PROGRAMMING OF

FOR NSM–PHONOGRAPHS

ES V–CD TECHNOLOGY

to
Technical Information, Assy

176 393	THE PERFORMER GRAND II
176 352	THE WIZARD/ OLD FASHION WIZARD
176 514	THE PERFORMER CLASSIC
176 610	CD HIDE–AWAY II
176 598	FIREBIRD II
176 705	THE PERFORMER WALL

3

Table of contents

Overview of tables used

PROGRAMMING OF PHONOGRAPHS

Main Menu

In order to program NSM phonographs in a simple yet extensive fashion, a service program has been instal-led with which the different settings can be altered via the keyboard of the phonograph.
In order to get to operating mode "programming", the following steps must be taken:

> Opening of cabinet lid (door) and
> pulling out service switch (cabinet interlock switch).

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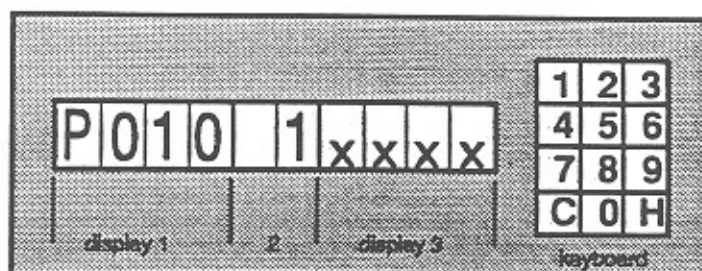

Illustration: "Display after calling up command mode"

The display "popularity" shows the least played CD. When pressing "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. Pressing "H" confirms the entry.
For example:

> Enter: *P 40 H 1 H*   to program the phonhgraph 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.

In Table 1 "Overview of Commands of the Service Program" the 14 command groups existing now are listed.

Table 1: "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	General Settings	P040...P054
5	Price Setting	P060...P066
6	Monetary Value Setting	P070...P076
7	Programming Real Time Clock	P080...P082
8	Programming Free Credits	P090...P094
9	Programming Background Music	P100...P107
10	Programming Auto Play	P110...P117
11	Programming Advertising	P120...P127
12	Lock–out of Different Titles	P130...P135
13	Programming Happy–Hour–Credits	P140...P144
14	Test Programs	P150...P164

The following "Programming table for NSM–phonographs" lists all commands possible with this service pro-gram. When entering the respective command number, one can eliminate the leading zeros. A command called up in error can be cancelled by pressing "C".

Table of Programs for NSM Phonographs with ES V–Technology

Program	Description	Value
P001	Authorization! Enter code:	-PPPP-
P002*	Change authorization code	-PPPP-
	Statistics:	
P010	0- No. of least played CD / 1- No. of second-least played CD / 2- No. of plays / 3- Date about any CD	
P011	0- No. of the most played (beat) CD / 1- No. of the second-beat CD / 2- No. of plays / 3- Date about any CD	
P012	0- Top-title, Hit #1 / 1- Second-beat title	
P013*	0- Cash amount since last evaluation / 1- Accumulated Cashbox amount	
P014*	0- Number of coins through Chute 1 (K1) / 1- Number of coins through Chute 2 (K2) / 2- Number of coins through Chute 3 (K3) / 3- No. of coins through K3 or bits NP1 / 4- Number of bits through validator NP2 / 5- Accumulated counter for K1 / 6- Accumulated counter for K2 / 7- Accumulated counter for K3 / 8- Accumulated counter for K4 or NP1 / 9- Accumulated counter for K5 or NP2	
P015*1)	0- Cash amount of wall box / 1- Accumulated Cashbox amount	
P016*	0- Number of played titles / 1- Accumulated counter	
P017*	0- Counter of selected titles / 1- Accumulated counter	
P018*	0- Counter of album selections / 1- Accumulated counter	
P019*	0- Counter of overplay title / 1- Accumulated counter	
P020*	0- Cash amount of wall box / 1- Accumulated Cashbox amount	
P021*	0- Counter for free credits / 1- Accumulated counter	
P022*	0- Counter for background titles / 1- Accumulated counter	
P023*	0- Counter for autoplay titles / 1- Accumulated counter	
P024*	0- Counter for advertising tracks / 1- Accumulated counter	
P025*	0- Counter for Happy-Hour-credits / 1- Accumulated counter	
P026	reserve	
P027	reserve	
P028	Number of unused credits	
P029	Number of selections not yet played	
P030	Datentransfer to DATA PRINT in textmode / 0- cashbox, counters, popularity, errors,...	

Program	Description	Value
P031*	Datentransfer to DATA PRINT in graphic mode / 0- all available data	-PPPP-
P032*	Option	
P033*	Cancellation routine! / 0+H- Cancels all memories!	
P040*	General settings: / 0+H Default values for 41 to 54, 77, 94 / 1+H Default values for 41 to 54, 77, 94, 104, 107 and 114, 117	
P041*	Define machine code number, maximum 4 digits	-0-
P042	Selection list for CDTRACK (title) max. 100CDs, 99 tracks	"0024"
P043	Light show in stand-by, if installed	"1105"
P044	Light show in operation, if installed	"1000"
P045*	Time limit for play in minutes for one title (0=no limit)	"0"
P046	Sequence of play for normal selections (0/1/2)	"0 (FIFO)"
P047	Maximum number of titles in a sequence from one CD (0= no limit)	
P048	Automatic advancing of title display in minutes (0= none)	
P049*	Cancels credits after power off/stand-by (x=0-no, 1 to 240-yes) x/10hrs.	"2"
P050*	Cancels selection memory after power off (x=0-no, 1 to 240-yes) x/10 hrs.	"2"
P051*	Maximum volume in play operation (max. 31)	"31"
P052*	Maximum volume for background music (max. 31)	"16"
P053	Set volume	"0505"
P054	Set treble and bass	"0808"
P060*	Price settings: see table "Price settings"	
P061*	0+H- Cancels previous price setting / n+H- Selection "n" from table (s.a.)	
P062*	Arbitrary price setting for chute 1 / xx-selections, yyyy-price	"xx yyyy"

Program	Description	Value
P063*	ditto for chute 3	
P064*	ditto for chute 4	
P065*	ditto for chute 5	
P066*	Bonus listing for album selection / 0- No album selection allowed / 1- No bonus / 2- 1 bonus for 5 Titles	"1"
P070*	Monetary value settings: see table "Monetary value settings"	
P071*	Arbitrary monetary value setting f. chute 1 / zzzz=coin value (0500-$5,-)	"zzzz"
P072*	ditto for chute 2	
P073*	ditto for chute 3	
P074*	ditto for chute 4	
P075*	ditto for chute 5	
P076*	Bonus credits for bill insert	"0"
P077*	0- indirect revaluation / 1- direct revaluation	"0"
P080*	Program real time clock: / Set time	"hhmm"
P081*	Set date	"ddmmyy"
P082*	Set week-day (d=1 to 7)	"d"
P090*	Program free credits: / 0+H- default, cancels entries + time	"z"
P091*	Start time for time window "Free Credit"	
P092*	Stop time for time window "Free Credit"	
P093*	Active on weekday(s) "x" (x = 1 to 7) (0=no,1=yes)+H	
P094*	Number of free credits: / 0: No free credits	
P100*	Program background music: / 0+H- default, cancels entries + time	
P101*	Start time for time window "Background music"	
P102*	Stop time for time window "Background music"	

Program	Description	Value
P103*	Active on weekday(s) "x" (x = 1 to 7) (0=no,1=yes)+H	"1"
P104*	Lock for background music (BGM) / 0- No BGM / 1= BGM possible in time window / 2= BGM automatically in time window	-1-
P105*	Entry of 20 titles or albums / Enter: nnnn+H	
P106*	Patron Selection / (0=free, 1=locked for guests)	
P107*	Sequence of play / (0=FIFO, 1=RANDOM)	"0"
P110*	Program auto play: / 0+H- default, cancels entries + time	
P111*	Start time for time window "Auto Play"	
P112*	Stop time for time window "Auto Play"	
P113*	Active on weekday(s) "x" (x = 1 to 7) (0=no,1=yes)+H	
P114*	Time between two titles in minutes / Enter: nn+H (0=no auto play)	"15"
P115*	Entry of 20 titles or albums / Enter: nnnn+H	
P116*	Patron Selection / (0=free, 1=locked for guests)	
P117*	Sequence of play / (0=FIFO, 1=RANDOM)	"1"
P120*	Program advertisement play: / 0+H- default, cancels entries + time	
P121*	Start time for time window "Advertisement"	"hhmm"
P122*	Stop time for time window "Advertisement"	"ddmmyy"
P123*	Active on weekday(s) "x" (x = 1 to 7) (0=no,1=yes)+H	"d"
P124*	Time between two titles in minutes / Enter: nn+H (0=no advert)	
P125*	Entry of 20 titles or albums / Enter: nnnn+H	
P126*	Patron Selection / (0=free, 1=locked for guests)	
P127*	Sequence of play / (0=FIFO, 1=RANDOM)	"0"
P130*	Lock-out certain titles: / 0+H- default, cancels entries + time	
P131*	Start time for time window "Free title selection"	
P132*	Stop time for time window "Free title selection"	
P133*	Active on weekday(s) "x" (x = 1 to 7) (0=no,1=yes)+H	
P134*	Activate lock: 1- Title locked / 0- Title in time window available	
P135*	Entry of 20 titles or albums / Enter: nnnn+H	

Program	Description	Value
P140*	Program Happy-Hour-credits: / 0+H- default, no Happy-Hour	
P141*	Start time for time window "Happy-Hour"	-1-
P142*	Stop time for time window "Happy-Hour"	
P143*	Active on weekday(s) "x" (x = 1 to 7) / (0=no,1=yes)+H	
P144*	Calculation number (n=1 to 5) / Enter n+H (0= no Happy-Hour)	-0-
P150	**CALLING UP TEST PROGRAMS:** / Read out error report memory / 0- Last reported error / 1- Previous error report / 2- CD-Nr. at which the error occured / 3- Time of occurence / 4- Date of occurence	
P151	0- Continuous run 1 all CDs played for 16 sec. each	
P152	0- Selected CDs played for 16 sec. each / Enter: nnnn+H	
P153	0- Continuous run 3. All CDs are placed in the lift, but not played	
	1- Continuous run 4. 6 CDs are continually played for 16 sec. (1,25,50,51,75,00) / 2- Continuous run 5. 2x cont. run 3, thereafter repeated cont run 4	-1-
P155	0- Lamp test with key "C" / Stop with key "C"	
P156	0- Input test (F6). / Stop with key "C"	
P157	0- manual control of the CD-changer / Enter CD# nn'+H / Stop with key "C" / Stop the continuous runs always with the cabinet switch!	
P160	**Title memory:** / 0- Read in all CD titles i.e with initial equipping of all CDs	
P161	Read in the titles of one newly equipped CD Enter CD# nn'+H	
P162	Read the title memory / 0- Number of titles from first CD / 1- Number of titles from the next CD / 2- Number of titles from the last CD / 3- Number of titles from any CD Enter CD # nn'+H	
P163	Cancel title memory of all CDs / 0+H- all entries = 1	
P164	Switch signal sources: (only necessary when servicing) / 0+H- Mute (no signal source) / 1+H- CD-player / 2+H- Tape or cassette player / 3+H- Microfone	

1) not yet implemented
"Values" = factory settings
...out of authorization code necessary

1. 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.

P001 – Authorization: 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.

P002 – Changing of authorization code: 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)*
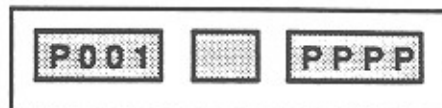
> *Enter: P 002 H p p p p H (when entering new authorization code)*

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.

2. 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 comamnds 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.
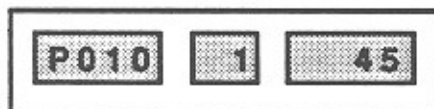
Individual commands:

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 | | |

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

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

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* | P 0 1 1 | 1 | 1 9 |
                          1

Enter: P 011 H   *2*   *i.e. 731 plays* | P 0 1 1 | | 7 3 1 |

Enter: P 011 H   *3 24 H* | P 0 1 1 | 2 | 2 4 |
                                i.e. CD No. 24 in 2nd place

Hit Parade: One can also call up the top 30 titles.

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* | P 0 1 2 | 1 6 | 0 1 0 3 |
                          1   *i.e. in 16th place: Title 3 of CD 1*

                          2   *i.e. this title was played*   CD–No. title
                                 169 times until now:
                                            | P 0 1 2 | 1 6 | 1 6 9 |

Values of several counters: The following commands display the actual cash contents as well as diverse counter readings since the last collection. One receives statistics concerning the entire time of operation by reading the cumulated counters.

Cashbox: 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* | P 0 1 3 | 3 | 4 8 2 9 |
                          1   *i.e. $34,829.–*

Coin counter/bill counter: 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

P014	1	2543
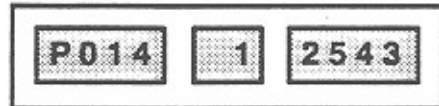
The respective cashbox total is derived by multiplying: number of coins x monetary value of coin.

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

P016:
0: Number of **titles played**
1: Cumulated counter

P017:
0: Number of **titles chosen**
1: Cumulated counter

P018:
0: Number of **albums chosen**
1: Cumulated counter

P019:
0: Number of **overplay titles**
1: Cumulated counter

P020:
0: Number of **credits paid**
1: Cumulated counter

P021:
0: Number of **free credits**
1: Cumulated counter

P022:
0: Number of **background titles**
1: Cumulated counter

P023:
0: Number of **titles in auto play mode**
1: Cumulated counter

P024:
0: Number of **advertising titles**
1: Cumulated counter

P025:
0: Number of **Happy–Hour–credits**
1: Cumulated counter

>>

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

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

```
┌─────────────────────────────────────┐
│  ▐P016▌   ▐1▌   ▐0273▌               │
└─────────────────────────────────────┘
```
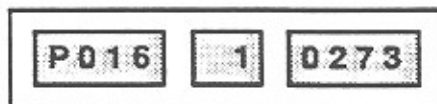
The counters P026 and P027 are not used.

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.

3. Data Transfer/Cancellation! P030 to P033

In this group of service program commands the stored data in the counters mentioned beforehand are pre-pared for output to a DATA PRINT or to evaluation devices which process the data. Prerequisite is, for in-stance, the DATA PRINT is already connected to the evaluation connector (ST2 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 print–out is done and the cabinet lid is closed.
> P031 transfers all data in graphic mode. The data are printed–out directly after recieving.

See also the print–out examples in chapter 15.

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

Display of the Jukebox if a transfer error occurs:

```
┌─────────────────────────────────────┐
│  ▐P03x▌   ▐  ▌   ▐E0▌                │
└─────────────────────────────────────┘
```
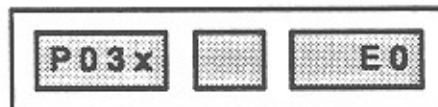
Remember to pull out the interface cord after the print–out is finished.

DATA PRINT Print–out 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 DATA PRINT setting.

The stored data can continue to be processed by a PC, i.e. by DATA CONTACT.

Enter: *P 030 H*   *0*
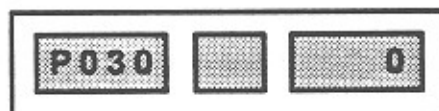
```
┌─────────────────────────────────────┐
│  ▐P030▌   ▐  ▌   ▐0▌                 │
└─────────────────────────────────────┘
```

The counters of the phonograph are deleted after the print–out Is done and the cabinet lid Is closed.

DATA PRINT Print–out 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

$$\boxed{P\ 0\ 3\ 1} \quad \boxed{} \quad \boxed{4}$$
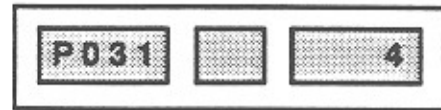
! CANCELLATION

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.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   **!!CAUTION!!**
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: Cancéls error memory

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

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

$$\boxed{P\ 0\ 3\ 3} \quad \boxed{} \quad \boxed{2}$$
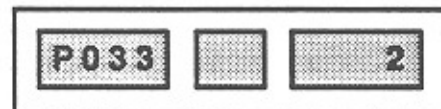
4. General Settings P040 to P054

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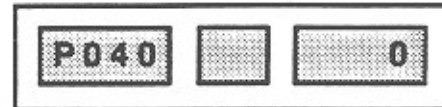
P040:   0+H: programming of **default values** (P041 to P054, P077, P094)
cancellation of values (P091 to P144), set to inactive:

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

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

backgroundmusic autoplaytitles with defined acces to all CDs.

P104:	1	P114	15
P107:	0	P117	1

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

```
┌────────────────────────────────┐
│ ┌───────┐ ┌─────┐ ┌──────────┐  │
│ │ P 040 │ │░░░░░│ │        0 │  │
│ └───────┘ └─────┘ └──────────┘  │
└────────────────────────────────┘
```
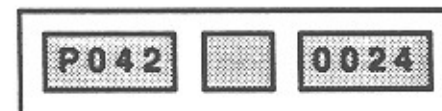
P041:   **I.D. Number**; every phonograph can be programmed with its own I.D. number. Data print-outs can then be easily identified when several machines are evaluated. The I.D. number has at most 4 digits.

Enter: P 041 H   *nnnn H*

```
┌────────────────────────────────┐
│ ┌───────┐ ┌─────┐ ┌──────────┐  │
│ │ P 041 │ │░░░░░│ │  2 6 0 2 │  │
│ └───────┘ └─────┘ └──────────┘  │
└────────────────────────────────┘
```
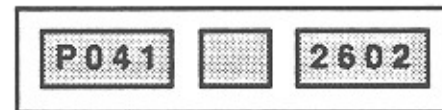
P042:   **Maximum number of selectable CDs and titles**; in partially equipped phonographs, unused magazine slots can be excluded. A maximum of 100 CDs (01–to 00) as well as a maximum of 99 titles can thus be selected. (Default value: 24).

Enter: P 042 H   *0024 H*
           i.e. release 100 CDs with
           24 titles each to be selected

```
┌────────────────────────────────┐
│ ┌───────┐ ┌─────┐ ┌──────────┐  │
│ │ P 042 │ │░░░░░│ │  0 0 2 4 │  │
│ └───────┘ └─────┘ └──────────┘  │
└────────────────────────────────┘
```

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.

P043: **Light in stand–by;** a light generator can be programmed. hich causes the phonograph to attract the patrons' attention as long as no music has been selected. OPTION!

Enter: P 043 H

P043		1105
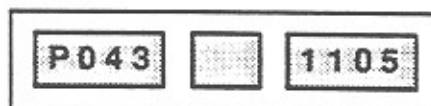
Programming the running light is done by entering a 4 digit number according to the following scheme:

		ABCD
A: Switch over charakteristica	0= hardly 1= softly	0 0 0 1
B: Speed	0= slowly 3= fast	▼ ▼ ▼ ▼
C+D: various running lights	01 to 15	1 3 1 5

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

P044: **Light during play;** another light generator can be programmed here to differentiate between the two. OPTION!
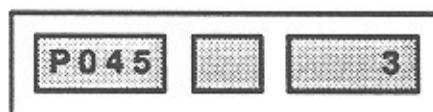
Enter: P 044 H

P044		1000
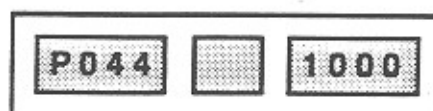
Programming the light show is done by entering a 4 digit number according to the following scheme:

		ABCD
A: Mode of operation	0= steady light 1= light organ	0 0 0 0
B: Basic brightness/contrast	0= dark 3= bright	▼ ▼
C+D: Various light effects	00= lightorgan 01 to 15 s.o.	1 3

1000 ⟶ **1000:** light organ, relative dark

P045: **Limit play time of one track** 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.

P045		3

P046: **Sequence of plays at normal selection:** 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

P046		2
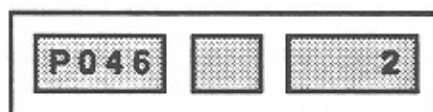
<u>P047</u>:   **Maximum number of titles of one CD** (value "n" as number) in sequence; here it is
determined how many titles of one CD are played in sequence. 0 means no limit.

Enter: *P 047 H*   *n H*

         0 H   i. e. no limit

```
┌─────────────────────────────────────────┐
│  ┌────────┐   ┌──────┐   ┌────────────┐  │
│  │ P 0 4 7│   │      │   │          0 │  │
│  └────────┘   └──────┘   └────────────┘  │
└─────────────────────────────────────────┘
```

<u>P048</u>:   **Automatic advancing of title display;** 0 = no automatic advancing. If minutes are entered
here (value "nn"), the title display is changed accordingly in stand–by.

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

```
┌─────────────────────────────────────────┐
│  ┌────────┐   ┌──────┐   ┌────────────┐  │
│  │ P 0 4 8│   │      │   │       1 0  │  │
│  └────────┘   └──────┘   └────────────┘  │
└─────────────────────────────────────────┘
```

<u>P049</u>:   **Cancel credit** after X/10 hrs. (X x 6 min.) power off or stand–by.
<u>P050</u>:   **Cancel selection memory** 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 049 H*   *2 H*
                  i.e. cancel credit after 12 min.
                  power off/stand–by (2/10 hrs.):

```
┌─────────────────────────────────────────┐
│  ┌────────┐   ┌──────┐   ┌────────────┐  │
│  │ P 0 4 9│   │      │   │          2 │  │
│  └────────┘   └──────┘   └────────────┘  │
└─────────────────────────────────────────┘
```

Enter: *P 050 H*   *4 H*
                  i.e. cancel selection memory
                  after 24 min. power off:

```
┌─────────────────────────────────────────┐
│  ┌────────┐   ┌──────┐   ┌────────────┐  │
│  │ P 0 5 0│   │      │   │          4 │  │
│  └────────┘   └──────┘   └────────────┘  │
└─────────────────────────────────────────┘
```

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.

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

<u>P052</u>:   **Maximum volume during background mode**; can be set between 0 (mute) and 31 (loud).

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

```
┌─────────────────────────────────────────┐
│  ┌────────┐   ┌──────┐   ┌────────────┐  │
│  │ P 0 5 1│   │      │   │       3 1  │  │
│  └────────┘   └──────┘   └────────────┘  │
└─────────────────────────────────────────┘
```

312

Set volume for play mode

With command **P053** 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 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 command.

Enter: P 053 H

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

P053		1010
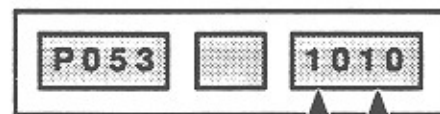
channel value: left, right

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 command.

Enter: P 054 H

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

P054		0808
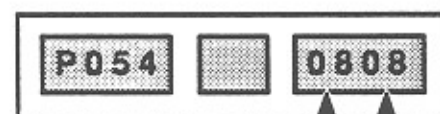
value of bass, treble

5. 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 automized with the table.

Another possibility is the individual programming of the individual price scales with commands **P061** to **P065**. Entry as per form plays/monetary value: nn xxxx (nn = two-digit number of plays, xxxx = 4-digit monetary value).
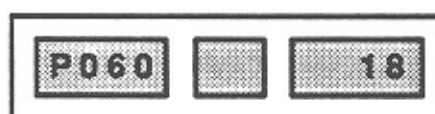
Table 2:"Price Settings"

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

P060		18

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

<u>P061 to P065</u>: 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*

P065	12	0500
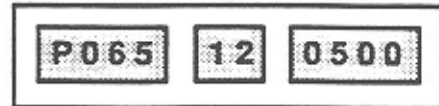
## Programming an album bonus

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

<u>P066</u>:
- 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

P066		1
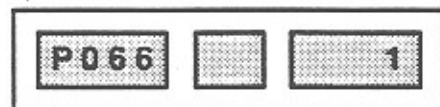
6. Monetary Value Setting P070 to P077

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 3 "Monetary Value Setting" shows which setting can be programmed as basic value (see next page).

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

P070		10
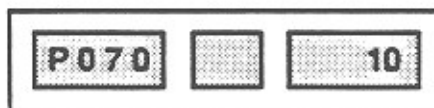
"n" is the code number for the respective setting. To avoid erroneous entries, each entry has to be confirmed by "H". This is very important since entry of Code Number 0 cancels the current monetary value setting and no currency acceptance is possible.

P071 to P075: **Individual monetary values**: as with the price setting, with the monetary value setting the coin value 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, i.e.
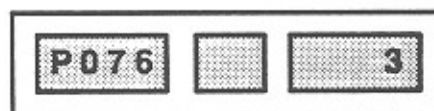
USA   with $1,–   => 0100,
GERMANY with DM 5,– => 0500 or
AUSTRIA   with öS 20,–=> 2000.

Normally the standard setting is sufficient.

BONUS CREDITS

With command **P076** 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

P076		3

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

INDIRECT / DIRECT MONEY TO CREDIT REVALUATION

With this command it is possible 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*
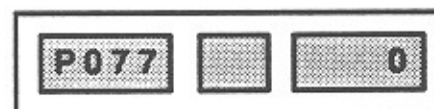   *0 H   i.e. indirect revaluation*

P077		0

316

Table 3:"Monetary Settings"

Table No.	COUNTRY	channel 1(P071)	channel 2(P072)	channel 3(P073)	channel 4(P074)	channel 5(P075)	Remarks. example for 1 chan.
0	———————	0	0	0	0	0	no coin conversion
	mechanical coin acceptor						
1	Germany, Schwitzerland, 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, Jugoslavia	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
	elektronic coin acceptor						
15	Germany, Schwitzerland, 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 ÖS
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.

7. 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 programm" 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: With command **P080** the time can be set. The newly set minute information starts the counter for seconds automatically at zero.

Keypad layout for command "set time":

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

Enter: P 080 H

*change per pressing keys
i.e. 10.45 h*

P080		1045

Set date: With command **P081** the date is set. The date is shown on displays 2 and 3.

Keypad layout for command "set date":

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

Enter: P 081 H

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

P081	21	0592

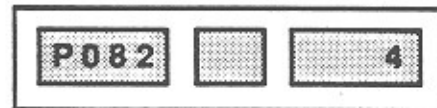**Set day code**: With command **P082** the day code is set for the week–day of the previous set date.

Key pad layout for command "set day code":

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

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

Enter: *P 082 H*

change per pressing keys
i.e Thursday is 4:

```
P082          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 key-pad layout.

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

8. Programming Free Credits P090 to P094

The group of 90th commands allows the operator to give free credits (music selection without coin insert) at 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.
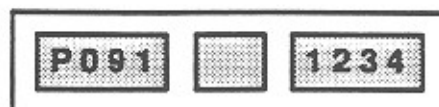The time factor is set to zero, so there are no automatic time periods for free credits.

> Enter: **P** 090 H   0 H

P090		0
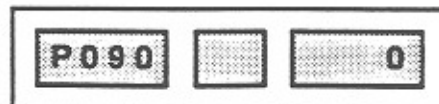
P091: To set the starting time for the time window "free credit," the keypad is used (see P080).

> Enter: **P** 091 H   Set per pressing keys
> i.e. starting time 12:34
> confirm setting with key "H".

P091		1234

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".

P092		1345
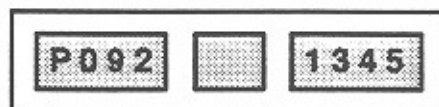
P093: Here the weekday is chosen on which the previously determined time window is to become active.

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".

P093	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:

| P094		0

320
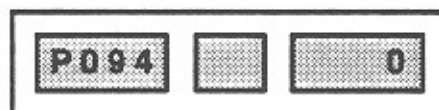
9. Programming Background Music P100 to P107

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. The factory setting (P040=1) defines that the background mode can be started and stopped by pressing the key "BACKGROUND" (P104=1, P107=0).

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
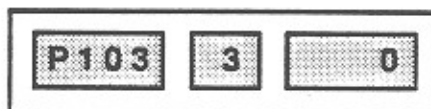
P100		0
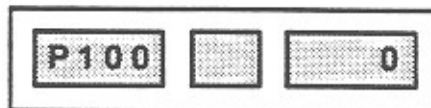
With command **P101** the starting time and with command **P102** the stopping time is set for the time window of background music. Key pad layout see P080.

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"

P103	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.
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

P104		2
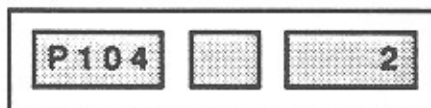
P105: What is played as background music, is also determined by the operator. With command P105, followed by 20 four-digit entries, 20 titles or albums can be determined. Without entry in P105 all CDs (defined by P042 to be selectable) are played.

    Enter: P 105 H   nnnn H
                      i.e. 1. entry: CD #17 title 3
                      and so on:

P105		1703
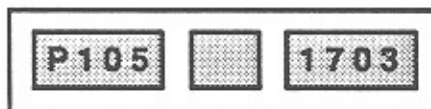
P106: Another new function is the "Patron Selection". With command P106 the operator determines whether the selected titles for background music can also be chosen by other customers.

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:

P106		0
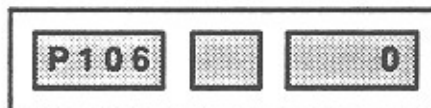
P107: The titles selected in P105 are played in the sequence selected in P107.

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

10. 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  │
└──────────────────────────────┘
```
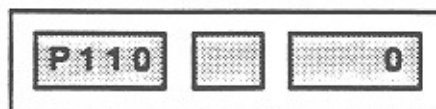
With command **P111** the starting time and with command **P112** the stopping time is set for the time window of auto play. Key pad layout see P080.

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

> *Enter: P 113 H   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 114 H   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.
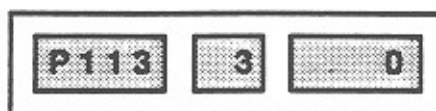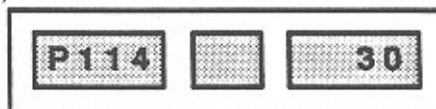
> *Enter: P 115 H   nnnn H*
> *i.e. 1. entry: CD # 97 all titles*
> *and so on:*

```
┌──────────────────────────────┐
│ P 1 1 5     ▓▓▓    9 7 0 0  │
└──────────────────────────────┘
```
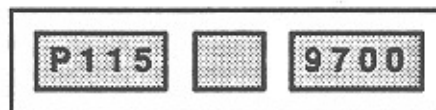
P116: also defines a "Patron Selection" (see P106) which defines if a title is locked or not

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  │
└──────────────────────────────┘
```
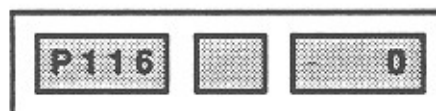
P117: defines the sequence of play for the titles or albums chosen under P115.

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  │
└──────────────────────────────┘
```

322
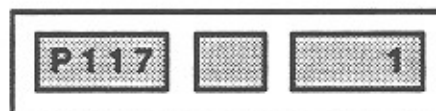
11. Programming Advertisements P120 to P127

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

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

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

```
┌─────────┐ ┌─────────┐ ┌─────────┐
│  P120   │ │         │ │       0 │
└─────────┘ └─────────┘ └─────────┘
```
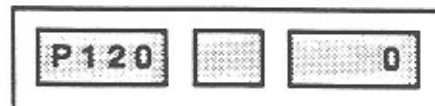
With command **P121** the starting time and with **P122** the stopping time is set for the time window of advertisement play. Key pad layout see P080.

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"*

```
┌─────────┐ ┌─────────┐ ┌─────────┐
│  P123   │ │    7    │ │       0 │
└─────────┘ └─────────┘ └─────────┘
```
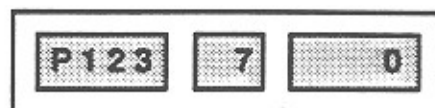
With confirming one week-day entry the software steps to the following week-day.

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:*

```
┌─────────┐ ┌─────────┐ ┌─────────┐
│  P124   │ │         │ │      30 │
└─────────┘ └─────────┘ └─────────┘
```
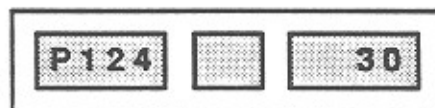
P125: With command P125 followed by 20 four-digit entries (value nnnn), 20 titles or albums can be defined.

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

```
┌─────────┐ ┌─────────┐ ┌─────────┐
│  P125   │ │    1    │ │  9003   │
└─────────┘ └─────────┘ └─────────┘
```
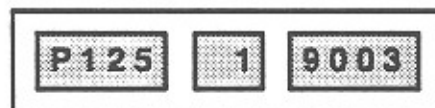
P126: defines "patron selection" again. See P106.

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

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

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

12. Blocking Certain Titles P130 to P135 (lock–out titles)

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".

13. Happy–Hour–Credits P140 to P144

For additional animation of the audiance 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.

<u>P140</u>: 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 |
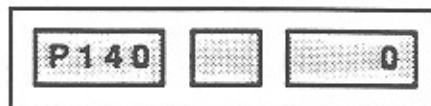
With command <u>**P141**</u> the starting time and with <u>**P142**</u> the stopping time is set for the time window for Happy–Hour–credits. Key pad layout see P080.

<u>P143</u>: 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 |
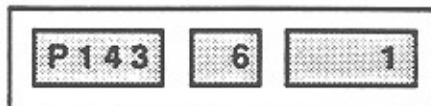
With confirming one week–day entry the software steps to the following week–day.

<u>P144</u>: 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 |
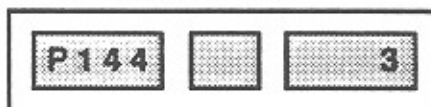
14. Calling up Test Programs P150 to P164

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 juke box memory.

14.1 Test Programs for Service Operation P150 to P157

<u>P150</u>: Read–out of Error Memory:

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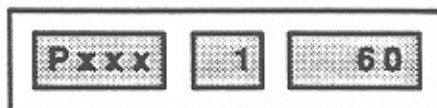   1: previous error; the phonograph records the last 20 error reports.
        2: CD number during which the error occurred.
        3: Time of error and
        4: Date of occurrence

Display: | Pxxx | 1 | 60 |

Continous 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.

<u>P151</u>: Plays all CDs for 16 sec. (F1):

    Enter: P 151 H   0

                Start continuous run 1: | 0101 | F1 | 0000 |
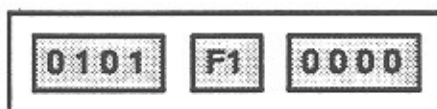
                                            CD / Titel   **Anzahl der Fehler**

<u>P152</u>: 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)

<u>P153</u>: 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).

<u>P155</u>: 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 | P155 | F6 | 0 |
               (Display 2 shows briefly F6)

Table 4: "Error Displays"

Displays 1	2	3	Possible Causes	Corrections
	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 OPGRL and OPGRR.
	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.	
	Er	91	Blocking title display while left movement.	Blocking remedy
	Er	92	Blocking title display while right movement.	
	Er	93	Blocking title display, stack left.	see also chapter 9 "Title display" the paragraph 1.4
	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:

```
[ ::::::::  ]  [ F7 ]  [ 0 1 4 0 ]
```

The 4 digits of displays are used as follows:

```
      display
   1     2    3
 ┌───────┬────┬────┐
 │ │ │ │ │ │ │████│
 └───────┴────┴────┘
10 9 8 7 6 5 4 3 2 1
      digits
```
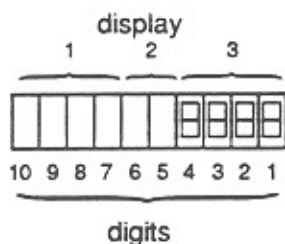
digit 1: state of operation   i.e. key switch:

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

digit 2: bit number of input port (see table 5 "Attaching...", s. a. wiring diagram "Control Unit")

digit 3: port number from which input occurs (s.a. table 6:"Port–numbers of input ports").

digit 4: Is not used.

Table 5: "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 6: "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.

Lift not set down:

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

Lift is set down or CD is on player:

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

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

| 101_ | F8 | __11 |

display
1   2   3

| 888 | F8 | 88 |

10 9 8 7 6 5 4 3 2 1
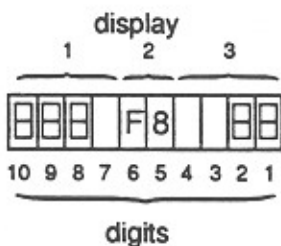
digits

Digit 1:   Counter Wheel (OPSTP)
Digit 2:   Final Position (OPEND)
Digit 8:   Grip right (OPGRR))
Digit 9:   Middle Opto (OPPUM)
Digit 10:   Grip left (OPGRL)

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

14.2 Recording title quantities in title memory

P160: Recording title quantities of all CDs

After calling up this command, the phonograph searches through all CD slots for the number of CDs defined in P042. During the search it reads the number of titles recorded on each CD 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   `P160`   `0124`
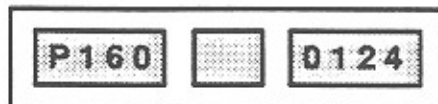
P161: Recording title quantities of one CD

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:   `P161`   `67`

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 #   `P162`   `0320`
        3: Title number of any CD
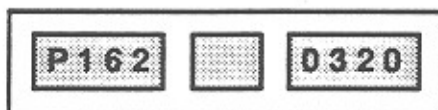
With P162,3 the two–digit CD number must be entered and confirmed with "H".

P163: Erasing entry in title memory

All entries in the title memory are set to 1. So all CD titles are cleared, but the phonograph furthermore may acces 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   `P163`   `6700`
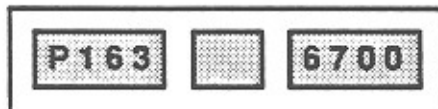
After removing a CD you also have to remove the corresponding CD cover of the display unit.

P164: Switching between signal sources

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   `P164`   `2`
            2 H   i.e. for cassette player:

IC1

NC A0 9 A0 A0 10 A0 IC4 11 D0 12 D1 A0 A0 10 A0 IC5 D0 11
NC A1 10 A1 A1 9 A1 D1 13 D2 A1 A1 9 A1 D1 12
NC A2 11 A2 A2 8 A2 D2 15 D3 A2 A2 8 A2 D2 13
A3 12 A3 A3 7 A3 D3 16 D4 A3 A3 7 A3 D3 15
A4 13 A4 A4 6 A4 D4 17 D5 A4 A4 6 A4 D4 16
A5 14 A5 A5 5 A5 D5 18 D6 A5 A5 5 A5 D5 17
A6 15 A6 A6 4 A6 D6 19 D7 A6 A6 4 A6 D6 18
VCC A7 16 A7 A7 3 A7 D7 A7 A7 3 A7 D7 19
V1 8 VCC A8 17 A8 A8 25 A8 A8 A8 25 A8
A9 18 A9 A9 24 A9 A9 A9 24 A9
A10 19 A10 A10 21 A10 A10 A10 21 A10
VSS A11 20 A11 A11 23 A11 A11 A11 23 A11
1 21 VSS A12 22 A12 A12 2 A12 A12 A12 2 A12
VSS A13 23 A13 A13 26 A13 A12 CS1 20
A14 24 A14 A14 27 A14 CS2 26
A15 25 A15 A15 1 A15 VCC 28 A11 WE 27
V1 OV1 LB2 LB3 V1 OE 22
D0 33 D0 20 CE VSS 14 48T18
V1 D1 32 D1 22 OE
R3 D2 31 D2 27512
D3 30 D3
D4 29 D4
D5 28 D5
D6 27 D6 IC6
38 SO D7 26 D7 X2 1 I1 O1 19
7 SYNC R/-W 2 I2 O2 18
2 RDY IRQ 4 -IRQ A15 3 I3 O3 17
3K3 6 NMI RES 40 -RES A14 4 I4 O4 16
3 R/W 34 R/-W A12 5 I5 O5 15
X1 X2 39 X2 A13 6 I6 O6 14
37 X0 A11 7 I7 O7 13
65C02 A10 8 I8 O8 12
9 I9
11 I10
16V8

A[0..15]
D[0..7]

R6
27K
D1 D3 C20 V1 IC9A
4n7 16 CE XT
U< R5 C21 V1 R/CEXT
8K2 1N4148 4u7 15
D2 BCS56 T1 V1 10K R10 1 A Q 13
R7 R8 R9 2 B
3 CLR Q 4 PA2
22K 10K 1K 74LS123

B1 3.686MHz
R28 3K3 R29 3K3
IC7D C18 IC7E IC7F
9 8 11 10 13 12
R27 74LS04 74LS04 C19 74LS04
8K2 270p 68p

ANT1
ca.30cm V1 C22 V1 IC9B
LB1 R16 4u7 6 CE XT
V2 R13 R15 3K3 V1 R/CEXT IC7B V1 R30
ZD1 1K 1K 100K R17 7 3 4 560R
ZPD7,5 R14 9 A Q 5 74LS04 LED LD1
R12 10K T3 10 B Q 12 V1 IC7A
1K T2 BC547 11 CLR R34 IC13C
R11 S1 74LS123 4K7 9 2
620R 8 1 74LS04
10 C64
74LS03 2n2

C59
100n
Centrale Ker
ST1
GND 1 OV2
+14V 2
+14V 3 OV3
GND 4 V1 VDD VCC +5V
+15V 5 C29 C63 C60 C61 C62 C1 C2 D4
+15V 6 100u 100u TVS05
7 25V 10V
U< 8
GND 9 100n
+5V 10 Ker GND VSS
+5V 11
GND 12

V1 C3 C4 C9 C5 C6 C7 C8 C10 C11 C12 C13 C14 C15 C16 C17 C65 C66 C67 C69

100n 100n
Ker

R127
100K

176 392 / 176 351 / 176 513 / 176 609
176 393 / 176 352 / 176 514 / 176 610 / 176 598
176 394 / 176 353 / 176 515
07/93

IC2

V1 O 20 VCC
CA1 40
CA2 39

VSS
PA0 2 PA0 PA0
PA1 3 PA1 PA1
PA2 4 PA2
PA3 5
PA4 6 PA4 PA4
A9 23 CS2 PA5 7 PA5 PA5
24 CS1 PA6 8 PA6 PA6
PA7 9 PA7 PA7

A0 38 RS0
A1 37 RS1
A2 36 RS2
A3 35 RS3

D0 33 D0
D1 32 D1 CB1 18 CB1 CB1
D2 31 D2 CB2 19 CB2 CB2
D3 30 D3
D4 29 D4 PB0 10 PB0 PB0
D5 28 D5 PB1 11 PB1 PB1
D6 27 D6 PB2 12 PB2 PB2
D7 26 D7 PB3 13 PB3 PB3
PB4 14 PB4 PB4
PB5 15 PB5 PB5
-IRQ 21 IRQ PB6 16 PB6 PB6
-RES 34 RES PB7 17
R/-W 22 R/W
X2 25 X2

65C22

-RES -RES

IC3

XTLI 3
XTLO 4
V1 O 40 VCC
CLKOUT 5
RXC 25
20 VSS TXC 15 O V1

DCD2 8
DSR2 7
39 CS DTR2 13 DTR2
RTS2 10
A0 35 RS0 CTS2 9
A1 36 RS1
A2 37 RS2 TXD2 14 TxD2
RXD2 12 RxD2

D0 24 D0
D1 23 D1
D2 22 D2 OCD1 32 TXD1
D3 21 D3 DSR1 33 RXD1
D4 19 D4
D5 18 D5 DTR1 27 io.sch
D6 17 D6 RTS1 30
D7 16 D7
CTS1 31

-IRQ 29 IRQ1
11 IRQ2 TXD1 26
-RES 1 RES RXD1 28
R/-W 38 R/W

65C52

V1 V1 1N4148 R22
4K7 R21
R130 R26
R131 4049 IC21A 4K7 V20 O Service ST2
IC21B 3 2 D5 D6 D7 100R R25 22K 1 6
X0 12 4 5 10K R24 2 TxD
X1 13 IC21C D8 D9 D10 10K R23 7 RxD
Y0 2 6 7 3
Y1 1 4
1N4148 V1 9 BSY
Z0 5 5 GND
Z1 3 2K2 R18 DB9
INH 6 11 F
A 4 IC26A 4050
B 10 3 2 100R R20
C 9 4 5 10K R19
T4053 IC26B

NSM MUSIKAUTOMATEN PHONOGRAPHS **ES V-CD** TECHNOLOGY

Schaltbild
WIRING DIAGRAM   CONTROL UNIT

ANDERUNGEN IM SINNE DES TECHN. FORTSCHRITTES VORBEHALTEN,
JEDOCH KEINE NACHRÜSTPFLICHT!
SUBJECT TO TECHNICAL MODIFICATION WITHOUT OBLIGATION
TO MODIFY EQUIPMENT ALREADY DELIVERED!

ST5 Wallbox
1 GND
2 Slg
V3 ○ 3 +15V
SL3

C48 (330p) C47 C46 330p

Centrale
ST6
1 -RES-Audio
2 CLK
3 DAT
4 RC1
5 RC2
6 RC3
7 RC4
8 APL
9 APR
10 MIC
11 IN1
12 IN2
13 -MUTE
14 TXD1
15 RXD1

V1 ○ R128 22K
V1 ○ RA1 22KA8
47K R60
R62
R64
R66
LB5
LB6
PA4 14 IC21F 15
V1 ○ R129 22K 11 IC21E 12 4049

TXD1
RXD1

ST7
1 GND
2 Key-Switch
3 GND
4 Cabinet-Sw1
5 Cabinet-Sw2
6 GND
7 Secur
8 GND
9 +14V
10 Cash-Meter
SL10

V1 ○ RA2 22KA8
47K R76
R78
R80
R82

R121 V2 ○
T9 BC517
R119 4K7
R120 22K
10R 1/2W
D17 BA157

(2n2) C53 C52 C51 C50 C49

Coin-Mech
ST8
6 GND
5 +15V
V3 ○ 4 Chanel II
3 Chanel I
2 Chanel III
1 Chanel IV

V1 ○ RA3 22KA8
47K R92
R94
R96
R98

(2n2) C58 C57 C56 C55 C54

Bill-Acceptor
ST9
4 GND
3 Bill1
2 Bill2
1 GND

ST4
V1 ○
SL6

R123 R124 R125 100R

Display
ST10
1 GND
V2 ○ 2 +14V
3 +14V
V1 ○ 4 +5V
5 GND
6 Din
7 Dout
8 Clock
9 Load
10 GND

LD2 R122 470R ○ V1
T5 BC556
4050 3 IC22D 10
9 IC22E 12
11
4050 5 IC22B 4
2 IC22F 15
14

V1 ○ R112 22K
R107 10K

(330p) C38 C40 C41 47p
C39

Light-Organ
ST11
1 GND
2 +5V
V1 ○ 3 Dout
4 Clock
5 Load
6 Gnd

2 IC24F 15
14
10 IC23C 6
7
11 IC23B 4
5
14

R108 3K3
R109 3K3

V1 ○ R114 R113 22K

IC13D 12 11 13 74LS03
R132 100R
C37 2,2n

Changer
ST12
1 Load
2 Clock
3 Dout
4 OE
5 Din
6 TxD
7 RxD
8 -RESCD

(2n2) C36 C35 C33 C32 C30 C34 47p

Title-Indicator
ST13
1 GND
2 GND
V2 ○ 3 +14V
V3 ○ 4 +15V
5 GND
6 +5V
V1 ○ 7 Load
8 Clock
9 Dout
10 Din
SL10

9 IC24D 10
6 IC24E 12
11
5
R110 3K3

R115 22K

IC25D
IC25F
IC25G
R111 3K3
R116 22K ○ V1
4050
ST14
1 GND
2 Load
3 Clock
4 Dout
5 OE
6 Din
7 +5V
8 GND
SL9

C44 C43 C42 C45 47p

gerasterte Bauteile sind nicht eingebaut!
DOTTED COMPONENTS ARE NOT INSTALLED !

NSM MUSIKAUTOMATEN PHONOGRAPHS **ES V-CD** TECHNOLOGY
Schaltbild
WIRING DIAGRAM **CONTROL UNIT**

Dat. 29.06.92 Gez. Braun Bearb.

421/2

Blatt 2 / Page 2