

Maximum Power Output Connections

The maximum power output of the amplifier is 2x200 W music power at 2 ohms.

The following is an example of how to connect external loudspeakers to the "CD GALAXY": The phonograph itself consumes (when directly connected at 5,5 ohm impedance) 2x70 watts.

Therefore, 2x130 W is still available for external loudspeakers.

For example, two 4-ohm loudspeakers each can be connected to Terminals 0-5 (see diagram) or four loudspeakers (with 4 ohms each) can be connected to Terminals 0-4.

Example for connection of wallboxes or Hide-Away's

If loudspeakers with 4 ohm are connected directly to a wallbox or Hide-Away, the consumption is 100 watts; therefore there is only 100 watts left for the loudspeaker connected to the transformer.

Connection for Lower Phonograph Output Power

When full power is not required from the phonograph, it can be connected to the corresponding terminals of the transformer and external loudspeakers can then be connected directly to the output amplifier for higher output.

70 V - High Voltage Output

Additionally, the transformer also has a 70 V high-voltage output (A1-B1/A2-B2) for each channel.

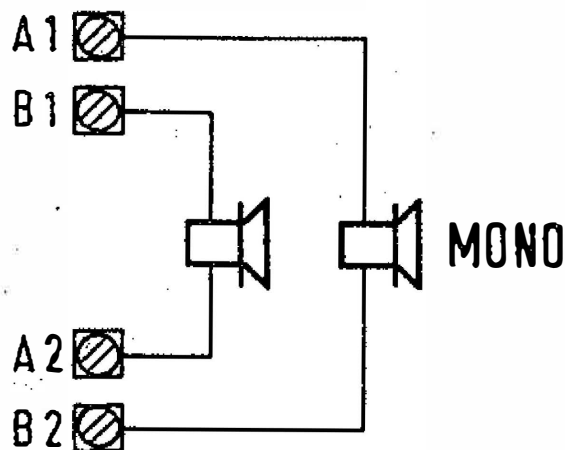
These features are provided for operation of a widespread external loudspeaker system whereby the higher voltage keep the line losses low. Only loudspeakers with input transformers (so-called high-impedance loudspeakers of 50 ohms upwards) can be connected to this terminal. these outputs also provide a maximum of 100 W music power each, e.g. two 50 W loudspeakers (200 ohms) can be connected to each channel.

Lautsprecher-Impedanz Loudspeaker-Impedance	Ausgangsleistung Output power	A1-B1 A2-B2
50 Ohm	100 W	
100 Ohm	50 W	
150 Ohm	35 W	
200 Ohm	28 W	
250 Ohm	20 W	

The total wattage of all remote loudspeakers connected to one channel of the output transformer (whether low impedance, high impedance or combined) may not exceed max. 130 W.

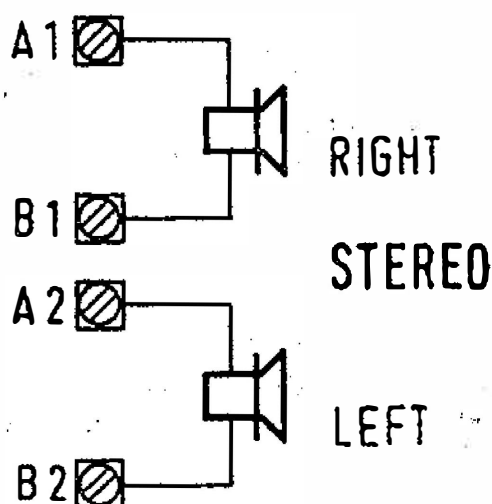
HV - MONO Mode

Since the high-voltage coils are connected with their center, a loudspeaker connected to A1-B2 or B1-A2 radiates sound from both (stereo) channels; for this mono mode no special NF-coupling of the channels is necessary, coupling is provided by the transformer.



HV - STEREO Mode

If the loudspeakers are connected to A1-B1 or A2-B2, stereo mode is possible, but without NF-coupling of the channels.



TROUBLE SHOOTING FOR NSM-PHONOGRAPHS

ES IV-CD TECHNOLOGY

to
Technical Information, Assy

174 903	SILVER CITY
174 831	SILVER SKY
174 486	FASCINATION
175 274	SOUNDMASTER
175 040	FIREBIRD/COUNTRY
176 046	THE PERFORMER "GRAND"

NSM
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1 TROUBLE SHOOTING

1.1 Description of malfunction/cause

DESCRIPTION	CAUSE
Phonograph illumination and LED's in central unit/CD supply do not light up.	<ol style="list-style-type: none">1. Power cord2. Main switch3. Power fuse (switch plate/fuse box)
Phonograph illumination okay, LED's in central unit do no light up.	<ol style="list-style-type: none">1. Plug connection ST 200 of central unit2. Fuses Si 201-205 of central unit3. Power transformer connection
Luminous effect lights do not light phonographs with light generator).	<ol style="list-style-type: none">1. Fuse T 8 A on switch plate2. Fuses Si 701-703 as well as3. Plug connection of luminous effects PCB
Fan for output stage does not run while disc is playing.	<ol style="list-style-type: none">1. Plug connection ST 2092. Triac TIC 200.3. Transistor T 204/205.
+5 V; 15 V-LED's in central unit do not light up or are darker Fuses are okay.	<ol style="list-style-type: none">1. Voltage regulators VR 201-203 in central unit defective2. Short circuit in connected units. (Pull plugs one after another and observe LED's).
No tone signal at loudspeaker even though a CD is playing and the volume is switched on.	<ol style="list-style-type: none">1. loudspeaker connection2. Plug connection of frequency network and output transformer3. Interruption on signal wire (plug connection "ST" 4-pol. of central unit to "ST 2" on changer adapter, from "ST 3" on changer adapter to decoder board).
Volume reduced by electronic protection device.	<ol style="list-style-type: none">1. loudspeaker mismatch (less than 2 ohms impedance) due to remote speakers.2. Transistor T 252 defective.3. Output transistor defective.4. Control unit defective.
Poor bass reproduction.	Loudspeaker connections reversed.
Er xx-display.	See "Error Displays".

1.2 Error Displays

Displays		Possible Causes	Corrections
2	3		
Er	01	EPROM contents (CONTROL UNIT) interrupted.	Change EPROM (IC 2).
Er	10	RAM (CONTROL UNIT) defective.	Change RAM (IC 3). After that reprogram all program steps (P20-P56).
Er	11	RAM contents (CONTROL UNIT) short-term disturbance.	No correction necessary; program is reinitialized. Change RAM IC 3 if frequently occurring.
Er	20	Verification errors in program (CONTROL UNIT).	No correction necessary; program is reinitialized. Change CPU IC 1 if frequently occurring.
Pxx	Er 30	Memory contents (CONTROL UNIT) invalid.	No correction necessary; program step Pxx (in Display 1) is automatically reprogrammed.
Pxx	Er 31	Memory contents (CONTROL UNIT) invalid or not programmed.	Service step Pxx shown in Display 1 must be reprogrammed.
Pxx	Er 40	Wrong price setting.	Check price setting and, if necessary, reprogram (P41-P45, check sequence).
Er	50	Coin mechanism defective. Too much credit.	Check coin mechanism.
Er	6x	Error at CD player.	See Er 60 - Er 82. Play interrupted after error.
Er	60	Error before playing CD (track selection). No supply voltage present for decoder or player.	Exchange decoder board, microcomputer T01B on pickup driver (IC 8). Check primary fuse in CD transformer.
Er	61	No CD recognized by player. No CD in CD tray, CD defective. Player defective. Decoder board defective. No supply voltage present for decoder or player.	Check CD and exchange if needed. Laser player (CDM-3). Exchange decoder board. Check primary fuse in CD transformer.
Er	62	Error after playing CD (stop).	As in Er 60.
Er	63	Track cannot be played (CD defective) or choosing a track number which is too high (error display appears only during continuous test P60/3 or P60/4; during regular operation track No. 1 is played when choosing a track number which is too high).	Exchange CD, check track selection.
Er	7x	Malfunction on CD changer.	See Er 70 - Er 78. If error display does not disappear after 2 sec., error cannot be automatically corrected. No CD will be played until cabinet switch or "power on" is activated.
Er	70	CD tray after playing CD incorrect in pickup.	Check function of light barriers OPPUM, OPGR1, OPGR2.
Er	71	Error during grip from left-side magazine.	Check alignment from magazine to pickup assy and adjust if necessary. Check function of light barrier OPPUM.
Er	72	Error during grip from right-side magazine.	As in Er 71.
Er	73	Error during replacing in left-side magazine. Malfunction of left grip lever.	Check alignment of magazine to pickup assy and adjust if needed. Check function of grip. Check function of light barrier OPGR1.
Er	74	Error during replacing of right-side magazine. Malfunction grip lever.	As in Er 73. Check function of light barrier OPGR2.
Er	75	Malfunction during lift drive.	Check lift for jamming. Check function and correct adjustment of light barrier OPSTP (drive wheel).
Er	76	End position of lift not o.k.	Check function and adjustment of light barrier OPEND.

Displays			Possible Causes	Corrections
1	2	3		
Er	80	Short circuit on wallbox signal wire.		Check wallbox connection.
Er	90	Title display, three blocking in sequence, not functional anymore.		
Er	91	Blocking title display, gripper left.		
Er	92	Blocking title display, gripper right.		Blocking remedy.
Er	93	Blocking title display, stack left.		
Er	94	Blocking title display, stack right.		

The memorized values of program steps P20 to P58 are checked after each "power on" and by activating the cabinet switch.

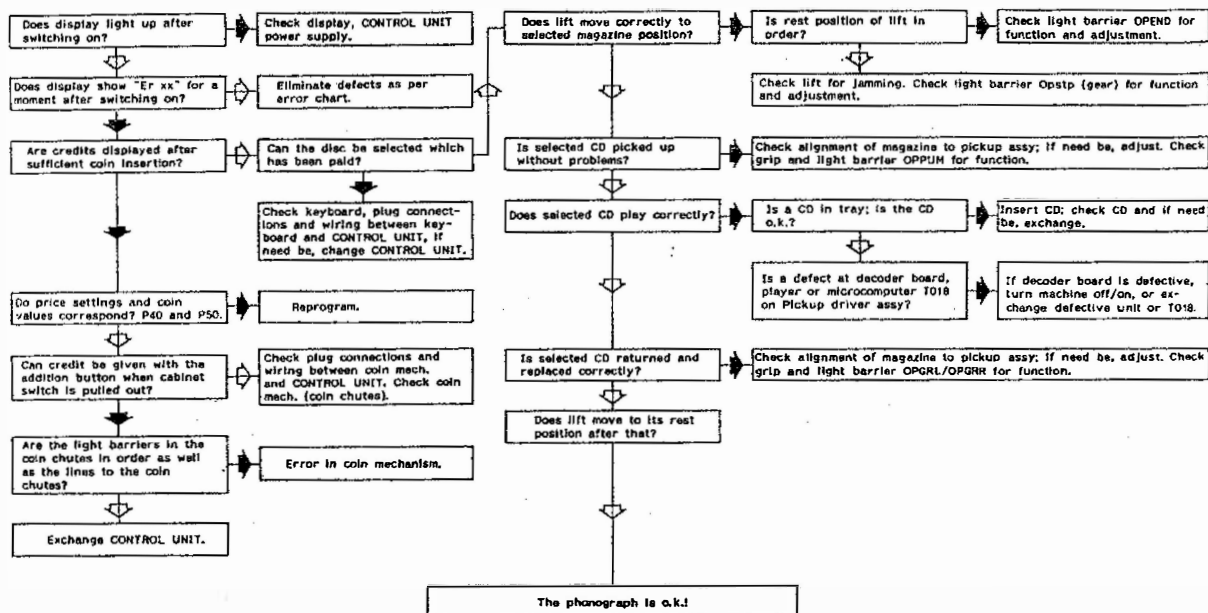
An error on the programmable memory area the corresponding program steps is show on Display 1; Pxx Er 31; the "error" lamp flashes.

After the phonograph is turned on, the malfunction display in Display 3 and the flashing of "error" remains visible for 2 sec. After that the phonograph is operational; without regaring the malfunctioning program step, though.

By using serv.-progr.-step P62, the last 10 error codes can be called; see "service programs" pt. 1.5.7.

1.3 Trouble-Shooting Chart for NSM Phonographs ES-IV/CD Technology

Conditions: Line voltage present, line connection and power supply in order.



□ : ja
 ◆ : nein
 Compare also 1.2 "Error Displays".

ACCESSORIES

FOR NSM-PHONOGRAPHS

ES IV-CD TECHNOLOGY

to
Technical Information, Assy

174 903	SILVER CITY
174 831	SILVER SKY
174 486	FASCINATION
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176 046	THE PERFORMER "GRAND"

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1 MICROPHONE WITH PHONO SWITCH

Connection via microphone socket to the central unit.
Microphone announcements are possible in any phonograph mode.

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

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

Connection cable with plug and microphone socket-length 10 m or 25 m (Part-No. see Spare Parts List in "Technical Instructions").

2 REMOTE CONTROL WALL BOXES

FIRESTREAM	w. Title indication I	FIRE STORM	w. Title indication II
CARAVELLE I	w. Title indication I	CARAVELLE II	w. Title indication II

For connection to NSM phonographs in CD technology. Connection Adapter belongs to the equipment. (Part-No. see Spare Parts List in "Technical Instructions"). Detailed installation instructions are included in the adapter kit.

3 REMOTE CONTROLS

3.1 Infrared Remote Control

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

(Part-No. see Spare Parts List in "Technical Instructions").

3.2 Remote Control with Cable

The connection points are illustrated in the wiring diagram and described in unit description "REMOTE CONTROL".

(Part-No. see Spare Parts List in "Technical Instructions").

4 TAPE RECORDER CONNECTION CABLE

Connection for tape recorders with DIN input and output.

Connections for additional amplifier.

(Part-No. see Spare Parts List in "Technical Instructions").

5 OUTPUT TRANSFORMER with cable

Significantly expanded adaptation capabilities and low line losses with 70 V output. (See Unit description "OUTPUT TRANSFORMER").

(Part-No. see Spare Parts List in "Technical Instructions").

6 CASH COUNTER

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

(Part-No. see Spare Part List in "Technical Instructions").

7 DATAPRINT

The printer is intended for connection to NSM phonographs ES IV-CD Technology. A detailed description is included with the printer. Putting in the paper roll and color ribbon are described in detail in the "TECHNICAL INSTRUCTIONS" for the DATAPRINT.

7.1 Data Transfer and Memorizing

- Turn on service program by opening cabinet and pull out cabinet switch manually, Display 1 "P01".
- Put in printer connector into "Service Socket" of the Control Unit.
- Enter "C", Display 1 "P".
- Enter "11" and "H", Display "P11".
- Enter Code "1" and "H".

Counters P03 to P08 as well as popularity are transferred.

Note: Display 3 "E0" appears if an error occurs during data transfer. Counters P03 to P08 as well as popularity are reset after successful data transfer.

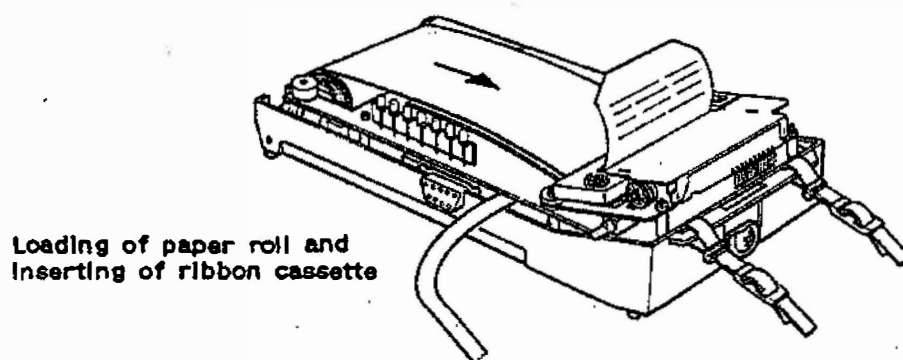
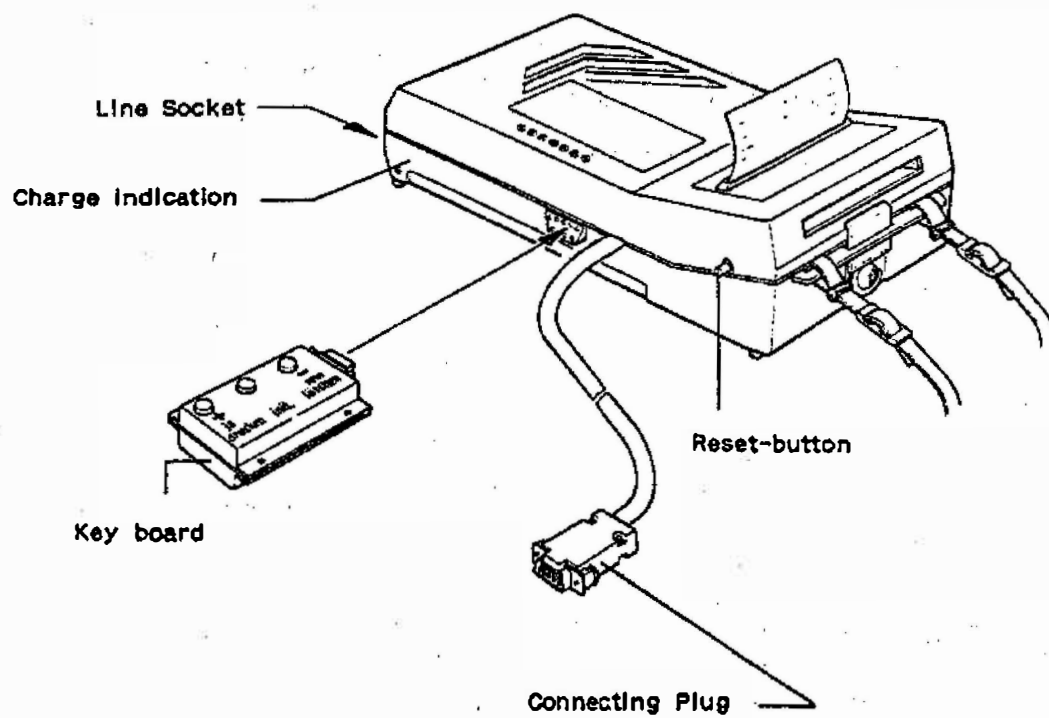
7.2 Transfer to Printer

- Switch on service program by opening cabinet; if needed, pull the cabinet switch manually, Display 1 "P01".
- Plug printer connector into socket of Control Unit.
- Enter "C", Display 1 "P".
- Enter "12" and "H", Display 1 "P12".
- Enter code for the desired print-out and press "H".
 - "1" and "H" = Counters (P03 to P08)
 - "2" and "H" = Counters and settings (P03 to P08, P21 to P37, P39)
 - "3" and "H" = Counters and popularity (P03 to P08, P01, P02)
 - "4" and "H" = Counters, settings and popularity (P03 to P08, P21 to P37, P39, P01, P02).

Note: When a popularity counter has reached value 200, all popularity counters are divided by half of the amount. After dividing the popularity printed out is relative; the number of divisions appears in the printout: "RELATIVE 000" to "xxx".

If the printer does not start, "E0" appears in Display 3.

DATAPRINT



8 CD-AUDIO CONNECTION

To connect an amplifier directly to the output of the CD changer an PCB CD-AUDIO (Part-No. 174 648) is available.

The NF cable on the AUDIO PCB is to be plugged into the "CD" plug of the Central Unit. The cable from the CD changer is to be plugged into the PCB "CD-AUDIO".

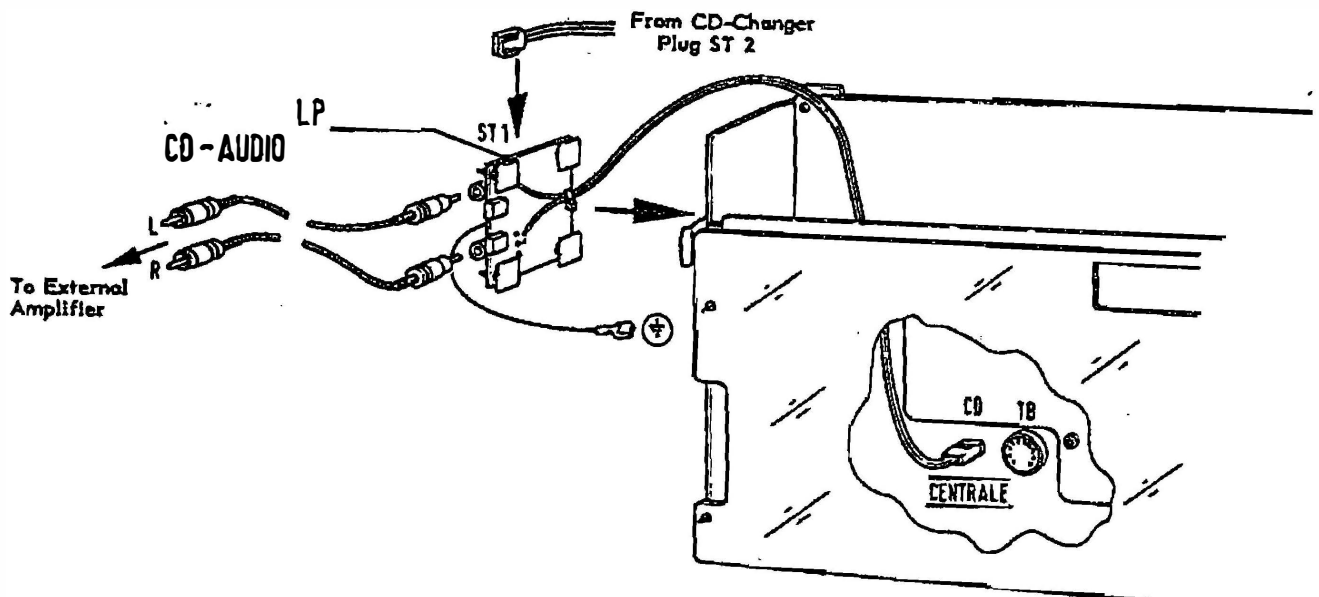
The CD AUDIO PCB is to be fastened with 4 distance holders. The following sketches show possible mounting points.

Ground has to be connected to the metal housing or with wood housings to the next grounded piece of metal.

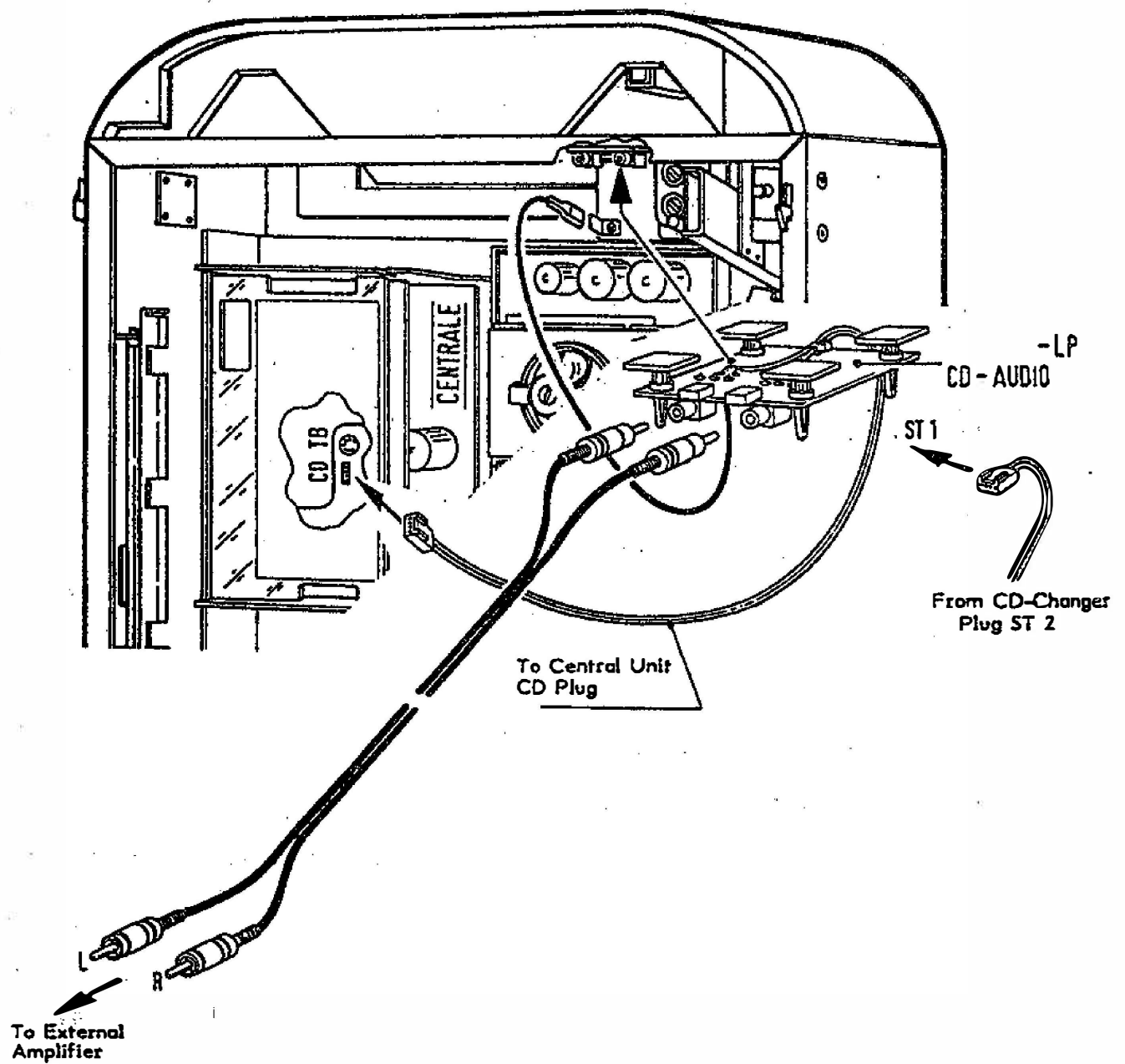
To connect the external amplifier to the CD AUDIO high-grade connecting cables with RCA plugs on both ends are available.

Stereo cable set (2 m) Part-No. 227 533

8.1 Installation in NSM-Stand Phonographs



8.2 Installation in NSM-Wall Phonographs



9 INTERFACE PCB CD100-RS 232 FOR NSM CD CHANGER

With the newly developed interface PCB CD100-RS 232 NSM phonographs can be controlled and evaluated with almost any computer.

9.1 The following commands are understood and executed:

10-key keypad 0 to 9	- Selection via keypad
B	- Background
C	- Selection as via keypad
D	- Display request
F	- Free credit
H	- Selection as via keypad
M	- Muting
R	- Reject
U	- Vol I -
V	- Vol I +
W	- Vol II -
X	- Vol II +
Y	- Vol I/II -
Z	- Vol I/II +

9.2 Acknowledgements:

Wrong commands ?x (x = incorrectly received command)
D (display read-out) !VWWWYYZZZZ
 V = lighting status = 010vvvv
 :::+- L1 error-press C
 :::+- L2 your selection
 ::+--- L3 credit
 :+---- L4 10 top hits
 +----- L5 background plays
 W = In ASCII disc/track of playing title
 Y = In ASCII credits
 Z = Just selected title or chart in ASCII

 (WWWYYZZZZ correspond to display of
 phonographs).

9.3 Transfer Format:

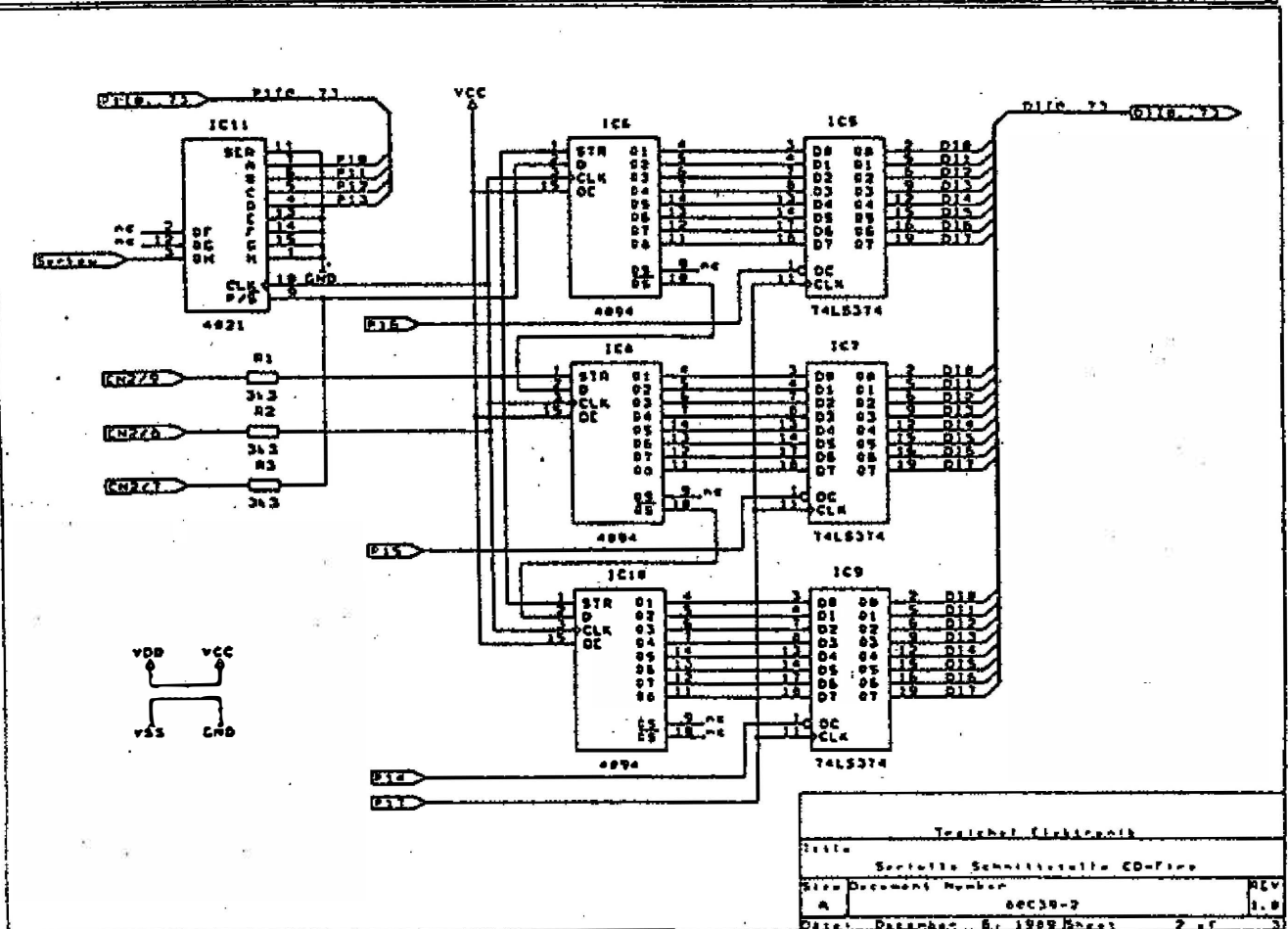
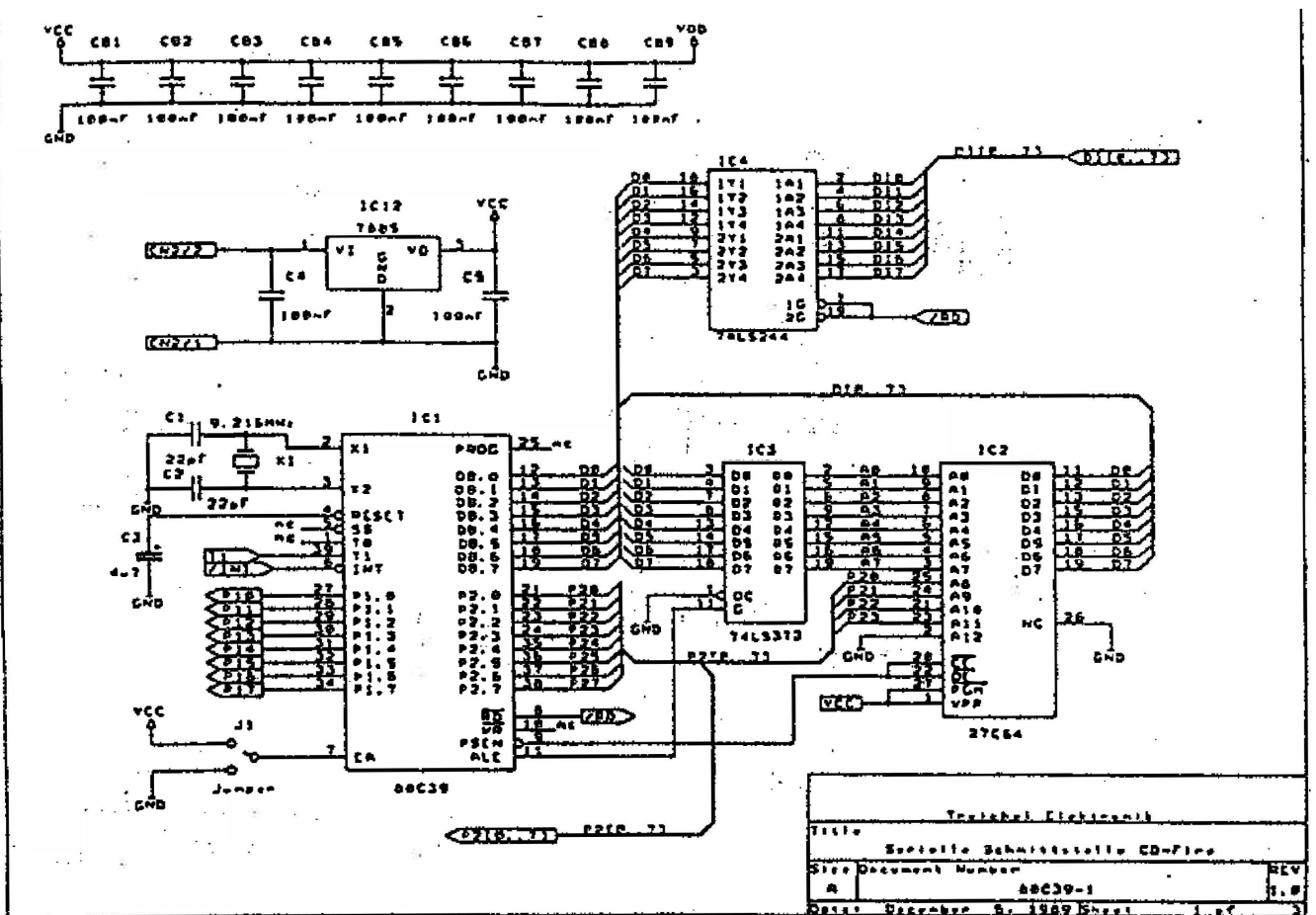
RS 232 with V 24 drivers, 1200 Bd, 1 start bit, 8 data bits, 1 stop bit, no parity handshake via CTS and DTR no XON/XOFF, RTS is not evaluated, DCD is not connected, DSR is always on + 10 volt.

9.4 Connection Plan:

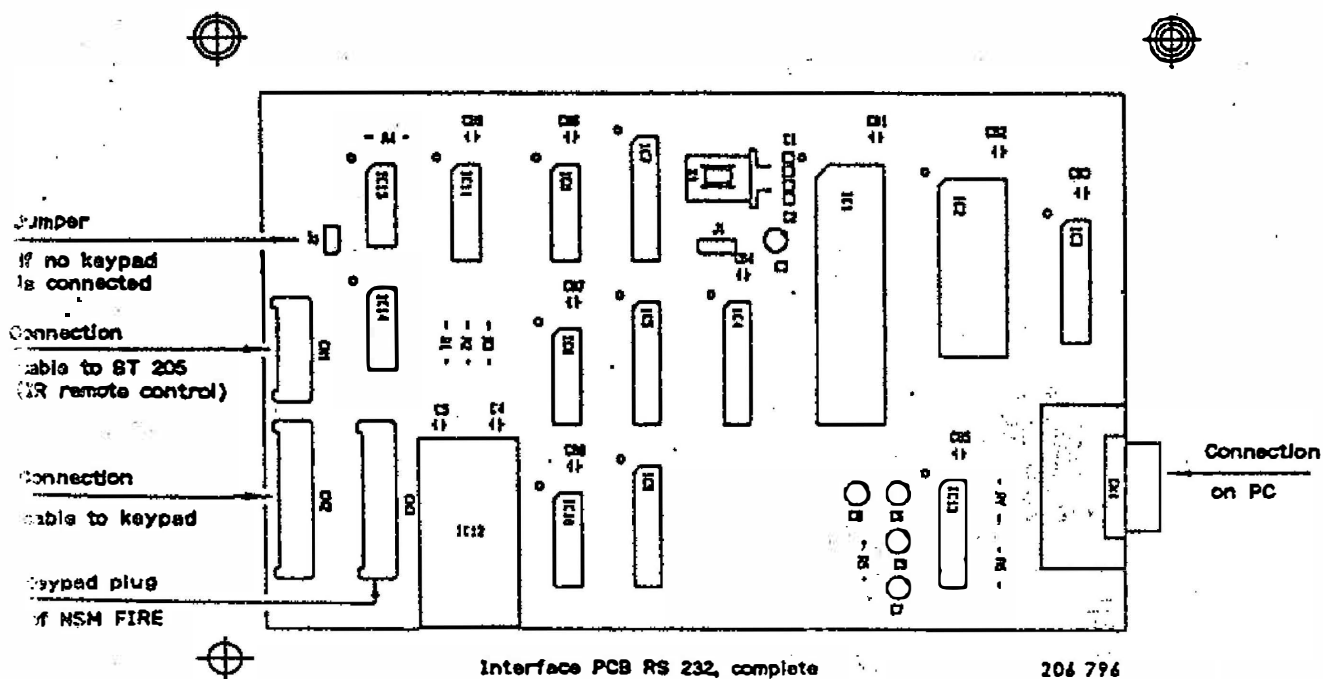
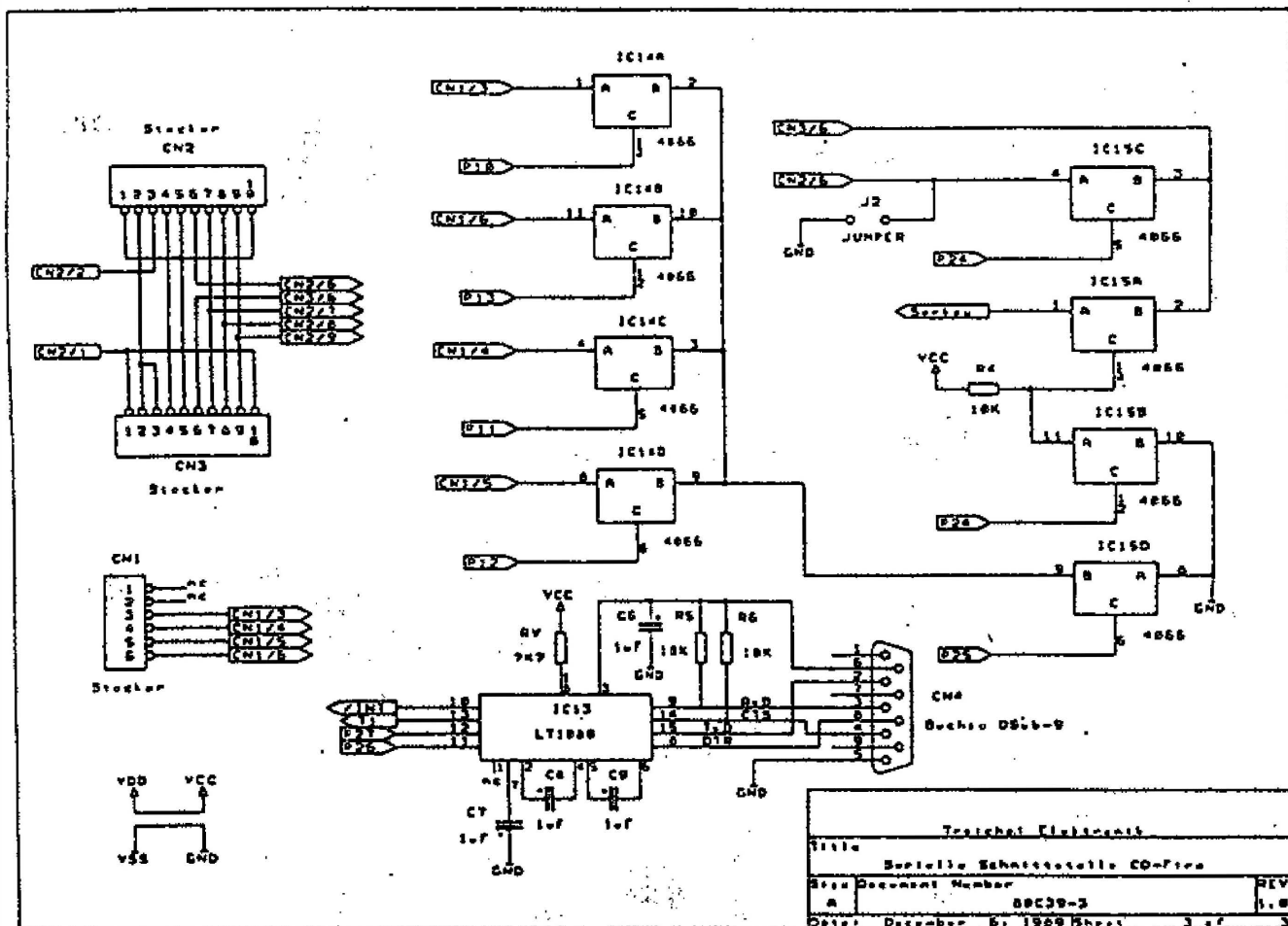
1 free (DCD), 2 TX, 3 RX, 4 DTR, 5 GND, 6 DSR7 free (RTS), 8 CTS, 9 free.
To connect to the 9-pole RS 232 plug of an AT compatible PC, a 1:1 connection with plug/socket (i.e. monitor extension cable, flat wire) is sufficient.

9.5 Power Supply

Supply (via keypad connection on CD box) 8 to 12 volt, 0,25 A.



Schematics of interface PCB



DOLLAR BILL ACCEPTOR

-FOR USA ONLY-

174 903 / 174 831 / 174 486 / 175 274 / 175 040 / 176 046

1511

CHUTE
SIDE VIEW

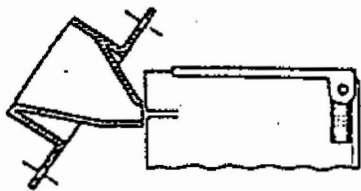


Fig. 1

S.COM

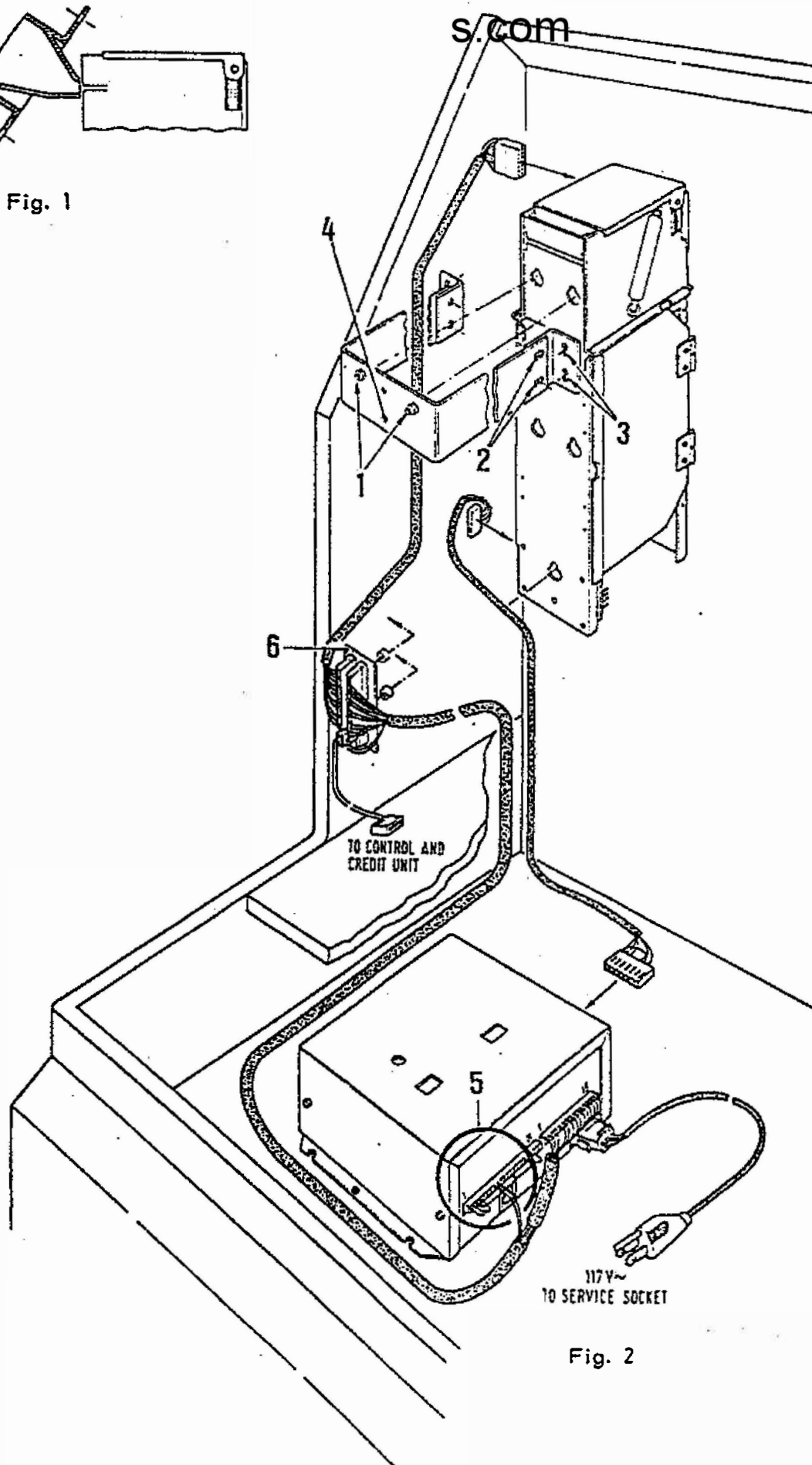


Fig. 2

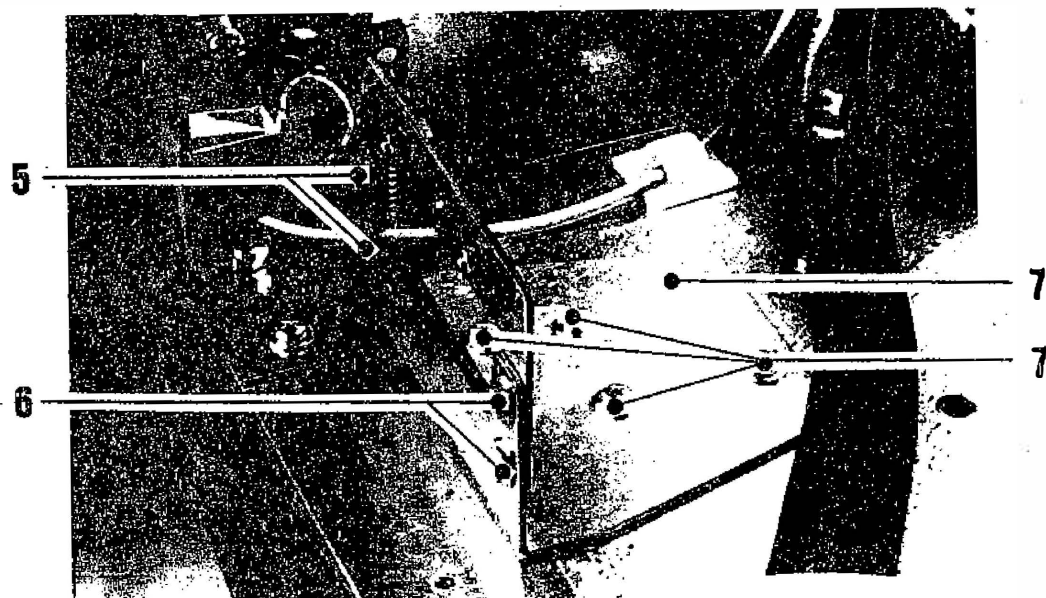
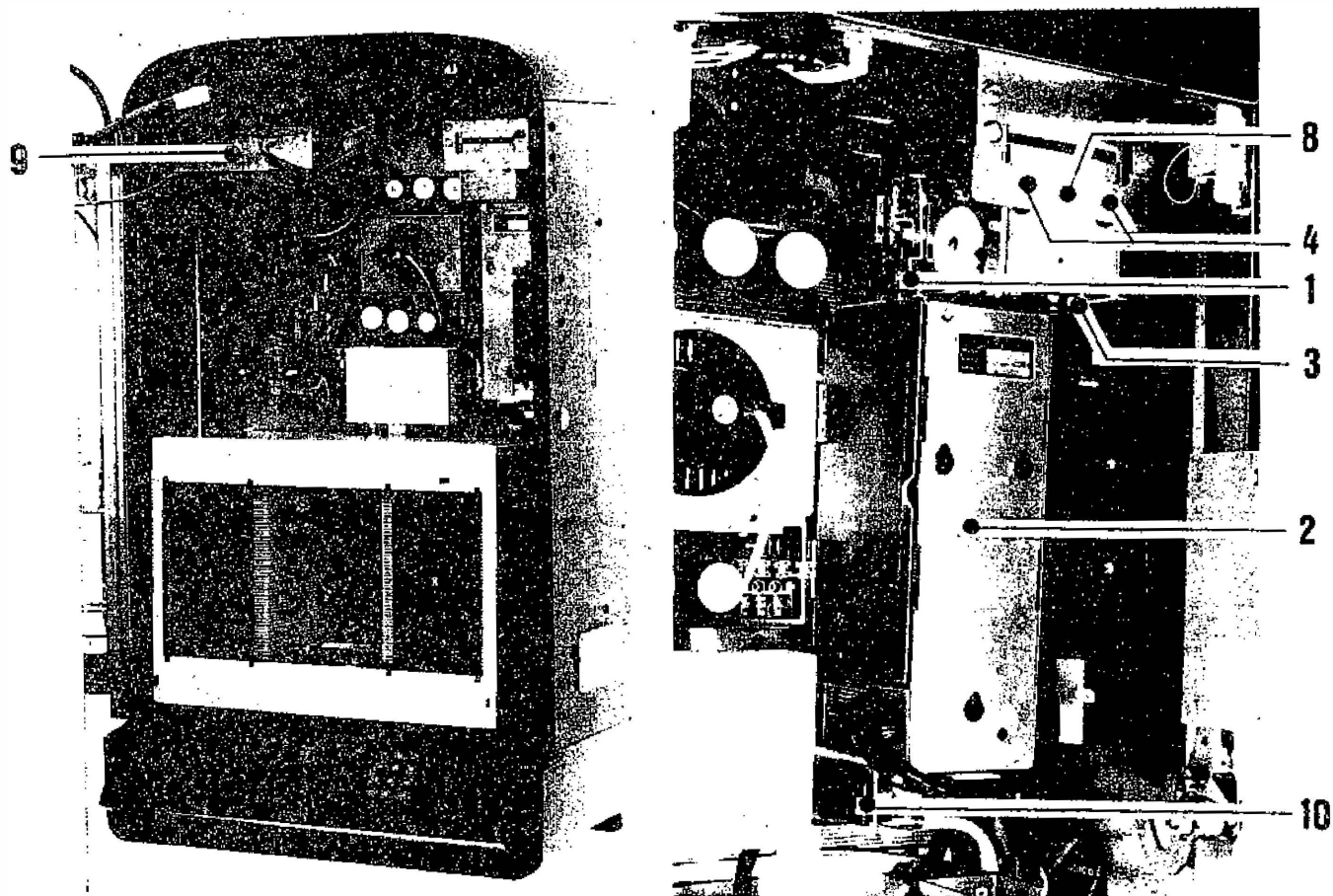
10 DOLLAR BILL ACCEPTOR -ARDAC MINI- (only for USA)

10.1 Installation Instructions for Dollar Bill Acceptor in NSM CD- Stand Phonographs.

- Install chute in place of cover in lid (see Fig. 1).
- Hang dollar bill validator into the 2 attachment studs (Fig. 2 / Pos. 1).
The unit must be installed so that it does not interfere with the lid when closing - however, the chute must close tightly to the dollar bill validator.
The depth can be adjusted at Fig. 2 / Pos. 2.
The height should be adjusted at Fig. 2 / Pos. 3 so that the dollar bill validator is aligned with the chute in the lid and is guided exactly into the acceptor slot (Fig. 1).
Secure dollar bill validator with sheet metal screws F 3.9 x 6.5 at Fig. 2 / Pos. 4.
- Install dollar bill adapter PCB (Fig. 2 / Pos. 6) on 2 spacers with wood screws to the left inside of cabinet.
- Put 2 contacts from the harness (as can be seen in Fig. 2 / Pos. 5) into Plug Housings 6 and 7 of the 21-pole plug.
- Mount dollar bill electronic (control box) as shown in illustration.
- Make plug connections from dollar bill adapter PCB to the acceptor to the control unit and to the control box; plug connection cable from control box into plug; plug in control box into service socket.
- Program price setting (plays/monetary value) in program step 45, e.g. "07 100" = 7 plays / 1 dollar).
- Program monetary value in Program Step 45, e.g. "07 100" = 7 plays / 1 dollar.
- Program monetary value for Channel 5 in Program Step 55; e.g. "100" = 1 dollar.

STACKER INSTALLATION in "THE PERFORMER GRAND"

- For the installation and de-installation of the stacker the dollar bill acceptor has to be removed from the phonograph and connected with the stacker.
Then the dollar bill acceptor has to be installed together with the stacker. For de-installation the sequence is reverse.



10.2 Installation instructions for Dollar Bill Acceptor in NSM CD-Wall Phonographs

- Pull up latch (Pos. 1) and adjust stacker (Pos. 2) so it is positioned vertically under the acceptor (Pos. 3).
- Hang dollar bill validator into the 2 studs (Pos. 4). The unit must be installed so that it does not interfere with the lid when closing - however, the chute must close tightly to the dollar bill validator. The depth can be adjusted by loosening the three screws (Fig. 5) and by moving the bracket. The height can be adjusted by loosening the four screws (Fig. 7) and moving in a vertical direction; bill validator must be aligned with the chute in the lid and guided exactly into the acceptor slot.
- Secure dollar bill with screw M 4 at Pos. 8.
- Move stacker backwards into its final position until the latch (Fig. 1) locks in at the second position.
- Put the 2 contacts from the harness, as seen in Fig. 9, into plug housings 6 and 7 of the 21-pole plug.
- Mount dollar bill electronic (control box), as shown in illustration, at the top of the cabinet. First push it into rear guide studs, then mount the front side with two screws. The plastic discs serve as spacers between the control box.
- Make plug connections to the acceptor, to the stacker and to the control box. Plug power plug from control box into service socket (Fig. 10).
- Program price setting (plays/monetary value) in program step 45, e.g. "07 100" = 7 plays / 1 dollar.
- Program monetary value for channel 5 in program step 55, e.g. "100" = 1 dollar
- Lay harnesses so that they do not hinder other units!