
TECHNICAL

INSTRUCTIONS

for



PHONOGRAPH

240-I

INDEX

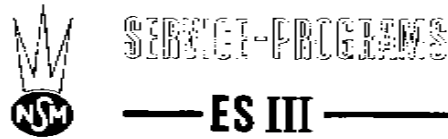
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Information and illustrations contained in this technical instructions are correct at the time of going to press.

SUBJECT TO, BUT NO OBLIGATION OF, SUBSEQUENT TECHNOLOGICAL MODIFICATION



Display	Description	Serv. Progr. key required	programmable by key identification	page
P 00	Pricing, lowest price and credit	x	x	4
01	pricing, step 2	x	x	
02	pricing, step 3	x	x	
03	pricing, step 4	x	x	
04	pricing, highest price and credit	x	x	5
05	coin channel 1?	x	x	
06	value of coins and number of pulses	2?	x	6
07		3?	x	
08		4?	x	
09	Dollar bill acceptor	x	x	7
P 10	Number of free plays	x	x	
11	Time interval for random play	x	x	8
P 20	Number of records to be played		x	8
21	Synchron. position		x	
22	Volume, left		x	9
23	Volume, right		x	
24	Volume, left - for background only		x	
25	Volume, right - for background only		x	
26	Price per group	x	x	10
27	Size of group	x	x	
28	Box code number for recording device	x	x	
29	Service card - code for recording device	x	x	
P 30	Counter of plays, A-side	x		11
31	Counter of plays, B-side	x		
32	Cash impulses, total cash, change and read out with top ten button	x		
33	Wall box plays	x		
34	Free plays counter	x		
35	Selection counter	x		
36	Group selection counter	x		
37	Hit parade selection counter	x		
38	Counter for background records played	x		
39	Counter for random records played	x		
P 40	Pop. counter of groups			12
41	Pop. counter of sides of records			
42	Pop. counter reading of individual records (A+B), from least frequented record upwards			
43	Pop. counter of individual records(A+B), from best record downwards			
44	Transfer to service card			13
45	Transfer to printer	x	x	
46	Test programme			
47	Programming of key for remote control	x	x	14
48	Programming of service code	x	x	16
49	Identification to enter keyed programme (code)			
P 50	Credit clearing	x		17
51	Pop. counter clearing	x		
52	Clearing of credit, pop.counter, P 30-39	x		
P 60-69	Accumulative Counter (are not re-settable)	x		11

GENERAL ADVICE

The list of the "Service Programmes ES III" shows the possibilities to maintain and control the phonograph.

The service programme allows selecting of data for permanent storage.

For protection of not allowed access to any important data, input of a keyword is possible this allowing only authorized persons to accomplish secured changes in programme, or to fetch protected data from storage.

The Service Programmes list left offers a general idea of what is possible.

The column "Display" shows, by groups, the different programmes.

The column "Serv.-Progr. key required" shows the data protected by the programme code.

The following column informs about the programmability by key identification.

The last column "Page" shows the page where the matter involved is described.

EXAMPLE OF APPLICATION:

Open last cover page with the operating and display elements.

SELECTION OF PROGRAMME

Open lid, Let down keyboard.

The display 1 shows $\bar{P} \square \square$. Key in service programm step.

Example: Programme 20 "maximum amount of records placed"

Display 1 $\bar{P} 20$

Display 3 shows the value previously programmed. Key in new number of record, e.g. 70 records in the magazine.

Display 2 shows $\square \square \square 70$. When pressing top ten button, display 3 shows $\square \square \square 70$ so confirming the programming to be correct, and accomplished.

Within a group of programmes (e.g. P 00 thru P 09), you can advance to the next programme step with the blue "Hit" key.

By red "Hit"-key you can return to the next lower programme step.

When pressing the "R" key, you leave the programme group, display 1 $\bar{P} \square \square$

When keying in a two-digit number, another programme group will be obtained and displayed by display 1.

Return to the standard programm with opened to phonograph "R" key must be pressed twice.

At this condition, credit is possible by coin insertion, but no cash pulse will be released. Pulses will be given to the counter only when lid is closed.

IMPORTANT



All phonographs with ES III-technique offer the chance to code the programme.

When programming a code number, any data (see SERVICE PROGRAMMES, column: Service programme key, showing an "x") can be fetched from the storage, when the authorized individual keys in, to P49, the correct code number and pressing the top ten button. When trying to fetch from storage any protected programme without input of the code, the display "error" will appear, and the service programme jump to display 1 P49. When now keying in, and entering, the correct code number, fetching from storage of the protected data is possible.

Upon closing of the phonograph and return by pressing the "R" key to the standard programme, the service programmes are again protected against unauthorized access. The code number (P 48) set, will not be displayed, therefore

DON'T FORGET THE CODE NUMBER

(in this respect, see Description "The Service programme key" P 49).

No code number is set by the manufacturer.

"0000", so all the data can be fetched from storage of the service programme.

SERVICE PROGRAMMES

With phonograph closed, always the programme as set (standard programm) is switched in. When opening the lid, the computer will be set to the service programmes by means of the cabinet switch. Credits or any plays will not be lossed. Information is given by display 1 P. No programme key is required for the performance of any service work -setting number of records, volume, permanent operation, reading of the pop.counter. With the input of the programme key, access to all the programmes is possible.

PROGRAMMING WITH CODED PHONOGRAPH

After keying-in of the code number in programme P 49, display 1 P49 and pressing the top ten button, and if so required, reprogramming of all the service programmes is possible.

With a wrong code number, PP PP remains on display 2, when pressing top ten button "pppp".

With correct code number, P PPP will appear on display 3, when pressing the top ten button, access to all the programmes is possible.

The service programme group P0 - display 1 P00 through P09 accomplishes and displays all the settings required for the coin insertion:

P 00 - P 04 conversion and price-scale

P 05 - P 09 value of coins to the coin channel involved, and the number of pulses for the cash counter.

PROGRAMMING OF PRICE-SCALE

5 price-classes can be set.

Each price-class is allocated to a service programme.

P00 should be programmed with the lowest price-class. The lowest price-class which can be set, is 0.05, the highest is 9.95.

The highest number of plays (credit) which can be set is 63.

With the keying-in, the three left digits of the display 2 show the setting of the price, the right two digits the number of plays offered for.

Credit and price settings are shown in intervalls when phonograph is in stand by positions.

CONVERSION OF THE LOWER STEP 1

Press 00 button. On display 1 appears P00.

On display 3 there appears the previously programmed price-class of this step, at the right side, the coin value, at the left, on two digits, the number of plays.

Key in lower price-class. E.g.: 0.50 = 1 play.

The display 2 will show 050 01.

ATTENTION! Even when changing just part of the setting, keying-in of all 5 numbers is indispensable.

Upon pressing the top ten button, the display 3 shows 1 050, and there with the programming of step 1 is terminated.

CONVERSION OF STEP 2

Advance with blue Hit button the programme to display P01.

Display 3 shows the previously programmed price-class of this step.

Key in medium price-class. Example: 1.00 = 3 plays. Display 2 shows 100 03.

When pressing the top ten button, display 3 shows 3 100, and the programming of step 2 is completed.

CONVERSION OF STEP 3

By blue Hit button can be advanced to next programmestep P02.

On display 3, appears the previously programmed price-class of this step.

Key in highest price-class. Example: 2.00 = 7 plays. The display 2 shows 200 07.

When pressing the top ten button, display 3 will show 7 200, and the programming of step 3 is completed.

CONVERSION OF THE STEPS 4 and 5

When setting 3 price-classes only (step 1 - 3), it is necessary to program also the free steps 4 and 5, either by 5 times "0", or with the highest price-class, i.e. with the present example, with 2.00 = 7 plays.

When preparing the box to accept just one coin value - e.g. insertion of _ _ _ - at least two steps - P 00 and P 01 should be programmed with the very same coin value, and into the other steps, P 02 - P 04, there can be keyed in five times "0" each.

COIN INSERTION

In the programmes P 05 to P 09, the coin values are allocated to the coin channels, and the pulses given to the cash counter when inserting the coin (s), are programmed.

Display 3 shows on the right the coin values, and on the left the number of cash counter pulses.

Coin values can be changed by reprogramming. In case no cash counter pulses shall be given, set the puls number to "00".

Allocation of the coin channels to the displays:

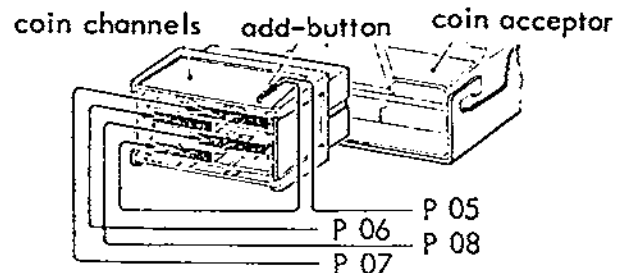
Display P05 for coin channel 1 plus add.key

P06 for coin channel 2

P07 for coin channel 3

P08 for coin channel 4

P09 for dollar bill (reserve)



Depending on country and currency, coins of different coin value will go into the coin channels, and so the following simple check of the allocation to channel (i.e. which coin will go through which channel) should be performed:

Key in the service programme P00

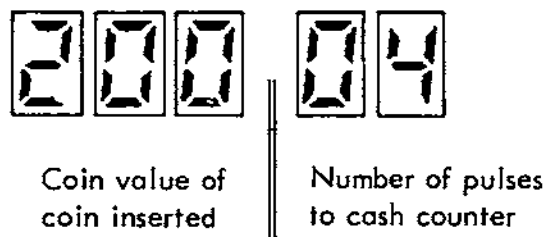
Insert coin.

Display 1 shows the coin channel involved.

Display 3 shows the values as previously set, i.e. at the right, the coin value, at the left the cash counter pulses.

If such setting is subject to change, the new values are to be programmed.

EXAMPLE:



Upon pushing the top ten button, display 3 shows . 4 200 . This way the coin channel is programmed for 2.00, and the cash counter receives 4 pulses.

Since the cash counter multiplies the pulses programmed, "true to value", by 5, 20 will be read in service programme P 32.

See the following schedule.

PROGRAMMING				Reading of the service programmes P32			
of the service programmes P05 thru P09				"coin value" and "cash counter pulses"			
				true to value		1 x top ten button	
Insertion coin	coin value	number of pulses		2 decimals		Number of pulses	
0.05	0,50	1 0		0 0 0	5 0	0 0 0	1 0
	1,00	2 0		0 0 1	0 0	0 0 0	2 0
	2,00	4 0		0 0 2	0 0	0 0 0	4 0
0.5	1,00	0 2		0 0 0	1 0	0 0 0	0 2
	2,00	0 4		0 0 0	2 0	0 0 0	0 4
	5,00	1 0		0 0 0	5 0	0 0 0	1 0
5	50	1 0		0 0 0	5 0	0 0 0	1 0
	100	2 0		0 0 1	0 0	0 0 0	2 0
	200	4 0		0 0 2	0 0	0 0 0	4 0
5	5,00	0 1		0 0 0	0 5	0 0 0	0 1
	10,00	0 2		0 0 0	1 0	0 0 0	0 2

In case the cash shall not be displayed, pulse number 00 should be set.

In case display 1 shows some P0-programme or other, the programming operation described in the foregoing, can be accomplished with a coin of the second, the third and - with phonograph having a 4-channel coin acceptor - also a fourth coin value.

PROGRAMMING OF THE COIN VALUE AND THE NUMBER OF PULSES

Key in service programme P05 (display 1).

Display 3 shows the previously programmed values, i.e. at the right, the coin value, at the left the cash counter pulses.

COIN CHANNEL 1 - value allocation and pulse number for cash counter

Key in the values, e.g. coin value 0.50, and no cash counter pulses (for add.key).

The display 2 shows 050 00

Upon pressing the top ten button the display 3 shows 10 050, and this programming completed.

COIN CHANNEL 2 - value allocation and pulse number for cash counter

Advance to P05 of the programme by blue hit button.

On display 3, the previously programmed values will appear. Key in the values desired.

Example: Coin value 0.50/10 cash counter pulses.

Display 2 shows 050 10

After pressing the top ten button there appears on display 3 10 050, and this way this programming is performed.

COIN CHANNEL 3 - value allocation and pulse number for cash counter

Switch the programme forward to display **P03** by blue hit button.

Display 3 shows the previously programmed values. Key in the values desired; example, coin value 2.00/40 cash counter pulses.

It appears on display 2 **200 40**

Upon pressing the top ten button, there appears on display 3 **40 200**, and this programming is completed.

COIN CHANNEL 4 - value allocation and pulse number for cash counter

Advance to **P08** by blue hit button

The display will show the previously programmed values. Key in desired values, example: monetary value 1.00/20 cash counter pulses.

The display 2 shows **100 20**

Upon pushing the top ten button, display 3 will show **20 100**, and this programming is completed.

DOLLAR BILL ACCEPTOR

Advance to display 1 **P09** by using blue hit button. Key in five times "0" (if no bill acceptor is used). On display 2, there appears **000 00**. Upon pressing the top ten button, the display 3 shows **00 000**

So the programming of the P0.. service programme group is terminated.



In the service programme group P1..., displays 1 **P10** and **P11**, the free plays and the time interval for random play are set.

FREE PLAYS

That number of free plays will be programmed which can be fetched in the standard programme through remote control. When programming free play up to the value of 254, each call will be subtracted by 1 until the storage number is equal to zero.

When programming the value of 255, an unlimited number of free plays can be fetched. No internal subtraction will take place.

Records selected under "free play credit" will be counted in the free plays counter, and displayed in service programme P34.

Key in display 1 **P10** of service programme.

Display 3 shows the previously set number of free plays.

Key in the desired value, e.g. 100 free plays.

The figure display 2 shows **000 00**

Upon pressing of the top ten button, the figure display 3 shows **00 100** and this programming operation is accomplished.

RANDOM RECORD

Setting of the time (number = minutes) for the random play of a side of record.

The time set runs from end of the last played record.



Maximum setting number is 127 = 127 minutes. If 000 is programmed, no random record will be played.

The random records played will be counted and displayed in service programme P39.

Display 3 shows the previously set time in minutes. Key in new number, e.g. 15 minutes (015).

The display 2 will show , and so this programming is completed.



The service programme group P2  thru , allows the following programming.

P20 - maximum number of records (number of records placed in the box).

P21 - position of synchronization

P22 - sound volume left (Standard)

P23 - sound volume right (Standard)

P24 - sound volume left (for background only)

P25 - sound volume right (for background only)


P26 - price of group

P27 - size of group

P28 - box code number (for recording device)

P29 - memory code (for recording device).


MAXIMUM AMOUNT OF RECORDS

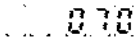
Key in display 1  of service programme.

The display will show the previously set number.

With record magazine not fully provided with records the empty spaces must be on the right side, and the correct number of records to be played must be programmed.

Key in desired number, e.g. 70 records in magazine (070).

The display 2 shows .

After pushing the top ten button, display 3 shows , thus the programming operation is confirmed.

IMPORTANT! The number programmed should never exceed the number of records in the magazine.

POSITIONING OF THE SYNCHRONIZATION

Upon start from parking position in the center of the record magazine, the reflection coupler of the travelling carriage perceives the transition from dark to light on the rearside profile of the carriage base.

From this position the incoming counting pulses will be counted.

The 240- and the 160-record phonographs require always the position 80 to be programmed, the 120-record phonograph require always position 60 to be programmed.

Programming of the synchro-position: **P21**

Enter into programme P21 by blue hit button.

Display 3 shows the previously programmed position.

Key in the new number, e.g., Position 80 (80)

Display 2 shows **0000 80**

Upon pressing the top ten button, the display 3 shows **0000 80**, and this programming is completed.

PROGRAMMING OF THE SOUND VOLUME

The volume of the two channels can be jointly set in 32 steps - zero thru 31 - either by the control unit in the phonograph, or by the remote control unit, during a record playing. The last-set volume will be kept even after power off. This applies to standard- and to background-music.

When setting the volume with the control unit to "0", display 1 shows **000**

A just playing record will be played, other selected records will not be fetched, unless volume key + was pushed.

For service purposes, the volume for the two channels can be programmed separately. A different setting of the volumes of the two channels will be kept in its asymmetry when operating the volume control unit.

In case a channel volume reaches the final position - upwards the step 31, downwards the step 00 -, a continuous actuation of the control unit allows matching the two channels. After this, symmetry of sound volume is maintained again.

PROGRAMMING OF THE SOUND VOLUME - LEFT CHANNEL

Advance with the blu hit key to display 1 **P22**

On display 3 there appears the previously set sound volume step (0 - 31) of the left channel.

Key in wanted value, e.g., step 15 (approximately like 1/2 sound volume).

display 2 shows **000 15**

After pushing the top ten button display 3 shows **00 015** and this programming is completed.

For the following programmes, see "service programmes". cover page.

Advance by the blu hit button to program display **P23** thru **P25** and programme or control on display 3 the previously set volume-step (0 - 31).

GROUP PRICE

On 2 digit display credits will be shown necessary for a "Group selection" or top ten selections. Price programming is possible between 01 and 10 credits.

Advance by the blue hit button on to display 1 **P26**, or key in directly the programme P26. Display 3 shows the previously set group price.

Key in price wanted, e.g. 8 credits (08). Display 2 shows **00 08**

Upon pushing the top ten button, display 3 shows **00 08**, the programming is completed, and the "Group selection" display shows the price as programmed.

SIZE OF GROUP

By programming a figure between 01 and 10, the number of records is determined which is offered for a group- or a Hit selection.

In case of programming a group size less than 10, the first records of the group involved will be selected.

Input of another figure:

Advance by blue hit button on to display 1 **P27**, or key in directly the programme P27.

Key in group size wanted, e.g., 10 record sides. Display 2 shows **00 10**

After pressing top ten button, display 3 shows **00 10**, and this programming is completed.

CODE NUMBER (for recording device)

To recognize accounting data each phonograph needs its code No. of its own, which is programmed by a two-figure number.

Change of the box code:

Advance with the blue hit button to display 1 **P28**, or key in directly the programme P28. Display 3 shows the previously set box code (even without programme key).

Key in code No. wanted, e.g., 03.

Display 2 shows **00 03**

Upon pressing the top ten button display 3 shows **00 03** and the programming is terminated.

MEMORY CODE NUMBER (for recording device)

To secure data - from unauthorized data transfer into the service memory with the possibility to read out the recording device - a two-figure memory code No. will be programmed.

Change of the memory code number:

Advance with the blue hit button to display 1 **P29**, or key in programme P29 directly.

Display 3 shows the previously set memory code number.

Key in code number wanted, e.g., 03.

The display 2 shows **00 03**

After pressing the top ten button display 3 shows **00 03**, and the programming is completed.

The service programme group P3..., display 1 P30 till P39 shows the counts of the counters.

READING THE COUNTS OF THE COUNTERS

Key in display 1 P30 of service programme.

On display 3, there appears the count of the "plays counter, A-sides", of the programme. Advance by blue hit button the following programmes (till P39) step by step. On the display 3, the count of the counter involved will appear.

Service programme, display P32, "Cash pulses, coin value", offers a peculiarity. When actuating the top ten button, the cash pulses and the coin value (cash receipts) are displayed in succession (first, the cash pulses, then the total-cash, etc.). At the display "cash pulses", example 150, it is possible to extend, by multiplication of the programmed coin value per pulse, the cash receipts (see programming P05 thru P09).

$$1 \text{ st example: } \frac{\text{coin value}}{\text{programmed pulse number}} = \frac{1.00}{20} = 0.05 \text{ coin value / pulse}$$

or

$$2 \text{ st example: } \frac{\text{coin value}}{\text{programmed pulse number}} = \frac{1.00}{20} = 0.5 \text{ coin value / pulse}$$

When multiplying the displayed 150 cash pulses by the coin value/pulse, it results the cash receipts as follows:

$$\text{for the 1st example, } 150 \times .05 = 7.50$$

$$\text{for the 2nd example, } 150 \times .5 = 75.00$$

The second display in the service programm P32 "coin value" (cash receipts) indicates the cash balance true to value - See service programmes P05 thru P09.

READ OUT OF THE COUNTERS

To read out the counters involved it is necessary to key in once more the number of the respective service programme (e.g., with display 1 P30, once more,30).

Display 3 shows the count of the counter; press the top ten button and the counter is put to zero.

Display 3 shows 00 000

CUMULATING COUNTERS

The individual values of all the counters of P30 thru P39 are displayed in cumulation in the service programmes displays 1 P60 thru P69

The displays of the service programmes P60 thru P69 can not be reset.

POPULARITY COUNTER

In the service programmes, displays 1 P40 thru P43 , the reading of the popularity counters is prepared.

Key in service programme, display 1 P40 , popularity counter for group selection.

The first digit of the display 2 shows G for "group", the fourth and the fifth digit shows the amount cont. in the group. Example: display 2 G00 00

Display 3 shows the frequency of the group selection, i.e. in correct sequence up to 99. The top ten button allows to go through the groups till G33, and to display the specific frequency.

When reaching the group G33, the display starts again with G10.

By keying-in a group number for ex.: P40 - the group selection frequency will be displayed directly. .

Key in service programme, display 1 P41 , popularity counter for the record sides.

The first digit of display 2 shows H for "Hit", the third, fourth and fifth place show the number of the record side.

Example: Display 2 H00 00

Display 3 shows the frequency of the record sides played in the correct sequence.

The top ten button allows to key in the record sides till H339 and to read out the individually playing frequency.

When H339 is obtained, it starts again with H100 (240 selections). By direct keying-in - P41 - the number of individual played record side, will be displayed.

Key in service programme, display 1 P42 , popularity counter for individual records - upwards (A + B-sides).

The first digit of the display 2 stands P for popularity; on the third, fourth and fifth digit the number of the record appears.

On display 3 there appears the frequency of played record upwards, starting with 00 for the least played record (till to maximum of 99) by pressing the top ten button.

The read out stops with reaching the most played record.

Key in service programme, display 1 P43 popularity counter for individual records, downward (A + B sides) .

The first digit of display 2 stands P for "Popularity"; on the third, fourth, and fifth digit the number of the record (the A-side number) is displayed.

On display 3 there appears the frequency in true sequence (maximum = 99), downwards when pressing the top ten button to the least played record. The read out stops when the least played record is reached. Resetting of the popularity counters:

see service-programm P51 - "Resetting".

Key in service programme, display 1 P44 - transferring data into service memory

The transfer into the service memory is prepared in this programme.

The following counts of counter are transferred:

1. Cash impulses and total cash (coin value) in P32
2. Total number of plays - plays paid -
consisting of P35 standard selections
+ P36 group selections x group size programmed (at P27)
+ P37 Hit parade selections x group size programmed (at P27).
3. Extra plays - unpaid plays -
consisting of P34 free plays
+ P38 background records played
+ P39 random records played.

In addition the code number (from P28) is taken over into the service memory.

Transfer is possible only with identical code numbers of phonograph (P29) and service memory

Data transfer:

1. Put service memory into socket of control- and credit unit.
2. Enter into programme. P44
3. Press top ten button to transfer data.

The display flickers during the transfer.

The correct data transfer is confirmed on display 3 by [] PF

The service memory can record the data of 16 different phonographs.

In case [] PE appears on display 3 after pressing the top ten button, the service memory is full. No transfer is possible. At display 3 [] PF

the service memory just takes last transfer.

If there ist no transfer possible, the code numbers of phonograph and service memory do not correspond.

Key in service programme, display 1 P45 - printer connection - (OPTION)

If so desired, the connection of a printer can be programmed into this programme.

The interface is designed for a 20 mA current loop with ASC II data format.

There are four Baudrates provided: 110, 300, 600, 1200.

Four outprints different as to contents, are possible (list outprints A, A+B, A+C, and A+B+C).

Please contact service department for further information.

Key in service programme, display 1 P46 - permanent operation

The control- and maintenance programme is prepared. Upon pressing the top ten button, display 3 shows [] 46. With box going to the standard programme via the button "R" or "Closing of box" respectively, title "100" will be played permanently.

Display 2 shows [] 66

If in addition to title 100 other records are desired, same must be selected - on the condition a credit was previously existing.

Resetting of the permanent operation is done by actuating key "R", insertion of a coin, or power off.

Service programme, display 1 P47 - programming of key for remote control
 With phonograph in "Standard play" position, free credit can released by the remote control with the identification code and the "Free Credit"-button.
 In case free credit are transfered the display "free plays - please select" remains illuminated, and selections are possible.

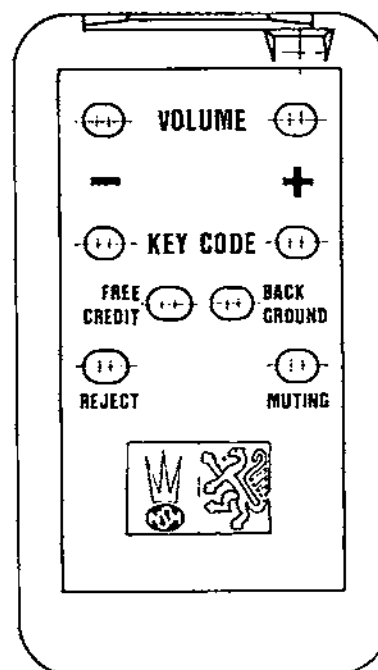
REMOTE CONTROL

All remote functions will be indicated at the right-hand side of the selector panel with

" thank you
 enjoy the music "

Button " VOLUME - " decrease volume of both amplifiers

Button " VOLUME + " increase volume of both amplifiers



Holding (+) button permanently increases volume continuously.
 Holding (-) button permanently decreases volume continuously.
 Just tapping button changes volume level step by step. Volume in "0" position is indicated on selector panel at left-hand display 1 with OFF. A record in the play position will be played without sound, the carriage will remain at that position until the (+) volume button is pressed.

Pressing the REJECT button for a minimum of one (1) second will reject a playing record.

Momentarily pressing the MUTING button mutes the sound of a playing record. This function will be indicated at the selector panel with OFF at the left-hand display. The scanning function of the carriage will be stopped as long as the word OFF is displayed at the left-hand display. Pressing the MUTING button again, return to normal operation.

With these buttons the receiver will release "FREE CREDIT" and "BACKGROUND" music and the remote key can be programmed.

PROGRAMMING REMOTE KEY CODE

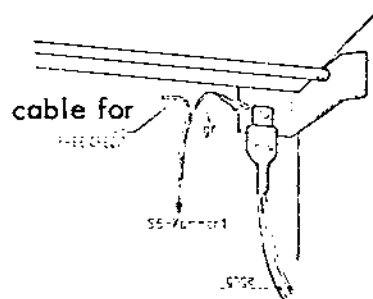
Opening the lid of the phonograph in service programm (indicated by "P") select "47". Display 1 **FM**. Press key code buttons on the remote control for desired code (14 combinations are possible). Each time you press the key button the number in the credit display will increase by one (1). Whether you push (-) or (+) the number will increase by one, therefore, you must remember the sequence entered. The code number will be entered in the memory by pressing the " top ten " button on the selector panel. This entry will be confirmed with **0 000** on the right-hand display 3. Whilst programming it is recommended to send control pulses not directly to receiver, use reflex via ceiling.

With the correct code one can call for free credit, if free credits are programmed in the service programm P10. Any free credits transferred from the memory will be indicated cated on the credit display and the make selections courtesy of the management lamp will light at the right-hand side of the selector panel.

BACKGROUND-MUSIC - FUNCTION!

To enter the function the line Nb.1 of plug Nb.6 must be connected with ground terminal. The line is connected when delivered from factory.

If the background function will not be used the line Nb.1 will be disconnected and insolated.



PROGRAMMING PROCEDURE

Put phonograph in stand-by position.

Press KEY CODE buttons or remote control in reverse sequence to enter key code followed by background button.

EXAMPLE: Remote key is programmed by pressing key button (-) twice to release free credits. The key button (+) must be pressed twice to enter into the background programming. Finally, the background button must be pressed. The programming will be confirmed with **0 00** at the credit display.

With " G " button on the selector panel and the group number, the background groups can be programmed. By pressing the background button on the remote control, the phonograph will return to normal operation.

If full capacity of phonograph (120) is not programmed in P 20 cancelled groups must not be programmed.

BACKGROUND PLAY

To call for background from remote control the key button must be pressed in key code mode. In our example, key button (-) twice. With the background button, the background groups will be release and played. The phonograph remains in background playing function as long as the background button is not pressed again.

If during a background playing function, selections by coins will be made, the background music will be interrupted and the selected records will be played. After all coined selections have been played, the programm returns to background music.

PROGRAMMING OF THE SERVICE PROGRAMME CODE NUMBER

1. Key in service programme, display 1 P48
2. Input a four digit code number. Each of the four digits is confirmed by a "P" on display 2 PP PP
3. After pressing the top ten button, said code number is entered. Display 3 shows P PPP

For security reasons, this code number will not be displayed during keying-in, therefore

▶ DO NOT FORGET THE CODE NUMBER! ◀◀

Without knowledge of this number, access to the protected programmes is impossible.
With "0000" coded access to all programmes is possible.

SERVICE PROGRAMME CODE

Access to coded programmes is possible only by code number identification (4 digits).

1. Key in service programme, display 1 P48
2. Identify with correct 4 digit code number. Each of the four digits will be confirmed with a "P" on display 2 PP PP
3. Press top ten button to enter into memory

With the correct code number put in, display 3 shows P PPP

When entering with a wrong code number, display 3 shows after the pressing of the top ten button nothing :

When calling for protected programme data without knowing the code number, the display shows "error", and the programme returns to display 1 P48 , i.e. "prepared for input of the correct code".

When closing the phonograph or switching back to standard programme by means of the key "R", the programmes are again protected.

At delivery the phonograph is without any code number, display 3 . 0 000 that means access is given to all the programmes.

In case the programme code number got lost (code number forgotten, or, by error, input of an unknown number) there exists, in such case of emergency, the following possibility:

Remove the EAROM of the respective control and credit unit to place it into the service memory instead of the installed EAROM (this requires modification of the service memory, because EAROM is soldered in, without any socket).

To reset the EAROM inserted in service memory and cancelled. The service memory has to be connected with recording device. After inserting the cancelled EAROM in the control and credit unit, the code number 0000 must be entered, and after this, the complete service programme must be reprogrammed (see "Technical instructions - service memory and recording device").

The following programme groups, P50 thru P52, allow to reset the counters individually, by groups or altogether.

CANCEL OF CREDIT

1. Key in service programme, display P50
2. Key in number 50; display 2 shows 50
3. After pushing the top ten button, display 3 shows 50

So the credit is cancelled.

RESETTING OF THE POPULARITY COUNTER

1. Key in service programme, display P51
2. Key in number 51; display 2 shows 51
3. Push top ten button, and display 3 shows 51

The four popularity counters - service programme - are reset (P40, P41, P42 and P43).

RESETTING OF THE POPULARITY COUNTERS AND COUNTERS P 30 thru P 39

1. Key in service programme, display P52
2. Key in the number 52; display 2 shows 52
3. After pressing the top ten button, display 3 shows 52

ATTENTION. During resetting operations P51 and P52, all displays will flicker.

EXTENSION SPEAKER CONNECTIONS

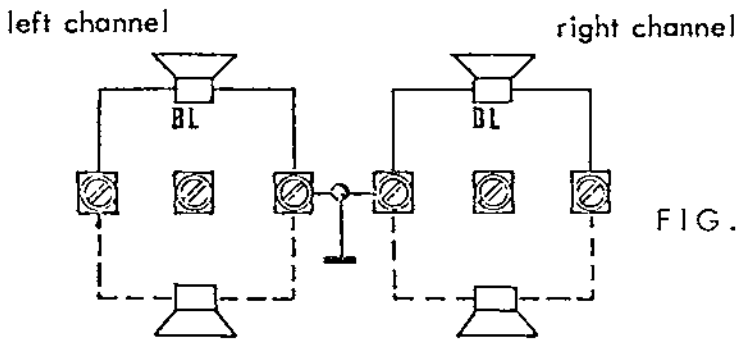
If remote speakers have to be connected, check for matching of the impedance.

Mismatching will result in distortion due to the safety circuit in this amplifier. The total impedance of connected speakers must not be less than 3 Ω per channel.

Output transformers can be supplied upon request.

When the speakers are connected through output transformer, please observe the instructions inside the transformer cover.

SPEAKER CONNETION WITHOUT OUTPUT TRANSFORMER



BL = Cabinet speaker comb.
ZL = Additional speaker comb.

FIG. 1) Phonograph with extension speaker $\geq 6.5 \Omega$

FIG. 1

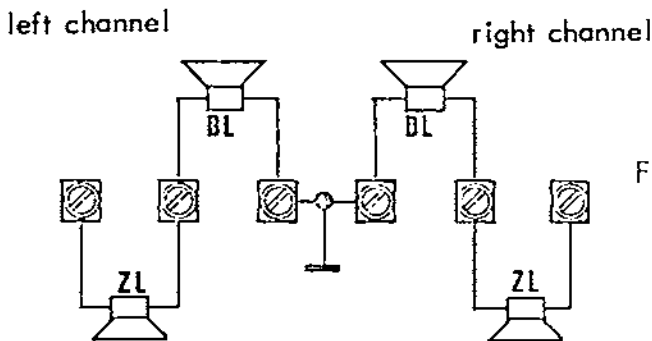


FIG. 2) Additional speaker combinations with a total impedance of 2 to 4 Ω, should be connected in series with the cabinet speakers.

FIG. 2

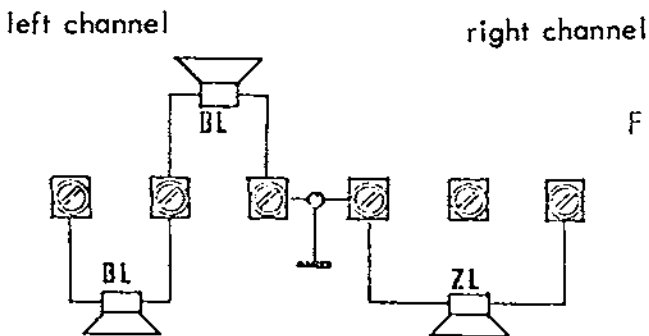
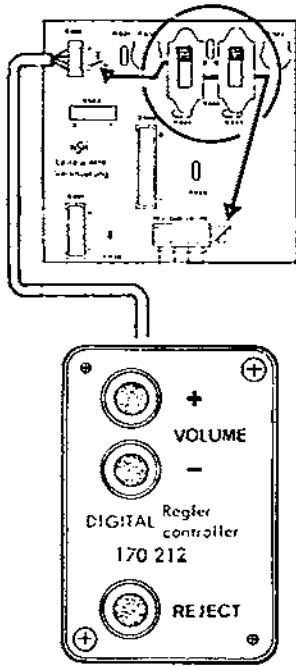
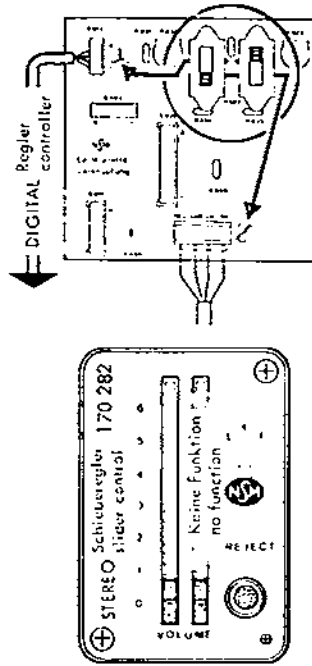


FIG. 3) With additional speakers in another room (mono), separate control of both rooms is possible by means of the dual volume control and mono stereo switch in "mono" position.

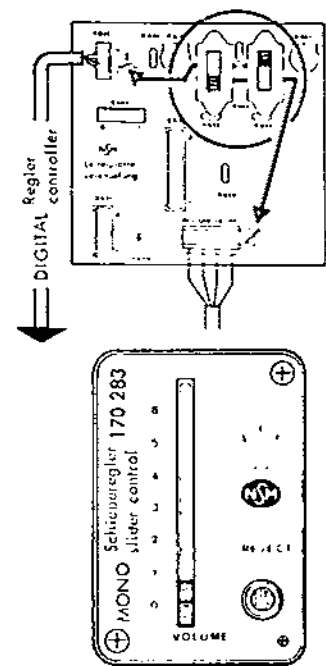
FIG. 3



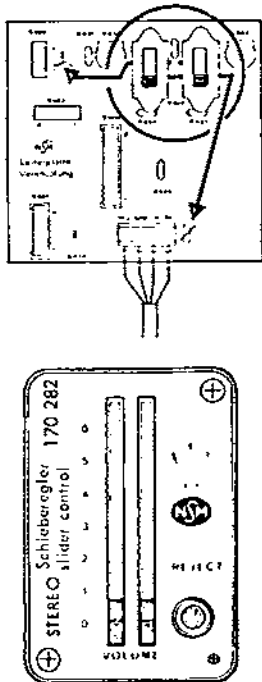
Digital volume control by keys or remote control
No individual control of the channels.



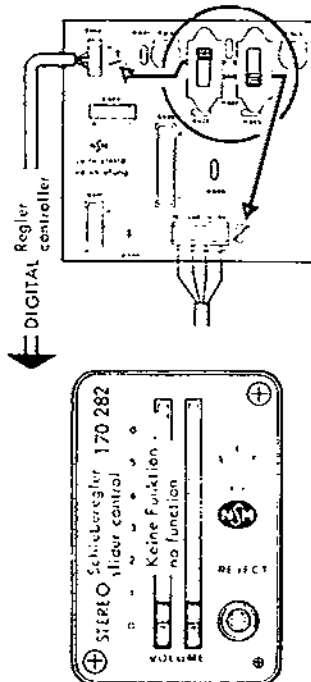
Volume control of the left channel: by hand
right channel: digital control



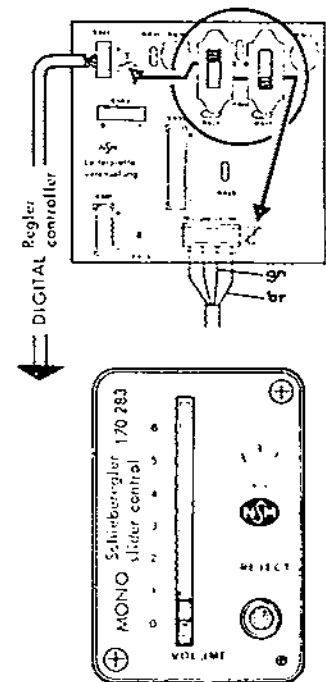
Volume control of the left channel: by hand
right channel: digital control



Manual volume control by slider controller.
Individual control of the channel
After turning-over of the control knobs (mechanic coupling, joint control)



Volume control for the right channel: by hand
left channel: digital control



Volume control for the right channel: by hand
left channel: digital control
Interchange the green and the brown cable.

BACKGROUND VOLUME CONTROL is possible but by means of the digital control.

TECHNICAL INSTRUCTION

SETTING OF THE MAX. VOLUME OF PHONOGRAPH ES III

The volume control by means of the digital controller is made by the digital-analogue converter in the control and credit unit.

At maximum volume (step 31) should be measured 2.6 ± 0.0 V at the IC 101, pin 5 of the amplifier.

With values not corresponding, setting for amplifier I (left channel) is done by R 600, for amplifier II (right channel) by R 603, the two of them being on the "printed circuit board - connection".

CHECKING AND SETTING

Recommended when replacing the control and credit unit phonograph in service programme, display 1 : P--.

Key in programme 22; display 1 : P22. Display 3 shows the previously set volume step (0-31) of the left channel.

Key in the highest value, i.e. step 31. Display 2 shows ---31.

After pressing of the top ten button, display 3 shows -- -31, and the highest volume step is programmed. For the programming of the right channel, advance the service programme by blue button to display 1 : P23.

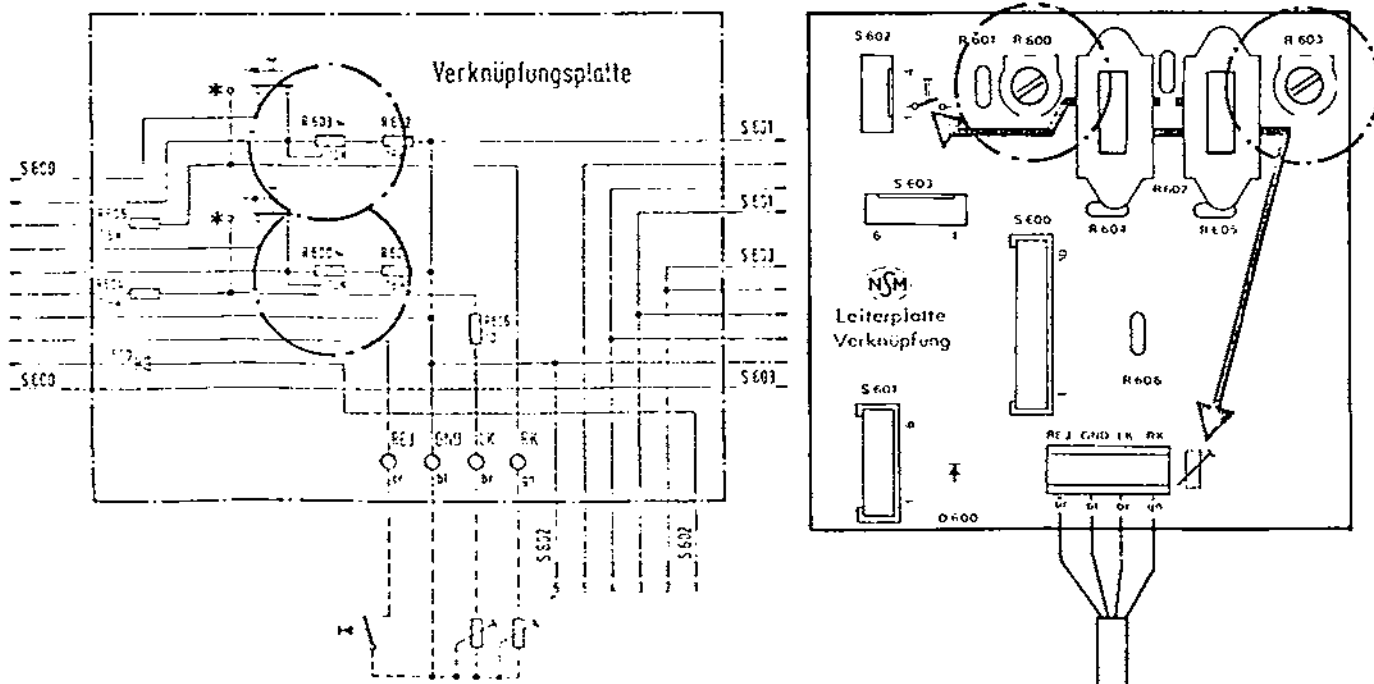
Program highest volume step (31) the very same way as for the left channel.

Put measuring device, R; 1 M Ω to center pick off of potentiometer R603 (for the right channel in service programme P23) and to ground.

Correct Value = 2.6 ± 0.05 V

Like control and setting with potentiometer R600 for the left channel in service programme P22.

Return to programme P22 by red hit button.

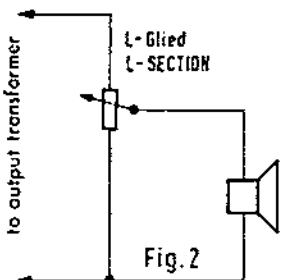
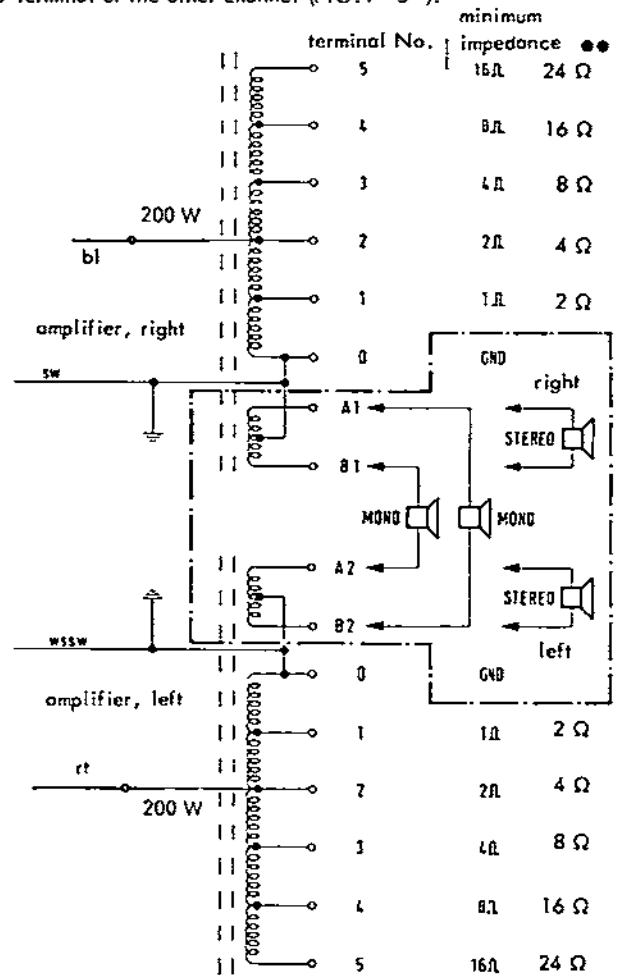
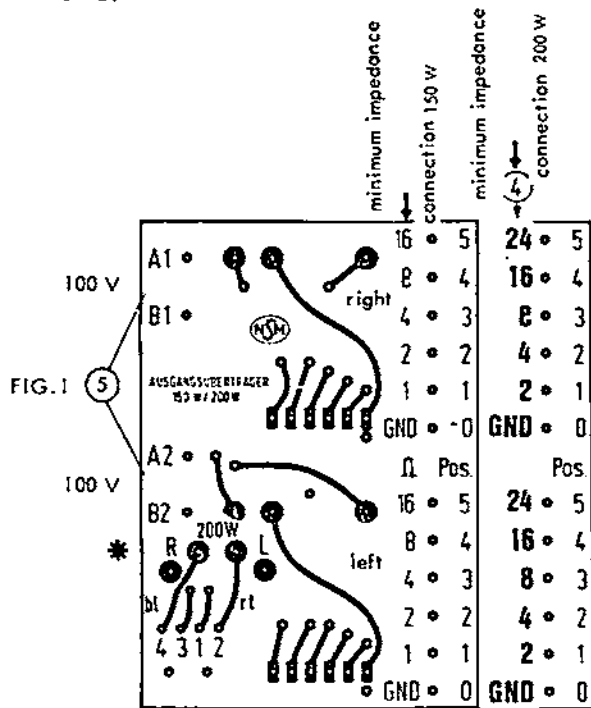


The four free wire ends at the output transformer will be connected according to the colour indications printed on.

* **ATTENTION!** Check whether or not the connecting line is connected to the output transformer 200 W the right way for NSM juke box 240 - 1.

- Box loudspeaker normal
- The minimum impedance as indicated at the connecting terminals (FIG.1 4) should not fall below, and the power consumption of all the speaker connected, should not exceed the maximum of 100 W respectively.
- To connect a mono-loudspeaker to a stereo-amplifier requires the one line of the mono-speaker cable to be connected to the "A" terminal of the one channel and the other line, to the "B" terminal of the other channel (FIG.1 5).

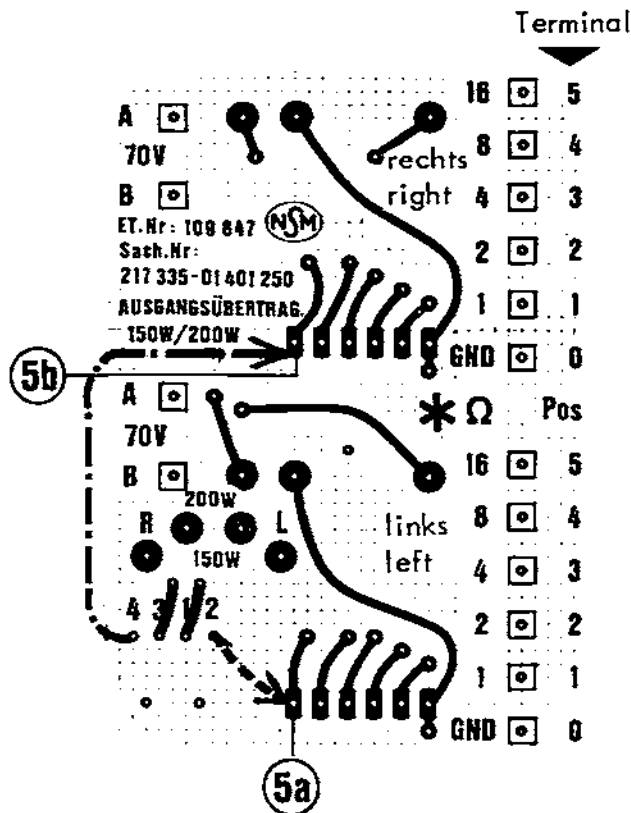
In case volume lowering of the box loudspeakers or the external loudspeakers (independent of the other) is requested, an L-section (per channel) can be provided before the loudspeakers involved. In such case impedance and power of the L-section depend on the loudspeaker volume required, and the connection on the output transformer as well. E.g. for a small volume - up to 10 W - and connection to the terminals 0 - 1, an 8 Ω / 10 W L-section may be used. A bigger volume will need an 8 Ω / 30 W L-section (Order-No.221 789) which should be connected to the terminals 0 - 2.



terminal No.	At a speaker impedance of ...					minimum impedance	
	2 Ω	4 Ω	8 Ω	16 Ω	24 Ω		150 Ω
0 - 5	not matching (low ohmig)					80 W	24 Ω
0 - 4	not matching (low ohmig)					90 W	16 Ω
0 - 3	not matching (low ohmig)					100 W	8 Ω
0 - 2	not matching (low ohmig)					100 W	4 Ω
0 - 1	95 W	45 W	30 W	16 W	9 W	2 Ω	
FIG.1 (5)	A 1 - B 1	STEREO	right			60	150 Ω
	A 2 - B 2	STEREO	left			60	150 Ω
	A 1 - B 2	MONO				90	150 Ω
	A 2 - B 1	MONO				90	150 Ω

Connection diagram for output transformer

for the adaptation to lower power or several speakers in parallel connection respectively



Remove red line ~~— — —~~ from soldering points 150 W or 200 W respectively, and solder it on connection (5a).

The blue line ~~— — —~~ will be removed from the 150 W, or 200 W soldering points respectively (redraw in the flexible hose) and re-solder it on connection (5b).

* Values are not valid.

Due to this modification it is not possible any longer to give the full power of the amplifier to a speaker having more than 4 Ω.

The maximum power furnished to a speaker with corresponding impedance is shown in the following list

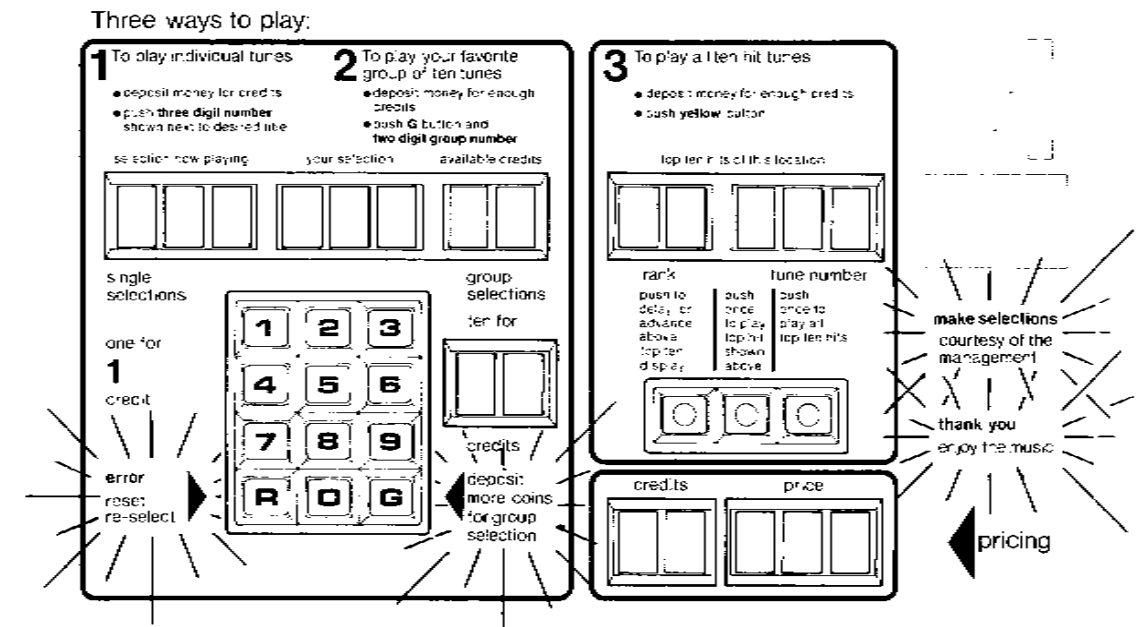
Terminal Position	4 Ω speaker	8 Ω speaker	16 Ω speaker
0 - 5	100 watts	50 watts	25 watts
0 - 4	40 watts	26 watts	14 watts
0 - 3	20 watts	13 watts	7 watts
0 - 2	10 watts	6,5 watts	3,5 watts
0 - 1	5 watts	3,2 watts	1,7 watts

The total power furnished to all the speakers connected to one channel, is not allowed to exceed a maximum of 100 W.

Example : Just two 8 - Ω speakers = 100 W are allowed to be connected to terminal 0 - 5.

<p>106 740</p>	<p><u>SERVICE MEMORY UNIT</u></p> <p>A handy additional storage device allowing the storage of the total cash total plays and special plays together with the code number of the phonograph involved. This unit will accept information from up to phonographs.</p>
<p>107 054 107 359</p>	<p><u>RECORDING DEVICE</u></p> <p>The recording device will then display the data stored in the service memory unit for your accounts dept.</p>
<p>109 884</p>	<p><u>OUTPUT TRANSFORMER</u></p> <p>With output-power terminal for remote speakers and C.V. connectors.</p>
<p>042 139</p>	<p><u>MICROPHONE, ASSY</u></p> <p>Dynamic microphone with paging switch. Adapter with relays. Easy installation installation when following attached installation instructions. Possible use use of microphone in any operating position and stand by.</p>
<p>108 650 170 430</p>	<p><u>ELECTRONIC WALLBOX " CONSULETTE ES "</u> <u>ELECTRONIC WALLBOX " CONSULETTE ES II "</u></p> <p>To be connected to the NSM electronic phonograph. The phonograph must be equipped with a special unit (adapter) part nr. 170 308, 50 Hz (resp. 170 233, 60 Hz). Detailed technical instructions are supplied.</p>
<p>170 281</p>	<p><u>PRINTER INTERFACE - BOARD</u></p> <p>With the printer interface board any printer with serial input and 20 mA current loop can be connected. Printer with 110 to 1200 bauds (speed) can be used.</p>
<p>170 460</p>	<p><u>WIRELESS REMOTE CONTROL (infrared)</u></p> <p>The wireless remote control kit includes the receiver, the infrared control and the installation hardware. For connection see schematic.</p>
<p>170 258 170 332</p>	<p><u>DOLLAR BILL ACCEPTOR NRI</u> <u>DOLLAR BILL ACCEPTOR ARDAC</u></p>

PROGRAM LID



OPERATING and DISPLAY ELEMENTS

