

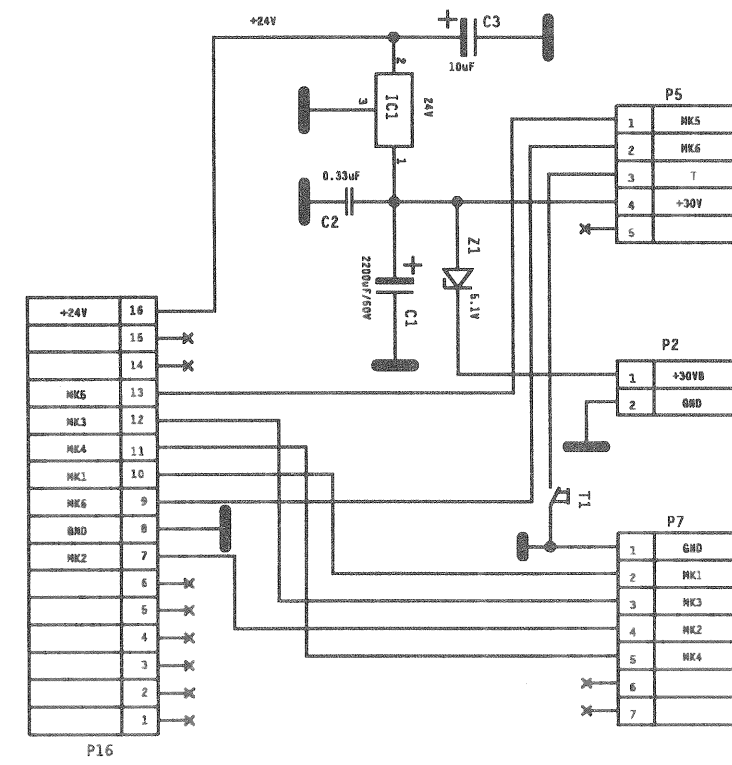
CD **Jukebox**
CDM4 I

TABLE OF CONTENTS

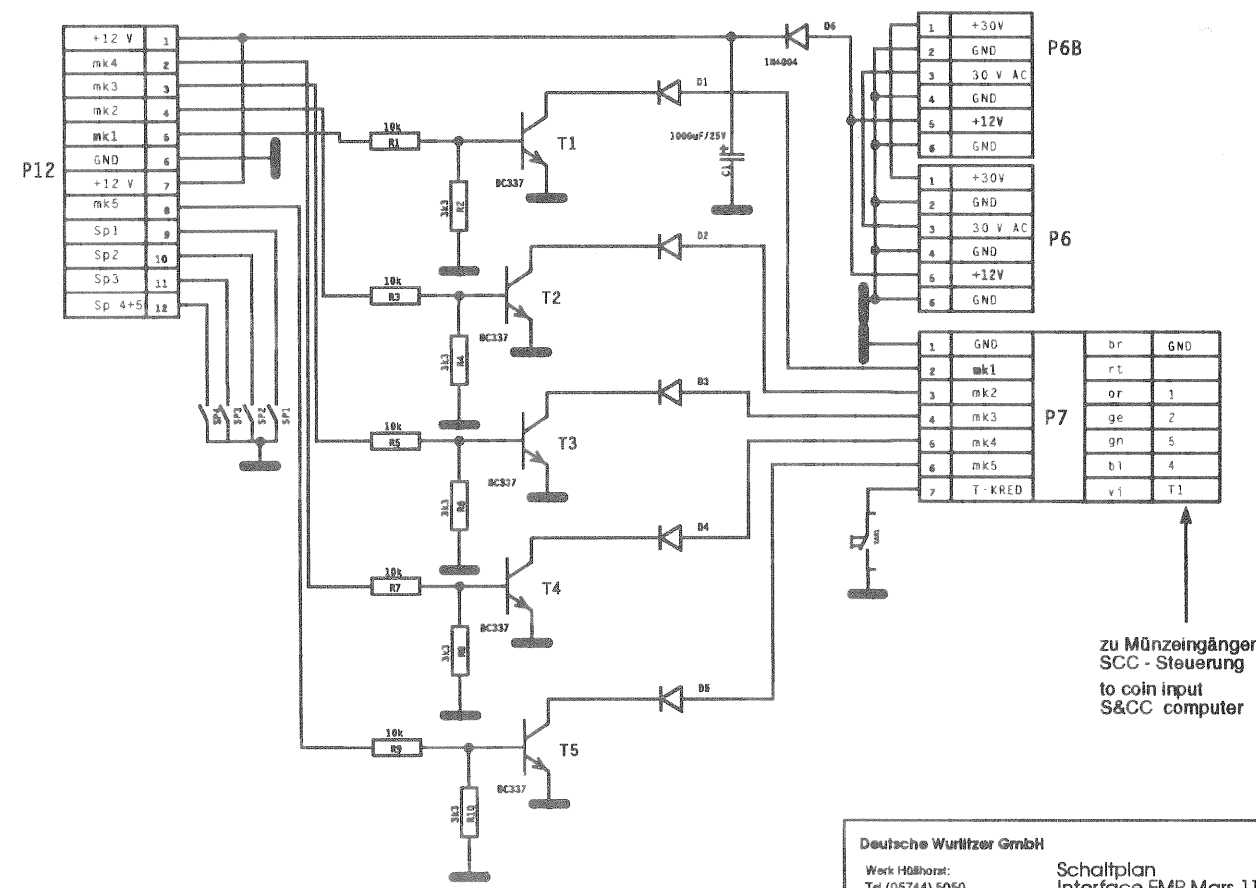
I. First installation.....	2
A. Unpacking:	2
B. Unlocking:	2
C. Removal of shipping guards.....	2
D. Coin validator: (only UNI-Pack).....	3
E. Verification of mains voltage: (only UNI-Pack).....	3
II. Set-up to play	3
A. Make shure that wall socket is earthed properly	3
B. Mains connection.....	3
C. Compact disc handling precautions.....	4
D. Loading compact discs	4
E. First test of the jukebox.....	5
F. Price setting	6
G. Examples for price setting.....	6
H. Colour codes of coin inputs.....	7
I. Programming number of discs in carrier.....	7
J. Free play programming.....	8
K. Test credit	8
III. Amplifier	8
A. Volume control	8
B. Treble and bass controls.....	8
C. Slide switch "Stereo/2-Channel".....	9
D. Maximum amplifier load and external speakers	9
E. Connection of external speakers	10
IV. Accessories (not included in standard equipment's).....	10
A. Continuous play switch (Part.-No. 0034410).....	10
B. Infra red remote control (Part.-No. 0039075).....	11
C. Microphone kit (Part No. 0006953).....	11
D. BGM-Connector (Part No. 0035579)	12
E. Background-music level adapter (Part No. 0031056).....	12
F. 70 V-output transformer (Part No. 0006926)	12
V. Programming short view	13

Änderungen vorbehalten
Subject to alterations
Sauf modifications

VI. Jukebox Programming.....	14
A. Service level 1.....	14
B. Service-level 2.....	14
C. Service level 3.....	14
D. Exit from all service programs.....	15
E. Clock setting.....	15
F. Set date.....	15
G. Set year and weekday.....	16
H. Playstimulator.....	16
I. Back Ground Music (BGM).....	18
J. Happy hour pricing.....	21
K. Programming of maximum number of tracks played successively on the same disc.....	22
L. Selective disabling of tracks.....	23
M. Album selection and memory reset by power off.....	23
N. Location or Identification number.....	24
VII. Data Retrieval.....	25
A. Retrieval of least popular discs (flops).....	25
B. TOP DISCS.....	25
C. Cash box contents.....	26
D. Total number of plays.....	26
E. CLEAR ALL counters.....	26
F. Memory of not playable CDs.....	26
G. Statistic print-outs.....	27
VIII. Function tests.....	29
A. Digital display test / EPROM-Version.....	29
B. Disc carrier control check.....	29
C. Griper arm motor check.....	29
D. CD Player check.....	29
E. Jump to NEXT track.....	30
E. Jump to PREVIOUS track.....	30
F. STOP playing.....	30
X. Description of SCC price setting.....	31
X. Functional Description.....	32
XI. Adjustment of change mechanism.....	35
A. Note.....	35
B. Adjustment of griper arm in carrier position.....	35
C. Adjustment of pressure arm to CD player unit.....	35
D. Adjustment of pressure arm height.....	36
E. Position of CD of griper arm relative to CD player chassis.....	36
F. Clearance of CD to griper arm rollers in play position.....	37
G. Adjusting height of pressure arm in rest position.....	37

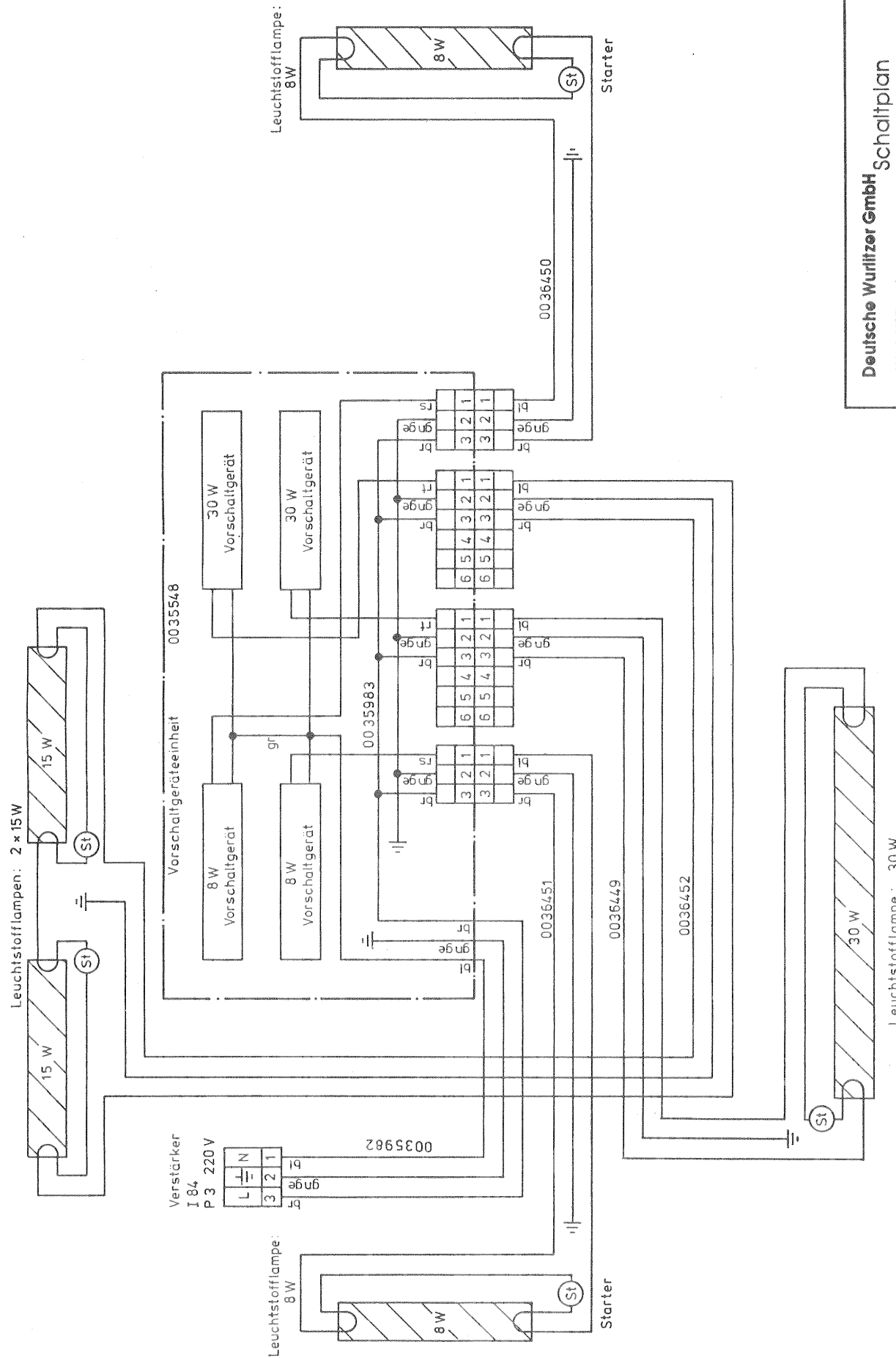


Deutsche Wurlitzer GmbH
Werk Hüllhorst: Schallplan
Tel.(05744) 5050 Interface EMP Mars 130
Werk Levern: Art.-Nr. 0006175
Tel.(05745) 280



Deutsche Wurlitzer GmbH
Werk Hüllhorst: Schallplan
Tel.(05744) 5050 Interface EMP Mars 111
Werk Levern: Art.-Nr. 0004197
Tel.(05745) 280

zu Münzeingängen
SCC - Steuerung
to coin input
S&CC computer



Deutsche Wurflizer GmbH
 Schaltplan
 Leuchtstofflampen NY,NY
 Wiring Diagram
 Fluorescent Lamps NY,NY
 0036909
 Werk Hühlarst:
 Teil.(05744) 5050
 Werk Levern:
 Teil.(05745) 280

XII. Test: of CD-Control and Player..... 38

A. General player test 38
 B. Detailed player check 39
 C. Quit the test mode 40
 D. Leave the service program 40

XIII. Trouble shooting diagram..... 41

XIV. Trouble shooting chart 45

1. Failures with the illumination, display and power system generally..... 45
 2. Fuses. Which one controls what circuit? Trouble with failures of fuses..... 45
 3. Faults with the coin system. The Phonograph, however, operates normally with free credit established with the jumper in the column GP at SCC unit (0-F). 46
 4. Faults by selection entry (credit system does work)..... 48
 5. Repetitive apply of selected or non-selected discs to turntable. 49
 6. Failures in the system carrier griper arm 49
 7. Failures with sound reproduction..... 50
 8. CD not properly returned to carrier..... 51
 9. Hints for trouble shooting..... 51

XV. Circuit diagrams..... 53

Wiring diagram CD chassis 53
 Wiring diagram OMT..... 54
 Board layout SCC-unit..... 55
 Wiring diagram SCC-unit..... 56
 Board layout CDM4 Serial Controller 57
 Wiring diagram CDM4 Serial Controller 58
 CD player drive 59
 Wiring diagram OSDA-Board Philips..... 60
 Oscilloscope-schemes for OSDA-Board 61
 Wiring diagram Turntable-Motor-Drive 62
 Wiring diagram speaker OMT-door..... 63
 Board layout amplifier I 84..... 63
 Wiring diagram amplifier I 84..... 64
 Wiring diagram door illumination OMT 65
 Wiring diagram cross over system New York, NY 65
 Wiring diagram BGM-Adapter 66
 Wiring diagram Telecontrol..... 67
 Wiring diagram 24 V - distribution interface OMT..... 68
 Wiring diagram motor page system OMT 68
 Wiring diagram motor page drive New York, NY 69
 Wiring diagram Bubble Tubes New York, NY 70
 Wiring diagram fluorescent lamps New York, NY 71
 Wiring diagram coin validator interface for EMP Mars 130 72
 Wiring diagram coin validator interface for EMP Mars 111 72

Caution

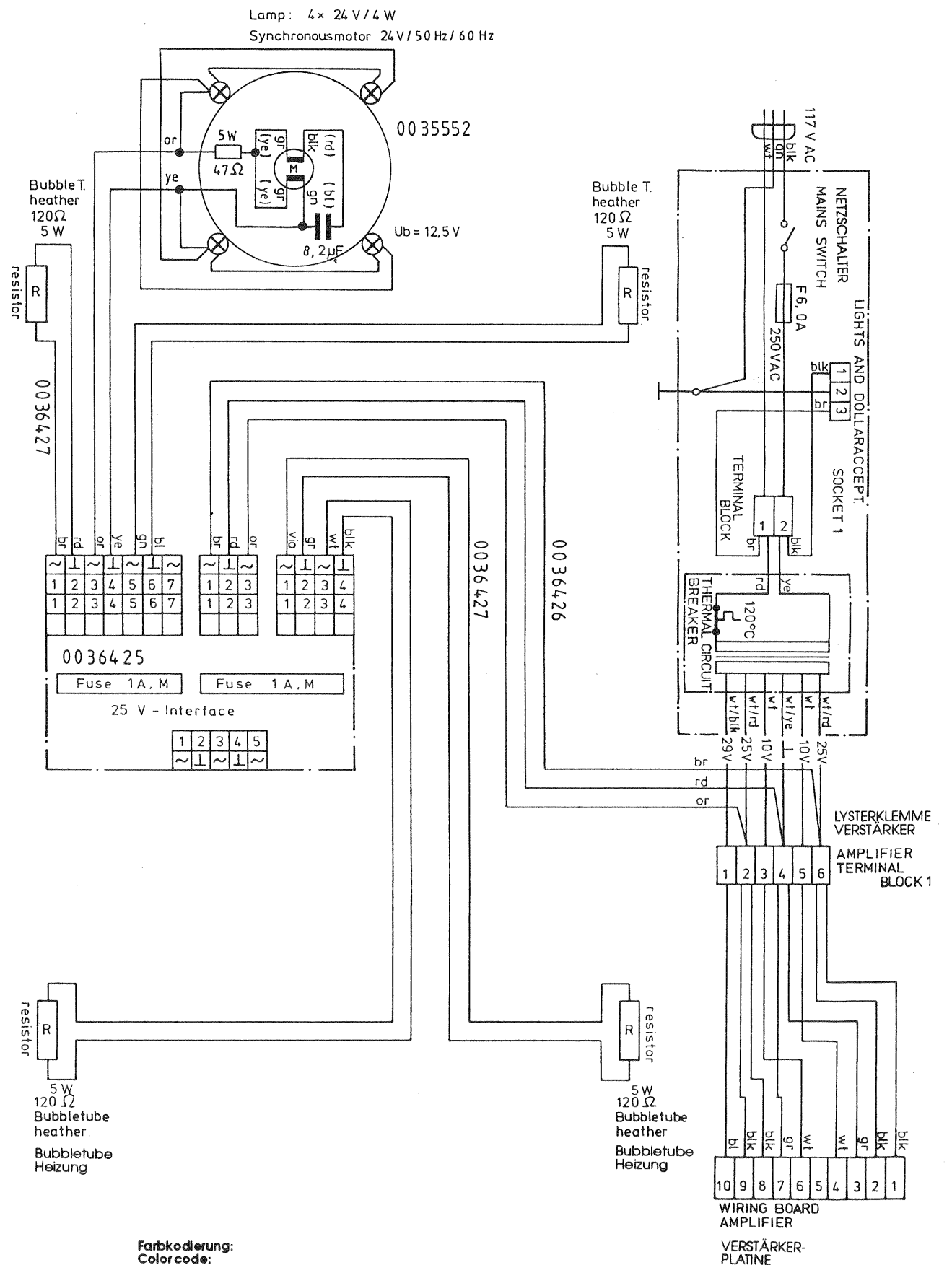
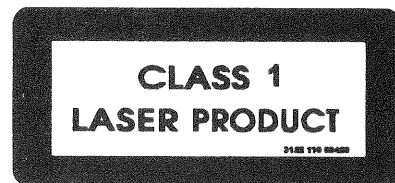
The CD mechanism and many ICs are extremely susceptible to electrostatic discharges. The photo diodes and the laser diode are more sensitive to discharges than MOS ICs. Careless handling may immediately destroy components or can drastically reduce life expectancy of these components so that it will lead to failure after several weeks or even months of use.

Before you touch the Player, discharge your hands and tools by touching a grounded metal part of the jukebox, such as the amplifier or the mechanic chassis. Make shure that you are connected via a wrist wrap with resistance to the same potential as the chassis of the jukebox. Keep parts and tools at the same potential.

If you remove the player in case of repair or for transport, short the harness with a short circuit plug.

When repairing, observe to the valid safety rules.
Do not change the original condition of the jukebox.
Use original spare parts only.

Although the beam emitted by the laser diodes is nearly invisible, it may cause severe damages to the human eye.
Use an infrared indicator to check the laser beam.

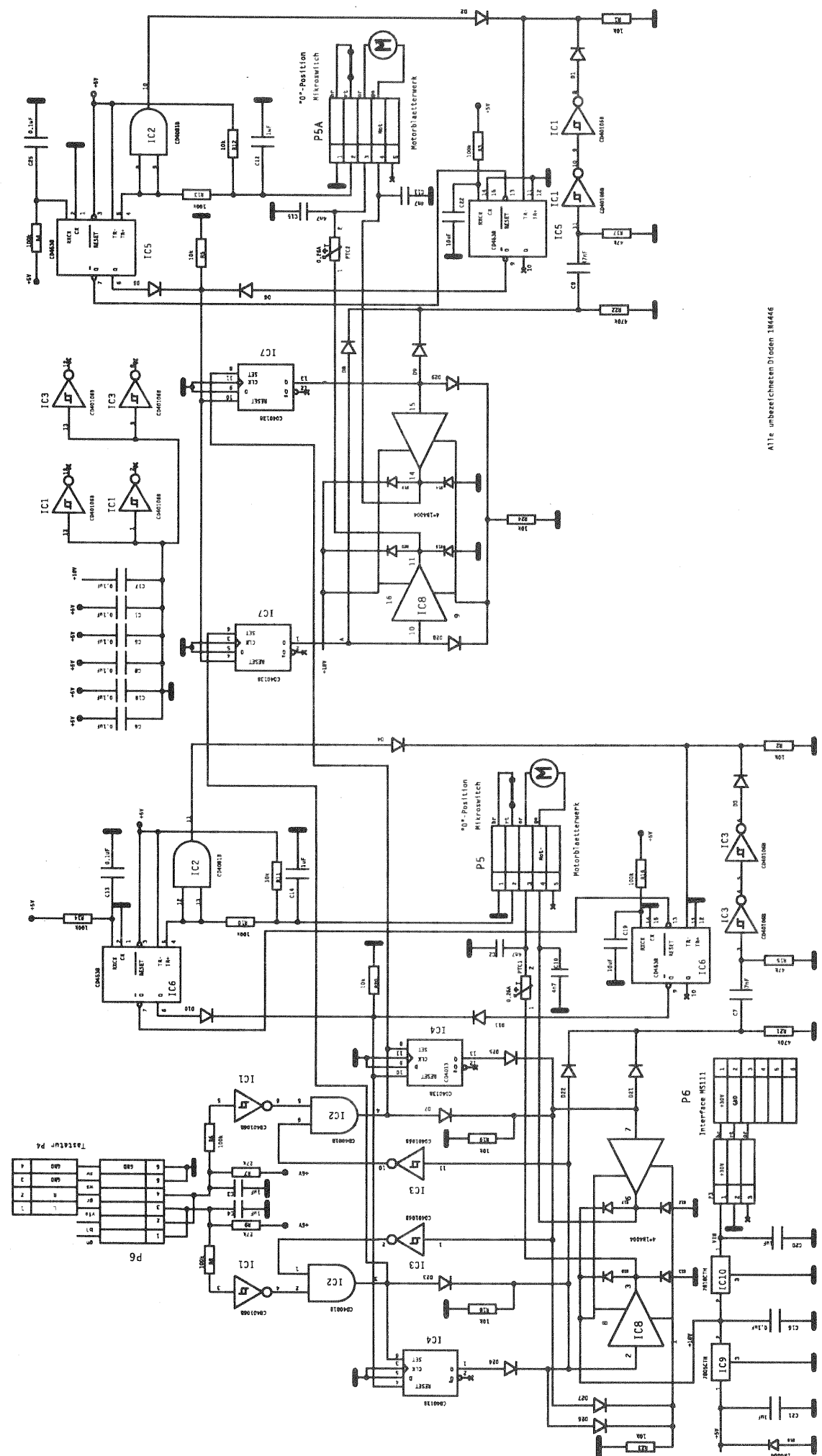


Farbkodierung:
Colorcode:

blk	=	black	=	schwarz
bl	=	blue	=	blau
br	=	brown	=	braun
gn	=	green	=	grün
gr	=	grey	=	grau
or	=	orange	=	orange
rd	=	red	=	rot
vio	=	violet	=	violett
wt	=	white	=	weiß
ye	=	yellow	=	gelb

Deutsche Wurlitzer GmbH
Werk Hildhorst:
Tel.(05744) 5050
Werk Levern:
Tel.(05745) 280

Schaltplan
Wiring Diagram
Bubble Tubes
New York, NY



Deutsche Wurlitzer GmbH

New York, NY
Schaltplan
Blätterwerksteuerung
0035737

Werk Hüllhorst:
Tel.(05744) 5050
Werk Levern:
Tel.(05745) 280

Alle unbenutzten Dioden 1M4466

I. FIRST INSTALLATION

A. Unpacking:

For UNI-Pack phonograph remember:

- 1) Coin validator
- 2) Price labels
- 3) Price setting instructions

are packed separately. These are stored behind a taped flap at the RH top of the main packing.

B. Unlocking:

The key is stored in the coin return cup in the RH cabinet wall. The key WUA 1 or WUA 2 (New York) unlocks the cabinet by turning the key clockwise. The lock is spring loaded, press lightly against the door this allows the key to turn easily. The 2 other keys with 5 digit number codes unlock the cash box at the bottom of the RH cabinet wall.

C. Removal of shipping guards

1. The mechanism platform is fixed to cabinet support with one bolt in front LH side and one bolt back RH side (Fig.1, Pos. 1). Remove both completely using a 13 mm spanner. Possibly you can use the tool is fixed to the lid of the gear box (Fig.1, Pos. 2).
2. Remove plastic string at the pivot point of the pressure arm (Fig.1, Pos. 3).
3. Remove plastic holder securing CD player chassis (Fig.1, Pos. 4).
4. Remove foam (Fig.1, Pos. 5), foam foil (Fig.1, Pos. 6) securing laser head in CD player and instruction plate (Fig.1, Pos. 7).
5. Remove foam between magnetic pressure disc and black plastic cover (Fig.1, Pos. 8)
6. Remove elastic band from the motor page systems (One More Time and New York, NY only).



IMPORTANT: Save the removed shipping bolts and CD-chassis guards. You may need them should you decide to move your machine to another location. The jukebox should never be moved, (a significant distance), without the shipping bolts and CD player secured with foam between pressure arm and player. Discs should also be removed from the carrier while being moved.

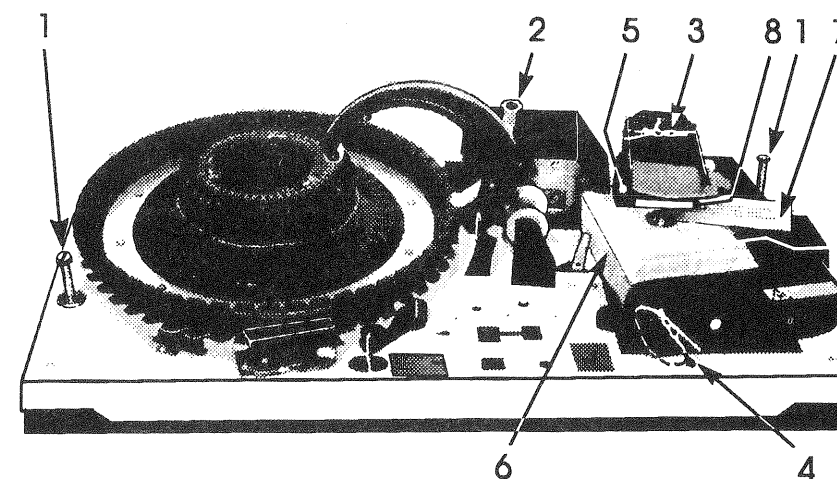


Fig. 1

D. Coin validator: (only UNI-Pack)

The coin validator has to be inserted into the holder at the inner RH side. First, insert the validator with the 2 bottom locating pins so into the holder that the coin exits are located above the coin switches. Then tilt validator so that the leaf springs top left catch the corresponding pin.
When electronic validators are used insert the plug of the cable loom into the interface.

E. Verification of mains voltage: (only UNI-Pack)

Machines for USA are set to 115 V. Phonographs "UNI-Pack" are shipped in 220 V setting. This is marked on the machine label on the rear wall. Other machines with indication 100 - 240 V on the label have a transparent cover on the mains transformer so that the terminals 1 - 3 - 5 - 7 - 9 indicating mains voltage setting.
The following combinations are possible:

- 240 V = 1 and 3
- 230 V = 1 and 5
- 220 V = 9 and 3
- 210 V = 9 and 5
- 117 V = 1 and 7
- 100 V = 9 and 7

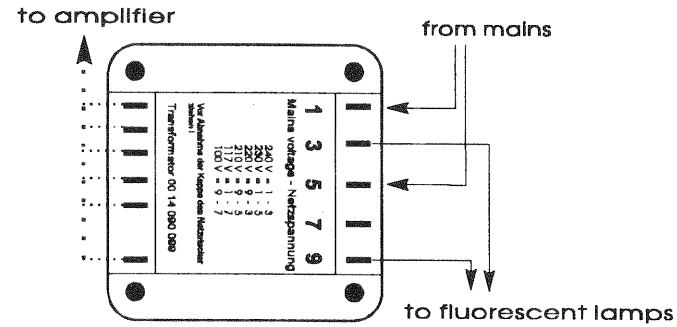


Fig. 2



IMPORTANT: Some parts of the electrical circuitry are connected to the power line (power transformer, fluorescent tube, ballast and associated wiring).
Never attempt any intervention to these parts unless qualified

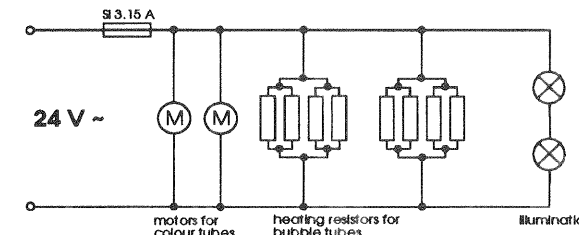
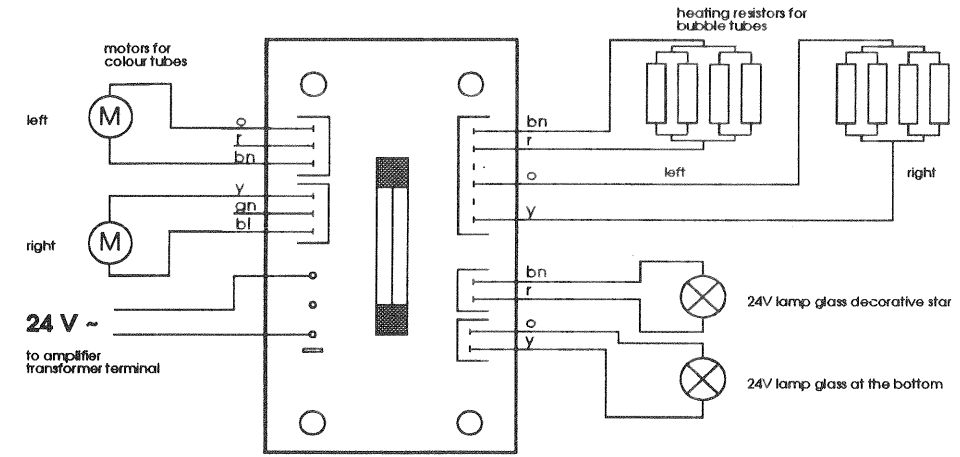
Always remove mains plug before opening plastic cover.

II. SET-UP TO PLAY

A. Make shure that wall socket is earthed properly

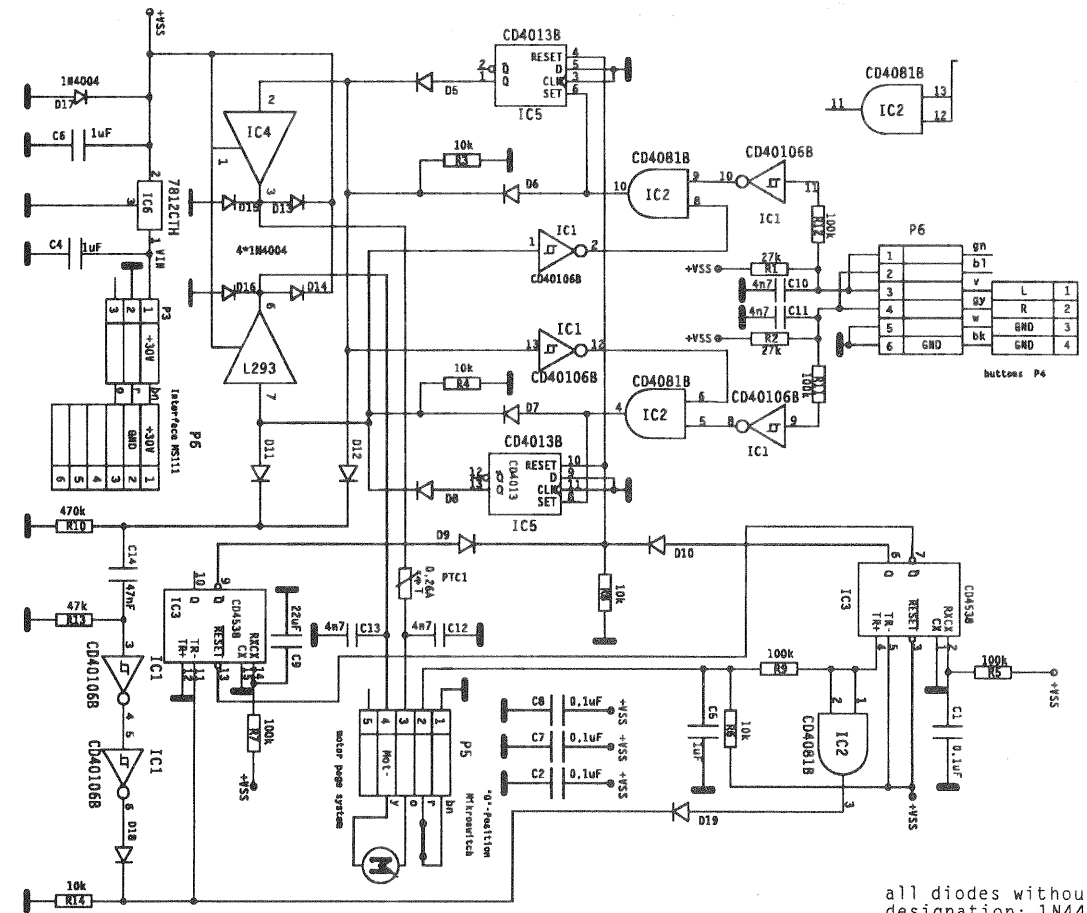
B. Mains connection

The CD-jukebox operates on normal household power outlet. Set mains switch at rear wall of cabinet to on position (Fig.6). If the selection and credit memory is empty the basket turns once and the left two digits show alternating a "0". A short time later the display counts in the two RH digits up to the carrier size (50 or 00 for 100 discs). After this the basket stops in position "01". The digital display shows "0 0 0 0", then "0 0 0 1" when a basket with 100 CDs is used, "0 1 0 1" at a 50 CD basket.



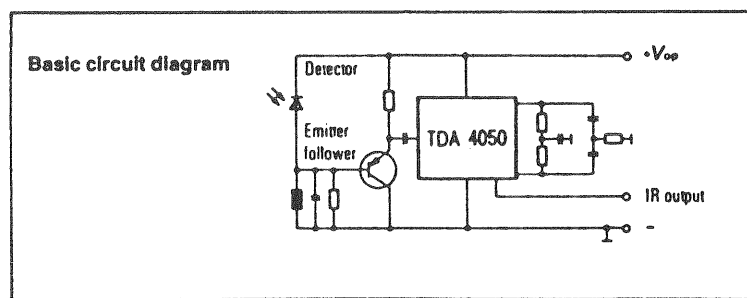
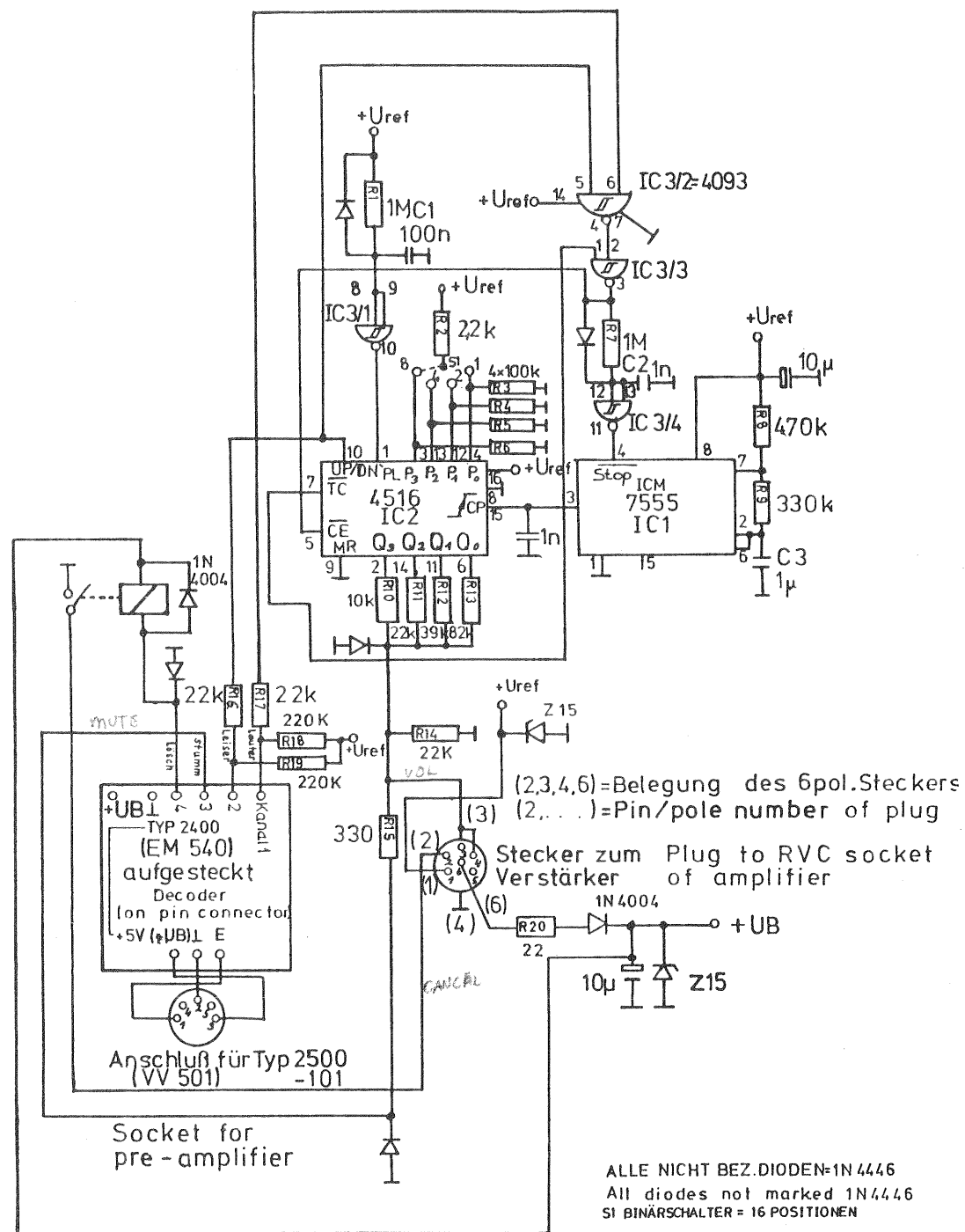
motor	24V - 375U 50Hz	0013648
lamp	24V 21W	0012943
heating resistor	120Ω 10% 5W	0013217
fuse	T.3.15 A. 250V	0012407

Deutsche Wurlitzer GmbH
Werk Hüllhorst:
Tel.(05744) 5050
Werk Levern:
Tel.(05745) 280
**One More Time
wiring diagram
24 V AC
distribution interface**



all diodes without designation: 1N4446

Deutsche Wurlitzer GmbH
Werk Hüllhorst:
Tel.(05744) 5050
Werk Levern:
Tel.(05745) 280
**One More Time
wiring diagram
page system
0035737**



Deutsche Wülitzler GmbH
 Werk Hüllhorst:
 Tel.(05744) 5050
 Werk Levern:
 Tel.(05745) 280

Schaltplan
 Wiring Diagram
 Telecontrol 0007289
 Vorverstärker
 Pre-Amplifier 0009316

C. Compact disc handling precautions

Dust, Fingerprints or other dirt on the disc surface can cause skipping, jumping or sticking problems. Dust can be removed with a lintfree soft cloth. If necessary, remove heavy dirt or fingerprints with a moistened soft cloth, using a diluted neutral detergent. Never use record cleaning sprays or anti static sprays! Furthermore, do not use other types of cleaners containing benzene, thinner or other solvents. These liquids will cause damage to the surface of discs.

NEVER TOUCH THE SURFACE OF THE DISC !

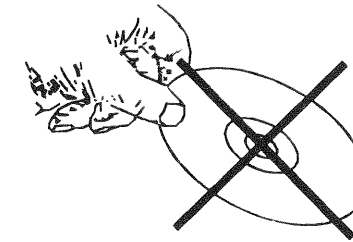


Fig. 3

D. Loading compact discs

Insert up to 50 or 100 CDs, depending on the compartments in the carrier. Start with 01. The "Label" must show always to the left, towards the next lowest number. To achieve the optimum position for loading, press in steps the lever "rotate carrier" ("Korb drehen"). (Fig. 4). If less than 50 (100) discs are used, the number of discs used has to be programmed in the service program service level 1, button 5 (ref. to chapt. II / i, page 7).

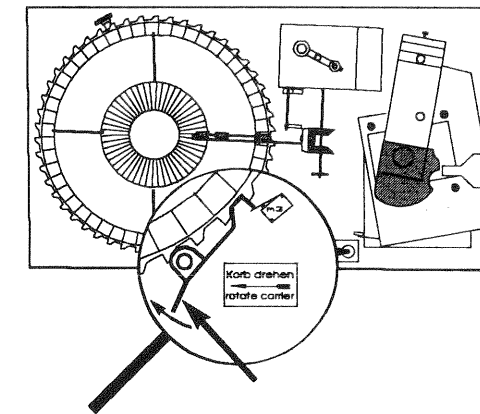


Fig. 4

It is recommended to insert the Compact Disc and then the title page into the appropriate numerical slot position of the motor page system. The pages can be turned manually by hand without any damage of the motor drive. In some models the transparent dust cover over the record carrier has to be lifted up at the front, it will engage in this position.



IMPORTANT: At baskets with 100 CDs the position "00" is the 100th CD.

To play single CDs (Ø 80 mm, diam. 3 1/8 ") specified adapter rings are deliverable under part No 0032943.

E. First test of the jukebox

1. At the rear wall inside of the jukebox cabinet the so-called Selection and Credit Computer is situated. On some models a metal cover of this unit has to be removed before starting this test.
2. Set a jumper from 0 to F (free play) in the row GP (Fig. 5, Pos. 1). Jumpers are in the attachment bag of the service manual. If a jumper is already set in this row memorise its position.
3. Press button LT on the SCC unit.(Fig. 5, Pos. 2).

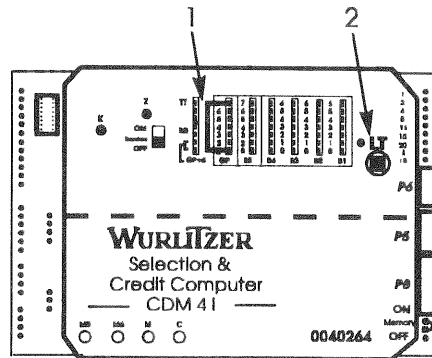


Fig. 5

4. Make a selection with four digits: Enter first the number of the CD with two digits then the track with two digits. After this the digital display will show the selected CD and track (track numbers higher than 25 will not be accepted).
5. The CD carrier rotates and stops at the selected position then the griper arm takes the CD onto the turn table. The track can be heard after the CD starts to turn.
6. The volume can be controlled with one of the two volume control knobs at the rear side of the juke box (Fig. 6). Or: If a infrared remote control is installed by the factory, the volume can be controlled via the hand transmitter, stored in the money bag of the cash box (ref.to chapt. IV/B, page 11).

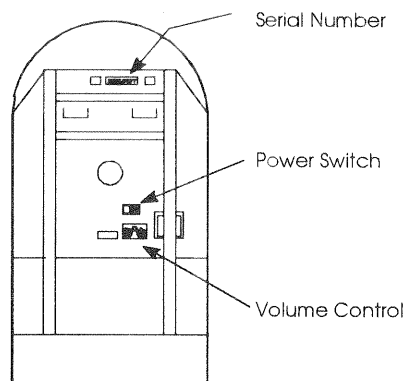
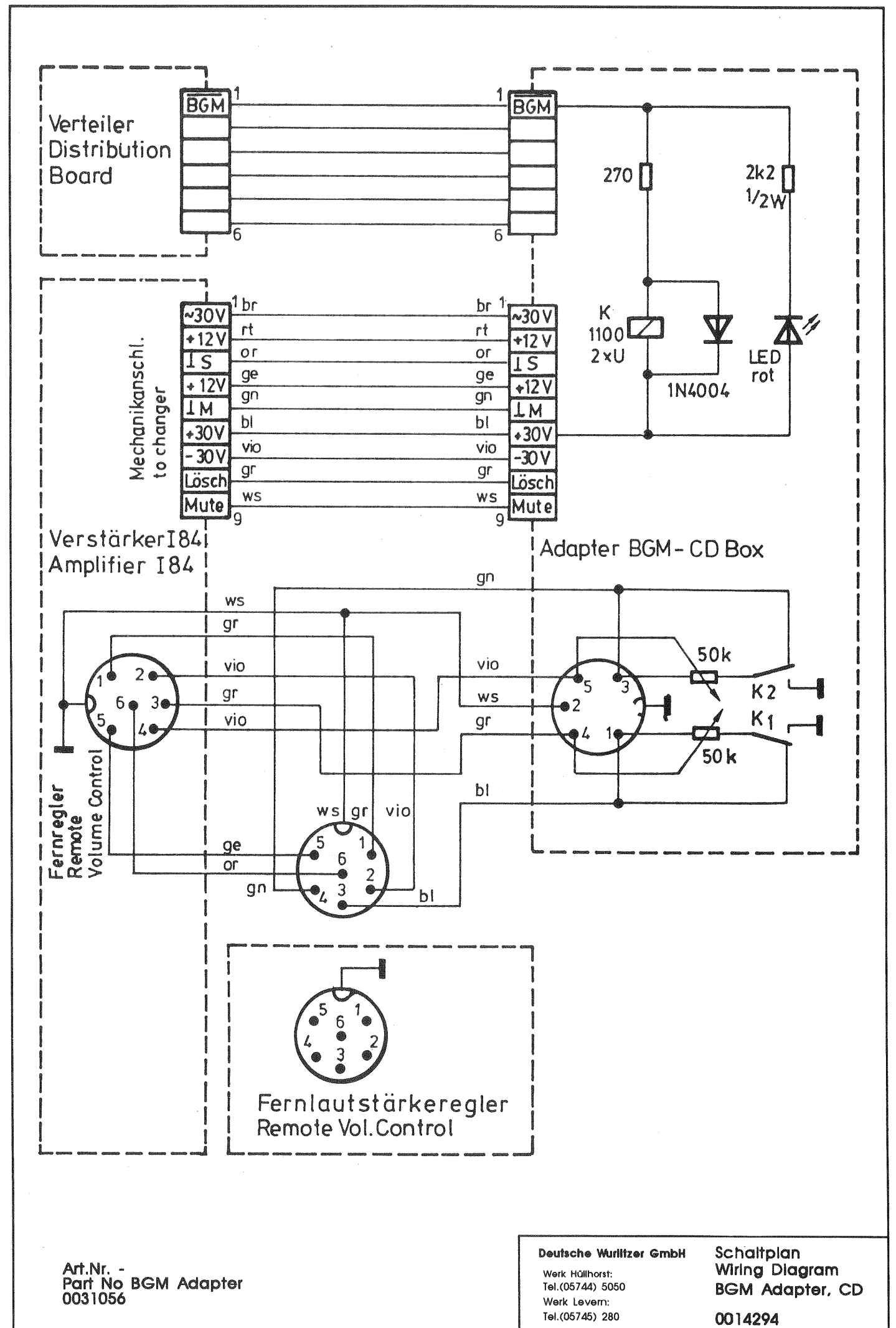


Fig. 6

7. Press button 'Cancel' between the two volume control knobs or at the remote control.
8. The played track will be interrupted and the CD is rejected to the carrier.
9. Relocate the jumper in row GP from 0 to F to the origin position. Press button LT on the SCC unit.
10. The jukebox is now ready for operation. Coin insertion according the coin denomination label is now possible when a coin validator is installed. By 'Unipack' versions the following steps are necessary:



Art.Nr. -
Part No BGM Adapter
0031056

Deutsche Wurlitzer GmbH
Werk Hüllhorst:
Tel.(05744) 5050
Werk Levern:
Tel.(05745) 280
Schaltplan
Wiring Diagram
BGM Adapter, CD
0014294

F. Price setting

Notice: It is not necessary to program prices on the 'Hideaway' model.

In the Unipack version no play prices are pre-set. Usually the prices are presetted by the factory according the denomination label, if other combinations are required, some examples are shown in figure 7a. To set the play prices do the following steps:

- Switch on the jukebox.
- Coin output plugs (Fig. 7, Pos. 1) should be set as shown in Fig. 9 or on an separate attached instruction by connecting to the pin row (Fig. 7, Pos. 2) on the SCC unit. Pay attention to wiring colours.
- Set the attached jumpers in B1 to B4, GP, BS (Fig. 7, Pos. 3) according to Fig. 8.
- Press "LT" button (Fig. 7, Pos. 4) to accept the new bonus setting.

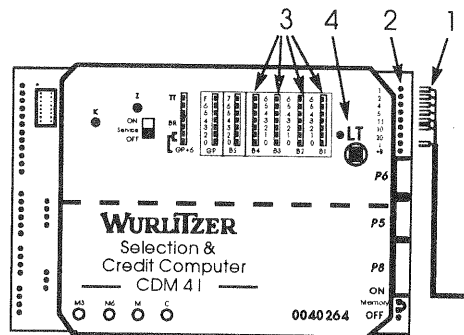


Fig. 7

G. Examples for price settings

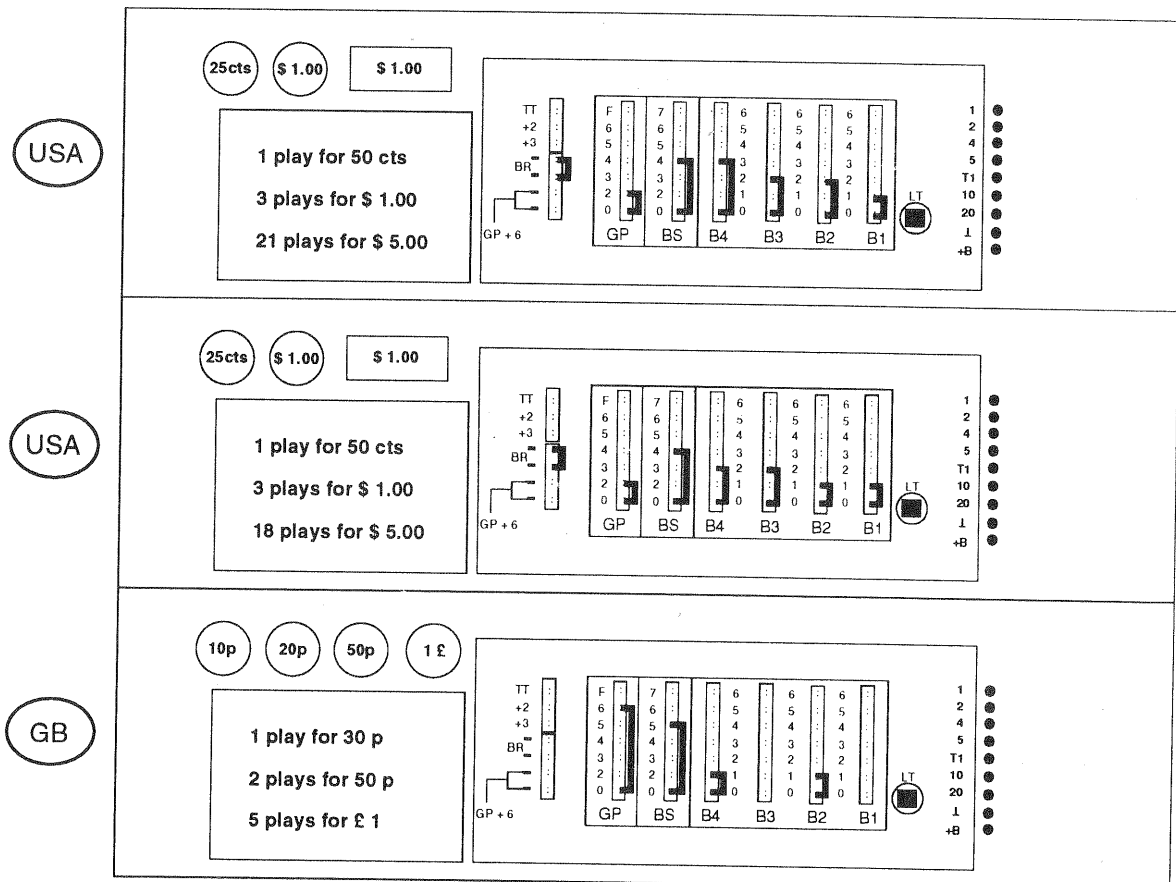


Fig.8

H. Colour codes of coin inputs

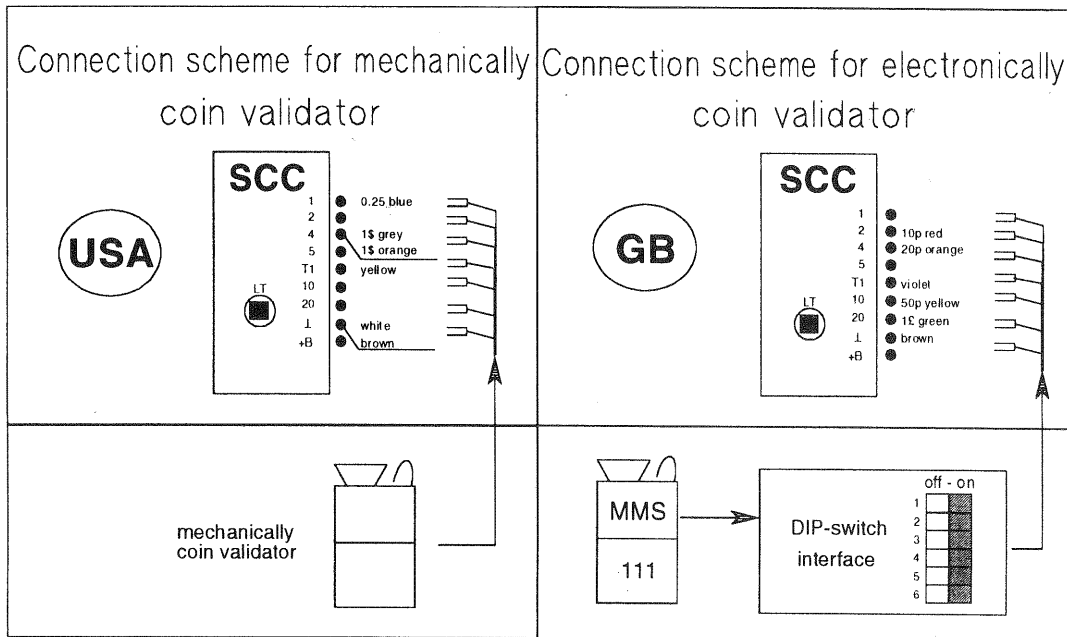


Fig.9

I. Programming number of discs in carrier

It is necessary to reprogram the number of CDs in carrier if a less number than 50 or 100 discs are inserted.

1. Set the 'SERVICE' switch to position ON.

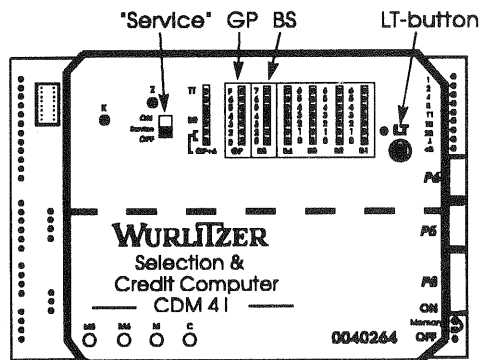


Fig. 10

2. Press 'LT' button.
3. Press button 5: digital display shows or

The 2 LH digits show the number of discs used (default value = 50 or 00, for carriers with 50 or 100 discs). In the 2 RH digits the time between the play stimulator tracks in minutes (default value = 00 = play stimulator switched off).

4. To reprogram: Hold button 5 and press button R; the display goes off; now enter a 4 digit number. The first two digits, the number of inserted CDs, then the two digits for the play stimulator repeat time

In play stimulator mode the jukebox plays random tracks after the end of the last play of a selected CD. The repeat time is programmable between 1 and 98 minutes.

The programming of the play stimulator is described in chapter VI/h.

E. Connection of external speakers

Additional speakers may be connected via two speaker DIN-plugs to the amplifier.

Caution: In "Stereo" mode do not connect a single speaker with less than 8 Ω to the amplifier!

Or: Connect two speakers of 4 Ω in serie representing a total impedance of 8 Ω .

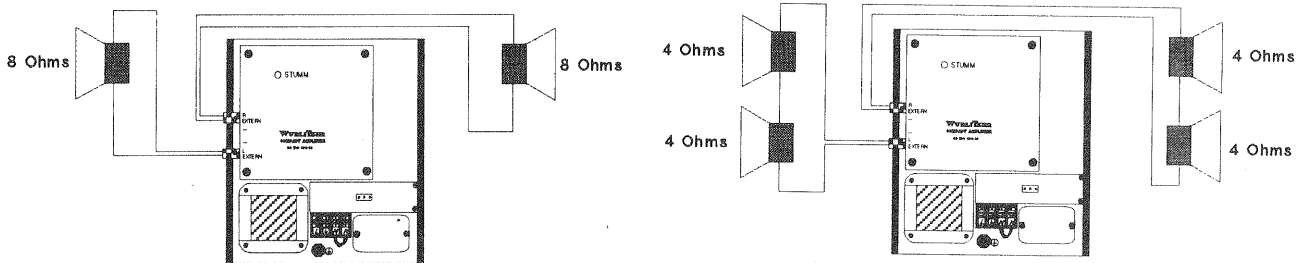


Fig. 14

IV. ACCESSORIES (not included in standard equipments)

A. Continuous play switch (Part.-No. 0034410)

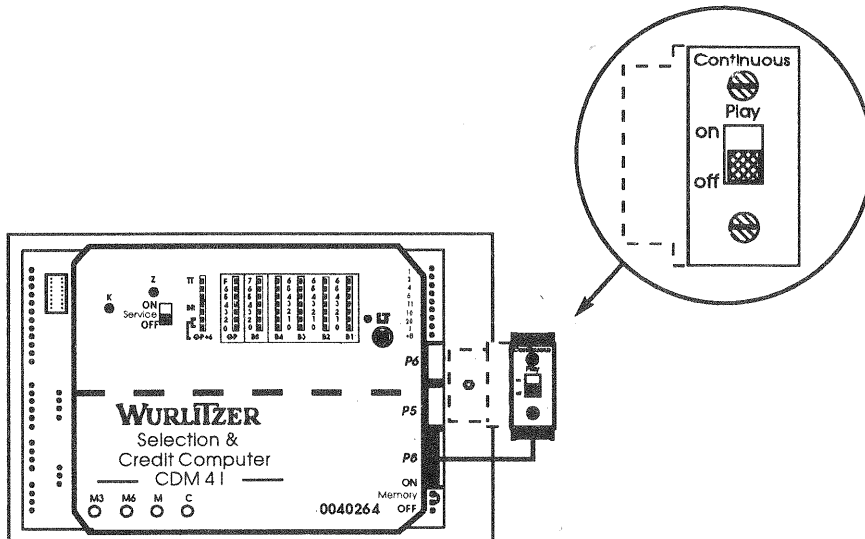


Fig. 15

If the continuous play switch (Fig. 15: Continuous Play) is set to "ON" the jukebox continuous to play random tracks. If a track is selected over the keyboard the continuous play will be interrupted immediately and remains after playing all the selected songs.

B. Infra red remote control (Part.-No. 0039075)

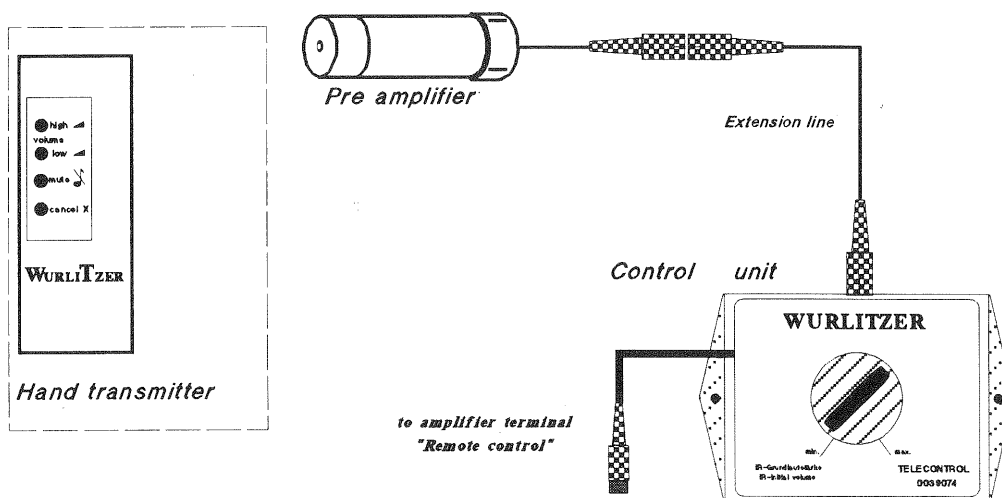


Fig. 16

This unit is wireless and has an effective range of approximately 15-20m. For operation a 9-Volt-battery has to be inserted into the transmitter.

Button "high"	Volume control. Repeated quick pressing of these buttons
Button "low"	increases or decreases the volume at a faster rate.

Button "mute"	As long as the button is pressed the sound is muted.

Button "cancel"	The track playing is cancelled, the next track will be played or the CD is brought back to the carrier.

Keep in mind that the receiver is facing in some models to the ceiling, hence, at some distance, it might be better to point the transmitter to the ceiling above the jukebox instead of straight at the cabinet.

With the knob at the Control Unit, a 16-position switch, the volume of the jukebox by power on can be set up. The result of turning of this knob becomes audible only after the jukebox has been switched off for a period of some seconds. Turning this knob in stand by or whilst playing has no effect for the volume.

C. Microphone kit (Part No. 0006953)

This unit enables the use of the jukebox as a paging system, when playing as well as during idling periods. If the paging microphone is switched on while the jukebox is playing, the music fades away for this period. This kit is to be connected at the microphone socket of the amplifier. The length of the cable between mike pre-amp and the jukebox is approx. 45 ft / 15 m (ref. to Fig. 17).

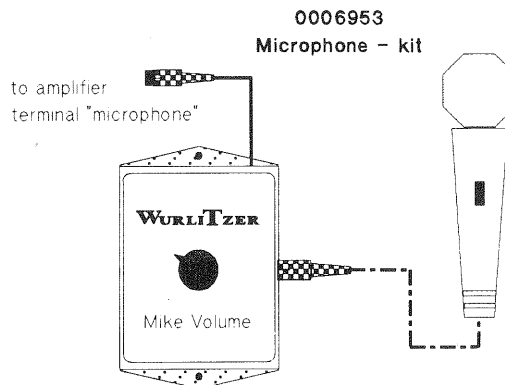


Fig. 17

D. BGM-Connector (Part No. 0035579)

This equipment offers two features:

1. The sound of an external source (300mV - 1V), e.g. radio or tape, will be reproduced over the speakers of the jukebox with reduced volume. A selection over the jukebox will mute this source, and it returns only after all selections have been played. (Time-lag can be adjusted).
2. Distribution of the sound from the jukebox to an existing background system (amplifier). The sound of this equipment is switched off as long as the jukebox is playing.

The hook-up for this adapter is the same as the microphone.

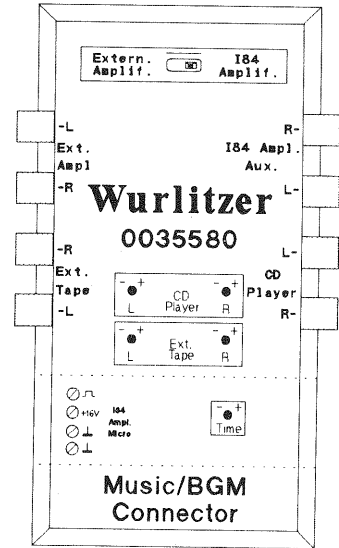


Fig. 18

E. Background-music level adapter (Part No. 0031056)

The BGM adapter operates as soon as CDs are playing as declared for BGM.

The volume of a playing BGM-track will be reduced. The volume reduction from normal sound is adjustable by two pots on this board depending on the basic volume of the jukebox..

(ref. to chapt. VI/i, page 18).

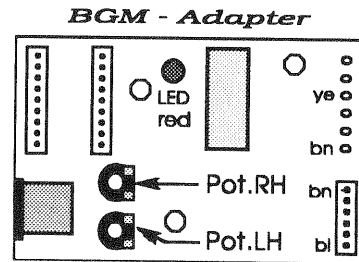


Fig. 19

F. 70 V-output transformer (Part No. 0006926)

If external speakers with an impedance of less than 8 Ω are to be connected, an output transformer is deliverable. Speakers with impedance's between 1 Ω and 12 Ω could be connected additionally.

Example:

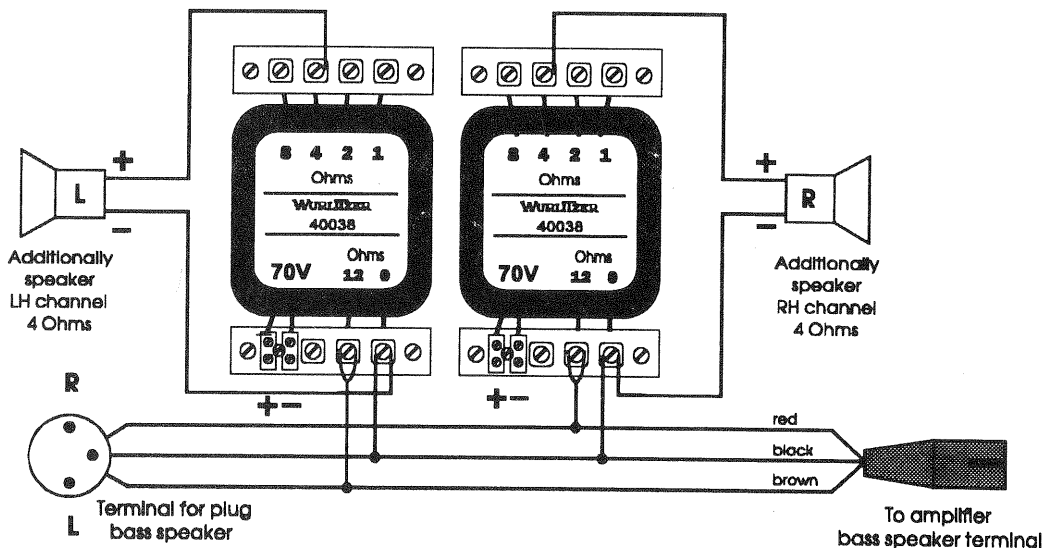
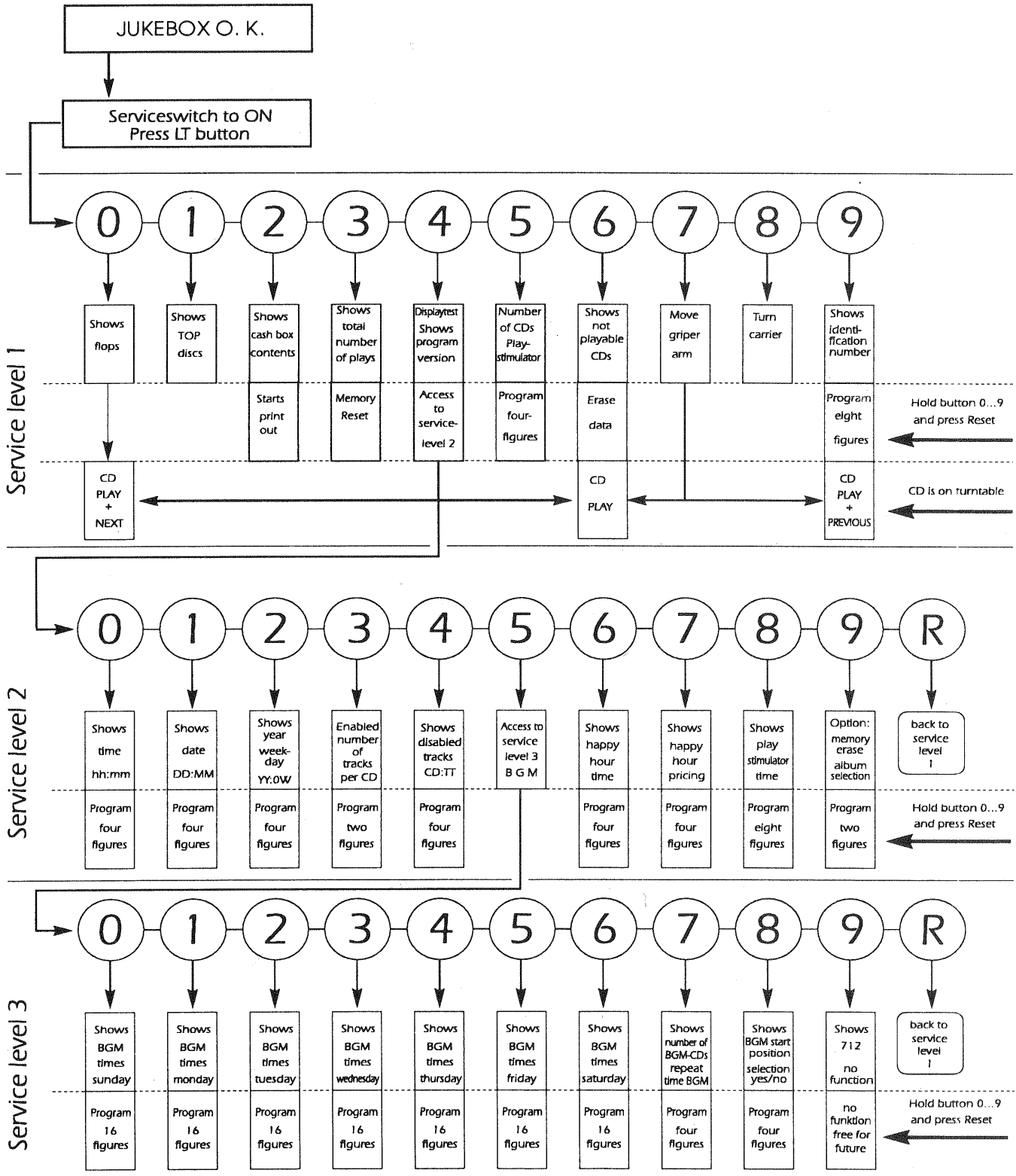


Fig. 20

V. PROGRAMMING SHORT VIEW



VI. JUKEBOX PROGRAMMING

Additional features like Playstimulator, BGM-time and Happy Hour time are programmable. These features are programmable in the service mode of the SCC-unit. To keep the data stored when power is off the plug "Memory" (Fig. 21) must be set to "ON" position on the SCC-unit, otherwise all programmed data in service levels are Reset, when power is interrupted.

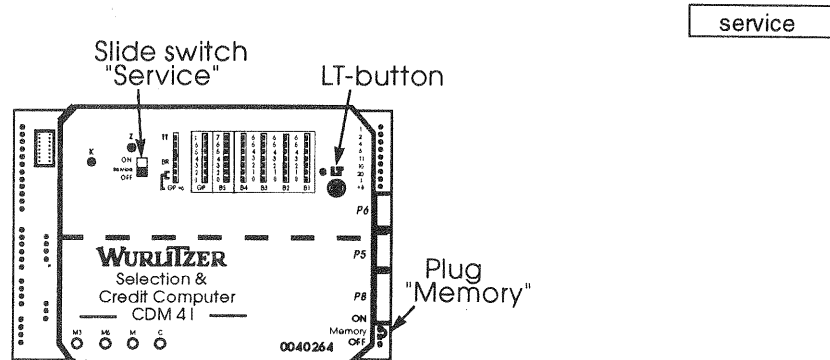


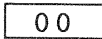


Fig. 21

Three service levels are present to program the jukebox. To reach these levels proceed as follows:

A. Service level 1

- Slide service switch from position OFF  to ON 
- Press "LT" button once.
- Service-Level 1 is reached, the digital display shows: 
- to service level 2

B. Service level 2

- Press selection button 4 - hold and press selection button R.
- The digital display is dark, service level 2 is reached.
- to service level 3

C. Service level 3

- Press selection button 5.
- The digital display is dark, service level 3 is reached.



press selection button R

press selection button R



IMPORTANT: If selection button R (RESET) is pressed first in any service level the computer always jumps to service level 1!

D. Exit from all service programmms

- Switch slide switch 'Service' from position ON  to OFF .
- Press "LT" button.

The Jukebox is ready to operate, the digital display shows approx. 3 sec.:
Then the display shows the hit of the house, the most played track. eg.:

0 0 0 0
0 1 0 7

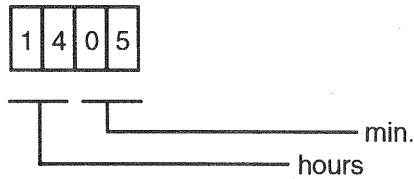
TIME - DATE - YEAR - WEEKDAY

Clock, date, year and weekday setting is necessary when Playstimulator or back ground music (BGM) is used or for statistic print outs.

E. Clock setting

level 2	button 0
---------	----------

1. Enter the service mode by setting the service switch to ON position.
2. Press LT button at the SCC unit.
3. Press selection button 4 - hold - and press selection button R (digital display is dark, level 2 is reached).
4. Press selection button 0. The present time is displayed. eg:



5. To reprogram press selection button 0 - hold - and press selection button R. The digital display goes dark. Enter the new time by means of the keyboard with 4 digits in 24 hour format (military time).
6. To check the new time: Only press selection button 0 again.

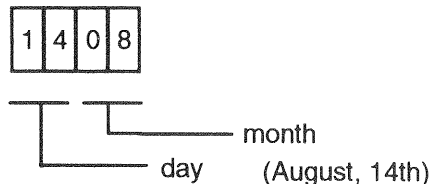


Do not press selection button R after reprogramming otherwise you will get back to service level 1!

F. Set Date

level 2	button 1
---------	----------

1. Press selection button 1.
The actually date will be displayed. eg.:



2. To reprogram press selection button 1 hold and press selection button R. The digital display goes dark. Enter the new date by means of the keyboard with four digits.

- To check the new date: Only press selection button 1 again.

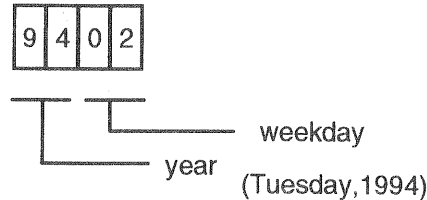


Do not press selection button R after reprogramming otherwise you will get back to service level 1!

G. Set year and weekday

level 2	button 2
---------	----------

- Press selection button 2.
The actual year and weekday will be displayed. eg.:



- To reprogram press selection button 2 - hold - and press selection button R. The digital display goes dark. Enter the new year by means of the keyboard with two digits then enter a 0 followed by the number of the weekday shown in the table below.

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

- To check the new setting of year and weekday: Only press selection button 2 again.
- Press button R to get back to service level 1 to continue for the next steps of programming.

PLAYSTIMULATOR

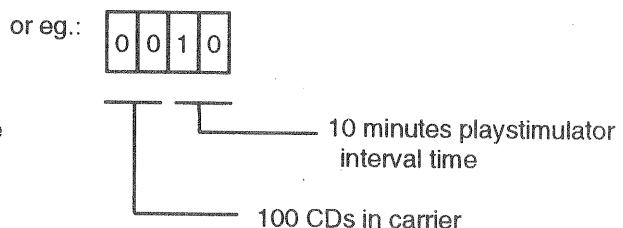
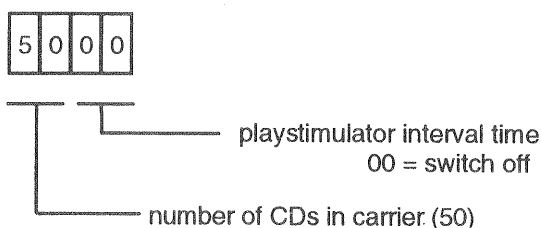
H. Playstimulator (random play without coin insertion)

If the Playstimulator is programmed, randomly a track of all CDs in carrier will be played except those CDs which are declared as BGM-CDs. BGM play is programmable from 1 min. to 98 min. This time is also the repeat time between two random plays. The volume is the same as in normal operation. If a selection is made the Playstimulator will be interrupted immediately and remains when all established credits from coin insertion are selected (selection memory must be empty).

Programming of the Playstimulator repeat time:

level 1	button 5
---------	----------

- Enter the service mode by setting the service switch to ON position.
- Press LT button at the SCC unit.
- Make shure that time, date and year is properly set. Reprogram if necessary. (ref. to chapt. VI / e,f,g).
- Press button 5 the display shows eg.:



- Make a note of the number of CDs in carrier shown in the left two digits (ref. chap. II / e).
- To reprogram press selection button 5 - hold - and press selection button R. The digital display goes dark. Enter the noted number of CDs in carrier and the Playstimulator interval time with four figures.

By entering of eg.:

5	0	0	0
---	---	---	---

Playstimulator OFF

5	0	9	9
---	---	---	---

Playstimulator ON - CONTINUOUS PLAY

5	0	0	5
---	---	---	---

Playstimulator ON - INTERVAL TIME 5 min.

(50 CDs in carrier)

- Go to service level 2 (press selection button 4 - hold - and press selection button R) to program the Playstimulator start and stop time.

Programming of Playstimulator start and stop time

level 2	button 8
---------	----------

- Press selection button 8:

At first the display shows flashing:

(1 - means start time)

then the start time is displayed with 4-digits eg.:

(2.05 p.m.)

			1
1	4	0	5

minutes
hours

- Press selection button 8 again.

At first the display shows flashing:

(2 - means stop time)

then the time is displayed with 4-digits eg.:

(6.30 p.m.)

			2
1	8	3	0

minutes
hours

- To re program press selection button 8 - hold - and press selection button R. The digital display goes dark. Enter the start and stop time with eight digits.

Example: The Playstimulator should operate from 09.00 to 17.00.

Enter: 0 - 9 - 0 - 0 - 1 - 7 - 0 - 0 Then the digital display goes dark The computer is still running in service level two.

stop time
start time



IMPORTANT: The Playstimulator can not be programmed over 24.00 o'clock (midnight)!

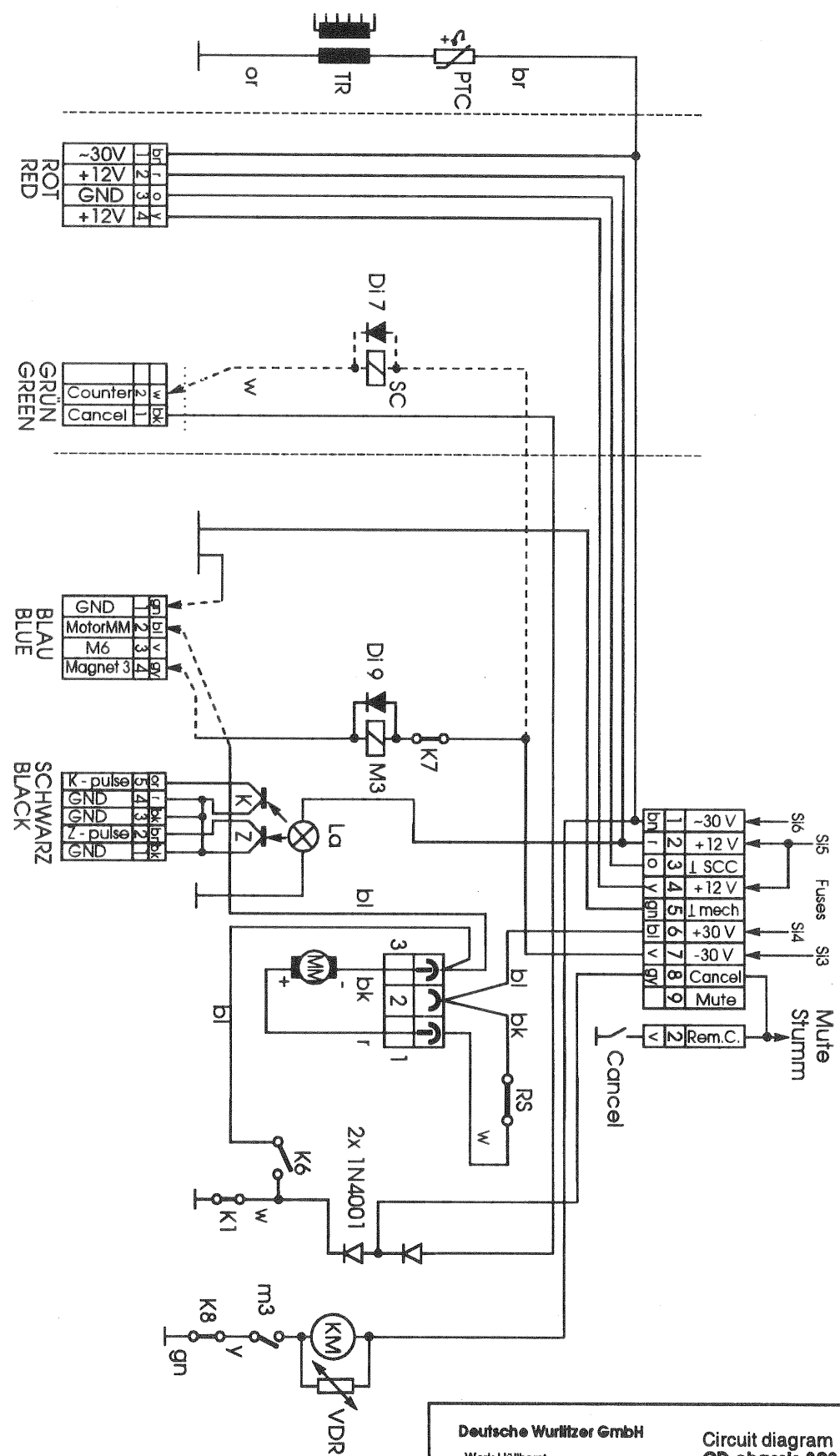
- To check the new times: Repeat step 8 and 9.
- To leave the service program set the slide switch 'SERVICE' to OFF and press button LT on the SCC unit.

IF THE PLAYSTIMULATOR DOES NOT WORK:

Check that:

- clock is set correctly
- start and stop time is programmed
- repeat time is set correctly
- BGM playmode is disabled.

XV. CIRCUIT DIAGRAMS



- C4,5 Capacitor 47nF, 100V
- D7 Silicon diode 200V, 1A
- D9 Silicon diode 200V, 1A
- K Photo transistor sensing '01'
- K1 Play switch (contact wipe)
- K6 Transfer switch for Motor MM
- K7 M3 isolating switch
- K8 Gripper arm trip switch
- KM CD carrier motor
- Ld Lamp 24V, 3W
- M3 Carrier latch solenoid 16 Ohms
- M3 Switch at M3 latch solenoid
- MM Gear motor
- PTC PTC-Thermistor 54V, 1.5A
- R10 Resistor 47 Ohm, 9W
- R15 Resistor 18 Ohm, 9W
- RS Repair switch (gear motor)
- S13 Amplifier fuse for -30V DC circuit
- S14 Amplifier fuse for +30V DC circuit
- S15 Amplifier fuse for +12V DC circuit
- S16 Amplifier fuse for 30V AC circuit
- Z VDR-Resistor 35V rms
- Z Photo transistor counting gate

Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel.(05744) 5050
 Werk Lavern:
 Tel.(05745) 280
 Circuit diagram
 CD chassis 393
 0042133 (4)

BACK GROUND MUSIC

I. Back Ground Music (= BGM)

If BGM is programmed and activated a random track from the CDs declared for BGM will be played. The time between the last selected played track and the first BGM track is programmable between 1 and 98 minutes. This time is also the repeat time between two BGM tracks. The volume by BGM reproduction is reduced compared to the common volume. It is adjustable with the two pots (RH channel / LH channel) at the BGM adapter board. (Fig. 22, Pos. 1). BGM mode is active when the LED on the BGM board lights (Fig. 22, Pos. 2). Once the BGM mode is activated, then it is not possible to operate the Playstimulator. If a selection is made by means of coin insertion the track being played will be interrupted immediately. As long as no selection is made for paid credits no BGM CDs will be played. Two time zones can be programmed per each weekday.

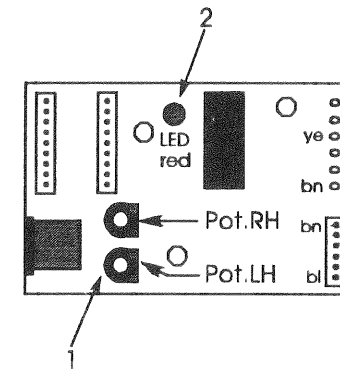


Fig. 22

Programming of Back Ground Music:

*- IF CREDIT PRESENT!
 WON'T GO INTO BGM!*

level 3 button 7

1. Enter the service mode by setting the service switch to ON position.
2. Press LT button at the SCC unit.
3. Press selection button 4 - hold - and press selection button R (digital display is dark, level 2 is reached).
4. Make shure that time, date and year is correctly set (selection buttons 0, 1 and 2). Reprogram if necessary.(ref.to chapt. VI / e,f,g at page 15).
5. Press selection button 5 (level 3 is reached). The digital display goes dark. At this level all options for BGM can be enquired and programmed.
6. Press button 7. The number of CDs used for BGM are displayed in the left two digits in the right two digits the repeat time between two BGM plays is displayed, eg.:

2 0 1 0

REPEAT TIME (10 min.) between BGM tracks
 0 0 - BGM CONTINUOUS PLAY
 (no break between a single BGM track)

NUMBER of BGM declared CDs (no access with playstimulator)
 0 0 - BGM OFF (BGM is disabled)

7. To reprogram press selection button 7 - hold - and press selection button R. The digital display goes dark. Enter number of CDs and break time with 4 digits.

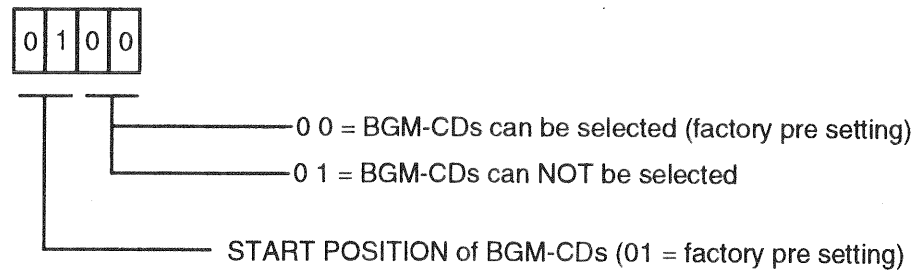


IMPORTANT: Do not press selection button R after reprogramming otherwise you will get back to service level 1!

Programming of BGM start position and selection option:

level 3 button 8

8. Press button 8. The start position of BGM declared CDs are displayed in the left two digits. The right two digits indicate whether BGM CDs can be selected over coin insertion or not.



Note: If a wall box is connected the BGM selection option must set to 0 0.

After entering this data the SCC unit calculates the BGM end position itself. For loading of BGM - discs the end position can be calculated as follows:

$$\text{end position} = \text{start position} + \text{number of BGM-CDs} - 1.$$

9. To reprogram press selection button 8 - hold - and press selection button R. The digital display goes dark. Enter start position and the selection option with 4 digits.



IMPORTANT: Do not press selection button R after reprogramming otherwise you will get back to service level

10a. Programming of BGM time:

level 3 button 0-6

Each weekday can be programmed differently, 2 timezones on each day can be setup.

Note: The following steps are the same for the buttons 1 to 6 in service level 3 according the table for weekdays:

- | | |
|---------------|--------------|
| 0 = Sunday | 4 = Thursday |
| 1 = Monday | 5 = Friday |
| 2 = Thursday | 6 = Saturday |
| 3 = Wednesday | |

- 10b. Press selection button 0 the display shows flashing the start time on sunday:



- 10c. Press selection button 0 again the display shows flashing:



be obtained only if poles 2 or 5 are positive to pole 3, hence, interchange the poles for a test. With an open light gate the Ohms reading should be below 2 Kilo-Ohms (Digital-Multimeter about 300 Ohms) and with the light broken it should be above 2 Meg.-Ohms (Digital-Multimeter shows overflow).

Note 3: Micro switch K8 is actuated by the large disc clamp of the griper arm. If this switch is maladjusted or if the main cam gear box stops before this disc clamp is fully retracted, K8 will not be actuated. This disables the changer for the next search run and keeps the turntable running all the time. The same situation, however, can be produced by a main cam and gear box overrunning the proper rest positions and stopping finally at a time when K8 is released again. Symptom 4 of chapter VI refers to the first situation, symptom 2 of chapter VIII to the second.

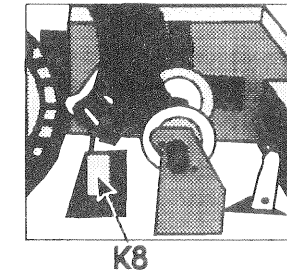


Fig. 38

To test, actuate K8 manually and run the changer through some play cycles. The disc clamp has to actuate K8 before it reaches the most retracted position and has come to rest before it has passed this position; compare the adjustment instructions. If the system overruns the most retracted position with a K6 switch of proper adjustment, check R10, the braking resistor parallel to (and located at) the motor, it should not read more than 55 Ohms.

Note 4: With a dead motor MM check the carbon brushes. Worn-out brushes are not likely before some years of service, however, a lack of contact pressure is feasible (binding brush holder). Watch for the insulation ring at one end of brush's tension spring; without this ring the motor is shorted and resistor R 15 will burn-out.

Note 5: A detail of circuit timing: Main cam motor MM is started by relay 2 of the SCC unit for about 3 seconds. After this the transfer switch K6 should switch on within these 3 seconds. If K6 is maladjusted or defective, the main cam motor will stop in this moment, that is when the griper arm is about half way between the disc carrier and the turntable.

Note 6: The amplifier muting at an electronic circuit is governed by transistor Tr2, and controlled by switch K1 via the grey line, pole 8, amplifier-to-changer cable. The amplifier is mute as long as this line is grounded, hence, the amplifier works outside the phonograph without any need of unmuting.

Note 7: The griper arm is linked with the cam & gear shaft by two-way spring clutch. If the griper arm somehow is locked with the centring disc and the arm is unable to take it off, the gear box still advances and loads the clutch spring. Finally, the spring at a certain tension will free the disc and then the arm flips to catch up. The disc then is thrown about and may land in wrong compartment or anywhere. With a main cam and gear unit generally moving to fast, the arm may run the returning record into the neighbouring compartment or even lose it. A complete gear cycle normally takes about 12 seconds, never permit times shorter then ten seconds. To check time, make a selection and hold the cancel button (amplifier) down all the time the arm moves. Time is counted from the moment the disc carrier stops till the homed disc is unclamped and micro switch K8 is actuated. If there is a second disc in one compartment and the original disc is selected, there is a 50% chance that the wrong one is played; the service call to be expected in such a case will be likely one of a "wrong selection".

Note 8: Transistor T22 pulls its collector to L as soon as the negative supply of the changer appears at the switch of relay 4 thus indicating that the disc just being played is now back in the carrier. If this circuit is defective, the computer does not sense this because it gets impression that the disc is still playing. Hence it will not start a new search run although it has accepted coins and selections properly. Typical for this fault is that after power off the main cam motor is still moving on and on the digital display a flashing "8" in the RH digit appears. For a start, short the collector of T22 to ground momentarily. If transistor T22 is permanently shorted to ground the disc playing can not be cancelled while it is playing. After this last play and also after power off the phonograph does not do anything.

02. CD moves on but no sound.	Faults in the system of CD Controller - amplifier - speaker.	Audio frequency cable at CD Controller or amplifier (chinch socket) not inserted. Audio cable is inserted in the Phono input of amplifier not in CD-input. Fuses Si1 and/or Si2 blown (Speaker fuses). Fuse Si4 blown (then motor MM does not work, too). Wire grey (pin 8) amplifier to mechanic shorted to ground (ref. Chapt. 9 / 6). Amplifier defective (transistor 2).
03. Hum in sound reproduction	Ground loop, amplifier or CD-Controller def.	Griper arm touches the chassis of the player in play position; other connection between player ground and chassis ground. Ground loop out of the jukebox caused by additional equipment. Amplifier or CD-Controller defective.

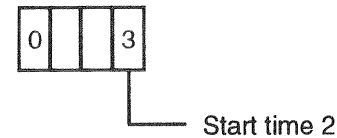
8. CD not properly returned to carrier.

Symptoms	Cause	Possible faults
01. Griper arm does not move to bring the disc home.	Main cam motor does not start.	Error at MM-Motor could have developed while a disc was playing (ref. to Chapt. 6 / 5).
02. Returned disc not properly unclamped (not freed) in the carrier.	Main cam motor switched off too early.	Wiper switch wrongly adjusted (compare with Chapt. 9 / 3).
03. Disc missing in compartment is found in other compartment or somewhere about the chassis.	Griper arm generally moving too fast. (Time for one complete cam rotation is 11 to 13 seconds).	Disadjustment of griper arm. Griper arm sticks to the centring disc (disc holder arm, ref. to Chapt. 9 / 7) Wrong adjustment of puck arm height. Cam motor too fast. [Retarding resistor interrupted or value too low. (only machines with serial number before 33055830)]

9. Hints for trouble shooting

- Note 1: There are always 220V in plug-in unit for fluorescent lamps on amplifier disregarding the actual voltage the phonograph is adjusted to or operating with. Possible operating voltages are 100V, 117V, 210V, 220V, 230V and 240V. Lamp, starter and ballast is a matched group, never use replacements of other wattage.
- Note 2A: A selected disc can properly be located as long as the light gate controls are working properly. The counting impulses can be checked easily by observing the LED indicator Z which has to light up rhythmically when the carrier is rotating (manually unlock the carrier latch for check). LED Z is dark, whenever the carrier is at a standstill but has to light up as soon as a tooth of the carrier's base plate has passed the carrier latch's front edge for about 1-2 mm. For a check lift the carrier off its friction drive wheel a little, unlock the carrier latch with the other hand and advance the carrier slowly manually.
- Note 2B: The locating impulse "01" can be checked with the LED indicator K. For a check bring the disc preceding "00" ("50", if fifty discs in carrier) beneath the griper arm. Then advance the carrier slowly (lift off the drive as explained with note 2A): K now has to light up by all means before Z but a very little advance in time is sufficient and K must still be alight when Z lights up. Which LED then goes out first does not matter but K by all means must be out before Z lights up again for the next disc approaching the griper arm. If K lights up behind Z, the SCC unit cannot find its starting position and the disc to be located will not be found, the carrier then rotates permanently. If K is still alight when Z lights up for 03/04, the SCC will consider this one as 01 and any disc located will be that one "behind" the one actually selected. The light gate assembly can be shifted for about 1 mm to find a proper timing.
Four K signalise succession without a selection played in between causes a memory erase same as if the LT button is actuated. Therefore, rotation checks with the carrier should be terminated with an actuation of LT button to prevent complaints raised by the first patron making a selection after the service, that he lost his money because his selection lead the fourth K-signal in succession!
- Note 2C: The lamp of light gates is one of 24 Volts, 3 Watts. The received power supply is 12 Volts, comes from amplifier fuse Si5. The photo transistors can be checked with an Ohm-meter at plug BLACK when disconnected. Read between poles 3 and 5 for the gate K and between poles 2 and 3 for gate Z. Results will

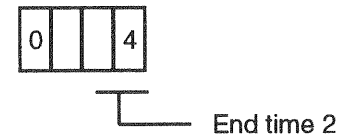
10d. Press selection button 0 again the display shows flashing the start time on sunday:



then approx. 1 sec later start time:



10e. Press selection button 0 again the display shows flashing:



then approx. 1 sec later stop time:



10f. To program press selection button 0 (or button 1 - 6 depending on the weekday to be programmed). The digital display goes dark. Enter the two time zones with 16 digits.

Example:

Background musik should be on:
Enter:

from 10.20	to 12.40	from 15.30	to 22.10
1 0 2 0	1 2 4 0	1 5 3 0	2 2 1 0
time zone 1		time zone 2	

Repeat this procedure until all weekdays are programmed.

If only one time zone is to be programmed, enter the first zone with eight digits and the second zone with 0000 0000 (totally 16 digits).

Example:

Background musik should be on:
Enter:

from 10.20	to 22.10	no effect	no effect
1 0 2 0	2 2 1 0	0 0 0 0	0 0 0 0
time zone 1		time zone 2	

It is also possible to use the second zone only.

10g. After the end of programming procedure press selection button R and leave service program setting the slide switch 'SERVICE' on the SCC to OFF and press button LT.

HAPPY HOUR

J. Happy hour pricing

level 2 button 6

During the 'Happy hour' time additional bonus plays can be given. Happy hour time and bonus plays have to be programmed before.

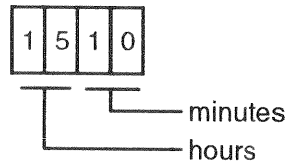
1. Enter the service mode by setting the service switch to ON position.
2. Press LT button at the SCC unit.
3. Press selection button 4 - hold - and press selection button R (digital display is dark, level 2 is reached).
4. Make shure that time is correctly set (selection button 0). Reprogram if necessary.(ref.to chapt. VI / e at page 15).
5. To display the 'Happy hour' start time:

press selection button 6

The digital display shows at first flashing (1 = start time):



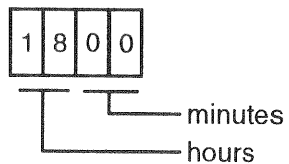
then the start time will be displayed with four digits e.g.:



6. To display the stop time press selection button 6 again. The digital display shows at first flashing (2 = stop time):



then the stop time will be displayed with four digits e.g.:



7. To reprogram press selection button 6 - hold - and press selection button R. The digital display goes dark. Enter the 'Happy hour' start and stop time with 8 digits. After complete entry the digital display is dark. Example:

Happy hour should be on:
Enter:

from 9.05	to 11.00
0 9 0 5	1 1 0 0
happy hour time zone	



IMPORTANT: Do not press selection button R after reprogramming otherwise you will get back to service level 1!

8. To verify the entered data: Repeat the steps 5 and 6 .

Symptoms	Cause	Possible faults
02. Record carrier permanently rotating. Sometimes the griper arm randomly takes a disc onto the turntable, but the CD will not be played. Also by pres-sing the LT button the griper arm takes a CD onto the turntable, the CD will not be played, either. After power off for short time a fla-shing 8 will appear in addition on the display.	Carrier latch solenoid permanently switched on.	Grey line from M3 to pole 4 of plug BLUE shorted to ground. SCC unit defective (rel. 4 sticks, T4 def.).
03. Carrier does not start after a properly completed selection. Carrier latch does not open.	Circuit of the carrier latch solenoid not completed.	DC supply -30V missing (Fuse Si3). Coil of latch solenoid open. Grey line from M3 to pole 4, or green line to pole 1 (relays common), plug BLUE, interrupted. Computer defective; go to service program, key 8, to check relay 4 (M3). Test only successful if -30V DC Voltage across the M3 coil reached pin 4 X4 of the SCC unit (plug BLUE). Test the machine with a programming jumper from pin 1, green, to pin 4, grey.
04. Disc carrier does not rotate although the carrier latch opens after a selection.	Carrier motor KM disabled.	Micro switch M3 (at carrier latch) maladjusted or defective. Micro switch K8 (at gripper arm) maladjusted or gripper arm not fully in rest position (ref. to chap. 0 / 3). Defective motor KM, broken wiring.
05. Griper arm does not move to take the disc out of the carrier although the selected disc was properly brought forward. After approx. 1 second relay M drops out. The phonograph does not work and takes no notice of any input.	Main cam motor (MM) does not work.	Motor MM defective. Pre resistor R15 interrupted. DC 30V supply missing (Fuse Si4). Blue wire to motor broken. Shortage in capacitor C5 or in motor itself (then R15 hot). Test: Connecting plug BLUE pin 1 (green) with pin 2 (blue) with jumper wire of SCC unit. If motor is moving on then SCC unit defective (rel. 2, T2). test also with service program level 1 key 7
06. Disc on turntable returned to carrier before play has started.	Main cam motor not resting when system in play position.	Wiper switch K1 does not open. Cancel button at amplifier jammed in "cancel" position, same with cancel button of the remote control; shorted remote control cable. Retarding resistor R10 at motor MM open (ref. Chapt 9 / 3C).

7. Failures with sound reproduction.

Symptoms	Cause	Possible faults
01. Clicks and banging noises during CD playing, jump over of traces.	Reading of CD data disturbed	CD defective (error correction for insignificant defects only). Dirty optic caused of nicotine and/or dust particle. Maladjusted optic assembly. Faults in CD player or laser control board.

Symptoms	Cause	Possible faults
09. The selected CD is placed on the turntable, but does not play. After about 50 seconds CD will be returned to carrier.	No AC 30V for laser control board and player. Communication between SCC unit and CD Control interrupted.	Display on CD-Controller dark: Fuse Si6 defective. Interrupts in lines from Amplifier (to changer, pin 1) to SCC unit (line brown, plug RED) or from there to CD Controller. PTC at intermediate transformer on CD Controller faulty. Intermediate transformer defective. Display on CD-Controller is lit: Data leads between SCC Computer and CD Controller interrupted (In this case operation is possible in mode 0 button T2; stop with T3) Permanently applied reset pulse caused in defective IC 29 at DW-CD-Control board. (def. IC 27, IC 28 - data)
10. The selected CD is placed onto the turntable, not played, but after about 12 seconds CD will be returned to carrier.	Failure between DW-CD-Control and laser control board or laser control board and player.	Leads not deep enough inserted between player, laser control board or DW-CD-Control. Player or laser control board defective.
11. Digital display shows the selection correctly, but after this the jukebox does not operate.	The SCC unit gets the impression that a CD is still playing.	Caused by a defective or maladjusted K7 switch the voltage - 30V DC at pin 4 plug GREY is missing. This voltage usually indicates the replacing of CD in carrier after playing. If this circuit is interrupted the status of SCC unit is the same as CD is playing, so it is not able to start the carrier for a new search. SCC unit defective (T22: ref. Chap. 9 / 8).

5. Repetitive apply of selected or non-selected discs to turntable.

Symptoms	Cause	Possible faults
01. Permanent griper arm movement (with or without disc) with the disc carrier not making a rotation between a complete cycle. This continues even if plug BLUE is disconnected at the SCC unit.	Main cam motor not stopping at the end of the play cycle.	Wiper switch K6 maladjusted. [Breaking resistor R10 (47 Ohms) at motor MM open. Shortage in capacitor C4. only machines with serial number before 33055830.]
02. Permanently griper arm movement; discontinued after plug BLUE is pulled off at the SCC unit.	Computer running out of program.	Computer out of program routine (cut power to SCC unit for a second, to initiate a restart of program). Computer defective (Relais 2, T2 or T22 def. ref. to chapt. 9 / 8).

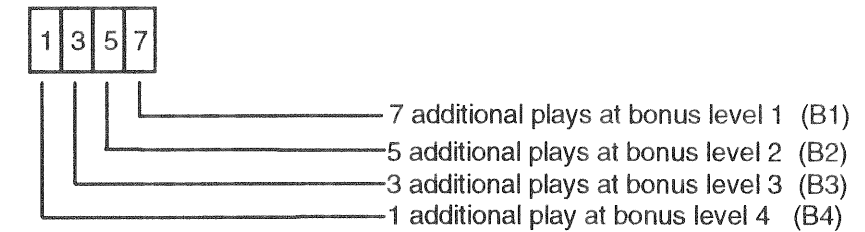
6. Failures in the system carrier gripper arm

Symptoms	Cause	Possible faults
01. Record carrier permanently rotating, even after plug BLUE is pulled. If a selection is made the gripper arm randomly takes a disc onto the turntable.	Carrier latch permanently open.	Carrier latch or its solenoid jammed.

level 2 | button 7

9. To display 'Happy hour' pricing:

Press selection button 7 display shows additional bonus plays available during Happy Hour e.g.:



10. To reprogram press selection button 7 - hold - and press selection button R. The digital display goes dark. Enter the new happy hour pricing with 4 digits.



IMPORTANT: Do not press selection button R after reprogramming otherwise you will get back to service level 1!

11. To check the new setting, press selection button 7 again.

12. To leave the service program set the slide switch 'SERVICE' to OFF and press button LT on the SCC unit.

K. Programming of maximum number of tracks

level 2 | button 3

Programming of maximum number of tracks played successively on the same disc if other discs have been selected.
Default value 4 tracks

- Enter the service program by setting the service switch to ON position.
- Press LT button at the SCC unit.
- Press selection button 4 - hold - and press selection button R (digital display is dark, level 2 is reached).

4. Press selection button 3 display shows:



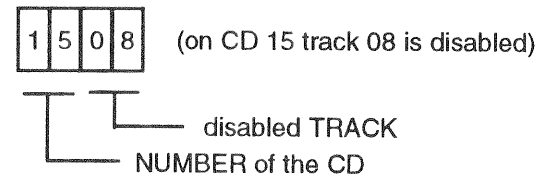
NUMBER of tracks played successively
(factory pre setting 04)

- To reprogram press selection button 3 - hold - and press selection button R. The digital display goes dark. Enter the number of tracks to be played successively, possible entries are 01 - 25. Setting of 01 causes playing of all tracks in selection order.
(Note: This feature must not be set to 0 0 !)
- To check: Press selection button 3 again.
- To leave the service program set the slide switch 'SERVICE' to OFF and press button LT on the SCC unit.

L. Selective disabling of tracks (max.25)

level 2 | button 4

1. Enter the service program by setting the service switch to ON position.
2. Press LT button at the SCC unit.
3. Press selection button 4 - hold - and press selection button R (digital display is dark, level 2 is reached).
4. Press selection button 4 display shows:



3. Each selection button 4 operation indicates the next disabled track, maximum 25 tracks. After reaching the last disabled track, the first one is indicated again.
4. To program:
 - a. Press selection button 4 - hold -n and press selection button R. The digital display goes dark.
 - b. Enter at first the number of the CD to disable followed by the track (totally four digits).
 - c. To disable a next CD/track, press selection button 4 as often as display shows 0 0 0 0 .
 - d. Press selection button 4 again - hold - and press selection button R. The digital display goes dark. Then enter CD and track to disable.
 - e. Continue programming for the next track with step c.
5. To enable a disabled track: When track is indicated, press button 4 - hold - and press selection button R and enter first the number of the CD followed by 0 0.
6. To enable all disabled tracks enter 0 0 0 0 (4 times 0).
7. To leave the service program set the slide switch 'SERVICE' to OFF and press button LT on the SCC unit.

M. Album selection and memory reset by power off

level 2 | button 9

Album selection is possible by entering the disc number followed by 0 0 (track 0 0). All tracks on the CD are played, starting with the first track. An album is only selectable through coin insertion, if credits of the 4-th bonus level have been obtained or in free play modus (link in row GP from 0 to F on the SCC unit) of the jukebox.

Memory reset by power off allows to cancel remaining credits and selections by power off of the jukebox. This option prevents, that the jukebox starts to play preselected tracks from the day before. (The jukebox was switched off in the night, not playing all the selected tracks.)

1. Enter the service program by setting the service switch to ON position.
2. Press LT button at the SCC unit.

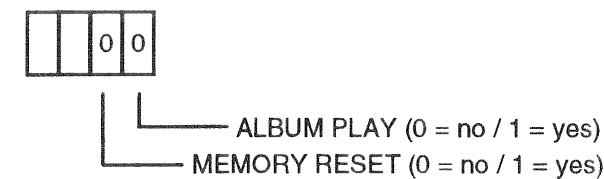
4. Faults by selection entry (credit system does work).

Symptoms	Cause	Possible faults
01. No selections; selection is displayed flashing	Selection is not accepted.	No credit available (Caution: after free play jumper setting LT button has to be pressed). The entered selection is bigger than the programmed number of CDs (service level 1, button 5). The selected CD is only released for BGM. (service level 3, button 8 programmed to xx01). The selected CD is disabled (service level 2, button 4).
02. No selections; numbers of actuated keys not displayed (only credit is shown)	Open circuits in the keyboard wiring.	Plug yellow displaced or not inserted deep enough. Key RESET permanently closed or shorted to ground (pole 12, brown, plug yellow). Computer defective.
03. No selections. In standby the LH digit of display shows a number, but selection keys are disabled. With insertion of further coins the new credit is displayed properly	Permanent selection signal from that key who's number is shown on the display.	Jammed key, permanently closed key contact. Wire of this shorted to ground. Computer defective (C60 - C70, D44-D66 possibility of ground shorting, IC 8, IC 9). Check with digital multimeter: plug yellow pin 2 to 12 approximately 5V DC, function check with test wire to ground.
04. No response from one key.	Open circuit with this key.	Malfunction of this key's contact. Insufficient key travel. Broken wire on this key. Plug yellow not seated good enough. Computer defective with an affected input circuit (R65 to 86, D45 to 65, IC 8, IC 9).
05. The CD played is not the one selected. The selection was properly displayed.	Improper counting of disc carrier's position.	Wrong adjustment of light control gates (ref. to chapt. 9 / 2). Illumination light affecting the Z light gate; reflections at the edges of carrier base plate. Record carrier latch delayed by mechanical friction or to widely opening (latching to late). Light control gate retarded (ref. to Chapt. 9 / 2).
06. After power up a track or more are played without a selection.	There are selections left in memory.	Credit and selection resetting after power down in service level 2 button 9 is not used.
07. The CD played is the one selected, however, not the selected track.	Selection does not correspond to the label. Laser control board defective.	The selected track number is higher then the number of tracks on CD. After reaching the highest CD number the laser control board starts to count at track one again.
08. The selected CD is not played, the CD carrier is rotating permanently.	Counting pulse "Z" or sensing pulse "K" missing.	Lamp of light gate dark. Breaks in harness to plug BLACK. SCC Computer defective (IC 10, C75 - C78, D92, D94 ref. to Chapt. 9 / 2C).

Symptoms	Cause	Possible faults
01. Coins rejected	Disabled slug rejecter. No power supply (electronic slug rejecter).	Dirt, oil or dust particle in the rejecter; rejecter maladjusted. Reject lever jammed holding the coin acceptor open. Rejecter or entire phonograph not level. Interruption in harness from SCC unit over slug rejecter interface to electronic slug rejecter. (Amplifier Si4 - Option socket pin 1 - Interface). Interface defective.
02. Single coins give wrong credits (or none at all).	Coin actuates the wrong coin switch. Coin impulse does not reach the computer. Electronic slug rejecter defective.	Slug rejecter not properly positioned, leads the coin to an improper switch paddle or by passing it. One line of the coin switches to Computer cable broken, disconnected at either end or wrongly set at computer connector. Electronic slug rejecter: switching transistor at the interface defective. Using MMS 111 rejecter: coins may be blocked by D.I.L. micro switches at the interface. Input of computer defective (IC2 - IC4; diodes: D14-D25; capacitors: C20 - C27).
03. Permanent credit, display shows 1 permanently, credit free selections.	Jumper is set from 0 to F in row GP (Free Play).	
04. Wrong credits, repetitive or all the time, with credits higher or lower of programmed pricing.	Programming mistake.	Jumper BR is not set, then reset to bonus level 1 (B1) if bonus level 4 is overstepped. Unintentional programming in "Happy Hour" programming level (service level 2 buttons 6 and 7). Programming jumper making poor contact (Note: modifications in reposition of jumpers are only efficient by switch off or pressing the LT button).
05. No credit, coins are properly accepted. Free Play, with GP-jumper 0-F still possible.	All coin input lines disabled. Credit inputs inactive (LED M does not light up). Checking of the single inputs (1, 2, 4, 5, T1, 10, 20) with a ground connected test wire.	30V AC does not reach the computer (from amplifier Si6 to CD mechanism to plug red pin 1 at the SCC unit). Computer defective (D7, LED M).
06. No credit although coins are registered (LED-M lights up). Even no free play credit with GP jumper set 0 to F.	Computer out of operation.	No 12V power supplied to the computer (pin 2 and 4 plug red), compare to chapter 2 / 5. Computer defective.
07. No credit, LED - M is lit permanently.	Permanent contact to ground of one or more coin inputs	Ground connection of several coin input leads (check by disconnecting the leads at the SCC coin inputs). Defective transistors at the electronically coin validator interface (if exists). Partially defective transistors may cause free credit. Function check with ground connections to the several coin inputs of the SCC unit.

3. Press selection button 4 - hold - and press selection button R (digital display is dark, level 2 is reached).

4. Press selection button 9 digital display shows for example:



By setting a '1' or a '0' to the correspond digit the options can be enabled or disabled. If album play is opted (right digit = 1), selecting a whole CD is possible. 'Memory Reset' is opted if the second digit from right side = 1.

5. To reprogram press selection button 9 - hold - and press selection button R. The digital display goes dark. Enter the new selected options with 2 digits.

6. To check: Press selection button 9 again.

7. To leave the service program set the slide switch 'SERVICE' to OFF and press button LT on the SCC unit.

N. Location or Identification number

level 1 button 9

An location or identification number of 8 figures can be programmed as a customer or individual machine number.

1. Enter the service program by setting the service switch to ON position.

2. Press LT button at the SCC unit.

3. Make shure that the griper arm is in basket position.

4. To program press selection button 9 hold down and press selection button R. Enter the identification number with 8 digits.

5. To check: Press selection button 9:

The digital display shows at first flashing :



Then the four highest digits will be displayed with 4 digits e.g.:



6. Press selection button 9 again.

The digital display shows at first flashing :



Then the four lower digits will be displayed with 4 digits e.g.:



7. To leave the service program set the slide switch 'SERVICE' to OFF and press button LT on the SCC unit.

V.II DATA RETRIEVAL

The data retrieval memory keep only datas, if the memory plug is always in the position ON on the r.h. side of the SCC unit.

1. Set service switch (located on the selection & credit computer inside the machine) to ON.
2. Press LT button also on the S&CC unit. Display counter shows 0 0.

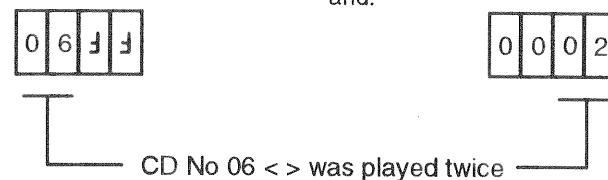
A. Retrieval of least popular discs (flops)

level 1 Taste 0

1. Press selection button 0 once.
At first, the first two digits on the display show the least played CD. The last two letters are simply a code confirming the least played status.
The display counter flashed alternately the disc number and then the number of plays. If the counter shows 0 0 0 0 on the alternate flash, this means the disc did not play at all. Press selection button 0 to continue the process for the second least played disc, and so on.

For example:

alternating:



2. To cancel the procedure press selection button R.

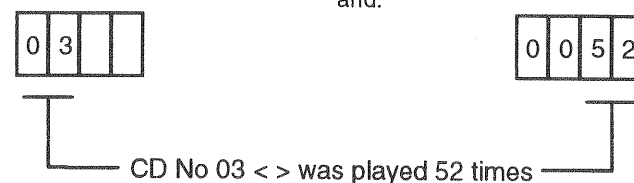
B. TOP DISCS

level 1 button 1

1. Press selection button 1 once.
The display counter flashes alternately the number of the most played CD and then the number of plays.
If more than 60 plays have occurred, only the number 60 will appear as the computer is set to display the maximum number of plays to be 60. The most played CDs will still appear in the descending order as selection button 1 is pressed but the number of plays in excess of 60 can not be reported.
Press selection button 1 to continue the process for the second most played CD, and so on.

For example:

alternating:



The most frequently played track will also be displayed as HIT OF THE HOUSE in common operation.

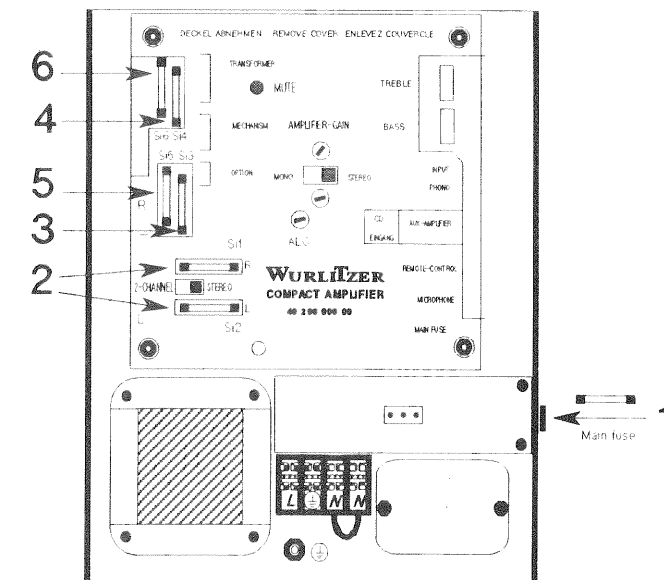


Fig. 37

Fuse	Failure
01. Main fuse T 3, 15 (Fig. 37, 1) At 110/117 V-supply F6,3 A.	No illumination, phonograph completely dead.
02. Fuses Si1 and Si2: Speaker fuses (Fig. 37, 2)	No sound on L.H. channel (Si1) or R.H. channel; the reason for a blown fuse here might be a shorted power transistor.
03. Fuse Si3: 30 V negative supply.(Fig. 37, 3).	Amplifier distorting on both channels, green LED 1 not lit. Griper arm is still moving. Digital display shows a flashing 8 on the RH digit.
04. Fuse Si4: 30 V positive supply (Fig. 37, 4).	Amplifier silent. Gear motor not working. After power on disc carrier moves on and stops, relais M3 picks up, after this no further function.
05. Fuse Si5: 12 V positive supply (Fig. 37, 5).	SCC unit dead - digital display dark (except red LED M still lightning up on coin insertion).
06. Fuse Si6: 30V AC supply (Fig. 37, 6).	Disc carrier motor KM not working power supply for CD-Control unit (one digit display dark) and CD player interrupted. Break in credit circuit (LED M). After power on carrier latch solenoid picks up, digital display shows 0000 and then no further function.

3. Faults with the coin system. The Phonograph, however, operates normally with free credit established with the jumper in the column GP at SCC unit (0-F).

The function of the coin system can be checked by observing the LED-light "M" on the computer, which should light up with every coin accepted. Credits can also be given with the credit button on the interface of the electronic slug rejecter. If a mechanical slug rejecter is installed, then with the credit button next to the slug rejecter.

XIV. TROUBLE SHOOTING CHART

1. Failures with the illumination, display and power system generally

Symptoms	Cause	Possible faults
01. No light, jukebox not working at all.	No power at wall socket; open primary circuit.	Wall socket defective. Main fuse blown. Fuse Si1 blown (ref. to chapter 2). Internal break in line cord or plug. Line switch off or defective..
02. Illumination does not light. Phonograph works otherwise.	Defective lamp circuit (ref. to chapter 9 / 1).	Lamp's circuit plug not in light socket at amplifier. Lamp not properly seated in holder. Defective starter, defective lamp.
03. Bubble tubes do not work, colour tubes do not rotate, lamp 24V does not light.	Defective 24V circuit.	Power supply leads from transformer to distribution interface interrupted. Fuses on interface (1A/M) defective. Caution: Short circuit in harness of heating resistors possible.
04. Digital display remains dark , jukebox works otherwise.	Signal supply leads to display interrupted.	14-pole D.I.L. plug not set or wrong way 'round (right: flat cable is coming from LH side, orange below).
05. Digital display shows non-sense figures; jukebox works otherwise.	Signal lines interchanged.	14-pole D.I.L. plug displaced (not in line with the base). Computer defective, e.g. IC 7.
06. Digital display shows incomplete figures (missing segment). The fault is the same with all four digits.	Signal for one (or some) segments missing.	One pin (or some) of 14-pole plug broken off. One wire (or some) of flat cable broken. Broken connection at display PC-board. Computer defective, e.g. IC 7.
07. Digital display shows incomplete figures (missing segment). The fault, however, occurs with one (or to three) of the four digits only.	Segment signal does not reach this digit.	Cracked connection on display PC-board. Defective display unit (4 identical one-digit units).
08. One of the digits of display completely off .	Multiplex signal missing.	Defective D.I.L. plug or broken wire. (A1, A2, A3, A4). Display or computer defective (T23 - T26).

2. Fuses. Which one controls what circuit?

Trouble with failures of fuses.

Usually the machines are fitted with fuses of DIN 41571 (5x20 mm) slow blow. Slow blow fuses of DIN standard bear the letter T (T = "Träge"), hence T 3,15 is the proper type to be used. All fuses in the amplifier are rated T 3,15 250V. The open holders of the L.T. fuses are capable to hold either 5x20 mm fuses of DIN 41571 standard or fuses of 6x30 mm size. Fast and medium blow fuses are unsuitable for the machine.

Only exception are countries with 110/117 V supply where a fast blow fuse of 6,3 Amps (F 6,3 of 6x30 mm size) is used for the primary mains fuse.

Remark: During programs 0 or 1, the display can remain dark for some time or only one digit is on. During this time, the calculations take place.

- To cancel the procedure press selection button R.

C. Cash box contents

level 1 button 2

- Press selection button 2 once.
Digital display shows the cash box contents in basic units; basic units being the value of the lowest value coin
- To cancel the procedure press selection button R.

D. Total number of plays

Level 1 button 3

- Press selection button 3 once.
Display shows the total number of plays since last reset (maximum 9999)
- To cancel the procedure press selection button R.

E. CLEAR ALL counters (reset to 0 0 0 0)

level 1 button 3 + Reset

- Press selection button 3 - hold - and press selection button R (reset).
The counters of least popular disc
most popular disc
cash box and
total plays
are cleared and reset to 0 0 0 0.
- To leave the service program, first set service switch to OFF and then press LT button.

The sequence of top discs is for the time being 01, 02, 03, 04 etc.
After exit from the service program the disc carrier starts to rotate to initialise the SCC unit. The digital display shows in its left two digits alternating a '0'. When the '0' position of the carrier is found the capture of carrier positions can be watched in the right two digits.

F. Memory of not playable CDs

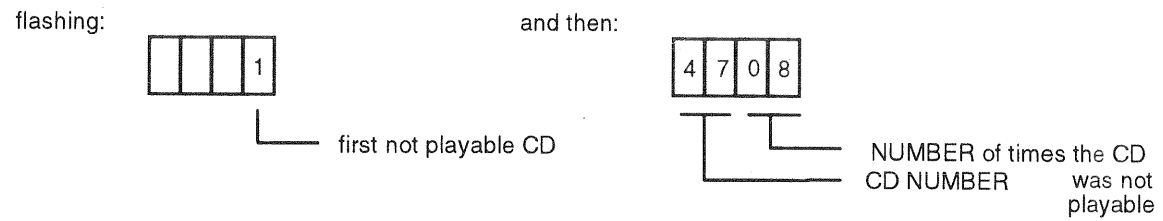
level 1 button 6

Careful handling of the CDs does not exclude fully that CDs may be damaged in different ways. Possibly the player would interrupt this CD at each selection. The SCC-provides a watch dog function which finds and memorises this difficult playable discs.

Up to six not playable CDs can be memorised. Once a CD is registered every new try will be counted. So it is possible to find out bad discs and change these for new ones.

- Make shure that griper arm is in carrier position.

- Press selection button 6 the display shows e.g.:



- Press selection button 6 to display the next not playable CD etc. After displaying the 6th not playable CD and pressing selection button six the display restarts with the first one again.
- To CLEAR this memory press selection button 6 - hold - and press selection button R.

G. Statistic print-outs

level 1 button 2 + Reset

For Data retrieval a printer can be connected to a receptacle located in a wire loom underneath the S&CC unit.

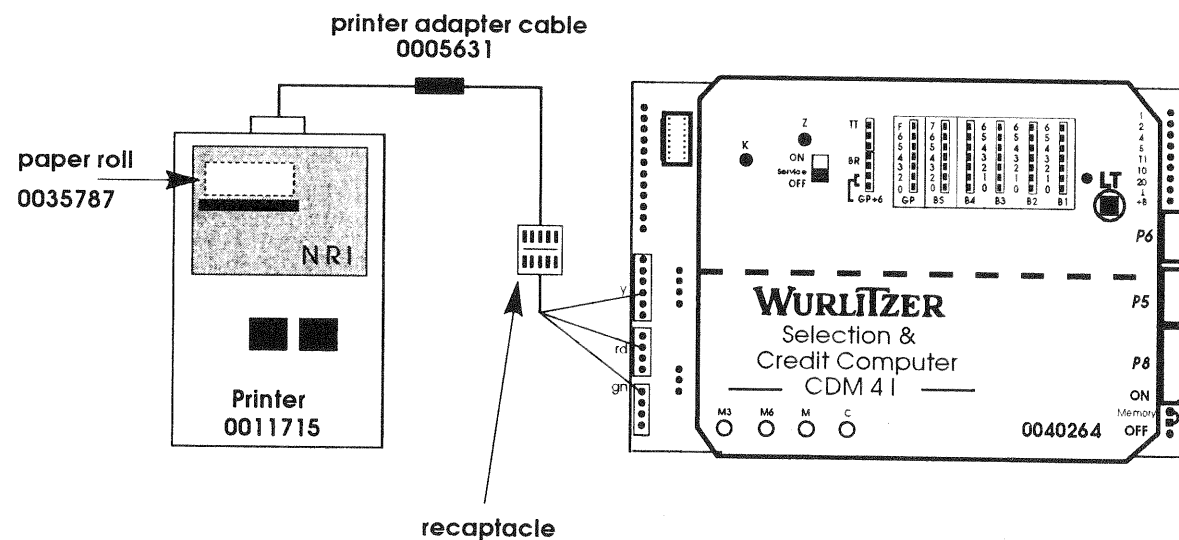
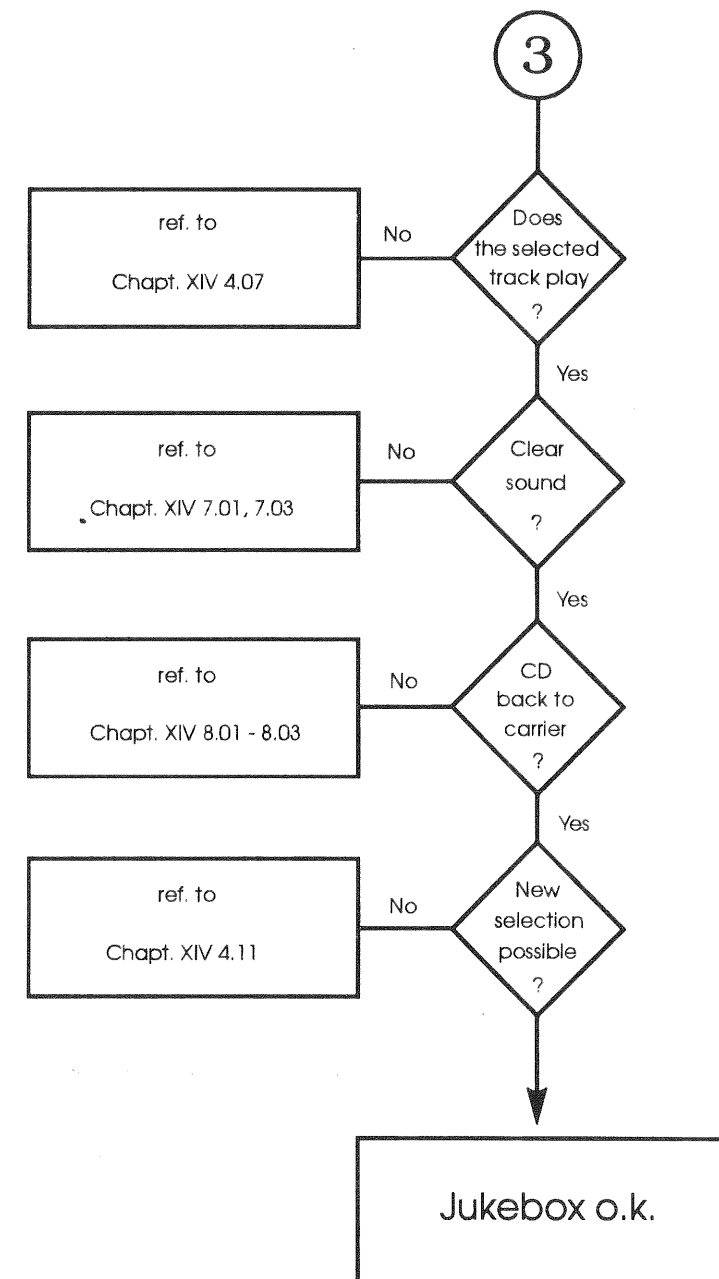
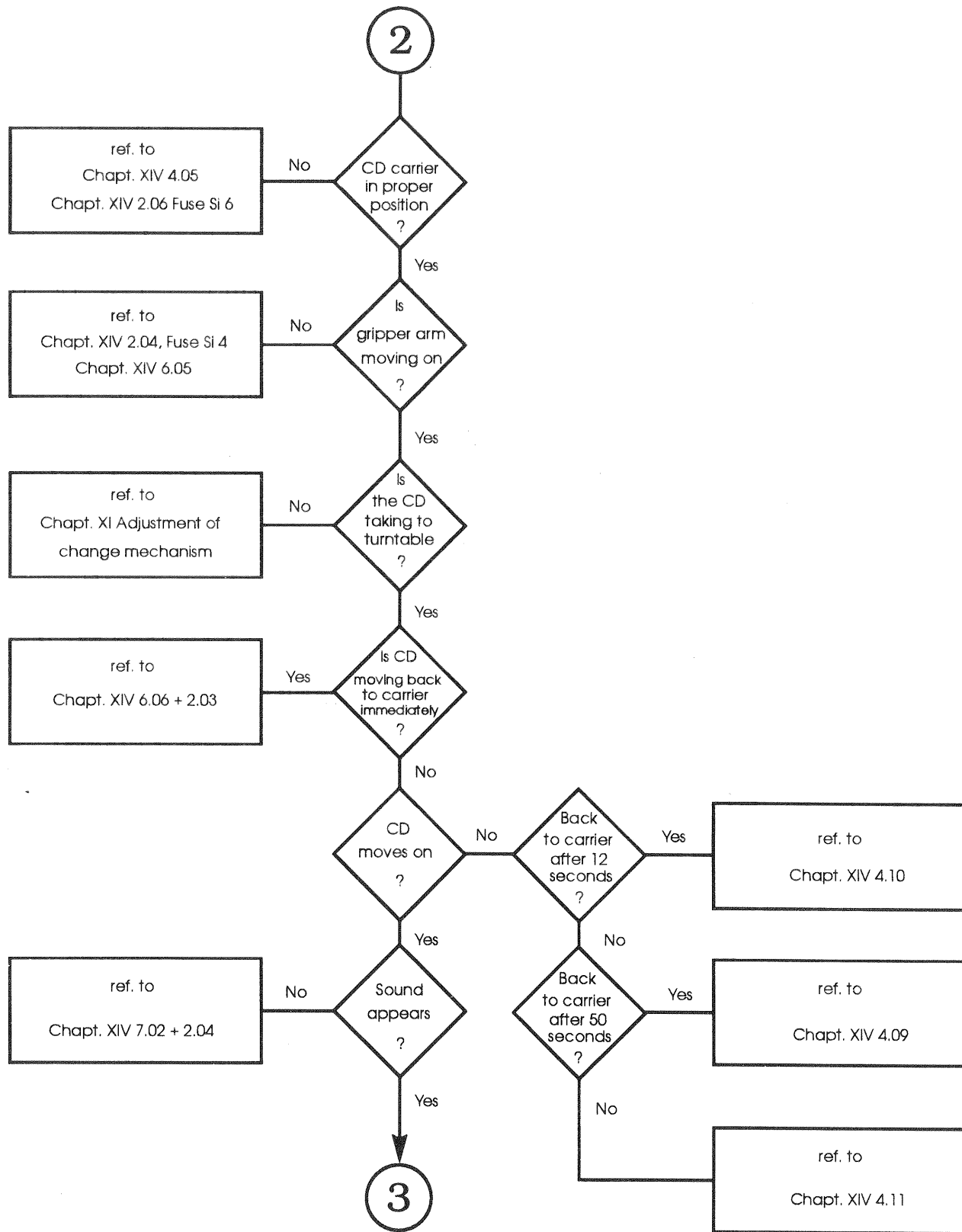


Fig. 23

To start print-out:

- Set service switch (located on the selection & credit computer inside the machine) to ON.
- Press LT button also on the S&CC unit. Display counter shows 0 0.
- Connect printer (Part No. 0011715) via printer adapter cable (Part No. 0005631) with receptacle underneath the S&CC unit.
- Press selection button 2 - hold - and press button R, the print-out starts.





The following information will be reported:

=====

WURLITZER
COMPACT-DISC
JUKE-BOX
S+C-COMPUTER

=====

PREV. DATE:
22.12.92
09:11
ACTUAL DATE:
09:14
PRINT: 0001
IDENT:
00000000

Date and time of the previous print out

Date and time of current print out

No. of print out

Identification number (service level 1, selection button 9)

--SETTINGS--

=====

CDBOX: 03.03
BOX TYPE:100
BONUS-1 : +1
BONUS-2 : +1
BONUS-3 : +1
BONUS-4 : +2
BONUS-STEP:5
CREDITSTEP:2
BONUS- RESET
DISCS : 36
MINUTES : 01

Program version number

Carrier type (50 / 100)

Jumper setting
on the SCC unit

Programmed number of CDs in carrier (service level 1, selection button 5).
Programmed repeat time for Playstimulator.

-STATISTICS-

=====

CASH : 0401
PLAYS : 0132
TOTAL:000401
CHECK: 2272

Total income in basic units since last Reset.

Total plays since last Reset.

Total income, not resettable.

Safety number.

-TOP-DISCS--

=====

CD :01 =0017
CD :12 =0008
CD :30 =0007
CD :10 =0006
CD :20 =0005
CD :00 =0000
:
CD :50 =0000
:
CD :99 =0000

Shows all discs in carrier (max.100);

and the number of plays.

Top disc is shown at first, least popular disc or
non played discs are shown as least.

V.III FUNCTION TESTS

Following checks can be done in service level 1, therefore set service switch (located on the selection & credit computer inside the machine) to ON and press LT button also on the S&CC unit. Display counter shows 0 0.

A. Digital display test / EPROM-Version

level 1 button 4

1. Press selection button 4 once.
All segments count 0 to 9 are displayed, then the program version number (EPROM No). For example 03.00 or higher.
2. To cancel the procedure press selection button R.

B. Disc carrier control check

level 1 button 8

1. Press selection button 8. Relay M 3 on the S&CC unit pulls in and disc carrier turns provided the gripper arm is in carrier position. Carrier turns as long as selection button 8 is hold down.

C. Griper arm motor check

level 1 button 7

1. Press selection button 7. Relay M operates and a disc under the griper arm position will be transferred to the CD player. If selection button 7 is pressed during play, the disc is returned after one second into the carrier.



IMPORTANT: The griper arm moves only if the gear switch ("Griper Motor") is in position ON.

D. CD Player check

level 1 button 6

1. Press selection button 7 to place a CD onto turntable.
2. Press selection button 6, the CD will start to play beginning with the first track:

Display shows at first:

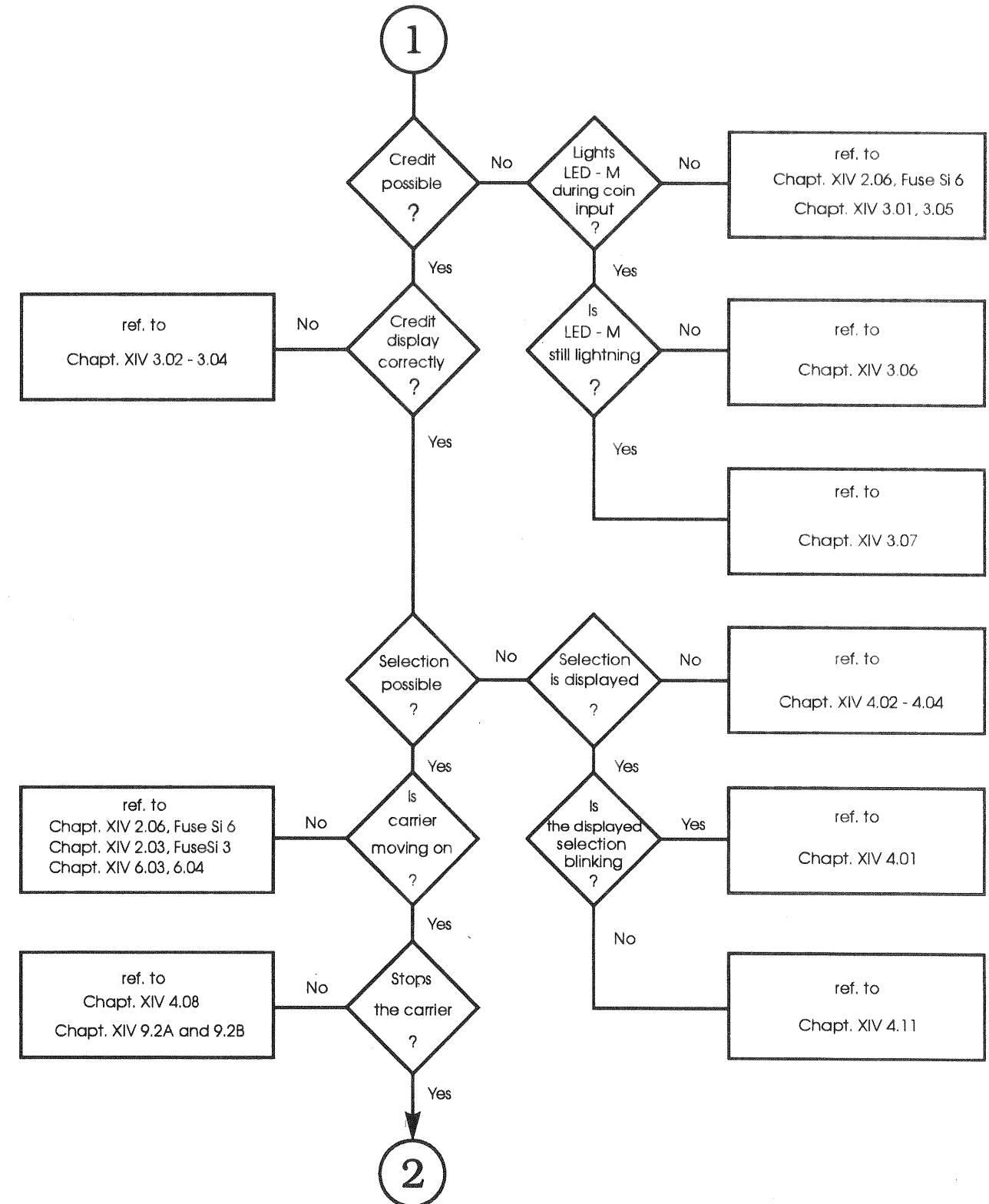
0 1

TRACK number

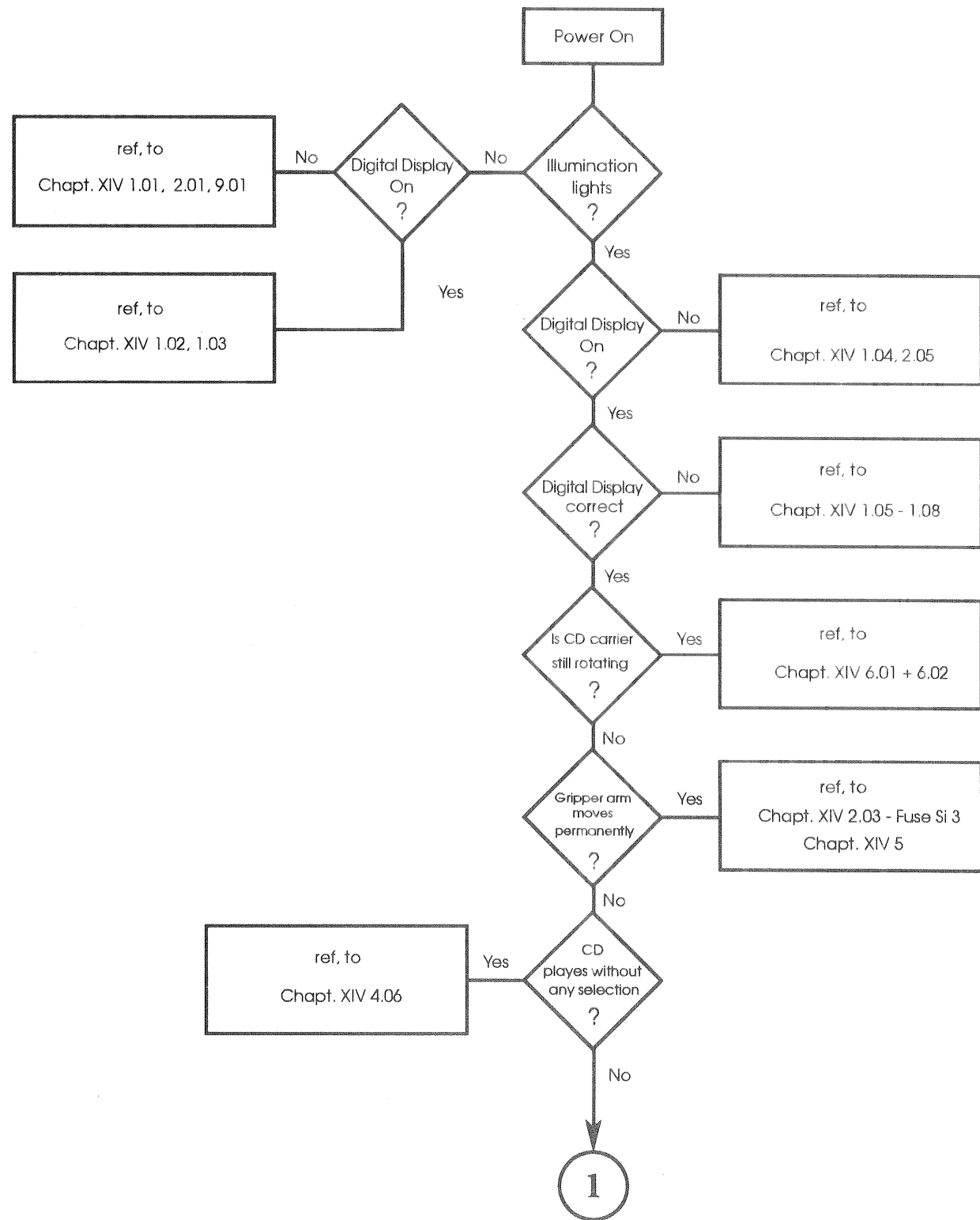
than the current play time in sec. (e.g. 8 sec)

0 0 0 8

PLAY TIME of the actual track



XIII. TROUBLE SHOOTING DIAGRAM



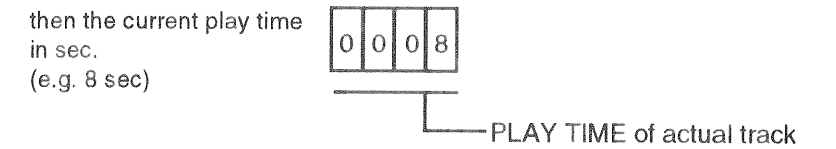
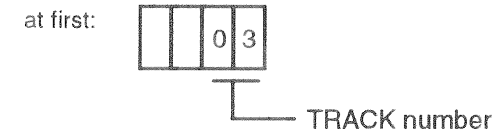
E. Jump to NEXT track

level 1 button 0

1. Press selection button 7 to place a CD on the turntable.
2. Press selection button 0 (several times).

The CD starts and the track number according to the number of key actuation will be played. Only this track will be played.

The digital display shows e.g.:



If selection button 0 is pressed again once the next track will be played or if selection button 6 is pressed the remaining tracks of the CD will be played.

F. Jump to PREVIOUS track

level 1 button 9

1. Press selection button 7 to place a CD on the turntable.
2. Press selection button 0 (several times).
3. Press selection button 9, the player jumps to the previous track with each actuation, reaching track 1 this track will continuously be played.

If button 6 is pressed in between after this the remaining tracks of the CD will be played.

If track 1 is reached this track continuously will be played.

G. STOP playing

level 1 button 5

1. Press button 5.
CD play will be interrupted, the display shows:



To terminate all the tests to normal operation:
Set slide switch 'SERVICE' on the S&CC unit to OFF.
Press 'LT' button also on the S&CC unit.

IX. DESCRIPTION OF S&CC PRICE SETTING

Statement: At the right hand side of the SCC-unit are the so-called coin inputs designated by the numbers 1,2,...,10,20. These inputs are used to set a monetary value to the "basic unit" the computer uses to figure credits. If no bonus jumpers are inserted and input 1 is shorted to ground by a coin validator the SCC gives one credit. This corresponds to a basic unit and will be called as one input pulse in the following description. In the most applications one input pulse agrees with the lowest coin value. The terminals 2 to 20 give corresponding to its number 2 to 20 input pulses per coin insertion.

If no jumpers are inserted each input pulse switches the SCC unit to the next bonus step B1 - B4. This is first of all without result because no jumpers are set in the columns B1 to B4.
If there are jumpers set in B1 to B4 additional credits will be given corresponding to the reached bonus step and the jumper setting in this step.

Example: B1 is set from 0 to 3: By reaching the first bonus step (after one input pulse) one basic credit is given + 3 credits from the bonus step B1 = 4 credits will be displayed

If the same jumper is set in B2 and the next input pulse reaches the SCC unit, it will switch into the next bonus step B2 and the credits given before the basic credit from the input pulse and the three credits from B2 will be added $4 + 1 + 3 = 8$ credits This repeats until B4 is reached.

If the jumper BR is set the SCC unit it will stay in step B4 until the next selection is made. At each input pulse the basic credit of this pulse and the bonus credits from step B4 will be given. If BR is not set the SCC will jump back to step B1 when B4 is overflowed.

A jumper in BS causes the computer steps not at each input pulse to a new bonus step but moreover when two or up to seven input pulses have reached it. I.e. if a jumper in BS is set from 0 to 4 the bonus step B1 will first be reached after 4 input pulses. B2 will be reached after the next 4 pulses.

A jumper in GP means that the computer will not give at each input pulse a basic credit, but will only give a basic credit after the programmed number of credits in GP.

Example: GP: 0 -> 4 = 4 Input pulses give one credit.

This complicated system is needed to enable the machine to deal with as small a coin as a nickel and to be able to interface with foreign coin systems.

The table below gives an example for the following jumper setting:

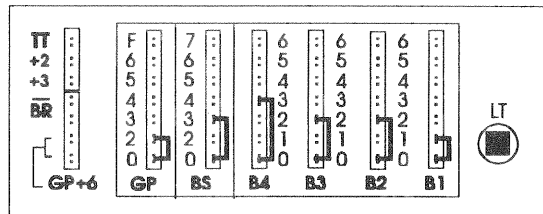


Fig. 24

BR = Bonus Reset

BS = Bonus-Step

GP = Basic Price

pulse	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
credits GP	-	1	-	1	-	1	-	1	-	1	-
bonus step			B1			B2			B3		
credits BS			1			2			2		
sum	-	1	2	3	3	6	6	7	9	10	10

pulse	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.
credits GP	1	-	1	-	1	-	1	-	1	-	1
bonus step	B4			B1			B2			B3	
credits BS	3			1			2			2	
sum	14	14	15	16	17	17	20	20	21	23	24

MODE 7: Lens moves up and down. Player tries to focus.

CD on turntable, if CD controller and player work properly:

- Lens moves up and down once.
Focus point will be found.
(Ready line Pin 36 - servo microprocessor switches to 'High' after 0,5 sec)

If system does not work properly:

- Lens moves up and down continuously.
(Ready line Pin 36 - servo microprocessor remain to 'Low')

TM, T2: Access to mode 8.

T3: Access to previous mode 6.

MODE 8: Turntable motor is switched on.

CD on turntable, if CD controller and player work properly:

- CD speed will be slower when laser arm is moved outside by hand.
(SSM line Pin 11 - servo microprocessor switches from 'High' to 'Low')

If system does not work properly:

- CD moves with only one speed independently of the laser arm position or motor does not rotate.

TM, T2: Access to mode 9.

T3: Access to previous mode 7.

MODE 9: Track leading test

CD on turntable, if CD controller and player work properly:

- The arm follows a track, radial movement can be seen, no sound.
(Ready line Pin 36 - servo microprocessor switches to 'High' if track was found)

If system does not work properly:

- Laser arm jumps to the outside and stays there.
(Ready line Pin 36 - servo microprocessor remain to 'Low')

TM, T2: Takes to mode 0 (quit the test mode).

T3: Access to previous mode 8.

C. Quit the test mode

1. Step into mode 0 by using button T2.
2. Switch gear switch (Fig. 36) to ON (Griper arm takes the CD back to carrier).

D. Leave the service program

1. Switch slide switch 'SERVICE' on S&CC unit to OFF.
2. Press LT-button on S&CC unit.

MODE 3: T2: PAUSE ON. Check of the serial link from direction of SCC unit to CD controller. If the link operates, then after a short dropout the sound resumes again. If the data link is interrupted the player will stay in this mode until T3 is pressed.

T3: PAUSE OFF.

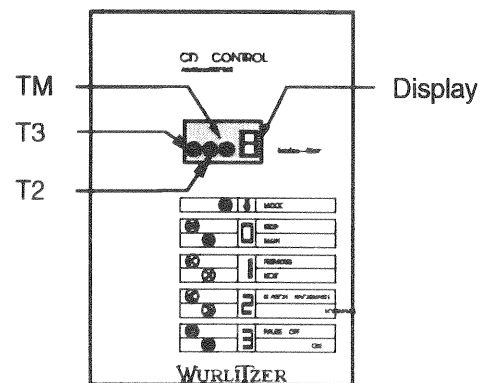


Fig. 35

B. Detailed player check

A separately installed test program allows the check of single CD player functions. Initialize as follows:

1. Place a CD onto the turntable in the service program using selection button 7. (ref. to chapt. VIII / B, page 28).
2. Set gear switch (Fig. 36, Pos. 1) to OFF position.
3. Switch main power OFF.

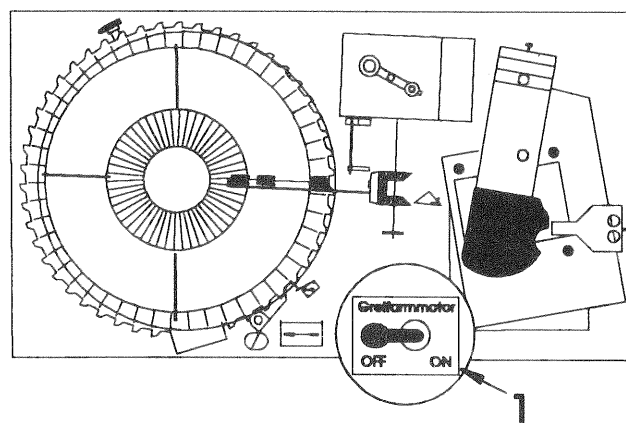


Fig. 36

4. Press and hold button TM (Fig. 35, Pos. 2).
5. Switch main power to ON.

At the CD controller display appears the figure "6". Player and CD controller are in the mode 6.

MODE 6: Laser light is switched on.

TM, T2: Access to mode 7.
T3: No function.

X. FUNCTIONAL DESCRIPTION

Abbreviation:

CD control: control unit for CD player consisting of:

- CD transformer
- CDM4 SC control board
- Laser control board
- Interface to CD player

CD transformer: Insulating transformer with primary 30V/secondary 10V AC, 9V AC, 2x 16V AC for laser control board.

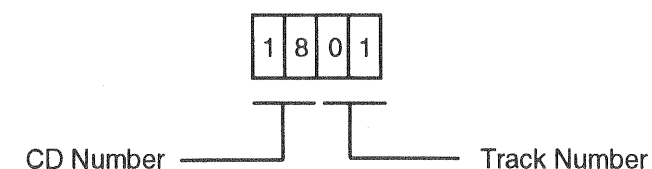
CDM4 SC Control Board: (Compact Disc Mechanic 4 Serial Controller)

The CDM4 SC is controlled by the SCC and commands the operating sequence of the CD player. All commands are verified and carried out by the on-board micro processor. CDM4 SC also supplies the voltages for laser control board.

Laser control board: Control board and interface for CD player. This assembly is controlled by a serial data connection, the easy-line bus. Supply voltages are also provided through this bus.

FUNCTIONAL DESCRIPTION MECHANISM (Fig. 26)

1. **Power supply**
Power is supplied from the amplifier over plug "mechanism" to the mechanism chassis. The disc carrier latch magnet M3 is connected to -30V DC. The griper motor MM is operated from +30V DC and the disc carrier motor KM from 30V AC.
2. **SCC supply**
Looped over the mechanism chassis the SCC unit is supplied from the amplifier with 30V AC and 12V DC over plug red. 12V DC are protected over fuse Si5 and the 30V AC are protected over fuse Si6 on the amplifier board.
3. **CD - Control supply**
The CD control unit with CDM4 SC board, laser control board and connected CD player are supplied through the CD transformer. The CD transformer is supplied with 30V AC. A PTC resistor with 0,93 A trip point protects this circuit. Secondary supply is 10V AC (for the digital part of the CDM4 SC) and 3x 16/9V for the supply of the laser control board. All voltages are rectified and stabilised on the CDM4 SC. The power supply for the digital part CDM4 SC is isolated from the other circuitry. The CD control is connected through a serial data link from the SCC plug ST5 to the CDM4 SC board running the "DW - Protokoll - CD". The CDM4 SC board is connected with the laser control board (OSDA - board) via opto-couplers over the easy line bus ST3. ST3 also connects the operating voltages for the laser control board. The easy-line bus operates serial with TTL level. An additional reset line for the laser control board is also provided. The laser control board and the player chassis is isolated from normal ground.
4. **Digital display**
The digital display consists of four 7-segments digits multiplexed from the SCC. The 2 LH digits show the CD and the 2 RH digits the title, e.g. CD No 18, Track 01 => 1801.



5. Number of plays and cash counter

The SCC unit acknowledges coin insertion by indicating the number of selectable plays and a series of relais impulses (relais C). The plays are established depend from the setting of the bonus jumpers in the rows B1 to B4 on the SCC unit. A mechanical counter connected to plug green pin 3 (connects to ground) and +30V registers the coins inserted in basic units. The mechanical counter is optional.

6. Selection and disc carrier

After a valid selection the SCC operates M3 relais, connecting plug blue pin 4 to ground. M3 disc carrier latch magnet pulls in and starts carrier motor KM over microswitch m3. The disc carrier turns into the selected position.

7. Start/Counting process

The disc carrier is provided with tooth slots at each disc compartment. By means of a light gate in front of the carrier the exact slot position is controlled. The tooth slots of each compartment are registered through the SCC and visible through the flashing Z-LED when the carrier rotates. Just before passing the 01 position the K-LED will flash indicating disc 1. Slot 01 is found by passing of a special bracket mounted underneath the carrier base plate. The teeth (Z-LED) are counted after the K - pulse has been send.

8. Disc transfer

If the desired disc has reached the griper arm position, M3 is de-energised and the disc carrier stops. To transfer the disc the SCC starts the griper motor MM through plug blue pin 2 from relais M. At the same time a "Reset" command is transferred to the CD control unit which resets the CDM4 SC control board and the laser control board. The griper arm now transfers the disc to the player. The relay M is active for 1,5 sec. During this time the gear motor has turned and K6 (slide contact on the gear box contact disc) switches the motor into self holding position. After the disc is placed onto the turntable and held through the magnetic clamp arm, K1 opens, ground is disconnected from gear motor MM and it stops. K6 is closed.

9. Mute off

The amplifier is now activated from the open K1 through the mute or cancel line grey over plug mechanism. D1 prevents continuous mute from the SCC.

10. Play

During the 6 sec. lasting CD transfer operation the SCC sends the selection information to the CDM4 SC which is carried out by the laser control board. The CD starts after approx. 2 sec. The audio frequency signal is connected through the RCA jacks to the amplifier input AUX.

At the end of each track the CD control is switched to pause mode. This is transferred through the communication line to the SCC which recognises this condition which then causes a stop-title-command. The CD stops.

11. Cancel

3 sec. after start of a play a track can be interrupted with the cancel button.

The SCC recognises this through plug green pin 1. Diode 2 in the mechanism chassis prevents restart of the griper motor by pulling the input to ground. Otherwise the griper mechanism would pull the CD from the still turning player. The control immediately sends a stop command through the "DW-Protokoll-CD" to the CDM4 SC for stopping the CD. A serial acknowledgement informs the SCC.

12. Disc return

The mechanism MM is being activated from the SCC for 1,5 sec.

The gear box contact disc brings K6 into self-latching (K1 is closed = ground). When K6 reaches the insulated gap the griper motor MM stops. The griper arm returns the disc. K7 and K8 are closed again. K7 reports through circuit M3 with -30V DC, wire plug blue pin 4 (relais M3 open). T22 in the SCC "disc in carrier". K8 is closed, a new disc search is now possible.

13. New selection

If another selection has been registered in the SCC the sequence is repeated from the beginning.



IMPORTANT: The pressure arm should not be in collision with the griper arm in the change sequence. There should be enough clearance between both parts in the moving action.

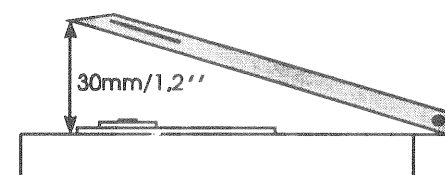


Fig. 33

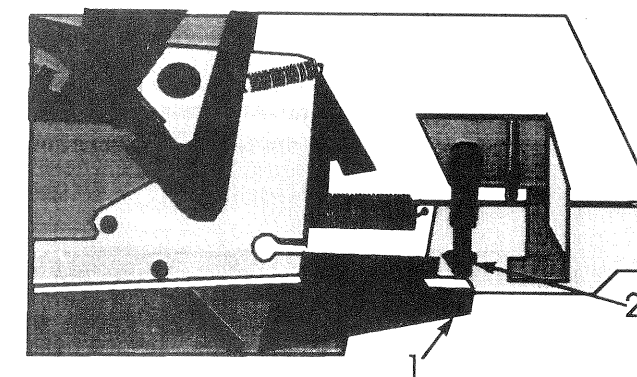


Fig. 34

XII. TEST OF CD CONTROL AND PLAYER

A. General player test

For troubleshooting it may be necessary to test player and CD control independently from the SCC unit. With this test the serial link connection (cable) function between the SCC unit (plug P5) and the CDM4 Serial Control (CDM4 SC, plug ST4) can be checked.

1. Switch the jukebox into the service program (slide switch on SCC unit to ON, then press LT-button) and place a CD onto turntable by using selection button 7.
2. In this mode on the display of the CD control (Fig. 35) a "0" appears.
3. By pressing the button TM (Fig. 35) different modes explained below are selectable. The buttons T2 and T3 (Fig. 35, Pos. 3 und 4) have different functions in each mode.

MODE 0: T2: Starts a CD playing with sound (START). Check the serial link in direction to SCC unit. If a CD has been on the turntable in the service program, the serial link works correctly, the digital display shows at first the track number 01, then a play time. After end of track 01 a 02 appears at the digital display but no further tracks will be played. If the serial link is interrupted the whole CD will be played.

T3: Stops CD playing (STOP).

MODE 1: T2: Selection of the next track (NEXT). Automatical start of the CD player in case CD does not turn before. When reaching the last track, this track will be played permanently. In the service program the track and time will be displayed on the digital display.

T3: Selection of previous track (PREVIOUS).

MODE 2: T2: SEARCH FORWARD.

T3: SEARCH BACKWARD.

- After adjustment tighten screws and secure.

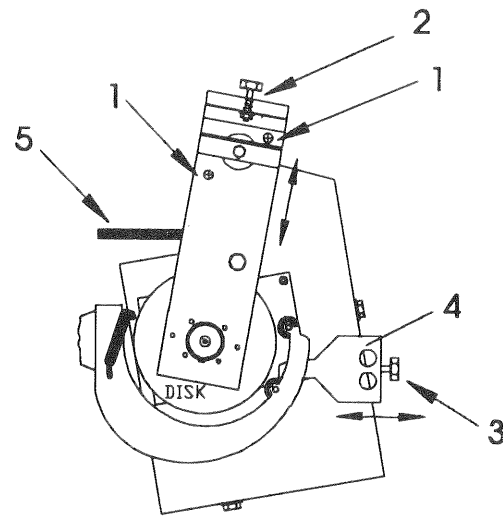


Fig. 31
Adjustment of griperarm stopper bracket

- After adjustment the surface of the CD must be approx. 0 - 0,5 mm below the top of the player hub.
- Clearance between CD and turntable bearing surface should be 1 mm (Fig. 32).
- In this position there should be a clearance between the bottom side of the rollers and the CD player chassis of approx. 1 - 1,5 mm.
- Adjustment by bending the end of the stopper bracket (Fig. 31, Pos. 4).



IMPORTANT: The griper arm must not touch the player chassis! If the griper arm touches the player chassis a ground loop results. This causes a hum in the speakers.

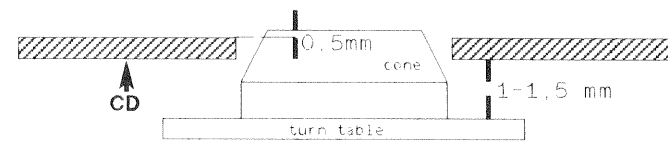


Fig. 32

F. Clearance of CD to griper arm rollers in play position

- Place a CD on the player and interrupt with gear motor switch in play position.
- The clearance between roller and record clamp should be equal on both sides, each distance should be approx. 5 - 10 mm.
- Centre with screws of butt strap on connecting rod through the excess holes of player chassis (Fig. 31, Pos. 5).
- Note that between the main chassis and the player chassis should be a clearance of approx. 0,5 mm.

G. Adjusting height of pressure arm in rest position

- In rest position the pressure lid is slightly up (griper arm is in basket position). The opening in this position should be 1,2 inch (30 mm; Fig. 33) To control this remove first the black plastic cover of the pressure arm. Adjustment can be effected by the adjustment screw on the lift bracket, ensuring the lock nut is retightened afterwards (Fig. 29, Pos. 2).
- Bring griper arm in play position. Shaft below the chassis (Fig.33, Pos. 1) must have a clearance of approx. 0.2mm to the left lever (Fig.33, Pos. 2). If under this value correct by re-adjusting the screw on the lift bracket.

Fig. 25: Principal Schematic CDM4 I-SC Connections

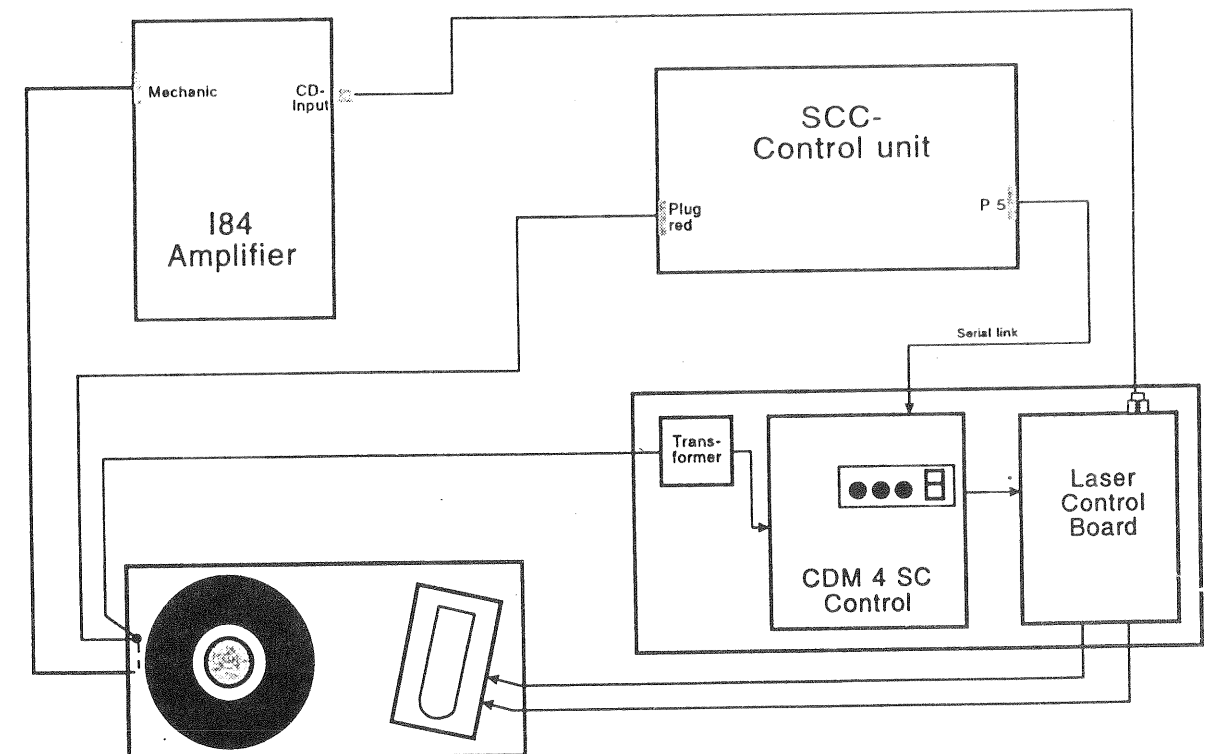
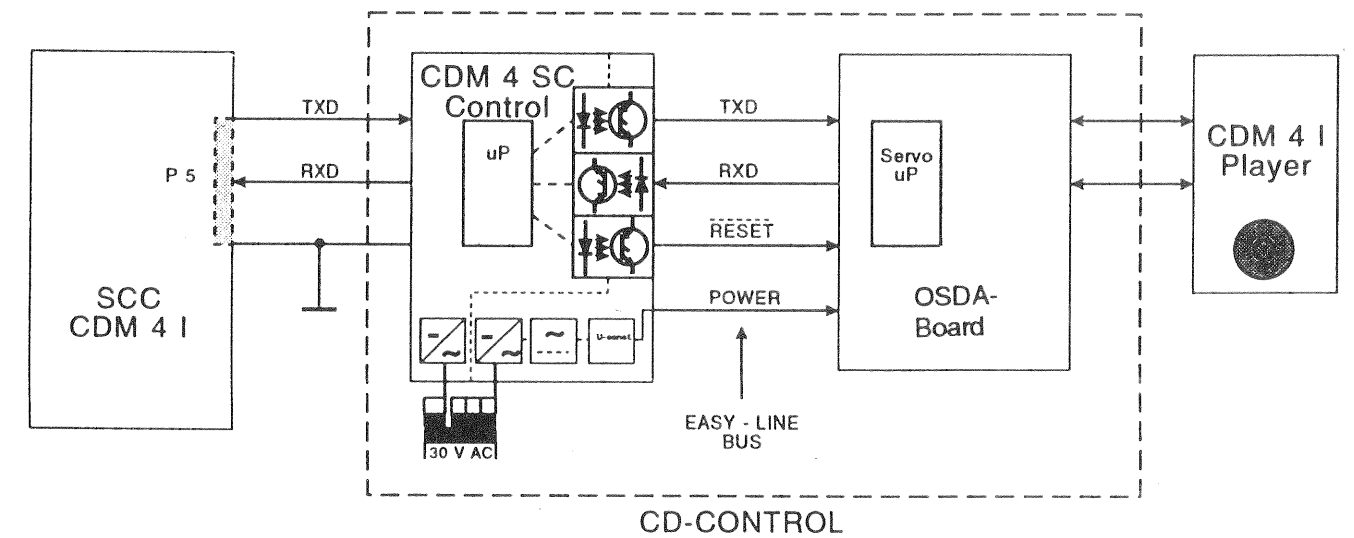


Fig. 26: Principal Schematic CDM4 I

XI. ADJUSTMENT OF CHANGE MECHANISM

For mechanical adjustment the following parts can be ordered ex-factory:

Control disc 119 mm Ø	Part-no. 0028962
Control disc 121 mm Ø	Part-no. 0028956

A. Note

For easier adjustment it is recommended to go into the service program, push button 7 and interrupt the supply to the griper motor in the desired position by using the gear motor switch on the chassis (Fig. 27, Pos. 1). At general adjustment procedures a programming wire link can be inserted in plug blue from pin 1 (green wire) to pin 2 (blue wire), repeatedly pressing button 7 is not applicable any more.

B. Adjustment of griper arm in carrier position

- Insert four CD's in a 90° position around the carrier. Turn carrier and stop until a CD is under the griper arm. The CD should be in line with the grooves (Fig. 27, Pos. 2) of the griper arm rollers and the disc clamp.
- Adjustment can be carried out by loosening the both hex screws at the middle cone wheel (Fig. 27, Pos. 3) or by slightly bending the end of the griper arm (Fig. 27, Pos. 4). Control the adjustment with the other CDs in the carrier. If there is a difference adjust to average.
- At all 4 positions the distance between the outside of the CD and the griper arm rollers should not be less than 1 mm (Fig. 28).
- Check with the control disc of 121 mm Ø or take a CD with the highest diameter. This disc should not touch the rollers of the griper arm in any position.

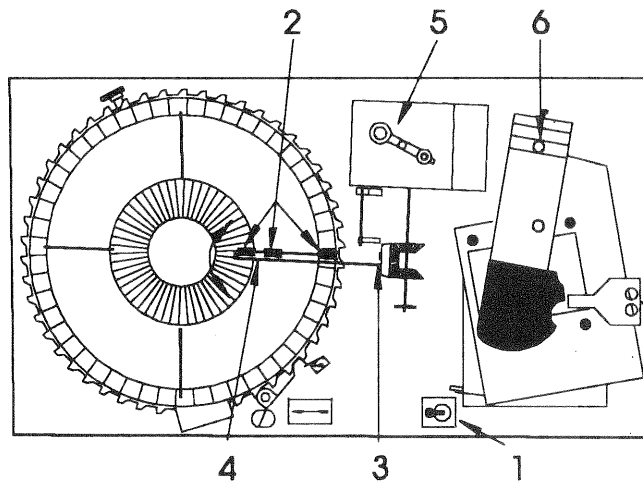


Fig. 27

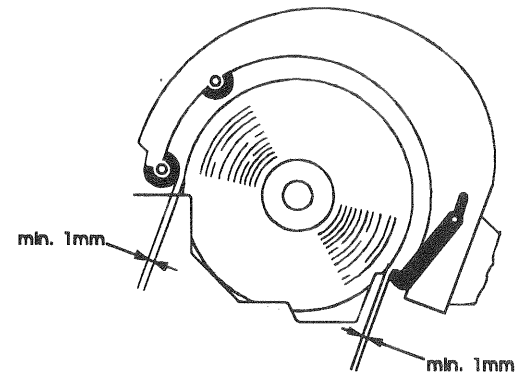


Fig. 28

C. Adjustment of pressure arm to CD player unit

- Loose the four Philips head screws on the laser chassis (do not remove it, Fig. 29, Pos. 1).
- Remove black plastic cover from pressure arm (Fig. 29, Pos. 2).
- Set griper arm in play position, stop gear motor when the pressure lid is on the player.
- Remove magnetic centring disc and place a CD on the player.
- The inner circle of the CD should be concentric with the hole of the magnetic pressure disc (Fig. 29, Pos. 3).

- Adjust if necessary on the RH side of the chassis with the hex screw (LH/RH direction, Fig. 29, Pos. 4) and with the hex screw in front of the player chassis (back/front direction, Fig. 29, Pos. 5).
- The tool on the top of the gear box can be used for adjustment (Fig. 27, Pos. 5).
- If necessary loosen the adjustment screws and move the player in the opposite direction by hand.
- After adjustment slacken the four Philips head screws again and check the adjustment.
- Secure all loosened screws with glyptal.
- Insert again the magnetic centring disc and the black cover.

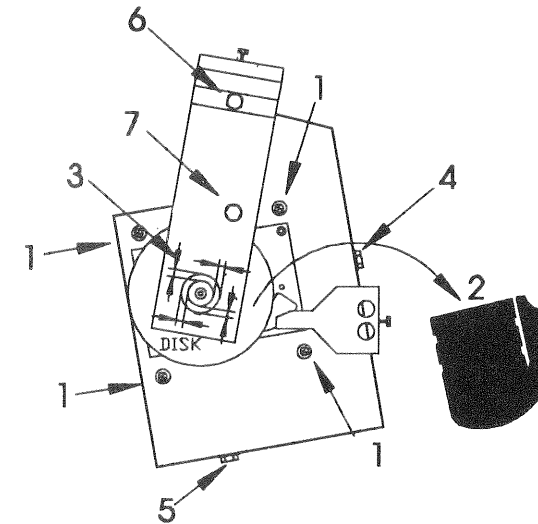


Fig. 29

D. Adjustment of pressure arm height

- Griper arm should be in play position.
- Place a CD on the player.
- The distance between the top side of the pressure arm to the bottom border of the magnetic pressure disc should be 1,5 mm (Fig. 30).
- Adjust with the hex screw to the middle of the pressure arm (Fig. 29, Pos. 7).
- In play position the magnetic pressure disc should run freely and should not touch the plastic cover at any point (Fig. 30).

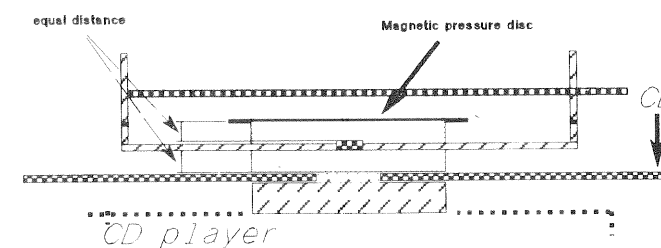
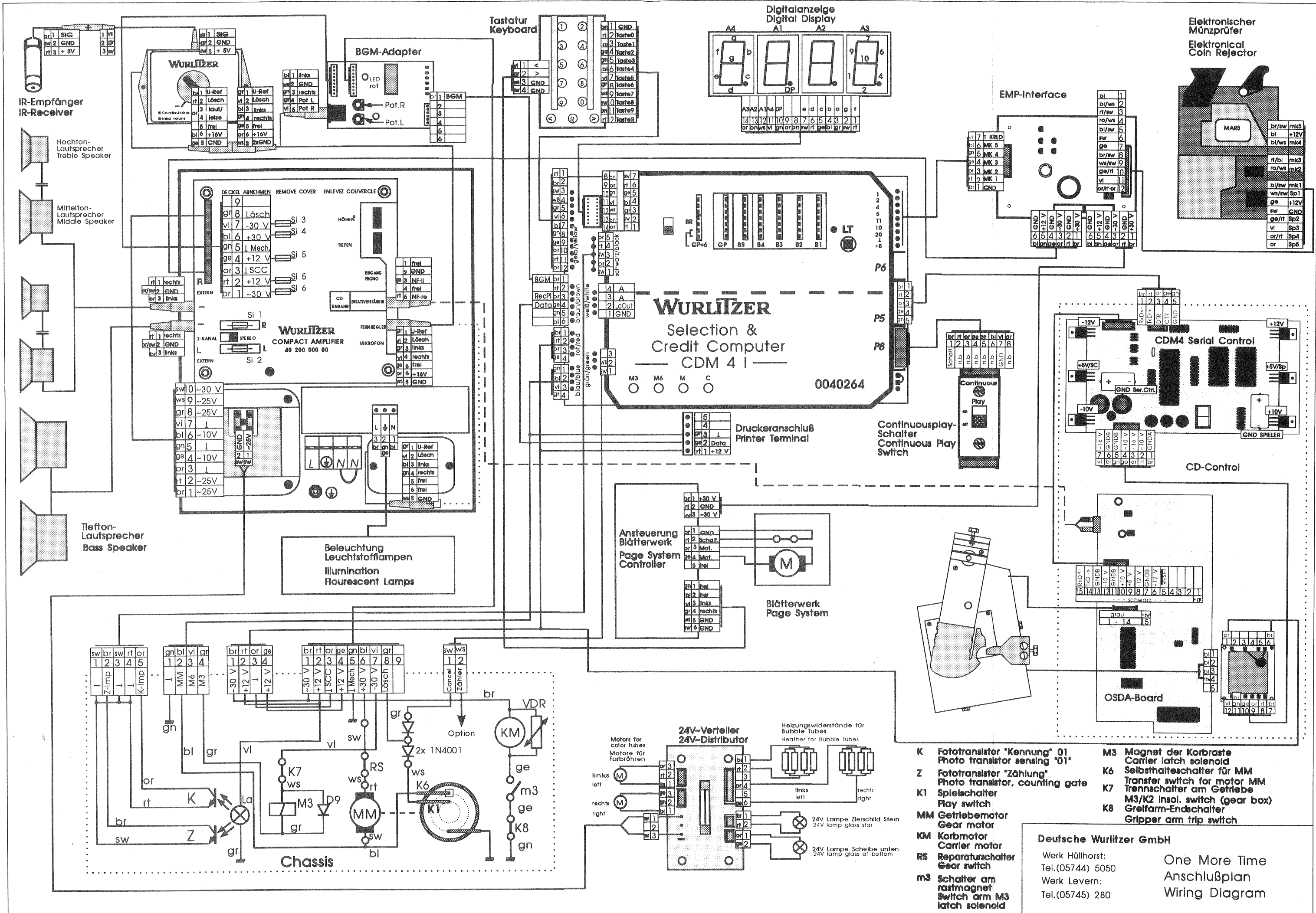


Fig. 30

E. Position of CD of griper arm relative to CD player chassis

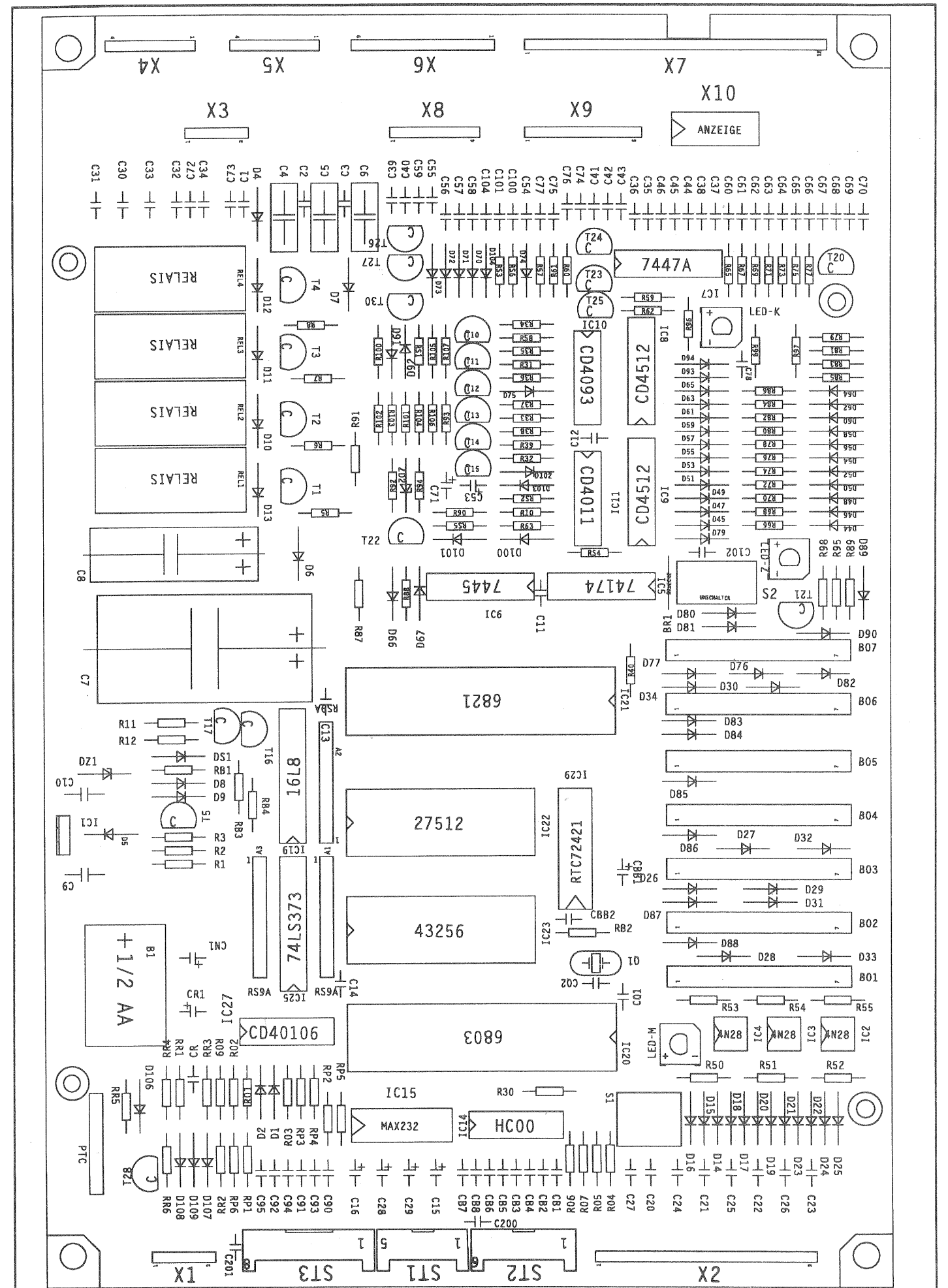
- Select a CD with 119 mm Ø and interrupt griper motor with switch as soon as the griper arm hits the stopper.
- Center hole of the CD must be concentric with turntable player hub.
- For adjustment use the tool provided on top of the gear box.
- For left/right adjustment turn the screw on the griper stop bracket (Fig. 31, Pos. 1).
- For front/back adjustment loosen first the 2 screws at the pressure arm (hinge point, Fig. 31, Pos. 2) and adjust with hex screw at the back of the player chassis (Fig. 31, Pos. 3).



- K** Fototransistor "Kennung" 01
Photo transistor sensing "01"
- Z** Fototransistor "Zählung"
Photo transistor, counting gate
- K1** Spielschalter
Play switch
- MM** Getriebemotor
Gear motor
- KM** Korbmotor
Carrier motor
- RS** Reparaturschalter
Gear switch
- m3** Schalter am rastmagnet
Switch arm M3 latch solenoid
- M3** Magnet der Korbraste
Carrier latch solenoid
- K6** Selbsthalteschalter für MM
Transfer switch for motor MM
- K7** Trennschalter am Getriebe
M3/K2 Insol. switch (gear box)
- K8** Greifarm-Endschalter
Gripper arm trip switch

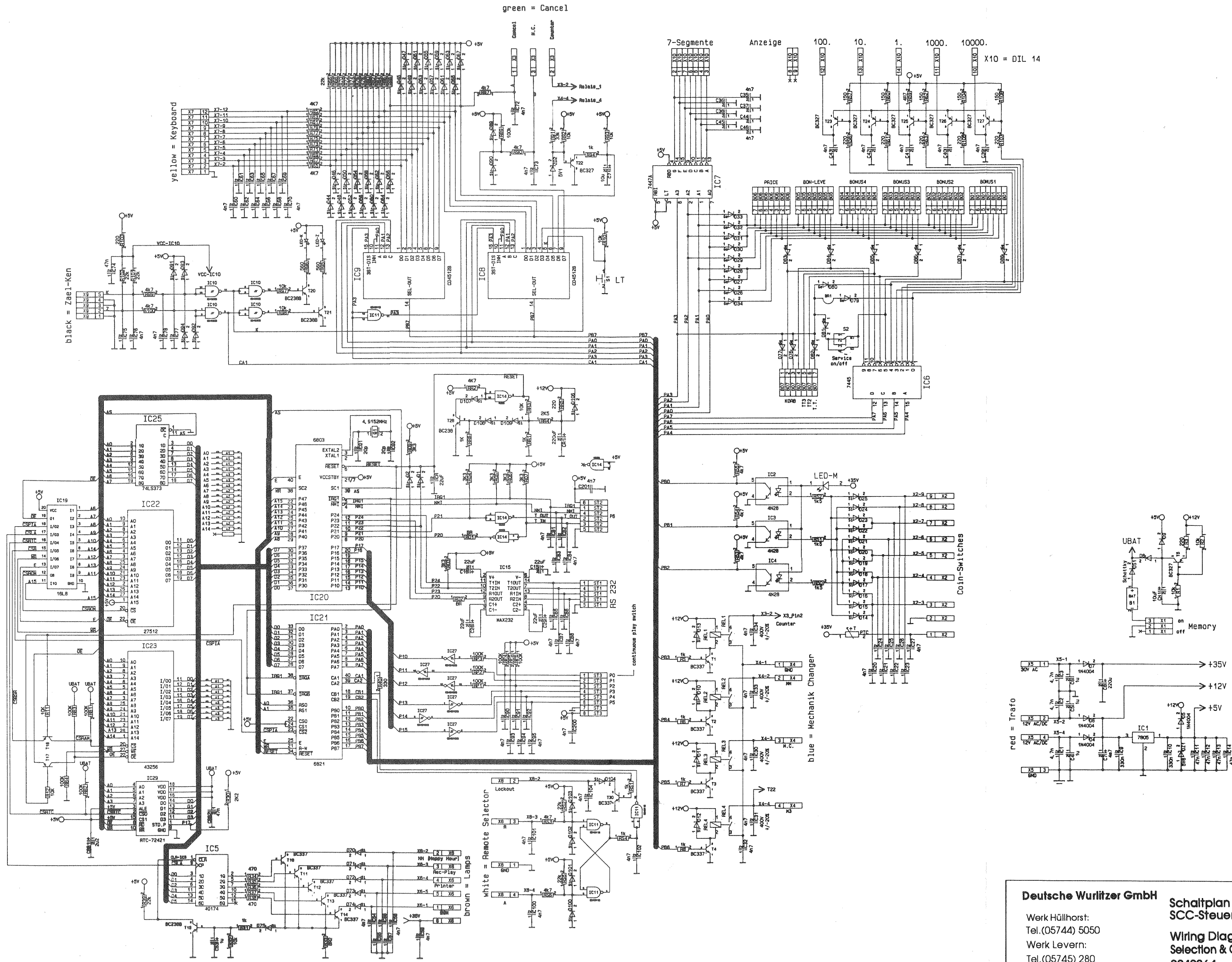
Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel.(05744) 5050
 Werk Levern:
 Tel.(05745) 280

One More Time
 Anschlußplan
 Wiring Diagram



Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel. (05744) 5050
 Werk Levern:
 Tel. (05745) 280

Bestückungsplan
SCC-Steuerung
Board Layout
SCC-Unit CDM 41
0040264



black = Zael-Ken

yellow = Keyboard

green = Cancel

white = Remote Selector

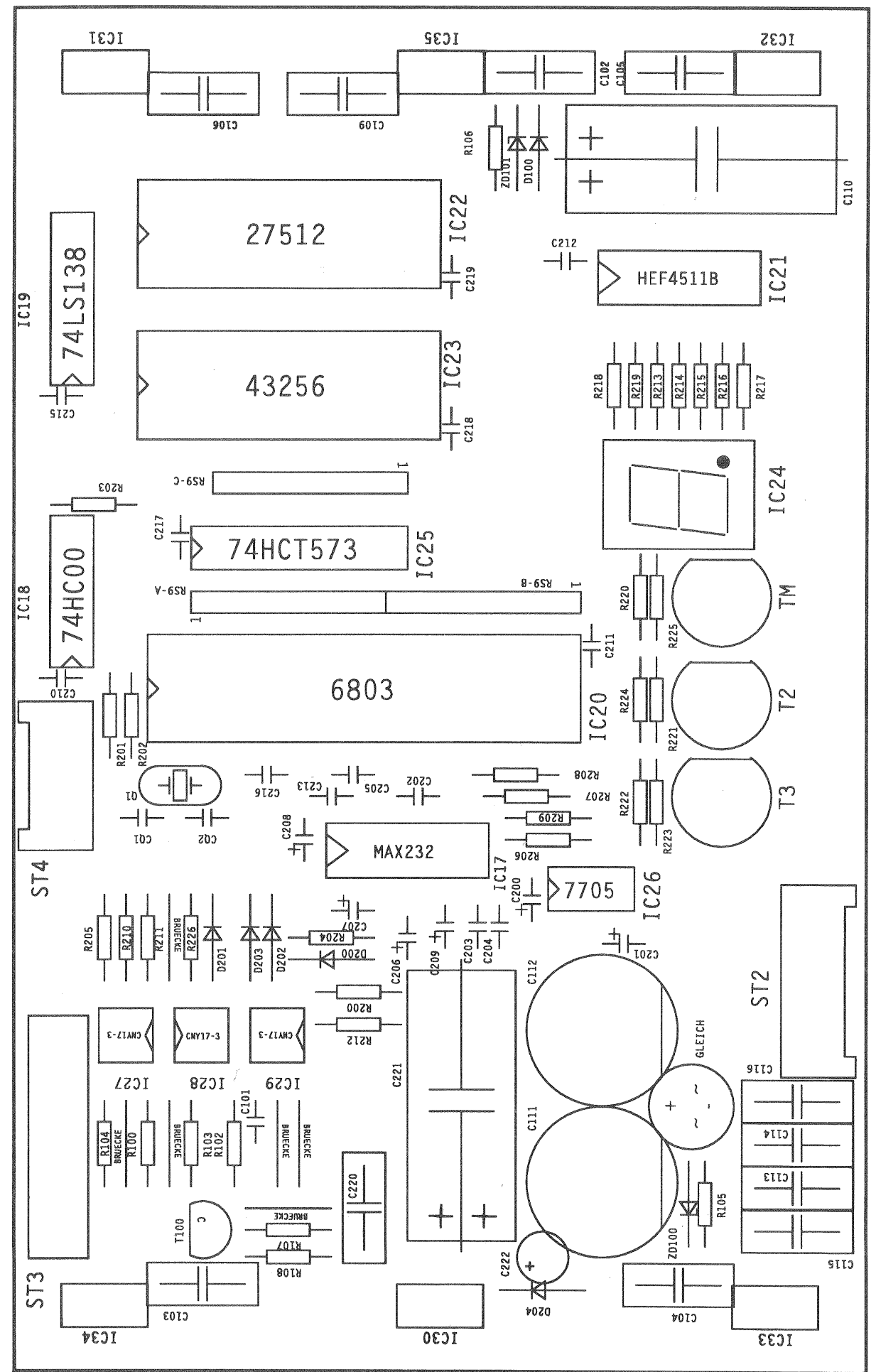
brown = Lamps

7-Segmente Anzeige
100. 10. 1. 1000. 10000.
X10 = DIL 14

blue = Mechanik Changer

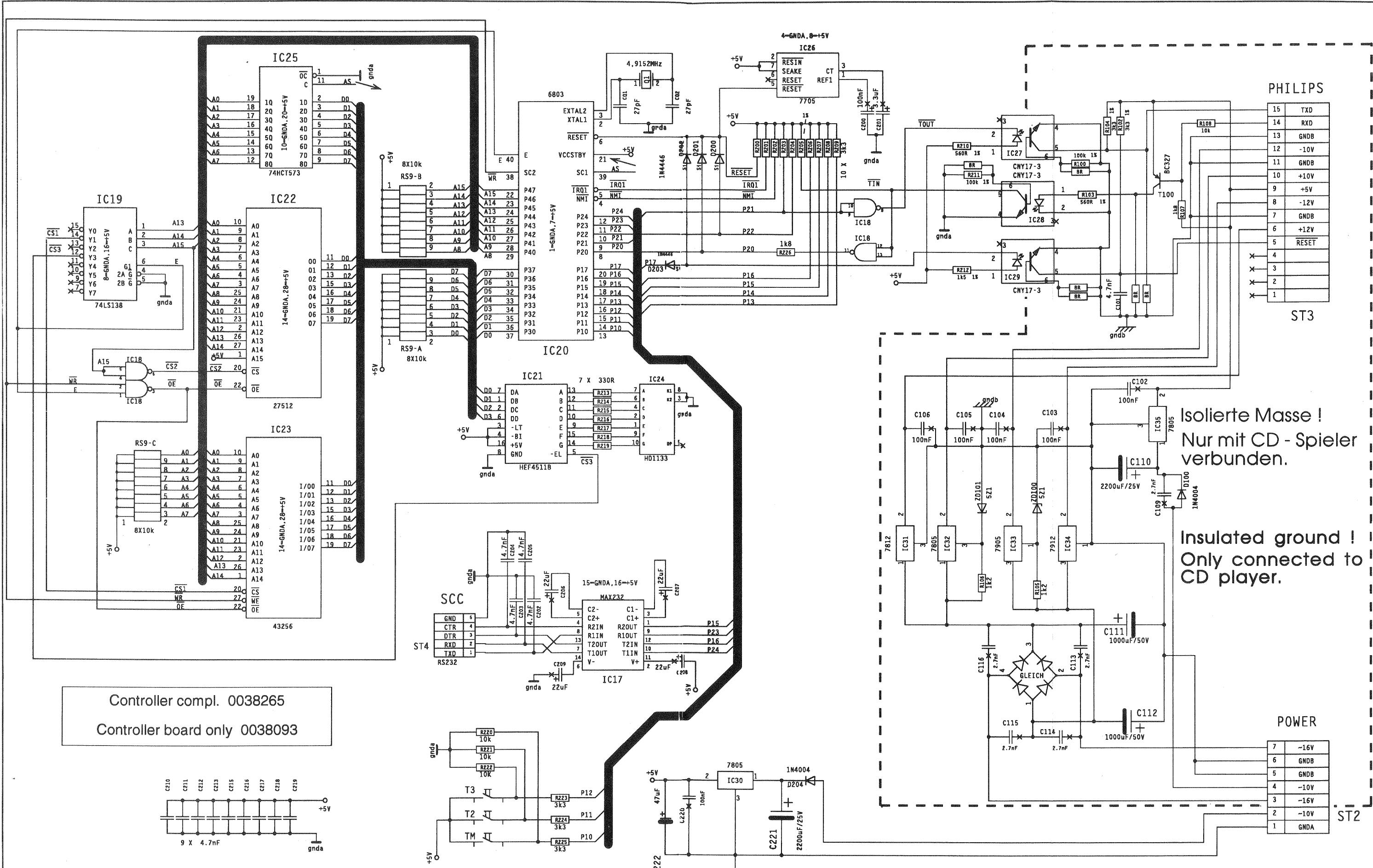
Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel.(05744) 5050
 Werk Levern:
 Tel.(05745) 280

Schaltplan
 SCC-Steuerung
 Wiring Diagram
 Selection & Credit Computer
 0040264

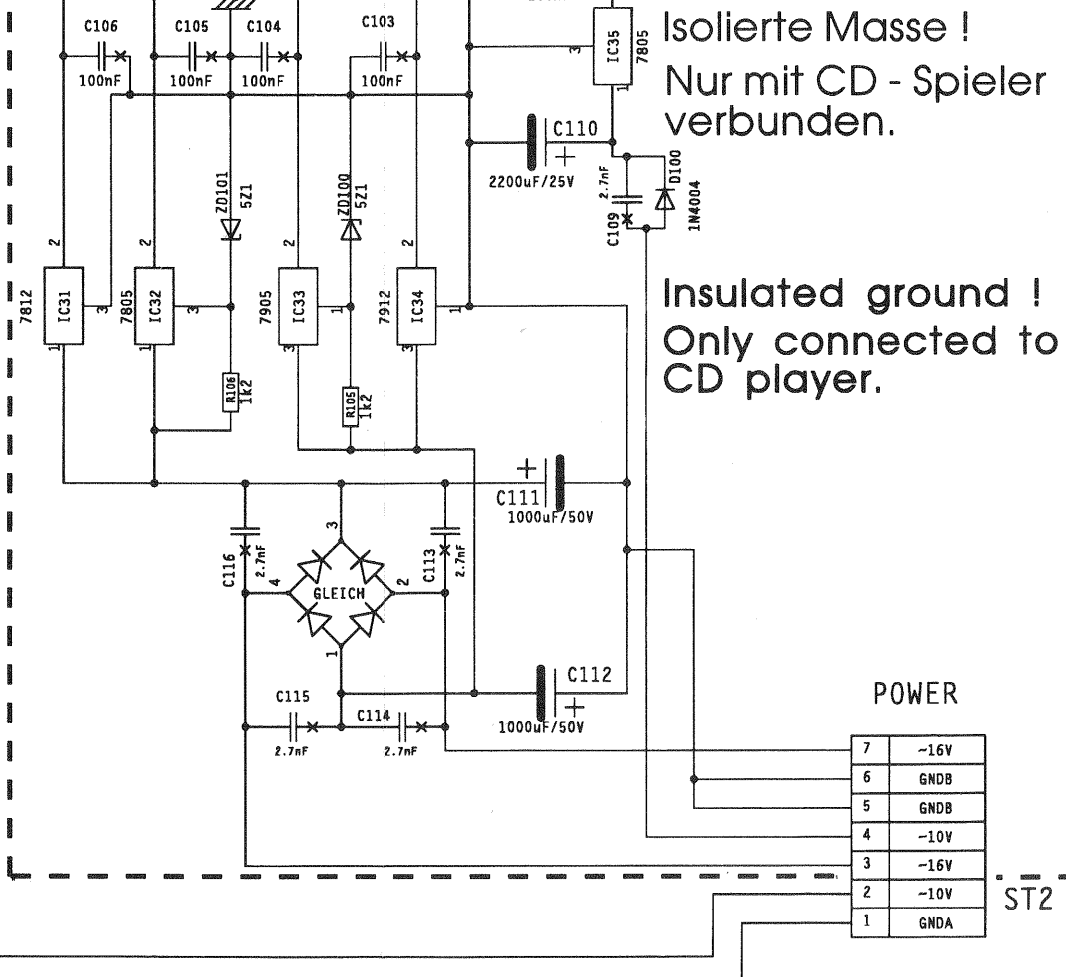
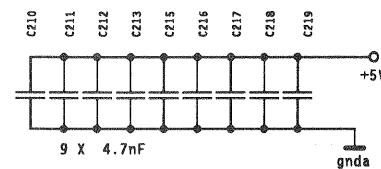


Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel. (05744) 5050
 Werk Levern:
 Tel. (05745) 280

Bestückungsplan
CDM4 SC-Steuerung
Board Layout
CDM4 Serial Controller
0038093



Controller compl. 0038265
 Controller board only 0038093



Isolierte Masse!
 Nur mit CD-Spieler
 verbunden.

Insulated ground!
 Only connected to
 CD player.

PHILIPS

15	TXD
14	RXD
13	GNDB
12	-10V
11	GNDB
10	+10V
9	+5V
8	-12V
7	GNDB
6	+12V
5	RESET
4	X
3	X
2	X
1	X

ST3

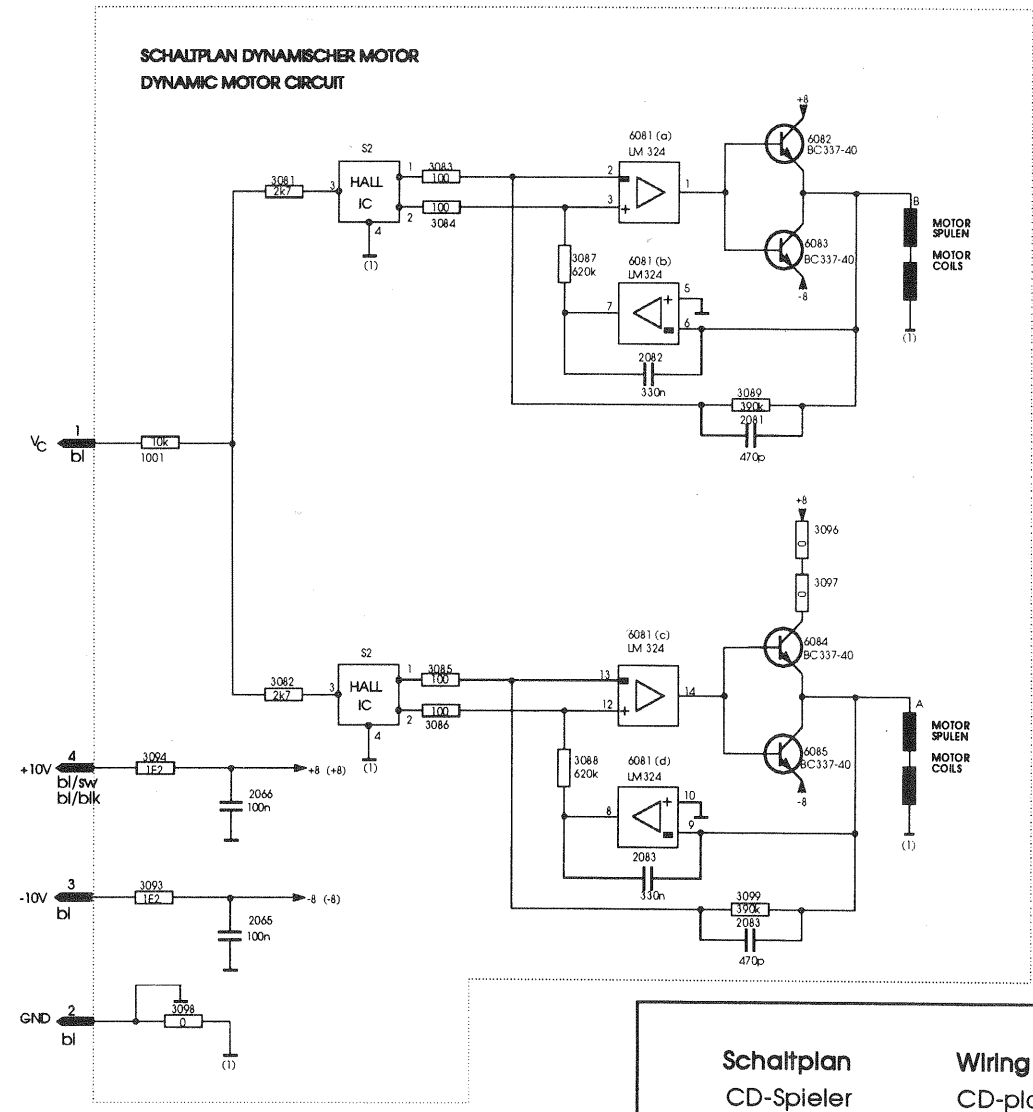
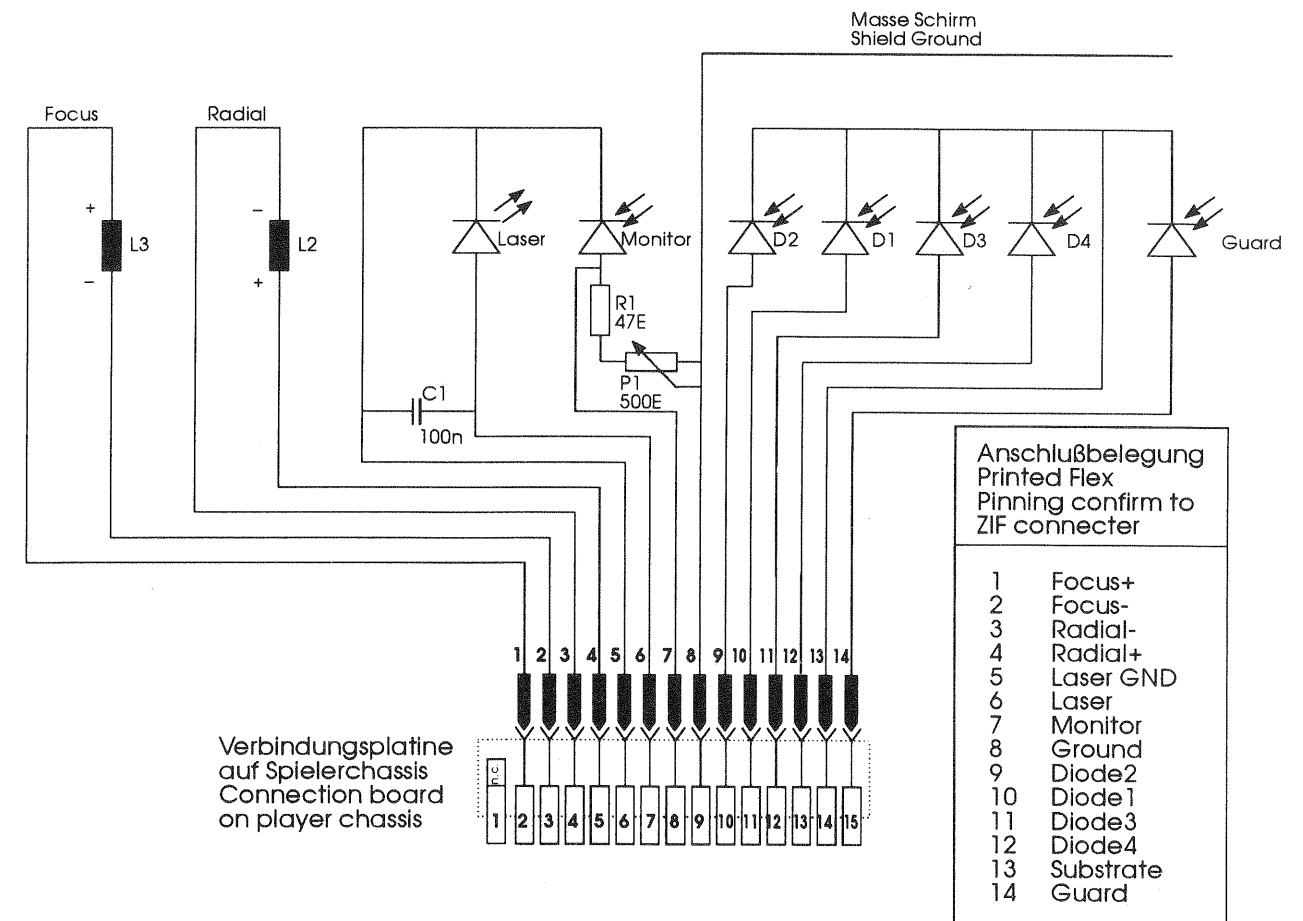
POWER

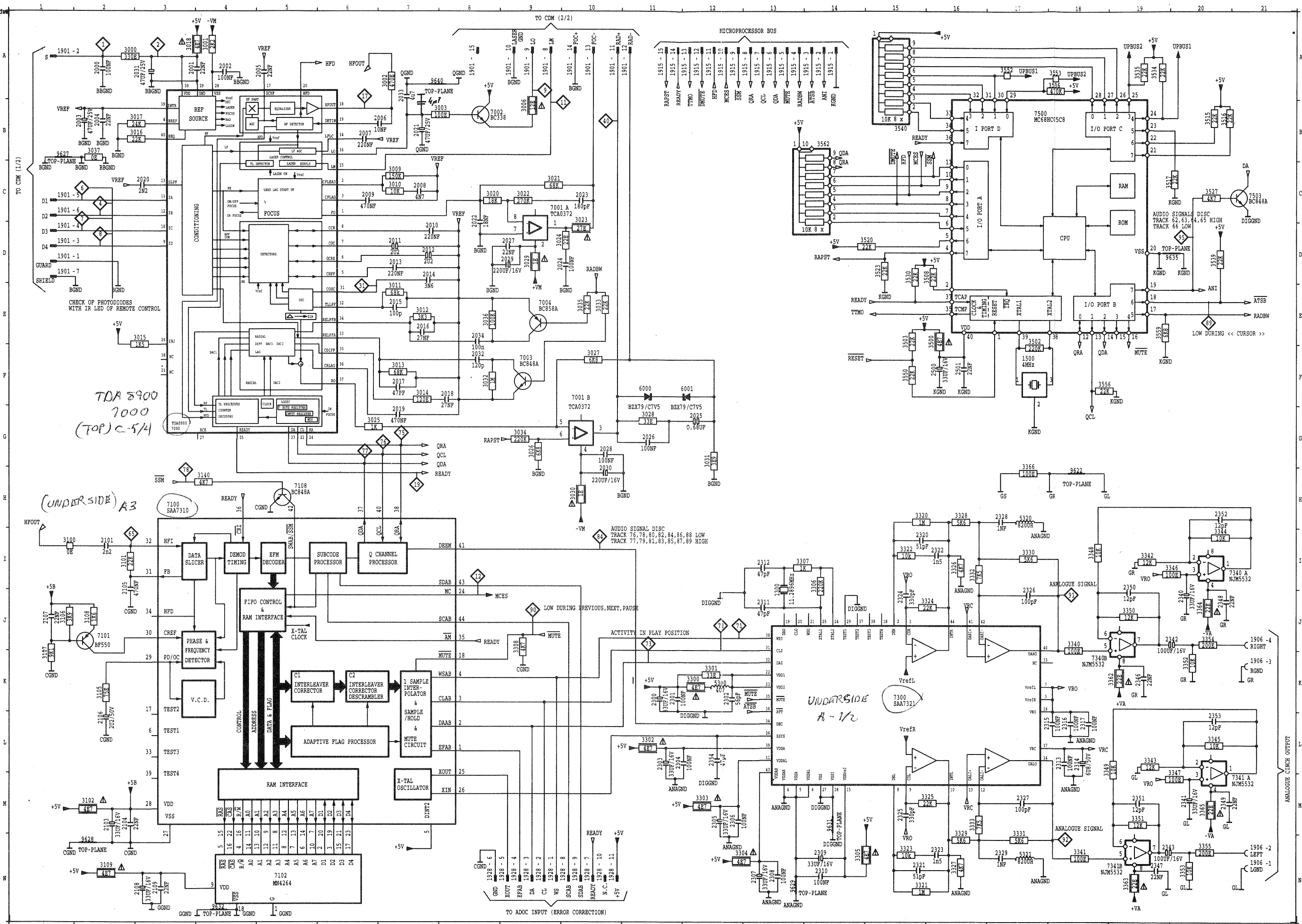
7	-16V
6	GNDB
5	GNDB
4	-10V
3	-16V
2	-10V
1	GNDA

ST2

Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel.(05744) 5050
 Werk Levern:
 Tel.(05745) 280

Schaltplan
 CDM4 SC-Steuerung
 Wiring Diagram
 CDM4 Serial Controller
 0038091





3104 118 00471R_C
3302

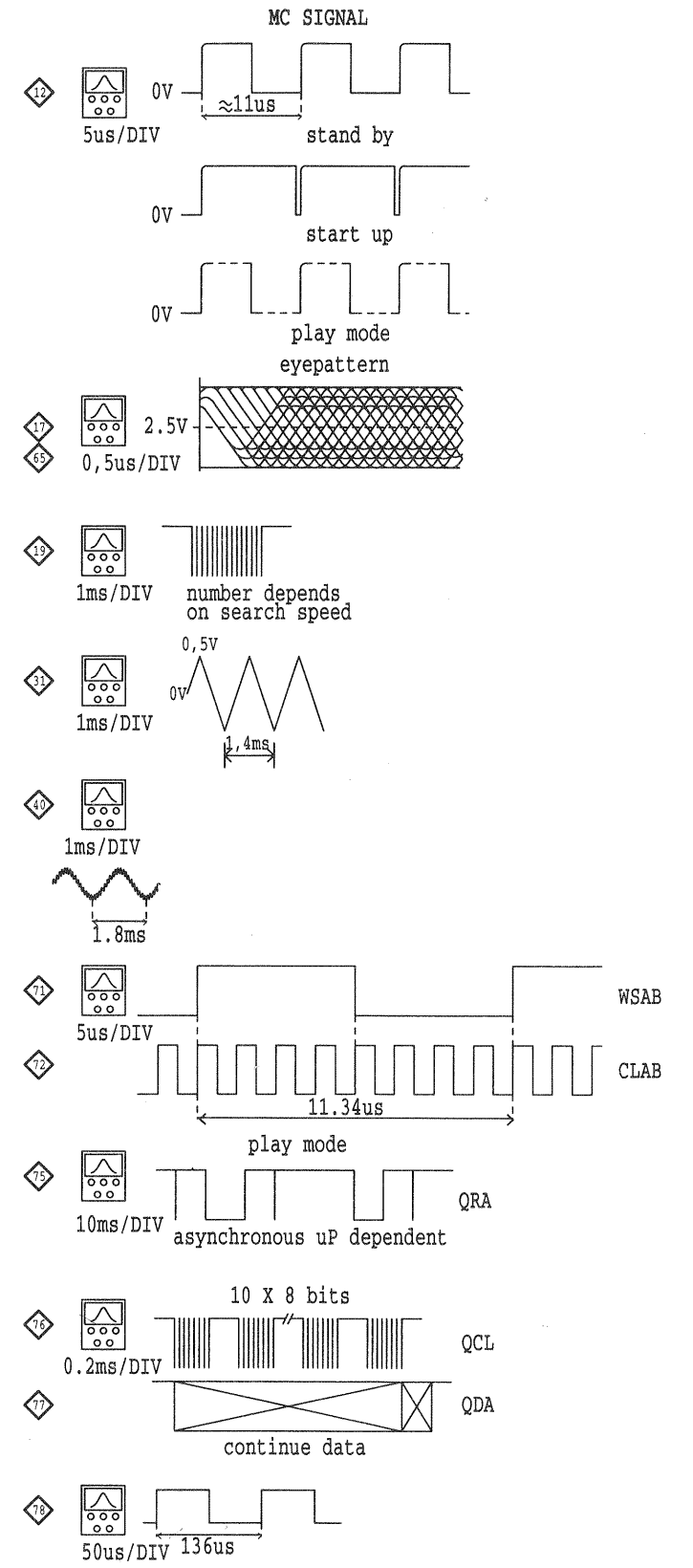
3104 118 00471R_C
3302

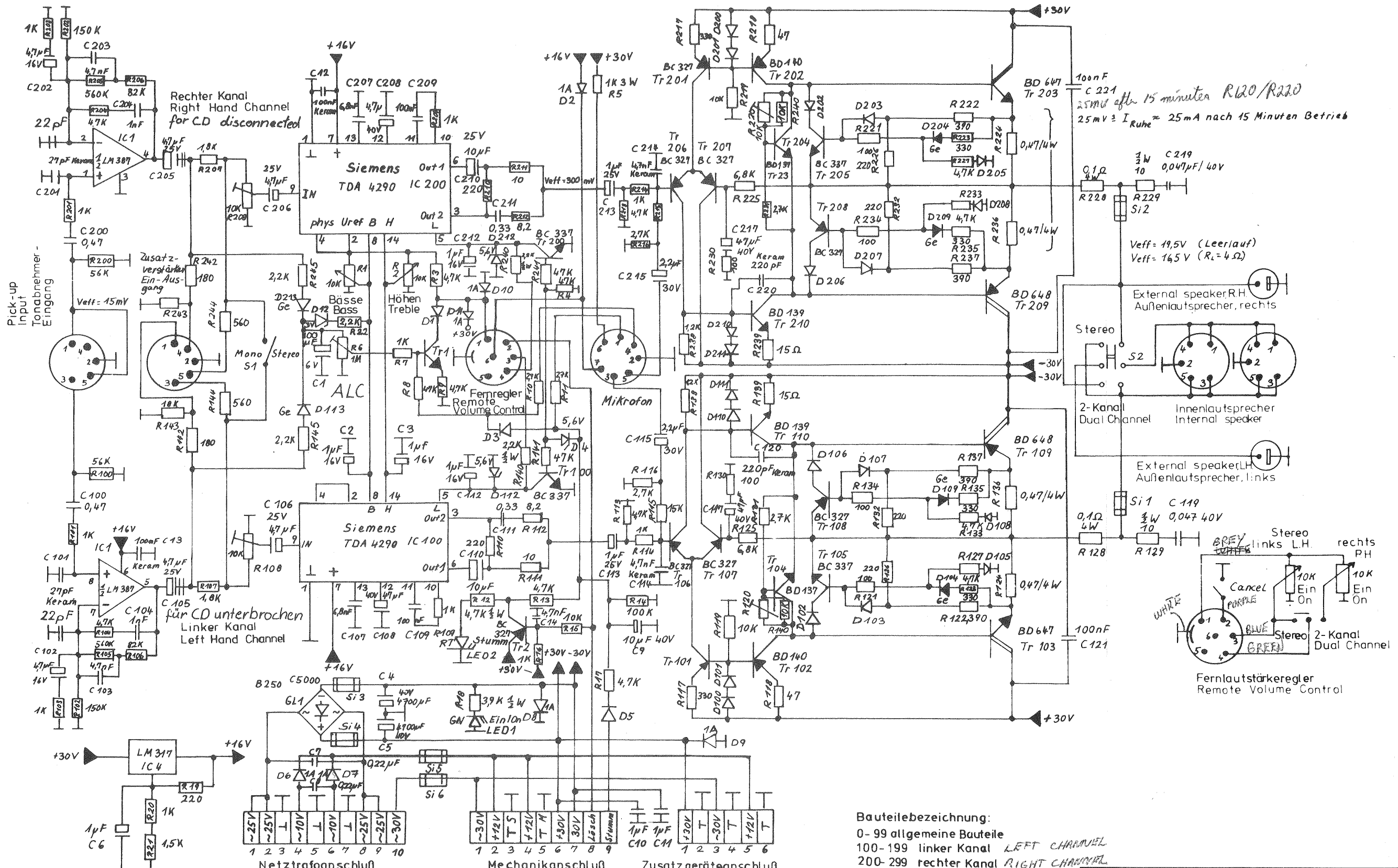
3104 118 00471R_C
3302

3104 118 00471R_C
3302

3104 118 00471R_C
3302

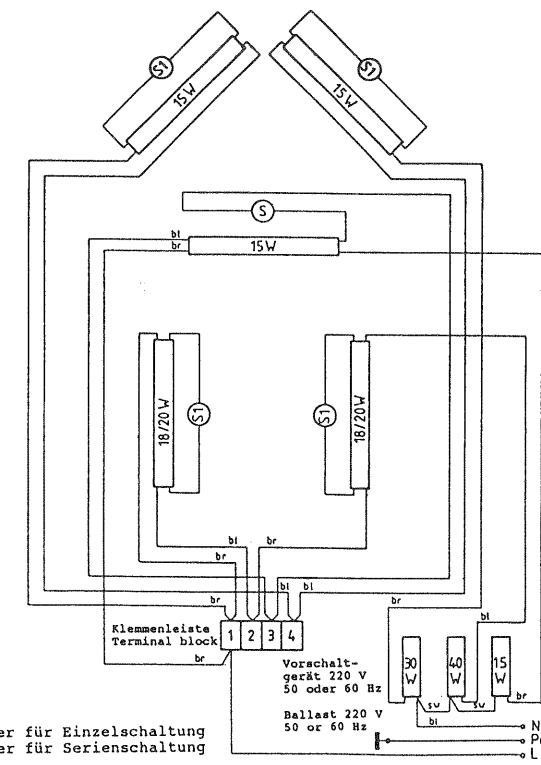
Oszilloskop-Bilder zum Philips Control Board





Bauteilebezeichnung:
 0- 99 allgemeine Bauteile
 100-199 linker Kanal LEFT CHANNEL
 200-299 rechter Kanal RIGHT CHANNEL
 alle Sicherungen T 3,15A FUSES

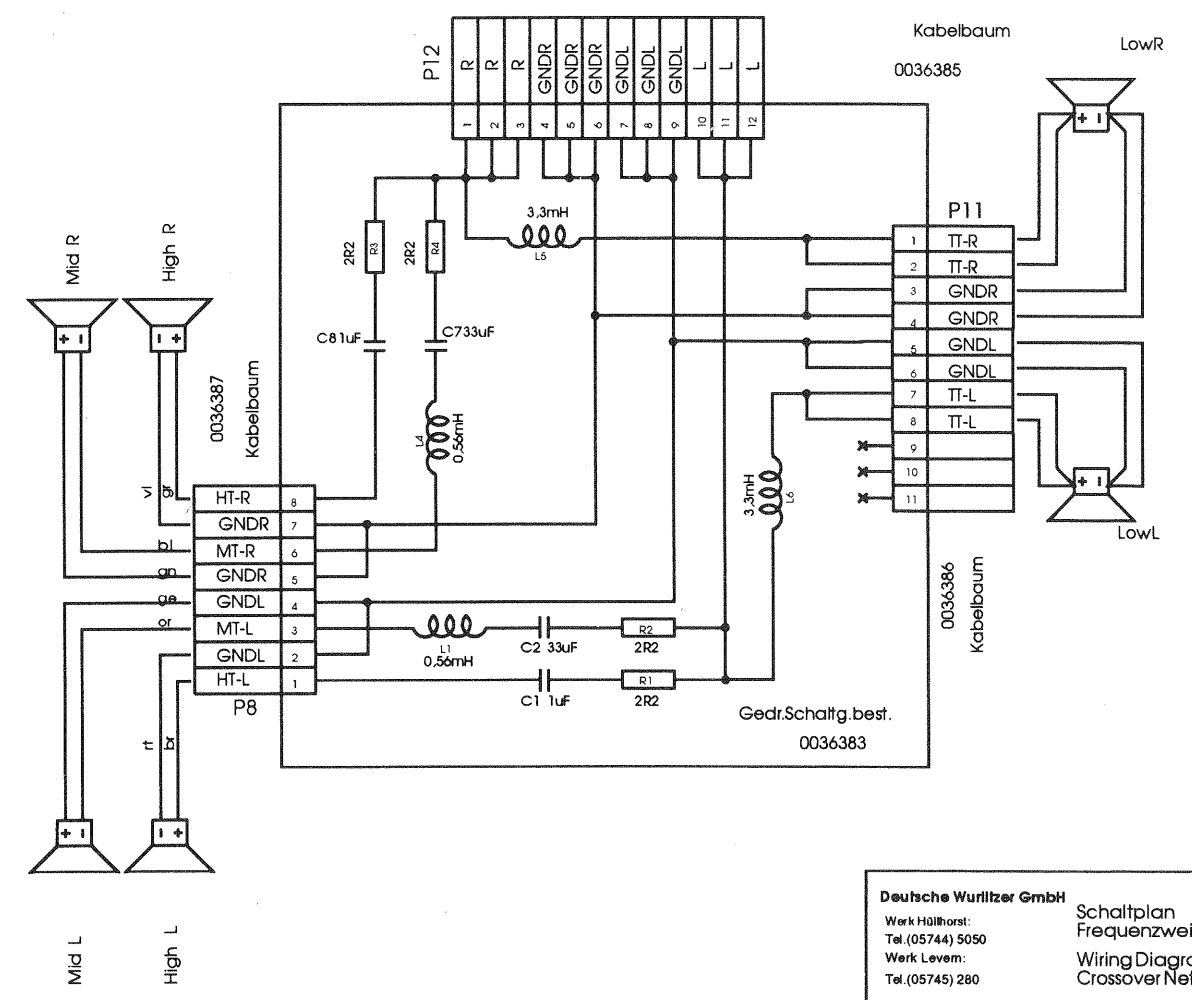
Deutsche Wurlitzer GmbH Wurlitzer PHONOGRAPH
 Werk Hüllhorst:
 Tel. (05744) 5050
 Werk Lavern:
 Tel. (05745) 280
 Verstärker I 84/I 85 Amplifier
 Schaltplan/Diagramm
 4020000400S2



S = Starter für Einzelschaltung
 S1 = Starter für Serienschaltung
 S = Starter for single lamp
 S1 = Starter for 2 lamps series-connected

Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel. (05744) 5050
 Werk Levern:
 Tel. (05745) 280

Schaltplan
 Tür-Beleuchtung OMT
 Wiring Diagram
 Door-Illumination OMT



Deutsche Wurlitzer GmbH
 Werk Hüllhorst:
 Tel. (05744) 5050
 Werk Levern:
 Tel. (05745) 280

Schaltplan
 Frequenzweiche NY, NY
 Wiring Diagram
 Crossover Network NY, NY