIME ..... 09:44
DATE ..... 08.02.94

COUNTERS:
CASH ..... 0
PLAYS ..... 0
TITLE-SELECTIONS ..... 0
ALBUM-SELECTIONS ..... 0
OVERPLAYS ..... 0
FREE PLAYS ..... 0
BACKGROUND PLAYS ..... 0
AUTO PLAYS ..... 0
ADVERTISE PLAYS ..... 0
HAPPY HOUR CREDITS ..... 0

BOX-STATUS:
BOX-CODE ..... 0
CDS/TRACKS ..... 0024
STANS-BY-LIGHTINGS ..... 1105
ACTIVE LIGHTINGS ..... 1000
MAX.TIME/TRACK ..... 0
ORDER OF PLAY ..... 0
TRACKS IN A ROW ..... 0
TITLE DISP.PERIOD ..... 0
CLR CREDIT ..... 2
CLR SELECTIONS ..... 2
MAX.VOLUME ..... 31
MAX.BGM-VOLUME ..... 16

PRICE SETTINGS:
P6X PRICE ! P7X VALUE
1 1 0100 ! 1 100
2 1 0100 ! 2 500
3 3 0200 ! 3 200
4 3 0200 ! 4 0
5 3 0200 ! 5 0

ALBUM SETTING ..... 1
BILL BONUS ..... 0
MONEY CONVERSIONO

FREE CREDIT SETTINGS:
START TIME ..... 00:00
STOP TIME ..... 00:00
ACTIVE ON DAYS ..... 0000000
FREE CREDITS ..... 200

BGM SETTINGS:
START TIME ..... 00:00
STOP TIME ..... 00:00
ACTIVE ON DAYS ..... 0000000
LOCK FOR BGM ..... 0

AUTO PLAY SETTINGS:
START TIME ..... 00:00
STOP TIME ..... 00:00
ACTIVE ON DAYS ..... 0000000
AUTO PLAY PERIOD ..... 0

ADVERTISEMENT SETTINGS:
START TIME ..... 00:00
STOP TIME ..... 00:00
ACTIVE ON DAYS ..... 0000000
ADVERTISEMENT PERIOD ..... 0
  
```

```

LOCK OUT SETTINGS:
START TIME ..... 00:00
STOP TIME ..... 00:00
ACTIVE ON DAYS ..... 0000000
ACTIVATE LOCK ..... 0

HAPPY HOUR SETTINGS:
START TIME ..... 00:00
STOP TIME ..... 00:00
ACTIVE ON DAYS ..... 0000000
HAPPY HOUR BONUS ..... 0

POPULARITY:
CD:
0 20 40 60 80 100 120
01 02 03 04 05 06 07 08 09 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99

HITLIST:
RANK CD TRACK PLAYS
1 0401 240 ! 2 7603 218
3 3204 216 ! 4 0416 201
5 7601 194 ! 6 2301 193
7 7201 186 ! 8 1401 180
9 5201 170 ! 10 0401 169
11 0401 145 ! 12 7408 144
13 1101 141 ! 14 3201 133
15 9601 122 ! 16 0401 122
17 9201 120 ! 18 6501 100
19 5601 76 ! 20 0301 72
21 4901 51 ! 22 0010 32
23 0401 15 ! 24 3201 14
25 0301 10 ! 26 0801 5
27 4101 3 ! 28 6905 1
29 6908 1 ! 30 0101 0

ERRORS:
NO.CODE TIME DATE
NO ERRORS!

-END-
  
```

# in text mode

```

08.02.94 / 09:46 ..... V3.00
DATENSATZ: ..... 5

*NSM*
BOX ES V ..... V.0003
BOX-ANALYSE:

BOX.NR. .... 0000
TIME ..... 09:44
DATE ..... 08.04.93

COUNTERS:
CASH ..... 0
PLAYS ..... 0
TITLE-SELECTIONS ..... 0
ALBUM-SELECTIONS ..... 0
OVERPLAYS ..... 0
FREE PLAYS ..... 0
BACKGROUND PLAYS ..... 0
AUTO PLAYS ..... 0
ADVERTISE PLAYS ..... 0
HAPPY HOUR CREDITS ..... 0

POPULARITY:
CD:
001, 092, 085, 072 100,
006, 086, 096, 072, 080, 084
011, 066, 084, 066, 092, 085
016, 076, 001, 008, 100, 072
021, 005, 124, 002,
026, 072, 100, 060, 111
031, 061, 031, 061, 031, 007
036, 004, 016, 038, 087
041, 050, 127, 002, 018, 120
046, 066, 016, 075, 097, 016
051, 025, 016, 072, 084, 070
056, 002, 108, 082, 036, 052
061, 093, 030, 084, 016, 096
066, 001, 109, 084, 066, 016
071, 090, 090, 007, 042, 016
076, 090, 090, 007, 062, 084
081, 066, 084, 066, 016, 068
086, 004, 106, 082, 016, 088
091, 006, 091, 016, 090, 080
096, 060, 066, 069, 106, 084

HITLIST:
RANK CD TRACK PLAYS
1 0401 240 ! 2 7603 218
3 3204 216 ! 4 0416 201
5 7601 194 ! 6 2301 193
7 7201 186 ! 8 1401 180
9 5201 170 ! 10 0401 169
11 0401 145 ! 12 7408 144
13 1101 141 ! 14 3201 133
15 9601 122 ! 16 0401 122
17 9201 120 ! 18 6501 100
19 5601 76 ! 20 0301 72
21 4901 51 ! 22 0010 32
23 0401 15 ! 24 3201 14
25 0301 10 ! 26 0801 5
27 4101 3 ! 28 6905 1
29 6908 1 ! 30 0101 0

ERRORS:
NO.CODE TIME DATE
NO ERRORS!

60751 BYTES FREI
  
```

Figure 17: Sample print-outs of the DATA PRINT 3000

## Additional, external loudspeakers

### Connecting external loudspeakers for stereo mode

#### Connecting additional loudspeakers having the same impedance as the internal ones

The connection wires of the external loudspeakers are led through an opening in the rear side of the cabinet to the inside and then to the connection terminals of the output stage.

**The polarity ▼ must be maintained because otherwise bass reproduction would nullify itself!**

The stereo amplifier of this phonograph serves an output of 200 watts music power at 4 ohms per channel (= 125 watts RMS). The impedance of the internal loudspeakers is 8 ohms, therefore they will use 100 watts music power from the amplifier, only the half of the available power.

In that case, the additional loudspeakers you may connect (refer to figure 18) cannot have an impedance of less than 8 ohms. Otherwise the amplifier would be "mismatched" and the overload protection would operate.

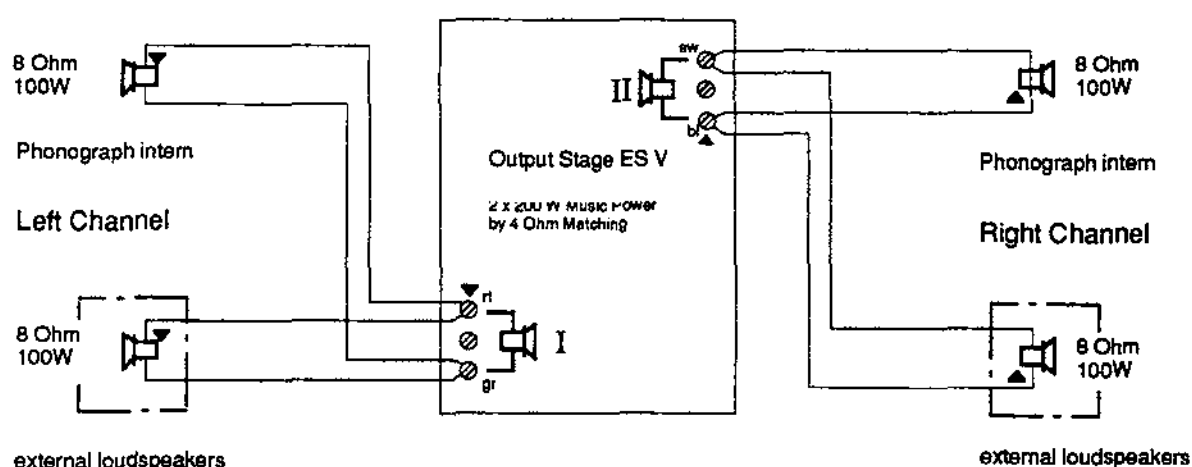


Figure 18: Stereo mode with normally connected loudspeakers

#### Connecting additional loudspeakers having higher impedance

If loudspeakers with a higher impedance are connected (refer to figure 19), a number of speakers can be connected parallel to the internal loudspeakers. In that case, a loudspeaker with a higher impedance would naturally be lower in volume.

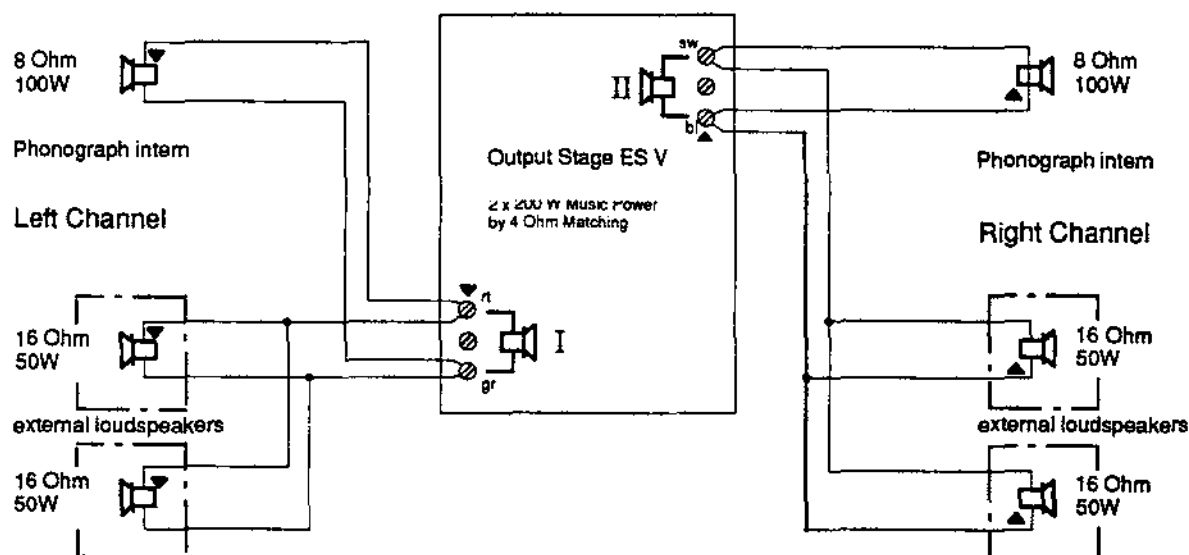


Figure 19: Stereo mode with connected loudspeakers having high impedance

## Connecting external loudspeakers for mono mode

### Sound system for separate rooms

If the volume is to be controlled independently within 2 rooms, the loudspeakers of the first room can be connected to one channel. The loudspeakers for the other room can then be connected to the second channel (refer to figure 20). The switch S1 "Mono/Stereo" located on the PCB "Central Unit" has to be switched to "MONO" (refer to **Location of the mode switch**). For this independent procedure a volume control with separate controls is necessary (refer to **Remote control operation**).

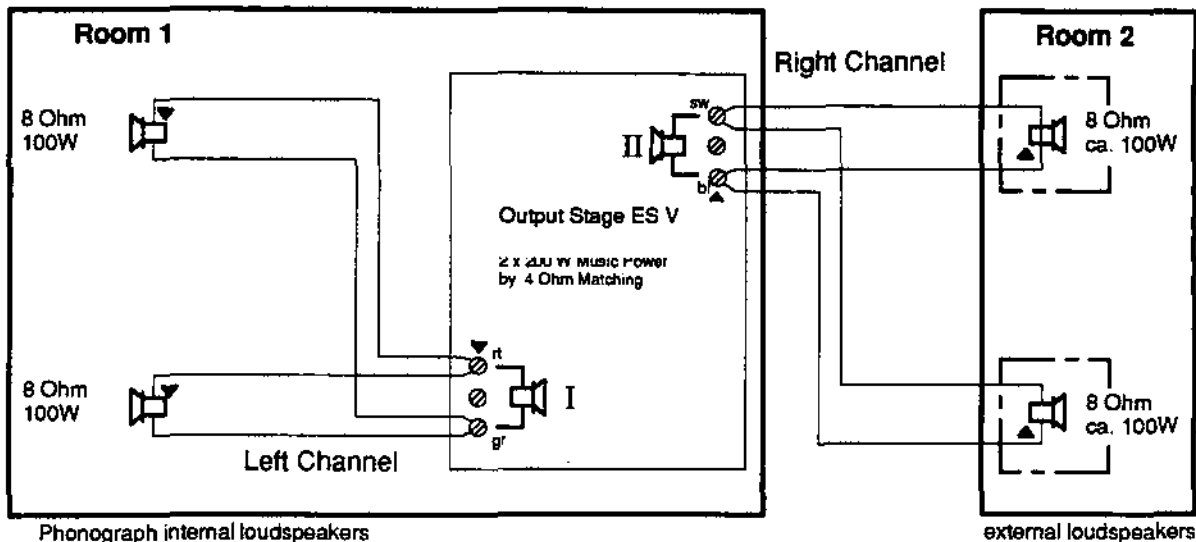


Figure 20: Mono mode with connected loudspeakers for separated rooms

### Mono mode with serial connected loudspeakers in one room

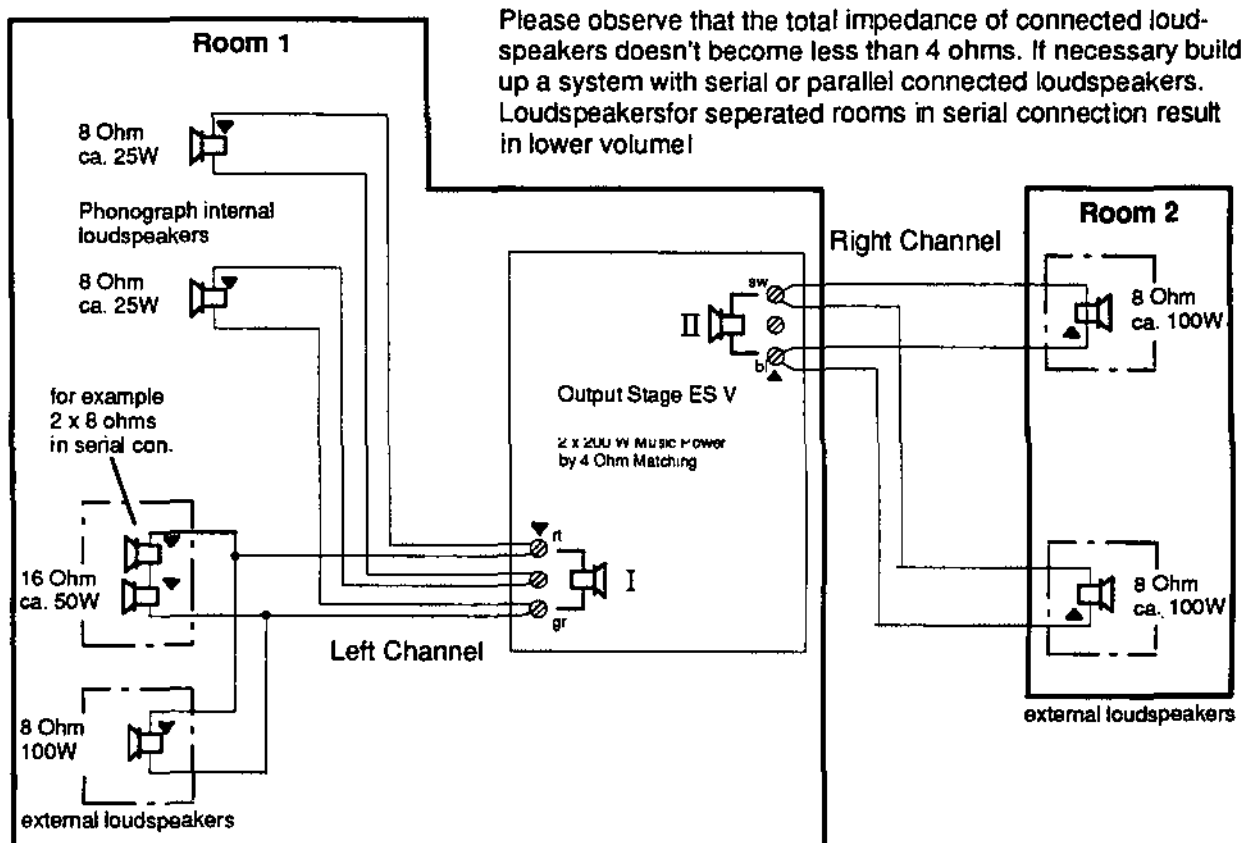








Figure 21: Mono mode with serial connected loudspeakers in one room

## Accessories for more sound quality

### How to get best room sound:

Using the service program (command **P054**) you can configure the phonographs sound setting for different kinds of room sound effects. Here treble and bass volume are set for both channels at the same time. The changed setting can also be immediately heard.

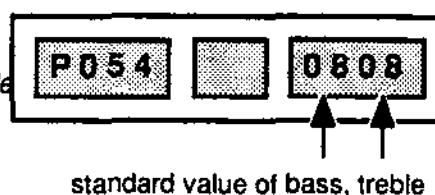
**Key pad layout for sound setting:**

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

Example for moderately-absorbent rooms:

Enter: **P 054 H**

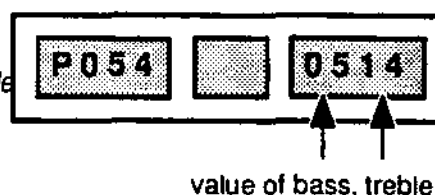
Change per pressing keys  
i.e. Key "8" = less bass and treble



Example for non-absorbent rooms:

Enter: **P 054 H**

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



### Additional amplifier:

An auxiliary amplifier can be connected for independent stereo control of other rooms as well as for increased power requirements. See also unit description "Central Unit", connection of auxiliary amplifier, and "Accessories", tape recorder connection cable or CD-audio connection.

### Location of the mode switch

To perform different modes of operation, stereo or mono mode, locate the mode switch S1 on the pcb Central Unit. This mode switch is to be set to the position corresponding to the operating mode.

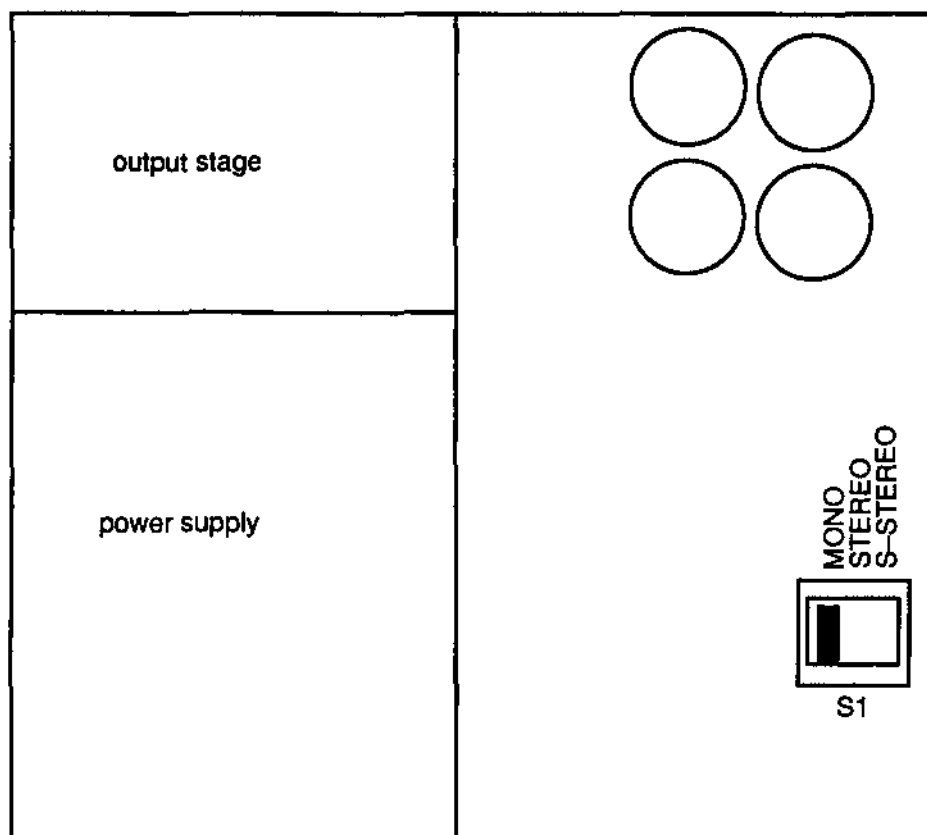


Figure 22: View to the layout of the PCB "Central unit", position of the mode switch S1

## Output transformer

If you want to connect more external loudspeakers to the phonograph so that the total impedance will be less than 4 ohms you have to connect the output transformer to avoid destruction of the output stage or distortions. See also the diagram "Speaker Connection" at the end of this chapter.

### Extension Speaker Operation

To avoid a poor sounding phonograph, care must be taken when adding extension speakers. Three requirements must be met:

- 1.) Speakers must be wired so that the power consumed by the phonograph speakers and the extension speakers, including wallsets, does not exceed the amplifier power rating.
- 2.) Extension speakers should produce the desired sound level relative to the sound level of the speakers on the phonograph.
- 3.) All speakers must be connected with the correct polarity.

Several tables have been included to assist you with connecting the extension speakers. The diagram at the end of this chapter shows the entire sound system.

### Low Impedance Speakers

#### 4-ohm-speakers

No more than one 4-ohm speaker should be connected to one speaker line. If several 4-ohm speakers are to be used, each speaker should have its own line.

#### 8-ohm-speakers

Low impedance speakers with 8 ohms can be used when the connecting cable is less than 100 feet. The loss on 100 feet of connecting cable (type: AWG 18/0,75 mm<sup>2</sup>) feeding one 8-ohm speaker is 15 %. The loss for two 8-ohm speakers is 30 %.

**Do not connect a low impedance speaker to a speaker tap that exceeds the speaker's power rating.**

### 70-VOLT Speakers

To avoid prohibitive cable losses on long speaker lines, 70-volt speakers should be used as much as possible. The power level in the 70-volt speakers is set at each speaker with its internal transformer.

#### **CAUTION:**

In any speaker installation, the sum of the power ratings of all speakers must not exceed 250 W RMS (sine wave power, 125 W RMS per channel).

Music power: Often there are two values given as technical data of loudspeakers:

Beneath the sine wave power (RMS) there is given also the allowable peak load (music power).

The music power can be calculated as follows:

Multiplying the sine wave power by the value 1.6 gives the value of the music power (e.g. 125W RMS x 1.6 = 200W music power).

## Selecting speaker power

### General instructions

This section will lead you through the power and loudspeaker selection process. This process consists of three major steps and several smaller steps. The major steps are:

- 1.) Identifying the extension loudspeakers and calculating their external loudspeakers power.
- 2.) Making the external loudspeaker connections.
- 3.) Determining and selecting the phonograph power.

### **Definition of extension loudspeakers and calculation of their power consumption**

- 1) Use a pencil (you may want to revise your entries) to write data to the work sheets on the following pages.

Use table 4 to calculate the amount of power consumed by the extension speakers.

- 2) Note the quantity of 4-ohm-loudspeakers in the space of the column "Quantity".  
**Enter stereo speakers as two speakers.**  
Multiply the quantity with the power consumption.

Place your results in 4) at the space "**Total**".

- 3) Afterwards note the quantity of 8-ohm-loudspeakers in the same manner.

Then also note the quantity of 70-Volt-loudspeakers.

Note the results of the corresponding calculations also in 4) at the space "**Total**".

Table 4: Calculation of the speakers power

<u>4-ohm-stereo-loudspeakers</u>		*) values given in watts RWS		
	Quantity	Power consumption	Connecting taps	
loudspeaker for 1,0*) Watt:	___ each 1,0 Watt	= ___ Watt	(E1 and E2)	
loudspeaker for 4*) Watt:	___ each 4 Watt	= ___ Watt	(E1 and E3)	
loudspeaker for 16*) Watt:	___ each 16 Watt	= ___ Watt	(E1 and E4)	
loudspeaker for 28*) Watt:	___ each 28 Watt	= ___ Watt	(E1 and E5)	
loudspeaker for 62*) Watt:	___ each 62 Watt	= ___ Watt	(E1 and E6)	
loudspeaker for 125*) Watt:	___ each 125 Watt	= ___ Watt	(E1 and E7)	
<b>4-ohm-loudspeaker</b>	<b>Total</b>	<b>= ___ Watt</b>		
<u>8-ohm-stereo-loudspeakers</u>				
	Quantity	Power consumption	Connecting taps	
loudspeaker for 0,5*) Watt:	___ each 0,5 Watt	= ___ Watt	(E1 and E2)	
loudspeaker for 2*) Watt:	___ each 2 Watt	= ___ Watt	(E1 and E3)	
loudspeaker for 8*) Watt:	___ each 8 Watt	= ___ Watt	(E1 and E4)	
loudspeaker for 14*) Watt:	___ each 14 Watt	= ___ Watt	(E1 and E5)	
loudspeaker for 30*) Watt:	___ each 30 Watt	= ___ Watt	(E1 and E6)	
loudspeaker for 62*) Watt:	___ each 62 Watt	= ___ Watt	(E1 and E7)	
<b>8-ohm-loudspeaker</b>	<b>Total</b>	<b>= ___ Watt</b>		
<u>70-Volt-loudspeakers</u>				
The variable power selection for 70-Volt-loudspeakers is performed at the corresponding transformer integrated in each speakers cabinet.				
Add the power consumption of all 70-Volt-speakers and note this total value:				
<b>70-Volt-loudspeaker</b>		<b>= ___ Watt</b>	(A1 and A2)	

4) After you have calculated all the necessary values you have to add them to get the

**Total power consumption of external loudspeakers:**

Total power consumption of 4-ohm-loudspeakers \_\_\_\_\_ Watt

Total power consumption of 8-ohm-loudspeakers \_\_\_\_\_ Watt

Total power consumption of 70-Volt-loudspeakers \_\_\_\_\_ Watt

**Total power consumption of all external loudspeakers \_\_\_\_\_ Watt In STEREO.**

Now this is the necessary power consumption which the amplifier of the phonograph at least must supply for external loudspeakers. This value must be less then the maximum power consumption of 250 W RMS (400 W music power). If it is more then 250 W RMS you have to reduce the number of connected loudspeakers. Afterwards calculate it once more.



- 5) Subtract this total power consumption for external loudspeakers from the maximum power consumption of the phonograph 250 W RMS (400 W music power) and note the result at the end of the following line:

Available power for the phonographs internal loudspeakers: \_\_\_\_\_ Watt in STEREO.

Remember: After subtraction of the total power from 250 W RMS you will get the "Available power for the phonographs internal loudspeakers". Make sure to note this value. You will need this value later, after you have connected all of the external loudspeakers, to calculate the connection of the internal loudspeakers.

**NOTE:**

The amplifier may be rated up to 250 W RMS before the delimitation will start.

## Connecting the loudspeakers of the phonograph

The connection between the amplifier of the phonograph and the output transformer is realized using coloured wires. The **red** wire is used to connect the hot pole of the left channel and the **blue** wire is used to connect the right channel. The **black** wire and the **grey** wire are used as the corresponding reference potential (ground). The ground wires are always connected to the tap E1 (ground) of the output transformer.

Refer to the table 5 to select output taps for more or less power for the connected loudspeakers.

Use this table 5 to select the correct connecting taps for the internal loudspeakers. Take care that the above calculated value of "Available power for the phonographs internal loudspeakers" is not exceeded.

### Power calculation for the internal loudspeakers

The internal loudspeakers of the NSM phonograph SOLID GOLD have an impedance of 8 ohms.

Table 5 gives the loudspeaker power of the internal loudspeakers depending on the connecting tap of the output transformer.

Table 5: Selecting power for internal loudspeakers

Loudspeaker power *) CLASSIC	Connect the internal loudspeakers with
1,0 W	red wire to left E2, resp. blue wire to right E2
4,0 W	red wire to left E3, resp. blue wire to right E3
16,0 W	red wire to left E4, resp. blue wire to right E4
28,0 W	red wire to left E5, resp. blue wire to right E5
60,0 W	red wire to left E6, resp. blue wire to right E6
124,0 W	red wire to left E7, resp. blue wire to right E7

\*) For each channel only the half of this values is available. Values given in "Watt RMS".

Take care not to overload the loudspeakers.

**Do not change the connection of the black wire or the grey wire. They should stay on either the left or right E1 taps to define the reference potential.**

See also to the connection diadram of the speakers connection at the end of this chapter.

### Check that the phonograph is not overloaded

To avoid distortion of sound or destruction of equipment you should perform the following steps after changing any loudspeaker connection.

- A. Make sure that the internal and the external loudspeakers are connected to the proper connectors. Then power on the phonograph.
- B. Set the phonograph's volume to full power (display = 31) and make a selection to be played.
- C. While the music is playing no overload distortion / interruption should occur. The volume should not be decreased automatically from its value (31), shown on the display. If any distortion / interruption occurs or if the volume is decreased, the amplifier is overloaded. Then you have to perform step D.
- D. Perform this step only if any distortion / interruption occurs. Power off the phonograph. Find and correct the reason for this overload, perhaps there is a short circuit on a loudspeaker or too many loudspeakers are connected. Then repeat step A–C.

### Wiring of the build-in crossover network

The following diagram shows the wiring of the internal crossover network.

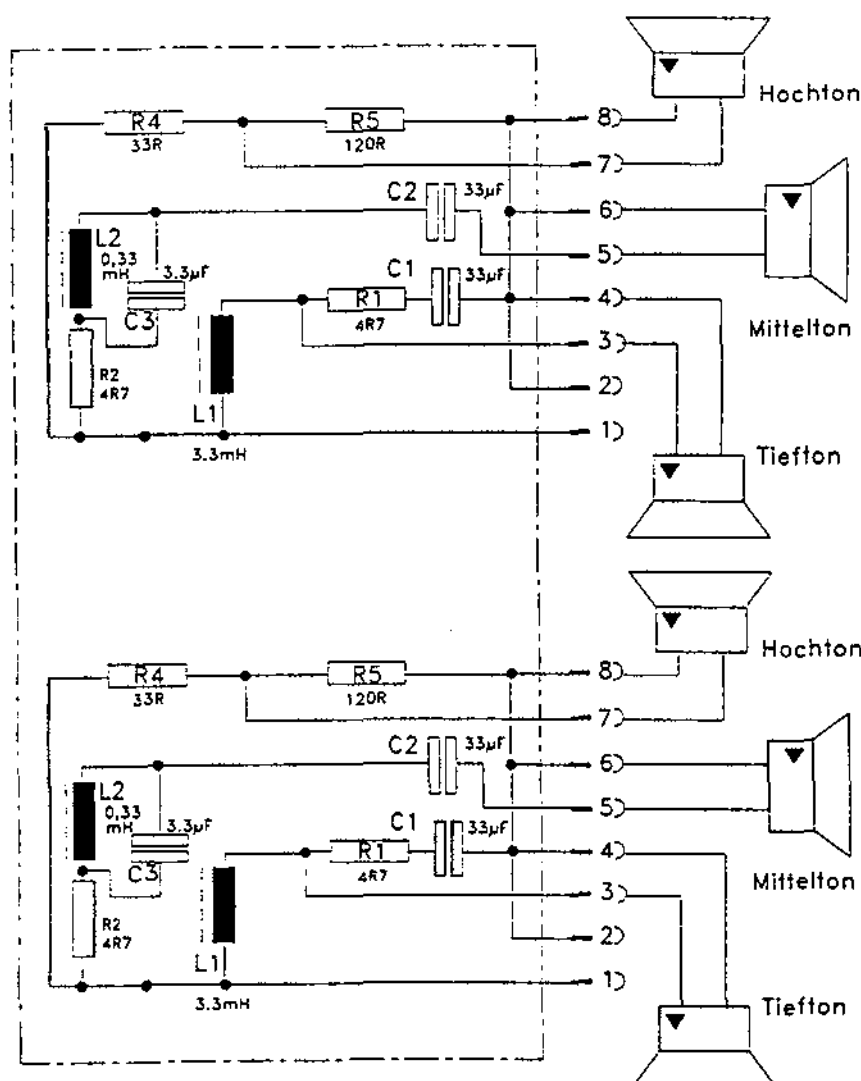
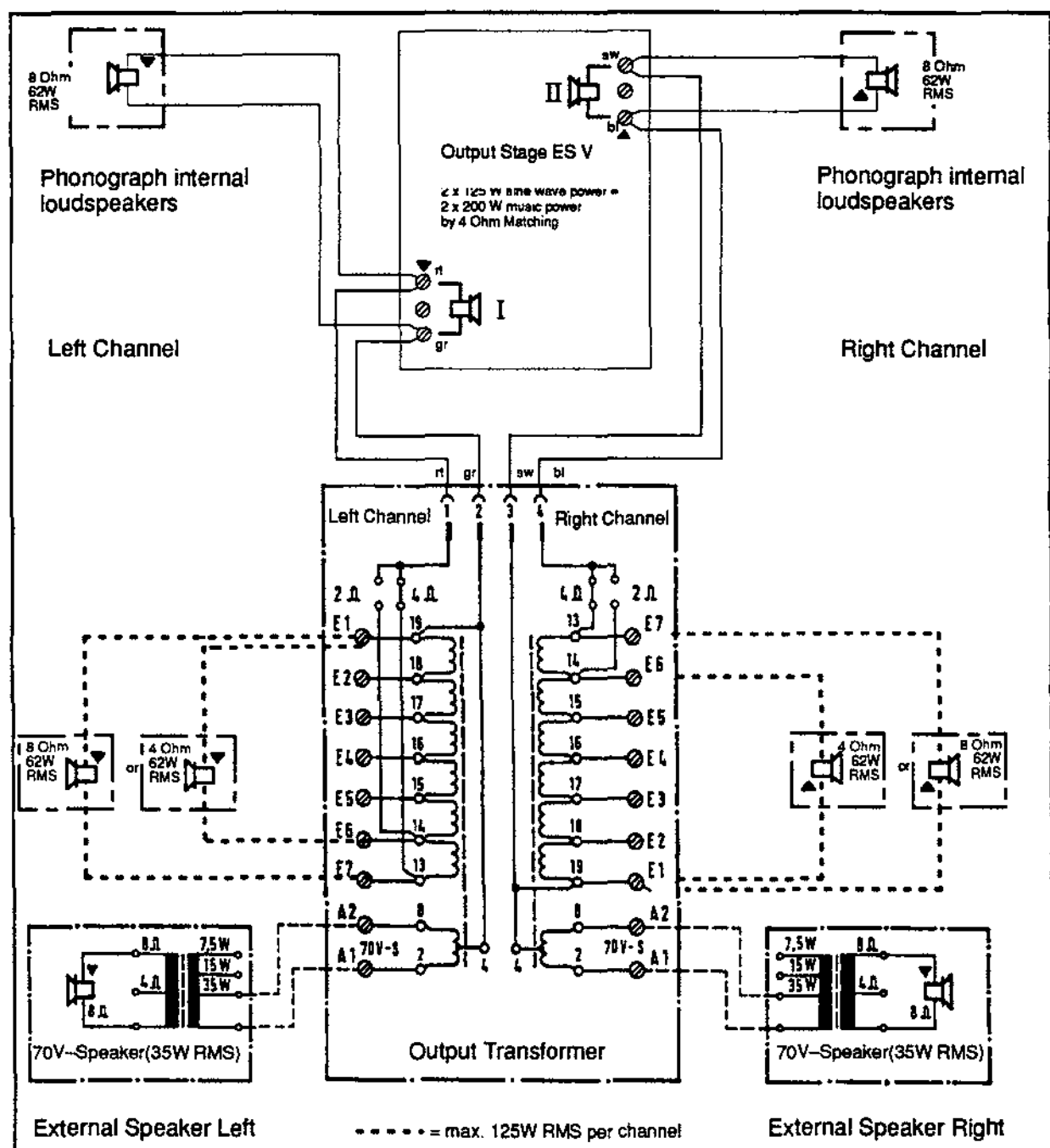


Figure 23: Wiring diagram of the crossover network

## Connection diagram for output transformer



Terminal Position	Speaker				
	1 Ohm	2 Ohm	4 Ohm	8 Ohm	16 Ohm
E1-E2	4W RMS	2W RMS	1W RMS	0,5W RMS	0,3W RMS
E1-E3	16W RMS	8W RMS	4W RMS	2W RMS	1W RMS
E1-E4	64W RMS	32W RMS	16W RMS	8W RMS	4W RMS
E1-E5	125W RMS	62W RMS	28W RMS	14W RMS	8W RMS
E1-E6	—	125W RMS	62W RMS	30W RMS	16W RMS
E1-E7	—	—	125W RMS	62W RMS	30W RMS

Connection of 70 V-loudspeakers  
max. 60 W RMS

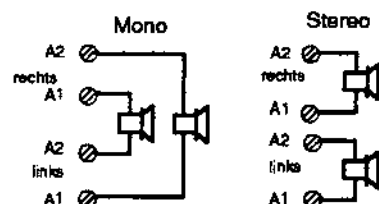


Figure 24: Connection diagram for external loudspeakers and output transformer

## Special connection / left channel inverted

If you want to connect already existing loudspeaker networks which work with antiphase polarity of the left channel (e.g. ancien ROWE – connection) to this phonograph you have to read this chapter.

If the phonograph is to function with a loudspeaker network with antiphase polarity or with a high impedance mono-system which has been connected between left and right channel, please proceed as follows:

Cut the soldered connection LB6 on the pcb central unit. By doing so, the signal of the left channel is inverted (180°, changed poles) the signal will be antiphase then.

**For mono mode**, connect external loudspeakers between the terminal positions E2 – E7 left and E2 – E7 right of the output transformer.

As almost the double output power is measured between the channels' taps, the loudspeakers are to be connected only according to the following table and in accordance with their impedance and power.

**Power values for special mode with inverted left channel (open connection LB 6 on pcb central unit)**

Terminal position	Loudspeaker			
	2Ω	4Ω	8Ω	16Ω
E2 left – E2 right	8 W RMS	4 W RMS	2 W RMS	1 W RMS
E3 left – E3 right	32 W RMS	16 W RMS	8 W RMS	4 W RMS
E4 left – E4 right	125 W RMS	64 W RMS	32 W RMS	16 W RMS
E5 left – E5 right	–	125 W RMS	64 W RMS	32 W RMS
E6 left – E6 right	–	–	125 W RMS	64 W RMS
E7 left – E7 right	–	–	–	125 W RMS

**Attention:** As the bass frequency reproduction of the internal loudspeakers would be neutralized by the antiphase with inverted left channel you have to invert the connecting wires of the internal left loudspeakers as follows:

The red wire to tap E1 left, the grey wire to taps E2 to E7 corresponding to the desired volume.

The same is valid for the 70V–Stereo–installation (A1–A2). The wires A1 and A2 have equally to be connected in an inverted way.

The total power must not exceed 2x 125 W RMS (Total 250 W RMS).

Refer to the following connection diagram:

**Connection diagram for special mode with inverted left channel**  
(unsoldered connection LB6 on pcb central unit)

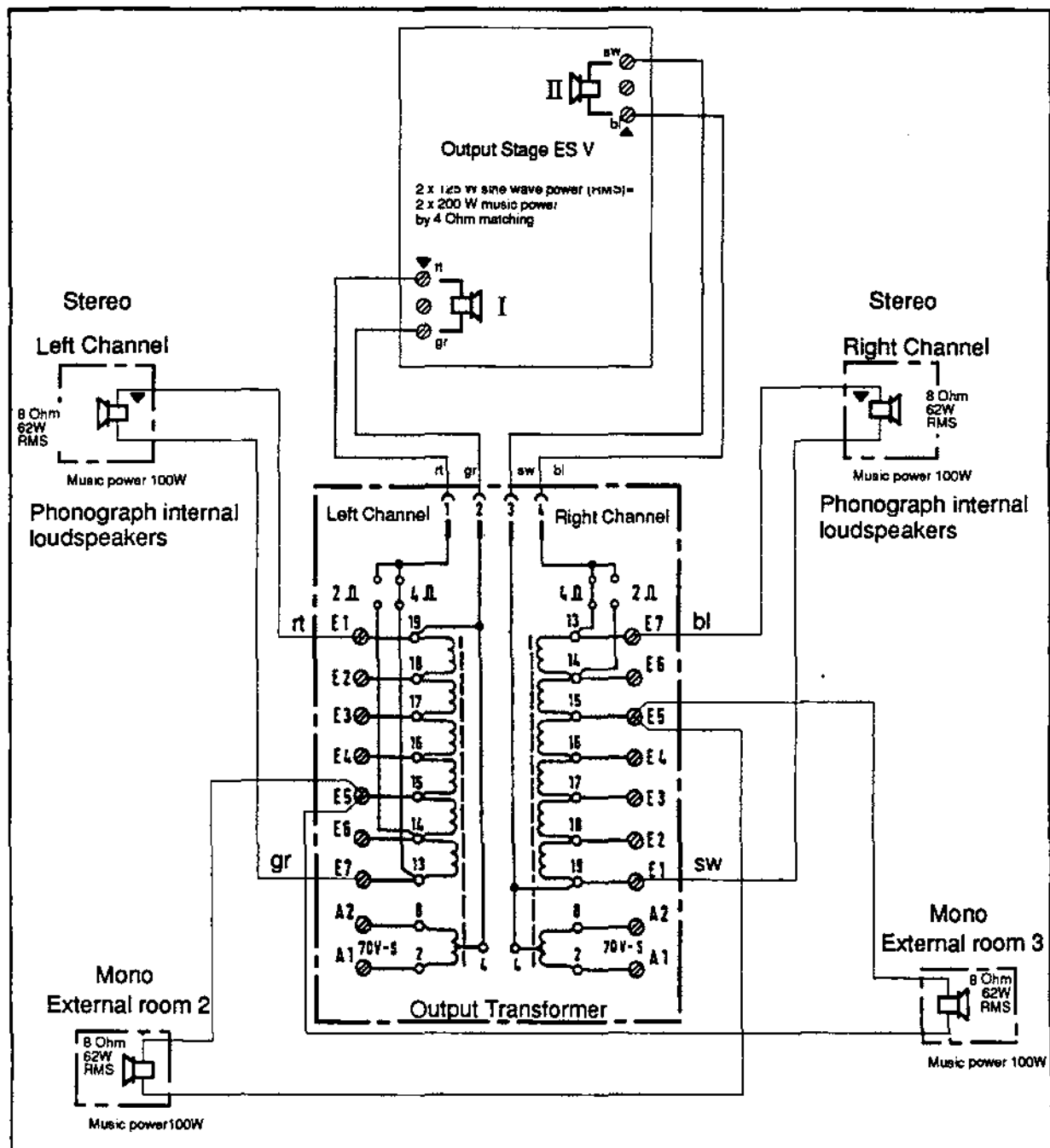
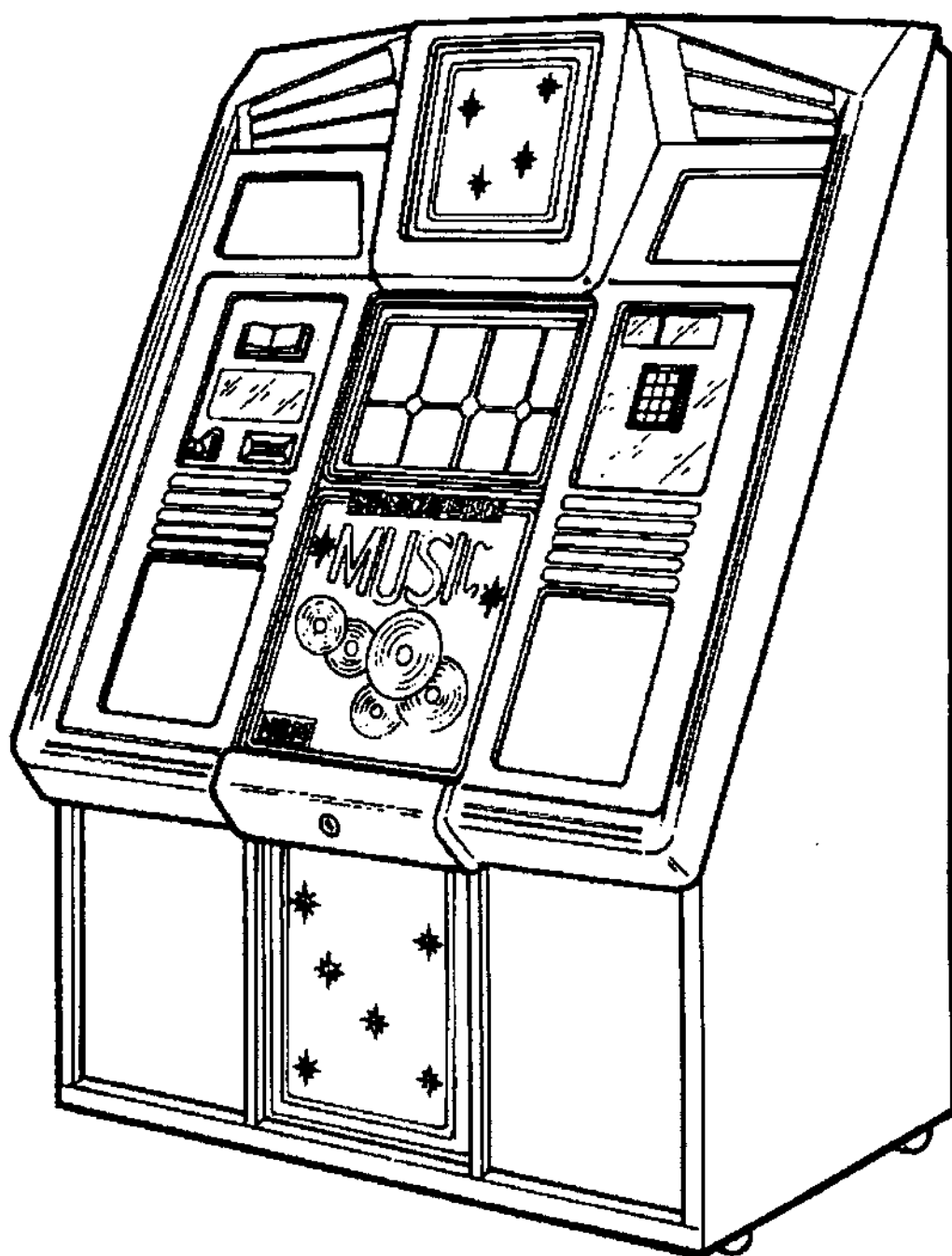


Figure 25: Connection diagram for special mode with inverted left channel

## 5. Section

### **SOLID GOLD**



The service program

## 5. Section Programming of special and individual settings

### General information, command overview

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

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

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

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

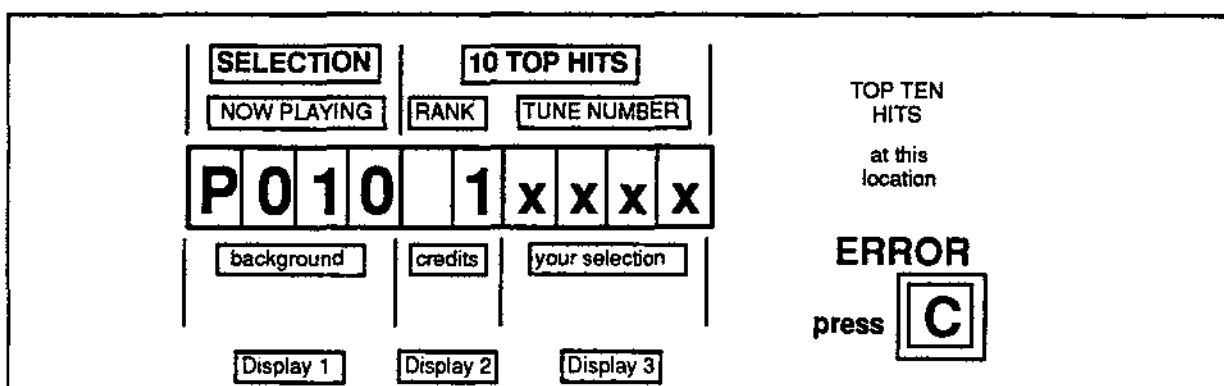


Figure 26: Display after entering the service mode

The display shows P010 and values concerning the popularity of the least played CD/track resp. title.

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

Now enter the desired command number. Zeros before the number can be left out.

A command called up in error can be cancelled by pressing "C". Pressing "H" confirms the entry.

For example:

*Enter: P 40 H 1 H* to program the phonograph with all default values.

In order to find single commands easier, all possible commands are put together in single groups. Compared to their predecessors, the programming of machines with ES-V technology is much more extensive.

The commands of Groups 1 to 6 and 14 have previously existed, but have been revised.

The commands in Groups 7 to 13 have been added.

By integrating a real time clock, the phonograph has been equipped with some very interesting new commands. Thus, the phonographs have become even more attractive.

Refer to the following overview to get a short summary of all available commands.

P001	<b>Authorization:</b> Enter authorization code: "PPPP"	P040*	<b>General settings:</b> 0+H Default values for 041 to 054, 077, 094
P002*	Change authorization code "PPPP"		1+H Default values for 041 to 054, 077, 094 and 114, 117 ▼
	<b>Statistics:</b>	P041*	Define machine code number, maximum 4 digits "0"
P010	0: Number of least played CD 1: Number of second-least played CD	P042	Selection limit for CD/track (title) maximum 100CDs, 99 tracks "0024"
	2: Number of plays 3: Data about any CD	P043	Light show in stand-by, if installed "1105"
P011	0: Number of the most played (best) CD 1: Number of the second-best CD	P044	Light show in operation, if installed "1000"
	2: Number of plays 3: Data about any CD	P045*	Time limit for playing of tracks in minutes (0=no limit) "0"
P012	0: Top-title, Hit #1 1: Second-best title	P046	Sequence of playing normal selected tracks (0= fito / 1=numerical / 2=random) "0"
P013*	0: Cash amount since last evaluation 1: Accumulated Cashbox amount	P047	Maximum number of titles in a sequence from one CD (0 = no limit) "0"
P014*	0: Number of coins through Chute 1 (K1) 1: Number of coins through Chute 2 (K2)	P048	Automatic advancing of title display in minutes (0= none) "0"
	2: Number of coins through Chute 3 (K3) 3: Number of coins through K4 or bills into NP1	P049*	Cancels credits after power off / stand-by (x=0=no, x=1 to 240=yes) x/10hrs. "2"
	4: Number of bills into validator NP2 5: Accumulated counter for K1	P050*	Cancels selection memory after power off (no: x=0, yes: x=1 to 240) x/10 hrs. "2"
	6: Accumulated counter for K2 7: Accumulated counter for K3	P051*	Maximum volume in play operation (max. 31) "31"
	8: Accumulated counter for K4 or NP1 9: Accumulated counter for K5 or NP2	P052*	Maximum volume for background music (max. 31) "16"
P015 *1)	0: Cash amount of wall box 1: Accumulated Cashbox amount	P053	Sound system setting set volume "0505"
P016*	0: Counter of played titles 1: Accumulated counter	P054	Sound system setting set treble and bass "0808"
P017*	0: Counter of selected titles 1: Accumulated counter		
P018*	0: Counter of album selections 1: Accumulated counter		<b>Price settings:</b> see table "Price settings"
P019*	0: Counter of overlay titles 1: Accumulated counter	P060*	0+H Cancels previous price setting n+H Selection "n" from table (s.a.)
P020*	0: Counter for paid credits 1: Accumulated counter	P061*	Arbitrary price setting for chute 1 xx=selections, yyyy=price "xx yyyy"
P021*	0: Counter for free credits 1: Accumulated counter	P062*	same for chute 2
P022*	0: Counter for background titles 1: Accumulated counter	P063*	same for chute 3
P023*	0: Counter for autoplay titles 1: Accumulated counter	P064*	same for chute 4
P024*	0: Counter for advertising tracks 1: Accumulated counter	P065*	same for chute 5
P025*	0: Counter for Happy-Hour-credits 1: Accumulated counter	P066*	Bonus listing for album setting 0: No album selection allowed "1"
P026	reserved		1: No bonus
P027	reserved		2: 1 bonus for 5 Titles
P028	Number of unused credits		3: 1 bonus for 4 Titles
P029	Number of selections not yet played		4: 1 bonus for 3 Titles
P030	<b>Data transfer to Data Print in textmode</b> 0: cashbox, counters, popularity, errors,...		
P031*	<b>Data transfer to Data Print in graphic mode</b> 0: all available data		<b>Monetary value settings:</b> see table "Monetary value settings"
	1: Cashbox 2: Counter and cashbox contents	P070*	0+H Cancels previous monetary value n+H Selection "n" from table (s.a.)
	3: General settings 4: Popularity of all CDs	P071*	Arbitrary monetary value setting for chute 1 zzzz=coin value (e.g. 0500=\$ 5,-) "zzzz"
	5: Top 30 hits 6: Previous 20 error reports	P072*	same for chute 2
P032	option, not used for USA	P073*	same for chute 3
P033*	<b>Cancellation routines!</b> 0+H clear all memory entries!	P074*	same for chute 4
	1+H clear hit parade! 2+H clear popularity!	P075*	same for chute 5
	3+H clear counters and cashbox contents! 4+H clear credits!	P076*	Bonus credits for bill insert "0"
	5+H clear selection memory! 6+H clear error memory!	P077*	0: indirect revaluation 1: direct revaluation of inserted money "0"



P080*	<b>Programming real time clock:</b> Set time "hhmm"	P130*	<b>Programming lock-out titles:</b> 0+H default values; cancels entries + time
P081*	Set date "ddmmyy"	P131*	Start time for time window "Free title selection"
P082*	Set week-day (d=1 to 7) "d"	P132*	Stop time for time window "Free title selection"
P090*	<b>Programming free credits:</b> 0+H default values; cancels entries + time	P133*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display
P091*	Start time of time window "Free Credit"	P134*	Activate/deactivate lock-out: "0" 1: Title locked / 0: Title available in time window
P092*	Stop time of time window "Free Credit"	P135*	Entry of 20 titles or albums Enter: nnnn+H
P093*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display	P140*	<b>Programing Happy-Hour-credits:</b> 0+H default values; no Happy-Hour
P094*	Number of free credits: 0: No free credits "0"	P141*	Start time for time window "Happy-Hour"
	<200: No. of free credits individually used	P142*	Stop time for time window "Happy-Hour"
	=200: Unlimited use	P143*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display
	=201: Switch between no/unlimited use	P144*	Calculation number (n=1 to 5) Enter: n+H (0= no Happy-Hour) "0"
	=202: automatically unlimited use		
P100*	<b>Programming background music:</b> 0+H default values; cancels entries + time		
P101*	Start time for time window "Background music"		
P102*	Stop time for time window "Background music"		<b>Calling up Test Programs:</b>
P103*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display	P150	Read out error report memory: 0: Last reported error
P104*	Lock for background music (BGM); 0: No BGM "0"		1: Previous error report 2: CD-Nr. at which the error occurred
	1: BGM possible in time window 2: BGM automatically in time window		3: Time of occurrence 4: Date of occurrence
P105*	Entry of 20 titles or albums Enter: nnnn+H	P151	0: Continuous run 1: all CDs played for 16 sec. each
P106*	Patron Selection (0=free, 1=locked for guests)	P152	0: Selected CDs played for 16 sec. each Enter: nnnn +H
P107*	Sequence of play (0=FIFO, 1=RANDOM) "0"	P153	0: Continuous run 3: All CDs are placed in the lift, but not played
P108*	paid for BGM Enter: nn+H (0=no credit) "0"		1: Continuous run 4: 6 CDs (1,25,50,51,75,00) are continually played for 16 sec
P110*	<b>Programming auto play:</b> 0+H default values; cancels entries + time		2: Continuous run 5: 2x cont. run 3, thereafter repeated cont. run 4
P111*	Start time for time window "Auto Play"	P155	0: Lamp test (F6); Stop with key "C"
P112*	Stop time for time window "Auto Play"	P156	0: Input test (F7); Stop with key "C"
P113*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display	P157	0: manual control of the CD-changer Stop with key "C"
P114*	Time between two titles in minutes Enter: nn+H (0=no auto play) "15"		<b>Stop the continuous runs always by closing the cabinet switch!</b>
P115*	Entry of 20 titles or albums Enter: nnnn+H		<b>Title memory:</b>
P116*	Patron Selection (0=free, 1=locked for guests)	P160	0: Read in all CD titles, i.e. with initial equipping of all CD's
P117*	Sequence of play (0=FIFO, 1=RANDOM) "1"	P161	Read in all titles of one newly equipped CD. Enter CD# "nn" +H
P120*	<b>Programming advertisement play:</b> 0+H default values; cancels entries + time	P162	Read the title memory, 0: Number of titles from first CD
P121*	Start time for time window "Advertisement"		1: Number of titles from the next CD 2: Number of titles from the last CD
P122*	Stop time for time window "Advertisement"		3: Number of titles from any CD. Enter CD# "nn" +H
P123*	Active on week-day(s) "d" (d = 1 to 7) yes: 1+H, no: 0+H after day code display	P163	<b>Cancels title memory of all CD's,</b> 0+H all entries set to 1
P124*	Time between two titles in minutes. Enter: nn+H (0=no adverts) "0"		
P125*	Entry of 20 titles or albums. Enter: nnn+H	P164	<b>Switch signal sources</b> only necessary when servicing
P126*	Patron Selection (0= free, 1= locked for guests)		0+H Mute (no signal source) 1+H CD-player
P127*	Sequence of play (0=FIFO, 1=RANDOM) "0"		2+H Tape or cassette player 3+H Microfone

## The structure of the service program steps

The whole service program steps are divided into command groups

Table 6: Overview of Commands of the Service Program

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

The following chapter will describe the meaning and the syntax of each command of the service program in detail.

## **Authorization (P001 to P002)**

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

### **Enter Authorization Code**

**P001** In order to call up the protected commands, one must start authorization by using the P001 command.

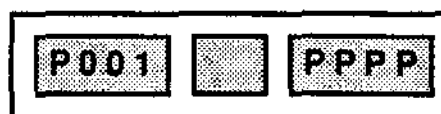
*Enter: P 001 H P P P P H or P 1 H P P P P H*

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

### **Changing the Authorization Code**

**P002:** During regular operation changing of the authorization code is only possible after previous authorization. Illegal misuse is thus prevented.

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



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



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

## Statistics (P010 to P029)

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

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

Individual commands:

### Popularity

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

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

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

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

P 0 1 0	1	4 5
---------	---	-----

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

P 0 1 0	1	3 2 6 9
---------	---	---------

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

P 0 1 0	1 7	5 3
---------	-----	-----

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

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

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

P 0 1 1	1	1 9
---------	---	-----

Enter: P 011 H 2      i.e. 731 plays

P 0 1 1		7 3 1
---------	--	-------

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

P 0 1 1	2	2 4
---------	---	-----

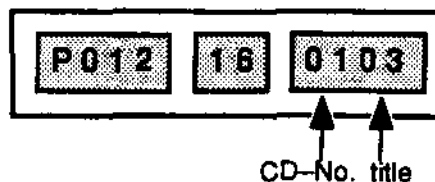
### Hit Parade

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

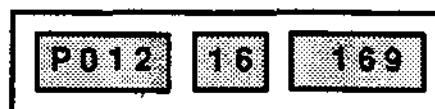
- P012:**
- 0: Display of top title number, Hit No. 1
  - 1: Display 2nd best title (advance with key "1")
  - 2: Number of plays of the actual title

Enter: **P 012 H 0**

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



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



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

### Cashbox contents

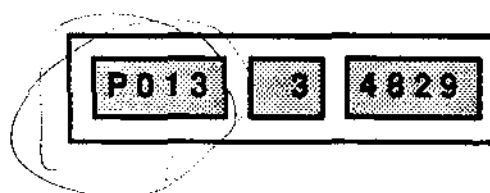
The display of the cash amount is done by total numbers, read out in currency amounts. Contrary to the monetary value setting in command group P07x where the coin value multiplied by factor 100 is displayed, i.e. \$1.— are entered in P07x as 0100, but are shown as 1 in P013.

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

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

Enter: **P 013 H 0**

1     *i.e. \$34,829.—*



### Counter for number of coins / bills

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

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

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

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

Enter: P 014 H 0  
           1     *i.e. 12.543 coins through*  
           2     *channel 2:*  
           ...  
           9

P 0 1 4	1	2 5 4 3
---------	---	---------

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

#### **Additional Counters**

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

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

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

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

P 0 1 6	1	0 2 7 3
---------	---	---------

The counters P026 and P027 are not used.

Further interesting data are recorded in counters P028 and P029.

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

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

### Data Transfer (P030 to P031)

In this group of service program commands the stored data in the counters mentioned beforehand are prepared for output to a DATA PRINT or to evaluation devices which process the data. Prerequisite is, for instance, the DATA PRINT is already connected to the evaluation connector on the control unit.

After calling up the command and entering the respective code, data transfer follows.

There are two ways of print-out possible:

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

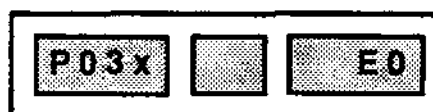
**P031** transfers all data in graphic mode.  
The data are printed-out directly after receiving.

See also the sample printouts shown in chapter **How to evaluate the statistics?**

### Display of error numbers while evaluation is performed

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

Display of the phonograph if a transfer error occurs:



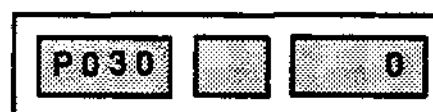
Remember to pull out the interface cord after the printout is finished.

### DATA PRINT Printout in Text Mode

**P030:** 0: All data of the statistics counters are processed and sent to DATA PRINT. There they are stored and printed out depending on the setting of the DATA PRINT.

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

Enter: P 030 H 0



The counters of the phonograph are deleted after the printout is done and the service switch is closed manually or after closing the front door of the cabinet.

### DATA PRINT Printout In Graphic Mode

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

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

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



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

### **Cancellation of counters (P033)**

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

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

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

**!!CAUTION!!**

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

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





## Programming General Settings P040 to P054

In order to adjust each phonograph individually to the location requirements, certain general settings can be individually changed. Basis are detailed values which have been set at the factory (Note: "default values").

### Default values

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

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

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

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

autoplaytitles with defined acces to all CDs.  
P114 15  
P117 1

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

P 0 4 0		0
---------	--	---

### I.D. number of the phonograph

**P041:** Every phonograph can be programmed with its own I.D. number. Data PRINT printouts can then be easily identified if you have evaluated several machines. The I.D. number has at most 4 digits.

Enter: P 041 H nnnn H

P 0 4 1		2 6 0 2
---------	--	---------

### Maximum number of selectable CDs and tracks/titles

**P042:** Within partially equipped phonographs, unused magazine slots can be excluded. A maximum of 100 CDs (01–to 00) as well as a maximum of 99 titles can thus be selected. (Default value: 0024).

Enter: P 042 H 0024 H

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

P 042		0024
-------	--	------

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

### Light show in stand-by

**P043:** A light generator can be programmed, which causes the phonograph to attract the patrons' attention as long as no music has been selected. **OPTION!**

Enter: P 043 H

P 043		1105
-------	--	------

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

A: Switch over characteristic	0= hardly 1= softly	<table border="1"><tr><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>0</td><td>0</td><td>0</td><td>1</td></tr><tr><td>▼</td><td>▼</td><td>▼</td><td>▼</td></tr><tr><td>1</td><td>3</td><td>1</td><td>5</td></tr></table>	A	B	C	D	0	0	0	1	▼	▼	▼	▼	1	3	1	5	<table border="1"><tr><td>1105</td></tr></table>	1105
A	B		C	D																
0	0		0	1																
▼	▼	▼	▼																	
1	3	1	5																	
1105																				
B: Speed	0= slowly 3= fast																			
C+D: various running lights	01 to 15																			

1105: Running light no.05, slowly with softly switching light.

### Light show during play

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

Enter: P 044 H

P 044		1000
-------	--	------

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

A: Mode of operation	0= steady light 1= light organ	<table border="1"><tr><td>A</td><td>B</td><td>C</td><td>D</td></tr><tr><td>0</td><td>0</td><td>0</td><td>0</td></tr><tr><td>▼</td><td>▼</td><td></td><td></td></tr><tr><td>1</td><td>3</td><td></td><td></td></tr></table>	A	B	C	D	0	0	0	0	▼	▼			1	3			<table border="1"><tr><td>1000</td></tr></table>	1000
A	B		C	D																
0	0		0	0																
▼	▼																			
1	3																			
1000																				
B: Basic brightness/contrast	0= dark 3= bright																			
C+D: Various light effects	00= lightorgan 01 to 15 *)																			

\*) see P043

1000: light organ, relative dark.

### Limit play time of one track

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

Enter: P 045 H nn H

3 H: titles will slowly fade after 3 min.

P 0 4 5		3
---------	--	---

### Sequence of plays at normal selection

**P046:** In order to alter the music menu, three variations can be chosen when playing different titles:

- 0 – play as selected (FIFO)
- 1 – play in numerically ascending numbers
- 2 – play randomly (RANDOM).

Enter: P 046 H n H

2 H i.e. play randomly

P 0 4 6		2
---------	--	---

### Maximum number of titles of one CD

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

Enter: P 047 H n H

0 H i. e. no limit

P 0 4 7		0
---------	--	---

### Automatic advancing of title display

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

Enter: P 048 H nn H

10 H i.e. advancing of  
title display every 10 min.

P 0 4 8		1 0
---------	--	-----

### Cancel credit

**P049:** Remaining credits are cancelled after X/10 hrs. (X x 6 min.) power off or stand-by.

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

i.e. X = 1: waiting time = 6 min.

X = 10: waiting time = 1 hr.

X = 240: waiting time = 24 hrs.

"0" does not cancel.

Enter: P 049 H 2 H

*i.e. cancel credit after 12 min.*

*power off/stand-by (2/10 hrs.):*

P 0 4 9		2
---------	--	---

### Cancel selection memory

**P050:** Remaining selections entered in the selection memory are cancelled after X/10 hrs. (X x 6 min.) power off.

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

i.e. X = 1: waiting time = 6 min.

X = 10: waiting time = 1 hr.

X = 240: waiting time = 24 hrs.

"0" does not cancel.

Enter: P 050 H 4 H

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

P 0 5 0		4
---------	--	---

## Sound system settings

### Maximum Volume Levels

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

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

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

Enter: P 051 H 31 H

*i.e. maximum volume possible*



### Set volume for play mode

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







This function can be set in two ways:

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

In regular play mode it can only occur via remote control.

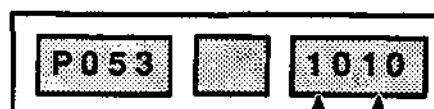
In both cases one hears the volume changes immediately.

**Key pad layout for volume setting:**

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

Enter: P 053 H

*Change per pressing keys  
i.e. Key "2" = louder*









channel value: left, right

### Sound setting

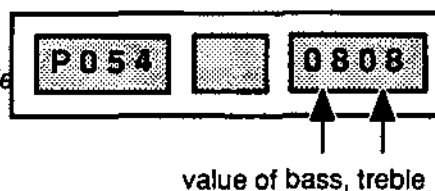
With command **P054** the sound setting is performed in a range from 1 to 10. Here treble and bass volume are set for both channels at the same time. The changed setting can also be immediately heard.

Key pad layout for sound setting:

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

Enter: **P 054 H**

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



## Price Settings P060 to P066

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

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

Entries are necessary as per form "plays/monetary value": nn xxxx (nn = two-digit number of plays, xxxx = 4-digit monetary value).

Table 7: Price Settings

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

### Programming the price settings by default values

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

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

P 0 6 0		1 8
---------	--	-----

### Programming the price settings with individual (personnel) values

**P061 to P065:** The stakes for the individual price scales can also be separately defined. With commands P061 to P065 the respective stake can be programmed.

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

Unused Steps may be programmed with zero or with the preceeding value (examples see table)

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

Enter: P 065 H 120500 H

P 0 6 5	1 2	0 5 0 0
---------	-----	---------

### Programming an album bonus

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

**P066:**

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

Setting is confirmed by pressing "H".

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

P 0 6 6		1
---------	--	---



## Monetary Value Setting P070 to P077

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

### Standard values

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

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

P 0 7 0		1 0
---------	--	-----

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

### Individual monetary values

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

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

### Bonus Credits

#### **P076:**

With this command another bonus (value n = 0 to 4) is defined. The bonus for paying with bills.

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

P 0 7 6		3
---------	--	---

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

### Indirect / direct money to credit revaluation

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

#### **P077:**

- "0" + "H" Indirect revaluation: inserted coins are stored. At an appointed coins value the credit is defined from the highest possible price setting, including a possible bonus.
- "1" + "H" Direct revaluation: inserted coins are revaluated directly after insertion.  
Then no bonus is possible with multiple insertion of coins.

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

P 0 7 7		0
---------	--	---

Table 8: Monetary Value Settings

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

Chutes entered with 0 on this table are blocked. One must be careful to block also the coin pathways so these coins will not be accepted and are rather expelled through the coin return.

## Programming Real Time Clock P080 to P082

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

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

### Set time

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





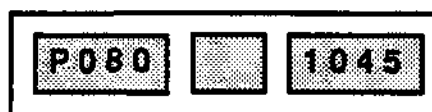
 1 hour +1	2	 3 minute +1
4 12:00	5 00:00	6 30 minutes
 7 hour -1	8	 9 minute -1
C Cancel	0	H Step to the next command

Figure 27: Keypad layout for command "set time"

Enter: P 080 H

change per pressing keys  
i.e. 10.45 h

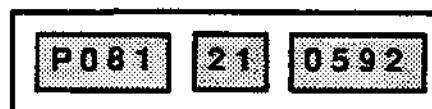


### Set date

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

Enter: P 081 H

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









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

Figure 28: Keypad layout for command "set date"

### Set day code

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

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



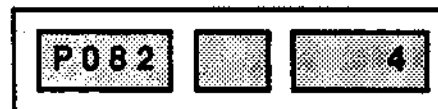
1	2	 3 day code +1
4	5	6
7	8	9  day code -1
C Cancel	0	H Step to the next command

Figure 29: Key pad layout for command "set day code"

Enter: P 082 H

change per pressing keys  
i.e Thursday is 4:



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

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

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

## Programming Free Credits P090 to P094

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

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

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

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

*Enter: P 090 H 0 H*

P 0 9 0		0
---------	--	---

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

*Enter: P 091 H*

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

P 0 9 1		1 2 3 4
---------	--	---------

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

*Enter: P 092 H*

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

P 0 9 2		1 3 4 5
---------	--	---------

**P093:** Here the weekday is chosen on which the previously determined time window is to become active.

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

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

Enter: P 093 H

0 or 1 H

Set per pressing keys

i.e. monday is inactive

confirm setting with key "H".

P 0 9 3	1	0
---------	---	---

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

**P094:** Entering the number of free credits.

Different program types are possible:

- 0: No free credits possible (default setting).
- <200: Limited free credit. Amount corresponds to input number. Free credits can be used individually. In the display the remaining credits are shown.
- =200: Unlimited free credit while time window is active.
- =201: Switching between no free credits and unlimited free credits while time window is active. Switching via remote control.
- =202: Unlimited free credit automatically while time window is active. If non-active switching is done via remote control.

Enter: P 094 H 200 H

i.e. no free credit:

P 0 9 4		0
---------	--	---

## Programming Background Music P100 to P107

During those times when few people are present or for social festivities, the phonograph operator can call up the background mode. The played music is heard quietly in the background. This operational mode remains even after a power failure. If money is inserted into the machine and a title selected, the background music is interrupted for the duration of play.

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

Enter: P 100 H 0 H

P 1 0 0		0
---------	--	---

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

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

Enter: P 103 H 0 or 1 H

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

P 1 0 3	3	0
---------	---	---

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

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

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

Enter: P 104 H n H  
2 H

*i.e. automatically  
within the time window*

P 1 0 4		2
---------	--	---

**P105:** What is played as background music, is also determined by the operator. With command P105, followed by 20 four-digit entries, 20 titles or albums can be determined. Without entry in P105 all CDs (defined by P042 to be selectable) are played.

Enter: P 105 H nnnn H

i.e. 1. entry: CD #17 title 3  
and so on:

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

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

P106 "0" titles and albums free for selection,  
P106 "1" titles or albums are locked.

Enter: P 106 H n H

0 H i.e. titles are not locked:

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

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

P107 "0" sequence of play in order of entry (FIFO), factory setting  
P107 "1" random play (RANDOM).

Enter: P 107 H n H

0 H i.e. FIFO playing:

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

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

P108 "0" Background music as in the past, without credit.  
P108 "n" Background music deducts "n" credits (n=1 to 99).

Enter: P 108 H n H

2 H i.e. two credits are deducted:

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



## Programming Auto Play P110 to P117

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

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

Enter: P 110H 0 H

*i.e. set default values:*

P 1 1 0		0
---------	--	---

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

**P113:** With command P113 the week-days are set at which auto play should be active. Key pad layout see P082.

Enter: P 113H 0 or 1 H

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

P 1 1 3	3	0
---------	---	---

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

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

P114 "0" + "H"

no auto play

P114 "nn" + "H"

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

Enter: P 114H nn H

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

P 1 1 4		30
---------	--	----

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

Enter: P 115 H nnnn H

*i.e. 1. entry: CD # 97 all titles  
and so on:*

P 1 1 5		9 7 0 0
---------	--	---------

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

P116 "0" titles and albums are free for selection

P116 "1" titles and albums are locked.

Enter: P 116 H n H

*0 H i.e. titles are not locked:*

P 1 1 6		0
---------	--	---

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

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

P117 "1" Play randomly (RANDOM)

Enter: P 117 H n H

*1 H i.e. play randomly:*

P 1 1 7		1
---------	--	---

## Programming Advertisements P120 to P127

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

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

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

P 1 2 0		0
---------	--	---

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

**P123:** With P123 the week-day is set for advertisement play. See P082 for key pad layout.

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

P 1 2 3	7	0
---------	---	---

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

**P124:** With P124 it is set if or if not and which time between advertising spots should be waited .

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

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

P 1 2 4		3 0
---------	--	-----

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

Enter: P 125 H nnnn H  
i.e. 1.entry: CD # 90 3.title  
and so on:

P 1 2 5	1	9 0 0 3
---------	---	---------

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

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

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

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

## Programming Lock-Out Titles P130 to P135

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

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

Enter: P 130 H 0 H

*i.e. set default values*

P 1 3 0		0
---------	--	---

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

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

Enter: P 133 H 0 or 1 H

*Set per pressing keys  
i.e. saturday activ:  
confirm settings with key "H"*

P 1 3 3	6	1
---------	---	---

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

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

Enter: P 134 H 1 H

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

P 1 3 4		0
---------	--	---

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

Enter: P 135 H nnnn H

*i.e. 1.entry: CD #85 all titles  
and so on.*

P 1 3 5		8 5 0 0
---------	--	---------

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

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

## Programming Happy-Hour-Credits P140 to P144

For additional animation of the audience this function is implemented.

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

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

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

Enter: P 140 H 0 H

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

P 1 4 0		0
---------	--	---

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

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

Enter: P 143 H 0 or 1 H

*Set per pressing keys  
i.e. saturday activ:  
confirm settings with key "H"*

P 1 4 3	6	1
---------	---	---

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

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

P144 "0"+"H"      no Happy-Hour

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

Enter: P 144 H n H

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

P 1 4 4		3
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## Test Programs P150 to P164

To support the operator when equipping the CD changer with new CDs, trouble-shooting or servicing, several aid functions have been incorporated as known from earlier phonographs. Group 15x of the test programs includes functions such as read-out of error memory, various continuous run tests as well as input and display tests. For these purposes, the respective group code (Fx) is shown in the middle display.

Group 16x serves to integrate the CDs and their number of titles in the title memory of the phonograph.

### Test Programs for Service Operation P150 to P157

#### **P150:** Read-out of Error Memory:

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

Display:



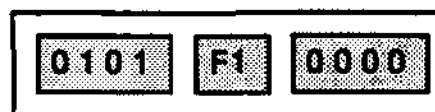
### Continuous run tests

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

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

Enter: *P 151 H 0*

Start continuous run 1:



CD / Track

number of errors

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

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

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

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

Enter: *P n*

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

#### **P155:** Display Test (F6):

During the display test all digits of 7-segment-displays and all control lamps are successively turned on and off. Pressing "H" will stop the test and continue it after pressing "H" again. The display test does not check the lamps of a light organ that might be connected.

Pressing "C" stops the test.

Enter: *P 155 H*

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

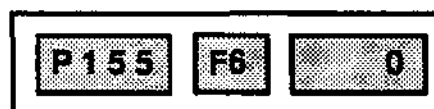


Table 9: Error Displays

Displays			Possible Causes	Corrections
1	2	3		
Er	01		EPROM contents (CONTROL-UNIT) disturbed.	Change EPROM (IC2).
Er	10		RAM (CONTROL-UNIT) defective.	Change RAM (IC 3). After that reprogram all program steps.
Er	11		RAM contents (CONTROL-UNIT) short-term disturbance.	No correction necessary; program is reinitialized. Change RAM IC 3 if frequently occurring.
Er	12		RAM battery is empty.	Change RAM (IC 3). After that reprogram all program steps.
Er	20		Verification errors in program (CONTROL UNIT).	No correction necessary; program is reinitialized. Change CPU IC 1 if frequently occurring.
Pxxx	Er	30	Memory contents (CONTROL UNIT) invalid.	No correction necessary; program step Pxxx (in Display 1) is automatically reprogrammed.
Pxxx	Er	31	Memory contents (CONTROL UNIT) invalid or not programmed.	Program step Pxxx shown in Display 1 must be reprogrammed.
Pxxx	Er	40	Wrong price setting.	Check price setting and reprogram if necessary.
Er	50		Coin mechanism defective. Too much credit.	Check coin mechanism.
Er	6x		Error at CD player.	See Er 60 – Er 63.
Er	60		Connection to the CD-player interrupted. No supply voltage present for decoder board or CD player.	Check connection cables to the decoder board, check fuses.
Er	61		No CD recognized by CD player. No CD in CD tray, CD defective. Player defective.	Check CD and exchange if needed. Exchange CD player. Exchange decoder board.
Er	62		Specified track on the CD not found.	Check the CD.
Er	63		Malfunction while playing a CD.	Check the CD player with equipped CD for easy running.
Er	7x		Malfunction on CD changer.	If error display does not disappear after 2 sec., error cannot be automatically corrected. No CD will be played until cabinet switch or "power on" is activated.
Er	70		Malfunction of operating control.	No correction necessary.
Er	71		Error during grip from magazine.	Equip CD-tray to magazine. Check alignment from magazine to pickup assy and adjust if necessary. Check function of light barrier OPPUM.
Er	72		Error during replacing CD in magazine. Malfunction of grip lever.	Check alignment of magazine to pickup assy and adjust if needed. Check function of grip. Check function of light barriers OPGR1 and OPGR2.
Er	73		Malfunction during lift drive. Playing of CD not possible.	Check lift for jamming. Check function and correct adjustment of light barrier OPSTP (drive wheel).
Er	74		End position of lift not o.k.. Playing of CD not possible.	Check function and adjustment of light barrier OPEND.
Er	80		Short circuit on wallbox signal wire.	Check wallbox connection.
Er	81		Malfunction of the audio processor (CB CENTRALE).	Change IC 1 = TDA 4390 if frequently occurring.
Er	90		Title display, three blocking in sequence, not functional anymore.	Blocking remedy  see also chapter 9 "Title display" the paragraph 1.4
Er	91		Blocking title display while left movement.	
Er	92		Blocking title display while right movement.	
Er	93		Blocking title display, stack left.	
Er	94		Blocking title display, stack right.	Jammed or dislocated title holders.

**P156: Input Test (F7):**

The input test checks all input ports and shows the results in a matrix on Display 3. The test can be stopped by pressing "C".

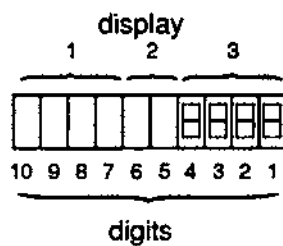
0: Start input test (Display 2 shows briefly F7)

Enter: P 156 H 0

i.e. Key switch operated:



The 4 digits of displays are used as follows:



digit 1: state of operation i.e. key switch:

0 = locked not able to call background musik  
1 = free

digit 2: bit number of input port (see table 10 "Attaching...", )

digit 3: port number from which input occurs (s.a. table 11: "Port-numbers of input ports").

digit 4: Is not used.

Table 10: Attaching of bit numbers to input ports

Bit number	corresponds to wiring diagram "Control Unit"
0	signal line A
1	B
2	C
3	D
4	E
5	F
6	G
7	H

Table 11: Port-numbers of input ports

Port number	name of input port
0	Control Unit (IC15)
1	Control Unit (IC16)
2	Control Unit (IC17)
3	Kea pad
4	Title display (IC1)
5	Is not used
6	Pickup driver (IC3)



## Testing the CD changer

### **P157:** Manual control of CD changer via keypad (F8):

In this test program the CD changer is controlled manually via the keyboard (Keys 1 to 0). The illustrated functions are executed by pressing the corresponding key depending on whether a CD is in the pick-up or not.









1	 2 Lift up	 3 Lift up stepwise
 4 Get CD from left	 Replace CD  5	6 Get CD from right 
7	 8 Lift down	 9 Lift down stepwise
C Cancel	0 Replace CD set lift down	H

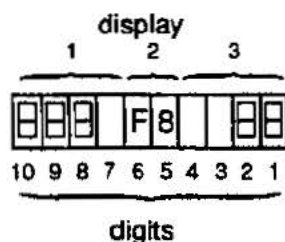
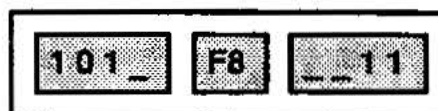
Figure 30: Key pad layout if lift is not set down

1 1.Play CD 2.CD in pause	2 >FF< afterwards 2x key "1" fast forward	3 Play next track
4 Replace CD get last one	5 1.Play C, 2.CD in pause	6 Replace CD get next one
7	8 >FR< afterwards 2x key "1" fast reverse	9 Play last track
C Cancel	0 Stop CD replace CD	H

Figure 31: Key pad layout if lift is set down or CD is on player

This test serves also to check the opto couplers in the various end positions. The status of each opto coupler is displayed. If "1" is displayed, then the opto coupler is disrupted. A "0" means the opto coupler is not disrupted. The following table shows the different combinations. The digits 1, 2, 8, 9 and 10 are employed for this purpose.

Enter: P 157 H 0



Digit 1:  
Digit 2:  
Digit 8:  
Digit 9:  
Digit 10:

Counter Wheel (OPSTP)  
Final Position (OPEND)  
Grip right (OPGRR)  
Middle Opto (OPPUM)  
Grip left (OPGRL)

On Display 2 (Digit 5+6) code F8 will be displayed during the test.  
The test is stopped by pressing "C."

## Recording title quantities in title memory

### **P160:** Recording title quantities of all CDs

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

The number of titles on each CD is registered in the title memory. Simultaneously, the established values are displayed. The number of titles is also read with each playing a CD

Enter: **P 160 H 0**

*i.e. result: CD 01 has 24 titles*

P 160		0124
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### **P161:** Recording title quantities of one CD

After calling up this command and entering the number of the newly installed CD, its number of titles is registered in the title memory (nn = 01 to number of P042). The number of titles from one CD is also read with every normal play of it. This function serves as single entry cancellation, if a not equipped CD is selected.

Enter: **P 161 H nn H**

*67 H i.e. = CD #67:*

P 161		67
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### **P162:** Displaying all title memories

After calling up this command and entering the respective code number, the corresponding title data will be displayed.

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

P 162		0320
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With P162,3 the two-digit CD number must be entered and confirmed with "H".

### **P163:** Erasing entry in title memory

All entries in the title memory are set to 1. So all CD titles are cleared, but the phonograph furthermore may access any CD tray. The basic function of the phonograph is kept. If new CDs are equipped and the command P160 is confirmed you may be sure that all new titles are stored in the title memory. P163 is to confirm by pressing "H".

Enter: **P 163 H 0 H**

P 163		6700
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After removing a CD you also have to remove the corresponding CD cover of the display unit.

## Switching signal sources

### P164:

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

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

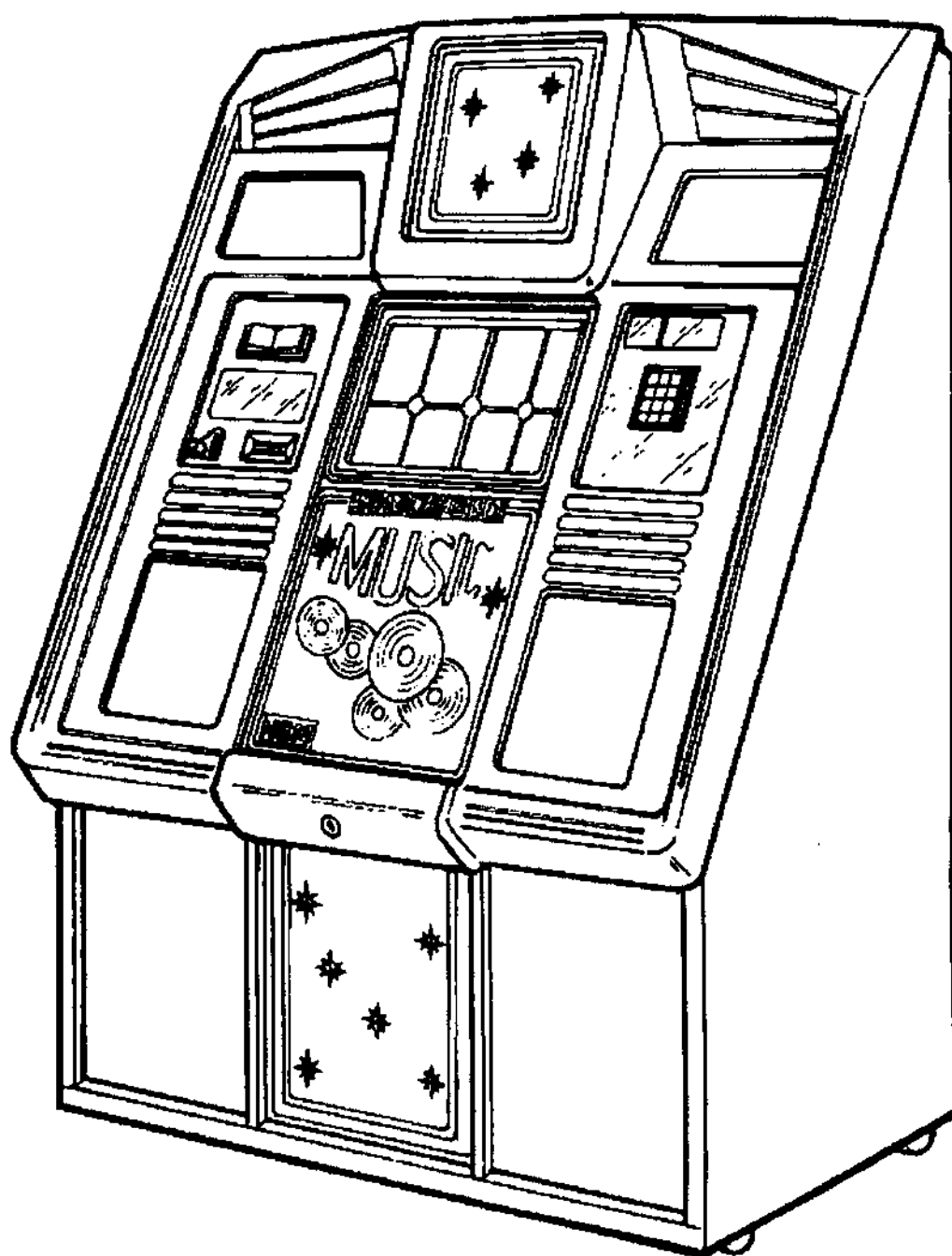
This "manual" switching occurs automatically in normal play according to the signal source that is turned on.

Enter: P 164 H n H  
2 H i.e. for cassette player.

P 1 6 4		2
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## 6. Section

### SOLID GOLD



Maintenance

## **6. Section Maintenance**

### **Cleaning the housing of the phonograph**

Clean housing using a soft and humid leather rag.

**DON'T USE ANY CHEMICALS FOR CLEANING THE PHONOGRAPH !**