

# TECHNICAL INFORMATION FOR NSM-PHONOGRAPH

## CD GALAXY

### ES IV-CD TECHNOLOGY



**NSM**  
APPARATEBAU  
GIEß & CO. KG  
6530 Bingen  
Saarlandstraße 240  
Telefon 06721-4070

PART-NO  
**209 817 B**

1	TECHNICAL INSTRUCTIONS
2	OPERATING INSTRUCTIONS
3	STATISTIC and SERVICE PROGRAMS
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5	DISPLAY/ KEY BOARD
6	CENTRAL UNIT
7	OUTPUT STAGE
8	CD-CHANGER
9	TITLE DRUM
10	COIN and BILL ACCEPTOR
11	REMOTE CONTROL
12	
13	OUTPUT TRANSFORMER
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## GENERAL

The modern technology of this new NSM phonograph "GALAXY CD" with CD changer assures the highest functional reliability. A practical diagnostic system is available for maintenance and service.

In order to assure satisfactory operation at all times we recommend reading the technical descriptions carefully so that you are familiar with all service operations.

The following technical documents include:

- 1 The "TECHNICAL INSTRUCTIONS" with important information regarding set-up of the phonograph, technical data, location of the components, the "cabinet" parts list as well as the electrical plan and various wiring diagrams.
- 2 The "OPERATING INSTRUCTIONS" with explanations regarding play and settings as well as short instructions for statistics and service programs.
- 3 The "STATISTICS and SERVICE PROGRAMS" as well as test programs and error displays. The convenient service programs help the user in maintenance and control and permit the transfer of bookkeeping and technical data into the new NSM recording device and the printer "NSM DATA PRINT."
- 4-13 The "UNIT DESCRIPTIONS" for control unit, display/keyboard, central unit, output stage, CD changer, title display, electronic coin mechanism and bill validator, remote control and output transformer with their functions and, where applicable, wiring diagram and parts list.
- 14 "TROUBLE-SHOOTING CHART," a description of errors, error displays as well as flow chart to determine errors.
- 15 "ACCESSORIES," information on genuine NSM accessories with instructions for installation and exercising options.

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

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"Caution: Replace With Same Typ Fuses"

"Attention: Utiliser Un Fusible De Remplacement De Même Typ".

The CD-Player with Laser pick-up used in this phonograph is in compliance with the regulations of the F.D.A.

Accession number 8 320 425

Supplement 15

002

This equipment complies with the requirements in Part 15 of FCC Rules for a Class A Computing Device. Operation of this equipment in a residential area may cause unacceptable interference to radio and TV reception requiring the Operator to take whatever steps are necessary to correct the interference.

TECHNICAL INSTRUCTIONS  
FOR NSM-PHONOGRAPHS

CD GALAXY

ES IV-CD TECHNOLOGY



**NSM**  
APPARATEBAU  
GmbH & Co. KG  
6530 Bingen  
Saarlandstraße 240  
Telefon 067 21 / 40 70

PART-No  
**209818**

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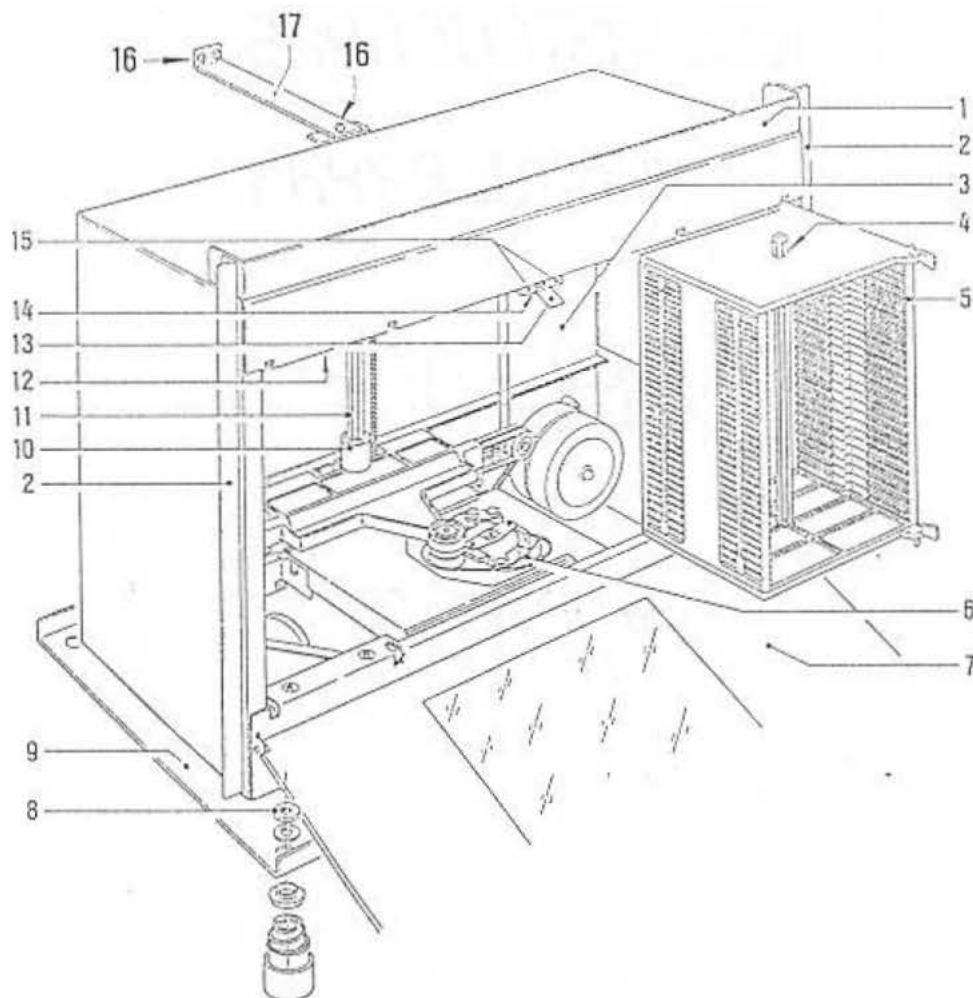
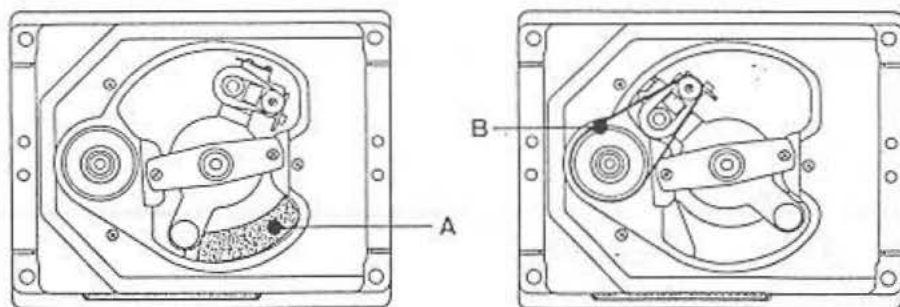


Fig. 1



## 1. PLEASE READ INSTRUCTIONS

### 1.1. Transport Damages

If external damage due to transport is noticed, this should at once be recorded on the delivery slip and endorsed by the person making the delivery.

The manufacturer is not liable for damages caused during transport!

### 1.2. Key

One cabinet key and one cashbox key are taped to the front panel. The other keys are in the cashbox. Upon opening the cabinet lock on the right side the lid may be lifted fully upwards.

### 1.3. Transport Devices

Devices for safety and protection during transport have to be removed before operating the phonograph. Prior to any further transit the safety and protection devices have to be replaced.

- Remove cardboard strip (13) - which deters the accidental opening of the locking mechanisms of both magazines - after loosening fastening screw (14).  
If the holding bracket of the PCB's (12) is to be loosened, the fastening screw has to be completely removed.
- Press the service keys (15) to the center and swing out the left and right magazine (5).
- Remove slotted plastic pipe from the lift axle (11), grip the lift close to lift axle (10) and pull up.
- Remove cover from playing mechanism.  
Remove foam padding (A) or rubber ring (B), if applicable, which protect the radial motor.  
Do not insert foam padding on the cable side if safety devices have to be installed for further transport.
- Loosen CD changer by turning the four nuts (8) so far back from the bottom plate (9) that the changer moves freely.

Keep transport devices in a suitable location in cabinet for later transport!

#### Information for return transport of CD changer:

When exchanging the changer, it may only be transported in the original packaging!

- Remove magazine, push the proper button (15) outwards and remove the unit.  
Inserted CD's can be kept from falling out when the plastic pipe from the lift axle as well as a second one from the enclosed package is put through the opening (4) and all CD's of the magazines.
- Remove design parts: Take out front glass (7),  
take off front and side trim plates.
- Unscrew bottom plate from changer.
- Remove inside lighting; unscrew L-bracket with the lamp holders of the PCB holding plate. Flip up holding plate and loosen plug connection ST7.
- Put in safety devices in proper sequence.

#### 1.4. Power Connection

The label on the power cord shows the voltage setting by the factory.

For other voltages set voltage required on transformers.

Green-yellow of the three-wire power cord must be connected to the ground according to the international safety code. The line cord is located in a box on the rear of cabinet. To pull out the line cord the steel cover has to be removed (4 screws). Put the cable through the respective hole in the cover and put the cover back afterwards.

**Check main voltage before connecting!**

After plugging in the phonograph turn on the switch located at the rear of the cabinet (fluorescent lights should now light up).

#### 1.5. Title Strips and CD'S

When pressing the latch springs on the side, the complete title display (Fig. 3/1) can be pulled down.

Either by pressing the PUSH TO FLIP key - on the outside of the machine - or TAS 1 on the PCB, to the right of the title display - the flip chart is turned forward.

Clip the marked title strips into the title-strip holders.

Push service buttons (Fig. 1/15) each to the center, swing open magazine and equip with CD's. Observe the sequence of the magazine and title strip numbers.

Information: To take out the opened magazines push the service keys (Fig. 1/15) to the outside; take out magazines one after the other!

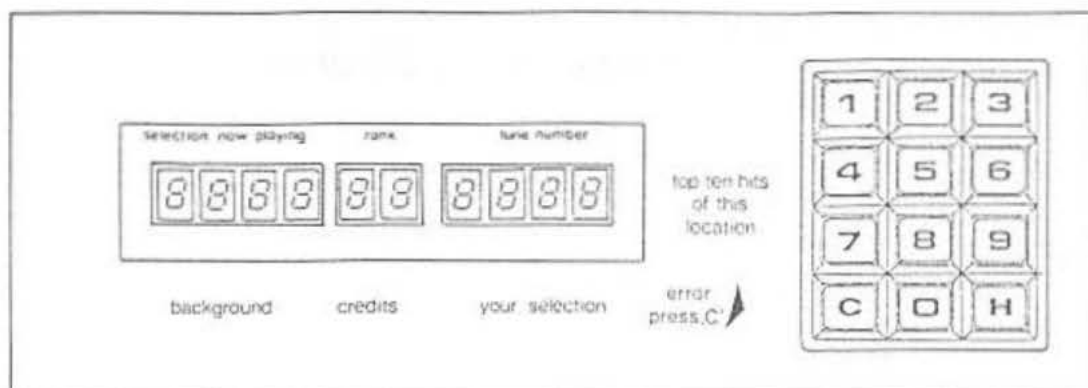
The CD's can be protected against falling out when transporting equipped magazines. For that put the plastic pipe of the lift axle as well as a second one from the enclosed package (Fig. 1/4) through the magazines and all CD's.

## 2. LAYOUT OF UNITS (see illustration on right-hand side)

- 1 Title display
- 2 Receiver for remote control
- 3 Display/Keyboard
- 4 Output transformer
- 5 Control unit
- 6 Coin mechanism
- 7 Central unit
- 8 Volume control
- 9 CD changer
- 10 Network
- 11 Connection unit
- 12 Junction plate
- 13 Output stage



## 2.1. SELECTOR and DISPLAY PANEL



Display panel with displays 1, 2 and 3 as well as 12 button selector

Fig. 2

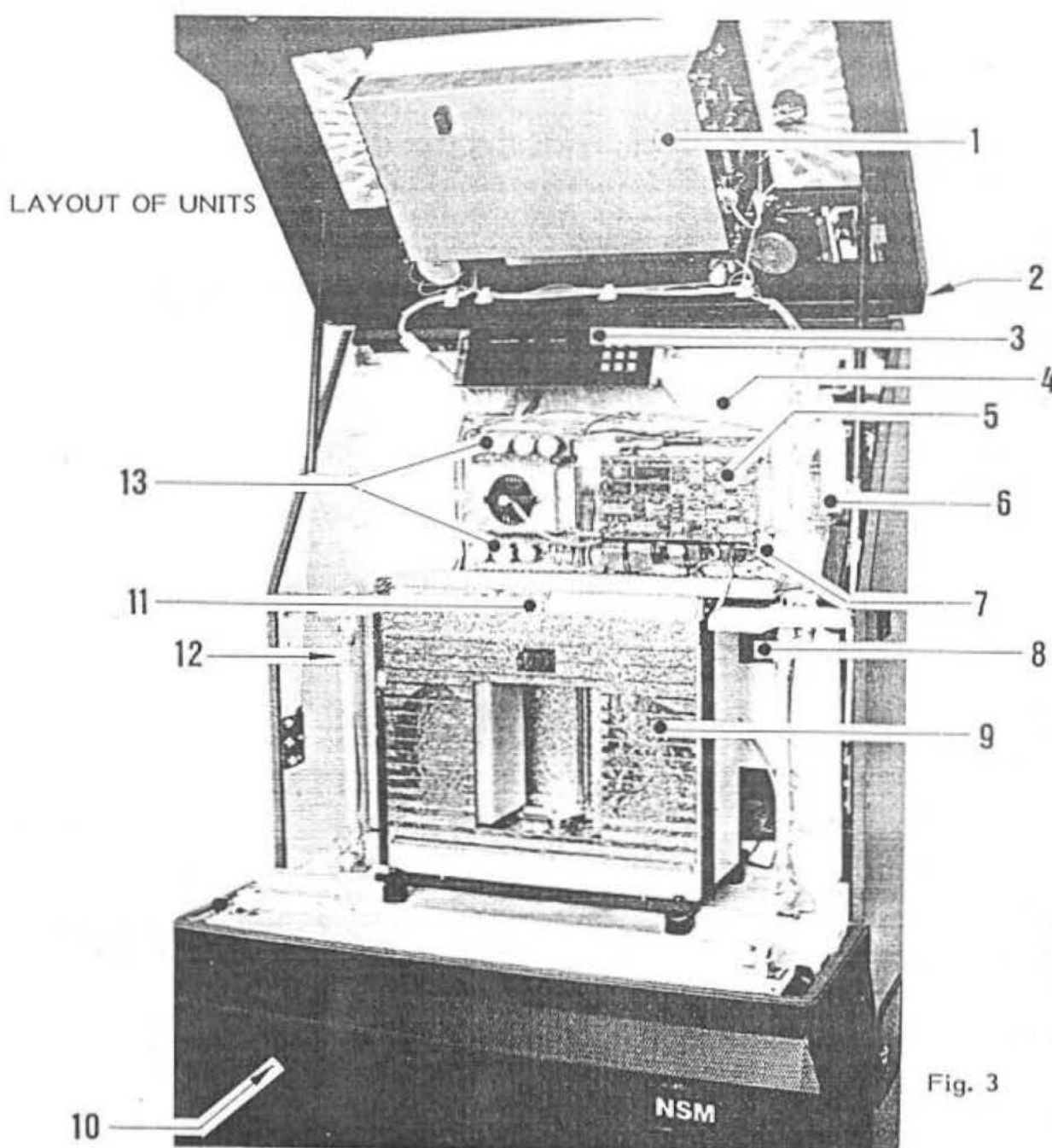


Fig. 3

### 3. SPECIFICATIONS

#### 3.1. Electrical Data

Main voltage: 100-260 V (exchangeable), 50/60 Hz

Power consumption  
at standaby 170 watts  
at play 450 watts

#### 3.2. Music Power

2 x 200 watts music power at 2 ohms

#### 3.3. Fuses

Replace fuses only with those of same value!

#### 3.4. Lighting

Lamps = 12 V/2 W/3 W  
1 fluorescent lamp = 16 W  
1 fluorescent lamp = 13 W  
2 fluorescent lamps = 8 W

#### 3.5. Credit / Cash Input

Maximum credit display is 99.  
Price list adjustable individually or as per table.  
Free credit adjustment/permanent credit key-operated switch  
for free credits and background, elect.-mech. cash counter  
(optional).

#### 3.6. Keyboard

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

#### 3.7. Displays

Display 1 with 4 seven-segment LED's  
Display 2 with 2 seven-segment LED's  
Display 3 with 4 seven-segment LED's  
1 lamp display "10 top hits"  
1 lamp display "background"  
1 lamp display "credit"  
1 lamp display "your selection"  
1 lamp display "error, press key "C"

#### 3.8. CD Changer

NSM CD changer for maximum 100 CD's, 5- or 3 inch disc player:  
Philips CD-2-system with CDM-3-playing unit, servo panel for  
control of CDM-3.

#### 3.9. Loudspeakers

2 loudspeakers P 300 4 ohms  
2 loudspeakers P 175 8 ohms  
2 loudspeakers P 135 8 ohms  
2 loudspeakers Skk 10 4 ohms



### 3.10. Special Features

Integrated microphone preamplifier and connection socket for microphone with paging switch.

Computer-controlled amplifier protection for overload (mismatch).

### 3.11. Dimensions

Height	56 inches
Width	38 inches
Depth	27 inches

## 4. LOUDSPEAKER CONNECTION

The ES-IV amplifier supplies an output of 2 x 200 watts music power at 2 ohms per channel.

The impedance of the cabinet loudspeakers is 5,5 ohms, therefore, the cabinet speakers use 2 x 70 watts music power from the amplifier - only one half of the available power.

Therefore, additional loudspeakers can be connected (Fig. 1).

However, in this case the additional loudspeakers connected can not have an impedance of less than 3 ohms because otherwise the amplifier would be "mismatched" and the overload protection would operate.

If loudspeakers with a higher impedance are connected (Fig. 2), a number of speakers can be connected parallel. In that case, a loudspeaker with a higher impedance would naturally be lower in volume.

The ▼ = polarity must be maintained because otherwise bass reproduction would nullify itself.

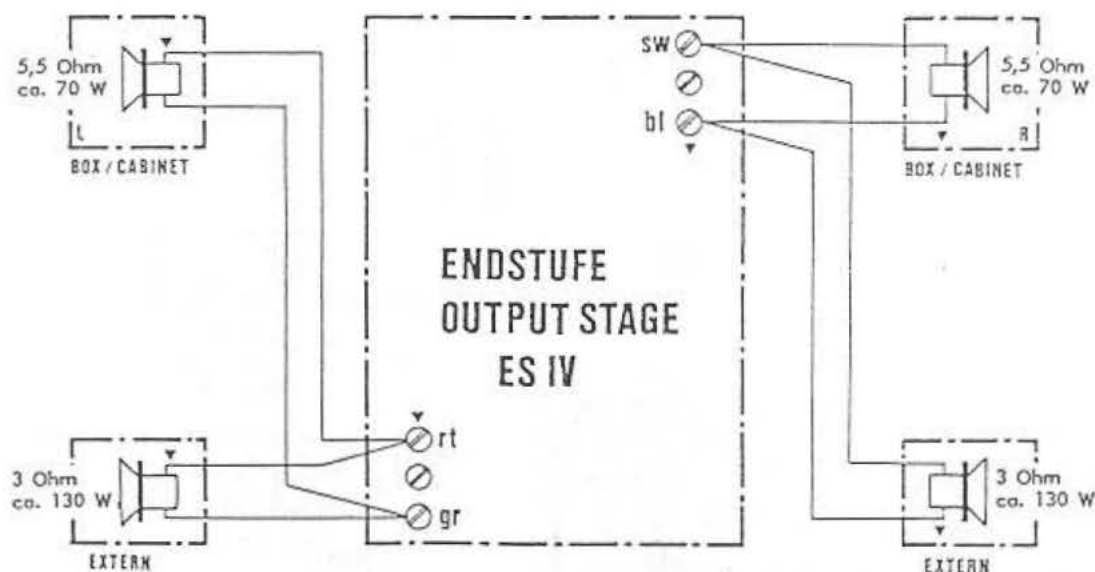


Fig. 1

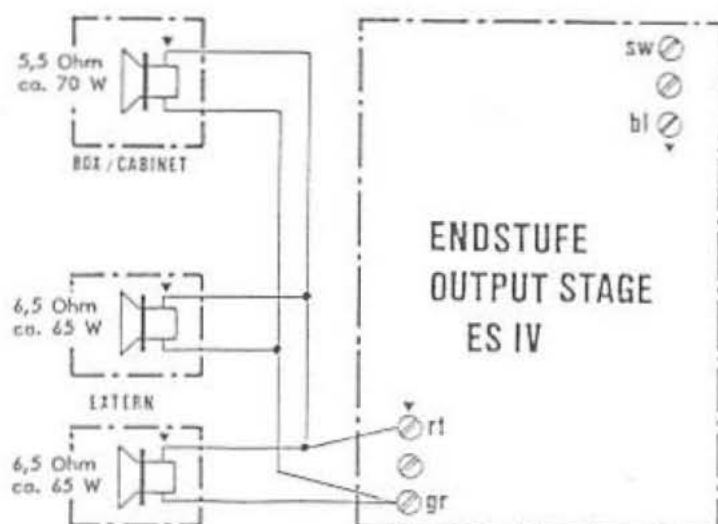


Fig. 2

**Mono mode;** sound system for separate rooms; see Fig. 3. If the volume is to be controlled independently from 2 rooms, both cabinet speakers can be connected to one channel. The loudspeaker for the other room can then be connected to the free channel. For that a jumper has to be soldered at DR 202 (see cut-out PCB central unit).

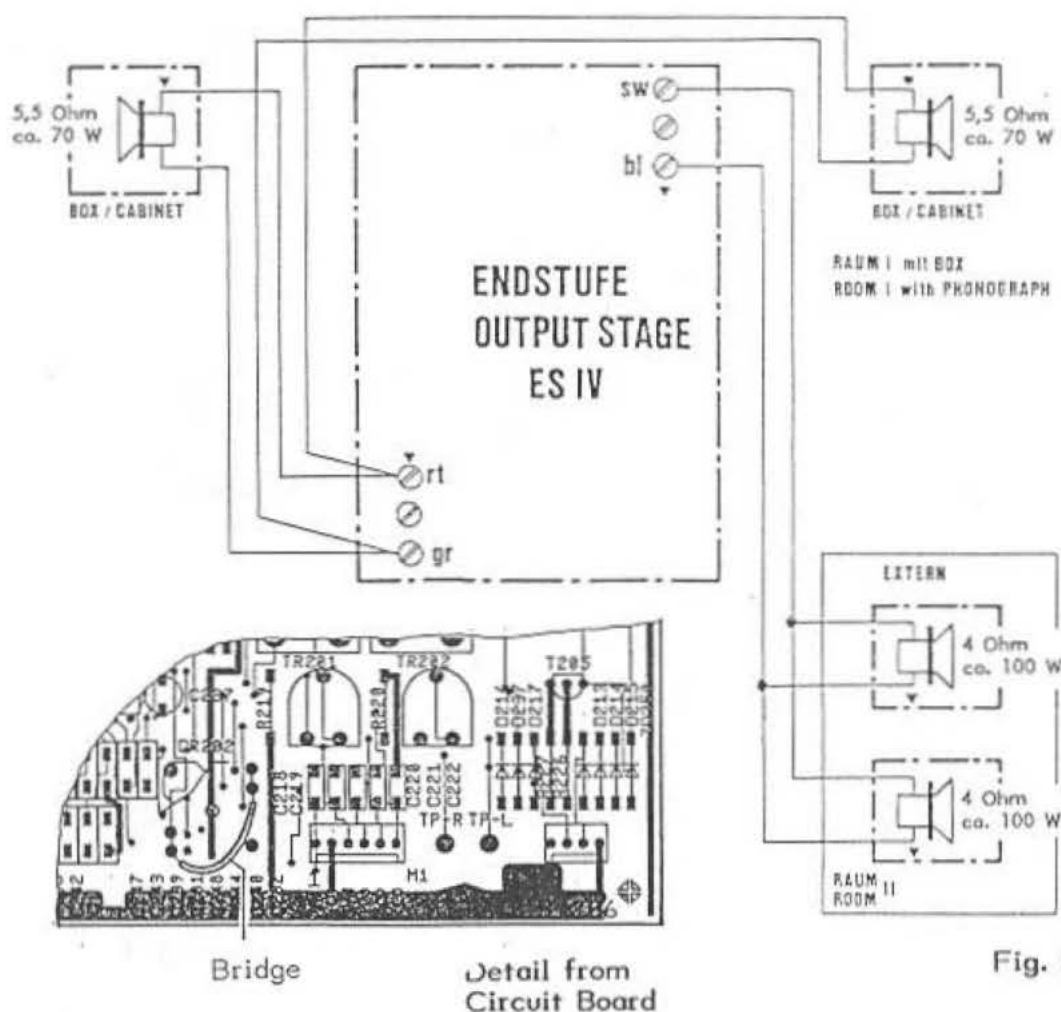


Fig. 3

## Additional Loudspeakers and Separate Control

If even more speakers are to be connected whereby the total impedance drops below 2 ohms, an output transformer has to be used (see schematics "loudspeaker connection" and unit description "OUTPUT TRANSFORMER"). Cabinet speakers (Fig. 4) in serial connection result in lower volume!

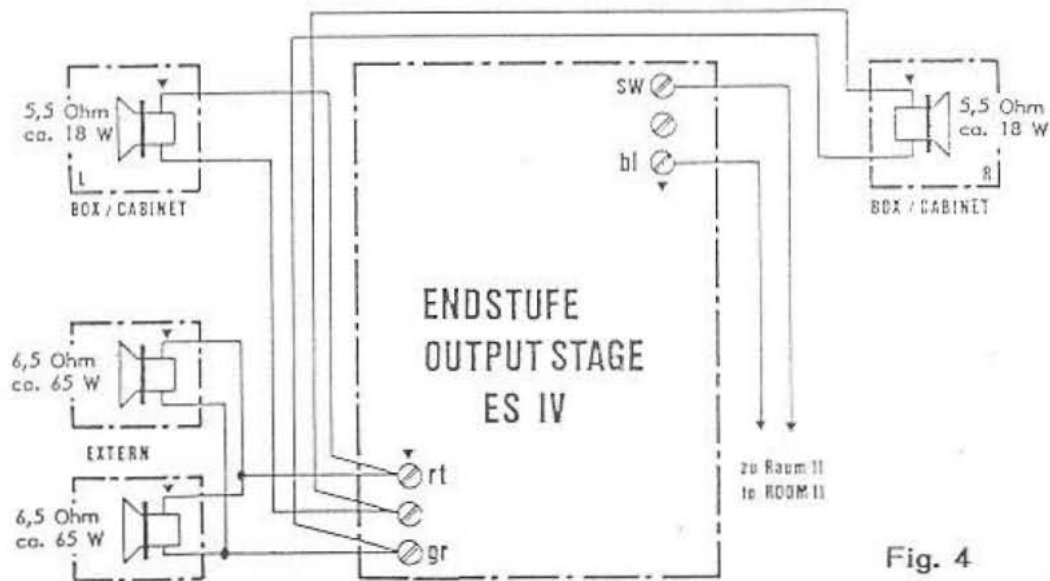


Fig. 4

## Lautsprecher - Kombination SPEAKER COMBINATION

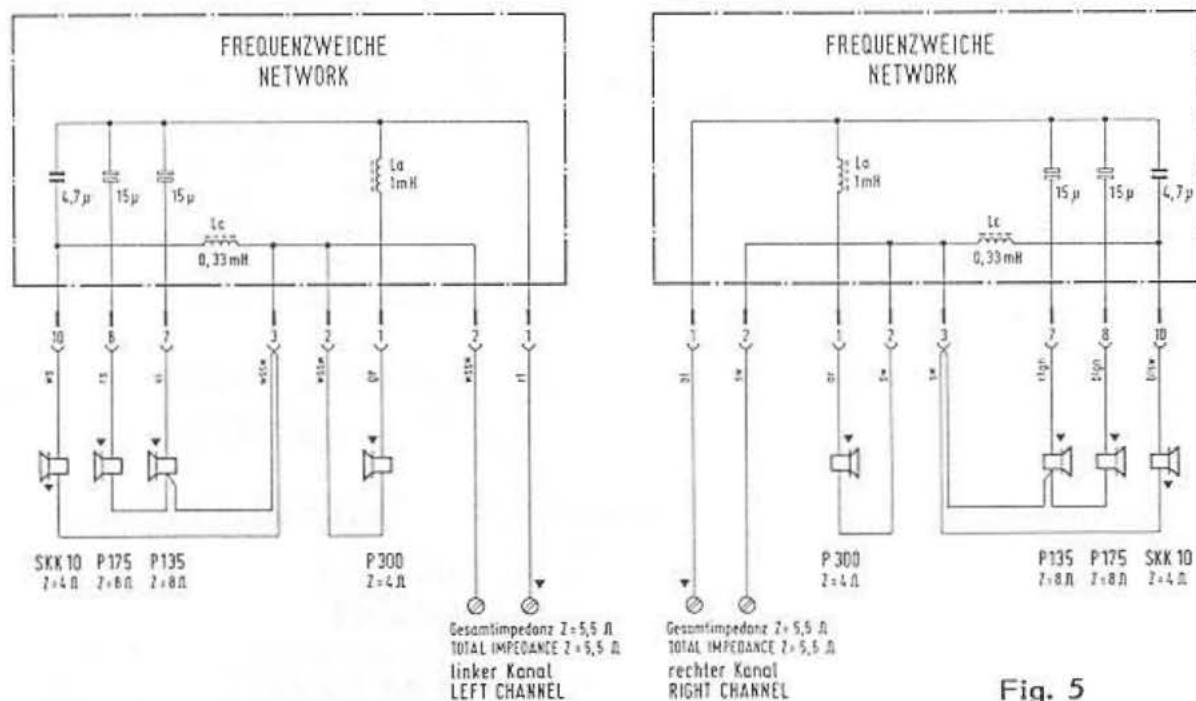
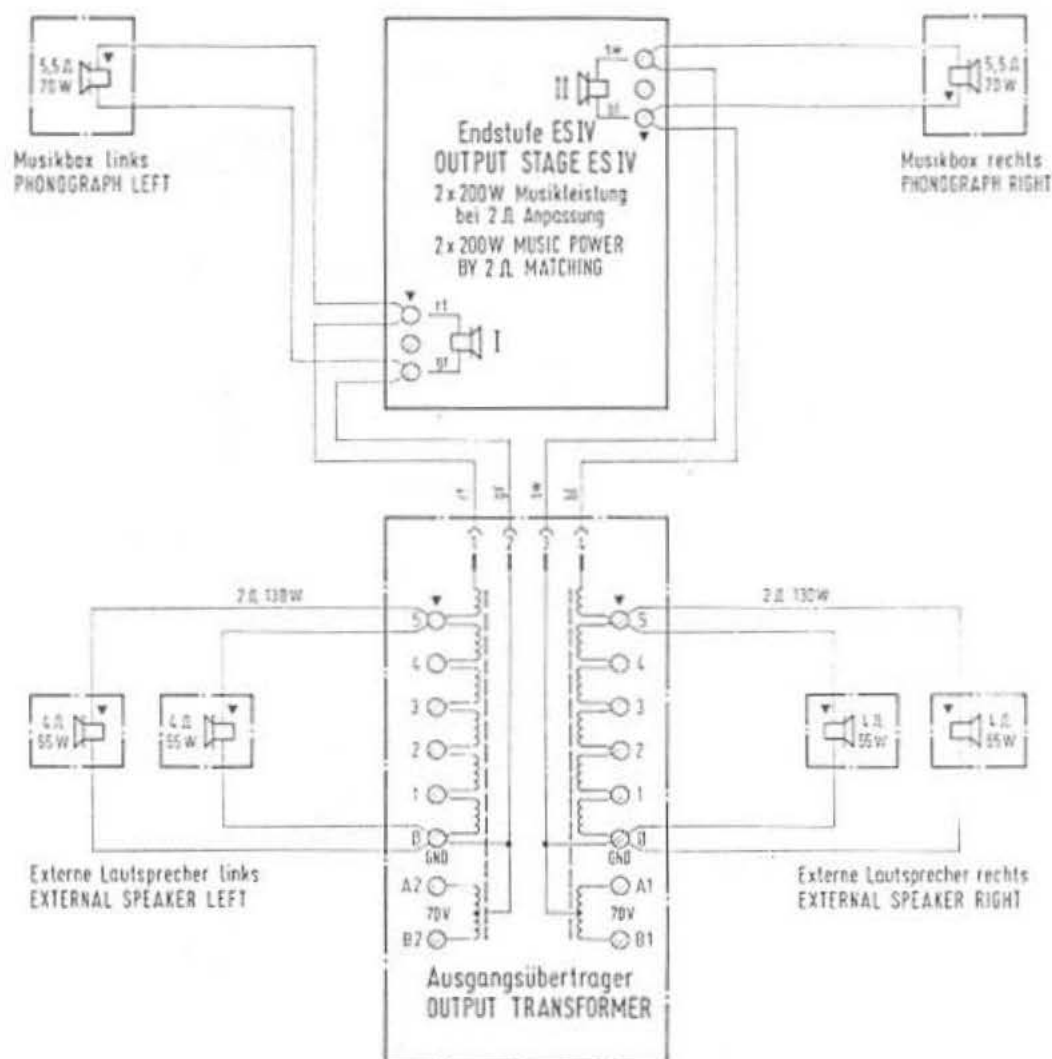
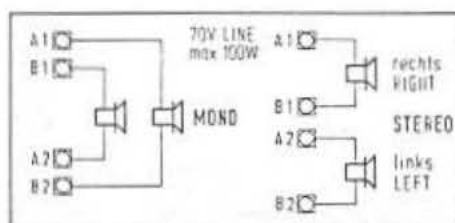


Fig. 5

Verstärker oder Ausgangsübertrager  
AMPLIFIER OR OUTPUT TRANSFORMER



Anschlußschema für Ausgangsübertrager  
 CONNECTION DIAGRAM FOR OUTPUT TRANSFORMER



Klemme TERMINAL POSITION	Lautsprecher SPEAKER			
	2,5 Ω	4 Ω	8 Ω	16 Ω
0 - 5	100 W	70 W	45 W	22 W
0 - 4	48 W	30 W	16 W	8 W
0 - 3	24 W	15 W	8 W	4 W
0 - 2	12 W	7,5 W	4 W	2 W
0 - 1	3 W	1,8 W	1 W	0,5 W

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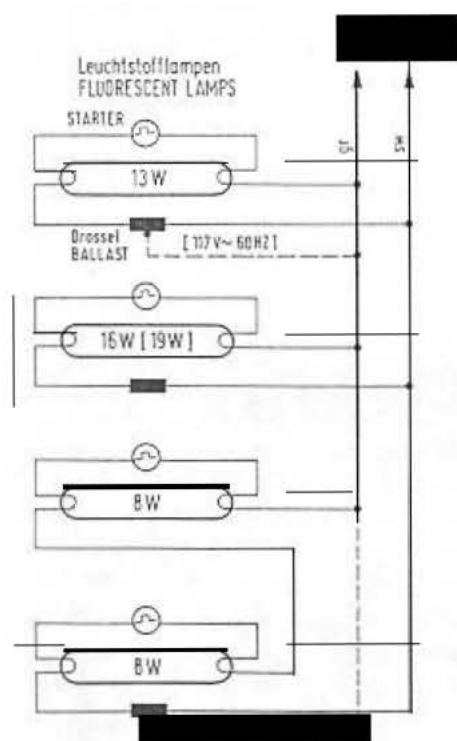
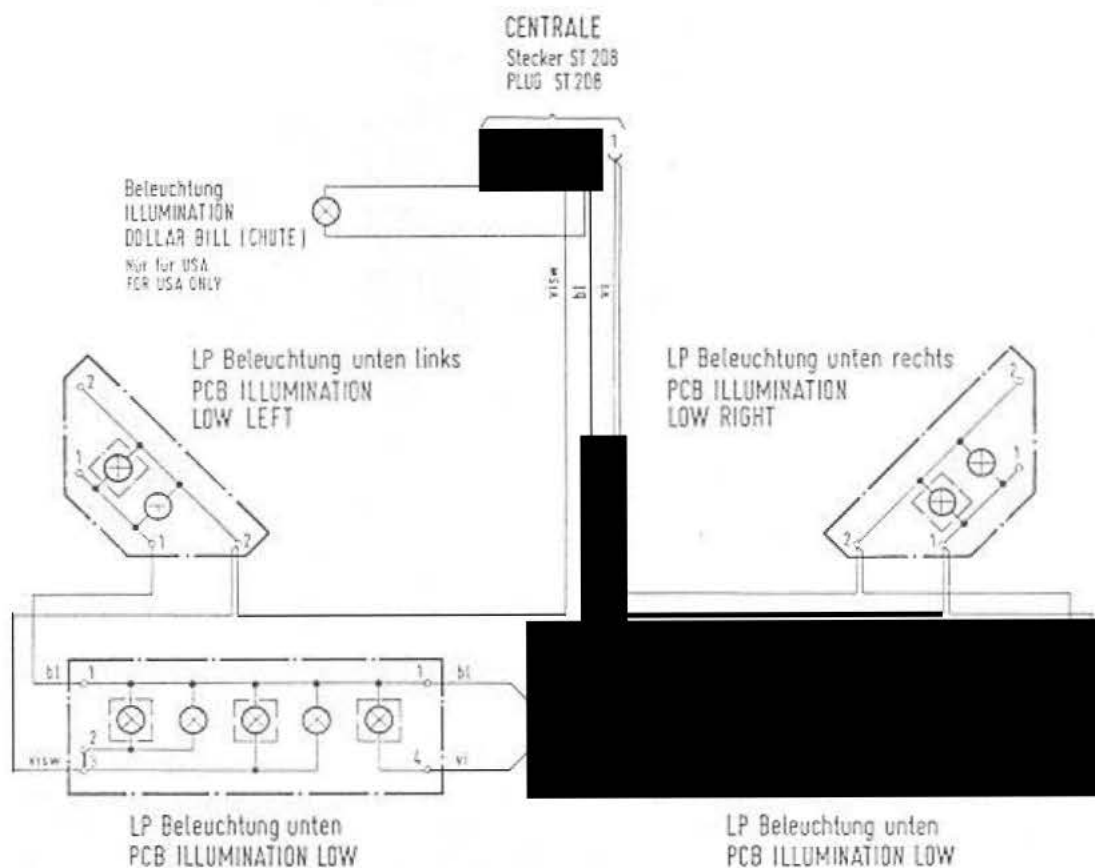
MUSIKAUTOMATEN  
 PHONOGRAPHS

**ES IV - CD** TECHNOLOGY

### Lautsprecheranschluß SPEAKER CONNECTION

Anschluß für max. Ausgangsleistung  
 CONNECTION FOR MAX. POWER OUTPUT

Dat.	26.01.89	Verf.	Braun	Techn. i.	...	...
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ÄNDERUNGEN IM SINNE DES TECHN. FORTSCHRITTES VORBEHALTEN,  
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MUSIKAUTOMATEN  
PHONOGRAPHS

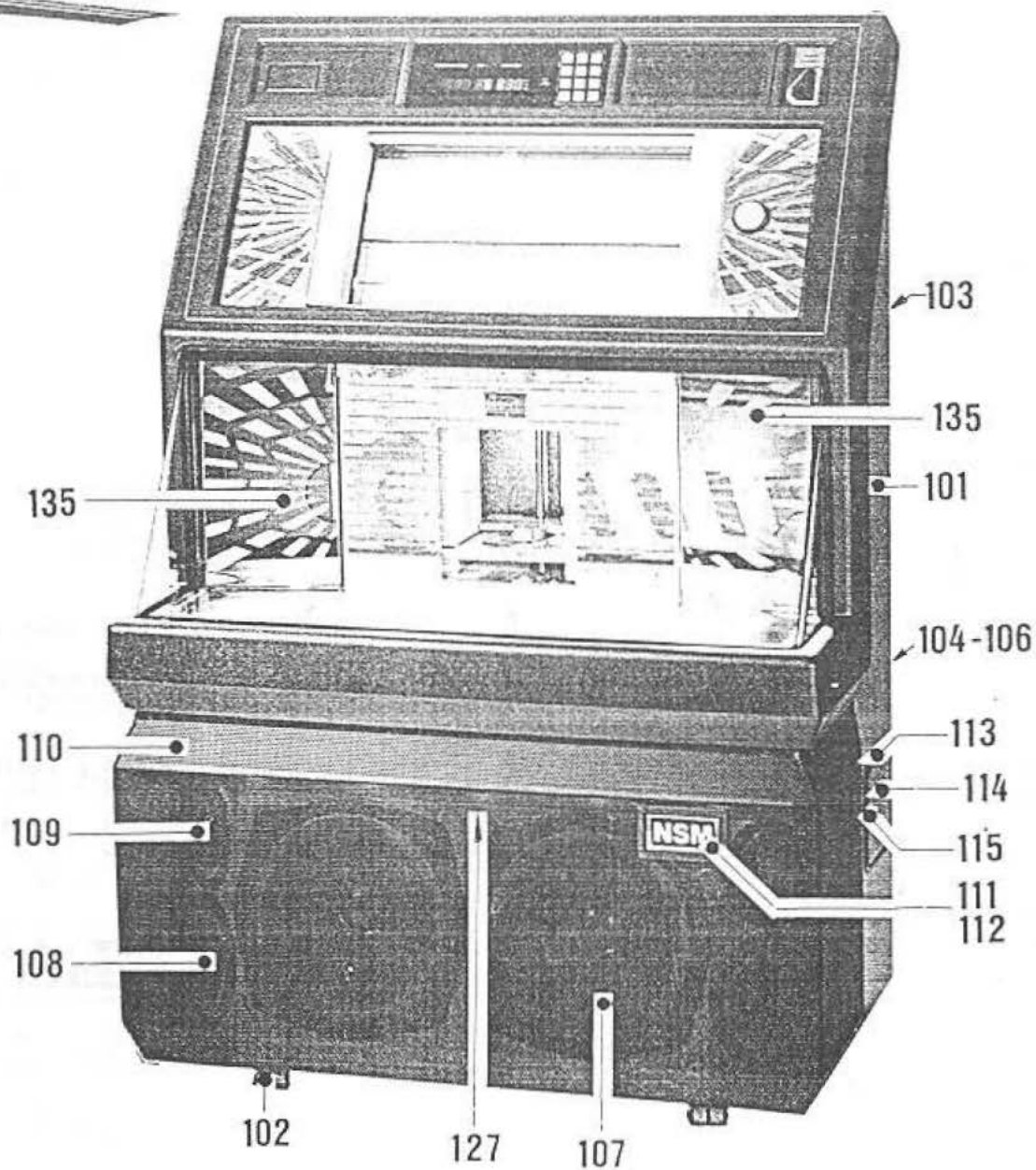
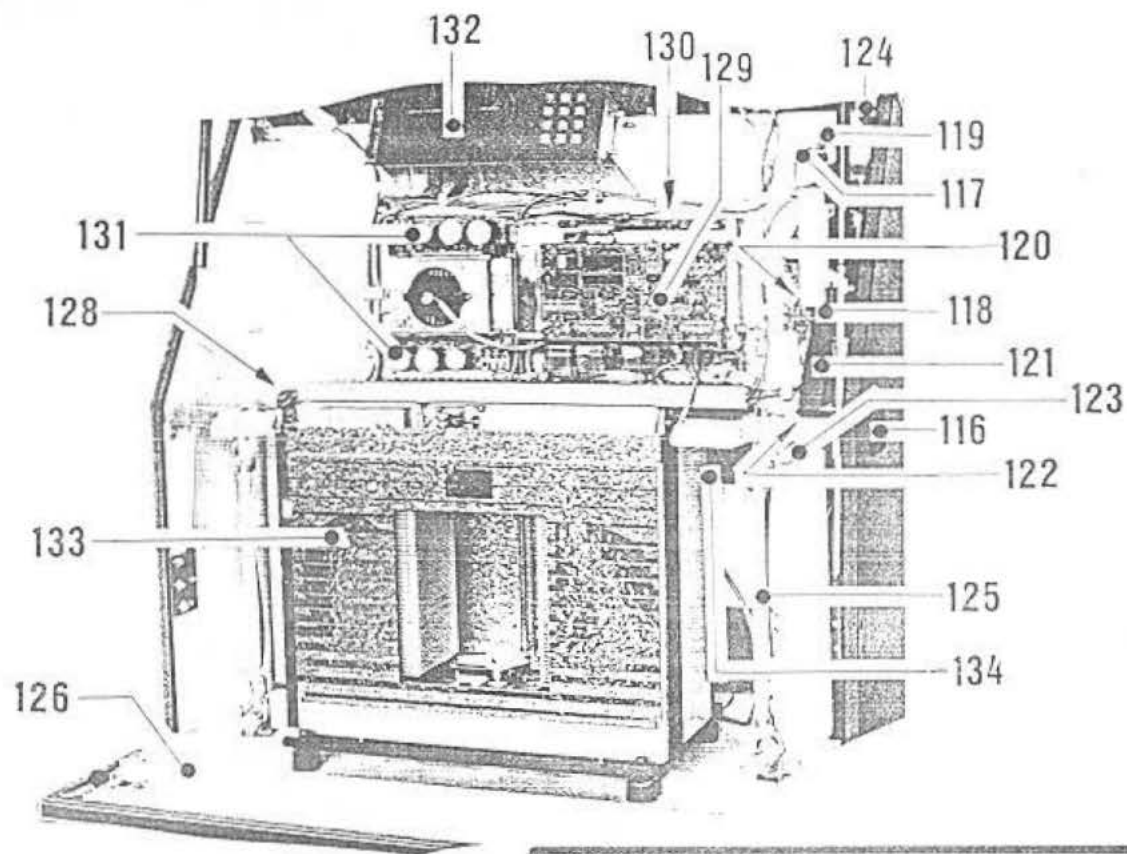
ES IV - CD TECHNOLOGY

Schaltbild  
WIRING DIAGRAM

Beleuchtung  
ILLUMINATION

**CD GALAXY**

Dat.	17.01.89	Gez.	Braun	Gepr.	Zelner	Gepr.	Hausmann
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# SPARE PARTS LIST

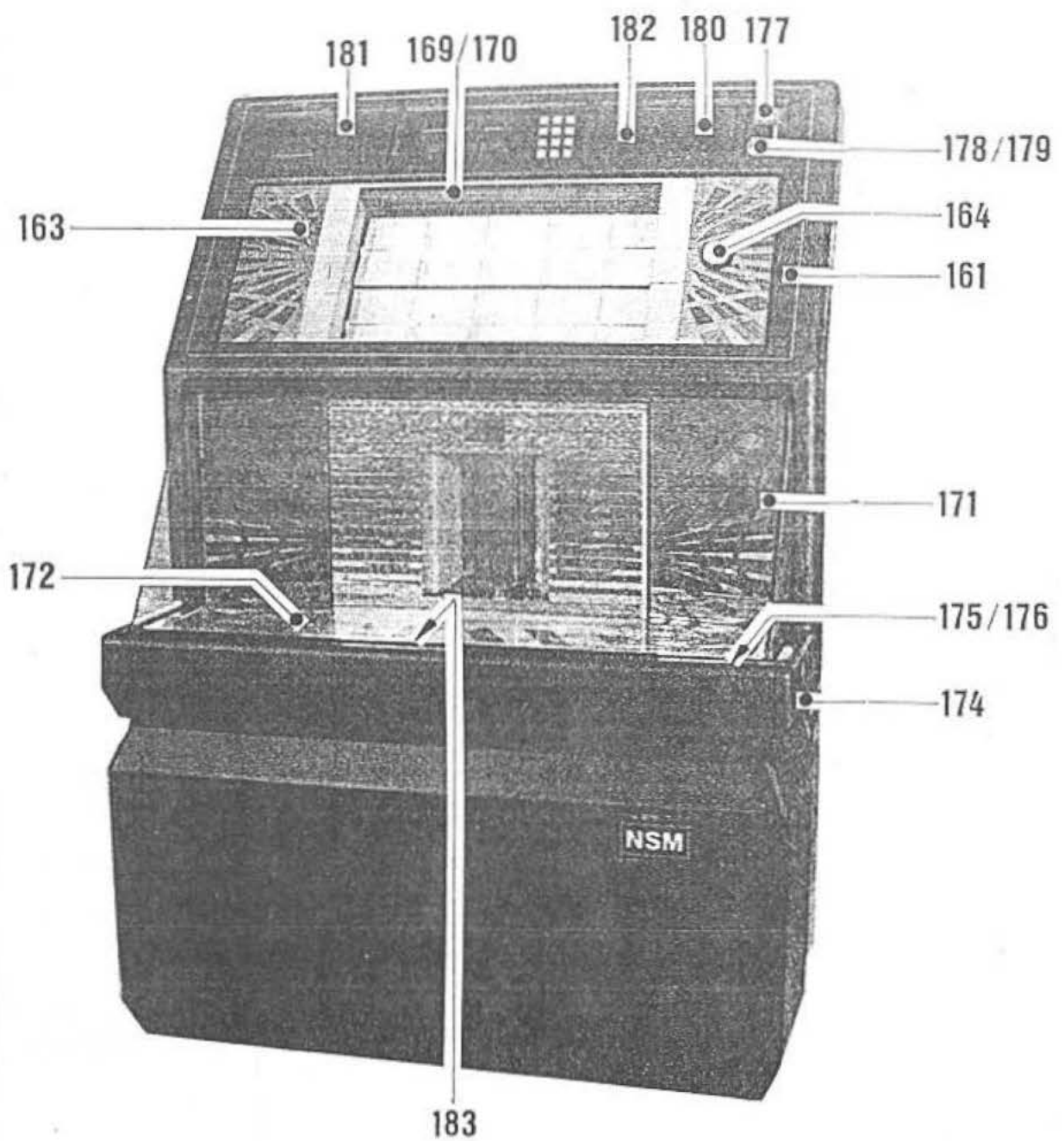
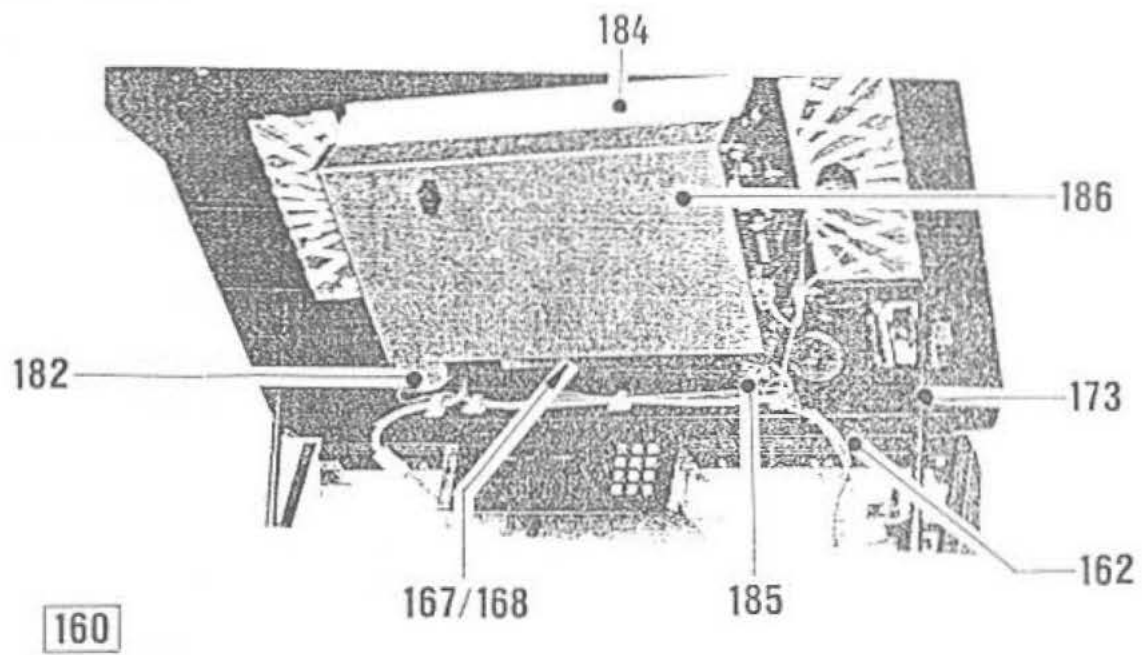
P05.	PART-No	DESCRIPTION	DATA	QTY
		PHONOGRAPH >CD GALAXY<		
101	203 784	CABINET		1
102	217 506	CASTERS		4
103	170 852	HANDLE		2
104	173 968	TRANSFORMER PLATE	(in REAR WALL)	1
	217 772	HINGE		1
105	223 418	TRANSFORMER		1
106	223 417	TRANSFORMER	(CD-PLAYER)	1
	225 907	TRANSFORMER-FUSE		1
107	224 240	LOUDSPEAKER	P 300 4 OHM	2
	173 970	DECOR RING		2
108	224 241	LOUDSPEAKER	P 175 8 OHM	2
109	224 242	LOUDSPRAKER	P 135 8 OHM	2
	173 971	DECOR RING		2
110	172 452	SPEAKER GRILL		1
	250 241	PROFILE		4
	250 242	PROFILE		4
111	172 531	FRAME		1
112	172 533	GLASS, PRINTED	NSM-EMBLEM	1
	172 519	NETWORK		2
113	023 681	CASH-BOX, FRAME		1
114	042 108	CASH-BOX, DOOR		1
115	207 008	CASH-BOX, LOCK	Typ 447-04-01	1
	207 496	CASH BAG		1
116	103 378	COIN RETURN CUP		1
	102 495	COIN LID		1
	172 474	COVER		1
117	172 415	COIN RETURN LEVER, STAMP.		1
118	170 031	COIN CHUTE, ASSY		1
119	172 417	COIN TUBE	(COIN INSERT)	1
120	171 905	COIN FUNNEL		1
121	172 545	COIN TUBE	(COIN CHUTE)	1
122	172 546	COIN TUBE	(CASH-BOX)	1
123	217 850	ZYL. LOCK		1
	222 366	MICRO SWITCH	KEY SWITCH	1
124	172 724	SWITCH PLATE		1
	222 509	PUSH BUTTON SWITCH	CABINET SWITCH	1
	225 756	SOCKET	1853 BF	1
	225 757	SOCKET with STARTER SOCKET	1853 AF	1
125	226 038	FLUORESCENT LAMP	8 W	2
126	226 073	FLUORESCENT LAMP	16 W	1
	224 064	BALLAST	KX 16 D 50 Hz	1
	224 188	BALLAST	KX 13 D 50 Hz	2
	225 040	STARTER	S 10	1
	225 343	STARTER	S 2	2

# SPARE PARTS LIST

POS.	PART-No	DESCRIPTION	DATA	QTY
127	206 328	CIRCUIT BOARD-LIGHTING, LOWER		2
	206 329	CIRCUIT BOARD-LIGHTING, LOWER	RIGHT and LEFT	2
	225 533	LAMP SOCKET		7
	226 049	LAMP	12 V 2 W	7
128	171 725	JUNCTION PLATE, ASSY	50 Hz	1
	171 726	JUNCTION PLATE, ASSY	60 Hz	
129	173 663	CIRCUIT BOARD-CONTR. UNIT, ASSY		1
130	173 667	CIRCUIT BOARD-CENTR. UNIT, ASSY	50/60 Hz	1
131	171 701	OUTPUT STAGE	50 Hz	1
	171 702	OUTPUT STAGE	60 Hz	
132	173 664	CIRCUIT BOARD-DISPLAY CD		1
133	173 470	CD-CHANGER 100, STANDARD	without design parts	1
	173 938	FRONT TRIMPLATE	magazines	1
	173 920	SIDE TRIMPLATE	back cover	2
	172 431	OUTPUT TRANS. with HARNESS		1
134	170 212	VOLUME CONTROL, ASSY	in CABINET MOUN.	1
	171 808	IR-REMOTE CONTROL, ASSY		1
	217 817	SENDER		1
	173 178	RECEIVER		1
	171 883	CONNECTING CABLE for RECEIVER	1,5 metre	1
	170 459	CONNECTING CABLE for RECEIVER	5,0 metre	1
	171 743	REMOTE CONTROL	w. 5 metre CABLE	1
	172 077	REMOTE CONTROL	w. 20 metre CABLE	1
	224 223	MICROFON		1
	171 880	MICROFON CABLE	10 metre	1
	172 187	MICROFON CABLE	25 metre	1
	173 985	CONNECTING UNIT, ASSY	for WALLBOX	1
	172 025	TAPE RECORDER CONNec. CABLE		1
	114 772	RECORDING DEVICE SYSTEM, ASSY		1
	173 348	CASH COUNTER, ASSY		1
135	204 863	SIDE GLASS		2

# SPARE PARTS LIST

POS.	PART-No	DESCRIPTION	DATA	QTY
		<u>CABLE HARNESS</u>		
172 506		DISPLAY (1100 lg)	10 PRONGS	1
172 508		CENTRAL UNIT -- OUTPUT STAGE ( 700 lg)	10 PRONGS	2
172 510		LOUDSPEAKER		1
172 511		CENTRAL UNIT -- LINE TRANS.		1
173 266		LIGHTING		1
171 782		CENTRAL UNIT -- CONTROL UNIT ( 120 lg)	15 PRONGS	1
171 783		CENTRAL UNIT -- CONTROL UNIT ( 120 lg)	12 PRONGS	1
173 955		FLUORESCENT LAMP 13 W		1
173 956		FLUORESCENT LAMP 8 W		1
173 958		KEY and CABINET SWITCH		1
173 164		CENTRAL -- CD PLAYER		1
151 626		CONTROL UNIT -- CD PLAYER		1
173 963		TRANSFORMER -- CD PLAYER		1
173 964		CENTRAL -- PROGRAM LID CON.		1
173 966		CD-AUDIO		1



# SPARE PARTS LIST

POS.	PART-No	DESCRIPTION	DATA	QTY
160		<u>COVER</u>		1
161	172 428	COVER, PRE-MOUNTED		1
162	206 297	HINGE		1
163	204 861	GLASS, UPPER		1
	217 507	RUBBER PROFILE	2x800 lg/2x275 lg	4
164	173 982	BUTTON ROUND, ASSY	PUSH TO FLIP	1
	115 010	COVER		1
165	172 391	HOLDING BAR		1
166	173 767	HOLDING BAR, UPPER		1
167	173 771	BACKPLATE		1
168	173 770	TRIMPLATE		1
169	173 769	SIGHT TRIMPLATE		1
170	209 786	LABEL	SIDE PIECE, interior	2
171	204 868	FRONT GLASS		1
	206 333	RUBBER PROFILE	1595 long	1
	206 334	RUBBER PROFILE	1300 long	1
172	204 862	BOTTOM TRIMPLATE		1
173	206 320	PISTON ROD	ATTENTION! Please note type.	2
174	217 814	ZYL. LOCK		1
	217 992	SPARE KEY		1
175	172 447	CLOSED BAR		1
176	171 616	CLOSED NOSE		2
177	172 502	GLASS, PRINTED		1
178	171 892	COIN INSERT		1
179	171 662	COIN REJECT		1
180	172 376	BACKPLATE, RIGHT		1
	209 065	SPEAKER WEB, RIGHT		1
181	172 377	BACKPLATE, LEFT		1
	209 066	SPEAKER WEB, LEFT		1
182	224 233	LOUDSPEAKER	SKK 10	2
183	226 075	FLUORESCENT	13 W	1
184	173 973	TRIMPLATTE, LOWER		1
185	225 343	STARTER	S 2 220-240 V	1
186	173 416	TITLE DRUM, ASSY		1
	173 982	<u>BUTTON, ASSY</u>	<u>PUSH TO FLIP</u>	
	115 009	HOUSING, round		1
	173 909	BUTTON, round	violet	1
	173 907	BUTTON INSERTION, PRINTED	PUSH TO FLIP	1
	205 770	PRESSURE SPRING		2
	114 638	ADAPTER		1
	222 515	MICRO SWITCH		1
	225 587	LAMP SOCKET		1
	226 049	LAMP	12 V 2 W	1
	173 965	CABLE HARNESS		1